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AQUATIC HABITAT AND INSTREAM FLOW INVESTIGATIONS

DRAFT SUBJECT REPORT

ALASKA DEPARTMENT OF FISH AND GAME

SU HYDRO STUDIES

1981

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V. INTRODUCTION

This initial Aquatic Habitat and Instream Flow (AH) report is one of a series of subject reports representing first stage data reduction of Phase I (July 1, 1980-October 31, 1981) fisheries and habitat information collected by the Alaska Department of Fish and Game (ADF&G) Susitna Hydroelectric (Su-Hydro) Aquatic Studies Program. Information from this and the other Phase I subject reports (Adult Anadromous, AA; Fishery and Resident and Juvenile Anadromous Fishery, RJ, reports) will be synthesized and integrated into a Phase I Final Report. The Phase I Final Report will be forthcoming in February 1982 and will present the relationships drawn from the respective ADF&G subject reports above and reports of others containing information relevant to the assessment of the proposed Susitna Hydroelectric project impacts on fisheries.

Realizing the need for these habitat data by Acres American and its various subcontractors to enable them to meet their respective report deadlines, portions of the data contained herein were previously distributed upon request in preliminary form.

Existing information on the fishery resources and aquatic habitat within the Susitna River drainage ranges from the most fundamental and generalized to localized and specific data on species managed by the Department in areas where competition for these species is keen. It should be noted, however, that information on all species in the Susitna River drainage, even those studied in greatest detail, is still largely preliminary. Moreover, data on <u>all</u> species present in the area, including data on their interrelationships with other species and with their physiochemical surroundings are essential for determining the impacts of the proposed Su Hydro dams on the fishery resources.

Prior to the initiation of the Phase I Su Hydro Aquatic Study Program, the ADF&G collected baseline data on fisheries and habitat between 1974 and 1977 (ADF&G 1974, 1976, 1977, 1978) to enable the ADF&G to design the necessary studies for determining the impacts of this proposed project on the fishery resources. The initial comprehensive five year Plan of Study was submitted to the Alaska Power Authority (APA) in 1978. However, studies were not implemented because funding was unavailable. In September 1979, the ADF&G agreed to update and revise the 1978 Plan of Study, submitting it to the APA in November 1979 (ADF&G 1979). The APA provided funding to the ADF&G under a reimbursable sources agreement to initiate this first year of the five year Phase I/II studies in July 1980.

The Susitna River (Figure 1) 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 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. There are also many smaller tributaries which are perennially ice-free. The Susitna River and the major rivers entering Knik Arm represent approximately 70-80% of the total freshwater entering Cook Inlet (Rosenberg et al. 1967).

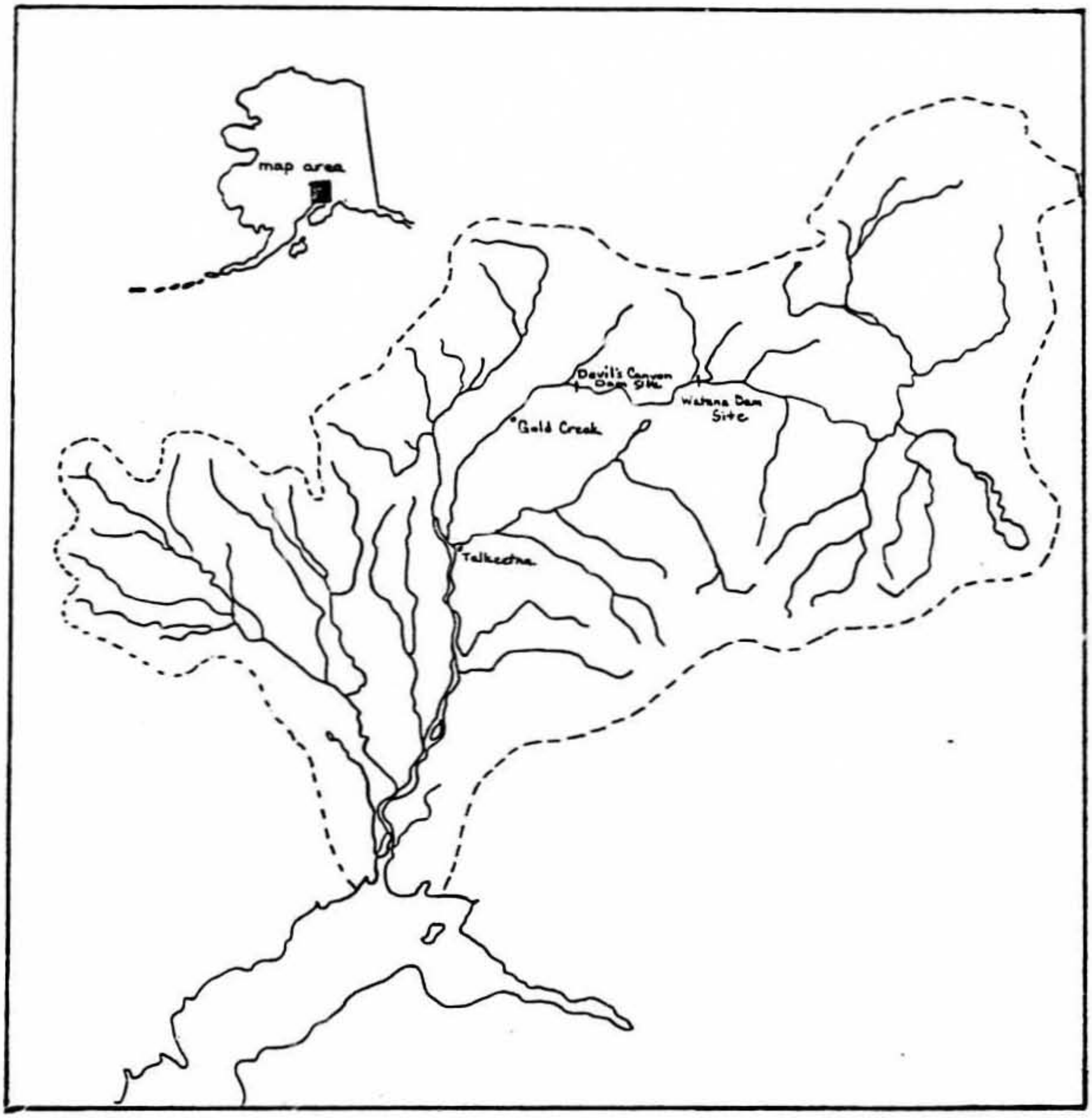


Figure 1. Susitna River drainage.

The proposed Susitna hydroelectric project will have various impacts on the aquatic environments of the Susitna River. The majority of the impacts on fish species will likely result from changes in the natural regimes of the river rather than direct impacts on the fish in the vicinity of the proposed dams. Primary areas of concern are modification of seasonal instream flows,* increased turbidity levels during winter months, and variation of thermal and chemical parameters. Preliminary studies indicate that alterations of the habitat may adversely affect the existing fish populations and render portions of the drainage either non-productive or unavailable in future years (ADF&G 1978; 1979).

Continuously moving water, or current, is the distinguishing physical habitat feature of the Susitna River and its tributaries. Instream flows influence various physical and chemical parameters and biological organisms to create particular aquatic environments in the Susitna River Basin. These include volume, velocity, temporal variation of flows, channel morphology (size, shape, gradient, and geologic material of channel), water quality (temperature, turbidity, dissolved gases, etc.), and stream load (bed load, suspended solids, and other materials, such as watershed inputs, in transport).

Analogous chains of events follow any alterations of instream flow. The altered stream will attempt to establish new equilibrium conditions; and this dynamic process may lead to substantial changes in channel shape, wetted area, substrate characteristics, water quality, etc. Moreover, these changes may be felt as far downstream from the proposed dams as Cook Inlet (Bishop 1975).

* The flow of water which appears in the Susitna River at a given time constitutes the "instream flow".

It is important to remember that the complexity of the physical interactions outlined above is compounded by the fact that natural flows fluctuate with seasonal and climatic variations. As a result, impacts produced by the proposed dams will stem not only from the amount of flow modification but also from the timing of the modification in relationship to normal seasonal flow fluctuations. Reduction, elimination, or rescheduling of naturally recurring high flows can have serious consequences on channel characteristics. An increase in flow can also induce profound changes in the lotic environment during naturally occurring low flows.

The physical conditions and interactions within the Susitna River Basin discussed above, provide essential habitats for aquatic, riparian, and other organisms. As a result, any alteration in the physical environment also affects the associated biological populations. Although the emphasis of this and related reports will be to determine the impacts of instream flow changes on the Susitna fisheries, it should be apparent that instream flows can exert similar profound effects on other aquatic organisms, as well as on riparian and terrestrial wildlife, navigation and other instream flow related uses (Erickson 1977; Stalnaker and Arnette 1976; Hinz 1977; Newell 1977; Martin 1977; Klarich and Thomas 1977; Judy and Gore 1978; MDFWP 1980; White et al. 1981; American Fisheries Society and American Society of Civil Engineers 1976a, b; Townsend 1975).

Instream flow may, therefore, be considered one of the most essential determinants of aquatic habitat and hence fisheries productivity. Modifications of naturally occurring seasonal instream flows will produce a variety of changes in essential fishery habitat areas such as spawning, incubation, rearing, overwintering, and passage habitats. Decreased flows in the spring and summer can for example lead to silt deposition, oxygen reduction in gravel redds, dewatering of sloughs, and may, result in suffocation of incubating eggs and pre-emergent fry. Increased flows in the winter can wash away spawning substrate or destroy sheltering areas. Decreases and increases in flows which alter stream productivity will modify food availability in rearing and overwintering habitats.

In addition to modifying essential habitats, alterations to the Susitna flow regimes can affect the seasonal behavior of fish species. Hynes (1970) discusses the important interrelationships between seasonal flow regimes, fish movement, and human alterations of lotic environment. The complex interrelationship between instream flows and seasonal behavior of fish species is compounded by the fact that seasonal variations in flows required by particular species may have to be quite large. Returning salmon species for example may need 30-50 percent of the mean annual flow to ascend the lower and middle reaches of a river system, and even more flow to ascend the headwaters (Hynes 1970). As a result, the protection of fisheries resources requires not only that certain volumes of instream flow be maintained, but also that specific flows be available at particular times of the year.

In summary, seasonal fluctuations in the physiochemical composition of the aquatic habitat are apparently the major factors influencing distribution of fish within the drainage. Any alterations resulting from the proposed hydroelectric related project activities which will restrict or reduce quality or quantity of required habitat will also reduce fish populations and associated members of the aquatic community.

VI. OBJECTIVES

To insure adequate information is available to determine the impacts of the proposed hydroelectric project and to design proper mitigative strategies, a two-phase five year data collection program has been developed.

The following objectives were addressed in the Phase I ADF&G Aquatic studies (June 1981 - October 1981) of the open water field season: The study program was separated into three sections: AA, RJ, and AH.

OBJECTIVE 1. Determine the seasonal distribution and relative abundance of adult anadromous fish populations produced within the study area (Figure 2).

Task 1.1 Enumerate and characterize the runs of the adult anadromous fish.

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

Task 1.3 Identify spawning locations within the study area (ie.e, subreaches of the mainstem sloughs and side channels, tributary confluences, lakes and ponds, etc.) and estimate their comparative importance.

Task 1.4 Identify and determine methods, means and the feasibility of estimating the Susitna River's contribution to the Cook Inlet commercial fishery.

OBJECTIVE 2. Determine the seasonal distribution and relative abundance of selected resident and juvenile anadromous fish populations within the study area.

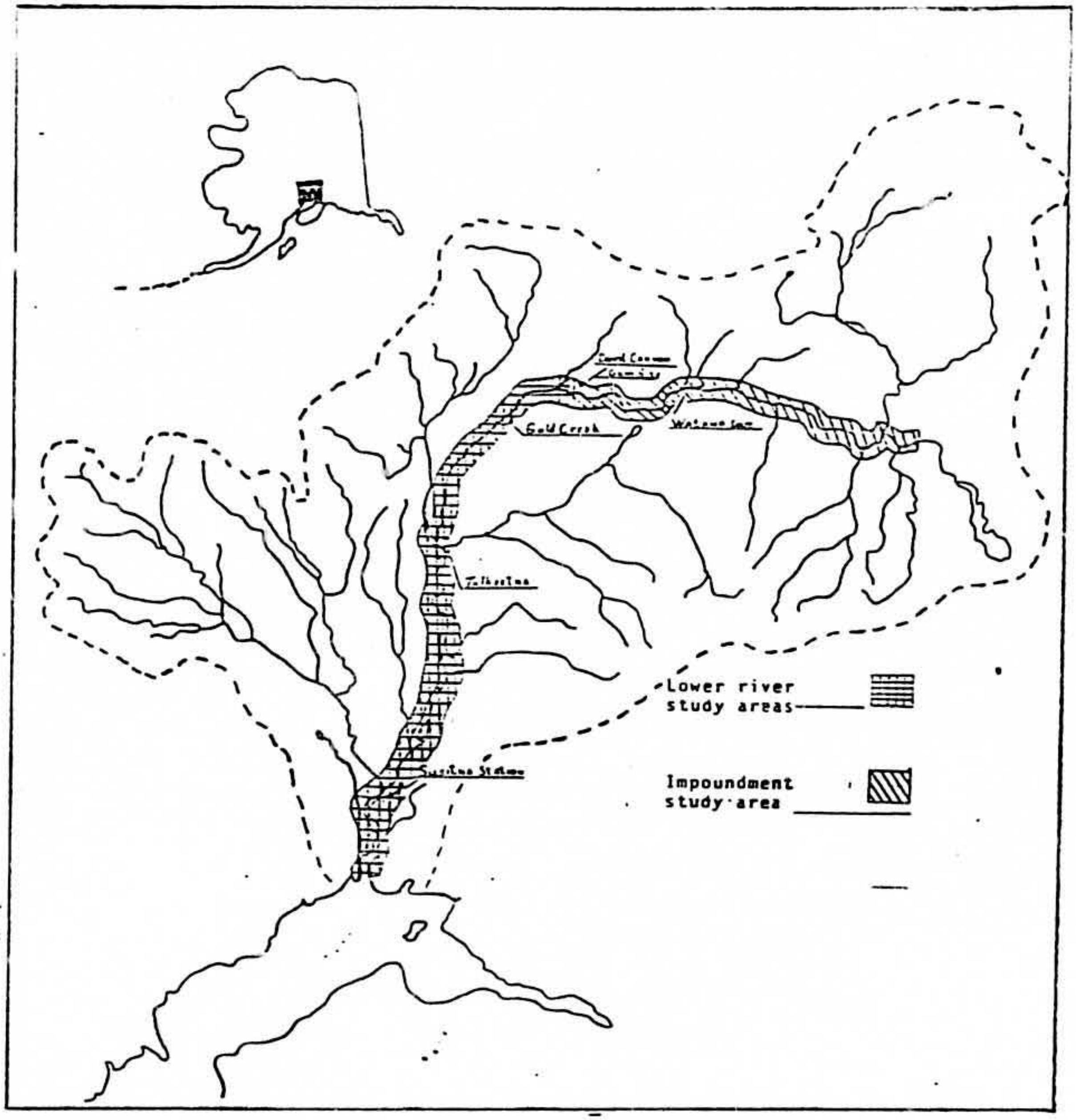


Figure 2. Susitna River drainage showing Phase 1 study areas.

Task 2.1 Identify spawning and rearing locations of the resident species and the rearing locations of juvenile anadromous species to estimate their comparative importance.

Task 2.2 Record descriptive information on captured fish (species, location of capture site, age class), and discuss seasonal migration patterns of selected adult resident species.

OBJECTIVE 3. Characterize the seasonal habitat requirements of selected anadromous and resident species within the study area.

Task 3.1 Through direct field observations and measurements identify the physical and chemical conditions which appear to be influencing the suitability of various habitat types for the species and life history stages of interest.

Task 3.2 Through direct field observations and measurements characterize the physical and chemical parameters of the various habitat types found in the study area.

The specific objectives of the AH studies were to:

1. identify seasonal habitat requirements associated with incubation, rearing, spawning, and passage of anadromous and resident fish populations;

2. characterize the seasonal relationships between flow regimes and essential physical and biological habitat characteristics;

3. characterize the relationships between the tributary and slough physiochemical and biological habitats with the mainstem Susitna River at various flow regimes;

4. develop state-of-the-art capabilities to evaluate habitat characteristics; and

5. transfer data essential for evaluating the effects of various flow regimes on aquatic terrestrial and riparian habitat to the respective cooperators.

It should be emphasized that this initial report is limited to a presentation of the first stage data reduction of the aquatic habitat and instream flow information. Therefore, these objectives cannot be addressed in detail until relevant data from the other ADF&G reports and other cooperators are integrated with these data in the February 1982 report.

VII. STUDY DESCRIPTION AND RATIONALE

Phase I of the Aquatic Habitat and Instream Flow Study (AH) was subdivided into two segments (Figure 3): 1) fishery habitat evaluations of the principal resident fish, and juvenile and adult anadromous salmon sampling areas to include point specific and general habitat evaluations; and 2) selected habitat evaluations which represent similar habitats in the study area in addition to those slated for fish sampling.

A. FISHERY HABITAT EVALUATIONS

Fishery habitat evaluation studies were performed during the winter and summer field seasons and were subdivided into point specific and general habitat evaluations (Figure 4). Data were collected by 15 biologists from the AH and RJ projects assigned to five joint crews, four in the lower river and one in the upper river. Crews in the lower river were based in semi-permanent tent camps located at the Yentna, Sunshine and Talkeetna AA fishwheel sites and at Gold Creek. Each crew was self contained and utilized a pickup truck, outboard jet powered riverboat and helicopter for logistical support. The upper river crew utilized a truck, helicopter, fixed wing aircraft and river rafts for logistical support. Mobile camps were set up and disassembled at each camp site each sampling period.

1. Point Specific Evaluation

Velocity, depth, and substrate data were collected at the gear placement sites (gps) (Appendix G) to characterize the range of streamflow dependent charac-

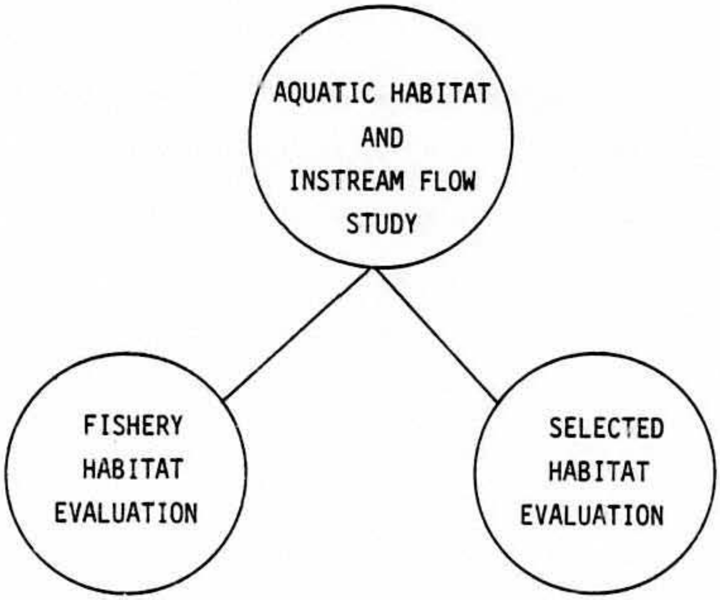


Figure 3. Aquatic habitat and instream flow study program components.

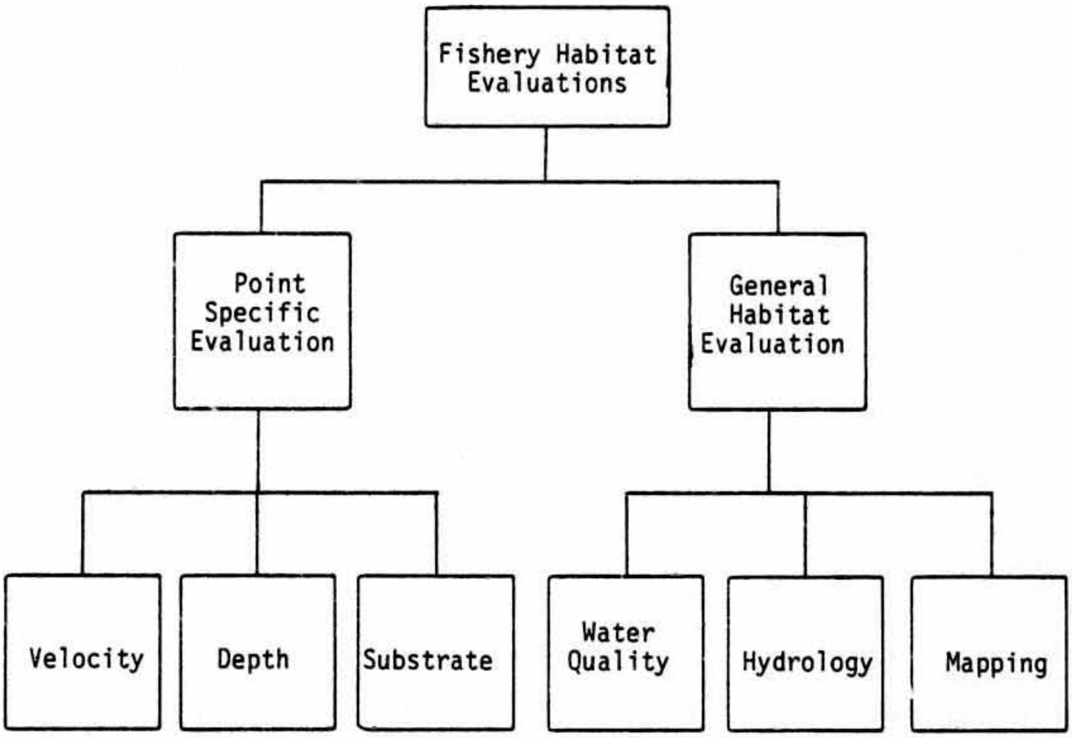


Figure 4. Fishery habitat evaluation components.

teristics which appear to be influencing the suitability of various habitat types for the species and life stages of interest. Incidental velocity, depth, and substrate data were also recorded where fish were observed.

2. General Habitat Evaluation

General habitat evaluations provided the necessary data to describe and map the overall habitat characteristics of each RJ and AA study site. These data were collected in the study area below Devil Canyon on a twice per month basis with the exception of discharge. Data collected included the parameters listed in Table 1.

Table 1. General habitat evaluation parameters.

Water Quality	Hydrology	Mapping
temperature (air and water)	velocity	photography
	stage*	substrate
pH	substrate	cover
dissolved oxygen		pools
		riffles
specific conductance		dimensions (planimetric and cross sectionals*)
turbidity		
		gear placement sites

*Note: These parameters were not measured in the Impoundment reach.

B. SELECTED HABITAT EVALUATION

The Selected habitat evaluation program was designed to evaluate the relationships of mainstem hydraulic and water quality conditions to fisheries habitat in slough areas between Talkeetna and Devil Canyon. The study was divided into two segments:

(1) water quality and discharge data collection and

(2) surveying and discharge measurements.

The water quality and discharge measurement data were collected on a cooperative basis with the U.S. Geological Survey (USGS). One crew of three AH biologists and one USGS water quality specialist operated out of the four semi-permanent lower river camps discussed previously. Logistical support was provided by train, fixed wing aircraft, helicopter, pickup truck and an inboard jet boat. These data were collected to characterize ranges of water quality parameters (Table 2) and discharge within the five selected habitat evaluation study sloughs. The sampling was conducted concurrently with the USGS's routine sampling of the mainstem Susitna River at Gold Creek in order to allow comparisons of the water quality parameters between the various sloughs and the mainstem. Samples were obtained three times, one time per seasonal low, medium, and high flows. Two additional sampling trips with the USGS are scheduled for the winter of 1981-82, to characterize low flow winter conditions.

Table 2. Selected Habitat evaluation, USGS water quality parameters.

<u>Physical and field parameters</u>	
Water temperature	°C
Air temperature	°C
Stream flow	cfs
Specific conductance, field	umho/cm
Specific conductance, lab	umho/cm
Dissolved oxygen	mg/l
Percent oxygen saturation	--
pH field	--
pH lab	--
Alkalinity, field	mg/l $CaCO_3$
Alkalinity, lab	mg/l $CaCO_3$
Turbidity	NTU
Sediments, suspended	mg/l
Sediments, discharge suspended	tons/day
Solids, residue at 180°C	mg/l
Solids, sum of constituents	mg/l
Solids, dissolved	mg/l
Solids, dissolved	tons/
<u>Major Constituents</u>	
Hardness	mg/l $CaCO_3$
Hardness, non carbonate	mg/l $CaCO_3$
Bicarbonate, incremental titration	mg/l HCO_3
Carbonate incremental titration	mg/l CO_3
Calcium, dissolved	mg/l
Magnesium, dissolved	mg/l
Sodium, dissolved	mg/l
Sodium, percent	--
Sodium, adsorption ratio	--
Potassium, dissolved	mg/l
Chloride, dissolved	mg/l
Sulfate, dissolved	mg/l
Fluoride, dissolved	mg/l
Silica, dissolved	mg/l
<u>Nutrients</u> (all mg/l)	
Nitrogen, total	
Nitrogen, total as NO_3	
Nitrogen, dissolved	
Nitrogen, total organic	
Nitrogen, dissolved organic	
Nitrogen, dissolved ammonia	
Nitrogen, dissolved ammonia as NH_4	
Nitrogen, total ammonia	

Table 2 (Continued)

Nitrogen, ammonia + dissolved organics
Nitrogen, ammonia + total suspended organics
Nitrogen, ammonia + total organics
Nitrogen, total nitrate and nitrite
Nitrogen, dissolved nitrate and nitrite
Phosphorus, total
Phosphorus, total as PO_4
Phosphorus, dissolved
Carbon, dissolved organic
Carbon, total suspended organic

Trace Metals (all ug/l)

Arsenic, total
Arsenic, total suspended
Arsenic, dissolved
Barium, total recoverable
Barium, suspended recoverable
Barium, dissolved
Cadmium, total recoverable
Cadmium, suspended recoverable
Cadmium, dissolved
Chromium, total recoverable
Chromium, suspended recoverable
Chromium, dissolved
Cobalt, total recoverable
Cobalt, suspended recoverable
cobalt, dissolved
Copper, total recoverable
Copper, suspended recoverable
Copper, dissolved
Iron, total recoverable
Iron, suspended recoverable
Iron, dissolved
Lead, total recoverable
Lead, suspended recoverable
Lead, dissolved
Manganese, total recoverable
Manganese, suspended recoverable
Manganese, dissolved
Mercury, total recoverable
Mercury, suspended recoverable
Mercury, dissolved
Nickel, total recoverable
Nickel, suspended recoverable
Nickel, dissolved
Selenium, total
Selenium, total suspended
Selenium, dissolved

Table 2 (Continued)

Silver, total recoverable
Silver, suspended recoverable
Silver, dissolved
Zinc, total recoverable
Zinc, suspended recoverable
Zinc, dissolved

Surveying techniques were employed to collect elevation data. Stage and discharge measurements were also collected. These two types of information were used to develop a physical description of each of the five selected habitat evaluation study sloughs and identify on a preliminary basis which flow regimes of the mainstem Susitna River would permit accessibility to and from slough habitats by fish. In addition, the relationship between intragravel and surface water temperatures were evaluated at one slough through the use of thermographs.

VIII. STUDY APPROACH

A. GENERAL HABITAT EVALUATION

1. Methods*

a. Physiochemical

Dissolved oxygen, water and air temperature, pH, turbidity, stage and specific conductance were measured twice monthly at each general habitat evaluation study site, except in the Impoundment reach, where these parameters were measured monthly. Data were collected by a joint crew of Aquatic Habitat/Resident and Juvenile biologists utilizing customized riverboats as the primary means of transportation. Dissolved oxygen, water temperature, pH and specific conductance were measured with a Hydrolab model 4041. Calibration of the meter was performed immediately prior to departing for and returning from each sampling period and whenever else deemed necessary. Turbidity samples were collected and stored in 500 ml poly bottles in a cool and dark location until analysis. The turbidity samples were analyzed using a Hach model 2100A turbidity meter. Turbidity samples were analysed directly from the sample bottles. No filtration or dilution methods were used. Water temperatures were continually recorded at several sites using Ryan Model J, 90 day thermographs. Stage data were collected by installing staff gages at each general habitat evaluation study site and AA fishwheel and sonar sites, and

* Specific methods are presented in Appendix G.

reading each gage twice monthly. Stage data were not collected for the Impoundment reach. Substrate was categorized as shown in Table 3. Point velocity measurements were taken with either Marsh-McBirney Model 201 portable water current meters, Price AA or pygmy flow meters using standard methods outlined by the manufacturer.

Table 2. Substrate size classes

Substrate Class	Size Range (inches)
silt	--
sand	--
gravel	1/4-3
rubble	3-5
cobble	5-10
boulders	10

b. Site Selection

The study area (Figure 2) included the majority of the Susitna River between the Denali Highway and Cook Inlet. For logistical and study purposes, the river was divided into the five study reaches (Figures 5-9) below:

(1) the Yentna reach (Figure 5) extends from the mouth of the Susitna River at Cook Inlet River (Mile, R.M., 0) to Little Willow Creek (R.M. 50.5);

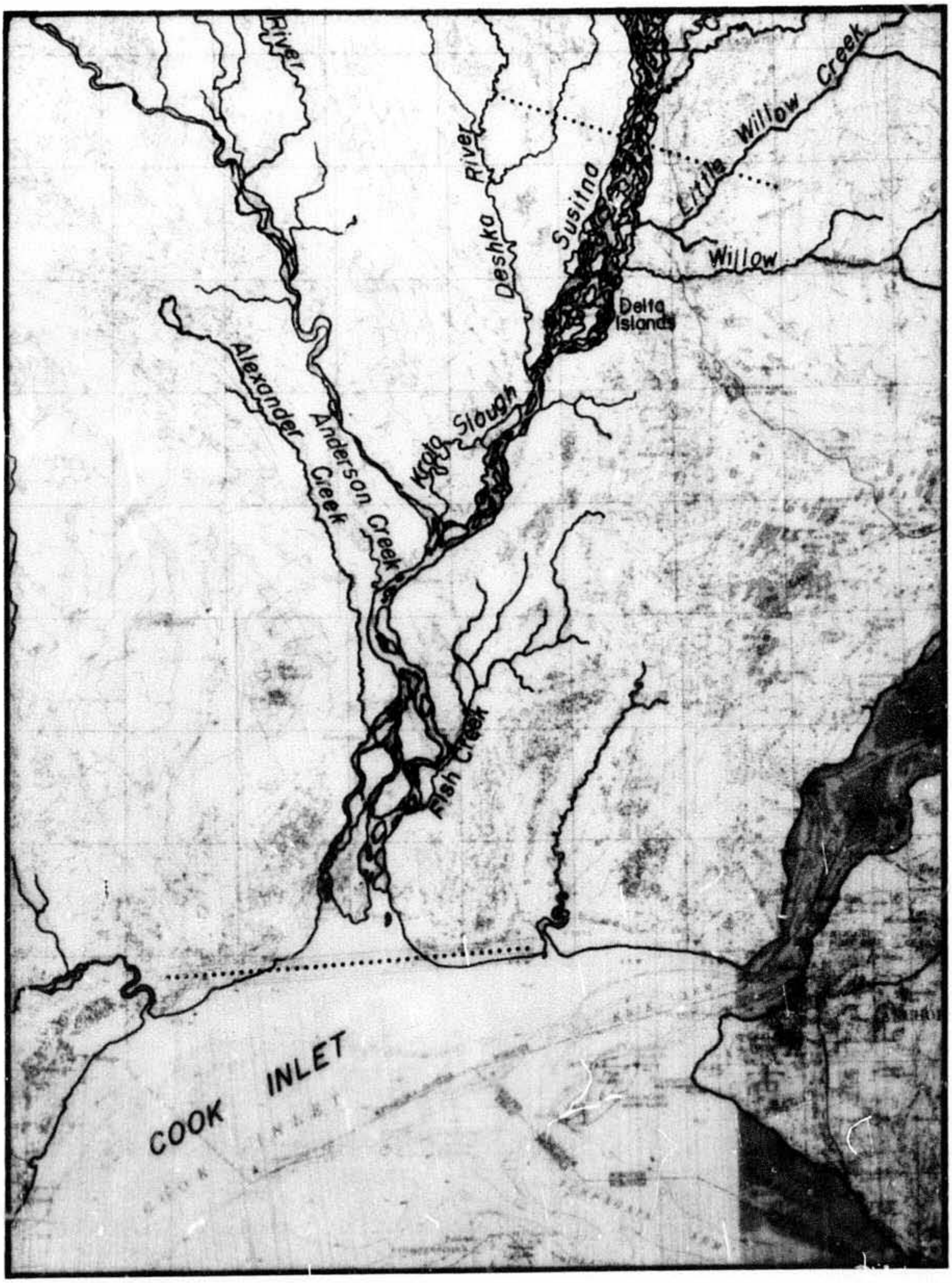


Figure 5. Yentna study reach.

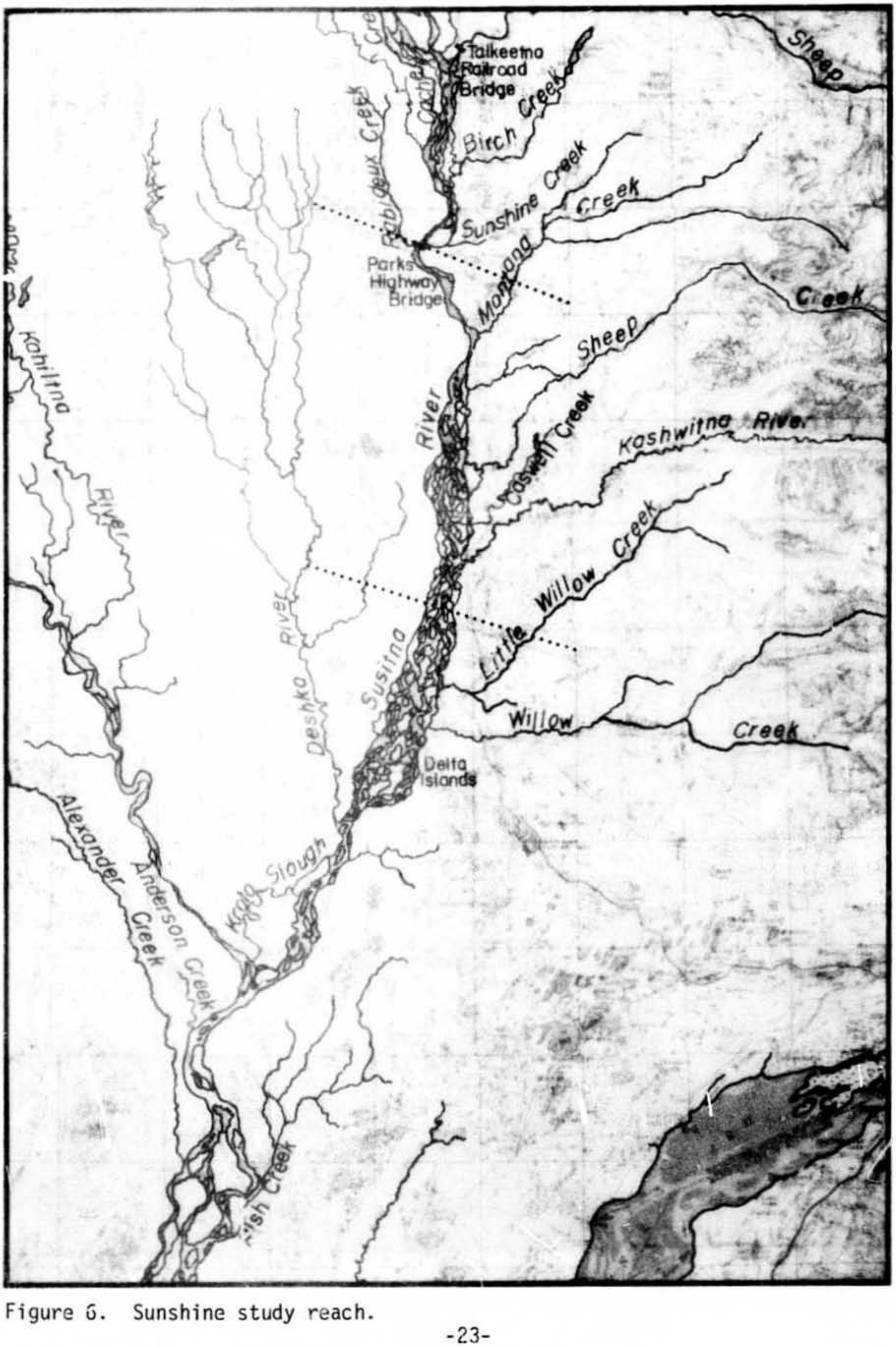


Figure 6. Sunshine study reach.

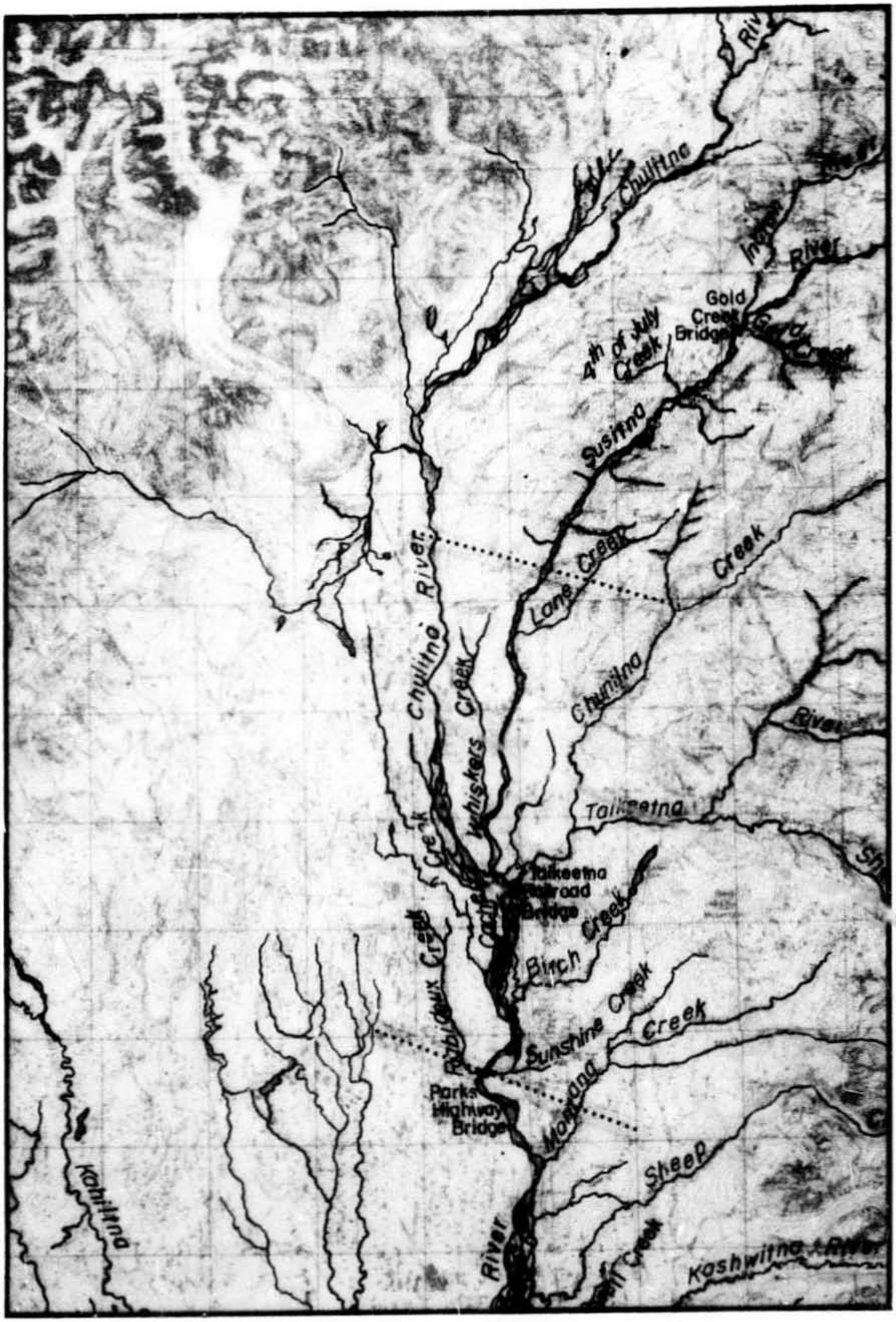


Figure 7. Talkeetna study reach.

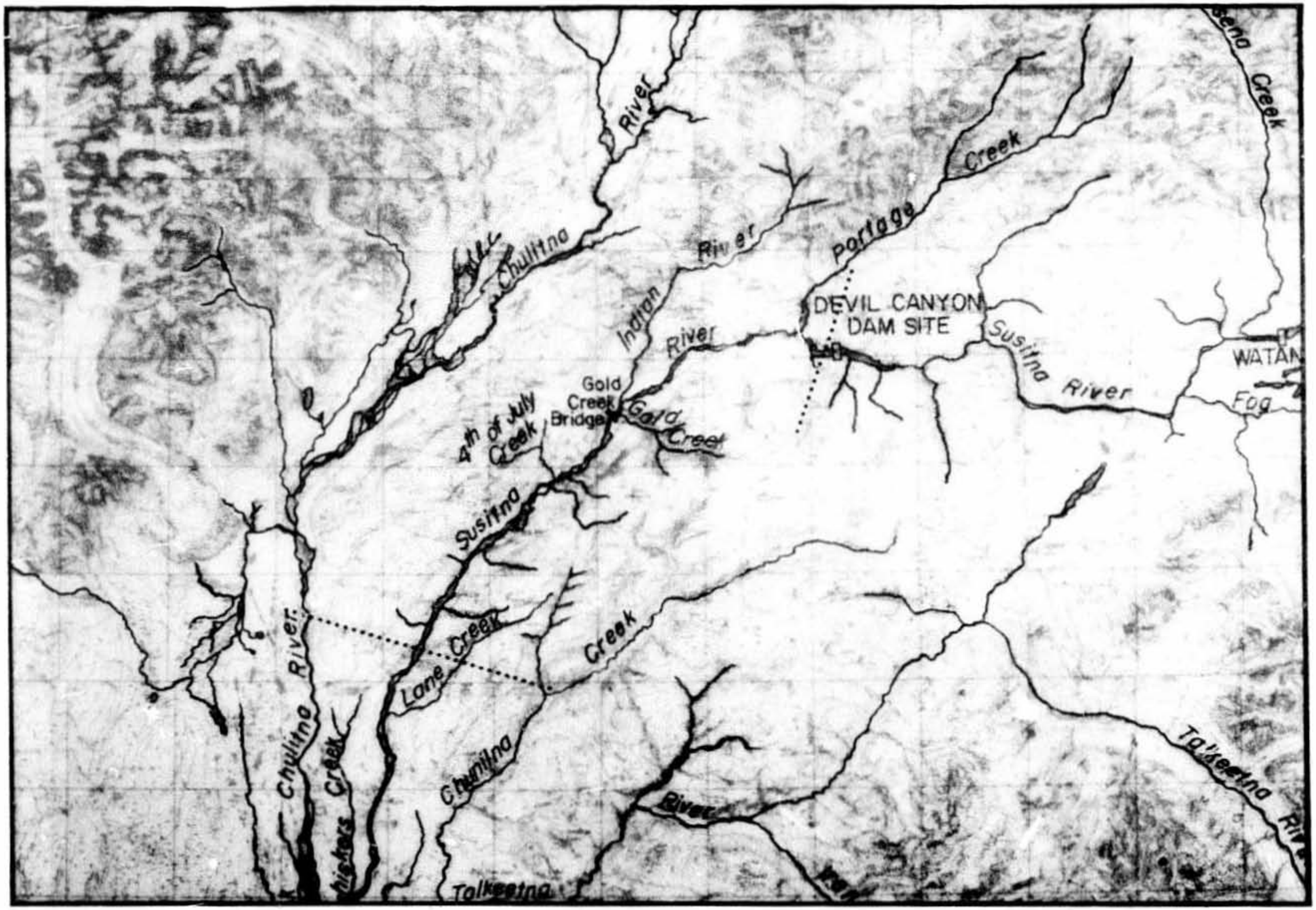


Figure 8. Gold Creek study reach.

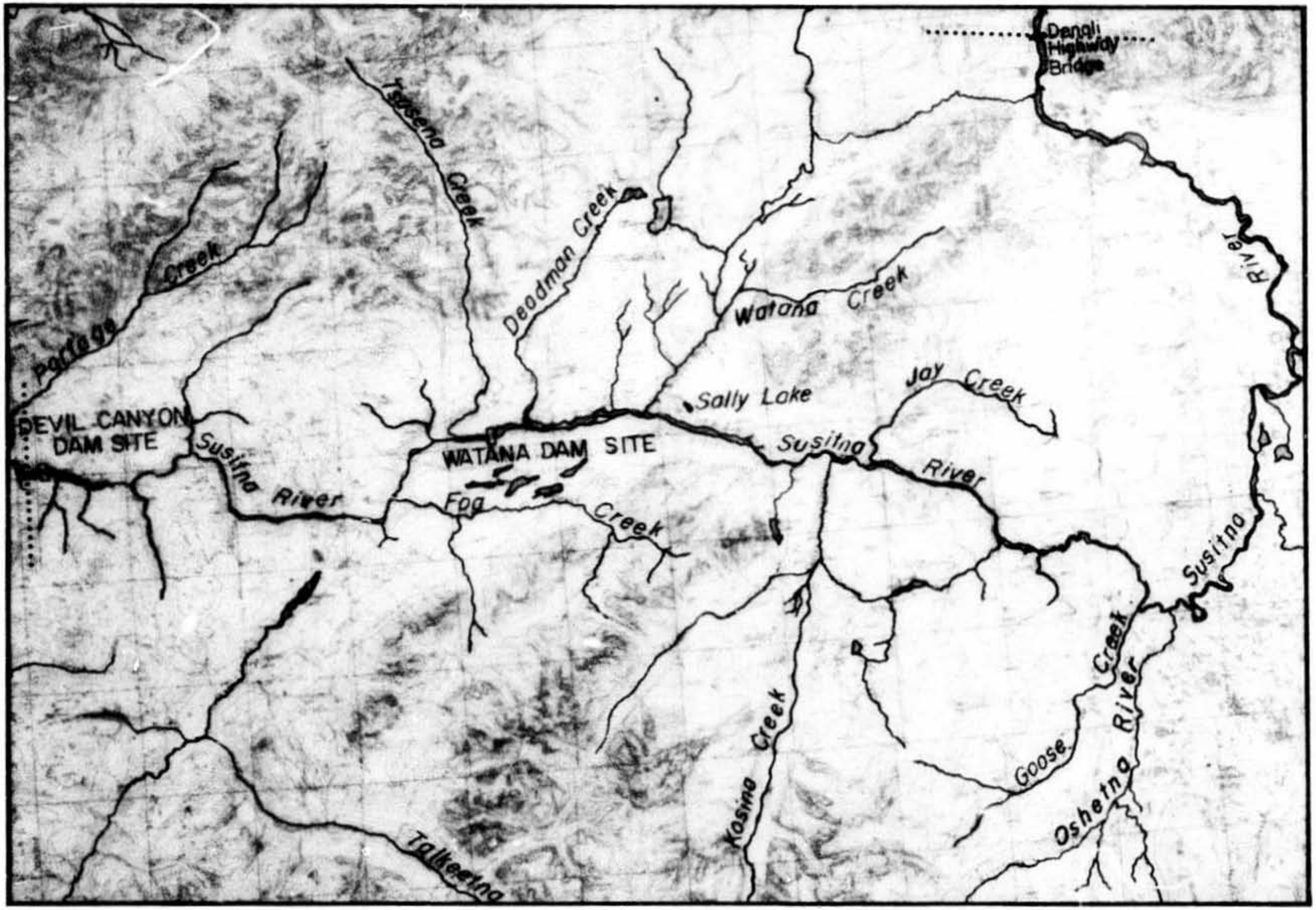


Figure 9. Impoundment study reach.

(2) the Sunshine reach (Figure 6) extends from Rustic Wilderness (R.M. 58.1) to the Parks Highway Bridge (R.M. 83.5),

(3) the Talkeetna reach (Figure 7) extends from the Parks Highway Bridge (R.M. 83.5) to Curry (R.M. 120.7),

(4) the Gold Creek reach (Figure 8) extends from Curry (R.M. 120.7) to Portage Creek (R.M. 148.8), and

(5) the Impoundment reach (Figure 9) extends from Devil Canyon (R.M. 151) to the Oshetna River (R.M. 226.9).

Eight to thirteen representative general habitat evaluation study sites were selected for general habitat evaluation and resident and juvenile fisheries studies in each of the five study reaches. Point specific and general habitat data were collected at each of these sites. Data were also collected at the AA sonar and fish wheel sites, identified spawning sites and special study areas.

2. Findings

a. Habitat Descriptions of Each General Habitat Evaluation Study Site by River Reach.

Representative general habitat evaluation study sites were sampled twice monthly to characterize their physiochemical parameters. A brief habitat description of each general habitat evaluation study site, grouped by river reach, is presented below. Planimetric maps of each general habitat evaluation study site are presented in Appendix A.

i. Yentna Reach

(1) General description.

The Yentna reach (Figure 5) extends from Fish Creek (R.M. 7.0) to Little Willow Creek (R.M. 50.5) on the Susitna River. There are 13 general habitat evaluation study sites in the Yentna reach including:

Study Site	River Mile	Geographic Code
Fish Creek	7.0	15N/07W/27/AAC
Alexander Creek Site A	10.1	15N/07W/06/DCA
Site B - 2.0 Miles Upriver		16N/07W/32/CCB
Site C - 4.0 Miles Upriver		16N/07W/30/ACD
Anderson Creek	23.8	17N/07W/29/DDD
Kroto Slough Mouth	30.1	17N/07W/01/DBC
Mainstem Slough	31.0	17N/06W/05/CAB
Mid-Kroto Slough	36.3	18N/06W/16/BBC
Deshka River Site A	40.6	19N/06W/35/BDA
Site B - 1.0 Miles Upriver		19N/06W/26/BCB
Site C - 3.5 Miles Upriver		19N/06W/14/BCA
Lower Delta Islands	44.0	19N/05W/19/ACB
Little Willow Creek	50.5	20N/05W/27/AAD

The geomorphology of the Susitna River varies in this reach. The Susitna River above the confluence with the Yentna River forms a braided channel. Below the Yentna River, the Susitna River forms a single meandering channel to the head of Bell Island. At Bell Island, the Susitna River separates into two braided channels and remains divided to the inlet. During all but the periods of highest discharge, there are large sand and silt bars and log jams present. The overall gradient for the reach is approximately 1 ft./mile (corresponding to a drop of 50 feet in elevation in 43.5 miles). The surrounding area is low in relief with meadows, muskeg and cottonwood present. The typical substrate is silt and sand.

The Alexander and Deshka Rivers are heavily fished during the chinook and coho salmon seasons. Many year round and seasonal homesites are located on these systems. The only residents on the mainstem Susitna River are near Susitna Station (R.M. 25.4). The mainstem Susitna River is utilized primarily for access to other areas of the river's drainage.

(2) Habitat descriptions of general habitat locations in the Yentna Reach.

Fish Creek

The study site (Appendix A, Figure 1) is located at the confluence of Fish Creek with the east channel of the mainstem Susitna River. Fish Creek is a relatively narrow meandering muskeg-influenced creek which carries a heavy silt load in spring. Depths in the study area vary from 2 feet to over 8 feet near the confluence. A small lake outlet enters the lower portion of the study area. Typical substrate in the study area is silt. Cover is provided by cutbanks, riparian vegetation and high turbidity during the spring runoff. This general habitat evaluation study site was eliminated after one sampling period due to logistical reasons.

Alexander Creek

Alexander Creek, a relatively shallow, meandering muskeg influenced stream, is located at river mile 10.1. There are three separate general habitat evaluation study sites located on this creek.

Site A

Site A (Appendix A, Figure 2) is located at the high water confluence of Alexander Creek with the west channel of the mainstem Susitna River (R.M. 10.1). The creek at this site is relatively deep and wide with a uniform cross section. The Susitna River interface extends upstream approximately 1/4 the length of the study site. The substrate was predominately composed of silt throughout the sampling season. The west bank is a relatively high cutbank with fallen trees providing cover. The east bank is sloping with alder and willow providing cover under high discharge conditions.

Site B

Site B (Appendix A, Figure 3) on Alexander Creek is located 2.0 miles upstream of the confluence. The creek in the study area is relatively shallow, with substrate consisting of silt and mud. The creek splits into two channels separated by a low mud island with grasses present. Under high discharge conditions, overhanging and fallen trees provided cover along sloping banks.

Site C

Site C (Appendix A, Figure 4) on Alexander Creek is located 4.0 miles upstream of the confluence. During periods of high discharge, the creek in this study site was relatively deep (3-5 feet). Under these conditions, a deep pool formed on the west bank of the lower portion of the study site. Banks were both sloping and cut. Typical substrate consisted of mud, sand and gravel. A small clearwater tributary, Granite Creek, entered the study area. Under high discharge conditions, Granite Creek deposited a delta of sand and gravel extending across 3/4 of Alexander Creek. Cover is provided by overhanging vegetation and submerged grasses.

Anderson Creek

The study site (Appendix A, Figure 5) is located at the confluence of Anderson Creek and the Susitna River. The geomorphology and the physico-chemistry of this site is greatly influenced by the Susitna River. The creek mouth varies from 15 feet to 40 feet in width and is approximately six feet in depth under high discharge conditions. The width was reduced to approximately five feet as the discharge dropped. Under high discharge conditions, when the flow of the creek was backed up by the Susitna River, velocities in the study site were low (0-0.2 ft./sec.) and turbidities were high. As the discharge dropped and the influence of the Susitna River lessened, velocities increased slightly and turbidities dropped. The substrate and sloping banks consisted almost entirely of silt. During periods of high discharge, cover is provided by overhanging alder.

Kroto Slough Mouth

The study site (Appendix, Figure 6) is located at the confluence of Kroto Slough and the Yentna River, approximately 2.0 miles upriver from the confluence of the Yentna River with the mainstem Susitna River (R.M. 30.1). The major influence on the slough in the study area ultimately depends on the stage at the mid-Kroto Slough fork. Under low discharge conditions, the majority of the flow from upper Kroto Slough is diverted into the Susitna River. As a result, the primary influence of the slough at the mouth becomes dependent on tributaries that enter the slough below the fork. Under high discharge conditions, the upper Kroto Slough flow is not entirely diverted, causing the influence of the slough at the mouth to be a mixture of the two water sources. The slough in the study area is relatively shallow and meandering. The width of the study area is approximately 200 feet with depths varying depending on discharge. The north side of the study site consists of a low cutbank and a large silt bar (50-100 feet in length). The south side consists of a higher cutbank (5-8 feet) with no bars present until very low discharges. The substrate consists entirely of silt. Under high discharge conditions, when the banks were flooded, cover was provided by overhanging willow and alder. Overall the site was relatively stable, with the most significant variable being water level fluctuation.

Mainstem Slough

The study site (Appendix A, Figure 7) is located in a side channel slough of the Susitna River. The site has two different habitat types. The lower portion of the study site consists of a large back eddy (approximately 200 x 1000 feet) characterized by low velocities, silt deposits and depths ranging from 3 to 10 feet. Cover is provided by a debris jam at the lower end of the site and vegetation along sloping banks. The slough in the upper portion of the study site by contrast is relatively narrow, shallow, and fast running. Substrate is typified by rubble. Under low discharge conditions, current in the lower portion of the study site increased, eliminating the back eddy.

Mid-Kroto Slough

The study site (Appendix A, Figure 8) is located where Kroto Slough forks at river mile 36.3 of the Susitna River. The majority of the flow returns via a fork to the Susitna River. Under low discharge conditions, sand bars appeared in the vicinity of the fork. These sand bars diverted an even greater percentage of the discharge into the Susitna River, causing the downstream portion of the slough to be influenced primarily by tributaries. The slough at the study site is fairly wide (100-200 feet) and fast running. Substrate is predominately silt with sand and gravel present in the vicinity of the fork. There is a four foot silt cutbank on the east side of the slough. The bank on the southwest side varies from 2-8 feet in height and has not been eroded recently. During periods of high discharge, cover is provided by bank vegetation and debris.

Deshka River

The Deshka River (Kroto Creek) is a relatively shallow, meandering river influenced by adjacent muskeg habitats. There are three separate general habitat evaluation study sites located on the Deshka River.

Site A

Site A (Appendix A, Figure 9) is located at the confluence of the Deshka River with the mainstem Susitna River. The study site geomorphology and physiochemistry is heavily influenced directly by the mainstem Susitna River and indirectly through a small slough that enters the study area on the east bank of the Deshka River during periods of high discharge. The river in the study site is relatively wide and deep with the substrate consisting almost entirely of silt. Gear placement was along the west bank, which is steep and wooded with many recreational cabins and small floating docks present. During periods of high discharge, cover was provided by overhanging vegetation.

Site B

Site B (Appendix A, Figure 10) on the Deshka River is located 1.0 mile upriver from the confluence. The river in the study site is relatively shallow and meandering. The channel substrate is silt, with rubble present in several areas of the banks. Gear placement is along the west bank which is steep and wooded. Vegetation provided cover under high discharge conditions. A year round homesite is located on the east bank.

Site C

Site C (Appendix A, Figure 11) on the Deshka River is located 3.5 miles upriver from the confluence. The river in the study site is relatively shallow and narrow. Under low discharge conditions, riffles developed on the east side of the channel. Several holes are present on the west side of the channel. Cover is provided along sloping banks by debris and overhanging vegetation. Substrate consisted of sand, silt and gravel.

Lower Delta Islands

The mainstem study site (Appendix A, Figure 12) is located at the downstream side of the Delta Islands, at the confluence of center channel with the mainstem Susitna River. The river from the west bank to mid-channel is relatively wide, deep and fast flowing. There is a large debris jam present on the west bank. The river in the vicinity of the east bank is relatively shallow and characterized by low velocities. A deep back eddy pool exists at the confluence. The west bank is sloping with overhanging vegetation providing cover. The east bank consists of a silt bar. The channel substrate consists almost entirely of silt. Aside from water level fluctuations, the site was relatively stable. The site was eliminated in mid-August for safety reasons.

Little Willow Creek

The study site (Appendix A, Figure 13) is located at the confluence of Little Willow Creek with an east bank slough of the Susitna River (R.M. 50.5). The creek in the study area is a narrow (approximately 30' wide), meandering clearwater stream, containing a relatively deep pool. Under high discharge conditions, the substrate consisted almost entirely of silt. Under low discharge conditions, when the flow of the creek was no longer backed up by the slough, velocities in the creek increased and the silt substrate was replaced by sand. Cover is provided along sloping banks by debris and overhanging willows.

ii. Sunshine Reach

(1) General description.

The Sunshine reach (Figure 6) of the Susitna River extends from Rustic Wilderness (R.M. 58.1) to the Parks Highway Bridge (R.M. 83.5). Ten general habitat evaluation study sites were located within this reach. The Rabideux Creek site was eliminated due to logistical difficulties and establishment of sites in four other tributaries of this reach. River miles and geographic codes of the each study sites are presented below:

Study Site	River Mile	Geographic Code
Rustic Wilderness	58.1	21N/05W/25/CBD
Kashwitna River	61.0	21N/05W/13/AAA
Caswell Creek	63.0	21N/04W/06/BDD
Slough West Bank	65.6	22N/05W/27/ADC
Sheep Creek Slough Mouth	66.1	22N/04W/30/BAB
Goose Creek 1	72.0	23N/04W/31/BBC
Goose Creek 2	73.1	23N/04W/30/BBB
Mainstem West Bank	74.4	23N/05W/13/CCA
Montana Creek	77.0	23N/04W/07/ABA
Rabideux Creek	83.1	24N/05W/16/ADC

The reach varies in elevation from approximately 125 to 275 feet above mean sea level and has an approximate gradient of 5.9 ft./mile (corresponding to a 150 foot drop in elevation over 25.4 river miles). This reach lies between the foothills of the Talkeetna Mountains on the east and the marshy area below the Alaska Range on the west. The river in the lower two thirds of this reach is extensively braided with forested islands and non-forested bars between the braids of the channel. The upper third of the reach narrows and the braiding reduces until at the Parks Highway Bridge there is one channel. Above the bridge the river begins to braid again.

The Sunshine reach is the most accessible of the five study reaches. All of the sites on the east side of the river are accessible by the present road system. These roads are a combination of public and private and are either paved, gravel or four wheel drive trails. The sites on the west side are accessible only by boat, helicopter and/or snow machine.

There are several homesites along this part of the river. The tributaries entering from the east are popular salmon fishing areas with chinook taken in the mid-summer and coho in the early fall. There is potential for future agricultural development in this region. Very little hunting pressure was observed. Recreational boating was associated with salmon fishing.

(2) Habitat Descriptions of General Habitat Study Locations in the Sunshine Reach.

Rustic Wilderness

The Rustic Wilderness study site (Appendix A, Figure 14) is located in an east bank side channel of the Susitna River. It is located adjacent to a real estate development of the same name. The dominant vegetation at this site is spruce-birch forest with alder and willow present where the soil has been disturbed. At high water, 60-70% of the shoreline is densely vegetated. Substrate could not be determined due to high turbidity. The site was in a stable area, with no change in habitat noted except the rise and fall of water levels.

Kashwitna River

The Kashwitna River study site (Appendix A, Figure 15) is located three miles upstream from Rustic Wilderness, on the east bank of the Susitna River. The Kashwitna River is a fast flowing, relatively stable meandering glacial stream. The study site is located at the confluence of the stream with the mainstem Susitna River. Under high discharges, the mouth of the stream divides into two channels separated by a gravel bar and an island. Only the channel present during low discharges was sampled on a routine basis. Large deposits of light colored, granular sand were observed deposited at the mouth of a slough at the upper end of the site and on the bottom half of the gravel bar separating the high water channels. The channel that was present only during periods of high discharges had bottom substrate of this same sand. During periods of relatively high velocity, parts of the site maintained the same deposits of large debris throughout the season, providing sources of cover. Turbidity and overhanging riparian vegetation also provide sources of cover. Logs are embedded into the bank of the south side of the island. These logs protrude into the main channel providing cover.

Caswell Creek

This study site (Appendix A, Figure 16) is located on the east bank of the Susitna River at the confluence of Caswell Creek with the mainstem Susitna River. The water in this creek is of lake and muskeg origin, resulting in its brown appearance. The site is characterized by low velocities during high stage conditions. The creek bottom was covered with silt until late in the sampling season when the lowered discharges and increased velocities flushed the silt from the channel exposing a gravel substrate. The banks were perpendicular to the water surface and slightly undercut on the outside of the sharp bends. The creek, in the study site, can be characterized as relatively stable and meandering with shrubs on the banks providing cover.

Slough - West Bank

Three study sites were established in a complex slough system on the west bank of the Susitna River, and called Slough West Bank. The upper two study sites were dropped because preliminary investigation determined that the lower site would typify the habitat for this area. Little change was observed in this site (Appendix A, Figure 17) until late summer/early fall when the lowered discharge of the mainstem permitted a slight backflow of the mainstem Susitna River water into the slough. A bloom of algae was observed at that time. Due to high turbidity, the substrate was not observable. Probing indicated the substrate to be primarily silt with some embedded gravel of undetermined size. During high discharges, overhanging riparian vegetation provided cover along of both banks.

Sheep Creek Slough

The study site (Appendix A, Figure 18) is located at the confluence of Sheep Creek Slough and the mainstem Susitna River. Mainstem Susitna River water is permitted through the head of this slough only under extremely high discharge conditions. Even under these conditions, the influence of mainstem water on the study site was minimal. Sheep Creek exerted the dominant water influence on this site for the entire sampling season. The channel bottom was silt laden throughout the entire sampling season. Overhanging riparian vegetation provided cover along most of the north bank but was less extensive on the southern bank. Concurrent with the low discharges at the end of the sampling season, a build up of sand was observed at the confluence of the mainstem Susitna River and the slough.

Goose Creek 1

On the east side of the Susitna River, approximately six miles upstream from the mouth of Sheep Creek Slough, a study site (Appendix A, Figure 19) was established at the mouth of Goose Creek. Approximately 1-2 miles upstream from the mouth of Goose Creek, a branch from Sheep Creek enters Goose Creek. This results in the water at the mouth of Goose Creek to be a mixture of the two water sources. Early in the sampling season a wedge of sand entered the top of the site. The sand progressed rapidly downstream to cover the creek bottom over the entire site. The lowered discharges and increased velocities at the end of the season flushed the sand exposing a gravel substrate. The mouth of the creek was stable in most respects.

Goose Creek 2

A second study site (Appendix A, Figure 20) on Goose Creek is located approximately one mile north of the main mouth of Goose Creek. This site is located at the confluence of the mouth of a small braided channel off Goose Creek and a mainstem Susitna River slough. The creek substrate consists of sand, which was deposited by the stream at the head of a large deep pool in the slough. The stream water was slightly turbid for most of the season and cleared at the end of the sampling season. The slough was turbid throughout most of the sampling season. Once the mainstem Susitna River stage dropped at the head of the slough, a gravel bar at the head of the slough blocked the flow of mainstem Susitna River water entering the slough, allowing the slough to clear. At the end of the sampling season, the mouth of the slough had a riffle zone passing less than six inches of water. Cover in the stream section is limited to riparian vegetation and a small amount of debris. Cover in the slough is limited to a debris jam at the junction of the stream and the slough, a deep pool and a few boulders. No significant change in the structure of the site was noted throughout the sampling season.

Mainstem - West Bank

Mainstem - West Bank is located 1.5 miles north of Goose 2, on the west bank of the Susitna River. This study site (Appendix A, Figure 21) is located at the lower end of a complex slough system that is approximately two miles in length and 0.5 mile wide, including the islands and channels. The site was turbid until it cleared toward the end of the sampling season when the discharge of the Susitna River dropped, dewatering the head of the slough. A gravel bar that divided the upper half of the site was submerged as the discharge increased. Thin ice and low discharges were observed at the end of the sampling season. Overhanging riparian vegetation was present along most of the banks during high discharges. As the discharges decreased, the vegetation provided cover only along the deeper west bank. At this time the bottom was 100% gravel over most of the site.

Montana Creek

Two and a half miles north of the Mainstem-West Bank site, on the east bank of the Susitna River, a study site was established at the mouth of Montana Creek

(Appendix A, Figure 22). The channel shape and bedload at this site appeared to be the most dynamic of the sites in the Sunshine reach. The upper three-fourths of the site was low in turbidity throughout the entire sampling season while the turbidity of the lower quarter was dependent on the influence of the Susitna River. The geomorphology of the upper half of the site varied mainly with the discharge of the creek, while in the lower half the channel and substrate shifted with the discharge of the Susitna River. Cover types were diverse at this site, including overhanging riparian vegetation along both banks, scattered pools, debris and isolated undercut banks. The types of habitat available in the lower half of the site varied with the level of the water. The substrate consisted mainly of gravel with some sand present. The sand was deposited in areas of low velocities and between the gravels of the bottom.

iii. Talkeetna Reach

(1) General description.

The Talkeetna reach (Figure 7) encompasses the area along the Susitna River between the Parks Highway Bridge (R.M.) 83.5) and Curry (R.M. 120.7). There are 11 general habitat evaluation study sites located in the Talkeetna reach including:

Study Site	River Mile	Geographic Code
Mainstem 1	84.0	24N/05W/10/DCC
Sunshine Creek	85.7	24N/05W/14/AAB
Birch Creek Slough	88.4	25N/05W/25/DCC
Birch Creek	89.2	25N/05W/25/ABD
Cache Creek Slough	95.5	26N/05W/35/ADC
Cache Creek	96.0	26N/05W/26/DCB
Whiskers Creek Slough	101.2	26N/05W/03/ADB
Whiskers Creek	101.4	26N/05W/03/AAC
Slough 6A	112.3	28N/05W/13/CAC
Lane Creek	113.6	28N/05W/12/ADD
Mainstem 2	114.4	28N/04W/06/CAB

The Talkeetna reach can be divided into two distinct geomorphological areas; the upper and lower areas. The confluence of the Susitna, Talkeetna and Chulitna Rivers separates the upper and lower areas. The Susitna River in the upper area is relatively straight to meandering with minimal braiding. The approximate gradient of the upper area is 8.0 ft./mile (corresponding to a 175 foot drop in elevation over 22 miles). Typical substrate is gravel, rubble and cobble with lesser quantities of sand, silt and boulders present. The lower Susitna River portion, by comparison, is moderately braided. Silt is a major substrate type with gravel and rubble present. The approximate gradient over the lower area is 6.7 ft./miles (corresponding to a 100 foot drop in elevation over 15 miles). The approximate gradient of the entire reach is 7.4 ft./mile. Vegetation over the entire reach is black spruce forest interspersed with muskeg bogs, meadows, and stands of cottonwood, birch and aspen.

Access along this reach is limited. In the lower area, public access is provided by unimproved roads into Cache and Sunshine Creeks and boat landings at the Parks Highway Bridge and Talkeetna. Above Talkeetna, access is limited to the railroad and other remote transportation means. Year round and seasonal homesites are located along the entire reach with year round settlements at Talkeetna, Cache Creek (R.M. 96.0) and Chase. Recreational uses of the river along this reach include hunting, fishing, boating, hiking and camping.

(2) Description of general habitat study locations in the Talkeetna Reach.

Mainstem 1

Mainstem 1 (Appendix A, Figure 23) is located at the confluence of Sunshine Slough with the mainstem Susitna River. The mainstem Susitna River has a major influence on the overall chemical and physical nature of the site. The study site is a deep (15-25 feet) back eddy pool type habitat. Sampling gear placement was both on the steep east bank and an adjacent island. The substrate of the east bank is characterized by sand and silt interspersed with large boulders. Cover is provided along the steep bank by fallen and overhanging trees. The island is predominantly silt. Shrubs occur above the high water line and grasses provide cover along the gently sloping banks.

Sunshine Creek

The mouth of Sunshine Creek is located at two distinct sites depending on the stage of Sunshine Slough (Appendix A, Figure 24). Since the mouth of the creek is the study site, two separate study areas are located at this general habitat evaluation study site. Under high discharge conditions, the mouth of Sunshine Creek is at an upper site. The upper area is a creek/slough confluence system. The channel is relatively uniform in cross section containing gravel and rubble overladen by 4-12 inches of silt and sand. Cover is provided along the sloping banks by overhanging trees and shrubs with submerged vegetation present. All sampling gear placement was along the northwest bank. The lower area is a slough/creek system that is predominately influenced by Sunshine Creek during low discharge conditions and becomes a branch of Sunshine Slough under high discharge conditions. This area is sampled as the mouth of Sunshine Creek during periods of low discharge. The stream at the lower area has a partially silted channel with gravel and rubble present. Cover is provided along steep banks by overhanging and fallen trees. The channel is partially obstructed by several log and debris jams.

Birch Creek Slough

The study site (Appendix A, Figure 25) is located at the confluence of Birch Creek Slough and the mainstem Susitna River. The primary influence on this slough at the mouth ultimately depends on the stage of the mainstem Susitna River at the head of Birch Creek Slough. During periods of low mainstem Susitna River discharge, little or no flow passes through the head of the slough, causing the primary influence of the slough at the mouth to be dependent on Birch Creek. Under these conditions the water in the slough is clear. During periods of high mainstem Susitna River discharge, flow enters at the head of the slough. Under these conditions, the primary influence on the slough at the mouth is dependent on the mainstem Susitna River. The slough in the study site has a relatively uniform channel containing gravel and rubble as substrate overladen by 6-12 inches of silt. Cover is provided along steep banks by overhanging and fallen trees.

Birch Creek

The study site (Appendix A, Figure 26) is located at the confluence of Birch Creek and Birch Creek Slough. Under periods of high discharge, the site is a pool type habitat. Cover is provided along sloping banks by overhanging trees and shrubs and submerged vegetation. Under periods of low discharge, riffles form in addition to the pools. The typical substrate in the study area is gravel and rubble with sand and silt present. A seasonally used cabin is located at the mouth of the creek.

Cache Creek Slough

The study site (Appendix A, Figure 27) is located at the confluence of Cache Creek Slough and the mainstem Susitna River. Due to the proximity of the site to the confluence of the Chulitna and Susitna Rivers (so that complete mixing of the rivers has not yet occurred) and its west bank location, the site is heavily influenced by the Chulitna River. The slough in the study site is braided with sand and silt bars present. Sand and silt are the major substrate types. Except during periods of very low discharge, at which times the slough runs clear, the study area is primarily influenced by slough water. Cover is provided along sloping banks by fallen and overhanging trees and areas of submerged vegetation.

Cache Creek

The study site is (Appendix A, Figure 28) located at the confluence of Cache Creek and Cache Creek Slough. The portion of the creek in the study site has low flows. As a result, the dissolved oxygen levels fall below saturation during the latter part of the salmon spawning runs. In addition, specific conductances sharply rose during the spawning period. Cover is provided by a broken beaver dam and fallen and overhanging trees along sloping banks. Typical substrate is gravel and rubble overladen, in most areas, by 6-12 inches of sand and silt.

Whiskers Creek Slough

The study site (Appendix A, Figure 29) is located at the confluence of Whiskers Creek Slough and the mainstem Susitna River. The primary influence on this slough depends on the stage of the mainstem Susitna River at the head of Whiskers Creek Slough. During periods of low mainstem Susitna River discharge, little to no flow enters the slough, causing the primary influence of the slough at the mouth to be dependent on Whiskers Creek. Under these conditions the slough runs clear. During periods of high mainstem Susitna River discharge, flow is permitted through the slough. Under these conditions the primary influence on the slough is dependent on the mainstem Susitna River. The slough in the study site is wide and shallow with a relatively uniform cross section. Substrate is gravel, rubble and cobble with boulders present. Extensive areas of the bed are covered with silt. Cover along the sloping banks is limited, except for isolated areas of submerged vegetation.

Whiskers Creek

The study site (Appendix A, Figure 30) is located at the confluence of Whiskers Creek and Whiskers Creek Slough. Whiskers Creek in the study area is a relatively narrow, meandering stream containing many riffles and pools. Cover is provided along sloping banks by overhanging and fallen trees and shrubs and areas of submerged vegetation. Typical substrate in the bed is gravel and rubble partially silted over in areas. Aquatic vegetation is present in the channel.

Slough 6A

The study site (Appendix A, Figure 31) is located at the confluence of Slough 6A and the mainstem Susitna River. The slough receives very little mainstem Susitna River influence due to a series of beaver dams crisscrossing the slough between its head and mouth. The slough in the study area is a relatively quiescent, muskeg influenced system having a relatively deep uniformly shaped channel. Typical bed substrate is silt interspersed with boulders, organic debris and aquatic vegetation. Cover is provided along sloping banks by overhanging trees and shrubs and submerged vegetation, boulders and debris.

Lane Creek

The study site (Appendix A, Figure 32) is located at the confluence of Lane Creek and the mainstem Susitna River. The creek in the study site is dynamic, constantly undergoing change in bed structure and geomorphology. The creek is a relatively narrow, shallow, fast running, clearwater stream containing many pools and riffles. Typical substrate in the creek bed is gravel, rubble and cobble with sand, silt and boulders present in areas. Aquatic vegetation is present in the channel. Cover is provided by overhanging shrubs and trees, submerged vegetation and isolated boulders.

Mainstem 2

The study site (Appendix A, Figure 33) is located on the east bank of the mainstem Susitna River, at the mouth of a side channel. During periods of low mainstem Susitna River discharge, the head of the side channel dewaters causing a large backeddy to form in the upper segment of the study area. The study area has several sand/silt and gravel, rubble and cobble bars. Under high discharge conditions, cover is provided by overhanging and fallen trees along a cutbank. Under low discharge conditions, the entire area contains gravel, rubble and cobble substrate, with riffle zones present.

iv. Gold Creek Reach

(1) General description.

The Gold Creek reach (Figure 8) of the Susitna River extends from Curry (R.M. 120.7 - elevation 507.6 feet above MSL) to Portage Creek (R.M. 148.8 - elevation 820.9 feet above MSL) and encompasses 28.2 river miles. The river forms a single main channel although several small islands and gravel bars divide the river in areas. Depending on the river stage, 2-3 feet standing waves are present in several places. Substrate varies from silt to bedrock with the majority of mainstem shoreline substrate being rubble and cobble. The major substrate of sloughs and slow water areas is silt. River elevation drops 313.4 feet in 28.2 river miles corresponding to an approximate gradient of 11.1 ft./mile.

In the upper portion of this reach the river flows west. The banks are steep thus having good drainage and support a dense spruce hardwood forest. Below Gold Creek (R.M. 136.7) the river bends to flow south. Vegetation and banks remain similar.

Four principal tributaries empty into the Susitna River within this reach; Fourth of July Creek, Gold Creek, Indian River and Portage Creek. They are generally turbulent and their channels at the Susitna River confluence exhibit noticeable changes in physical character as discharges vary.

Access to this area is limited. The Alaska Railroad follows the river closely from Curry to Indian River. The stretch of the Susitna River above Indian

River is accessible only by helicopter or boat. There is an unpaved runway for landing fixed wing aircraft near the Gold Creek Bridge. A gold dredge is operated on Gold Creek not far above the confluence with the Susitna River. Many of the local residents hunt and fish in this area. Homesites dot the entire stretch with small year round settlements near Sherman (R.M. 130.8) and Gold Creek (R.M. 136.7).

Twelve general habitat evaluation sites are located in the Gold Creek reach:

Study Site	River Mile	Geographic Code
Mainstem Susitna - Curry	120.7	29N/04W/10/BCD
Susitna Side Channel	121.6	29N/04W/11/BBB
Mainstem Susitna - Gravel Bar	123.8	30N/04W/26/DDD
Slough 8A	125.3	30N/03W/30/BCD
4th of July Creek	131.1	30N/03W/03/DAC
Slough 10	133.8	31N/03W/36/AAC
Slough 11	135.3	31N/02W/19/DDD
Mainstem Susitna - Inside Bend	136.9	31N/02W/17/CDA
Indian River	138.6	31N/02W/09/CDA
Slough 20/Waterfall Creek	140.1	31N/02W/11/BBC
Mainstem Susitna-Island	146.9	32N/01W/27/DBC
Portage Creek	148.8	32N/01W/25/CDB

(2) Habitat descriptions of general habitat locations in the Gold Creek Reach.

Mainstem Susitna - Curry (Su-Curry)

The lowest study site within this reach is a mainstem Susitna River eddy opposite Curry. The study site (Appendix A, Figure 34) is approximately 500 feet upriver from Curry and on the west bank of the Susitna River. Steep shale strewn banks support dense overhanging alders and willows. The lower portion of the study area consists of large chunks of shale on the west bank and gravel and rubble on the bar. Due to a bend in the river above the sample site eddies are constantly forming. Substrate at the upper portion of the study site is mainly sand and silt. Build up and shifting of sand and silt occurred. Ground water percolated up from the bed in several of these sandy areas. Water clarity was influenced by the Susitna River. Under low discharge conditions, when the Susitna River no longer entered the study area from above, the sample site was reduced to a narrow inlet. Under these conditions, the direction of flow reversed 180°.

Susitna Side Channel (Su-Side Channel)

The study site (Appendix A, Figure 35) in this mainstem Susitna River side channel/cut bank is located one mile above Curry on the east bank at the Susitna River. The railroad closely parallels the bank at the lower end of this site. As floods began eroding the bank (July, 1981), large boulders were moved in by railroad personnel to stabilize the area. This altered the bank and substrate of the lower 75 feet of the site. Depending on discharge, the soil cut bank varied from 1-4 feet high and was undercut in several places. The bank supported a dense growth of overhanging ferns, hemlock, alder and willow. Substrate varied from soil and silt to gravel and rubble. Many debris piles and fallen trees occurred along the shoreline and caused numerous small eddies and slack water areas. A clear narrow slough empties into the mainstem from the east bank several yards above the site. Specific conductance measurements were rarely stable because the clear and turbid waters had not yet mixed.

Mainstem Susitna - Gravel Bar (Su-Gravel Bar)

This study site (Appendix A, Figure 36), which is located one mile below Slough 8A, is a large, exposed gravel bar at the lower tip of an island that separates the Susitna River main channel from a side channel. Substrate within the sample area consists of sand, gravel or combinations thereof. Sampling occurred on the west side of the gravel bar. The mainstem Susitna River water is fast flowing with several small eddies along the shore. As discharge increased, the gravel bar became submerged. During these periods, sampling occurred at the lower tip of the aforementioned island. Sampling gear was placed along a 3-4 foot high cut sand bank that supported overhanging alders. Water at this location was shallow and slow moving. Substrate was 100% sand and shifted radically in high water. At the upper (east) end of the bank, ground water percolated up and, when the channel to this site was cut off by shifting sands, springs were visible. The trapped water was clear exhibiting relatively high specific conductances and dissolved oxygen levels below saturation.

Slough 8A

Slough 8A (Appendix A, Figure 37) is a calm relatively shallow, murky slough. The substrate is mostly sand except at the upper end of the sample area where two branches of clear water flow over gravel, rubble and cobble. A thin silt layer covered the rocks in low to medium water levels. The lower mud banks of the slough are covered with grass and equisetum; further from the water the banks are covered with dense willows, alders and cottonwoods. The turbidity of the slough varied with precipitation and the flux of mainstem Susitna River water entering at the head of the slough.

4th of July Creek

At 4th of July Creek (Appendix A, Figure 38) sampling was conducted both in the creek and in the mainstem Susitna River to a point 500 feet below the mouth. The geomorphology of the creek from the mouth to a point 200 feet upstream changed radically throughout the sampling season. Deposits of shifting gravel and rubble in and above the mouth caused drastic rerouting of creek channels. A large log jam occurred 100 feet above the mouth after the first heavy rainstorm of the summer. Several deep holes existed in the creek at the beginning of the summer. After the discharge dropped, the deep holes were filled by gravel, leveling the bed. The substrate of the mainstem Susitna River area sampled is mostly gravel and rubble. The banks are fairly flat and support dense growths of willows, alders, and cottonwoods. Several minor creek channels empty into the mainstem throughout the study area. The mainstem water is turbid, but along the shore, water flows clearer due to the creek's influence immediately upstream.

Slough 10

Slough 10 (Appendix A, Figure 39) is a deep slow water slough with two water sources: a clear tributary from the north and a narrow Susitna River side channel from the northeast. At low water discharges, the Susitna River side channel exhibits greatly reduced inflow. The sample area became less turbid under these conditions. The west bank is steep with bedrock outcrops. The east bank is a large sand and gravel bar that supports a sparse growth of young willows and alders. The east bank of the clearwater tributary is flat with dense brush. Substrate varies from sand to silt. When water levels were in a state of flux, the sand and silt shifted radically within the site and became like quick sand. When the discharge dropped, a sand bar (70 x 150 feet) formed at the confluence of the clearwater and silty slough water. From the sand bar to the upper sample site boundary, specific conductance measurements were unstable.

Slough 11

Slough 11 (Appendix A, Figures 40) is relatively stable. The west bank, 4 - 8 feet high, is flat and supports a dense growth of alders. The east bank is 30 feet steep with birch and spruce trees. The lower section of Slough 11 is relatively wide, with slow moving water. Substrate is silt. The upper area is narrow and riffled in places. Substrate varies from sand, gravel and rubble to boulders (10 - 13 inches). As discharges dropped toward the end of this sampling season a large mud bar formed across the mouth of the slough and Susitna River confluence.

Mainstem Susitna - Inside Bend (Su-Gold)

The inside bend study site (Appendix A, Figure 41) located 0.5 mile above the Gold Creek Bridge is on a mainstem Susitna island. Sampling occurred on the lower west side of the island. The mainstem Susitna River flowed fast, deep, and turbid near this site. The shore of the study area is a raised sand, gravel, rubble and cobble bank. Under high discharge conditions the bank was flooded causing shifting of the bank substrate. Under extremely low discharges, a gravel bar surfaced extending across the east channel of the Susitna River almost to the east bank.

Indian River

Sampling at Indian River was conducted from the mouth to a point approximately 500 feet upstream and along the mainstem Susitna River 200 feet downriver from the mouth (Appendix A, Figure 42). The mouth of Indian River was dynamic, constantly undergoing change in bed structure and geomorphology. Deadfall and debris was deposited on gravel bars throughout the area of the mouth depending on channel routing. Water flowed both deep and fast, and shallow and slow. Substrate varied from sand to gravel and rubble. Susitna River water below the Indian River mouth varied in turbidity as the two bodies of water had not mixed completely.

Slough 20

Slough 20 (Appendix A, Figure 43) contains diverse habitat. During medium to high Susitna River discharges, the mainstem Susitna River feeds the head of the slough at the upper end of the study site. A small clearwater tributary empties into the slough 250 feet from the head of the slough. Also, several nearby springs feed into the slough. Midway along the slough, Waterfall Creek empties into it on the southeast bank. The study area contains deep pools, deep slow moving water, shallow riffles, and water trickling through gravel, rubble and cobble substrate. Substrates consists of sand, gravel, rubble, cobble and combinations thereof. Under clearwater conditions, a thin layer of glacial flour film was visible over the rubble and cobble areas. Both banks are vegetated by dense willows and alders or dense cottonwoods and alders. Bank heights vary from 0-4 feet. At the slough mouth, banks consist of sand gravel and rubble.

Mainstem Susitna - Island (Su-Island)

The mainstem Susitna River island study site (Appendix A, Figure 44) located two miles below Portage Creek is relatively stable. Both sides of the western tip of the island were sampled. The island is approximately 400 feet in width at the widest point of the study area. During low discharges, the western tip of the island is a large sand bar. Both north and south banks contain rubble and cobble. Vegetation on the island consists of dense stands of alders. Although both mainstem Susitna River channels flow relatively fast, deep, wide and turbid, during low discharges the south channel appeared to be the main channel.

Portage Creek

Portage Creek (Appendix A, Figure 45) is the uppermost general habitat evaluation study site sampled within this reach. Study area extends 475 feet upstream from the creek mouth, 380 feet down the Susitna from the creek mouth, and 100 feet up the Susitna from the creek mouth. The creek width at the mouth is approximately 250 feet in medium to high discharges. The relatively high steep banks are densely vegetated with birch and alder. The creek occupies one channel until it reaches two main bars that are present at the mouth. Depending on the discharge of the creek, the two bars split into several smaller bars causing a delta to form. Substrate shifted as the geomorphology of the mouth changed. The substrate is composed of gravel in the mainstem and near the mouth, and rubble and cobble in the creek and on the highest part of the bars. The creek in the study area is rapid, clear, and relatively deep (3 - 5 feet). Mainstem Susitna River water flow above the creek forms a turbid eddy. Mainstem Susitna River water below the mouth does not yet mix with the creek water, causing variable turbidities.

(3) Special studies - helicopter surveys of Indian River and Portage Creek.

Three sites each along the upper Indian River and upper Portage Creek were sampled for general habitat evaluation studies. Sampling was conducted via helicopter in early June, late August, and early October 1981. Sampling was not conducted in July and August due to bad weather conditions. Sites I and II (the lower of the III sites) of both tributaries remained at the same locations during each sample period. Sites III on both Indian River and Portage Creek were relocated after the initial sampling period.

Tributary miles and geographical codes of sampling locations are shown in Table 4.

Table 4. Special study sites in the Gold Creek reach.

HABITAT LOCATION	TRIBUTARY MILE	GEOGRAPHICAL CODE
Indian River		
Site I	2.7	32N 02W 28 DDC
Indian River		
Site II	7.2	32N 02W 11 DCC
Indian River		
Site III - June 1981	13.5	33N 01W 27 DCC
Site III - Aug. & Oct. 1981	12.0	32N 01W 04 BAB
Portage Creek		
Site I	4.5	32N 01E 08 CBA
Portage Creek		
Site II	9.2	33N 01E 26 DDC
Portage Creek		
Site III - June 1981	15.6[a]	22N[c] 08W 34 DCC
Site III - Aug. & Oct. 1981	15.5[b]	22N[c] 08W 28 BAB

[a] East Fork
[b] North fork
[c] Fairbanks Meridian

Indian I

Site I is the lowest of the three sample sites on the upper Indian River. The river in the lower 400 feet of this site forms a single channel. The river in the upper 400 feet contains two small gravel bars that become bank extensions under low discharge conditions. This shallow clearwater river flows fast over a gravel, rubble and cobble substrate. The east bank is steep and densely vegetated with spruce, birch, and cottonwood. The west bank is flat with similar vegetation. A small side channel (approximately 12 feet in width) rejoins the main channel at the lower site boundary. This channel was dry when the site was visited in October.

Indian II

Indian River at site II forms a single, shallow channel with fast flowing clearwater over a rubble and cobble substrate. A bar (approximately 100 feet in length) divides the channel midway up the site. A small creek empties into the river at the east bank above the bar. Both river banks are densely populated with overhanging willows and alders. During low discharges, riffles appeared along this stretch of the river.

Indian III

The June location of site III differed from the August and October location. When sampling in August and October, the June study site could not be located.

Thus a new representative site was established nearby. At the latter site, the channel is braided and meandering. Both banks are low and vegetated. Mid-channel bars lack vegetation, but have debris pile ups. Substrate is gravel and rubble. At the upper end of the site, slow water from an upstream beaver dam empties into the river. This water source is clear with a red-brown tint. Substrate in this area is silt of a non-glacial origin. Fallen trees and brush piles are scattered along the mud banks of the slow water area.

Portage Creek I

The lowest site (I) on Portage Creek has two side channels to the east of the main channel. In the main channel and nearest side channel, water is fast flowing. The substrate consists of rubble and cobble. The farthest of the channels has slow moving water with several clear pools. This channel appeared to have been dammed below the study site by beaver. Banks are low in relief with dense brush.

Portage Creek II

Portage Creek at site II has a fairly straight, main channel with two side channels present. Flows are fast and uniform over a rubble and cobble substrate. Low discharges in October dewatered the middle channel. The depths of the east channel varied from three feet to less than a foot. Banks are steep with bedrock outcrops.

Portage Creek III

Site III on Portage Creek was the uppermost site sampled on this tributary. Because of a waterfall below the original site III, the site was relocated from the east fork to the north fork of Portage Creek. The latter site III includes two small side channels; one on either side of the main channel. Substrate is predominantly gravel, rubble and cobble. Small pools in the west channel contain some sand substrate. Willow and alder provide bank cover.

v. Impoundment Reach

(1) General description.

The upper Susitna River from Devil Canyon to the Oshetna River is a remote wilderness area of high aesthetic and recreational value. Mountainous terrain dominates the area with elevations ranging from 1000 feet near the basin floor of Devil Canyon to over 6000 feet on various mountain peaks in the area. The landscape varies from treeless alpine tundra at higher elevations to low lying areas dominated by black spruce interspersed with muskeg bogs. Occasional stands of cottonwood, birch and aspen are often found throughout the area, especially at lower elevations. Access to the area is limited mostly to aircraft. However, portions are also accessible by boat on the Susitna River launched at the Denali Highway Bridge. Kayakers have been known to float this entire reach through Devil Canyon.

The watershed of the Susitna River above Devil Canyon includes several major tributaries of glacial origin. These streams carry a heavy load of glacial flour during ice-free months. There are also many smaller tributaries which normally run clear year round. The Susitna River from Devil Canyon to the Oshetna River can be divided into two distinct geomorphological regions: Portage Creek to Fog Creek and Fog Creek to Oshetna River. The river between Portage Creek and Fog Creek forms one channel which lies in a deep valley along most of this route. The average gradient is approximately 20 ft./mile. From Fog Creek to the Oshetna River the channel is wider and often splits into two or more channels with an average gradient of approximately 12 ft./mile.

According to a 1977 report by the Alaska District of the Army Corps of Engineers updated by Terrestrial Environmental Services (Schmidt 1981) the two proposed impoundments in this area would inundate approximately 80 miles of the main river with a total surface area of about 50,500 acres. This would include that portion of the Susitna River from the proposed Devil Canyon dam site (R.M. 152.0) to a point approximately four miles upstream from the Oshetna River (R.M. 231.0). The proposed Devil Canyon dam would create an impoundment 28 miles long with a maximum surface elevation of 1455 feet MSL and a surface area of 7,550 acres. The proposed Watana Dam (R.M. 182.0) would create an impoundment that would extend for 54 miles and cover 43,000 acres. It will have a maximum surface elevation of 2215 feet MSL.

Due to the inaccessibility of the Devil Canyon area, and the lack of suitable fisheries habitat, the study area was limited to that section of the Susitna River from Fog Creek to the Oshetna River. Eight habitat locations were chosen within this area for general habitat evaluation studies. These sites were located on the eight major tributaries in the proposed impoundment area.

The selection of these sites was based on preliminary studies done in 1977 by the Alaska Department of Fish and Game for the U.S. Fish and Wildlife Service (ADF&G, 1977). These general habitat evaluation study sites, along with their respective river mile and geographic code are presented in Table 5.

All study sites within the impoundment reach are 500 feet in length with alternating 500 foot non-study areas in between (Figure 10). The initial site at a general habitat evaluation location is always located at the mouth of a particular tributary and successive sites are numbered upstream to a point not exceeding 4500 feet. This procedure essentially covers the lower mile of each tributary. In most cases there are a maximum of five study sites within each general habitat evaluation location. However, in some areas it was not possible or necessary to have the maximum number of sites. In these cases fewer sites were utilized.

Study sites were sampled on a monthly basis. However, various logistical problems and adverse weather sometimes interfered with this schedule. In addition to the regular sites listed in Table 5, Sally Lake was sampled for basic water quality data one time over the course of this season. This data is presented in Appendix B.

Access to all general habitat evaluation locations required initial helicopter support. Where possible, rafts were used to gain access between areas. Individual study sites were reached by hiking upstream from the mouth of each tributary. Remote areas in the upper sections of selected streams also required helicopter support.

Table 5. General habitat evaluation sites in the Impoundment reach.

Habitat Location	River Mile	# of Study Sites	Elevation At Mouth	# of Stream Miles To Be Inundated	Gegraphic Code
*Fog Creek	173.9	3	1380	0.7	31N 04E 16 DBB
*Tsusena Creek	178.9	1	1460	mouth.only	32N 04E 36 ADB
Deadman Creek	183.4	2	1510	2.3	32N 05E 26 CDB
Watana Creek	190.4	5	1590	9.0	32N 06E 25 CCA
Kosina Creek	202.4	5	1690	4.0	31N 08E 15 BAB
Jay Creek	203.9	5	1710	3.0	31N 08E 13 BCC
Goose Creek	224.9	5	2030	1.5	30N 11E 32 DBC
Oshetna River	226.9	5	2050	2.0	30N 11E 34 CCD

* Fog and Tsusena creeks are located in Devil Canyon impoundment. Remaining six tributaries are in Watana impoundment.

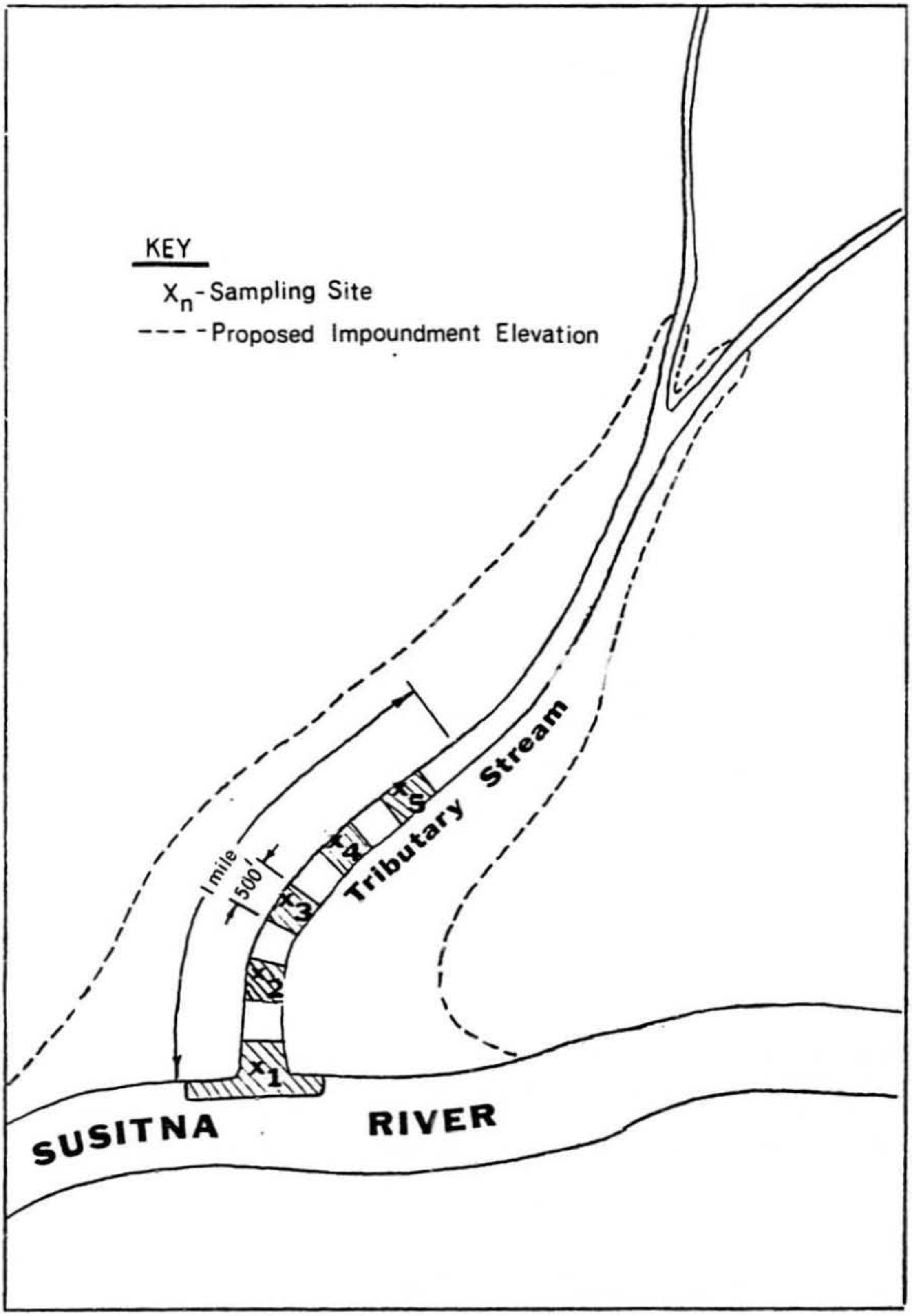


Figure 10. Sampling design used in the Impoundment study reach.

(2) Descriptions of general habitat study locations in the Impoundment Reach.

Fog Creek

Fog Creek is located at river mile 173.9 on the south side of the Susitna River and is approximately 23 miles upstream from the proposed Devil Canyon Dam. The stream would be inundated to a point approximately 0.7 miles upstream by the proposed impoundment. Three study sites (Appendix A, Figures 46-48) were established in the lower 2500 feet of the stream.

This clearwater stream is relatively narrow and shallow with widths ranging from 50-75 feet and average depths of 1-2 feet. The stream habitat is predominantly riffle with few pools and little cover present. Substrate consists mostly of rubble and cobble. Most of the study area consists of one stable channel except for the lower 500 feet where it becomes braided. During periods of high discharge, many backwater areas were present. The stream channel at the mouth was dynamic during the season due to the fluctuating discharges of both the Susitna River and Fog Creek.

Tsusena Creek

Tsusena Creek is located at river mile 178.9 on the north side of the Susitna River and lies approximately 28 miles upstream from the proposed Devil Canyon Dam. Only the mouth of this stream will be affected by the proposed impoundment since it lies near the projected Devils Canyon impoundment elevation of 1455 feet. Therefore, only one study site (Appendix A, Figure 49) was established at this location.

The study site consists of a split channel with two distinct habitat types. The east channel is a wide fast flowing section approximately 100 feet wide with average depths of 2-4 feet. This section is characterized by riffles and whitewater areas with no prominent pools or cover available. Substrate consisted of cobble and large boulders. The west channel was between 25-50 feet wide with average depth of 1-2 feet. This channel consisted of alternating pool/riffle areas with some cover available along the bank. Substrates consisted of gravel and rubble. Both stream channels were stable and the water remained extremely clear despite heavy rains during the summer. The split channel resulted in the formation of two mouths with a large gravel bar separating them. This area was dynamic throughout the season and was often inundated by the high water of the Susitna.

Deadman Creek

Deadman Creek is located at river mile 183.4 on the north side of the Susitna River and lies approximately 1.0 mile upstream from the proposed Watana Dam. Approximately 2.3 stream miles would be inundated by the proposed impoundment. Because of a deep canyon and large waterfall past the first half mile, access to this area was limited and only two study sites (Appendix A, Figures 50-51) were established in the first 1500 feet of stream.

The study area of Deadman Creek is an extremely fast and turbulent whitewater area with a relatively steep gradient resulting in few pools and little cover. A large waterfall, which is presently a barrier to fish migration, is located approximately 1.0 mile upstream from the mouth. The stream channel below the falls is stable and is situated in a deep canyon for most of this length. Channel widths are between 75-100 feet and average depths are 3-5 feet. Substrates consist mostly of cobble and boulder. Above the falls stream gradient is not as steep and many pools are present. The proposed impoundment would inundate the waterfall and allow fish migration between Deadman Lake, approximately 10 miles upstream, and the Susitna River.

Watana Creek

Watana Creek is located at river mile 190.4 on the north side of the Susitna River and is approximately 8 miles upstream from the proposed Watana Dam. About 9.0 stream miles would be inundated by the proposed impoundment. Five study sites (Appendix A, Figures 52-56) were established in the lower 4500 feet of stream. Due to high water and steep terrain study sites 4 and 5 were inaccessible after the month of June.

Watana Creek is a shallow meandering stream approximately 40-60 feet wide with depths averaging 2-3 feet. It has a shallow gradient resulting in a moderate flow with few pools interspersed between the predominent riffle areas. The substrate consists mostly of gravel and rubble. The water was often turbid during the summer because of heavy rains and unstable soils present upstream. The stream channel itself was stable and did not appear to shift except at the mouth where a dynamic multi-channel system was present during periods of high flow. During low discharge periods only one main channel was present at the mouth.

Kosina Creek

Kosina Creek is located at river mile 202.4 on the south side of the Susitna River and lies approximately 20.0 miles upstream from the proposed Watana Dam. About 4.0 stream miles would be inundated by the proposed impoundment. Five study sites (Appendix A, Figures 57-61) were established in the lower 4500 feet of stream.

Kosina Creek is a deep and turbulent stream which is predominantly whitewater interspersed with deep pools and shallower riffle areas which provide excellent fish habitat. Average depths are 3-4 feet but there are several pools which exceed 6-8 feet in depth. Substrates consist mostly of sand, large cobble and boulders. The stream channel is stable and is situated in a narrow valley with a moderate gradient. It is often braided with total widths frequently over 200 feet. A split channel resulted in the formation of two mouths approximately 150 feet apart with a large tree covered island separating them. The west channel, which is the larger of the two, is predominantly whitewater and is about 125 feet wide. The east channel is slow flowing and shallow with alternating pool/riffle areas.

Jay Creek

Jay Creek is located at river mile 203.9 on the north side of the Susitna River and lies approximately 22 miles upstream of the proposed Watana Dam. About 3.0 stream miles would be inundated by the proposed impoundment. Five study sites (Appendix A, Figures 62-66) were established in the lower 4500 feet of stream.

Jay Creek is a relatively narrow, shallow stream predominantly riffle with a moderate flow. It is between 40-60 feet wide with depths averaging 1-3 feet. Substrate consists of gravel, cobble and rubble often embedded in sand. Although the water is generally clear, unstable soils in upstream areas often result in landslides which can change the water to a turbid condition within minutes. The stream channel itself is stable. The channel splits about 100 feet from the Susitna resulting in two distinct mouths. These mouths are influenced by the changing water level of the Susitna but the effects are minimal.

Goose Creek

Goose Creek is located at river mile 224.9 on the south side of the Susitna River and lies approximately 43 miles upstream from the proposed Watana Dam. About 1.5 stream miles would be inundated by the proposed impoundment. Five study sites (Appendix A, Figures 67-71) were established in the lower 4500 feet of stream.

Goose Creek is a narrow, shallow stream approximately 40-60 feet wide with average depths of 2-3 feet. The habitat is predominantly riffle with a moderate flow and few pools. Substrate consists of rubble, cobble and boulders often embedded in sand. The stream channel and banks are stable and the water usually remains clear even during periods of moderate rains. The discharge of Goose Creek would fluctuate considerably with a significant amount of rainfall and this would often result in a braided channel at the mouth. The mouth was also influenced significantly by the water level of the Susitna River. During periods of high discharge, large amounts of silt and sand were deposited at the mouth only to be washed away by the waters of Goose Creek after the water level of the Susitna had receded.

Oshetna River

The Oshetna River is located at river mile 226.9 on the south side of the Susitna River and lies approximately 45 miles upstream from the proposed Watana Dam. About 2.0 stream miles would be inundated by the proposed impoundment. Five study sites (Appendix A, Figures 72-76) were established in the lower 4500 feet of stream.

The Oshetna River is a large, meandering stream approximately 100-125 feet wide with average depths of 3-5 feet. Streamflow is slow to moderate with alternating pool/riffle areas which provide excellent fish habitat. Substrate consists mostly of rubble and cobble with some large boulders. The stream channel is stable throughout the study area and contains many large gravel bars. This stream is partially under glacial influence and the water was often turbid even during periods of dry weather.

b. General Habitat Evaluation Study Site Physiochemical Data

Dissolved oxygen, pH, water and air temperatures, turbidity and specific conductance were measured twice monthly at each general habitat evaluation study site, except in the Impoundment reach, where these parameters were measured monthly. The data are presented for each site in a graphical format versus specific points in time (Figures 11-93). The data are also presented in tabular form in Appendix B.

c. Thermograph Data

Water temperature data were continually recorded at 29 sites in the study area (Figure 94, Table 6) using Ryan Model J 90 day thermographs. The data were converted into daily means, calculated as the mean of twelve, two hour point temperatures. The temperature data for each thermograph site are presented as a function of time (Figures 95-117; Appendix C, Tables 1-23).

d. Stage Data

Stage data were collected at three AA fishwheel sites and each lower river general habitat evaluation study site (Figure 94, Table 7). Data collected at fishwheel sites are presented in Figures 118-121 and Appendix D, Tables 1-4. Data collected at relatively stable general habitat evaluation study sites are listed in Appendix D.

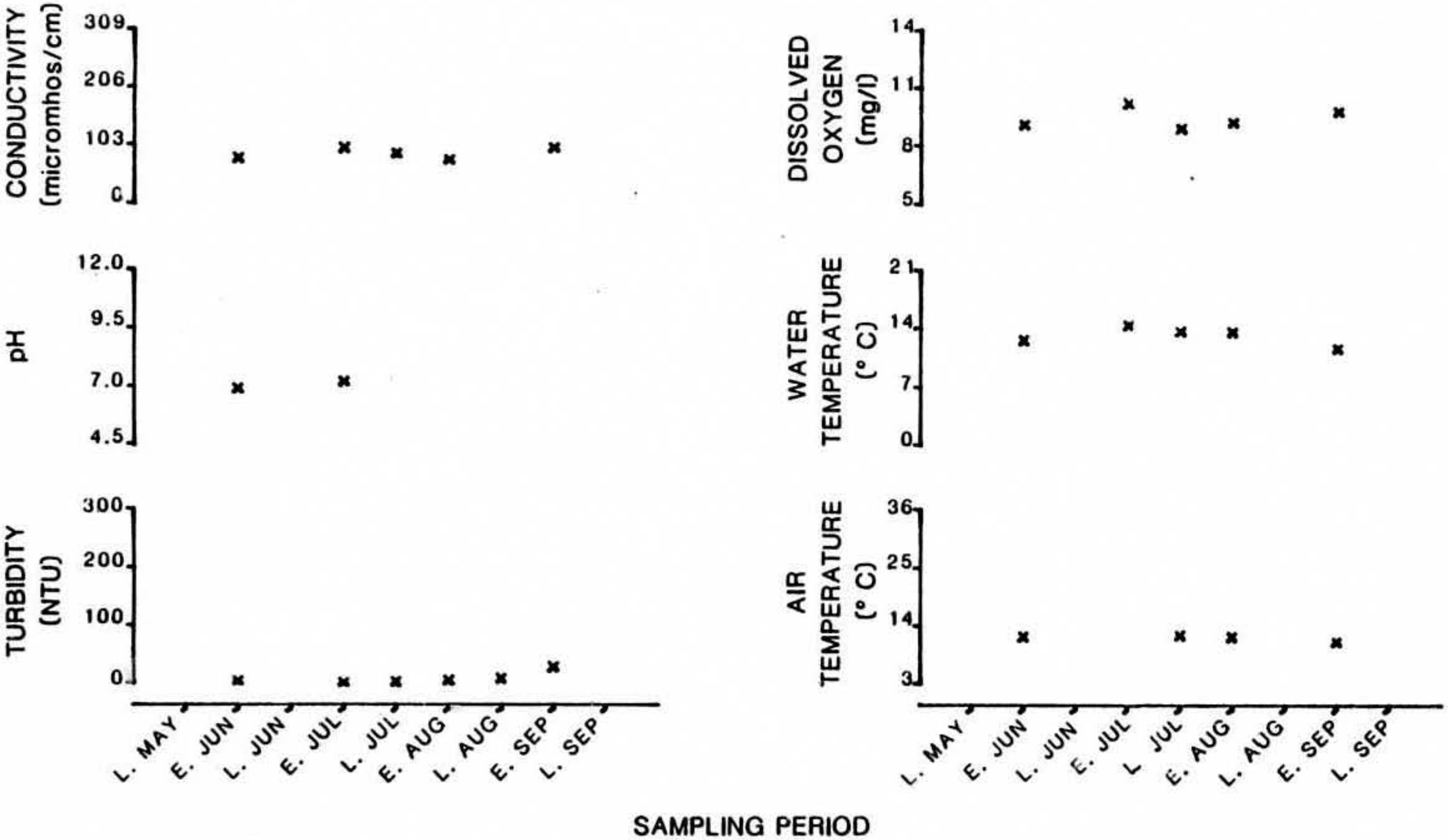


Figure 11. Physiochemical parameters versus time (May-Septebmer, 1981) for Alexander Creek - Site A (R.M. 10.1, Geographic Code 15N07W06DCA)

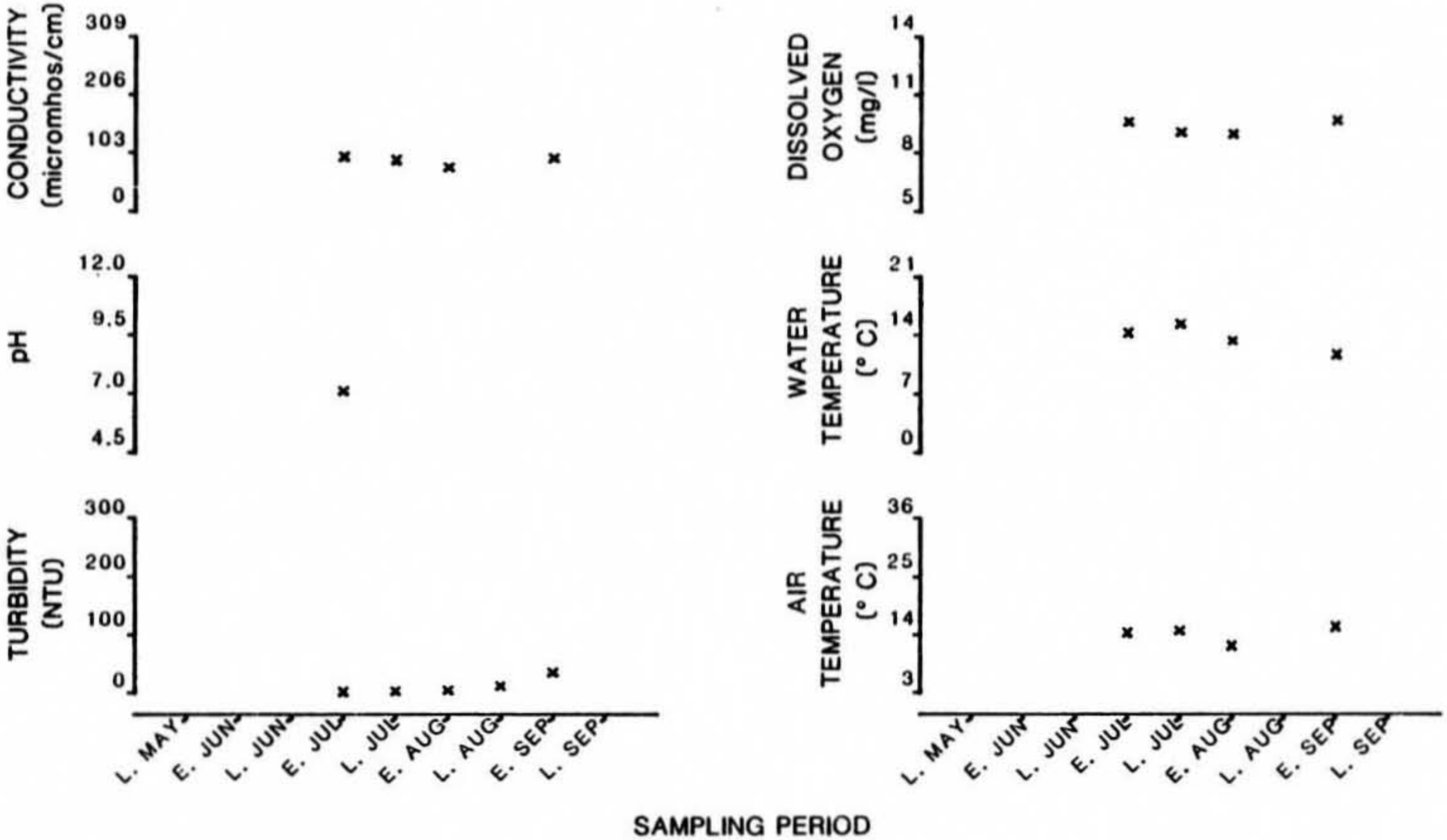


Figure 12. Physiochemical parameters versus time (May-September, 1981)
for Alexander Creek - Site B
(R.M. 10.1, Geographic Code 16N07W32CCB)

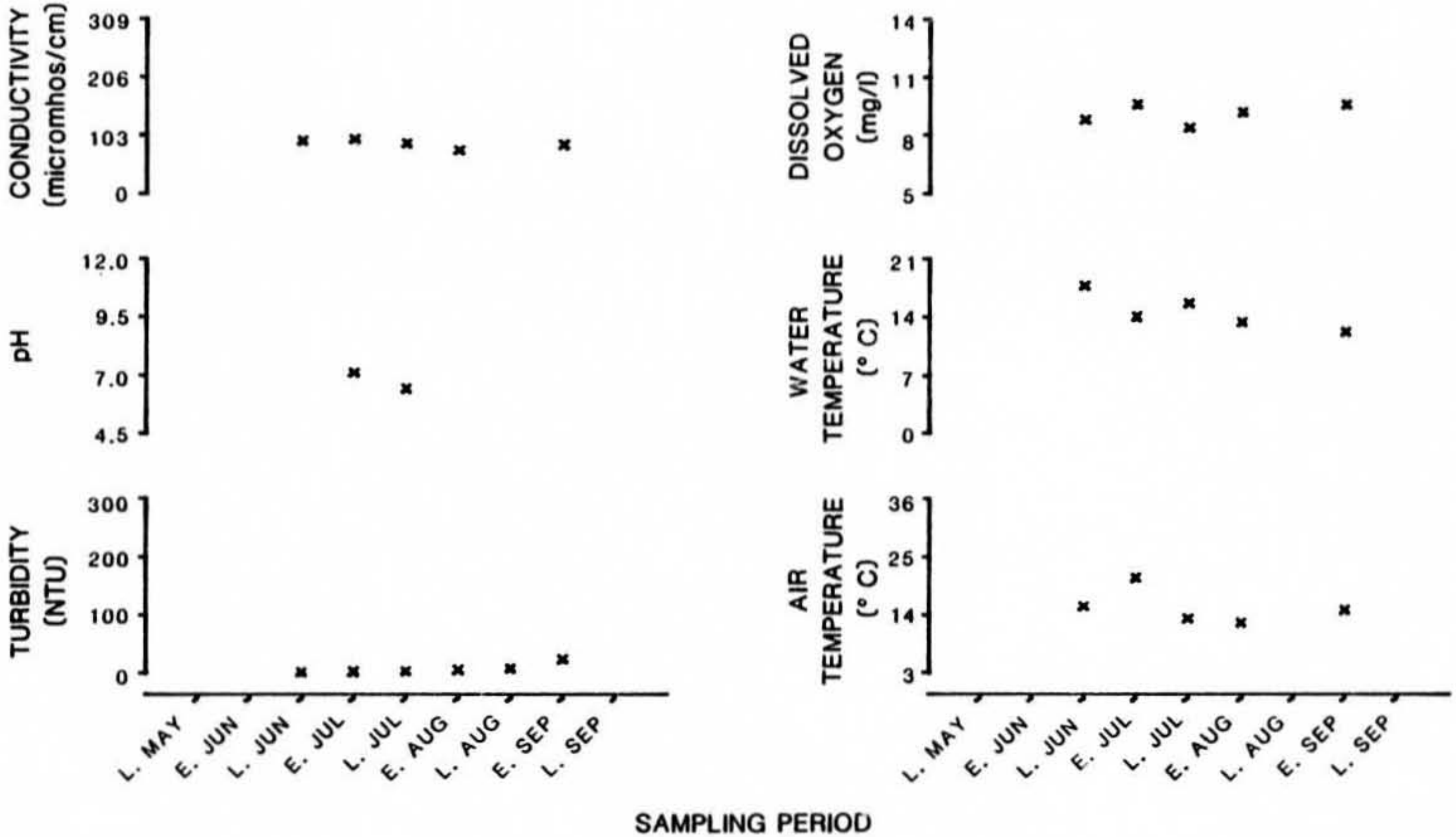


Figure 13. Physiochemical parameters versus time (May-September, 1981)
for Alexander Creek - Site C
(R.M. 10.1, Geographic Code 16N07W30ACD)

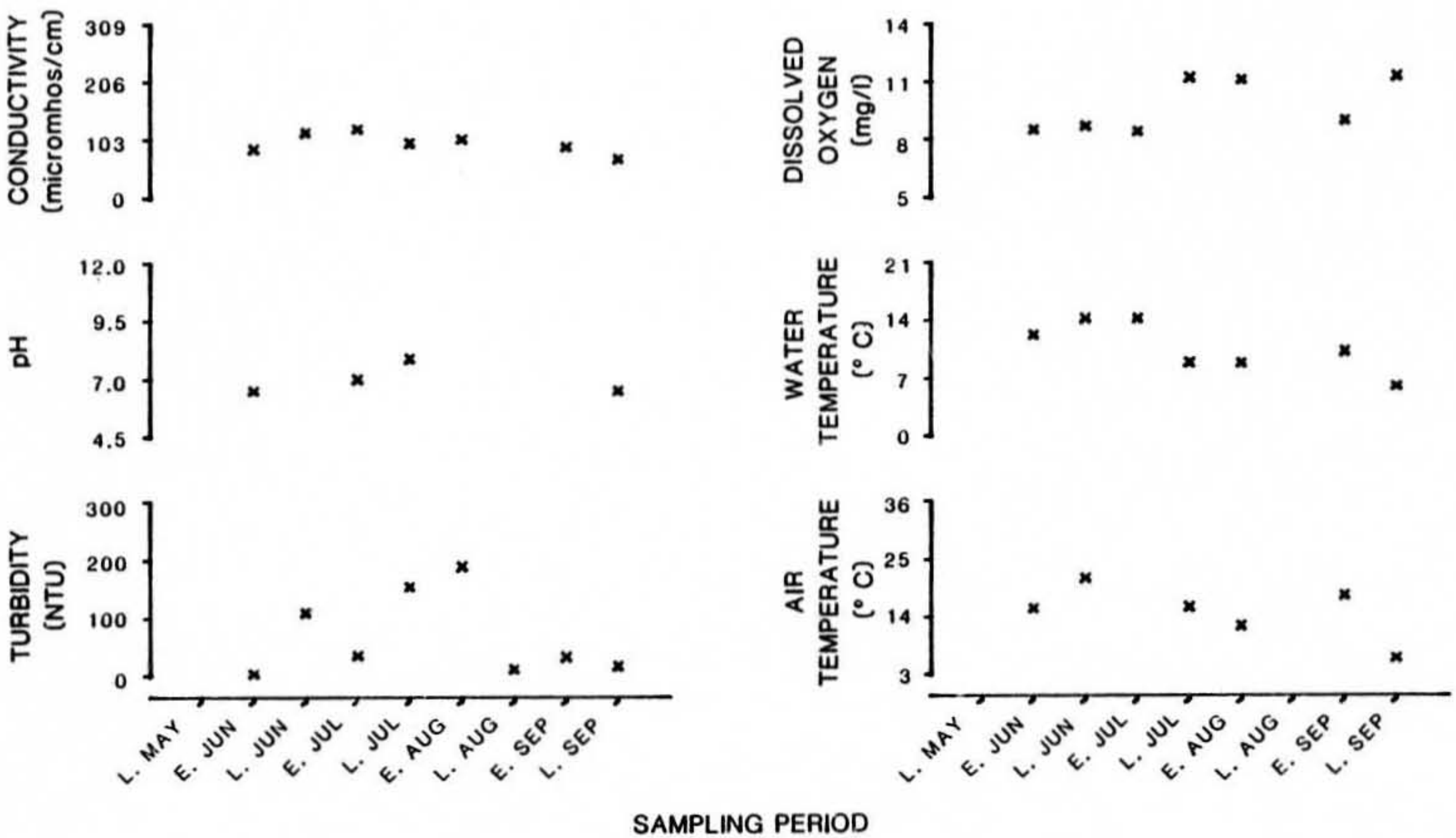


Figure 14. Physiochemical parameters versus time (May-September, 1981) for Anderson Creek (R.M. 23.8, Geographic Code 17NO7W29DDD)

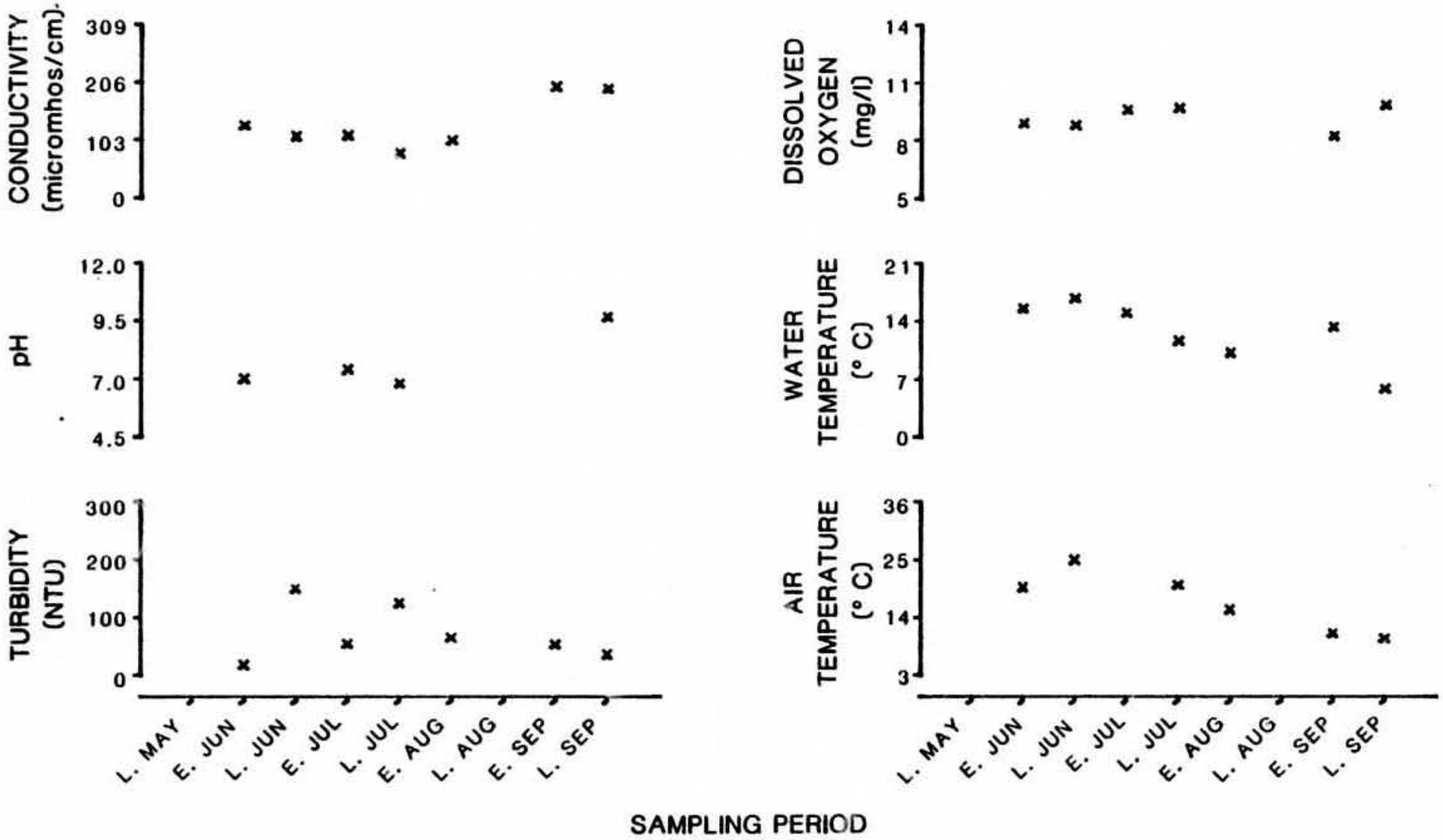


Figure 15. Physiochemical parameters versus time (May-September, 1981)
for Kroto Slough Mouth
(R.M. 30.1, Geographic Code 17N07W01DBC)

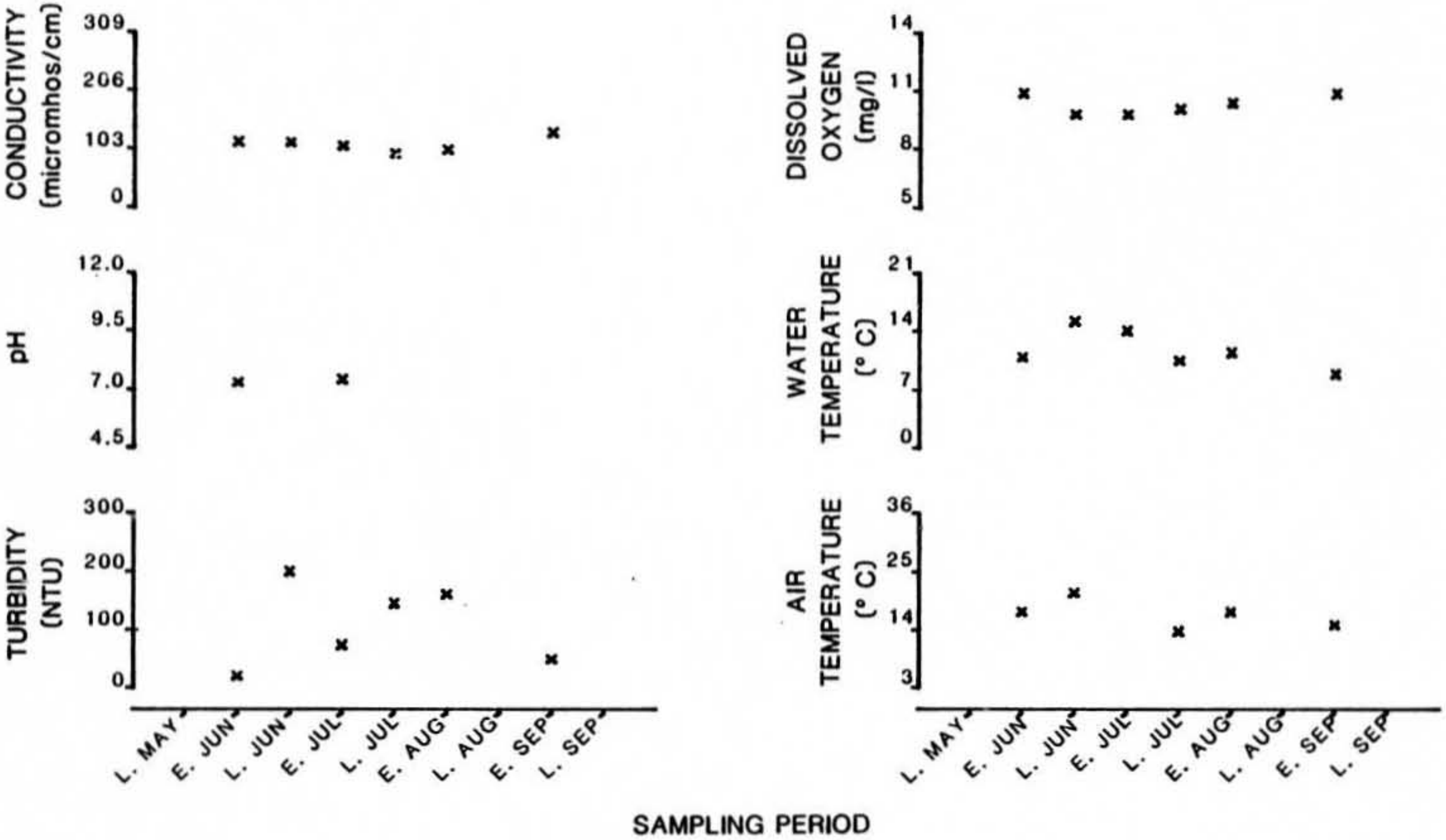


Figure 16. Physiochemical parameters versus time (May-September, 1981)
for Mid Kroto Slough
(R.M. 36.3, Geographic Code 18N06W16BBC)

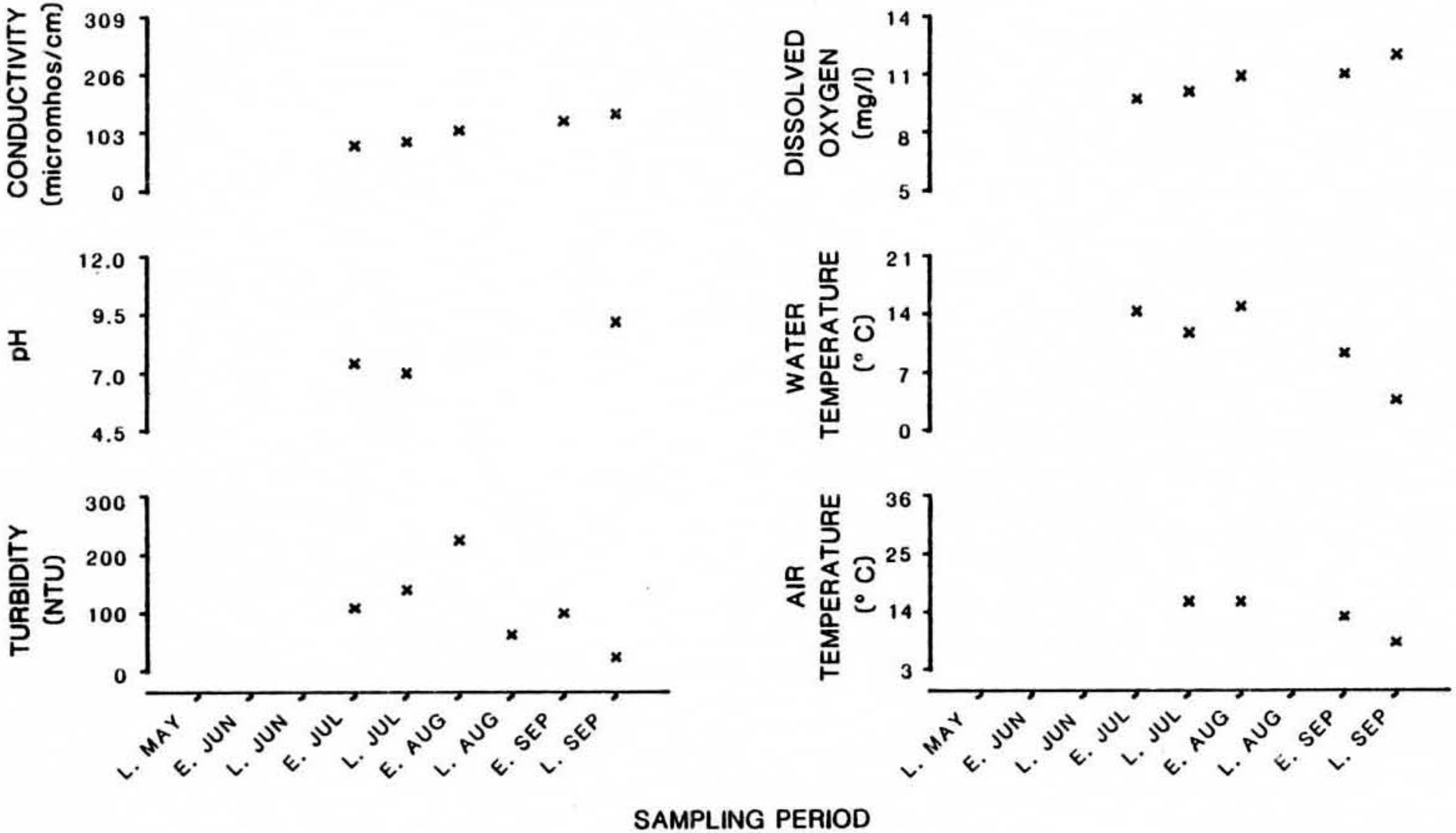


Figure 17. Physiochemical parameters versus time (May-September, 1981)
for Mainstem Slough
(R.M. 31.0, Geographic Code 17N06W05CAB)

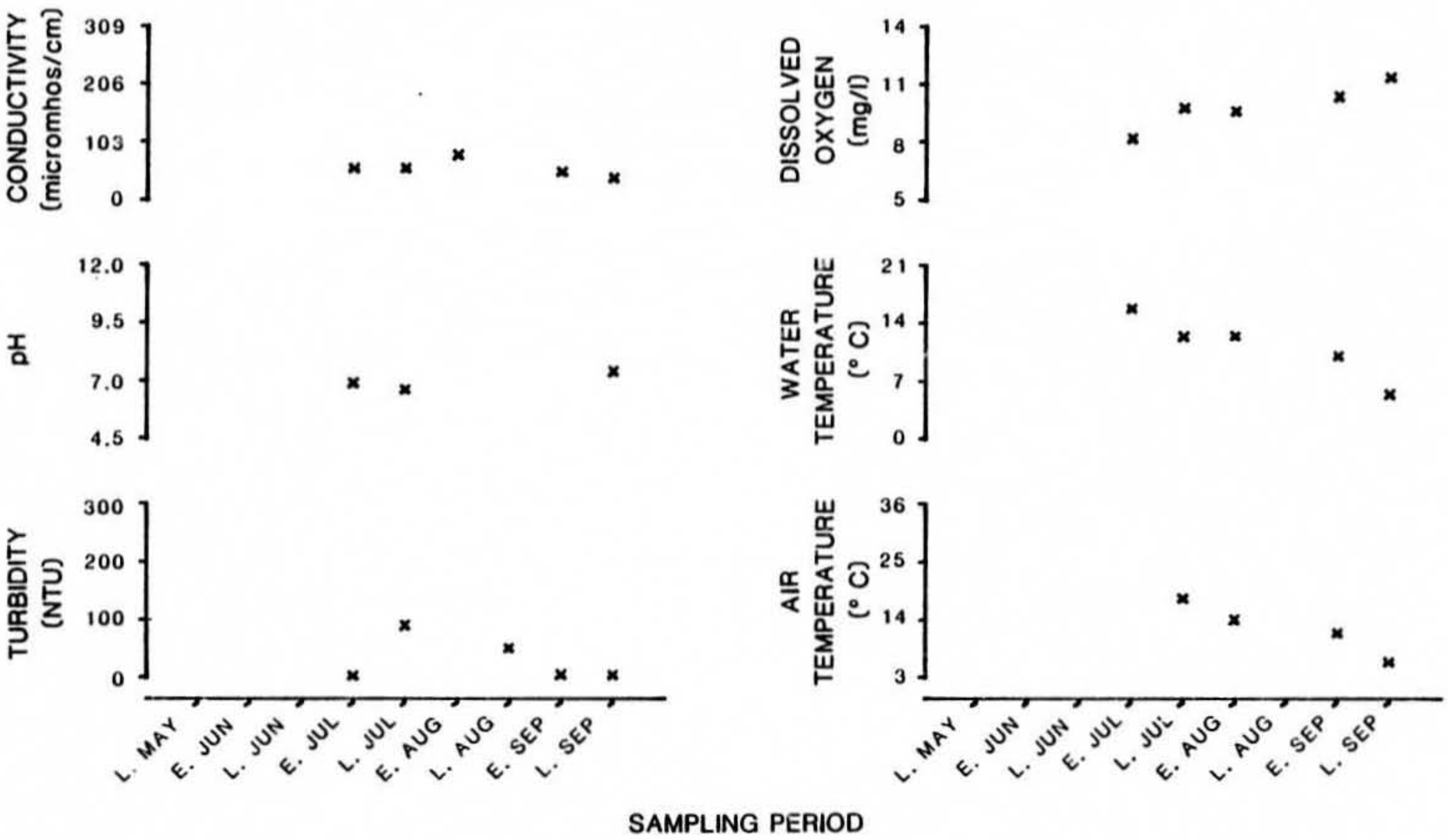


Figure 18. Physiochemical parameters versus time (May-September, 1981)
for Deshka River - Site A
(R.M. 40.6, Geographic Code 19N06W35BDA)

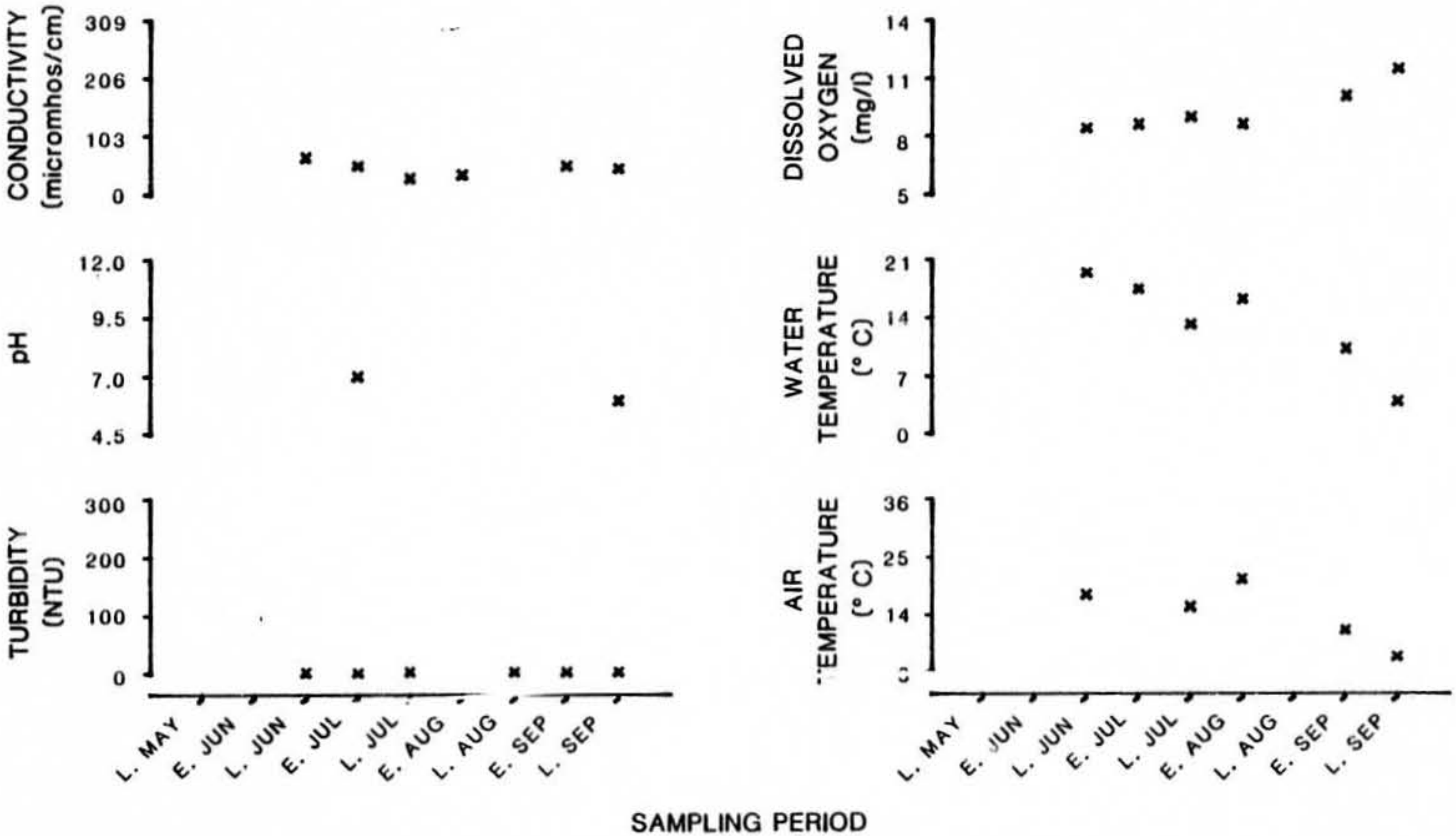


Figure 19. Physiochemical parameters versus time (May-September, 1981)
for Deshka River - Site B
(R.M. 40.6, Geographic Code 19N06W26BCB)

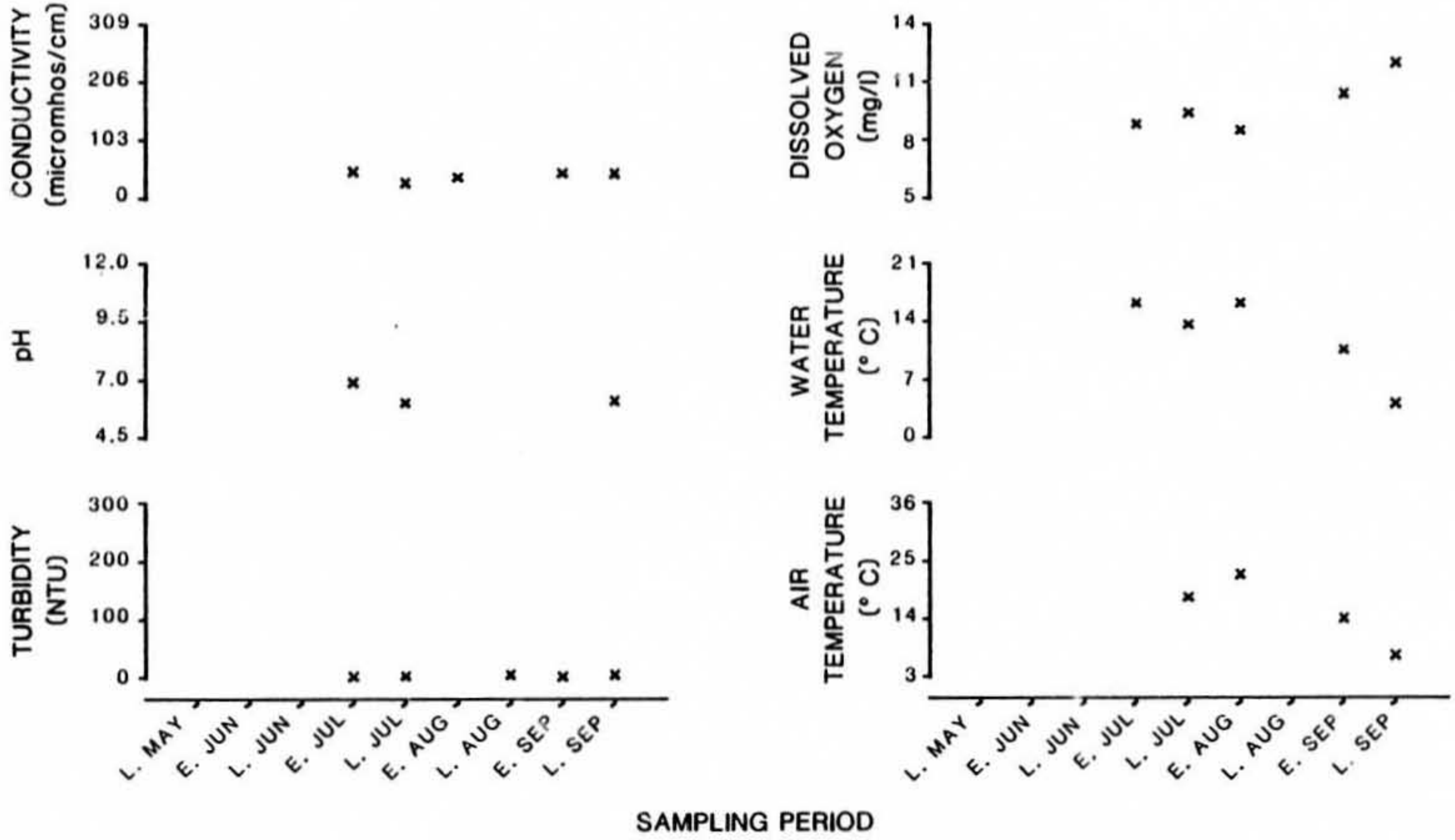


Figure 20. Physiochemical parameters versus time (May-September, 1981)
for Deshka River - Site C
(R.M. 40.6, Geographic Code 19N06W14BCA)

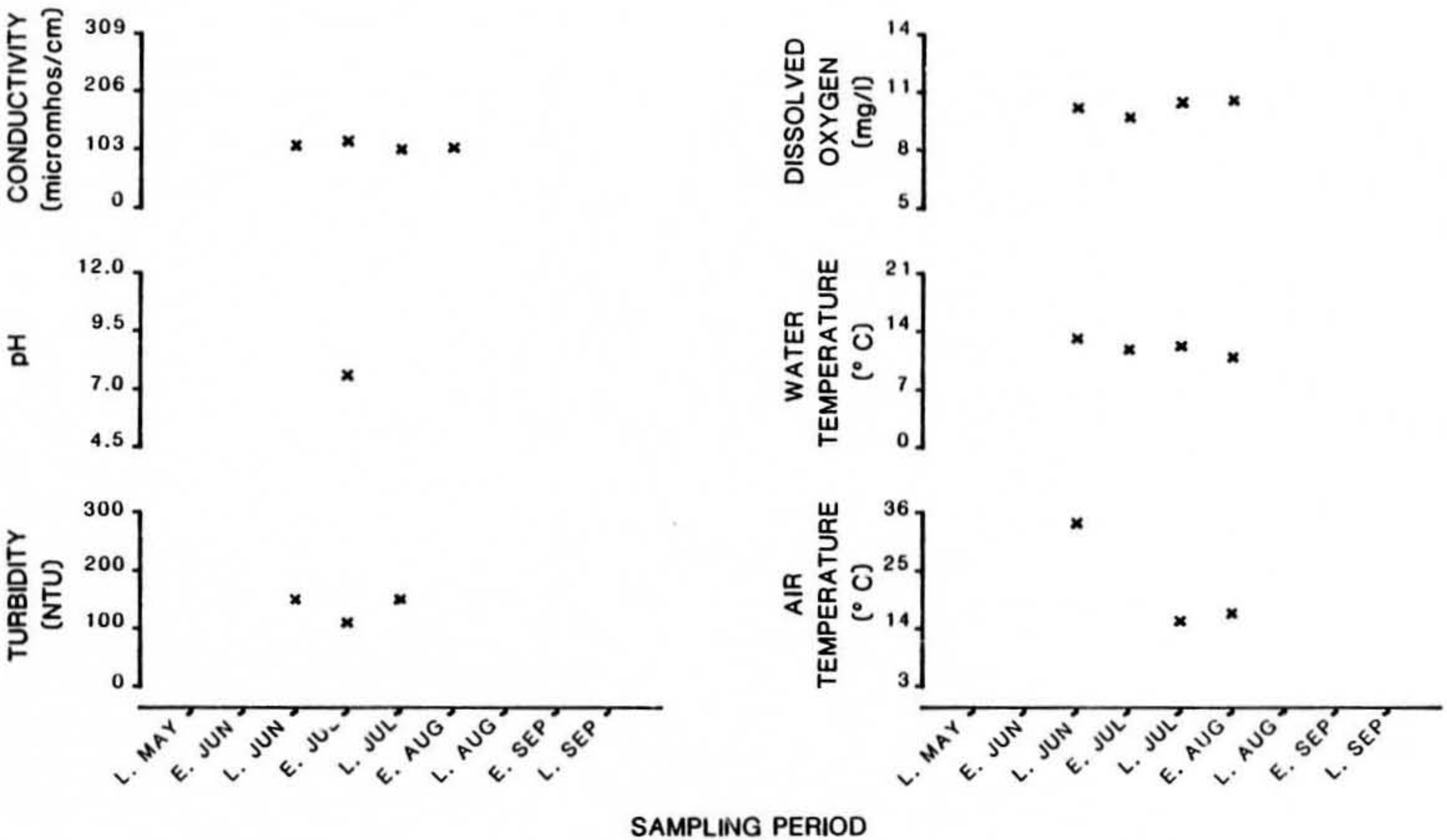


Figure 21. Physiochemical parameters versus time (May-September, 1981) for Lower Delta Islands (R.M. 44.0, Geographic Code 19NO5W19ACB)

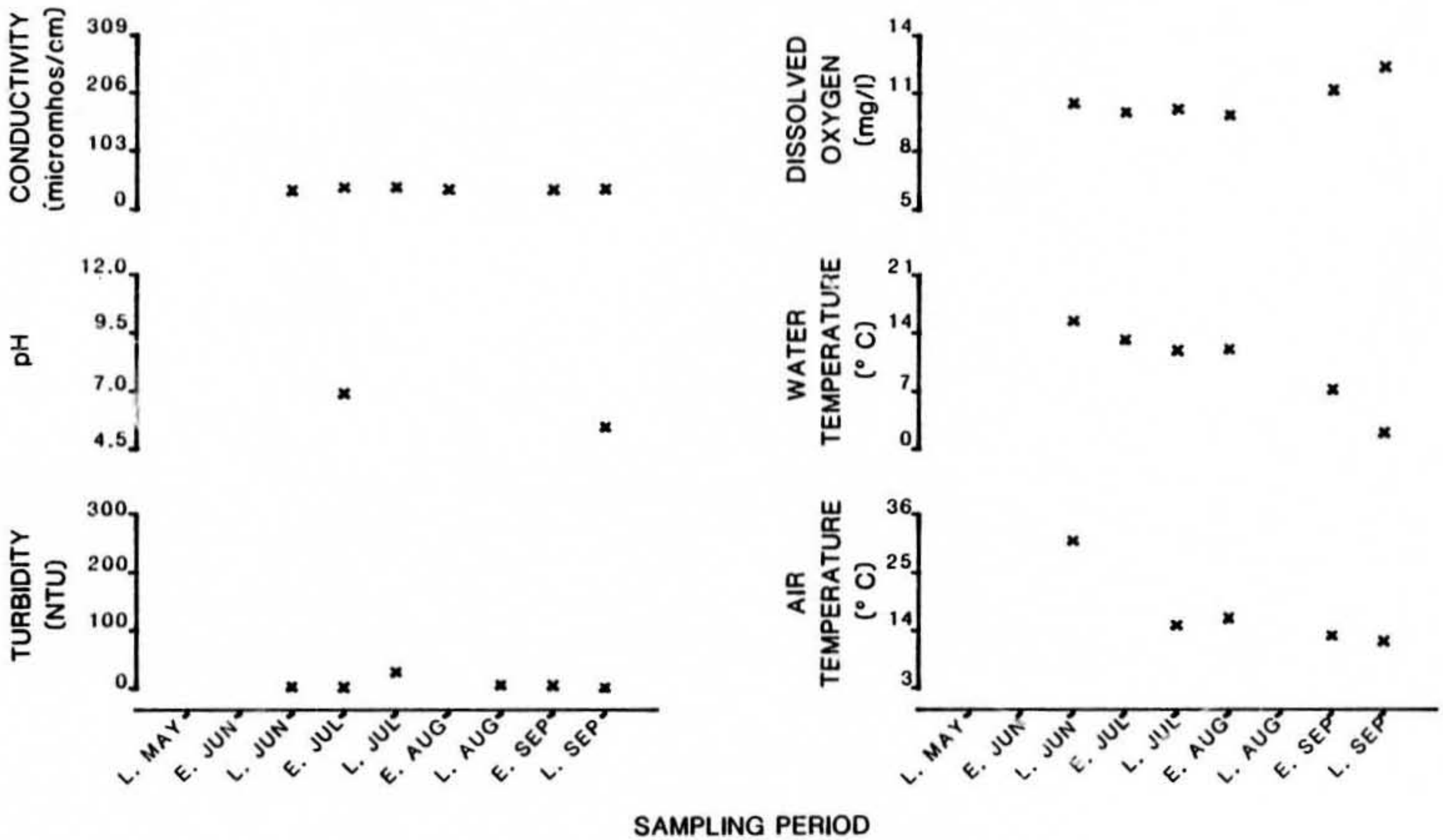


Figure 22. Physiochemical parameters versus time (May-September, 1981)
for Little Willow Creek
(R.M. 50.5, Geographic Code 20N05W27AAD)

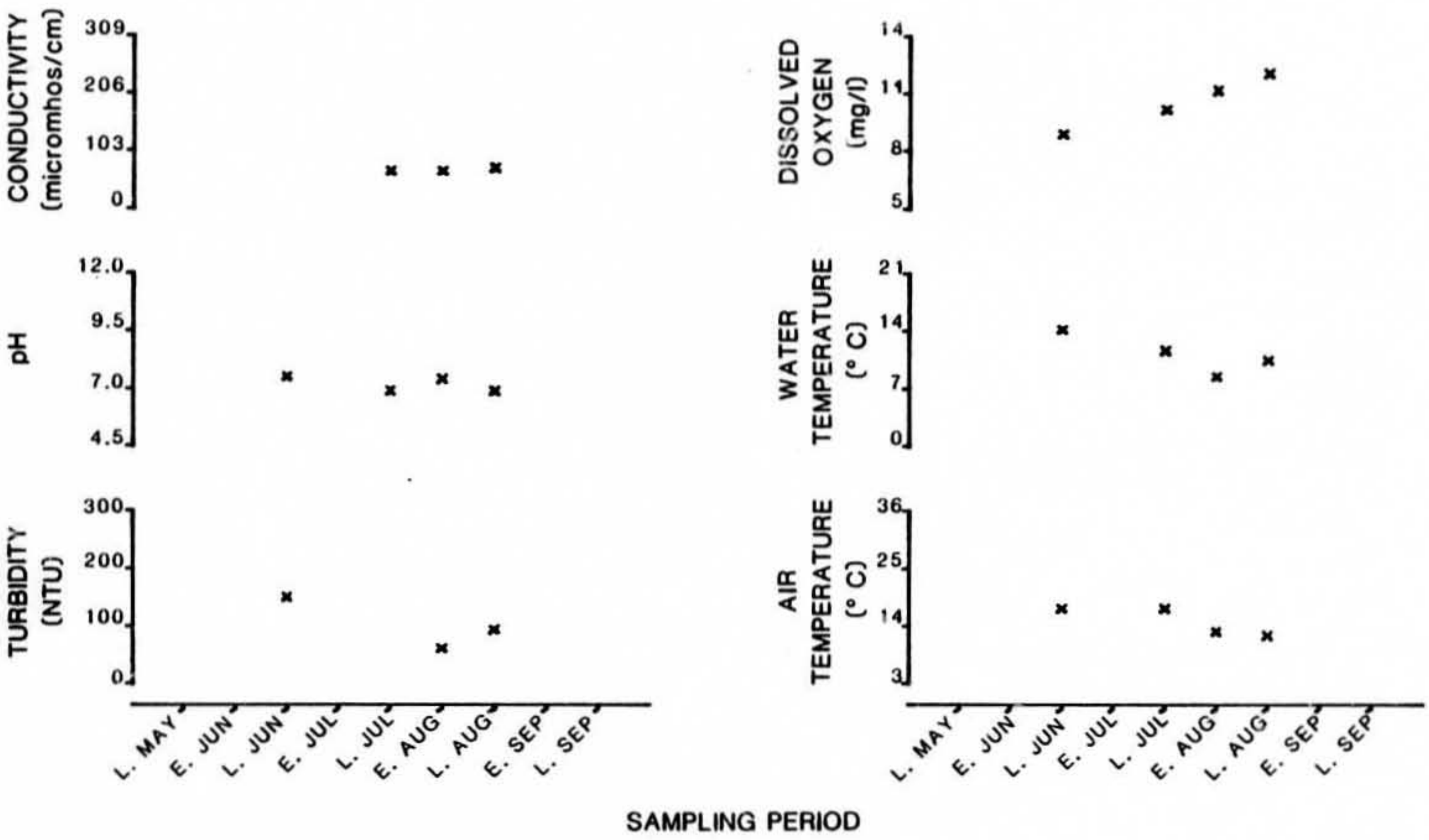


Figure 23. Physiochemical parameters versus time (May-September, 1981)
for Rustic Wilderness
(R.M. 58.1, Geographic Code 21N05W25CBD)

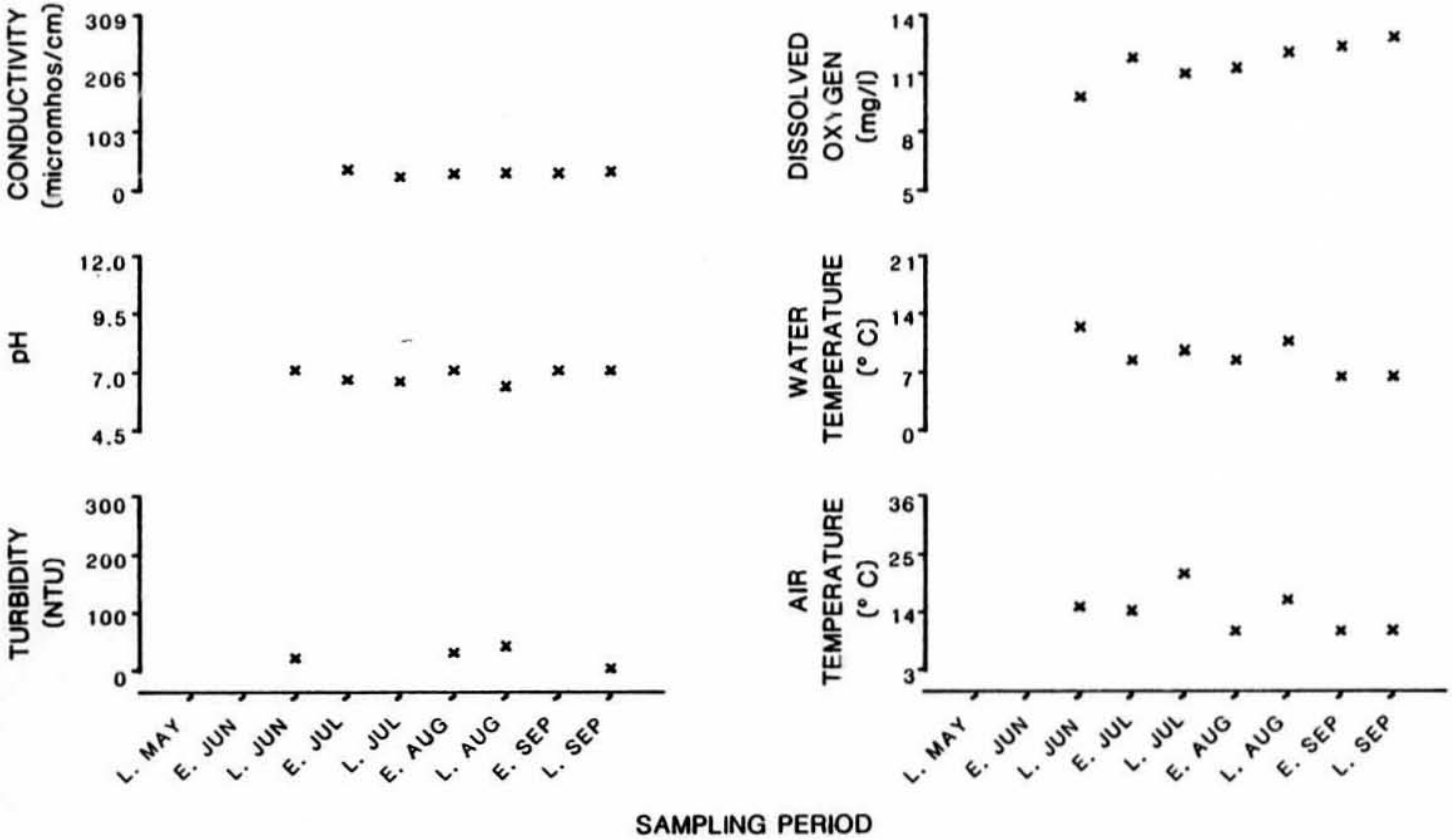


Figure 24. Physiochemical parameters versus time (May-September, 1981)
for Kashwitna River
(R.M. 61.0, Geographic Code 21N05W13AAA)

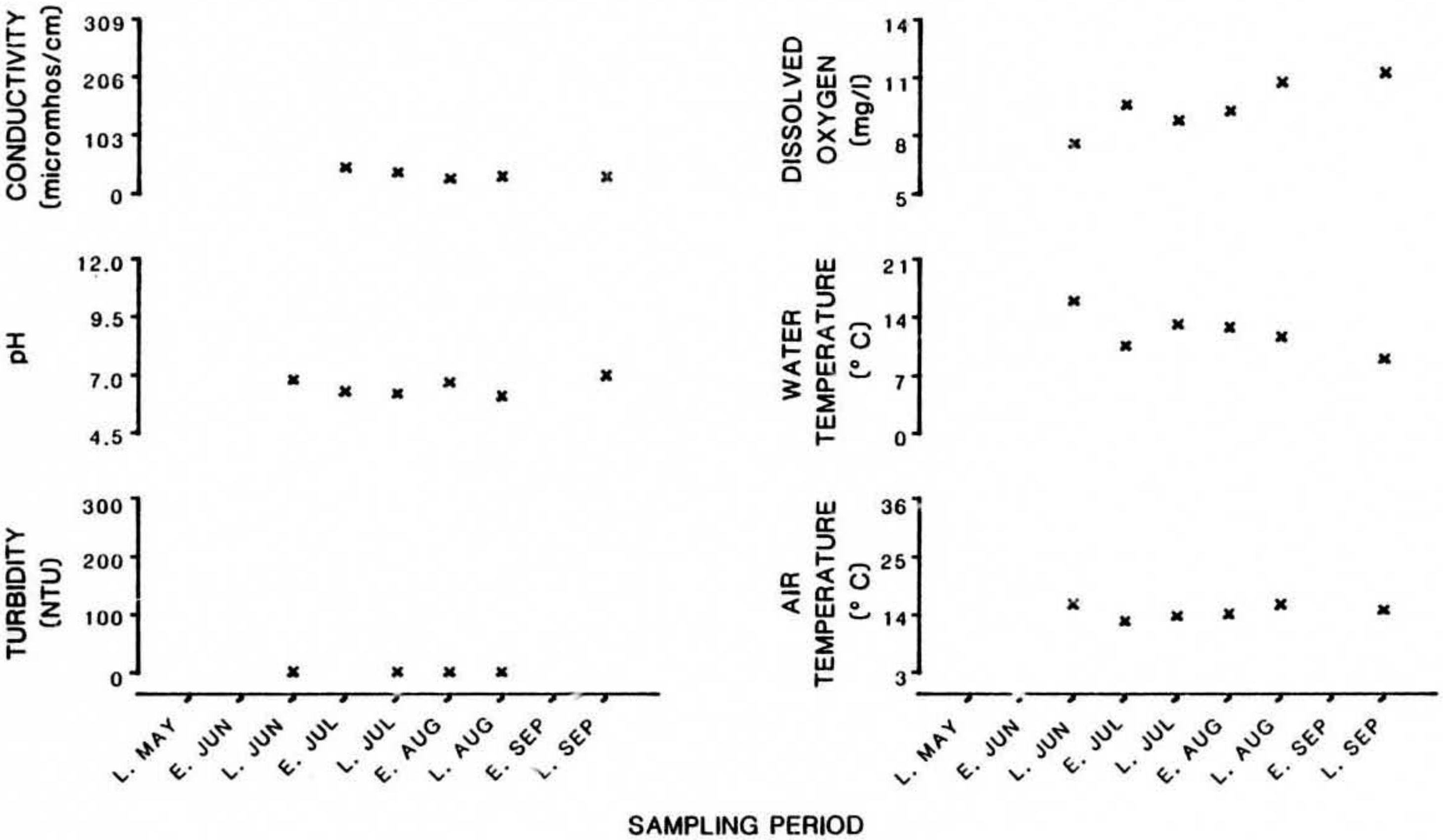


Figure 25. Physiochemical parameters versus time (May-September, 1981) for Caswell Creek (R.M. 63.0, Geographic Code 21N04W06BDD)

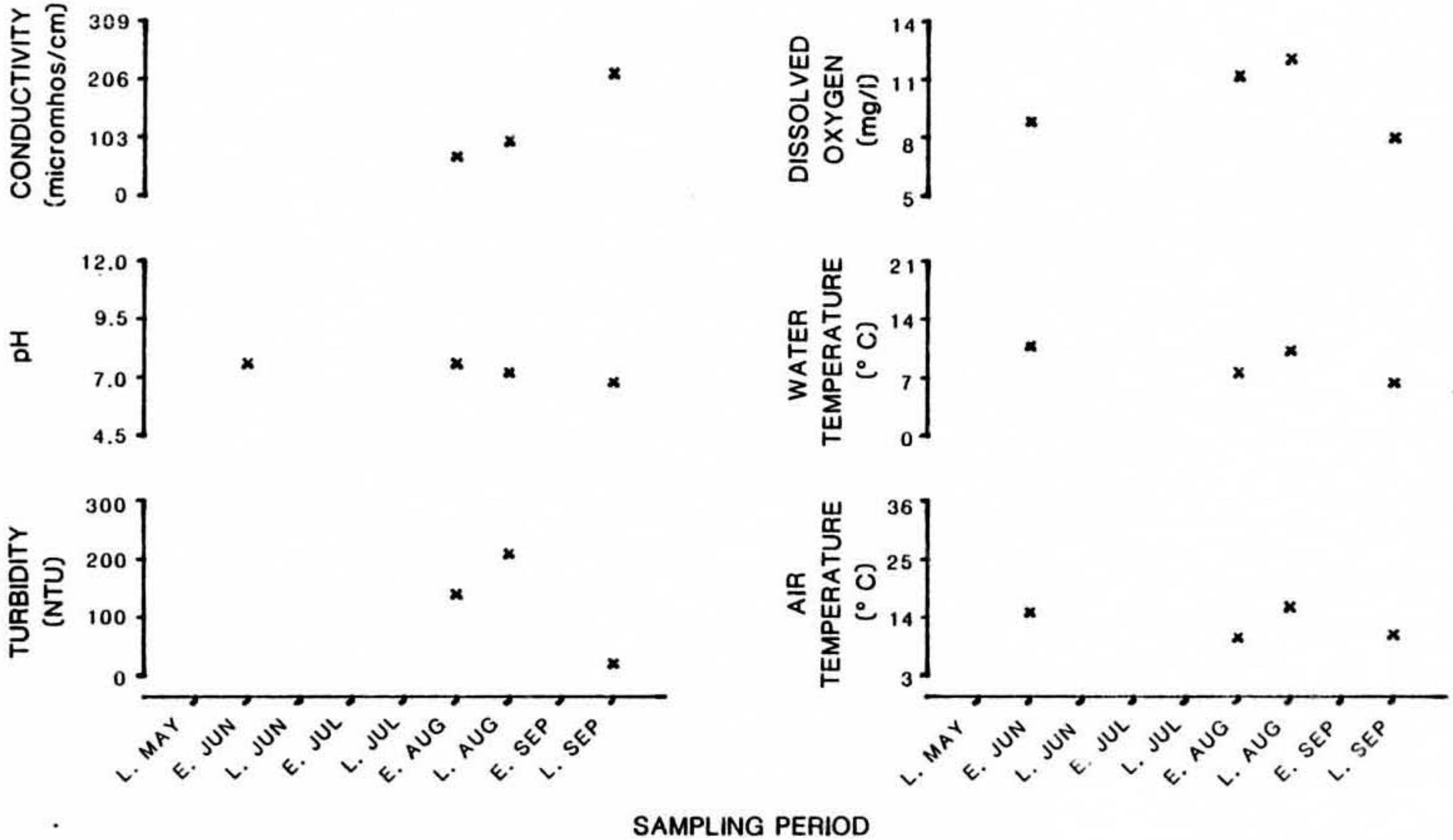


Figure 26. Physiochemical parameters versus time (May-September, 1981)
for Slough West Bank
(R.M. 65.6, Geographic Code 22N05W27ADC)

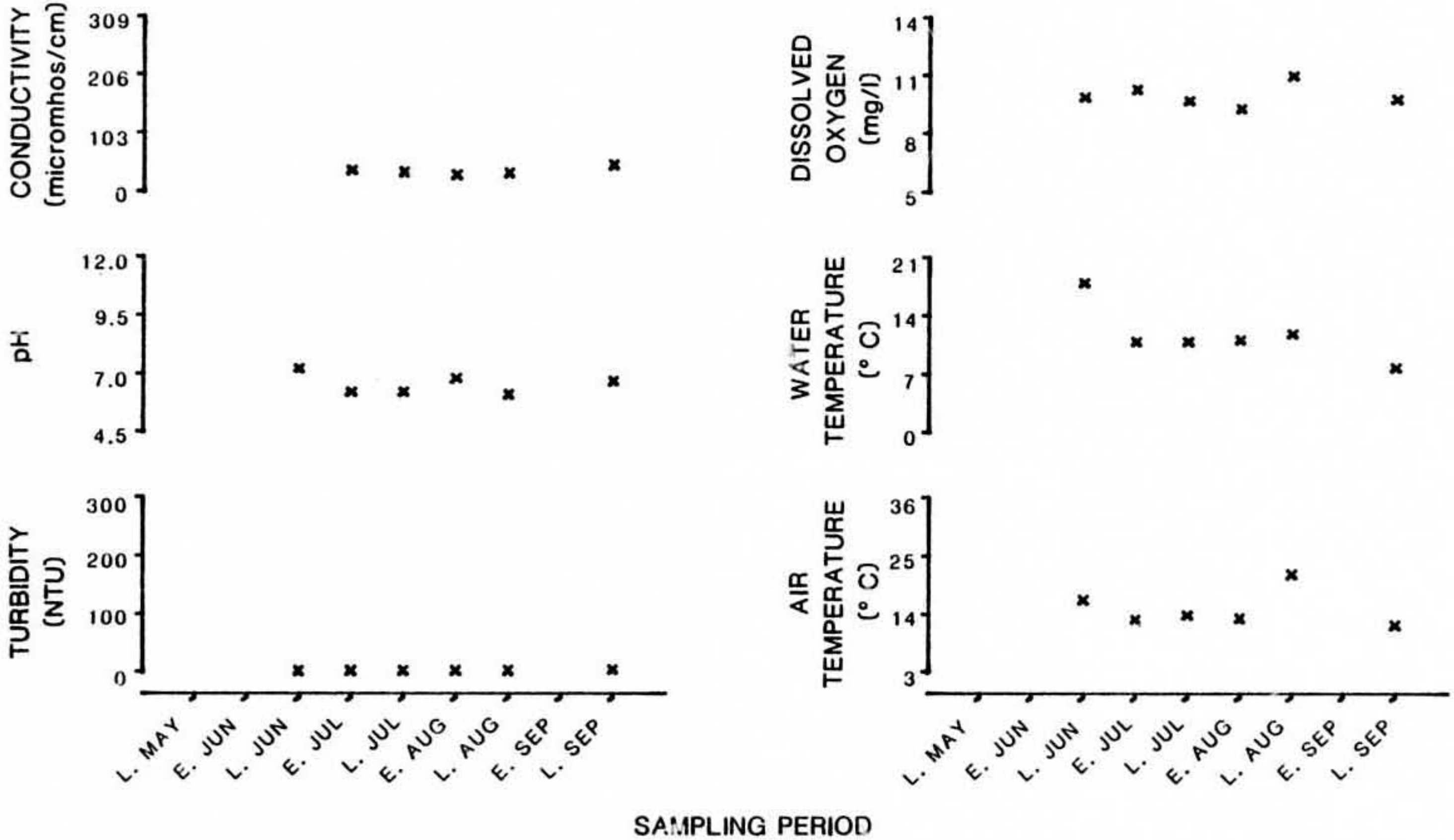


Figure 27. Physiochemical parameters versus time (May-September, 1981) for Sheep Creek Slough (R.M. 66.1, Geographic Code 22N04W30BAB)

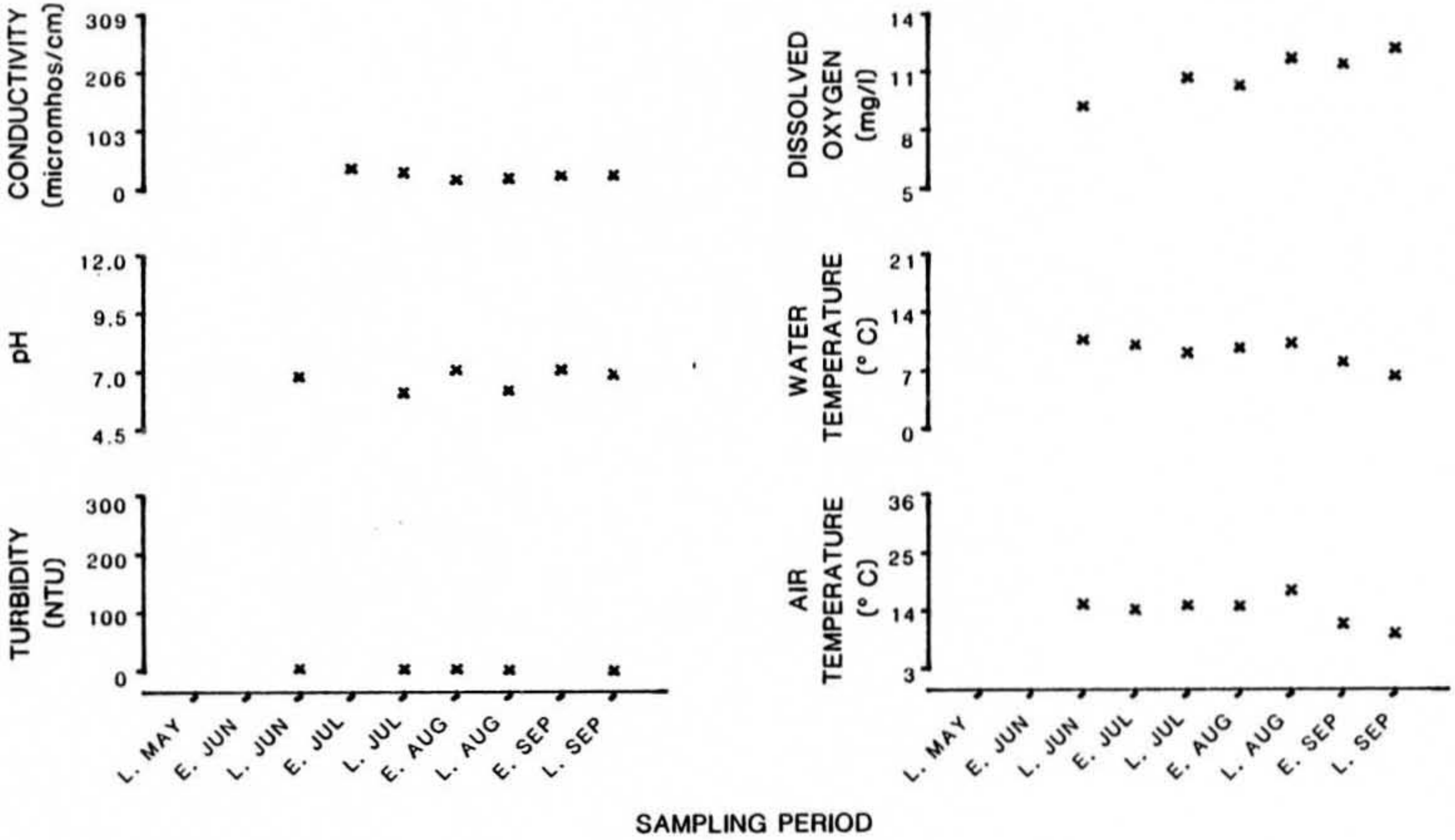


Figure 28. Physiochemical parameters versus time (May-September, 1981)
for Goose Creek - Site 1
(R.M. 72.0, Geographic Code 23N04W31BBC)

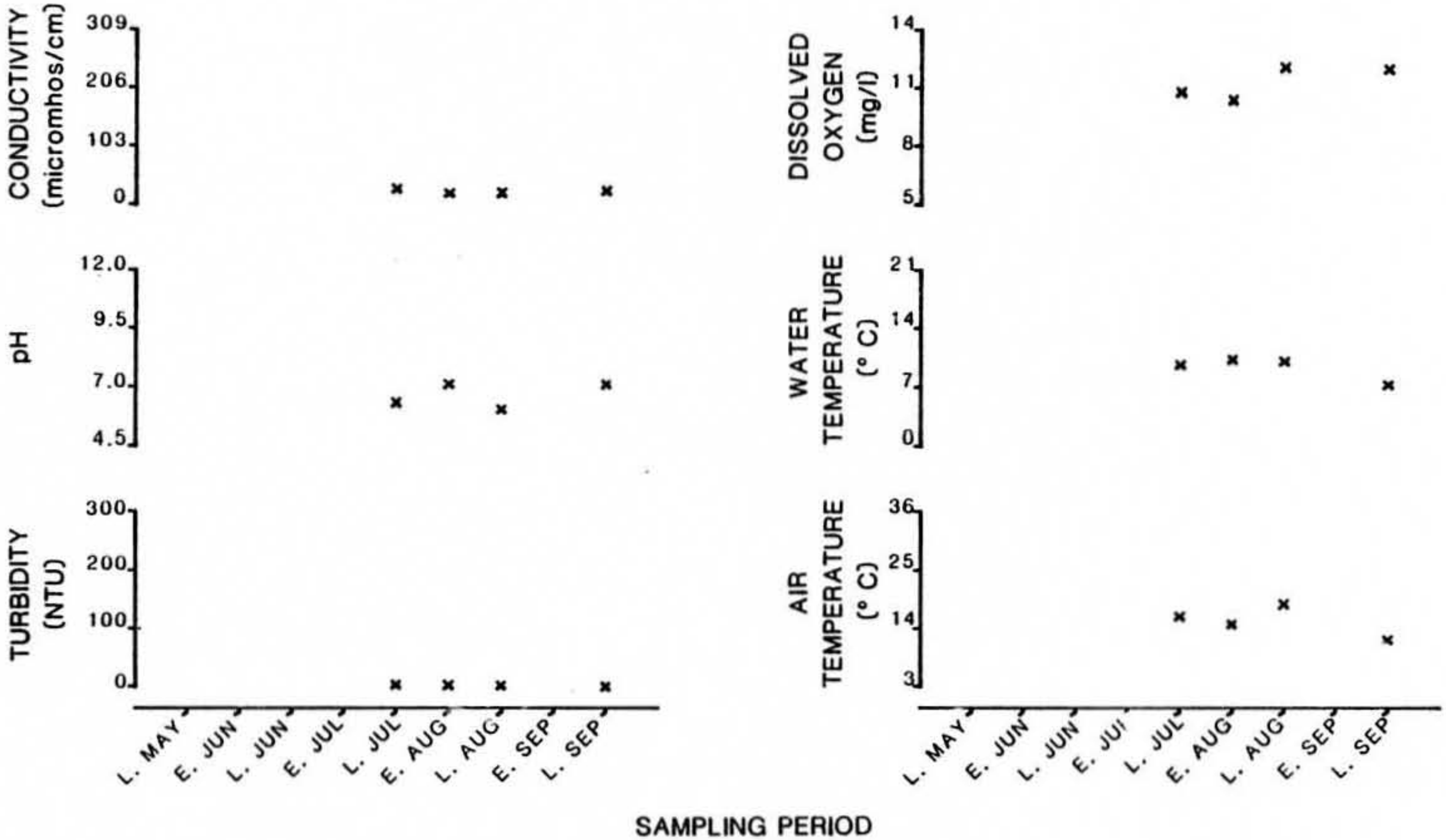


Figure 29. Physiochemical parameters versus time (May-September, 1981) for Goose Creek - Site 2a (R.M. 73.1, Geographic Code 23N04W30BBB)

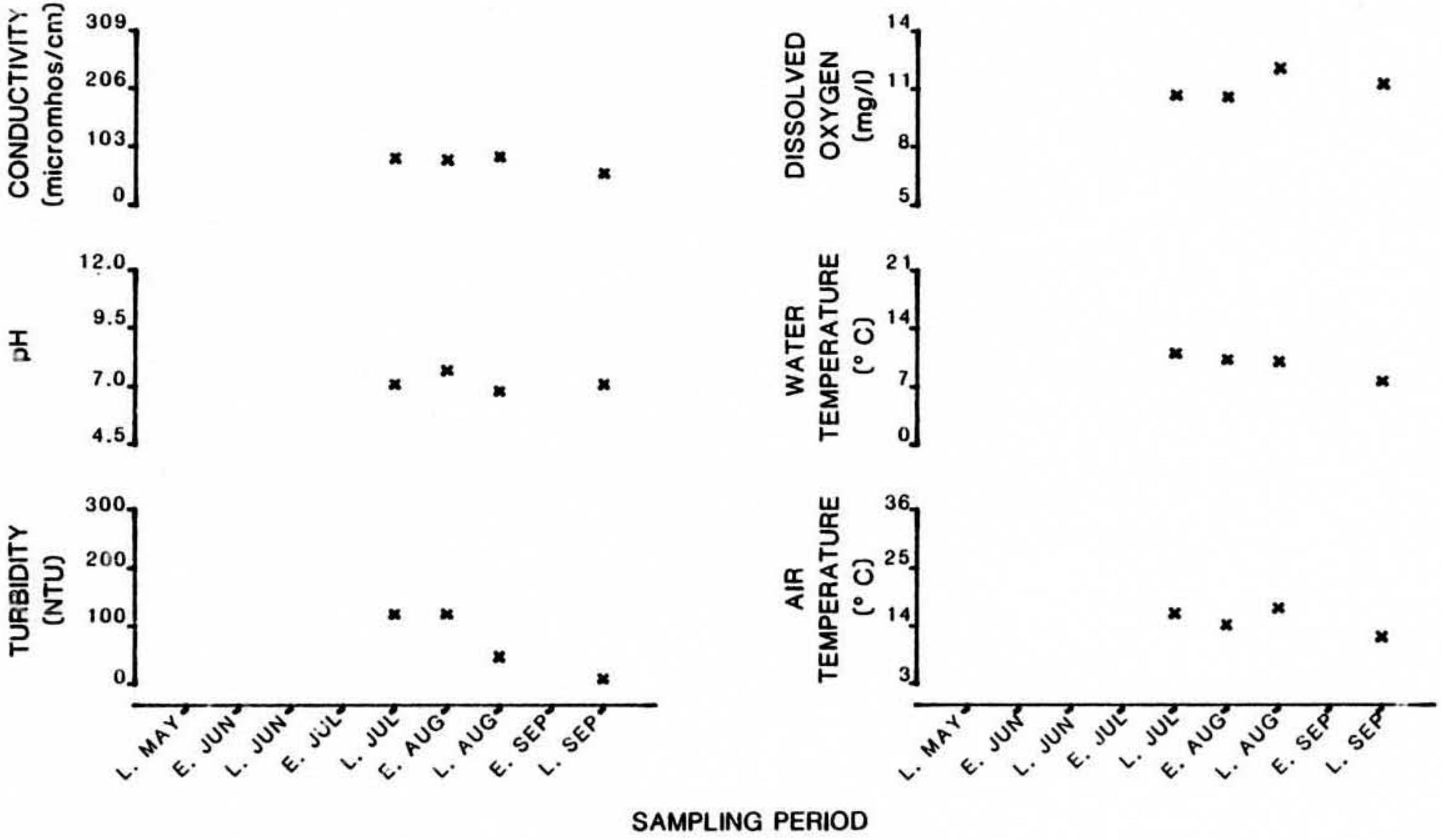


Figure 30. Physiochemical parameters versus time (May-September, 1981) for Goose Creek - Site 2b (R.M. 73.1, Geographic Code 23N04W30BBB)

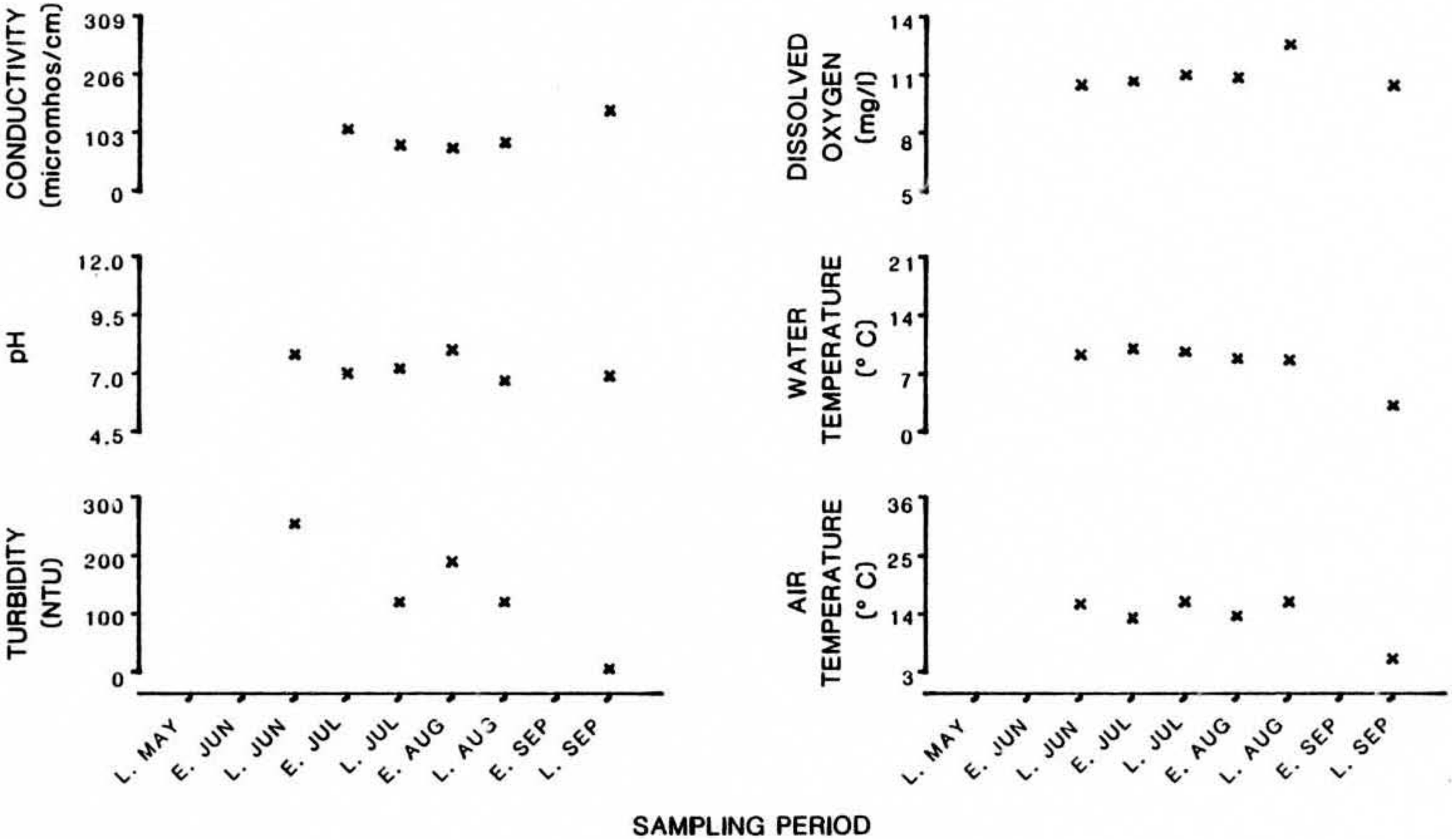


Figure 31. Physiochemical parameters versus time (May-September, 1981)
for Mainstem West Bank
(R.M. 74.4, Geographic Code 23N05W13CCD)

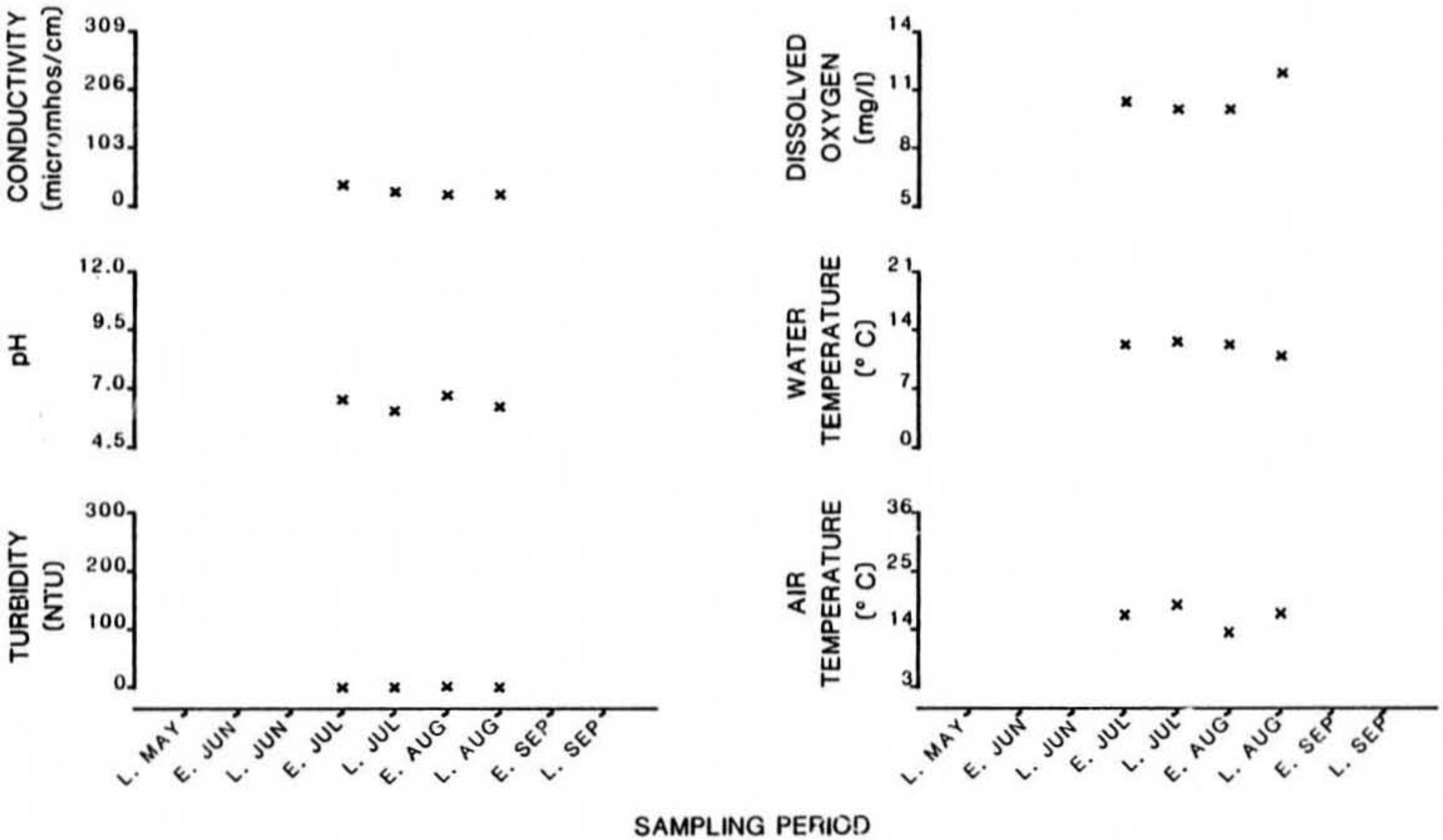


Figure 32. Physiochemical parameters versus time (May-September, 1981) for Montana Creek (R.M. 77.0, Geographic Code 23N04W07ABA)

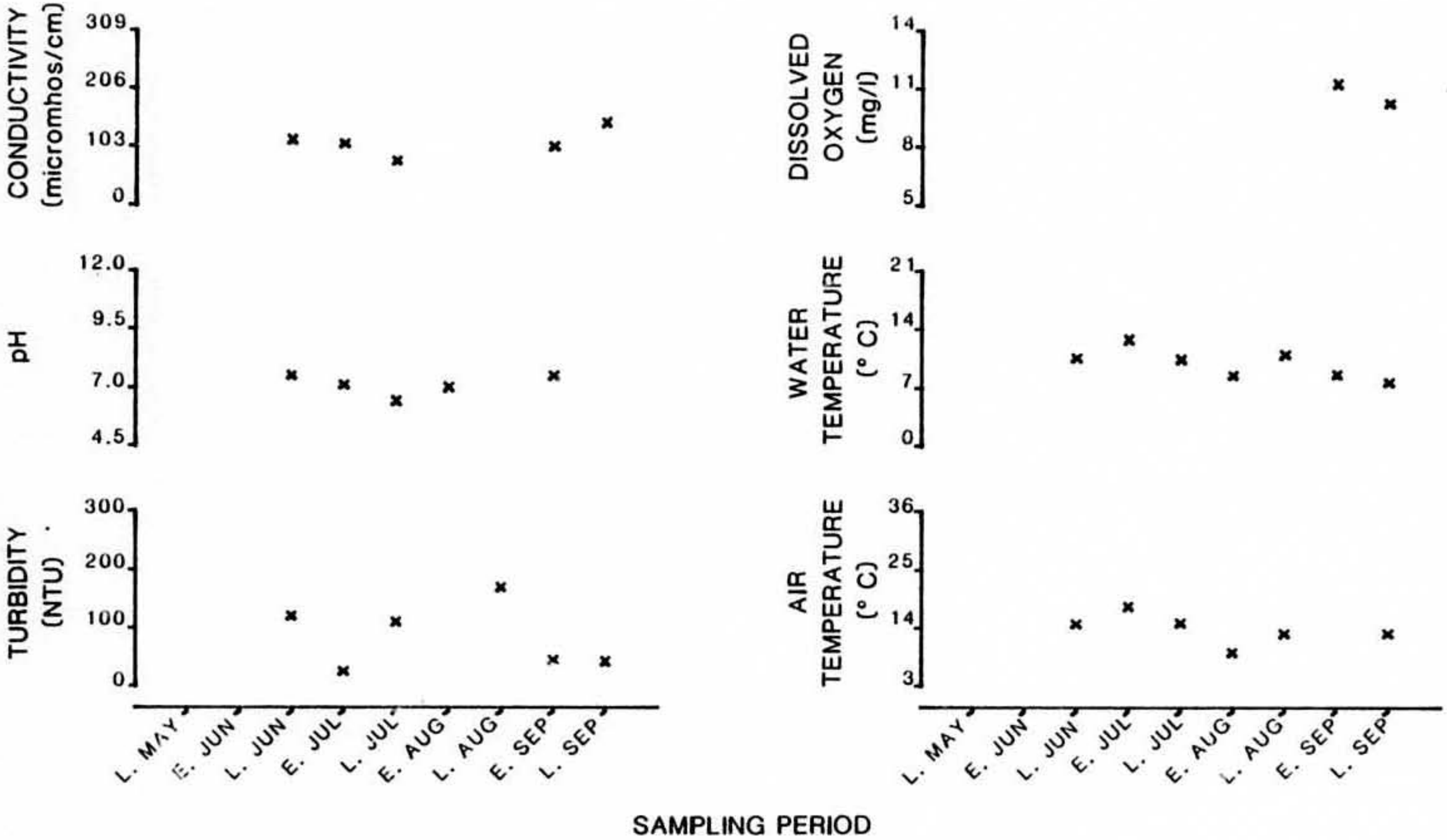


Figure 33. Physiochemical parameters versus time (May-September, 1981)
for Mainstem 1
(R.M. 84.0, Geographic Code 24N05W10DCC)

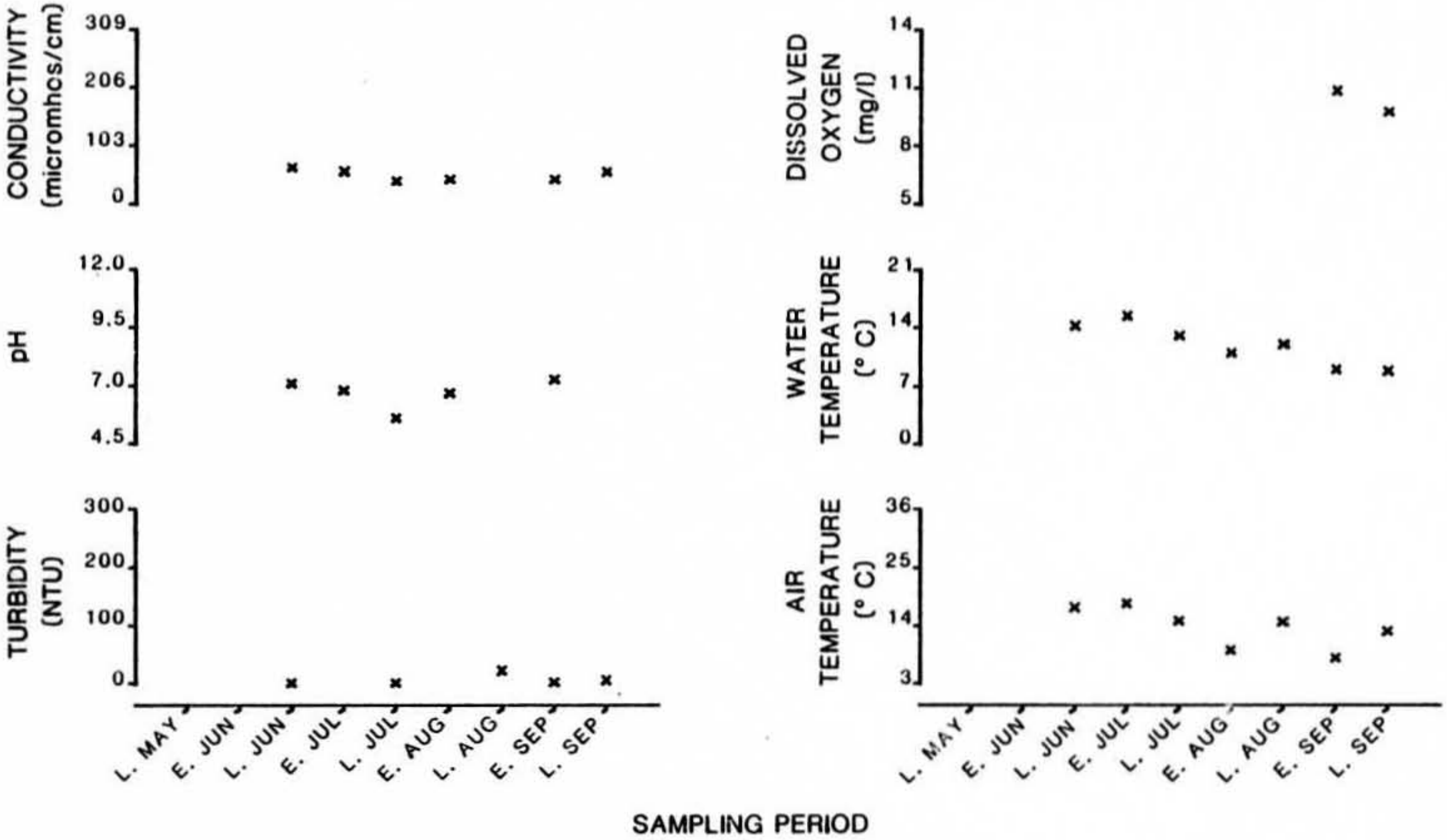


Figure 34. Physiochemical parameters versus time (May-September, 1981)
for Sunshine Creek
(R.M. 85.7, Geographic Code 24N05W14AAB)

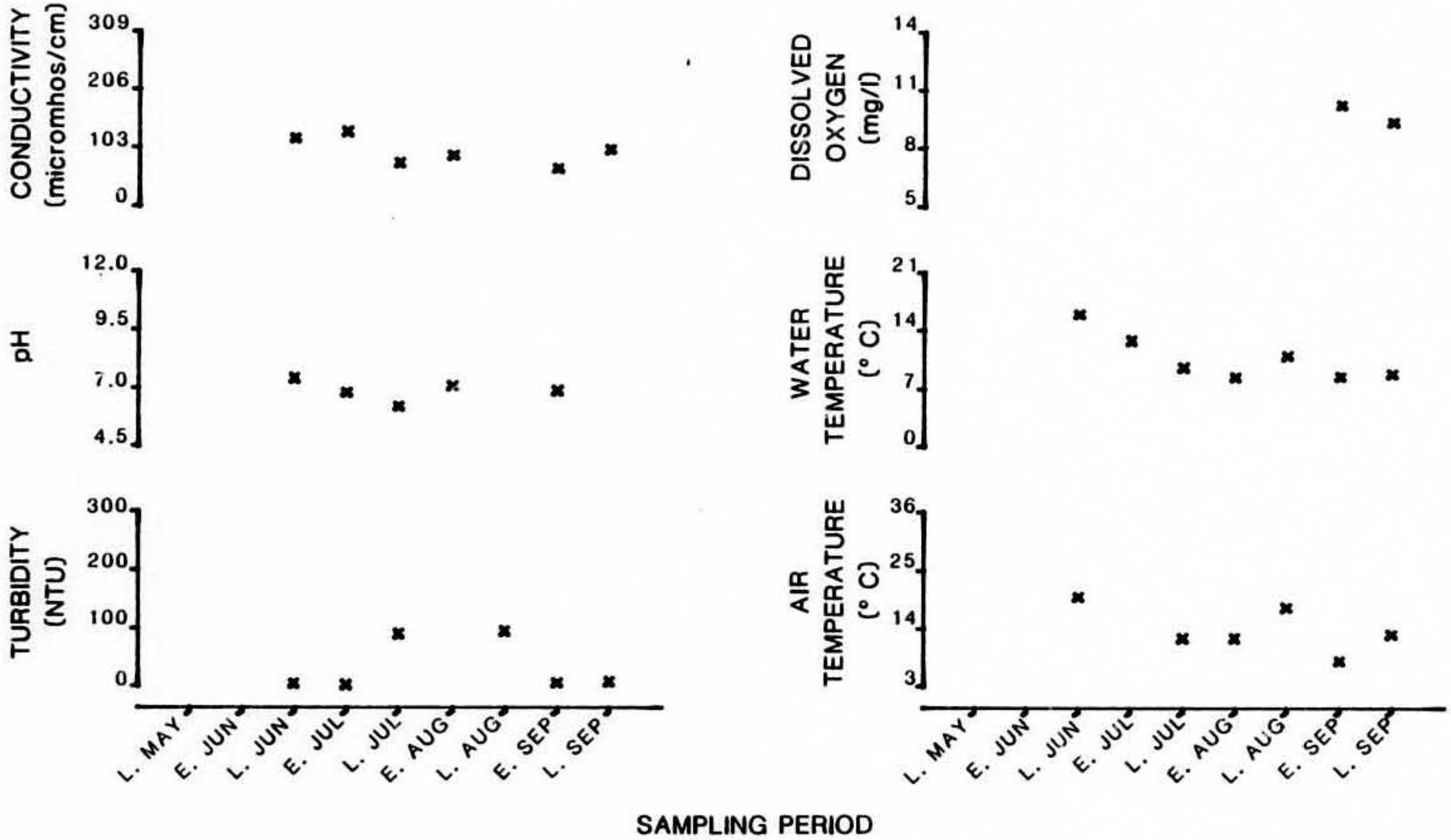


Figure 35. Physiochemical parameters versus time (May-September, 1981) for Birch Creek Slough (R.M. 88.4, Geographic Code 25N05W25DCC)

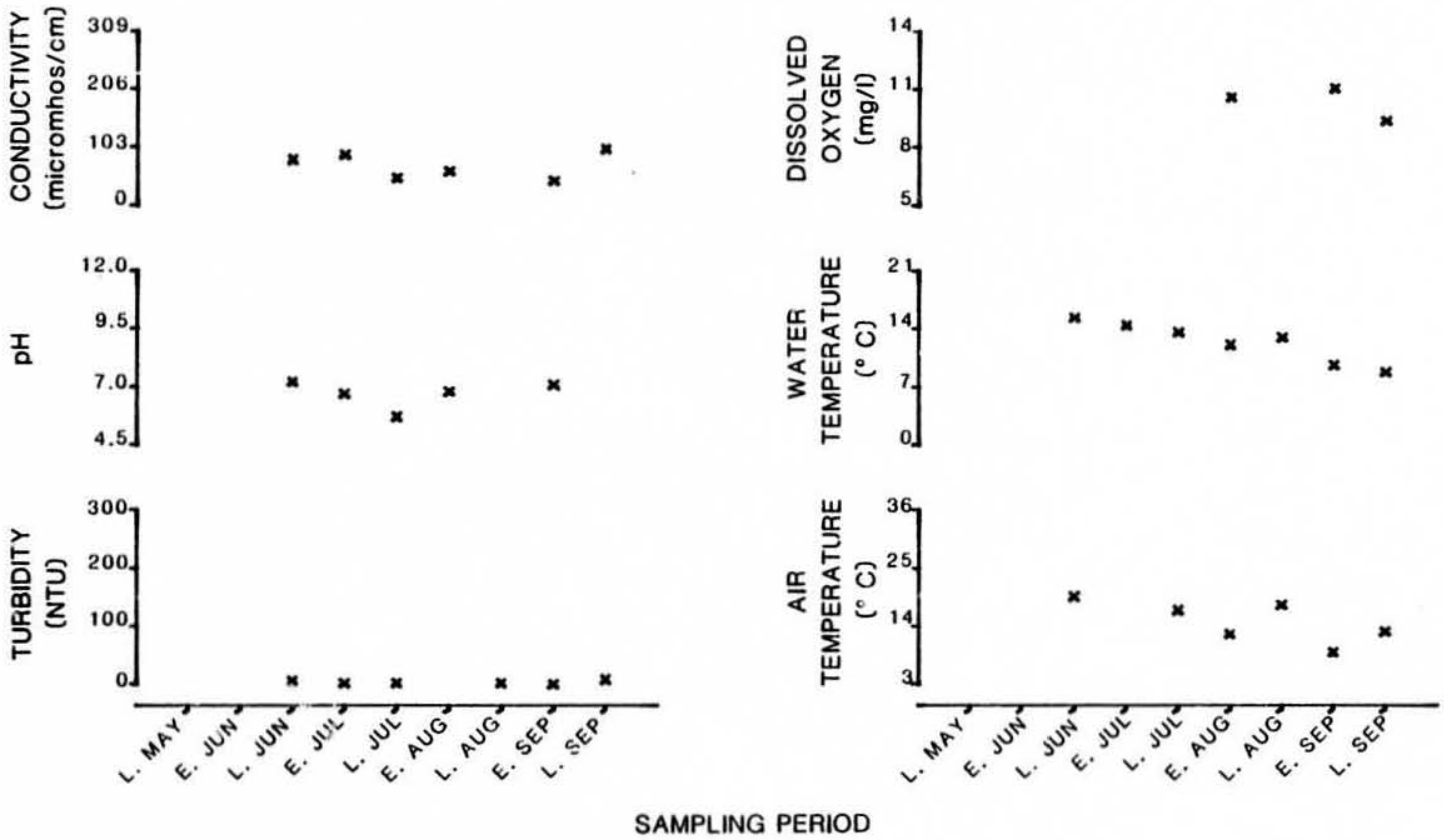


Figure 36. Physiochemical parameters versus time (May-September, 1981) for Birch Creek (R.M. 89.2, Geographic Code 25NO5W25ABD)

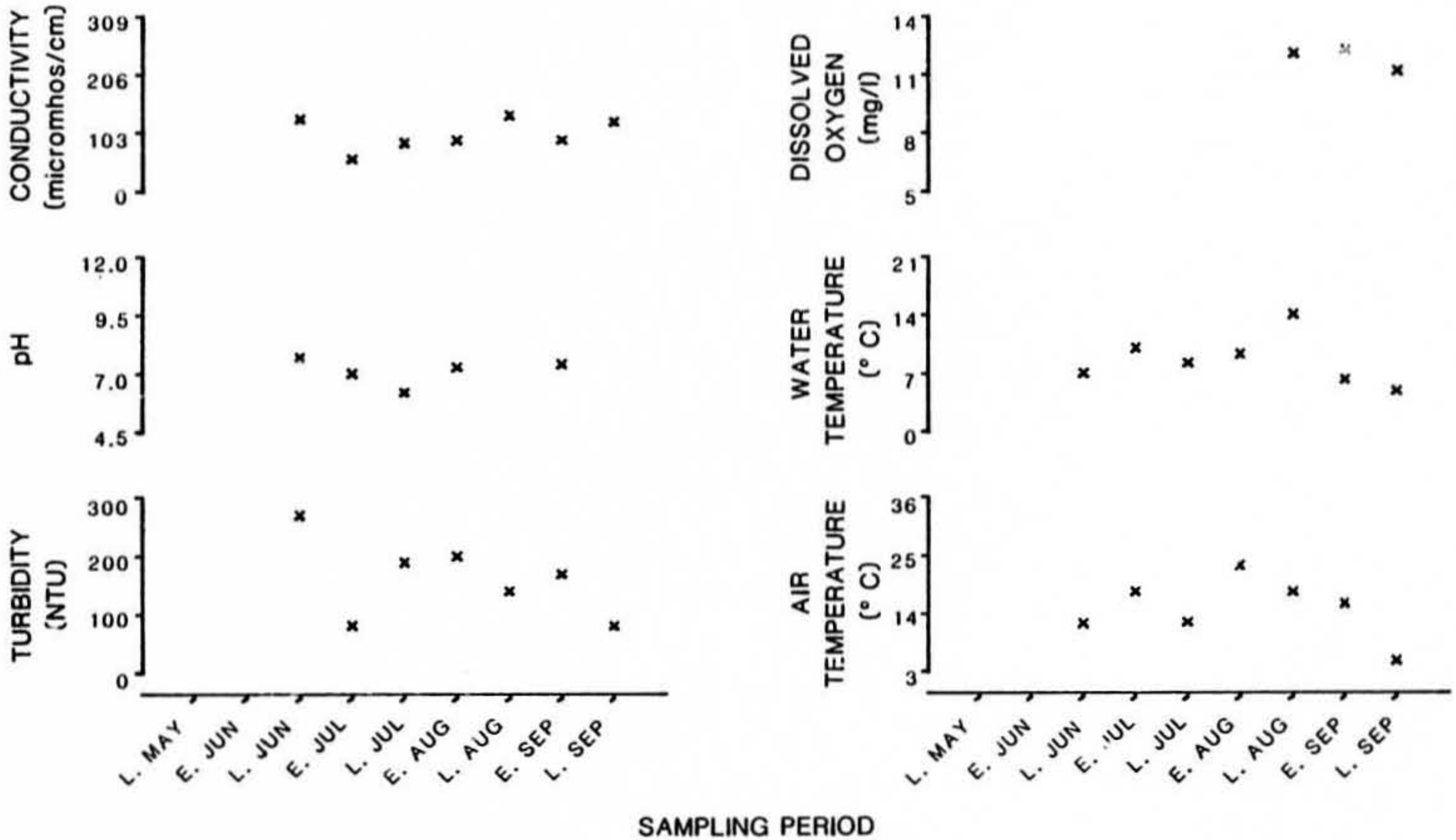


Figure 37. Physiochemical parameters versus time (May-September, 1981)
for Cache Creek Slough
(R.M. 95.5, Geographic Code 26N05W35ADC)

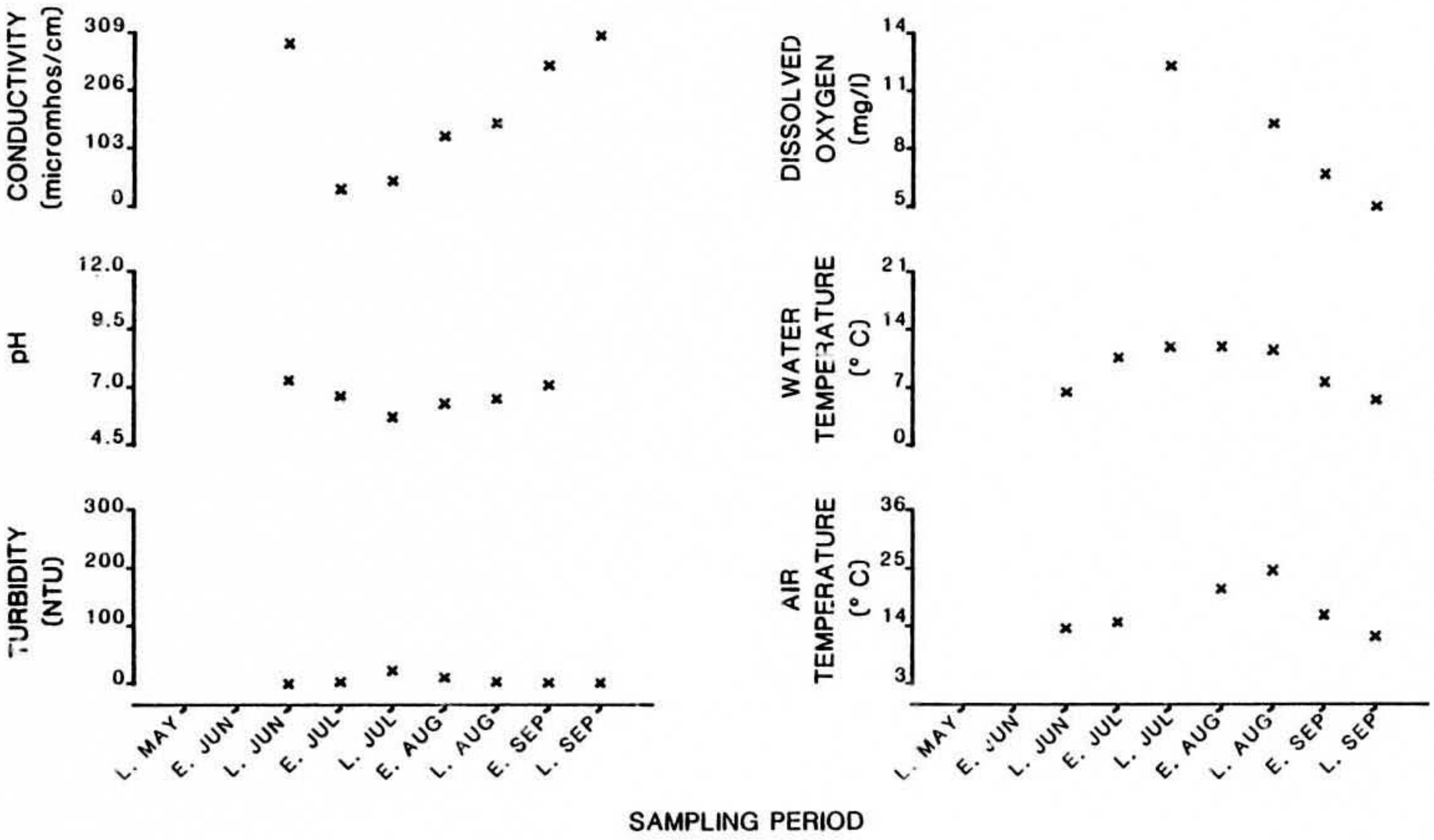


Figure 38. Physiochemical parameters versus time (May-September, 1981) for Cache Creek (R.M. 96.0, Geographic Code 26N05W26DCB)

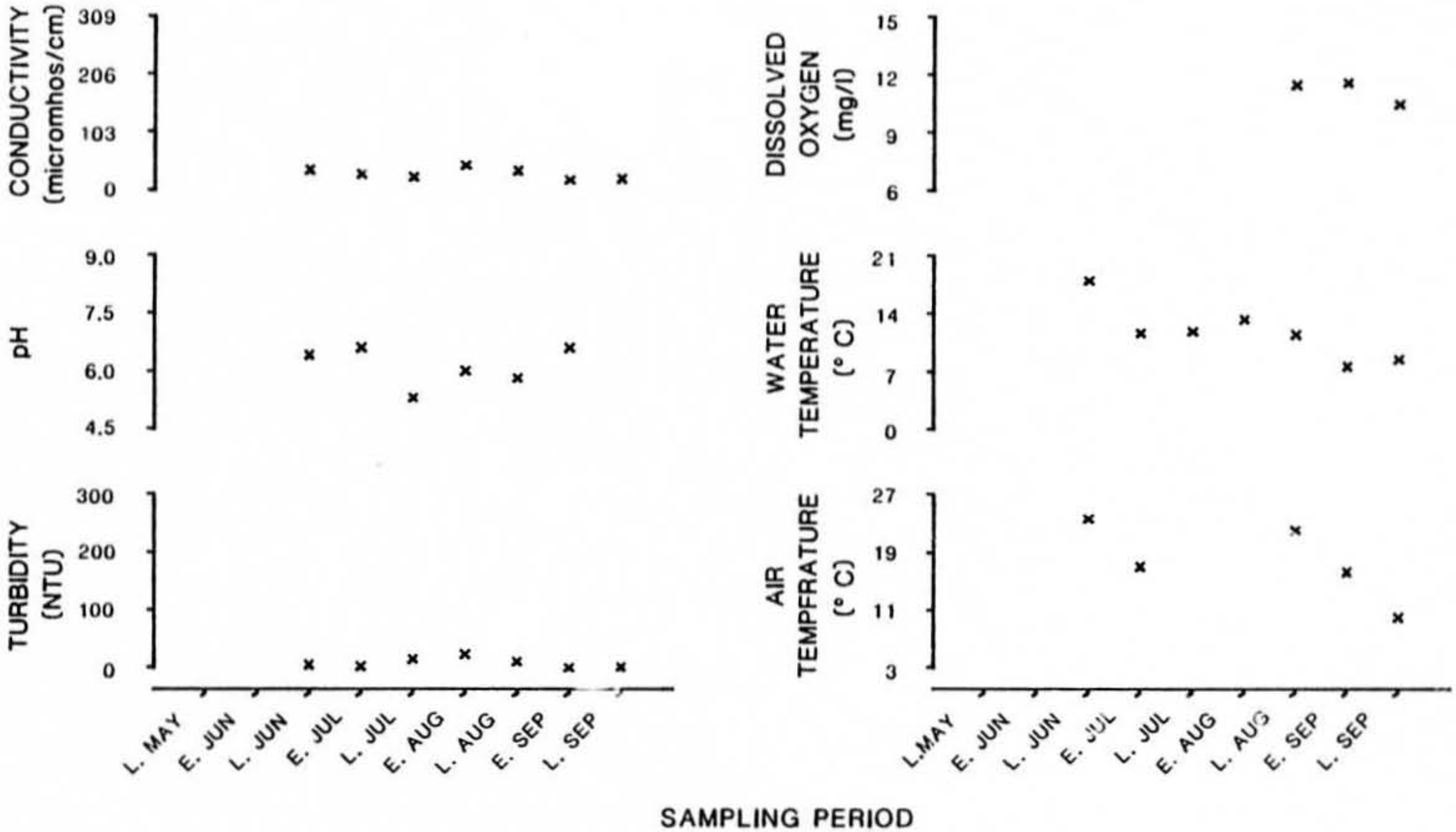


Figure 39. Physiochemical parameters versus time (May-September, 1981)
for Whiskers Creek Slough
(R.M. 101.2, Geographic Code 26N05W03ADB)

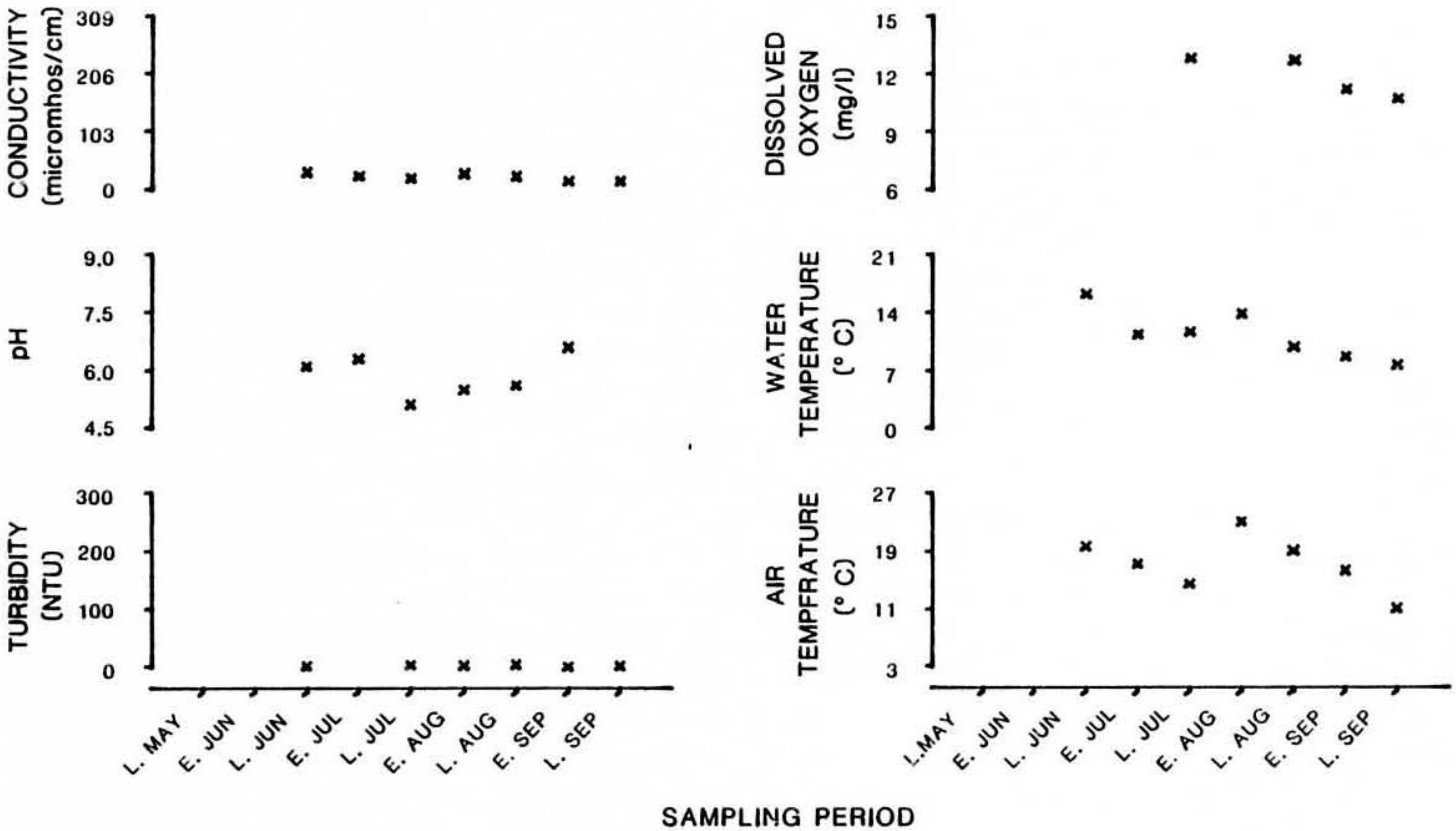


Figure 40. Physiochemical parameters versus time (May-September, 1981) for Whiskers Creek (R.M. 101.4, Geographic Code 26N05W03AAC)

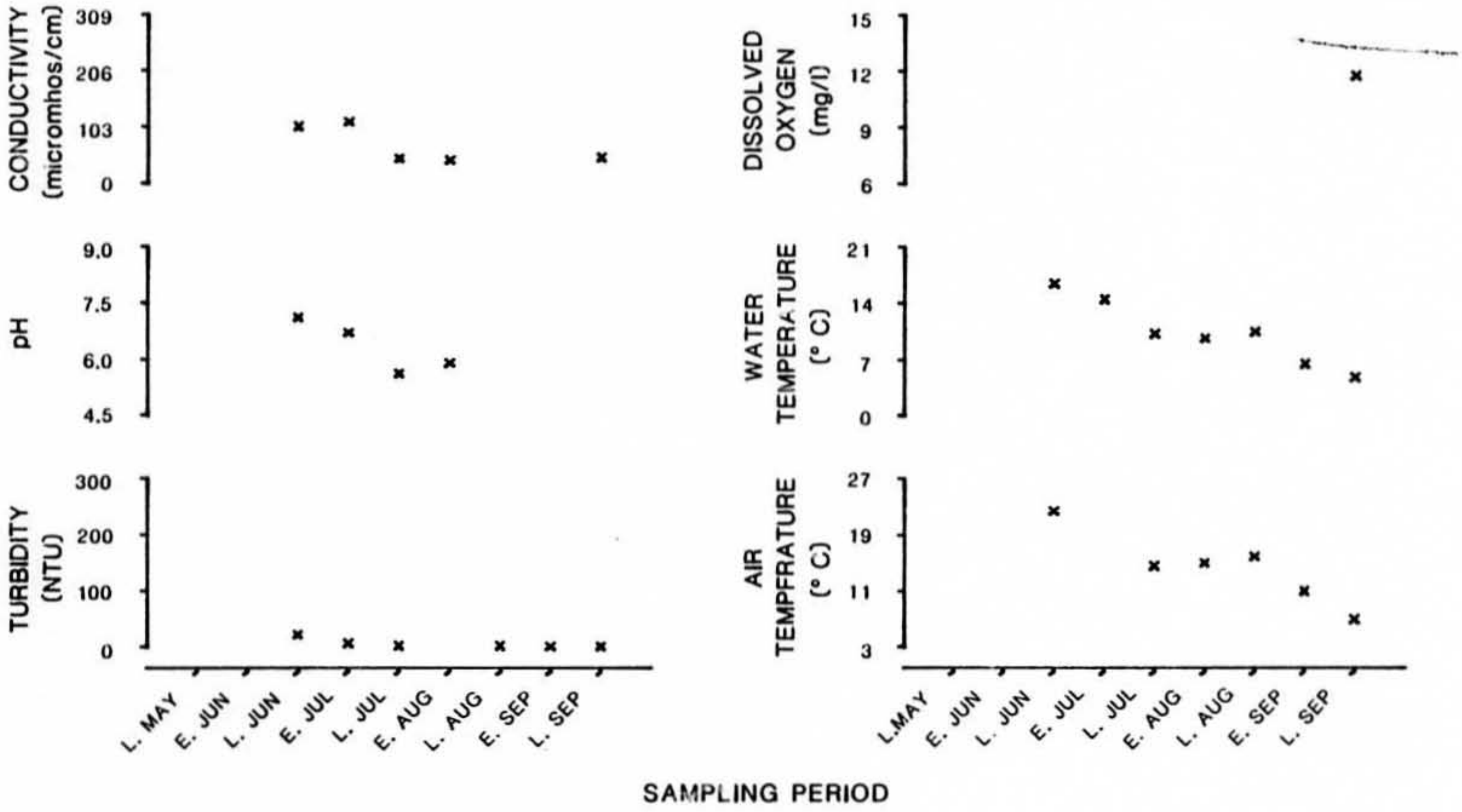


Figure 41. Physiochemical parameters versus time (May-September, 1981)
for Slough 6A
(R.M. 112.3, Geographic Code 28N05W13CAC)

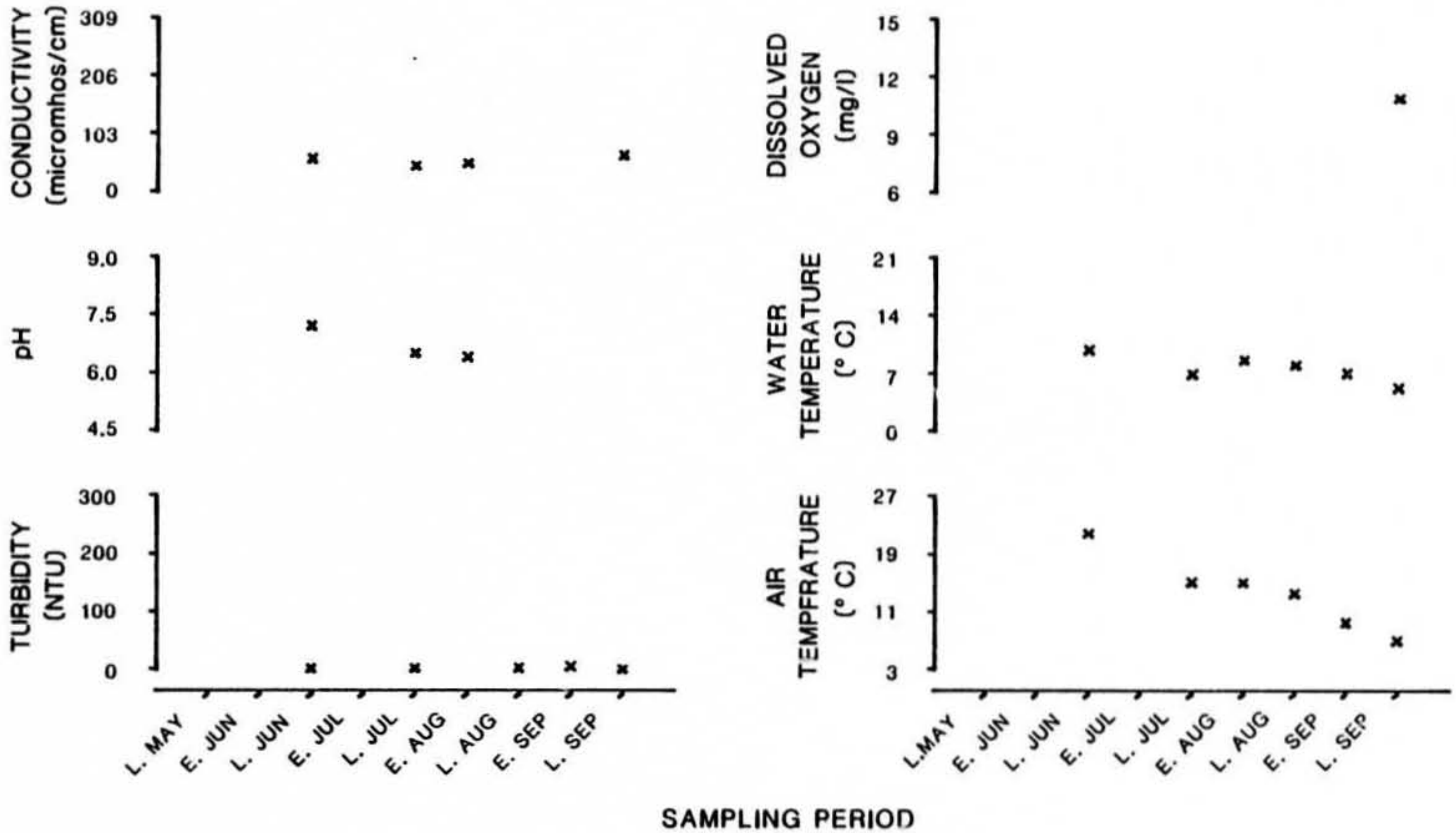


Figure 42. Physiochemical parameters versus time (May-September, 1981) for Lane Creek (R.M. 113.6, Geographic Code 28NO5W12ADD)

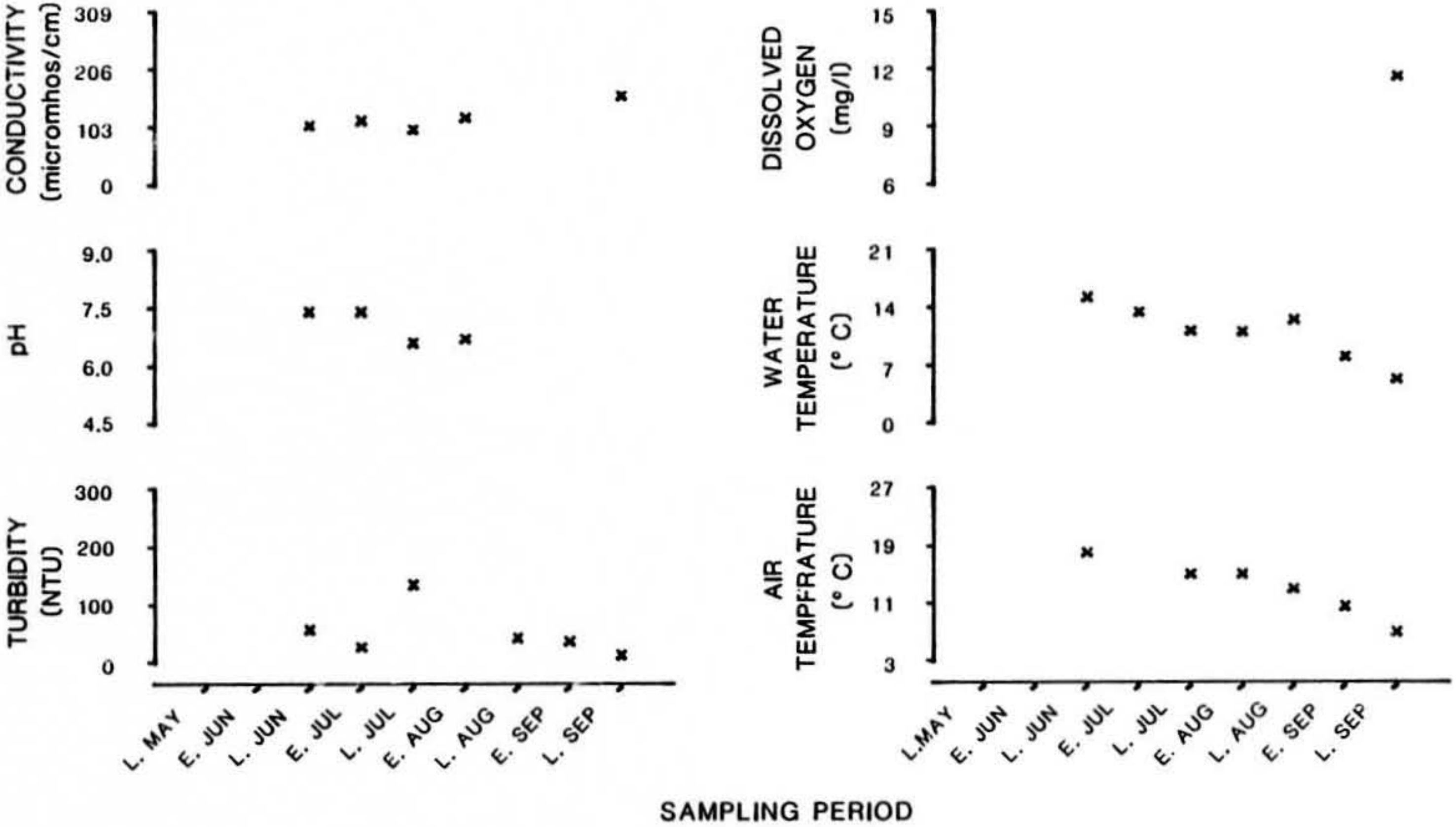


Figure 43. Physiochemical parameters versus time (May-September, 1981) for Mainstem 2
(R.M. 114.4, Geographic Code 28N04W06CAB)

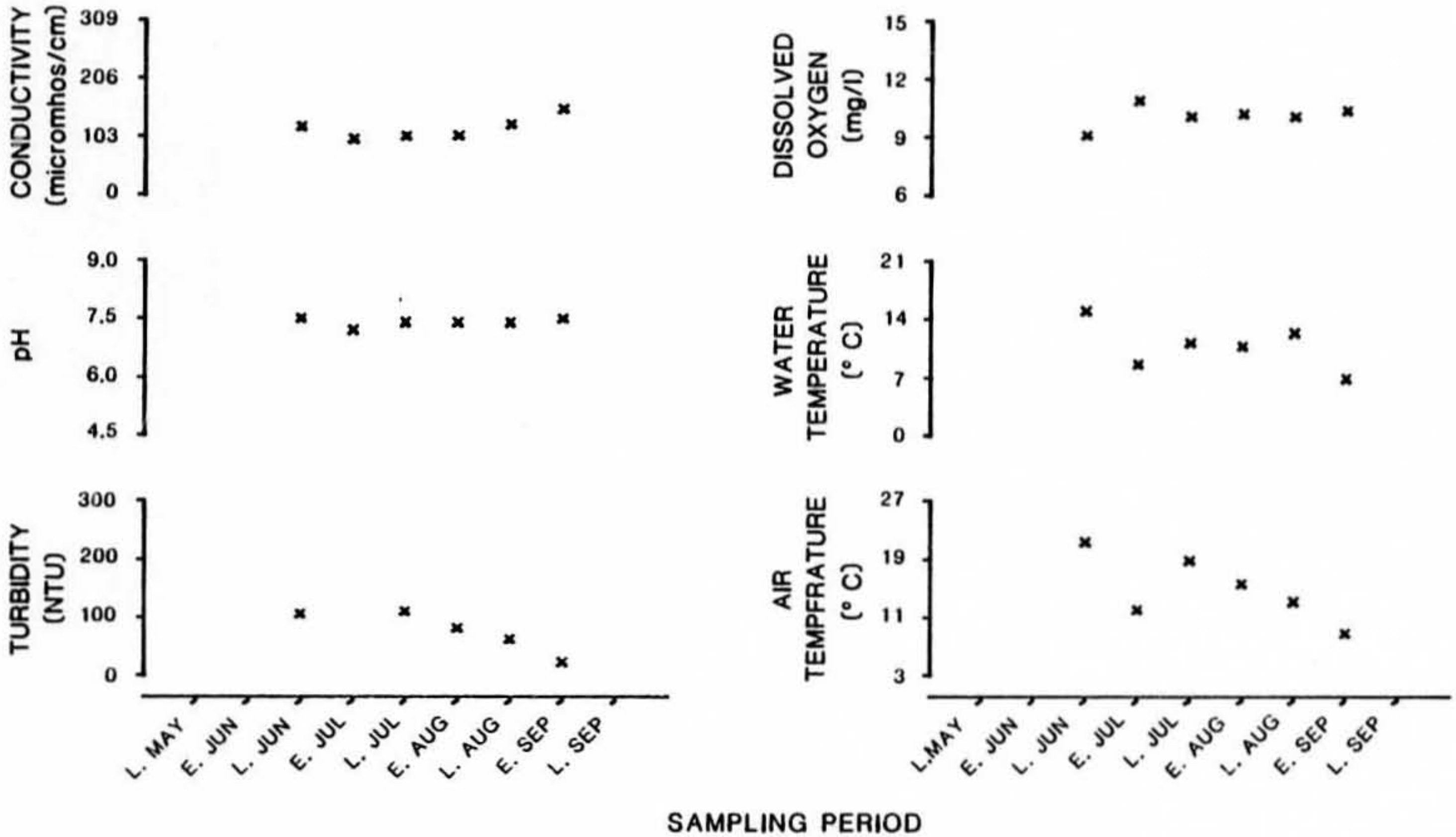


Figure 44. Physiochemical parameters versus time (May-September, 1981).
for Mainstem Susitna - Curry (Su-Curry)
(R.M. 120.7, Geographic Code 29N04W10BCD)

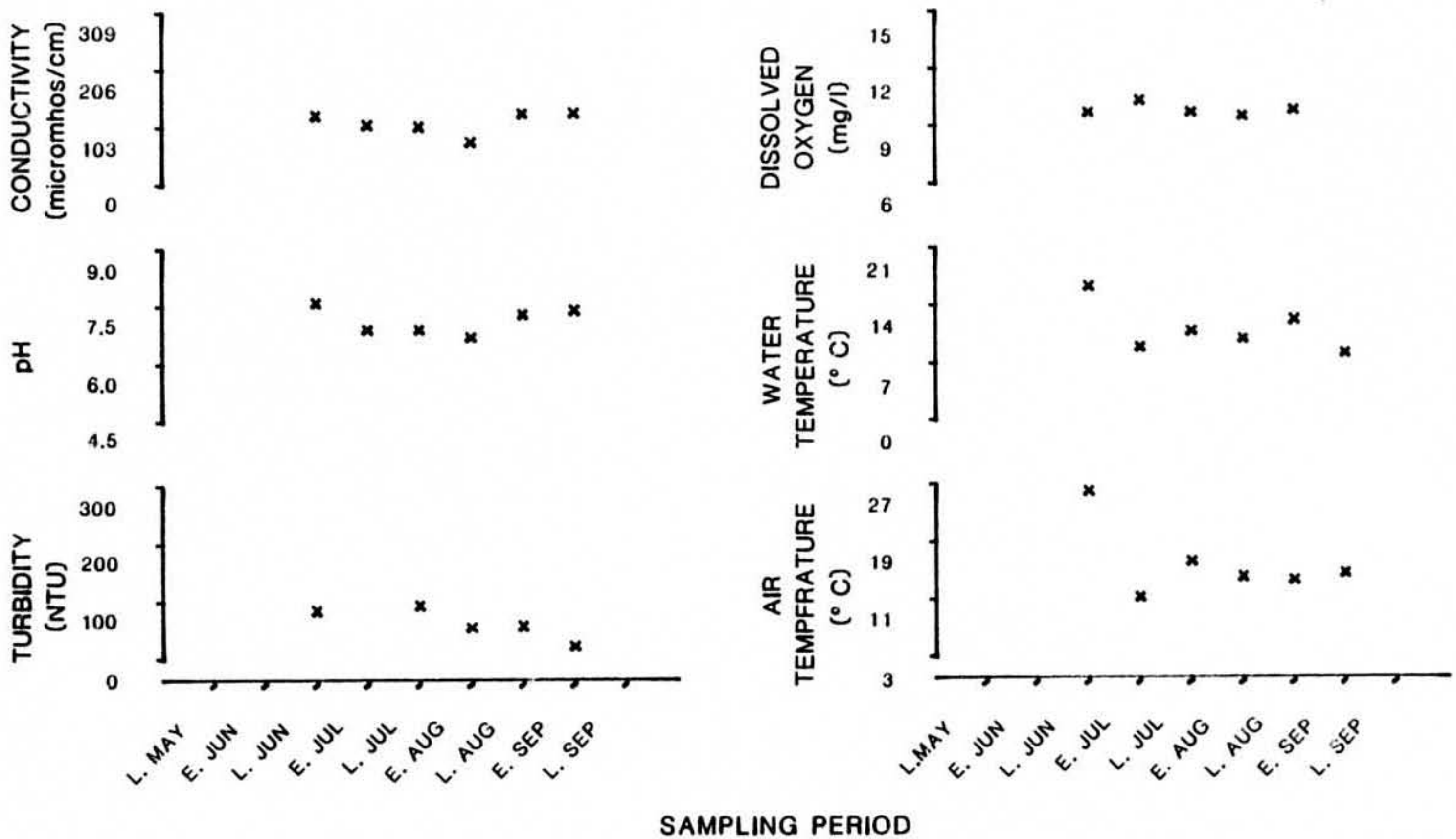


Figure 45. Physiochemical parameters versus time (May-September, 1981) for Susitna Side Channel (Su-Channel) (R.M. 121.6, Geographic Code 29N04W11BBB)

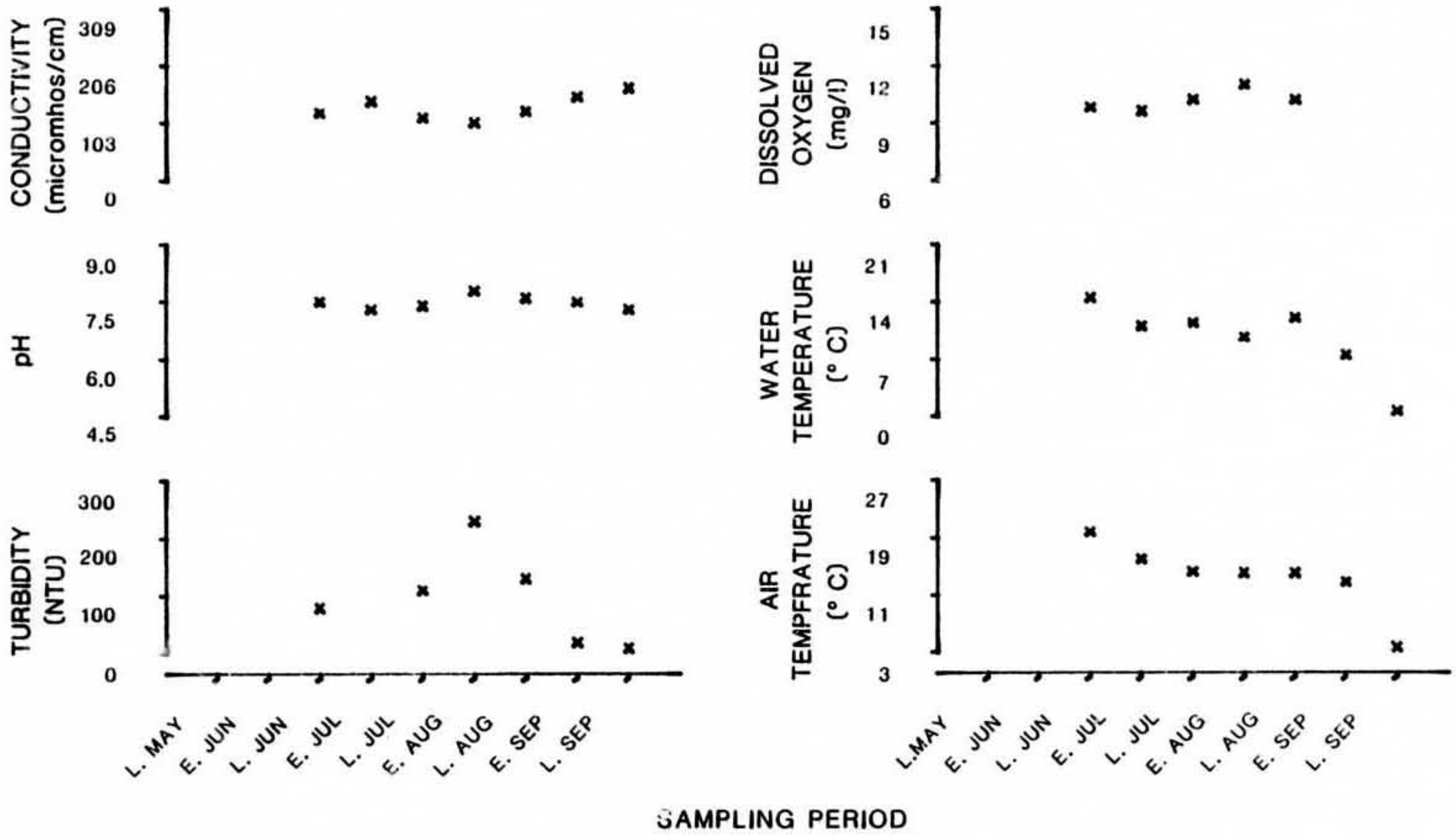


Figure 46. Physiochemical parameters versus time (May-September, 1981)
for Mainstem Susitna - Gravel Bar (Su-Gravel Bar)
(R.M. 123.8, Geographic Code 30N04W26DDD)

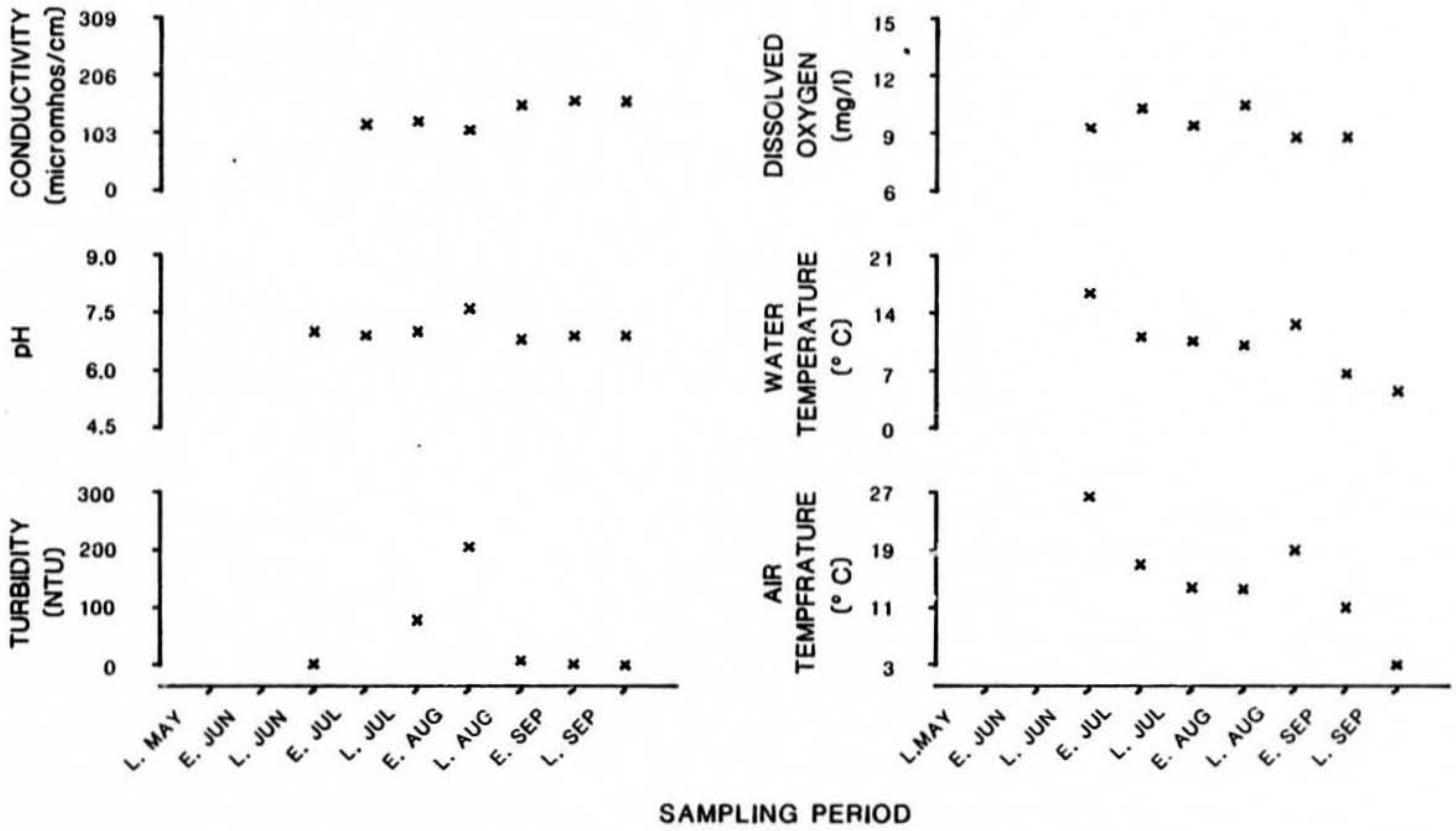


Figure 47. Physiochemical parameters versus time (May-September, 1981)
for Slough 8A
(R.M. 125.3, Geographic Code 30N03W30BCD)

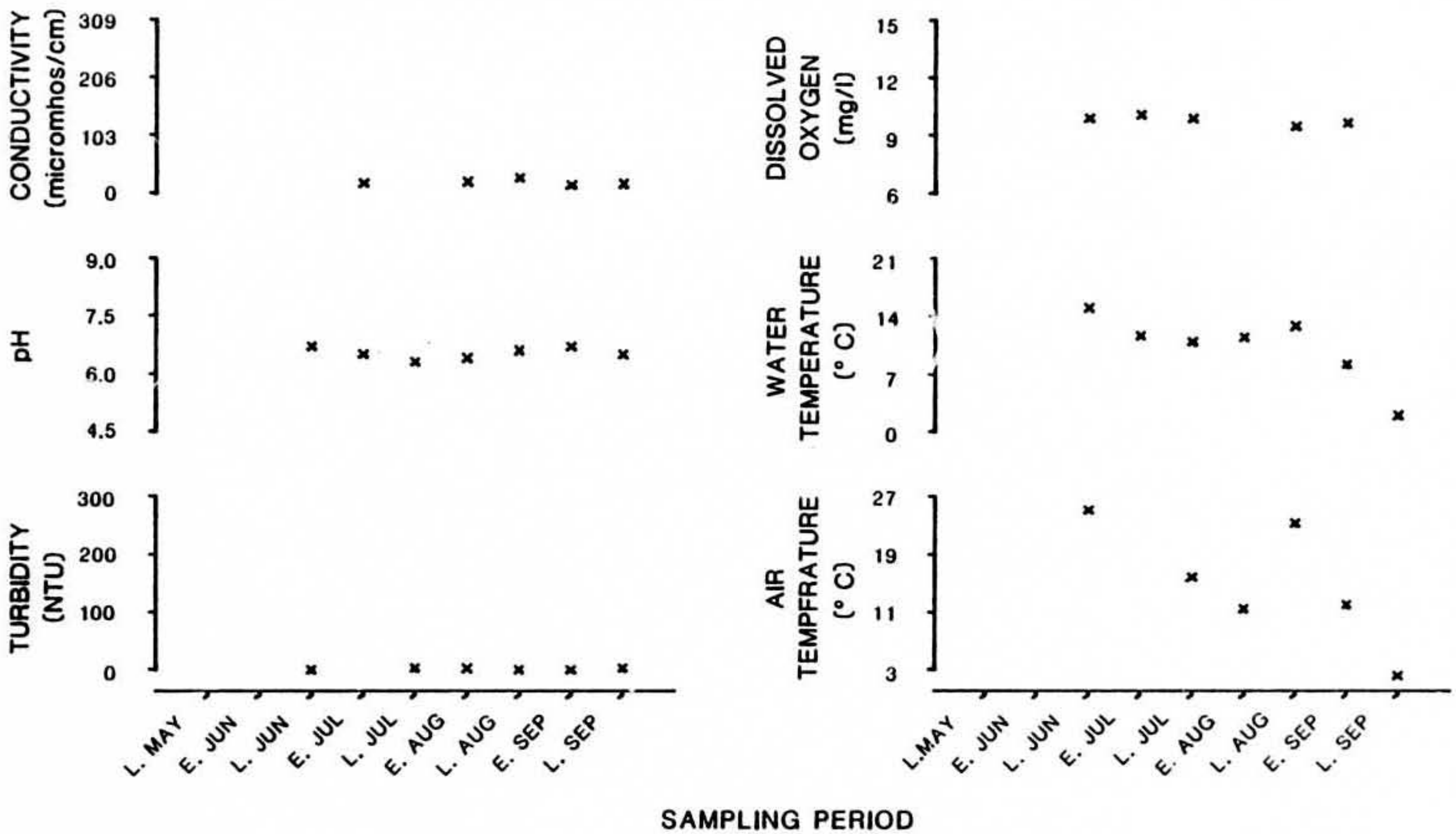


Figure 48. Physiochemical parameters versus time (May-September, 1981)
for Fourth of July Creek
(R.M. 131.1, Geographic Code 30N03W03DAC)

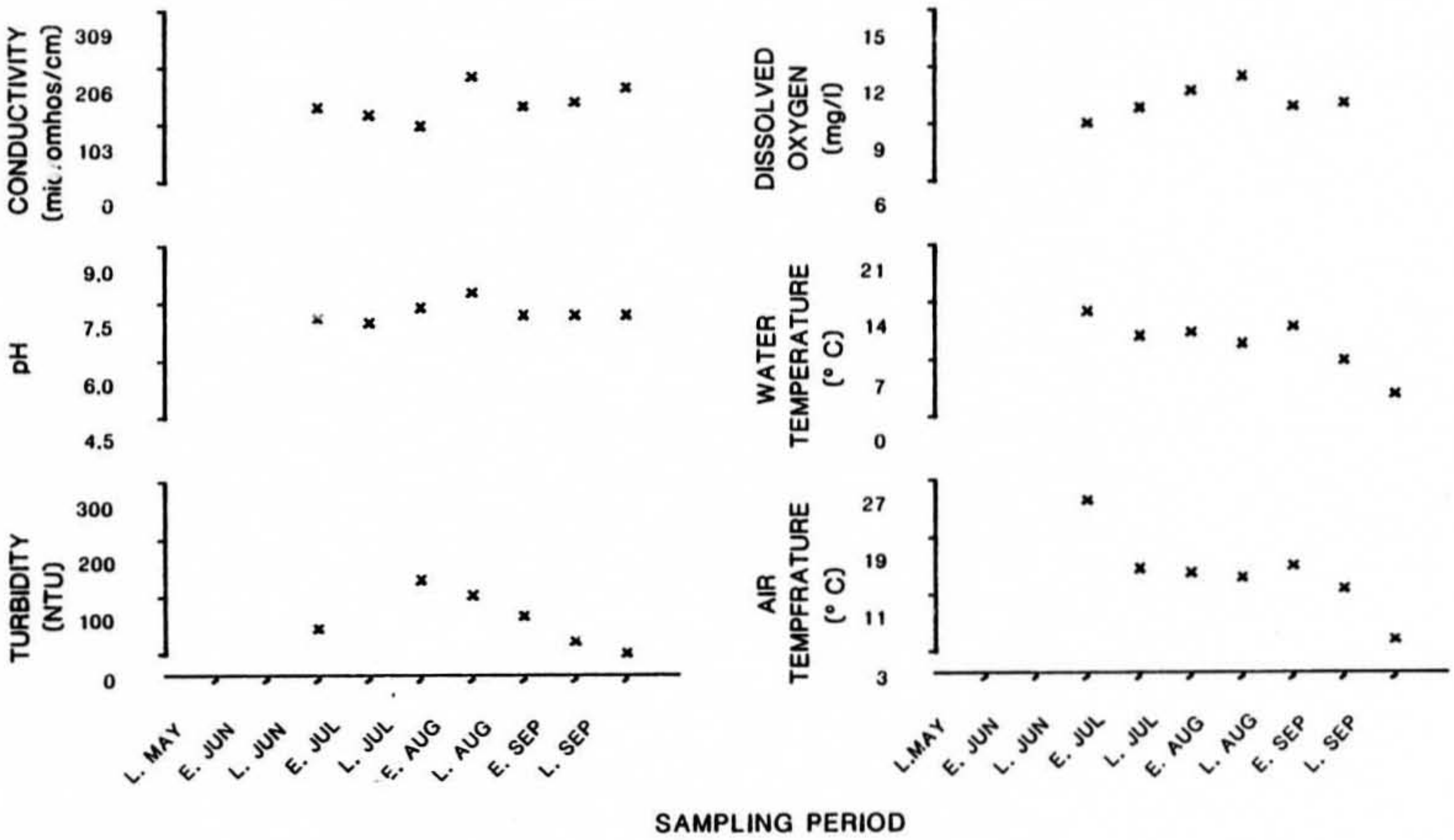


Figure 49. Physiochemical parameters versus time (May-September, 1981) for Slough 10
(R.M. 133.8, Geographic Code 31N03W36AAC)

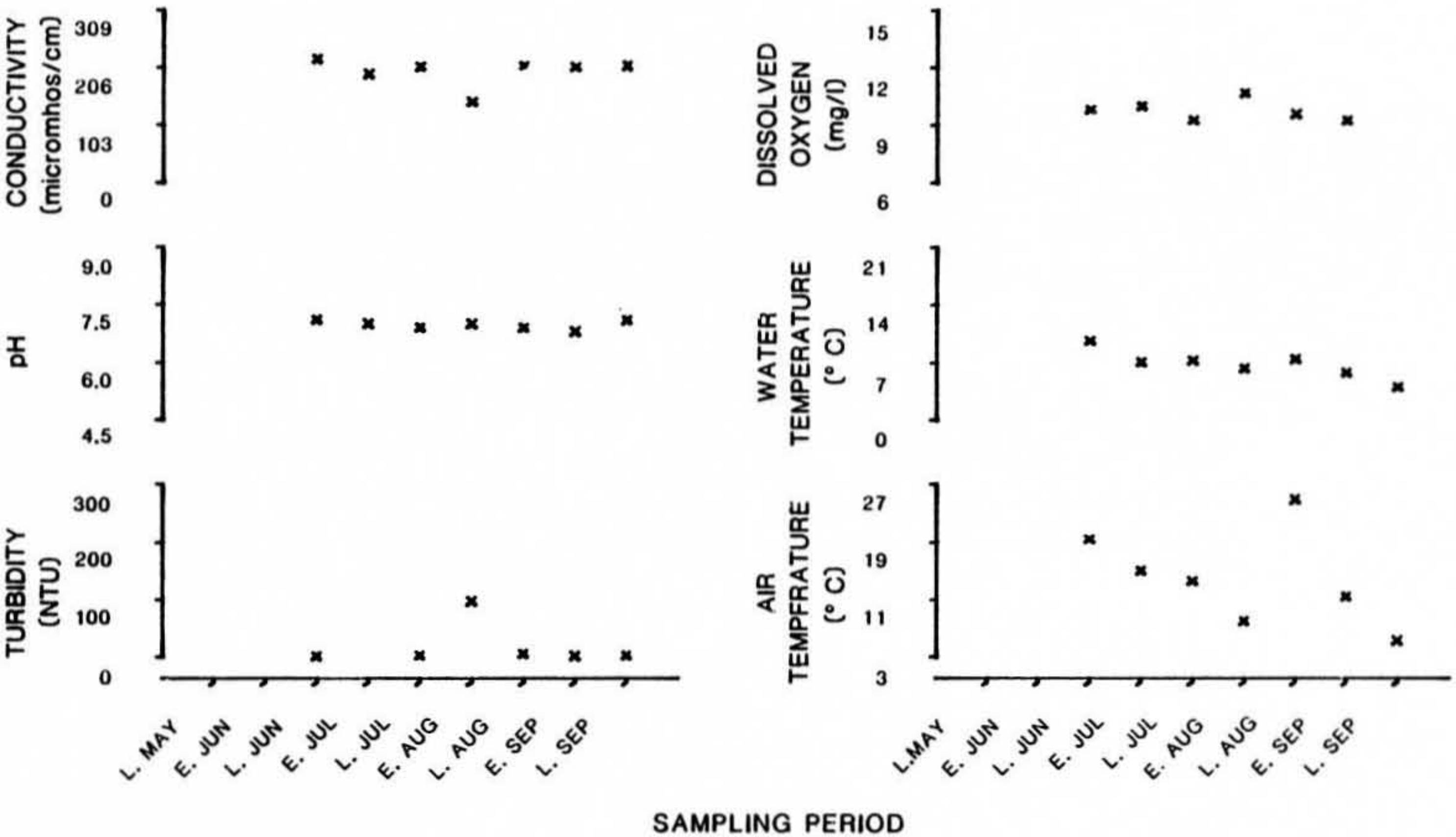


Figure 50. Physiochemical parameters versus time (May-September, 1981)
for Slough 11
(R.M. 135.3, Geographic Code 31N02W19DDD)

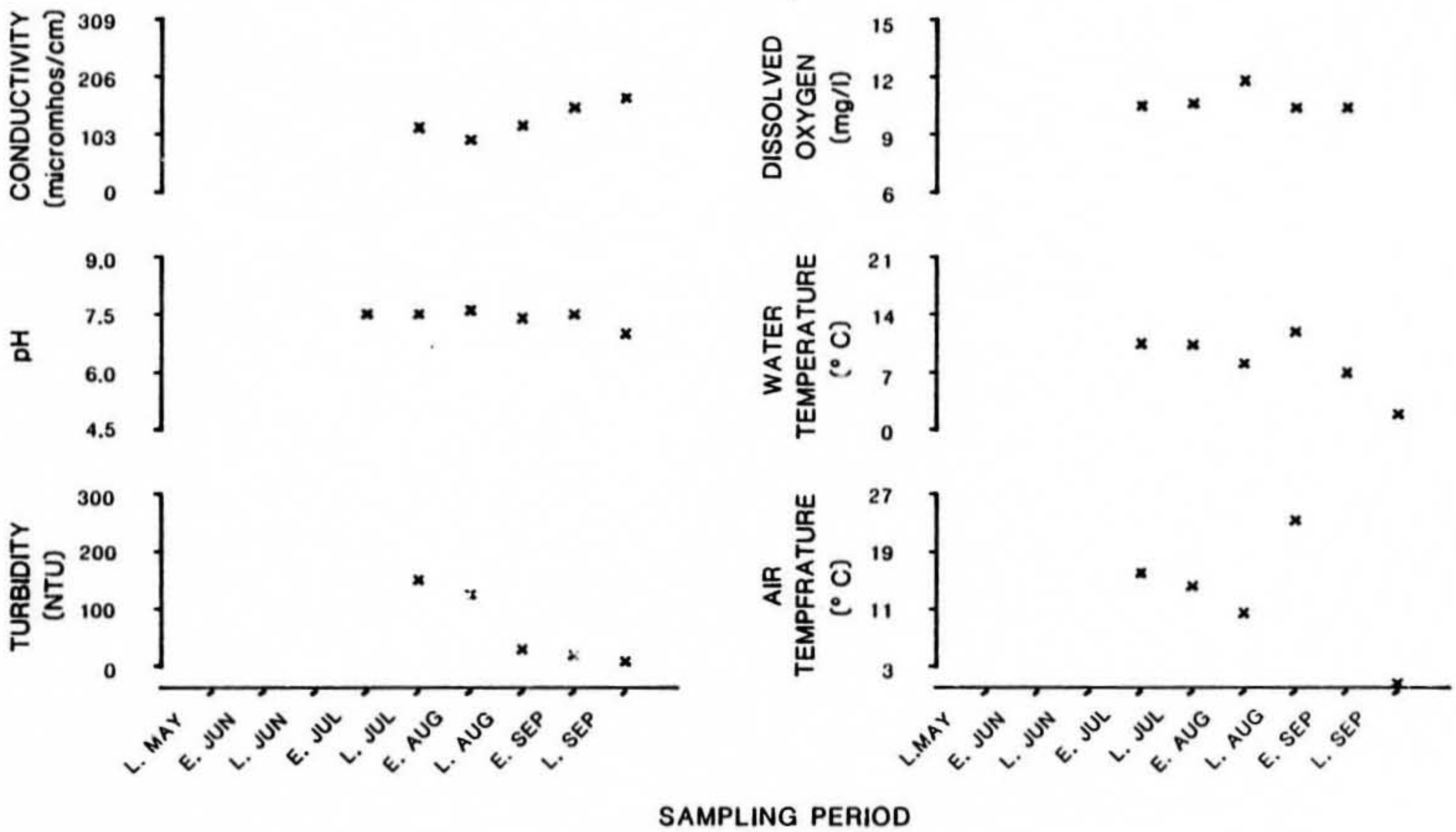


Figure 51. Physiochemical parameters versus time (May-September, 1981)
for Mainstem Susitna - Inside Bend (Su-Gold)
(R.M. 136.9, Geographic Code 31N02W17CDA)

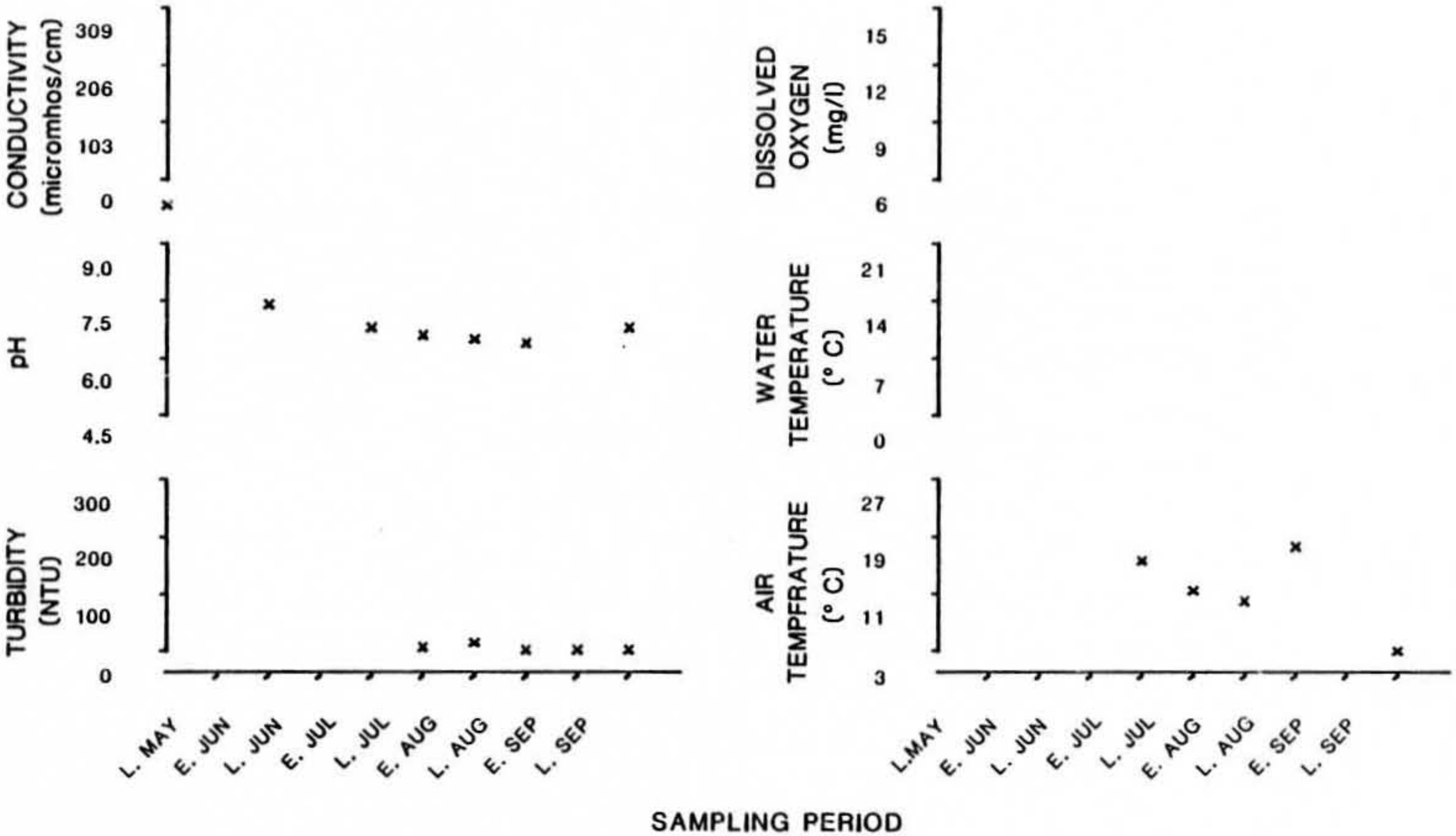


Figure 52. Physiochemical parmeters versus time (May-September, 1981)
for Indian River
(R.M. 138.6, Geographic Code 31N02W09CDA)

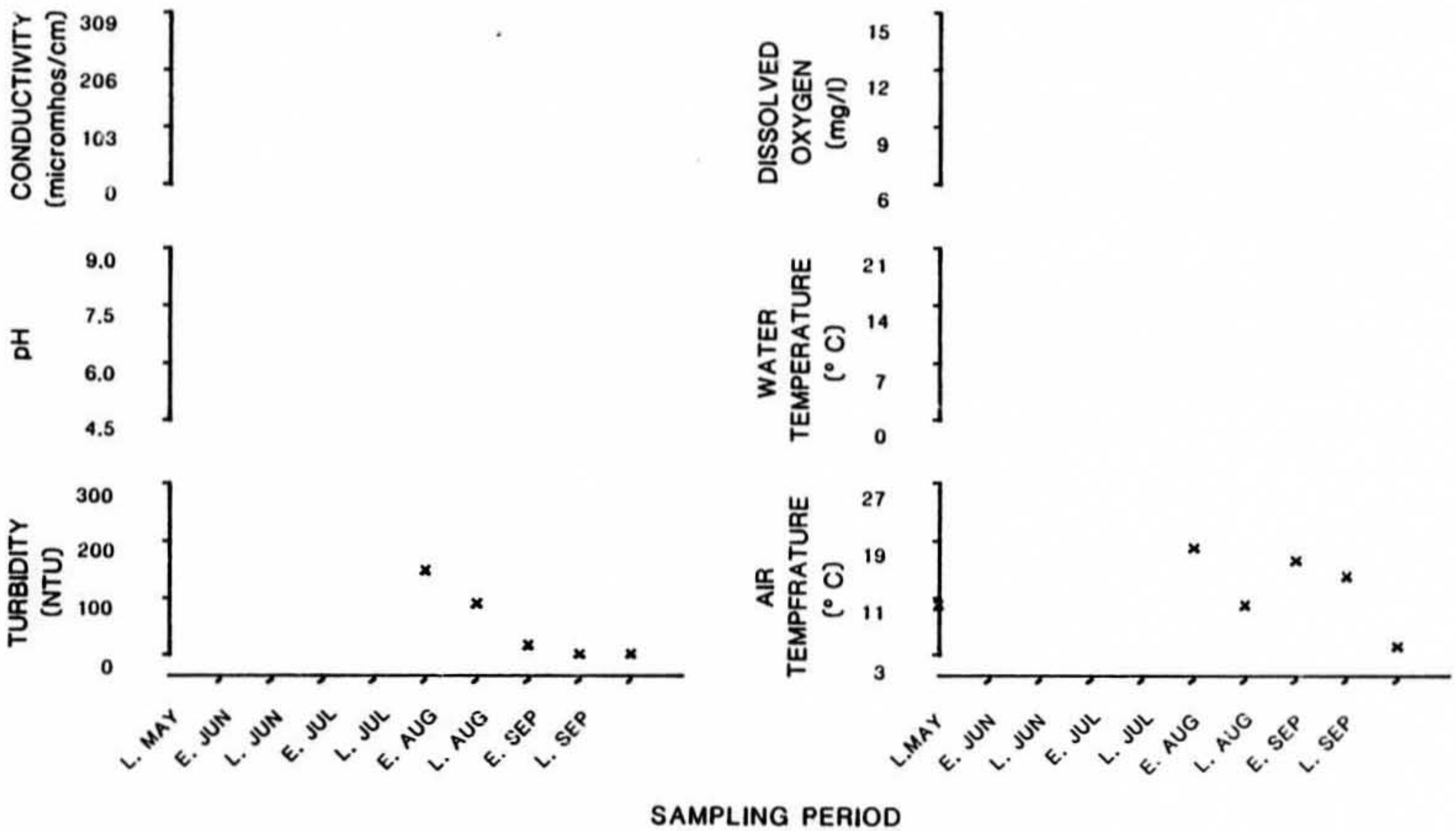


Figure 53. Physiochemical parameters versus time (May-September, 1981)
for Slough 20
(R.M. 140.1, Geographic Code 31N02W11BBC)

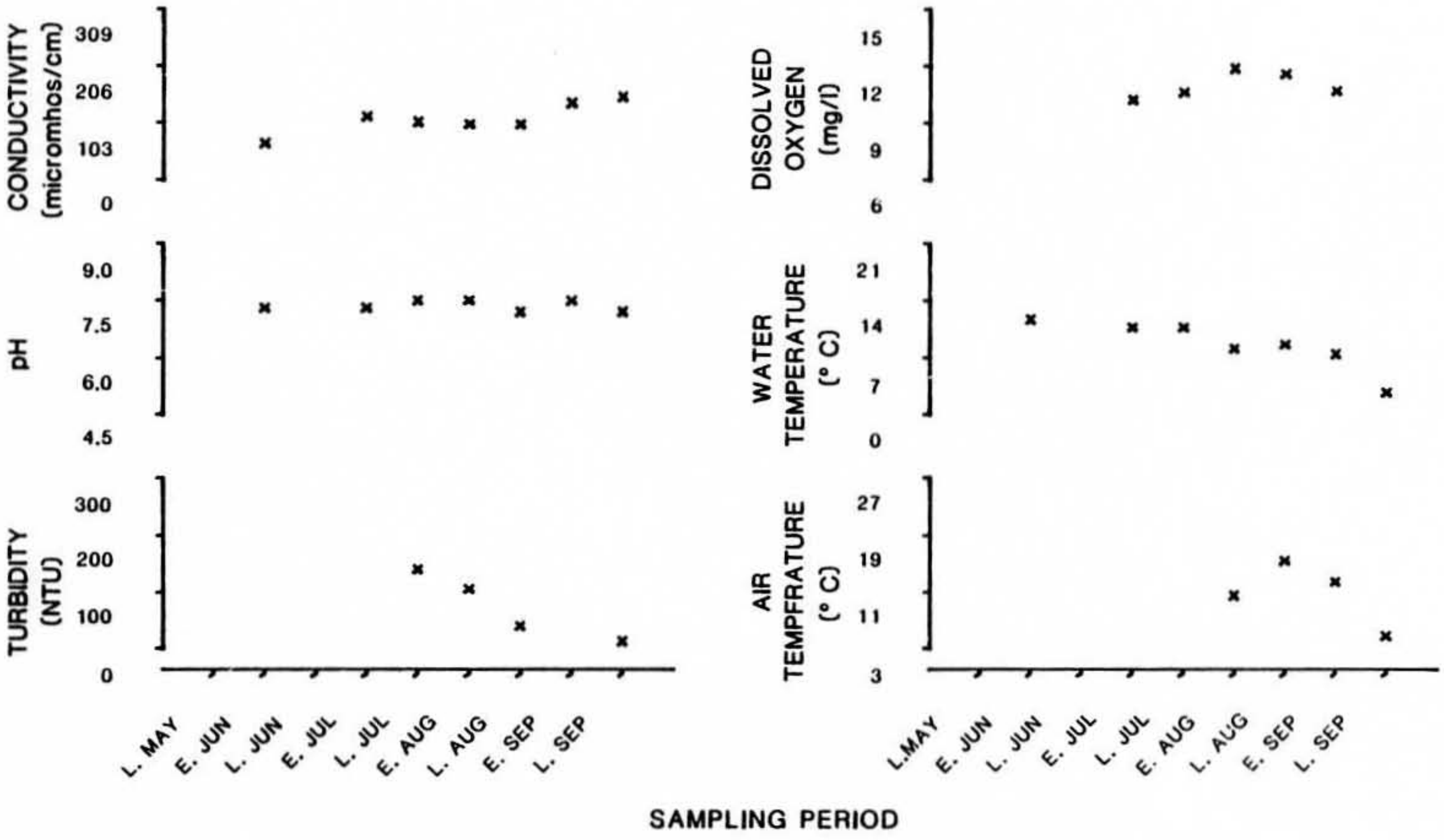


Figure 54. Physiochemical parameters versus time (May-September, 1981) for Mainstem Susitna - Island (Su-Island) (R.M. 146.9, Geographic Code 32N01W27DBC)

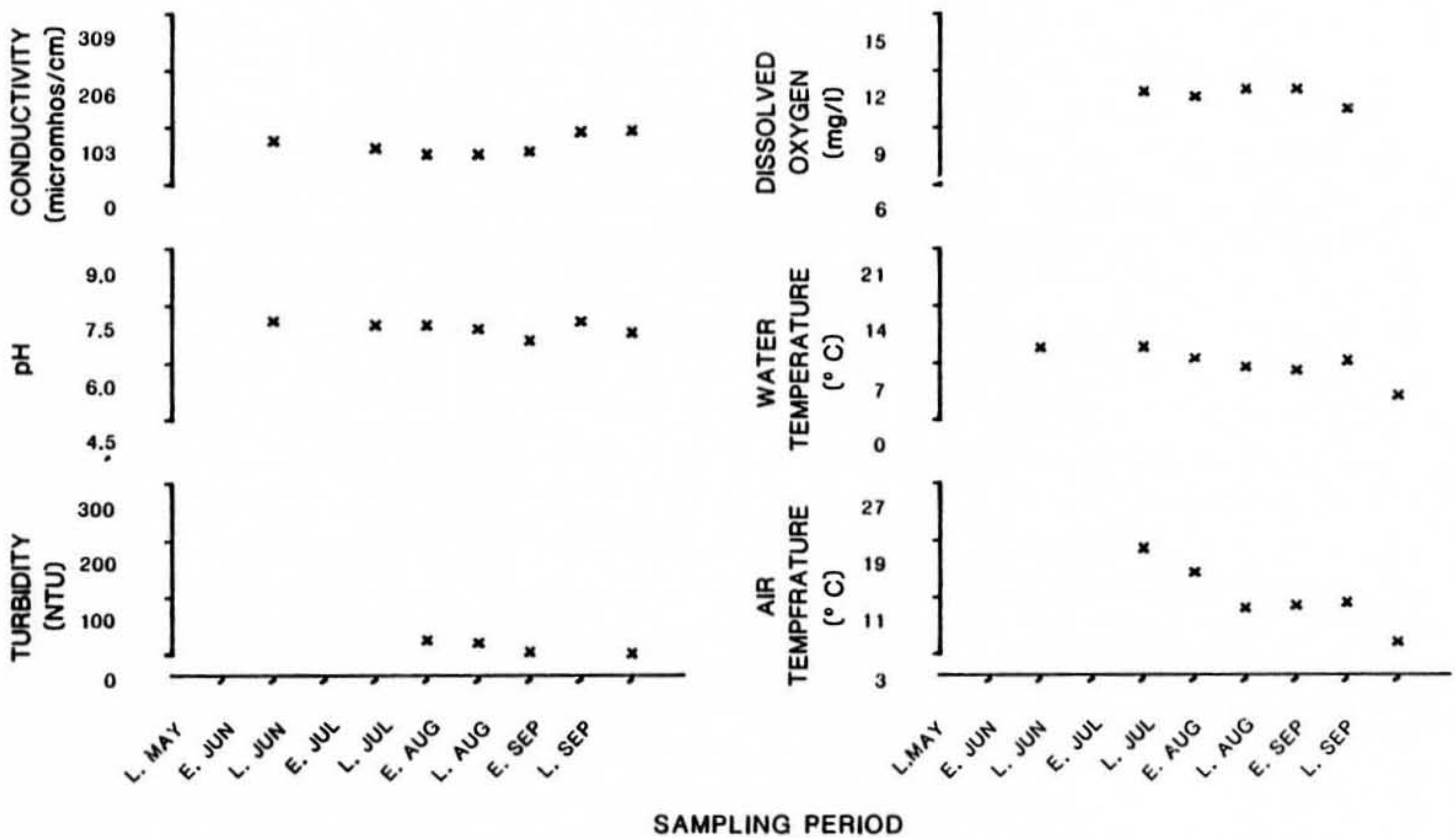


Figure 55. Physiochemical parameters versus time (May-September, 1981) for Portage Creek (R.M. 148.8, Geographic Code 32N01W25CDB)

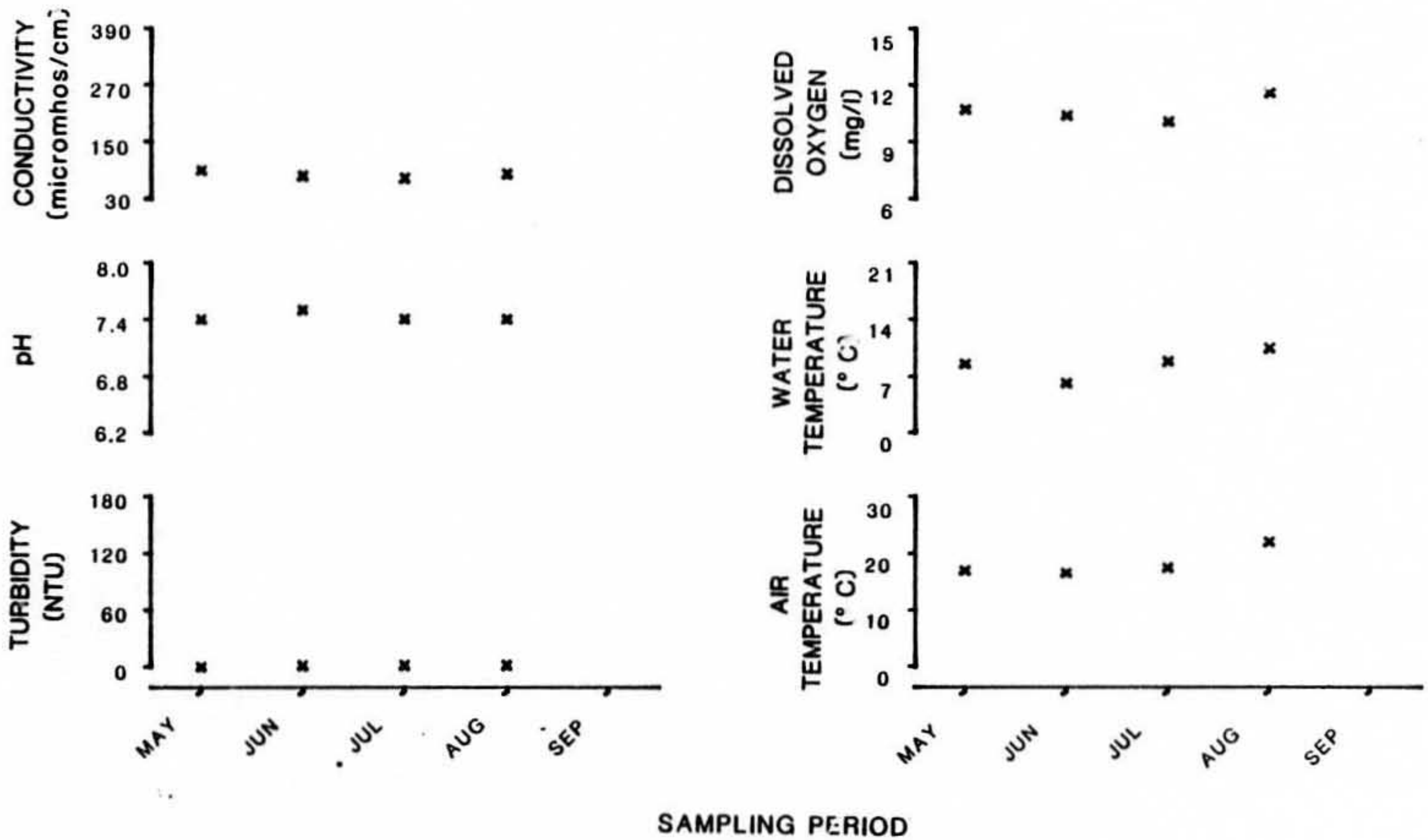


Figure 56. Physiochemical parameters versus time (May-September, 1981)
for Fog Creek - Site 1
(R.M. 173.9, Geographic Code 31N04E16DBB)

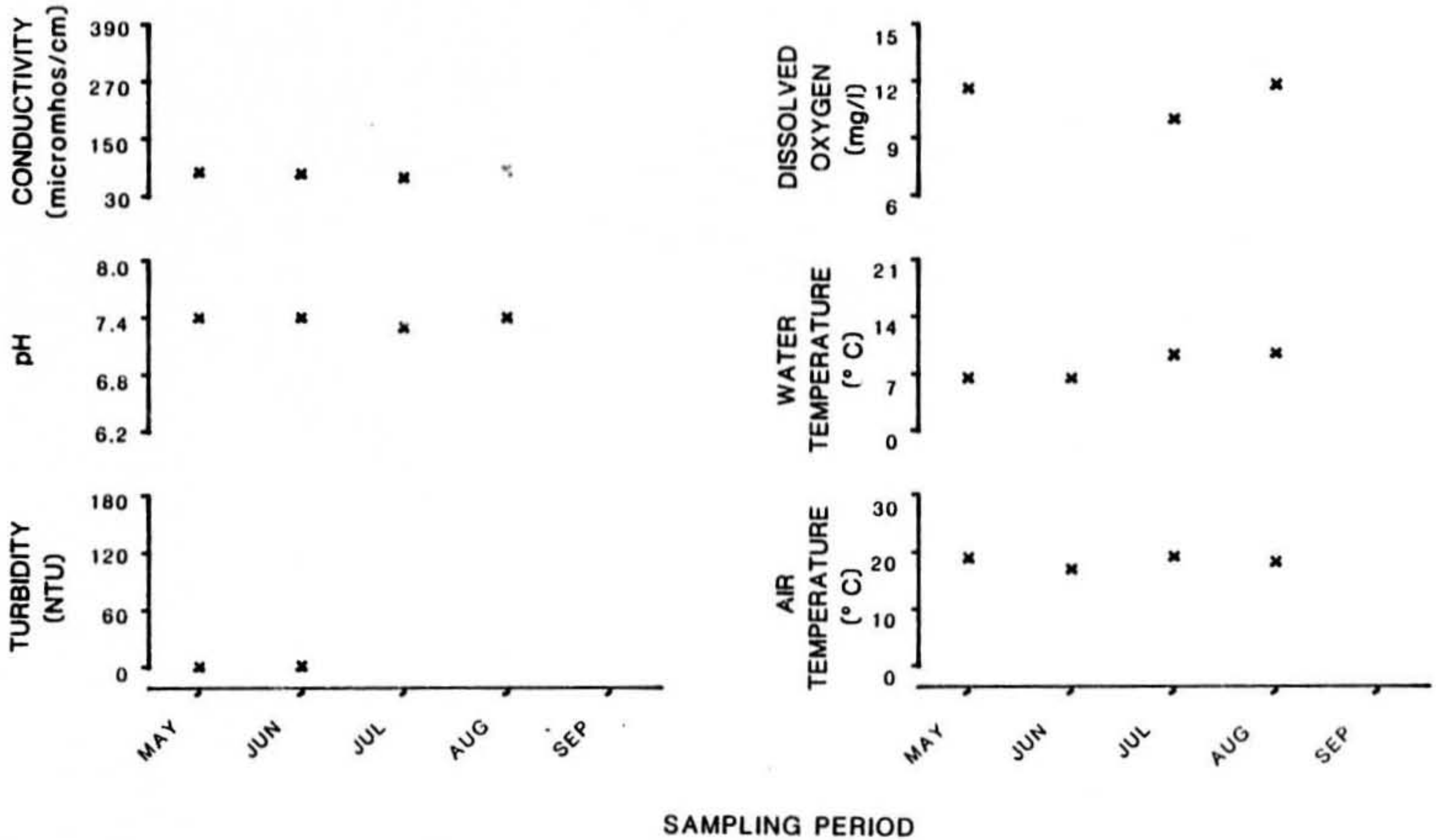


Figure 57. Physiochemical parameters versus time (May-September, 1981) for Fog Creek - Site 2 (R.M. 173.9, Geographic Code 31N04E16DBD)

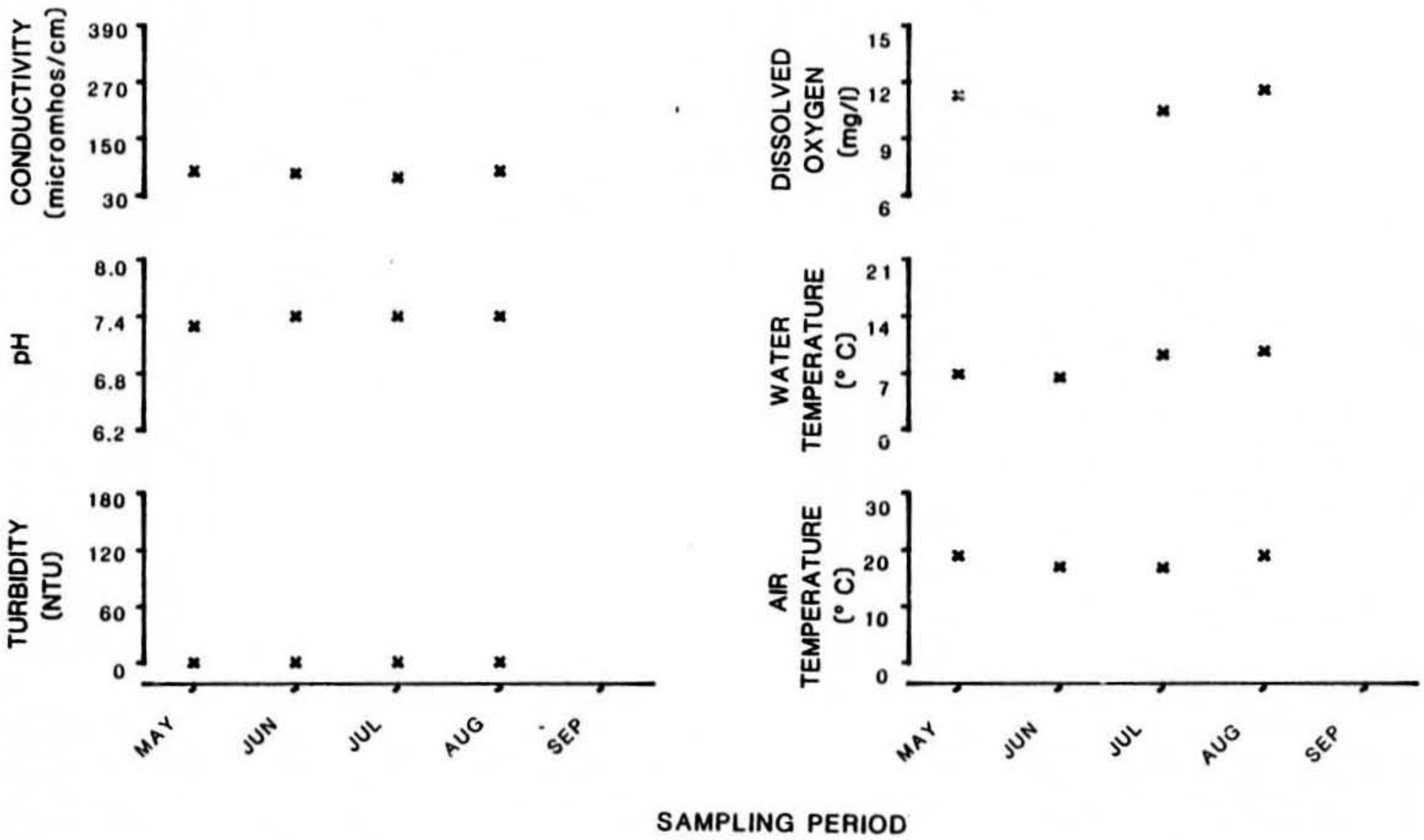


Figure 58. Physiochemical parameters versus time (May-September, 1981) for Fog Creek - Site 3 (R.M. 173.9, Geographic Code 31N04E16DAD)

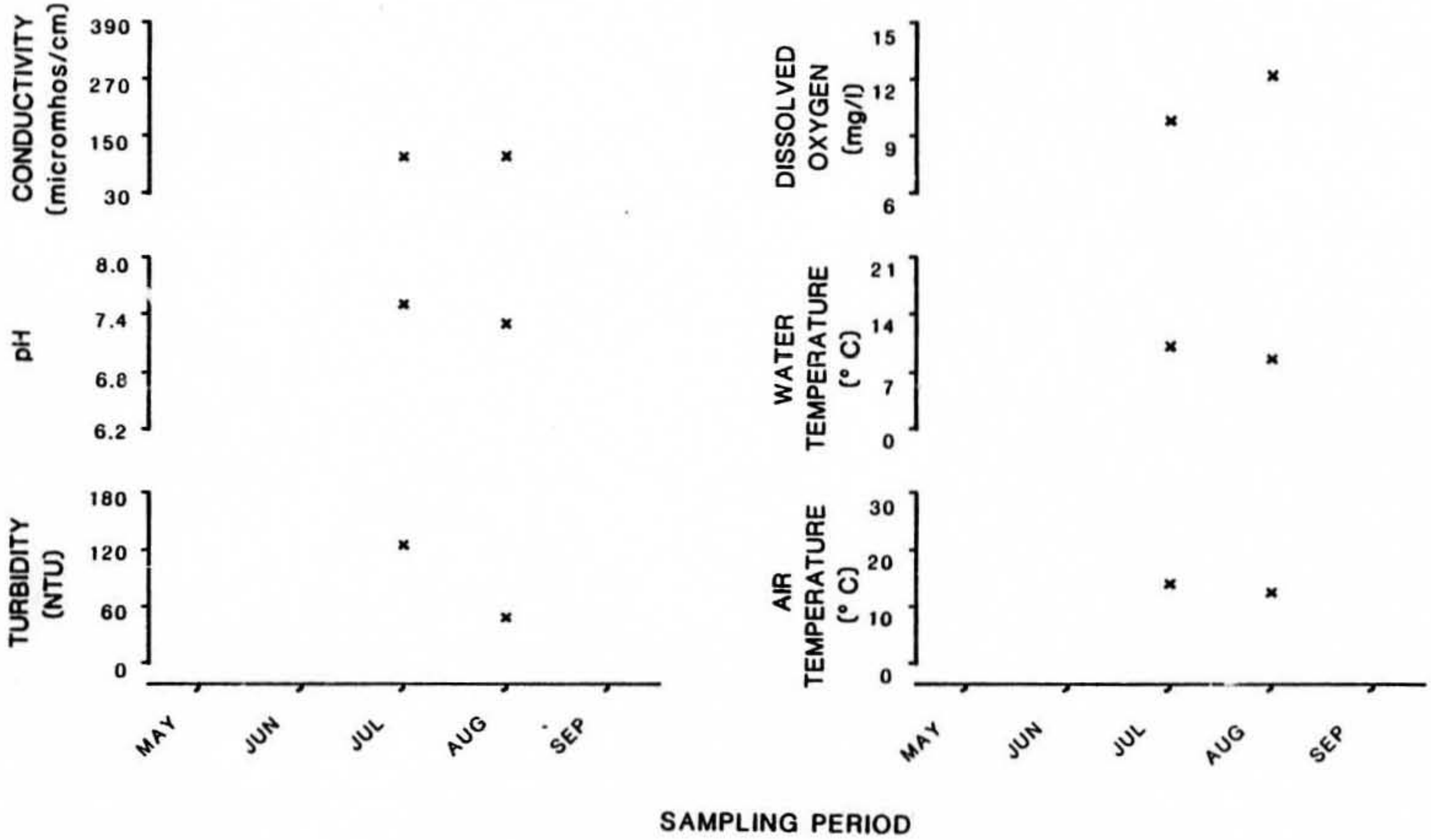


Figure 59. Physiochemical parameters versus time (May-September, 1981) for Mainstem Susitna 50' upstream of Tsusena River (R.M. 178.9, Geographic Code 32N04E36ADB)

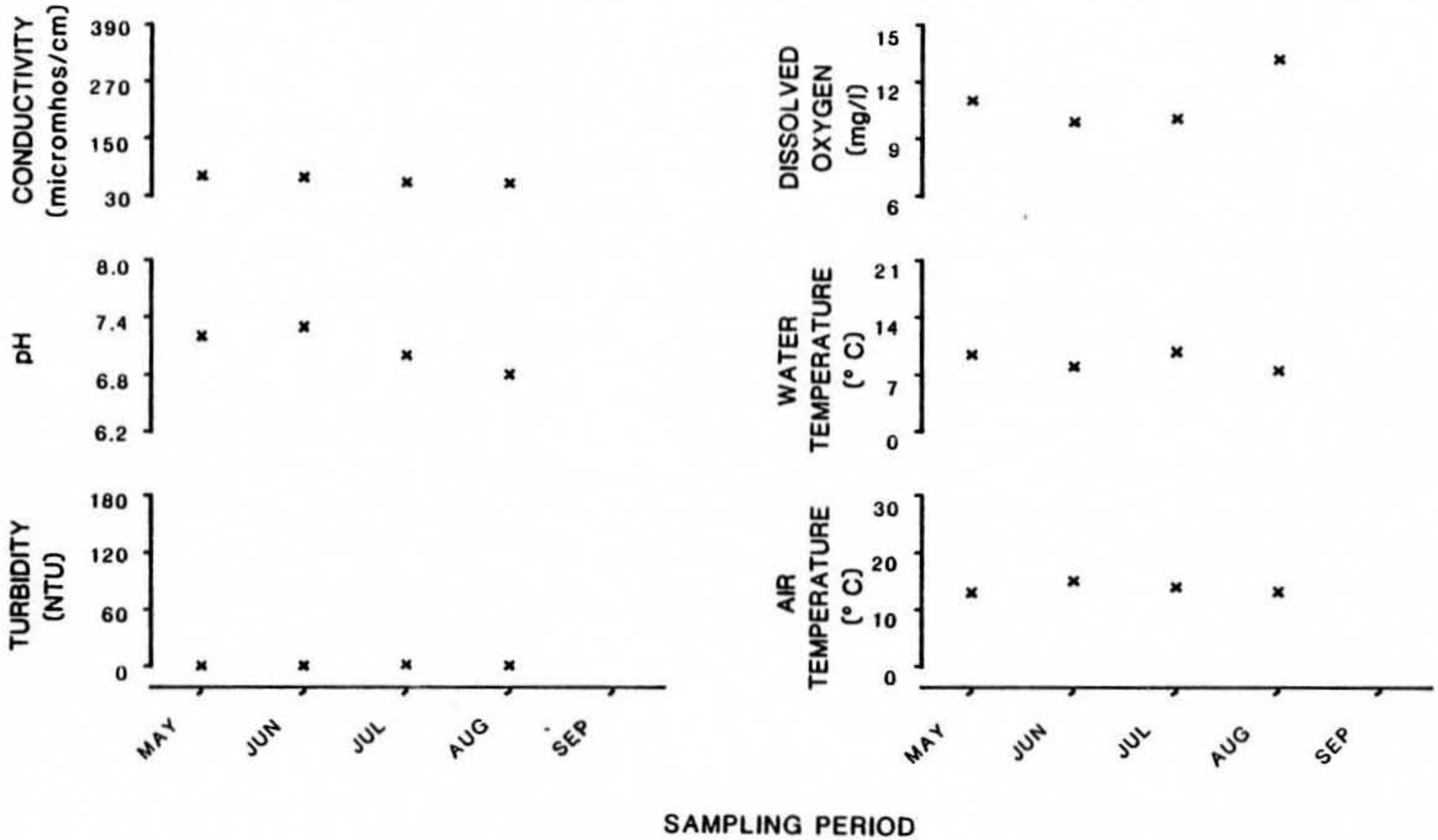


Figure 60. Physiochemical parameters versus time (May-September, 1981)
for Tsusena River - Site 1
(R.M. 178.9, Geographic Code 32N04E36ADB)

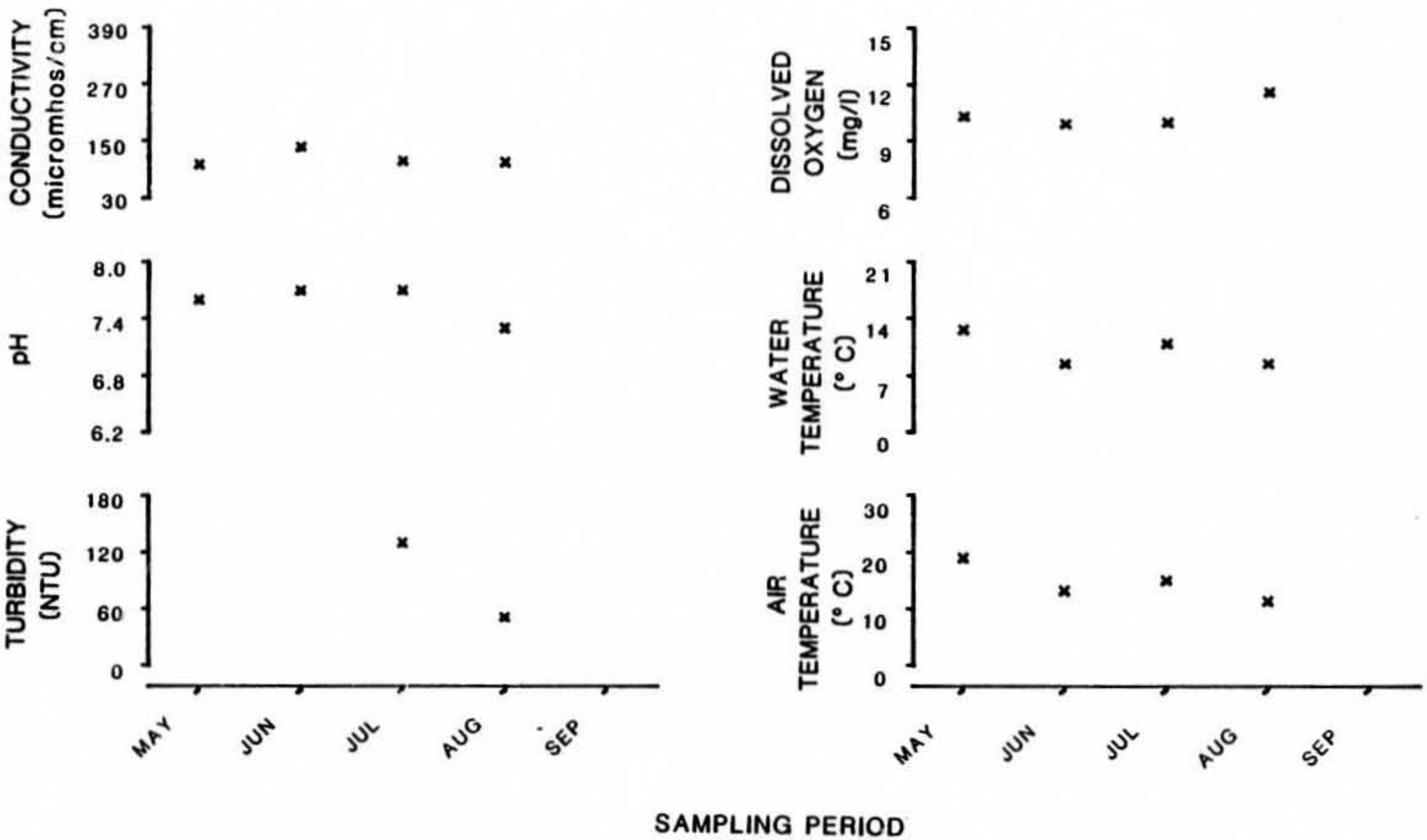


Figure 61. Physiochemical parameters versus time (May-September, 1981) for Mainstem Susitna 50' upstream of Deadman Creek (R.M. 183.4, Geographic Code 32N05E26CAA)

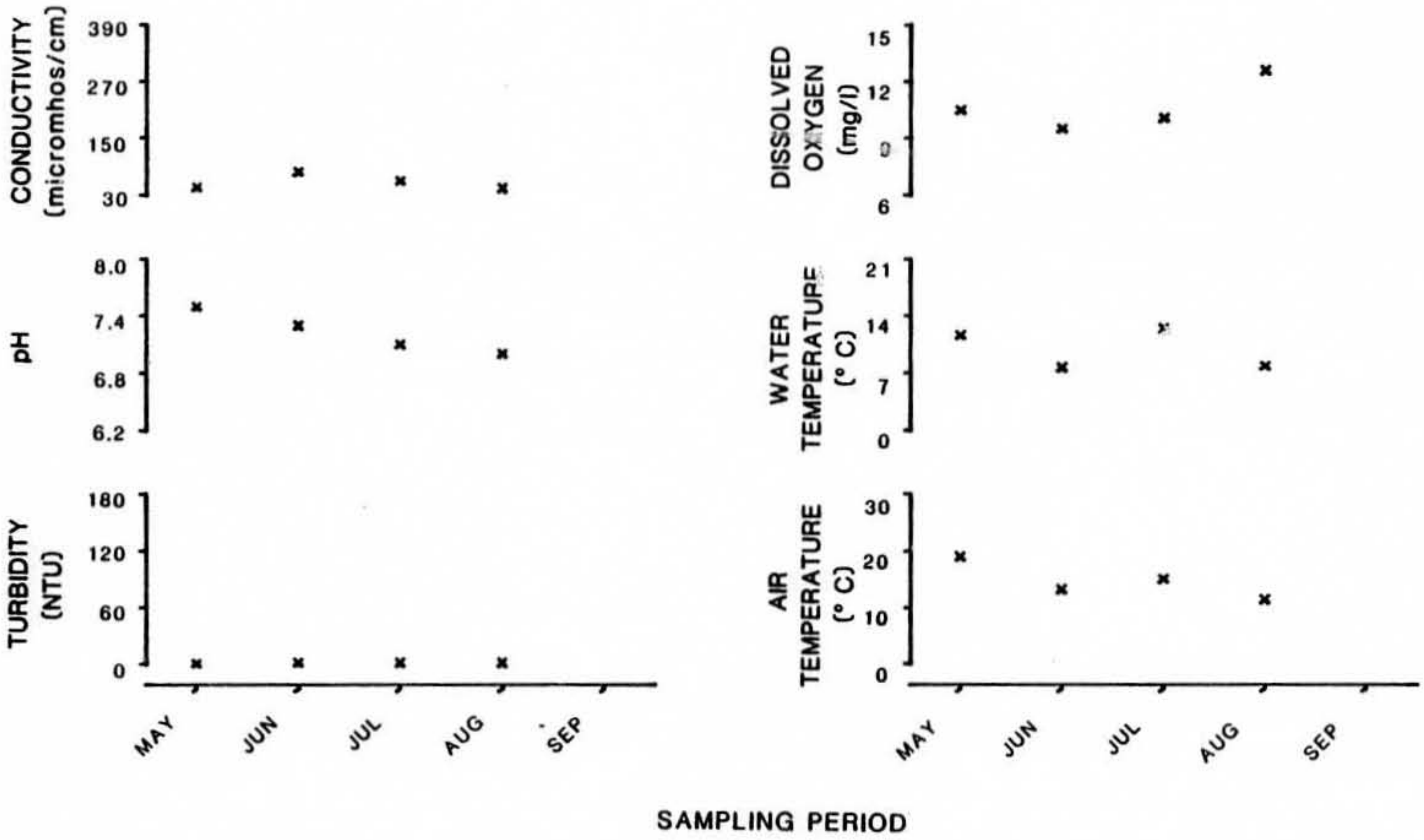


Figure 62. Physiochemical parameters versus time (May-September, 1981) for Deadman Creek - Site 1 (R.M. 183.4, Geographic Code 32N05E26CDB)

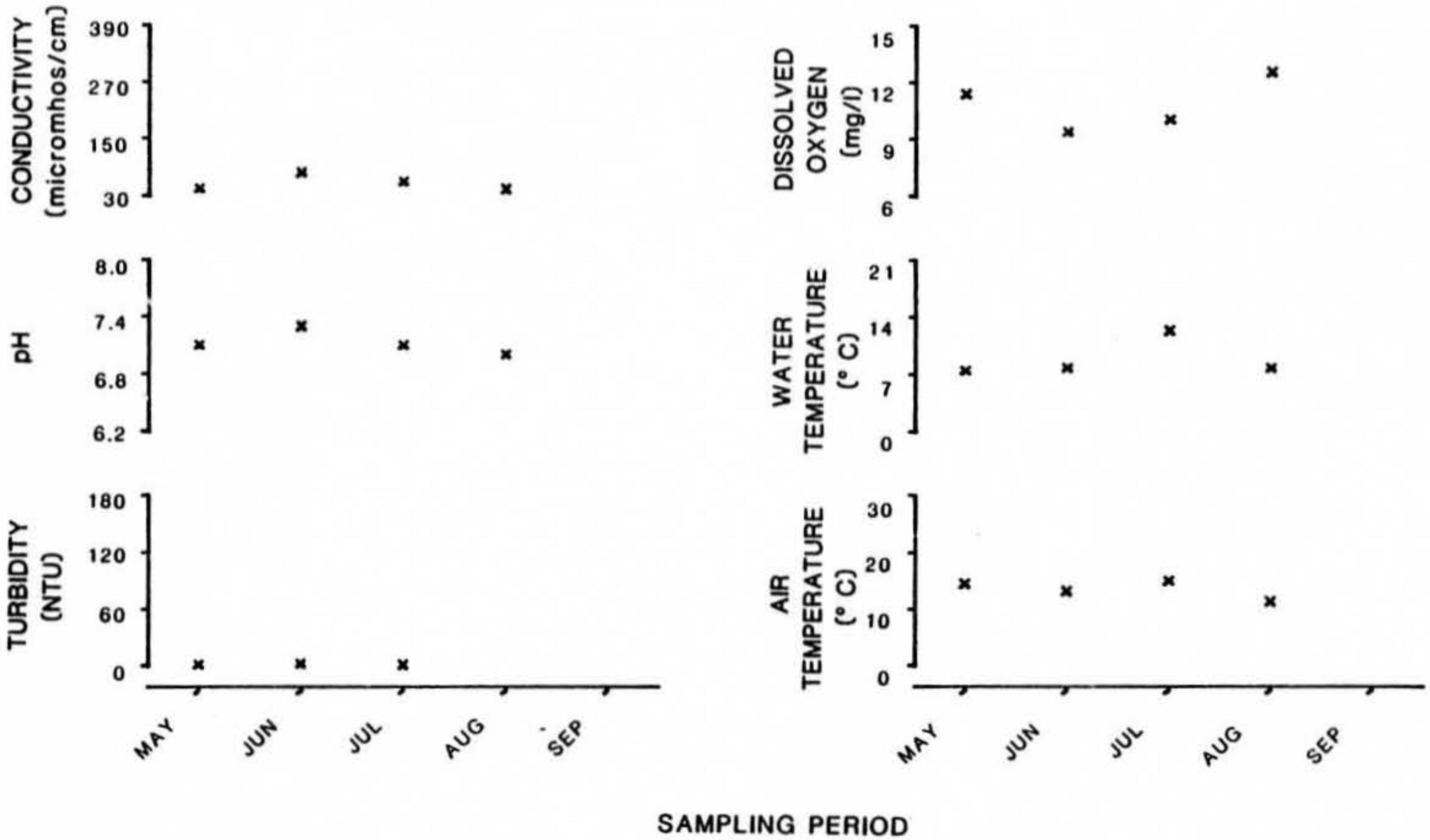


Figure 63. Physiochemical parameters versus time (May-September, 1981)
for Deadman Creek - Site 2
(R.M. 183.4, Geographic Code 32N05E26CAA)

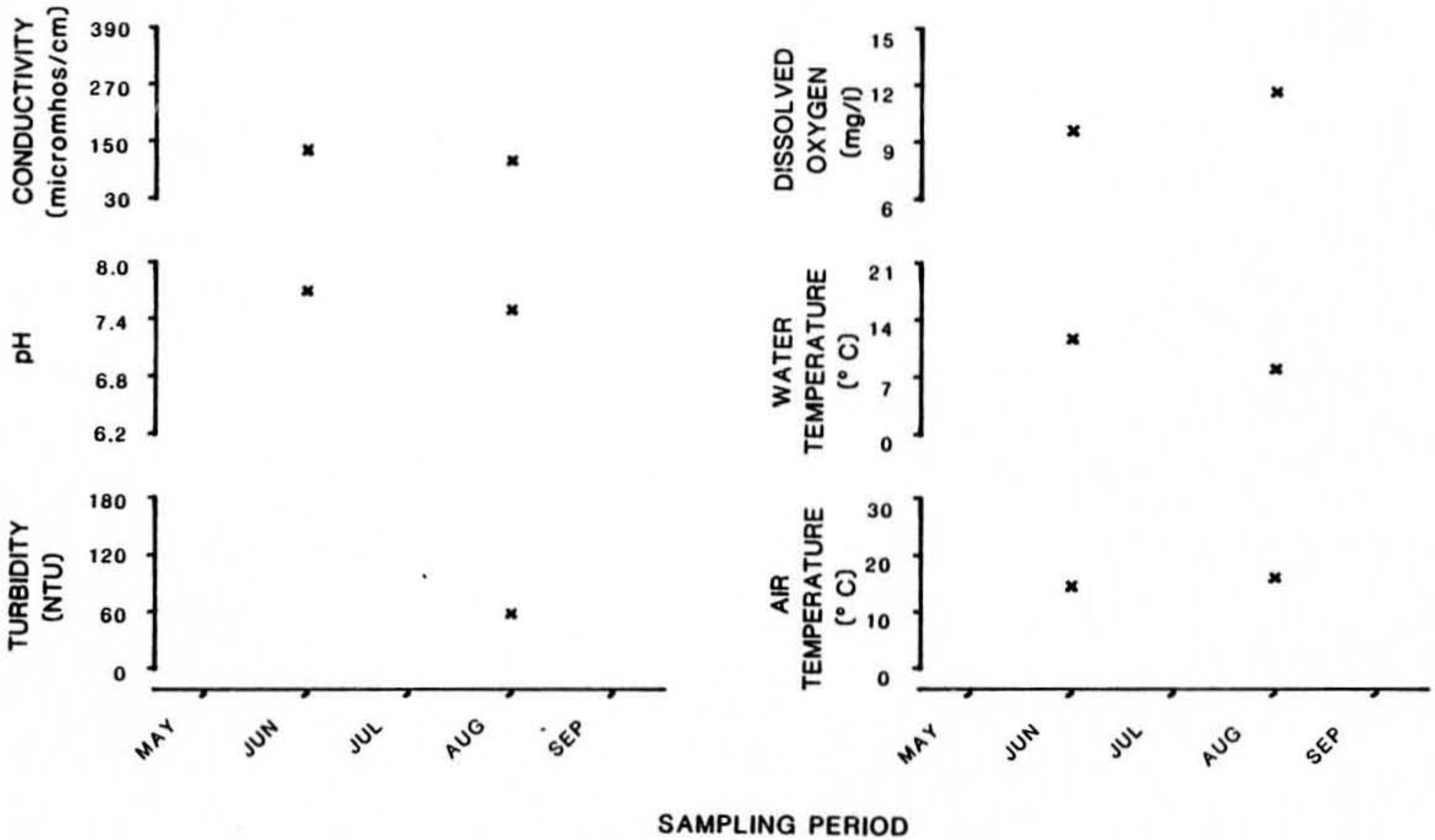


Figure 64. Physiochemical parameters versus time (May-September, 1981) for Mainstem Susitna 50' upstream of Watana Creek (R.M. 190.4, Geographic Code 32N06E25CCA)

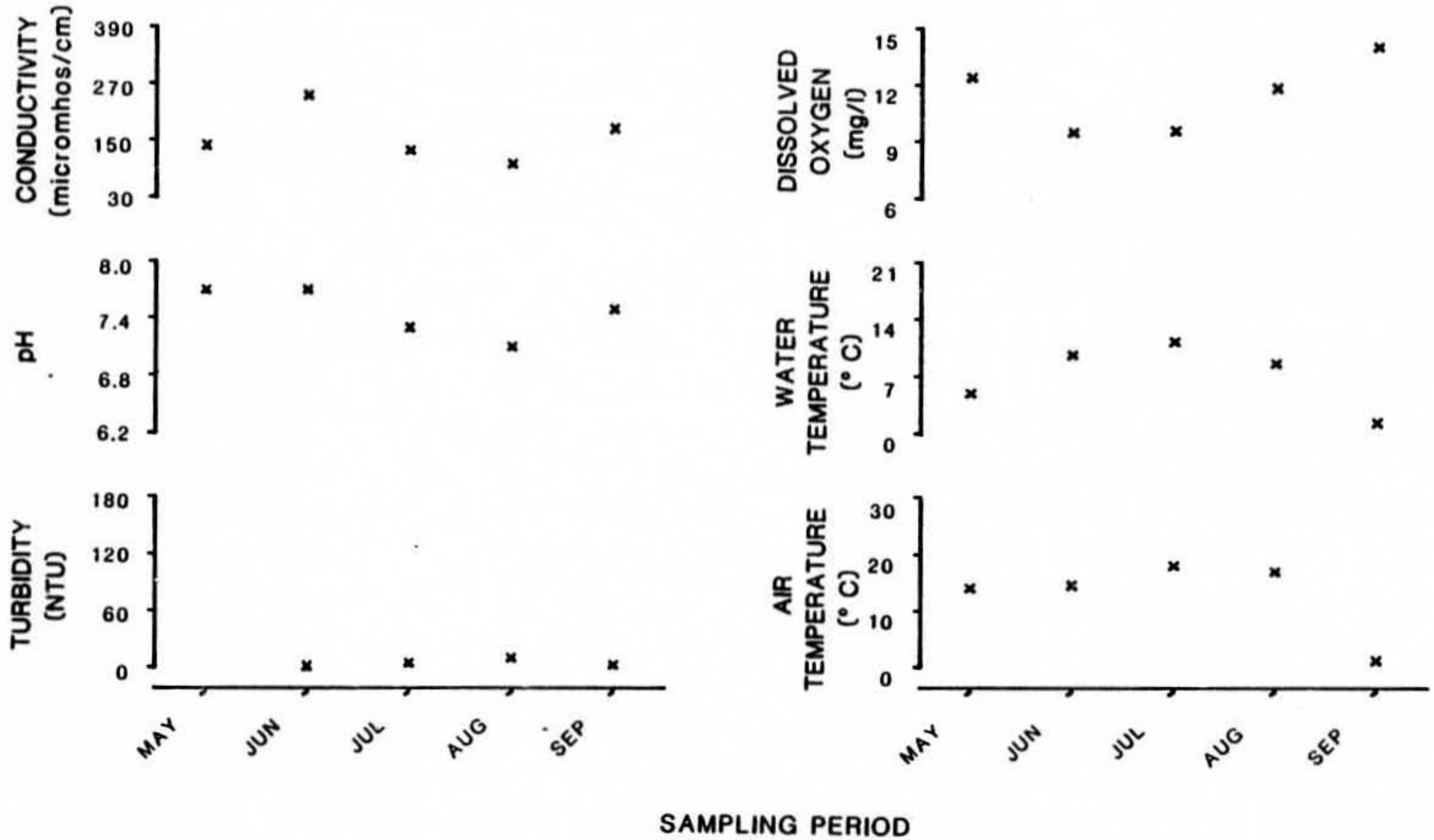


Figure 65. Physiochemical parameters versus time (May-September, 1981)
for Watana Creek - Site 1
(R.M. 190.4, Geographic Code 32N06E25CCA)

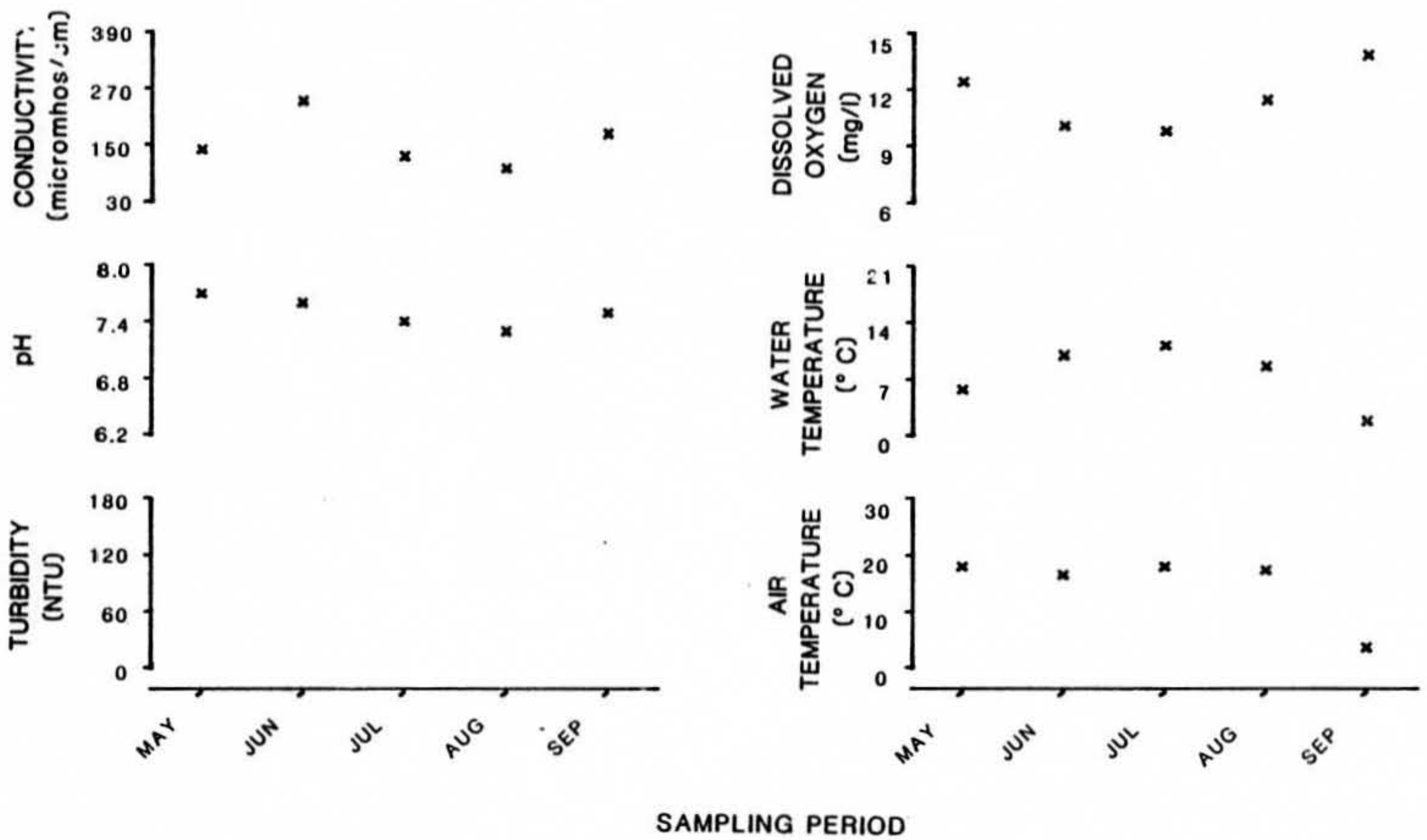


Figure 66. Physiochemical parameters versus time (May-September, 1981) for Watana Creek - Site 2 (R.M. 190.4, Geographic Code 32N06E25CAB)

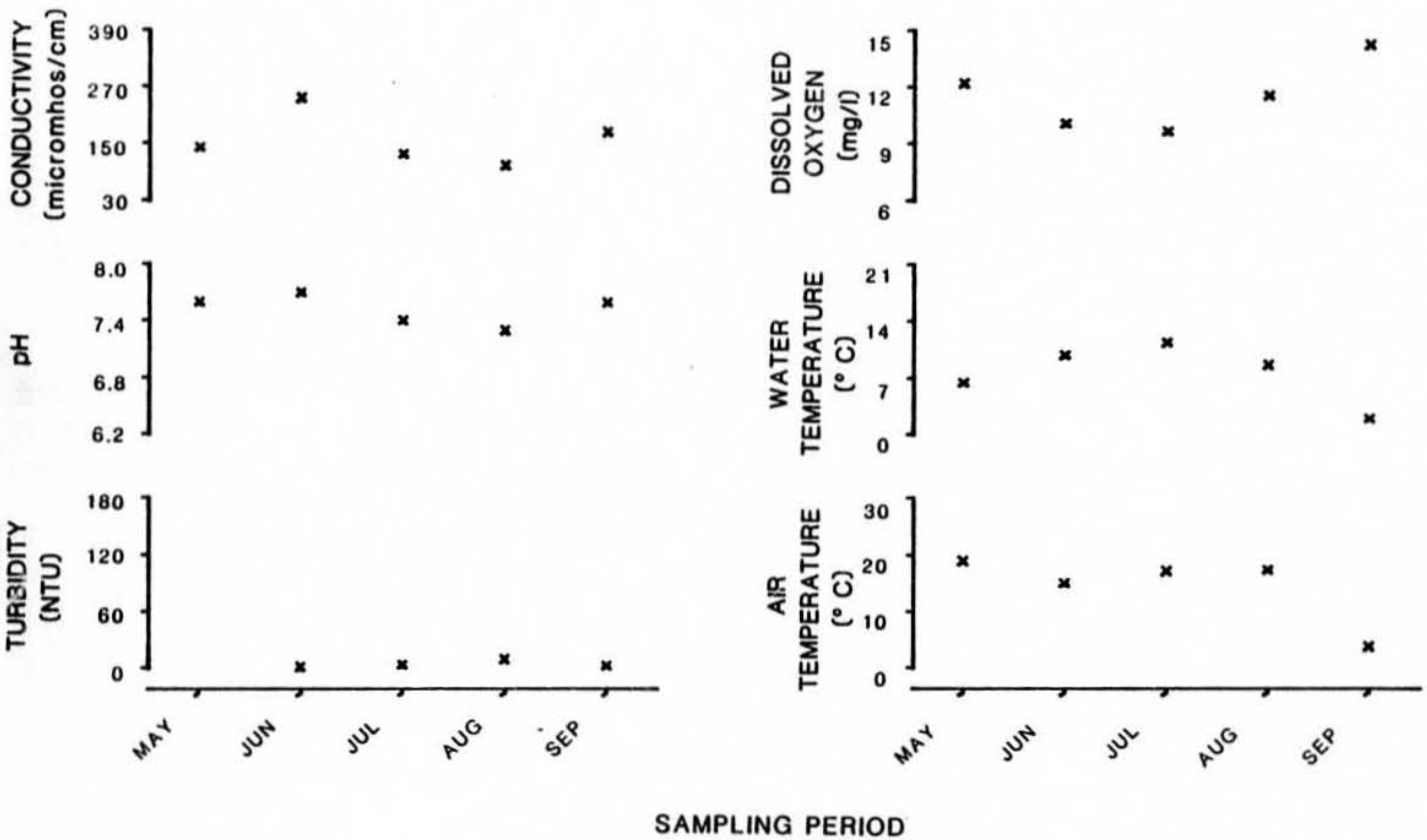


Figure 67. Physiochemical parameters versus time (May-September, 1981)
for Watana Creek - Site 3
(R.M. 190.4, Geographic Code 32N06E25BDC)

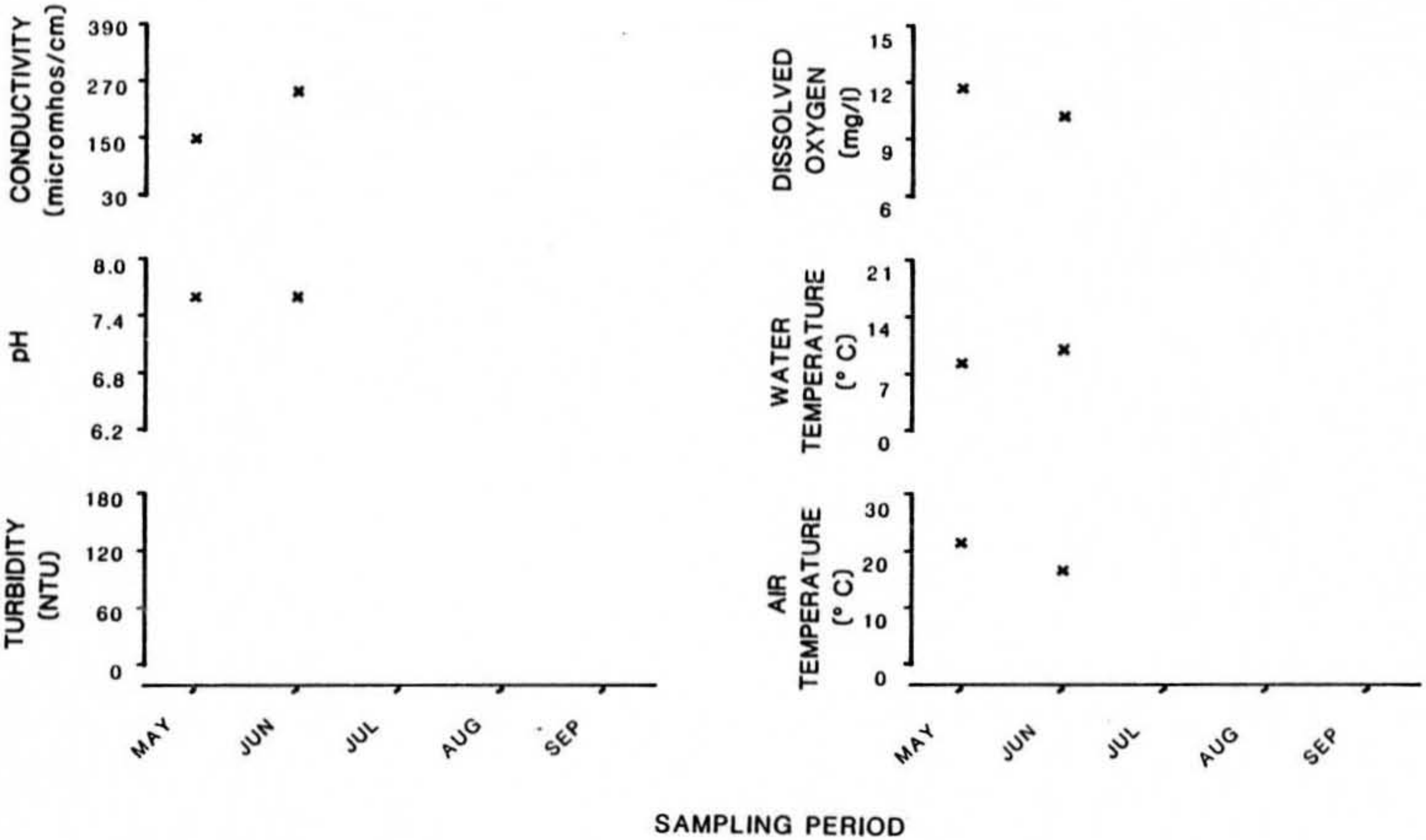


Figure 68. Physiochemical parameters versus time (May-September, 1981) for Watana Creek - Site 4 (R.M. 190.4, Geographic Code 32N06E25ACB)

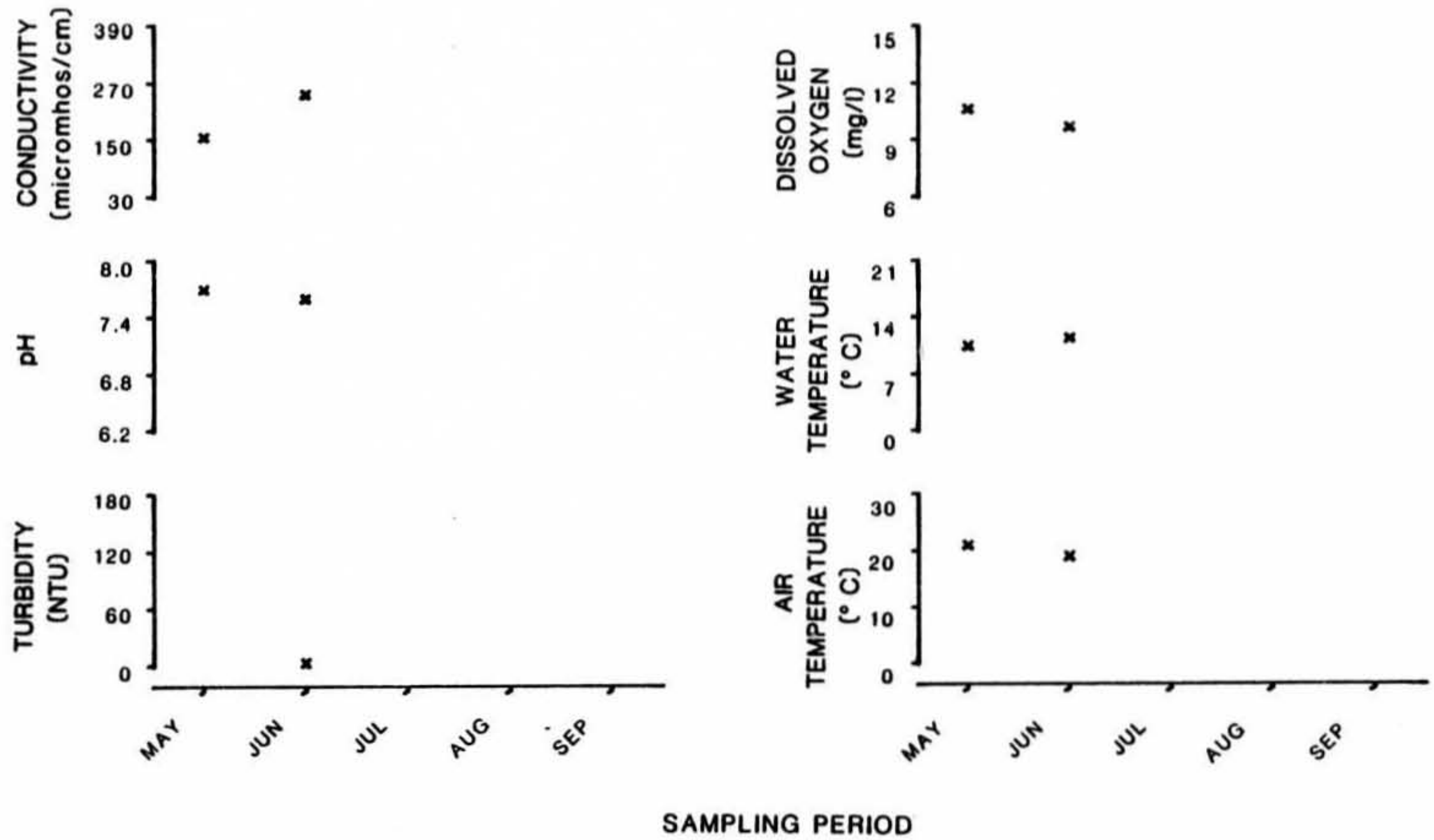


Figure 69. Physiochemical parameters versus time (May-September, 1981) for Watana Creek - Site 5 (R.M. 190.4, Geographic Code 32N06E25ABC)

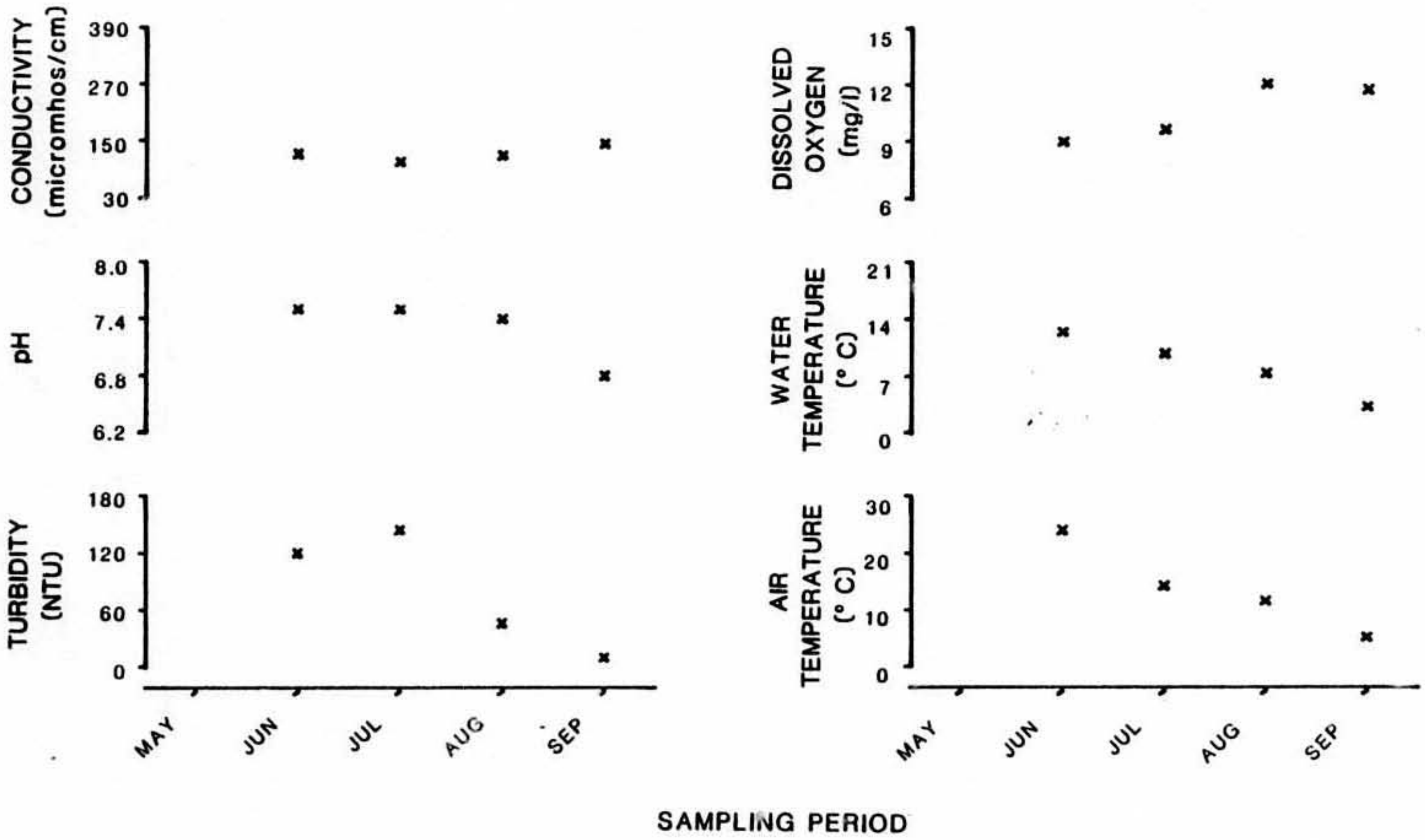


Figure 70. Physiochemical parameters versus time (May-September, 1981) for Mainstem Susitna 50' upstream of Kosina Creek (R.M. 202.4, Geographic Code 31N08E15BAB)

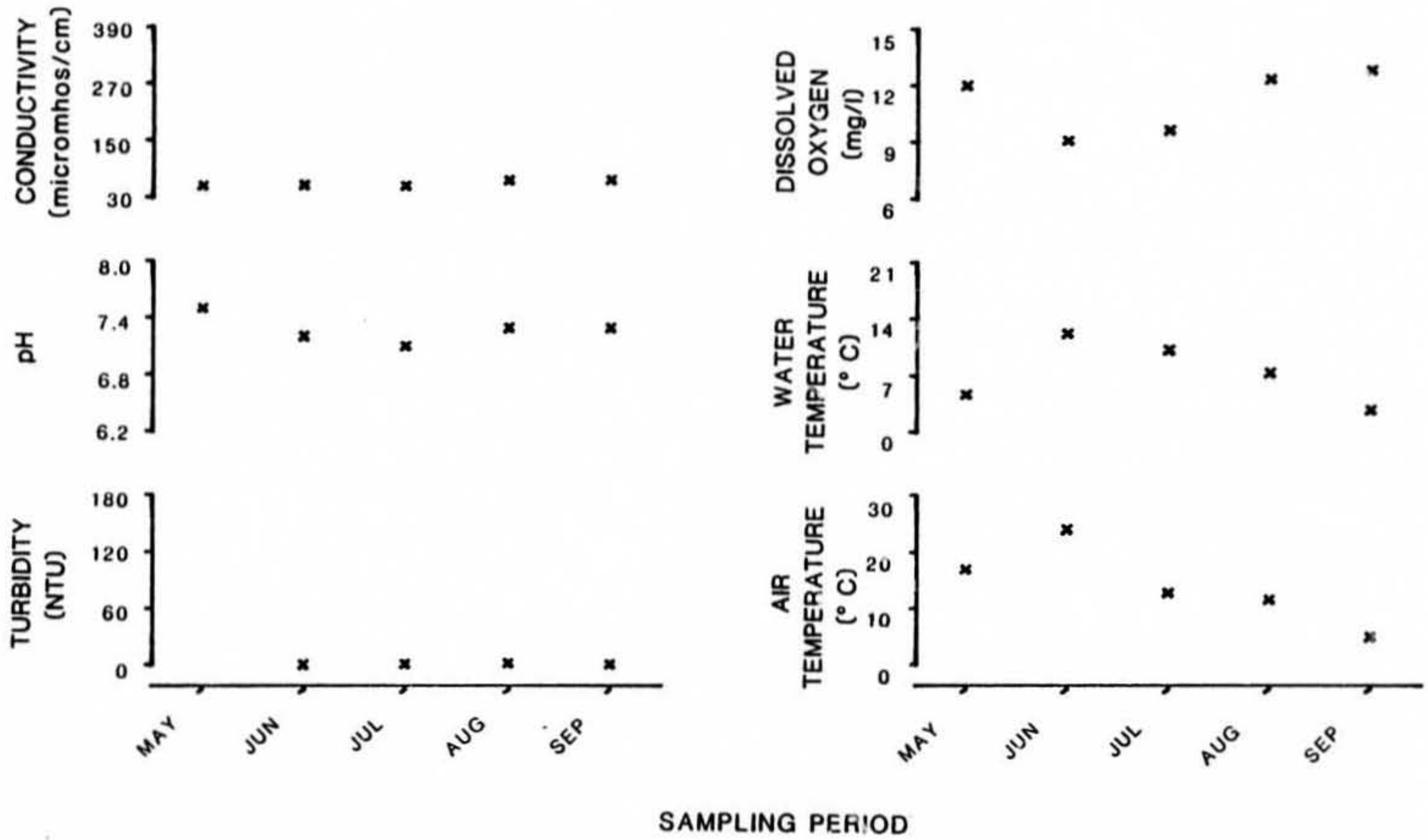


Figure 71. Physiochemical parameters versus time (May-September, 1981)
for Kosina Creek - Site 1
(R.M. 202.4, Geographic Code 31N08E15BAB)

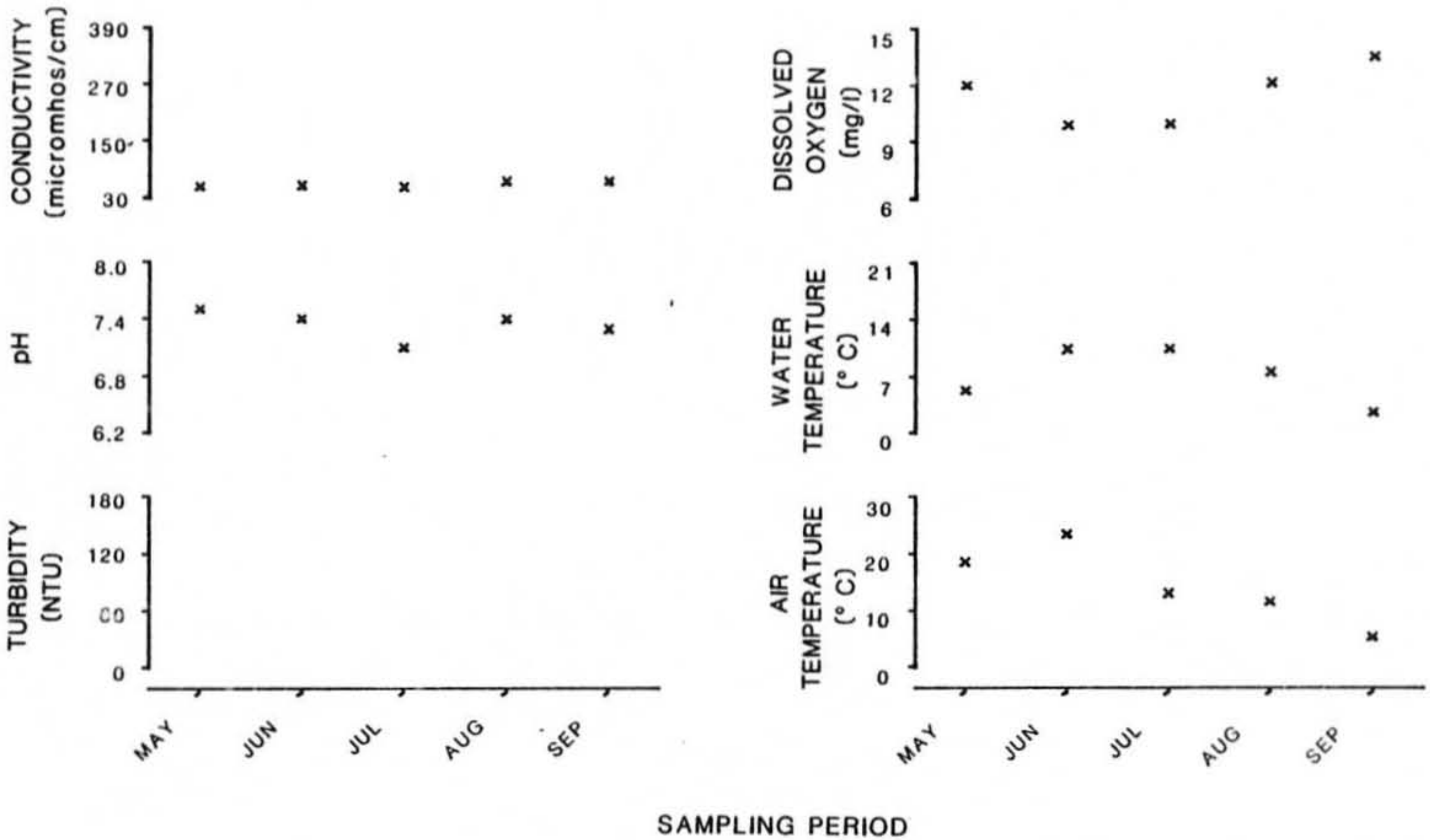


Figure 72. Physiochemical parameters versus time (May-September, 1981) for Kosina Creek - Site 2 (R.M. 202.4, Geographic Code 31N08E15BAC)

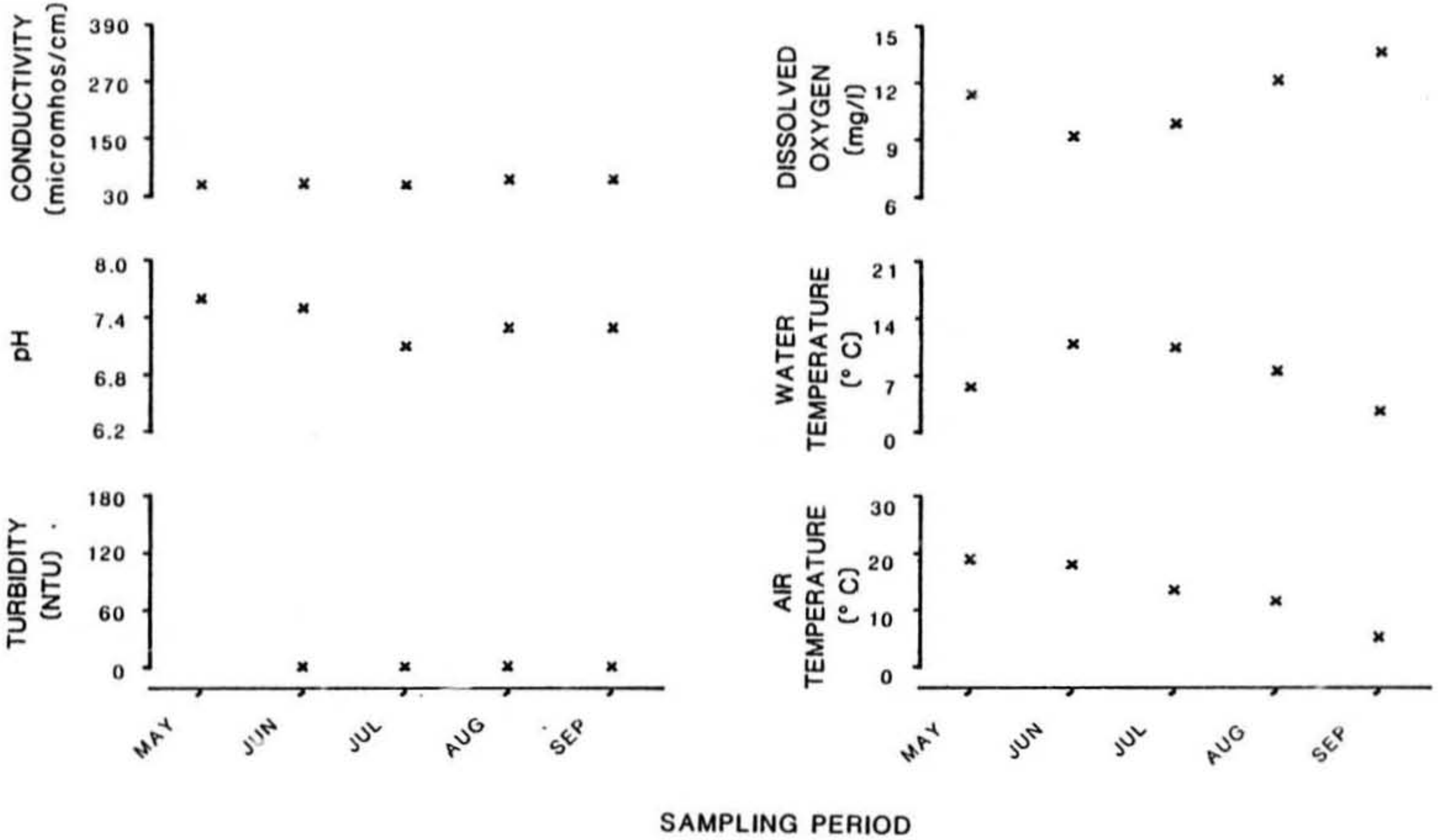


Figure 73. Physiochemical parameters versus time (May-September, 1981) for Kosina Creek - Site 3 (R.M. 202.4, Geographic Code 31N08E15BCA)

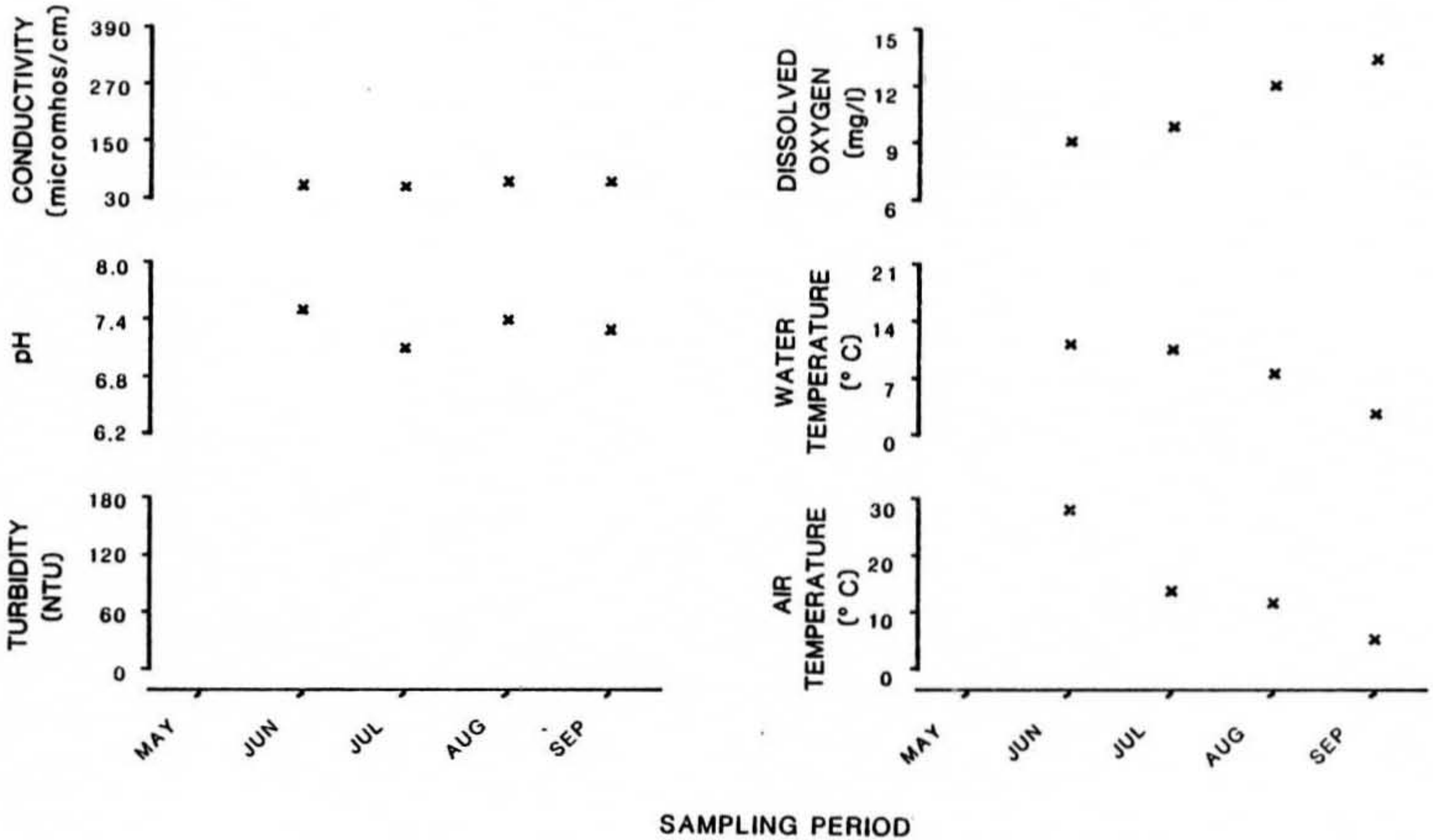


Figure 74. Physiochemical parameters versus time (May-September, 1981)
for Kosina Creek - Site 4
(R.M. 202.4, Geographic Code 31N08E15CBA)

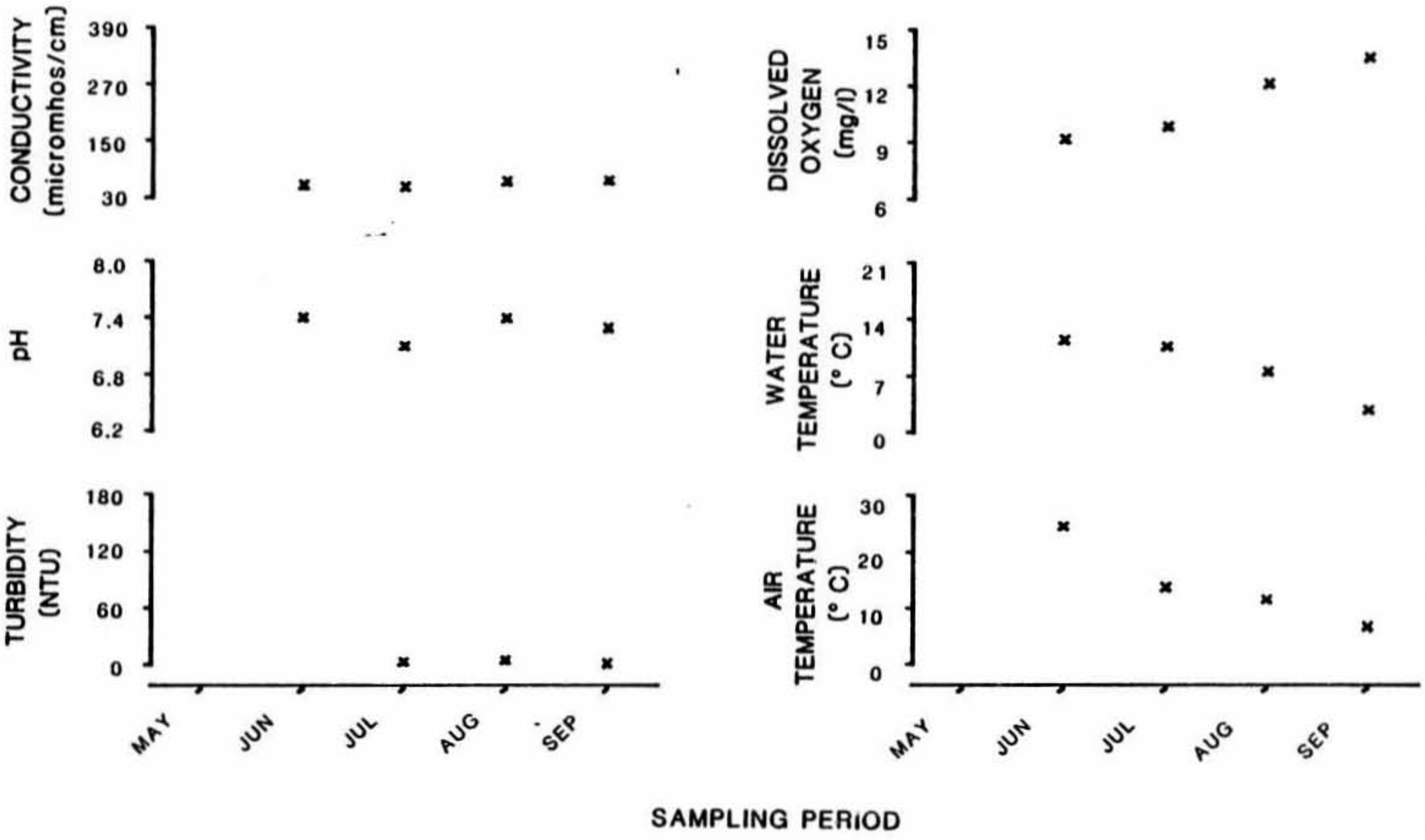


Figure 75. Physiochemical parameters versus time (May-September, 1981)
for Kosina Creek - Site 5
(R.M. 202.4, Geographic Code 31N08E15CCA)

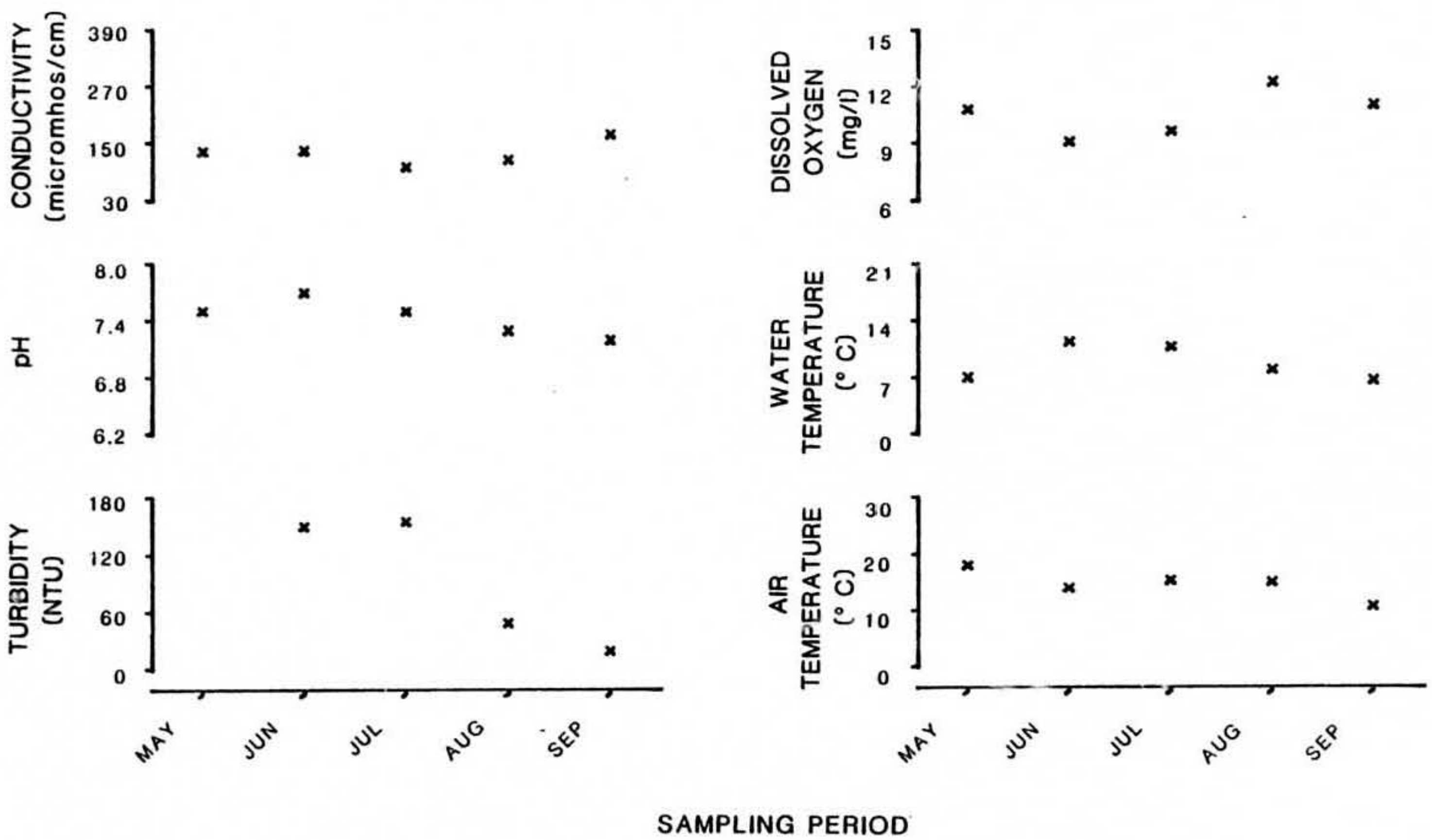


Figure 76. Physiochemical parameters versus time (May-September, 1981) for Mainstem Susitna 50' upstream of Jay Creek (R.M. 203.9, Geographic Code 31N08E13BCC)

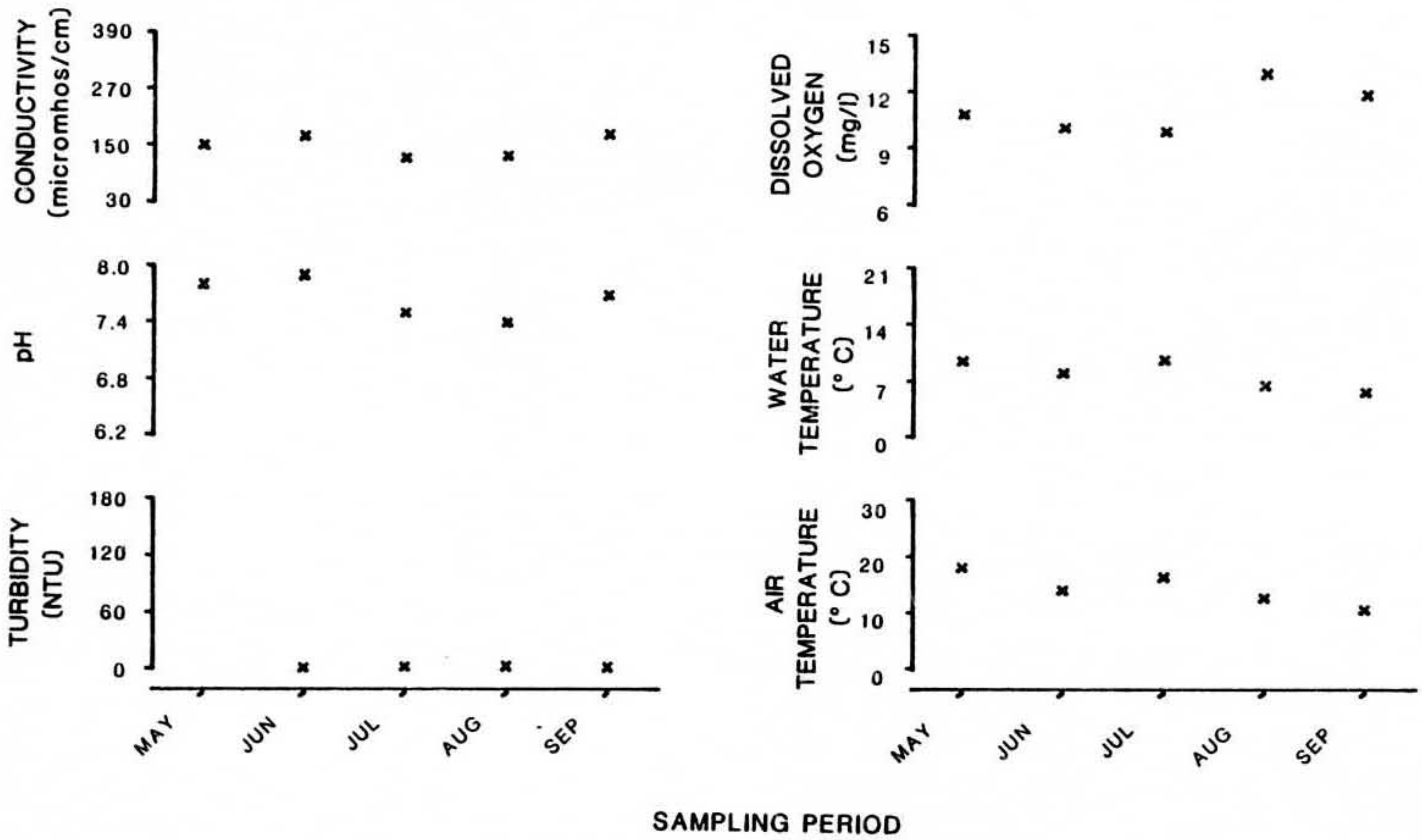


Figure 77. Physiochemical parameters versus time (May-September, 1981)
for Jay Creek - Site 1
(R.M. 203.9, Geographic Code 31N08E13BCC)

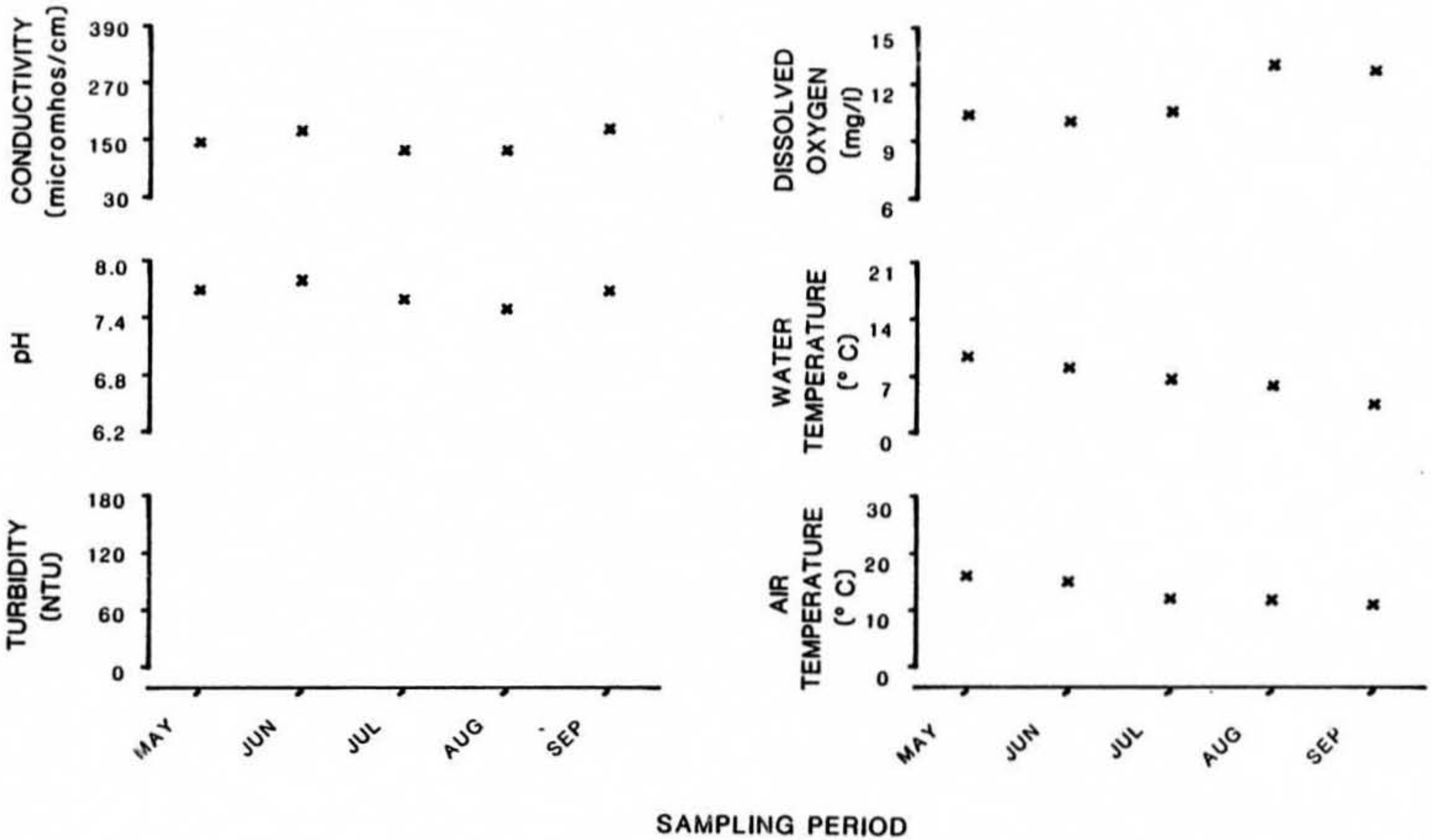


Figure 78. Physiochemical parameters versus time (May-September, 1981)
ıor Jay Creek - Site 2
(R.M. 203.9, Geographic Code 31N08E13BCA)

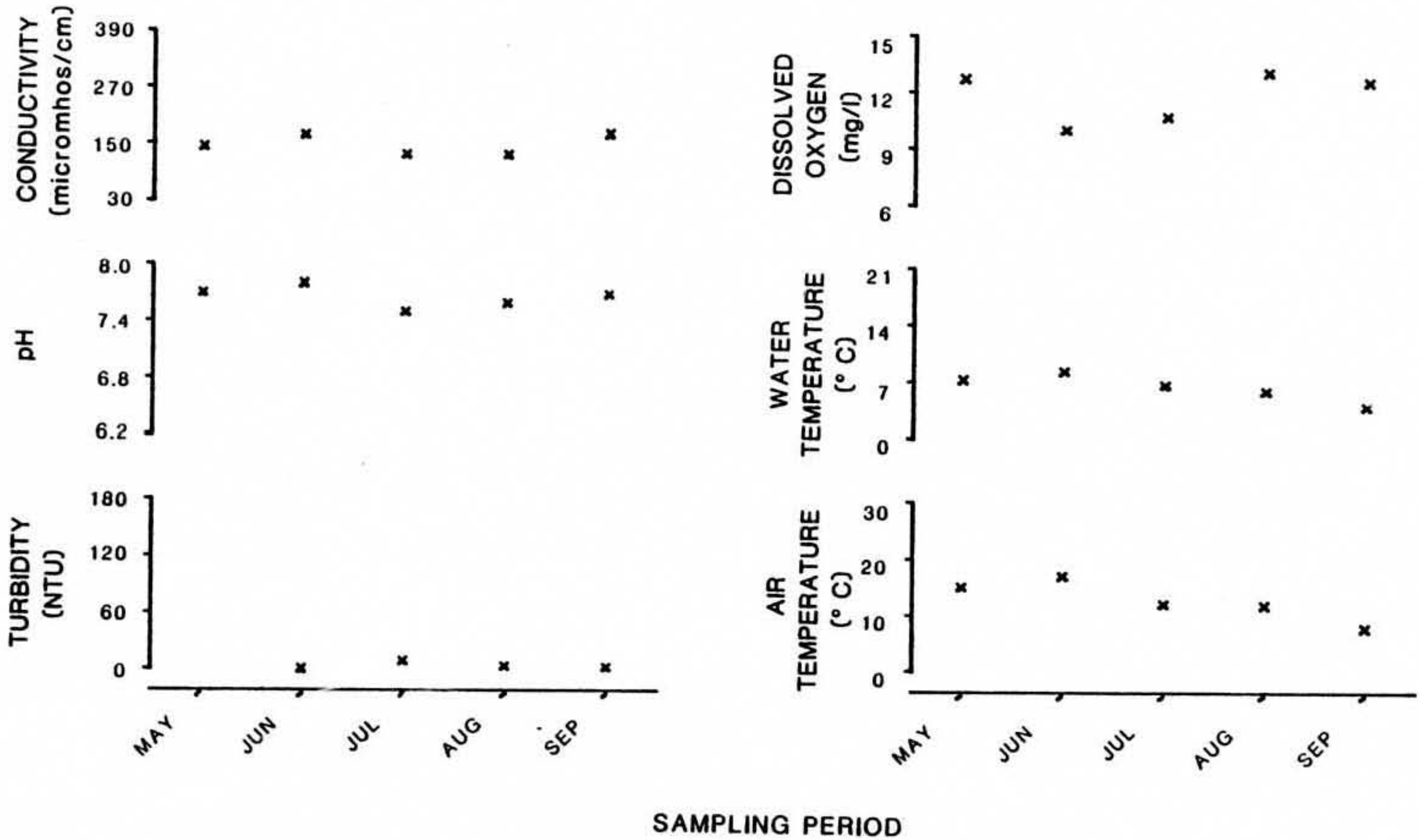


Figure 79. Physiochemical parameters versus time (May-September, 1981)
for Jay Creek - Site 3
(R.M. 203.9, Geographic Code 31N08E13BAC)

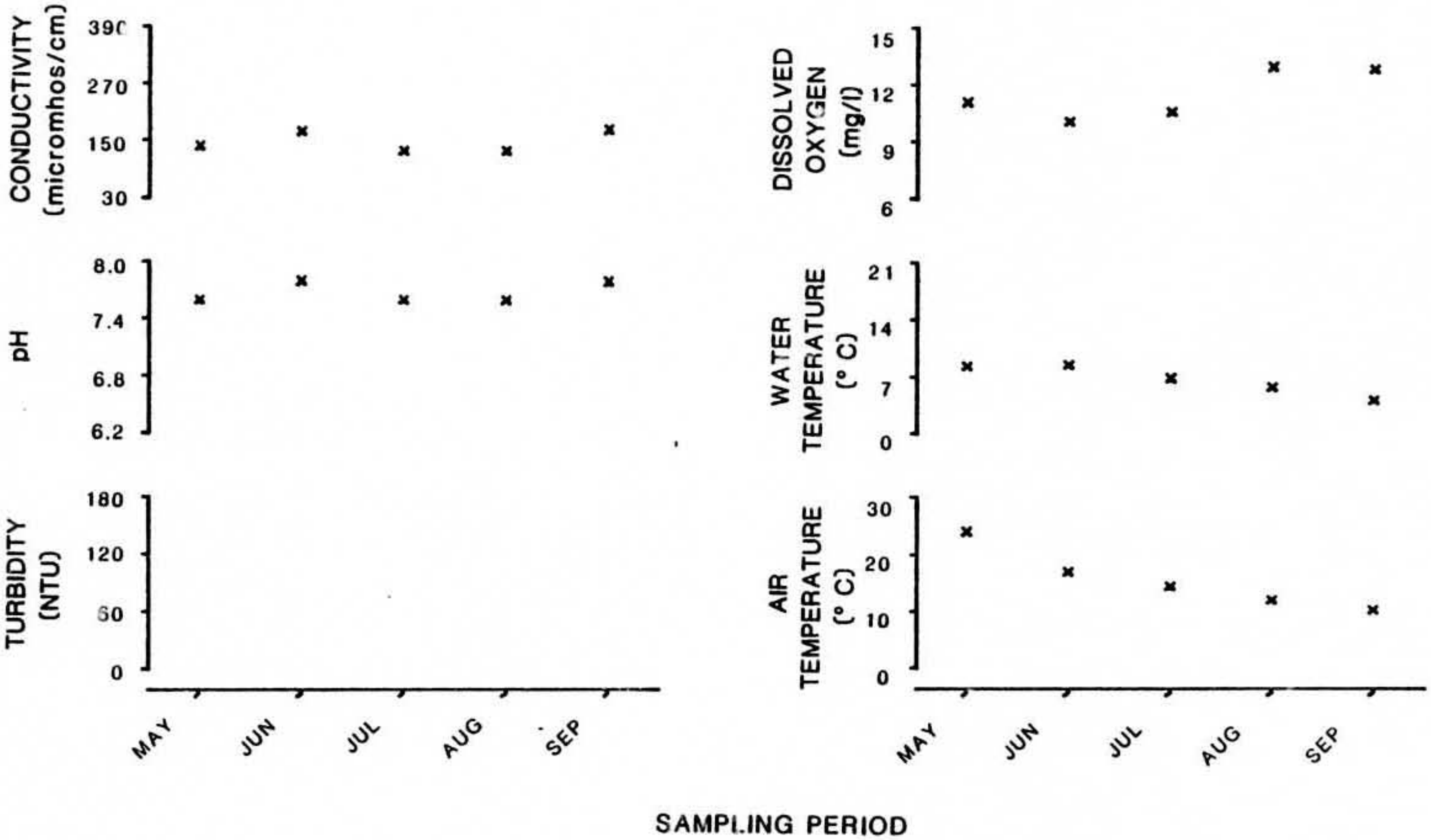


Figure 80. Physiochemical parameters versus time (May-September, 1981)
for Jay Creek - Site 4
(R.M. 203.9, Geographic Code 31N08E13BAA)

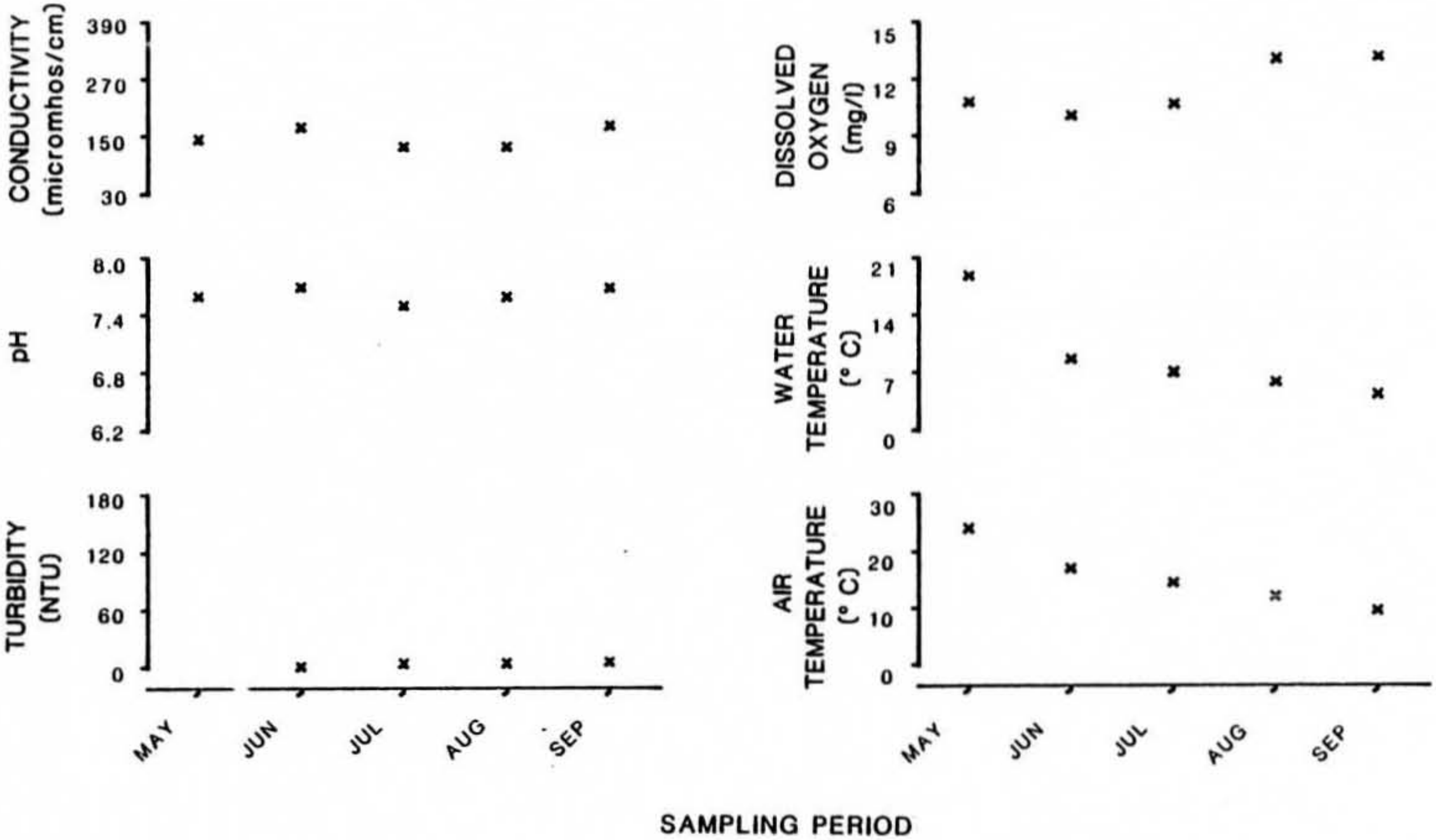


Figure 81. Physiochemical parameters versus time (May-September, 1981) for Jay Creek - Site 5 (R.M. 203.9, Geographic Code 31N08E12DCB)

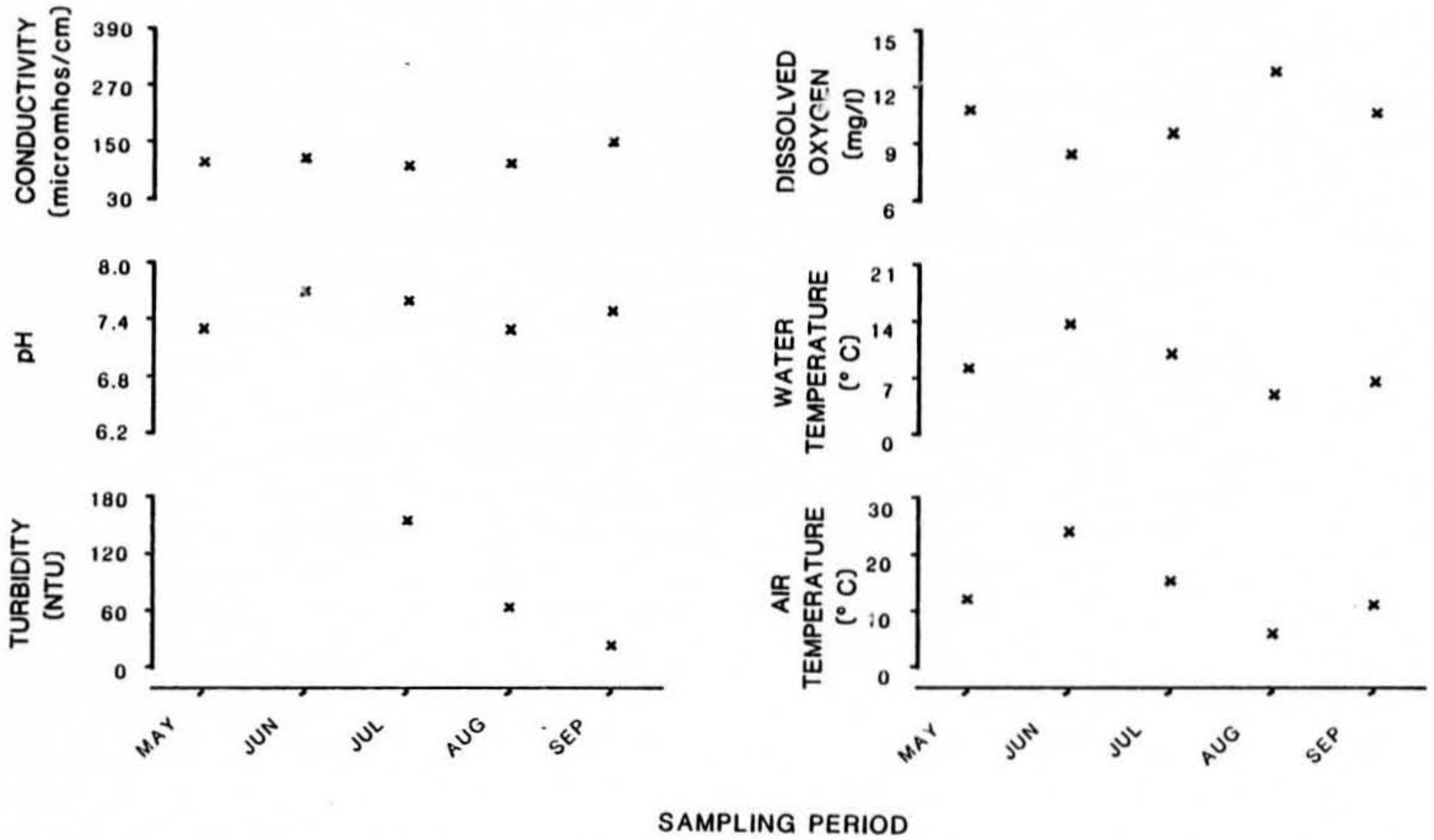


Figure 82. Physiochemical parameters versus time (May-September, 1981) for Mainstem Susitna 50' upstream of Goose Creek (R.M. 224.9, Geographic Code 30N11E32DBC)

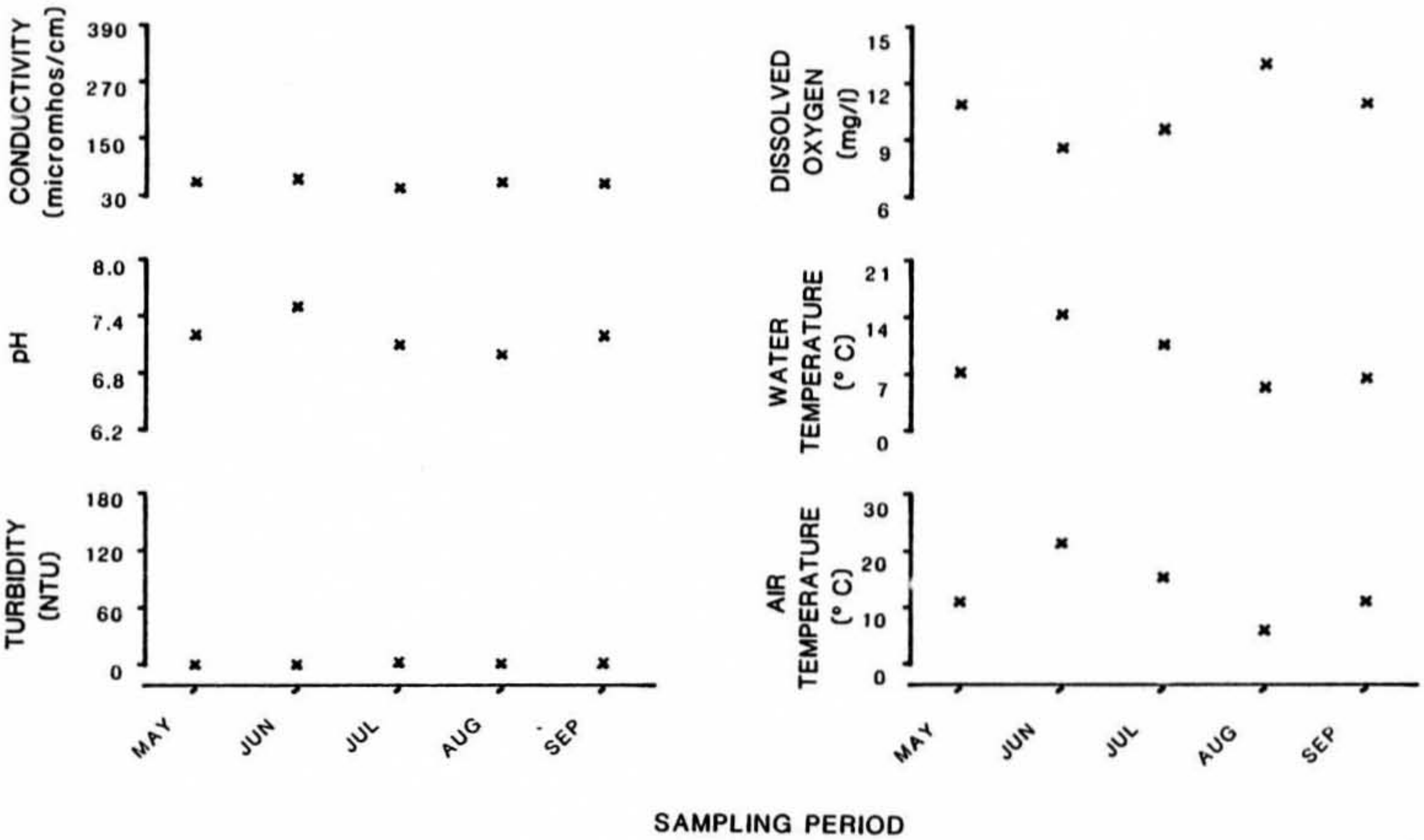


Figure 83. Physiochemical parameters versus time (May-September, 1981) for Goose Creek - Site 1 (R.M. 224.9, Geographic Code 30N11E32DBC)

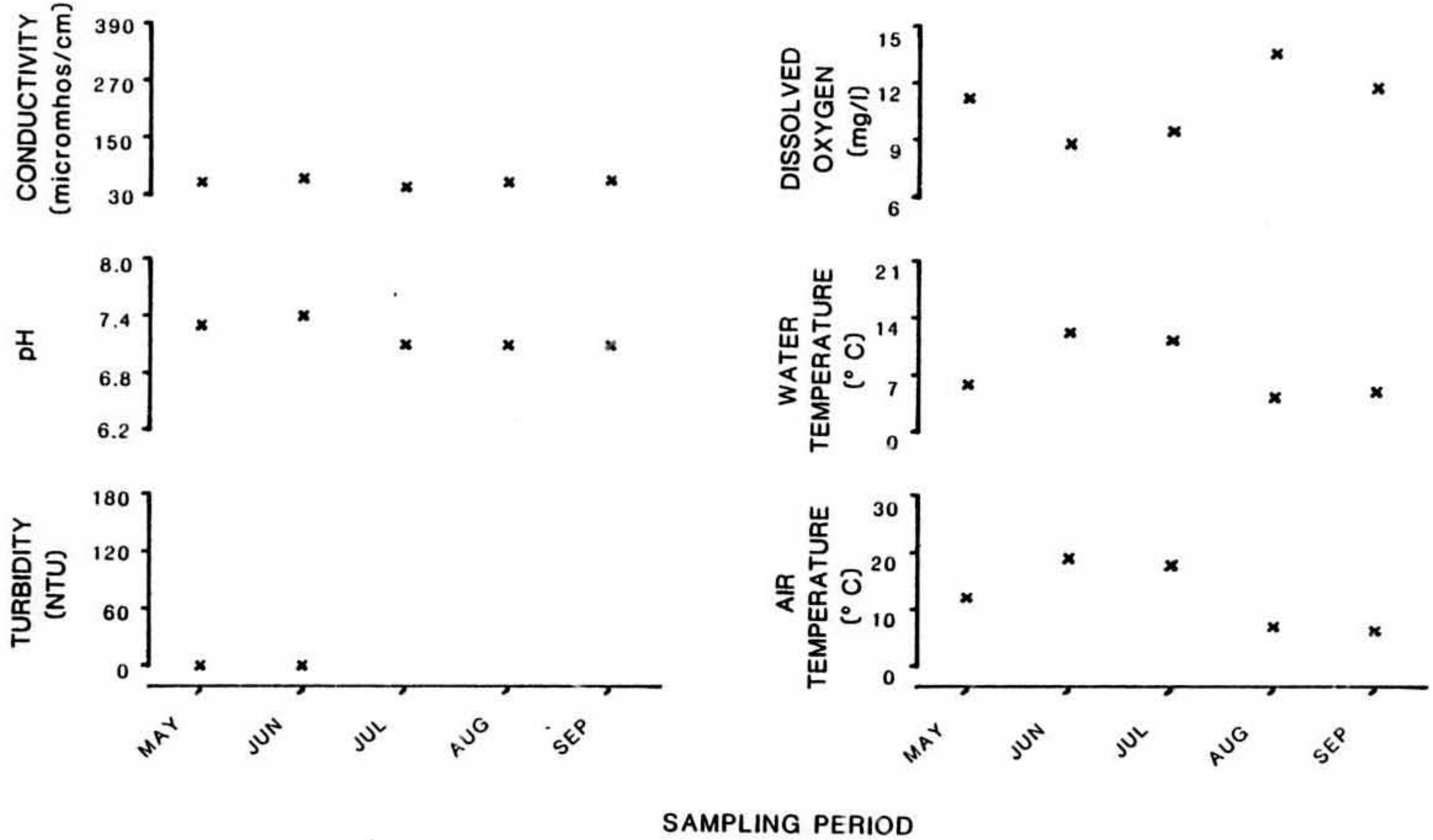


Figure 84. Physiochemical parameters versus time (May-September, 1981)
for Goose Creek - Site 2
(R.M. 224.9, Geographic Code 30N11E32CDA)

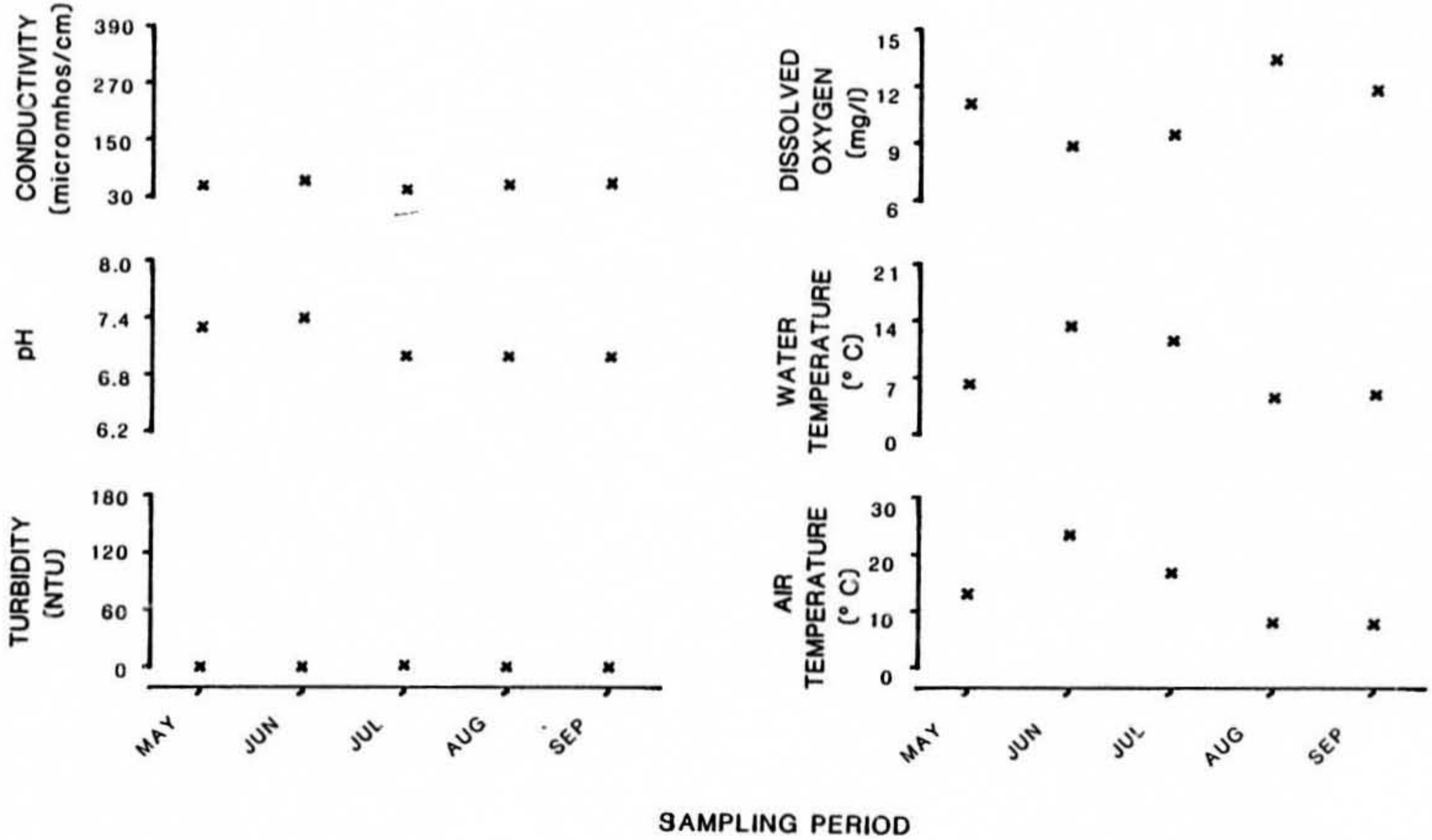


Figure 85. Physiochemical parameters versus time (May-September, 1981)
for Goose Creek - Site 3
(R.M. 224.9, Geographic Code 30N11E32CDC)

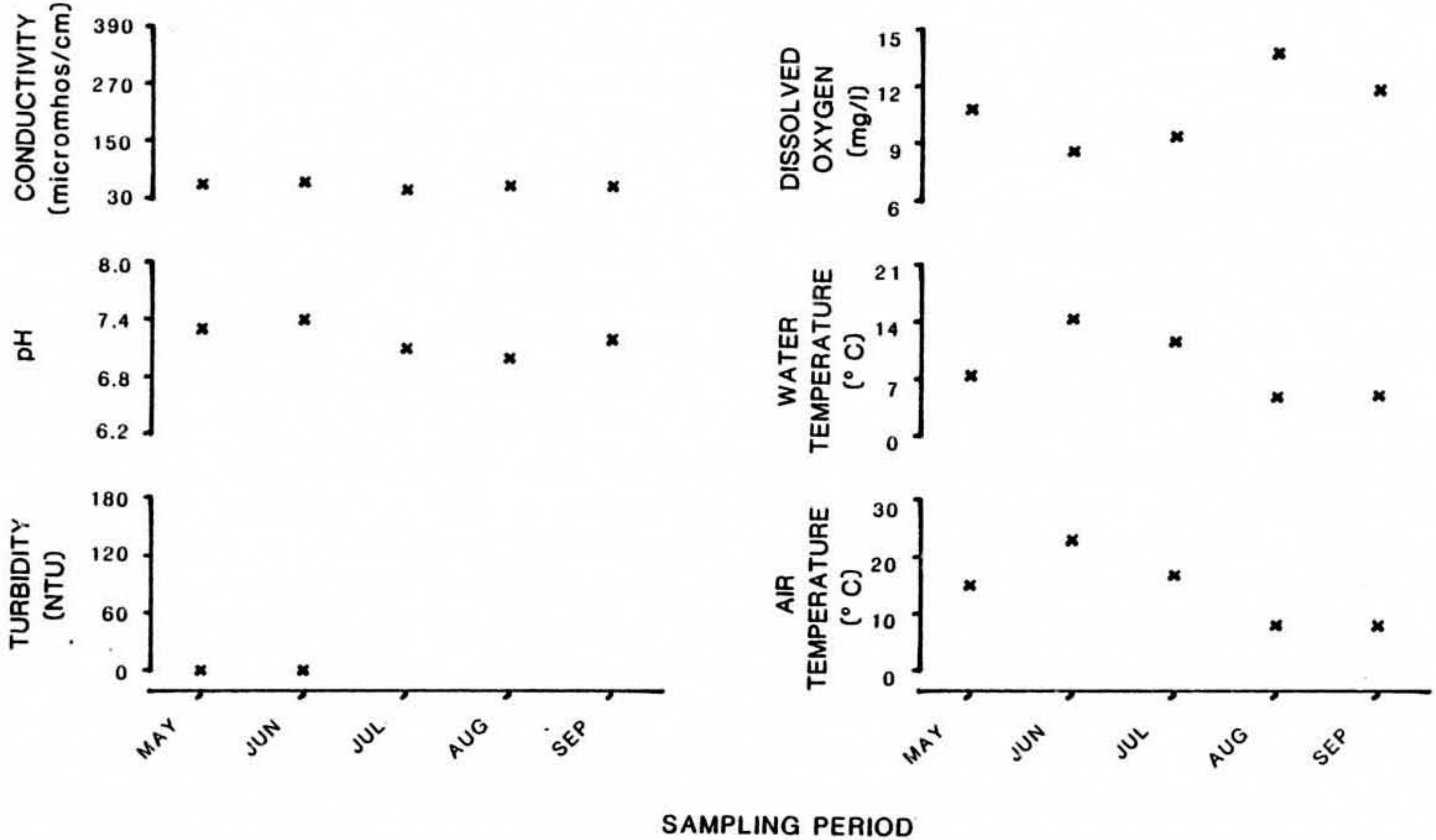


Figure 86. Physiochemical parameters versus time (May-September, 1981) for Goose Creek - Site 4 (R.M. 224.9, Geographic Code 29N11E05BBC)

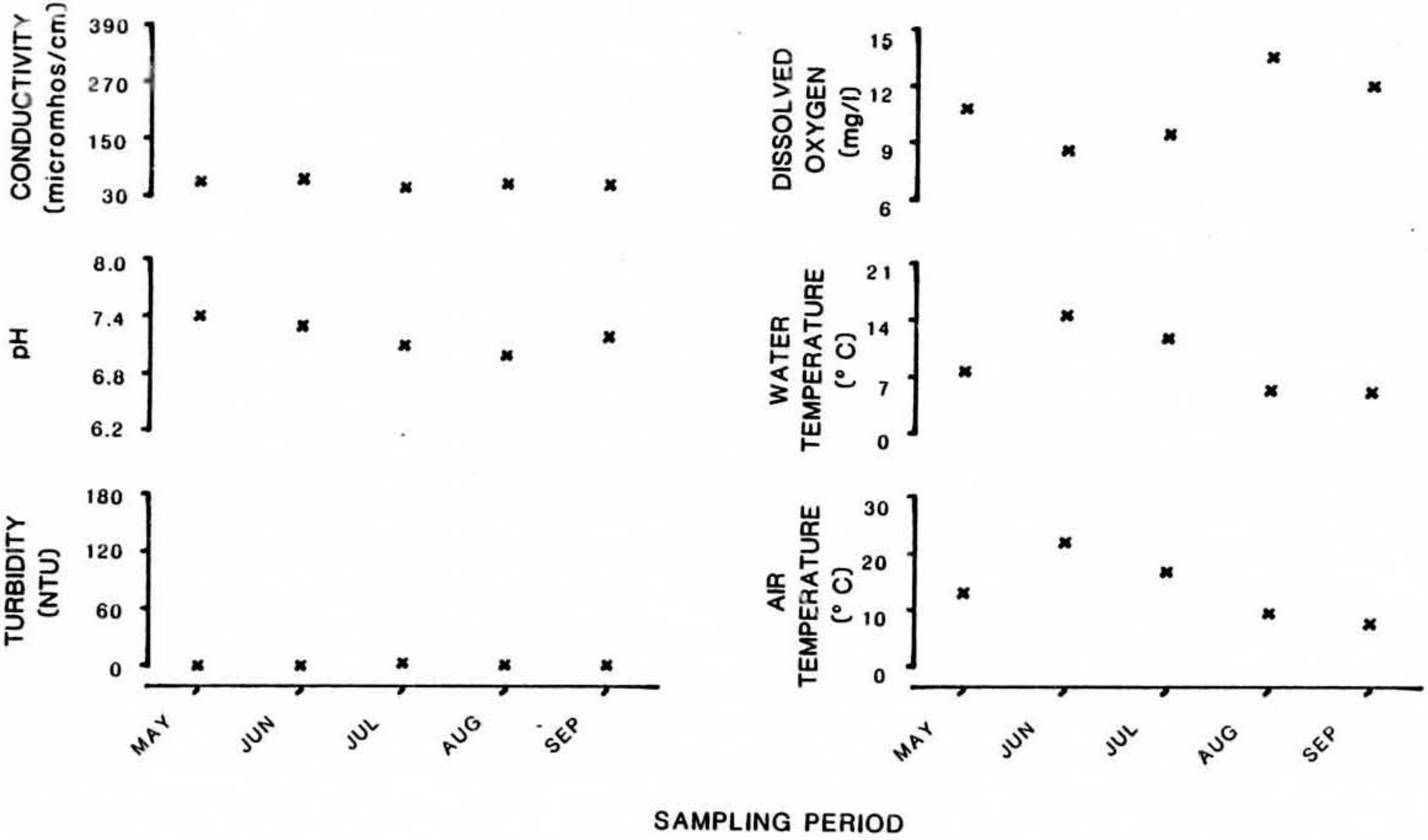


Figure 87. Physiochemical parameters versus time (May-September, 1981) for Goose Creek - Site 5 (R.M. 224.9, Geographic Code 29N11E05BCB)

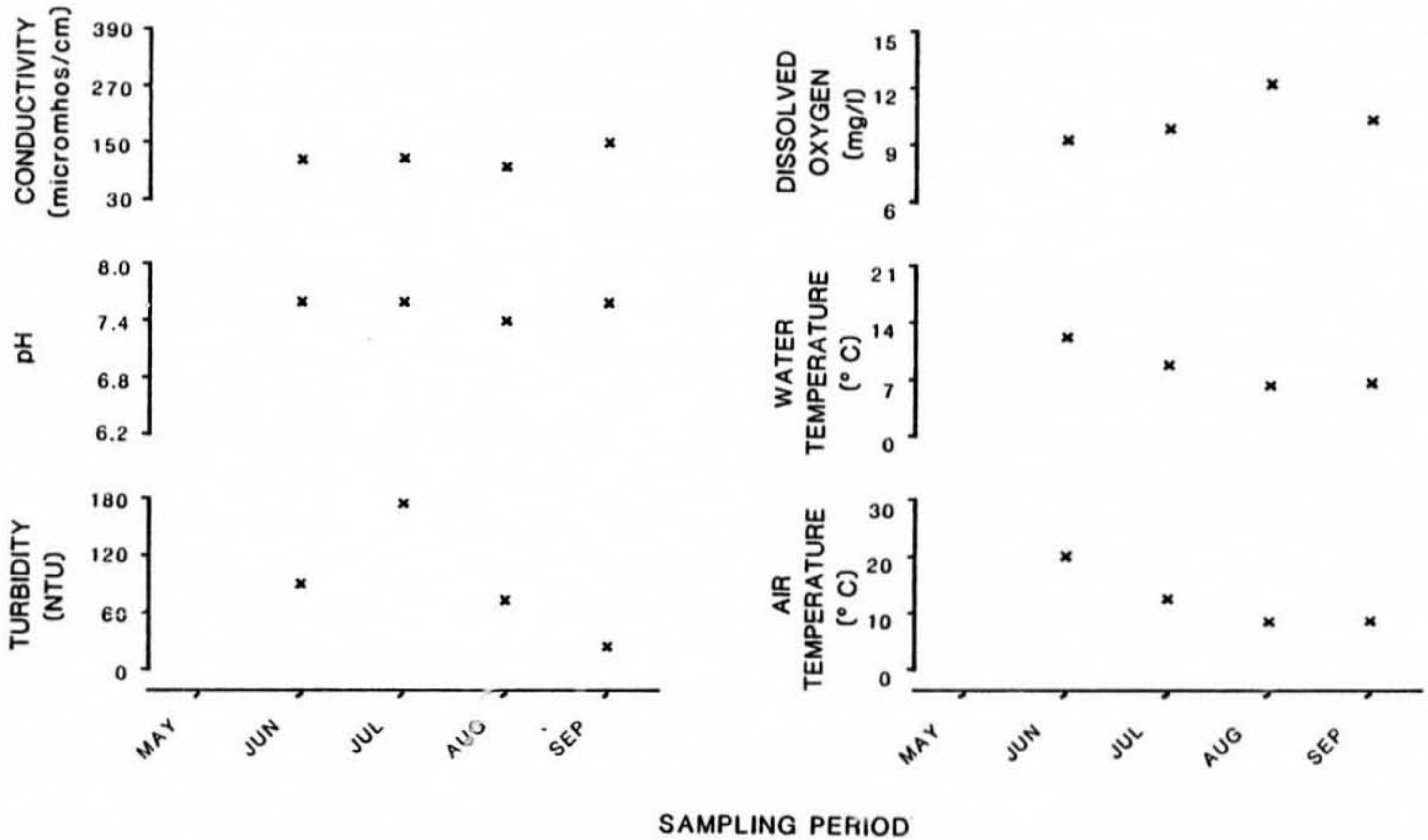


Figure 88 Physiochemical parameters versus time (May-September, 1981) for Mainstem Susitna 50' upstream of Oshetna River (R.M. 226.9, Geographic Code 30N11E34CCD)

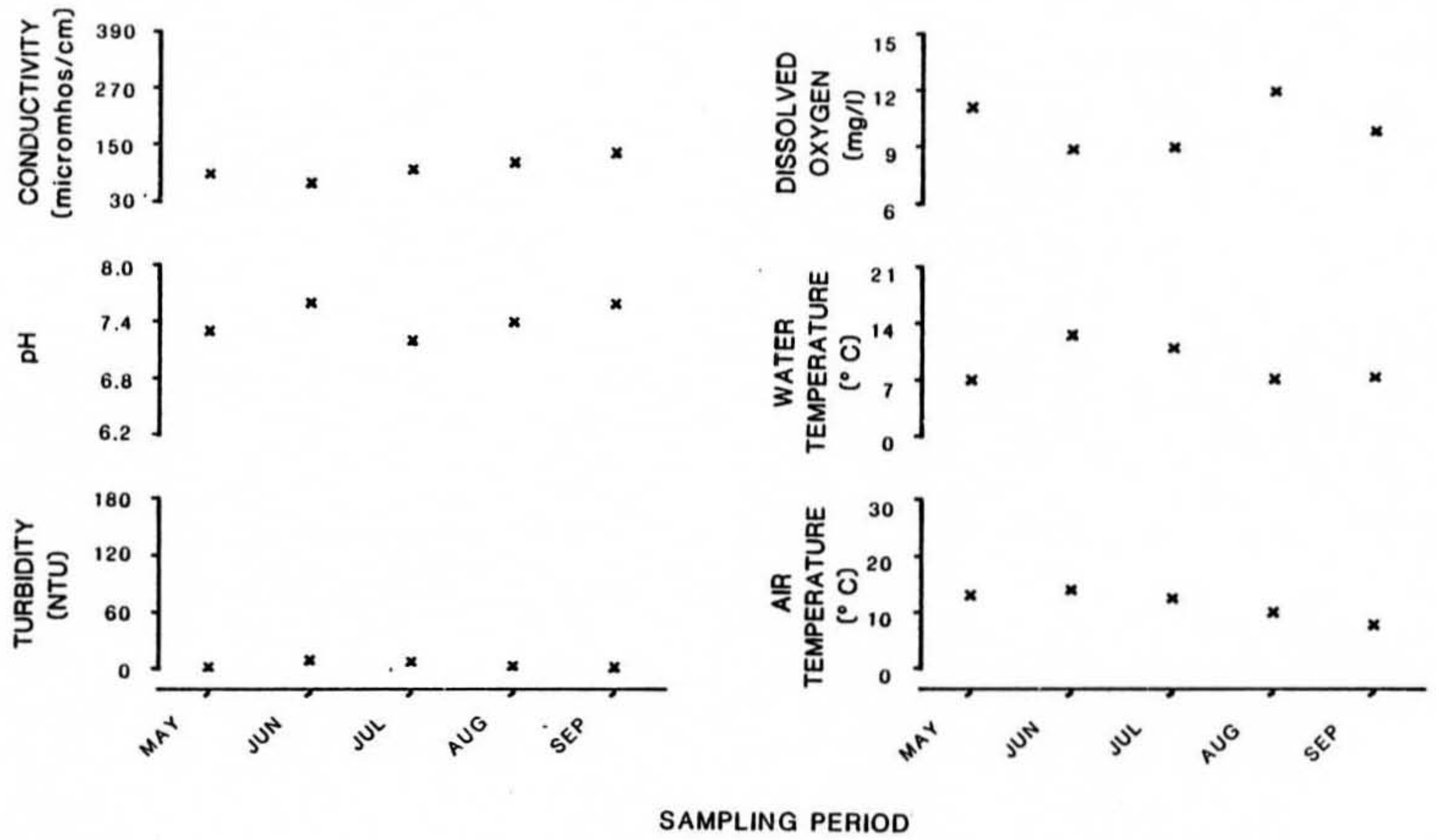


Figure 89. Physiochemical parameters versus time (May-September, 1981)
for Oshetna River - Site 1
(R.M. 226.9, Geographic Code 30N11E34CCD)

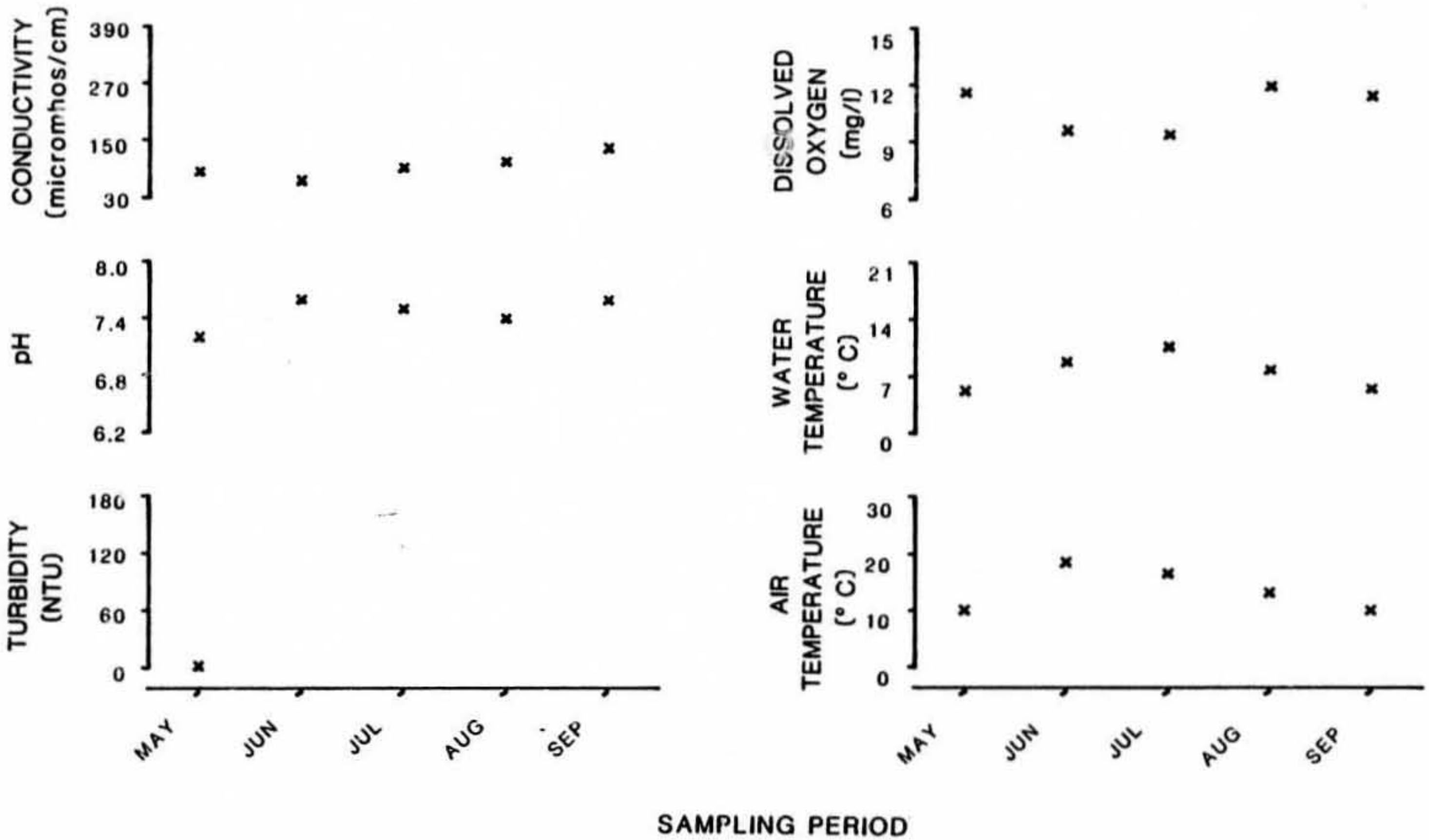


Figure 90. Physiochemical parameters versus time (May-September, 1981)
for Oshetna River - Site 2
(R.M. 226.9, Geographic Code 29N11E03BAB)

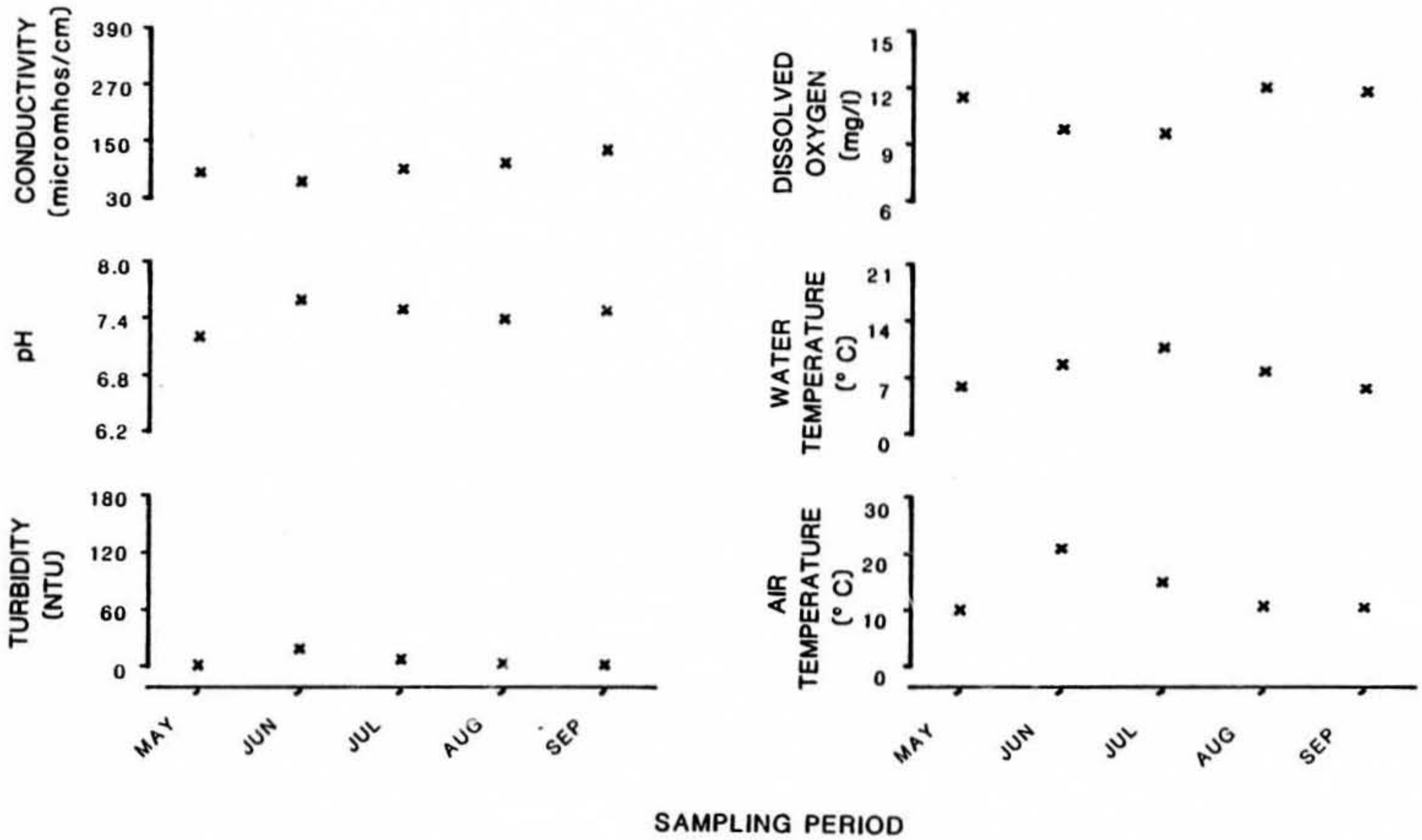


Figure 91. Physiochemical parameters versus time (May-September, 1981) for Oshetna River - Site 3 (R.M. 226.9, Geographic Code 29N11E03BAC)

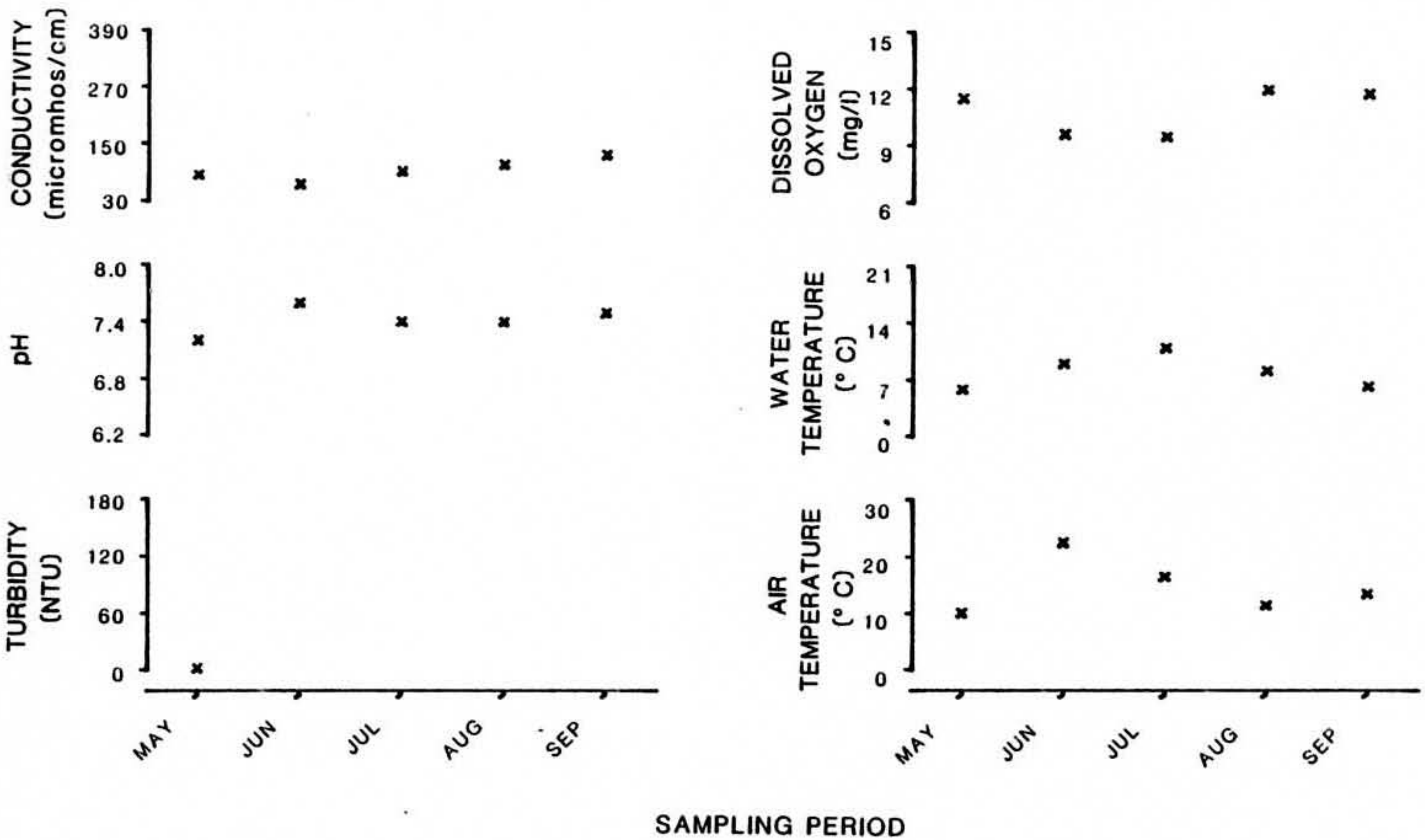


Figure 92. Physiochemical parameters versus time (May-September, 1981) for Oshetna River - Site 4 (R.M. 226.9, Geographic Code 29N11E03ACB)

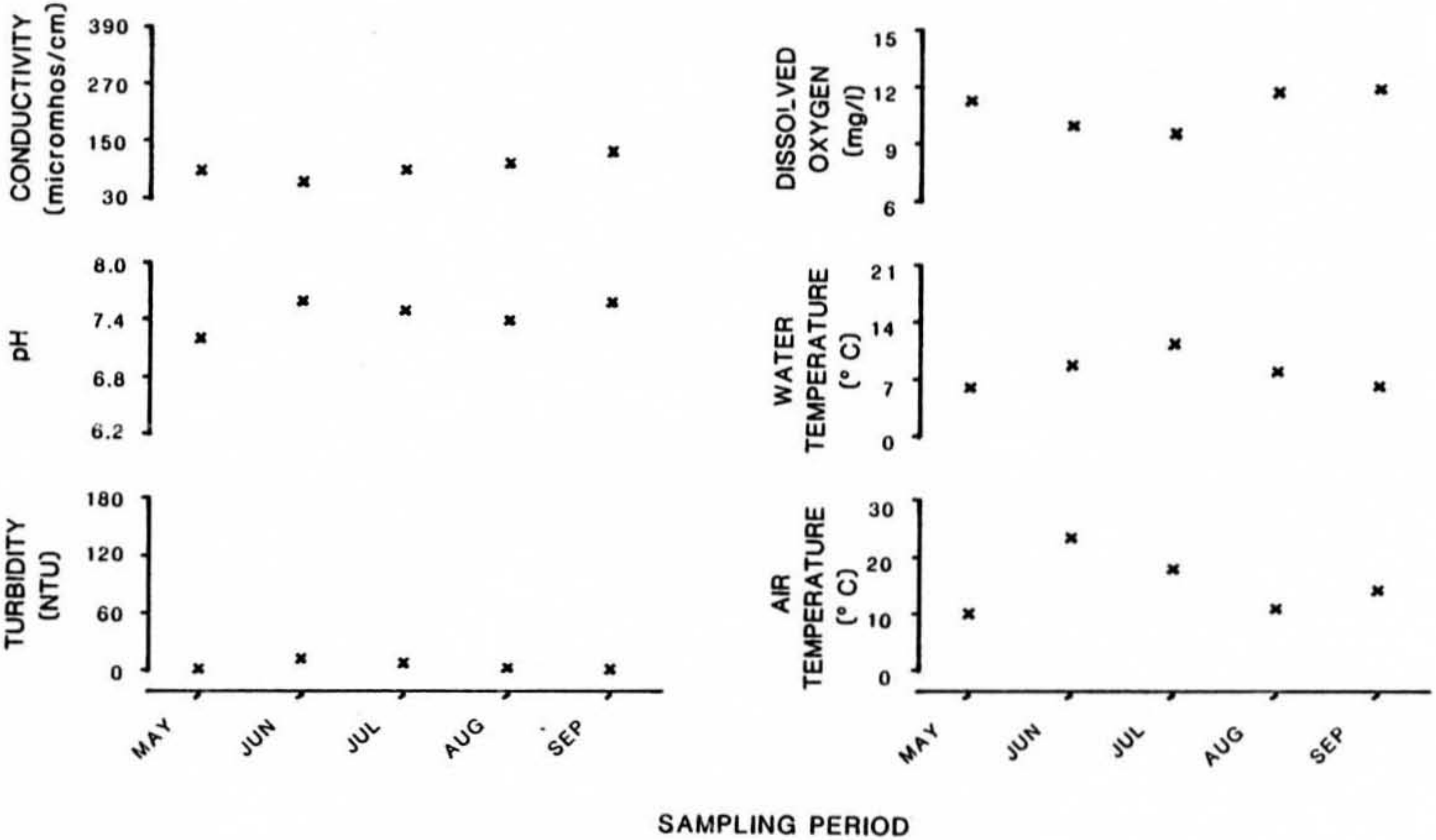


Figure 93. Physiochemical parameters versus time (May-September, 1981) for Oshetna River - Site 5 (R.M. 226.9, Geographic Code 29N11E03ACC)

Table 6. Location and period of record for thermographs installed in Susitna River drainage. Summer 1981.

	LOCATION	R.M.	T.R.M.	PERIOD OF RECORD	GEOGRAPHIC CODES
1.	Alexander Creek	10.1	0.5	6/9-10/9	15N07W05CBC
2.	Above Alexander Creek	10.1		6/6-7/15	15N07W05CDB
3.	Yentna River	30.1	2.0	6/5-9/14	17N07W01CAB
4.	Above Yentna River	32.3		6/6-10/9	17N06W07CDB
5.	Deshka River	40.6	1.2	6/10-10/9	19N06W26CBB
6.	Above Deshka River	40.6		--*	19N06W35ACA
7.	Little Willow Creek	50.5	1.0	6/24-9/30	20N05W23CBC
8.	Above Little Willow Creek	50.5		6/24-9/29	20N05W27BAC
9.	Kashwitna River	61.0	0.2	--*	21N05W13AAA
10.	Above Kashwitna River	61.2		8/30-9/27	21N05W13ABA
11.	Montana Creek	77.2		6/12-9/30	23N04W07AAB
12.	Above Montana Creek	77.5		6/12-8/29	23N04W06CAA
13.	Sunshine (Park's Bridge)	83.8		6/2-7/14	24N05W15BAD
14.	Cache Creek Slough	95.5		--*	26N05W35ADC
15.	Talkeetna River	97.0	1.0	6/21-10/2	26N05W24BDA
16.	Chulitna River	98.0		6/20-10/6	26N05W15DAA
17.	Talkeetna Base Camp	103.0		6/20-10/7	27N05W26DDD
18.	Fourth of July Creek	131.3		--*	30N03W03DAC
19.	Above Fourth of July Creek	131.3		6/16-9/28	30N03W03DAB
20.	Gold Creek	136.8		7/24-8/15	31N02W20BAA
21.	Above Gold Creek	136.8		7/24-9/29	31N02W20BAA
22.	Indian River	138.7		7/18-9/29	31N02W09CDA
23.	Above Indian River	138.7		7/19-9/23	31N02W09DCB
24.	Slough 19 (Intragravel)	140.0		--*	31N11W10DBB
25.	Slough 19	140.0		8/27-9/15	31N11W10DBB
26.	Slough 21 (Intragravel)	142.0		8/27-9/29	31N11W02AAA
27.	Slough 21	142.0		8/29-9/29	31N11W02AAA
28.	Portage Creek	148.8		--*	32N01W25CAC
29.	Above Portage Creek	148.8		7/17-10/3	32N01W25CDA

* no data collected
R.M. = River Mile
T.R.M. = Tributary River Mile

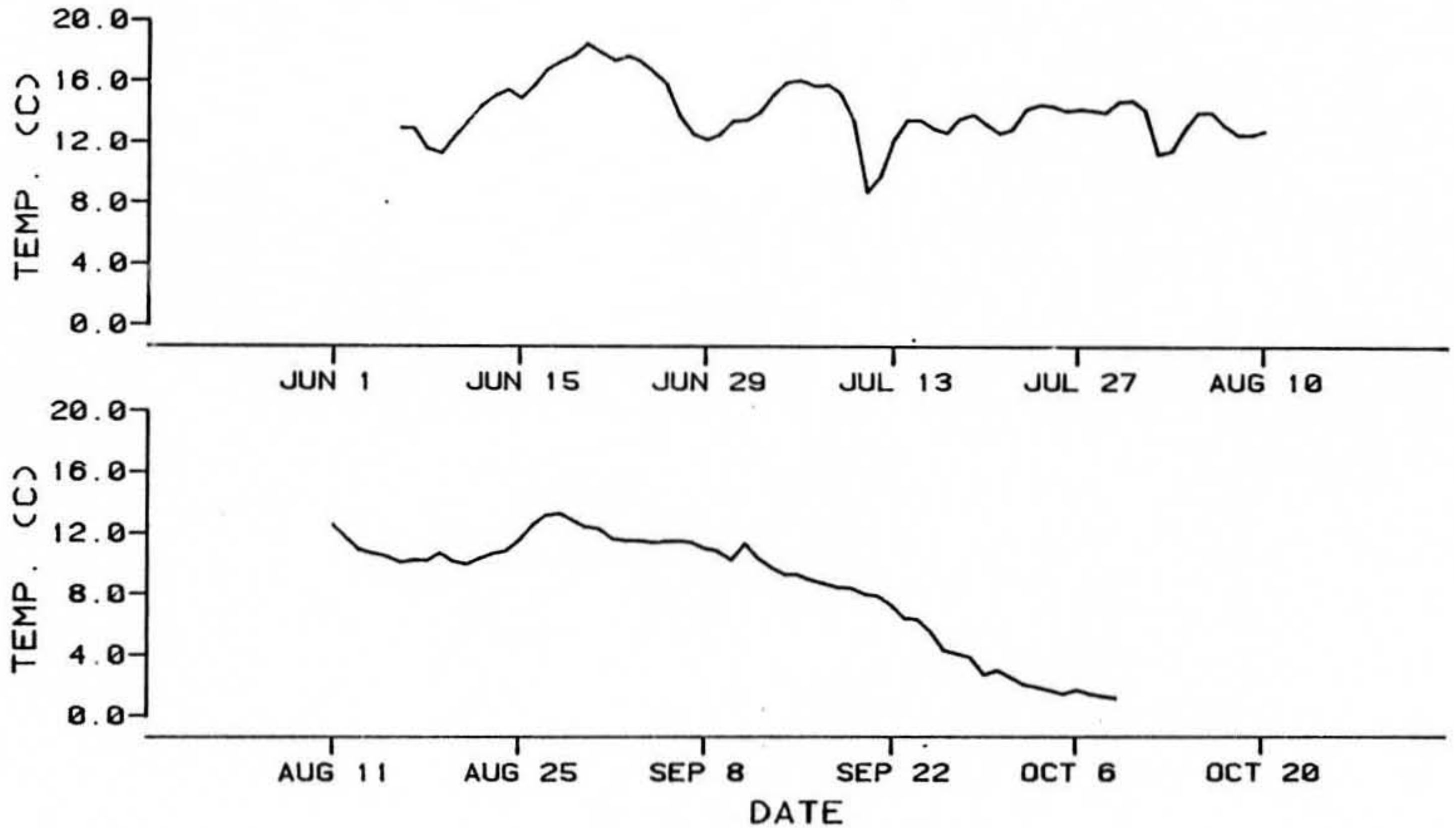


Figure 95. Water temperature versus time for Alexander Creek (R.M. 10.1, 15N7W05CBC).

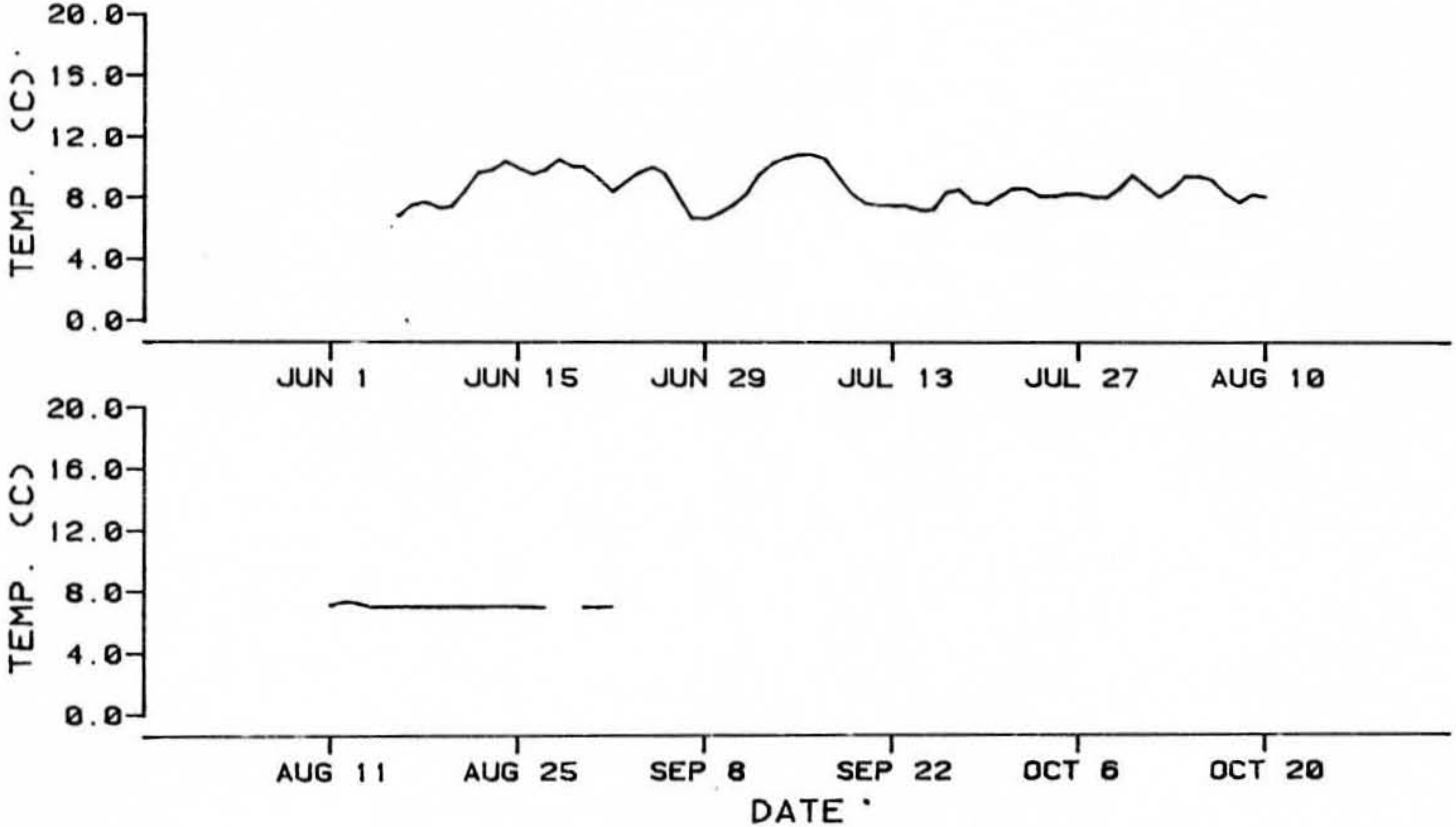


Figure 96. Water temperature versus time for the mainstem Susitna River above Alexander Creek (R.M. 10.1, 15N07W05CDB).

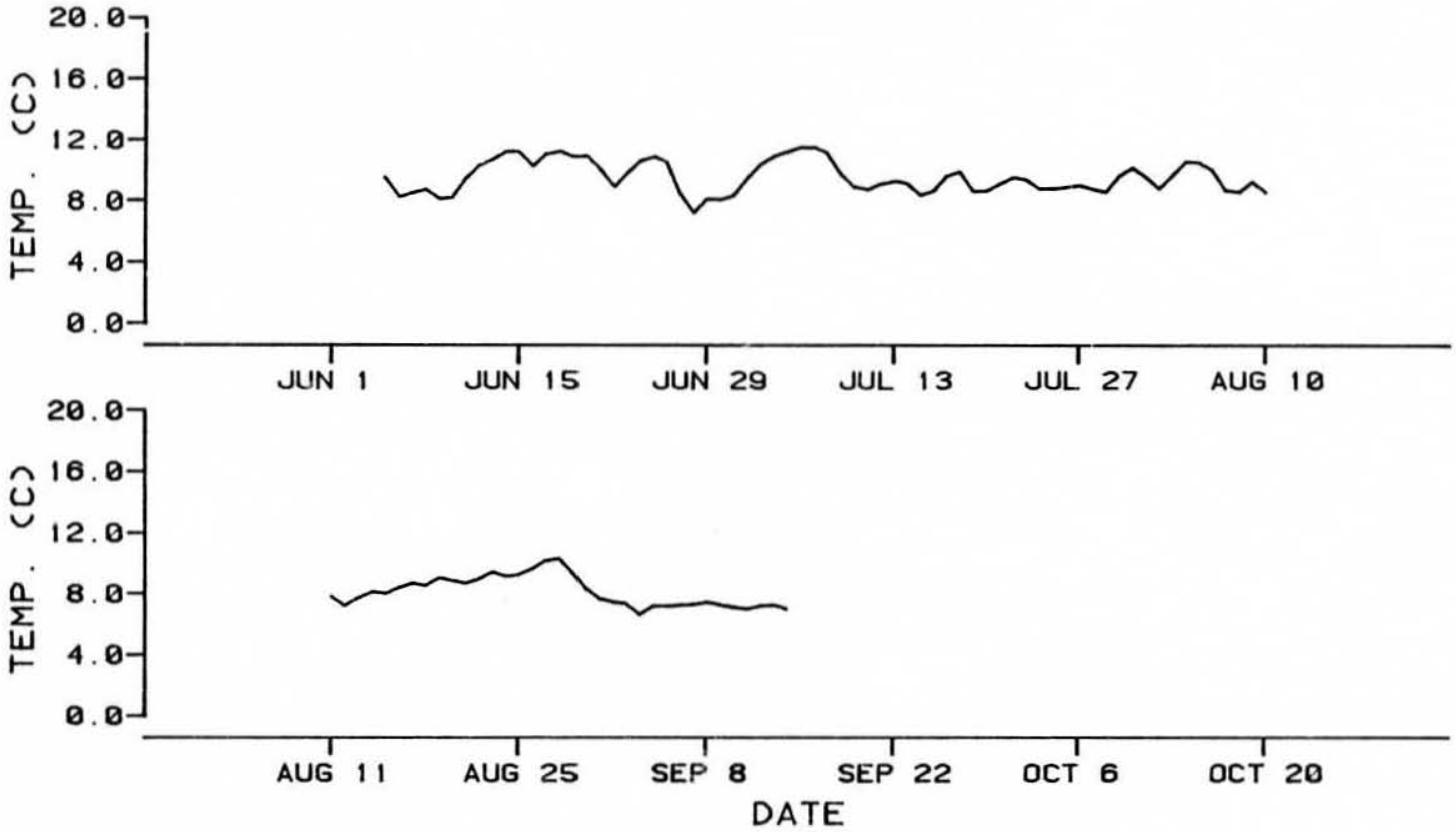


Figure 97. Water temperature versus time for the Yentna River (R.M. 30.1, 17N07W01CAB).

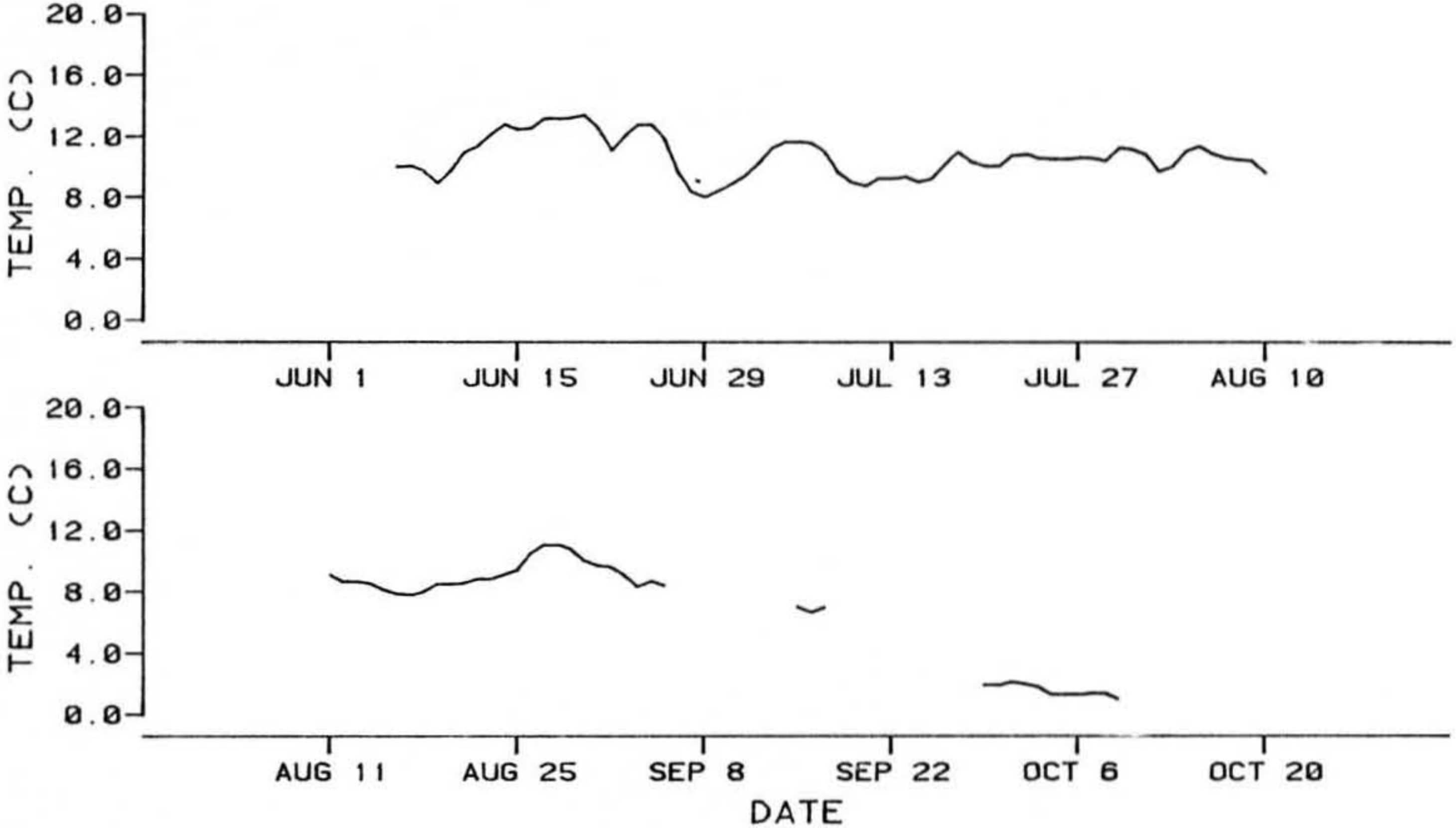


Figure 98. Water temperature versus time for the mainstem Susitna River above the Yentna River (R.M. 32.3, 17N06W07CDB).

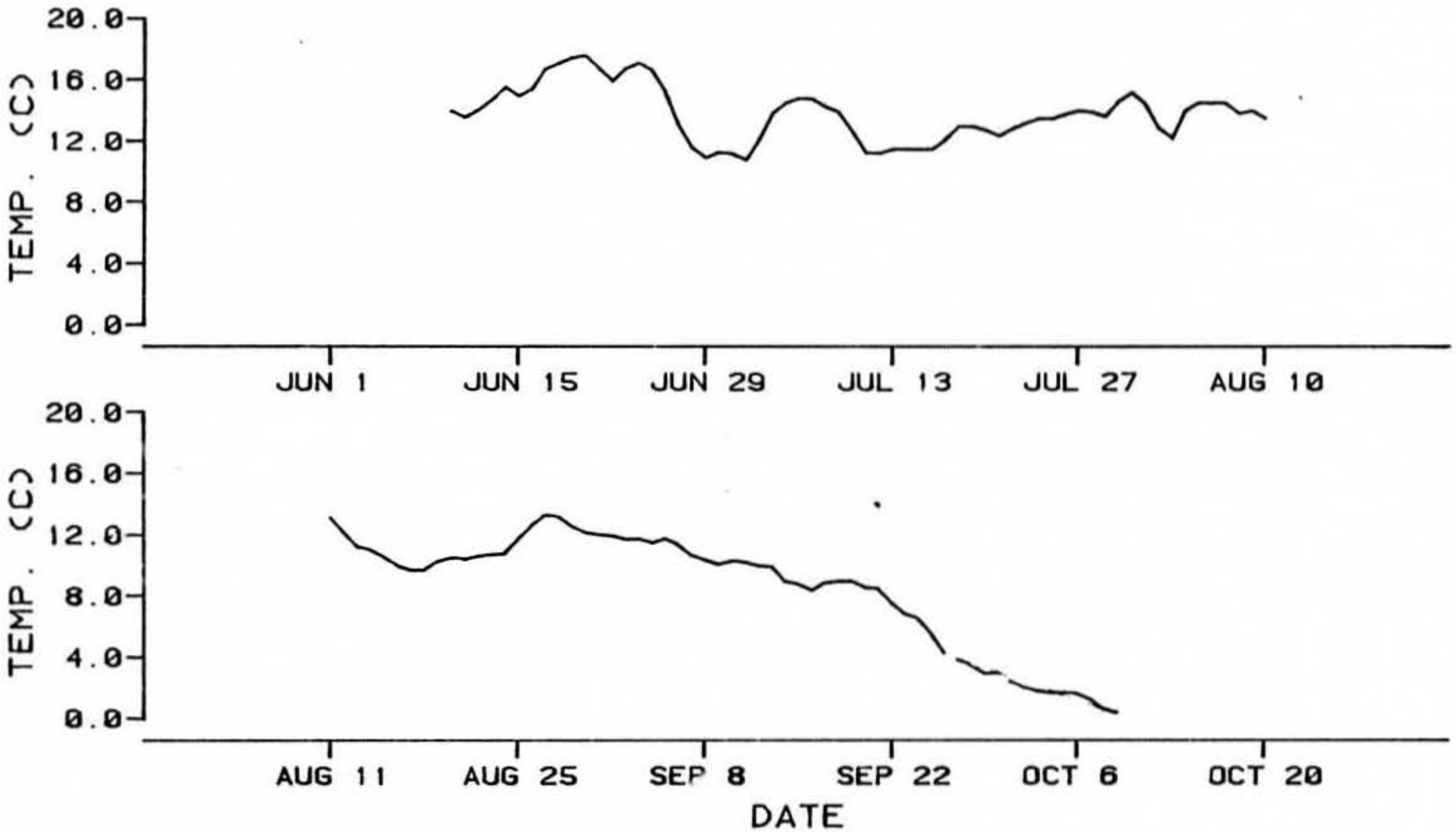


Figure 99. Water temperature versus time for the Deshka River (R.M. 40.6, 19N06W26CBB).

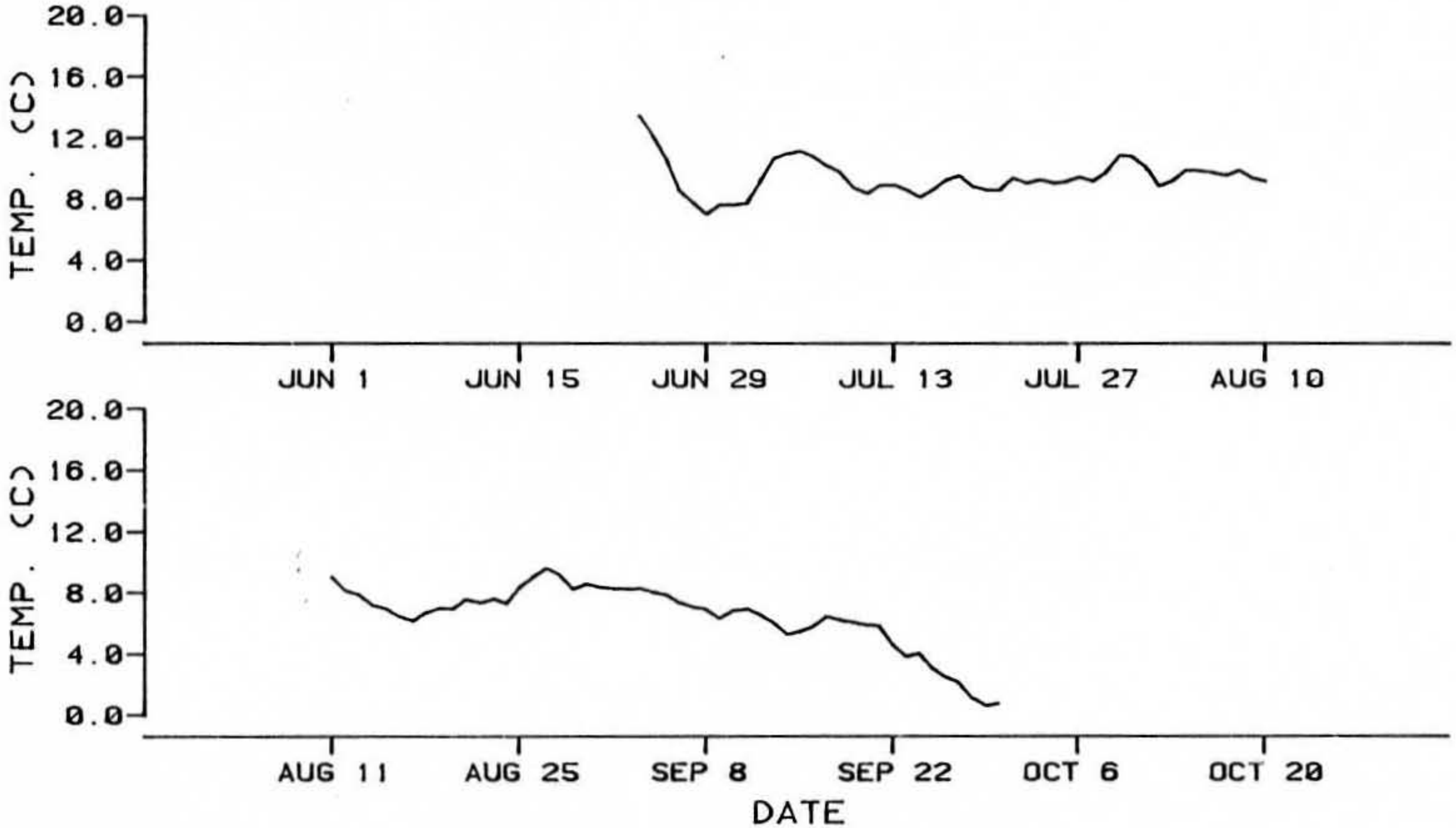


Figure 100. Water temperature versus time for Little Willow Creek (R.M. 50.5, 20N05W23CBC).

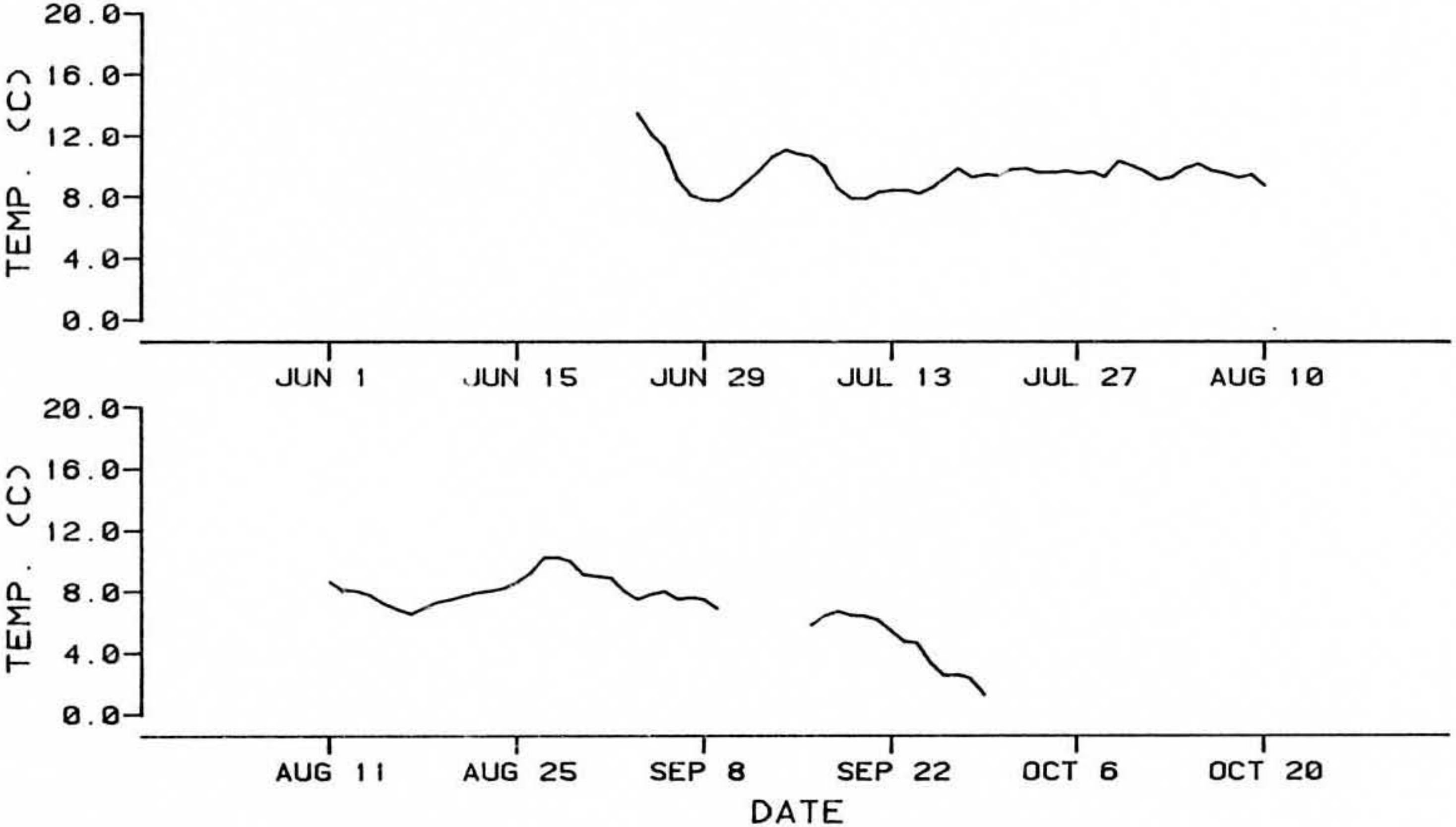


Figure 101. Water temperature versus time for the mainstem Susitna River above Little Willow Creek (R.M. 50.5, 20N05W27BAC).

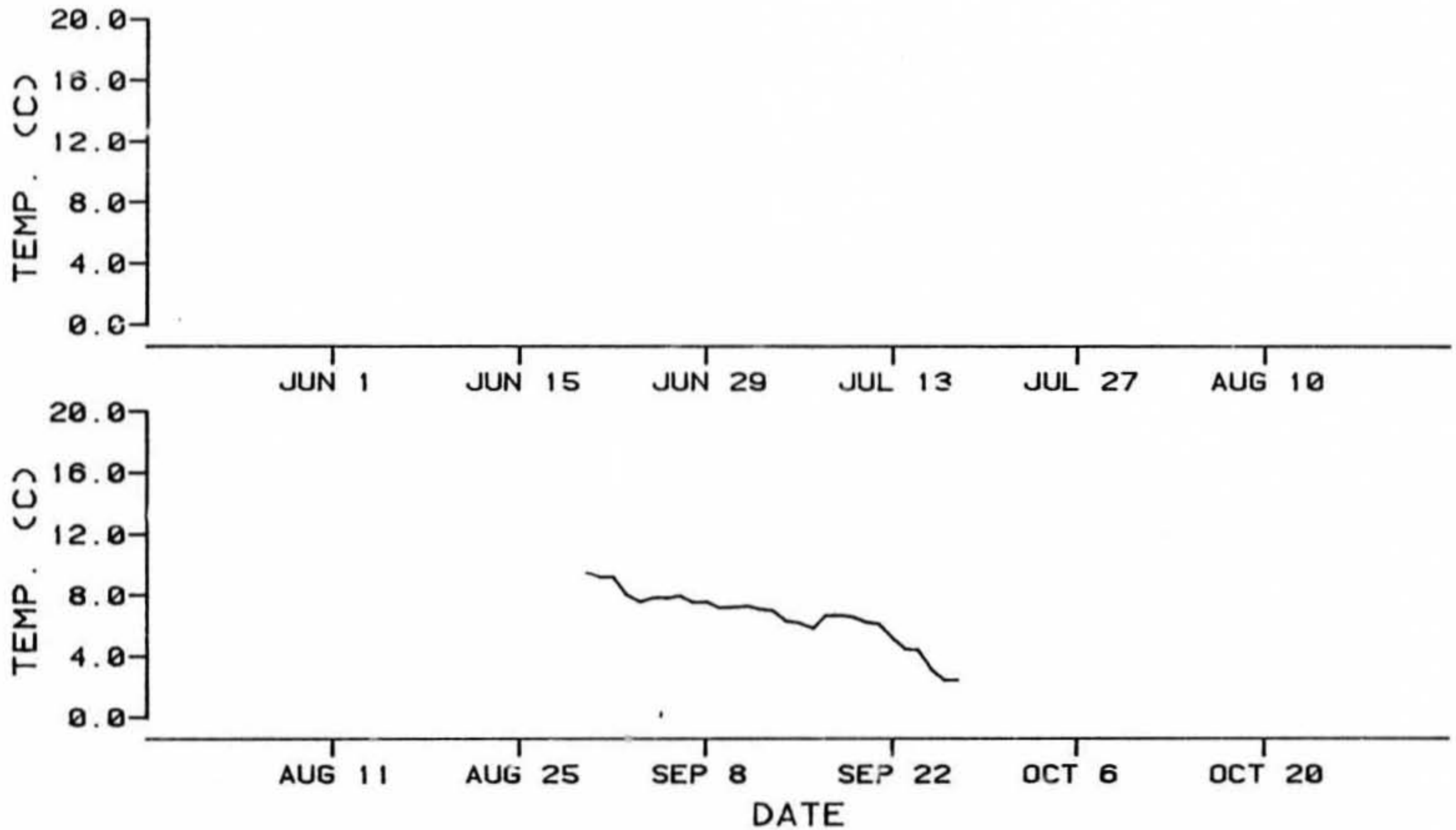


Figure 102. Water temperature versus time for the mainstem Susitna River above Kashwitna River (R.M. 61.2, 21N05W13ABA).

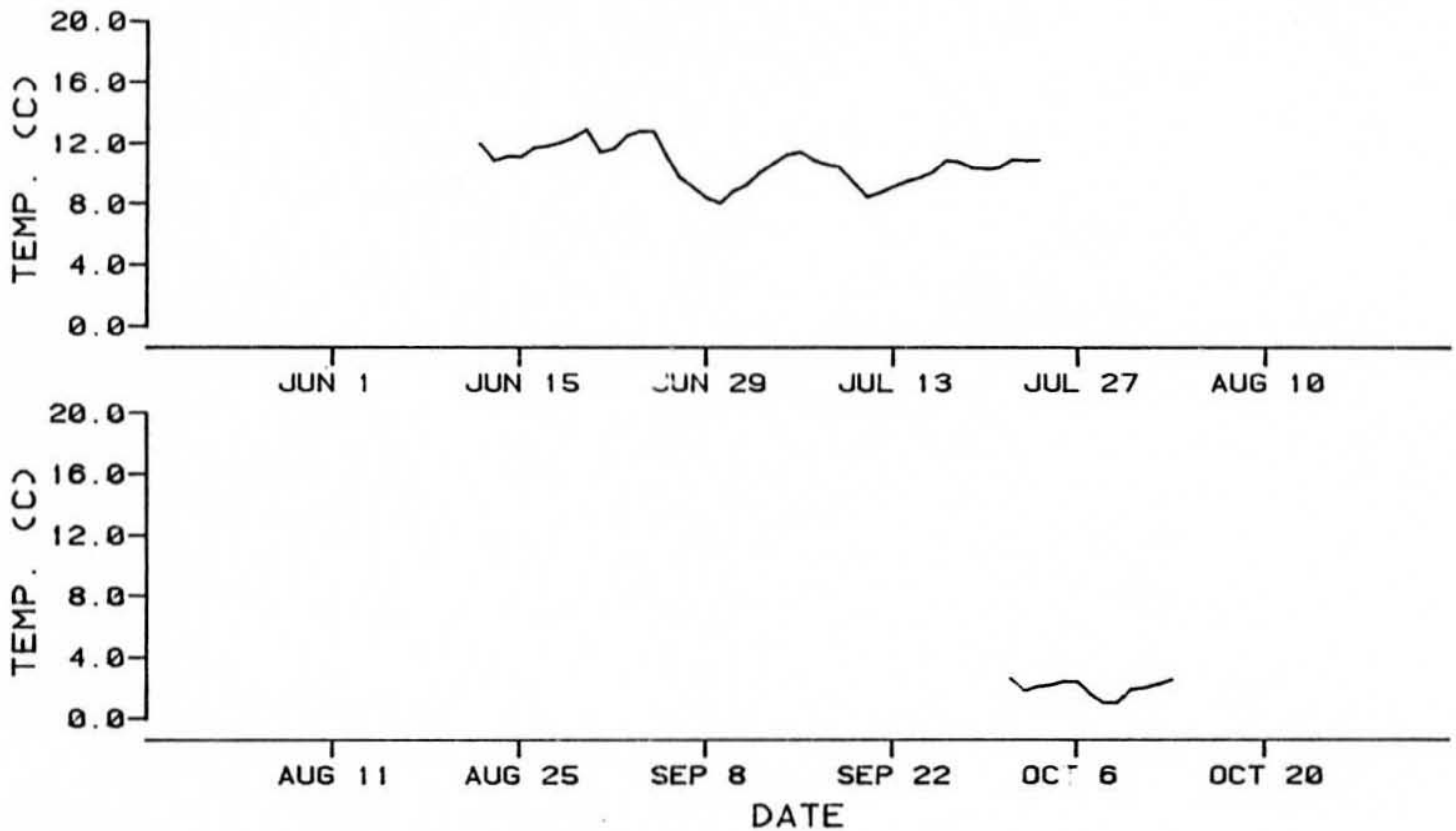


Figure 103. Water temperature versus time for Montana Creek (R.M. 77.2, 23N04W07AAB).

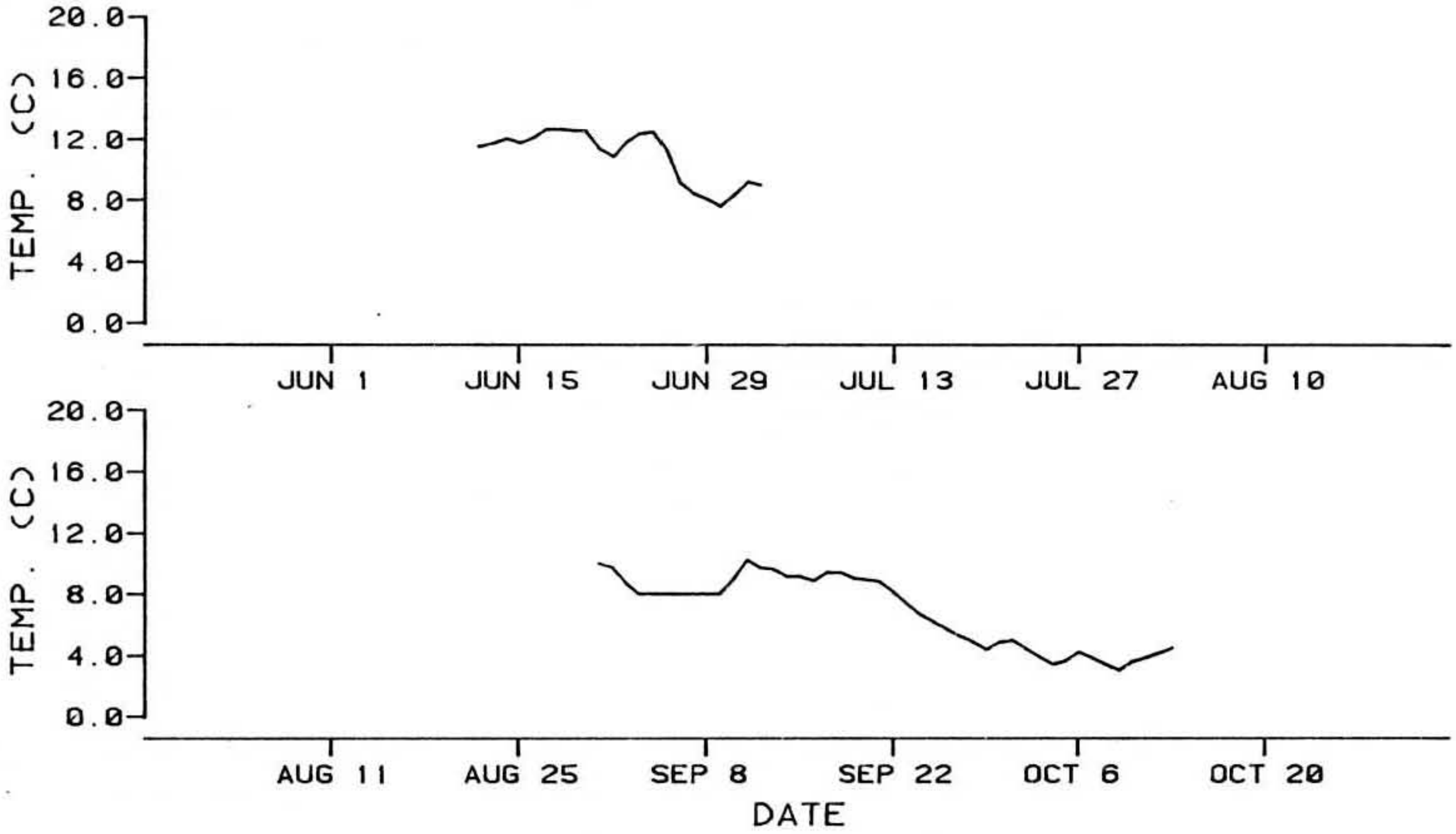


Figure 104. Water temperature versus time for the mainstem Susitna River above Montana Creek (R.M. 77.5, 23N04W06CAA).

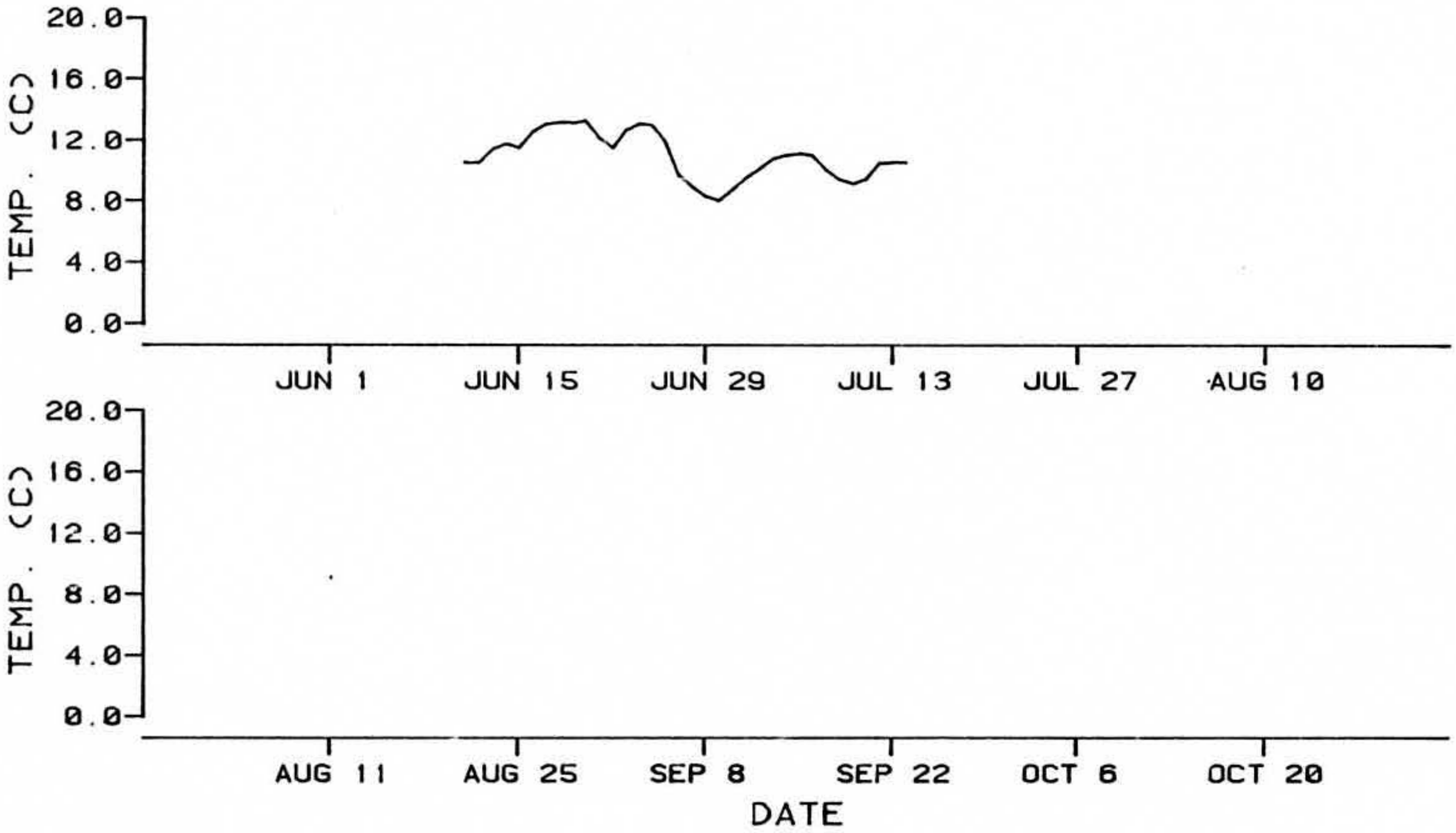


Figure 105. Water temperature versus time for the mainstem Susitna River at the Parks Highway Bridge (R.M. 83.8, 24N05W15BAD).

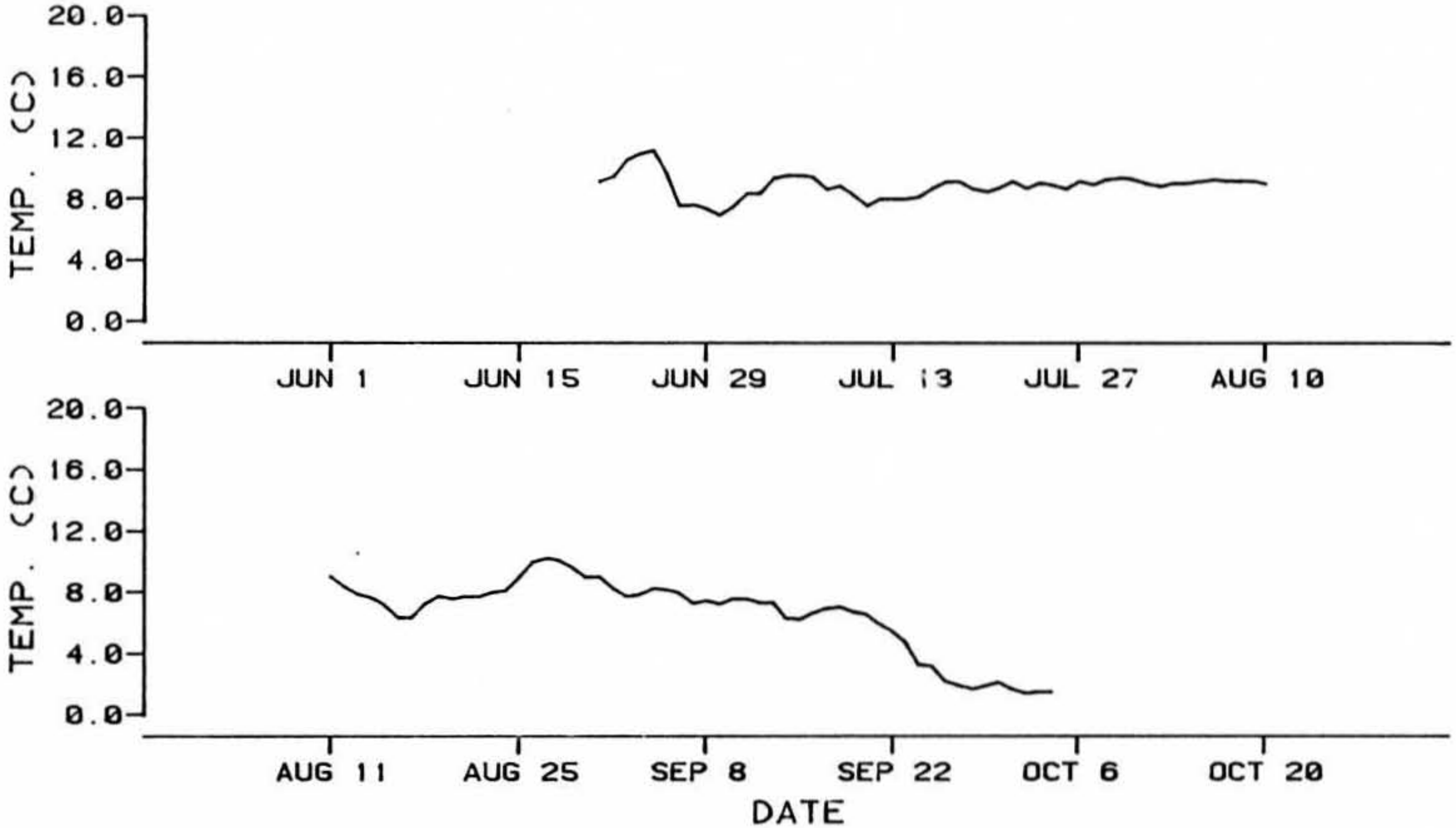


Figure 106. Water temperature versus time for the Talkeetna River (R.M. 97.0, 26N05W24BDA).

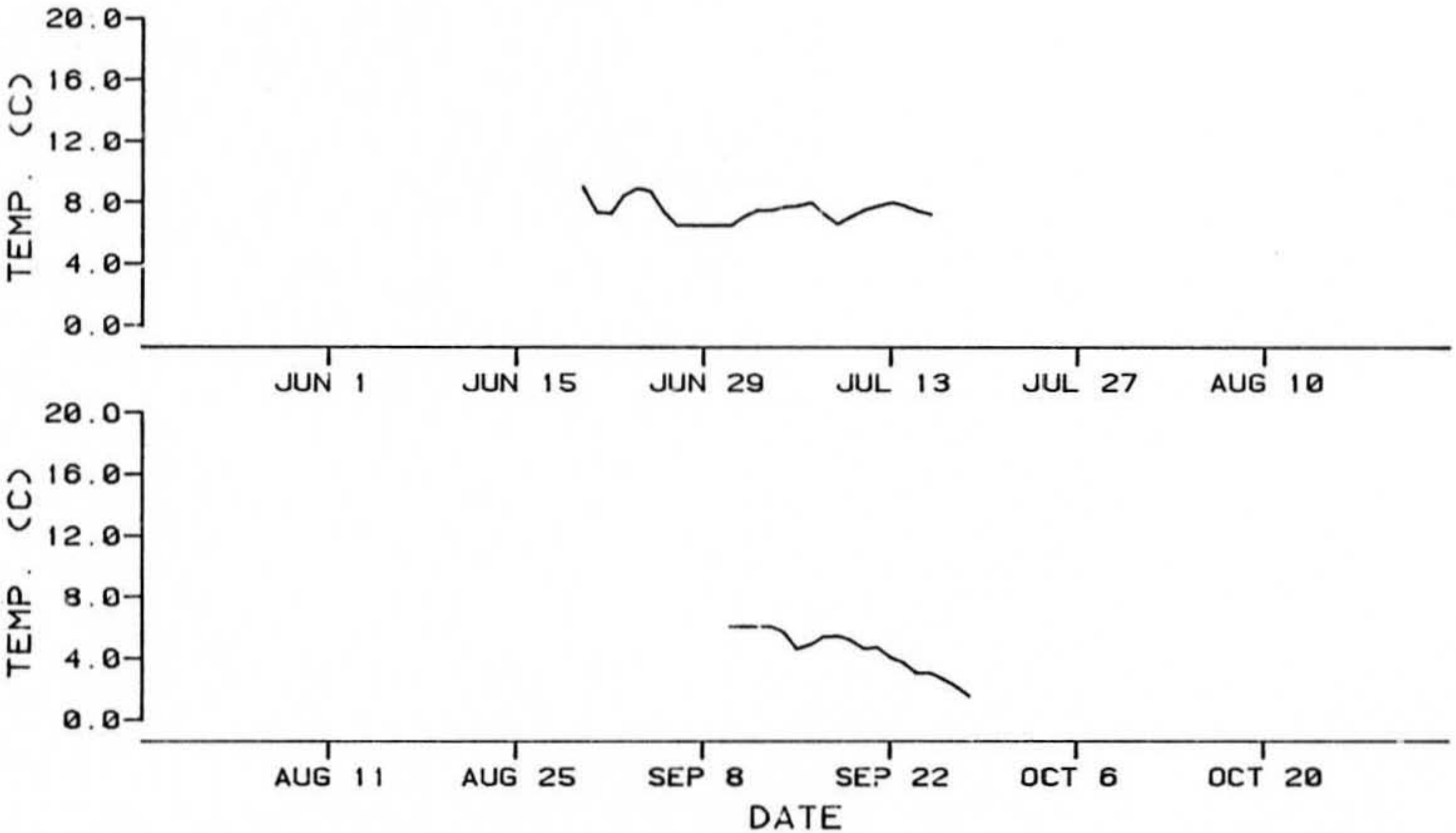


Figure 107. Water temperature versus time for the Chulitna River (R.M. 98.0, 26N05W15DAA).

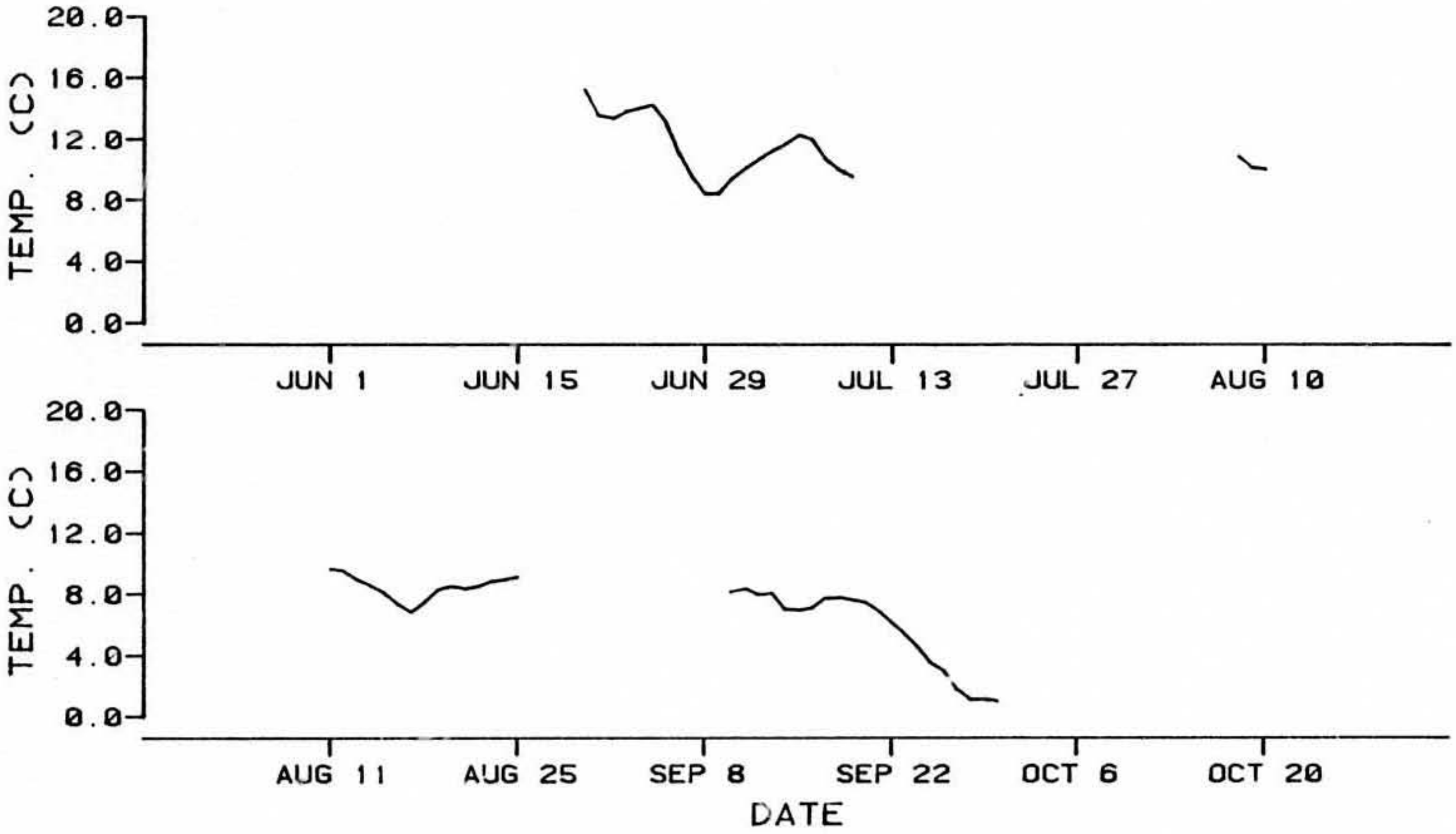


Figure 108. Water temperature versus time for the mainstem Susitna River at the AA Talkeetna fishwheel camp (R.M. 103, 27N05W26DDD).

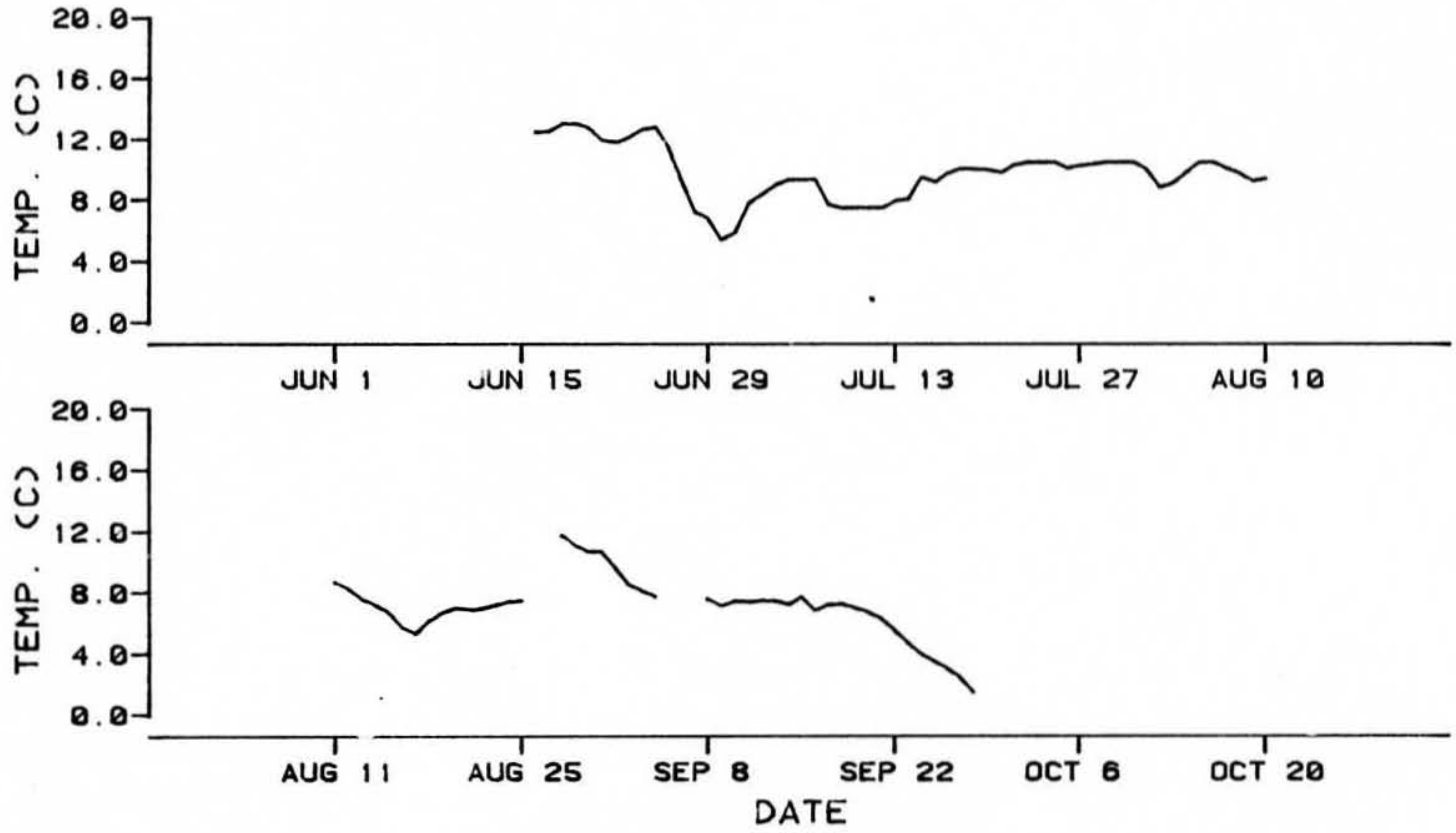


Figure 109. Water temperature versus time for the mainstem Susitna River above Fourth of July Creek (R.M. 131.3, 30N03W03DAB).

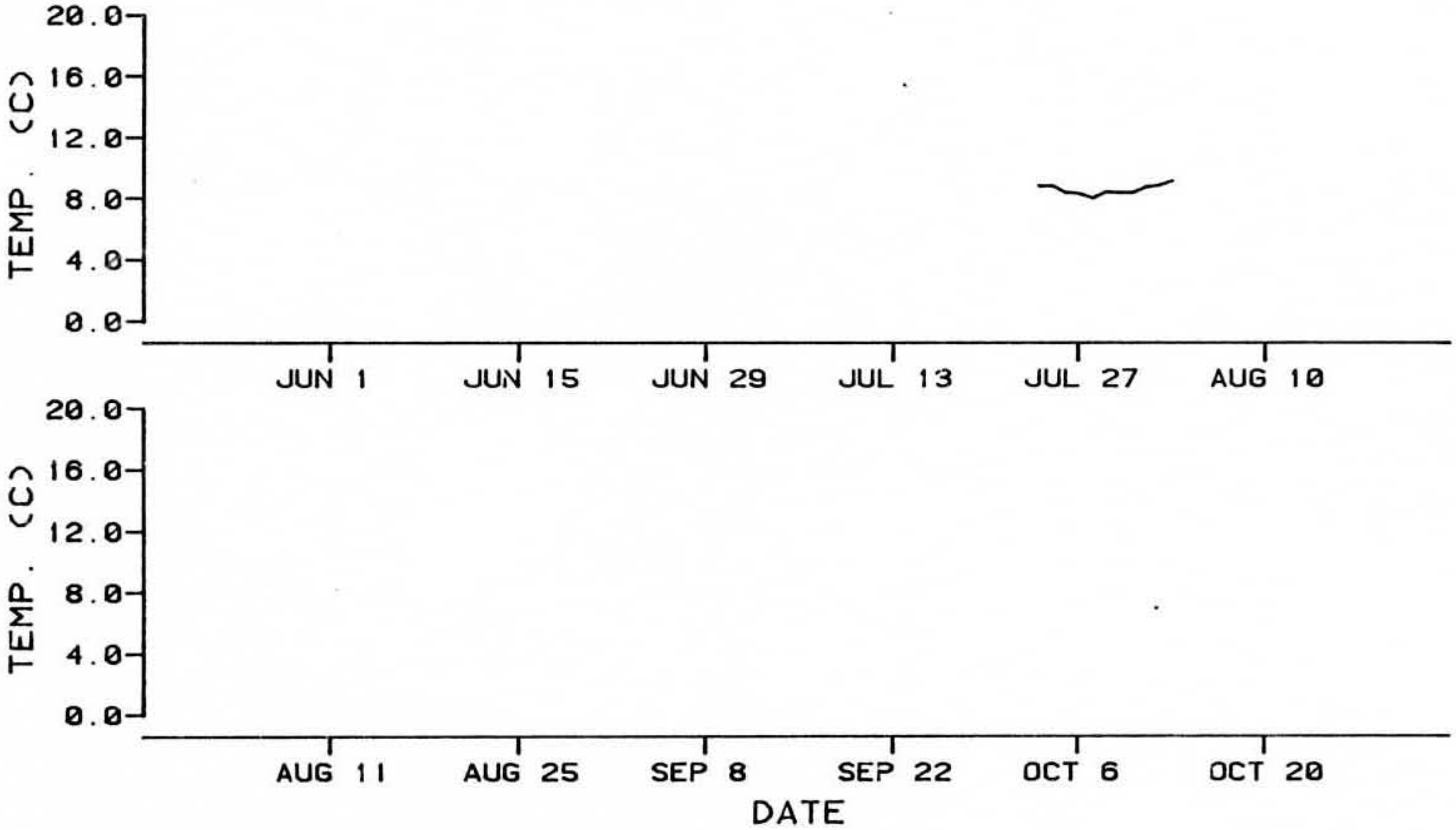


Figure 110. Water temperature versus time for Gold Creek (R.M. 136.8, 31N02W20BAA).

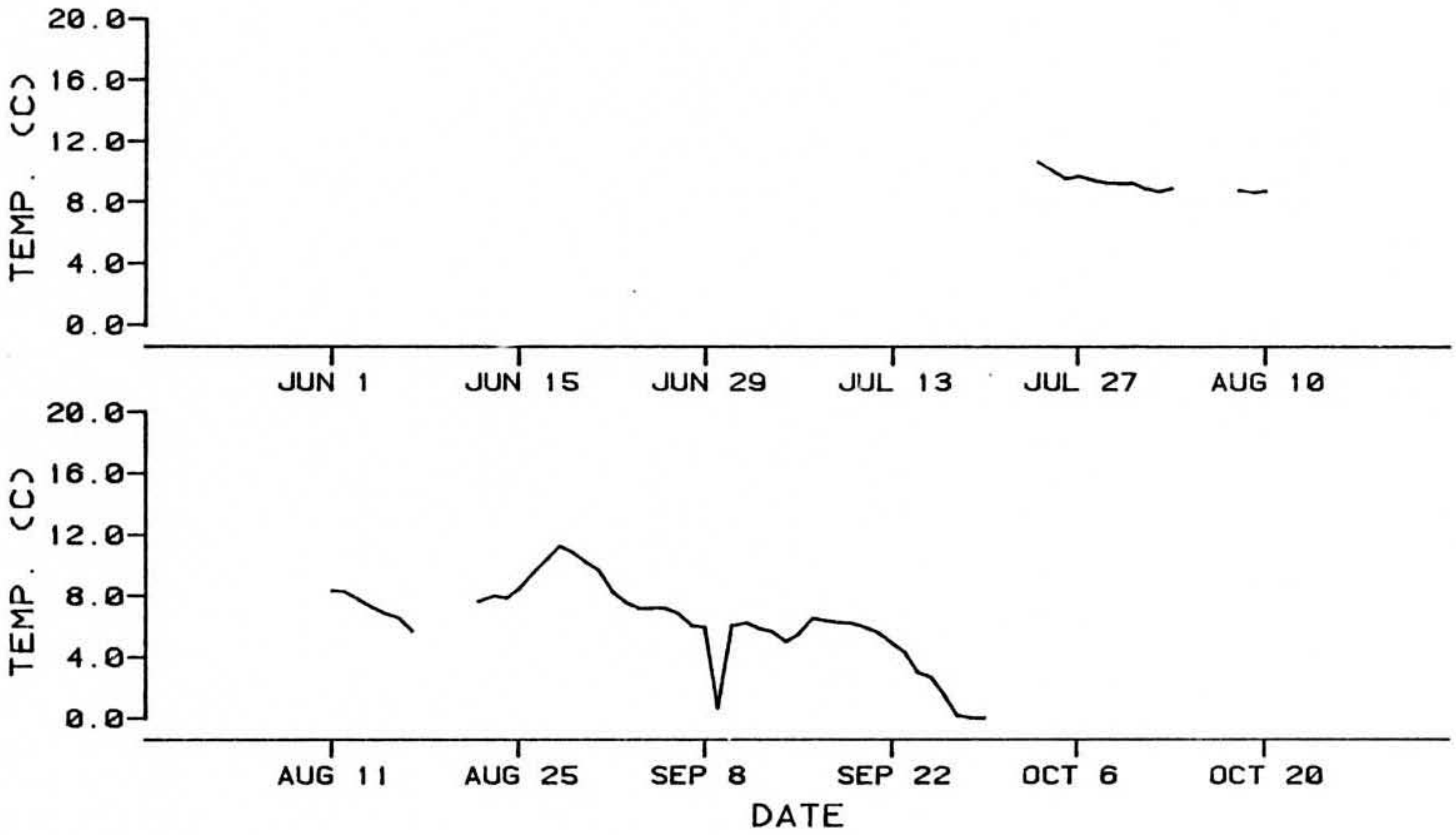


Figure 111. Water temperature versus time for the mainstem Susitna River above Gold Creek (R.M. 136.8, 31N02W20BAA).

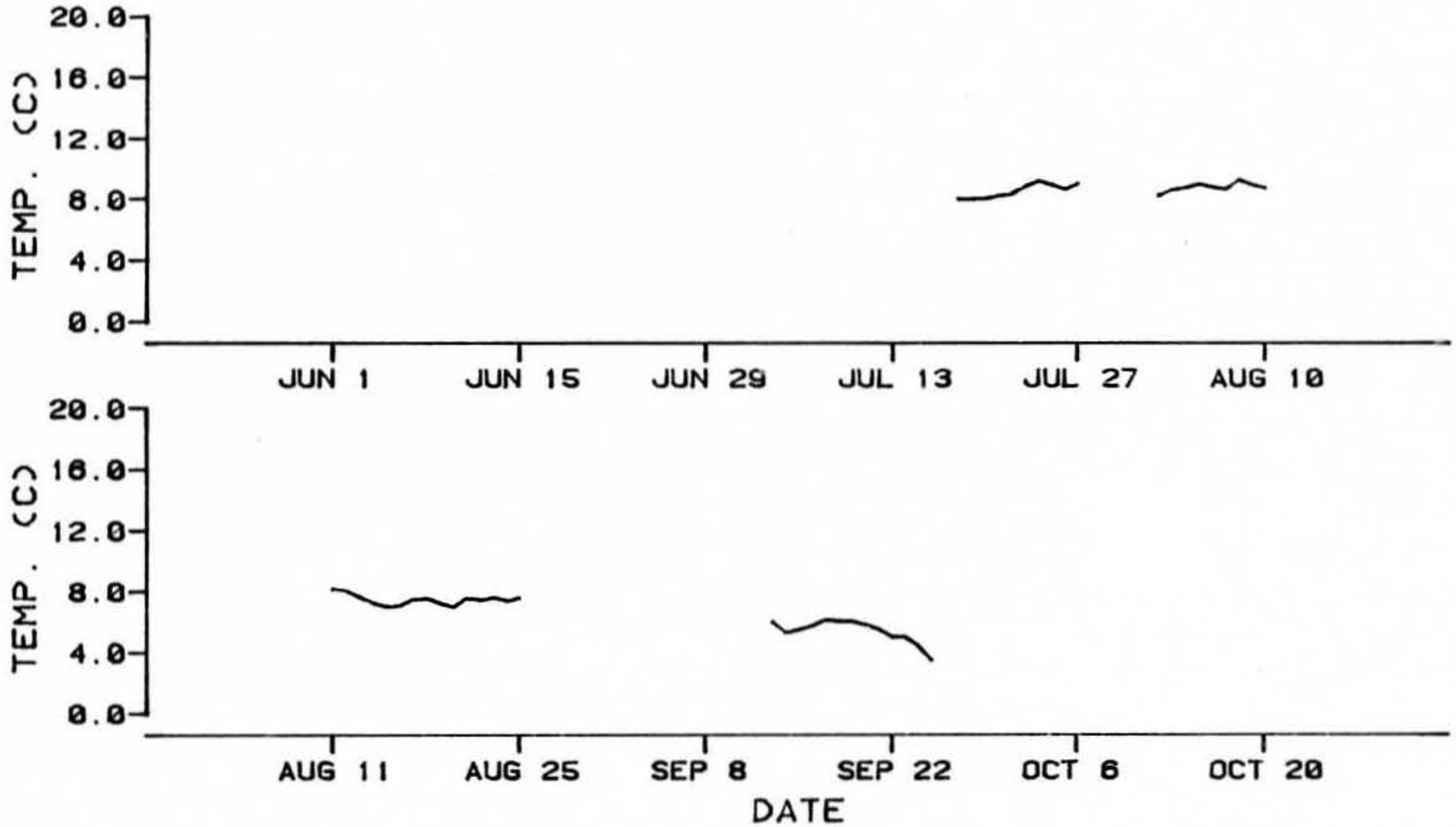


Figure 112. Water temperature versus time for Indian River (R.M. 138.7, 31N02W09CDA).

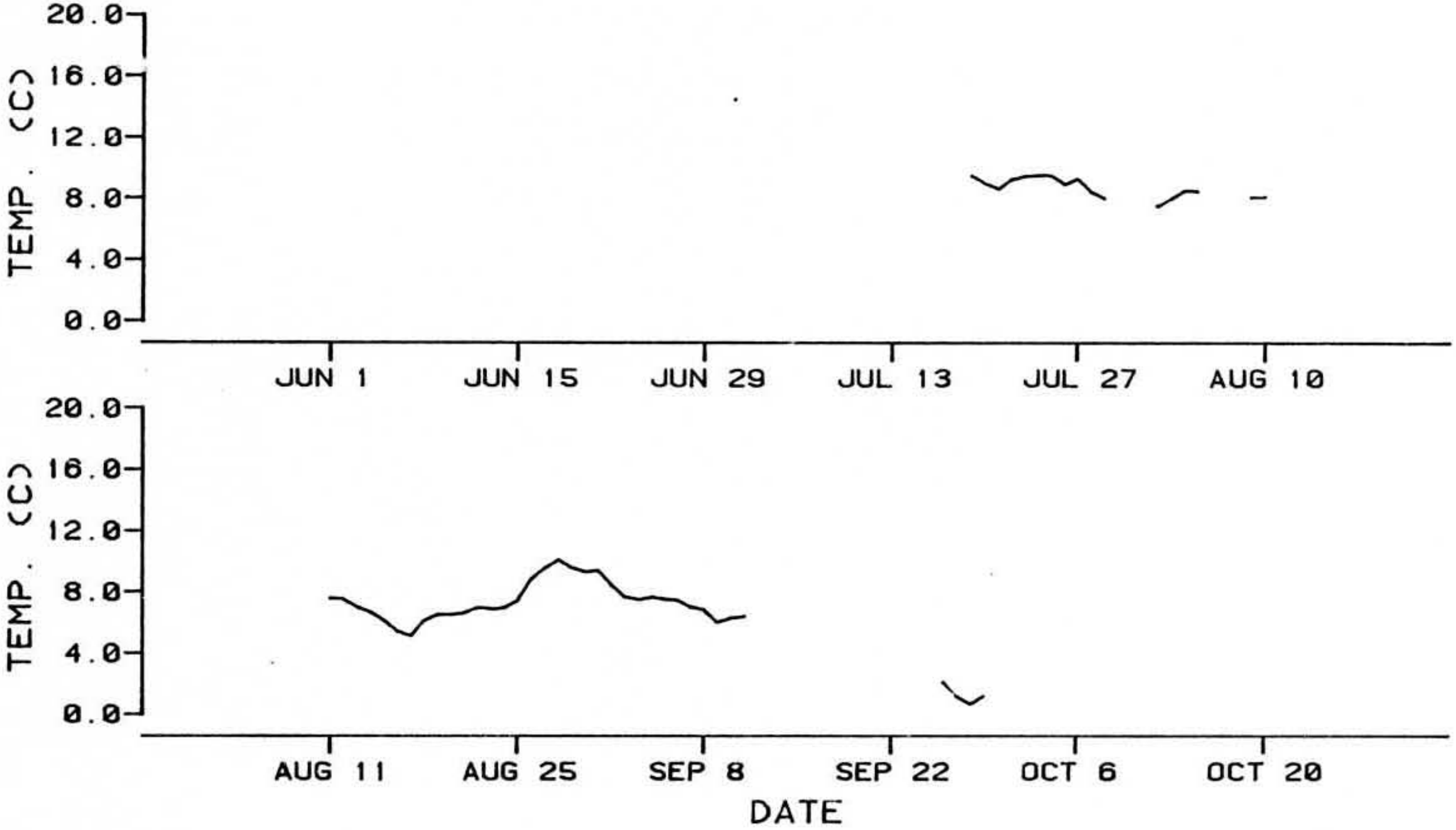


Figure 113. Water temperature versus time for the mainstem Susitna River above Indian River (R.M. 138.7, 31N02W09DCB).

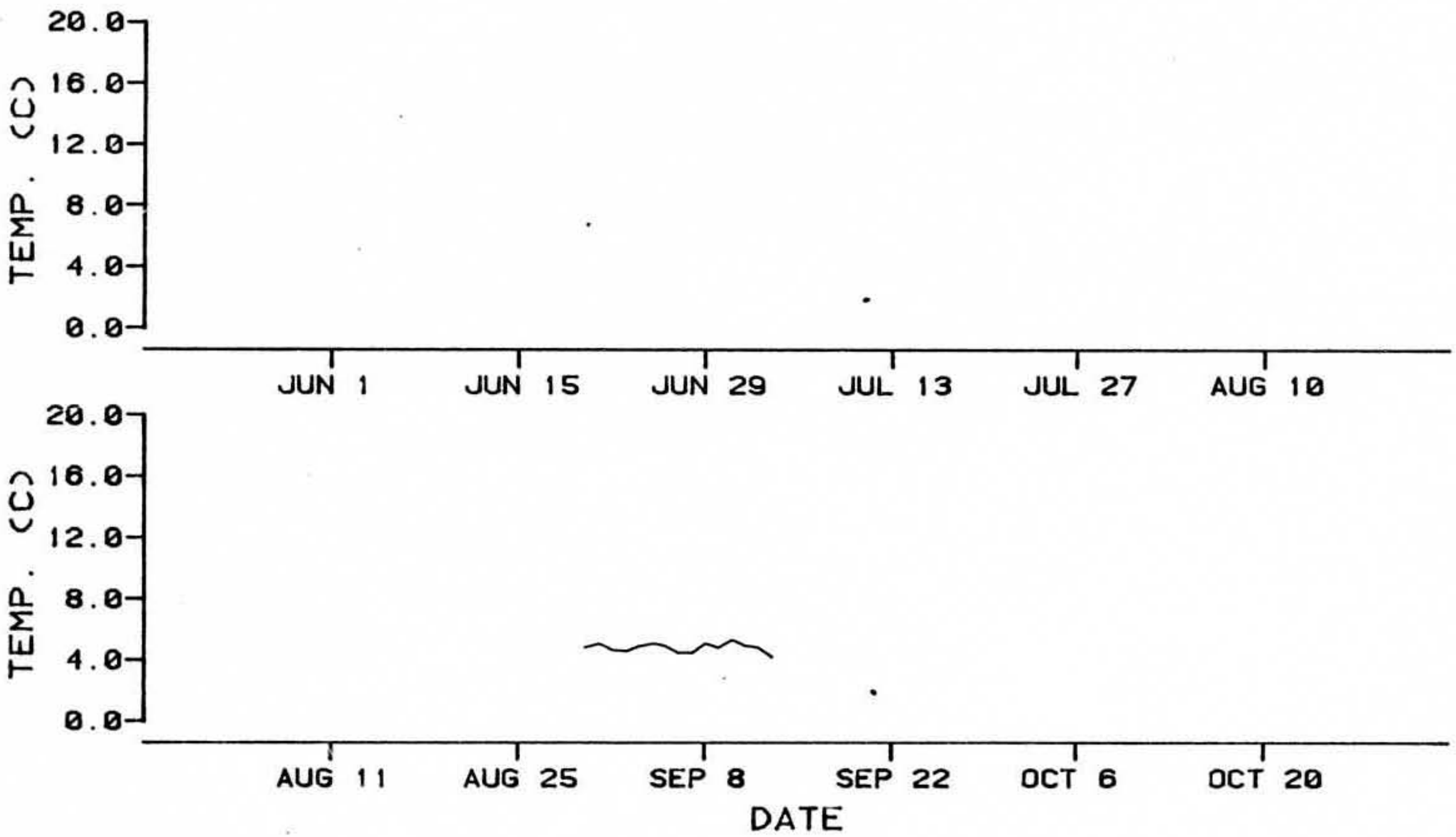


Figure 114. Water temperature versus time for Slough 19 (R.M. 140.0, 31N11W10DBB).

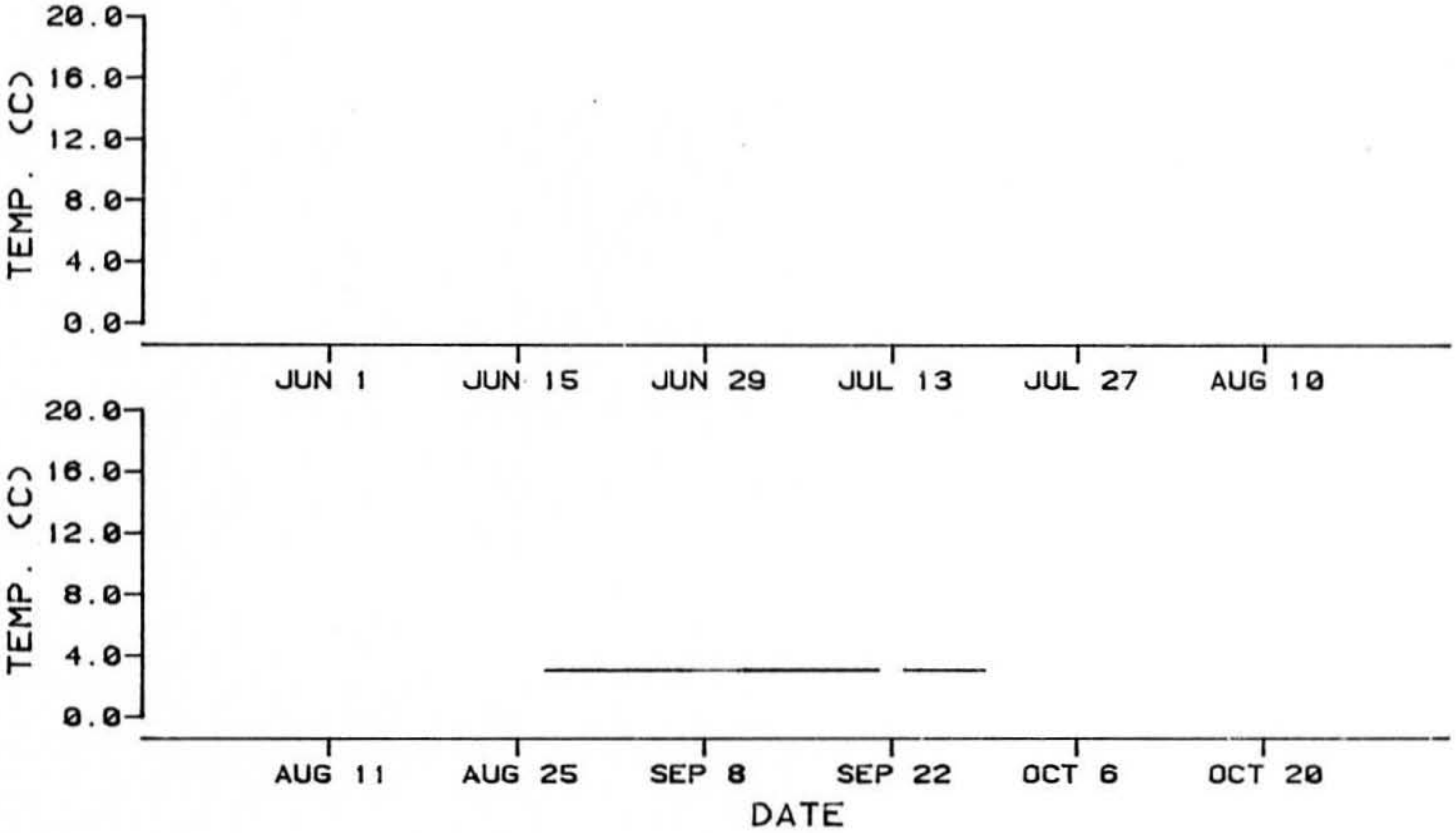


Figure 115. Intergravel temperature versus time for Slough 21 (R.M. 142.0, 31N11W02AAA).

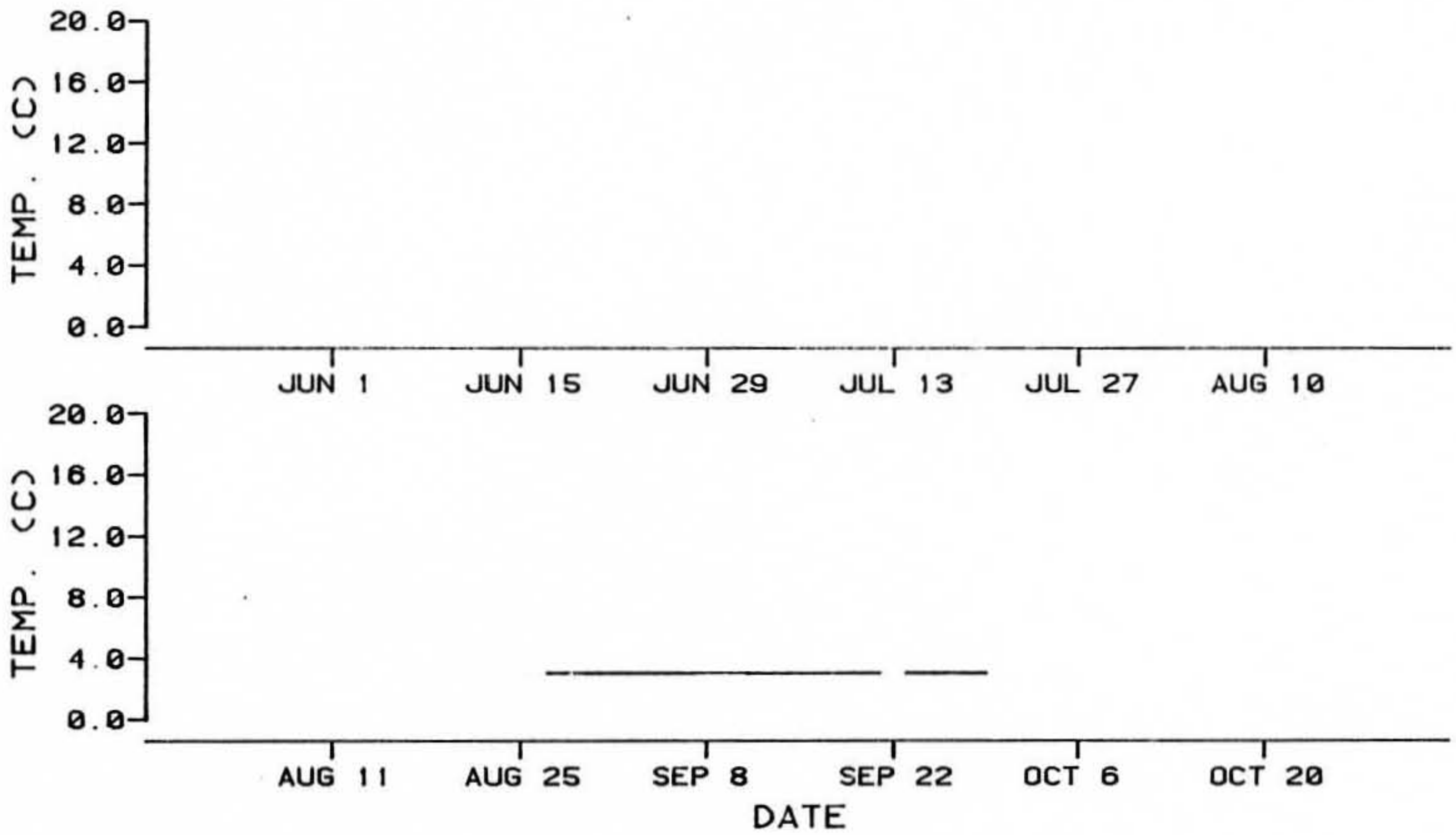


Figure 116. Water temperature versus time for Slough 21 (R.M. 142.0, 31N11W02AAA).

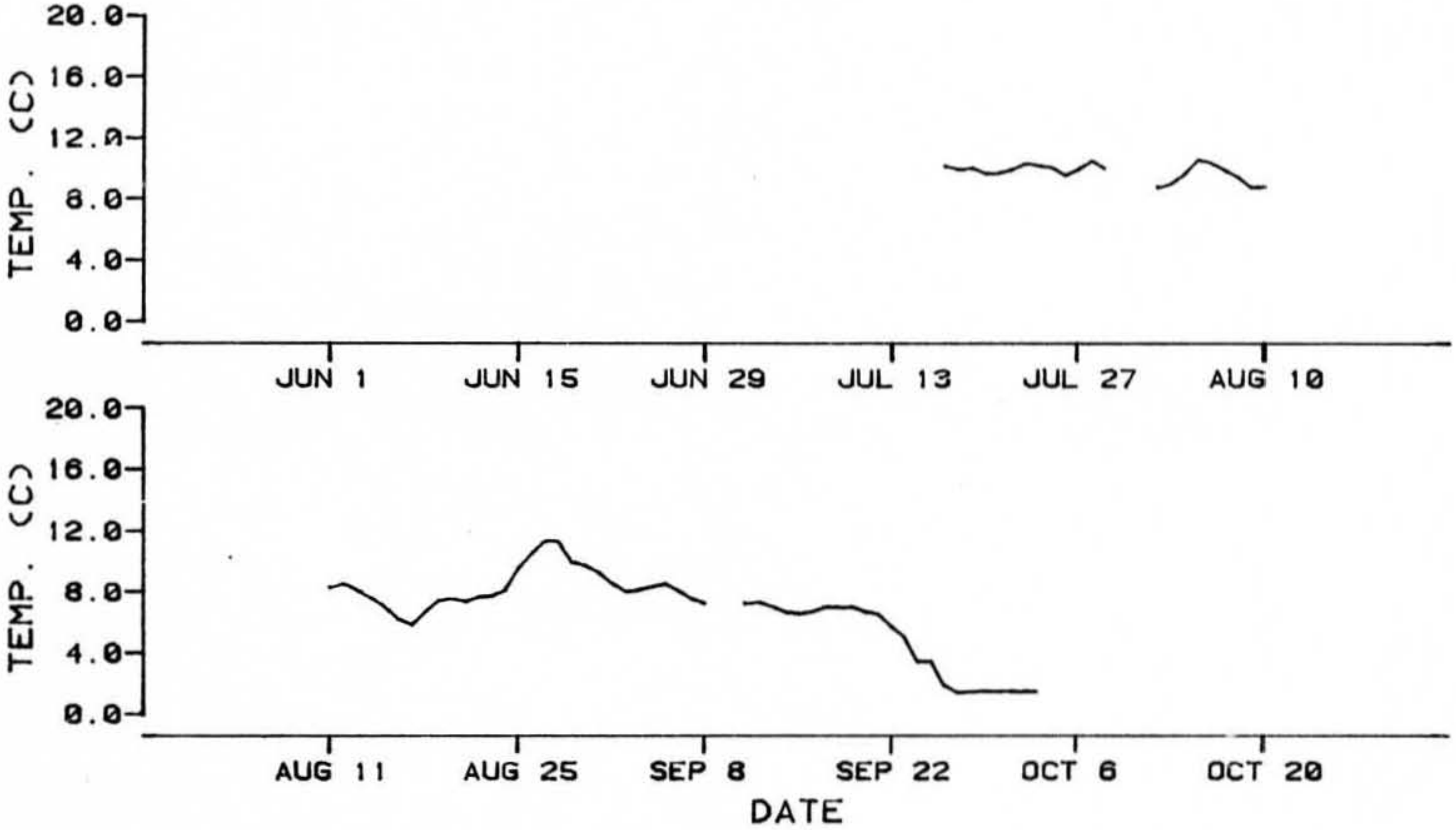


Figure 117. Water temperature versus time for the mainstem Susitna River above Portage Creek (R.M. 148.8, 32N01W25CDA).

Table 7. Location of staff gages installed in the Susitna River drainage. Summer 1981.

LOCATION	STAFF GAGE #	RIVER MILE	GEOGRAPHIC CODE
Fish Creek	YE011A	7.0	15N07W27AAC
Alexander Creek Site A	YE021B	10.1	15N07W06DCA
	YE021A		
Alexander Creek Site B	YE031A	10.1	16N07W32CCB
Alexander Creek Site C	YE041A	10.1	16N07W30ACD
	YE041B		
	YE042A		
Anderson Creek	YE051B	23.8	17N07W29DDD
	YE051A		
	YE052A		
Kroto Slough Mouth	YE061A	30.1	17N07W01DBC
	YE061B		
	YE061C		
	YE061D		
Mid-Kroto Slough	YE071A	36.3	18N06W16BBC
	YE071B		
	YE072A		
Mainstem Slough	YE081A	31.0	17N06W05CAB
	YE082A		
	YE083A		
	YE081B		
	YE082B		
	YE083A		
Deshka River Site A	YE091A	40.6	19N06W35BDA
	YE091B		
	YE092A		
	YE092B		
Deshka River Site B	YE101A	40.6	19N06W26BCB
	YE101B		
	YE101C		
	YE101D		
Deshka River Site C	YE111A	40.6	19N06W14BCA
	YE111B		
	YE112A		
Lower Delta Island	YE121A	44.0	19N05W19ACB
	YE122A	44.0	19N05W19ADC
	YE123A	45.0	19N05W17BCD
	YE124A	45.0	19N05W17BCB
Little Willow Creek	YE131A	50.5	29N05W27AAD
	YE132A	50.5	29N05W23CBC
	YE133A	50.5	29N05W27BAC
Rustic Wilderness	SU011A	58.1	21N05W25CBD
	SU011B		
	SU011C		
Kashwitna River	SU021A	61.0	21N05W13AAA

Table 7 (Continued)

LOCATION	STAFF GAGE #	RIVER MILE	GEOGRAPHIC CODE
Caswell Creek	SU031A	63.0	21N04W06BDD
	SU031B		
	SU031C		
Slough West Bank	SU041A	65.6	22N05W27ADC
	SU041B		
	SU041C		
Sheep Creek Slough	SU051A	66.1	22N04W30BAB
	SU051B		
Goose Creek 1	SU061A	72.0	23N04W31BBC
	SU061B		
Goose Creek 2	SU071A	73.1	23N04W30BBB
	SU072A		
	SU073A		
	SU072B		
	SU073B		
	SU073C		
Mainstem West Bank	SU081A	74.4	23N05W13BCC
	SU081B		
	SU081C		
Montana Creek	SU091A	77.0	23N04W07ABA
	SU092A		
	SU093A		
Rabideux Creek	SU101A	83.1	23N05W16DDA
Mainstem 1	TA011A	84.0	24N05W10DCC
	TA011B		
Sunshine Creek	TA021A	85.7	24N05W14AAB
	TA021B		
Birch Creek Slough	TA031A	88.4	25N05W25DCC
	TA031B		
Birch Creek	TA041A	89.2	25N05W25ABD
	TA041B		
Cache Creek Slough	TA051A	95.5	26N05W35ADC
	TA051B		
Whiskers Creek Slough	TA071A	101.2	26N05W03ADB
	TA071B		
	TA072A		
Whiskers Creek	TA081A	101.4	26N05W03AAC
	TA081B		
Slough 6A	TA091A	112.3	28N05W13CAC
	TA091B		
	TA092A		
Lane Creek	TA101A	113.6	28N05W12ADD
	TA102A		
	TA103A		
	TA103B		
	TA103C		
	TA104A		
Mainstem 2	TA111A	114.4	28N04W06CAB
	TA111B		

Table 7 (Continued)

LOCATION	STAFF GAGE #	RIVER MILE	GEOGRAPHIC CODE
Mainstem Susitna - Curry	GC011A	120.7	29N04W10BCD
	GC011B		
Susitna Side Channel	GC021A	121.6	29N04W11BBB
	GC021B		
Mainstem Susitna - Gravel Bar	GC031A	123.8	30N04W26DDD
	GC031B		
	GC031C		
Slough 8A	GC041A	125.3	30N03W30BCD
	GC042A		
Fourth of July Creek	GC051A	131.1	30N03W03DAC
	GC051B		
	GC052A		
	GC052B		
Slough 10	GC061A	133.8	31N03W36AAC
	GC061B		
	GC061C		
	GC061D		
Slough 11	GC071A	135.3	31N02W19DDD
	GC072A		
	GC071B		
Mainstem Susitna - Inside Bend	GC081A	136.9	31N02W17CDA
	GC081B		
	GC081C		
Indian River	GC091A	138.6	31N02W09CDA
	GC091B		
	GC091C		
	GC091D		
	GC092A		
	GC092B		
	GC092C		
	GC092D		
Slough 20	GC101A	140.1	31N02W11BBC
	GC101B		
	GC101C		
	GC102A		
	GC102B		
Mainstem Susitna - Island	GC111A	146.9	32N10W27DBC
	GC112A		
	GC112B		
	GC112C		
	GC112D		
Portage Creek	GC121A	148.8	32N01W25CDB
	GC121B		
	GC121C		
	GC121D		
	GC121E		
	GC122A		
	GC122B		
	GC122C		
	GC123A		

Table 7 (Continued)

LOCATION	STAFF GAGE #	RIVER MILE	GEOGRAPHIC CODE
Sunshine Base Camp			
Fishwheel EB 1	SB011A	79.0	24N05W36BDC
	SB012A		
	SB012B		
Fishwheel EB 2	SB021A	81.0	24N05W25BAD
Fishwheel WB 2	SB031A	81.0	24N05W26BAA
Fishwheel WB 3	SB041A	81.0	24N05W23CCA
Talkeetna Base Camp			
East Bank Sonar	TB011A	101.0	27N05W26DDA
Upper East Fishwheel	TB021A	101.0	27N05W26DDD
Upper West Fishwheel	TB031A	101.0	27N05W26DAC
Lower East Fishwheel	TB041A	101.0	27N05W35AAA
Lower West Fishwheel	TB051A	101.0	27N05W35AAB
West Bank Sonar	TB061A	101.0	27N05W26DDB
Curry Base			
In Front of Camp	CB011A	120.0	27N04W16DBA
	CB011B		
	CB011C		
	CB011D		
Lower East Fishwheel	CB021A	120.0	29N04W16DBD
	CB021B		
West Bank Fishwheel	CB031A	120.0	29N04W10BCC

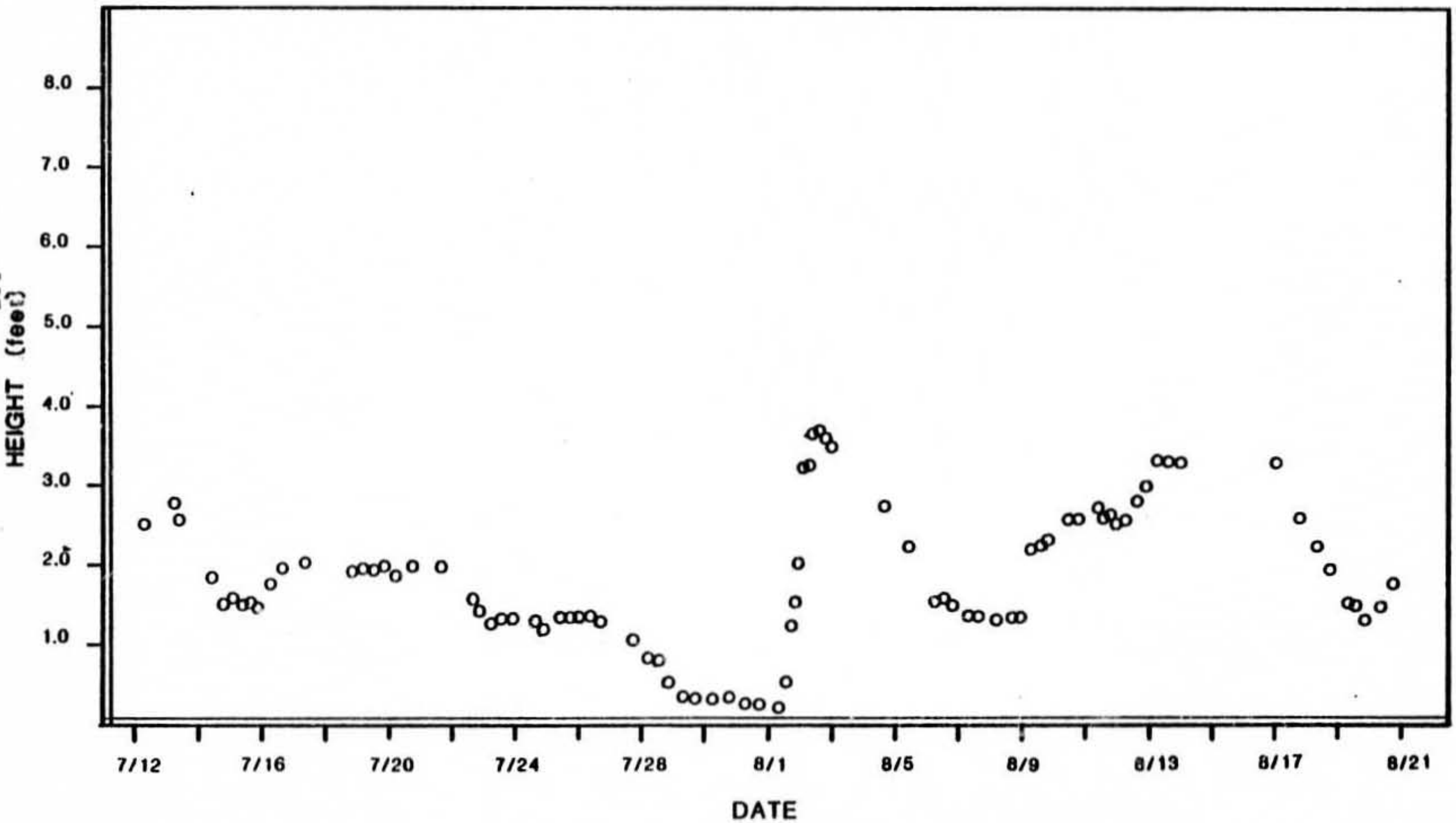


Figure 118. Stage versus time for the AA Sunshine fishwheel and sonar site (RM 79.0, 24N05W36BDC).

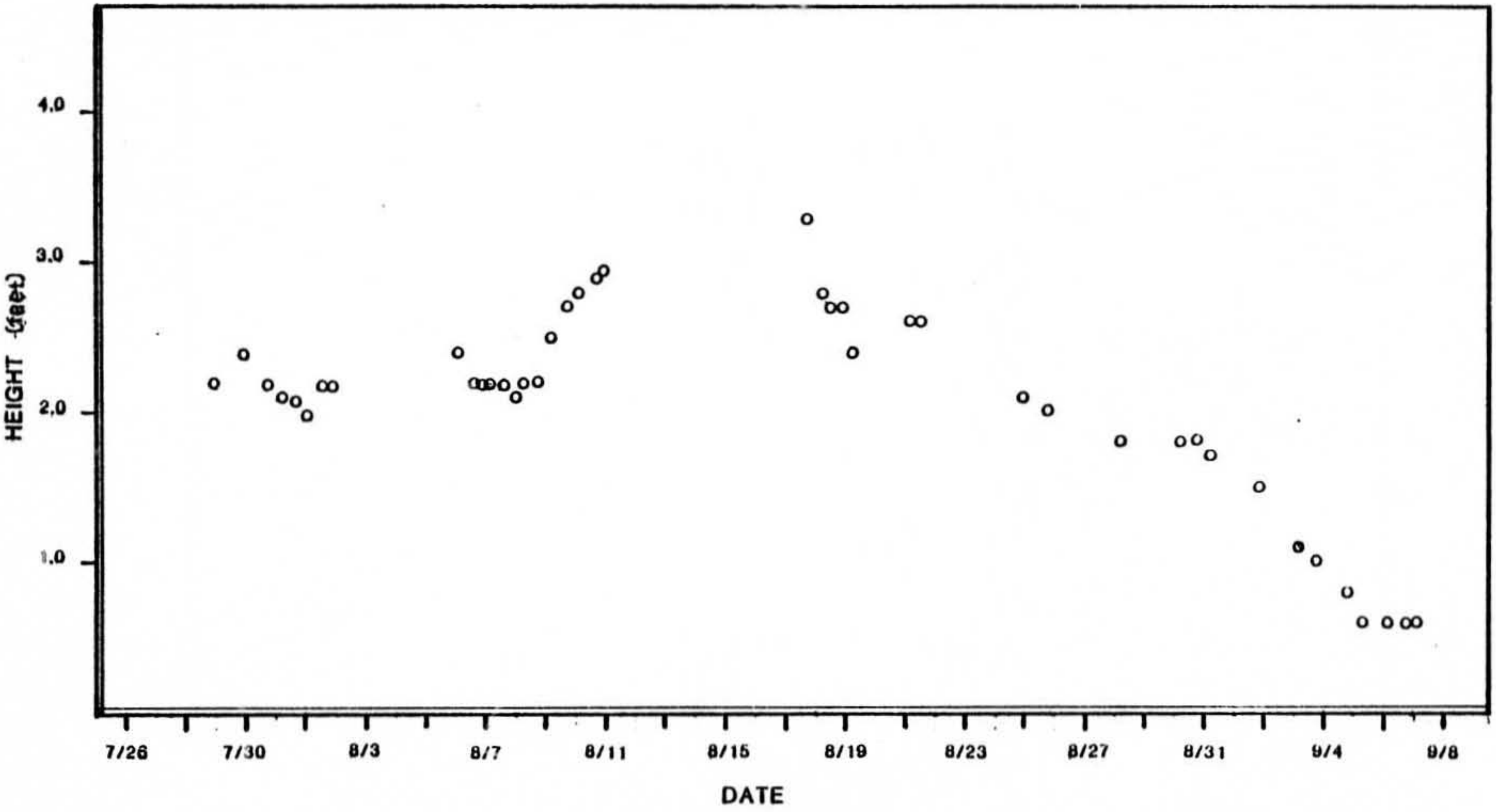


Figure 119. Stage versus time for the AA Sunshine west bank fishwheel site (RM 81.0, 24N05W23CCA).

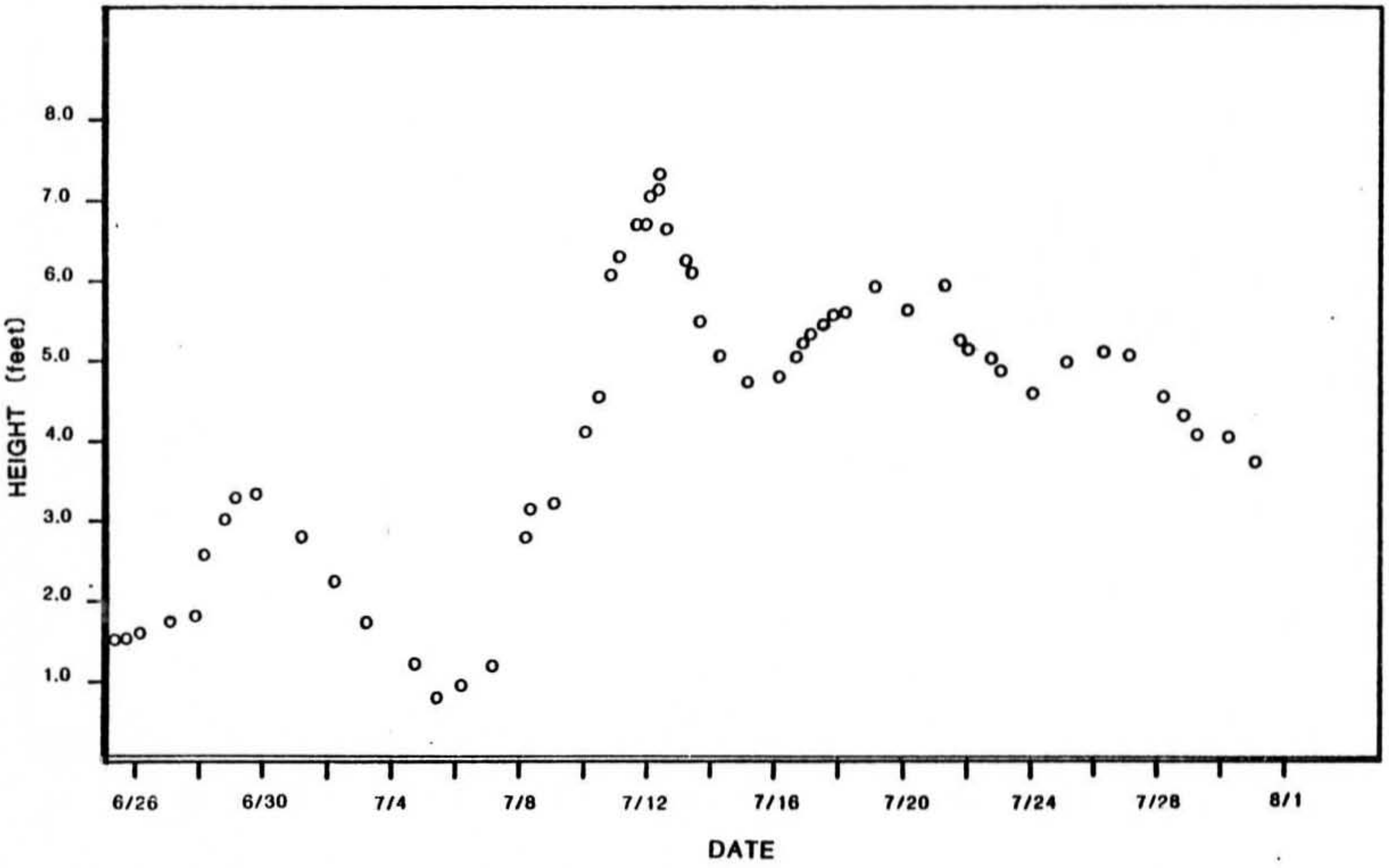


Figure 120. Stage versus time for the AA Talkeetna fishwheel and sonar site (RM 101.0, 27N05W26DDA).

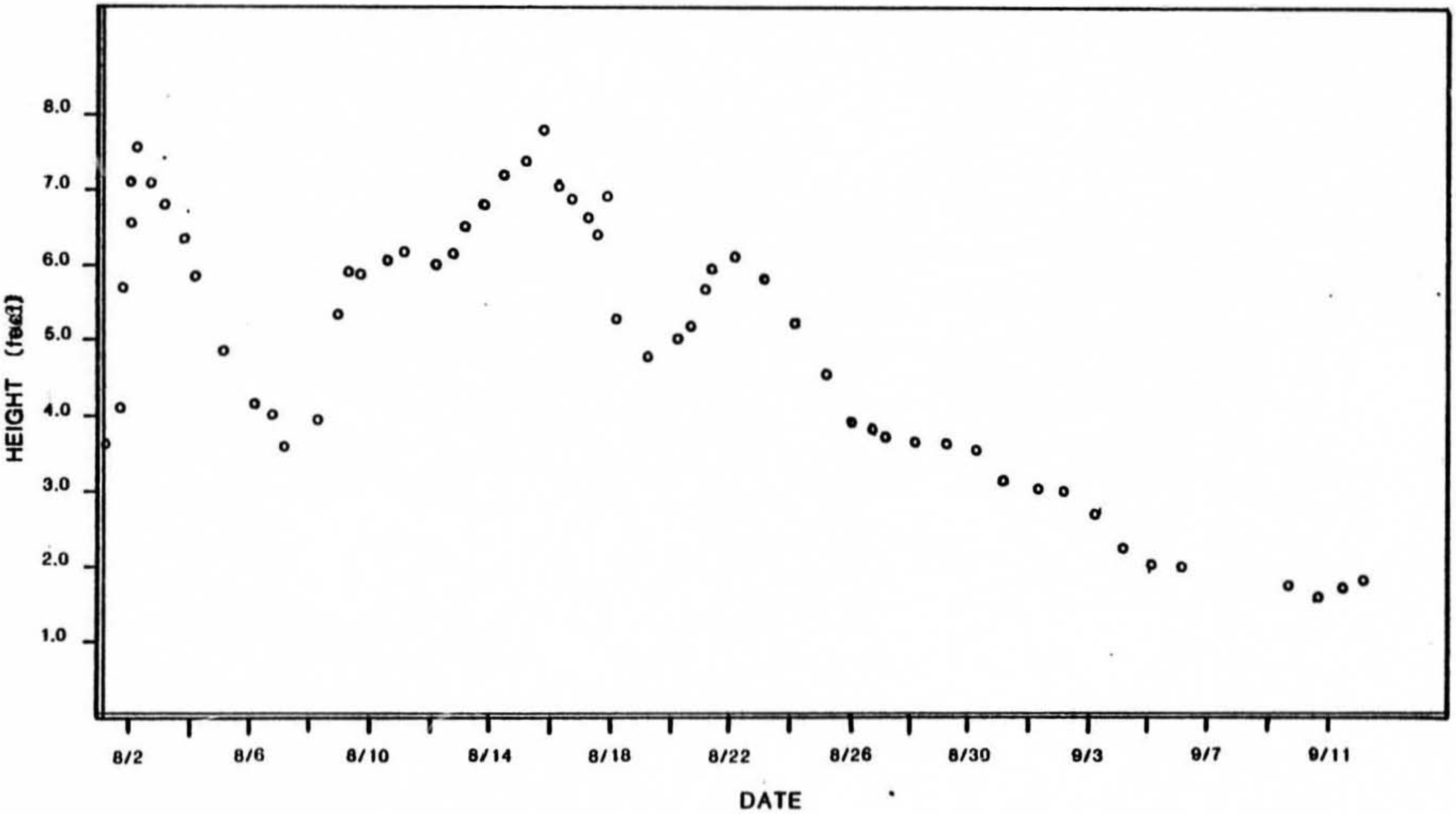


Figure 120. continued.

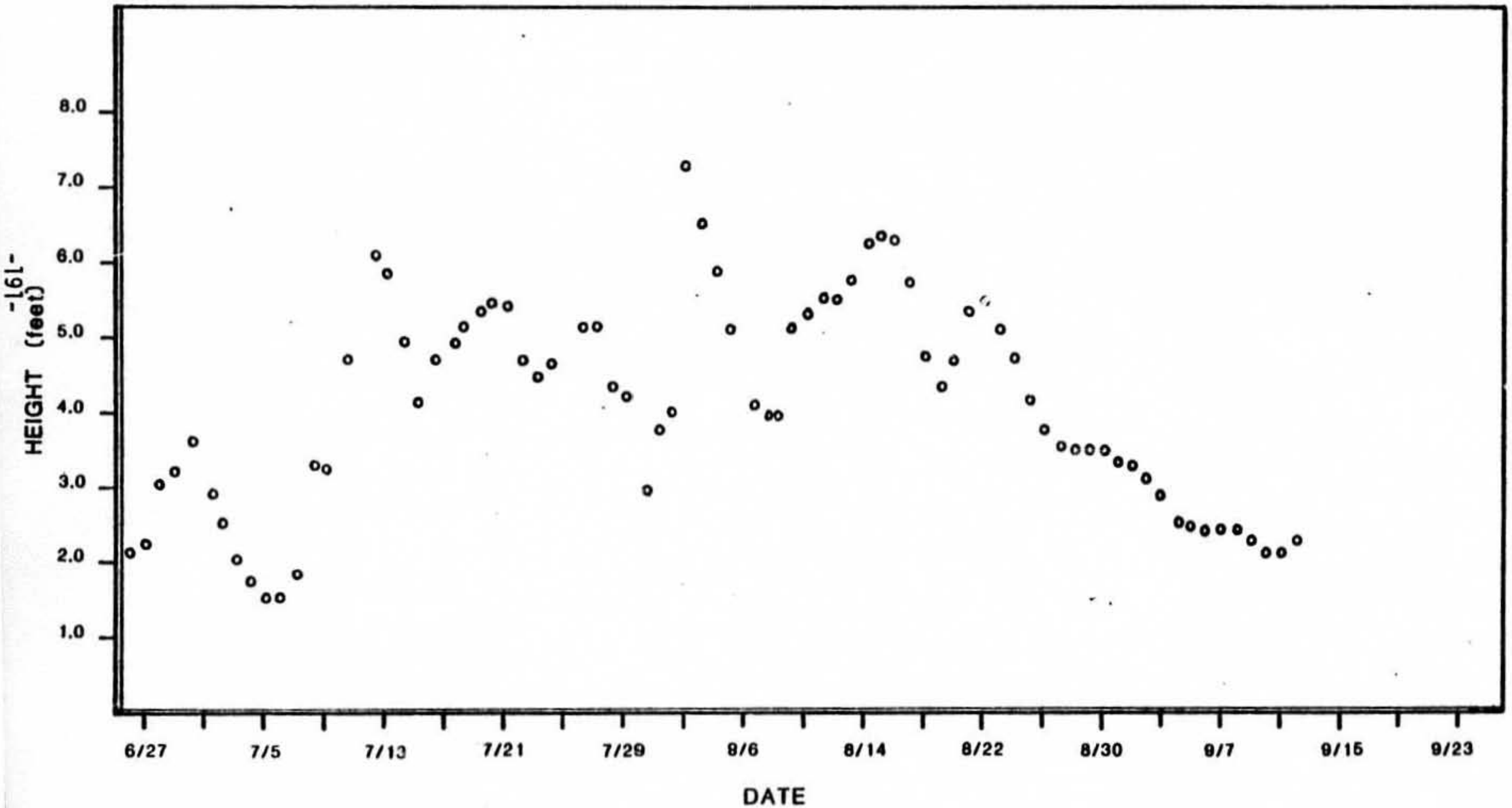


Figure 121. Stage versus time for the AA Curry fishwheel site (R.M. 120.0, 27N04W16DBA).

e. Incidental Data

Incidental point specific and general habitat evaluation data were collected by AA and AH personnel at identified salmon spawning areas, redds and other special study areas (Appendix H, Tables 1-6). Point specific and general habitat evaluation data was also collected at known Bering Cisco spawning areas. The latter of these data are included in the Resident and Juvenile Anadromous Fisheries Seasonal Su Hydro report.

f. Point Specific Data

Fishery and the associated point specific velocity, depth and substrate characteristics recorded by AH and RJ personnel will be included in the February, 1982 Phase I annual report.

B. SELECTED HABITAT EVALUATION

1. Methods

a. Physiochemical*

Water quality and discharge data were collected on a cooperative basis with the USGS at five selected habitat evaluation study sites. Sampling was timed to coincide with other USGS sampling of the mainstem Susitna River at the Gold

*Specific methods are presented in Appendix G.

Creek bridge. A sampling site within each selected habitat evaluation study site was chosen to ensure that a representative sample would be obtained and in an area where the sampling apparatus would operate most efficiently. All sampling was done accordingly to USGS standard operating procedures. The following is a brief outline of the sample procedures used. Discharge was measured using a Price AA or a pygmy flow meter. Five points along the transect were deterined which divide the discharge into 20% increments. At each of these points a depth integrated sample was taken using a DH-75 sampler. These five samples were then composited using a "churn splitter", a device that thoroughly mixes the samples. Portions were withdrawn and treated appropriately for shipment to the USGS laboratory in Colorado for analysis of nutrients, sediments, cations and trace metals listed in Table 2. Field parameters (dissolved oxygen, specific conductance, pH, and temperature) were measured using a Hydrolab Model 4041 at each of the five sampling points on the transect. Substrate was categorized as shown in Table 3.

Thermographs were placed in two sloughs (19 and 21) to measure surface and intragravel water temperatures. The intragravel thermographs were placed in weighted fry traps and buried approximately one foot into the substrate. The thermographs measuring surface water temperature were also placed within weighted fry traps and placed upon the substrate. Each were secured to the shore using 1/4 inch wire cable.

b. Surveying Methods

The survey-hydraulic portion of the study consisted primarily of the selection and surveying of transects within each selected habitat evaluation site.

Transects in the slough were selected to characterize the variety of hydraulic and instream habitat available. Transects were located at the head (upstream confluence with the mainstem) and at the mouth (downstream confluence) of each slough to relate mainstem water surface elevation to the sloughs. Transects were also placed to characterize major control points, pools and riffles. Transects were marked on each bank with four foot sections of 1/2 inch rebar as head pins. These were driven into the ground leaving approximately 3 inches above the surface in areas on the bank that were, where possible, above the high water mark. Standard surveying techniques using a Lietz A-1 level, rod, and fiberglass tape, were employed to determine the cross sections, diagonal and longitudinal distances between each head pin and head pin elevations. The elevations were determined in relation to an ADF&G bench mark which in turn was tied into an elevation datum previously established by an R & M Consultants transect bench mark for true elevations. Cross sectional profiles were plotted for each transect to illustrate the morphology of the channel. A Topcon DMS1 Electronic Distance Measuring system and Raytheon DE-719-B depth sounder were modified for use with a boat boom suspension system for surveying deep water and wide river stretches.

Photographs of the substrate were taken along the cross sectional transect using a grid to identify substrate and its locations in relation to the left bank head pin. Photographs were labeled and filed for reference.

One staff gage was placed in each slough on a transect which exhibited channel characteristics suitable for accurate discharge measurements. Discharge and stage were determined in order to begin a period of record from which to develop stage discharge relationships with subsequent measurements. Staff gages were also installed in the mainstem at most study slough locations to characterize whether slough flow regimes are related to those of the mainstem.

c. Site Selection

The five selected habitat evaluation sites studied are sloughs located along the Susitna River from approximately five miles downstream of Sherman (R.M. 131) to approximately four miles upstream of Indian River (R.M. 138.5). These sites with their respective river miles and geographic codes are presented below:

Site	River Mile	Geographic Code
Slough 8A	125.5	30N 03W 30 BCD
Slough 9	129.0	30N 03W 16 ABC
Slough 16B	138.0	31N 11W 17 ABD
USGS Mainstem Site @ Gold Creek Bridge	136.7	31N 11W 20 BAC
Slough 19	140.0	31N 11W 10 DBB
Slough 21	142.0	31N 11W 02 AAA

The sites were selected to represent varied types of habitat, water quality and fishery activities (spawning and rearing), as determined from data collected by ADF&G (ADF&G, 1974, 1978, 1979), discussions with Acres American and R & M Consultants personnel, and by a reconnaissance trip in June of 1981 by ADF&G Su-Hydro and USGS personnel. An additional objective was to select sites which would characterize the general hydraulic conditions of sloughs in the river above the confluence of the Talkeetna River and below Devil Canyon. Table 8 illustrates the parameters chosen in selecting the sites and how each slough compared.

A comparative analysis of the parameters presented in Table 8 indicates that each slough is relatively unique. An overview of the sites illustrates how slough 8A with a pH range of 7.0-7.5 and a specific conductance of 88-98 contrasted with slough 16B which had a pH range of 6.2-7.2 and a conductivity of 85 while both were sites of coho and chinook rearing. Slough 19 was selected due to its relatively high range of specific conductance (140-150), and its population of sockeye spawners and coho rearing fish. Additional chinook fry have not been observed in this slough whereas slough 21 (upstream) and slough 16B (downstream) each supported chinook fry. Slough 9 was selected because it supported high numbers of coho spawners and numbers of sockeye (spawners) and few salmonid fry. Slough 21 was chosen being a site of high numbers of chum spawners with both chinook and coho fry.

2. Findings

a. Site Descriptions.

Slough 21 (Appendix A, Figure 77) is a forked, open channel stream approximately 0.5 miles in length with sloping 5 foot cutbanks. The main source of water is generated from the mainstem Susitna River except during periods of low discharge. At low discharge of the mainstem, the slough is fed by a small, clearwater tributary entering the northeast channel of the slough.

Table 8. Matrix of parameters used to select the five selected habitat evaluation study sites.

Site	RM	Habitat	Chinook Spawning	Coho Spawning	Chum Spawning	Sockeye Spawning	Chinook Rearing	Coho Rearing	pH	Cond
8A	125.5	Backwater	0	0	--	--	+	+	7.0-7.5	88-98
9	129.0	Open Channel	0	+	++	-	0	+	7.0	N/A
16B	138.0	Open Channel	0	0	--	--	+	+	6.2-7.2	60-85
19	140.0	Backwater Spring Fed	0	0	--	++	0	+	7.1-7.8	140-150
21	142.0	Open Channel	0	0	+++	+	+	+	7.5	N/A

+++ very high
++ high
\+ present
\- low
-- very low
0 absent
N/A not available

This with ground water percolation maintains water in the main channel and northeast channel, while the northwest channel is dewatered. The substrate, from the mouth upstream approximately 750 feet, is composed primarily of silt sparsely interspersed with gravel and cobble. Above this portion in the main channel and northeast channel the substrate is composed of silt, gravel and rubble. It was in these channels that all spawning activity was observed. The northeast channel substrate consisted primarily of rubble and cobble interspersed with gravel. No fish were observed spawning in this site here during the sampling period. The channel was also the first to dewater. The northeast channel due to the contribution of a small tributary was never found dewatered nor was the main channel of the slough.

Slough 19 (Appendix A, Figure 78) is a spring fed stream backed up at its mouth by the Susitna River which forms a pool for approximately half the sloughs length. The slough is aporoximately 0.2 miles long and has the unique feature of being completely spring fed. The banks are sloping five foot cutbanks in the upper portion and generally sloping throughout the lower portion. The substrate is composed of 100% silt with scant aquatic vegetation from the mouth upstream approximately 200-300 feet. Above this the substrate is primarily gravel with a layer of silt ending with cobble and rubble near the head of the slough. Sockeye were observed spawning in the slough. Redds were located by noting areas where the fish had fanned the silt to access the underlying gravel.

Slough 16B (Appendix A, Figure 79) is a free flowing channel approximately 0.4 mile in length consisting of steep, cutbanks along the entire length on both sides which range from 1-5 feet in height. The substrate is fairly homogeneous throughout, consisting primarily of gravel and rubble. The main sources of flow is from the mainstem Susitna River which enters the head of the slough. During periods of low mainstem discharge, groundwater percolation contributes most of the water as the head of the slough is dewatered, isolating the slough from the mainstem influence. Although spawning was not observed during our surveys, a few chum salmon carcasses were found in dewaterd areas within the slough.

Slough 9 (Appendix A, Figure 80) is an open water channel approximately 1.2 miles long having sloping six-foot cutbanks and substrate composed of gravel, rubble and cobble. The main source of water for the slough consists of flow from the mainstem Susitna River except during periods of low discharge. Two small tributaries which are located on the northeast and southeast banks maintain flow in the slough during low discharge periods. They provide the entire low flow discharge. The northeast tributary is a known site for coho spawning.

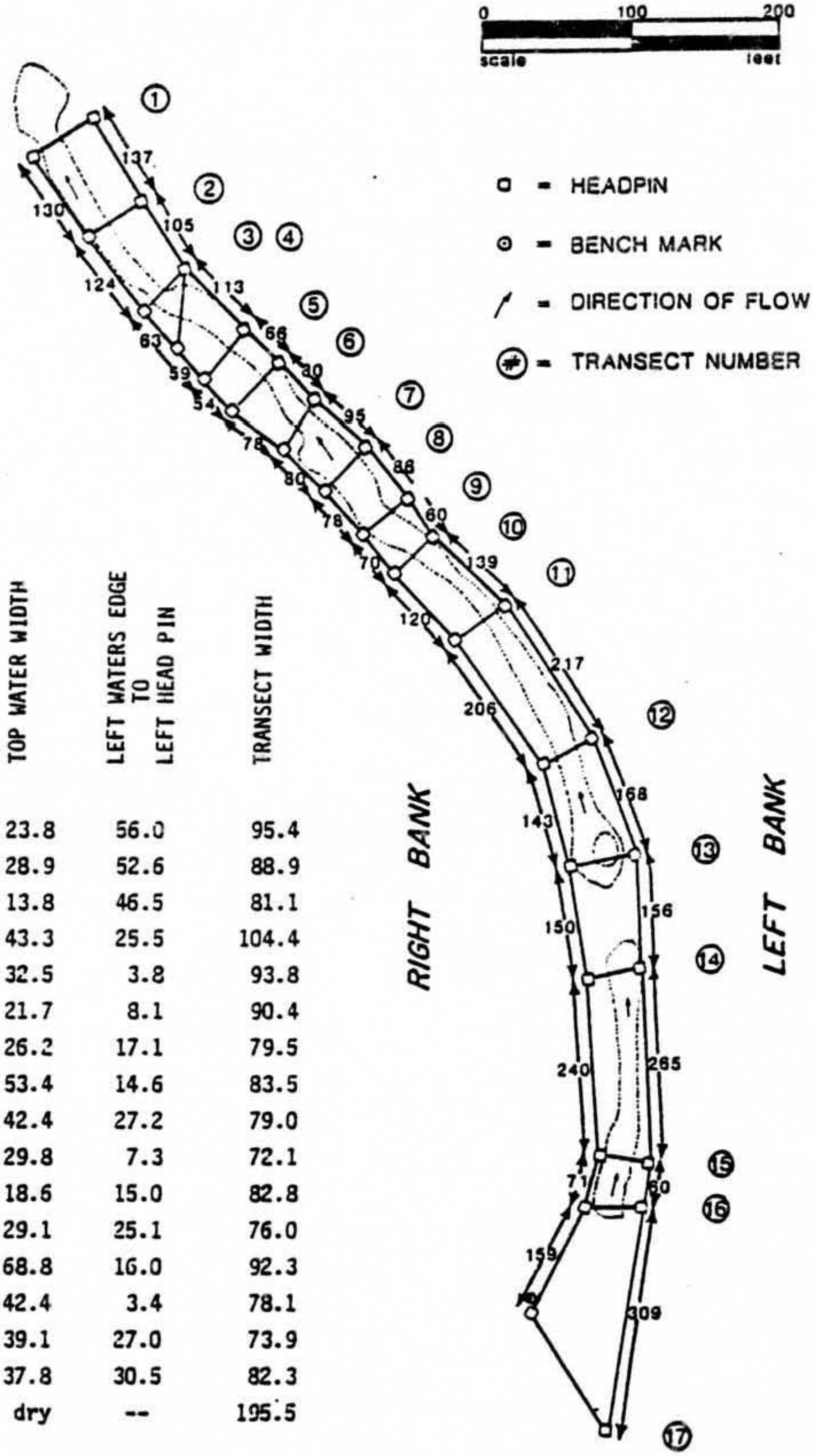
Slough 8A (Appendix A, Figure 81), is approximately 1.8 miles in length. The initial 1/4 mile from the mouth upstream is influenced by the mainstem Susitna River and except during periods of extreme low flows, a backwater area is created in the slough. Above this the flow is free flowing except for beaver dams which are located within the middle section of the slough. Slough 8A can be characterized as having sloping six-foot cutbanks and six "heads" which contribute flow from the mainstem except for periods of low mainstem discharge. During those periods, flow is generated through groundwater percolation and release from beaver dams. Sockeye and chum salmon were observed spawning in the lower stretches of the slough. Slough 8A was the longest of the 5 sloughs sampled and exhibited the greatest diversity. Transects were located only at the "head" and mouth of Sloughs 8 and 9 due to their length.

b. Morphometry Data

The survey data included head-pin and cross-section elevations, and longitudinal, diagonal and horizontal distances. Waters edge locations and head-pin distances are illustrated in Figures 122-124. Cross-sectional profiles of the slough mouth and head portion were also plotted (Figures 125-140) to provide a basis for illustrating the stage required from the mainstem to provide flow into the study sites. Head pin and cross section elevations are presented in Appendix E.

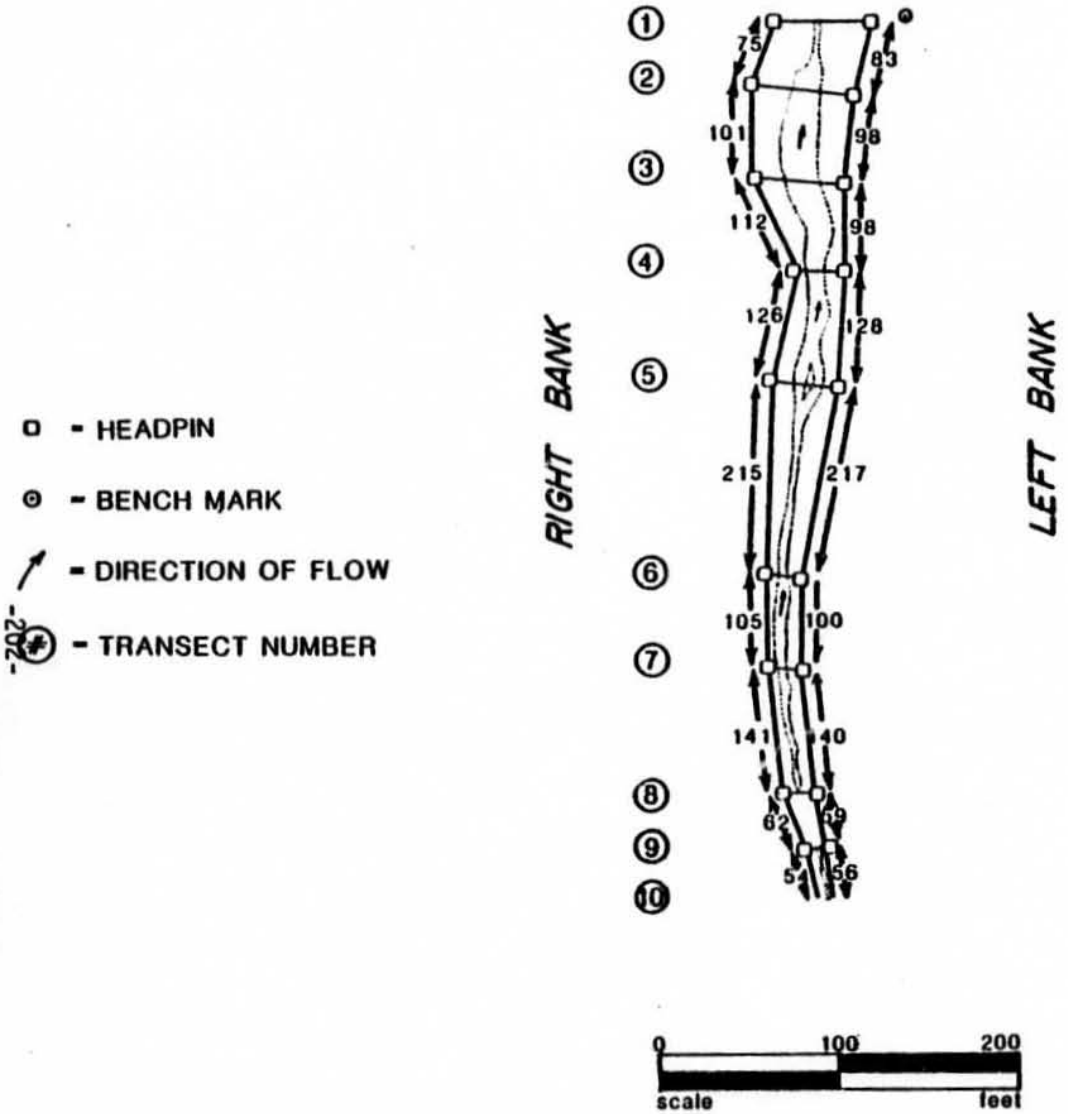
c. Stage/Discharge Data

Stream discharge and stage measurements were recorded from June to September, 1981. Table 9 illustrates the stage changes versus time and discharge. The mainstem discharge as determined from the USGS gaging station at Gold Creek is presented in Appendix F to allow comparison of mainstem and study slough flows.



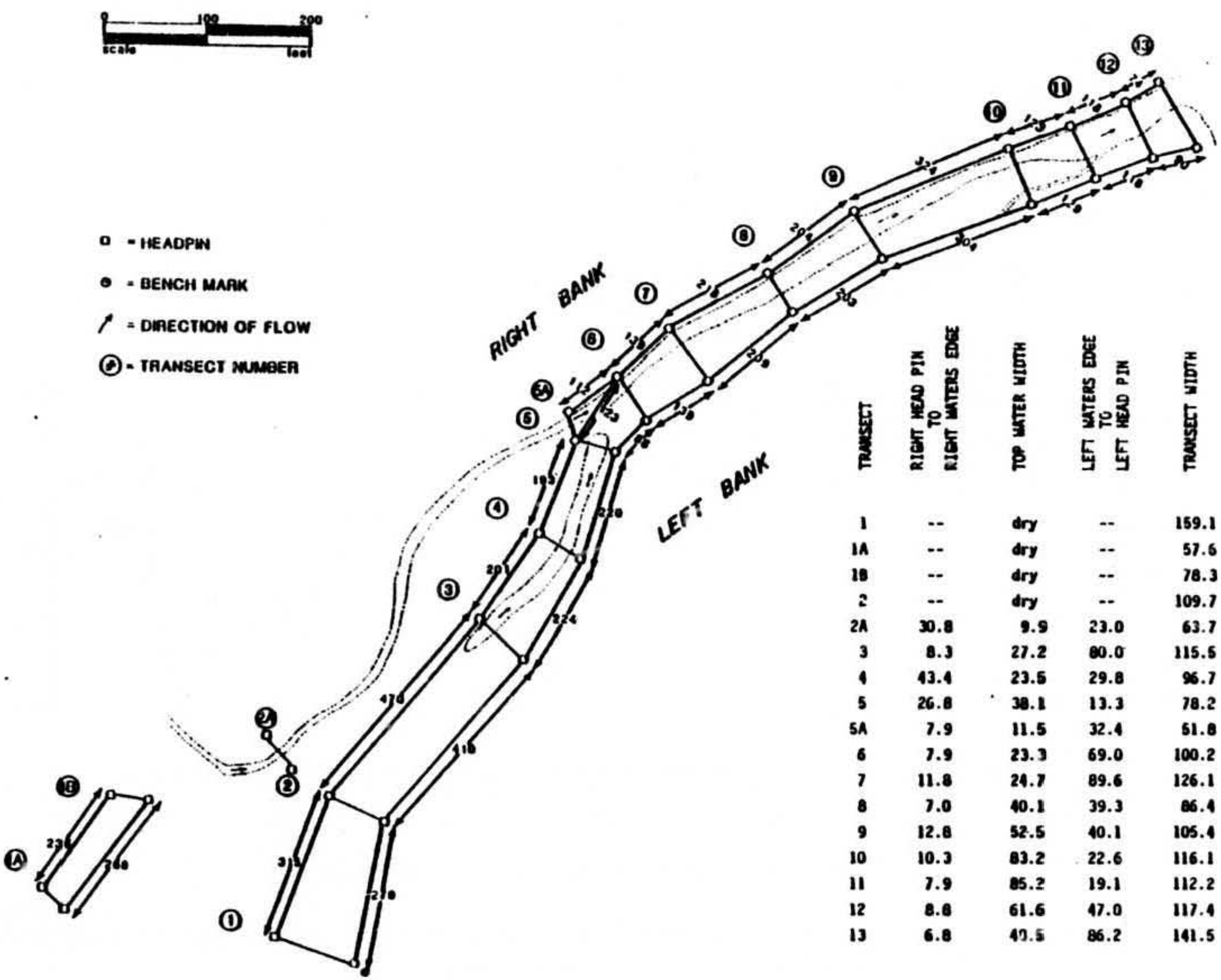
TRANSECT	RIGHT HEAD PIN TO RIGHT WATERS EDGE	TOP WATER WIDTH	LEFT WATERS EDGE TO LEFT HEAD PIN	TRANSECT WIDTH
1	15.6	23.8	56.0	95.4
2	7.4	28.9	52.6	88.9
3	20.8	13.8	46.5	81.1
4	35.6	43.3	25.5	104.4
5	57.5	32.5	3.8	93.8
6	60.6	21.7	8.1	90.4
7	36.2	26.2	17.1	79.5
8	15.5	53.4	14.6	83.5
9	9.4	42.4	27.2	79.0
10	35.0	29.8	7.3	72.1
11	49.2	18.6	15.0	82.8
12	21.8	29.1	25.1	76.0
13	7.5	68.8	16.0	92.3
14	32.3	42.4	3.4	78.1
15	7.8	39.1	27.0	73.9
16	14.0	37.8	30.5	82.3
17	--	dry	--	195.5

Figure 122. Waters edge location and head pin distance for Slough 16 (R.M. 139, 31N11W17ABD).



TRANSECT	RIGHT HEAD PIN TO RIGHT WATERS EDGE	TOP WATER WIDTH	LEFT WATERS EDGE TO LEFT HEAD PIN	TRANSECT WIDTH
1	48.8	2.4	55.5	106.7
2	50.0	31.4	34.0	115.4
3	42.9	34.2	27.5	104.6
4	15.3	18.7	23.3	57.3
5	28.8	30.0	11.6	70.4
6	12.6	9.3	18.6	40.5
7	7.4	10.8	17.8	36.0
8	--	dry	--	35.2
9	11.0	5.5	10.1	26.6
10	6.6	3.9	5.7	16.2

Figure 123. Waters edge location and head pin distance for Slough 19 (R.M. 140, 31N11W10DBB).



TRANSECT	RIGHT HEAD PIN TO RIGHT WATERS EDGE	TOP WATER WIDTH	LEFT WATERS EDGE TO LEFT HEAD PIN	TRANSECT WIDTH
1	--	dry	--	159.1
1A	--	dry	--	57.6
1B	--	dry	--	78.3
2	--	dry	--	109.7
2A	30.8	9.9	23.0	63.7
3	8.3	27.2	80.0	115.5
4	43.4	23.5	29.8	96.7
5	26.8	38.1	13.3	78.2
5A	7.9	11.5	32.4	51.8
6	7.9	23.3	69.0	100.2
7	11.8	24.7	89.6	126.1
8	7.0	40.1	39.3	86.4
9	12.8	52.5	40.1	105.4
10	10.3	83.2	22.6	116.1
11	7.9	85.2	19.1	112.2
12	8.8	61.6	47.0	117.4
13	6.8	49.5	86.2	141.5

Figure 124. Waters edge location and head pin distance for Slough 21 (R.M. 142, 31N11W02AA).

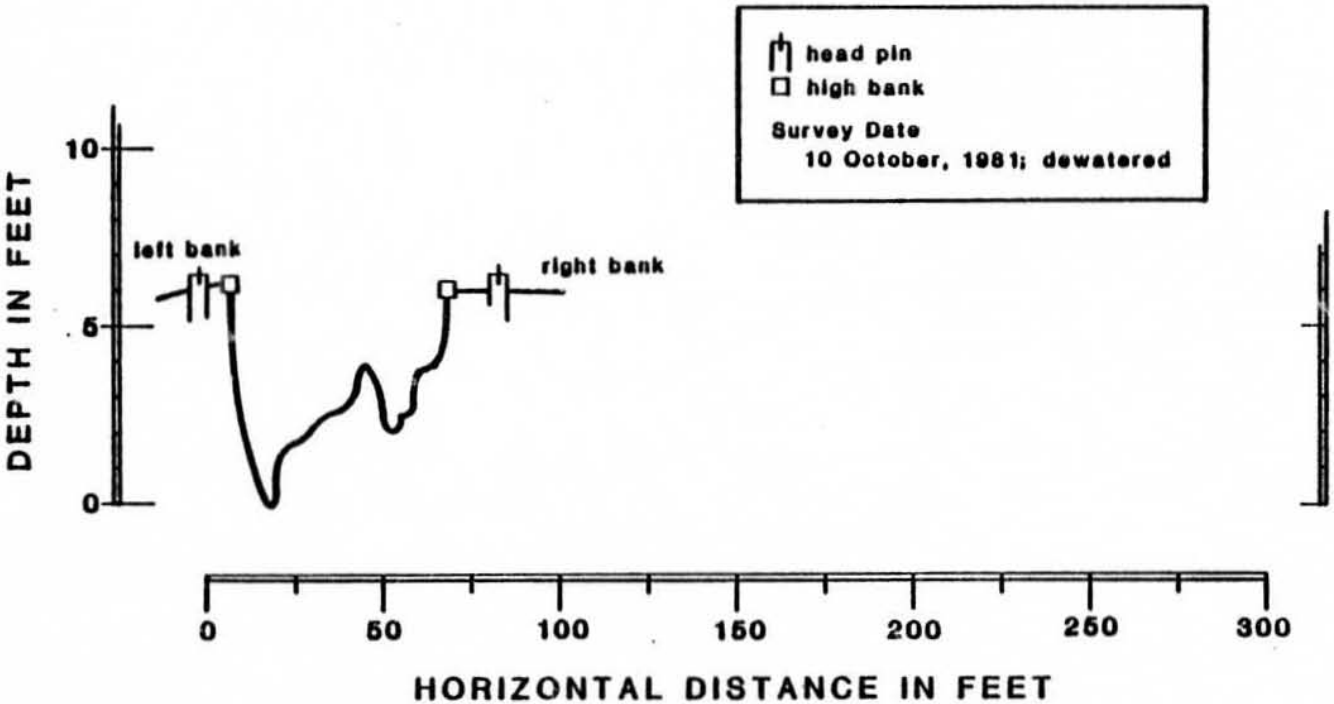


Figure 125.
CROSS-SECTIONAL PROFILE OF SLOUGH 8A, TRANSECT #1.
(1 vertical foot equals 10 horizontal feet)

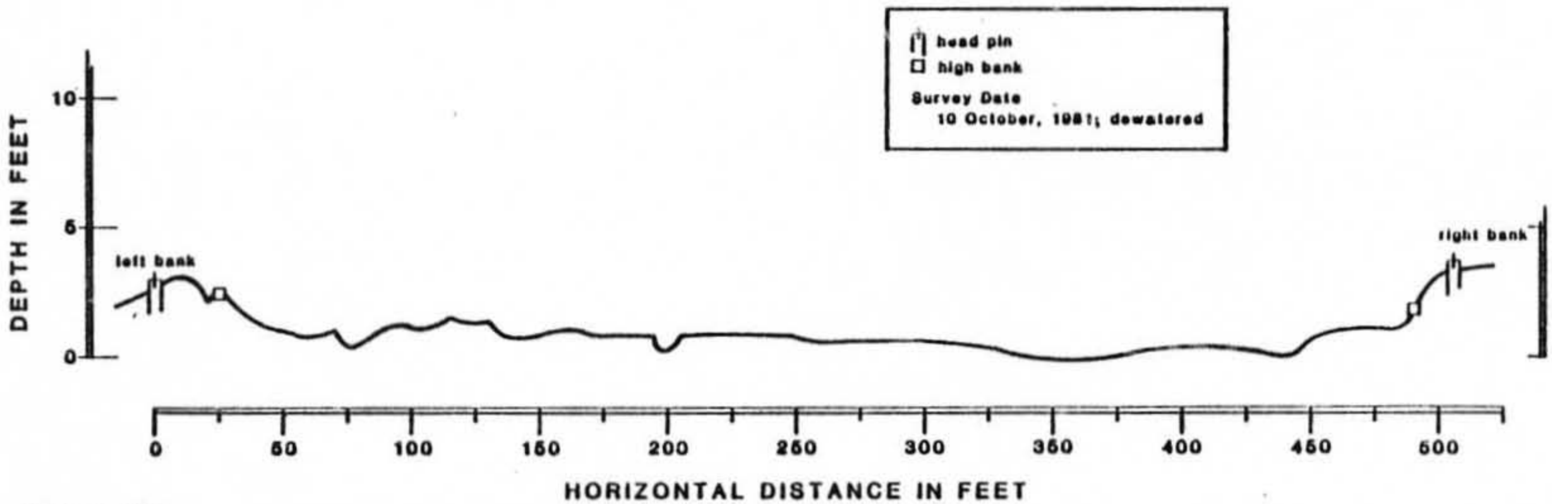


Figure 126.
CROSS-SECTIONAL PROFILE OF SLOUGH 8A, TRANSECT #2.
(1 vertical foot equals 10 horizontal feet)

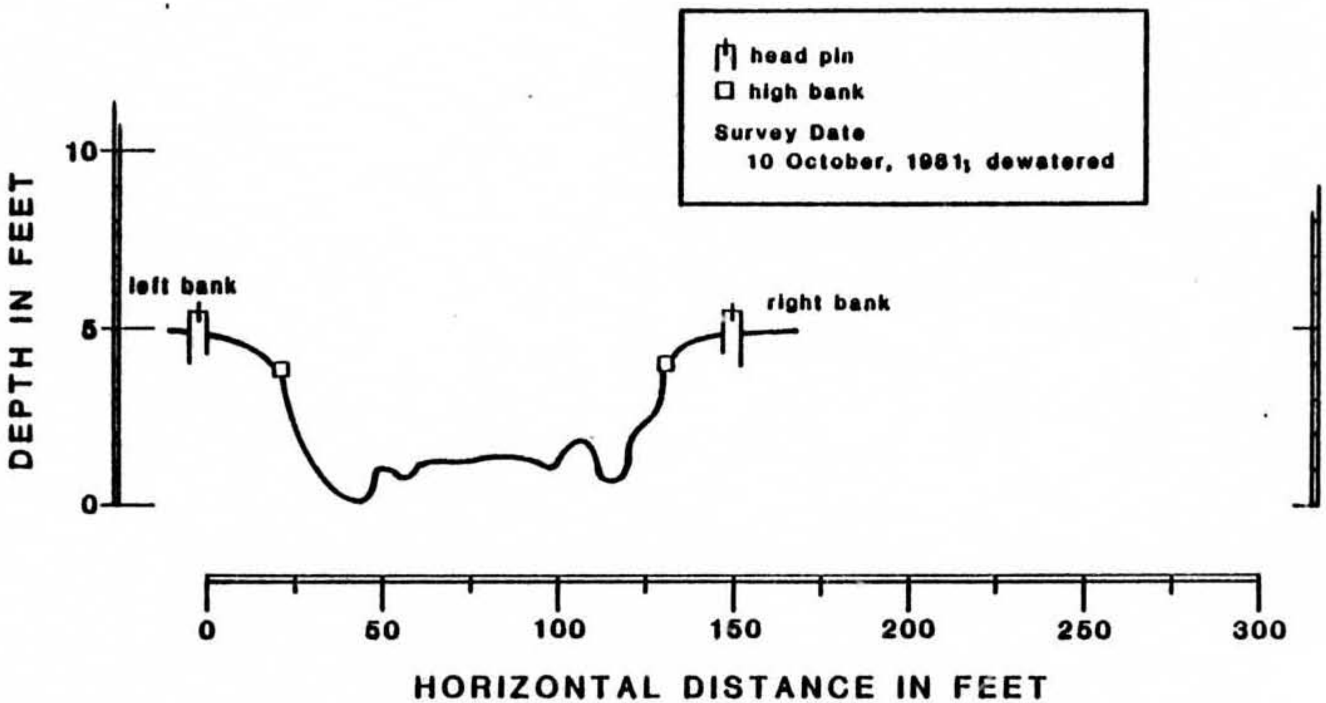


Figure 127.
CROSS-SECTIONAL PROFILE OF SLOUGH 8A, TRANSECT #3.
(1 vertical foot equals 10 horizontal feet)

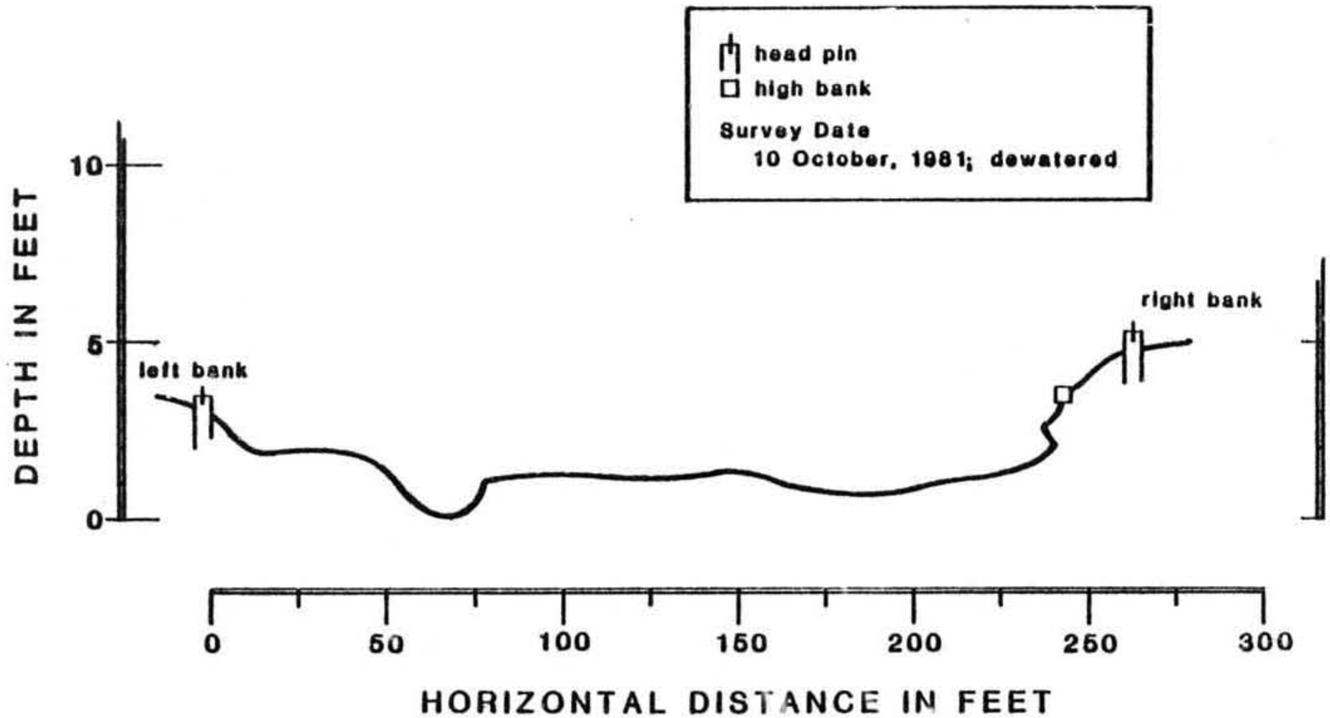


Figure 128.
CROSS-SECTIONAL PROFILE OF SLOUGH 8A, TRANSECT #4.
(1 vertical foot equals 10 horizontal feet)

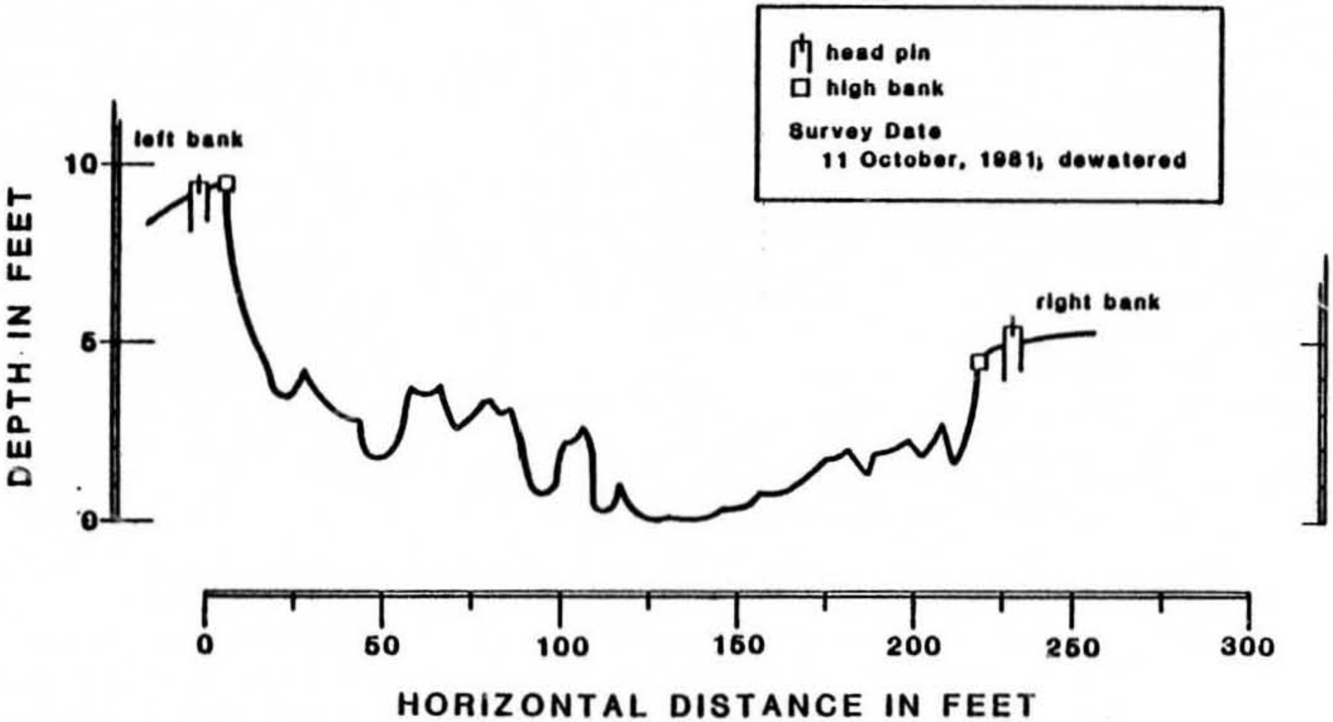


Figure 129.
CROSS-SECTIONAL PROFILE OF SLOUGH 8A, TRANSECT #5.
(1 vertical foot equals 10 horizontal feet)

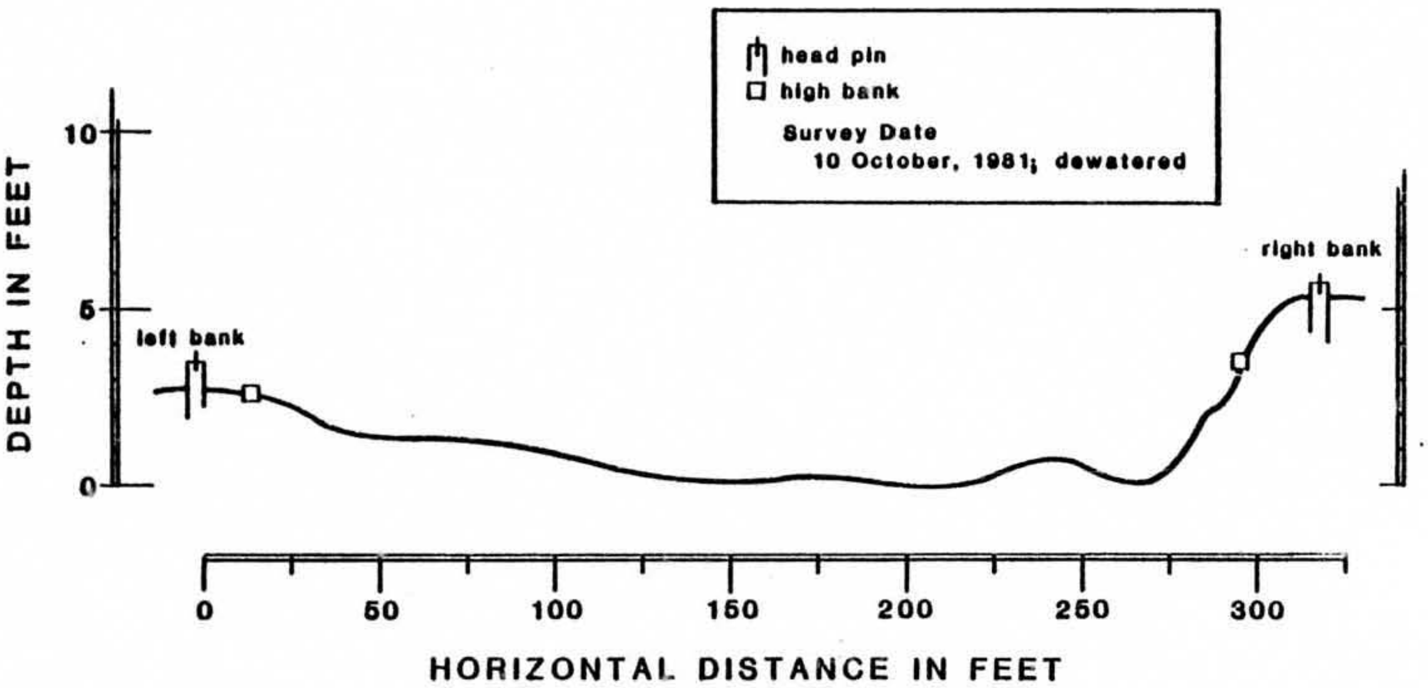


Figure 130.
CROSS-SECTIONAL PROFILE OF SLOUGH 8A, TRANSECT #6.
(1 vertical foot equals 10 horizontal feet)

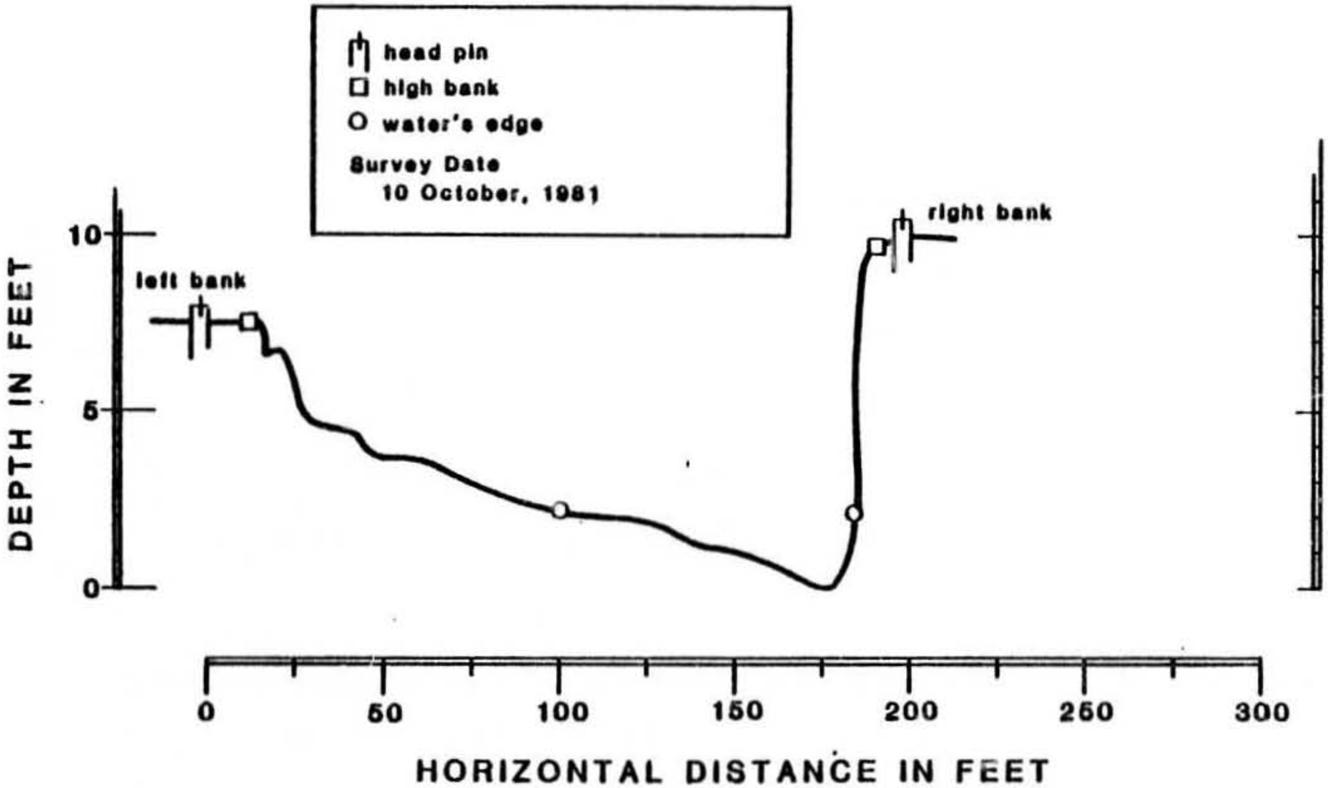


Figure 131.
CROSS-SECTIONAL PROFILE OF SLOUGH 8A, TRANSECT #7.
(1 vertical foot equals 10 horizontal feet)

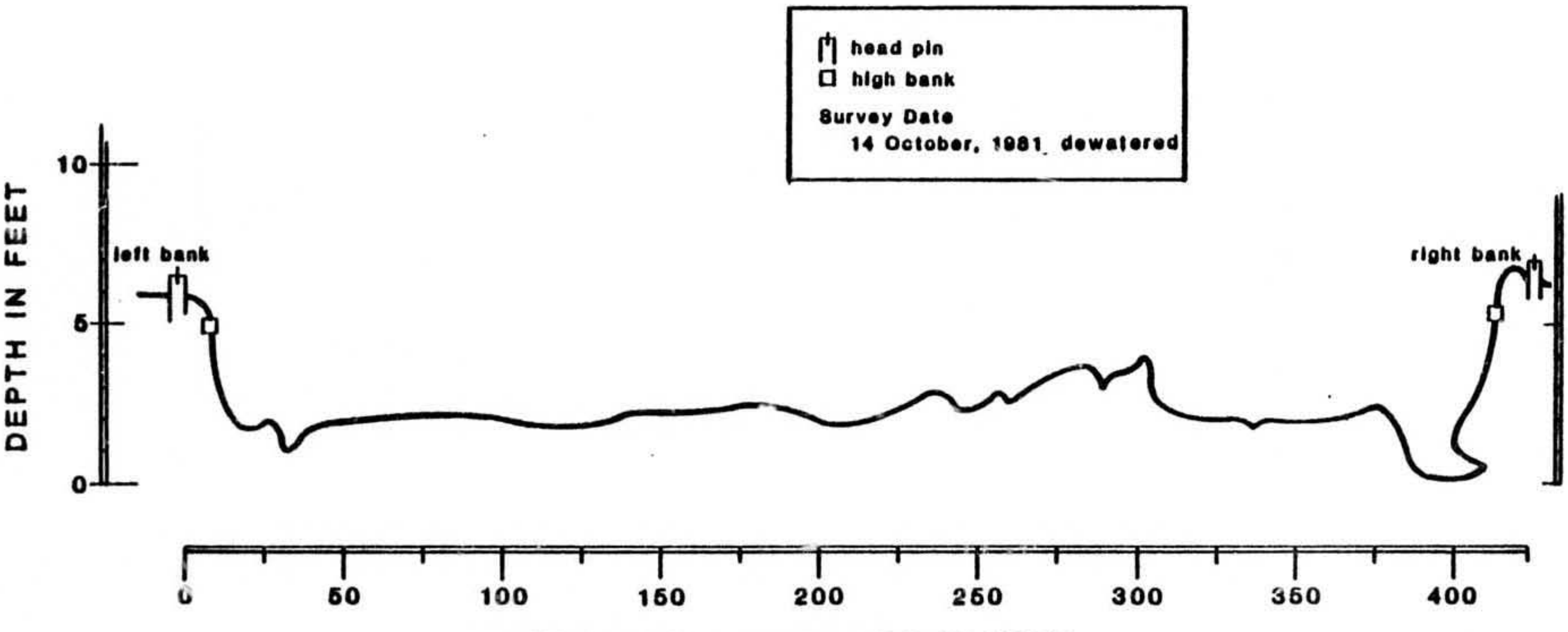


Figure 132.
CROSS-SECTIONAL PROFILE OF SLOUGH 9, TRANSECT #1.
(1 vertical foot equals 10 horizontal feet)

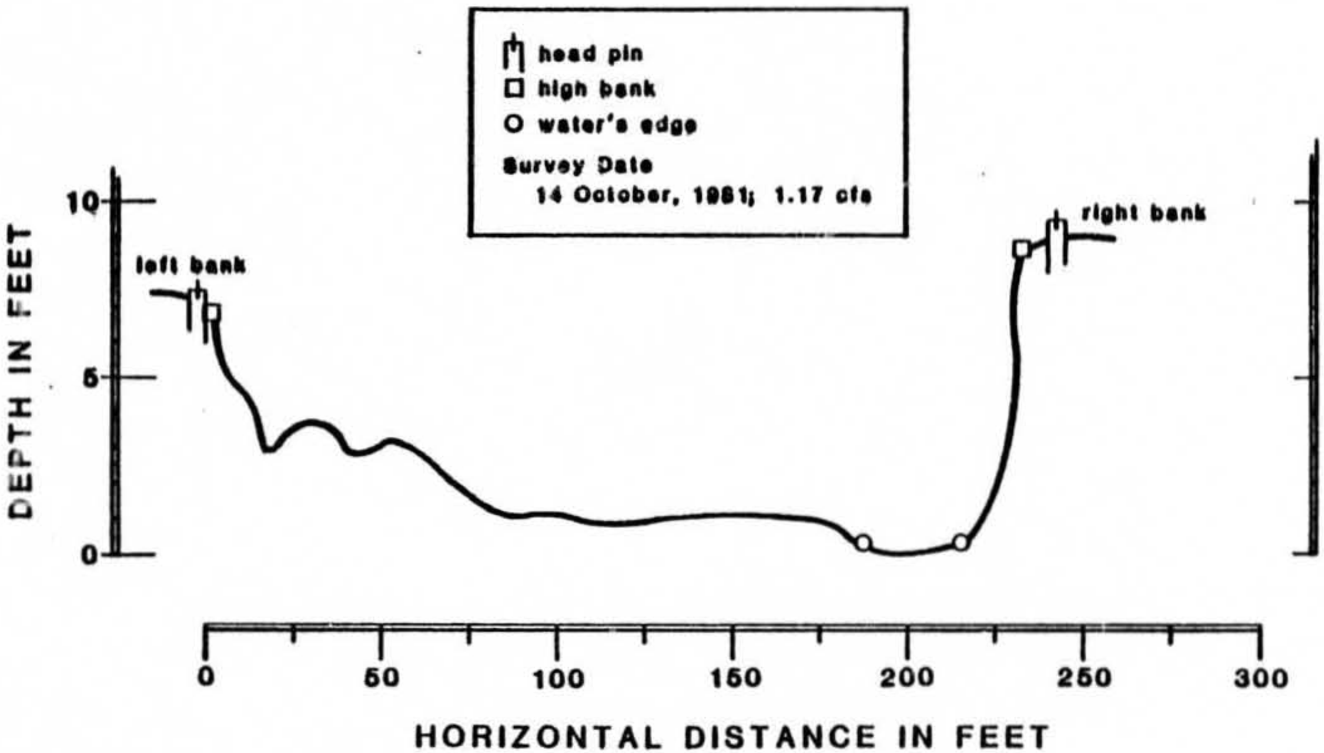


Figure 133.
CROSS-SECTIONAL PROFILE OF SLOUGH 9, TRANSECT #5.
(1 vertical foot equals 10 horizontal feet)

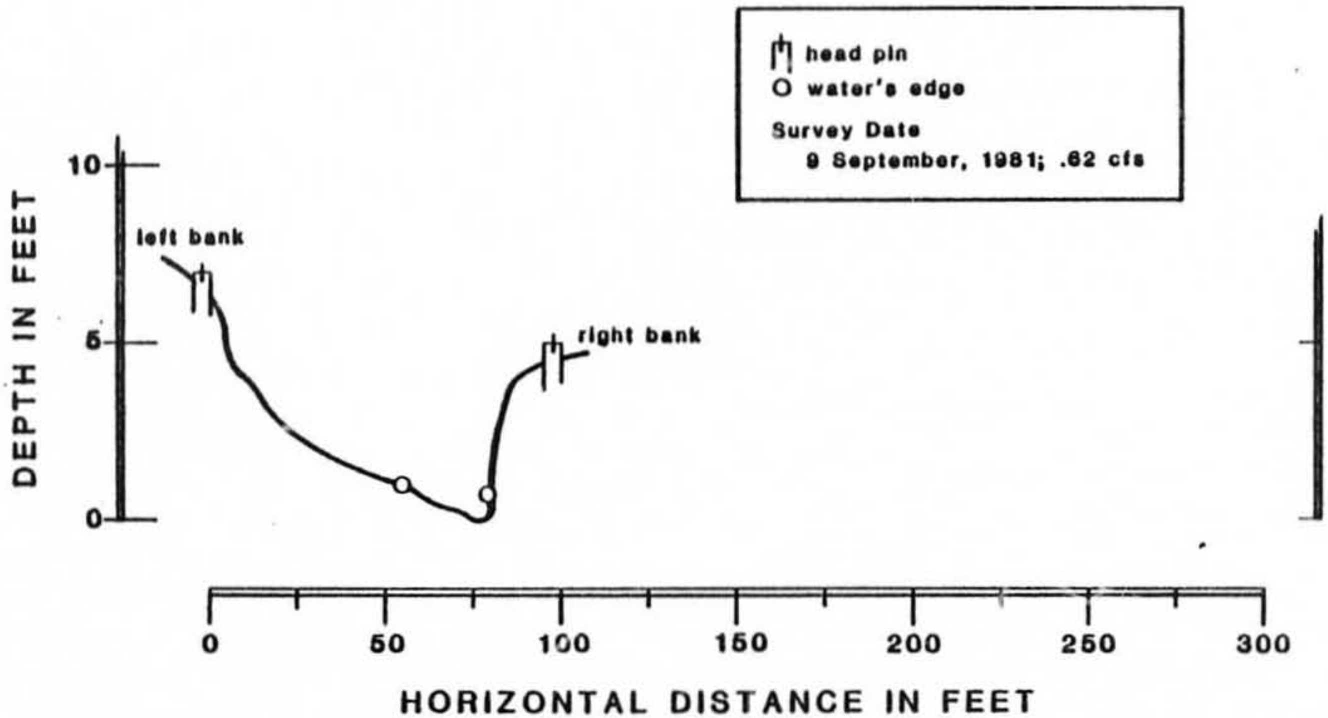


Figure 134.
CROSS-SECTIONAL PROFILE OF SLOUGH 16B, TRANSECT #1.
(1 vertical foot equals 10 horizontal feet)

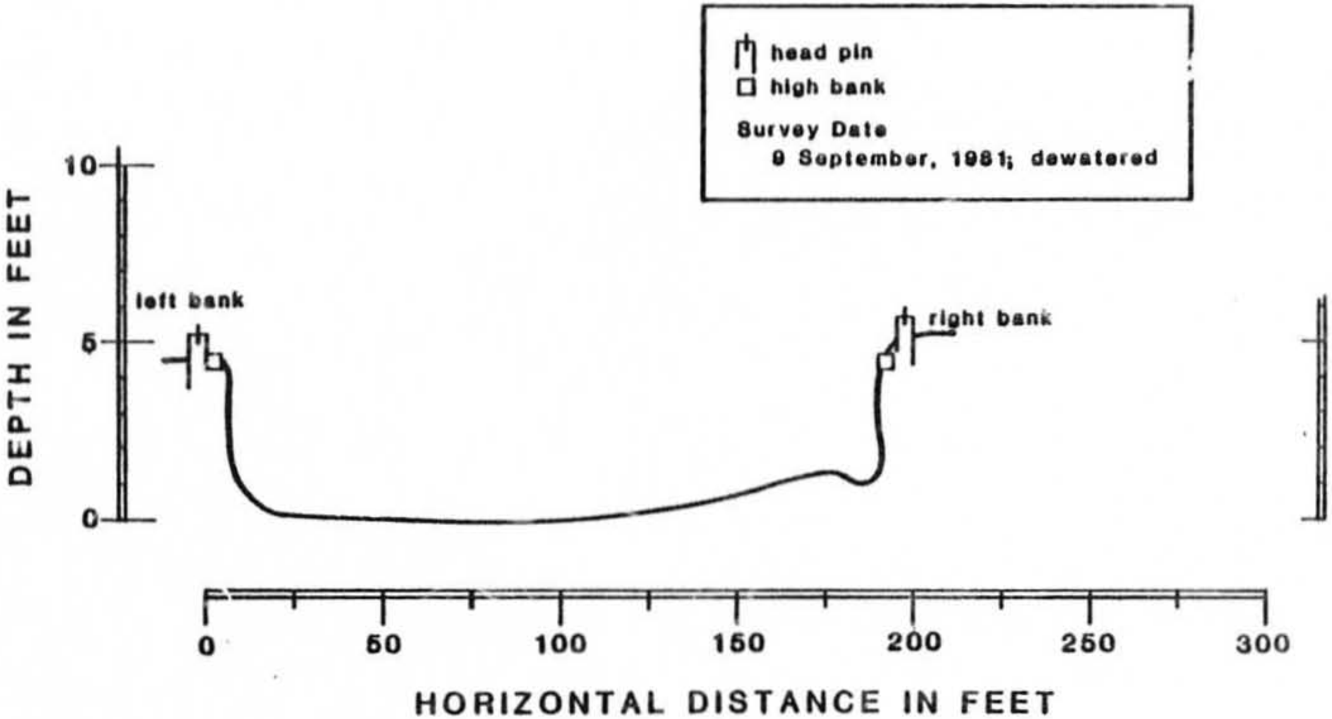


Figure 135.
CROSS-SECTIONAL PROFILE OF SLOUGH 16B, TRANSECT #17.
(1 vertical foot equals 10 horizontal feet)

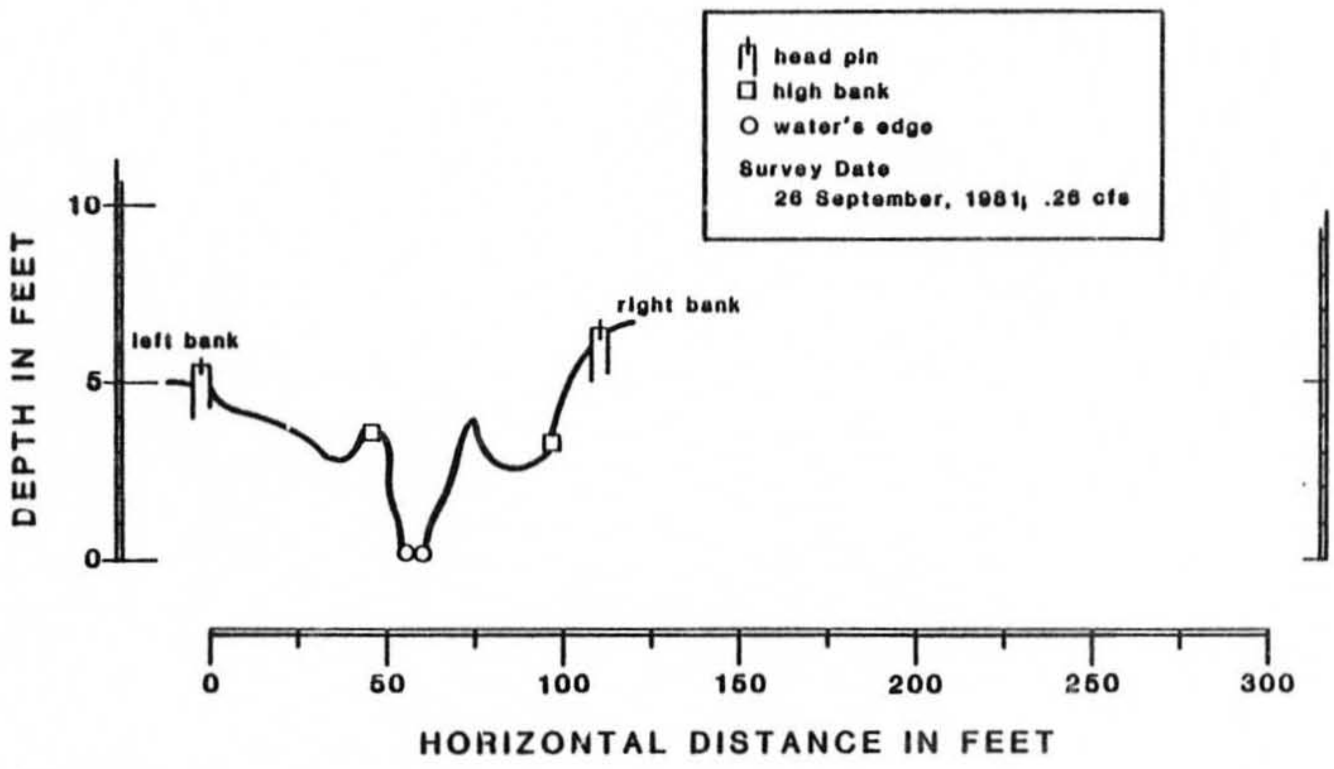


Figure 136.
CROSS-SECTIONAL PROFILE OF SLOUGH 19, TRANSECT #1.
(1 vertical foot equals 10 horizontal feet)

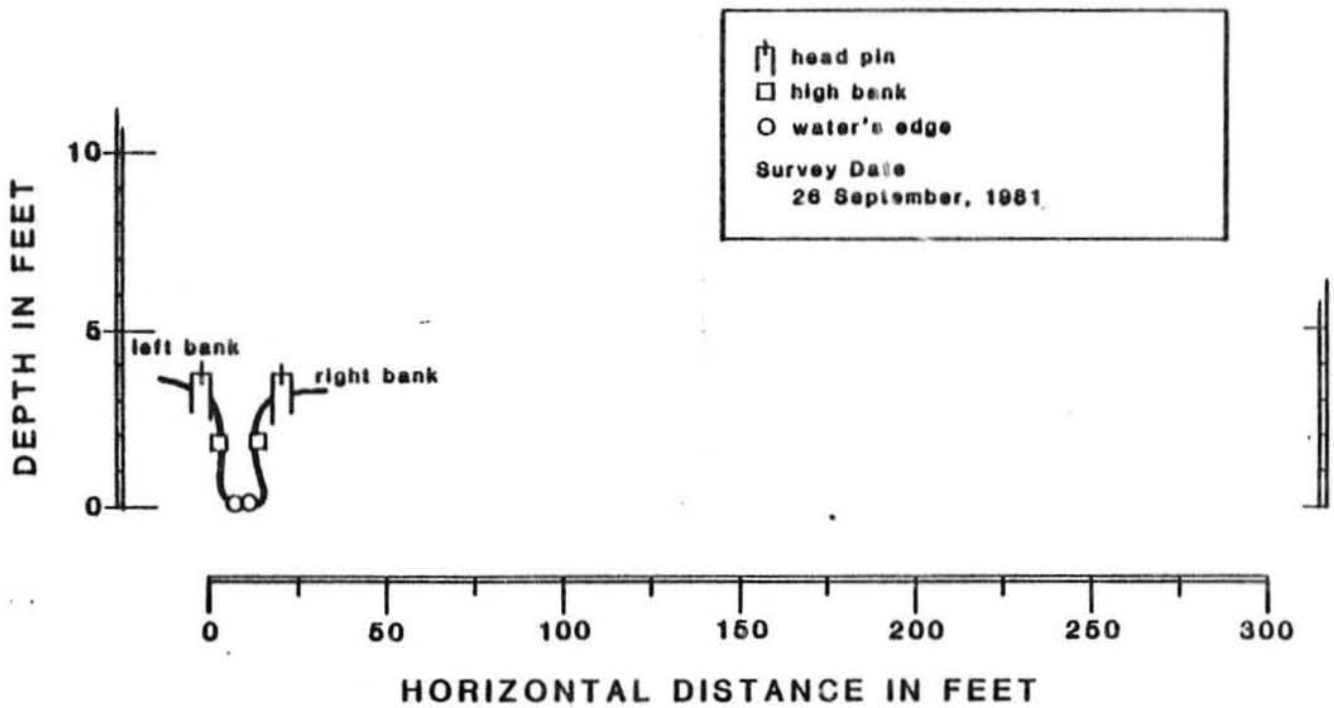


Figure 137.
CROSS-SECTIONAL PROFILE OF SLOUGH 19, TRANSECT #10.
(1 vertical foot equals 10 horizontal feet)

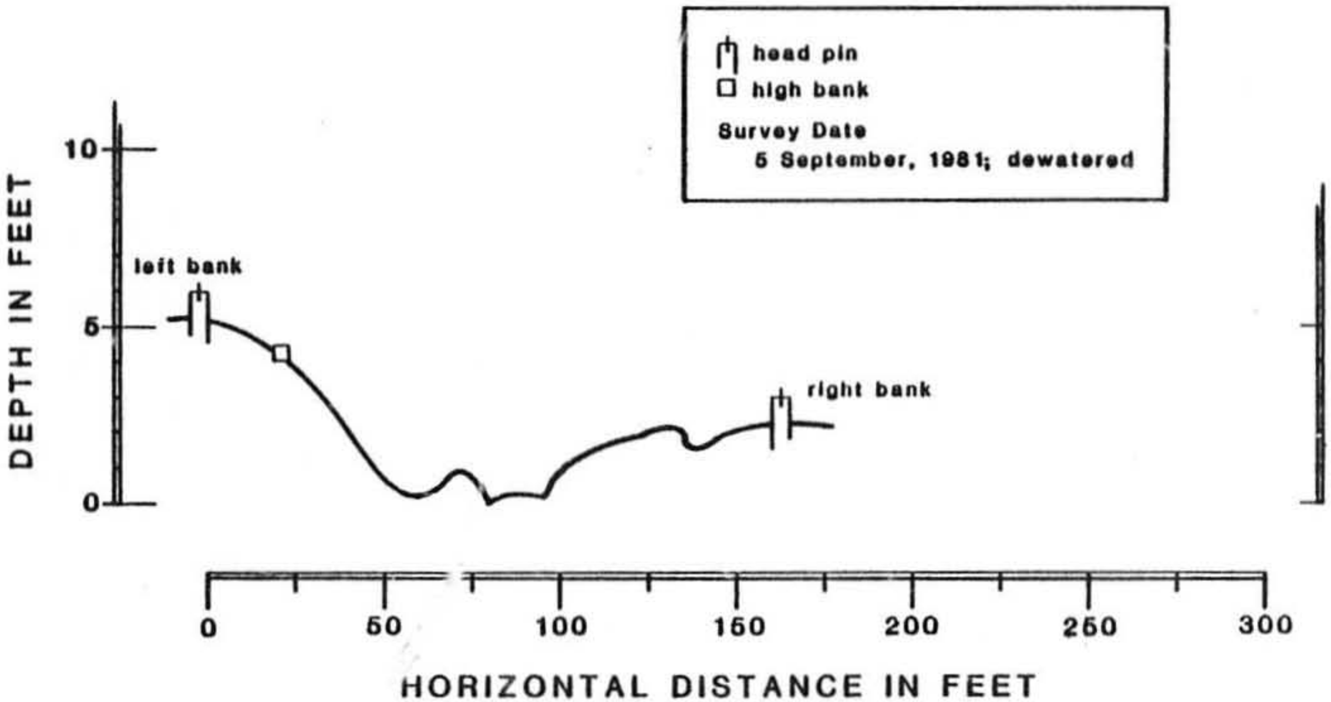


Figure 138.
CROSS-SECTIONAL PROFILE OF SLOUGH 21, TRANSECT #1.
(1 vertical foot equals 10 horizontal feet)

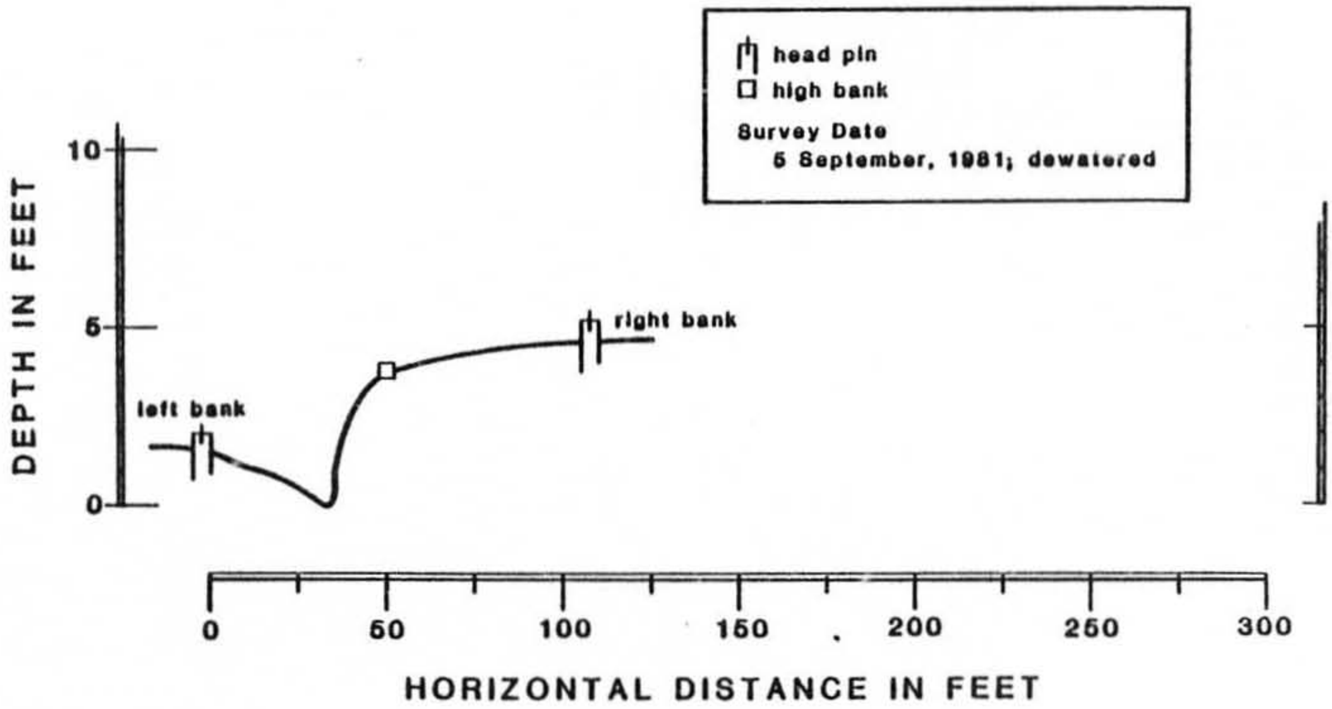


Figure 139.
CROSS-SECTIONAL PROFILE OF SLOUGH 21, TRANSECT #1-A.
(1 vertical foot equals 10 horizontal feet)

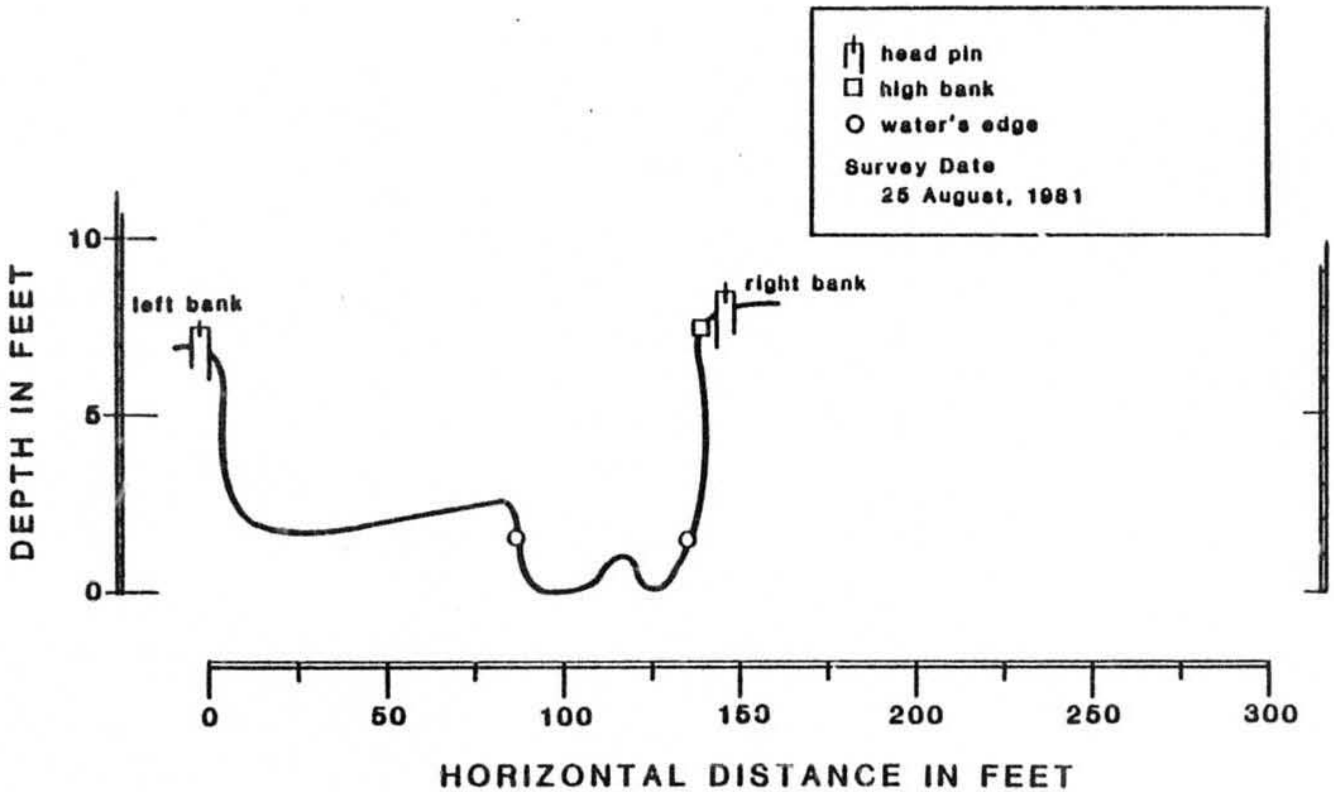


Figure 140.
CROSS-SECTIONAL PROFILE OF SLOUGH 21, TRANSECT #13.
(1 vertical foot equals 10 horizontal feet)

Table 9. Selected habitat study hydraulic data.

Slough 8A	Slough Gage	Mainstem Gage	Slough Discharge (cfs)	Mainstem at Gold Creek Discharge (cfs)
6/25/81	N/A[1]	N/A	6.36	17,100
7/21/81	N/A	N/A	551.0	40,800
9/30/81	.56	N/A	2.76	N/A
10/9/81	.53	N/A	N/A	10,100
10/10/81	.52	N/A	N/A	9,700

Slough 9	Slough Gage	Mainstem Gage	Slough Discharge (cfs)	Mainstem at Gold Creek Discharge (cfs)
6/24/81	N/A	N/A	2.86	16,600
7/21/81	N/A	N/A	714.0	40,800
9/30/81	.70	N/A	1.46	N/A
10/12/81	.68	N/A	N/A	8,160
10/13/81	.69	N/A	N/A	7,620
10/14/81	.70	N/A	3.87-transect 5	7,290
10/14/81	.70	N/A	1.17-transect 3	7,290
10/15/81	.70	N/A	N/A	7,440

Slough 16B	Slough Gage	Mainstem Gage A	Mainstem Gage B	Slough Discharge (cfs)	Mainstem at Gold Creek Discharge (cfs)
6/23/81	1.16	1.66	N/A	.671	16,500
7/22/81	2.22	1.90	N/A	503.0	35,900
9/9/81	1.10[2]	1.02[2]	N/A	.62	14,500
9/10/81	1.10	1.02	N/A	N/A	14,200
9/16/81	1.07	.13	N/A	N/A	11,300
9/17/81	1.06	.13	1.44[3]	N/A	11,300
9/18/81	1.06	.13	1.26	.56	10,800
9/24/81	1.06	N/A	1.16	N/A	10,400
9/27/81	1.03	N/A	.52	N/A	8,890
9/28/81	1.03	N/A	.46	.325	N/A
9/29/81	1.02	N/A	.30	N/A	N/A

Table 9. (Continued)

Slough 19	Slough Gage	Mainstem Gage A	Mainstem Gage B	Slough Discharge (cfs)	Mainstem at Gold Creek Discharge (cfs)
6/23/81	2.0	N/A	N/A	.227 transect 5	16,500
7/22/81	3.33+1.29	N/A	N/A	0.000 transect 5	35,900
8/5/81	3.33+.95	2.76	N/A	N/A	32,300
8/25/81	3.33+.56	N/A	N/A	N/A	28,600
9/6/81	N/A	1.12			15,700
9/15/81	1.16	.54	N/A	N/A	11,800
9/18/81	1.10	.34	N/A	N/A	10,800
9/24/81	1.10	.28	N/A	N/A	10,400
9/25/81	1.10	.24	N/A	.29 transect 1	10,100
9/26/81	1.09	.13	N/A	.26 transect 1	9,560
9/27/81	1.07	0.00	1.71[3]	N/A	8,890
9/28/81	1.06	N/A	N/A	N/A	N/A
9/29/81	1.07	N/A	1.59	.23 transect 1	N/A
9/29/81	N/A	N/A	N/A	.038 transect 5	N/A

Slough 21	Slough Gage	Mainstem Gage	Slough Discharge (cfs)	Mainstem at Gold Creek Discharge (cfs)
6/23/81	N/A	N/A	3.2 near transect 8	16,500
6/24/81	1.40	2.03	---	16,600
7/22/81	2.05[3]	N/A	142.0 near transect 10	35,900
7/23/81	---	3.3+.2[3]	---	33,700
8/5/81	2.50[3]	3.0	---	32,300
8/27/81	N/A	N/A	.56 tributary	24,200
8/27/81			2.10-transect 5A	24,200
8/27/81			5.12-transect 7	24,200
9/5/81	N/A	N/A	6.3-transect 11	16,000
9/6/81	1.13	1.83		15,700
9/15/81	1.07	.86		11,800
9/17/81	1.06	.76		11,300
9/24/81	1.04	.49		10,400
9/29/81	1.01	N/A	.428 near transect 6	N/A
9/29/81	N/A	N/A	2.57-transect 11	

1 N/A - Data not available.
2 New gage, previous gages were washed out.
3 Two gages were used as the mainstem water level was dropping. Gage B was located parallel to A but further offshore.

d. Physiochemical Data

Water Quality

Provisional water quality data for the sloughs for June and July have been obtained from the USGS. The field parameters are available for the September sampling period. These provisional data are presented in Table 10. Data from the mainstem at Gold Creek and the rest of the September data are not yet available thus no analysis has been made.

Thermographs

Two sets of thermographs were installed to obtain surface water and intragravel temperature data. The instruments installed in Slough 19 were removed by a bear, thus only one set of data was obtained. The data illustrate diurnal temperature fluctuations, ranging from 4.5 - 8.5°C, of the surface water and a constant temperature (3.0°C) of the intergravel water. The intergravel temperatures were consistently 2°C below the lowest temperature in the surface water (see Figure 141).

Table 10. USGS provisional water quality data summary

Parameter	Date[1]	Slough 8A	Slough 9	Slough 16B	Slough 19	Slough 21
Physical and Field Parameters						
*Water Temperature[2] °C	June	15.5	14.2	14.0	n/d[3]	10.7
	July	11.2	10.9	9.0	9.8	11.3
	Sept.	3.5	5.6	4.8	1.8	2.4
Air Temperature °C	June	21.0	20.1	n/d	n/d	23.0
	July	16.0	14.0	15.5	n/d	n/d
	Sept.	8.0	7.5	n/d	3.0	n/d
Streamflow (discharge) cfs	June	6.4	2.9	.67	.23	3.2
	July	551.0	714	503	.00	142
	Sept.	2.8	1.5	.32	.04	.43
*Specific Conductance field umho/cm	June	140	145	71	146	226
	July	117	124	72	127	130
	Sept.	135	113	64	150	205

1 Sloughs were sampled on 3 consecutive days in each month as follows:

	8A	9	16B	19	21
June	25	24	23	23	24
July	21	21	22	22	22
Sept	30	30	28	29	29

2 Parameters marked with an * are averages of transect point measurements.

3 n/d data not collected

4 -- analysis not back from USGS lab.

Table 10 (Continued)

Parameter	Date	Slough 8A	Slough 9	Slough 16B	Slough 19	Slough 21
Specific Conductance Lab umho/cm	June	153	158	70	143	233
	July	118[4]	124	71	132	132
	Sept.	--	--	--	--	--
*Dissolved Oxygen mg/l	June	10.8	10.6	10.8	9.4	10.7
	July	11.4	11.4	11.7	10.4	11.3
	Sept.	12.1	11.3	11.5	9.5	10.3
*Percent D.O. saturation	June	108	103	107	76	98
	July	104	105	102	90	105
	Sept.	94	93	88	98	76
*pH (field)	June	6.9	6.8	6.4	6.5	7.0
	July	n/d	n/d	n/d	n/d	n/d
	Sept.	7.6	7.4	7.1	7.3	7.7
pH (lab)	June	7.4	7.5	7.2	7.2	7.6
	July	7.6	7.7	7.3	7.0	7.7
	Sept.	--	--	--	--	--
Alkalinity (field) mg/l $CaCO_3$	June	0	39	24	50	62
	July	41	39	24	52	47
	Sept.	43	34	26	62	62
Alkalinity (lab) mg/l $CaCO_3$	June	47	33	24	52	63
	July	41	39	24	52	47
	Sept.	--	--	--	--	--
Turbidity NTU	June	.90	.60	.50	.40	.40
	July	130	130	43	2.5	150
	Sept.	--	--	--	--	--

Table 10 (Continued)

Parameter	Date	Slough 8A	Slough 9	Slough 16B	Slough 19	Slough 21
Sediments, suspended mg/l	June	1	2	1	1	5
	July	n/d	n/d	n/d	n/d	n/d
	Sept.	1	1	1	2	21
Sediments, discharge suspended tons/day	June	.02	.02	.00	.00	.04
	July	n/d	n/d	n/d	n/d	n/d
	Sept.	--	--	--	--	--
Solids, residue at 180°C mg/l	June	88	100	51	94	137
	July	70	75	41	81	78
	Sept.	--	--	--	--	--
Solids, sum of constituents mg/l	June	93	91	47	90	130
	July	61	68	43	89	68
	Sept.	--	--	--	--	--
Solids, dissolved tons/day	June	1	0	0	0	1
	July	104	145	55	0	29
	Sept.	--	--	--	--	--
Solids, dissolved tons/acre-foot	June	0	0	0	0	0
	July	0	0	0	0	0
	Sept.	--	--	--	--	--

Table 10 (Continued)

Parameter	Date	Slough 8A	Slough 9	Slough 16B	Slough 19	Slough 21
Major Constituents						
Hardness mg/l $CaCO_3$	June	57	56	32	69	83
	July	48	50	30	61	54
	Sept.	--	--	--	--	--
Hardness, non-carbonate mg/l $CaCO_3$	June	10	23	8.0	17.0	20
	July	7.0	11	6.0	9.0	7.0
	Sept.	--	--	--	--	--
Bicarbonate, incremental titration mg/l $CaCO_3$	June	n/d	n/d	n/d	n/d	n/d
	July	n/d	n/d	n/d	n/d	n/d
	Sept.	53	42	32	75	75
Carbonate, incremental titration mg/l $CaCO_3$	June	n/d	n/d	n/d	n/d	n/d
	July	n/d	n/d	n/d	n/d	n/d
	Sept.	.00	.00	.00	.00	.00
Calcium, dissolved mg/l	June	18	18	10	23	27
	July	16	17	10	20	18
	Sept.	--	--	--	--	--
Magnesium, dissolved mg/l	June	2.8	2.7	1.6	2.7	3.9
	July	1.9	1.9	1.3	2.6	2.1
	Sept.	--	--	--	--	--
Sodium, dissolved mg/l	June	6.8	8.2	2.5	2.5	12
	July	3.0	3.0	1.8	1.8	3.4
	Sept.	--	--	--	--	--
Sodium, percent mg/l	June	20	24	14	7	23
	July	12	11	11	6	12
	Sept.	--	--	--	--	--

Table 10 (Continued)

Parameter	Date	Slough 8A	Slough 9	Slough 16B	Slough 19	Slough 21
Sodium, adsorption ratio	June	.4	.5	.2	.1	.6
	July	.2	.2	.1	.1	.2
	Sept.	--	--	--	--	--
Potassium, dissolved mg/l	June	1.5	1.4	.9	1.0	2.1
	July	1.6	1.6	.9	1.6	1.9
	Sept.	--	--	--	--	--
Chloride, dissolved mg/l	June	9.1	16	1.3	.9	20
	July	2.9	2.9	.9	.6	3.7
	Sept.	--	--	--	--	--
Sulfate, dissolved mg/l	June	11	9.0	4.7	13	14
	July	1.0	11	6.0	14	3.1
	Sept.	--	--	--	--	--
Fluoride, dissolved mg/l	June	.0	.1	.1	.1	.1
	July	.0	.0	.1	.0	.0
	Sept.	--	--	--	--	--
Silica, dissolved mg/l	June	9.7	11	10	10	11
	July	6.6	6.6	6.2	10	6.6
	Sept.	--	--	--	--	--

Table 10 (Continued)

Parameter	Date	Slough 8A	Slough 9	Slough 16B	Slough 19	Slough 21
Nutrients						
Nitrogen, total mg/l N	June	1.9	1.9	.92	2.3	.94
	July	.76	.79	.75	2.1	.66
	Sept.	--	--	--	--	--
Nitrogen, total mg/l NO_3	June	8.5	8.4	4.1	10	4.2
	July	3.4	3.5	3.3	9.3	2.9
	Sept.	--	--	--	--	--
Nitrogen, dissolved mg/l N	June	1.8	1.6	1.0	2.0	1.0
	July	n/d	.68	n/d	2.2	.66
	Sept.	--	--	--	--	--
Nitrogen, total organic mg/l N	June	.53	.82	.50	.88	.37
	July	.40	.54	.31	.45	.44
	Sept.	--	--	--	--	--
Nitrogen, dissolved organic mg/l N	June	.45	.51	.55	.62	.49
	July	.44	.48	n/d	.41	.43
	Sept.	--	--	--	--	--
Nitrogen, dissolved ammonia mg/l N	June	.070	.110	.100	.100	.090
	July	.100	.130	.130	.320	.140
	Sept.	--	--	--	--	--
Nitrogen, dissolved ammonia mg/lNH_4	June	.09	.14	.13	.13	.12
	July	.13	.17	.17	.40	.18
	Sept.	--	--	--	--	--
Nitrogen, total ammonia mg/l N	June	.080	.100	.090	.070	.100
	July	.150	.180	.150	.260	.130
	Sept.	--	--	--	--	--

Table 10 (Continued)

Parameter	Date	Slough 8A	Slough 9	Slough 16B	Slough 19	Slough 21
Nitrogen, ammonia + dissolved organics mg/l N	June	.52	.62	.65	.72	.58
	July	.54	.61	n/d	.73	.57
	Sept.	--	--	--	--	--
Nitrogen, ammonia + total suspended organics mg/l N	June	.09	.30	.00	.23	.00
	July	.01	.11	n/d	.00	.00
	Sept.	--	--	--	--	--
Nitrogen, ammonia + total organics mg/l N	June	.61	.92	.59	.95	.47
	July	.55	.72	.46	.71	.57
	Sept.	--	--	--	--	--
Nitrogen, total nitrate and nitrite mg/l N	June	1.3	.97	.33	1.3	.47
	July	.21	.07	.29	1.4	.03
	Sept.	--	--	--	--	--
Nitrogen, dissolved nitrate and nitrite mg/l N	June	1.3	.99	.36	1.3	.45
	July	n/d	.07	.33	1.5	.09
	Sept.	--	--	--	--	--
Phosphorus, total mg/l P	June	.050	.010	.010	.010	.010
	July	.270	.480	.140	.010	.380
	Sept.	--	--	--	--	--
Phosphorus, total mg/l PO_4	June	.15	.03	.03	.03	.03
	July	.83	1.5	.43	.03	1.2
	Sept.	--	--	--	--	--
Phosphorus, dissolved mg/l P	June	.030	.010	.010	.010	.010
	July	.101	.010	.010	.010	.010
	Sept.	--	--	--	--	--
Carbon, dissolved organic mg/l C	June	1.9	2.1	1.4	1.3	2.0
	July	13.0	9.0	3.3	6.2	6.0
	Sept.	--	--	--	--	--

Table 10 (Continued)

Parameter	Date	Slough 8A	Slough 9	Slough 16B	Slough 19	Slough 21
Carbon, total suspended organics mg/l C	June	n/d	.2	n/d	.2	.2
	July	.2	.5	.0	.0	.3
	Sept.	--	--	--	--	--

Table 10 (Continued)

Parameter	Date	Slough 8A	Slough 9	Slough 16B	Slough 19	Slough 21
Trace Metals						
Arsenic, total ug/l As	June	1	1	1	2	2
	July	2	5	4	1	5
	Sept.	--	--	--	--	--
Arsenic, total suspended ug/l As	June	0	0	0	1	1
	July	0	3	2	1	3
	Sept.	--	--	--	--	--
Arsenic, dissolved ug/l AS	June	2	1	1	1	1
	July	2	2	2	1	2
	Sept.	--	--	--	--	--
Barium, total recoverable ug/l Ba	June	0	0	0	0	100
	July	200	200	100	100	300
	Sept.	--	--	--	--	--
Barium, suspended recoverable ug/l Ba	June	0	0	0	0	100
	July	200	200	70	50	300
	Sept.	--	--	--	--	--
Barium, dissolved ug/l Ba	June	90	0	0	0	0
	July	40	40	30	50	40
	Sept.	--	--	--	--	--
Cadmium, total recoverable ug/l Cd	June	0	0	2	0	1
	July	0	0	0	1	0
	Sept.	--	--	--	--	--
Cadmium, suspended recoverable ug/l	June	n/d	0	2	0	0
	July	n/d	n/d	n/d	n/d	n/d
	Sept.	n/d	--	--	--	--

Table 10 (Continued)

Parameter	Date	Slough 8A	Slough 9	Slough 16	Slough 19	Slough 21
Cadmium, dissolved ug/l Cd	June	1	0	0	0	5
	July	1	1	1	1	1
	Sept.	--	--	--	--	--
Chromium, total recoverable ug/l Cr	June	0	10	0	0	0
	July	30	30	20	20	40
	Sept.	--	--	--	--	--
Chromium, suspended recoverable ug/l Cr	June	0	10	0	0	0
	July	20	20	10	10	30
	Sept.	--	--	--	--	--
Chromium, dissolved ug/l Cr	June	10	0	0	0	0
	July	10	10	10	10	10
	Sept.	--	--	--	--	--
Cobalt, total recoverable ug/l Co	June	2	0	0	0	2
	July	5	6	2	0	7
	Sept.	--	--	--	--	--
Cobalt, suspended recoverable ug/l	June	n/d	0	0	0	1
	July	n/d	n/d	n/d	n/d	n/d
	Sept.	n/d	--	--	--	--
Cobalt, dissolved ug/l Co	June	3	0	0	0	1
	July	3	3	3	3	3
	Sept.	--	--	--	--	--
Copper, total recoverable ug/l Cu	June	3	2	4	2	2
	July	20	23	10	3	23
	Sept.	--	--	--	--	--
Copper, suspended recoverable ug/l Cu	June	1	1	1	0	0
	July	12	20	4	0	18
	Sept.	--	--	--	--	--

Table 10 (Continued)

Parameter	Date	Slough 8A	Slough 9	Slough 16B	Slough 19	Slough 21
Copper, dissolved ug/l Cu	June	2	1	3	2	2
	July	8	3	6	7	5
	Sept.	--	--	--	--	--
Iron, total recoverable ug/l Fe	June	20	40	50	40	60
	July	13000	16000	5700	220	18000
	Sept.	--	--	--	--	--
Iron, suspended recoverable ug/l Fe	June	10	0	0	0	40
	July	13000	16000	5700	140	18000
	Sept.	--	--	--	--	--
Iron, dissolved ug/l Fe	June	10	60	50	60	20
	July	48	110	52	79	97
	Sept.	--	--	--	--	--
Lead, total recoverable ug/l Pb	June	0	5	3	3	15
	July	3	3	3	3	2
	Sept.	--	--	--	--	--
Lead, suspended recoverable ug/l Pb	June	0	5	3	3	15
	July	0	1	3	2	0
	Sept.	--	--	--	--	--
Lead, dissolved ug/l Pb	June	0	0	0	0	0
	July	3	2	0	1	5
	Sept.	--	--	--	--	--
Manganese, total recoverable ug/l Mn	June	10	10	10	0	0
	July	230	290	100	20	300
	Sept.	--	--	--	--	--

Table 10 (Continued)

Parameter	Date	Slough 8A	Slough 9	Slough 16B	Slough 19	Slough 21
Manganese, suspended recoverable ug/l Mn	June	0	10	10	0	0
	July	220	280	90	10	290
	Sept.	--	--	--	--	--
Manganese, dissolved ug/l Mn	June	10	0	0	0	0
	July	8	10	7	9	8
	Sept.	--	--	--	--	--
Mercury, total recoverable ug/l Hg	June	.1	.1	.1	.1	.2
	July	.1	.1	.1	.0	.2
	Sept.	--	--	--	--	--
Mercury, suspended recoverable ug/l Hg	June	.1	.1	.1	.1	.2
	July	0	.1	0	.0	.2
	Sept.	--	--	--	--	--
Mercury, dissolved ug/l Hg	June	0	.0	0	.0	.0
	July	.1	.0	.1	.0	.0
	Sept.	--	--	--	--	--
Nickel, total recoverable ug/l Ni	June	3	2	2	1	6
	July	14	18	6	2	18
	Sept.	--	--	--	--	--
Nickel, suspended recoverable ug/l Ni	June	2	2	1	0	1
	July	12	18	6	0	17
	Sept.	--	--	--	--	--
Nickel, dissolved ug/l Ni	June	1	0	1	1	5
	July	2	0	0	3	1
	Sept.	--	--	--	--	--

Table 10 (Continued)

Parameter	Date	Slough 8A	Slough 9	Slough 16B	Slough 19	Slough 21
Selenium, total ug/l Se	June	0	0	0	1	1
	July	0	0	0	0	0
	Sept.	--	--	--	--	--
Selenium, total suspended ug/l Se	June	0	0	0	0	1
	July	0	0	0	0	0
	Sept.	--	--	--	--	--
Selenium, dissolved ug/l Se	June	0	0	0	1	0
	July	1	0	0	1	0
	Sept.	--	--	--	--	--
Silver, total recoverable ug/l Ag	June	0	0	1	0	0
	July	0	0	0	1	0
	Sept.	--	--	--	--	--
Silver, suspended recoverable ug/l Ag	June	0	0	1	0	0
	July	0	0	0	1	0
	Sept.	--	--	--	--	--
Silver, dissolved ug/l Ag	June	0	0	0	0	0
	July	0	0	0	0	0
	Sept.	--	--	--	--	--
Zinc, total recoverable ug/l Zn	June	20	40	10	10	10
	July	80	60	20	10	60
	Sept.	--	--	--	--	--
Zinc, suspended recoverable ug/l Zn	June	10	30	0	0	10
	July	80	30	10	0	40
	Sept.	--	--	--	--	--
Zinc, dissolved ug/l Zn	June	7	10	10	10	0
	July	4	35	10	10	17
	Sept.	--	--	--	--	--

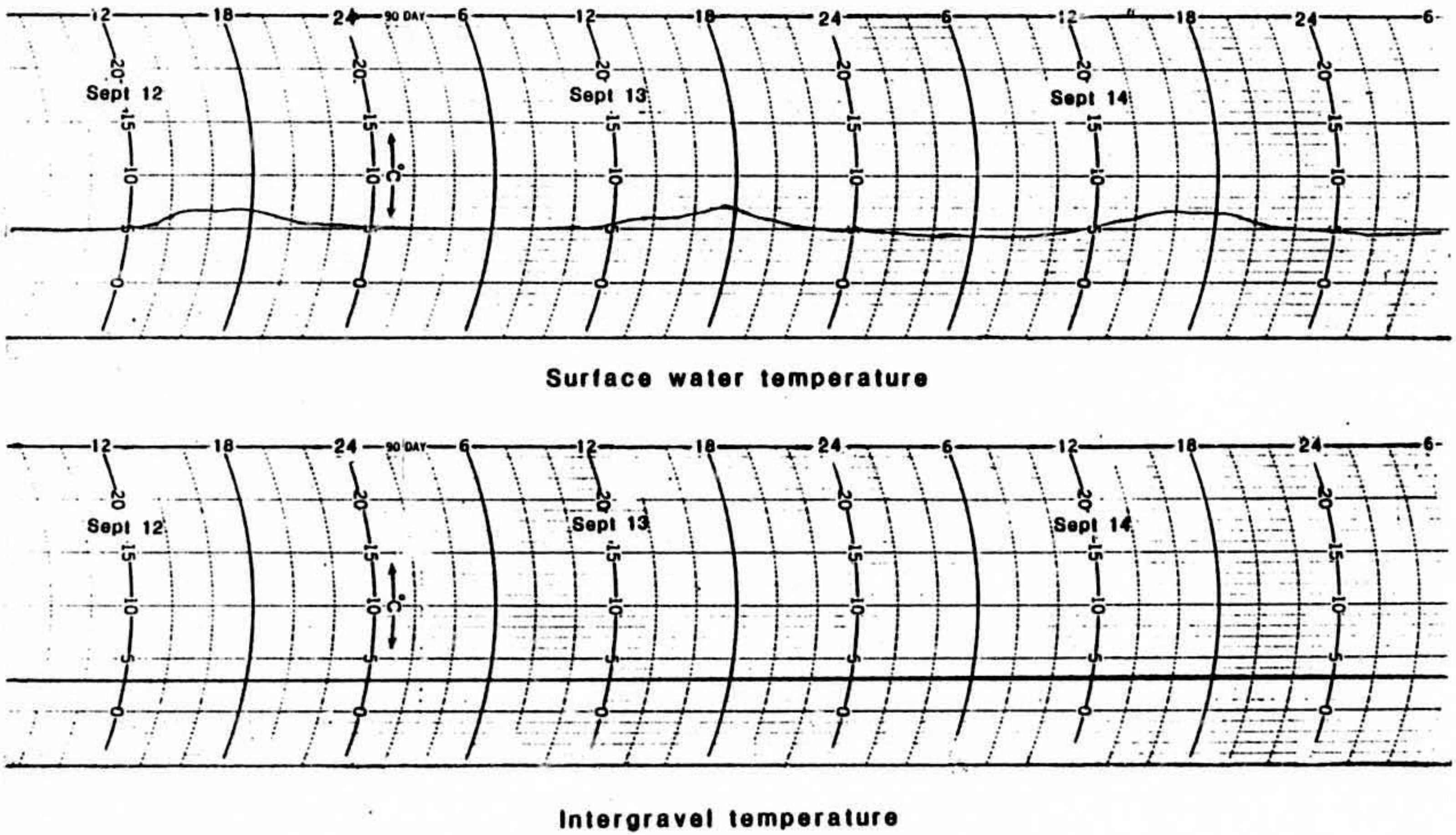


Figure 141. Comparison of intragravel and surface water temperatures in Slough 21.

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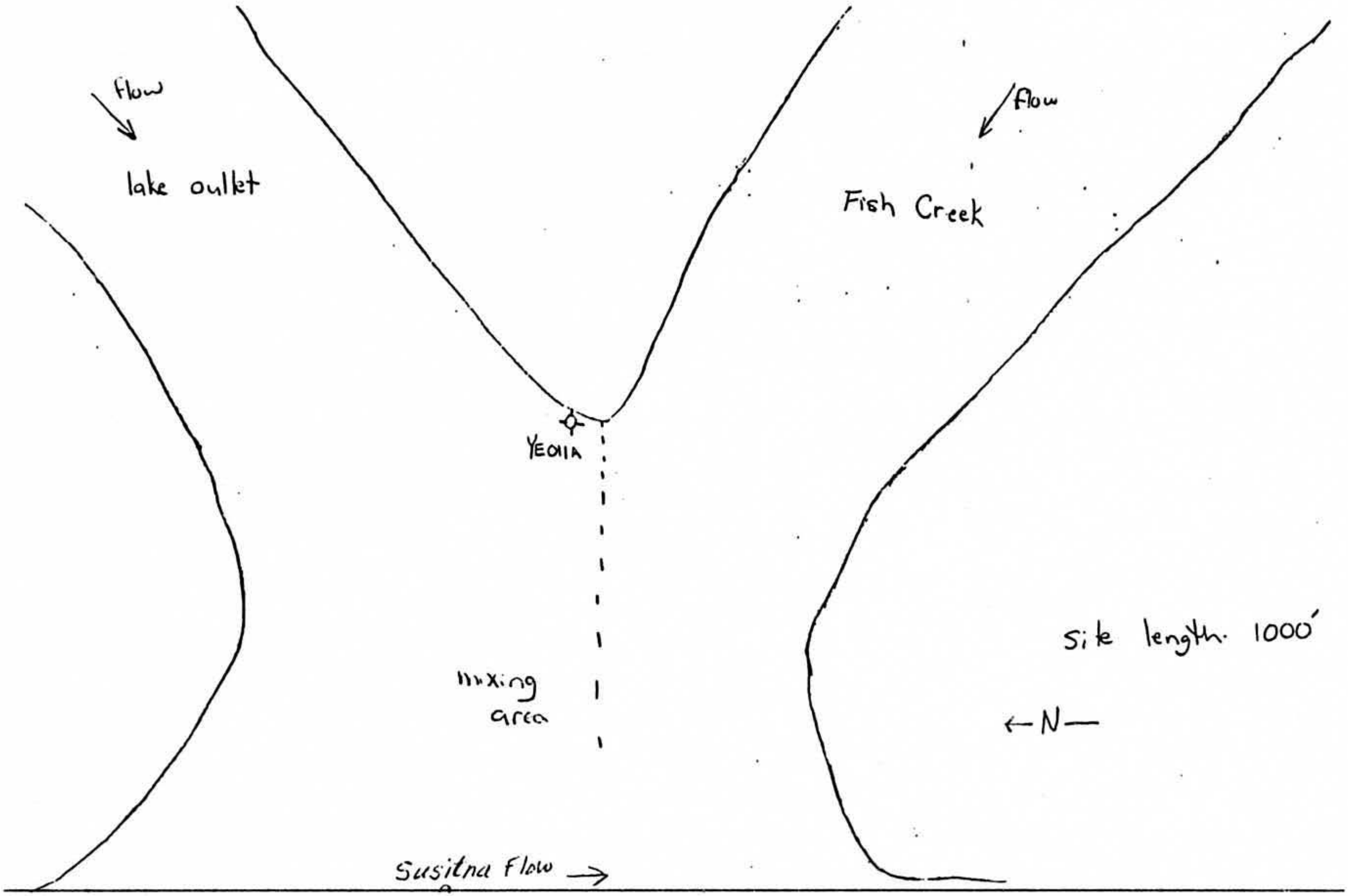
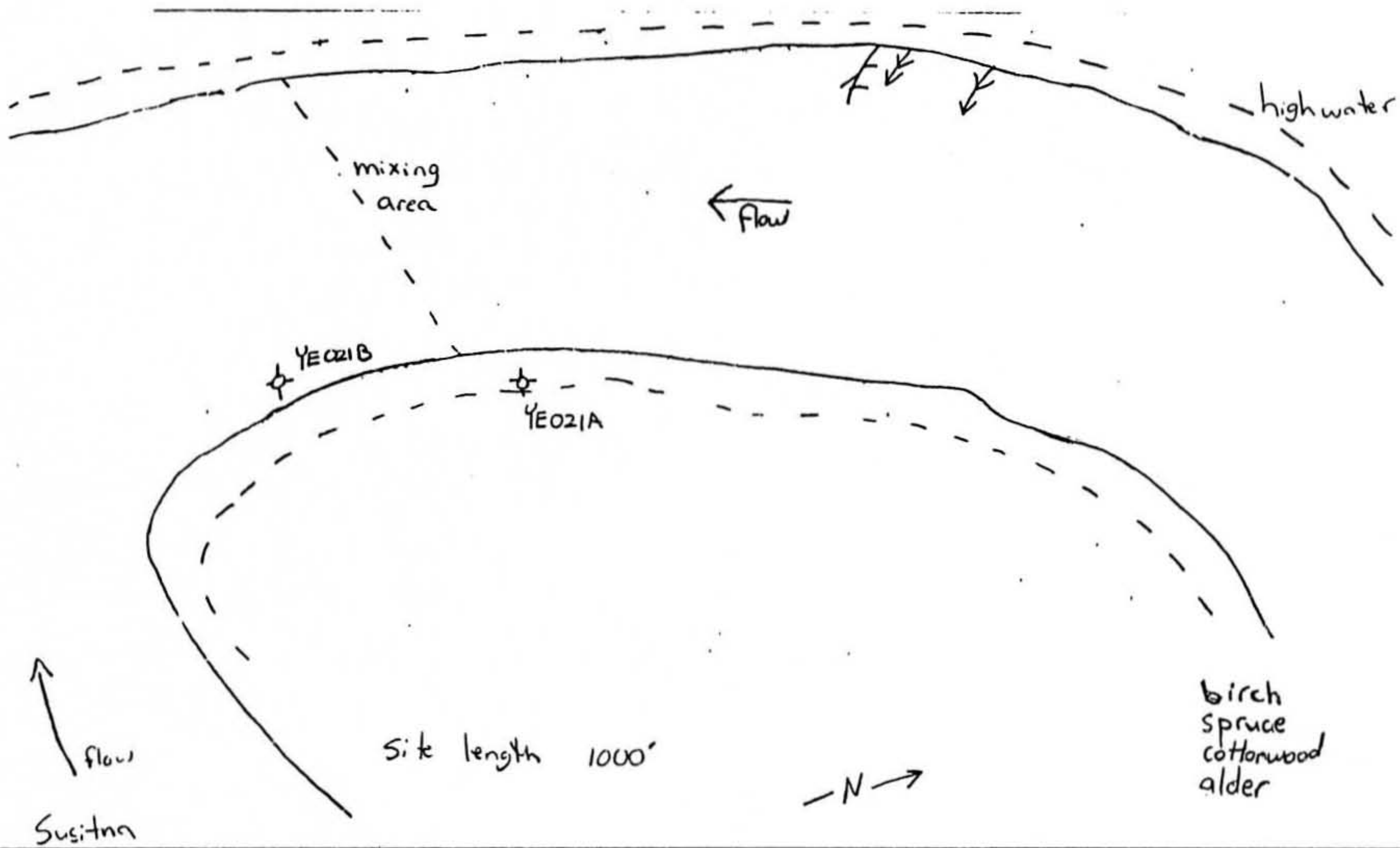
Appendix A

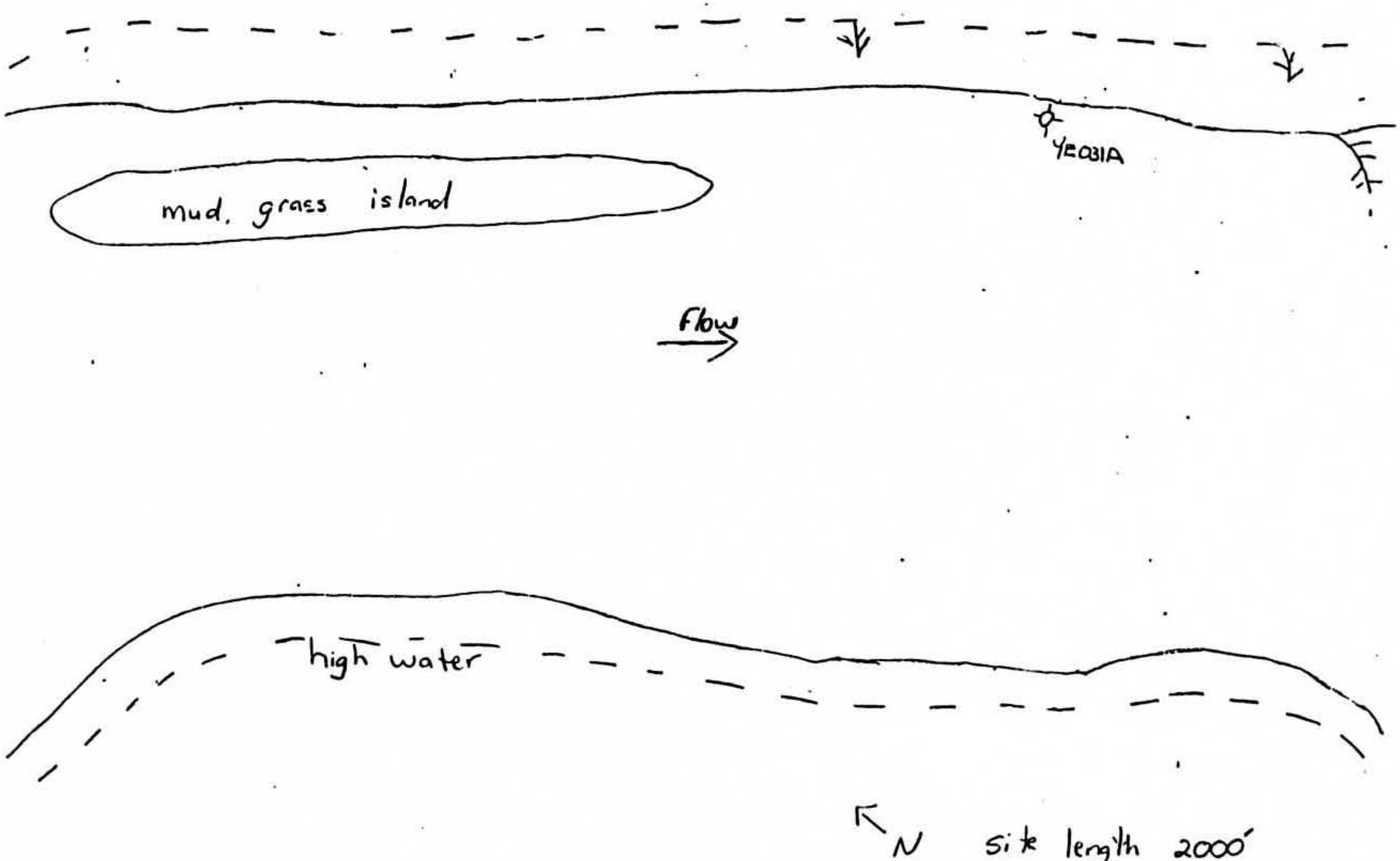
General habitat evaluation study site planimetric maps.



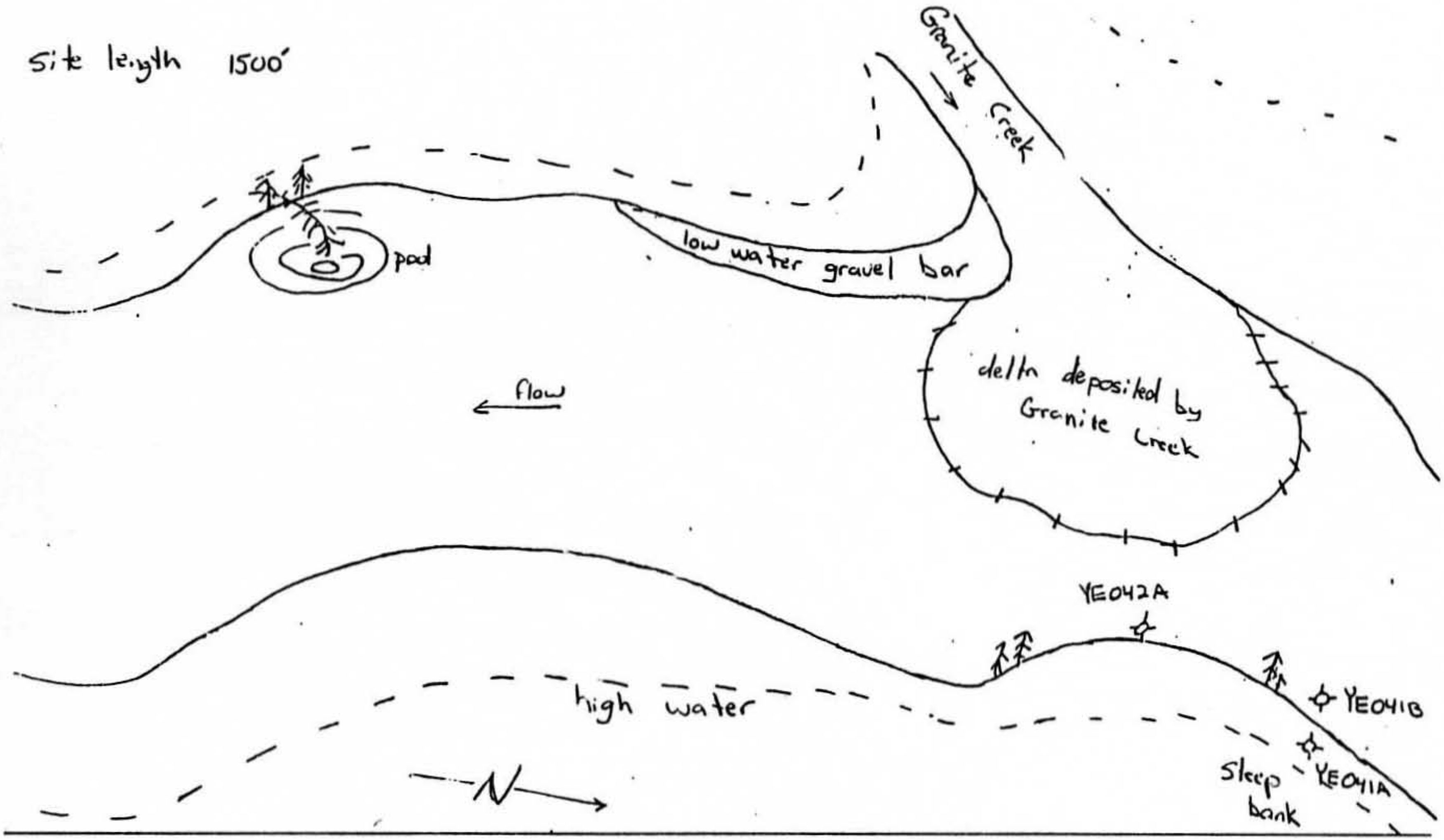
Appendix A Figure 1. Planimetric map for Fish Creek (R.M. 7.0, Geographic Code 15N07W27AAC).



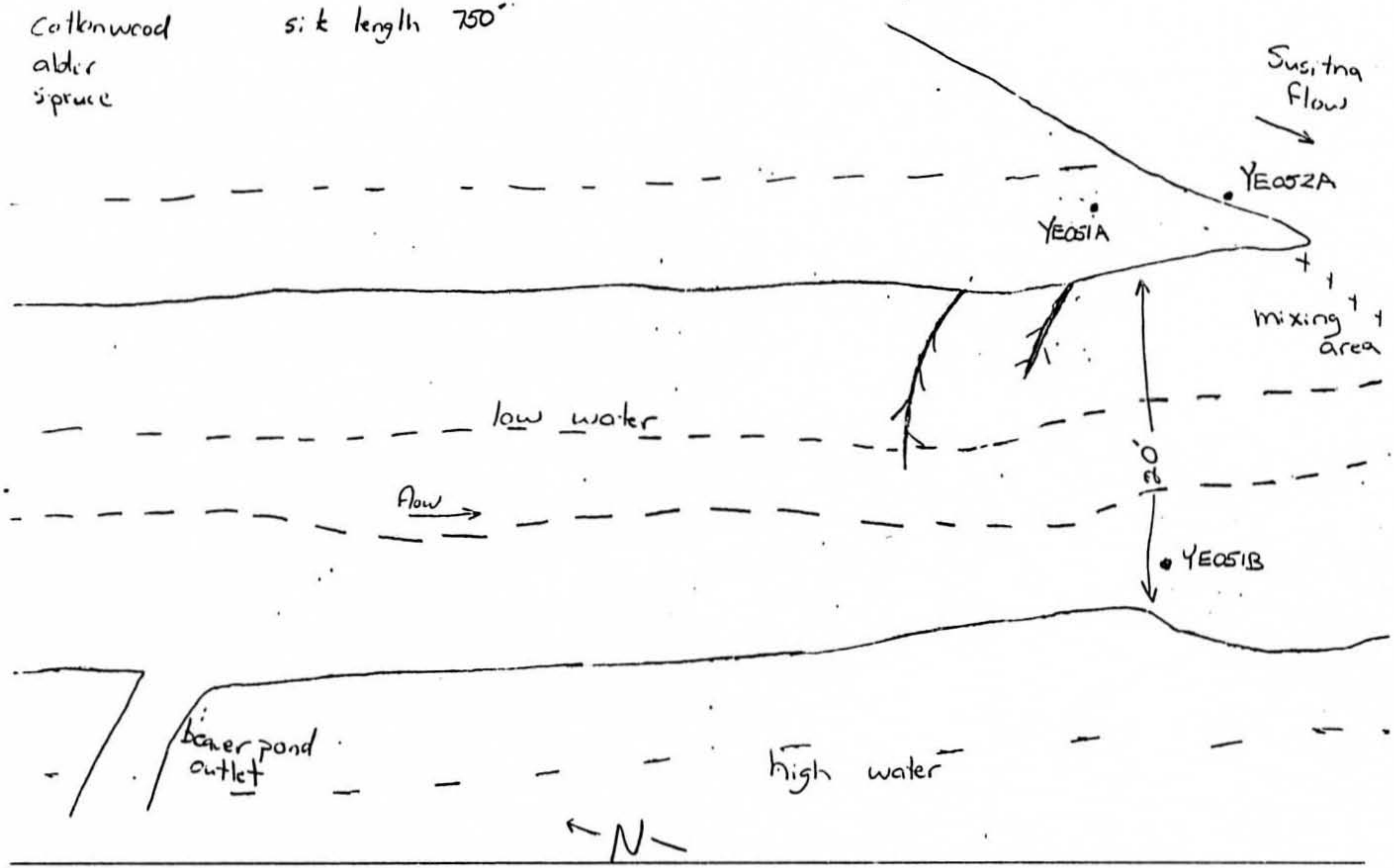
Appendix A Figure 2. Planimetric map for Alexander Creek - Site A (R.M. 10.1, Geographic Code 15N07W06DCA).



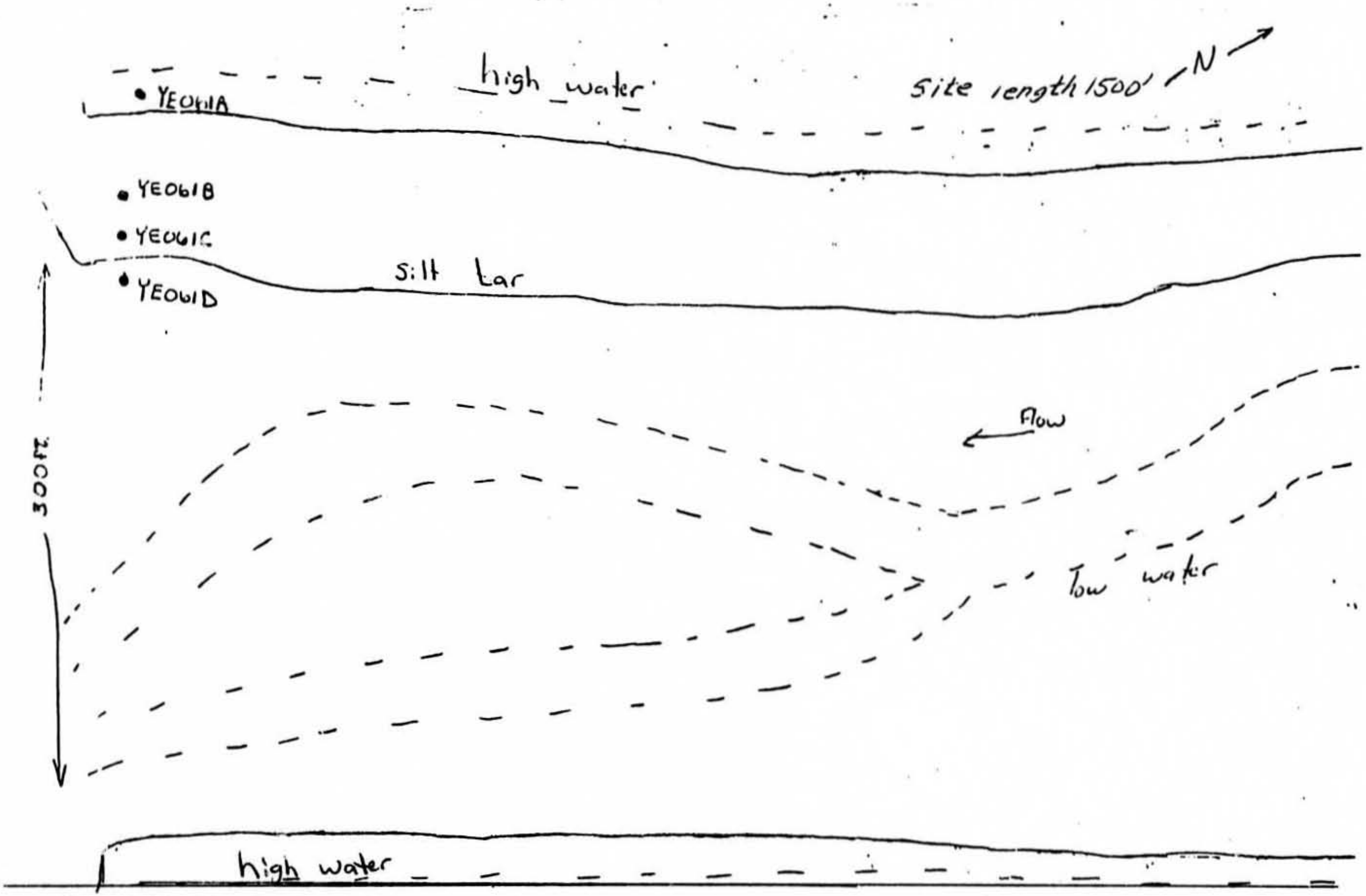
Appendix A Figure 3. Planimetric map for Alexander Creek - Site B (R.M. 10.1, Geographic Code 16N07W32CCB).



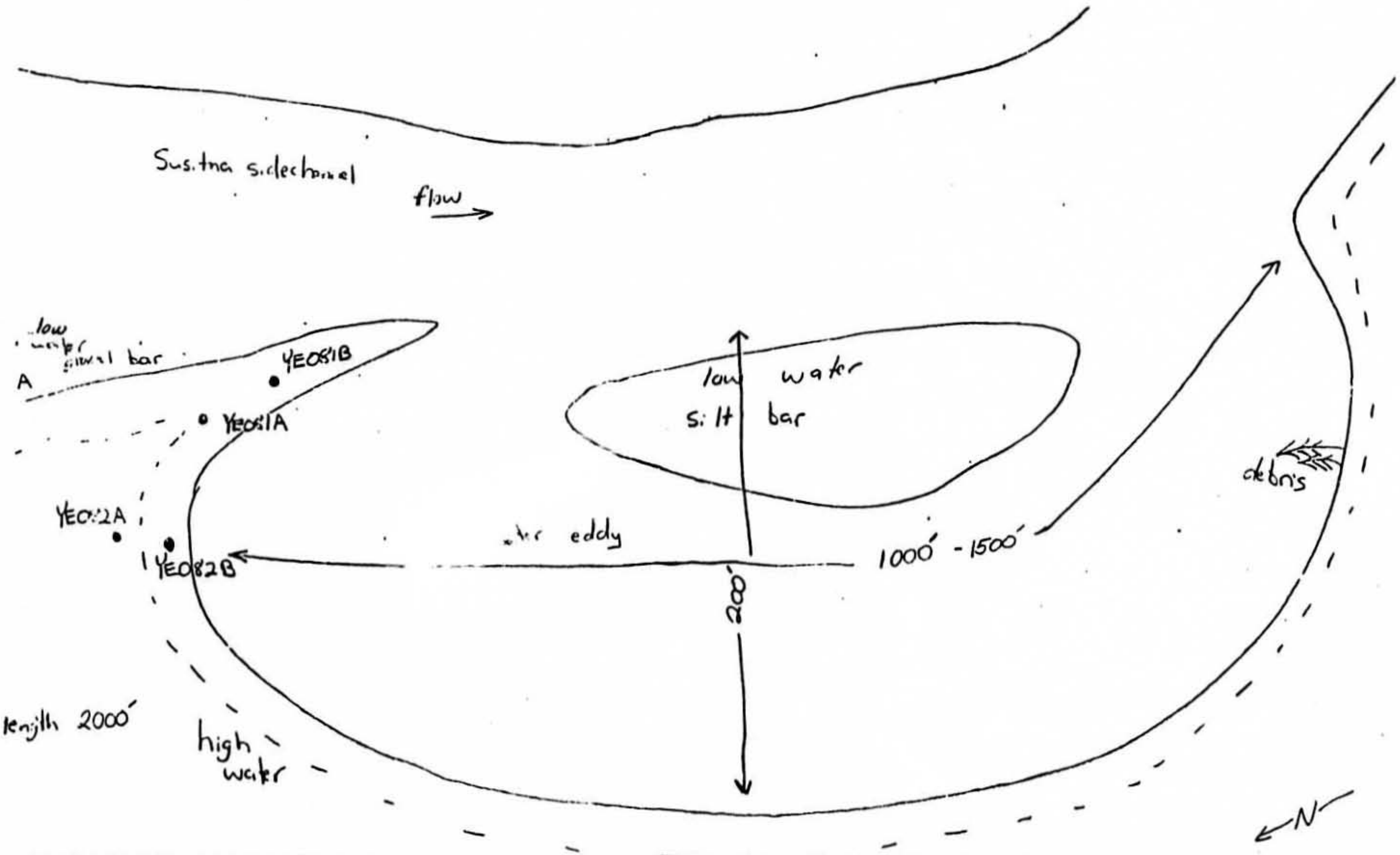
Appendix A Figure 4. Planimetric map for Alexander Creek - Site C (R.M. 10.1, Geographic Code 16N07W30ACD).



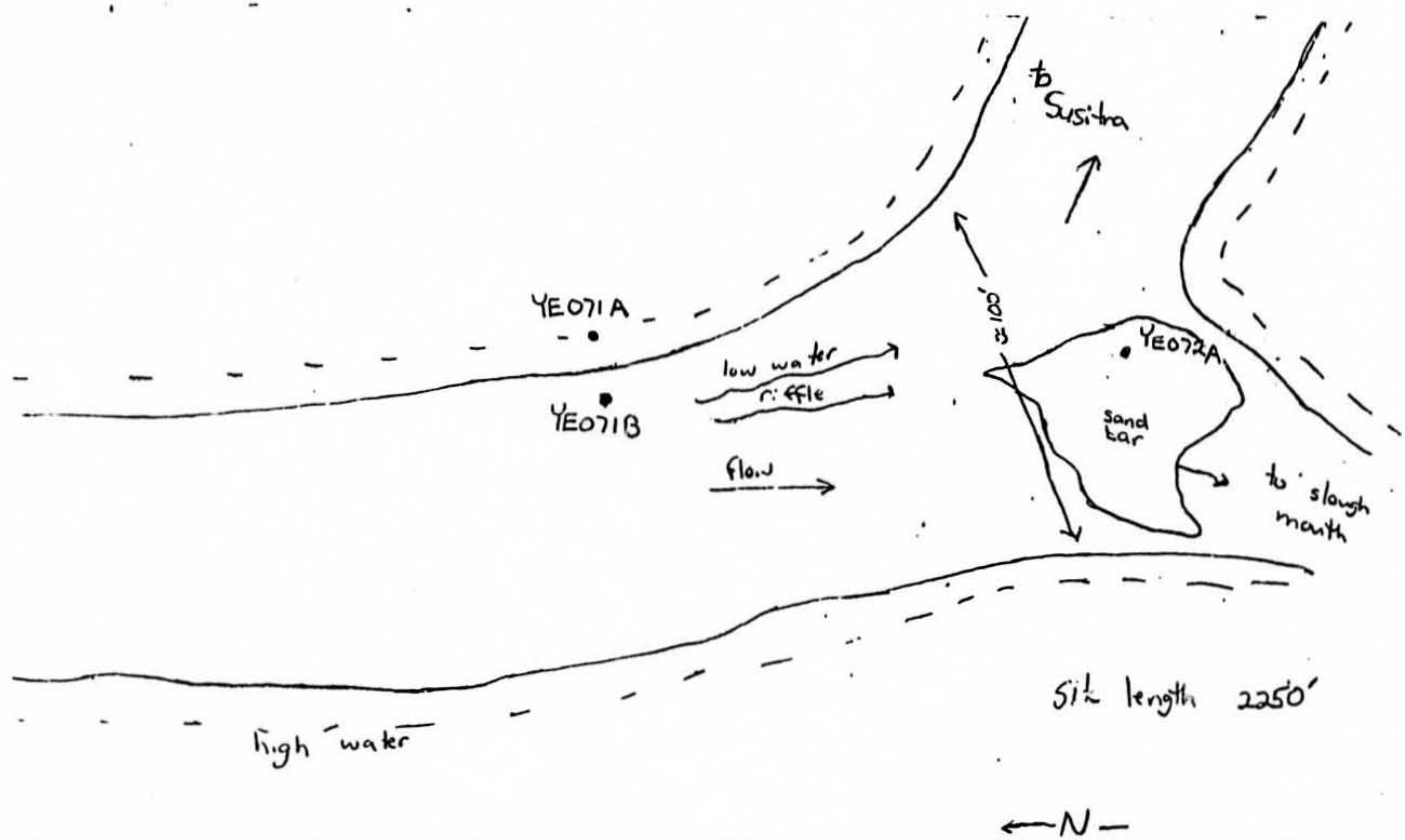
Appendix A Figure 5. Planimetric map for Anderson Creek (R.M. 23.8, Geographic Code 17N07W29DDD).



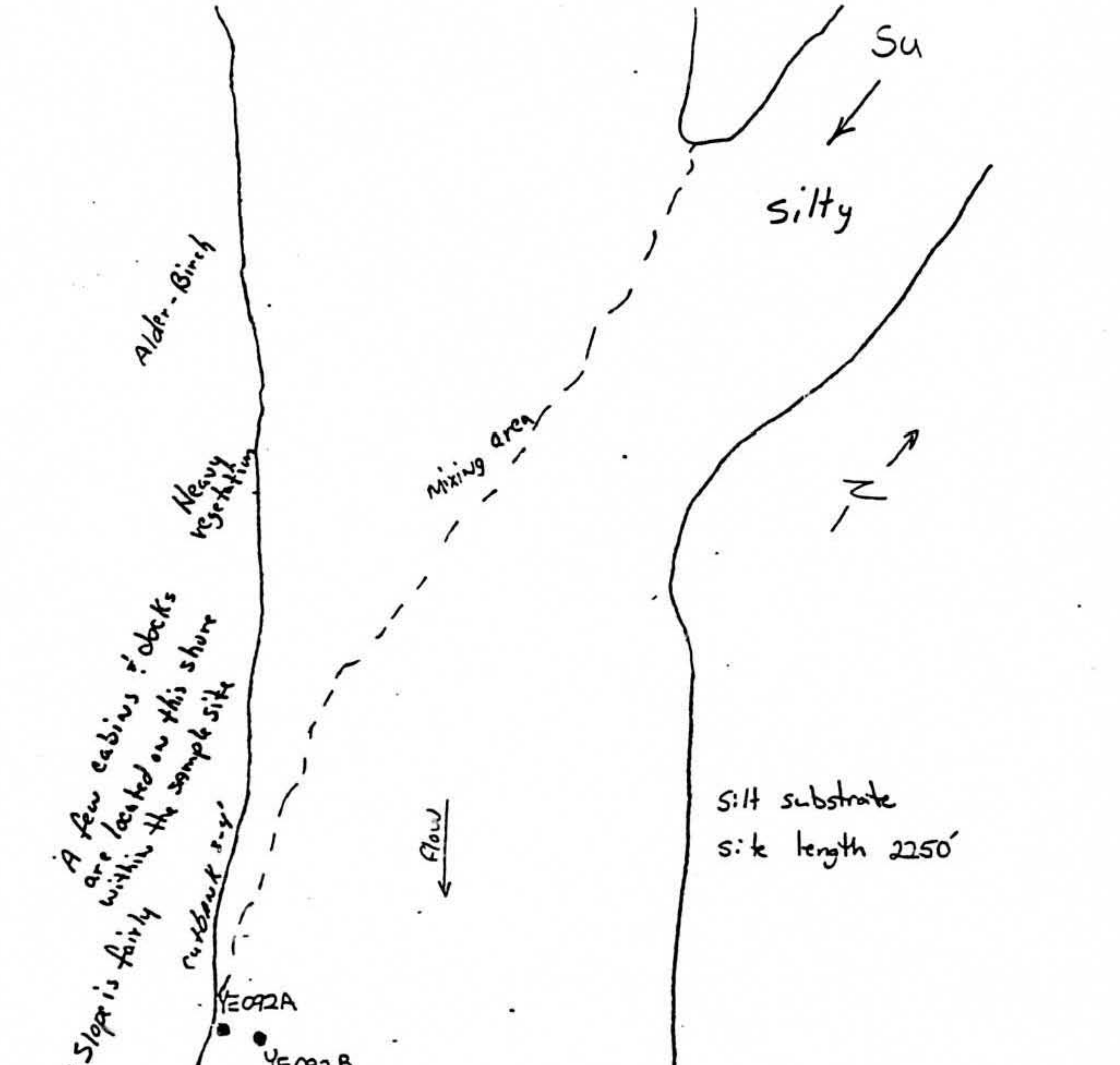
Appendix A Figure 6. Planimetric map for Kroto Slough Moutn (R.M. 30.1, Geographic Code 17N07W01DBC).



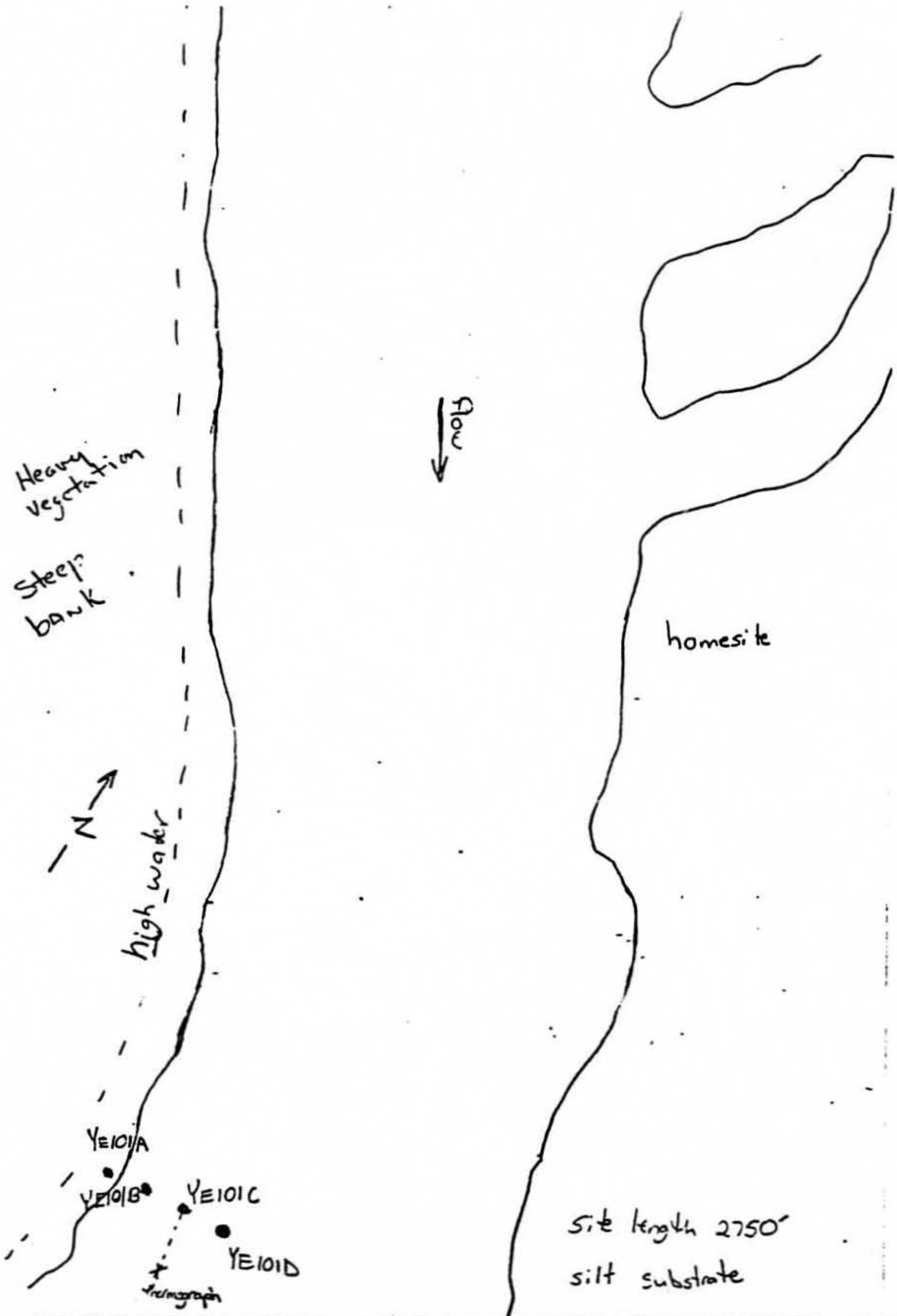
Appendix A Figure 7. Planimetric map for Mainstem Slough (R.M. 31.0, Geographic Code 17N06W05CAB).



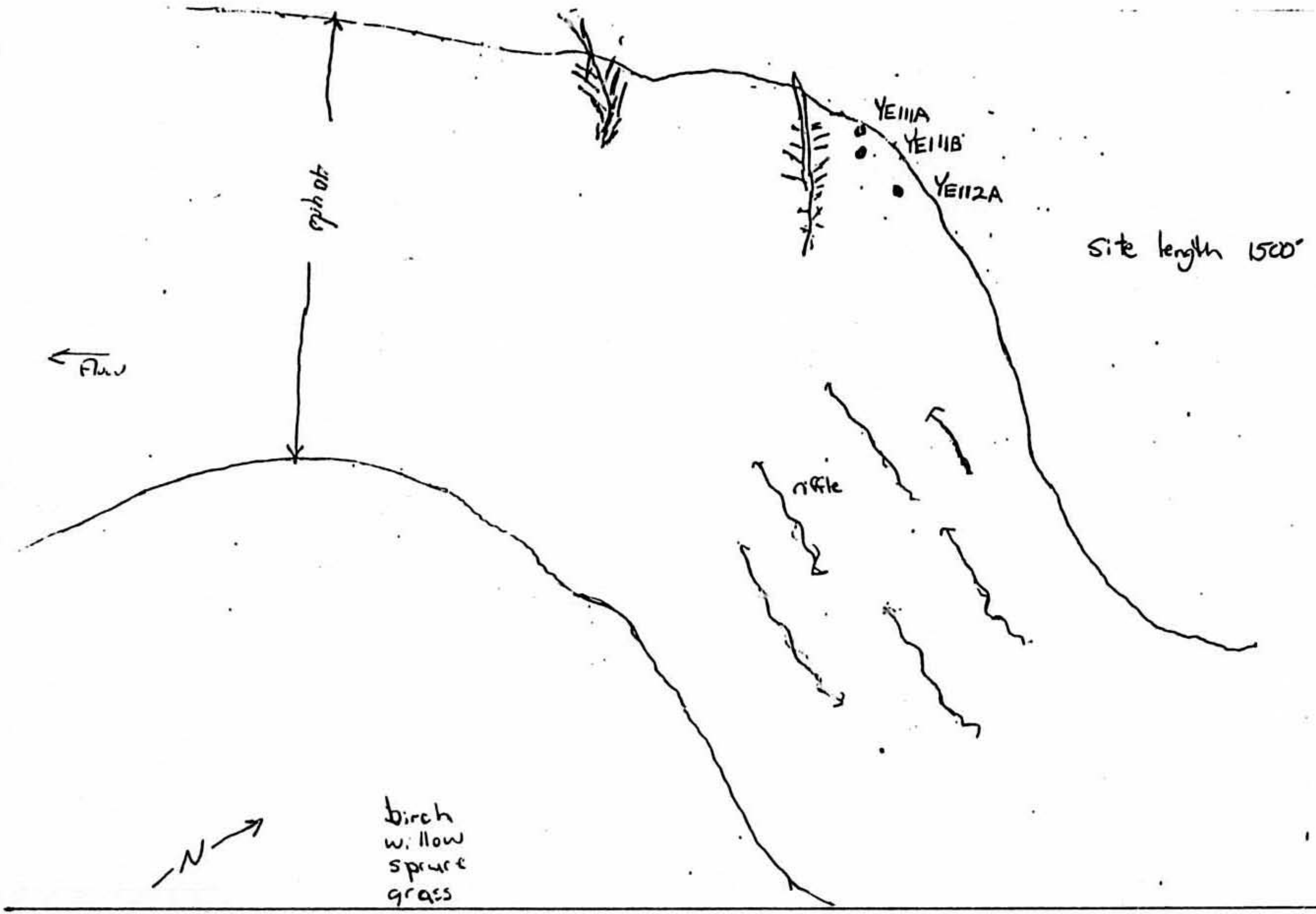
Appendix A Figure 8. Planimetric map for Mid Kroto Slough (R.M. 36.3, Geographic Code 18N06W16BBC).



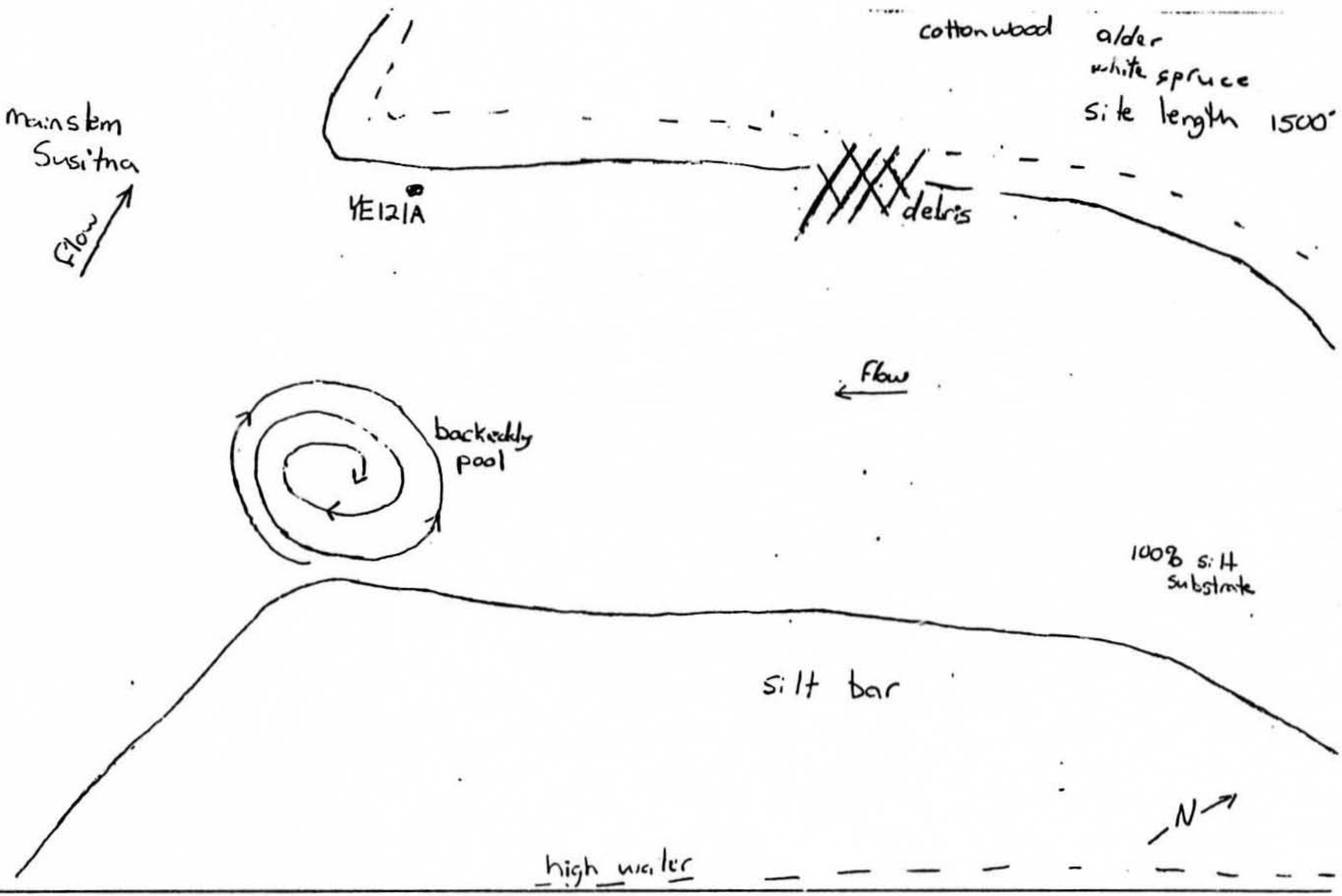
Appendix A Figure 9. Planimetric map for Deshka River - Site A (R.M. 40.6, Geographic Code 19N06W35BDA).



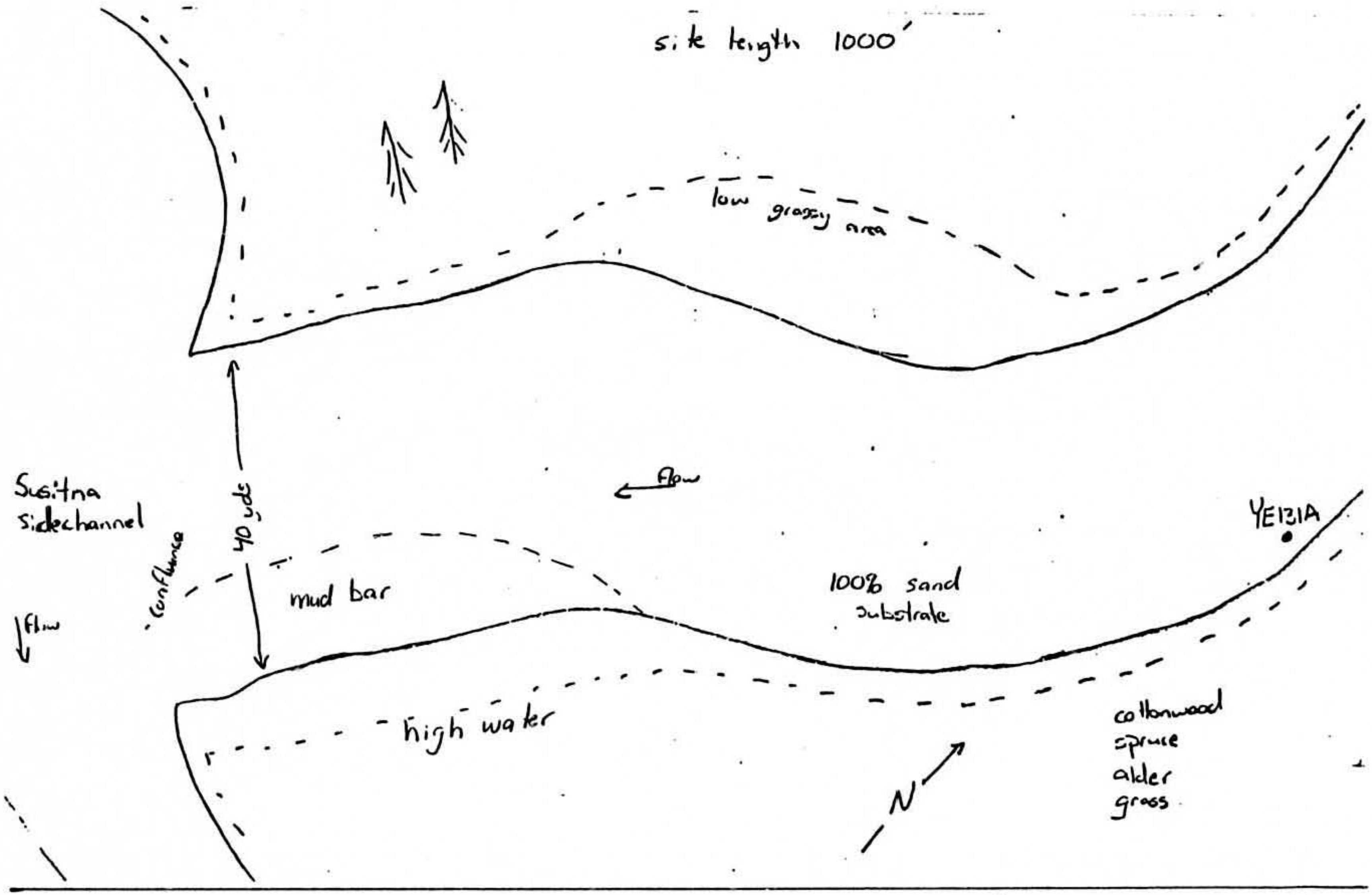
Appendix A Figure 10. Planimetric map for Deshka River - Site B (R.M. 40.6, Geographic Code 19N06W26BCB).



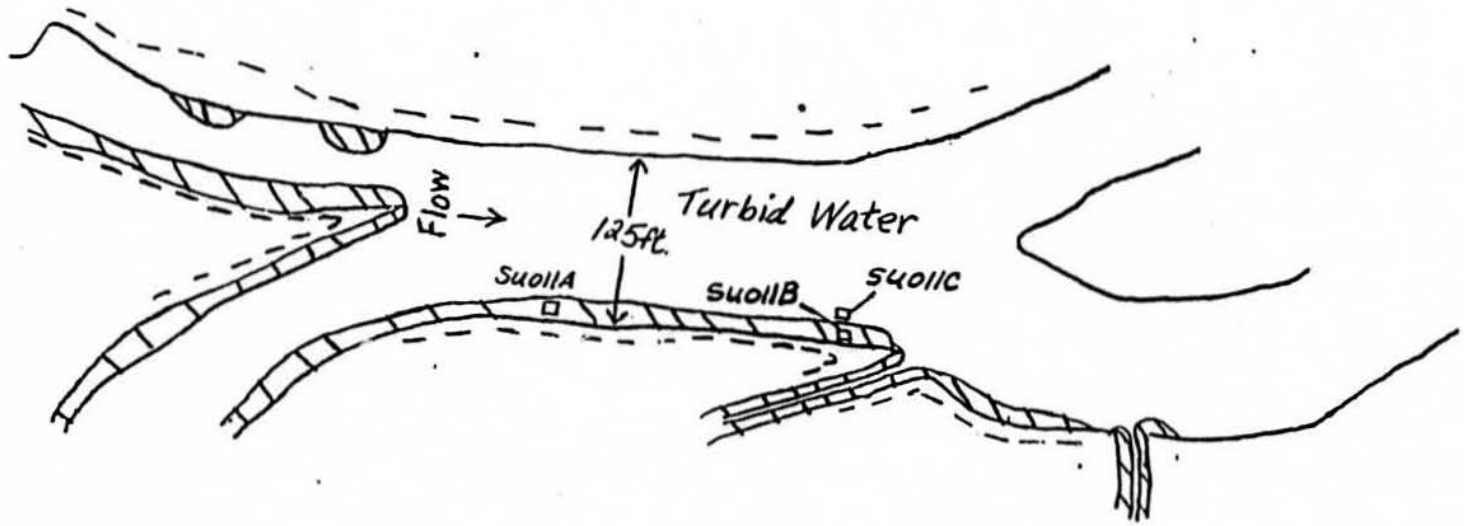
Appendix A Figure 11. Planimetric map for Deshka River - Site Ç (R.M. 40.6, Geographic Code 19N06W14BCA).



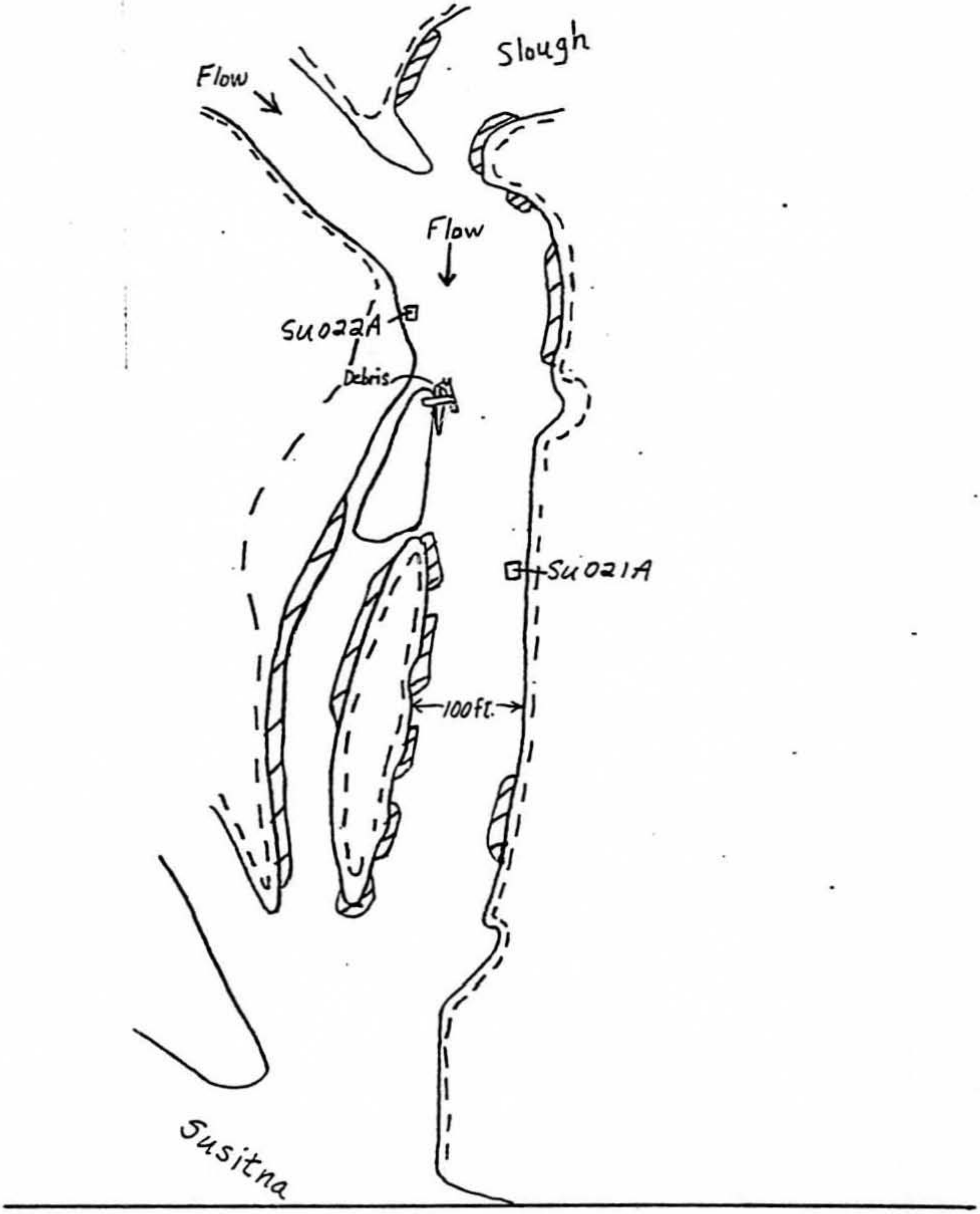
Appendix A Figure 12. Planimetric map for Lower Delta Islands (R.M. 44.0, Geographic Code 19N05W19ACB).



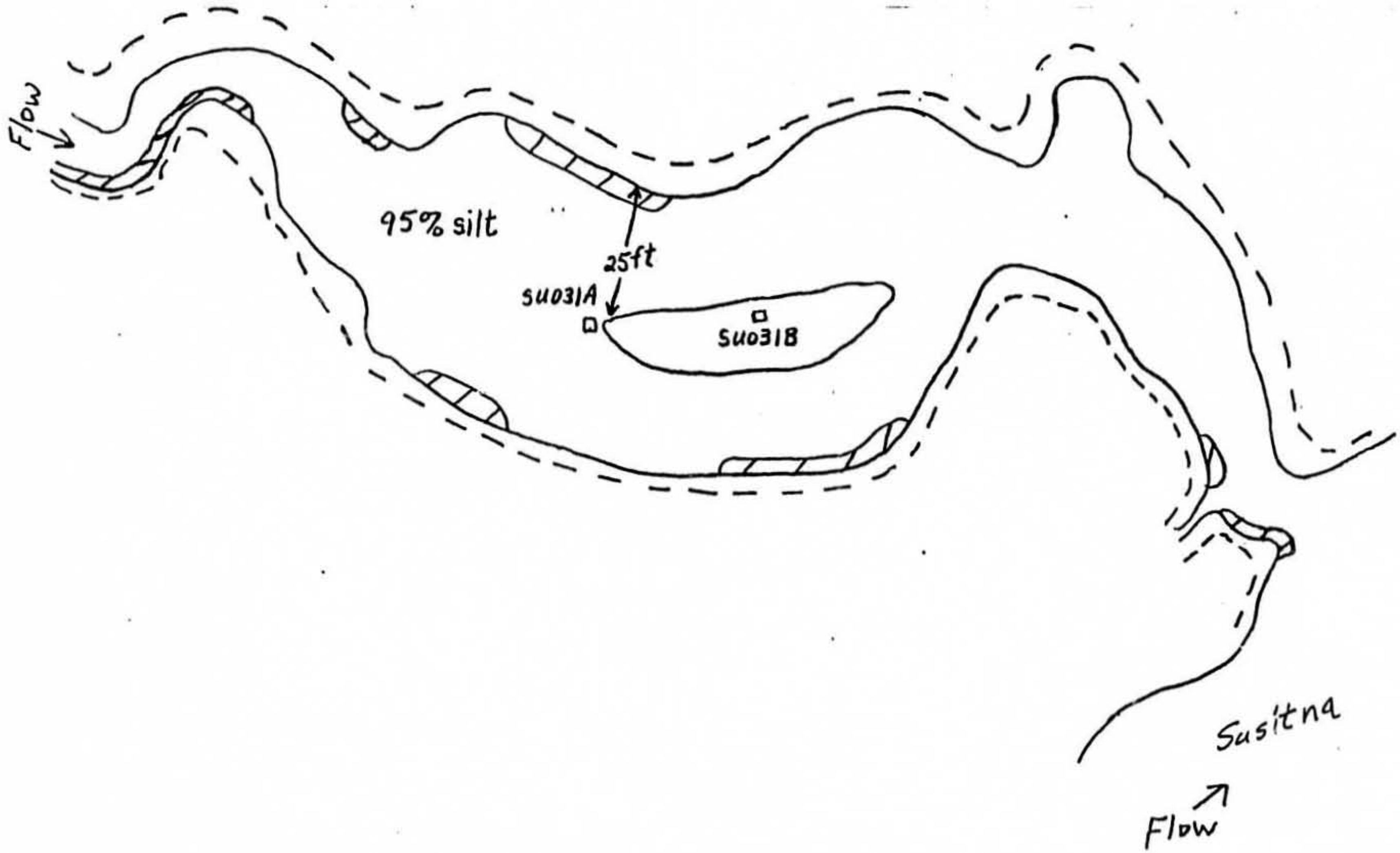
Appendix A Figure 13. Planimetric map for Little Willow Creek (R.M. 50.5, Geographic Code 20N05W27AAD).



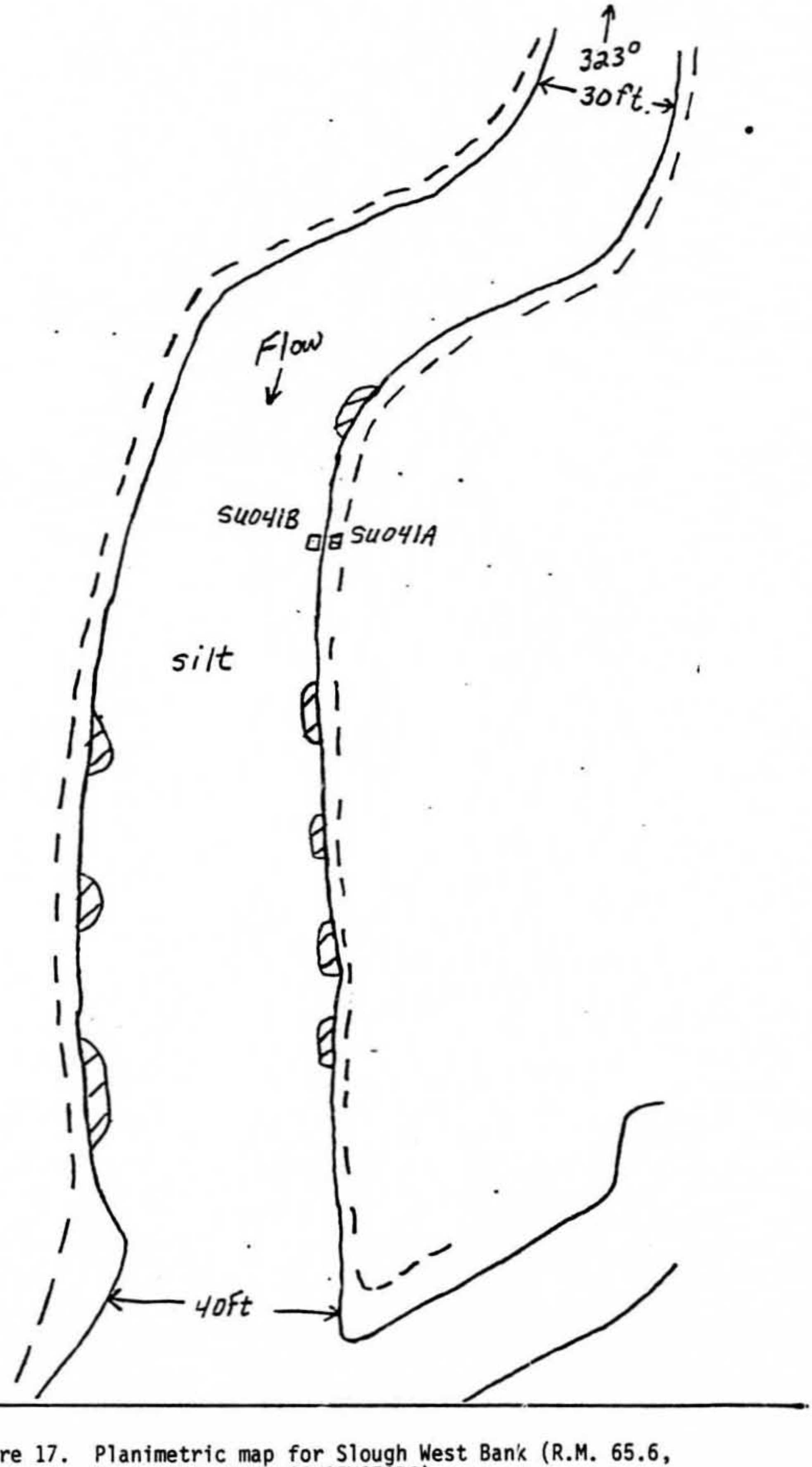
Appendix A Figure 14. Planimetric map for Rustic Wilderness (R.M. 58.1, Geographic Code 21N05W25CBD).



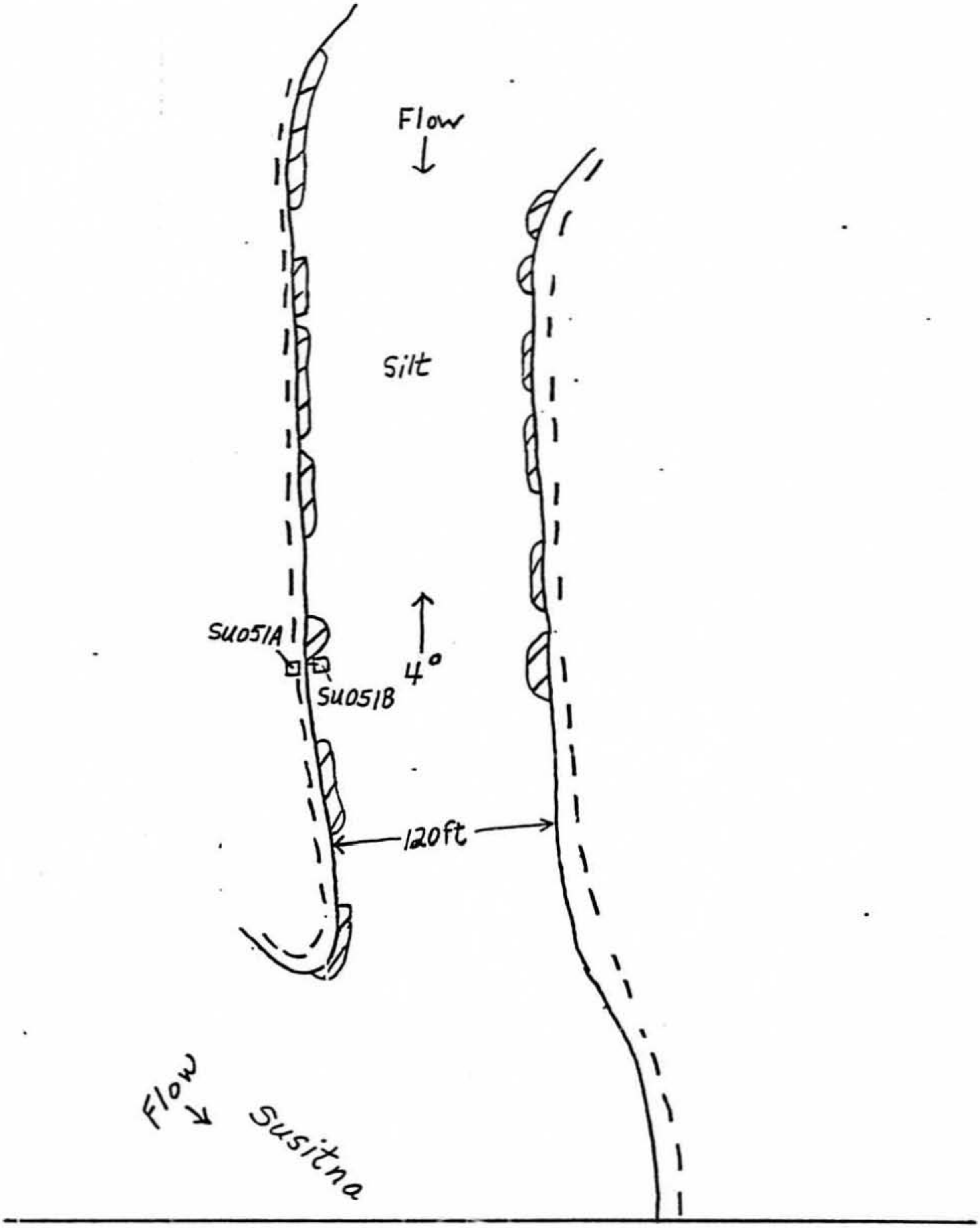
Appendix A Figure 15. Planimetric map for Kashwitna River (R.M. 61.0, Geographic Code 21N05W13AAA).



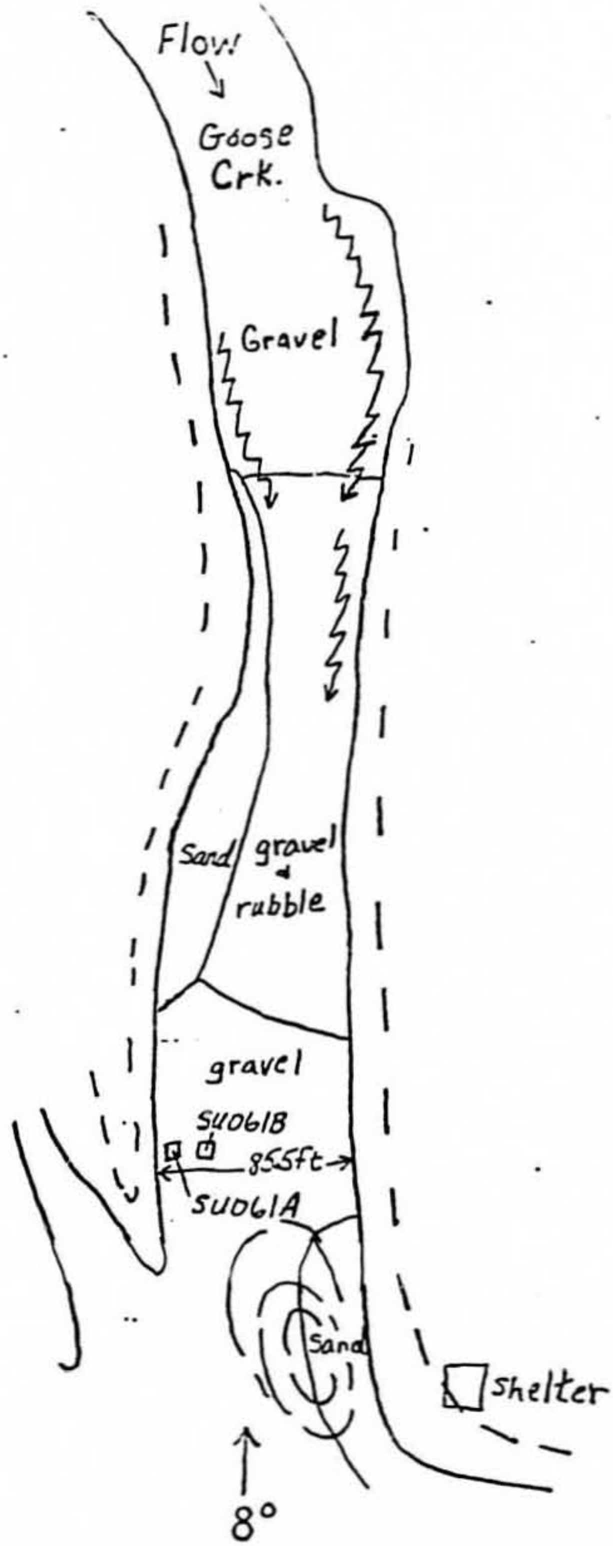
Appendix A Figure 16. Planimetric map for Caswell Creek (R.M. 63.0, Geographic Code 21N04W06BDD).



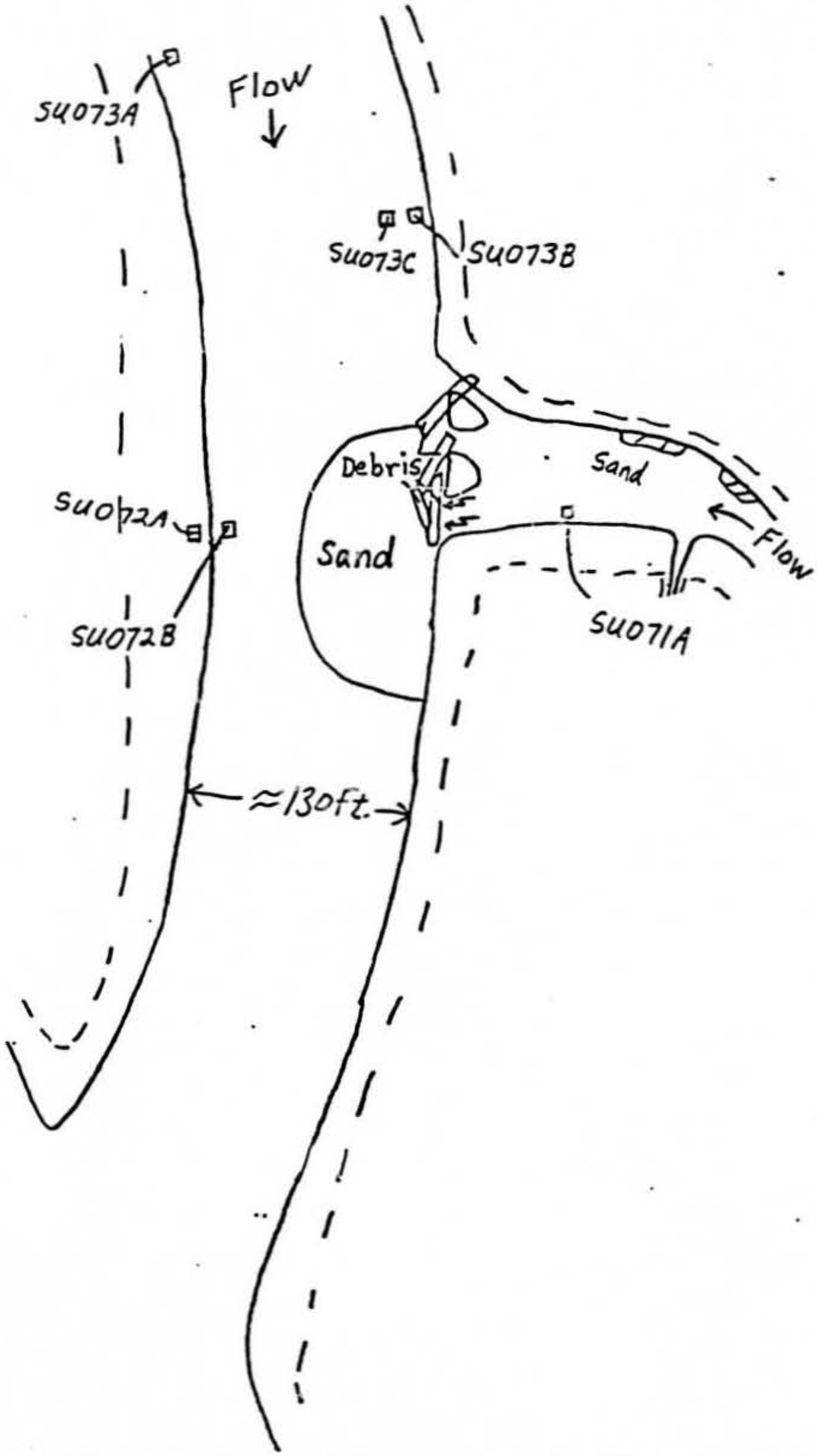
Appendix A Figure 17. Planimetric map for Slough West Bank (R.M. 65.6, Geographic Code 22N05W27ADC).



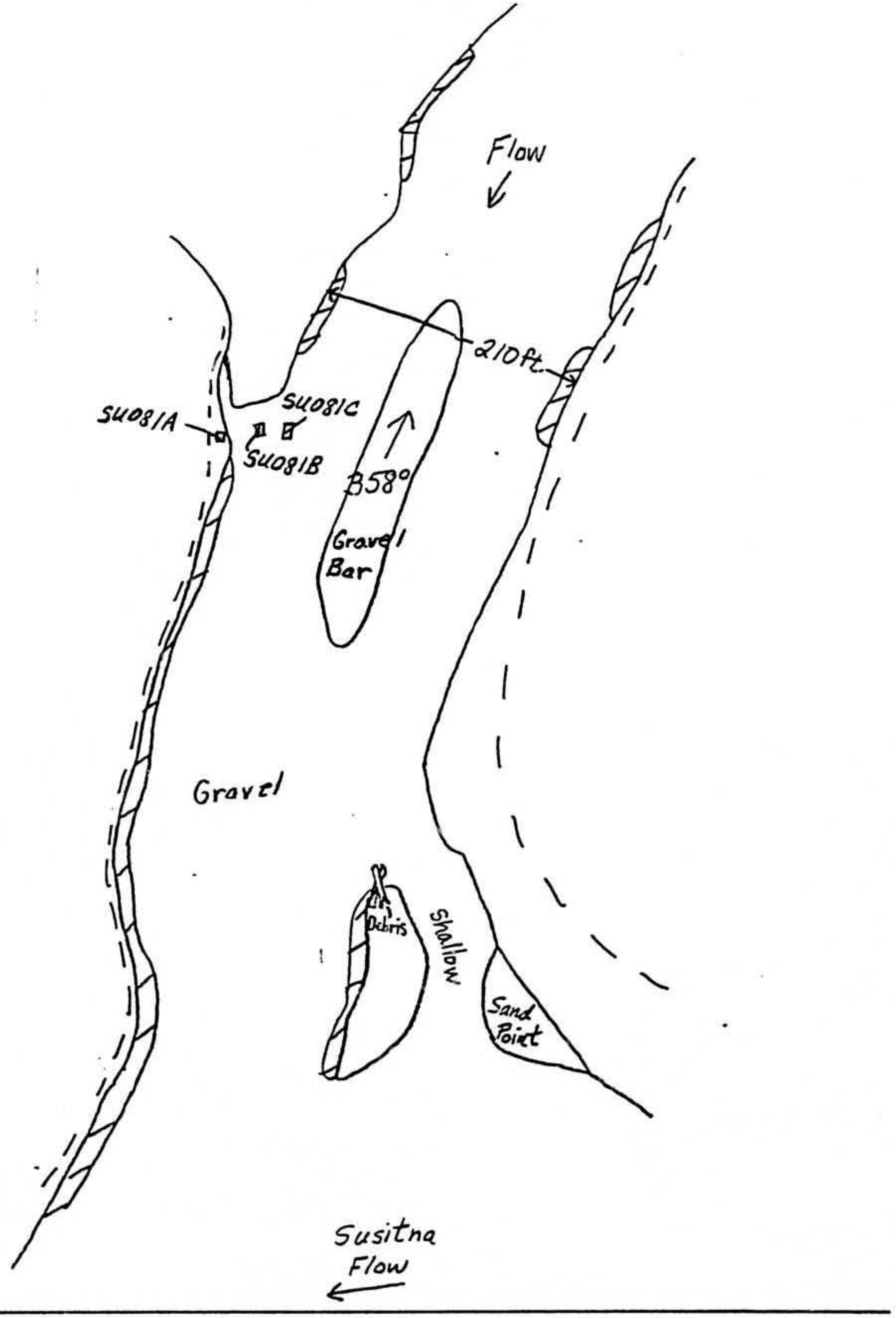
Appendix A Figure 18. Planimetric map for Sheep Creek Slough (R.M. 66.1, Geographic Code 22N04W30BAB).



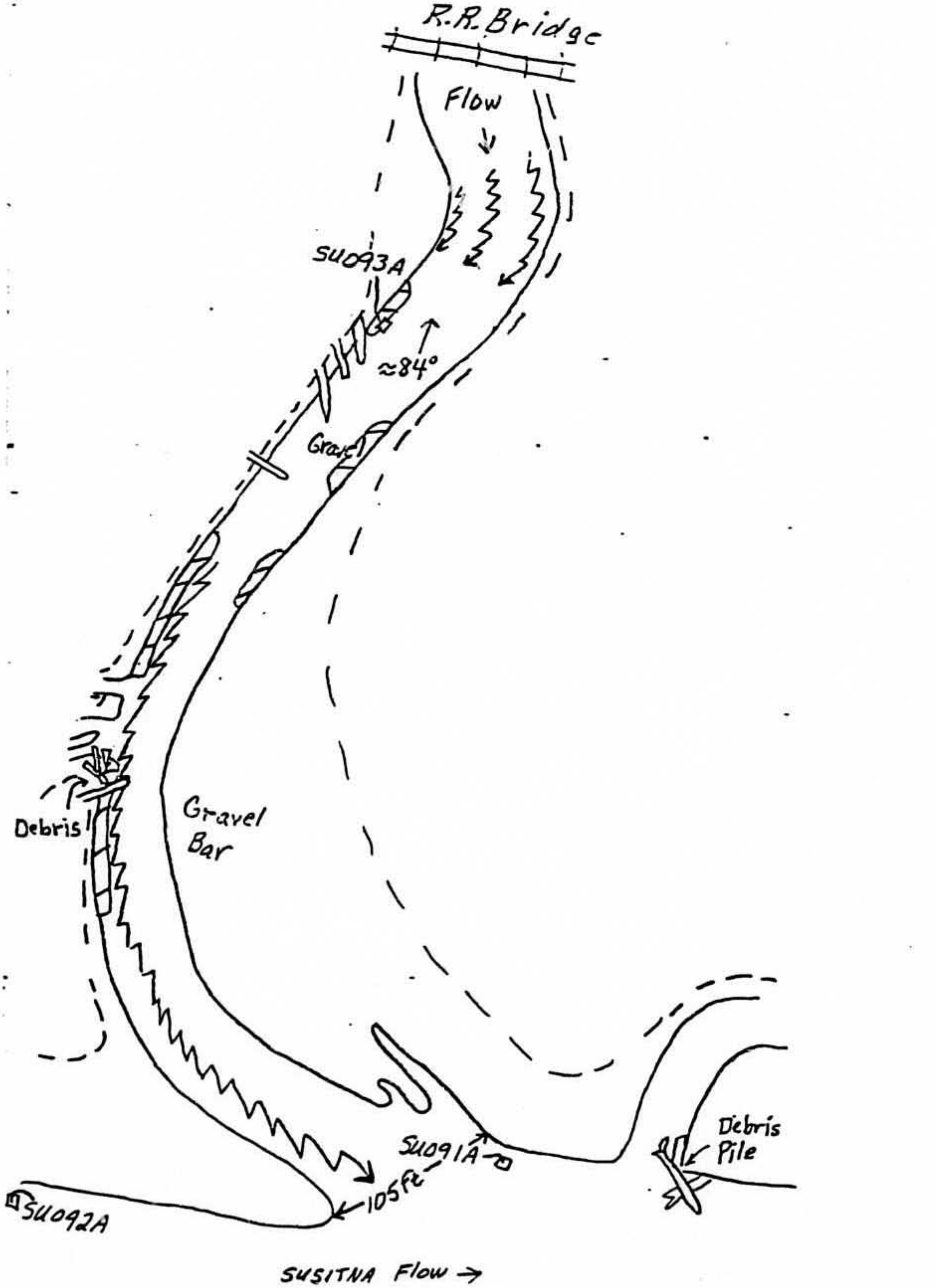
Appendix A Figure 19. Planimetric map for Goose Creek 1 (R.M. 72.0, Geographic Code 23N04W31BBC).



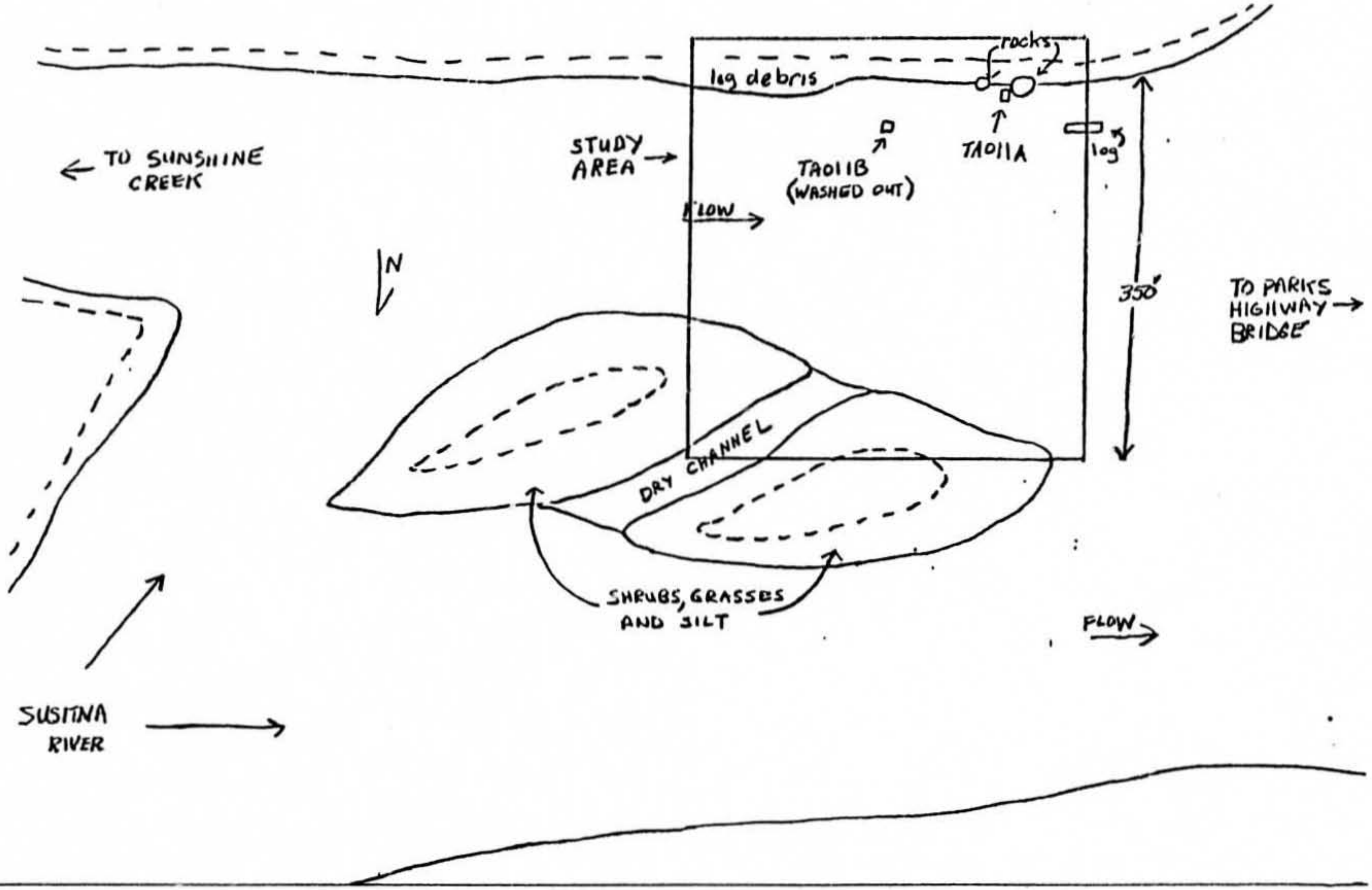
Appendix A Figure 20. Planimetric map for Goose Creek 2 (R.M. 73.1, Geographic Code 23N04W30BBB).



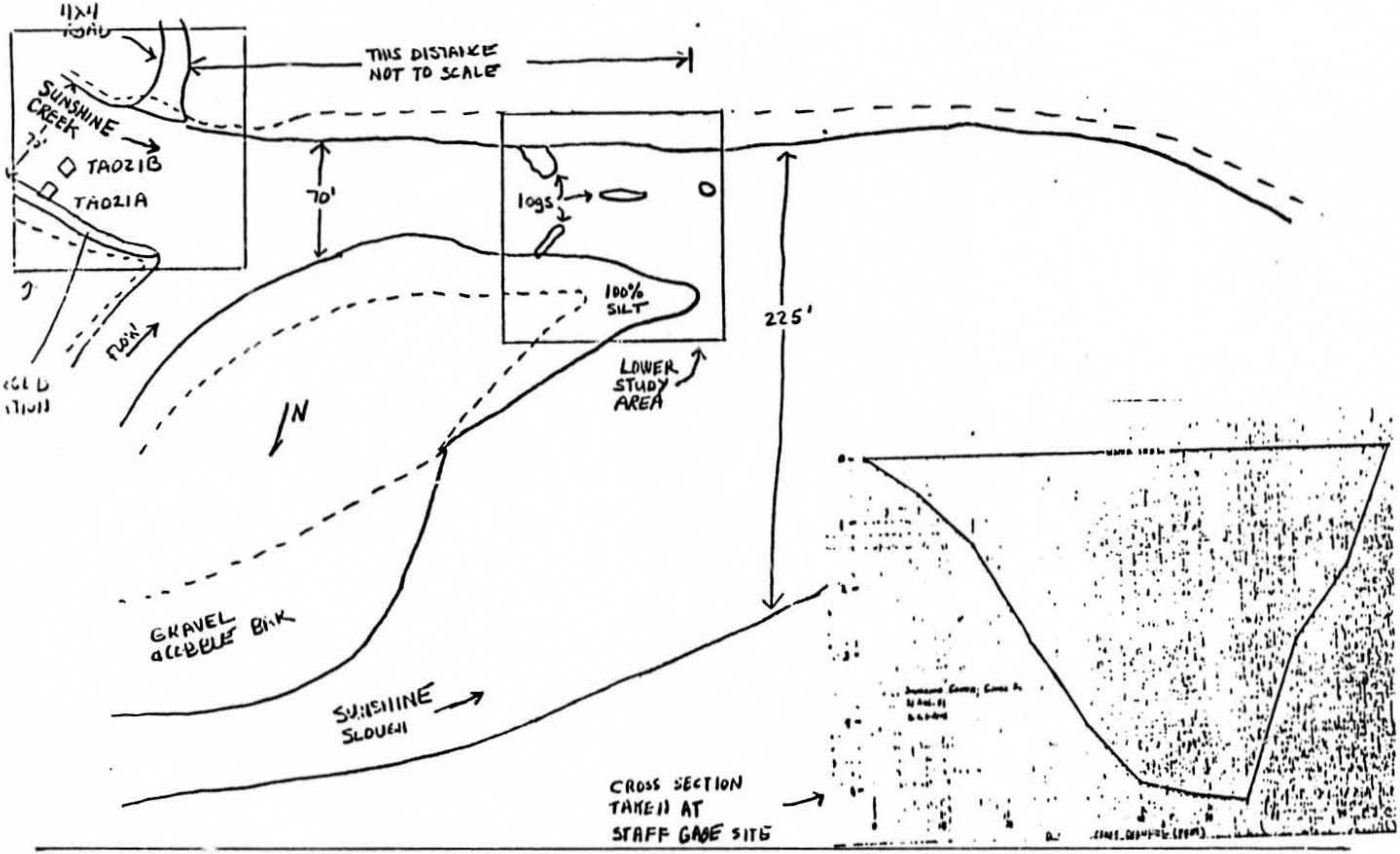
Appendix A Figure 21. Planimetric map for Mainstem - West Bank (R.M. 74.4, Geographic Code 23N05W13CCD).



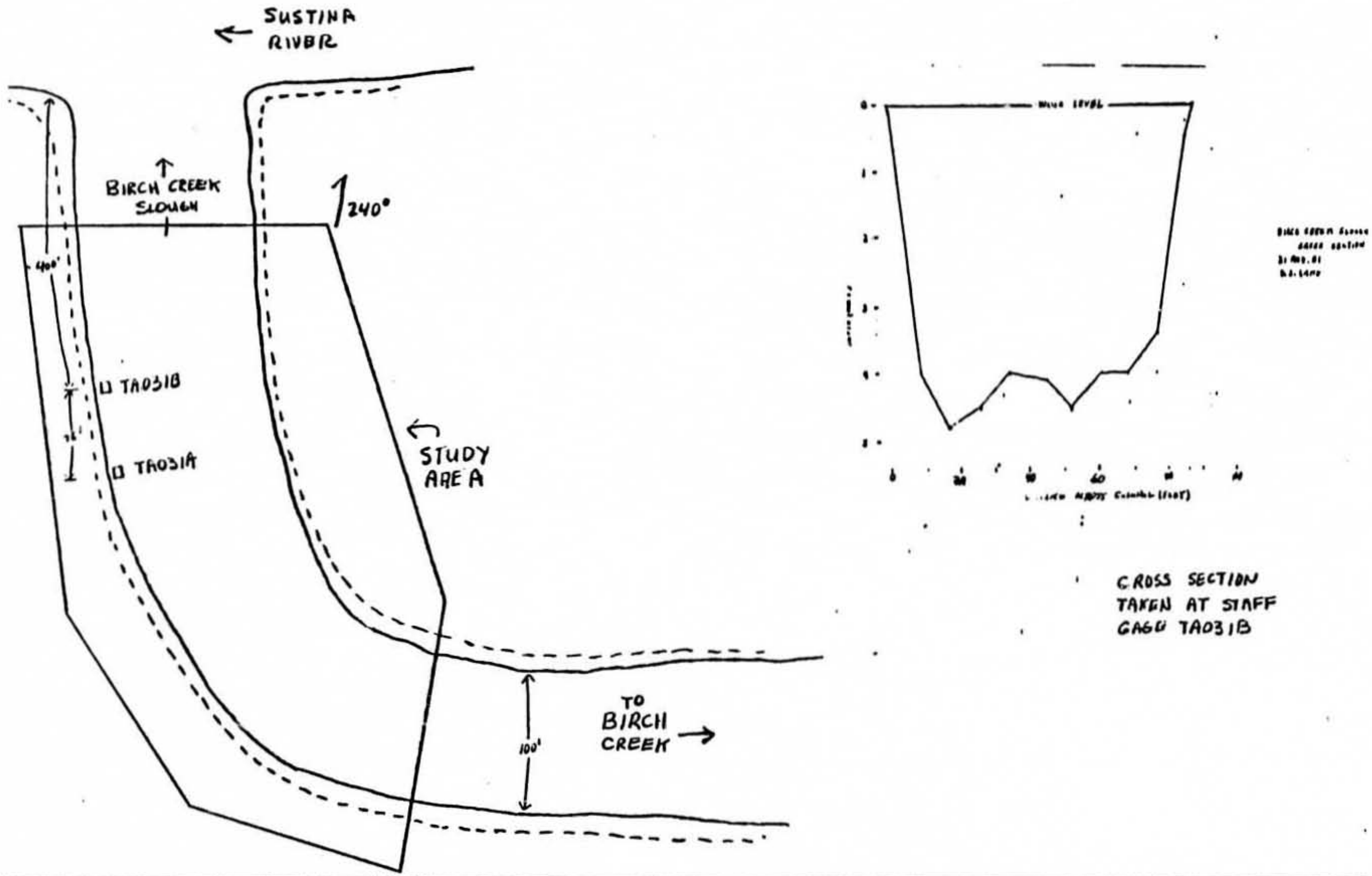
Appendix A Figure 22. Planimetric map for Montana Creek (R.M. 77.0, Geographic Code 23N04W07ABA).



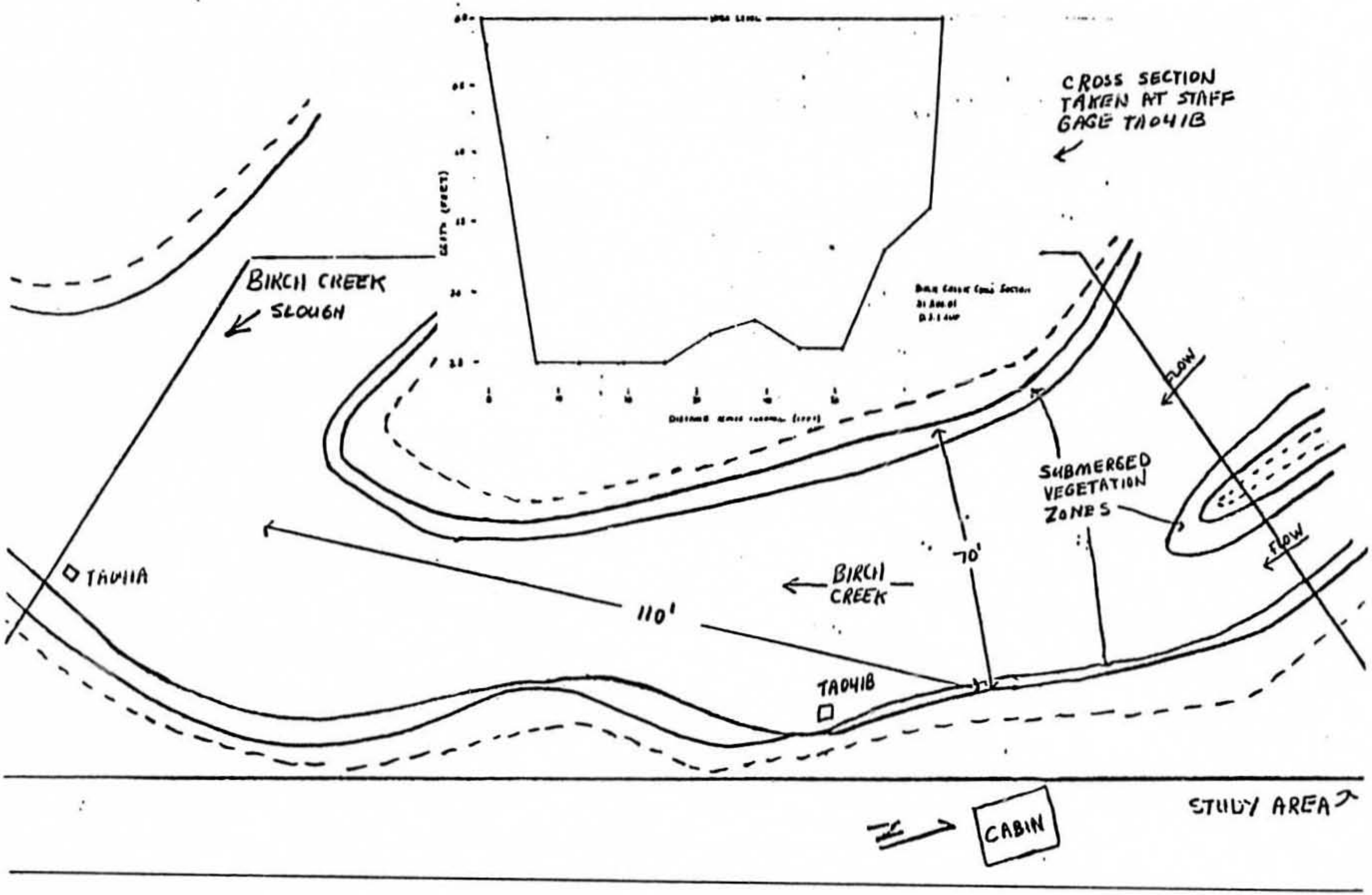
Appendix A Figure 23. Planimetric map for Mainstem 1 (R.M. 84.0, Geographic Code 24N05W10DCC).



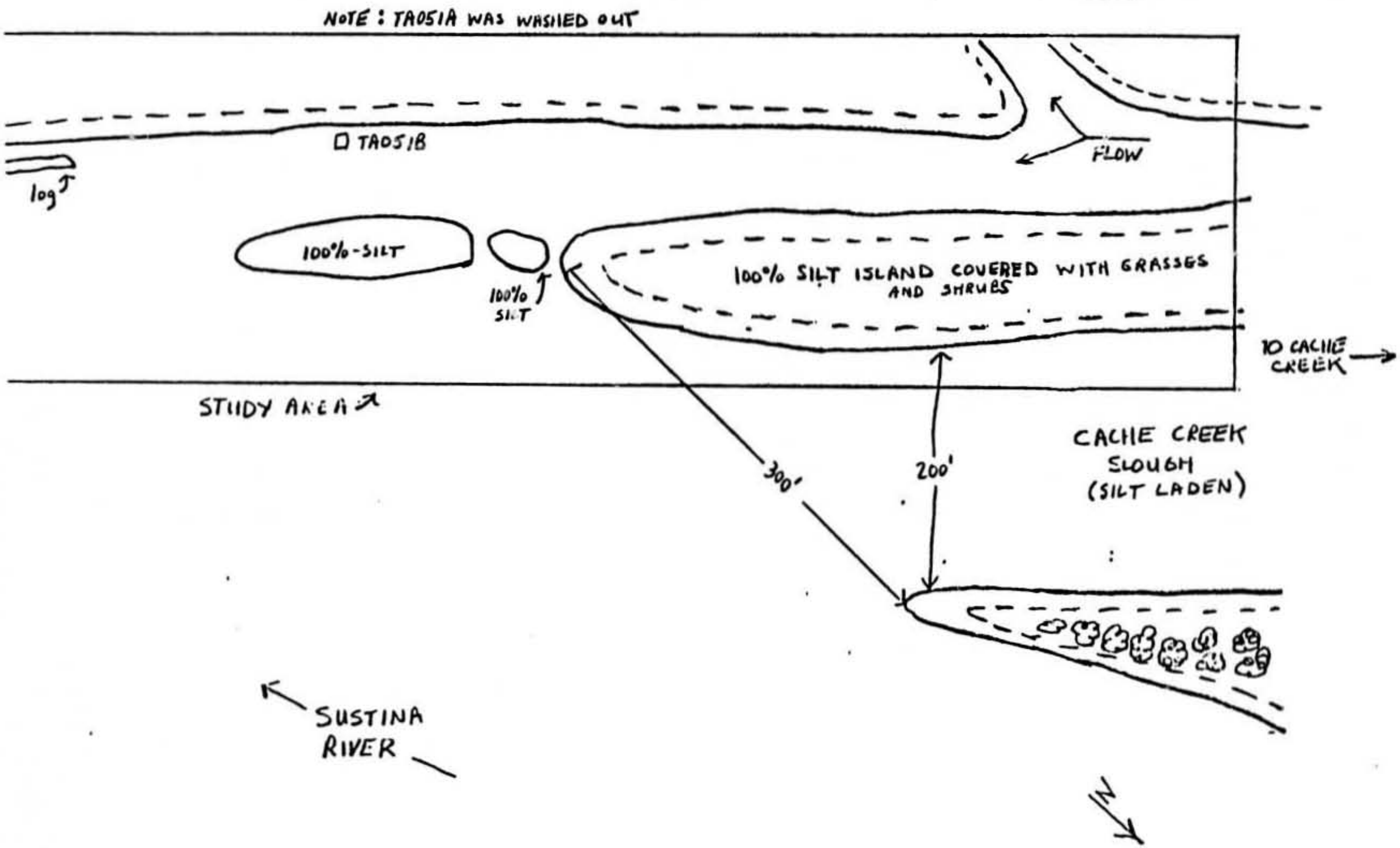
Appendix A Figure 24. Planimetric map for Sunshine Creek (R.M. 85.7, Geographic Code 24N05W14AAB).



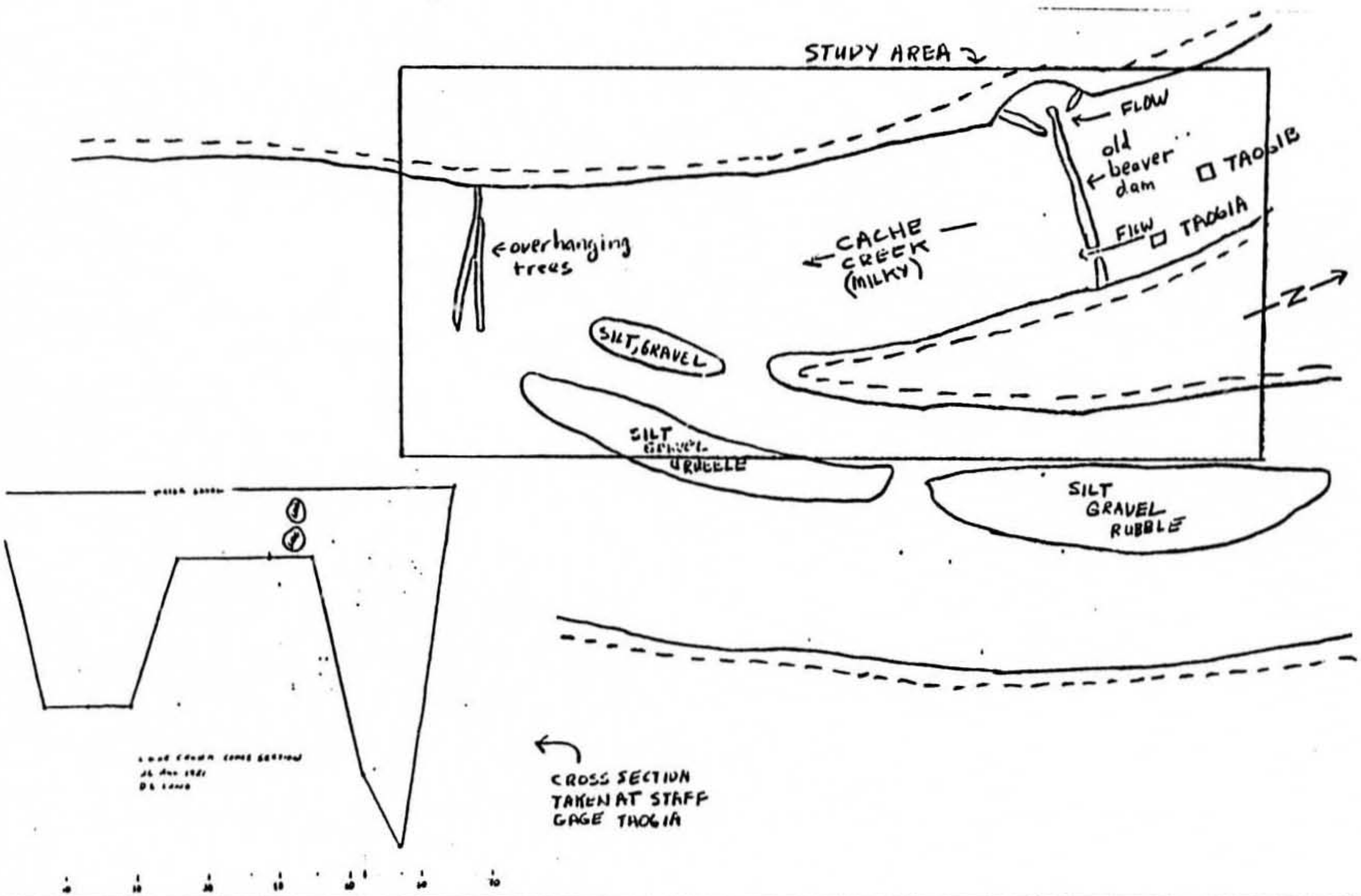
Appendix A Figure 25. Planimetric map for Birch Creek Slough (R.M. 88.4, Geographic Code 25N05W25DCC).



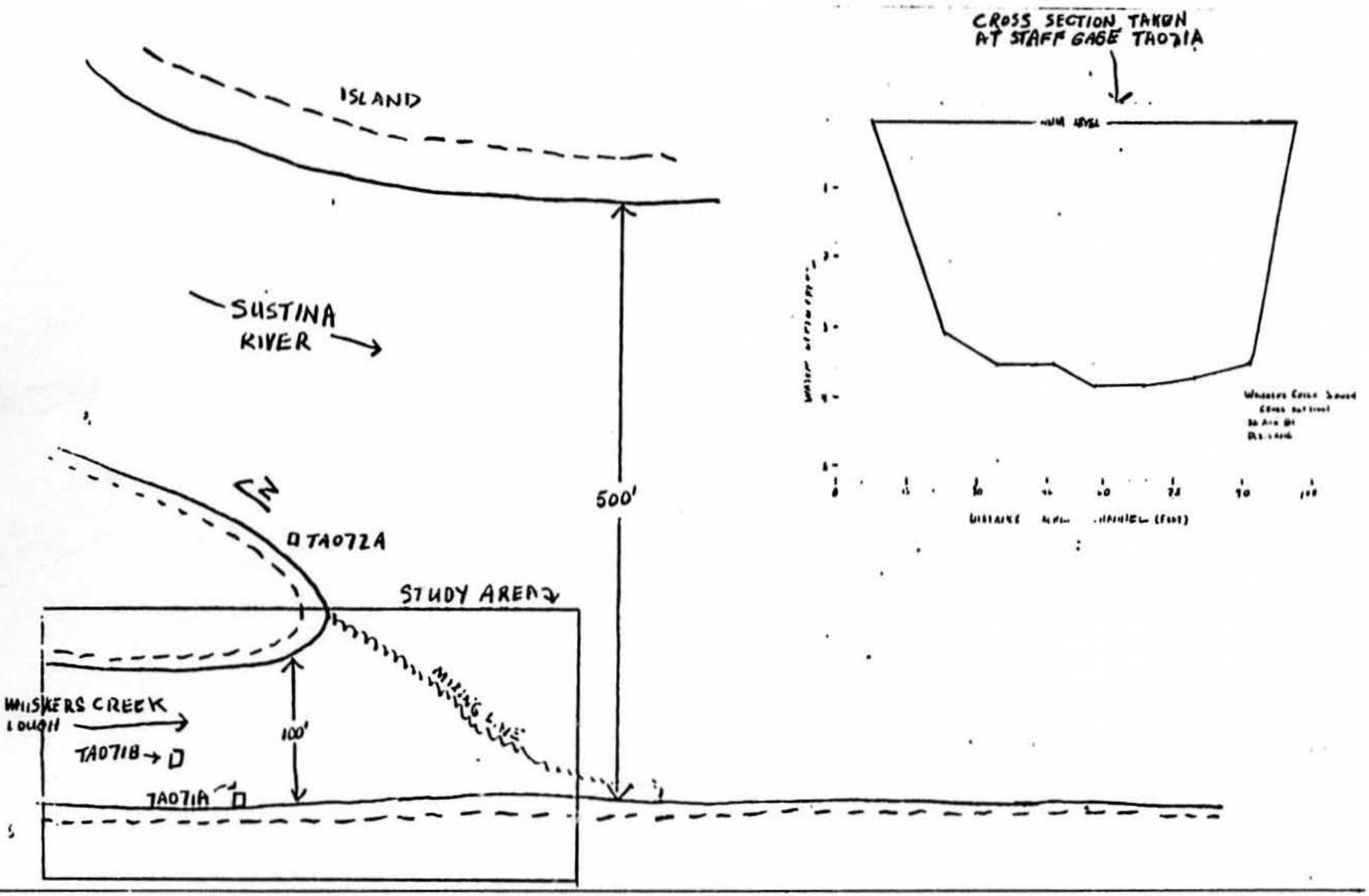
Appendix A Figure 26. Planimetric map for Birch Creek (R.M. 89.2, Geographic Code 25N05W25ABD).



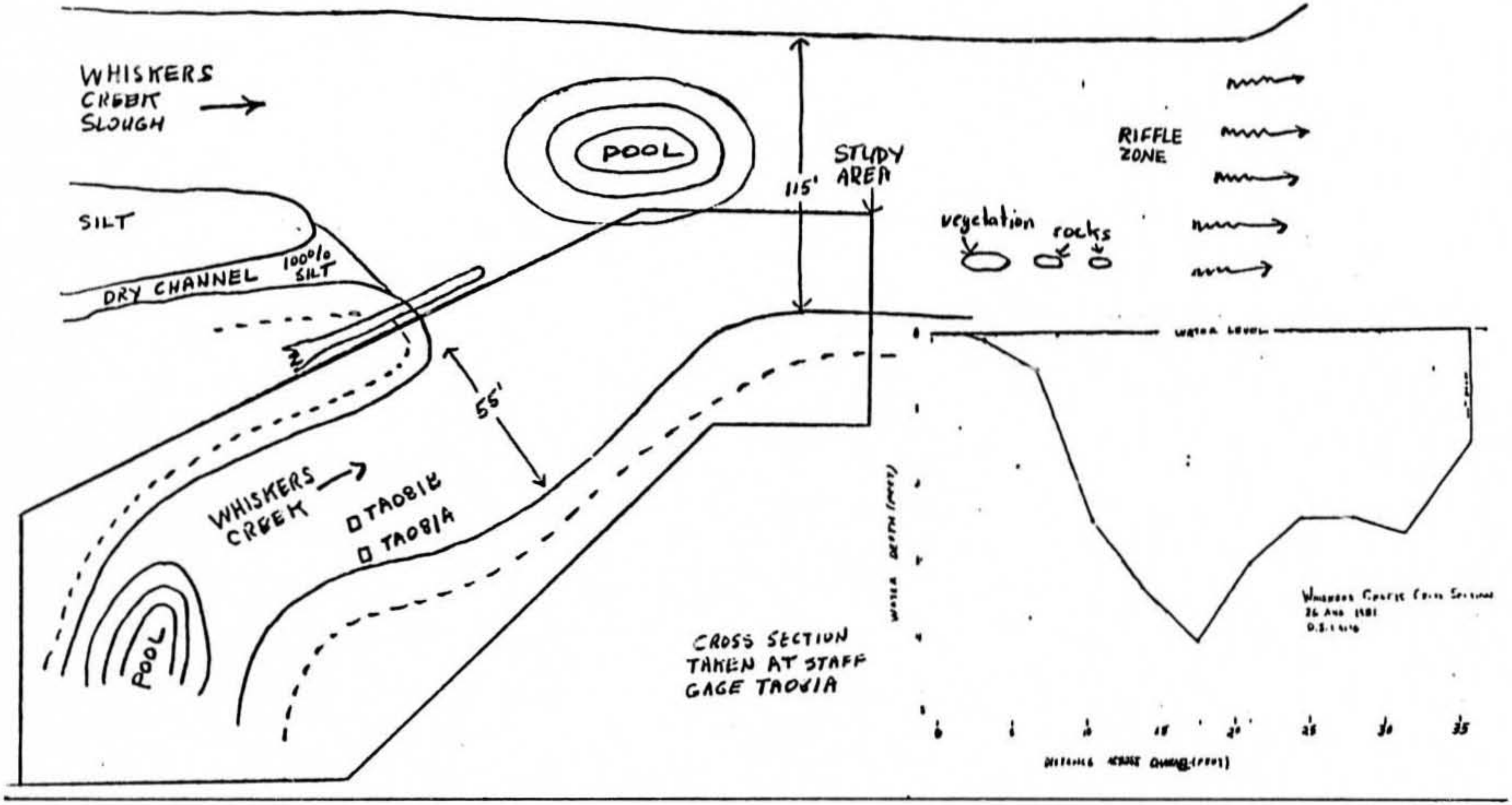
Appendix A Figure 27. Planimetric map for Cache Creek Slough (R.M. 95.5, Geographic Code 26N05W35ADC).



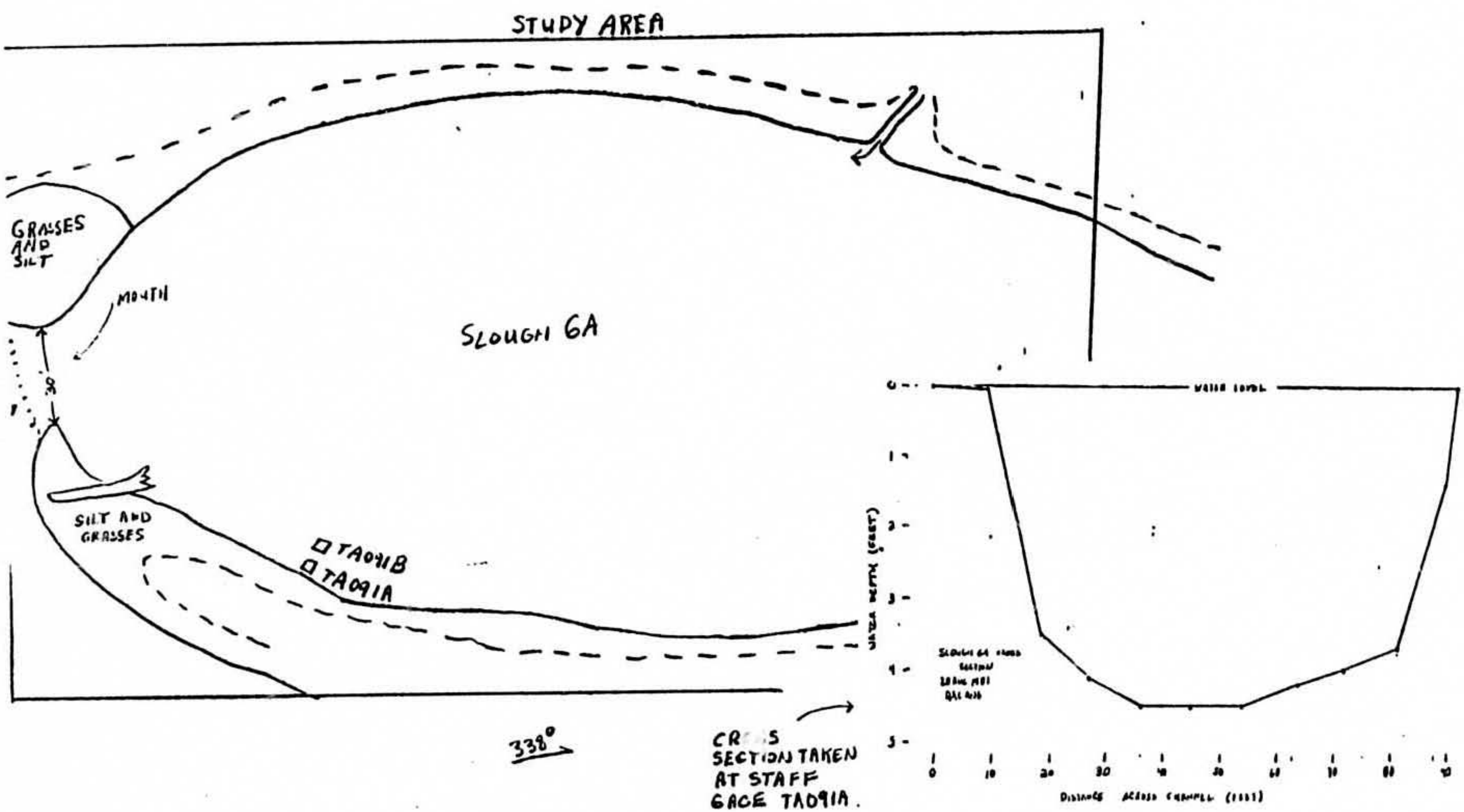
Appendix A Figure 28. Planimetric map for Cache Creek (R.M. 96.0, Geographic Code 26N05W26DCB).



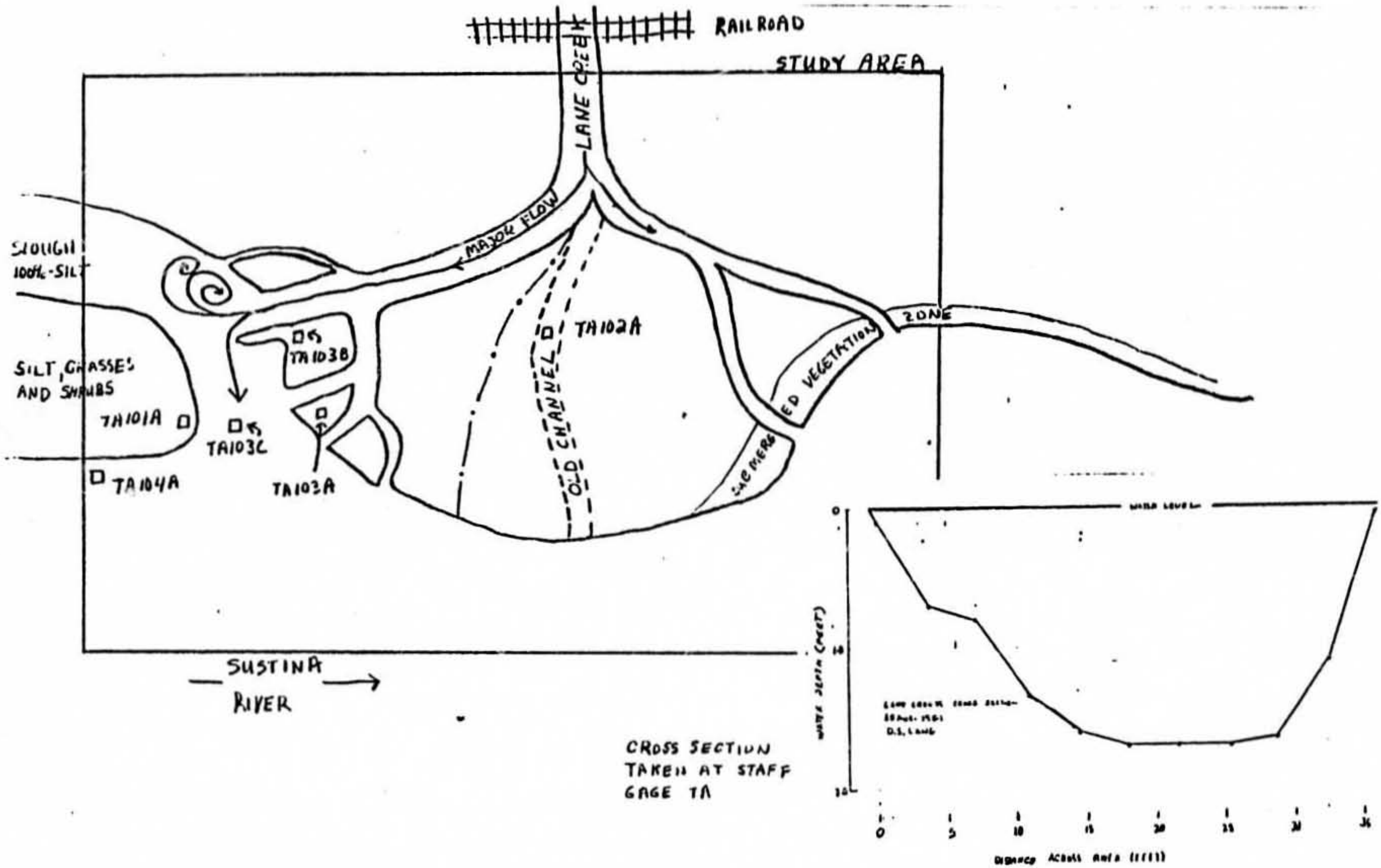
Appendix A Figure 29. Planimetric map for Whiskers Creek Slough (R.M. 101.2, Geographic Code 26N05W03ADB).



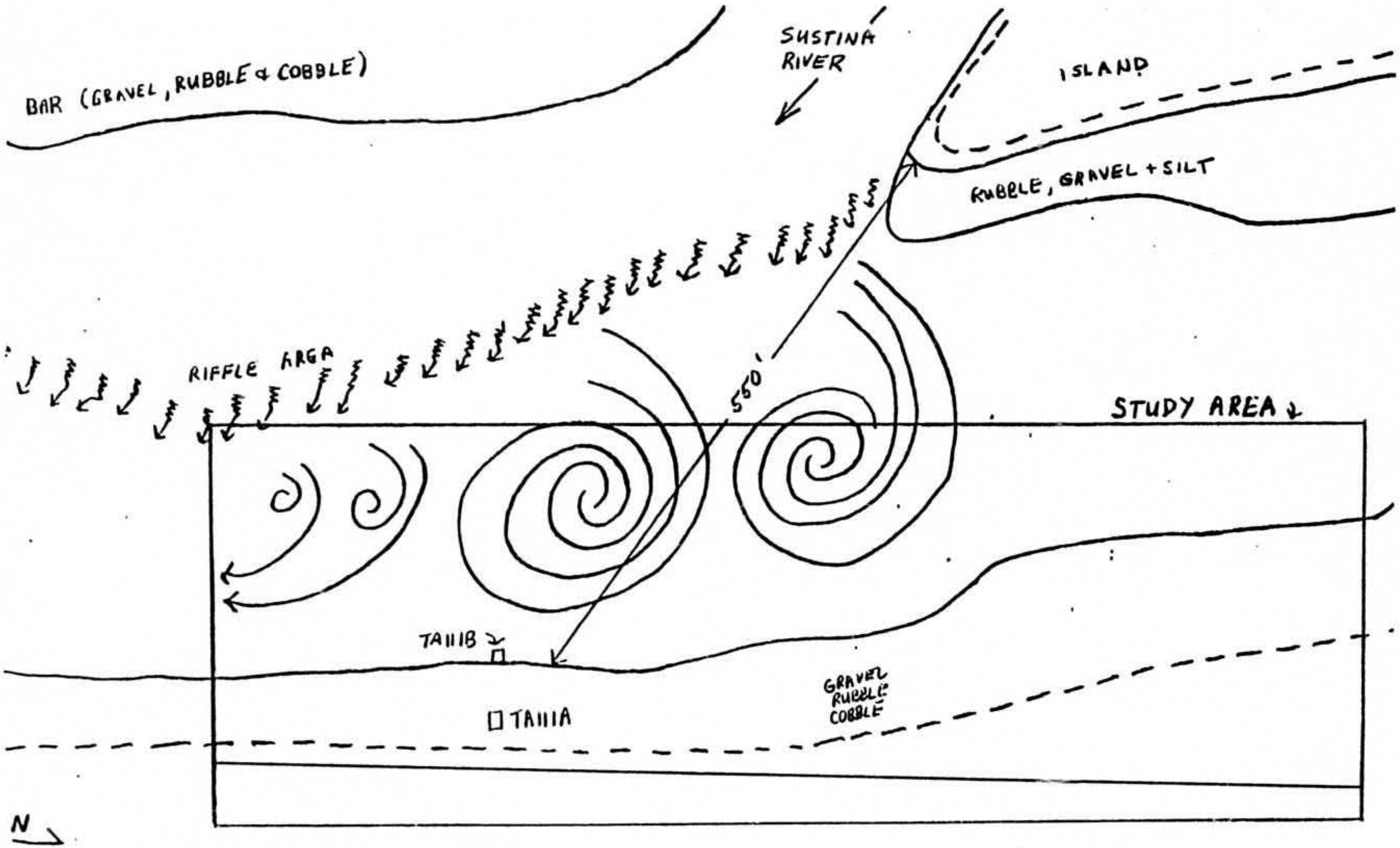
Appendix A Figure 30. Planimetric map for Whiskers Creek (R.M. 101.4, Geographic Code 26N05W03AAC).



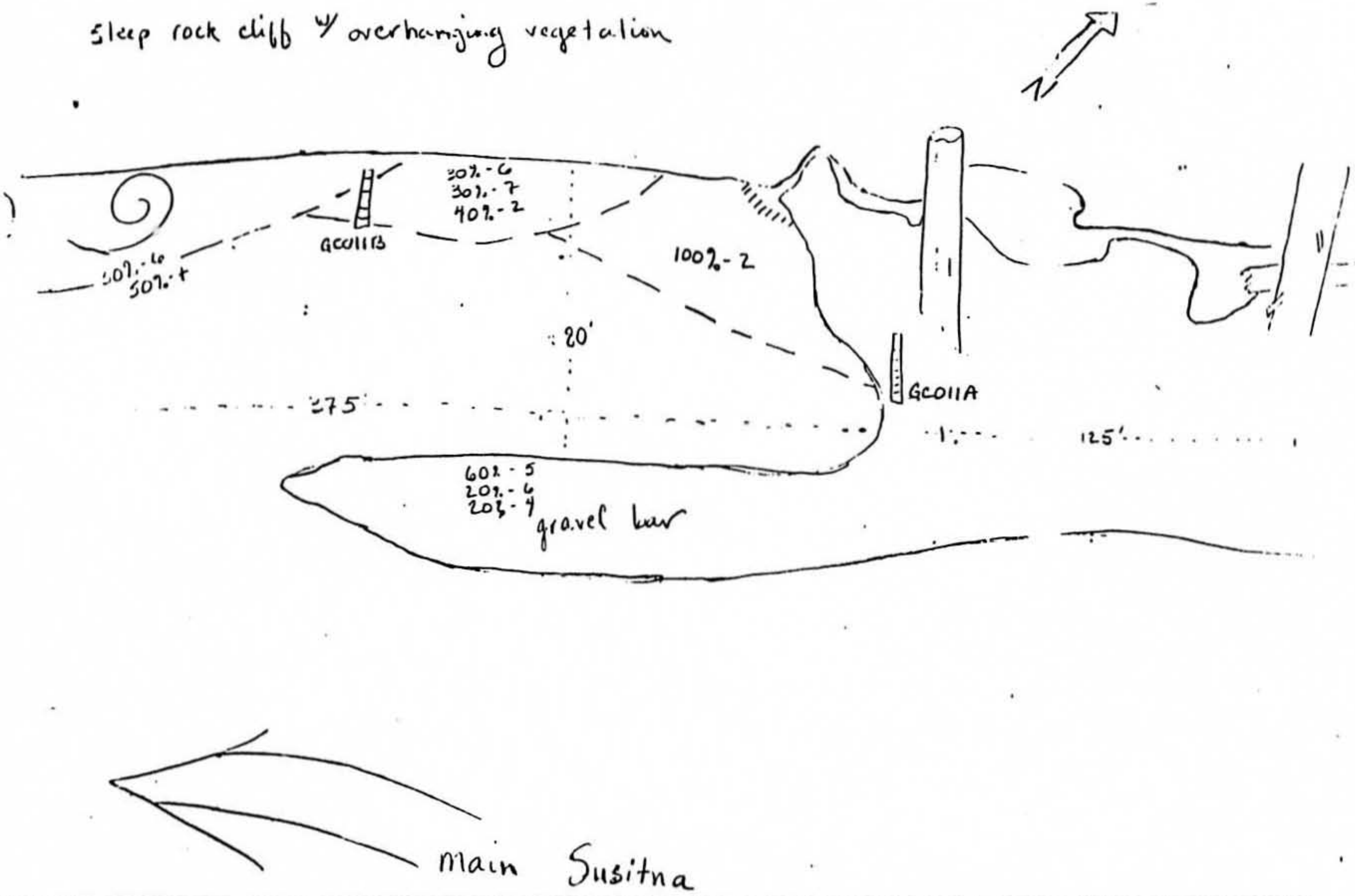
Appendix A Figure 31. Planimetric map for Slough 6A (R.M. 112.3, Geographic Code 28N05W13CAC).



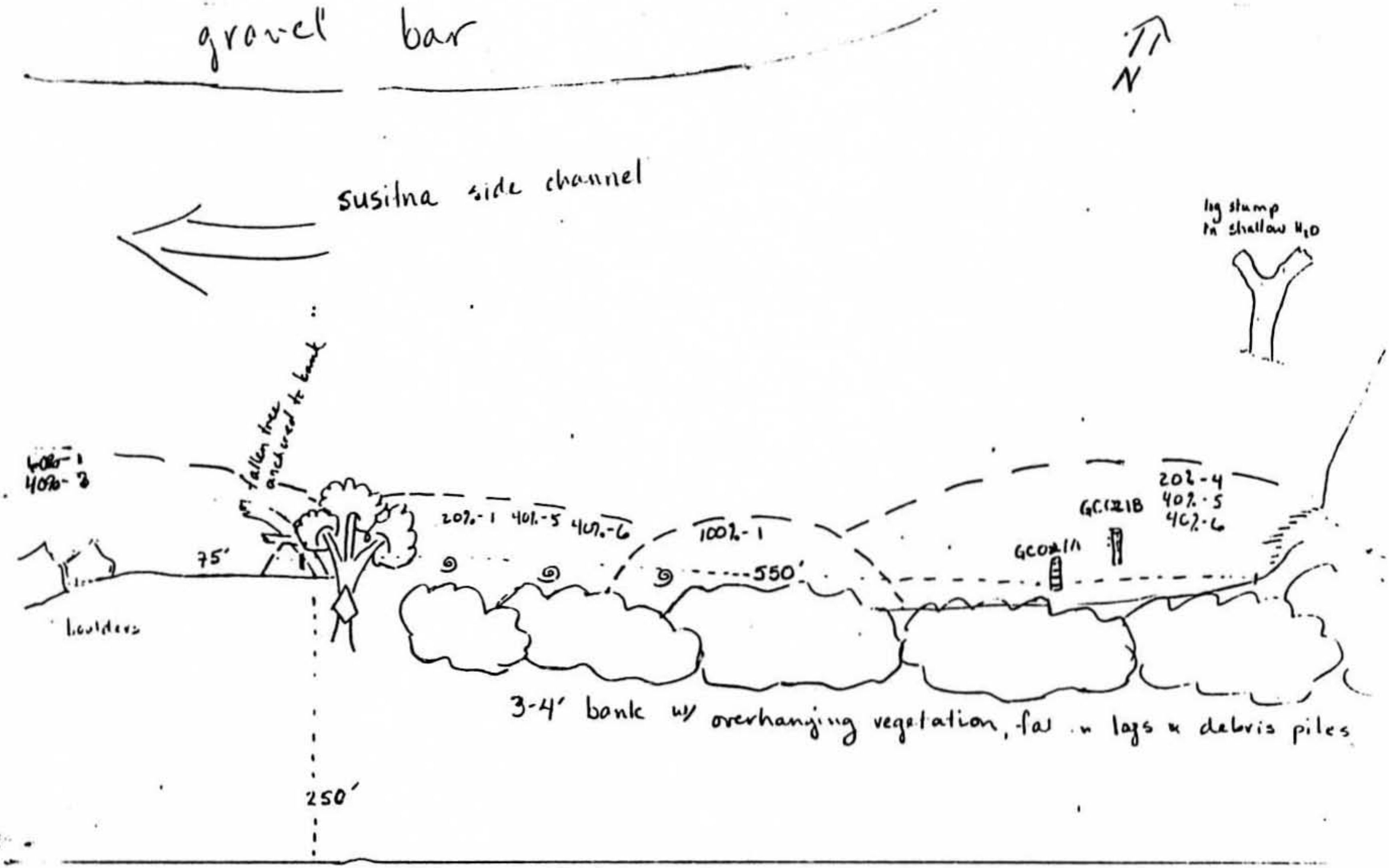
Appendix A Figure 32. Planimetric map for Lane Creek (R.M. 113.6, Geographic Code 28N05W12ADD).



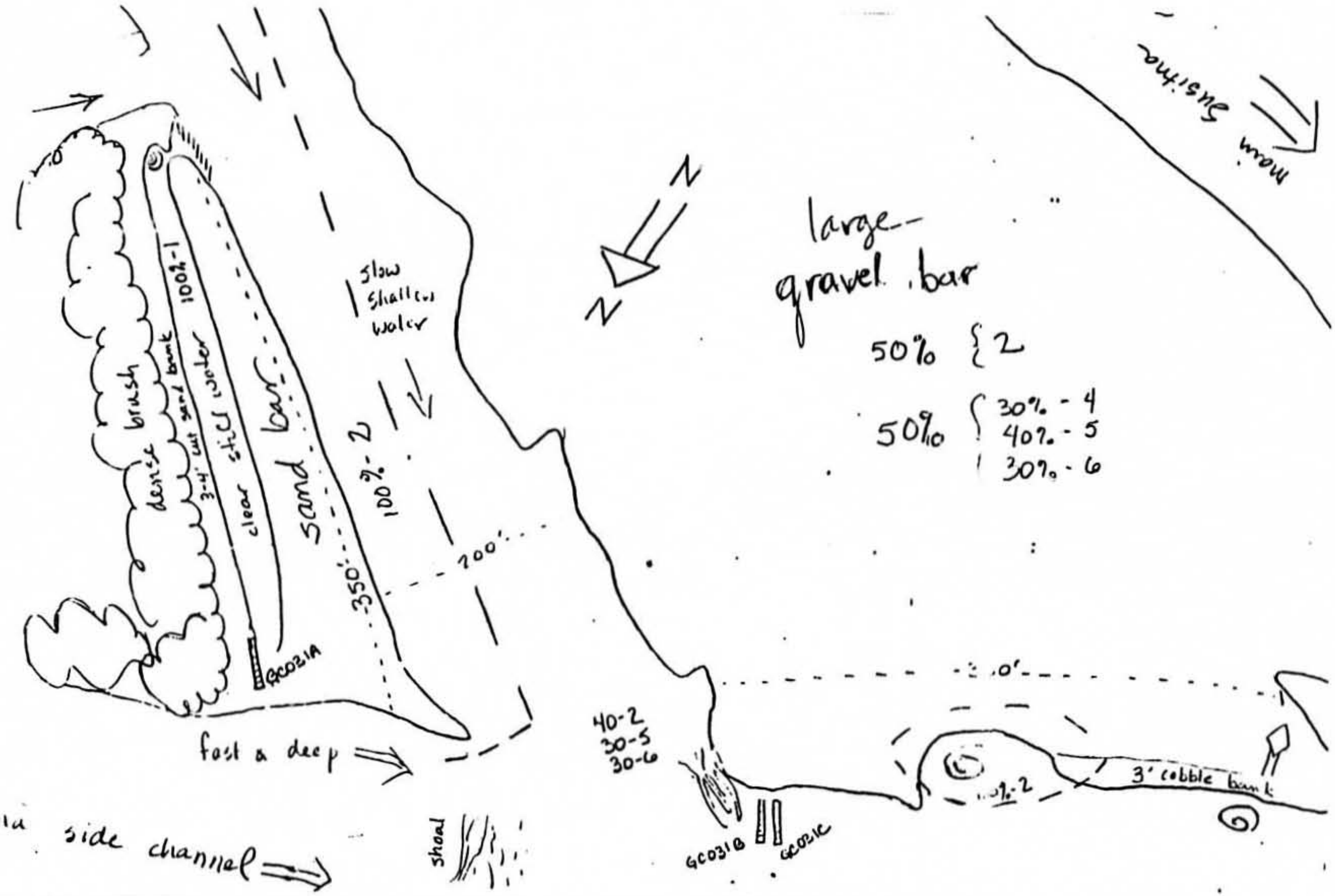
Appendix A Figure 33. Planimetric map for Mainstem 2 (R.M. 114.4, Geographic Code 28NO4WO6CAB).



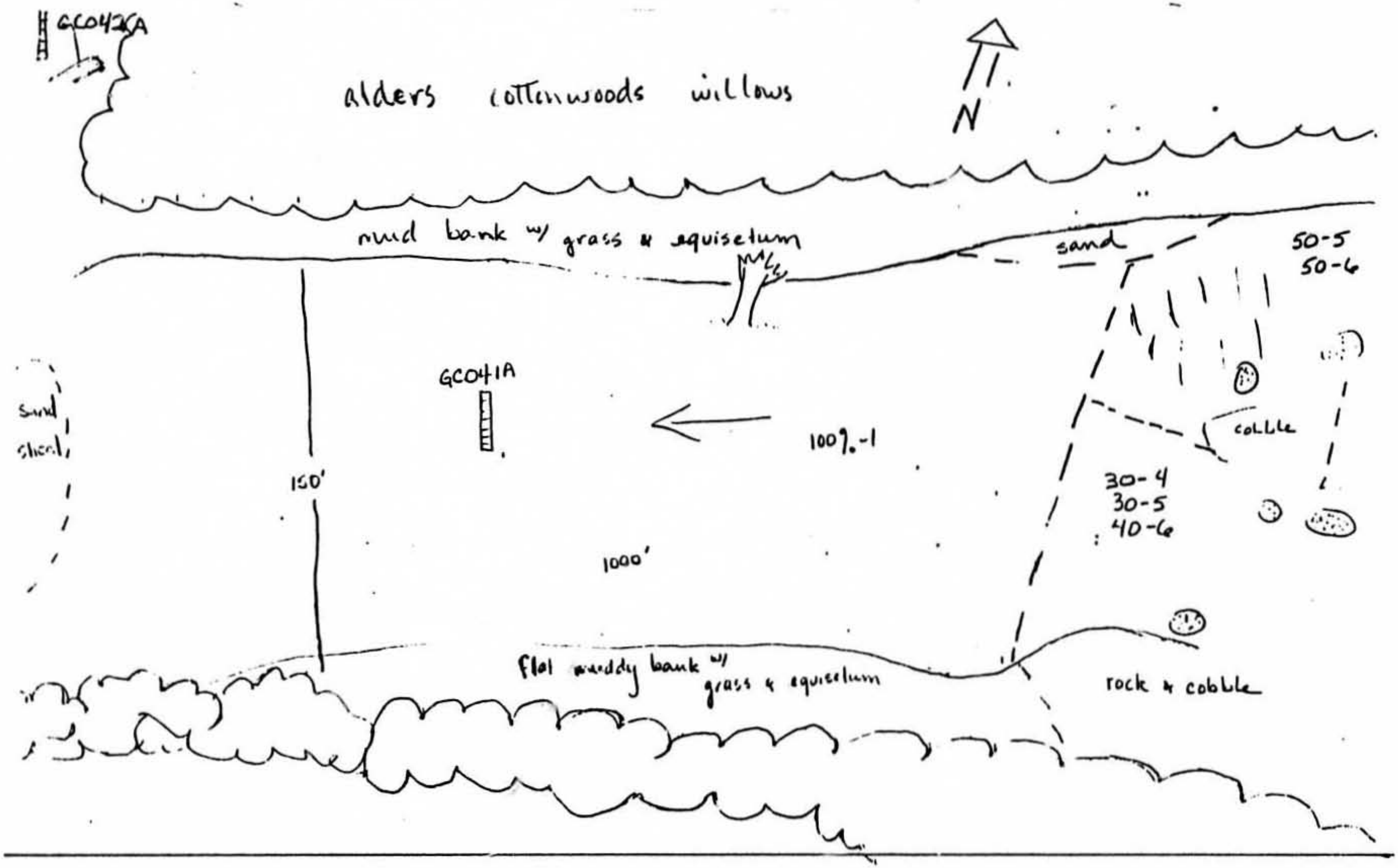
Appendix A Figure 34. Planimetric map for Mainstem Susitna - Curry (Su-Curry) (R.M. 120.7, Geographic Code 29N04W10BCD).



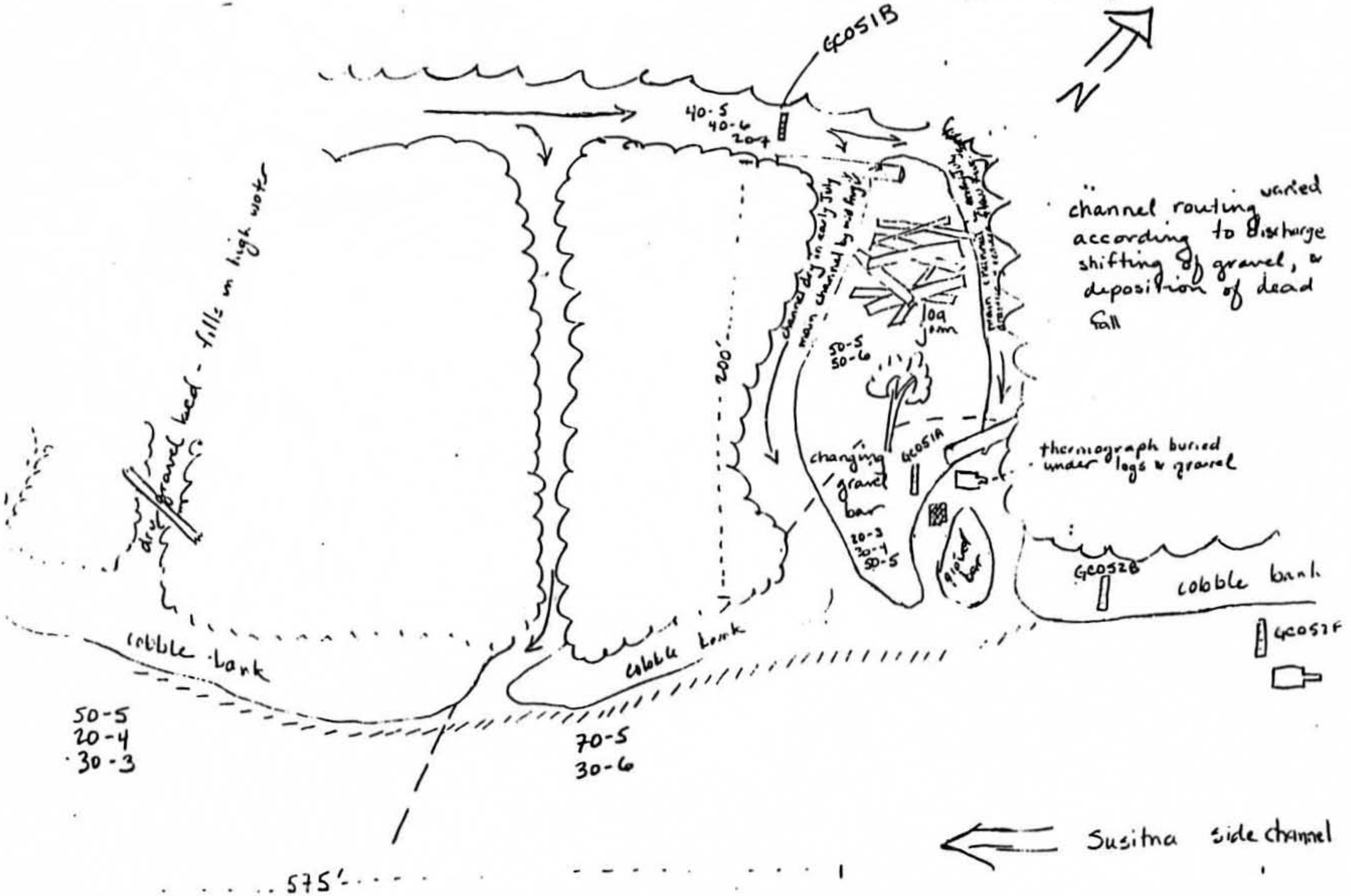
Appendix A Figure 35. Planimetric map for Susitna Side Channel (Su-Side Channel) (R.M. 121.6, Geographic Code 29N04W11BBB).



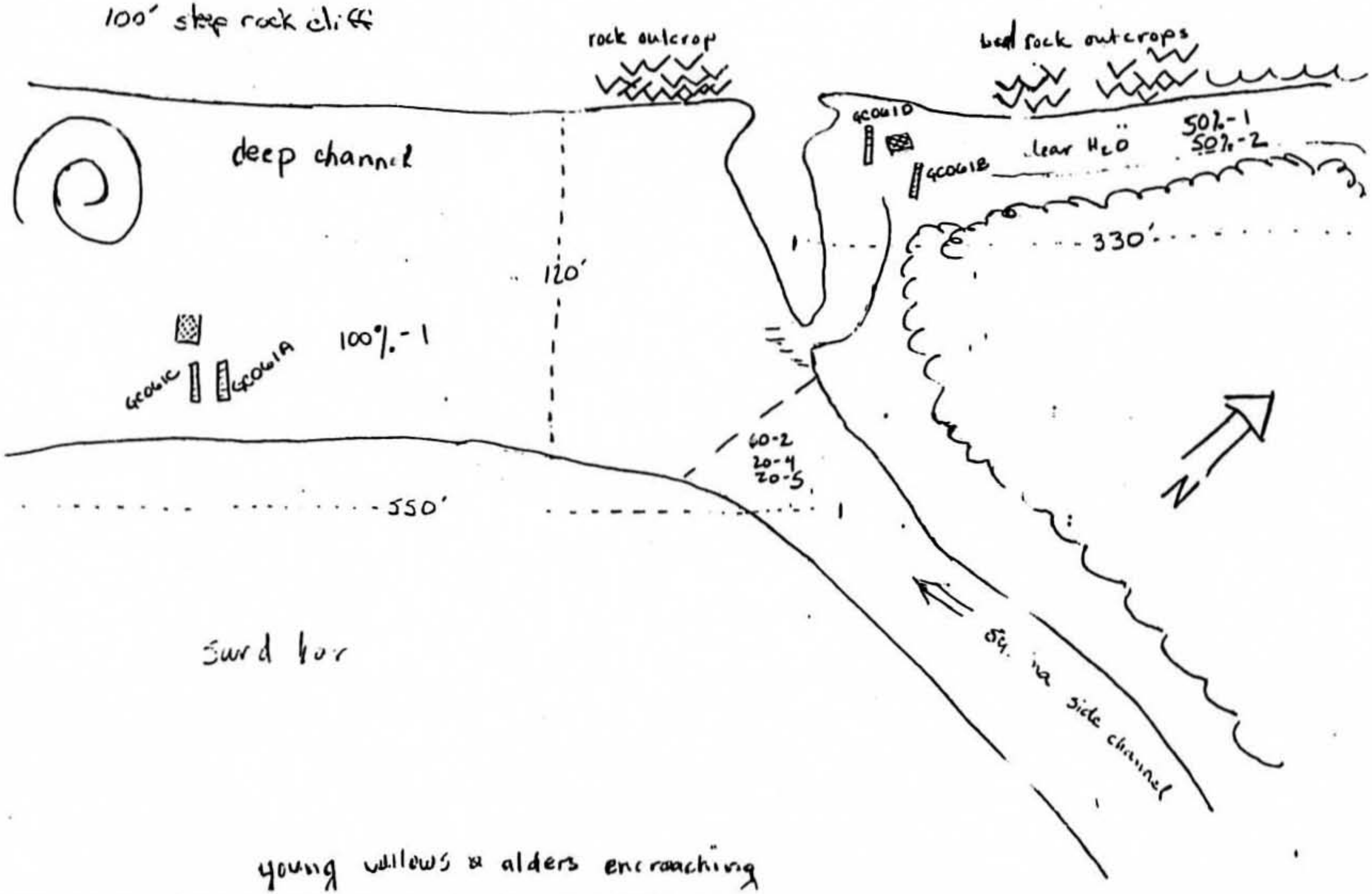
Appendix A Figure 36. Planimetric map for Mainstem Susitna - Gravel Bar (Su-Gravel Bar) (R.M. 123.8, Geographic Code 30N04W26DDD).



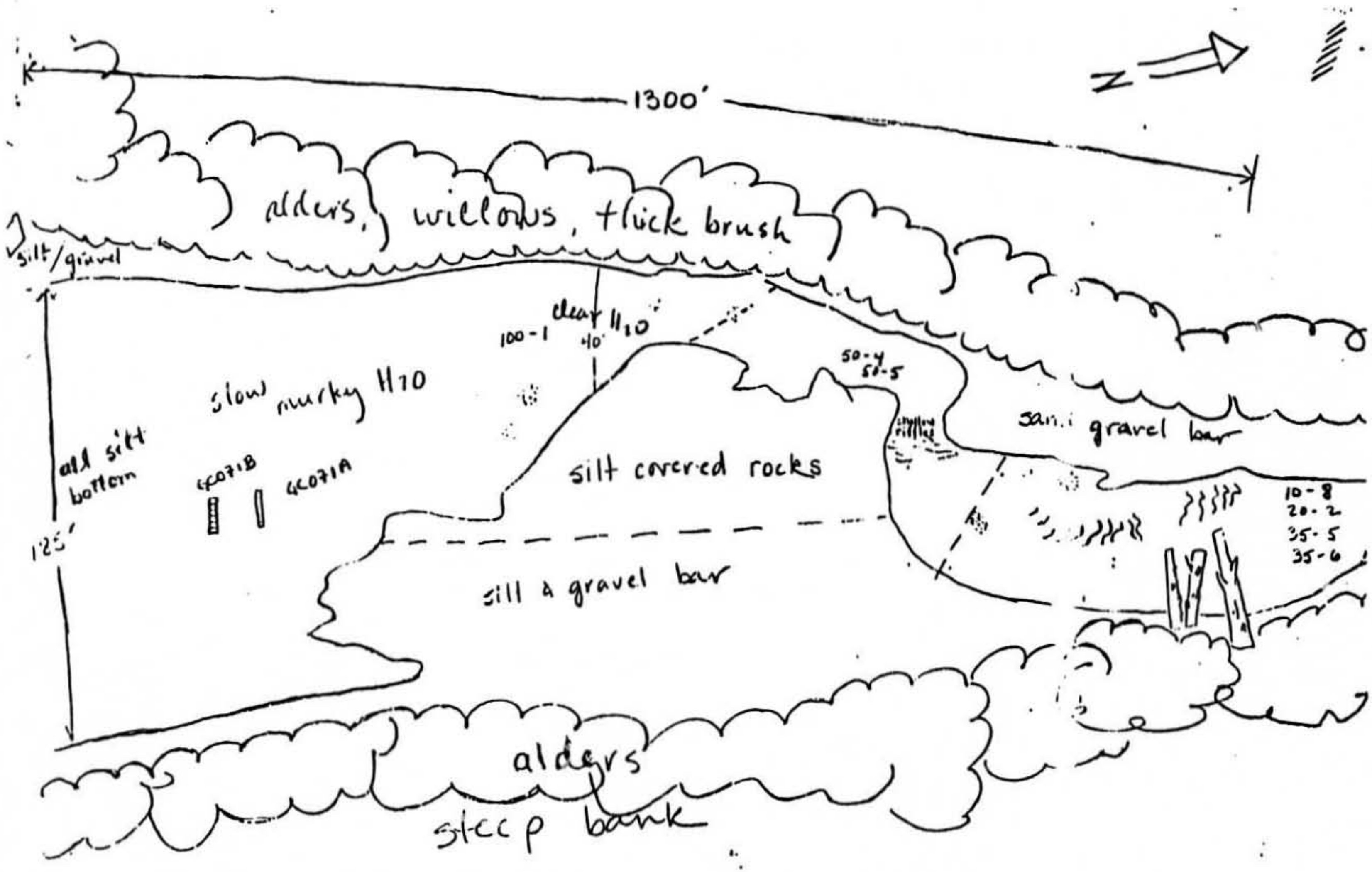
Appendix A Figure 37. Planimetric map for Slough 8A (R.M. 125.3, Geographic Code 30N03W30BCD).



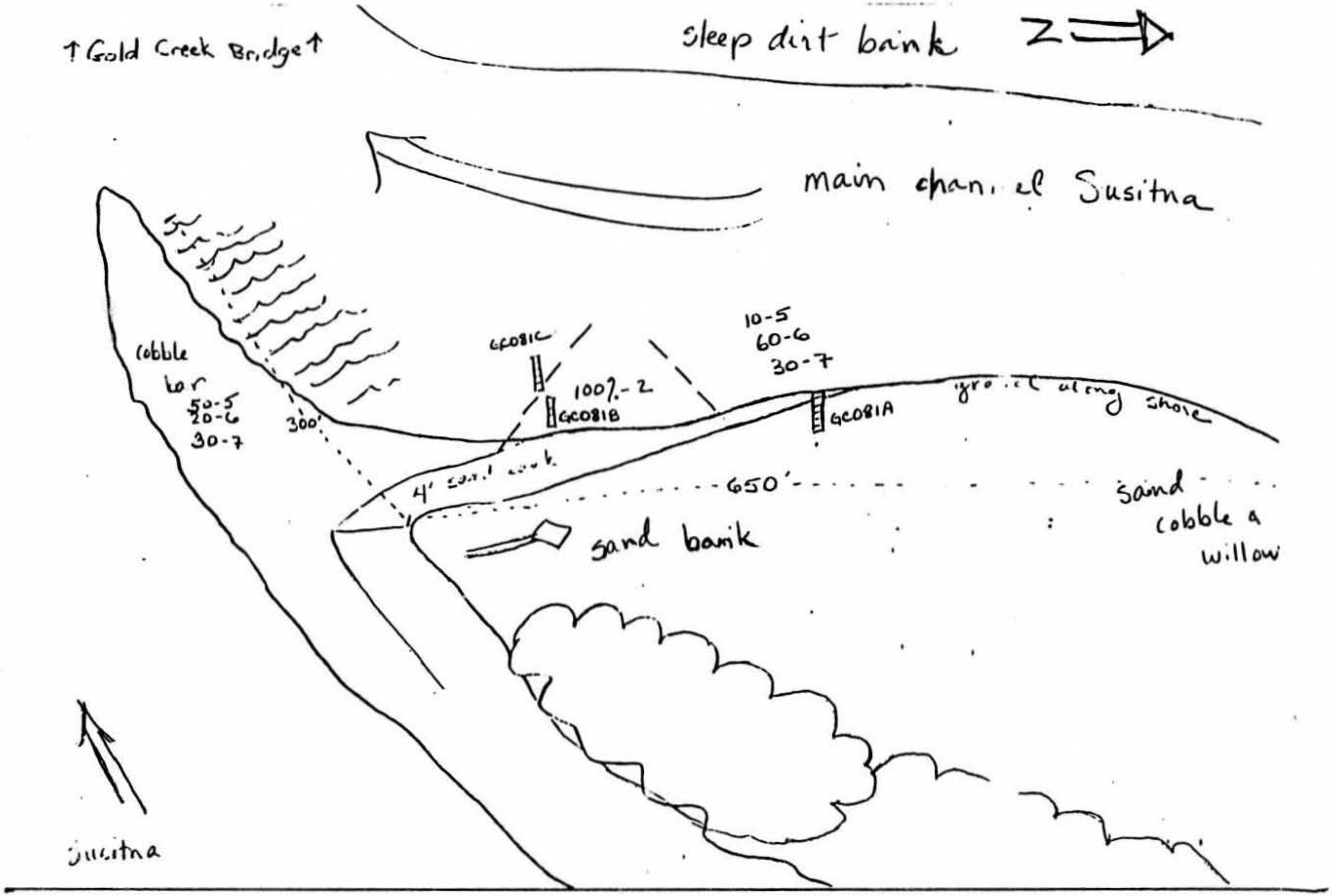
Appendix A Figure 38. Planimetric map for 4th of July Creek (R.M. 131.1, Geographic Code 30N03W03DAC).



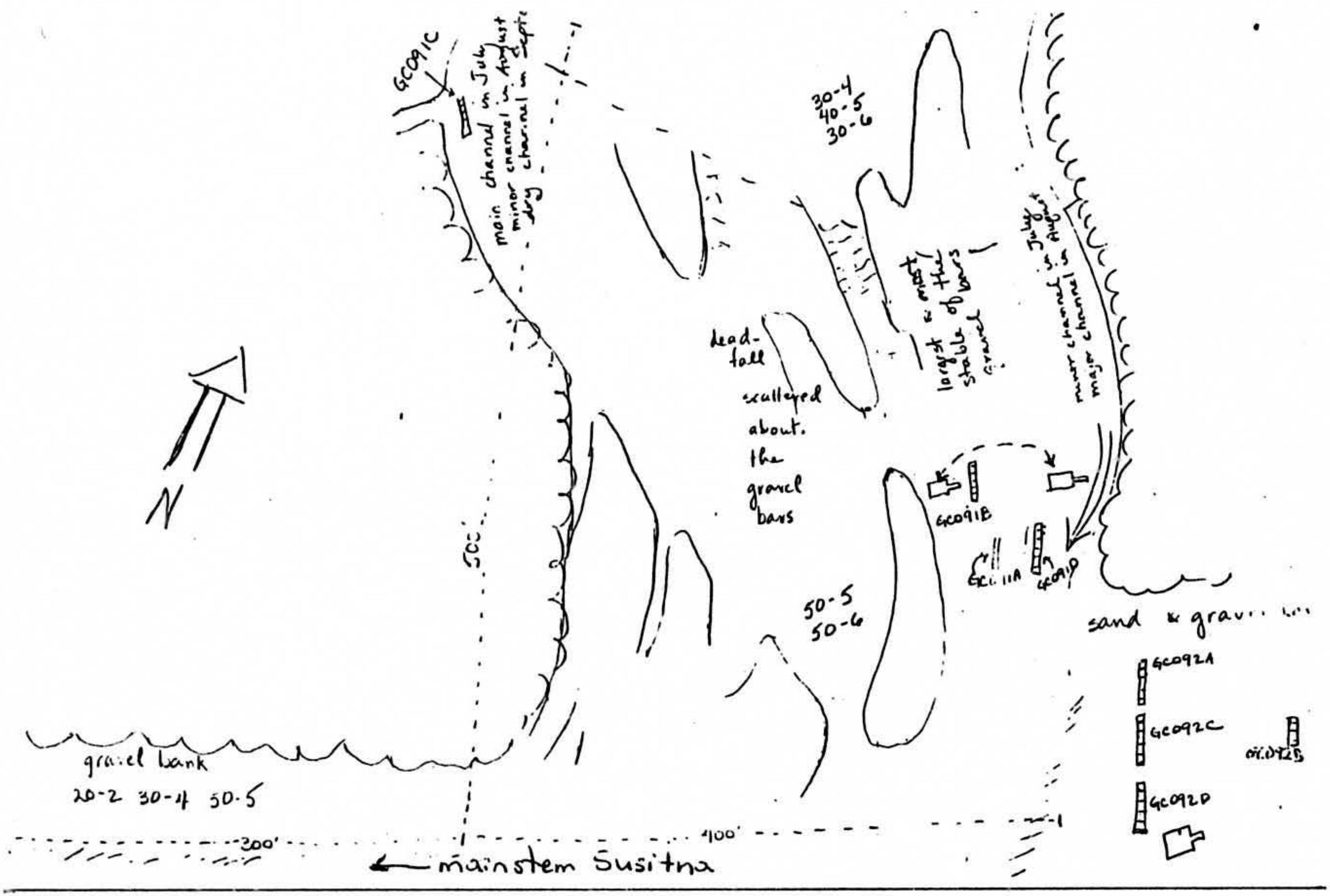
Appendix A Figure 39. Planimetric map for Slough 10 (R.M. 133.8, Geographic Code 31N03W36AAC).



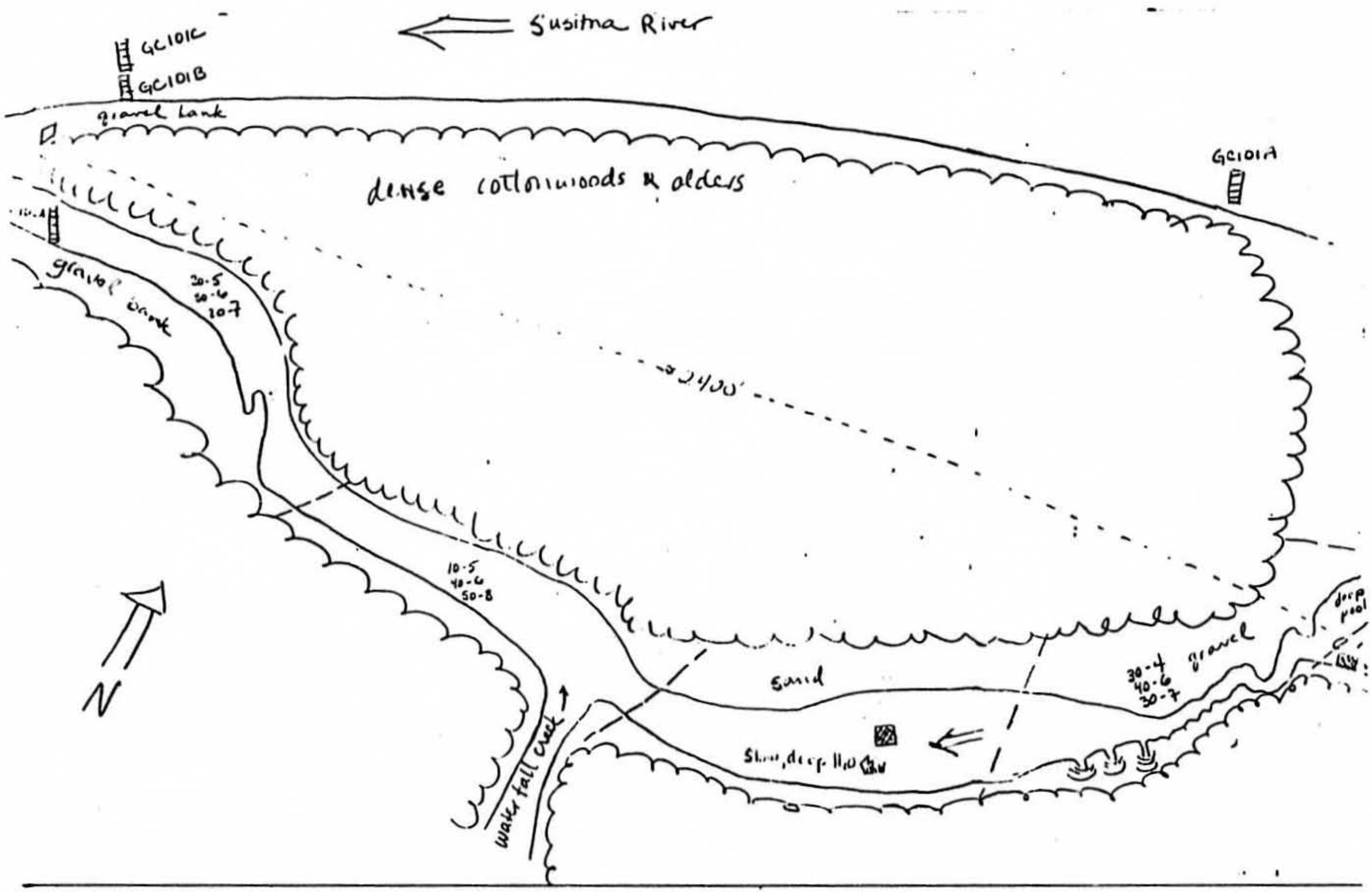
Appendix A Figure 40. Planimetric map for Slough 11 (R.M. 135.3, Geographic Code 31N02W19DDD).



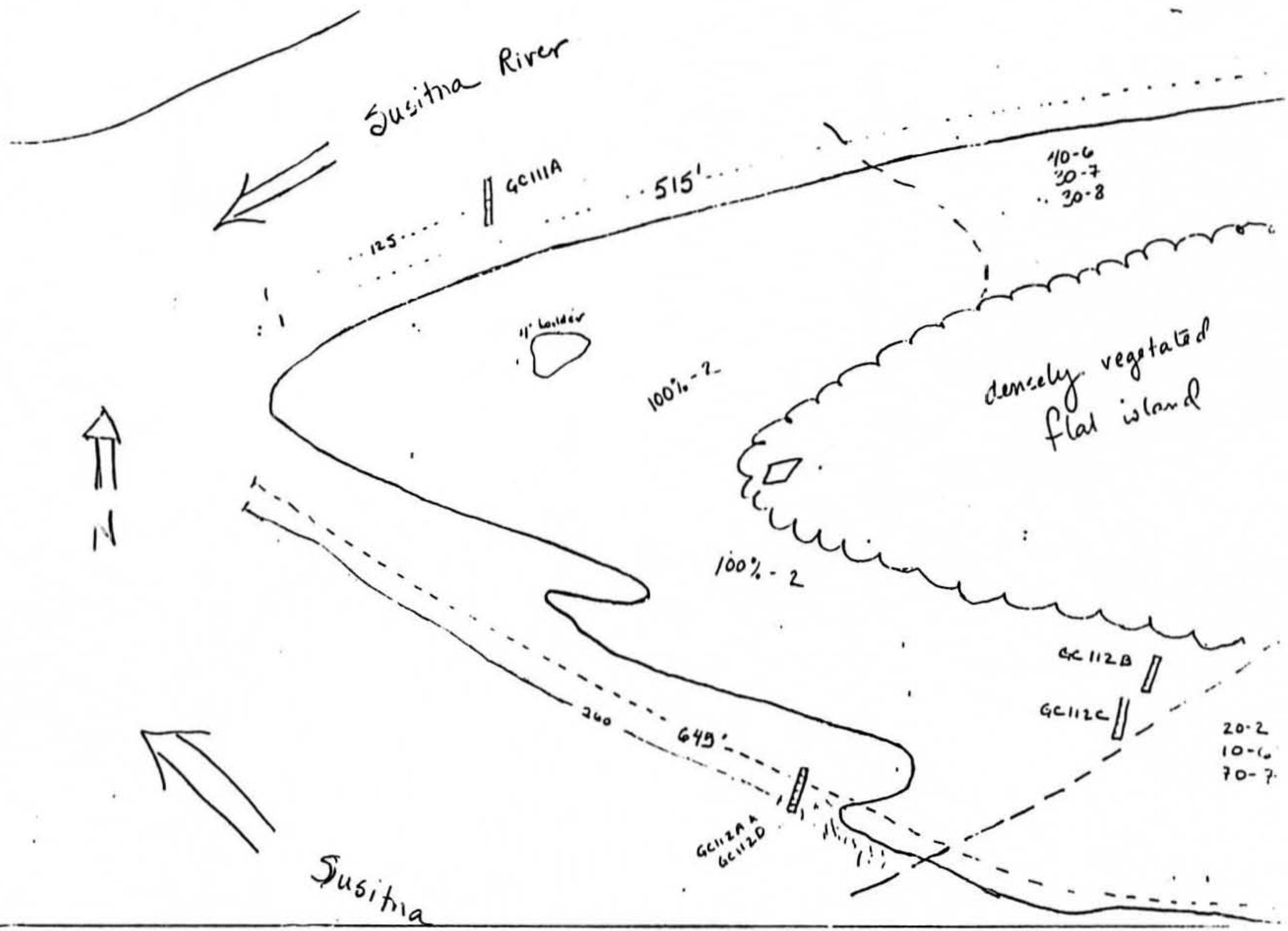
Appendix A Figure 41. Planimetric map for Mainstem Susitna - Inside Bend (R.M. 136.9, Geographic Code 31N02W17CDA).



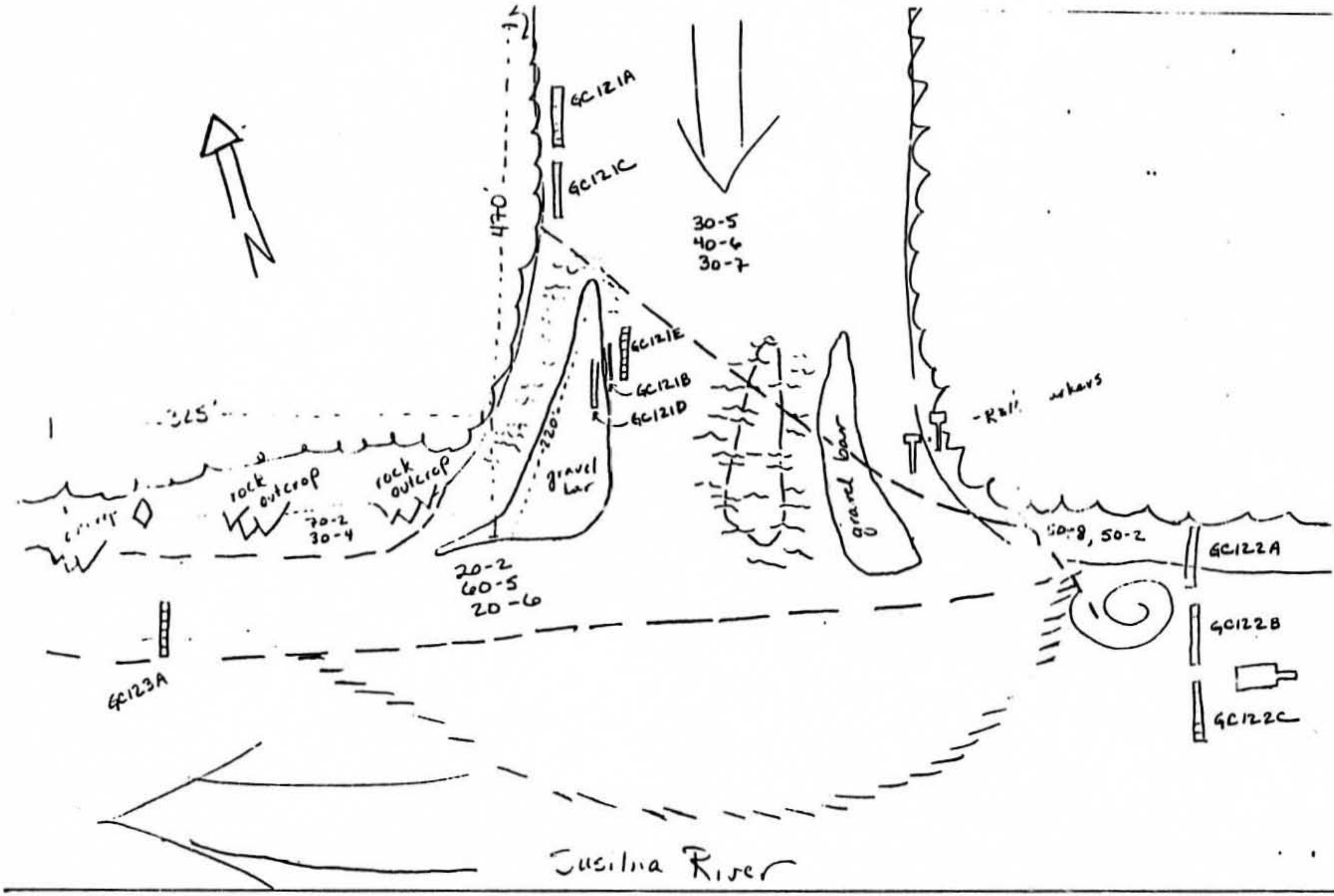
Appendix A Figure 42. Planimetric map for Indian River (R.M. 138.6, Geographic Code 31NO2WO9CDA).



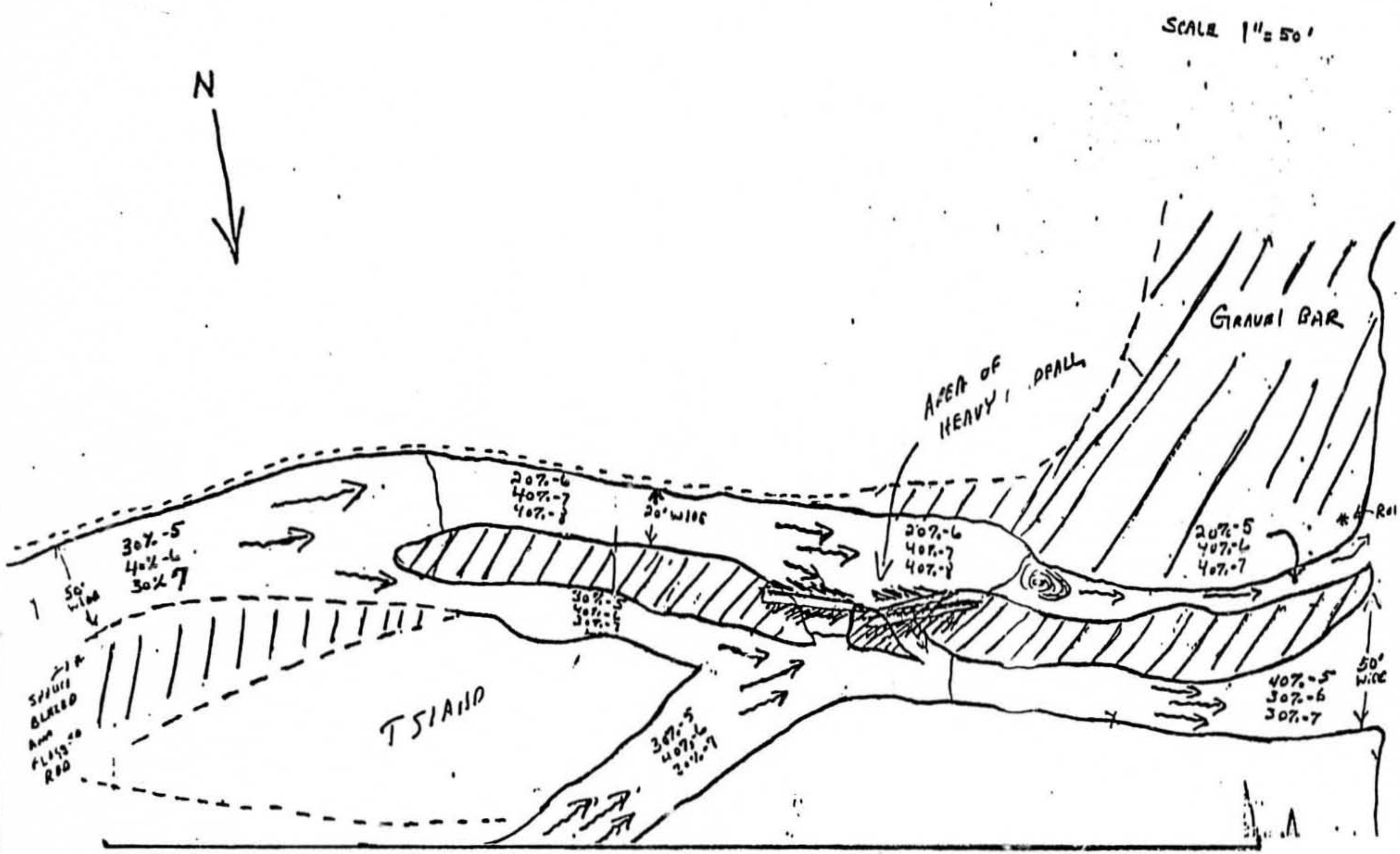
Appendix A Figure 43. Planimetric map for Slough 20 (R.M. 140.1, Geographic Code 31N02W11BBC).



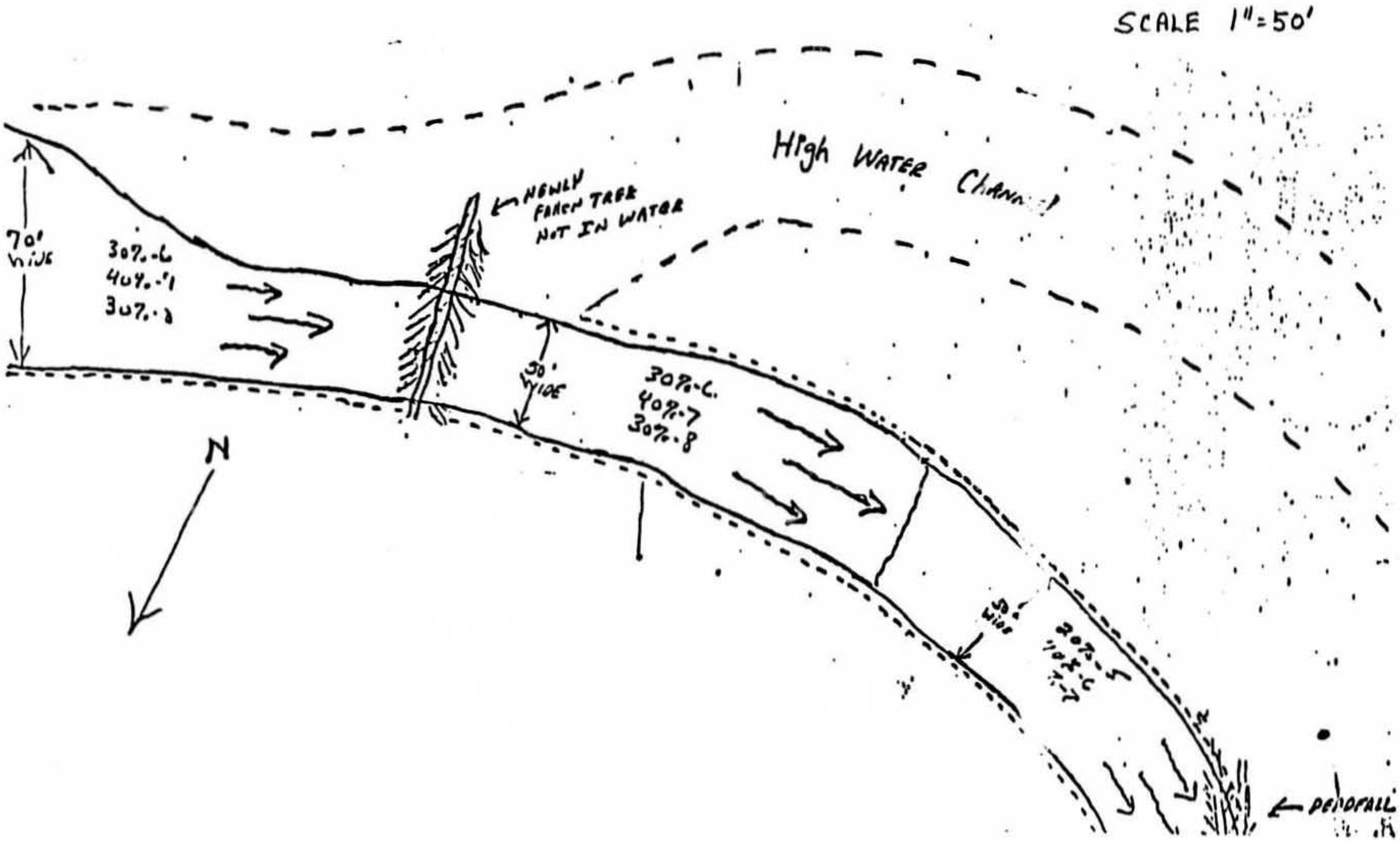
Appendix A Figure 44. Planimetric map for mainstem Susitna - Island (Su-Island) (R.M. 136.9, Geographic Code 32N01W27DBC).



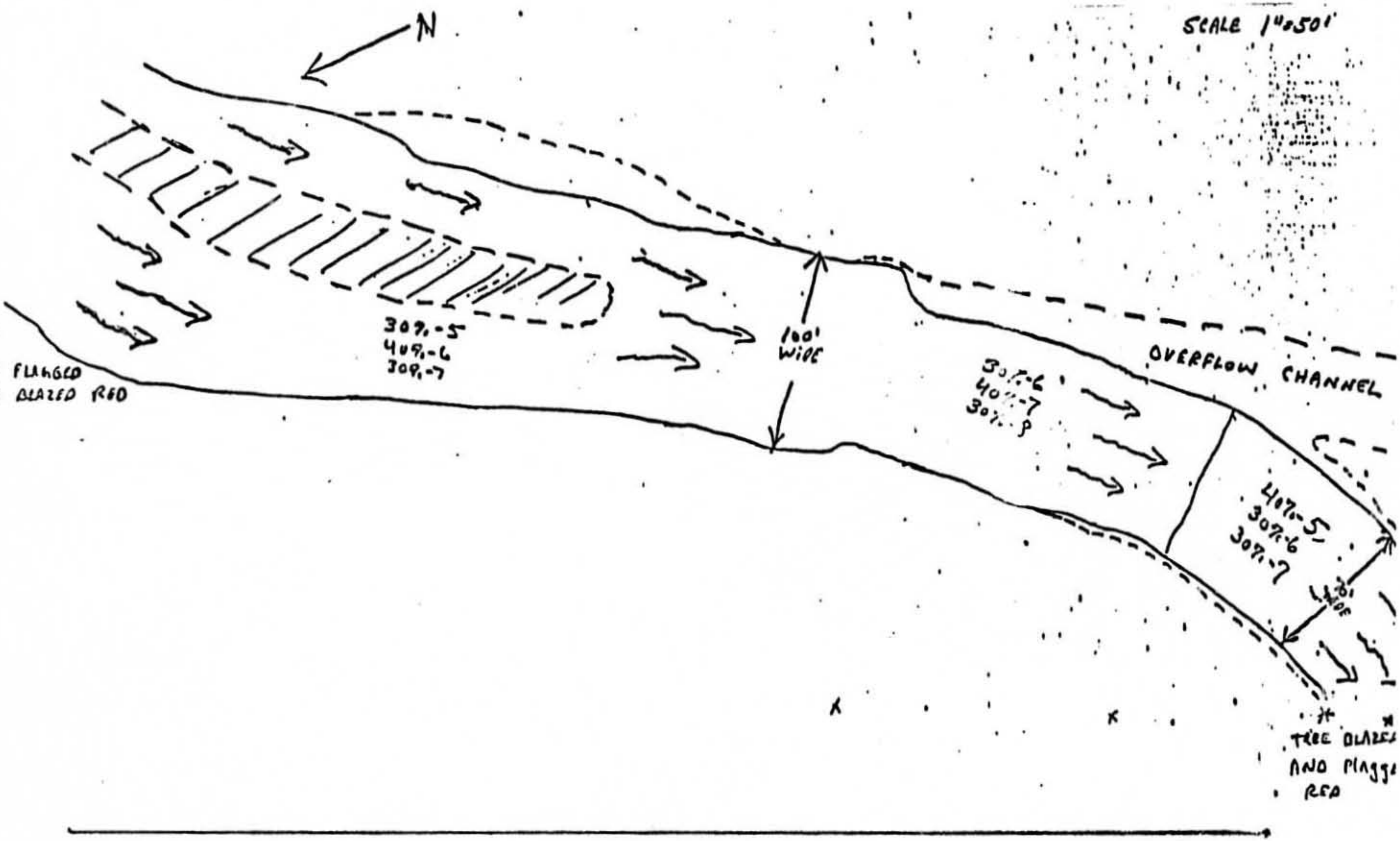
Appendix A Figure 45. Planimetric map for Portage Creek (R.M. 148.8, Geographic Code 32N01W25CDB).



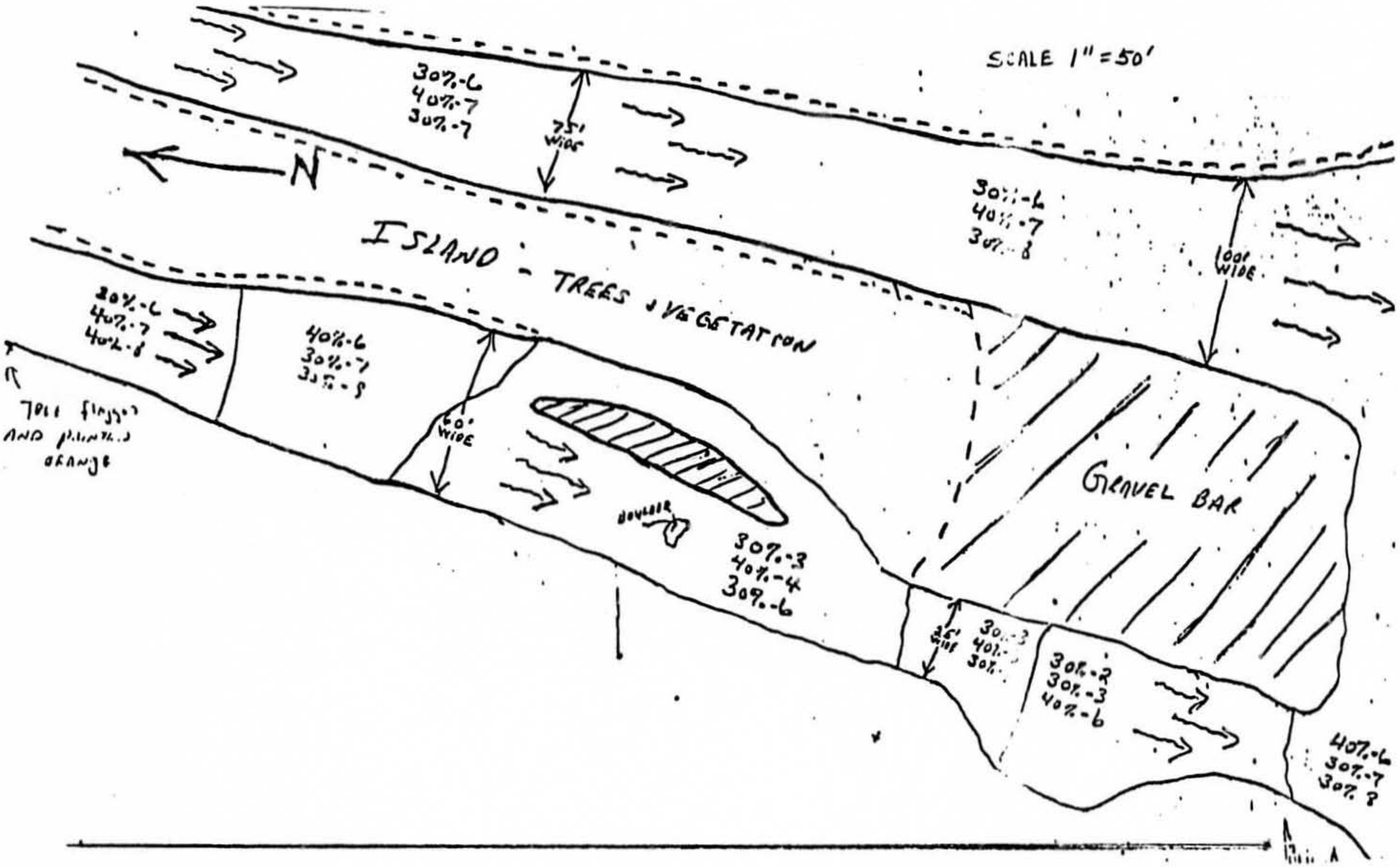
Appendix A Figure 46. Planimetric map for Fog Creek Sec. 01 (R.M. 173.9, Geographic Code 31N04E16DBB).



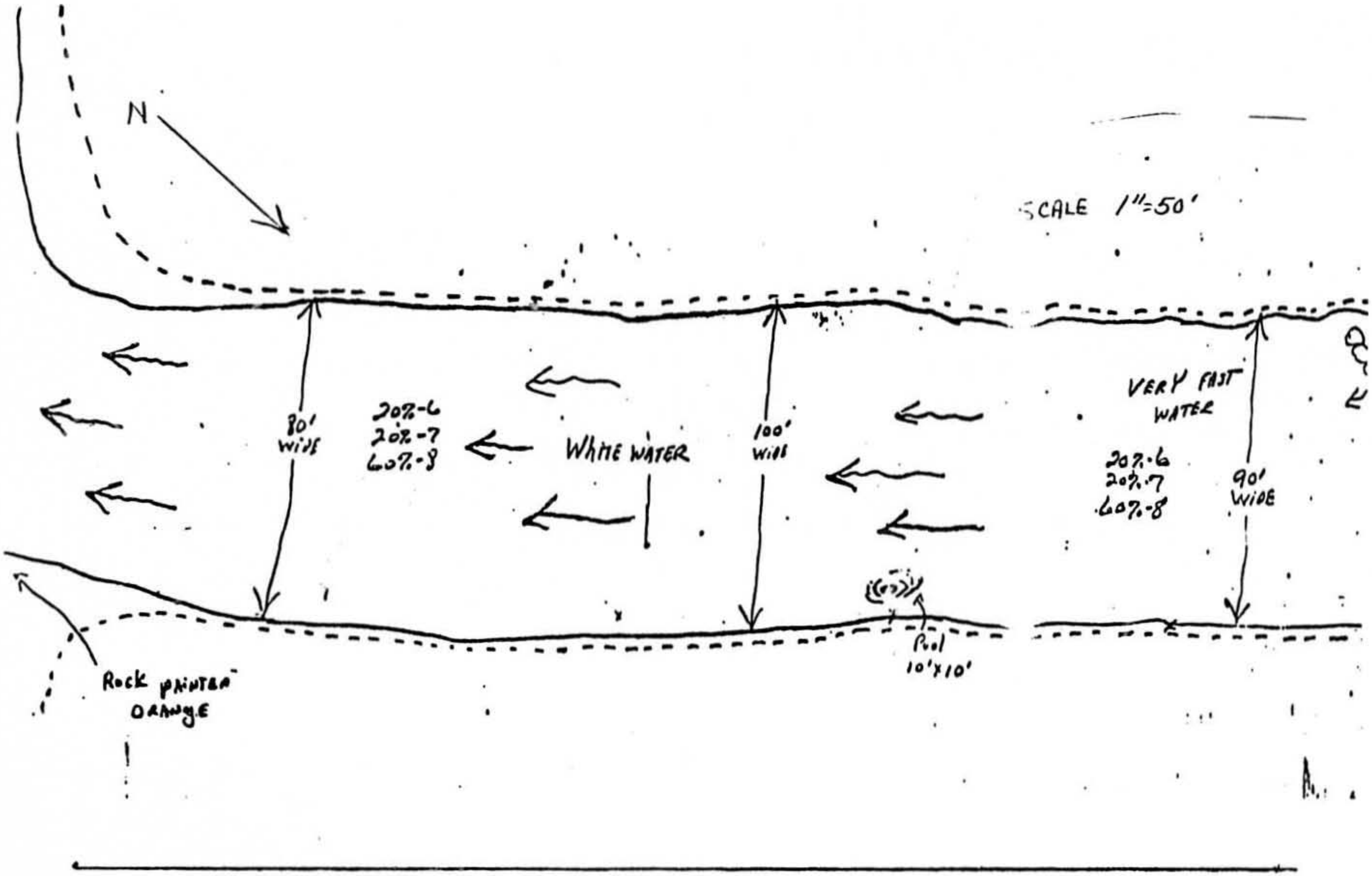
Appendix A Figure 47. Planimetric map for Fog Creek Sec. 02 (R.M. 173.9, Geographic Code 31N04E16DBD).



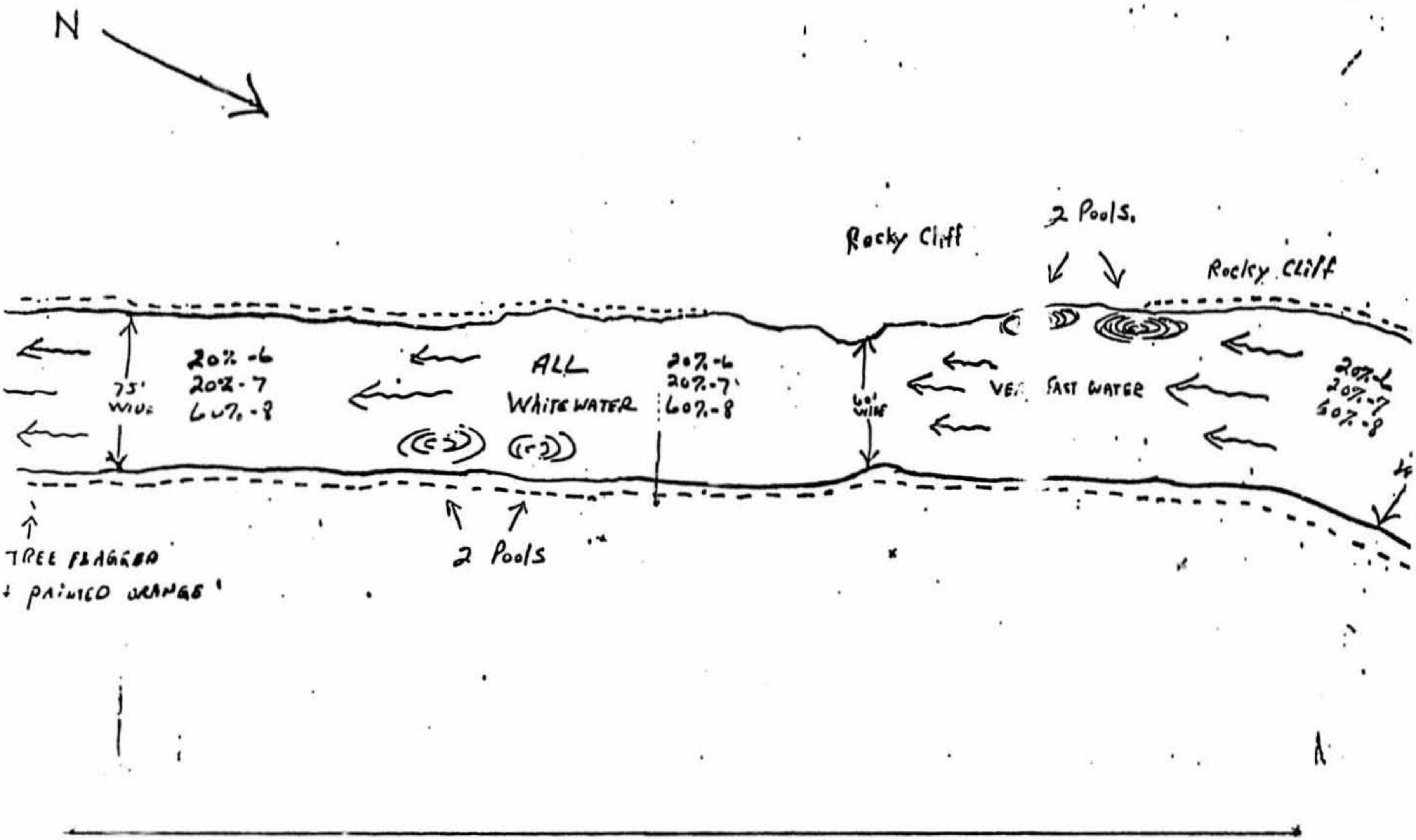
Appendix A Figure 48. Planimetric map for Fog Creek Sec. 03(R.M. 173.9, Geographic Code 31N04E16DAD).



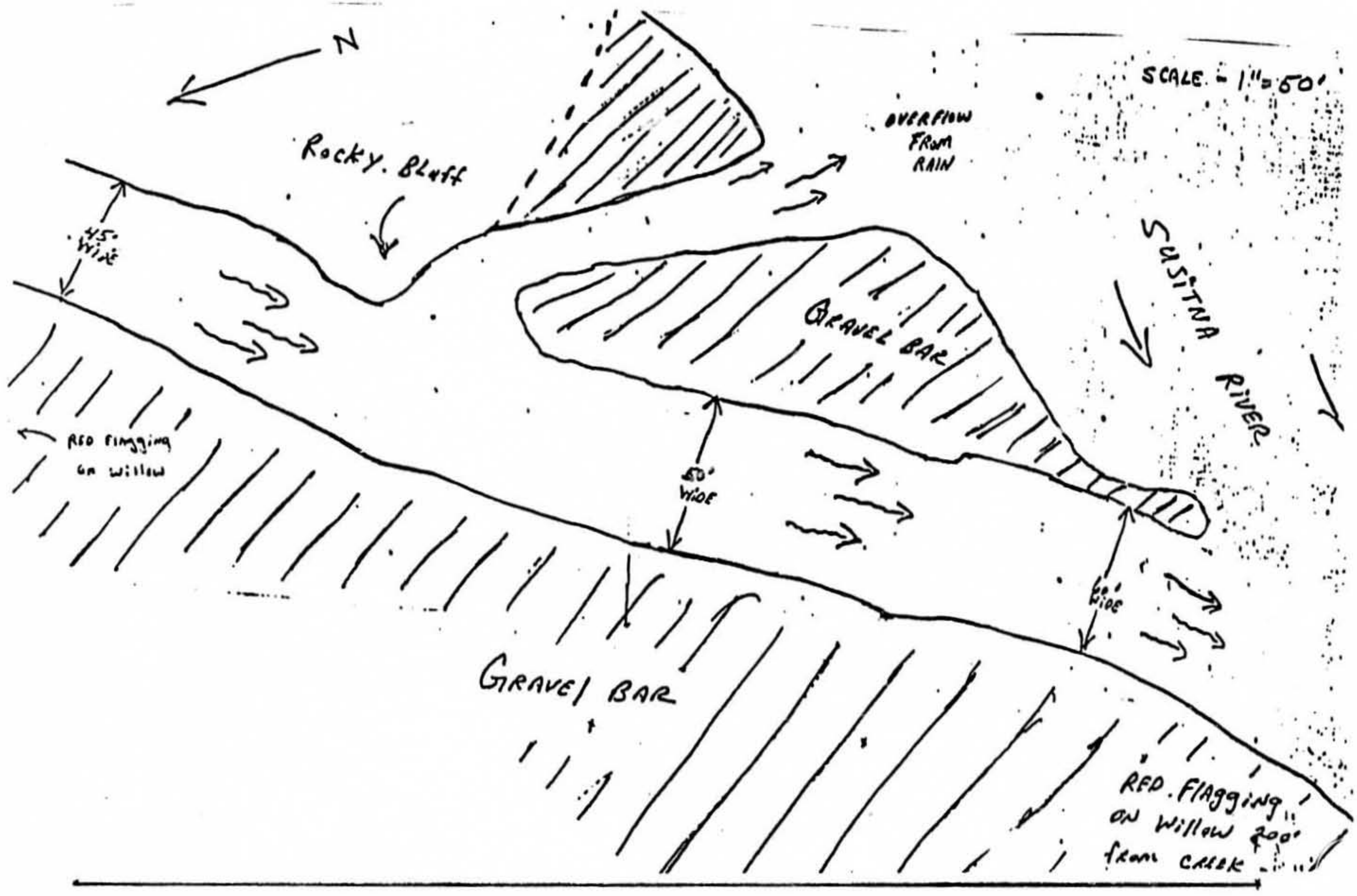
Appendix A Figure 49. Planimetric map for Tsusena Creek Sec. 01 (R.M. 178.9, Geographic Code 32N04E36ADB).



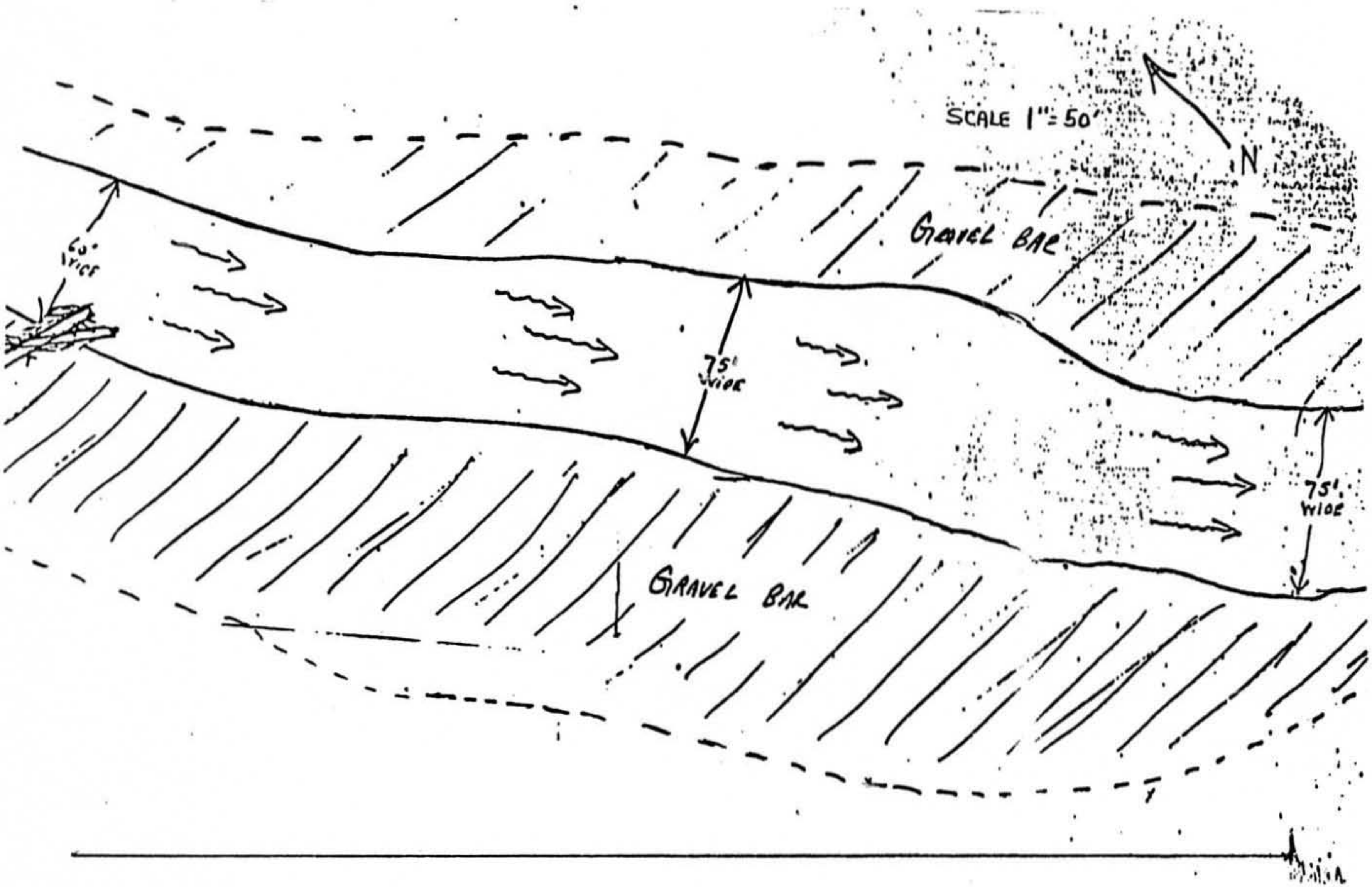
Appendix A Figure 50. Planimetric map for Deadman Creek Sec. 01 (R.M. 183.4, Geographic Code 32N05E26CBD).



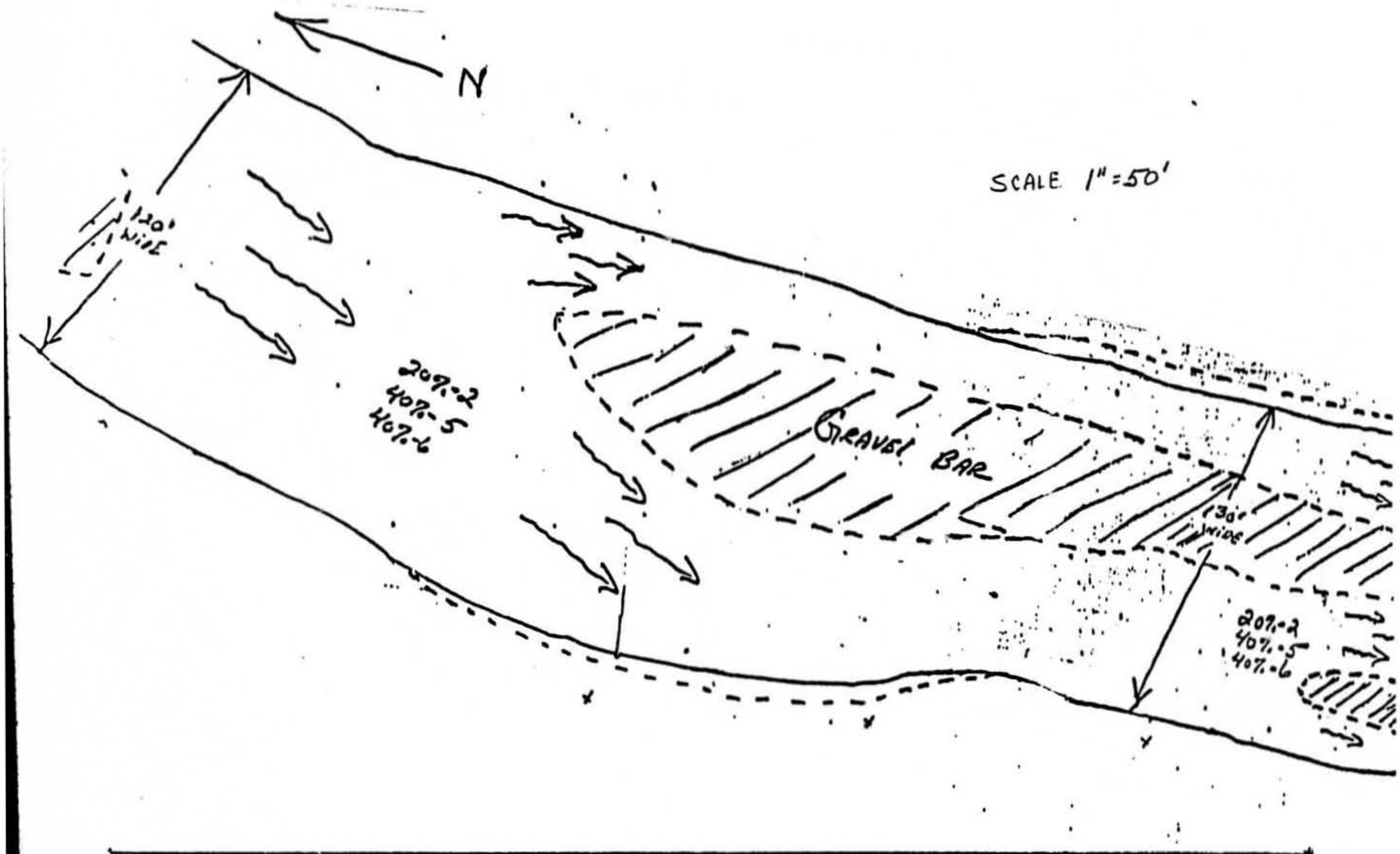
Appendix A Figure 51. Planimetric map for Deadman Creek Sec. 02 (R.M. 183.4, Geographic Code 32N05E26CAA).



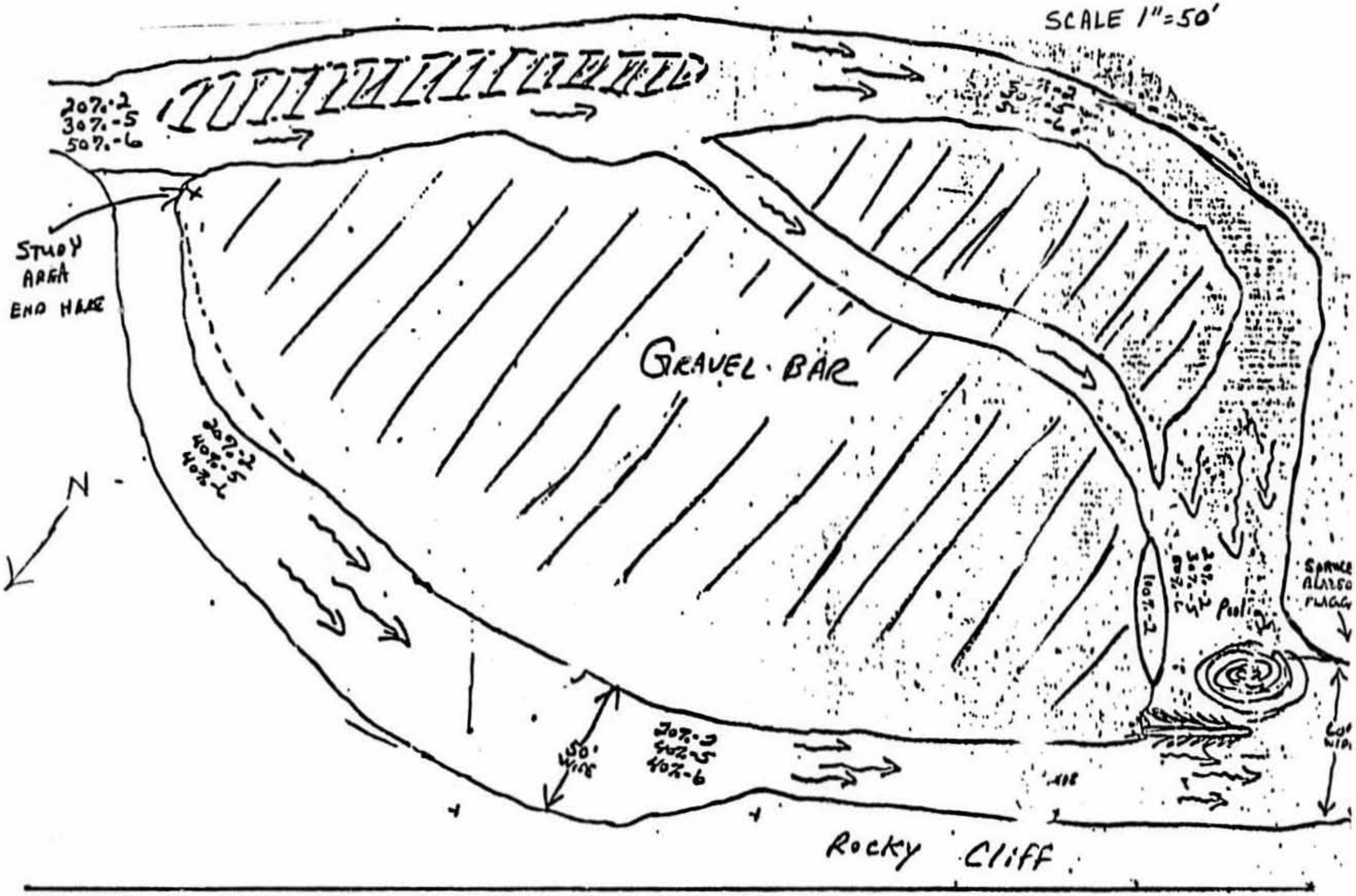
Appendix A Figure 52. Planimetric map for Watana Creek Sec. 01 (R.M. 190.4, Geographic Code 32N06E25CCA).



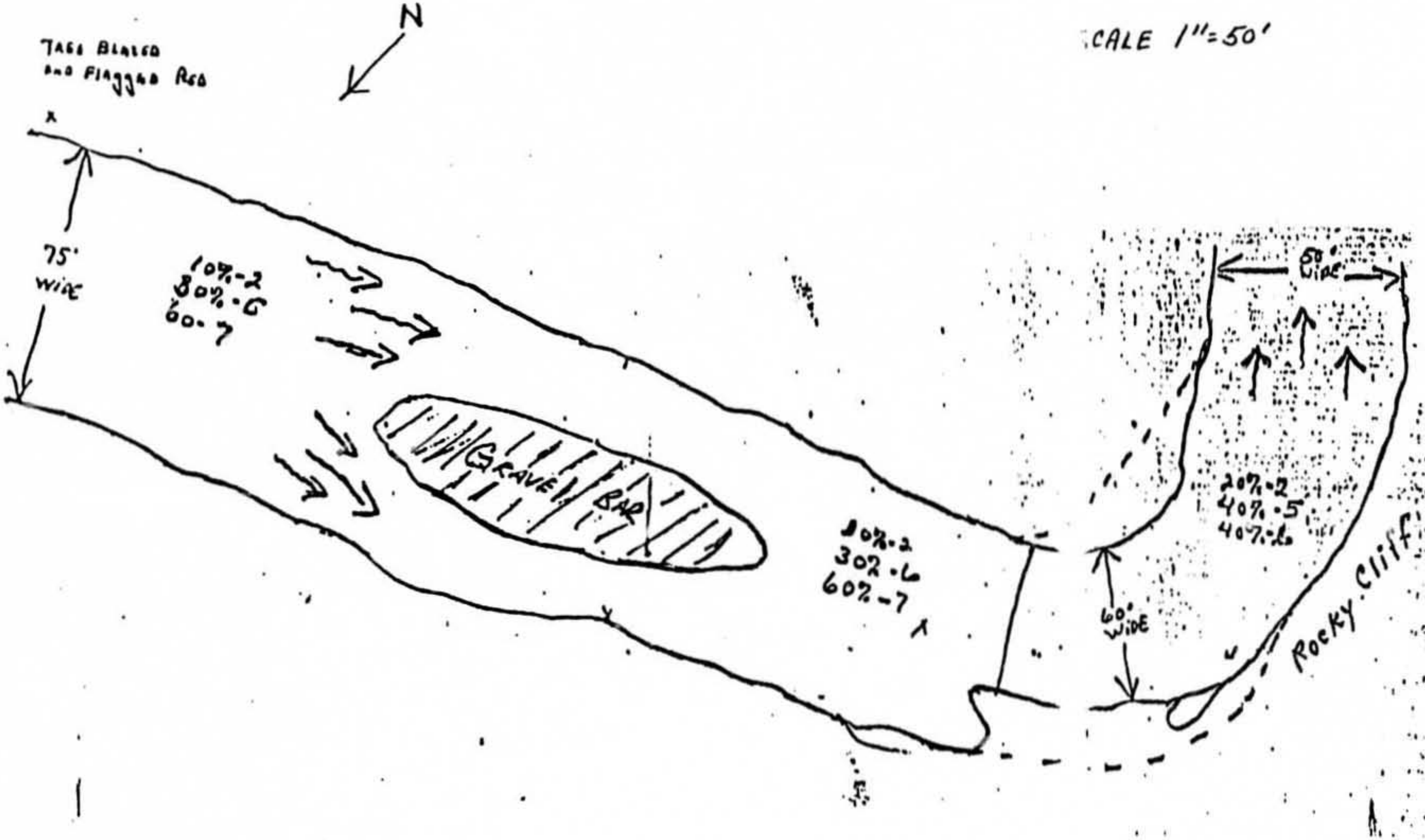
Appendix A Figure 53. Planimetric map for Watana Creek Sec. 02 (R.M. 190.4, Geographic Code 32N06E25CAB).



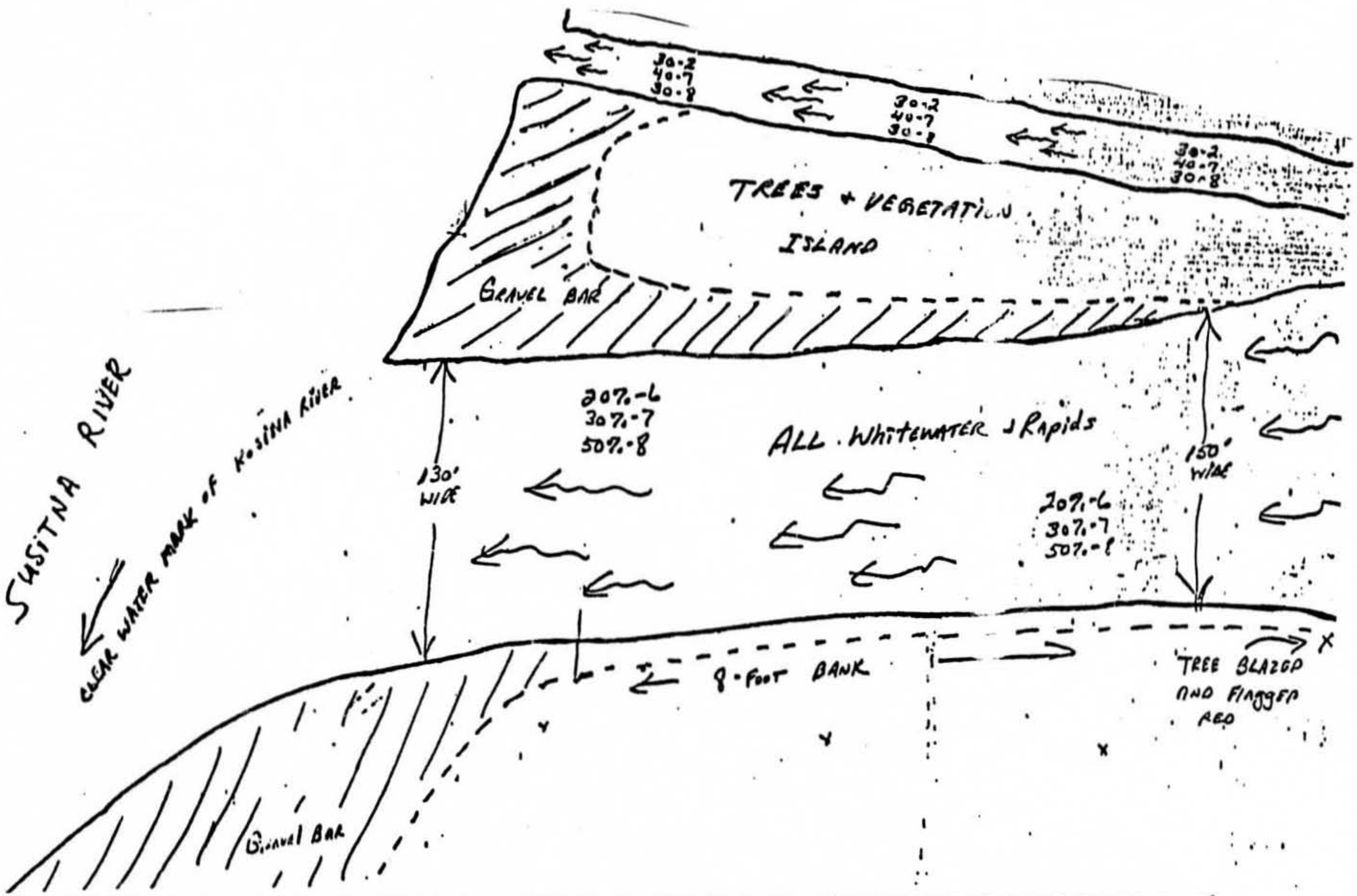
Appendix A Figure 54. Planimetric map for Watana Creek Sec. 03 (R.M. 190.4, Geographic Code 32N06E25BDC).



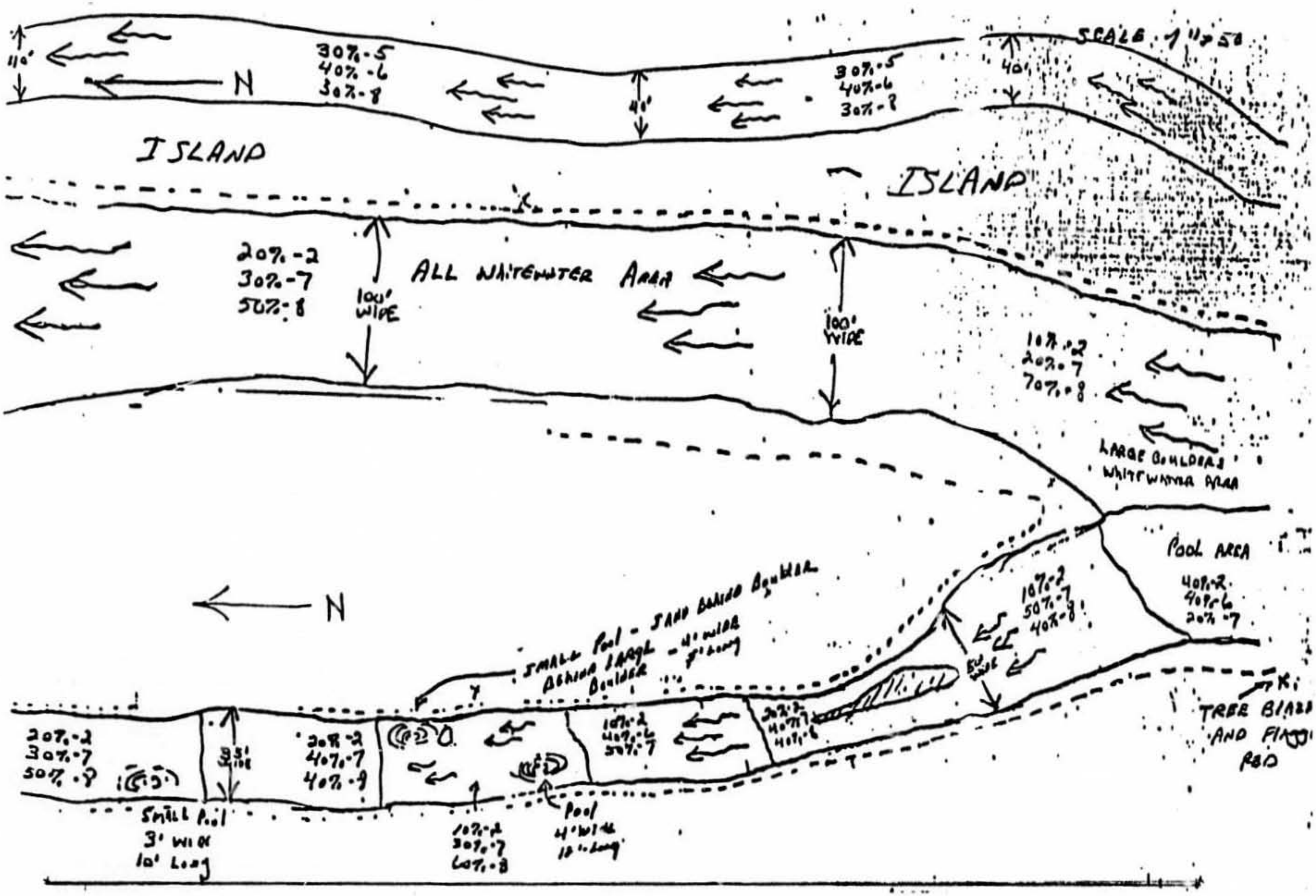
Appendix A Figure 55. Planimetric map for Watana Creek Sec. 04 (R.M. 190.4, Geographic Code 32N06E25ACB).



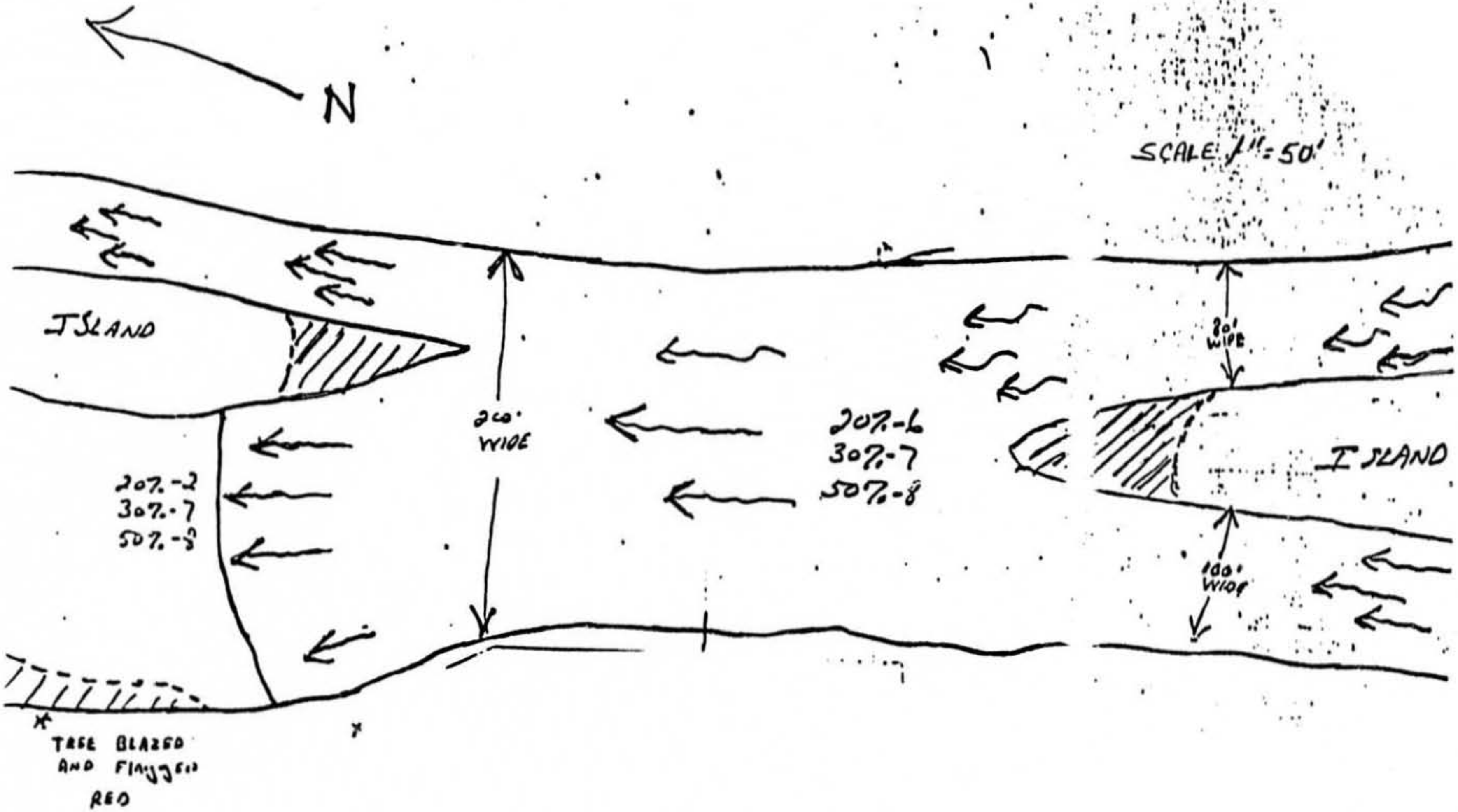
Appendix A Figure 56. Planimetric map for Watana CReek Sec. 05 (R.M. 190.4, Geographic Code 32N06E25ABC).



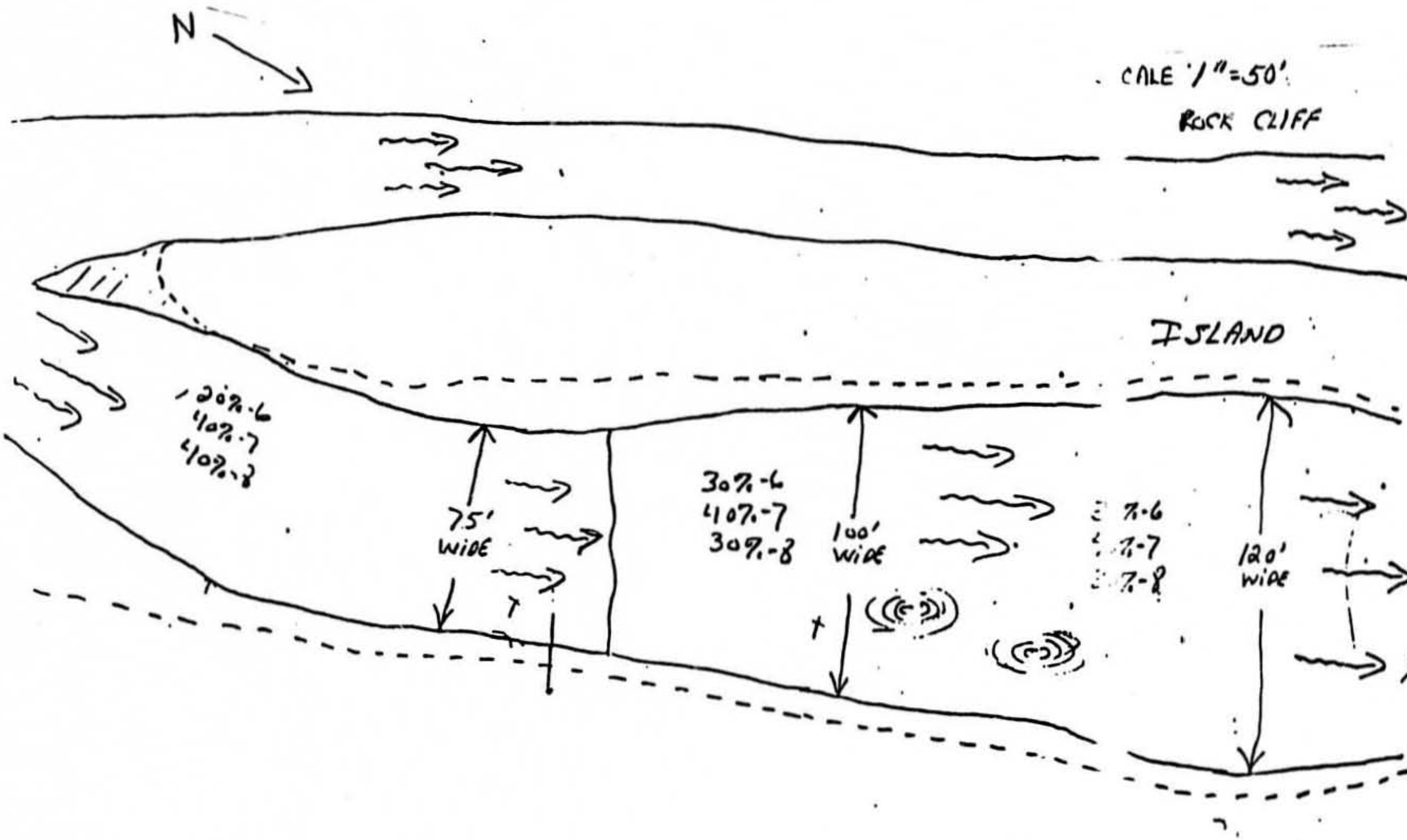
Appendix A Figure 57. Planimetric map for Kosina Creek Sec. 01 (R.M. 202.4, Geographic Code 31N08E15BAB).



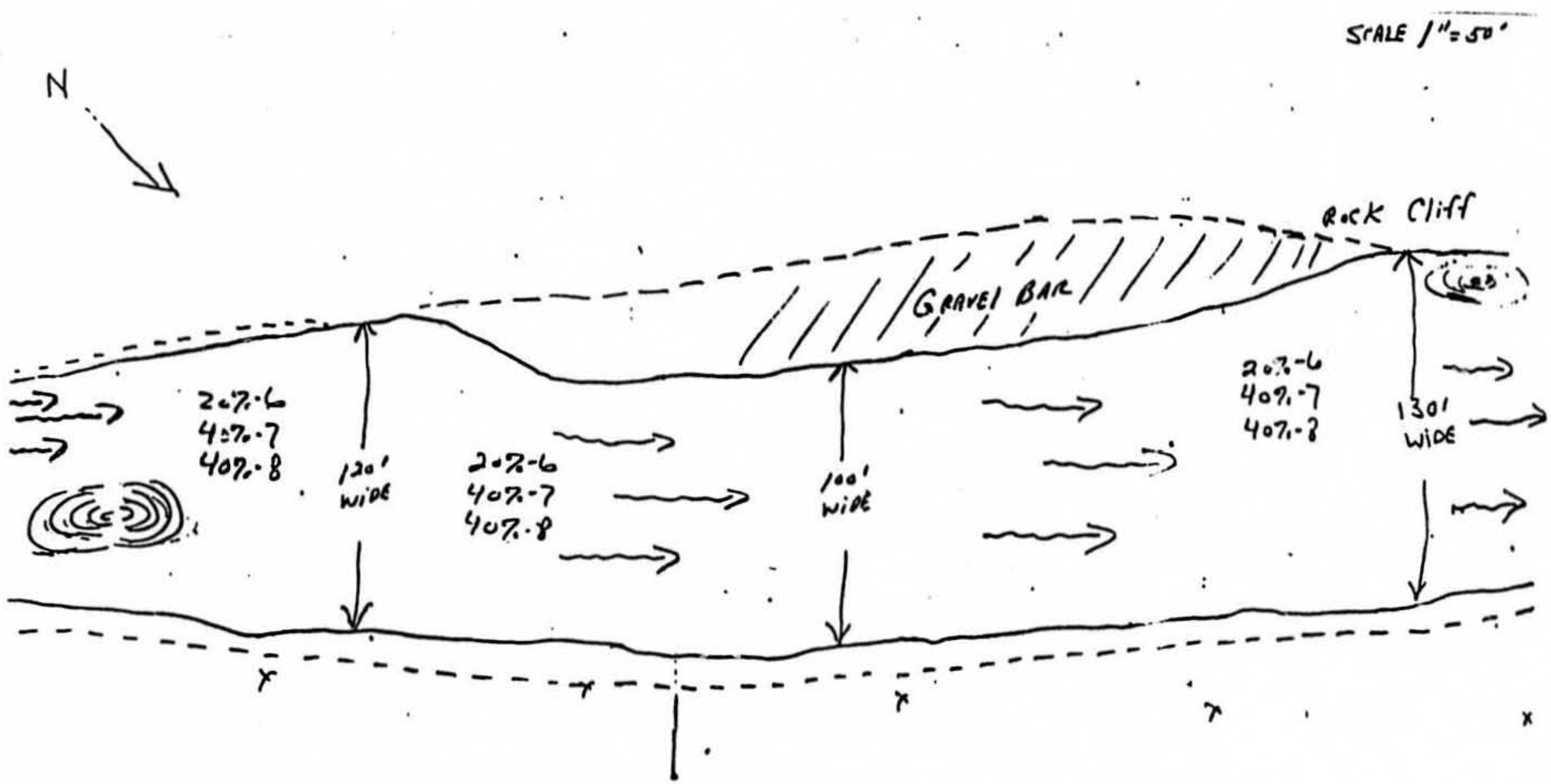
Appendix A Figure 58. Planimetric map for Kosina Creek Sec. 02 (R.M. 202.4, Geographic Code 31N08E15BAC).



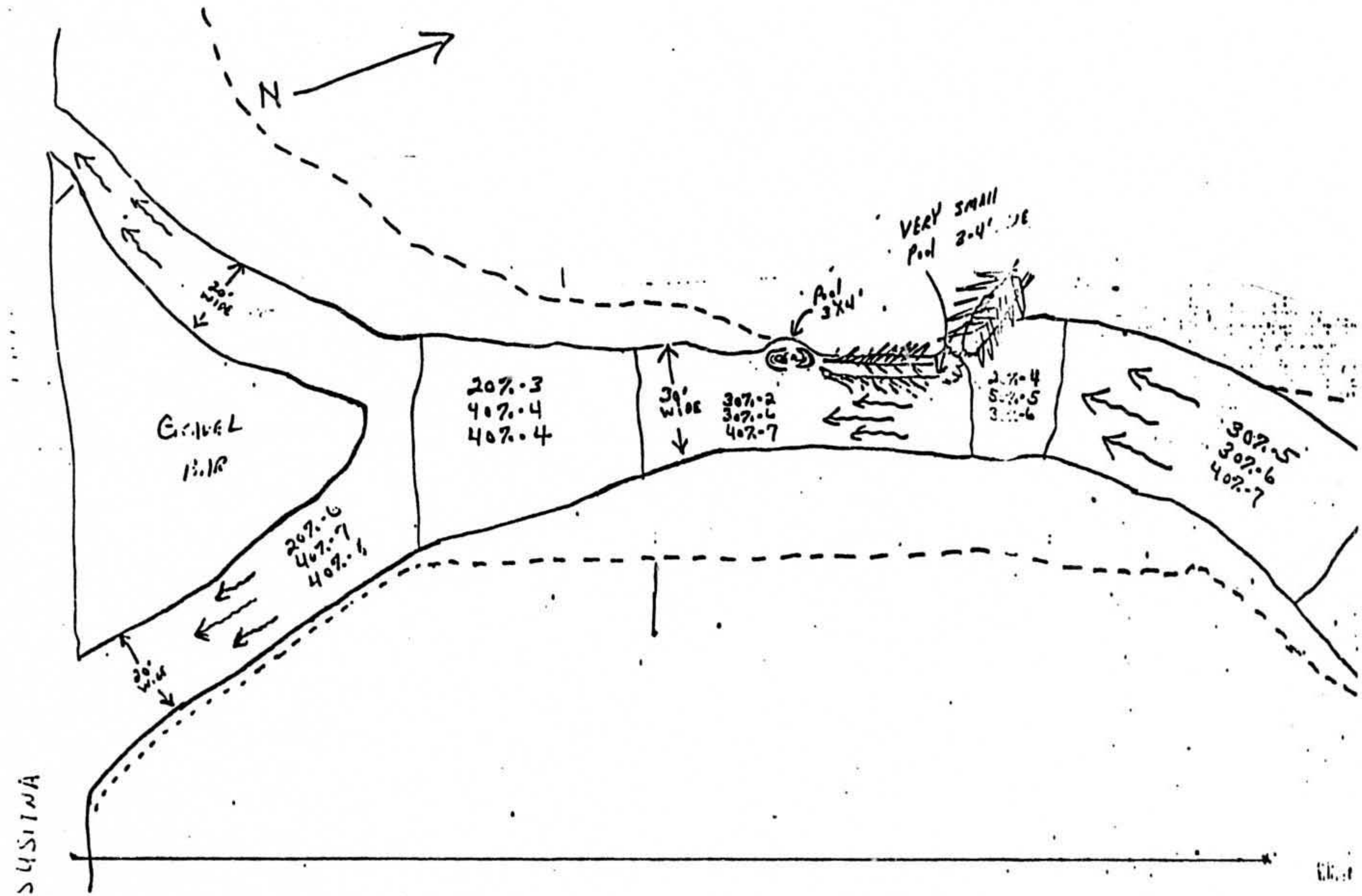
Appendix A Figure 59. Planimetric map for Kosina Creek Sec. 03 (R.M. 202.4, Geographic Code 31N08E15BCA).



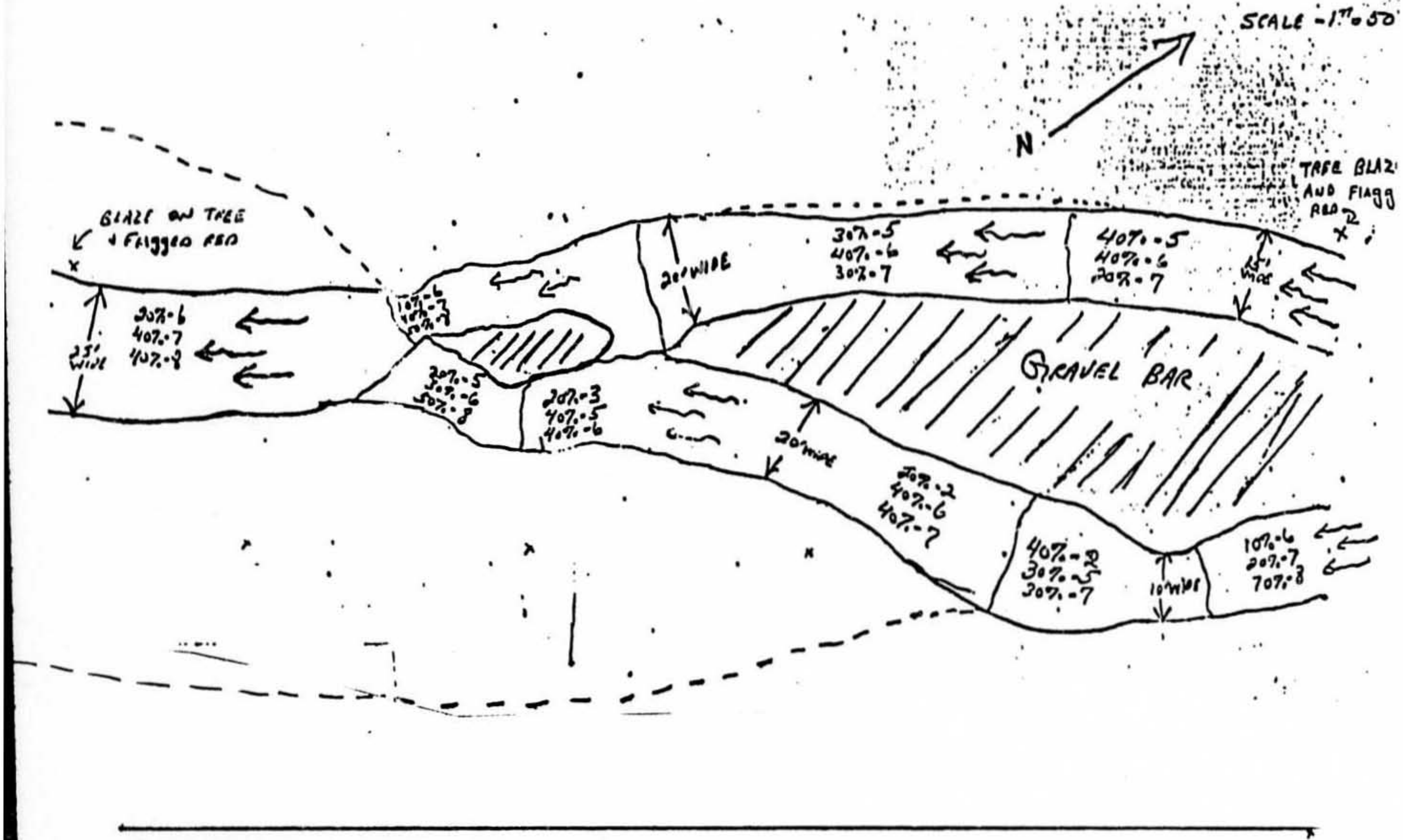
Appendix A Figure 60. Planimetric map for Kosina Creek Sec. 04 (R.M. 202.4, Geographic Code 31N08E15CBA).



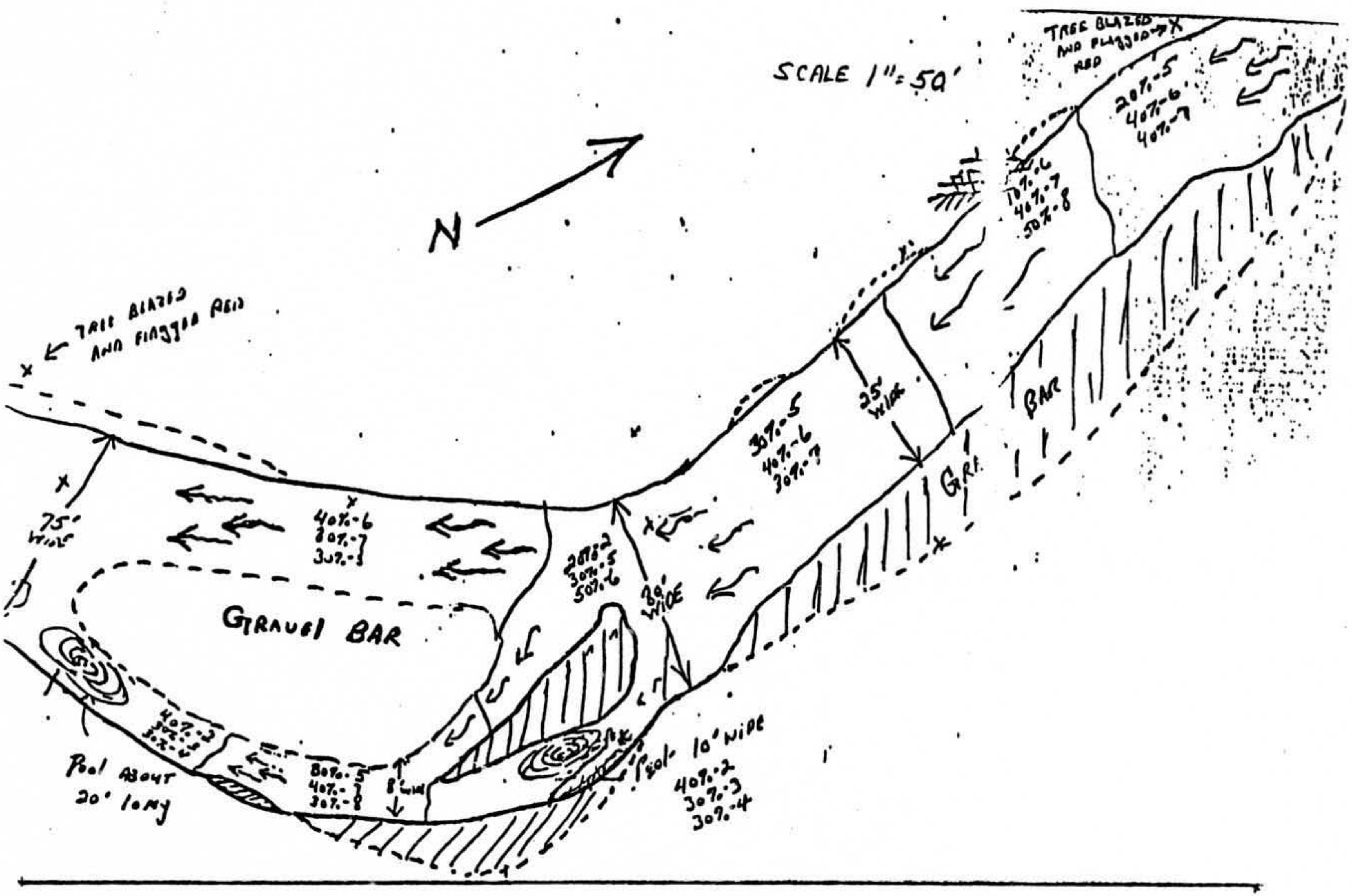
Appendix A Figure 61. Planimetric map for Kosina Creek Sec. 05 (R.M. 202.4, Geographic Code 31N08E15CCA).



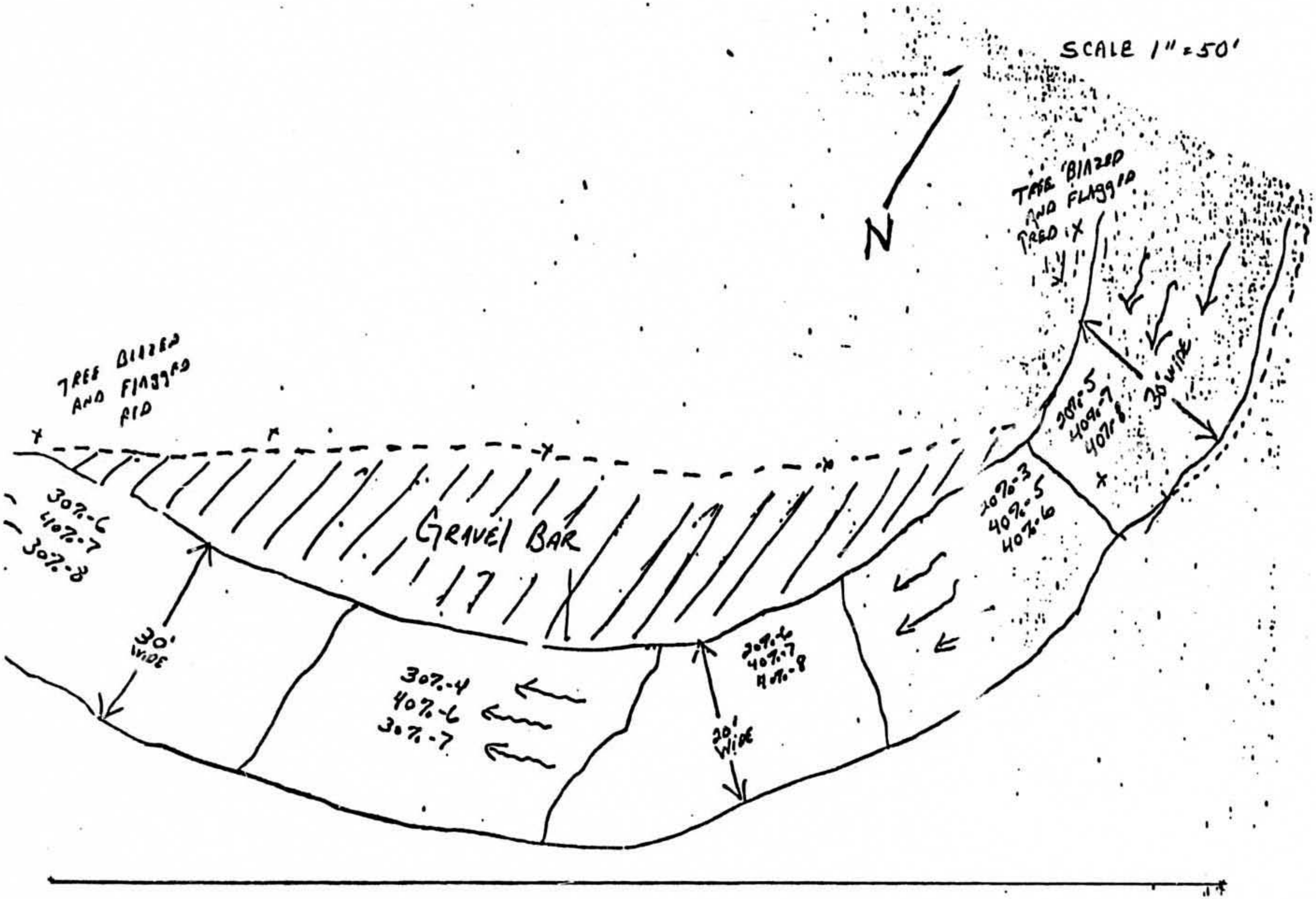
Appendix A Figure 62. Planimetric map for Jay Creek Sec. 01 (R.M. 203.9, Geographic Code 31N08E13BCC).



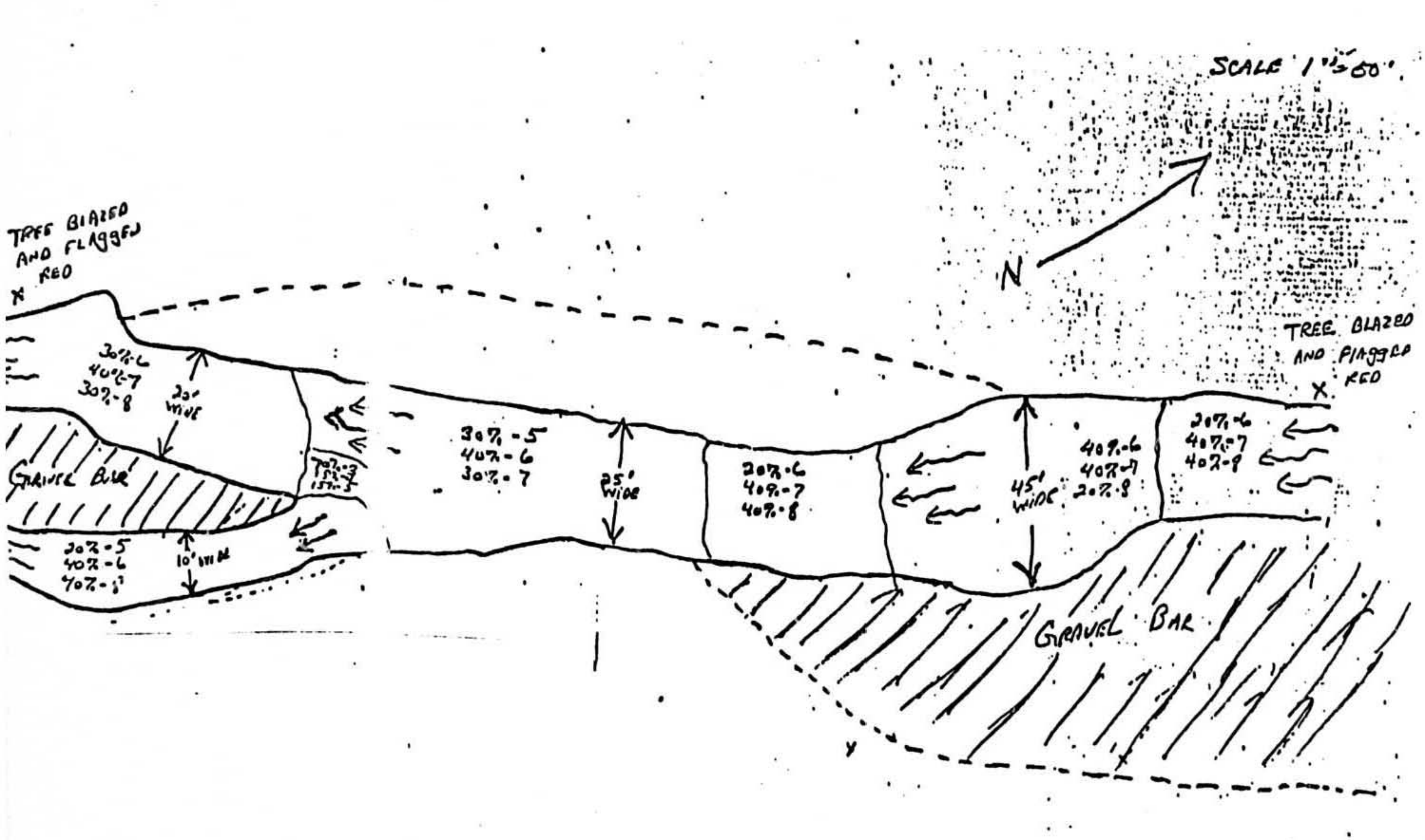
Appendix A Figure 63. Planimetric map for Jay Creek Sec. 02 (R.M. 203.9, Geographic Code 31N08E13BCA).



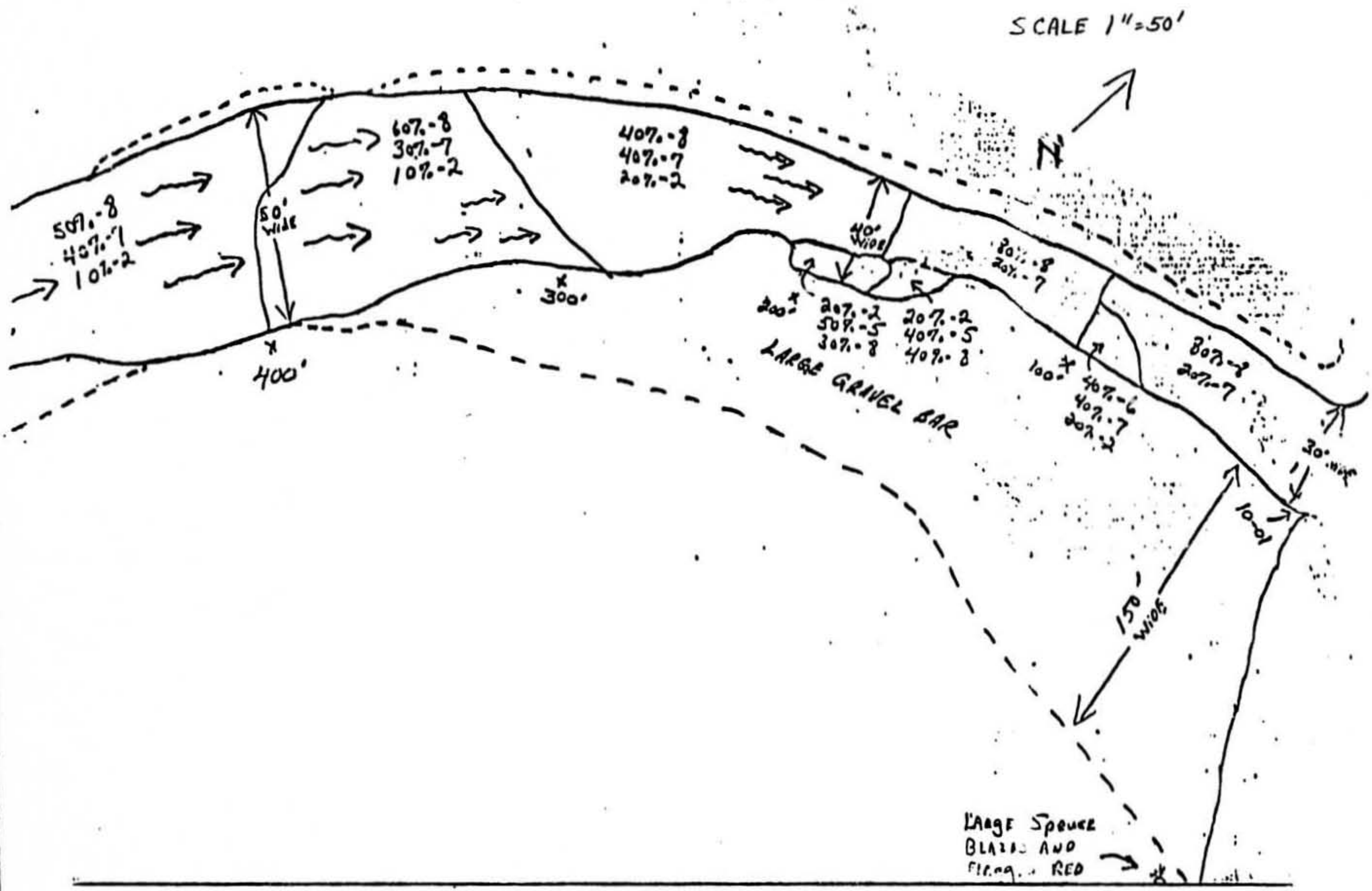
Appendix A Figure 64. Planimetric map for Jay Creek Sec. 03 (R.M. 203.9, Geographic Code 31N08E13BAC).



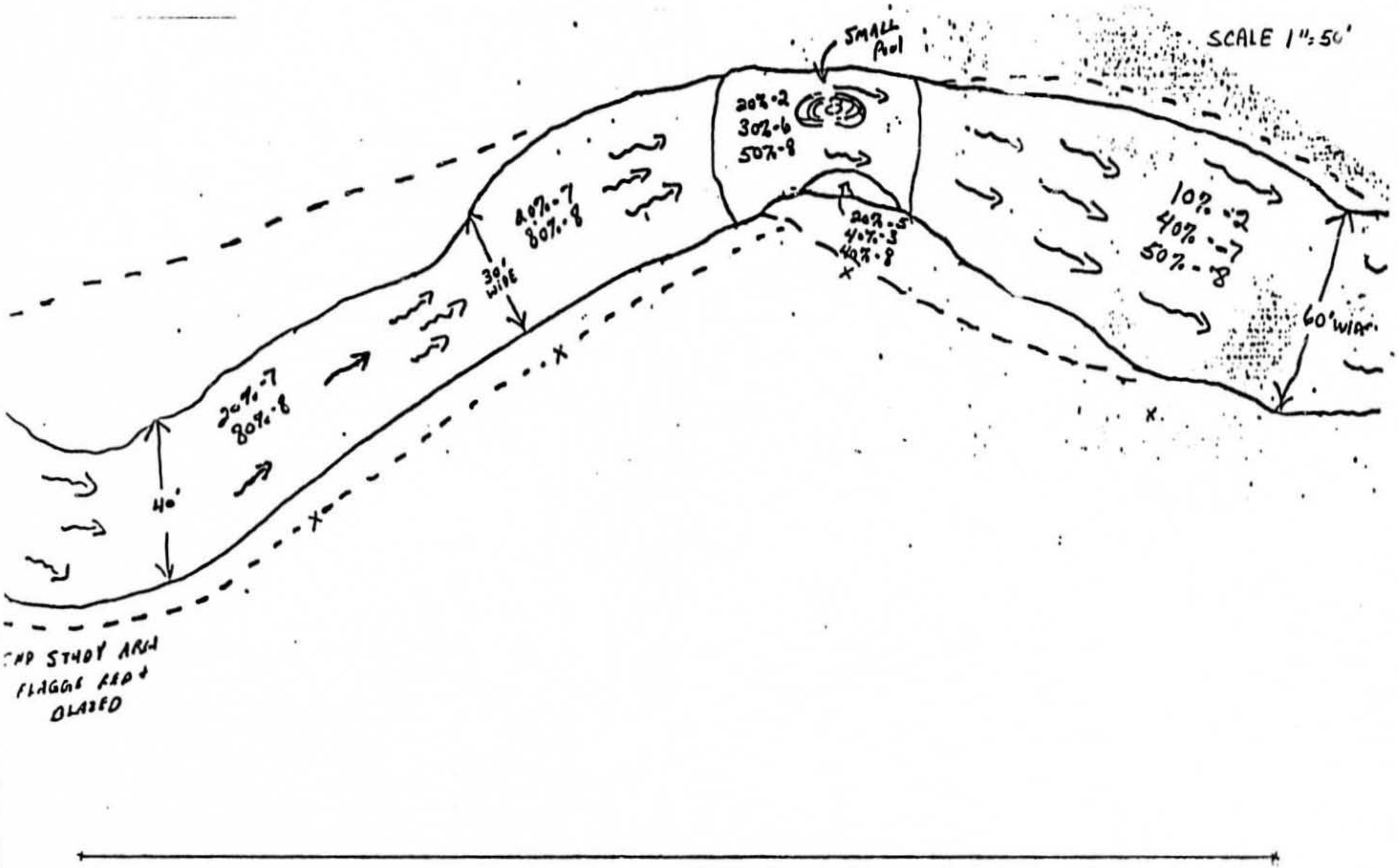
Appendix A Figure 65. Planimetric map for Jay Creek Sec. 04 (R.M. 203.9, Geographic Code 31N08E13BAA).



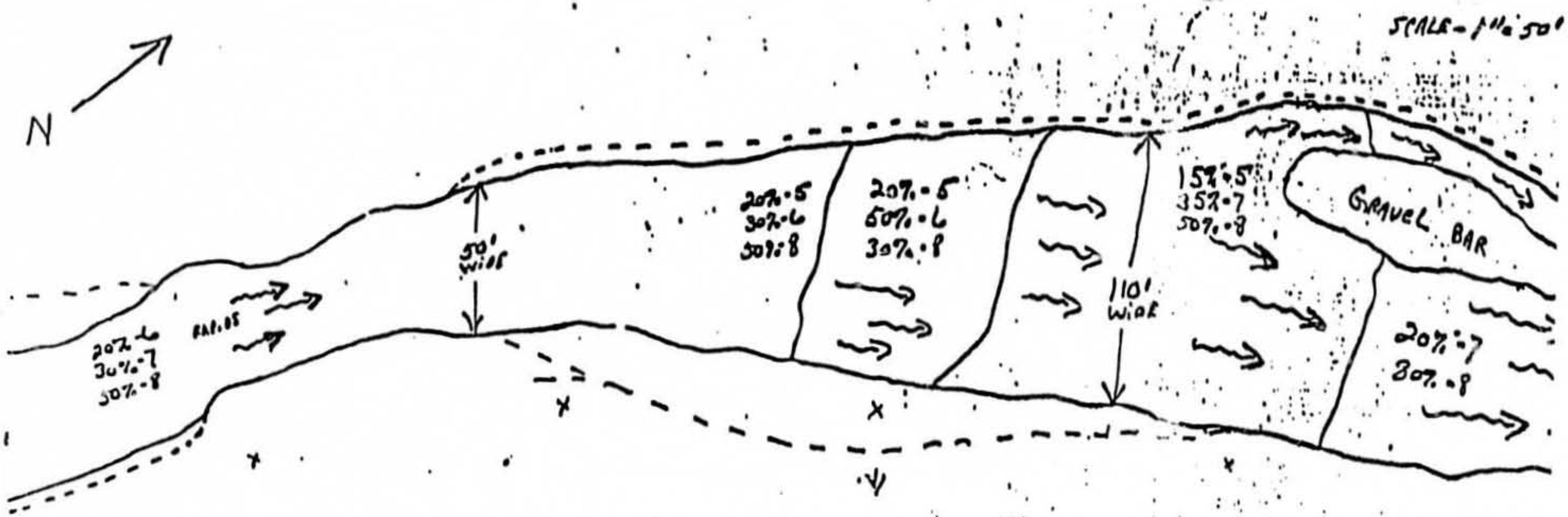
Appendix A Figure 66. Planimetric map for Jay Creek Sec. 05(R.M. 203.9, Geographic Code 31N08E12DCB).



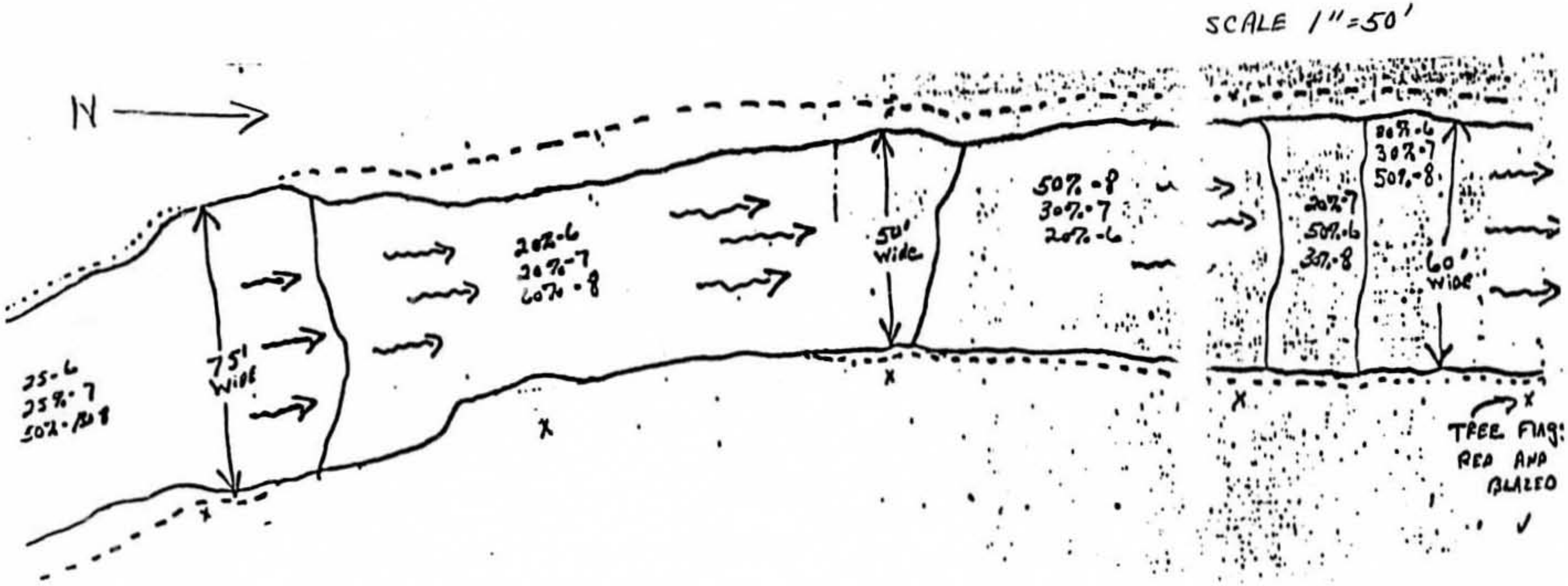
Appendix A Figure 67. Planimetric map for Goose Creek Sec. 01 (R.M. 224.9, Geographic Code 30N11E32DBC).



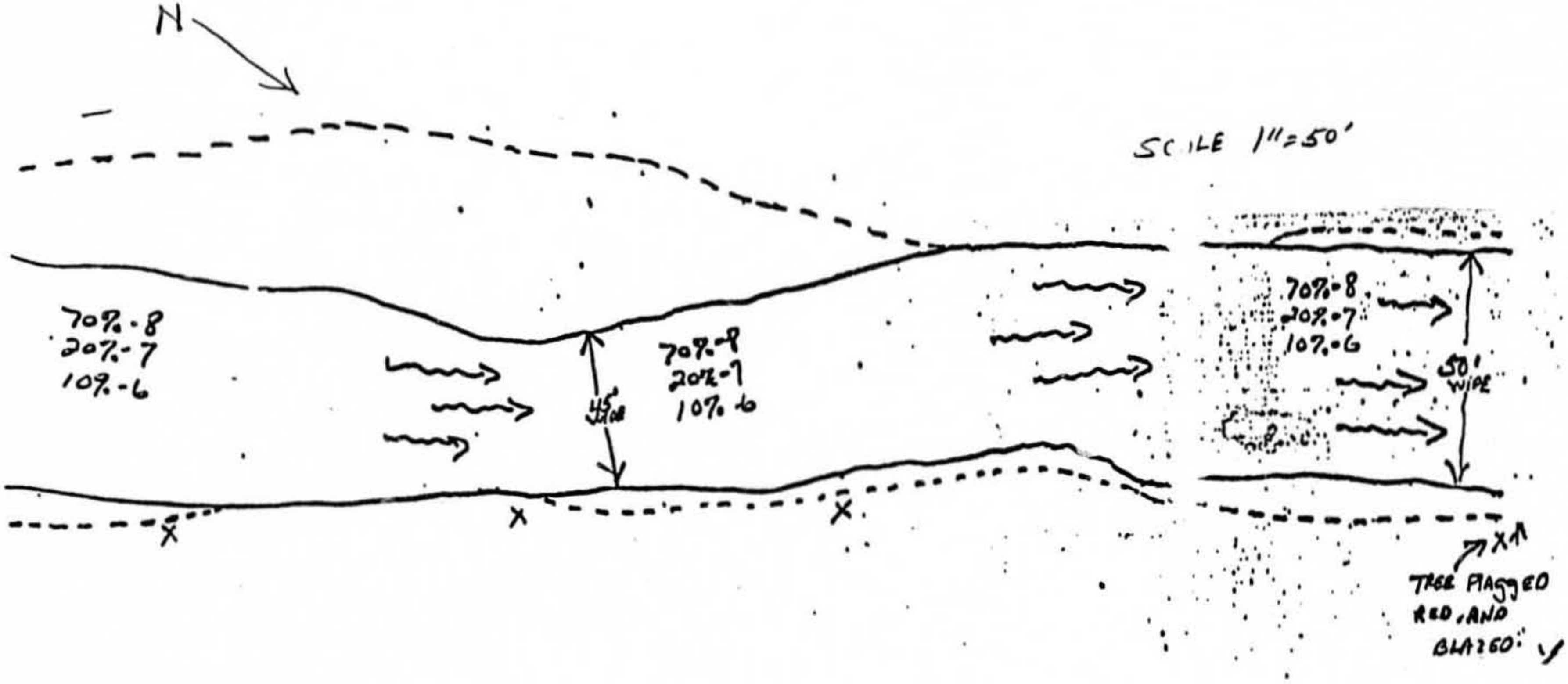
Appendix A Figure 68. Planimetric map for Goose Creek Sec. 02 (R.M. 224.9, Geographic Code 30N11E32CDA).



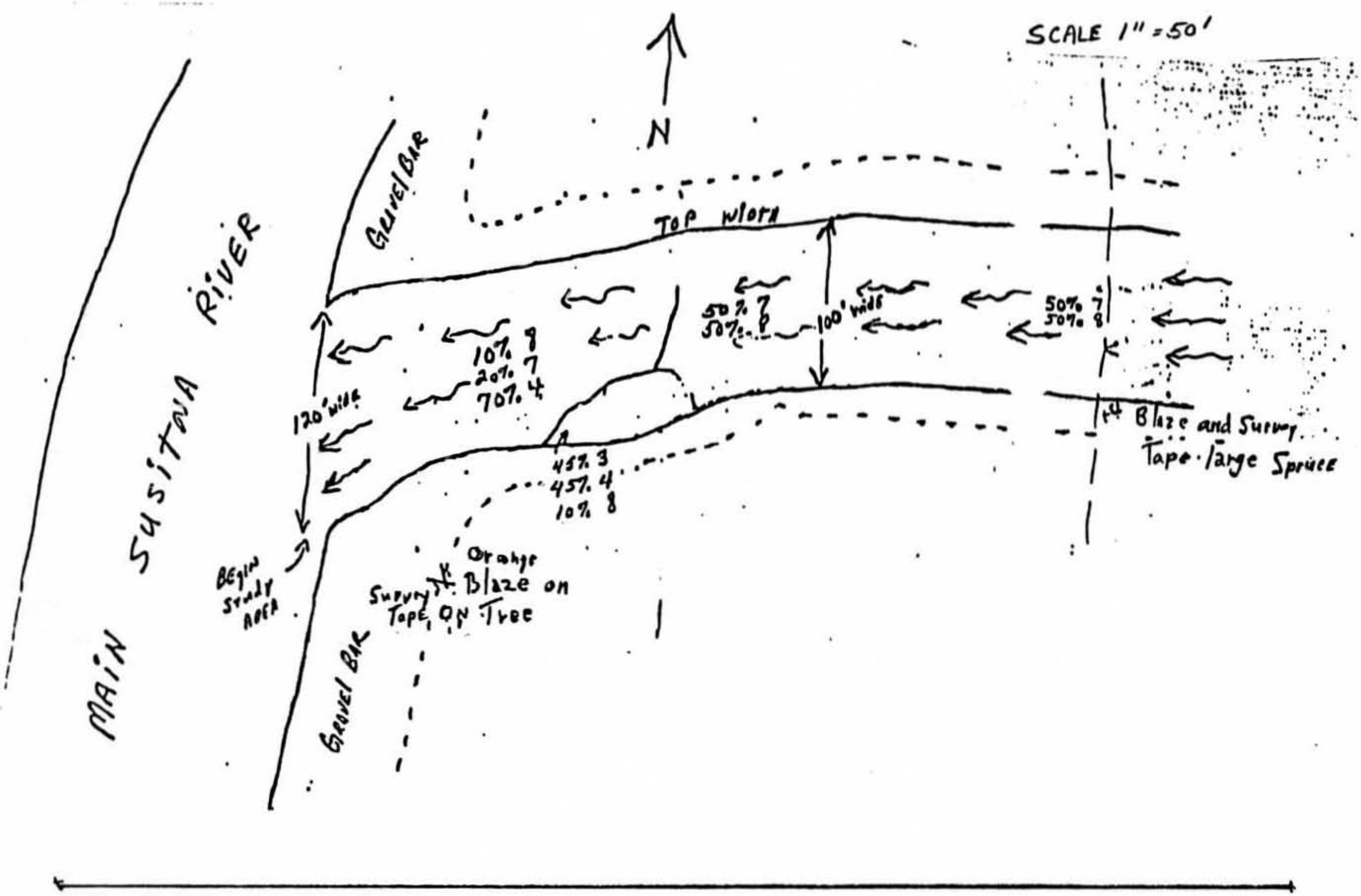
Appendix A Figure 69. Planimetric map for Goose Creek Sec. 03 (R.M. 224.9, Geographic Code 30N11E32CDC).



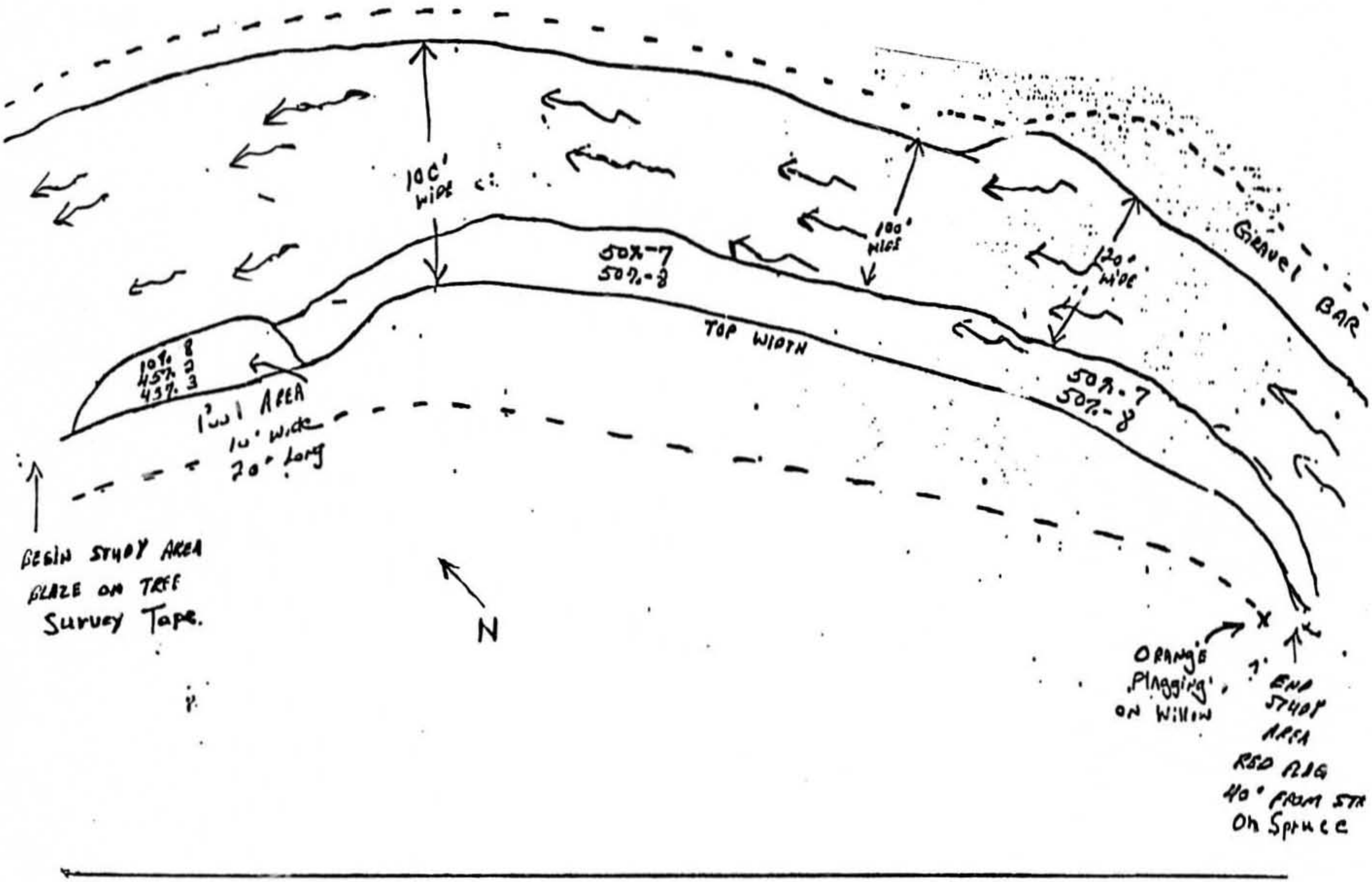
Appendix A Figure 70. Planimetric map for Goose Creek Sec. 04 (R.M. 224.9, Geographic Code 29N11E05BBC).



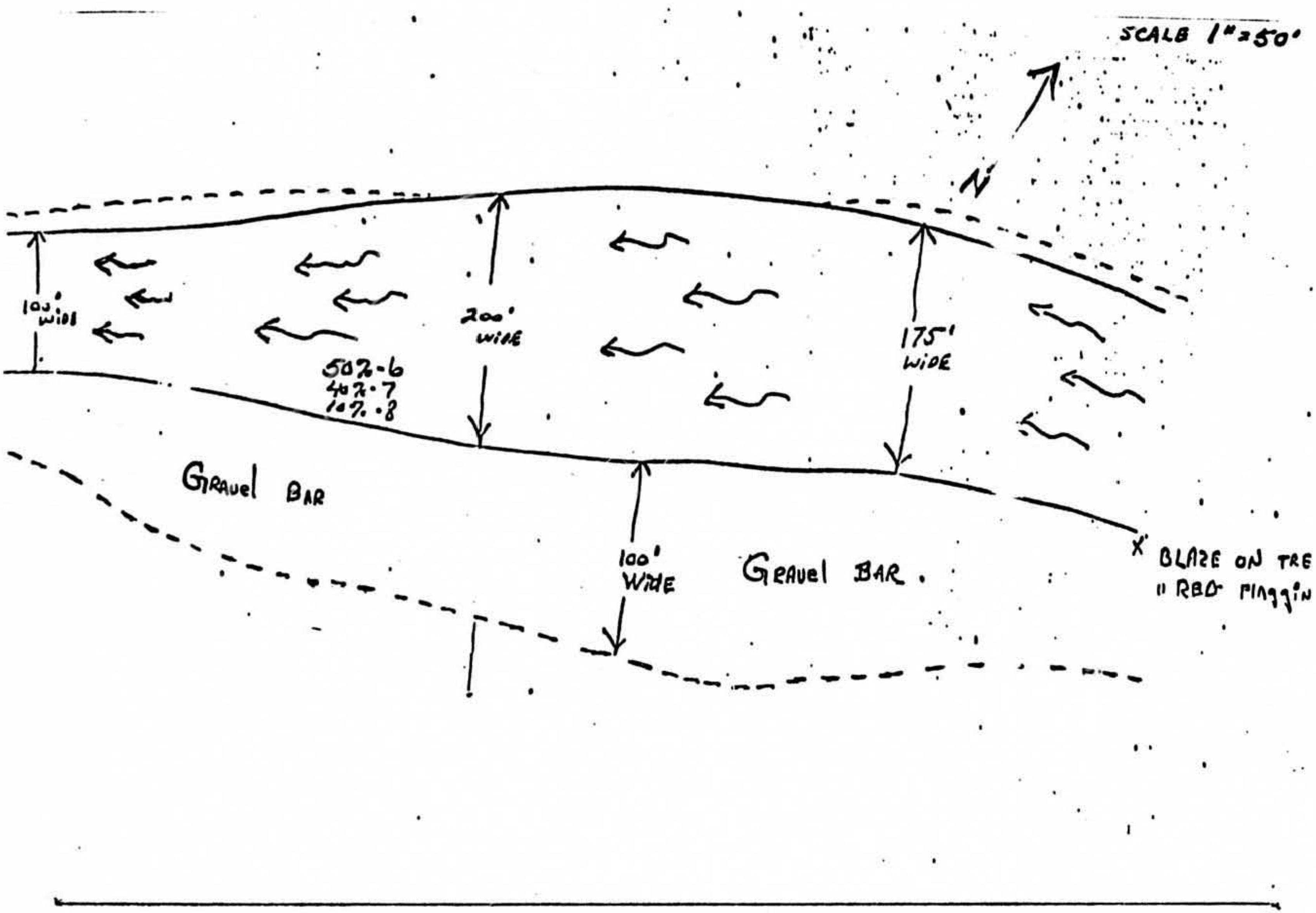
Appendix A Figure 71. Planimetric map for Goose Creek Sec. 05 (R.M. 224.9, Geographic Code 29N11E05BCB).



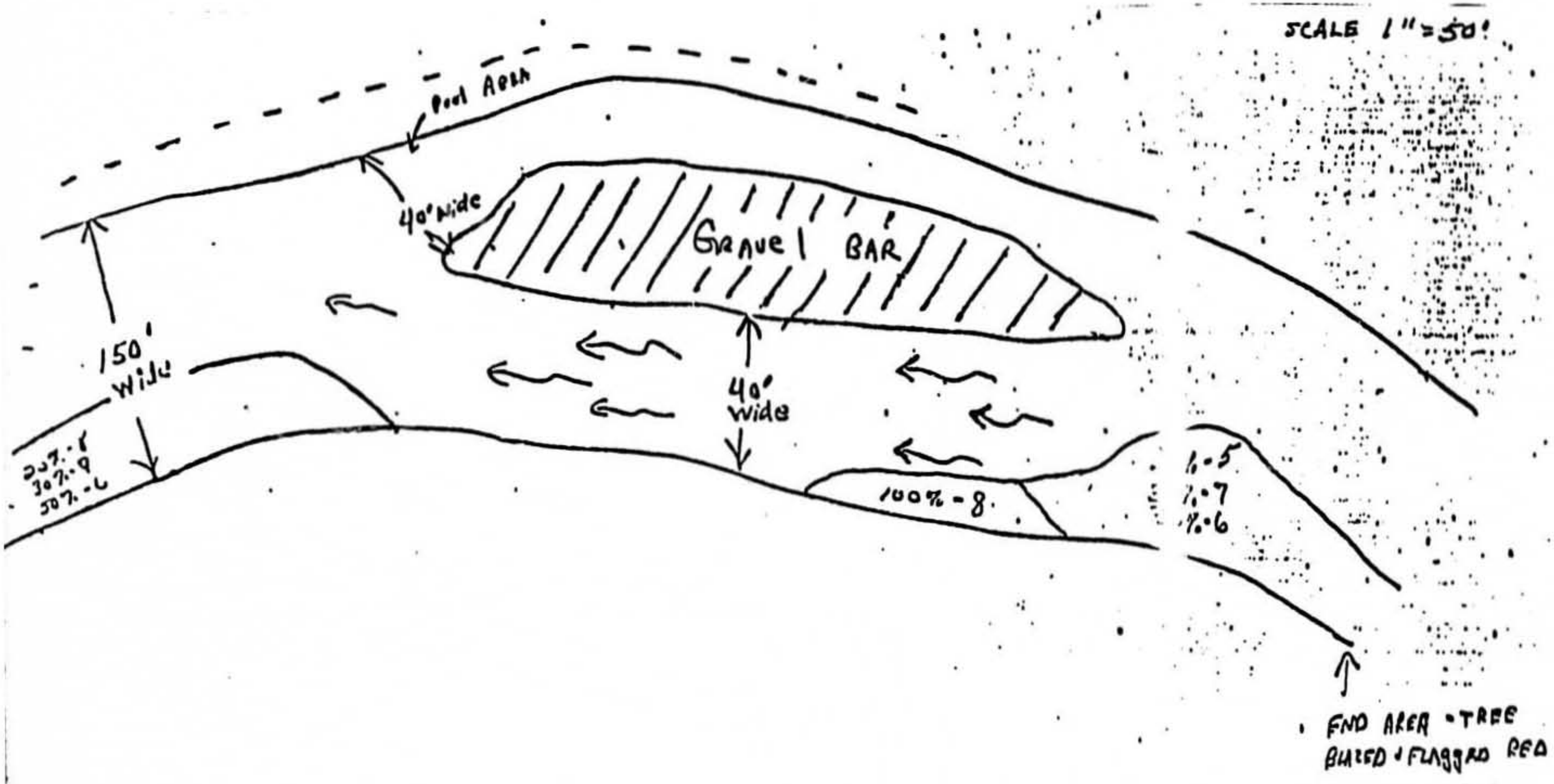
Appendix A Figure 72. Planimetric map for Oshetna River Sec. 01 (R.M. 226.9, Geographic Code 30N11E34CCD).



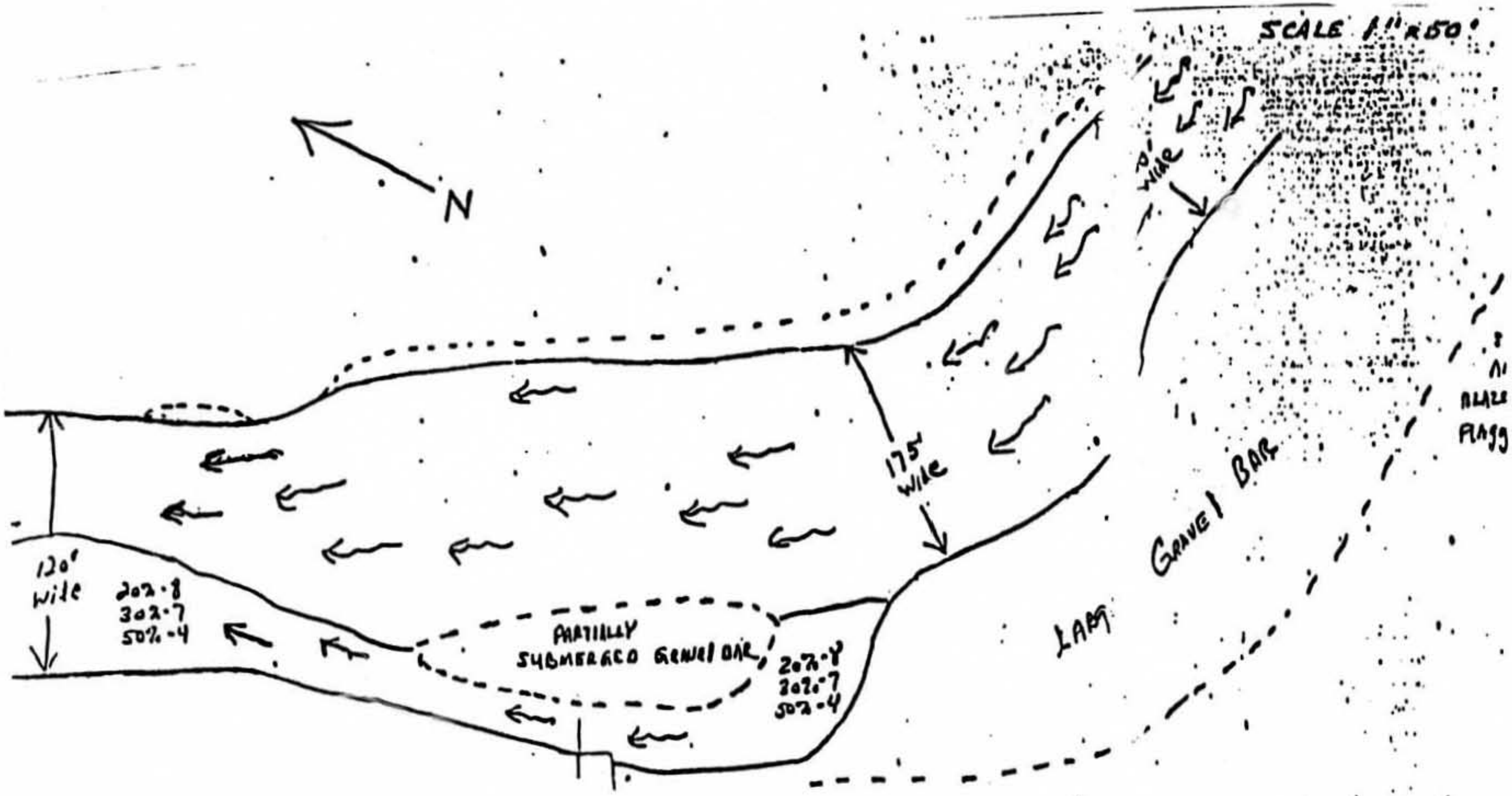
Appendix A Figure 73. Planimetric map for Oshetna River Sec. 02 (R.M. 226.9, Geographic Code 29N11E03BAB).



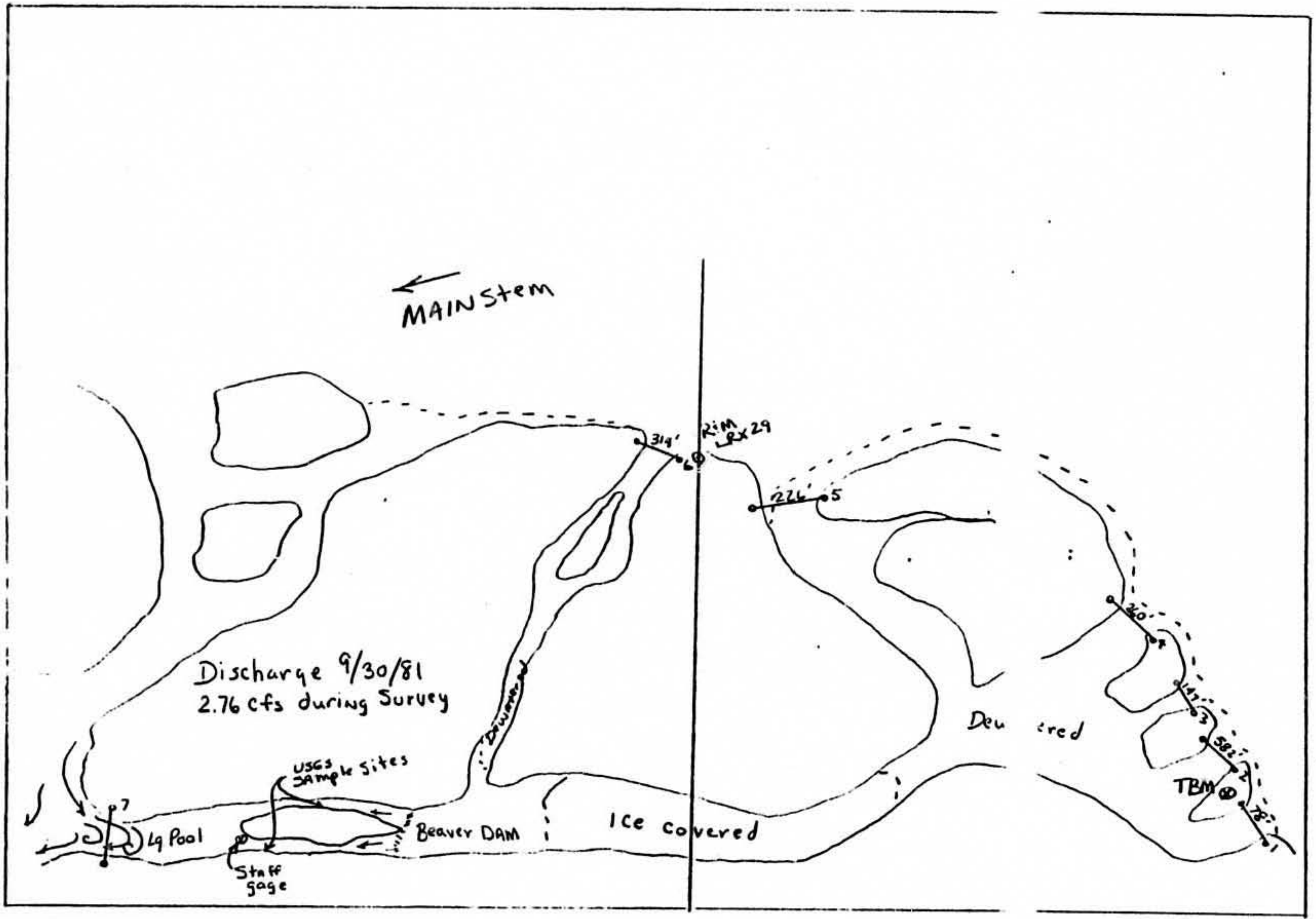
Appendix A Figure 74. Planimetric map for Oshetna River Sec. 03 (R.M. 226.9, Geographic Code 29N11E03BAC).



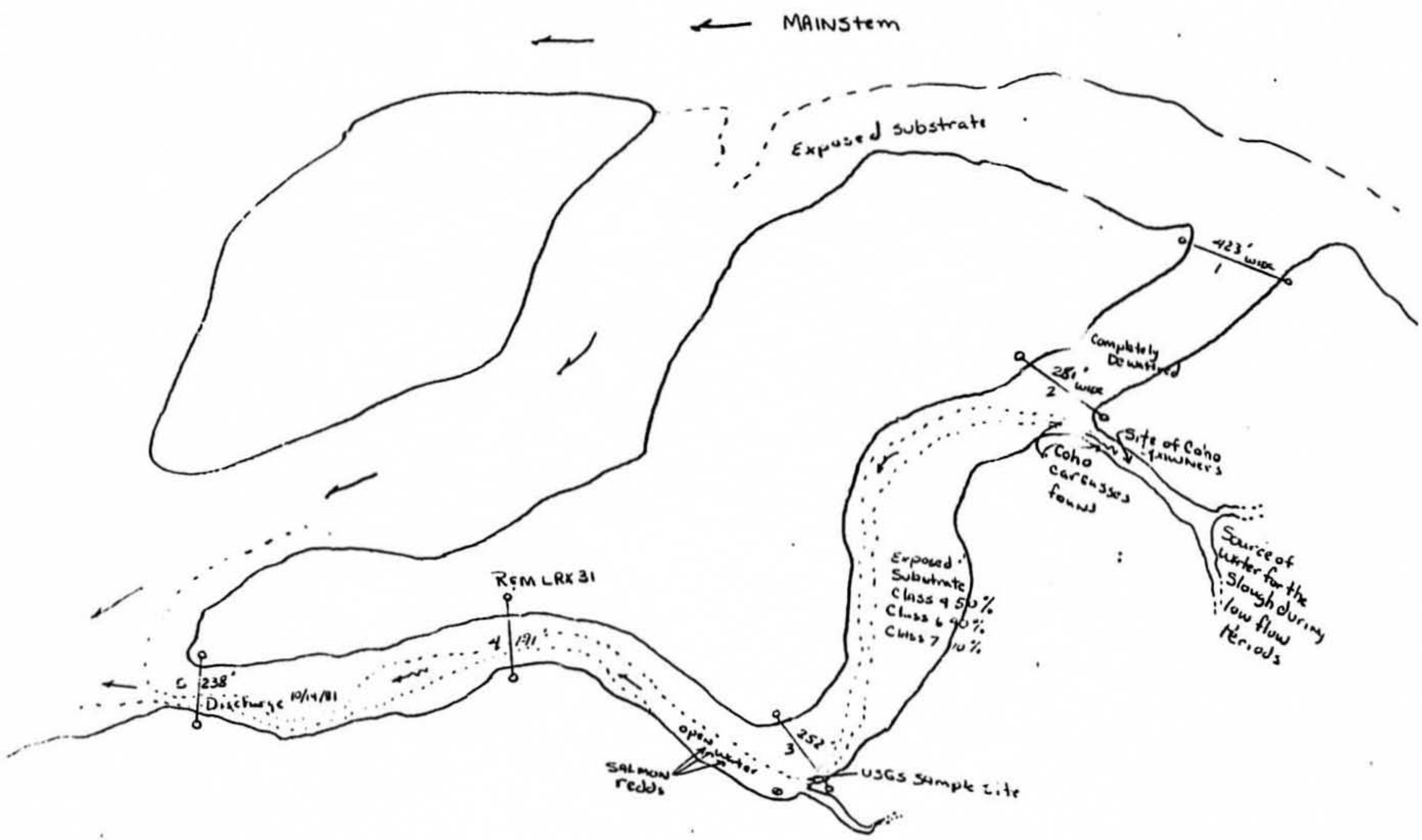
Appendix A Figure 75. Planimetric map for Oshetna River Sec. 04 (R.M. 226.9, Geographic Code 29N11E03ACB).



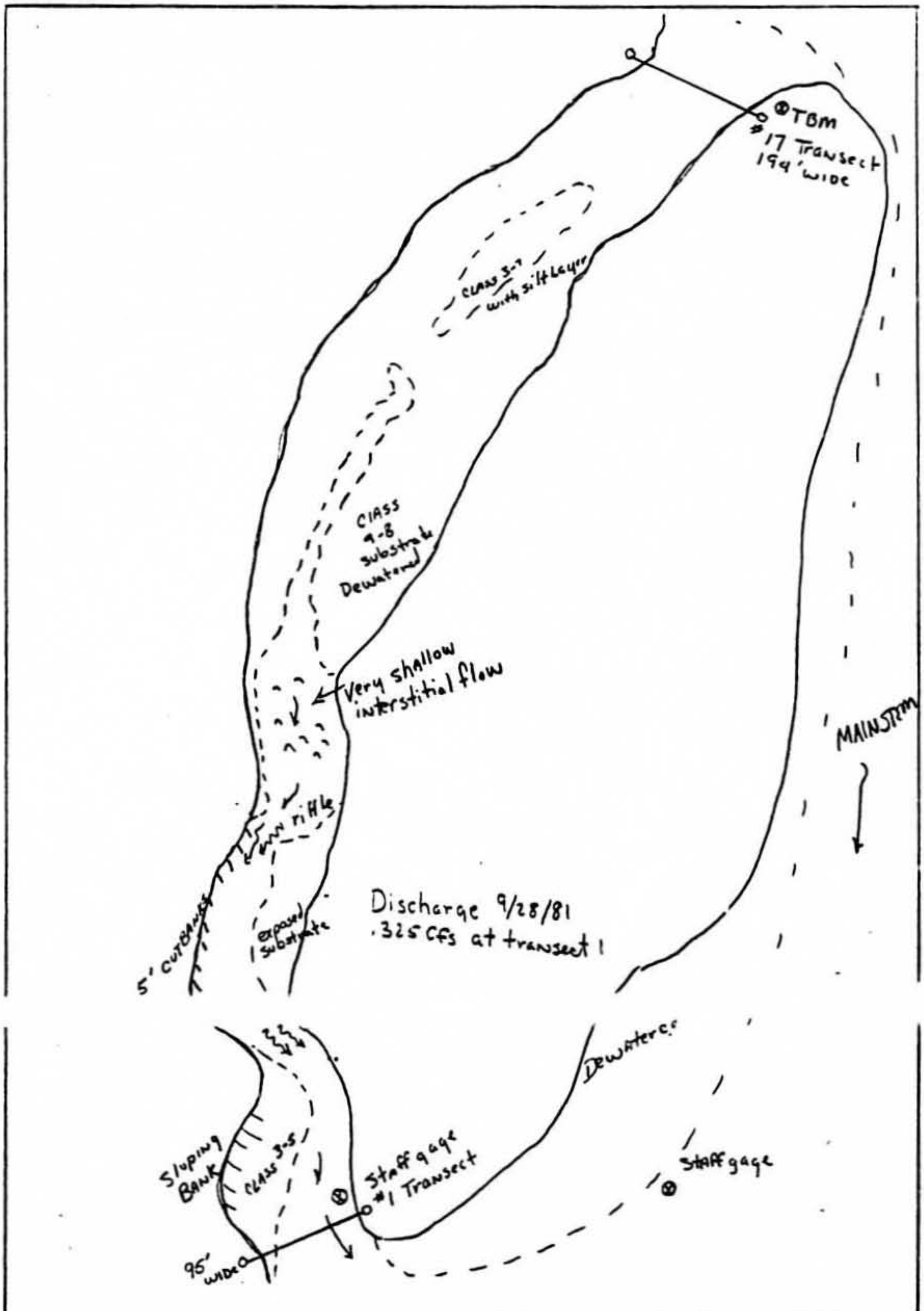
Appendix A Figure 76. Planimetric map for Oshetna River Sec. 05 (R.M. 226.9, Geographic Code 29N11E03ACC).



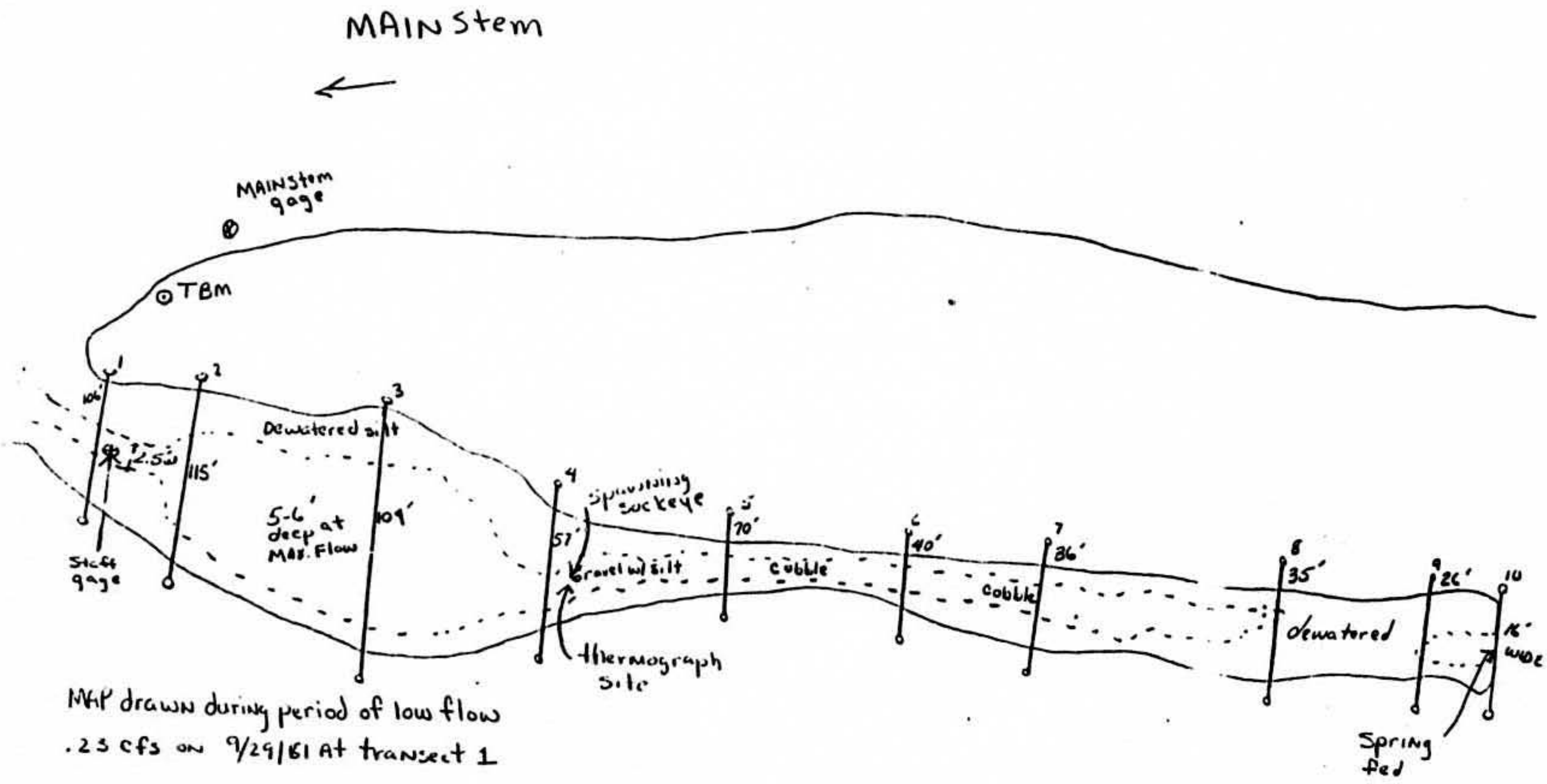
Appendix A Figure 77. Planimetric map for Slough 8A (R.M. 125.3, Geographic Code 30N03W30AAB).



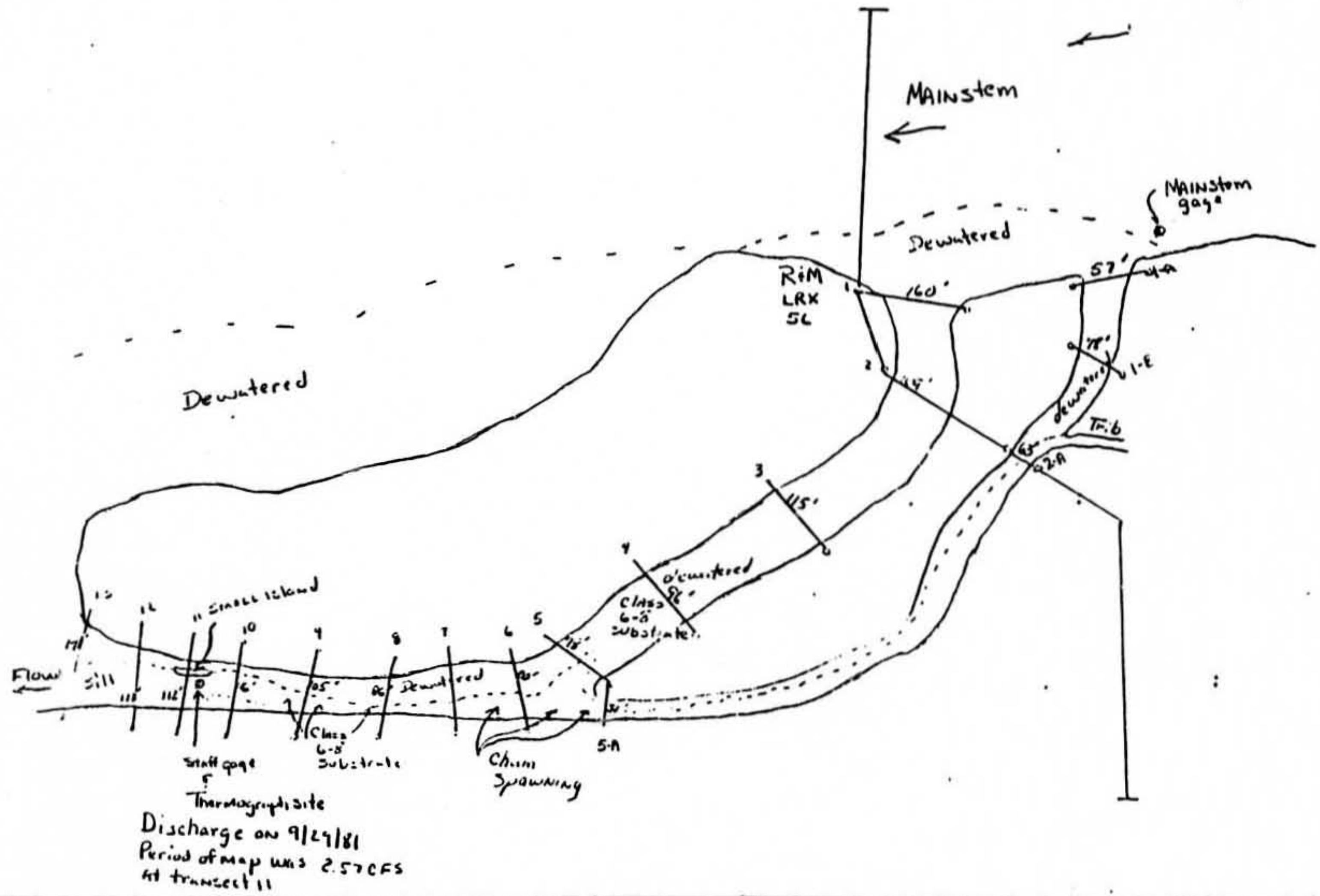
Appendix A Figure 78. Planimetric map for Slough 9 (R.M. 129, Geographic Code 30N03W16ABC).



Appendix A Figure 79. Planimetric map for Slough 16B (R.M. 139, Geographic Code 31N11W17ABD).



Appendix A Figure 80. Planimetric map for Slough 19 (R.M. 140, Geographic Code 31N11W10DBB).



Appendix A Figure 81. Planimetric map for Slough 21 (R.M. 142, Geographic Code 31N11W02AAA).

APPENDIX B

Physiochemical data tables for each
general habitat evaluation study site

Habitat Location - Alexander Creek, Site A

River Mile 10.1

Geographic Code - 15N 07W 06 DCA

DATE	TIME	D O (MG/L)	PH	SPEC COND MICROMHOS/CM	TEMP - C AIR	TEMP - C H2O	TURBIDITY (NTU)
810607	1005	9.10	6.90	80.00	11.90	12.60	4.00
810702	1950	10.20	7.20	98.00		14.40	1.40
810720	1500	8.90		88.00	12.20	13.70	2.40
810811	1720	9.20		78.00	11.90	13.60	5.50
810827	1720						8.00
810911	1845	9.80		99.00	11.00	11.60	29.00

Habitat Location - Alexander Creek, Site B

River Mile 10.1

Geographic Code - 16N 07W 32 CCB

DATE	TIME	D O (MG/L)	PH	SPEC COND MICROMHOS/CM	TEMP - C AIR	TEMP - C H2O	TURBIDITY (NTU)
810702	1555	9.60	7.10	96.00	14.40	14.30	2.50
810718	1800	9.10		90.00	14.80	15.40	3.10
810811	1700	9.00		78.00	12.00	13.30	4.00
810827	1530						12.00
810911	1730	9.70		94.00	15.50	11.70	36.00

Habitat Location - Alexander Creek, Site C

River Mile 10.1

Geographic Code - 16N 07W 30 ACD

DATE	TIME	D O (MG/L)	PH	SPEC COND MICROMHOS/CM	TEMP - C AIR	TEMP - C H2O	TURBIDITY (NTU)
810622	2025	8.80		92.00	15.60	17.80	.99
810702	1320	9.60	7.10	95.00	21.00	14.10	2.10
810718	1935	8.40	6.40	88.00	13.30	15.70	3.30
810811	1600	9.20		76.00	12.50	13.40	5.50
810827	1330						7.00
810911	1550	9.60		86.00	15.00	12.30	24.00

Habitat Location - Anderson Creek

River Mile 23.8

Geographic Code - 17N 07W 29 DDD

DATE	TIME	D O (MG/L)	PH	SPEC COND MICROMHOS/CM	TEMP - C AIR	TEMP - C H2O	TURBIDITY (NTU)
810604	1545	8.50	6.50	87.00	15.60	12.30	4.00
810622	1530	8.70		117.00	21.40	14.30	110.00
810704	1115	8.40	7.00	123.00		14.20	35.50
810716	1830	11.20	7.90	98.00	15.80	8.90	155.00
810810	1715	11.10		105.00	12.20	8.80	190.00
810826	1415						12.00
810911	1415	9.00		91.00	18.00	10.20	34.00
810927	1615	11.30	6.50	70.00	6.10	6.00	17.00

Habitat Location - Kroto Slough Mouth

River Mile 30.1

Geographic Code - 17N 07W 01 DBC

DATE	TIME	D O (MG/L)	PH	SPEC COND MICROMHOS/CM	TEMP - C AIR	TEMP - C H2O	TURBIDITY (NTU)
810606	1330	8.90	7.00	130.00	19.80	15.60	18.00
810620	1500	8.80		110.00	25.00	16.80	150.00
810704	1430	9.60	7.40	112.00		15.10	56.00
810717	1310	9.70	6.80	80.00	20.20	11.70	125.00
810814	1130			103.00	15.50	10.20	65.00
810910	1700	8.30		199.00	11.00	13.40	54.00
810927	1520	9.90	9.70	195.00	10.10	5.90	37.00

Habitat Location - Mid-Kroto Slough

River Mile 36.3

Geographic Code - 18N 06W 16 BBC

DATE	TIME	D O (MG/L)	PH	SPEC COND MICROMHOS/CM	TEMP - C AIR	TEMP - C H2O	TURBIDITY (NTU)
810610	1400	10.90	7.30	115.00	17.40	10.90	21.00
810619	1950	9.80		114.00	21.00	15.20	200.00
810705	1640	9.80	7.40	108.00		14.10	74.00
810721	1100	10.10		94.00	13.70	10.50	145.00
810809	1715	10.40		101.00	17.40	11.50	160.00
810914	1515	10.90		132.00	15.00	8.90	49.00

Habitat Location - Mainstem Slough

River Mile 31.0

Geographic Code - 17N 06W 05 CAB

		D O		SPEC COND	TEMP - C		TURBIDITY
DATE	TIME	(MG/L)	PH	MICROMHOS/CM	AIR	H2O	(NTU)
810705	1515	9.70	7.40	81.00		14.30	109.00
810718	1345	10.10	7.00	88.00	15.80	11.70	140.00
810810	1310	10.90		108.00	15.80	14.90	225.00
810826	1330						62.00
810909	1920	11.00		125.00	13.00	9.20	99.00
810927	1330	12.00	9.20	137.00	8.10	3.60	24.50

Habitat Location - Deshka River, Site A

River Mile 40.6

Geographic Code - 19N 06W 35 BDA

DATE	TIME	D O (MG/L)	PH	SPEC COND MICROMHOS/CM	TEMP - C AIR	TEMP - C H2O	TURBIDITY (NTU)
810707	1300	8.20	6.90	56.00		15.80	3.10
810721	1610	9.80	6.60	56.00	18.00	12.40	90.00
810807	1345	9.60		80.00	14.00	12.50	
810830	1300						51.00
810915	1710	10.40		50.00	11.50	10.10	5.40
810927	1715	11.40	7.40	39.00	6.00	5.40	4.00

Habitat Location - Deshka River, Site B

River Mile 40.6

Geographic Code - 19N 06W 26 BCB

DATE	TIME	D O (MG/L)	PH	SPEC COND MICROMHOS/CM	TEMP - C AIR	H2O	TURBIDITY (NTU)
810618	1955	8.40		66.00	17.80	19.40	2.00
810706	1855	8.60	7.00	51.00		17.50	1.60
810721	1230	9.00		29.00	15.50	13.20	3.30
810806	1715	8.60		35.00	20.80	16.20	
810830	1400						3.10
810915	1745	10.10		51.00	11.00	10.20	3.60
810929	1415	11.50	5.95	46.00	6.00	3.90	3.00

Habitat Location - Deshka River, Site C

River Mile 40.6

Geographic Code - 19N 06W 14 BCA

DATE	TIME	D O (MG/L)	PH	SPEC COND MICROMHOS/CM	TEMP - C AIR	TEMP - C H2O	TURBIDITY (NTU)
810705	1930	8.80	6.90	47.00		16.20	2.70
810721	1405	9.40	6.00	28.00	18.00	13.60	3.55
810806	1515	8.50		37.00	22.40	16.20	
810830	1530						4.80
810914	1745	10.40		45.00	14.00	10.60	2.00
810929	1600	12.00	6.10	44.00	7.00	4.10	5.40

Habitat Location - Lower Delta Islands

River Mile 44.0

Geographic Code - 19N 05W 19 ACB

DATE	TIME	D O (MG/L)	PH	SPEC COND MICROMHOS/CM	TEMP - C AIR	TEMP - C H2O	TURBIDITY (NTU)
810618	1055	10.20		110.00	34.00	13.20	150.00
810707	1920	9.70	7.60	118.00		11.80	110.00
810722	1840	10.50		103.00	15.40	12.30	150.00
810807	1550	10.60		106.00	16.90	10.90	

Habitat Location - Little Willow Creek

River Mile 50.5

Geographic Code - 20N 05W 27 AAD

DATE	TIME	D O (MG/L)	PH	SPEC COND MICROMHOS/CM	TEMP - C AIR	TEMP - C H2O	TURBIDITY (NTU)
810618	1320	10.50		34.00	31.00	15.50	2.90
810707	1800	10.00	6.90	39.00		13.20	2.30
810722	1940	10.20		39.00	15.00	11.90	28.00
810806	1930	9.90		35.00	16.40	12.00	
810830	1200						6.20
810915	1200	11.20		35.00	13.00	7.20	4.70
810929	1245	12.40	5.45	36.00	12.00	2.00	1.50

Habitat Location - Rustic Wilderness

River Mile 58.1

Geographic Code - 21N 05W 25 CBD

DATE	TIME	D O (MG/L)	PH	SPEC COND MICROMHOS/CM	TEMP - C AIR	TEMP - C H2O	TURBIDITY (NTU)
810624	1855	8.90	7.50		17.40	14.20	150.00
810726	1600	10.20	6.90	67.00	17.40	11.70	
810813	1200	11.20	7.40	67.00	13.00	8.50	61.00
810829	1300	12.10	6.90	72.00	12.20	10.50	94.00

Habitat Location - Kashwitna River

River Mile 61.0

Geographic Code - 21N 05W 13 AAA

DATE	TIME	D O (MG/L)	PH	SPEC COND MICROMHOS/CM	TEMP - C AIR	TEMP - C H2O	TURBIDITY (NTU)
810624	1205	9.80	7.10		15.00	12.40	22.00
810713	1230	11.80	6.70	36.00	14.20	8.40	
810726	1330	11.00	6.60	24.00	21.20	9.60	
810812	1200	11.30	7.10	29.00	10.40	8.40	31.00
810828	1730	12.10	6.40	31.00	16.20	10.70	42.00
810915	1230	12.40	7.10	30.00	10.40	6.40	
810921	1515	12.90	7.10	34.00	10.50	6.50	4.50

Habitat Location - Caswell Creek

River Mile 63.0

Geographic Code - 21N 04W 06 BDD

DATE	TIME	D O (MG/L)	PH	SPEC COND MICROMHOS/CM	TEMP - C AIR	TEMP - C H2O	TURBIDITY (NTU)
810623	2110	7.60	6.80		16.00	16.00	1.90
810710	1515	9.60	6.30	46.00	12.80	10.60	
810725	1200	8.80	6.20	37.00	13.80	13.20	1.00
810811	1430	9.30	6.70	27.00	14.20	12.80	1.50
810828	1345	10.80	6.10	30.00	16.00	11.70	1.20
810917	1400	11.30	7.00	31.00	15.00	9.00	

Habitat Location - Slough West Bank

River Mile 65.6

Geographic Code - 22N 05W 27 ADC

DATE	TIME	D O (MG/L)	PH	SPEC COND MICROMHOS/CM	TEMP - C AIR	TEMP - C H2O	TURBIDITY (NTU)
810613	0930	8.80	7.60		15.00	10.80	
810813	1230	11.20	7.60	68.00	10.20	7.60	140.00
810829	1630	12.10	7.20	96.00	16.00	10.30	210.00
810920	1400	8.00	6.80	216.00	10.80	6.40	21.00

Habitat Location - Sheep Creek Slough

River Mile 66.1

Geographic Code - 22N 04W 30 BAB

DATE	TIME	D O (MG/L)	PH	SPEC COND MICROMHOS/CM	TEMP - C AIR	TEMP - C H2O	TURBIDITY (NTU)
810623	1930	9.90	7.20		16.60	18.00	2.50
810710	1730	10.30	6.20	37.00	13.00	10.90	2.20
810725	1400	9.70	6.20	33.00	13.80	10.90	2.20
810810	1130	9.30	6.80	29.00	13.20	11.10	2.30
810826	1530	11.00	6.10	32.00	21.60	11.80	2.20
810917	1045	9.80	6.70	47.00	12.00	7.80	4.00

Habitat Location - Goose Creek 2

River Mile 73.1

Geographic Code - 23N 04W 30 BBB

DATE	TIME	D O (MG/L)	PH	SPEC COND MICROMHOS/CM	TEMP - C AIR	TEMP - C H2O	TURBIDITY (NTU)
810723	1430	10.80	6.30	27.00	16.20	9.70	3.40
810809	1600	10.40	7.10	19.00	14.80	10.30	2.00
810825	1450	12.10	6.00	20.00	18.60	10.10	.90
810916	1530	12.00	7.10	24.00	11.80	7.30	.63

Habitat Location - Goose Creek 1

River Mile 72.0

Geographic Code - 23N 04W 31 BBC

DATE	TIME	D O (MG/L)	PH	SPEC COND MICROMHOS/CM	TEMP - C AIR	H2O	TURBIDITY (NTU)
810621	1830	9.20	6.80		15.20	10.70	4.50
810707	1300			37.00	14.20	10.10	
810723	1115	10.70	6.10	30.00	15.00	9.10	3.60
810809	1200	10.30	7.10	18.00	14.80	9.70	2.80
810825	1600	11.70	6.20	20.00	17.80	10.20	1.50
810911	1300	11.40	7.10	25.00	11.40	8.00	
810916	1000	12.20	6.90	25.00	9.60	6.30	.40

Habitat Location - Goose Creek 2, Slough

River Mile 73.1

Geographic Code - 23N 04W 30 BBB

DATE	TIME	D O (MG/L)	PH	SPEC COND MICROMHOS/CM	TEMP - C AIR	TEMP - C H2O	TURBIDITY (NTU)
810723	1400	10.70	7.10	82.00	16.40	11.00	120.00
810809	1430	10.60	7.70	80.00	14.20	10.30	120.00
810825	1545	12.10	6.80	85.00	17.40	10.00	47.00
810916	1530	11.30	7.10	56.00	12.00	7.70	9.10

Habitat Location - Mainstem - West Bank

River Mile 74.4

Geographic Code - 23N 05W 13 BCC

DATE	TIME	D O (MG/L)	PH	SPEC COND MICROMHOS/CM	TEMP - C AIR	TEMP - C H2O	TURBIDITY (NTU)
810621	1520	10.50	7.80		15.80	9.30	255.00
810707	1115	10.70	7.00	109.00	13.20	10.00	
810722	1300	11.00	7.20	81.00	16.40	9.70	120.00
810809	1700	10.90	8.00	76.00	13.60	8.80	190.00
810825	1230	12.60	6.70	86.00	16.40	8.70	120.00
810929	1145	10.50	6.90	142.00	5.50	3.20	6.30

Habitat Location - Montana Creek

River Mile 77.0

Geographic Code - 23N 04W 07 ABA

DATE	TIME	D O (MG/L)	PH	SPEC COND MICROMHOS/CM	TEMP - C AIR	H2O	TURBIDITY (NTU)
810707	1530	10.40	6.50	37.00	16.60	12.30	.30
810722	1515	10.00	6.00	25.00	18.60	12.60	.77
810810	1500	10.00	6.70	21.00	13.40	12.30	1.70
810826	1210	11.90	6.20	21.00	17.00	10.90	.40

Special Studies Habitat Location - Rabideux Creek 1

River Mile 83.1

Geographic Code - 24N 05W 16 AAC

DATE	TIME	D O (MG/L)	PH	SPEC COND MICROMHOS/CM	TEMP - C AIR	TEMP - C H2O	TURBIDITY (NTU)
810620	1220	7.40	6.90	88.00	23.20	15.80	22.50

Special Studies Habitat Location - Rabideux Creek 2

River Mile 83.1

Geographic Code - 24N 05W 16 DDA

DATE	TIME	D O (MG/L)	PH	SPEC COND MICROMHOS/CM	TEMP - C AIR	TEMP - C H2O	TURBIDITY (NTU)
810620	1712	7.40	7.00	108.00	20.20	18.90	68.00

Habitat Location - Mainstem 1

River Mile 84.0

Geographic Code - 24N 05W 10 DCC

DATE	TIME	D O (MG/L)	PH	SPEC COND MICROMHOS/CM	TEMP - C AIR	TEMP - C H2O	TURBIDITY (NTU)
810622	1130		7.50	115.00	14.80	10.60	120.00
810705	1700		7.10	108.00	18.00	12.80	25.00
810719	1650		6.40	78.00	15.00	10.40	110.00
810814	1030		7.00		9.40	8.50	
810830	1500				13.00	11.00	170.00
810913	1500	11.30	7.50	103.00		8.60	45.00
810920	1500	10.30		145.00	13.00	7.70	42.00

Habitat Location - Sunshine Creek

River Mile 85.7

Geographic Code - 24N 05W 14 AAB

DATE	TIME	D O (MG/L)	PH	SPEC COND MICROMHOS/CM	TEMP - C AIR	TEMP - C H2O	TURBIDITY (NTU)
810622	1300		7.10	65.00	17.50	14.30	1.60
810705	1830		6.80	58.00	18.20	15.50	
810716	1515		5.60	40.00	15.00	13.10	1.60
810814	0930		6.70	43.00	9.40	11.00	
810830	1400				14.80	12.00	23.00
810912	1700	10.90	7.30	43.00	8.00	9.00	3.60
810920	1600	9.80		57.00	13.00	8.90	6.60

Habitat Location - Birch Creek Slough

River Mile 88.4

Geographic Code - 25N 05W 25 DCC

DATE	TIME	D O (MG/L)	PH	SPEC COND MICROMHOS/CM	TEMP - C AIR	H2O	TURBIDITY (NTU)
810622	1530		7.40	120.00	20.00	16.00	4.20
810707	1310		6.80	132.00		12.80	2.40
810720	1100		6.20	77.00	12.30	9.60	90.00
810814	1130		7.10	89.00	12.30	8.40	
810830	1230				18.00	11.00	95.00
810912	1600	10.30	6.90	67.00	8.00	8.50	6.40
810920	1400	9.40		100.00	13.00	8.80	7.50

Habitat Location - Birch Creek

River Mile 89.2

Geographic Code - 25N 05W 25 ABD

DATE	TIME	D O (MG/L)	PH	SPEC COND MICROMHOS/CM	TEMP - C AIR	TEMP - C H2O	TURBIDITY (NTU)
810622	1430		7.20	81.00	19.60	15.40	6.00
810707	1130		6.70	89.00		14.40	1.40
810719	1130		5.70	48.00	17.00	13.60	1.00
810814	1330	10.60	6.80	61.00	12.50	12.10	
810830	1130				18.00	13.00	1.70
810912	1500	11.10	7.10	43.00	9.00	9.70	.50
810920	1400	9.40		100.00	13.00	8.80	7.50

Habitat Location - Cache Creek

River Mile 96.0

Geographic Code - 26N 05W 26 DCB

DATE	TIME	D O (MG/L)	PH	SPEC COND MICROMHOS/CM	TEMP - C AIR	H2O	TURBIDITY (NTU)
810621	1230		7.30	290.00	13.50	6.40	.60
810701	1200		6.60	31.00	14.60	10.60	3.10
810716	1220	12.30	5.70	45.00		11.90	22.00
810805	1030		6.30	125.00	21.00	11.90	11.00
810826	1600	9.30	6.50	147.00	24.50	11.50	3.60
810909	1600	6.70	7.10	250.00	16.00	7.60	1.00
810921	1100	5.00		304.00	12.00	5.50	1.00

Habitat Location - Cache Creek Slough

River Mile 95.5

Geographic Code - 26N 05W 35 ADC

DATE	TIME	D O (MG/L)	PH	SPEC COND MICROMHOS/CM	TEMP - C AIR	TEMP - C H2O	TURBIDITY (NTU)
810621	1150		7.70	128.00	12.10	7.00	270.00
810701	1300		7.00	57.00	18.00	10.00	81.00
810716	1300		6.20	86.00	12.40	8.20	190.00
810805	1330		7.30	90.00	23.00	9.30	200.00
810826	1700	12.10		135.00	18.00	14.10	140.00
810909	1730	12.30	7.40	91.00	15.80	6.20	170.00
810921	1000	11.20		123.00	5.00	4.90	80.00

Habitat Location - Whiskers Creek Slough

River Mile 101.2

Geographic Code - 26N 05W 03 ADB

DATE	TIME	D O (MG/L)	PH	SPEC COND MICROMHOS/CM	TEMP - C AIR	TEMP - C H2O	TURBIDITY (NTU)
810616	1700		6.40	35.00	23.60	18.00	4.90
810701	1720		6.60	28.00	17.00	11.60	2.10
810716	1130		5.30	22.00		11.80	15.00
810805	1630		6.00	43.00		13.30	23.00
810826	1200	11.50	5.80	34.00	22.00	11.50	10.00
810909	1030	11.60	6.60	18.00	16.30	7.60	.50
810921	1400	10.50		20.00	10.00	8.50	1.00

Habitat Location - Whiskers Creek

River Mile 101.4

Geographic Code - 26N 05W 03 AAC

DATE	TIME	D O (MG/L)	PH	SPEC COND MICROMHOS/CM	TEMP - C AIR	TEMP - C H2O	TURBIDITY (NTU)
810616	1430		6.10	31.00	19.60	16.20	.90
810701	1540		6.30	24.00	17.20	11.30	
810716	1020	12.80	5.10	19.00	14.40	11.60	2.90
810805	1530		5.50	28.00	23.00	13.80	2.30
810826	1000	12.70	5.60	23.00	19.00	9.80	3.70
810909	1230	11.20	6.60	15.00	16.30	8.60	.60
810921	1330	10.70		15.00	11.00	7.60	1.10

Habitat Location - Slough 6A

River Mile 112.3

Geographic Code - 28N 05W 13 CAC

DATE	TIME	D O (MG/L)	PH	SPEC COND MICROMHOS/CM	TEMP - C AIR	H2O	TURBIDITY (NTU)
810618	1415		7.10	104.00	22.40	16.50	22.00
810703	1830		6.70	113.00		14.50	6.60
810718	1100		5.60	45.00	14.60	10.20	2.50
810808	1400		5.90	42.00	15.00	9.70	
810828	1500				16.00	10.50	2.70
810911	1630				11.00	6.50	1.00
810923	1400	11.80		47.00	7.00	4.80	1.70

Habitat Location - Lane Creek

River Mile 113.6

Geographic Code - 28N 05W 12 ADD

DATE	TIME	D O (MG/L)	PH	SPEC COND MICROMHOS/CM	TEMP - C AIR	TEMP - C H2O	TURBIDITY (NTU)
810618	1315		7.20	58.00	21.80	9.80	1.60
810718	1030		6.50	45.00	15.10	6.90	1.70
810808	1330		6.40	50.00	15.00	8.60	
810828	1330				13.50	8.00	2.40
810911	1500				9.50	7.00	5.40
810923	1300	10.90		65.00	7.00	5.20	.60

Habitat Location - Mainstem 2

River Mile 114.4

Geographic Code - 28N 04W 06 CAB

DATE	TIME	D O (MG/L)	PH	SPEC COND MICROMHOS/CM	TEMP - C AIR	TEMP - C H2O	TURBIDITY (NTU)
810618	1140		7.40	106.00	18.00	15.20	58.00
810703	1520		7.40	115.00		13.40	27.00
810718	1045		6.60	99.00	15.00	11.10	135.00
810808	1200		6.70	120.00	15.00	11.00	
810828	1230				13.00	12.50	42.00
810911	1000				10.60	8.00	37.00
810923	1200	11.60		158.00	7.00	5.30	13.00

Habitat Location - Mainstem Susitna - Curry

River Mile 120.7

Geographic Code - 29N 04W 10 BCD

DATE	TIME	D O (MG/L)	PH	SPEC COND MICROMHOS/CM	TEMP - C AIR	TEMP - C H2O	TURBIDITY (NTU)
810619	1730	9.10	7.50	120.00	21.40	15.00	105.00
810708	1330	10.90	7.20	98.00	12.00	8.60	
810724	1115	10.10	7.40	103.00	18.80	11.20	110.00
810808	1600	10.20	7.40	105.00	15.60	10.80	82.00
810829	1045	10.10	7.40	125.00	13.20	12.40	62.00
810916	1130	10.40	7.50	152.00	8.80	6.90	23.00

Habitat Location - Susitna Side Channel

River Mile 121.6

Geographic Code - 29N 04W 11 BBB

DATE	TIME	D O (MG/L)	PH	SPEC COND MICROMHOS/CM	TEMP - C AIR	TEMP - C H2O	TURBIDITY (NTU)
810619	1620	9.70	7.60	124.00	26.00	16.30	84.00
810708	1415	10.30	6.90	107.00	11.20	8.80	
810723	1700	9.70	6.90	104.00	16.20	10.80	93.00
810807	1200	9.50	6.70	77.00	14.00	9.90	55.00
810829	1145	9.80	7.30	128.00	13.60	12.20	58.00
810916	1400		7.40	129.00	14.50	8.10	22.00

Habitat Location - Mainstem Susitna - Gravel Bar

River Mile 123.8

Geographic Code - 30N 04W 26 DDD

DATE	TIME	D O (MG/L)	PH	SPEC COND MICROMHOS/CM	TEMP - C AIR	TEMP - C H2O	TURBIDITY (NTU)
810618	1816	9.80	7.50	122.00	19.80	14.50	78.00
810706	1045	9.60	7.30	142.00	16.00	11.00	
810723	1300	10.20	7.40	113.00	14.20	11.40	110.00
810809	1630	11.00	7.80	104.00	14.00	9.70	230.00
810830	1430	10.20	7.60	125.00	14.00	12.00	130.00
810916	1430		7.50	151.00	12.80	7.50	18.00
810928	1200		7.30	167.00	3.60	.60	7.50

Habitat Location - Slough 8A

River Mile 125.3

Geographic Code - 30N 03W 30 BCD

DATE	TIME	D O (MG/L)	PH	SPEC COND MICROMHOS/CM	TEMP - C AIR	TEMP - C H2O	TURBIDITY (NTU)
810617	1520	9.30	7.00		26.40	16.40	1.70
810706	1330	10.30	6.90	118.00	17.00	11.10	
810723	1145	9.40	7.00	123.00	13.80	10.60	78.00
810809	1800	10.50	7.60	108.00	13.60	10.10	205.00
810828	1630	8.80	6.80	152.00	19.00	12.60	7.00
810915	1115	8.80	6.90	160.00	11.00	6.60	1.40
810927	1430		6.90	159.00	3.00	4.50	.70

Habitat Location - Fourth of July Creek

River Mile 131.1

Geographic Code - 30N 03W 03 DAC

DATE	TIME	D O (MG/L)	PH	SPEC COND MICROMHOS/CM	TEMP - C AIR	H2O	TURBIDITY (NTU)
810617	1245	9.90	6.70		25.10	15.00	.45
810706	1625	10.10	6.50	18.00		11.60	
810720	1300	9.90	6.30		15.80	10.90	3.00
810811	1700		6.40	20.00	11.40	11.40	2.60
810828	1445	9.50	6.60	27.00	23.40	12.80	.40
810915	1330	9.70	6.70	15.00	12.00	8.20	.47
810927	1245		6.50	17.00	2.20	2.00	3.00

Habitat Location - Slough 10

River Mile 133.8

Geographic Code - 31N 03W 36 AAC

DATE	TIME	D O (MG/L)	PH	SPEC COND MICROMHOS/CM	TEMP - C AIR	TEMP - C H2O	TURBIDITY (NTU)
810617	1020	9.00	7.10	134.00	24.20	12.80	45.00
810705	1900	9.80	7.00	121.00	14.60	9.80	
810721	1145	10.70	7.40	101.00	14.00	10.30	130.00
810811	1600	11.50	7.80	190.00	13.30	8.90	103.00
810829	1730	9.90	7.20	137.00	15.00	11.00	67.00
810915	1430	10.10	7.20	144.00	11.80	6.80	22.00
810926	1530		7.20	171.00	4.60	2.70	1.50

Habitat Location - Slough 11

River Mile 135.3

Geographic Code - 31N 02W 19 DDD

DATE	TIME	D O (MG/L)	PH	SPEC COND MICROMHOS/CM	TEMP - C AIR	TEMP - C H2O	TURBIDITY (NTU)
810618	1030	9.80	7.10		19.40	9.70	1.50
810705	1800	10.00	7.00	194.00	15.00	7.10	
810719	1430	9.30	6.90	207.00	13.60	7.30	3.50
810815	1530	10.70	7.00	144.00	8.00	6.30	98.00
810827	1315	9.60	6.90	209.00	25.00	7.50	6.00
810915	1630	9.30	6.80	208.00	11.40	5.80	2.40
810926	1315		7.10	210.00	5.30	4.00	3.50

Habitat Location - Mainstem Susitna - Inside Bend

River Mile 136.9

Geographic Code - 31N 02W 17 CDA

DATE	TIME	D O (MG/L)	PH	SPEC COND MICROMHOS/CM	TEMP - C AIR	TEMP - C H2O	TURBIDITY (NTU)
810702	1845	10.50	7.50		16.00	10.40	
810721	0930	10.60	7.50	115.00	14.20	10.30	150.00
810814	1000	11.80	7.60	92.00	10.40	8.00	125.00
810827	1100	10.40	7.40	119.00	23.40	11.80	30.00
810915	1730	10.40	7.50	151.00		6.90	19.00
810926	1130		7.00	168.00	.60	1.80	9.00

Habitat Location - Indian River

River Mile 138.6

Geographic Code - 31N 02W 09 CDA

DATE	TIME	D O (MG/L)	PH	SPEC COND MICROMHOS/CM	TEMP - C AIR	TEMP - C H2O	TURBIDITY (NTU)
810614		8.60	7.40	49.00		12.20	
810701	1630	10.60	6.80	31.00	15.60	9.20	
810718	1730	9.90	6.60	38.00	11.40	8.20	6.50
810812	1740	10.60	6.50	35.00	10.00	8.20	15.00
810825	1615	10.40	6.40	37.00	17.60	8.90	2.70
810913	1315						2.00
810924	1800		6.80	40.00	3.00	5.40	2.50

Habitat Location - Indian River

River Mile 138.6

Geographic Code - 31N 02W 09 CDA

DATE	TIME	D O (MG/L)	PH	SPEC COND MICROMHOS/CM	TEMP - C AIR	TEMP - C H2O	TURBIDITY (NTU)
810614		8.60	7.40	49.00		12.20	
810701	1630	10.60	6.80	31.00	15.60	9.20	
810718	1730	9.90	6.60	38.00	11.40	8.20	6.50
810812	1740	10.60	6.50	35.00	10.00	8.20	15.00
810825	1615	10.40	6.40	37.00	17.60	8.90	2.70
810913	1315						2.00
810924	1800		6.80	40.00	3.00	5.40	2.50

Special Studies Habitat Location - Indian River I

Tributary Mile 2.7

Geographic Code - 32N 02W 28 DDC

DATE	TIME	D O (MG/L)	PH	SPEC COND MICROMHOS/CM	TEMP - C AIR	TEMP - C H2O	TURBIDITY (NTU)
810608		10.60	6.70	52.00		5.70	
810826	1000	10.80	6.60	40.00	13.60	7.20	1.80
811003	1245	12.30	5.75	48.00	4.40	2.70	0.50

Special Studies Habitat Location - Indian River II

Tributary Mile 7.2

Geographic Code - 32N 02W 11 DDC

DATE	TIME	D O (MG/L)	PH	SPEC COND MICROMHOS/CM	TEMP - C AIR	TEMP - C H2O	TURBIDITY (NTU)
810609		6.80	6.80	42.00		7.30	
810826	1130	10.20	6.70	38.00	19.20	7.90	2.40
811003	1340	12.00	5.90	45.00	4.10	3.40	1.00

Special Studies Habitat Location - Indian River III

Tributary Mile 12.0

Geographic Code - 32N 01W 27 DCC

DATE	TIME	D O (MG/L)	PH	SPEC COND MICROMHOS/CM	TEMP - C AIR	TEMP - C H2O	TURBIDITY (NTU)
810826	1330	10.0	6.3	38.00	20.5	8.4	2.2
811003	1440	11.8	6.0	49.00	2.9	3.3	0.75

Tributary Mile 13.5

Geographic Code - 33N 01W 04 BAB

DATE	TIME	D O (MG/L)	PH	SPEC COND MICROMHOS/CM	TEMP - C AIR	TEMP - C H2O	TURBIDITY (NTU)
810608		10.70	6.80	51.00		4.60	

Habitat Location - Slough 20

River Mile 140.1

Geographic Code - 31N 02W 11 BBC

DATE	TIME	D O (MG/L)	PH	SPEC COND MICROMHOS/CM	TEMP - C AIR	TEMP - C H2O	TURBIDITY (NTU)
810612			7.20	39.00		9.60	
810702	1710	11.00	7.00	65.00		7.50	
810717	1800	10.30	7.40	104.00	18.00	11.50	148.00
810812	1700	10.90	7.20	88.00	10.00	8.40	90.00
810825	1400	10.50	6.90	103.00	16.20	9.00	17.00
810912	1300		7.60	55.00	14.00	7.10	1.50
810924	1630		7.40	82.00	4.20	3.80	1.50

Habitat Location - Mainstem Susitna - Island

River Mile 146.9

Geographic Code - 32N 01W 27 DBC

DATE	TIME	D O (MG/L)	PH	SPEC COND MICROMHOS/CM	TEMP - C AIR	TEMP - C H2O	TURBIDITY (NTU)
810612			7.30	66.00		11.70	
810705	1600	10.20	7.30	114.00		10.70	
810717	1330	10.60	7.50	104.00		10.70	140.00
810813	1400	11.90	7.50	100.00	10.40	8.10	105.00
810823	1400	11.60	7.20	100.00	15.40	8.60	40.00
810911	1300	10.70	7.50	139.00	12.40	7.40	
810924	1445		7.20	150.00	4.80	2.70	13.00

Habitat Location - Portage Creek

River Mile 148.8

Geographic Code - 32N 01W 25 CDB

DATE	TIME	D O (MG/L)	PH	SPEC COND MICROMHOS/CM	TEMP - C AIR	TEMP - C H2O	TURBIDITY (NTU)
810612			7.10	80.00		8.80	
810703	1515	10.90	7.00	66.00	17.80	8.90	
810717	1300	10.60	7.00	55.00	14.40	7.50	25.00
810813	1130	11.00	6.90	55.00	9.40	6.40	21.00
810823	1100	11.00	6.60	60.00	9.80	6.00	5.50
810910	1130	10.00	7.10	96.00	10.20	7.20	
810924	1115		6.80	98.00	4.60	2.90	2.30

Special Studies Habitat Location - Portage Creek I

Tributary Mile 4.5

Geographic Code - 32N 01E 08 CBA

DATE	TIME	D O (MG/L)	PH	SPEC COND MICROMHOS/CM	TEMP - C AIR	TEMP - C H2O	TURBIDITY (NTU)
810609		10.70	6.90	90.00		6.80	
810826	15.00	10.20	6.90	78.00	20.40	9.40	3.80
811003	[illegible]	12.10		158.00	1.90	1.50	0.75

Special Studies Habitat Location - Portage Creek II

Tributary Mile 9.2

Geographic Code - 33N 01E 26 DDC

DATE	TIME	D O (MG/L)	PH	SPEC COND MICROMHOS/CM	TEMP - C AIR	TEMP - C H2O	TURBIDITY (NTU)
810609		10.30	6.70	85.00		6.60	
810828	1230	10.40	6.90	72.00	26.80	8.30	0.25
811003	1610	12.30		128.00	2.10	1.50	0.40

Special Studies Habitat Location - Portage Creek III

Tributary Mile 15.5 (north fork)

Geographic Code - 22S 08W 28 BAB

DATE	TIME	D O (MG/L)	PH	SPEC COND MICROMHOS/CM	TEMP - C AIR	TEMP - C H2O	TURBIDITY (NTU)
810828	1100	10.60	6.80	48.00	23.80	7.00	0.44
811003	1515	12.30	6.05	82.00	2.40	2.00	0.50

Tributary Mile 15.6 (east fork)

Geographic Code - 22S 08W 34 DCC

DATE	TIME	D O (MG/L)	PH	SPEC COND MICROMHOS/CM	TEMP - C AIR	TEMP - C H2O	TURBIDITY (NTU)
810609		10.40	7.20	60.00		5.90	

Habitat Location - Sally Lake

River Mile

Geographic Code - 32N 07E 29 BDA

DATE	TIME	D O (MG/L)	PH	SPEC COND MICROMHOS/CM	TEMP - C AIR	TEMP - C H2O	TURBIDITY (NTU)
810624	1620	7.60	7.80	140.00		18.20	

Habitat Location - Fog Creek - Site 01

River Mile 173.9

Geographic Code - 31N 04E 16 DBB

DATE	TIME	D O (MG/L)	PH	SPEC COND MICROMHOS/CM	TEMP - C AIR	TEMP - C H2O	TURBIDITY (NTU)
810503	1645	10.70	7.40	90.00	17.00	8.50	0.34
810630	1030	10.40	7.50	78.00	16.50	6.10	1.20
810727	1030	10.10	7.40	73.00	17.40	8.80	1.40
810825	1700	11.60	7.40	81.00	22.00	10.40	1.30

Habitat Location - Fish Creek

River Mile 7.0

Geographic Code - 15N 07W 27 AAC

DATE	TIME	D O (MG/L)	PH	SPEC COND MICROMHOS/CM	TEMP - C AIR	TEMP - C H2O	TURBIDITY (NTU)
810622	1915	9.70		114.00	19.20	12.40	210.00

Habitat Location - Fog Creek - Site 03

River Mile 173.9

Geographic Code - 31N 04E 16 DAD

DATE	TIME	D O (MG/L)	PH	SPEC COND MICROMHOS/CM	TEMP - C AIR	TEMP - C H2O	TURBIDITY (NTU)
810604	1130	11.30	7.30	81.00	19.00	6.80	0.60
810701	1130		7.40	77.00	17.00	6.40	1.10
810727	1245	10.50	7.40	68.00	16.80	9.20	1.10
810825	1200	11.60	7.40	81.00	19.00	9.70	1.50

Habitat Location - Main Susitna River
50 feet upstream of Tsusena Creek

River Mile 178.9

Geographic Code - 32N 04E 36 ADB

DATE	TIME	D O (MG/L)	PH	SPEC COND MICROMHOS/CM	TEMP - C AIR	H2O	TURBIDITY (NTU)
810726	1300	9.80	7.50	106.00	14.00	10.00	125.00
810823	1200	12.20	7.30	107.00	12.50	8.60	48.00

Habitat Location - Tsusena Creek - Site 01

River Mile 178.9

Geographic Code - 32N 04E 36 ADB

DATE	TIME	D O (MG/L)	PH	SPEC COND MICROMHOS/CM	TEMP - C AIR	TEMP - C H2O	TURBIDITY (NTU)
810601	1800	11.00	7.20	71.00	13.00	9.40	0.60
810628	2030	9.90	7.30	68.00	15.00	8.00	0.70
810725	1745	10.10	7.00	58.00	14.00	9.80	1.80
810823	1300	13.20	6.80	55.00	13.20	7.50	

Habitat Location - Main Susitna River
50 feet upstream of Deadman Creek

River Mile 183.4

Geographic Code - 32N 05E 26 CDB

DATE	TIME	D O (MG/L)	PH	SPEC COND MICROMHOS/CM	TEMP - C AIR	TEMP - C H2O	TURBIDITY (NTU)
810530	1910	10.30	7.60	100.00	19.00	12.60	
810627	1315	9.90	7.70	138.00	13.20	8.40	
810723	1400	10.00	7.70	108.00	15.00	10.90	130.00
810822	1300	11.60	7.30	105.00	11.40	8.40	51.00

Habitat Location - Deadman Creek - Site 01

River Mile 183.4

Geographic Code - 32N 05E 26 CDB

DATE	TIME	D O (MG/L)	PH	SPEC COND MICROMHOS/CM	TEMP - C AIR	TEMP - C H2O	TURBIDITY (NTU)
810530	1900	10.50	7.50	47.00	19.00	11.60	0.68
810626	1300	9.50	7.30	79.00	13.20	7.60	1.80
810723	1410	10.10	7.10	59.00	15.00	12.40	1.30
810822	1315	12.60	7.00	44.00	11.40	7.80	1.50

Habitat Location - Deadman Creek - Site 02

River Mile 183.4

Geographic Code - 32N 05E 26 CAA

DATE	TIME	D O (MG/L)	PH	SPEC COND MICROMHOS/CM	TEMP - C AIR	TEMP - C H2O	TURBIDITY (NTU)
810531	1224	11.40	7.10	45.00	14.50	7.50	2.10
810627	1900	9.40	7.30	79.00	13.20	7.80	2.30
810723	1500	10.10	7.10	59.00	15.00	12.40	1.50
810822	1400	12.60	7.00	44.00	11.40	7.80	

Habitat Location - Main Susitna River
50 feet upstream of Watana Creek

River Mile 190.4

Geographic Code - 32N 06E 25 CCA

DATE	TIME	D O (MG/L)	PH	SPEC COND MICROMHOS/CM	TEMP - C AIR	TEMP - C H2O	TURBIDITY (NTU)
810624	1040	9.60	7.70	132.00	14.50	11.70	
810821	1250	11.70	7.50	109.00	16.00	8.00	58.00

Habitat Location - Watana Creek - Site 01

River Mile 190.4

Geographic Code - 32N 06E 25 CCA

DATE	TIME	D O (MG/L)	PH	SPEC COND MICROMHOS/CM	TEMP - C AIR	H2O	TURBIDITY (NTU)
810528	1850	12.40	7.70	139.00	14.00	4.90	
810624	1030	9.50	7.70	245.00	14.50	9.70	1.30
810721	1630	9.60	7.30	128.00	18.00	11.30	4.40
810821	1350	11.90	7.10	101.00	17.00	8.60	9.80
810925	1025	14.10	7.50	177.00	1.30	1.50	2.70

Habitat Location - Watana Creek - Site 02

River Mile 190.4

Geographic Code - 32N 06E 25 CAB

DATE	TIME	D O (MG/L)	PH	SPEC COND MICROMHOS/CM	TEMP - C AIR	H2O	TURBIDITY (NTU)
810529	1000	12.40	7.70	140.00	18.00	5.70	
810624	1120	10.10	7.60	243.00	16.50	10.00	
810721	1640	9.80	7.40	126.00	18.00	11.20	
810821	1420	11.50	7.30	101.00	17.40	8.70	
810925	1130	13.90	7.50	174.00	3.70	1.90	

Habitat Location - Watana Creek - Site 03

River Mile 190.4

Geographic Code - 32N 06E 25 BDC

DATE	TIME	D O (MG/L)	PH	SPEC COND MICROMHOS/CM	TEMP - C AIR	TEMP - C H2O	TURBIDITY (NTU)
810529	1055	12.20	7.60	141.00	19.00	6.40	
810625	1145	10.10	7.70	246.00	15.00	9.90	1.30
810721	1710	9.70	7.40	127.00	17.20	11.40	3.40
810821	1430	11.60	7.30	103.00	17.40	8.70	9.60
810925	1130	14.30	7.60	174.00	3.80	2.10	2.60

Habitat Location - Watana Creek - Site 04

River Mile 190.4

Geographic Code - 32N 06E 25 ACB

DATE	TIME	D O (MG/L)	PH	SPEC COND MICROMHOS/CM	TEMP - C AIR	TEMP - C H2O	TURBIDITY (NTU)
810529	1230	11.70	7.60	149.00	21.50	8.30	
810625	1200	10.20	7.60	248.00	16.50	10.00	

Habitat Location - Watana Creek - Site 05

River Mile 190.4

Geographic Code - 32N 06E 25 ABC

DATE	TIME	D O (MG/L)	PH	SPEC COND MICROMHOS/CM	TEMP - C AIR	H2O	TURBIDITY (NTU)
810529	1430	10.60	7.70	156.00	21.00	10.40	
810625	1300	9.70	7.60	247.00	19.00	11.40	3.10

Habitat Location - Main Susitna River
50 feet upstream of Kosina Creek

River Mile 202.4

Geographic Code - 31N 08E 15 BAB

DATE	TIME	D O (MG/L)	PH	SPEC COND MICROMHOS/CM	TEMP - C AIR	H2O	TURBIDITY (NTU)
810622	1330	9.00	7.50	123.00	24.00	12.50	120.00
810720	1400	9.70	7.50	106.00	14.20	9.80	145.00
810820	1200	12.10	7.40	120.00	11.60	7.40	46.00
810923	1015	11.80	6.80	146.00	5.20	3.30	10.00

Habitat Location - Kosina Creek - Site 01

River Mile 202.4

Geographic Code - 31N 08E 15 BAB

DATE	TIME	D O (MG/L)	PH	SPEC COND MICROMHOS/CM	TEMP - C AIR	TEMP - C H2O	TURBIDITY (NTU)
810526	1000	12.00	7.50	54.00	17.00	4.70	
810622	1300	9.10	7.20	55.00	24.00	12.30	0.50
810720	1245	9.70	7.10	54.00	12.80	10.20	1.00
810820	1100	12.40	7.30	67.00	11.60	7.40	1.90
810923	1000	12.90	7.30	68.00	5.00	2.80	0.80

Habitat Location - Kosina Creek - Site 02

River Mile 202.4

Geographic Code - 31N 08E 15 BAC

DATE	TIME	D O (MG/L)	PH	SPEC COND MICROMHOS/CM	TEMP - C AIR	TEMP - C H2O	TURBIDITY (NTU)
810527	1150	12.00	7.50	54.00	18.50	5.30	
810623	1100	9.90	7.40	57.00	23.50	10.40	
810720	1300	10.00	7.10	53.00	13.00	10.50	
810820	1220	12.20	7.40	66.00	11.60	7.60	
810923	1025	13.60	7.30	67.00	5.40	2.70	

Habitat Location - Kosina Creek - Site 03

River Mile 202.4

Geographic Code - 31N 08E 15 BCA

DATE	TIME	D O (MG/L)	PH	SPEC COND MICROMHOS/CM	TEMP - C AIR	TEMP - C H2O	TURBIDITY (NTU)
810527	1245	11.40	7.60	54.00	19.00	5.60	
810623	1145	9.20	7.50	57.00	18.00	10.90	0.60
810720	1300	9.90	7.10	54.00	13.60	10.50	1.00
810820	1240	12.20	7.30	66.00	11.60	7.60	1.50
810923	1050	13.70	7.30	67.00	5.30	2.70	0.80

Habitat Location - Kosina Creek - Site 04

River Mile 202.4

Geographic Code - 31N 08E 15 CBA

DATE	TIME	D O (MG/L)	PH	SPEC COND MICROMHOS/CM	TEMP - C AIR	TEMP - C H2O	TURBIDITY (NTU)
810623	1200	9.10	7.50	57.00	28.00	11.20	
810720	1330	9.90	7.10	54.00	13.80	10.60	
810820	1300	12.10	7.40	66.00	11.70	7.60	
810923	1105	13.50	7.30	67.00	5.30	2.70	

Habitat Location - Kosina Creek - Site 05

River Mile 202.4

Geographic Code - 31N 08E 15 CCA

DATE	TIME	D O (MG/L)	PH	SPEC COND MICROMHOS/CM	TEMP - C AIR	H2O	TURBIDITY (NTU)
810623	1300	9.20	7.40	57.00	24.50	11.50	
810720	1345	9.90	7.10	53.00	13.80	10.70	2.70
810820	1315	12.20	7.40	66.00	11.60	7.60	4.40
810923	1140	13.60	7.30	68.00	6.80	2.90	1.50

Habitat Location - Main Susitna River
50 feet upstream of Jay Creek

River Mile 203.9

Geographic Code - 31N 08E 13 BCC

DATE	TIME	D O (MG/L)	PH	SPEC COND MICROMHOS/CM	TEMP - C AIR	TEMP - C H2O	TURBIDITY (NTU)
810524	1600	10.80	7.50	133.00	18.00	7.00	
810621	1020	9.10	7.70	135.00	14.00	11.40	150.00
810718	1515	9.70	7.50	100.00	15.40	10.80	155.00
810818	1500	12.30	7.30	117.00	15.00	8.00	48.00
810920	1440	11.10	7.20	170.00	10.70	6.70	19.00

Habitat Location - Jay Creek - Site 01

River Mile 203.9

Geographic Code - 31N 08E 13 BCC

DATE	TIME	D O (MG/L)	PH	SPEC COND MICROMHOS/CM	TEMP - C AIR	TEMP - C H2O	TURBIDITY (NTU)
810524	1530	10.80	7.80	150.00	18.00	9.40	
810621	1015	10.10	7.90	170.00	14.00	8.00	0.60
810718	1420	9.90	7.50	124.00	16.40	9.70	1.70
810818	1340	13.00	7.40	128.00	12.60	6.50	2.20
810920	1430	11.90	7.70	175.00	10.60	5.70	1.60

Habitat Location - Jay Creek - Site 02

River Mile 203.9

Geographic Code - 31N 08E 13 BCA

DATE	TIME	D O (MG/L)	PH	SPEC COND MICROMHOS/CM	TEMP - C AIR	TEMP - C H2O	TURBIDITY (NTU)
810524	1700	10.40	7.70	146.00	16.00	9.40	
810621	1105	10.10	7.80	170.00	15.00	8.10	
810719	1100	10.60	7.60	129.00	12.00	6.70	
810819	1120	13.10	7.50	128.00	11.80	5.90	
810921	1025	12.80	7.70	175.00	11.00	3.60	

Habitat Location - Jay Creek - Site 03

River Mile 203.9

Geographic Code - 31N 08E 13 BAC

DATE	TIME	D O (MG/L)	PH	SPEC COND MICROMHOS/CM	TEMP - C AIR	TEMP - C H2O	TURBIDITY (NTU)
810525	1115	12.70	7.70	145.00	15.00	7.20	
810621	1115	10.00	7.80	170.00	17.00	8.30	0.50
810719	1115	10.70	7.50	129.00	12.00	6.60	8.60
810819	1145	13.10	7.60	128.00	11.80	5.90	3.60
810921	1110	12.60	7.70	174.00	7.80	4.00	2.60

Habitat Location - Jay Creek - Site 04

River Mile 203.9

Geographic Code - 31N 08E 13 BAA

DATE	TIME	D O (MG/L)	PH	SPEC COND MICROMHOS/CM	TEMP - C AIR	H2O	TURBIDITY (NTU)
810525	1220	11.10	7.60	139.00	24.00	8.30	
810621	1150	10.10	7.80	170.00	17.00	8.50	
810719	1200	10.60	7.60	130.00	14.40	6.90	
810819	1205	13.00	7.60	128.00	12.00	5.80	
810921	1135	12.90	7.80	174.00	10.20	4.20	

Habitat Location - Jay Creek - Site 05

River Mile 203.9

Geographic Code - 31N 08E 12 DCB

DATE	TIME	D O (MG/L)	PH	SPEC COND MICROMHOS/CM	TEMP - C AIR	TEMP - C H2O	TURBIDITY (NTU)
810525	1250	10.80	7.60	144.00	24.00	18.80	
810621	1220	10.10	7.70	170.00	17.00	8.60	0.60
810719	1220	10.70	7.50	129.00	14.40	7.00	3.90
810819	1220	13.10	7.60	128.00	12.00	5.80	3.90
810921	1155	13.20	7.70	173.00	9.60	4.30	5.40

Habitat Location - Main Susitna River
50 feet upstream of Goose Creek

River Mile 224.9

Geographic Code - 30N 11E 32 DBC

DATE	TIME	D O (MG/L)	PH	SPEC COND MICROMHOS/CM	TEMP - C AIR	TEMP - C H2O	TURBIDITY (NTU)
810523	1300	10.80	7.30	108.00	12.00	8.20	
810619	1445	8.50	7.70	117.00	24.00	13.70	
810717	1520	9.60	7.60	100.00	15.40	10.00	155.00
810817	1145	12.90	7.30	106.00	6.00	5.00	63.00
810919	1145	10.70	7.50	152.00	11.20	6.70	23.00

Habitat Location - Goose Creek - Site 01

River Mile 224.9

Geographic Code - 30N 11E 32 DBC

DATE	TIME	D O (MG/L)	PH	SPEC COND MICROMHOS/CM	TEMP - C AIR	TEMP - C H2O	TURBIDITY (NTU)
810522	1700	10.90	7.20	59.00	11.00	7.20	0.45
810618	1900	8.60	7.50	66.00	21.50	14.40	0.40
810717	1220	9.60	7.10	47.00	15.40	10.70	2.20
810816	1100	13.10	7.00	59.00	6.00	5.40	0.90
810918	1650	11.00	7.20	58.00	11.20	6.60	1.40

Habitat Location - Goose Creek - Site 02

River Mile 224.9

Geographic Code - 30N 11E 32 CDA

DATE	TIME	D O (MG/L)	PH	SPEC COND MICROMHOS/CM	TEMP - C AIR	TEMP - C H2O	TURBIDITY (NTU)
810523	1030	11.20	7.30	55.00	12.00	5.80	0.35
810619	1100	8.80	7.40	64.00	19.00	12.30	0.40
810717	1315	9.50	7.10	47.00	17.80	11.30	
810817	1020	13.60	7.10	58.00	7.00	4.30	
810919	1040	11.80	7.10	63.00	6.20	5.00	

Habitat Location - Goose Creek - Site 03

River Mile 224.9

Geographic Code - 30N 11E 32 CDC

DATE	TIME	D O (MG/L)	PH	SPEC COND MICROMHOS/CM	TEMP - C AIR	TEMP - C H2O	TURBIDITY (NTU)
810523	1120	11.10	7.30	54.00	13.00	6.20	0.35
810619	1200	8.90	7.40	64.00	23.50	13.40	0.40
810717	1350	9.50	7.00	47.00	16.80	11.60	1.70
810817	1045	13.50	7.00	58.00	8.00	4.70	0.40
810919	1105	11.90	7.00	62.00	7.80	5.10	0.40

Habitat Location - Goose Creek - Site 04

River Mile 224.9

Geographic Code - 29N 11E 05 BBC

DATE	TIME	D O (MG/L)	PH	SPEC COND MICROMHOS/CM	TEMP - C AIR	TEMP - C H2O	TURBIDITY (NTU)
810523	1200	10.80	7.30	59.00	15.00	7.40	0.32
810619	1315	8.60	7.40	64.00	23.00	14.40	0.40
810717	1420	9.40	7.10	48.00	16.80	11.60	
810817	1105	13.80	7.00	58.00	8.00	4.90	
810919	1125	11.90	7.20	58.00	7.90	5.10	

Habitat Location - Goose Creek - Site 05

River Mile 224.9

Geographic Code - 29N 11E 05 BCB

DATE	TIME	D O (MG/L)	PH	SPEC COND MICROMHOS/CM	TEMP - C AIR	TEMP - C H2O	TURBIDITY (NTU)
810523	1300	10.80	7.40	60.00	13.00	7.70	0.35
810619	1445	8.60	7.30	66.00	22.00	14.60	0.40
810717	1520	9.50	7.10	48.00	16.80	11.80	2.60
810817	1145	13.60	7.00	58.00	9.60	5.40	0.70
810919	1145	12.10	7.20	57.00	7.70	4.20	0.90

Habitat Location - Main Susitna River
50 feet upstream of Oshetna River

River Mile 226.9

Geographic Code - 30N 11E 34 CCD

DATE	TIME	D O (MG/L)	PH	SPEC COND MICROMHOS/CM	TEMP - C AIR	TEMP - C H2O	TURBIDITY (NTU)
810617	0900	9.30	7.60	115.00	.0.00	12.30	90.00
810715	2220	9.90	7.60	118.00	12.50	8.80	175.00
810815	0900	12.30	7.40	101.00	8.50	6.30	73.00
810915	1920	10.40	7.60	152.00	8.60	6.70	24.00

Habitat Location - Oshetna River - Site 01

River Mile 226.9

Geographic Code - 30N 11E 34 CCD

DATE	TIME	D O (MG/L)	PH	SPEC COND MICROMHOS/CM	TEMP - C AIR	TEMP - C H2O	TURBIDITY (NTU)
810521	1730	11.10	7.30	88.00	13.00	7.00	1.70
810616	2130	8.90	7.60	69.00	14.00	12.60	9.00
810715	2210	9.00	7.20	99.00	12.50	11.00	7.20
810815	0950	12.00	7.40	113.00	10.00	7.20	2.60
810915	1930	9.90	7.60	135.00	7.80	7.50	1.20

Habitat Location - Oshetna River - Site 02

River Mile 226.9

Geographic Code - 29N 11E 03 BAB

DATE	TIME	D O. (MG/L)	PH	SPEC COND MICROMHOS/CM	TEMP - C AIR	TEMP - C H2O	TURBIDITY (NTU)
810521	1100	11.60	7.20	84.00	10.00	5.20	1.50
810617	1000	9.60	7.60	65.00	18.50	8.80	
810716	1040	9.40	7.50	93.00	16.50	10.70	
810815	1120	12.00	7.40	106.00	13.20	7.90	
810916	1035	11.50	7.60	135.00	10.00	5.60	

Habitat Location - Oshetna River - Site 03

River Mile 226.9

Geographic Code - 29N 11E 03 BAC

DATE	TIME	D O (MG/L)	PH	SPEC COND MICROMHOS/CM	TEMP - C AIR	H2O	TURBIDITY (NTU)
810521	1245	11.50	7.20	84.00	10.00	5.90	1.30
810617	1015	9.80	7.60	65.00	21.00	8.70	19.00
810716	1155	9.60	7.50	93.00	15.00	10.80	7.50
810815	1150	12.10	7.40	107.00	10.80	7.90	2.90
810916	1100	11.90	7.50	135.00	10.60	5.80	1.90

Habitat Location - Oshetna River - Site 04

River Mile 226.9

Geographic Code - 29N 11E 03 ACB

DATE	TIME	D O (MG/L)	PH	SPEC COND MICROMHOS/CM	TEMP - C AIR	TEMP - C H2O	TURBIDITY (NTU)
810521	1330	11.50	7.20	84.00	10.00	5.80	1.90
810617	1035	9.60	7.60	65.00	22.50	9.00	
810716	1240	9.50	7.40	93.00	16.50	11.00	
810815	1250	12.00	7.40	108.00	11.50	8.20	
810916	1130	11.80	7.50	130.00	13.60	6.30	

Habitat Location - Oshetna River - Site 05

River Mile 226.9

Geographic Code - 29N 11E 03 ACC

DATE	TIME	D O (MG/L)	PH	SPEC COND MICROMHOS/CM	TEMP - C AIR	TEMP - C H2O	TURBIDITY (NTU)
810521	1400	11.30	7.20	89.00	10.00	6.00	1.70
810617	1100	10.00	7.60	65.00	23.50	8.80	13.00
810716	1400	9.60	7.50	92.00	18.00	11.50	7.60
810815	1340	11.80	7.40	107.00	11.00	8.10	1.60
810916	1205	12.00	7.60	132.00	14.20	6.30	1.70

Appendix C

Temperature data tables for

each thermograph site.

TABLE 1. DAILY THERMOGRA'H STATISTICS, LOWER SUSITNA RIVER, 1981.

ALEXANDER CR. - 10.1

DATE	# OBS.	0200	0400	0600	0800	1000	1200	1400	1600	1800	2000	2200	2400	MIN. TEMP.	MAX. TEMP.	MEAN TEMP.
810606	5	-.0	-.0	-.0	-.0	-.0	-.0	-.0	13.0	13.0	13.0	13.0	12.5	12.5	13.0	12.9
810607	12	12.0	12.0	11.5	11.5	11.5	12.5	13.5	14.0	14.0	14.0	14.0	13.5	11.5	14.0	12.9
810608	12	12.5	12.0	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.0	11.0	11.0	12.5	11.6
810609	12	10.5	10.5	10.5	10.5	10.5	11.0	11.5	12.0	12.0	12.5	12.0	12.0	10.5	12.5	11.3
810610	12	11.5	11.5	11.0	11.0	11.5	12.0	12.5	13.5	13.5	13.5	13.5	13.0	11.0	13.5	12.4
810611	12	12.5	12.0	12.0	12.0	12.0	13.0	13.5	14.5	14.5	14.5	14.5	14.5	12.0	14.5	13.3
810612	12	13.5	13.5	13.0	13.0	13.0	14.0	15.0	15.5	16.0	16.0	15.5	15.0	13.0	16.0	14.5
810613	12	14.5	14.0	13.5	13.5	14.0	15.0	16.0	16.5	16.5	16.0	15.5	15.5	13.5	16.5	15.1
810614	12	14.5	14.5	14.0	14.0	14.5	15.0	16.0	16.5	17.0	17.0	16.5	16.0	14.0	17.0	15.5
810615	12	15.5	15.0	15.0	14.5	14.5	15.0	15.0	15.0	15.0	15.0	15.0	14.5	14.5	15.5	15.0
810616	12	14.5	14.0	14.0	14.0	14.5	15.5	16.5	17.0	17.5	17.5	17.0	17.0	14.0	17.5	15.8
810617	12	16.5	16.0	16.0	15.5	15.5	16.0	16.5	17.5	18.0	18.0	18.0	18.0	15.5	18.0	16.8
810618	12	17.5	17.0	17.0	16.5	16.5	16.5	17.0	17.5	18.0	18.0	18.0	18.0	16.5	18.0	17.3
810619	12	17.5	17.5	17.0	17.0	17.0	17.0	17.5	17.5	18.5	18.5	19.0	19.0	17.0	19.0	17.8
810620	12	18.5	18.5	18.0	18.0	18.0	18.0	18.0	18.5	19.0	19.0	19.0	19.0	18.0	19.0	18.5

VALUES= -.0 INDICATE MISSING DATA

TABLE 1. DAILY THERMOGRAPH STATISTICS, LOWER SUSITNA RIVER, 1981.

ALEXANDER CR. - 10.1

DATE	# OBS.	0200	0400	0600	0800	1000	1200	1400	1600	1800	2000	2200	2400	MIN. TEMP.	MAX. TEMP.	MEAN TEMP.
		TEMPERATURE AT TIME														
810621	12	18.5	18.0	18.0	17.5	17.5	17.5	17.5	18.0	18.0	18.0	18.0	18.0	17.5	18.5	17.9
810622	12	18.0	17.5	17.5	17.0	17.0	17.0	17.0	17.0	17.0	17.5	18.0	18.0	17.0	18.0	17.4
810623	12	18.0	17.5	17.5	17.0	17.0	17.0	17.0	17.5	18.0	18.5	18.5	18.5	17.0	18.5	17.7
810624	12	18.0	18.0	17.5	17.5	17.0	17.0	17.0	17.0	17.0	17.5	17.0	17.0	17.0	18.0	17.3
810625	12	17.0	16.5	16.5	16.0	16.0	16.0	16.5	16.5	17.0	17.0	17.0	17.0	16.0	17.0	16.6
810626	12	16.5	16.5	16.0	16.0	16.0	16.0	15.5	15.5	15.5	15.5	15.5	15.0	15.0	16.5	15.8
810627	12	14.5	14.5	14.5	14.0	14.0	13.5	13.5	13.5	13.5	13.5	13.0	13.0	13.0	14.5	13.8
810628	12	13.0	13.0	12.5	12.5	12.5	12.5	12.0	12.0	12.5	12.5	12.5	12.5	12.0	13.0	12.6
810629	12	12.5	12.5	12.5	12.5	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.5	12.2
810630	12	12.0	12.0	12.0	12.0	12.0	12.0	12.5	12.5	13.0	13.5	13.5	13.0	12.0	13.5	12.6
810701	12	13.0	13.0	13.0	13.0	13.0	13.5	13.5	13.5	13.5	14.0	14.0	14.0	13.0	14.0	13.5
810702	12	14.0	13.5	13.5	13.5	13.5	13.0	13.0	13.5	13.5	13.5	13.5	13.5	13.0	14.0	13.5
810703	12	13.5	13.0	13.0	13.0	13.0	13.5	14.5	14.5	15.0	15.0	15.0	15.0	13.0	15.0	14.1
810704	12	14.5	14.5	14.0	14.0	14.0	14.5	15.5	16.0	16.5	16.5	16.5	16.0	14.0	16.5	15.3
810705	12	15.5	15.5	15.0	15.0	15.0	15.5	16.0	16.5	17.0	17.0	17.0	16.5	15.0	17.0	16.0

VALUES= -.0 INDICATE MISSING DATA

TABLE 1. DAILY THERMOGRAPH STATISTICS, LOWER SUSITNA RIVER, 1981.

ALEXANDER CR. - 10.1

DATE	# OBS.	TEMPERATURE AT TIME 0200	0400	0600	0800	1000	1200	1400	1600	1800	2000	2200	2400	MIN. TEMP.	MAX. TEMP.	MEAN TEMP.
810706	12	16.5	16.0	15.5	15.0	15.0	15.5	15.5	16.5	17.0	17.0	17.0	16.5	15.0	17.0	16.1
810707	12	16.5	16.0	15.5	15.0	15.0	15.0	15.5	16.0	16.0	16.0	16.0	16.0	15.0	16.5	15.8
810708	12	16.0	16.0	15.5	15.5	15.5	15.5	15.5	16.0	16.0	16.0	16.0	16.0	15.5	16.0	15.8
810709	12	16.0	15.5	15.5	15.5	15.5	15.5	15.5	15.0	15.0	15.0	14.5	14.5	14.5	16.0	15.3
810710	12	14.0	14.0	14.0	14.0	13.5	13.5	13.5	13.5	13.0	13.0	12.5	12.5	12.5	14.0	13.5
810711	12	12.0	10.0	9.0	8.5	8.0	8.0	8.0	8.0	8.0	8.5	8.5	8.5	8.0	12.0	8.8
810712	12	8.5	8.5	8.5	8.5	8.5	8.5	9.0	10.5	11.5	11.5	12.0	12.0	8.5	12.0	9.8
810713	12	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.5	12.5	12.5	13.0	12.0	13.0	12.3
810714	12	13.0	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.0	13.5	13.5
810715	12	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.6
810716	12	13.5	13.5	13.0	13.0	13.0	13.0	13.0	12.5	12.5	12.5	12.5	12.5	12.5	13.5	12.9
810717	12	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	13.0	13.0	13.0	12.5	13.0	12.7
810718	12	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5	14.0	14.0	13.5	14.0	13.6
810719	12	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	13.5	13.5	13.5	13.5	14.0	13.9
810720	12	13.5	13.5	13.5	13.5	13.0	13.0	13.0	13.0	13.0	13.0	13.0	13.0	13.0	13.5	13.2

VALUES= -.0 INDICATE MISSING DATA

TABLE 1. DAILY THERMOGRAPH STATISTICS, LOWER SUSITNA RIVER, 1981.

ALEXANDER CR. - 10.1

DATE	# OBS.	0200	0400	0600	0800	1000	1200	1400	1600	1800	2000	2200	2400	MIN. TEMP.	MAX. TEMP.	MEAN TEMP.
810721	12	13.0	13.0	13.0	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	13.0	12.7
810722	12	12.5	12.5	12.5	12.5	12.5	12.5	13.0	13.0	13.0	13.5	13.5	13.5	12.5	13.5	12.9
810723	12	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.5	14.5	14.5	14.5	14.0	14.5	14.2
810724	12	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.6
810725	12	14.5	14.5	14.5	14.5	14.0	14.0	14.0	14.5	14.5	14.5	14.5	14.5	14.0	14.5	14.4
810726	12	14.5	14.5	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.5	14.1
810727	12	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.5	14.5	14.5	14.5	14.0	14.5	14.2
810728	12	14.5	14.5	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.5	14.1
810729	12	14.0	14.0	13.5	13.5	13.5	13.5	14.0	14.0	14.0	14.5	14.5	14.5	13.5	14.5	14.0
810730	12	14.5	14.5	14.5	14.5	14.5	14.5	14.5	15.0	15.0	15.0	15.0	15.0	14.5	15.0	14.8
810731	12	15.0	14.5	14.5	14.5	14.5	14.5	14.5	15.0	15.0	15.0	15.0	15.0	14.5	15.0	14.8
810801	12	15.0	15.0	15.0	14.5	14.5	14.5	14.5	14.5	14.0	13.5	12.5	12.0	12.0	15.0	14.2
810802	12	11.5	11.0	11.0	11.0	11.0	11.0	11.5	11.5	11.5	11.5	11.5	11.5	11.0	11.5	11.3
810803	12	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.6
810804	12	12.0	12.0	12.5	12.5	13.0	13.0	13.0	13.0	13.0	13.5	13.5	14.0	12.0	14.0	13.0

VALUES= -.0 INDICATE MISSING DATA

TABLE 1. DAILY THERMOGRAPH STATISTICS, LOWER SUSITNA RIVER, 1981.

ALEXANDER CR. - 10.1

DATE	# OBS.	0200	0400	0600	0800	1000	1200	1400	1600	1800	2000	2200	2400	MIN. TEMP.	MAX. TEMP.	MEAN TEMP.
		TEMPERATURE AT TIME														
810805	12	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.1
810806	12	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.1
810807	12	13.5	13.5	13.5	13.0	13.0	13.0	13.0	13.0	13.0	13.0	13.0	13.0	13.0	13.5	13.2
810808	12	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.6
810809	12	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.6
810810	12	12.5	12.5	12.5	12.5	12.5	13.0	13.0	13.0	13.0	13.0	13.0	13.0	12.5	13.0	12.8
810811	12	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.6
810812	12	12.5	12.5	12.0	12.0	12.0	11.5	11.5	11.5	11.5	11.0	11.0	11.0	11.0	12.5	11.7
810813	12	11.0	11.0	11.0	10.5	10.5	10.5	10.5	11.0	11.0	11.0	11.0	11.0	10.5	11.0	10.9
810814	12	11.0	11.0	11.0	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	11.0	10.7
810815	12	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.0	10.0	10.5	10.5
810816	12	10.0	10.0	10.0	9.5	9.5	10.0	10.0	10.0	10.5	10.5	10.5	10.5	9.5	10.5	10.1
810817	12	10.5	10.5	10.5	10.5	10.0	10.0	10.0	10.0	10.5	10.5	10.0	10.0	10.0	10.5	10.3
810818	12	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.5	10.5	10.5	10.5	10.0	10.5	10.2
810819	12	10.5	10.5	10.5	10.5	10.5	10.5	10.5	11.0	11.0	11.0	11.0	10.5	10.5	11.0	10.7

VALUES= -.0 INDICATE MISSING DATA

TABLE 1. DAILY THERMOGRAPH STATISTICS, LOWER SUSITNA RIVER, 1981.

ALEXANDER CR. - 10.1

DATE	# OBS.	TEMPERATURE AT TIME 0200	0400	0600	0800	1000	1200	1400	1600	1800	2000	2200	2400	MIN. TEMP.	MAX. TEMP.	MEAN TEMP.
810820	12	10.5	10.5	10.5	10.5	10.0	10.0	10.0	10.0	10.0	10.0	10.0	9.5	9.5	10.5	10.2
810821	12	9.5	9.5	9.5	9.0	9.5	9.5	10.0	10.5	10.5	10.5	10.5	10.5	9.0	10.5	10.0
810822	12	10.5	10.5	10.5	10.0	10.0	10.0	10.5	10.5	10.5	10.5	10.5	10.5	10.0	10.5	10.4
810823	12	10.5	10.0	10.0	10.0	10.0	10.5	10.5	11.0	11.5	11.5	11.5	11.0	10.0	11.5	10.7
810824	12	11.0	10.5	10.5	10.5	10.5	10.5	11.0	11.0	11.5	11.5	11.0	11.0	10.5	11.5	10.9
810825	12	11.0	10.5	10.5	10.5	10.5	11.5	12.0	12.5	12.5	12.5	12.5	12.0	10.5	12.5	11.6
810826	12	12.0	12.0	11.5	11.5	11.5	12.0	13.0	13.5	13.5	13.5	13.5	13.0	11.5	13.5	12.6
810827	11	12.5	12.5	12.0	12.0	12.0	-.0	13.5	14.0	14.0	14.5	14.0	14.0	12.0	14.5	13.2
810828	12	13.5	13.5	13.0	13.0	13.0	13.0	13.0	13.0	13.5	13.5	13.5	13.5	13.0	13.5	13.3
810829	12	13.0	13.0	13.0	12.5	12.5	12.5	12.5	13.0	13.0	13.0	13.0	13.0	12.5	13.0	12.9
810830	12	13.0	12.5	12.5	12.5	12.0	12.0	12.0	12.0	12.5	12.5	12.5	12.5	12.0	13.0	12.4
810831	12	12.5	12.5	12.5	12.0	12.0	12.0	12.0	12.0	12.5	12.5	12.5	12.0	12.0	12.5	12.3
810901	12	12.0	11.5	11.5	11.0	11.0	11.0	11.5	11.5	12.0	12.0	12.0	12.0	11.0	12.0	11.6
810902	12	12.0	11.5	11.5	11.0	11.0	11.0	11.5	11.5	11.5	12.0	12.0	11.5	11.0	12.0	11.6
810903	12	11.5	11.5	11.0	11.0	11.0	11.0	11.5	11.5	12.0	12.0	12.0	12.0	11.0	12.0	11.6

VALUES= -.0 INDICATE MISSING DATA

TABLE 1. DAILY THERMOGRAPH STATISTICS, LOWER SUSITNA RIVER, 1981.

ALEXANDER CR. - 10.1

DATE	# OBS.	0200	0400	0600	0800	1000	1200	1400	1600	1800	2000	2200	2400	MIN. TEMP.	MAX. TEMP.	MEAN TEMP.
		TEMPERATURE AT TIME														
810904	12	11.5	11.5	11.5	11.0	11.0	11.0	11.5	11.5	11.5	11.5	11.5	11.5	11.0	11.5	11.4
810905	12	11.5	11.0	11.0	11.0	11.0	11.5	11.5	12.0	12.0	12.0	12.0	11.5	11.0	12.0	11.6
810906	12	11.5	11.5	11.0	11.0	11.0	11.5	11.5	12.0	12.0	12.0	11.5	11.5	11.0	12.0	11.6
810907	12	11.0	11.0	11.0	10.5	10.5	11.0	11.5	12.0	12.5	12.0	12.0	11.5	10.5	12.5	11.4
810908	12	11.0	10.5	10.5	10.0	10.0	10.5	11.0	11.5	12.0	12.0	11.5	11.0	10.0	12.0	11.0
810909	12	10.5	10.5	10.5	10.0	10.5	10.5	11.0	11.5	11.5	11.5	11.0	10.5	10.0	11.5	10.8
810910	2	10.5	10.0	-.0	-.0	-.0	-.0	-.0	-.0	-.0	-.0	-.0	-.0	10.0	10.5	10.3
810911	5	-.0	-.0	-.0	-.0	-.0	-.0	-.0	12.0	11.5	11.0	11.0	11.0	11.0	12.0	11.4
810912	12	10.5	10.5	10.0	10.0	10.0	10.5	11.5	10.5	10.5	10.5	10.0	9.5	9.5	11.5	10.4
810913	12	9.5	9.5	9.0	9.0	9.0	9.0	10.0	10.5	10.5	10.5	10.0	10.0	9.0	10.5	9.8
810914	12	10.0	9.5	9.0	9.0	9.0	9.0	9.0	9.5	9.5	9.5	9.5	9.0	9.0	10.0	9.3
810915	12	9.0	9.0	9.0	9.0	9.0	9.0	9.0	10.0	10.0	10.0	9.5	9.0	9.0	10.0	9.3
810916	12	9.0	9.0	9.0	8.5	8.5	8.5	9.0	9.0	9.0	9.0	9.0	8.5	8.5	9.0	8.9
810917	12	8.5	8.5	8.0	8.0	8.0	8.5	8.5	9.0	9.5	9.5	9.0	9.0	8.0	9.5	8.7
810918	12	9.0	8.5	8.5	8.0	8.0	8.0	8.5	8.5	8.5	8.5	8.5	8.5	8.0	9.0	8.5

VALUES= -.0 INDICATE MISSING DATA

TABLE 1. DAILY THERMOGRAPH STATISTICS, LOWER SUSITNA RIVER, 1981.

ALEXANDER CR. - 10.1

DATE	# OBS.	TEMPERATURE AT TIME 0200	0400	0600	0800	1000	1200	1400	1600	1800	2000	2200	2400	MIN. TEMP.	MAX. TEMP.	MEAN TEMP.
810919	12	8.5	8.5	8.5	8.5	8.0	8.0	8.0	8.0	8.5	8.5	8.5	8.5	8.0	8.5	8.4
810920	12	8.0	8.0	8.0	7.5	7.5	7.5	8.0	8.0	8.5	8.5	8.0	8.0	7.5	8.5	8.0
810921	12	8.0	8.0	8.0	8.0	7.5	7.5	7.5	8.0	8.0	8.0	8.0	8.0	7.5	8.0	7.9
810922	12	8.0	8.0	7.5	7.0	6.5	6.5	7.0	7.5	7.5	7.5	7.0	7.0	6.5	8.0	7.3
810923	12	7.0	6.5	6.5	6.0	6.0	6.0	6.0	6.5	6.5	6.5	6.5	6.5	6.0	7.0	6.4
810924	12	6.5	6.5	6.0	6.0	6.0	6.0	6.0	6.5	7.0	7.0	6.5	6.0	6.0	7.0	6.4
810925	12	6.0	5.5	5.5	5.0	5.0	5.0	5.5	5.5	6.0	6.0	5.5	5.0	5.0	6.0	5.5
810926	12	4.5	4.5	4.0	4.0	4.0	4.0	4.0	4.5	4.5	4.5	4.5	4.0	4.0	4.5	4.3
810927	12	4.0	4.0	4.0	4.0	3.5	3.5	4.0	4.5	4.5	4.5	4.0	4.0	3.5	4.5	4.1
810928	12	4.0	4.0	3.5	3.5	3.5	3.5	3.5	4.0	4.5	4.0	4.0	3.5	3.5	4.5	3.8
810929	12	3.0	3.0	2.5	2.5	2.0	2.0	2.5	3.0	3.0	3.0	3.0	3.0	2.0	3.0	2.8
810930	12	3.0	3.0	2.5	2.5	2.5	2.5	3.0	3.5	3.5	3.5	3.0	3.0	2.5	3.5	3.0
811001	12	2.5	2.5	2.5	2.0	2.0	2.0	2.5	3.0	3.0	3.0	2.5	2.5	2.0	3.0	2.5
811002	12	2.0	2.0	2.0	1.5	1.5	1.5	2.0	2.5	2.5	2.5	2.0	2.0	1.5	2.5	2.0
811003	12	2.0	2.0	1.5	1.5	1.5	1.5	2.0	2.0	2.0	2.0	2.0	2.0	1.5	2.0	1.9

VALUES= -.0 INDICATE MISSING DATA

TABLE 1. DAILY THERMOGRAPH STATISTICS, LOWER SUSITNA RIVER, 1981.

ALEXANDER CR. - 10.1

DATE	# OBS.	0200	0400	0600	0800	1000	1200	1400	1600	1800	2000	2200	2400	MIN. TEMP.	MAX. TEMP.	MEAN TEMP.
		TEMPERATURE AT TIME														
811004	12	2.0	2.0	2.0	2.0	1.5	1.5	1.5	1.5	1.5	1.5	1.0	1.0	1.0	2.0	1.6
811005	12	1.0	1.0	1.0	1.0	1.0	1.0	1.5	2.0	2.0	2.0	2.0	1.5	1.0	2.0	1.5
811006	12	1.5	1.5	1.5	1.5	1.5	1.5	1.5	2.0	2.0	2.0	2.0	2.0	1.5	2.0	1.8
811007	12	1.5	1.5	1.5	1.0	1.0	1.0	1.5	1.5	2.0	1.5	1.5	1.0	1.0	2.0	1.4
811008	12	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.5	1.5	1.5	1.5	1.5	1.0	1.5	1.3
811009	9	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.5	1.5	-.0	-.0	-.0	1.0	1.5	1.2

VALUES= -.0 INDICATE MISSING DATA

TABLE 2. DAILY THERMOGRAPH STATISTICS, LOWER SUSITNA RIVER, 1981.

ABOVE ALEX. CR. - 10.1

DATE	# OBS.	TEMPERATURE AT TIME 0200	0400	0600	0800	1000	1200	1400	1600	1800	2000	2200	2400	MIN. TEMP.	MAX. TEMP.	MEAN TEMP.
810606	3	-.0	-.0	-.0	-.0	-.0	-.0	-.0	-.0	-.0	7.0	7.0	6.5	6.5	7.0	6.9
810607	12	6.5	6.5	6.5	7.0	7.5	8.0	8.5	8.5	8.5	8.0	7.5	7.5	6.5	8.5	7.6
810608	12	7.5	7.5	8.0	8.0	8.0	8.0	8.0	8.0	7.5	7.5	7.5	7.5	7.5	8.0	7.8
810609	12	7.5	7.0	7.0	7.0	7.5	7.5	8.0	8.0	7.5	7.5	7.0	7.0	7.0	8.0	7.4
810610	12	7.0	7.0	7.0	7.0	7.0	7.5	8.0	8.0	8.0	8.0	7.5	7.5	7.0	8.0	7.5
810611	12	7.5	7.5	7.5	7.5	8.0	8.5	9.0	9.5	9.5	9.0	9.0	9.0	7.5	9.5	8.5
810612	12	9.0	9.0	9.0	9.0	9.5	10.5	10.5	10.5	10.5	10.0	9.5	9.0	9.0	10.5	9.7
810613	12	9.0	9.0	9.0	9.5	10.0	10.5	10.5	10.5	10.5	10.0	10.0	9.5	9.0	10.5	9.9
810614	12	9.5	9.5	9.5	10.0	10.5	11.0	11.5	11.5	11.0	10.5	10.5	10.0	9.5	11.5	10.5
810615	12	10.0	10.0	10.0	10.0	10.0	10.5	10.0	10.0	10.0	10.0	9.5	9.5	9.5	10.5	10.0
810616	12	9.5	9.5	9.5	9.5	10.0	10.0	10.0	10.0	9.5	9.0	9.0	9.0	9.0	10.0	9.6
810617	12	9.0	9.0	9.0	9.0	9.5	10.0	10.5	10.5	10.5	10.5	10.5	10.5	9.0	10.5	9.9
810618	12	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.6
810619	12	10.5	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.5	10.1
810620	12	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.1

VALUES= -.0 INDICATE MISSING DATA

TABLE 2. DAILY THERMOGRAPH STATISTICS, LOWER SUSITNA RIVER, 1981.

ABOVE ALEX. CR. - 10.1

DATE	# OBS.	TEMPERATURE AT TIME 0200	0400	0600	0800	1000	1200	1400	1600	1800	2000	2200	2400	MIN. TEMP.	MAX. TEMP.	MEAN TEMP.
810621	12	10.0	9.5	9.5	9.5	9.0	9.0	9.5	9.5	9.0	9.0	9.0	9.0	9.0	10.0	9.3
810622	12	9.0	9.0	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.0	8.0	8.0	8.0	9.0	8.5
810623	12	8.0	8.5	8.5	8.5	8.5	9.0	9.5	10.0	10.0	9.5	9.5	9.5	8.0	10.0	9.1
810624	12	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	10.0	10.0	10.0	10.0	9.5	10.0	9.7
810625	12	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.1
810626	12	10.0	10.0	10.0	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.0	9.0	9.0	10.0	9.6
810627	12	9.0	9.0	9.0	8.5	8.5	8.5	8.0	8.0	7.5	7.5	7.0	7.0	7.0	9.0	8.2
810628	12	7.0	7.0	7.0	7.0	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	7.0	6.7
810629	12	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	7.0	7.0	6.5	7.0	6.6
810630	12	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.1
810701	12	7.0	7.0	7.0	7.0	7.0	7.5	7.5	8.0	8.0	8.0	8.0	8.0	7.0	8.0	7.6
810702	12	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.5	8.5	8.5	8.5	9.0	8.0	9.0	8.3
810703	12	9.0	9.0	9.0	9.5	9.5	10.0	10.0	10.0	10.0	9.5	9.5	9.5	9.0	10.0	9.6
810704	12	9.5	9.5	9.5	10.0	10.5	11.0	11.0	11.0	11.0	10.5	10.0	10.0	9.5	11.0	10.3
810705	12	10.0	10.0	10.0	10.5	11.0	11.5	11.5	11.5	11.0	10.5	10.0	10.0	10.0	11.5	10.7

VALUES= -.0 INDICATE MISSING DATA

TABLE 2. DAILY THERMOGRAPH STATISTICS, LOWER SUSITNA RIVER, 1981.

ABOVE ALEX. CR. - 10.1

DATE	# OBS.	TEMPERATURE AT TIME 0200	0400	0600	0800	1000	1200	1400	1600	1800	2000	2200	2400	MIN. TEMP.	MAX. TEMP.	MEAN TEMP.
810706	12	10.0	10.0	10.0	10.5	10.5	11.5	12.0	12.0	11.5	11.0	10.5	10.5	10.0	12.0	10.9
810707	12	10.5	10.5	10.5	10.5	10.5	11.0	11.5	11.5	11.0	11.0	10.5	10.5	10.5	11.5	10.8
810708	12	10.5	10.5	10.5	10.5	10.5	11.0	11.0	11.0	10.5	10.0	10.0	10.0	10.0	11.0	10.6
810709	12	10.0	10.0	10.0	10.0	10.0	9.5	9.0	9.0	9.0	9.0	8.5	8.5	8.5	10.0	9.4
810710	12	8.5	8.5	8.5	8.5	8.5	8.5	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.5	8.3
810711	12	8.0	8.0	8.0	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	8.0	7.7
810712	12	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.6
810713	12	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.6
810714	12	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.6
810715	12	7.5	7.5	7.5	7.5	7.5	7.5	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.5	7.3
810716	12	7.0	7.0	7.0	7.0	7.0	7.0	7.5	7.5	7.5	7.5	7.5	8.0	7.0	8.0	7.3
810717	12	8.0	8.0	8.0	8.0	8.0	8.0	8.5	8.5	9.0	9.0	9.0	9.0	8.0	9.0	8.5
810718	12	9.0	9.0	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	9.0	8.6
810719	12	8.5	8.0	8.0	8.0	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	8.5	7.8
810720	12	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	8.0	8.0	8.0	7.5	8.0	7.7

VALUES= -.0 INDICATE MISSING DATA

TABLE 2. DAILY THERMOGRAPH STATISTICS, LOWER SUSITNA RIVER, 1981.

ABOVE ALEX. CR. - 10.1

		TEMPERATURE AT TIME												MIN.	MAX.	MEAN
DATE	# OBS.	0200	0400	0600	0800	1000	1200	1400	1600	1800	2000	2200	2400	TEMP.	TEMP.	TEMP.
810721	12	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.5	8.5	8.5	8.5	8.0	8.5	8.2
810722	12	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	9.0	9.0	9.0	9.0	8.5	9.0	8.7
810723	12	9.0	9.0	9.0	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	9.0	8.7
810724	12	8.5	8.5	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.5	8.0	8.5	8.2
810725	12	8.5	8.5	8.5	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.5	8.2
810726	12	8.0	8.0	8.0	8.0	8.0	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.0	8.5	8.3
810727	12	8.5	8.0	8.0	8.0	8.0	8.0	8.5	8.5	8.5	8.5	8.5	8.5	8.0	8.5	8.3
810728	12	8.5	8.5	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.5	8.1
810729	12	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.5	8.0	8.0	8.0	8.0	8.0	8.5	8.1
810730	12	8.0	8.0	8.0	8.0	8.5	9.0	9.0	9.0	9.0	9.0	9.0	9.5	8.0	9.5	8.7
810731	12	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.6
810801	12	9.5	9.5	9.0	9.0	9.0	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	9.5	8.8
810802	12	8.5	8.5	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.5	8.1
810803	12	8.0	8.0	8.0	8.0	8.5	8.5	8.5	9.0	9.0	9.0	9.5	9.5	8.0	9.5	8.7
810804	12	9.5	9.5	9.5	9.0	9.0	9.0	9.5	9.5	9.5	9.5	10.0	10.0	9.0	10.0	9.5

VALUES= -.0 INDICATE MISSING DATA

TABLE 2. DAILY THERMOGRAPH STATISTICS, LOWER SUSITNA RIVER, 1981.

ABOVE ALEX. CR. - 10.1

DATE	# OBS.	0200	0400	0600	0800	1000	1200	1400	1600	1800	2000	2200	2400	MIN. TEMP.	MAX. TEMP.	MEAN TEMP.
		TEMPERATURE AT TIME														
810805	12	10.0	10.0	9.5	9.5	9.5	9.5	9.0	9.0	9.0	9.0	9.5	9.5	9.0	10.0	9.5
810806	12	9.5	9.5	9.5	9.5	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.5	9.2
810807	12	9.0	9.0	8.5	8.5	8.5	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	9.0	8.3
810808	12	7.5	7.5	7.5	7.5	7.5	7.5	7.5	8.0	8.0	8.0	8.0	8.0	7.5	8.0	7.8
810809	12	8.0	8.0	8.0	8.0	8.0	8.0	8.5	8.5	8.5	8.5	8.5	8.5	8.0	8.5	8.3
810810	12	8.5	8.5	8.5	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	7.5	7.5	8.5	8.1
810811	12	7.5	7.5	7.5	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.5	7.2
810812	12	7.0	7.0	7.0	7.0	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.0	7.5	7.4
810813	12	7.5	7.5	7.5	7.5	7.5	7.5	7.5	6.5	7.0	7.0	7.0	7.0	6.5	7.5	7.3
810814	12	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.1
810815	12	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.1
810816	12	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.1
810817	12	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.1
810818	12	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.1
810819	12	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.1

VALUES= -.0 INDICATE MISSING DATA

TABLE 2. DAILY THERMOGRAPH STATISTICS, LOWER SUSITNA RIVER, 1981.

ABOVE ALEX. CR. - 10.1

DATE	# OBS.	TEMPERATURE AT TIME 0200	0400	0600	0800	1000	1200	1400	1600	1800	2000	2200	2400	MIN. TEMP.	MAX. TEMP.	MEAN TEMP.
810820	12	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.1
810821	12	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.1
810822	12	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.1
810823	12	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.1
810824	12	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.1
810825	12	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.1
810826	12	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.1
810827	6	7.0	7.0	7.0	7.0	7.0	6.5	-.0	-.0	-.0	-.0	-.0	-.0	6.5	7.0	7.0
810829	12	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.1
810830	12	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.1
810831	12	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.1
810901	12	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.1

VALUES= -.0 INDICATE MISSING DATA

TABLE 3. DAILY THERMOGRAPH STATISTICS, LOWER SUSITNA RIVER, 1981.

YENTNA R. - 27.0

DATE	# OBS.	TEMPERATURE AT TIME 0200	0400	0600	0800	1000	1200	1400	1600	1800	2000	2200	2400	MIN. TEMP.	MAX. TEMP.	MEAN TEMP.
810605	4	-.0	-.0	-.0	-.0	-.0	-.0	-.0	-.0	9.5	9.5	9.5	9.5	9.5	9.5	9.6
810606	12	9.0	9.0	8.5	8.5	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	9.0	8.3
810607	12	8.0	8.0	8.0	8.0	8.0	8.5	8.5	8.5	9.0	9.0	9.5	9.5	8.0	9.5	8.6
810608	12	9.5	9.0	9.0	9.0	9.0	9.0	8.5	8.5	8.5	8.5	8.5	8.5	8.5	9.5	8.8
810609	12	8.5	8.5	8.0	8.0	8.0	7.5	8.0	8.0	8.0	8.5	8.5	8.5	7.5	8.5	8.2
810610	12	8.0	8.0	8.0	7.5	7.5	8.0	8.0	8.5	8.5	9.0	9.0	9.0	7.5	9.0	8.3
810611	12	9.0	9.0	8.5	8.5	8.5	9.0	9.5	9.5	10.0	10.5	10.5	10.5	8.5	10.5	9.5
810612	12	10.5	10.5	10.5	10.0	10.0	10.0	10.0	10.5	10.5	10.5	10.5	10.5	10.0	10.5	10.4
810613	12	10.5	10.5	10.5	10.0	10.0	10.5	10.5	11.0	11.0	11.5	11.5	11.5	10.0	11.5	10.8
810614	12	11.5	11.5	11.0	11.0	11.0	11.0	11.0	11.0	11.5	11.5	11.5	12.0	11.0	12.0	11.3
810615	12	12.0	11.5	11.5	11.5	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	12.0	11.3
810616	12	11.0	11.0	10.5	11.0	9.5	9.5	9.5	10.0	10.0	10.5	10.5	10.5	9.5	11.0	10.3
810617	12	10.5	10.5	10.5	10.5	10.5	10.5	11.0	11.5	11.5	12.0	12.0	12.0	10.5	12.0	11.1
810618	12	12.0	12.0	11.5	11.0	11.0	11.0	11.0	11.5	11.5	11.0	11.0	11.0	11.0	12.0	11.3
810619	12	11.5	11.5	11.0	10.5	10.0	10.0	10.5	10.5	11.0	11.5	11.5	11.5	10.0	11.5	11.0

VALUES= -.0 INDICATE MISSING DATA

TABLE 3. DAILY THERMOGRAPH STATISTICS, LOWER SUSITNA RIVER, 1981.

YENTNA R. - 27.0

DATE	# OBS.	TEMPERATURE AT TIME 0200	0400	0600	0800	1000	1200	1400	1600	1800	2000	2200	2400	MIN. TEMP.	MAX. TEMP.	MEAN TEMP.
810620	12	11.5	11.0	11.0	10.5	10.5	10.5	10.5	11.0	11.0	11.5	11.5	11.5	10.5	11.5	11.1
810621	12	11.0	10.5	10.5	10.0	9.5	9.5	9.5	10.0	10.0	10.0	10.0	10.0	9.5	11.0	10.1
810622	12	10.0	9.5	9.0	9.0	8.5	8.5	8.5	8.5	8.5	9.0	9.0	9.5	8.5	10.0	9.0
810623	12	9.5	9.5	9.5	9.0	9.0	9.0	9.5	10.0	10.5	10.5	11.0	11.0	9.0	11.0	9.9
810624	12	11.0	10.5	10.0	10.0	10.0	10.0	10.5	10.5	11.0	11.0	11.5	11.5	10.0	11.5	10.7
810625	12	11.5	11.0	11.0	10.5	10.5	10.5	10.5	10.5	11.0	11.0	11.5	11.5	10.5	11.5	11.0
810626	12	11.5	11.0	11.0	10.5	10.5	10.0	10.0	10.0	10.0	10.5	10.5	10.5	10.0	11.5	10.6
810627	12	10.5	10.0	9.5	9.0	8.5	8.5	8.0	8.0	7.5	7.5	7.5	7.5	7.5	10.5	8.6
810628	12	7.5	7.5	7.5	7.0	7.0	7.0	7.0	7.0	7.0	7.5	7.5	7.5	7.0	7.5	7.3
810629	12	7.5	7.5	7.5	7.5	7.5	8.0	8.0	8.5	8.5	9.0	9.0	9.0	7.5	9.0	8.2
810630	12	9.0	9.0	8.5	8.0	7.5	7.5	7.5	7.5	8.0	8.0	8.0	8.5	7.5	9.0	8.1
810701	12	8.5	8.0	8.0	8.0	8.0	8.0	8.0	8.5	8.5	9.0	9.0	9.0	8.0	9.0	8.4
810702	12	9.0	9.0	9.0	9.0	9.0	9.0	9.5	9.5	10.0	10.0	10.5	10.5	9.0	10.5	9.6
810703	12	10.5	10.5	10.0	10.0	10.0	10.0	10.0	10.5	10.5	11.0	11.0	11.0	10.0	11.0	10.5
810704	12	11.0	11.0	11.0	10.5	10.5	10.5	11.0	11.0	11.0	11.5	11.5	11.5	10.5	11.5	11.1

VALUES= -.0 INDICATE MISSING DATA

TABLE 3. DAILY THERMOGRAPH STATISTICS, LOWER SUSITNA RIVER, 1981.

YENTNA R. - 27.0

DATE	# OBS.	0200	0400	0600	0800	1000	1200	1400	1600	1800	2000	2200	2400	MIN. TEMP.	MAX. TEMP.	MEAN TEMP.
		TEMPERATURE AT TIME														
810804	12	10.5	10.5	10.0	10.0	10.0	10.0	10.5	10.5	11.0	11.0	11.5	11.0	10.0	11.5	10.6
810805	12	11.0	10.5	10.5	10.0	10.0	10.0	10.0	10.5	10.5	11.0	11.0	11.0	10.0	11.0	10.6
810806	12	10.5	10.5	10.0	10.0	9.5	9.5	10.0	10.0	10.0	10.0	10.0	10.0	9.5	10.5	10.1
810807	12	9.5	9.5	9.0	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	9.5	8.8
810808	12	8.5	8.5	8.5	8.0	8.0	8.5	8.5	8.5	9.0	9.0	9.0	9.0	8.0	9.0	8.6
810809	12	9.0	9.0	9.0	9.0	9.0	9.0	9.5	9.5	9.5	9.5	9.5	9.5	9.0	9.5	9.3
810810	12	9.0	9.0	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	9.0	8.6
810811	12	8.0	8.0	8.0	7.5	7.5	7.5	7.5	8.0	8.0	8.0	8.0	7.5	7.5	8.0	7.8
810812	12	7.5	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.5	7.5	7.5	7.5	7.0	7.5	7.3
810813	12	7.5	7.5	7.5	7.5	7.5	7.5	7.5	8.0	8.0	8.0	8.0	8.0	7.5	8.0	7.8
810814	12	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.5	8.5	8.5	8.5	8.0	8.5	8.2
810815	12	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.1
810816	12	8.0	8.0	8.0	8.0	8.0	8.0	8.5	8.5	9.0	9.0	9.0	9.0	8.0	9.0	8.5
810817	12	9.0	9.0	8.5	8.5	8.5	8.5	8.5	8.5	8.5	9.0	9.0	9.0	8.5	9.0	8.8
810818	12	9.0	8.5	8.5	8.5	8.5	8.5	8.0	8.5	8.5	8.5	8.5	8.5	8.0	9.0	8.6

VALUES= -.0 INDICATE MISSING DATA

TABLE 3. DAILY THERMOGRAPH STATISTICS, LOWER SUSITNA RIVER, 1981.

YENTNA R. - 27.0

DATE	# OBS.	TEMPERATURE AT TIME 0200	0400	0600	0800	1000	1200	1400	1600	1800	2000	2200	2400	MIN. TEMP.	MAX. TEMP.	MEAN TEMP.
810819	12	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.5	9.0	9.5	9.1
810820	12	9.0	9.0	9.0	9.0	9.0	9.0	9.0	8.5	9.0	9.0	8.5	8.5	8.5	9.0	8.9
810821	12	8.5	8.5	8.5	8.5	8.5	8.5	8.5	9.0	9.0	9.0	9.0	9.0	8.5	9.0	8.8
810822	12	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.1
810823	12	9.0	9.0	9.0	9.0	9.0	9.0	9.5	9.5	10.0	10.0	10.0	10.0	9.0	10.0	9.5
810824	12	9.5	9.5	9.5	9.5	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.5	9.2
810825	12	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.5	9.5	9.5	10.0	10.0	9.0	10.0	9.3
810826	12	10.0	10.0	10.0	9.5	9.0	9.5	9.0	9.5	9.5	10.0	10.0	10.0	9.0	10.0	9.7
810827	12	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.5	10.5	10.5	10.5	10.0	10.5	10.2
810828	12	11.0	11.0	11.0	10.5	10.5	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	11.0	10.4
810829	12	10.0	10.0	10.0	10.0	9.5	9.0	9.0	9.0	9.0	9.0	9.5	9.5	9.0	10.0	9.5
810830	12	9.5	9.5	9.0	8.5	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	9.5	8.4
810831	12	8.0	8.0	8.0	8.0	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	8.0	7.7
810901	12	7.5	7.5	7.5	7.0	7.0	7.0	7.0	7.5	7.5	8.0	8.0	8.0	7.0	8.0	7.5
810902	12	8.0	7.5	7.5	7.0	7.0	7.0	7.0	7.0	7.5	7.5	7.5	7.5	7.0	8.0	7.4

VALUES= -.0 INDICATE MISSING DATA

TABLE 3. DAILY THERMOGRAPH STATISTICS, LOWER SUSITNA RIVER, 1981.

YENTNA R. - 27.0

DATE	# OBS.	0200	0400	0600	0800	1000	1200	1400	1600	1800	2000	2200	2400	MIN. TEMP.	MAX. TEMP.	MEAN TEMP.
		TEMPERATURE AT TIME														
810720	12	8.5	8.5	8.5	8.5	8.5	8.5	8.5	9.0	9.0	9.0	9.0	9.0	8.5	9.0	8.8
810721	12	9.0	9.0	9.0	8.5	8.5	9.0	9.0	9.5	9.5	9.5	9.5	9.5	8.5	9.5	9.2
810722	12	9.5	9.5	9.5	9.0	9.0	9.5	9.5	9.5	10.0	10.0	10.0	10.0	9.0	10.0	9.6
810723	12	9.5	9.5	9.5	9.5	9.0	9.0	9.0	9.5	9.5	9.5	9.5	9.5	9.0	9.5	9.4
810724	12	9.0	9.0	8.5	8.5	8.5	9.0	8.5	9.0	9.0	9.0	9.0	9.0	8.5	9.0	8.9
810725	12	9.0	9.0	9.0	8.5	8.5	8.5	8.5	9.0	9.0	9.0	9.0	9.0	8.5	9.0	8.9
810726	12	9.0	9.0	9.0	8.5	8.5	8.5	9.0	9.0	9.0	9.5	9.5	9.0	8.5	9.5	9.0
810727	12	9.0	8.5	8.5	8.5	8.5	9.0	9.0	9.5	9.5	9.5	9.5	9.5	8.5	9.5	9.1
810728	12	9.0	9.0	8.5	8.5	8.5	8.5	8.5	8.5	9.0	9.0	9.0	9.0	8.5	9.0	8.8
810729	12	8.5	8.5	8.5	8.5	8.0	8.0	8.5	8.5	9.0	9.0	9.0	9.0	8.0	9.0	8.6
810730	12	9.0	9.0	9.0	9.0	9.0	9.0	9.5	10.0	10.0	10.5	11.0	11.0	9.0	11.0	9.7
810731	12	11.0	10.5	10.5	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.5	10.0	10.0	11.0	10.3
810801	12	10.0	10.0	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	10.0	9.6
810802	12	9.0	9.0	8.5	8.5	8.5	8.5	8.5	8.5	9.0	9.0	9.5	9.5	8.5	9.5	8.9
810803	12	9.5	9.5	9.0	9.0	9.0	9.5	9.5	10.0	10.5	10.5	10.5	10.5	9.0	10.5	9.8

VALUES= -.0 INDICATE MISSING DATA

TABLE 3. DAILY THERMOGRAPH STATISTICS, LOWER SUSITNA RIVER, 1981.

YENTNA R. - 27.0

DATE	# OBS.	TEMPERATURE AT TIME 0200	0400	0600	0800	1000	1200	1400	1600	1800	2000	2200	2400	MIN. TEMP.	MAX. TEMP.	MEAN TEMP.
810705	12	11.5	11.5	11.5	11.0	11.0	11.0	11.0	11.0	11.5	11.5	11.5	11.5	11.0	11.5	11.3
810706	12	11.5	11.5	11.5	11.5	11.0	11.0	11.5	11.5	12.0	12.0	12.0	12.0	11.0	12.0	11.6
810707	12	12.0	11.5	11.5	11.0	11.0	11.0	11.5	11.5	12.0	12.0	12.0	12.0	11.0	12.0	11.6
810708	12	12.0	12.0	11.5	11.0	11.0	11.0	10.5	10.5	11.0	11.0	11.0	11.0	10.5	12.0	11.2
810709	12	11.0	10.5	10.5	10.0	10.0	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	11.0	9.9
810710	12	9.5	9.5	9.5	9.0	9.0	9.0	9.0	8.5	8.5	8.5	8.5	8.5	8.5	9.5	9.0
810711	12	8.5	8.5	8.5	8.5	8.5	8.5	9.0	9.0	9.0	9.0	9.0	9.0	8.5	9.0	8.8
810712	12	9.0	9.0	9.0	8.5	8.5	9.0	9.0	9.5	9.5	9.5	9.5	9.5	8.5	9.5	9.2
810713	12	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.5	9.5	10.0	10.0	10.0	9.0	10.0	9.4
810714	12	10.0	9.5	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	10.0	9.2
810715	12	9.0	8.5	8.5	8.5	8.0	8.0	8.0	8.5	8.5	8.5	8.5	8.5	8.0	9.0	8.5
810716	12	8.5	8.5	8.5	8.5	8.5	8.5	8.5	9.0	9.0	9.0	9.0	9.0	8.5	9.0	8.8
810717	12	9.0	9.0	9.0	9.0	9.0	9.0	10.0	10.0	10.5	10.5	10.5	10.5	9.0	10.5	9.7
810718	12	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	9.5	9.5	10.0	10.0
810719	12	9.5	9.0	9.0	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	9.5	8.7

VALUES= -.0 INDICATE MISSING DATA

TABLE 3. DAILY THERMOGRAPH STATISTICS, LOWER SUSITNA RIVER, 1981.

YENTNA R. - 27.0

DATE	# OBS.	TEMPERATURE AT TIME 0200	0400	0600	0800	1000	1200	1400	1600	1800	2000	2200	2400	MIN. TEMP.	MAX. TEMP.	MEAN TEMP.
810903	12	7.5	7.0	7.0	6.5	6.5	6.5	6.0	6.5	6.5	6.5	6.5	7.0	6.0	7.5	6.7
810904	12	7.0	7.0	7.0	7.0	7.0	7.0	7.5	7.5	7.5	7.5	7.5	7.5	7.0	7.5	7.3
810905	12	7.5	7.5	7.5	7.0	7.0	7.0	7.0	7.0	7.0	7.5	7.5	7.5	7.0	7.5	7.3
810906	12	7.5	7.5	7.5	7.0	7.0	7.0	7.0	7.0	7.5	7.5	7.5	7.5	7.0	7.5	7.3
810907	12	7.5	7.5	7.5	7.0	7.0	7.0	7.0	7.5	7.5	7.5	7.5	7.5	7.0	7.5	7.4
810908	12	8.0	8.0	7.5	7.0	7.0	7.0	7.0	7.5	7.5	7.5	7.5	7.5	7.0	8.0	7.5
810909	12	7.5	7.5	7.5	7.0	7.0	7.0	7.0	7.0	7.5	7.5	7.5	7.5	7.0	7.5	7.3
810910	12	7.5	7.5	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.5	7.1
810911	12	7.0	7.0	7.0	7.0	7.0	[illegible]	[illegible]	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.1
810912	12	7.0	7.0	7.0	[illegible]	[illegible]	[illegible]	7.5	7.5	7.5	7.5	7.5	7.5	7.0	7.5	7.3
810913	12	7.0	7.0	7.0	[illegible]	[illegible]	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.0	7.5	7.3
810914	6	7.0	7.0	7.0	7.0	7.0	7.0	-.0	-.0	-.0	-.0	-.0	-.0	7.0	7.0	7.1

VALUES= -.0 INDICATE MISSING DATA

TABLE 4. DAILY THERMOGRAPH STATISTICS, LOWER SUSITNA RIVER, 1981.

ABOVE YENTNA R. - 29.2

DATE	# OBS.	0200	0400	0600	0800	1000	1200	1400	1600	1800	2000	2200	2400	MIN. TEMP.	MAX. TEMP.	MEAN TEMP.
		TEMPERATURE AT TIME														
810606	4	-.0	-.0	-.0	-.0	-.0	-.0	-.0	-.0	10.0	10.0	10.0	10.0	10.0	10.0	10.1
810607	12	9.5	9.5	9.5	9.5	9.5	9.5	10.0	10.0	10.5	11.0	11.0	11.0	9.5	11.0	10.1
810608	12	10.5	10.5	10.0	10.0	10.0	9.5	9.5	9.5	9.5	9.5	9.0	9.0	9.0	10.5	9.8
810609	12	9.0	8.5	8.5	8.5	8.5	8.5	9.0	9.0	9.5	9.5	9.5	9.5	8.5	9.5	9.0
810610	12	9.5	9.5	9.0	9.0	9.0	9.5	9.5	10.0	10.0	10.5	10.5	10.5	9.0	10.5	9.8
810611	12	10.0	10.0	10.0	10.0	10.5	10.5	11.5	11.5	11.5	12.0	12.0	11.5	10.0	12.0	11.0
810612	12	11.5	11.0	10.5	10.5	10.5	11.0	11.5	11.5	12.0	12.0	12.0	12.0	10.5	12.0	11.4
810613	12	12.0	11.5	11.5	11.5	11.5	11.5	12.0	12.5	13.0	13.0	13.0	13.0	11.5	13.0	12.2
810614	12	13.0	12.5	12.0	12.0	12.0	12.0	12.5	13.0	13.5	13.5	13.5	13.5	12.0	13.5	12.8
810615	12	13.0	13.0	12.5	12.5	12.0	12.0	12.0	12.5	12.5	12.5	12.5	12.5	12.0	13.0	12.5
810616	12	12.5	12.5	12.0	12.0	12.0	12.0	12.5	12.5	13.0	13.0	13.5	13.5	12.0	13.5	12.6
810617	12	13.0	13.0	12.5	12.5	12.5	12.5	13.0	13.5	14.0	14.0	14.0	13.5	12.5	14.0	13.2
810618	12	13.5	13.0	12.5	12.5	12.5	12.5	13.0	13.5	13.5	14.0	14.0	13.5	12.5	14.0	13.2
810619	12	13.5	13.0	13.0	12.5	12.5	12.5	13.0	13.5	13.5	14.0	14.0	14.0	12.5	14.0	13.3
810620	12	13.5	13.5	13.0	12.5	12.5	13.0	13.5	13.5	14.0	14.0	14.0	13.5	12.5	14.0	13.4

VALUES= -.0 INDICATE MISSING DATA

TABLE 4. DAILY THERMOGRAPH STATISTICS, LOWER SUSITNA RIVER, 1981.

ABOVE YENTNA R. - 29.2

		TEMPERATURE AT TIME												MIN.	MAX.	MEAN
DATE	# OBS.	0200	0400	0600	0800	1000	1200	1400	1600	1800	2000	2200	2400	TEMP.	TEMP.	TEMP.
810621	12	13.5	13.0	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.0	12.0	13.5	12.6
810622	12	11.5	11.5	11.0	10.5	10.5	10.5	11.0	11.0	11.0	11.5	11.5	11.5	10.5	11.5	11.1
810623	12	11.5	11.0	11.0	11.0	11.0	11.5	12.0	12.5	13.0	13.5	13.5	13.0	11.0	13.5	12.1
810624	12	13.0	12.5	12.0	12.0	12.0	12.0	12.5	13.0	13.5	13.5	13.5	13.5	12.0	13.5	12.8
810625	12	13.0	12.5	12.5	12.0	12.0	12.5	12.5	13.0	13.0	13.0	13.5	13.5	12.0	13.5	12.8
810626	12	13.0	12.5	12.5	12.0	12.0	11.5	11.5	11.5	11.5	11.5	11.5	11.0	11.0	13.0	11.9
810627	12	11.0	10.5	10.0	10.0	10.0	9.5	9.5	9.5	9.5	9.0	9.0	9.0	9.0	11.0	9.8
810628	12	8.5	8.5	8.5	8.5	8.0	8.0	8.0	8.5	8.5	8.5	8.5	8.5	8.0	8.5	8.4
810629	12	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.1
810630	12	8.5	8.0	8.0	8.0	8.0	8.0	8.5	8.5	9.0	9.0	9.0	9.0	8.0	9.0	8.5
810701	12	8.5	8.5	8.5	8.5	8.5	8.5	9.0	9.0	9.0	9.5	9.5	9.5	8.5	9.5	8.9
810702	12	9.0	9.0	9.0	9.0	9.0	9.5	9.5	9.5	10.0	10.0	10.0	10.0	9.0	10.0	9.5
810703	12	10.0	10.0	9.5	9.5	9.5	10.0	10.0	10.5	11.0	11.0	11.0	11.0	9.5	11.0	10.3
810704	12	11.0	11.0	10.5	10.5	10.5	11.0	11.5	11.5	12.0	12.0	12.0	11.5	10.5	12.0	11.3
810705	12	11.5	11.0	11.0	11.0	11.0	11.5	11.5	12.0	12.0	12.5	12.5	12.0	11.0	12.5	11.7

VALUES= -.0 INDICATE MISSING DATA

TABLE 4. DAILY THERMOGRAPH STATISTICS, LOWER SUSITNA RIVER, 1981.

ABOVE YENTNA R. - 29.2

DATE	# OBS.	TEMPERATURE AT TIME 0200	0400	0600	0800	1000	1200	1400	1600	1800	2000	2200	2400	MIN. TEMP.	MAX. TEMP.	MEAN TEMP.
810904	12	8.5	8.5	8.5	8.5	8.5	8.5	8.5	9.0	9.0	9.0	9.0	9.0	8.5	9.0	8.8
810905	12	8.5	8.5	8.5	8.5	8.5	8.5	9.0	9.0	8.0	8.0	8.0	8.0	8.0	9.0	8.5
810914	6	-.0	-.0	-.0	-.0	-.0	-.0	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.6
810915	12	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.1
810916	12	7.0	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	7.0	7.0	7.0	6.5	7.0	6.7
810917	6	7.0	7.0	7.0	7.0	7.0	7.0	-.0	-.0	-.0	-.0	-.0	-.0	7.0	7.0	7.1
810928	9	-.0	-.0	-.0	3.0	3.0	3.0	2.5	2.0	2.0	2.0	2.0	1.5	1.5	3.0	2.4
810929	12	1.5	1.5	1.5	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.5	2.0	1.9
810930	12	2.0	2.0	2.0	2.0	1.5	1.5	1.5	2.0	2.0	2.0	2.0	2.0	1.5	2.0	1.9
811001	12	2.0	2.0	2.0	2.0	2.5	2.5	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.5	2.1
811002	12	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.5	1.5	2.0	2.0
811003	12	1.5	1.5	1.5	1.5	1.5	1.5	2.0	2.0	2.0	2.0	2.0	2.0	1.5	2.0	1.8
811004	12	2.0	1.5	1.5	1.5	1.5	1.5	1.0	1.0	1.0	1.0	1.0	1.0	1.0	2.0	1.3
811005	12	1.0	1.0	1.0	1.0	1.0	1.0	1.5	1.5	1.5	1.5	1.5	1.5	1.0	1.5	1.3
811006	12	1.0	1.0	1.0	1.0	1.0	1.0	1.5	1.5	1.5	1.5	1.5	1.5	1.0	1.5	1.3

VALUES= -.0 INDICATE MISSING DATA

TABLE 4. DAILY THERMOGRAPH STATISTICS, LOWER SUSITNA RIVER, 1981.

ABOVE YENTNA R. - 29.2

DATE	# OBS.	0200	0400	0600	0800	1000	1200	1400	1600	1800	2000	2200	2400	MIN. TEMP.	MAX. TEMP.	MEAN TEMP.
		TEMPERATURE AT TIME														
810820	12	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.6
810821	12	8.5	8.5	8.5	8.0	8.0	8.5	8.5	8.5	9.0	9.0	9.0	9.0	8.0	9.0	8.6
810822	12	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	8.5	8.5	8.5	8.5	9.0	8.9
810823	12	8.5	8.5	8.5	8.5	8.5	8.5	8.5	9.0	9.0	9.5	9.5	9.5	8.5	9.5	8.9
810824	12	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.5	9.5	9.5	9.5	9.0	9.5	9.2
810825	9	9.5	9.5	9.0	9.0	9.0	9.5	9.5	10.0	10.0	-.0	-.0	-.0	9.0	10.0	9.5
810826	6	-.0	-.0	-.0	-.0	-.0	-.0	10.0	10.5	10.5	10.5	11.0	11.0	10.0	11.0	10.6
810827	12	11.0	11.0	10.5	10.5	10.5	11.0	11.0	11.5	11.5	11.5	11.5	11.5	10.5	11.5	11.1
810828	12	11.5	11.5	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.5	11.1
810829	12	11.0	11.0	10.5	10.5	10.5	10.5	10.5	11.0	11.0	11.0	11.0	11.0	10.5	11.0	10.8
810830	12	10.5	10.5	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.5	10.1
810831	12	10.0	9.5	9.5	9.5	9.5	9.5	9.5	9.5	10.0	10.0	10.0	10.0	9.5	10.0	9.8
810901	12	9.5	9.5	9.0	9.0	9.0	9.5	9.5	10.0	10.0	10.0	10.0	10.0	9.0	10.0	9.6
810902	12	9.5	9.5	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.5	9.1
810903	12	9.0	8.5	8.5	8.0	8.0	8.0	8.0	8.5	8.5	8.5	8.5	8.5	8.0	9.0	8.4

VALUES= -.0 INDICATE MISSING DATA

TABLE 4. DAILY THERMOGRAPH STATISTICS, LOWER SUSITNA RIVER, 1981.

ABOVE YENTNA R. - 29.2

DATE	# OBS.	0200	0400	0600	0800	1000	1200	1400	1600	1800	2000	2200	2400	MIN. TEMP.	MAX. TEMP.	MEAN TEMP.
		TEMPERATURE AT TIME														
810805	12	11.5	11.5	11.5	11.0	11.0	11.0	11.5	11.5	11.5	11.5	11.5	11.0	11.0	11.5	11.4
810806	12	11.0	11.0	11.0	10.5	10.5	10.5	10.5	11.0	11.0	11.0	11.0	11.0	10.5	11.0	10.9
810807	12	11.0	11.0	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	11.0	10.6
810808	12	10.5	10.5	10.0	10.0	10.0	10.0	10.5	10.5	10.5	11.0	11.0	11.0	10.0	11.0	10.5
810809	12	10.5	10.5	10.5	10.0	10.0	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.0	10.5	10.5
810810	12	10.0	10.0	10.0	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	10.0	9.7
810811	12	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.5	9.5	9.0	9.0	9.0	9.0	9.5	9.1
810812	12	9.0	9.0	9.0	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	9.0	8.7
810813	12	8.5	8.5	8.5	8.5	8.5	8.5	8.5	9.0	9.0	9.0	9.0	8.5	8.5	9.0	8.7
810814	12	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.6
810815	12	8.5	8.5	8.5	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.5	8.2
810816	12	8.0	8.0	7.5	7.5	7.5	7.5	8.0	8.0	8.0	8.0	8.0	8.0	7.5	8.0	7.9
810817	12	8.0	8.0	7.5	7.5	7.5	7.5	7.5	8.0	8.0	8.0	8.0	8.0	7.5	8.0	7.8
810818	12	7.5	7.5	7.5	7.5	7.5	8.0	8.0	8.5	8.5	8.5	8.5	8.5	7.5	8.5	8.1
810819	12	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.6

VALUES= -.0 INDICATE MISSING DATA

TABLE 4. DAILY THERMOGRAPH STATISTICS, LOWER SUSITNA RIVER, 1981.

ABOVE YENTNA R. - 29.2

DATE	# OBS.	0200	0400	0600	0800	1000	1200	1400	1600	1800	2000	2200	2400	MIN. TEMP.	MAX. TEMP.	MEAN TEMP.
		TEMPERATURE AT TIME														
810721	12	10.0	10.0	10.0	9.5	9.5	9.5	10.0	10.5	10.5	10.5	10.5	10.5	9.5	10.5	10.1
810722	12	10.5	10.5	10.0	10.0	10.0	10.5	11.0	11.0	11.5	11.5	11.5	11.5	10.0	11.5	10.8
810723	12	11.5	11.0	11.0	10.5	10.5	10.5	10.5	11.0	11.0	11.0	11.0	11.0	10.5	11.5	10.9
810724	12	11.0	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	11.0	10.6
810725	12	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.6
810726	12	10.5	10.5	10.0	10.0	10.0	10.5	10.5	10.5	10.5	11.0	11.0	11.0	10.0	11.0	10.6
810727	12	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	11.0	11.0	11.0	11.0	10.5	11.0	10.7
810728	12	11.0	11.0	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	11.0	10.6
810729	12	10.0	10.0	10.0	9.5	9.5	10.0	10.5	10.5	11.0	11.0	11.5	11.5	9.5	11.5	10.5
810730	12	11.5	11.5	11.0	11.0	11.0	11.0	11.0	11.5	11.5	11.5	11.5	11.5	11.0	11.5	11.3
810731	12	11.5	11.0	11.0	10.5	10.5	10.5	11.0	11.5	11.5	11.5	11.5	11.5	10.5	11.5	11.2
810801	12	11.5	11.0	11.0	11.0	11.0	11.0	10.5	10.5	10.5	10.5	10.5	10.5	10.5	11.5	10.8
810802	12	10.0	9.5	9.5	9.5	9.5	9.5	9.5	9.5	10.0	10.0	10.0	10.0	9.5	10.0	9.8
810803	12	10.0	10.0	9.5	9.5	9.5	10.0	10.0	10.5	10.5	10.5	10.5	10.5	9.5	10.5	10.1
810804	12	10.5	10.5	10.5	10.5	10.5	10.5	11.0	11.5	11.5	12.0	12.0	11.5	10.5	12.0	11.1

VALUES= -.0 INDICATE MISSING DATA

TABLE 4. DAILY THERMOGRAPH STATISTICS, LOWER SUSITNA RIVER, 1981.

ABOVE YENTNA R. - 29.2

DATE	# OBS.	TEMPERATURE AT TIME 0200	0400	0600	0800	1000	1200	1400	1600	1800	2000	2200	2400	MIN. TEMP.	MAX. TEMP.	MEAN TEMP.
810706	12	12.0	11.5	11.5	11.0	11.0	11.0	11.5	12.0	12.0	12.0	12.0	12.0	11.0	12.0	11.7
810707	12	11.5	11.5	11.5	11.0	11.0	11.5	11.5	12.0	12.0	12.0	11.5	11.5	11.0	12.0	11.6
810708	12	11.5	11.0	11.0	11.0	10.5	11.0	11.0	11.0	11.0	11.0	11.0	11.0	10.5	11.5	11.1
810709	12	10.5	10.0	10.0	10.0	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.0	9.0	10.5	9.7
810710	12	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.1
810711	12	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	9.0	9.0	9.5	9.5	8.5	9.5	8.8
810712	12	9.5	9.0	9.0	9.0	9.0	9.0	9.5	9.5	9.5	9.5	9.5	9.5	9.0	9.5	9.3
810713	12	9.5	9.5	9.0	9.0	9.0	9.0	9.0	9.5	9.5	9.5	9.5	9.5	9.0	9.5	9.3
810714	12	9.5	9.5	9.5	9.0	9.0	9.0	9.5	9.5	9.5	9.5	9.5	9.5	9.0	9.5	9.4
810715	12	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.5	9.5	9.0	9.0	9.5	9.1
810716	12	9.0	9.0	9.0	9.0	9.0	9.0	9.5	9.5	9.5	9.5	9.5	9.5	9.0	9.5	9.3
810717	12	9.5	9.5	9.5	9.5	9.5	9.5	10.0	10.5	11.0	11.0	11.5	11.5	9.5	11.5	10.3
810718	11	11.5	11.0	11.0	11.0	11.0	11.0	-.0	11.0	11.0	11.0	11.0	11.0	11.0	11.5	11.1
810719	12	11.0	10.5	10.5	10.5	10.0	10.0	10.0	10.0	10.0	10.5	10.5	10.5	10.0	11.0	10.4
810720	12	10.5	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.5	10.1

VALUES= -.0 INDICATE MISSING DATA

TABLE 4. DAILY THERMOGRAPH STATISTICS, LOWER SUSITNA RIVER, 1981.

ABOVE YENTNA R. - 29.2

DATE	# OBS.	TEMPERATURE AT TIME 0200	0400	0600	0800	1000	1200	1400	1600	1800	2000	2200	2400	MIN. TEMP.	MAX. TEMP.	MEAN TEMP.
811007	12	1.0	1.0	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.0	1.5	1.5
811008	12	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.0	1.0	1.0	1.5	1.5
811009	3	1.0	1.0	1.0	-.0	-.0	-.0	-.0	-.0	-.0	-.0	-.0	-.0	1.0	1.0	1.0

VALUES= -.0 INDICATE MISSING DATA

TABLE 5. DAILY THERMOGRAPH STATISTICS, LOWER SUSITNA RIVER, 1981.

DESHKA R. - 40.5

DATE	# OBS.	0200	0400	0600	0800	1000	1200	1400	1600	1800	2000	2200	2400	MIN. TEMP.	MAX. TEMP.	MEAN TEMP.
		TEMPERATURE AT TIME														
810610	6	-.0	-.0	-.0	-.0	-.0	-.0	13.5	13.5	14.5	14.5	14.0	13.5	13.5	14.5	14.0
810611	12	13.0	12.5	12.5	12.5	12.5	13.5	14.0	14.5	14.5	14.5	14.5	14.0	12.5	14.5	13.6
810612	12	13.5	13.0	12.5	12.5	13.0	13.5	14.5	15.5	15.5	15.5	15.0	14.5	12.5	15.5	14.1
810613	12	13.5	13.0	13.0	13.0	13.5	14.5	15.5	16.5	16.5	16.5	16.0	15.0	13.0	16.5	14.8
810614	12	14.5	14.0	13.5	14.0	14.5	15.5	16.0	16.5	17.0	17.5	17.0	16.5	13.5	17.5	15.6
810615	12	16.0	15.5	14.5	14.5	14.5	14.5	15.0	15.0	15.0	15.0	15.0	15.0	14.5	16.0	15.0
810616	12	14.5	14.5	14.0	14.0	14.0	14.5	15.5	16.0	16.5	17.0	17.0	17.0	14.0	17.0	15.4
810617	12	16.5	16.5	15.5	15.5	15.5	15.5	16.5	17.0	17.5	18.0	18.0	18.0	15.5	18.0	16.7
810618	12	17.5	17.0	16.5	16.0	16.0	16.5	17.0	17.5	17.5	18.0	18.0	18.0	16.0	18.0	17.2
810619	12	18.0	17.5	17.0	16.5	16.5	16.5	16.5	17.5	18.0	18.5	18.5	18.5	16.5	18.5	17.5
810620	12	18.5	18.0	17.5	17.0	17.0	16.5	17.0	17.5	18.0	18.0	18.0	18.0	16.5	18.5	17.6
810621	12	18.0	17.5	17.0	16.5	16.5	16.5	16.5	16.5	16.5	16.5	16.5	16.5	16.5	18.0	16.8
810622	12	16.5	16.0	15.5	15.5	15.5	15.5	15.5	15.5	16.0	16.5	16.5	16.5	15.5	16.5	16.0
810623	12	16.5	16.5	16.0	15.5	15.5	15.5	16.0	17.0	17.5	18.0	18.5	18.5	15.5	18.5	16.8
810624	12	18.0	17.5	17.0	16.5	16.5	16.5	16.5	17.0	17.0	17.5	17.5	17.5	16.5	18.0	17.1

VALUES= -.0 INDICATE MISSING DATA

TABLE 5. DAILY THERMOGRAPH STATISTICS, LOWER SUSITNA RIVER, 1981.

DESHKA R. - 40.5

DATE	# OBS.	TEMPERATURE AT TIME 0200	0400	0600	0800	1000	1200	1400	1600	1800	2000	2200	2400	MIN. TEMP.	MAX. TEMP.	MEAN TEMP.
810625	12	17.5	17.0	16.5	16.0	15.5	15.5	16.0	16.5	17.0	17.0	17.5	17.5	15.5	17.5	16.7
810626	12	17.0	16.5	16.5	15.5	15.5	15.0	14.5	14.5	14.5	14.5	14.5	14.5	14.5	17.0	15.3
810627	12	14.0	14.0	13.5	13.5	13.0	13.0	13.0	13.0	12.5	12.5	12.5	12.5	12.5	14.0	13.1
810628	12	12.0	12.0	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	12.0	11.6
810629	12	11.5	11.5	11.5	11.5	11.0	11.0	10.5	10.5	10.5	10.5	10.5	10.5	10.5	11.5	11.0
810630	12	10.5	10.5	10.5	10.5	10.5	10.5	11.0	11.5	12.0	12.5	12.5	12.5	10.5	12.5	11.3
810701	12	12.0	11.5	11.5	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	12.0	11.2
810702	12	11.0	11.0	10.5	10.5	10.5	10.5	10.5	10.5	11.0	11.0	11.0	11.0	10.5	11.0	10.8
810703	12	11.0	11.0	11.0	11.0	11.5	12.0	12.5	12.5	13.0	13.0	13.0	13.0	11.0	13.0	12.1
810704	12	13.0	12.5	12.5	12.5	13.0	14.0	14.5	15.0	15.5	15.0	14.5	14.0	12.5	15.5	13.9
810705	12	13.5	13.5	13.5	13.5	13.5	14.5	15.0	15.5	15.5	15.5	15.5	14.5	13.5	15.5	14.5
810706	12	14.5	14.0	14.0	13.5	13.5	14.0	15.0	15.5	16.0	16.0	16.0	15.5	13.5	16.0	14.8
810707	12	15.0	14.5	14.0	14.0	14.0	14.0	14.5	15.0	15.5	15.5	15.5	15.0	14.0	15.5	14.8
810708	12	14.5	14.0	14.0	14.0	13.5	14.0	14.0	14.5	14.5	14.5	14.5	14.5	13.5	14.5	14.3
810709	12	14.5	14.5	14.5	14.0	14.0	14.0	13.5	13.5	13.5	13.5	13.5	13.5	13.5	14.5	13.9

VALUES= -.0 INDICATE MISSING DATA

TABLE 5. DAILY THERMOGRAPH STATISTICS, LOWER SUSITNA RIVER, 1981.

DESHKA R. - 40.5

DATE	# OBS.	0200	0400	0600	0800	1000	1200	1400	1600	1800	2000	2200	2400	MIN. TEMP.	MAX. TEMP.	MEAN TEMP.
		TEMPERATURE AT TIME														
810710	9	13.0	13.0	12.5	12.5	12.5	12.5	12.5	12.5	12.5	-.0	-.0	-.0	12.5	13.0	12.7
810711	10	-.0	-.0	11.5	11.5	11.5	11.5	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.5	11.2
810712	12	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.5	11.5	11.5	11.5	11.5	11.0	11.5	11.3
810713	12	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.6
810714	12	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.6
810715	12	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.6
810716	12	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.6
810717	12	11.5	11.5	11.5	11.5	11.5	11.5	12.0	12.5	13.0	13.0	13.0	13.0	11.5	13.0	12.2
810718	12	13.0	13.0	13.0	13.0	13.0	13.0	13.0	13.0	13.0	13.0	13.0	13.0	13.0	13.0	13.1
810719	12	13.0	13.0	13.0	13.0	13.0	13.0	13.0	13.0	13.0	13.0	13.0	13.0	13.0	13.0	13.1
810720	12	13.0	13.0	13.0	13.0	13.0	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	13.0	12.8
810721	12	12.5	12.5	12.5	12.0	12.0	12.0	12.0	12.5	12.5	12.5	12.5	12.5	12.0	12.5	12.4
810722	12	12.5	12.5	12.5	12.5	12.5	12.5	13.0	13.0	13.0	13.0	13.0	13.0	12.5	13.0	12.8
810723	12	13.0	13.0	13.0	13.0	13.0	13.0	13.0	13.5	13.5	13.5	13.5	13.5	13.0	13.5	13.3
810724	12	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.6

VALUES= -.0 INDICATE MISSING DATA

TABLE 5. DAILY THERMOGRAPH STATISTICS, LOWER SUSITNA RIVER, 1981.

DESHKA R. - 40.5

DATE	# OBS.	TEMPERATURE AT TIME 0200	0400	0600	0800	1000	1200	1400	1600	1800	2000	2200	2400	MIN. TEMP.	MAX. TEMP.	MEAN TEMP.
810725	12	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.6
810726	12	13.5	13.5	13.5	13.5	13.5	13.5	14.0	14.0	14.0	14.0	14.0	14.0	13.5	14.0	13.8
810727	12	14.0	13.5	13.5	13.5	13.5	13.5	14.0	14.0	14.5	14.5	14.5	14.5	13.5	14.5	14.0
810728	12	14.5	14.5	14.0	14.0	14.0	14.0	14.0	13.5	13.5	13.5	13.5	13.5	13.5	14.5	13.9
810729	12	13.5	13.0	13.0	13.0	13.0	13.0	13.5	13.5	14.0	14.5	14.5	14.5	13.0	14.5	13.6
810730	12	14.5	14.0	14.0	14.0	14.0	14.5	14.5	15.0	15.0	15.5	15.5	15.0	14.0	15.5	14.7
810731	12	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.5	15.5	15.5	15.5	15.5	15.0	15.5	15.3
810801	12	15.0	15.0	14.5	14.5	14.5	14.5	14.5	14.5	14.0	14.0	14.0	13.5	13.5	15.0	14.4
810802	12	13.5	13.5	13.5	13.5	13.5	13.0	13.0	12.5	12.5	12.5	11.5	11.5	11.5	13.5	12.9
810803	12	11.0	11.5	11.5	11.5	11.5	12.0	12.0	12.5	13.0	13.0	13.0	13.5	11.0	13.5	12.2
810804	12	13.5	13.5	13.5	13.5	13.5	13.5	14.0	14.5	14.5	14.5	14.5	14.5	13.5	14.5	14.0
810805	12	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.6
810806	12	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.6
810807	12	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.0	14.0	14.5	14.5
810808	12	14.0	14.0	13.5	13.5	13.5	13.5	13.5	14.0	14.0	14.0	14.0	14.0	13.5	14.0	13.8

VALUES= -.0 INDICATE MISSING DATA

TABLE 5. DAILY THERMOGRAPH STATISTICS, LOWER SUSITNA RIVER, 1981.

DESHKA R. - 40.5

DATE	# OBS.	TEMPERATURE AT TIME 0200	0400	0600	0800	1000	1200	1400	1600	1800	2000	2200	2400	MIN. TEMP.	MAX. TEMP.	MEAN TEMP.
810809	12	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.1
810810	12	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.6
810811	12	13.5	13.0	13.0	13.0	13.0	13.0	13.0	13.0	13.0	13.0	13.0	13.0	13.0	13.5	13.1
810812	12	12.5	12.5	12.5	12.5	12.0	12.0	12.0	12.0	12.0	12.0	12.0	11.5	11.5	12.5	12.2
810813	12	11.5	11.5	11.5	11.5	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.5	11.2
810814	12	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	10.5	10.5	11.0	11.0
810815	12	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.6
810816	12	10.0	10.0	10.0	10.0	9.5	9.5	10.0	10.0	10.0	10.0	10.0	10.0	9.5	10.0	10.0
810817	12	10.0	10.0	10.0	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	10.0	9.7
810818	12	9.5	9.5	9.5	9.5	9.5	9.5	9.5	10.0	10.0	10.0	10.0	10.0	9.5	10.0	9.8
810819	12	10.0	10.0	10.0	10.0	10.0	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.0	10.5	10.3
810820	12	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.6
810821	12	10.5	10.0	10.0	10.0	10.0	10.0	10.5	10.5	10.5	11.0	11.0	11.0	10.0	11.0	10.5
810822	12	11.0	11.0	11.0	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	11.0	10.7
810823	12	10.5	10.5	10.5	10.5	10.5	10.5	10.5	11.0	11.0	11.0	11.0	11.0	10.5	11.0	10.8

VALUES= -.0 INDICATE MISSING DATA

TABLE 5. DAILY THERMOGRAPH STATISTICS, LOWER SUSITNA RIVER, 1981.

DESHKA R. - 40.5

DATE	# OBS.	TEMPERATURE AT TIME 0200	0400	0600	0800	1000	1200	1400	1600	1800	2000	2200	2400	MIN. TEMP.	MAX. TEMP.	MEAN TEMP.
810824	12	11.0	11.0	10.5	10.5	10.5	10.5	10.5	11.0	11.0	11.0	11.0	11.0	10.5	11.0	10.8
810825	12	11.0	11.0	11.0	11.0	11.0	11.5	12.0	12.0	12.5	12.5	12.5	12.5	11.0	12.5	11.8
810826	12	12.0	12.0	12.0	12.0	12.0	12.0	12.5	13.0	13.5	13.5	13.5	13.0	12.0	13.5	12.6
810827	12	13.0	13.0	12.5	12.5	12.5	13.0	13.5	13.5	14.0	14.0	14.0	13.5	12.5	14.0	13.3
810828	12	13.5	13.0	13.0	13.0	13.0	13.0	13.0	13.0	13.5	13.5	13.5	13.5	13.0	13.5	13.3
810829	12	13.0	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	13.0	12.6
810830	12	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.5	12.5	12.5	12.5	12.0	12.5	12.2
810831	12	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	11.5	11.5	12.0	12.0
810901	12	11.5	11.5	11.5	11.5	11.5	11.5	12.0	12.5	12.5	12.5	12.5	12.0	11.5	12.5	12.0
810902	12	11.5	11.5	11.5	11.5	11.5	11.5	12.0	12.0	12.0	12.0	11.5	11.5	11.5	12.0	11.7
810903	12	11.5	11.5	11.5	11.5	11.5	12.0	12.0	12.0	12.0	12.0	12.0	11.5	11.5	12.0	11.8
810904	12	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.6
810905	12	11.5	11.0	11.0	11.5	11.5	12.0	12.0	12.5	12.5	12.0	12.0	11.5	11.0	12.5	11.8
810906	12	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.0	10.5	10.5	11.5	11.4
810907	12	10.5	10.5	10.5	10.5	10.5	11.0	11.0	11.0	11.0	10.5	10.5	10.0	10.0	11.0	10.7

VALUES= -.0 INDICATE MISSING DATA

TABLE 5. DAILY THERMOGRAPH STATISTICS, LOWER SUSITNA RIVER, 1981.

DESHKA R. - 40.5

DATE	# OBS.	0200	0400	0600	0800	1000	1200	1400	1600	1800	2000	2200	2400	MIN. TEMP.	MAX. TEMP.	MEAN TEMP.
		TEMPERATURE AT TIME														
810908	12	10.0	9.5	9.5	10.5	10.5	10.5	11.0	11.0	11.0	10.5	10.5	10.0	9.5	11.0	10.4
810909	12	9.5	9.5	9.5	9.5	10.0	10.5	10.5	10.5	10.5	10.5	10.0	10.0	9.5	10.5	10.1
810910	12	10.0	9.5	9.5	10.0	10.5	11.0	11.0	11.0	10.5	10.5	10.0	10.0	9.5	11.0	10.3
810911	12	10.0	10.0	10.0	10.0	10.0	10.5	10.5	10.5	10.5	10.5	10.0	9.5	9.5	10.5	10.2
810912	12	9.5	9.0	9.0	9.5	10.0	10.5	10.5	10.5	10.5	10.5	10.0	9.5	9.0	10.5	10.0
810913	12	9.5	9.5	9.5	9.5	10.0	10.5	10.5	10.5	10.0	9.5	9.5	10.0	9.5	10.5	9.9
810914	12	9.0	8.5	8.5	8.5	9.0	9.0	9.5	9.5	9.5	9.0	9.0	8.5	8.5	9.5	9.0
810915	9	8.5	8.5	8.5	8.5	8.5	9.0	-.0	-.0	-.0	9.5	9.0	9.0	8.5	9.5	8.8
810916	12	8.5	8.5	8.5	8.0	8.0	8.0	8.5	8.5	8.5	8.5	8.5	8.5	8.0	8.5	8.4
810917	12	8.5	8.5	8.0	8.0	8.5	9.0	9.0	9.5	9.5	9.5	9.5	9.0	8.0	9.5	8.9
810918	12	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.1
810919	12	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.1
810920	12	9.0	8.5	8.5	8.5	8.0	8.0	8.0	8.0	8.5	9.0	9.0	9.0	8.0	9.0	8.6
810921	12	8.5	8.5	8.5	8.0	8.0	8.5	9.0	9.0	9.0	8.5	8.0	8.0	8.0	9.0	8.5
810922	12	8.0	7.5	7.0	7.0	7.0	7.5	8.0	8.0	8.0	8.0	7.0	7.0	7.0	8.0	7.6

VALUES= -.0 INDICATE MISSING DATA

TABLE 5. DAILY THERMOGRAPH STATISTICS, LOWER SUSITNA RIVER, 1981.

DESHKA R. - 40.5

DATE	# OBS.	0200	0400	0600	0800	1000	1200	1400	1600	1800	2000	2200	2400	MIN. TEMP.	MAX. TEMP.	MEAN TEMP.
810923	12	7.0	7.0	6.5	6.5	6.5	6.5	7.0	7.0	7.0	7.0	7.0	7.0	6.5	7.0	6.9
810924	12	6.5	6.5	6.5	6.5	6.0	6.5	6.5	7.0	7.0	6.5	6.5	6.0	6.0	7.0	6.6
810925	12	6.0	5.5	5.5	5.0	5.5	5.5	6.0	6.0	6.0	5.5	5.0	5.0	5.0	6.0	5.6
810926	12	4.5	4.5	4.0	4.0	4.0	4.5	4.5	4.5	4.5	4.5	4.0	4.0	4.0	4.5	4.3
810930	4	-.0	-.0	-.0	-.0	-.0	-.0	-.0	-.0	3.5	3.5	3.0	2.5	2.5	3.5	3.2
811001	12	2.0	2.0	2.0	2.0	2.0	2.5	2.5	3.0	3.0	3.0	2.5	2.5	2.0	3.0	2.5
811002	12	2.0	2.0	1.5	1.5	1.5	2.0	2.5	2.5	2.5	2.5	2.0	1.5	1.5	2.5	2.0
811003	12	1.5	1.5	1.5	1.5	1.5	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.5	2.0	1.8
811004	12	2.0	2.0	2.0	2.0	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	2.0	1.7
811005	12	1.5	1.5	1.5	1.5	1.5	1.5	2.0	2.0	2.0	2.0	2.0	1.5	1.5	2.0	1.8
811006	12	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	2.0	2.0	2.0	1.5	1.5	2.0	1.7
811007	12	1.5	1.0	1.0	1.0	1.0	1.0	1.5	1.5	1.5	1.5	1.0	1.0	1.0	1.5	1.3
811008	12	.5	.5	0.0	0.0	0.0	.5	1.0	1.0	1.0	1.0	1.0	.5	0.0	1.0	.6
811009	8	.5	.5	0.0	0.0	0.0	.5	.5	1.0	-.0	-.0	-.0	-.0	0.0	1.0	.4
810927	12	4.0	4.0	4.0	3.5	3.5	4.0	4.0	4.0	4.0	4.0	4.0	4.0	3.5	4.0	4.0

VALUES= -.0 INDICATE MISSING DATA

TABLE 5. DAILY THERMOGRAPH STATISTICS, LOWER SUSITNA RIVER, 1981.

DESHKA R. - 40.5

DATE	# OBS.	0200	0400	0600	0800	1000	1200	1400	1600	1800	2000	2200	2400	MIN. TEMP.	MAX. TEMP.	MEAN TEMP.
		TEMPERATURE AT TIME														
810928	12	3.5	3.5	3.5	3.0	3.5	3.5	4.0	4.0	3.5	3.5	3.0	3.0	3.0	4.0	3.5
810929	12	3.0	3.0	2.5	2.5	2.5	3.0	3.0	3.0	3.0	3.0	3.0	3.0	2.5	3.0	2.9
810930	6	3.0	3.0	3.0	3.0	3.0	3.0	-.0	-.0	-.0	-.0	-.0	-.0	3.0	3.0	3.0

VALUES= -.0 INDICATE MISSING DATA

TABLE 6. DAILY THERMOGRAPH STATISTICS, LOWER SUSITNA RIVER, 1981.

LITTLE WILLOW - 50.5

DATE	# OBS.	0200	0400	0600	0800	1000	1200	1400	1600	1800	2000	2200	2400	MIN. TEMP.	MAX. TEMP.	MEAN TEMP.
		TEMPERATURE AT TIME														
810624	4	-.0	-.0	-.0	-.0	-.0	-.0	-.0	-.0	14.0	14.0	13.0	12.5	12.5	14.0	13.4
810625	12	12.0	11.5	11.0	10.5	10.5	11.5	12.0	13.0	13.5	13.5	13.0	12.5	10.5	13.5	12.1
810626	12	12.0	11.5	11.0	10.5	10.5	10.5	10.5	10.5	10.5	10.0	10.0	9.5	9.5	12.0	10.6
810627	12	9.0	9.0	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.0	8.0	9.0	8.6
810628	12	8.0	8.0	7.5	7.5	7.5	7.5	7.5	7.5	8.0	8.0	8.0	7.5	7.5	8.0	7.8
810629	12	7.5	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.5	7.1
810630	12	7.0	6.5	6.5	6.5	7.0	7.5	8.0	8.5	9.0	9.0	8.5	8.0	6.5	9.0	7.7
810701	12	7.5	7.0	6.5	6.5	7.0	7.5	8.0	8.0	8.5	8.5	8.5	8.5	6.5	8.5	7.7
810702	12	8.0	7.5	7.0	7.0	7.0	7.5	7.5	8.0	8.5	8.5	8.5	8.0	7.0	8.5	7.8
810703	12	8.0	7.5	7.5	7.5	7.5	8.5	9.5	10.5	11.0	11.0	10.5	10.5	7.5	11.0	9.2
810704	12	10.0	10.0	9.5	9.5	9.5	10.5	11.5	12.0	12.0	11.5	11.5	11.0	9.5	12.0	10.8
810705	12	10.5	10.0	9.5	9.5	10.0	10.5	11.5	12.0	12.5	12.0	12.0	11.5	9.5	12.5	11.0
810706	12	11.0	10.5	10.0	10.0	10.0	10.5	11.0	12.0	12.5	12.5	12.0	11.5	10.0	12.5	11.2
810707	12	11.5	11.0	10.5	10.0	10.0	10.5	11.0	11.0	11.0	11.0	11.0	10.5	10.0	11.5	10.8
810708	12	10.5	10.0	10.0	9.5	9.5	10.0	10.0	10.5	10.5	10.5	10.5	10.5	9.5	10.5	10.2

VALUES= -.0 INDICATE MISSING DATA

TABLE 6. DAILY THERMOGRAPH STATISTICS, LOWER SUSITNA RIVER, 1981.

LITTLE WILLOW - 50.5

DATE	# OBS.	TEMPERATURE AT TIME 0200	0400	0600	0800	1000	1200	1400	1600	1800	2000	2200	2400	MIN. TEMP.	MAX. TEMP.	MEAN TEMP.
810709	12	10.0	10.0	9.5	9.5	9.5	10.0	10.0	10.0	10.0	10.0	9.5	9.5	9.5	10.0	9.8
810710	12	9.5	9.0	9.0	9.0	9.0	9.0	8.5	8.5	8.5	8.5	8.5	8.5	8.5	9.5	8.8
810711	12	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.5	8.5	9.0	9.0	9.0	8.0	9.0	8.4
810712	12	8.5	8.5	8.5	8.5	8.5	8.5	9.0	9.5	9.5	9.5	9.5	9.5	8.5	9.5	9.0
810713	12	9.0	9.0	8.5	8.5	8.5	8.5	8.5	9.0	9.0	9.5	9.5	9.5	8.5	9.5	9.0
810714	12	9.0	9.0	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	9.0	8.6
810715	12	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.5	8.5	8.5	8.5	8.0	8.5	8.2
810716	12	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	9.0	9.0	9.0	8.5	9.0	8.7
810717	12	9.0	8.5	8.5	8.5	8.5	8.5	9.0	9.5	10.0	10.5	10.5	10.5	8.5	10.5	9.3
810718	12	10.0	10.0	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.0	9.0	10.0	9.6
810719	12	9.0	9.0	9.0	9.0	8.5	8.5	8.5	8.5	9.0	9.0	9.0	9.0	8.5	9.0	8.9
810720	12	9.0	9.0	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	9.0	8.6
810721	12	8.5	8.0	8.0	8.0	8.0	8.0	8.5	8.5	9.0	9.5	9.5	9.5	8.0	9.5	8.6
810722	12	9.5	9.0	9.0	8.5	9.0	9.0	9.5	9.5	10.0	10.0	10.0	9.5	8.5	10.0	9.4
810723	12	9.5	9.0	9.0	8.5	8.5	8.5	8.5	9.0	9.5	9.5	9.5	9.5	8.5	9.5	9.1

VALUES= -.0 INDICATE MISSING DATA

TABLE 6. DAILY THERMOGRAPH STATISTICS, LOWER SUSITNA RIVER, 1981.

LITTLE WILLOW - 50.5

DATE	# OBS.	TEMPERATURE AT TIME 0200	0400	0600	0800	1000	1200	1400	1600	1800	2000	2200	2400	MIN. TEMP.	MAX. TEMP.	MEAN TEMP.
810724	12	9.5	9.0	9.0	9.0	9.0	9.0	9.0	9.5	9.5	9.5	9.5	9.5	9.0	9.5	9.3
810725	12	9.5	9.5	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.5	9.1
810726	12	9.0	9.0	8.5	8.5	8.5	9.0	9.5	9.5	9.5	9.5	10.0	9.5	8.5	10.0	9.2
810727	12	9.5	9.0	9.0	8.5	9.0	9.0	9.5	10.0	10.0	10.0	10.0	10.0	8.5	10.0	9.5
810728	12	9.5	9.5	9.5	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.5	9.2
810729	12	8.5	8.5	8.5	8.5	8.5	9.5	10.0	10.5	11.0	11.0	11.0	11.0	8.5	11.0	9.8
810730	12	10.5	10.5	10.0	10.0	10.0	10.5	11.5	11.5	11.5	11.5	11.5	11.5	10.0	11.5	10.9
810731	12	11.0	10.5	10.0	10.0	10.0	10.5	11.0	11.0	11.5	11.5	11.0	11.0	10.0	11.5	10.8
810801	12	10.5	10.5	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	9.5	9.5	10.5	10.1
810802	12	9.5	9.0	9.0	8.5	8.5	8.5	8.5	9.0	9.0	9.0	9.0	9.0	8.5	9.5	8.9
810803	12	9.0	9.0	9.0	8.5	8.5	8.5	9.0	9.5	9.5	10.0	10.0	10.0	8.5	10.0	9.3
810804	12	10.0	9.5	9.5	9.0	9.0	9.5	10.0	10.5	10.5	10.5	10.5	10.5	9.0	10.5	10.0
810805	12	10.5	10.5	10.0	9.5	9.5	9.5	9.5	10.0	10.0	10.0	10.0	9.5	9.5	10.5	9.9
810806	12	9.5	9.5	9.5	9.5	9.5	9.5	9.5	10.0	10.0	10.0	10.0	10.0	9.5	10.0	9.8
810807	12	10.0	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	10.0	9.6

VALUES= -.0 INDICATE MISSING DATA

TABLE 6. DAILY THERMOGRAPH STATISTICS, LOWER SUSITNA RIVER, 1981.

LITTLE WILLOW - 50.5

DATE	# OBS.	TEMPERATURE AT TIME 0200	0400	0600	0800	1000	1200	1400	1600	1800	2000	2200	2400	MIN. TEMP.	MAX. TEMP.	MEAN TEMP.
810808	11	9.5	9.5	9.5	9.5	9.5	9.5	10.0	-.0	11.0	10.5	10.5	10.0	9.5	11.0	10.0
810809	12	9.5	9.5	9.0	9.0	9.0	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.0	9.5	9.4
810810	12	9.5	9.0	9.0	9.0	9.0	9.0	9.0	9.5	9.5	9.0	9.0	9.0	9.0	9.5	9.2
810811	12	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.1
810812	12	8.5	8.5	8.5	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.5	8.2
810813	12	8.0	8.0	8.0	7.5	7.5	7.5	8.0	8.0	8.0	8.0	8.0	8.0	7.5	8.0	7.9
810814	12	8.0	7.5	7.5	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	8.0	7.2
810815	12	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	6.5	6.5	6.5	7.0	7.0
810816	12	6.5	6.0	6.0	6.0	6.0	6.0	6.5	7.0	7.0	7.0	7.0	6.5	6.0	7.0	6.5
810817	12	6.5	6.5	6.0	5.5	5.5	5.5	6.0	6.0	6.5	6.5	6.5	6.5	5.5	6.5	6.2
810818	12	6.5	6.5	6.5	6.5	6.5	6.5	7.0	7.0	7.0	7.0	7.0	7.0	6.5	7.0	6.8
810819	12	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.1
810820	12	7.0	7.0	7.0	7.0	7.0	6.5	6.5	7.0	7.0	7.0	7.0	7.0	6.5	7.0	7.0
810821	12	7.0	7.0	7.0	7.0	7.0	7.0	7.5	8.0	8.5	8.5	8.5	8.0	7.0	8.5	7.6
810822	12	8.0	8.0	7.5	7.5	7.5	7.5	7.0	7.0	7.0	7.0	7.0	7.0	7.0	8.0	7.4

VALUES= -.0 INDICATE MISSING DATA

TABLE 6. DAILY THERMOGRAPH STATISTICS, LOWER SUSITNA RIVER, 1981.

LITTLE WILLOW - 50.5

DATE	# OBS.	0200	0400	0600	0800	1000	1200	1400	1600	1800	2000	2200	2400	MIN. TEMP.	MAX. TEMP.	MEAN TEMP.
		TEMPERATURE AT TIME														
810823	12	7.0	7.0	7.0	7.0	7.0	7.5	8.0	8.0	8.5	8.5	8.0	8.0	7.0	8.5	7.7
810824	12	7.5	7.0	7.0	7.0	7.0	7.0	7.5	7.5	7.5	7.5	7.5	7.5	7.0	7.5	7.3
810825	12	7.5	7.5	7.5	7.5	8.0	8.5	8.5	9.0	9.0	9.0	9.0	9.0	7.5	9.0	8.4
810826	12	8.5	8.5	8.0	8.0	8.0	8.5	9.5	10.0	10.0	10.0	10.0	9.5	8.0	10.0	9.1
810827	12	9.5	9.5	9.0	9.0	9.0	9.5	10.0	10.0	10.0	10.0	10.0	9.5	9.0	10.0	9.6
810828	12	9.5	9.0	9.0	9.0	9.0	9.0	9.0	9.5	9.5	9.5	9.0	9.0	9.0	9.5	9.2
810829	12	8.5	8.5	8.0	8.0	8.0	8.0	8.0	8.0	8.5	8.5	8.5	8.5	8.0	8.5	8.3
810830	11	8.5	8.0	8.0	8.0	8.0	-.0	9.0	9.0	9.0	9.0	9.0	9.0	8.0	9.0	8.6
810831	12	8.5	8.5	8.0	8.0	8.0	8.0	8.0	8.5	9.0	9.0	8.5	8.0	8.0	9.0	8.4
810901	12	8.0	8.0	7.5	7.5	7.5	8.0	8.0	9.0	9.0	9.0	9.0	8.5	7.5	9.0	8.3
810902	12	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.5	8.5	8.5	8.5	8.5	8.0	8.5	8.3
810903	12	8.0	8.0	8.0	8.0	7.5	8.0	8.0	8.5	9.0	9.0	9.0	8.5	7.5	9.0	8.3
810904	12	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.1
810905	12	8.0	8.0	7.5	7.5	7.5	7.5	8.0	8.0	8.0	8.0	8.0	8.0	7.5	8.0	7.9
810906	12	8.0	7.5	7.5	7.0	7.0	7.0	7.0	7.0	7.5	7.5	7.5	7.5	7.0	8.0	7.4

VALUES= -.0 INDICATE MISSING DATA

TABLE 6. DAILY THERMOGRAPH STATISTICS, LOWER SUSITNA RIVER, 1981.

LITTLE WILLOW - 50.5

DATE	# OBS.	TEMPERATURE AT TIME 0200	0400	0600	0800	1000	1200	1400	1600	1800	2000	2200	2400	MIN. TEMP.	MAX. TEMP.	MEAN TEMP.
810907	12	7.0	7.0	7.0	7.0	6.5	6.5	7.0	7.5	7.5	7.5	7.0	7.0	6.5	7.5	7.1
810908	12	7.0	7.0	6.5	6.0	6.0	6.5	7.0	7.5	7.5	7.5	7.0	7.0	6.0	7.5	6.9
810909	12	7.0	6.5	6.0	6.0	6.0	6.0	6.0	6.5	6.5	6.5	6.5	6.5	6.0	7.0	6.4
810910	12	6.5	6.0	6.0	6.0	6.0	6.5	7.0	7.5	7.5	7.5	7.5	7.5	6.0	7.5	6.8
810911	12	7.0	7.0	7.0	7.0	6.5	6.5	7.0	7.0	7.0	7.0	7.0	7.0	6.5	7.0	7.0
810912	12	7.0	6.5	6.0	6.0	6.0	6.0	6.5	7.0	7.0	7.0	7.0	6.5	6.0	7.0	6.6
810913	12	6.0	6.0	6.0	5.5	5.5	6.0	6.0	6.5	7.0	5.5	6.5	6.0	5.5	7.0	6.1
810914	12	6.0	5.5	5.0	5.0	5.0	5.0	5.0	5.0	5.5	5.5	5.5	5.5	5.0	6.0	5.3
810915	12	5.0	5.0	5.0	5.0	5.0	5.0	5.5	6.0	6.0	6.0	6.0	6.0	5.0	6.0	5.5
810916	12	5.5	5.5	5.5	5.5	5.5	5.5	5.5	6.5	6.5	6.0	6.0	6.0	5.5	6.5	5.8
810917	12	6.0	6.0	6.0	6.0	6.0	6.0	6.5	7.0	7.0	7.0	7.0	7.0	6.0	7.0	6.5
810918	12	7.0	7.0	6.5	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	7.0	6.3
810919	12	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.1
810920	12	6.0	6.0	6.0	5.5	5.5	5.5	6.0	6.0	6.0	6.0	6.0	6.0	5.5	6.0	5.9
810921	12	6.0	6.0	6.0	5.5	5.5	5.5	6.0	6.0	6.0	6.0	6.0	5.5	5.5	6.0	5.9

VALUES= -.0 INDICATE MISSING DATA

TABLE 6. DAILY THERMOGRAPH STATISTICS, LOWER SUSITNA RIVER, 1981.

LITTLE WILLOW - 50.5

DATE	# OBS.	TEMPERATURE AT TIME 0200	0400	0600	0800	1000	1200	1400	1600	1800	2000	2200	2400	MIN. TEMP.	MAX. TEMP.	MEAN TEMP.
810922	12	5.5	5.0	4.5	4.0	4.0	4.0	4.5	5.0	5.0	4.5	4.5	4.0	4.0	5.5	4.6
810923	12	4.0	4.0	3.5	3.5	3.5	3.5	4.0	4.0	4.0	4.0	4.0	4.0	3.5	4.0	3.9
810924	12	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.5	4.5	4.0	4.0	3.5	3.5	4.5	4.1
810925	12	3.5	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	2.5	2.5	3.5	3.0
810926	12	3.5	3.0	2.5	2.0	2.0	2.0	2.5	2.5	2.5	2.5	2.5	2.0	2.0	3.5	2.5
810927	12	2.0	2.0	2.0	1.5	1.5	2.0	2.0	2.5	2.5	2.5	2.5	2.5	1.5	2.5	2.2
810928	12	1.5	1.0	1.0	1.0	1.0	1.0	1.0	1.5	1.5	1.0	1.0	1.0	1.0	1.5	1.2
810929	12	1.0	.5	0.0	0.0	0.0	0.0	.5	1.0	1.0	1.0	1.0	1.0	0.0	1.0	.6
810930	6	1.0	1.0	1.0	.5	.5	.5	-.0	-.0	-.0	-.0	-.0	-.0	.5	1.0	.8

VALUES= -.0 INDICATE MISSING DATA

TABLE 7. DAILY THERMOGRAPH STATISTICS, LOWER SUSITNA RIVER, 1981.

ABOVE L. WILLOW - 50.5

DATE	# OBS.	TEMPERATURE AT TIME 0200	0400	0600	0800	1000	1200	1400	1600	1800	2000	2200	2400	MIN. TEMP.	MAX. TEMP.	MEAN TEMP.
810624	2	-.0	-.0	-.0	-.0	-.0	-.0	-.0	-.0	-.0	-.0	13.5	13.5	13.5	13.5	13.6
810625	12	13.0	12.5	12.0	11.5	11.5	11.0	11.5	11.5	12.5	12.5	13.0	13.0	11.0	13.0	12.2
810626	12	12.5	12.0	11.5	11.5	11.0	11.0	11.0	11.0	11.0	11.0	11.0	10.5	10.5	12.5	11.3
810627	12	10.5	10.0	9.5	9.5	9.0	9.0	9.0	9.0	8.5	8.5	8.5	8.5	8.5	10.5	9.2
810628	12	8.5	8.5	8.0	8.0	8.0	7.5	8.0	8.0	8.0	8.0	8.0	8.5	7.5	8.5	8.1
810629	12	8.5	8.5	8.0	8.0	8.0	8.0	7.5	7.5	7.5	7.5	7.5	7.5	7.5	8.5	7.9
810630	12	7.5	7.5	7.5	7.5	7.5	7.0	7.0	7.5	8.0	8.5	8.5	8.5	7.0	8.5	7.8
810701	12	8.5	8.5	8.0	7.5	7.5	7.5	7.5	8.0	8.5	8.5	9.0	9.0	7.5	9.0	8.2
810702	12	9.0	9.0	9.0	8.5	8.5	8.5	8.5	9.0	9.0	9.5	9.5	9.5	8.5	9.5	9.0
810703	12	9.5	9.5	9.0	9.0	9.0	9.0	9.0	9.5	10.0	10.5	11.0	11.0	9.0	11.0	9.7
810704	12	11.0	10.5	10.0	10.0	10.0	10.0	10.0	10.5	11.5	11.5	11.5	11.5	10.0	11.5	10.7
810705	12	11.0	11.0	10.5	10.5	10.5	10.5	10.5	11.0	12.0	12.0	12.0	11.5	10.5	12.0	11.1
810706	12	11.5	11.0	10.5	10.5	10.0	10.0	10.0	10.5	11.0	11.5	11.5	11.5	10.0	11.5	10.8
810707	12	11.0	11.0	10.5	10.5	10.0	10.5	10.5	10.5	10.5	11.0	11.0	11.0	10.0	11.0	10.7
810708	12	11.0	10.5	10.5	10.0	10.0	10.0	10.0	10.0	9.5	9.5	9.5	9.5	9.5	11.0	10.1

VALUES= -.0 INDICATE MISSING DATA

TABLE 7. DAILY THERMOGRAPH STATISTICS, LOWER SUSITNA RIVER, 1981.

ABOVE L. WILLOW - 50.5

DATE	# OBS.	0200	0400	0600	0800	1000	1200	1400	1600	1800	2000	2200	2400	MIN. TEMP.	MAX. TEMP.	MEAN TEMP.
		TEMPERATURE AT TIME														
810709	12	9.5	9.0	9.0	8.5	8.5	8.0	8.5	8.5	8.5	8.5	8.5	8.0	8.0	9.5	8.6
810710	12	8.0	8.0	8.0	8.0	7.5	8.0	8.0	8.0	8.0	8.0	8.0	8.0	7.5	8.0	8.0
810711	12	8.0	8.0	8.0	8.0	7.5	7.5	7.5	7.5	8.0	8.0	8.5	8.5	7.5	8.5	8.0
810712	12	8.5	8.5	8.0	8.0	8.0	8.0	8.0	8.0	8.5	9.0	9.0	9.0	8.0	9.0	8.4
810713	12	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.6
810714	12	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.6
810715	12	8.0	8.0	8.0	8.0	8.0	8.0	8.5	8.5	8.5	8.5	8.5	8.5	8.0	8.5	8.3
810716	12	8 5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	9.0	9.0	9.0	9.0	8.5	9.0	8.7
810717	12	9.0	9.0	9.0	8.5	8.5	8.5	9.0	9.0	9.5	10.0	10.5	10.5	8.5	10.5	9.3
810718	12	10.5	10.5	10.0	10.0	9.5	9.5	9.5	9.5	10.0	10.0	10.0	10.0	9.5	10.5	10.0
810719	12	9.5	9.5	9.5	9.5	9.0	9.0	9.0	9.0	9.5	9.5	9.5	9.5	9.0	9.5	9.4
810720	12	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.6
810721	12	9.5	9.5	9.5	9.0	9.0	9.0	9.0	9.0	9.5	9.5	10.0	10.0	9.0	10.0	9.4
810722	12	10.0	9.5	9.5	9.5	9.5	9.5	9.5	10.0	10.0	10.5	10.5	10.5	9.5	10.5	9.9
810723	12	10.5	10.0	10.0	10.0	9.5	9.5	9.5	9.5	9.5	10.0	10.5	10.5	9.5	10.5	10.0

VALUES= -.0 INDICATE MISSING DATA

TABLE 7. DAILY THERMOGRAPH STATISTICS, LOWER SUSITNA RIVER, 1981.

ABOVE L. WILLOW - 50.5

DATE	# OBS.	TEMPERATURE AT TIME 0200	0400	0600	0800	1000	1200	1400	1600	1800	2000	2200	2400	MIN. TEMP.	MAX. TEMP.	MEAN TEMP.
810724	12	10.0	10.0	10.0	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	10.0	9.7
810725	12	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	10.0	10.0	10.0	9.5	10.0	9.7
810726	12	10.0	9.5	9.5	9.5	9.5	9.5	9.5	9.5	10.0	10.0	10.5	10.0	9.5	10.5	9.8
810727	12	10.0	10.0	9.5	9.5	9.0	9.0	9.0	9.5	9.5	10.0	10.0	10.0	9.0	10.0	9.6
810728	12	10.0	10.0	10.0	10.0	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	10.0	9.7
810729	12	9.5	9.0	9.0	9.0	8.5	8.5	8.5	9.0	9.5	10.5	10.5	10.5	8.5	10.5	9.4
810730	12	10.5	10.5	10.5	10.0	10.0	10.0	10.0	10.0	10.5	10.5	10.5	11.0	10.0	11.0	10.4
810731	12	10.5	10.5	10.0	10.0	9.5	9.5	9.5	10.0	10.0	10.5	10.5	10.5	9.5	10.5	10.1
810801	12	10.0	10.0	10.0	10.0	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	10.0	9.7
810802	12	9.5	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.5	9.5	9.0	9.5	9.2
810803	12	9.5	9.5	9.0	9.0	9.0	9.0	9.0	9.0	9.5	9.5	10.0	10.0	9.0	10.0	9.4
810804	12	10.0	10.0	9.5	9.5	9.5	9.5	9.5	9.5	10.0	10.5	10.5	11.0	9.5	11.0	10.0
810805	12	10.5	10.5	10.5	10.0	10.0	9.5	10.0	10.0	10.0	10.0	10.5	10.5	9.5	10.5	10.2
810806	12	10.0	10.0	10.0	9.5	9.5	9.5	9.5	9.5	9.5	10.0	10.0	10.0	9.5	10.0	9.8
810807	12	10.0	10.0	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	10.0	9.6

VALUES= -.0 INDICATE MISSING DATA

TABLE 7. DAILY THERMOGRAPH STATISTICS, LOWER SUSITNA RIVER, 1981.

ABOVE L. WILLOW - 50.5

DATE	# OBS.	0200	0400	0600	0800	1000	1200	1400	1600	1800	2000	2200	2400	MIN. TEMP.	MAX. TEMP.	MEAN TEMP.
		TEMPERATURE AT TIME														
810808	11	9.5	9.5	9.5	9.0	9.0	9.0	9.0	9.0	9.5	-.0	9.5	9.5	9.0	9.5	9.3
810809	12	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.6
810810	12	9.0	9.0	8.5	8.5	8.5	8.5	9.0	9.0	9.0	9.0	9.0	8.5	8.5	9.0	8.8
810811	12	8.5	8.5	8.5	8.5	8.5	8.5	9.0	9.0	8.5	8.5	8.5	8.5	8.5	9.0	8.6
810812	12	8.5	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.5	8.1
810813	12	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.1
810814	12	8.0	8.0	7.5	7.5	7.5	7.5	8.0	8.0	8.0	8.0	7.5	7.5	7.5	8.0	7.8
810815	12	7.5	7.5	7.0	7.0	7.0	7.0	7.0	7.0	7.5	7.5	7.5	7.0	7.0	7.5	7.3
810816	12	7.0	7.0	6.5	6.5	6.5	6.5	7.0	7.0	7.0	7.0	7.0	7.0	6.5	7.0	6.9
810817	12	7.0	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	7.0	6.6
810818	12	6.5	6.5	6.5	6.5	6.5	7.0	7.0	7.5	7.5	7.5	7.5	7.0	6.5	7.5	7.0
810819	12	7.0	7.0	7.0	7.0	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.0	7.5	7.4
810820	12	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.6
810821	12	7.5	7.0	7.0	7.0	7.0	7.5	8.0	8.5	8.5	8.5	8.5	8.0	7.0	8.5	7.8
810822	12	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	7.5	7.5	8.0	8.0

VALUES= -.0 INDICATE MISSING DATA

TABLE 7. DAILY THERMOGRAPH STATISTICS, LOWER SUSITNA RIVER, 1981.

ABOVE L. WILLOW - 50.5

DATE	# OBS.	0200	0400	0600	0800	1000	1200	1400	1600	1800	2000	2200	2400	MIN. TEMP.	MAX. TEMP.	MEAN TEMP.
		TEMPERATURE AT TIME														
810823	12	7.5	7.5	7.5	7.5	7.5	8.0	8.5	8.5	8.5	8.5	8.5	8.5	7.5	8.5	8.1
810824	12	8.0	8.0	8.0	7.5	8.0	8.0	8.5	8.5	8.5	8.5	8.5	8.5	7.5	8.5	8.3
810825	12	8.5	8.0	8.0	8.0	8.5	8.5	9.0	9.0	9.0	9.0	9.0	9.0	8.0	9.0	8.7
810826	12	9.0	8.5	8.5	8.5	8.5	9.0	9.5	10.0	10.0	10.0	10.0	10.0	8.5	10.0	9.3
810827	12	10.0	9.5	9.5	9.5	9.5	10.0	10.5	11.0	11.0	11.0	11.0	10.5	9.5	11.0	10.3
810828	12	10.5	10.0	10.0	10.0	10.0	10.0	10.0	10.5	10.5	10.5	10.5	10.0	10.0	10.5	10.3
810829	12	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	9.5	9.5	10.0	10.0
810830	11	9.5	9.5	9.0	9.0	9.0	-.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.5	9.1
810831	12	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.1
810901	12	9.0	9.0	8.5	8.5	8.5	9.0	9.0	9.0	9.0	9.0	9.0	8.5	8.5	9.0	8.9
810902	12	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.1
810903	12	7.5	7.0	7.0	7.0	7.0	7.0	7.5	8.0	8.0	8.0	8.0	8.0	7.0	8.0	7.6
810904	12	7.5	7.5	7.5	7.5	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	7.5	8.0	7.9
810905	12	7.5	7.5	7.5	7.5	8.0	8.0	8.5	9.0	8.5	8.5	8.0	7.5	7.5	9.0	8.1
810906	2	7.5	7.5	-.0	-.0	-.0	-.0	-.0	-.0	-.0	-.0	-.0	-.0	7.5	7.5	7.6

VALUES= -.0 INDICATE MISSING DATA

TABLE 7. DAILY THERMOGRAPH STATISTICS, LOWER SUSITNA RIVER, 1981.

ABOVE L. WILLOW - 50.5

DATE	# OBS.	TEMPERATURE AT TIME 0200	0400	0600	0800	1000	1200	1400	1600	1800	2000	2200	2400	MIN. TEMP.	MAX. TEMP.	MEAN TEMP.
810907	4	-.0	-.0	-.0	-.0	-.0	-.0	-.0	-.0	8.0	8.0	7.5	7.0	7.0	8.0	7.7
810908	12	7.0	7.0	7.0	7.0	7.0	7.5	8.0	8.0	8.0	8.0	7.5	7.0	7.0	8.0	7.5
810909	4	7.0	7.0	7.0	6.5	-.0	-.0	-.0	-.0	-.0	-.0	-.0	-.0	6.5	7.0	6.9
810915	12	5.0	5.0	5.0	5.5	7.0	6.5	6.5	7.0	6.5	6.0	6.0	6.0	5.0	7.0	6.1
810916	12	6.0	5.5	5.5	5.5	5.5	6.0	6.0	6.0	6.0	6.0	6.0	6.0	5.5	6.0	5.9
810917	12	6.0	6.0	5.5	5.5	6.0	6.5	7.0	7.0	7.0	7.0	7.0	7.0	5.5	7.0	6.5
810918	12	6.5	6.5	6.5	6.5	6.5	7.0	7.0	7.0	7.0	7.0	7.0	6.5	6.5	7.0	6.8
810919	12	6.5	6.0	6.0	6.0	6.0	6.5	6.5	7.0	7.0	6.5	6.5	6.5	6.0	7.0	6.5
810920	12	6.5	6.0	6.0	6.0	6.0	6.0	6.0	6.5	7.0	7.0	7.0	6.5	6.0	7.0	6.4
810921	12	6.5	6.0	6.0	6.0	6.0	6.0	6.0	6.5	6.5	6.5	6.0	6.0	6.0	6.5	6.2
810922	12	6.0	5.5	5.0	5.0	5.0	5.0	5.0	6.0	6.0	5.5	5.5	5.0	5.0	6.0	5.4
810923	12	5.0	4.5	4.5	4.0	4.5	4.5	5.0	5.0	5.0	5.0	5.0	5.0	4.0	5.0	4.8
810924	12	5.0	4.5	4.5	4.5	4.5	4.5	5.0	5.0	5.0	4.5	4.0	4.0	4.0	5.0	4.6
810925	12	3.5	3.5	3.0	3.0	3.0	3.5	3.5	4.0	3.5	3.5	3.0	3.0	3.0	4.0	3.4
810926	12	2.5	2.5	2.0	2.0	2.0	2.5	3.0	3.0	3.0	2.5	2.5	2.5	2.0	3.0	2.5

VALUES= -.0 INDICATE MISSING DATA

TABLE 7. DAILY THERMOGRAPH STATISTICS, LOWER SUSITNA RIVER, 1981.

ABOVE L. WILLOW - 50.5

		TEMPERATURE AT TIME												MIN.	MAX.	MEAN
DATE	# OBS.	0200	0400	0600	0800	1000	1200	1400	1600	1800	2000	2200	2400	TEMP.	TEMP.	TEMP.
810927	12	2.5	2.5	2.0	2.0	2.5	2.5	3.0	3.0	3.0	3.0	2.5	2.5	2.0	3.0	2.6
810928	12	2.5	2.0	2.0	2.0	2.0	2.0	2.5	2.5	3.0	3.0	2.0	2.0	2.0	3.0	2.3
810929	4	1.5	1.0	1.0	1.5	-.0	-.0	-.0	-.0	-.0	-.0	-.0	-.0	1.0	1.5	1.3

VALUES= -.0 INDICATE MISSING DATA

TABLE 8. DAILY THERMOGRAPH STATISTICS, LOWER SUSITNA RIVER, 1981.

ABOVE KASHWITNA - 61.2

DATE	# OBS.	0200	0400	0600	0800	1000	1200	1400	1600	1800	2000	2200	2400	MIN. TEMP.	MAX. TEMP.	MEAN TEMP.
		TEMPERATURE AT TIME														
810830	6	-.0	-.0	-.0	-.0	-.0	-.0	9.5	9.5	9.5	9.5	9.5	9.0	9.0	9.5	9.5
810831	12	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.5	9.5	9.5	9.5	9.0	9.0	9.5	9.2
810901	12	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.5	9.5	9.5	9.0	9.0	9.0	9.5	9.2
810902	12	8.5	8.5	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	7.5	7.5	7.5	8.5	8.1
810903	12	7.5	7.0	7.0	7.0	7.0	7.5	8.0	8.0	8.0	8.0	8.0	8.0	7.0	8.0	7.6
810904	12	8.0	8.0	8.0	7.5	7.5	7.5	8.0	8.0	8.0	8.0	8.0	8.0	7.5	8.0	7.9
810905	12	8.0	7.5	7.5	7.5	7.5	7.5	8.0	8.0	8.0	8.0	8.0	8.0	7.5	8.0	7.8
810906	12	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	7.5	7.5	8.0	8.0
810907	12	7.5	7.5	7.5	7.0	7.0	7.0	7.5	8.0	8.0	8.0	7.5	7.5	7.0	8.0	7.6
810908	12	7.5	7.0	7.0	7.0	7.0	7.5	8.0	8.0	8.0	8.0	8.0	7.5	7.0	8.0	7.6
810909	12	7.5	7.5	7.0	7.0	7.0	7.0	7.0	7.5	7.5	7.0	7.0	7.0	7.0	7.5	7.2
810910	12	7.0	7.0	6.5	6.5	6.5	7.0	7.5	8.0	8.0	7.5	7.5	7.5	6.5	8.0	7.3
810911	12	7.5	7.0	7.0	7.0	7.0	7.0	7.5	7.5	7.5	7.5	7.5	7.5	7.0	7.5	7.3
810912	11	7.0	7.0	7.0	6.5	6.5	7.0	7.0	7.5	-.0	7.5	7.5	7.0	6.5	7.5	7.1
810913	12	7.0	7.0	6.5	6.5	6.5	6.5	7.5	7.5	7.5	7.0	7.0	6.5	6.5	7.5	7.0

VALUES= -.0 INDICATE MISSING DATA

TABLE 8. DAILY THERMOGRAPH STATISTICS, LOWER SUSITNA RIVER, 1981.

ABOVE KASHWITNA - 61.2

DATE	# OBS.	TEMPERATURE AT TIME 0200	0400	0600	0800	1000	1200	1400	1600	1800	2000	2200	2400	MIN. TEMP.	MAX. TEMP.	MEAN TEMP.
810914	12	6.5	6.5	6.0	6.0	6.0	6.0	6.0	6.5	6.5	6.5	6.5	6.0	6.0	6.5	6.3
810915	12	6.0	6.0	6.0	6.0	6.0	6.0	6.5	6.5	6.5	6.0	6.0	6.0	6.0	6.5	6.2
810916	12	6.0	6.0	5.5	5.5	5.5	5.5	6.0	6.0	6.0	6.0	6.0	6.0	5.5	6.0	5.9
810917	12	6.0	6.0	6.0	6.0	6.0	6.5	7.0	7.5	7.5	7.5	7.0	7.0	6.0	7.5	6.7
810918	12	7.0	6.5	6.5	6.5	6.5	6.5	6.5	7.0	7.0	6.5	6.5	6.5	6.5	7.0	6.7
810919	12	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.6
810920	12	6.0	6.0	5.5	5.5	5.5	6.0	6.5	7.0	7.0	6.5	6.5	6.5	5.5	7.0	6.3
810921	12	6.5	6.0	6.0	6.0	6.0	6.0	6.0	6.5	6.5	6.0	6.0	5.5	5.5	6.5	6.1
810922	12	5.5	5.5	5.0	5.0	5.0	5.0	5.0	5.5	5.5	5.5	5.0	5.0	5.0	5.5	5.3
810923	12	4.5	4.5	4.5	4.5	4.0	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.0	4.5	4.5
810924	12	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.0	4.0	4.0	4.5	4.5
810925	12	3.5	3.0	3.0	3.0	3.0	3.0	3.0	3.5	3.5	3.0	3.0	2.5	2.5	3.5	3.1
810926	12	2.5	2.0	2.0	2.0	2.0	2.0	2.5	3.0	3.0	3.0	2.5	2.0	2.0	3.0	2.4
810927	4	2.0	2.0	1.5	4.0	-.0	-.0	-.0	-.0	-.0	-.0	-.0	-.0	1.5	4.0	2.4

VALUES= -.0 INDICATE MISSING DATA

TABLE 9. DAILY THERMOGRAPH STATISTICS, LOWER SUSITNA RIVER, 1981.

MONTANA CR. - 76.0

DATE	# OBS.	TEMPERATURE AT TIME 0200	0400	0600	0800	1000	1200	1400	1600	1800	2000	2200	2400	MIN. TEMP.	MAX. TEMP.	MEAN TEMP.
810612	6	-.0	-.0	-.0	-.0	-.0	-.0	11.5	12.5	13.0	12.5	11.5	10.5	10.5	13.0	12.0
810613	12	10.0	9.5	9.0	8.5	9.5	10.5	12.0	13.0	13.0	12.5	11.5	11.0	8.5	13.0	10.9
810614	12	10.0	9.5	9.0	9.0	9.5	10.5	12.0	13.0	13.5	13.5	12.5	11.5	9.0	13.5	11.2
810615	12	11.0	10.5	10.0	10.0	10.0	11.5	11.5	12.0	12.0	12.0	11.5	11.0	10.0	12.0	11.1
810616	12	10.5	10.0	9.5	9.5	10.5	11.5	12.5	14.0	14.0	13.5	13.0	12.0	9.5	14.0	11.8
810617	12	11.0	10.5	10.0	10.0	10.5	12.0	13.5	13.5	13.5	13.0	12.5	12.0	10.0	13.5	11.9
810618	12	11.5	10.5	10.5	10.5	11.0	12.0	13.5	14.5	13.5	13.0	12.5	11.5	10.5	14.5	12.1
810619	12	11.0	10.0	9.5	9.5	10.5	12.0	13.5	15.0	15.5	15.0	14.0	13.0	9.5	15.5	12.4
810620	12	12.0	11.0	10.5	10.5	11.5	12.5	14.5	15.5	15.5	14.5	13.5	13.0	10.5	15.5	12.9
810621	12	12.5	12.0	11.5	11.5	11.5	11.0	11.0	11.0	11.5	11.5	11.0	11.0	11.0	12.5	11.5
810622	12	10.5	10.5	10.0	10.0	10.5	11.0	12.5	13.5	13.5	13.0	12.5	12.0	10.0	13.5	11.7
810623	12	11.5	11.0	10.5	10.5	11.0	11.5	13.5	14.5	15.0	14.5	13.5	13.0	10.5	15.0	12.6
810624	12	12.5	11.5	11.0	11.0	11.5	12.5	13.5	14.5	14.5	14.5	13.5	13.0	11.0	14.5	12.8
810625	12	12.0	11.5	11.0	11.0	11.5	12.0	13.5	14.5	15.0	14.5	13.5	13.0	11.0	15.0	12.8
810626	12	12.0	11.5	11.5	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	10.5	10.5	12.0	11.2

VALUES= -.0 INDICATE MISSING DATA

TABLE 9. DAILY THERMOGRAPH STATISTICS, LOWER SUSITNA RIVER, 1981.

MONTANA CR. - 76.0

DATE	# OBS.	0200	0400	0600	0800	1000	1200	1400	1600	1800	2000	2200	2400	MIN. TEMP.	MAX. TEMP.	MEAN TEMP.
		TEMPERATURE AT TIME														
810627	12	10.0	10.0	9.5	9.5	9.5	9.5	10.0	10.0	10.0	10.0	9.5	9.5	9.5	10.0	9.8
810628	12	9.0	9.0	8.5	8.5	8.5	8.5	9.0	9.5	9.5	9.5	9.5	9.5	8.5	9.5	9.1
810629	12	8.5	8.5	8.0	8.0	8.0	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.0	8.5	8.4
810630	12	8.0	8.0	7.5	7.0	7.0	7.5	8.5	8.5	8.5	8.5	8.5	8.5	7.0	8.5	8.1
810701	12	8.0	8.0	7.5	7.5	8.0	8.5	9.5	10.0	10.0	10.0	9.5	9.5	7.5	10.0	8.9
810702	12	9.0	8.5	8.5	8.0	8.5	8.5	9.5	10.0	10.5	10.5	10.5	9.5	8.0	10.5	9.3
810703	12	9.5	8.5	8.5	8.5	8.5	9.5	10.5	11.5	12.0	12.0	11.0	10.5	8.5	12.0	10.1
810704	12	10.0	9.5	9.0	9.0	9.5	10.5	12.0	12.0	12.5	12.0	11.5	11.0	9.0	12.5	10.8
810705	12	10.5	10.5	10.0	10.0	10.5	11.5	12.0	12.5	12.5	12.0	11.5	11.5	10.0	12.5	11.3
810706	12	11.0	10.5	10.5	10.5	10.5	10.5	11.5	13.0	13.0	12.5	12.0	11.5	10.5	13.0	11.5
810707	12	11.0	10.5	10.5	10.5	10.5	10.5	10.5	11.5	11.5	11.5	11.0	10.5	10.5	11.5	10.9
810708	12	10.5	10.0	10.0	10.0	10.0	10.5	11.0	11.0	11.0	11.0	11.0	10.5	10.0	11.0	10.6
810709	12	10.5	10.5	10.0	10.0	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.0	10.5	10.5
810710	12	10.0	10.0	10.0	10.0	10.0	9.5	9.5	9.5	9.0	9.0	8.5	8.5	8.5	10.0	9.5
810711	12	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.6

VALUES= -.0 INDICATE MISSING DATA

TABLE 9. DAILY THERMOGRAPH STATISTICS, LOWER SUSITNA RIVER, 1981.

MONTANA CR. - 76.0

DATE	# OBS.	TEMPERATURE AT TIME 0200	0400	0600	0800	1000	1200	1400	1600	1800	2000	2200	2400	MIN. TEMP.	MAX. TEMP.	MEAN TEMP.
810712	12	8.5	8.5	8.5	8.5	8.5	8.5	9.0	9.0	9.0	9.0	9.0	9.0	8.5	9.0	8.8
810713	12	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.5	9.5	9.5	9.5	9.0	9.5	9.2
810714	12	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.6
810715	12	9.5	9.5	9.5	9.5	9.5	9.5	9.5	10.0	10.0	10.0	10.0	10.0	9.5	10.0	9.8
810716	12	10.0	10.0	10.0	9.5	9.5	10.0	10.0	10.5	10.5	10.5	10.5	10.5	9.5	10.5	10.2
810717	12	10.5	10.5	10.0	10.0	10.0	10.5	10.5	11.5	12.0	12.0	11.5	11.5	10.0	12.0	10.9
810718	12	11.0	10.5	10.5	10.5	10.5	10.5	11.0	11.0	11.0	11.0	11.0	10.5	10.5	11.0	10.8
810719	12	10.5	10.5	10.0	10.0	10.0	10.0	10.5	10.5	10.5	10.5	10.5	10.5	10.0	10.5	10.4
810720	12	10.5	10.5	10.0	10.0	10.0	10.0	10.0	10.5	10.5	10.5	10.5	10.5	10.0	10.5	10.3
810721	12	10.0	10.0	10.0	10.0	10.0	10.0	10.5	10.5	11.0	11.0	11.0	11.0	10.0	11.0	10.5
810722	12	10.5	10.5	10.5	10.5	10.5	10.5	11.0	11.5	11.5	11.5	11.5	11.0	10.5	11.5	11.0
810723	12	11.0	10.5	10.5	10.5	10.5	10.5	11.0	11.0	11.0	11.5	11.0	11.0	10.5	11.5	10.9
810724	9	11.0	10.5	10.5	10.5	10.5	10.5	11.5	11.5	11.5	-.0	-.0	-.0	10.5	11.5	10.9
810930	6	-.0	-.0	-.0	-.0	-.0	-.0	4.0	4.0	4.0	3.5	3.0	3.0	3.0	4.0	3.6
811001	12	2.5	2.5	2.0	2.0	2.0	2.5	3.0	3.5	3.5	3.0	2.5	2.0	2.0	3.5	2.6

VALUES= -.0 INDICATE MISSING DATA

TABLE 9. DAILY THERMOGRAPH STATISTICS, LOWER SUSITNA RIVER, 1981.

MONTANA CR. - 76.0

DATE	# OBS.	TEMPERATURE AT TIME 0200	0400	0600	0800	1000	1200	1400	1600	1800	2000	2200	2400	MIN. TEMP.	MAX. TEMP.	MEAN TEMP.
811002	12	2.0	1.5	1.0	1.0	1.0	1.5	2.0	3.0	3.0	2.0	1.5	1.5	1.0	3.0	1.8
811003	12	1.5	1.5	1.5	1.5	1.5	2.0	2.5	2.5	2.5	2.5	2.5	2.5	1.5	2.5	2.1
811004	12	2.5	2.5	2.0	2.0	2.0	2.0	2.0	2.0	2.5	2.5	2.5	2.0	2.0	2.5	2.3
811005	12	2.0	2.0	2.0	2.0	2.0	2.5	2.5	3.0	3.0	3.0	2.5	2.5	2.0	3.0	2.5
811006	12	2.5	2.5	2.0	2.0	2.0	2.0	3.0	3.0	3.0	2.5	2.5	2.0	2.0	3.0	2.5
811007	12	2.0	1.5	1.0	1.0	1.0	1.5	2.0	2.0	2.0	2.0	1.5	1.0	1.0	2.0	1.6
811008	12	1.0	.5	.5	0.0	.5	.5	1.5	2.0	2.0	1.5	1.0	1.0	0.0	2.0	1.0
811009	12	.5	.5	0.0	.5	.5	1.0	1.5	1.5	1.5	1.5	1.5	1.5	0.0	1.5	1.0
811010	12	1.5	1.5	1.5	1.5	1.5	1.5	2.5	2.5	2.5	2.0	2.0	2.0	1.5	2.5	1.9
811011	12	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
811012	12	2.0	2.0	2.0	2.0	2.0	2.0	2.5	2.5	2.5	2.5	2.5	2.5	2.0	2.5	2.3
811013	6	2.5	2.5	2.5	2.5	2.5	2.5	-.0	-.0	-.0	-.0	-.0	-.0	2.5	2.5	2.5

VALUES= -.0 INDICATE MISSING DATA

TABLE 10. DAILY THERMOGRAPH STATISTICS, LOWER SUSITNA RIVER, 1981.

ABOVE MONT. CR. - 77.5

		TEMPERATURE AT TIME												MIN.	MAX.	MEAN
DATE	# OBS.	0200	0400	0600	0800	1000	1200	1400	1600	1800	2000	2200	2400	TEMP.	TEMP.	TEMP.
810612	7	-.0	-.0	-.0	-.0	-.0	11.0	11.0	11.5	12.0	12.0	12.0	11.5	11.0	12.0	11.6
810613	12	11.5	11.5	11.0	11.0	11.0	11.5	12.0	12.0	12.5	12.5	12.5	12.0	11.0	12.5	11.8
810614	12	12.0	11.5	11.5	11.0	11.0	11.5	12.0	12.5	13.0	13.0	13.0	12.5	11.0	13.0	12.1
810615	12	12.5	11.0	11.0	11.0	11.5	12.0	12.0	12.0	12.0	12.0	12.0	12.0	11.0	12.5	11.8
810616	12	11.5	11.5	11.0	11.0	11.0	11.5	13.0	13.0	13.0	13.0	13.0	13.0	11.0	13.0	12.2
810617	12	13.0	12.5	12.5	12.0	12.0	12.5	13.0	13.0	13.0	13.0	13.0	12.5	12.0	13.0	12.7
810618	12	12.5	12.5	12.0	12.0	12.0	12.5	13.0	13.5	13.5	13.0	13.0	12.5	12.0	13.5	12.7
810619	12	12.5	12.5	12.0	12.0	12.0	12.0	12.5	13.0	13.0	13.0	13.0	13.0	12.0	13.0	12.6
810620	12	13.0	12.5	12.0	12.0	12.0	12.5	12.5	13.0	13.0	13.0	13.0	12.5	12.0	13.0	12.6
810621	12	12.5	12.0	12.0	11.5	11.5	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	12.5	11.4
810622	12	10.5	10.5	10.0	10.0	10.0	10.5	10.5	11.0	11.5	12.0	12.0	12.0	10.0	12.0	10.9
810623	12	11.5	11.5	11.5	11.0	11.0	11.5	12.0	12.0	12.5	12.5	12.5	12.5	11.0	12.5	11.9
810624	12	12.5	12.5	12.0	12.0	11.5	12.0	12.0	12.5	13.0	13.0	13.0	12.5	11.5	13.0	12.4
810625	12	12.5	12.5	12.0	12.0	12.0	12.0	12.5	12.5	13.0	13.0	13.0	13.0	12.0	13.0	12.6
810626	12	12.5	12.0	12.0	11.5	11.5	11.5	11.0	11.0	11.0	11.0	10.5	10.0	10.0	12.5	11.3

VALUES= -.0 INDICATE MISSING DATA

TABLE 10. DAILY THERMOGRAPH STATISTICS, LOWER SUSITNA RIVER, 1981.

ABOVE MONT. CR. - 77.5

DATE	# OBS.	0200	0400	0600	0800	1000	1200	1400	1600	1800	2000	2200	2400	MIN. TEMP.	MAX. TEMP.	MEAN TEMP.
		TEMPERATURE AT TIME														
810627	12	10.0	9.5	9.5	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	8.5	8.5	10.0	9.2
810628	12	8.5	8.5	8.0	8.0	8.0	8.0	8.0	8.5	9.0	9.0	9.0	8.5	8.0	9.0	8.5
810629	12	8.5	8.5	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.5	8.1
810630	12	7.5	7.5	7.0	7.0	7.0	7.5	8.0	8.0	8.0	8.0	8.0	8.0	7.0	8.0	7.7
810701	12	8.0	8.0	7.5	7.5	7.5	8.0	9.0	9.0	9.0	9.0	9.0	9.0	7.5	9.0	8.4
810702	12	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.5	9.5	9.5	9.5	9.5	9.0	9.5	9.3
810703	4	9.0	9.0	9.0	9.0	-.0	-.0	-.0	-.0	-.0	-.0	-.0	-.0	9.0	9.0	9.1
810830	6	-.0	-.0	-.0	-.0	-.0	-.0	10.5	10.5	10.5	10.5	10.5	10.0	10.0	10.5	10.5
810831	12	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.1
810901	12	10.0	10.0	9.5	9.5	9.5	9.5	9.5	10.0	10.0	10.0	9.5	9.5	9.5	10.0	9.8
810902	12	9.5	9.0	9.0	9.0	9.0	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	9.5	8.8
810903	12	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.1
810904	12	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.1
810905	12	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.1
810906	12	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.1

VALUES= -.0 INDICATE MISSING DATA

TABLE 10. DAILY THERMOGRAPH STATISTICS, LOWER SUSITNA RIVER, 1981.

ABOVE MONT. CR. - 77.5

DATE	# OBS.	TEMPERATURE AT TIME 0200	0400	0600	0800	1000	1200	1400	1600	1800	2000	2200	2400	MIN. TEMP.	MAX. TEMP.	MEAN TEMP.
810907	12	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.1
810908	12	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.1
810909	12	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.1
810910	12	8.0	8.0	8.0	8.0	8.0	8.0	9.0	9.5	10.0	10.5	10.5	10.5	8.0	10.5	9.1
810911	12	10.5	10.0	10.0	10.0	9.5	9.5	10.0	10.0	11.0	11.0	11.0	10.0	9.5	11.0	10.3
810912	12	10.5	10.0	10.0	9.5	9.0	9.0	9.0	9.5	10.0	10.0	10.0	10.0	9.0	10.5	9.8
810913	12	9.5	9.5	9.0	9.0	8.5	8.5	9.0	10.0	10.5	10.5	10.5	10.5	8.5	10.5	9.6
810914	12	10.0	9.5	9.0	8.5	8.5	8.5	8.5	8.0	9.5	10.0	10.0	10.0	8.0	10.0	9.2
810915	12	9.5	9.5	9.0	9.0	8.5	8.5	9.0	9.0	9.0	9.5	9.5	9.5	8.5	9.5	9.2
810916	12	9.0	9.0	9.0	8.5	8.5	8.5	8.5	9.0	9.0	9.0	9.0	9.0	8.5	9.0	8.9
810917	12	9.0	9.0	8.5	8.5	8.5	8.5	9.0	9.5	10.0	11.0	11.0	10.5	8.5	11.0	9.5
810918	12	10.0	10.0	9.5	9.5	9.0	9.0	9.0	9.5	9.5	9.5	9.5	9.5	9.0	10.0	9.5
810919	12	9.5	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.5	9.1
810920	12	9.0	9.0	8.5	8.0	8.0	8.0	8.5	9.0	10.0	10.0	10.0	9.5	8.0	10.0	9.0
810921	12	9.5	9.0	8.5	8.5	8.0	8.0	8.5	9.0	9.0	9.5	9.0	9.0	8.0	9.5	8.8

VALUES= -.0 INDICATE MISSING DATA

TABLE 10. DAILY THERMOGRAPH STATISTICS, LOWER SUSITNA RIVER, 1981.

ABOVE MONT. CR. - 77.5

DATE	# OBS.	0200	0400	0600	0800	1000	1200	1400	1600	1800	2000	2200	2400	MIN. TEMP.	MAX. TEMP.	MEAN TEMP.
		TEMPERATURE AT TIME														
810922	12	9.0	8.0	8.0	7.5	7.0	6.5	7.0	8.0	9.0	9.5	9.5	9.0	6.5	9.5	8.2
810923	12	8.5	8.0	7.5	7.0	7.0	6.5	7.0	7.5	7.5	7.5	7.5	7.0	6.5	8.5	7.4
810924	12	7.0	7.0	6.5	6.5	6.5	6.5	6.5	6.5	7.0	7.0	7.0	7.0	6.5	7.0	6.8
810925	12	6.5	6.0	6.0	5.5	5.0	5.0	5.5	6.0	7.0	7.5	7.5	7.0	5.0	7.5	6.3
810926	12	6.5	6.0	5.5	5.0	4.5	4.5	4.5	5.5	7.0	7.5	7.0	5.5	4.5	7.5	5.8
810927	12	6.0	5.5	5.0	4.5	4.5	4.5	5.0	5.5	6.0	6.0	6.0	5.5	4.5	6.0	5.4
810928	12	5.0	4.5	4.0	4.0	4.0	4.0	4.0	5.0	6.0	6.5	6.0	5.5	4.0	6.5	4.9
810929	12	5.0	4.5	4.0	4.0	4.0	3.5	3.5	4.0	4.0	5.5	5.5	5.0	3.5	5.5	4.4
810930	12	5.0	4.5	4.0	4.0	4.0	3.5	4.0	5.0	6.0	6.5	6.0	6.0	3.5	6.5	4.9
811001	12	5.5	5.0	4.5	4.0	4.0	4.0	4.0	5.0	6.0	6.5	6.0	5.5	4.0	6.5	5.1
811002	12	5.0	4.5	4.0	4.0	4.0	3.5	3.5	4.0	5.0	5.5	5.5	5.0	3.5	5.5	4.5
811003	12	4.5	4.5	4.0	4.0	3.5	3.5	3.5	4.0	4.0	4.0	4.0	4.0	3.5	4.5	4.0
811004	12	4.0	4.0	4.0	3.5	3.5	3.5	3.5	3.0	3.0	3.0	3.0	3.0	3.0	4.0	3.5
811005	12	3.0	3.0	3.0	3.0	3.0	3.0	3.0	4.0	4.5	5.0	5.0	4.5	3.0	5.0	3.7
811006	12	4.0	4.0	4.0	3.5	3.5	3.5	3.5	5.0	5.0	5.0	5.0	4.5	3.5	5.0	4.3

TABLE 10. DAILY THERMOGRAPH STATISTICS, LOWER SUSITNA RIVER, 1981.

ABOVE MONT. CR. - 77.5

DATE	# OBS.	TEMPERATURE AT TIME 0200	0400	0600	0800	1000	1200	1400	1600	1800	2000	2200	2400	MIN. TEMP.	MAX. TEMP.	MEAN TEMP.
811007	12	4.0	4.0	3.5	3.5	3.0	3.0	3.0	3.5	4.5	5.0	4.5	4.0	3.0	5.0	3.8
811008	12	4.0	3.5	3.5	3.0	3.0	3.0	3.0	3.0	3.5	4.0	4.0	3.5	3.0	4.0	3.5
811009	12	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
811010	12	3.0	3.0	3.0	3.0	3.0	3.0	3.0	4.0	4.5	4.5	4.5	4.5	3.0	4.5	3.6
811011	12	4.5	4.0	4.0	4.0	3.5	3.5	3.5	4.0	4.0	4.0	4.0	4.0	3.5	4.5	4.0
811012	12	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.5	4.5	4.5	4.5	4.0	4.5	4.2
811013	5	4.5	4.5	4.5	4.5	4.5	-.0	-.0	-.0	-.0	-.0	-.0	-.0	4.5	4.5	4.6

VALUES= -.0 INDICATE MISSING DATA

TABLE 11. DAILY THERMOGRAPH STATISTICS, LOWER SUSITNA RIVER, 1981.

SUNSHINE - 83.8

DATE	# OBS.	TEMPERATURE AT TIME 0200	0400	0600	0800	1000	1200	1400	1600	1800	2000	2200	2400	MIN. TEMP.	MAX. TEMP.	MEAN TEMP.
810611	4	-.0	-.0	-.0	-.0	-.0	-.0	-.0	-.0	10.5	10.5	10.5	10.5	10.5	10.5	10.6
810612	12	10.0	9.5	9.0	9.0	9.5	10.5	11.0	11.5	12.0	11.5	11.5	11.0	9.0	12.0	10.6
810613	12	11.0	10.5	10.5	10.5	10.5	11.5	12.0	12.5	12.5	12.0	12.0	11.5	10.5	12.5	11.5
810614	12	11.5	11.0	10.5	10.5	11.0	11.5	12.5	13.0	13.0	12.5	12.5	12.0	10.5	13.0	11.8
810615	7	11.5	11.5	11.5	11.0	11.5	11.5	12.0	-.0	-.0	-.0	-.0	-.0	11.0	12.0	11.6
810616	12	12.0	12.0	11.5	11.5	11.5	12.0	13.0	13.5	13.5	13.5	13.5	13.5	11.5	13.5	12.6
810617	12	13.0	13.0	12.5	12.5	12.5	12.5	13.5	13.5	13.5	13.5	13.5	13.0	12.5	13.5	13.1
810618	12	13.0	12.5	12.5	12.5	12.5	13.0	13.5	14.0	14.0	13.5	13.5	13.5	12.5	14.0	13.2
810619	12	13.0	12.5	12.5	12.5	12.5	12.5	13.0	13.5	14.0	14.0	14.0	13.5	12.5	14.0	13.2
810620	12	13.5	13.0	12.5	12.5	12.5	13.0	13.5	14.0	14.0	14.0	13.5	13.5	12.5	14.0	13.3
810621	12	13.0	13.0	12.5	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	11.5	11.5	13.0	12.2
810622	12	11.0	11.0	10.5	10.5	10.5	11.0	11.5	12.0	12.5	12.5	12.5	12.5	10.5	12.5	11.6
810623	12	12.5	12.0	12.0	11.5	12.0	12.0	12.5	13.5	13.5	13.5	13.5	13.5	11.5	13.5	12.7
810624	12	13.0	13.0	12.5	12.5	12.5	12.5	13.0	13.5	13.5	13.5	13.5	13.5	12.5	13.5	13.1
810625	12	13.0	12.5	12.5	12.5	12.5	12.5	13.0	13.5	13.5	13.5	13.5	13.0	12.5	13.5	13.0

VALUES= -.0 INDICATE MISSING DATA

TABLE 11. DAILY THERMOGRAPH STATISTICS, LOWER SUSITNA RIVER, 1981.

SUNSHINE - 83.8

DATE	# OBS.	TEMPERATURE AT TIME 0200	0400	0600	0800	1000	1200	1400	1600	1800	2000	2200	2400	MIN. TEMP.	MAX. TEMP.	MEAN TEMP.
810626	12	13.0	12.5	12.5	12.0	12.0	12.0	12.0	11.5	11.5	11.5	11.0	11.0	11.0	13.0	11.9
810627	12	10.5	10.0	10.0	10.0	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	10.5	9.8
810628	12	9.0	9.0	9.0	8.5	8.5	8.5	8.5	9.0	9.0	9.0	9.0	10.0	8.5	10.0	9.0
810629	12	8.5	8.5	8.0	8.0	8.0	8.0	8.5	8.5	8.5	8.5	8.5	8.0	8.0	8.5	8.3
810630	12	8.0	7.5	7.5	7.5	7.5	8.0	8.0	8.0	8.5	8.5	8.5	8.5	7.5	8.5	8.1
810701	12	8.5	8.0	8.0	8.0	8.0	8.5	9.0	9.5	9.5	9.5	9.5	9.5	8.0	9.5	8.8
810702	12	9.5	9.5	9.0	9.0	9.0	9.5	9.5	10.0	10.0	10.0	10.0	10.0	9.0	10.0	9.6
810703	12	9.5	9.5	9.0	9.0	9.5	10.0	10.5	10.5	11.0	11.0	11.0	11.0	9.0	11.0	10.2
810704	12	10.5	10.0	10.0	10.0	10.0	10.5	11.0	11.5	11.5	11.5	11.5	11.5	10.0	11.5	10.8
810705	12	11.0	11.0	10.5	10.5	10.5	11.0	11.0	11.5	11.5	11.5	11.5	11.0	10.5	11.5	11.1
810706	11	11.0	10.5	10.5	10.5	10.5	10.5	-.0	12.0	12.0	12.0	12.0	11.5	10.5	12.0	11.2
810707	12	11.5	11.0	11.0	11.0	10.5	10.5	11.0	11.0	11.0	11.0	11.0	11.0	10.5	11.5	11.0
810708	12	10.5	10.5	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	9.5	9.5	10.5	10.1
810709	12	9.5	9.5	9.5	9.0	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.0	9.5	9.5
810710	12	9.5	9.5	9.5	9.5	9.5	9.5	9.0	9.0	9.0	9.0	8.5	8.5	8.5	9.5	9.2

VALUES= -.0 INDICATE MISSING DATA

TABLE 11. DAILY THERMOGRAPH STATISTICS, LOWER SUSITNA RIVER, 1981.

SUNSHINE - 83.8

DATE	# OBS.	TEMPERATURE AT TIME 0200	0400	0600	0800	1000	1200	1400	1600	1800	2000	2200	2400	MIN. TEMP.	MAX. TEMP.	MEAN TEMP.
810711	9	8.5	8.5	8.5	-.0	-.0	-.0	10.0	10.0	10.0	10.0	10.0	10.0	8.5	10.0	9.6
810712	12	10.0	10.0	10.0	10.0	10.0	10.5	11.0	11.0	11.0	10.5	11.0	11.0	10.0	11.0	10.6
810713	10	11.0	10.5	10.0	10.5	-.0	-.0	11.0	10.5	10.5	10.5	10.5	10.5	10.0	11.0	10.6
810714	2	10.5	10.5	-.0	-.0	-.0	-.0	-.0	-.0	-.0	-.0	-.0	-.0	10.5	10.5	10.6

VALUES= -.0 INDICATE MISSING DATA

TABLE 12. DAILY THERMOGRAPH STATISTICS, LOWER SUSITNA RIVER, 1981.

TALKEETNA R. - 97.0

		TEMPERATURE AT TIME												MIN.	MAX.	MEAN
DATE	# OBS.	0200	0400	0600	0800	1000	1200	1400	1600	1800	2000	2200	2400	TEMP.	TEMP.	TEMP.
810621	6	-.0	-.0	-.0	-.0	-.0	-.0	9.5	9.5	9.5	9.0	9.0	8.5	8.5	9.5	9.2
810622	12	8.5	8.5	8.5	8.5	8.5	8.5	9.5	10.5	11.0	11.0	10.5	10.5	8.5	11.0	9.6
810623	12	10.0	10.0	10.0	10.0	10.0	10.5	10.5	11.0	11.5	11.5	11.0	11.0	10.0	11.5	10.6
810624	12	11.0	11.0	11.0	10.5	10.5	10.5	10.5	11.0	11.5	11.5	11.5	11.5	10.5	11.5	11.1
810625	12	11.5	11.5	11.0	11.0	11.0	11.0	11.0	11.5	11.5	11.5	11.0	11.0	11.0	11.5	11.3
810626	12	11.0	10.5	10.5	10.5	10.5	10.5	9.5	9.0	9.0	8.5	8.5	8.0	8.0	11.0	9.7
810627	12	8.0	8.0	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	8.0	7.6
810628	12	7.5	7.5	7.5	7.5	7.0	7.5	7.5	7.5	8.0	8.0	8.0	8.0	7.0	8.0	7.7
810629	12	8.0	8.0	7.5	7.5	7.5	7.5	7.0	7.0	7.0	7.0	7.0	7.0	7.0	8.0	7.4
810630	12	7.0	6.5	6.5	6.5	6.5	6.5	7.0	7.5	7.5	7.5	7.5	7.0	6.5	7.5	7.0
810701	12	7.0	7.0	6.5	6.5	7.0	7.0	7.5	8.0	8.5	8.5	8.5	8.5	6.5	8.5	7.6
810702	12	8.0	8.0	7.5	7.5	7.5	7.5	8.0	8.5	9.5	9.5	9.5	9.5	7.5	9.5	8.4
810703	12	8.0	8.0	7.5	7.5	7.5	7.5	8.0	8.5	9.5	9.5	9.5	9.5	7.5	9.5	8.4
810704	12	9.0	8.5	8.5	8.0	8.5	9.0	9.5	10.0	10.5	10.5	10.5	10.0	8.0	10.5	9.4
810705	12	9.5	9.5	9.0	9.0	9.0	9.5	10.0	10.0	10.0	10.0	10.0	9.5	9.0	10.0	9.6

VALUES= -.0 INDICATE MISSING DATA

TABLE 12. DAILY THERMOGRAPH STATISTICS, LOWER SUSITNA RIVER, 1981.

TALKEETNA R. - 97.0

DATE	# OBS.	TEMPERATURE AT TIME 0200	0400	0600	0800	1000	1200	1400	1600	1800	2000	2200	2400	MIN. TEMP.	MAX. TEMP.	MEAN TEMP.
810706	12	9.5	9.5	9.0	9.0	9.0	9.5	9.5	10.0	10.0	10.0	10.0	10.0	9.0	10.0	9.6
810707	12	9.5	9.5	9.0	9.0	9.0	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.0	9.5	9.4
810708	12	9.0	9.0	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	9.0	9.0	8.5	9.0	8.7
810709	12	8.5	8.5	9.0	8.5	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	8.5	9.0	8.9
810710	12	9.0	8.5	8.5	8.5	8.5	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	9.0	8.3
810711	12	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	8.0	8.0	7.5	8.0	7.6
810712	12	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.1
810713	12	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.1
810714	12	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.1
810715	12	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.5	8.5	8.5	8.5	8.5	8.0	8.5	8.3
810716	12	8.5	8.5	8.5	8.5	8.5	8.5	9.0	9.0	9.0	9.0	9.0	9.0	8.5	9.0	8.8
810717	12	9.0	9.0	9.0	9.0	8.5	8.5	9.0	9.5	9.5	9.5	9.5	9.5	8.5	9.5	9.2
810718	12	9.5	9.5	9.5	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.5	9.2
810719	12	9.0	9.0	9.0	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	9.0	8.7
810720	12	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.6

VALUES= -.0 INDICATE MISSING DATA

TABLE 12. DAILY THERMOGRAPH STATISTICS, LOWER SUSITNA RIVER, 1981.

TALKEETNA R. - 97.0

DATE	# OBS.	TEMPERATURE AT TIME 0200	0400	0600	0800	1000	1200	1400	1600	1800	2000	2200	2400	MIN. TEMP.	MAX. TEMP.	MEAN TEMP.
810721	12	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	9.0	9.0	9.5	9.5	8.5	9.5	8.8
810722	12	9.5	9.5	9.5	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.5	9.2
810723	12	9.0	9.0	9.0	9.0	8.5	8.5	8.5	8.5	8.5	8.5	8.5	9.0	8.5	9.0	8.8
810724	12	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.5	9.0	9.5	9.1
810725	12	9.5	9.0	9.0	9.0	8.5	8.5	8.5	8.5	9.0	9.0	9.0	9.0	8.5	9.5	8.9
810726	12	9.0	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	9.0	9.0	9.0	8.5	9.0	8.7
810727	12	9.0	8.5	8.5	8.5	8.5	9.0	9.0	9.5	9.5	10.0	10.0	10.0	8.5	10.0	9.2
810728	12	10.0	9.5	9.5	9.0	9.0	9.0	8.5	8.5	8.5	8.5	8.5	8.5	8.5	10.0	9.0
810729	12	9.0	9.0	8.5	8.5	8.5	9.0	9.5	9.5	10.0	10.0	10.0	10.0	8.5	10.0	9.3
810730	12	9.5	9.5	9.5	9.0	9.0	9.0	9.5	9.5	9.5	9.5	9.5	9.5	9.0	9.5	9.4
810731	12	9.0	9.0	9.0	9.0	9.0	9.0	9.5	9.5	9.5	9.5	9.5	9.5	9.0	9.5	9.3
810801	12	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.1
810802	12	9.0	9.0	8.5	8.5	8.5	8.5	8.5	9.0	9.0	9.5	9.0	9.0	8.5	9.5	8.9
810803	12	9.0	9.0	8.5	8.5	8.5	8.5	9.0	9.5	9.5	9.5	9.5	9.5	8.5	9.5	9.1
810804	12	9.5	9.0	8.5	8.5	8.5	8.5	9.0	9.5	9.5	9.5	9.5	9.5	8.5	9.5	9.1

VALUES= -.0 INDICATE MISSING DATA

TABLE 12. DAILY THERMOGRAPH STATISTICS, LOWER SUSITNA RIVER, 1981.

TALKEETNA R. - 97.0

DATE	# OBS.	TEMPERATURE AT TIME 0200	0400	0600	0800	1000	1200	1400	1600	1800	2000	2200	2400	MIN. TEMP.	MAX. TEMP.	MEAN TEMP.
810805	12	9.5	9.5	9.5	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.5	9.0	9.5	9.2
810806	12	9.5	9.5	9.0	9.0	9.0	9.0	9.0	9.0	9.5	9.5	9.5	9.5	9.0	9.5	9.3
810807	12	9.5	9.5	9.5	9.5	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.5	9.2
810808	12	9.0	9.0	9.0	8.5	8.5	9.0	9.0	9.5	9.5	9.5	9.5	9.5	8.5	9.5	9.2
810809	12	9.5	9.5	9.5	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.5	9.2
810810	12	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.1
810811	12	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.1
810812	12	9.0	9.0	8.5	8.5	8.5	8.5	8.5	8.0	8.0	8.0	8.0	8.0	8.0	9.0	8.4
810813	12	8.0	8.0	8.0	7.5	7.5	7.5	7.5	8.0	8.0	8.0	8.0	8.0	7.5	8.0	7.9
810814	12	8.0	8.0	8.0	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	8.0	7.7
810815	12	7.5	7.5	7.5	7.5	7.5	7.5	7.0	7.0	7.0	7.0	6.5	6.5	6.5	7.5	7.2
810816	12	6.5	6.5	6.0	6.0	6.0	6.0	6.5	6.5	6.5	6.5	6.5	6.5	6.0	6.5	6.4
810817	12	6.5	6.6	6.6	5.5	5.5	6.0	6.0	6.5	6.5	6.5	6.5	7.0	5.5	7.0	6.4
810818	12	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.5	7.5	7.5	7.5	7.5	7.0	7.5	7.3
810819	12	7.5	7.5	7.5	7.5	7.5	7.5	7.5	8.0	8.0	8.0	8.0	8.0	7.5	8.0	7.8

VALUES= -.0 INDICATE MISSING DATA

TABLE 12. DAILY THERMOGRAPH STATISTICS, LOWER SUSITNA RIVER, 1981.

TALKEETNA R. - 97.0

DATE	# OBS.	TEMPERATURE AT TIME 0200	0400	0600	0800	1000	1200	1400	1600	1800	2000	2200	2400	MIN. TEMP.	MAX. TEMP.	MEAN TEMP.
810820	12	8.0	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	8.0	7.6
810821	12	7.5	7.5	7.5	7.5	7.5	7.5	8.0	8.0	8.0	8.0	8.0	8.0	7.5	8.0	7.8
810822	12	8.5	8.0	8.0	8.0	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	8.5	7.8
810823	12	7.5	7.5	7.5	7.5	7.5	7.5	8.5	8.5	8.5	8.5	8.5	8.5	7.5	8.5	8.1
810824	12	8.5	8.0	8.0	7.5	7.5	8.0	8.0	8.5	8.5	8.5	8.5	8.5	7.5	8.5	8.2
810825	12	8.5	8.5	8.5	8.5	8.5	9.0	9.0	9.5	9.5	9.5	9.5	9.5	8.5	9.5	9.1
810826	12	9.5	9.5	9.5	9.5	9.5	9.5	10.5	10.5	10.5	10.5	10.5	10.5	9.5	10.5	10.1
810827	12	10.5	10.5	10.0	10.0	10.0	10.0	10.0	10.5	10.5	10.5	10.0	10.0	10.0	10.5	10.3
810828	12	10.0	10.0	10.0	10.0	10.0	9.5	10.0	10.5	10.5	10.5	10.0	10.0	9.5	10.5	10.1
810829	12	10.0	10.0	10.0	10.0	10.0	10.0	9.5	9.5	9.0	9.0	9.0	9.0	9.0	10.0	9.6
810830	12	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.1
810831	12	9.0	9.0	9.0	9.0	8.5	8.5	9.0	9.0	9.5	9.5	9.5	9.0	8.5	9.5	9.1
810901	12	9.0	9.0	9.0	8.5	8.0	8.0	8.0	8.0	8.0	8.0	8.0	7.5	7.5	9.0	8.3
810902	12	8.0	8.0	8.0	8.0	8.0	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	8.0	7.8
810903	12	7.5	7.5	7.5	7.5	7.5	7.5	7.5	8.0	8.5	8.5	8.5	8.5	7.5	8.5	7.9

VALUES= -.0 INDICATE MISSING DATA

TABLE 12. DAILY THERMOGRAPH STATISTICS, LOWER SUSITNA RIVER, 1981.

TALKEETNA R. - 97.0

DATE	# OBS.	TEMPERATURE AT TIME 0200	0400	0600	0800	1000	1200	1400	1600	1800	2000	2200	2400	MIN. TEMP.	MAX. TEMP.	MEAN TEMP.
810904	12	8.5	8.0	8.0	8.0	8.0	8.0	8.0	8.5	8.5	8.5	8.5	8.0	8.0	8.5	8.3
810905	12	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.5	8.5	8.5	8.5	8.0	8.0	8.5	8.2
810906	12	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	7.5	7.5	7.5	8.0	8.0
810907	12	7.0	7.0	7.0	7.0	6.5	7.0	7.0	7.5	8.0	8.0	8.0	7.5	6.5	8.0	7.3
810908	12	7.5	7.0	7.0	7.0	7.0	7.0	7.0	8.0	8.0	8.0	8.0	8.0	7.0	8.0	7.5
810909	12	8.0	7.5	7.0	7.0	7.0	7.0	7.0	7.5	7.5	7.5	7.0	7.0	7.0	8.0	7.3
810910	12	7.0	7.0	7.0	7.0	7.0	7.5	8.0	8.0	8.0	8.0	8.0	8.0	7.0	8.0	7.6
810911	12	8.0	7.5	7.5	7.0	7.5	7.5	7.5	8.0	8.0	7.5	7.5	7.0	7.0	8.0	7.6
810912	12	7.0	7.0	7.0	7.0	7.0	7.0	7.5	8.0	8.0	7.5	7.5	7.0	7.0	8.0	7.3
810913	12	7.0	7.0	7.0	7.0	7.0	7.0	7.5	8.0	8.0	8.0	7.5	7.0	7.0	8.0	7.4
810914	12	6.5	6.0	6.0	6.0	6.0	6.0	6.0	6.5	6.5	6.5	6.5	6.5	6.0	6.5	6.3
810915	12	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.5	6.5	6.5	6.5	6.5	6.0	6.5	6.3
810916	12	6.5	6.5	6.0	6.0	6.0	6.5	7.0	7.0	7.0	7.0	7.0	7.0	6.0	7.0	6.7
810917	12	6.5	6.5	6.5	6.5	6.5	6.5	7.0	7.5	7.5	7.5	7.5	7.0	6.5	7.5	7.0
810918	12	7.0	7.0	7.0	6.5	6.5	7.0	7.5	7.5	7.5	7.0	7.0	7.0	6.5	7.5	7.1

VALUES= -.0 INDICATE MISSING DATA

TABLE 12. DAILY THERMOGRAPH STATISTICS, LOWER SUSITNA RIVER, 1981.

TALKEETNA R. - 97.0

DATE	# OBS.	TEMPERATURE AT TIME 0200	0400	0600	0800	1000	1200	1400	1600	1800	2000	2200	2400	MIN. TEMP.	MAX. TEMP.	MEAN TEMP.
810919	12	6.5	6.5	6.5	6.5	6.5	6.5	6.5	7.0	7.0	7.0	7.0	7.0	6.5	7.0	6.8
810920	12	6.5	6.5	6.5	6.0	6.0	6.0	6.5	7.0	7.0	7.0	7.0	6.5	6.0	7.0	6.6
810921	12	6.0	6.0	5.5	5.5	5.5	5.5	6.0	6.5	6.5	6.0	6.0	6.0	5.5	6.5	6.0
810922	12	6.0	6.0	6.0	6.0	5.5	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	6.0	5.4
810923	12	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	4.5	4.0	4.0	4.0	4.0	5.0	4.8
810924	12	4.0	4.0	4.0	3.5	3.0	3.0	3.0	2.5	2.5	3.0	3.0	3.5	2.5	4.0	3.3
810925	12	4.0	4.0	4.0	3.5	3.5	3.0	3.0	2.5	2.0	2.5	2.5	3.0	2.0	4.0	3.2
810926	12	3.0	3.0	3.0	2.5	2.0	2.0	2.0	1.5	1.5	1.5	2.0	2.0	1.5	3.0	2.2
810927	12	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.5	1.5	1.5	2.0	2.0	1.5	2.0	1.9
810928	12	2.5	2.5	2.0	2.0	2.0	1.5	1.0	1.0	1.0	1.0	1.5	2.0	1.0	2.5	1.7
810929	12	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.5	1.5	2.0	2.0	1.5	2.0	2.0
810930	12	2.5	2.5	2.5	2.5	2.0	2.0	2.0	1.5	1.5	2.0	2.0	2.0	1.5	2.5	2.1
811001	12	2.5	2.5	2.5	2.0	2.0	1.5	1.0	1.0	1.0	1.0	1.5	2.0	1.0	2.5	1.8
811002	12	2.0	2.0	2.0	2.0	1.5	1.0	1.0	1.0	1.0	1.0	1.0	1.5	1.0	2.0	1.5
811003	12	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5

VALUES= -.0 INDICATE MISSING DATA

TABLE 12. DAILY THERMOGRAPH STATISTICS, LOWER SUSITNA RIVER, 1981.

TALKEETNA R. - 97.0

DATE	# OBS.	TEMPERATURE AT TIME 0200	0400	0600	0800	1000	1200	1400	1600	1800	2000	2200	2400	MIN. TEMP.	MAX. TEMP.	MEAN TEMP.
811004	3	1.5	1.5	1.5	-.0	-.0	-.0	-.0	-.0	-.0	-.0	-.0	-.0	1.5	1.5	1.5

VALUES= -.0 INDICATE MISSING DATA

TABLE 13. DAILY THERMOGRAPH STATISTICS, LOWER SUSITNA RIVER, 1981.

CHULITNA R. - 98.0

DATE	# OBS.	TEMPERATURE AT TIME 0200	0400	0600	0800	1000	1200	1400	1600	1800	2000	2200	2400	MIN. TEMP.	MAX. TEMP.	MEAN TEMP.
810620	5	-.0	-.0	-.0	-.0	-.0	-.0	-.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.1
810621	12	9.0	8.5	8.0	7.5	7.5	7.0	7.0	7.0	7.0	6.5	6.5	6.5	6.5	9.0	7.4
810622	12	6.5	6.5	6.5	6.5	6.5	6.5	7.0	7.5	8.0	8.5	8.5	9.0	6.5	9.0	7.3
810623	12	9.0	8.5	8.0	7.5	7.5	7.5	7.5	8.5	9.0	9.5	9.5	10.0	7.5	10.0	8.6
810624	12	9.5	9.5	9.0	8.5	8.0	8.0	8.5	8.5	9.0	9.5	9.5	9.5	8.0	9.5	9.0
810625	12	9.5	9.5	9.0	8.5	8.0	8.0	8.0	8.5	8.5	9.0	9.0	9.0	8.0	9.5	8.8
810626	12	9.0	9.0	8.5	8.0	7.5	7.5	7.0	6.5	6.5	6.5	6.5	6.5	6.5	9.0	7.5
810627	12	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.6
810628	12	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.6
810629	12	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.6
810630	12	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.6
810701	12	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.6
810702	12	6.5	6.5	7.0	7.0	7.0	7.0	7.0	7.5	7.5	7.5	7.5	7.5	6.5	7.5	7.2
810703	12	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.6
810704	12	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.6

VALUES= -.0 INDICATE MISSING DATA

TABLE 13. DAILY THERMOGRAPH STATISTICS, LOWER SUSITNA RIVER, 1981.

CHULITNA R. - 98.0

DATE	# OBS.	TEMPERATURE AT TIME 0200	0400	0600	0800	1000	1200	1400	1600	1800	2000	2200	2400	MIN. TEMP.	MAX. TEMP.	MEAN TEMP.
810705	12	7.5	7.5	7.5	7.5	7.5	7.5	8.0	8.0	8.0	8.0	8.0	8.0	7.5	8.0	7.8
810706	12	8.0	8.0	8.0	8.0	7.5	7.5	7.5	7.5	7.5	8.0	8.0	8.0	7.5	8.0	7.8
810707	12	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.1
810708	12	8.0	8.0	7.5	7.5	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	8.0	7.3
810709	12	7.0	7.0	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	7.0	6.5	7.0	6.7
810710	12	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.5	7.5	7.5	7.0	7.5	7.2
810711	12	7.5	7.5	7.5	7.0	7.5	7.5	7.5	7.5	7.5	8.0	8.0	8.0	7.0	8.0	7.6
810712	12	8.0	8.0	8.0	8.0	8.0	7.5	7.5	7.5	7.5	8.0	8.0	8.0	7.5	8.0	7.9
810713	12	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.1
810714	12	8.0	8.0	8.0	8.0	7.5	7.5	7.5	7.5	8.0	8.0	8.0	8.0	7.5	8.0	7.9
810715	12	8.0	8.0	8.0	7.5	7.5	7.0	7.0	7.0	7.0	7.5	7.5	7.5	7.0	8.0	7.5
810716	6	7.5	7.5	7.5	7.0	7.0	7.0	-.0	-.0	-.0	-.0	-.0	-.0	7.0	7.5	7.3
810909	4	-.0	-.0	-.0	-.0	-.0	-.0	-.0	-.0	5.0	5.0	6.0	6.0	5.0	6.0	5.6
810910	12	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.1
810911	12	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.1

VALUES= -.0 INDICATE MISSING DATA

TABLE 13. DAILY THERMOGRAPH STATISTICS, LOWER SUSITNA RIVER, 1981.

CHULITNA R. - 98.0

DATE	# OBS.	0200	0400	0600	0800	1000	1200	1400	1600	1800	2000	2200	2400	MIN. TEMP.	MAX. TEMP.	MEAN TEMP.
		TEMPERATURE AT TIME														
810912	12	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.1
810913	12	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.1
810914	12	6.0	6.0	6.0	6.0	6.0	6.0	5.5	5.5	5.5	5.5	5.0	5.5	5.0	6.0	5.8
810915	12	5.0	5.0	4.5	4.5	4.5	4.5	4.5	5.0	4.5	4.5	4.5	4.5	4.5	5.0	4.7
810916	12	5.0	5.0	4.5	4.5	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	4.5	5.0	5.0
810917	12	5.0	5.0	5.0	5.0	5.0	5.5	5.5	5.5	5.5	5.5	6.0	6.0	5.0	6.0	5.4
810918	12	6.0	5.5	5.0	5.0	5.0	5.0	5.5	5.5	5.5	5.5	6.0	6.0	5.0	6.0	5.5
810919	12	6.0	6.0	5.5	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	6.0	5.3
810920	12	4.5	4.5	4.0	4.0	4.0	4.5	4.5	5.0	5.0	5.0	5.0	5.0	4.0	5.0	4.6
810921	12	5.0	4.5	4.5	4.0	4.0	4.5	5.0	5.0	5.0	5.0	5.0	5.0	4.0	5.0	4.8
810922	12	5.0	4.5	4.0	3.5	3.5	4.0	4.0	4.0	4.0	4.0	4.0	4.0	3.5	5.0	4.1
810923	12	4.0	4.0	3.5	3.5	3.5	4.0	4.0	4.0	3.5	3.5	3.5	3.5	3.5	4.0	3.8
810924	12	3.5	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.5	3.1
810925	12	3.0	3.0	3.0	2.5	2.5	3.0	3.5	3.5	3.0	3.0	3.0	3.0	2.5	3.5	3.0
810926	12	3.0	3.0	2.5	2.0	2.0	2.5	3.0	3.0	3.0	2.5	2.5	2.5	2.0	3.0	2.7

VALUES= -.0 INDICATE MISSING DATA

TABLE 13. DAILY THERMOGRAPH STATISTICS, LOWER SUSITNA RIVER, 1981.

CHULITNA R. - 98.0

DATE	# OBS.	0200	0400	0600	0800	1000	1200	1400	1600	1800	2000	2200	2400	MIN. TEMP.	MAX. TEMP.	MEAN TEMP.
		TEMPERATURE AT TIME														
810927	12	2.5	2.5	2.0	2.0	2.0	2.5	2.5	2.5	2.0	2.0	2.0	2.0	2.0	2.5	2.3
810928	5	2.0	1.5	1.0	1.0	2.0	-.0	-.0	-.0	-.0	-.0	-.0	-.0	1.0	2.0	1.5

VALUES= -.0 INDICATE MISSING DATA

TABLE 14. DAILY THERMOGRAPH STATISTICS, LOWER SUSITNA RIVER, 1981.

TALK. BASE CAMP - 103.0

DATE	# OBS.	TEMPERATURE AT TIME 0200	0400	0600	0800	1000	1200	1400	1600	1800	2000	2200	2400	MIN. TEMP.	MAX. TEMP.	MEAN TEMP.
810620	4	-.0	-.0	-.0	-.0	-.0	-.0	-.0	-.0	16.0	15.5	15.0	14.5	14.5	16.0	15.3
810621	12	14.0	14.0	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.0	13.0	14.0	13.6
810622	12	13.0	12.5	12.0	12.5	12.5	13.0	13.5	14.0	14.5	14.5	14.0	14.0	12.0	14.5	13.4
810623	12	13.5	13.0	13.0	13.0	13.0	13.5	14.0	14.5	15.0	15.0	14.5	14.0	13.0	15.0	13.9
810624	12	13.5	13.5	13.0	13.0	13.0	13.5	14.5	15.0	15.0	15.0	15.0	14.5	13.0	15.0	14.1
810625	12	14.0	13.5	13.5	13.5	13.5	14.0	14.5	15.0	15.0	15.0	15.0	14.5	13.5	15.0	14.3
810626	12	14.0	14.0	13.5	13.5	13.5	13.0	13.0	13.0	13.0	13.0	12.5	12.5	12.5	14.0	13.3
810627	12	12.0	12.0	11.5	11.5	11.5	11.5	11.0	11.0	11.0	10.5	10.5	10.5	10.5	12.0	11.3
810628	12	10.0	10.0	10.0	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.0	9.0	9.0	10.0	9.6
810629	12	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.0	8.0	8.5	8.5
810630	12	8.0	8.0	8.0	8.0	8.0	8.5	8.5	8.5	9.0	9.0	9.0	9.0	8.0	9.0	8.5
810701	12	8.5	8.5	8.5	8.5	8.5	9.0	9.5	10.0	10.5	10.5	10.5	10.5	8.5	10.5	9.5
810702	12	10.0	10.0	9.5	9.5	9.5	10.0	10.5	10.5	10.5	10.5	10.5	10.5	9.5	10.5	10.2
810703	12	10.5	10.5	10.0	10.0	10.0	10.0	10.5	11.5	11.5	11.5	11.5	11.0	10.0	11.5	10.8
810704	12	11.0	10.5	10.5	10.5	10.5	11.0	11.5	12.0	12.0	12.0	12.0	11.5	10.5	12.0	11.3

VALUES= -.0 INDICATE MISSING DATA

TABLE 14. DAILY THERMOGRAPH STATISTICS, LOWER SUSITNA RIVER, 1981.

TALK. BASE CAMP - 103.0

DATE	# OBS.	0200	0400	0600	0800	1000	1200	1400	1600	1800	2000	2200	2400	MIN. TEMP.	MAX. TEMP.	MEAN TEMP.
		TEMPERATURE AT TIME														
810705	9	11.5	11.0	11.0	11.0	11.0	-.0	-.0	-.0	12.5	12.5	12.5	12.5	11.0	12.5	11.8
810706	12	12.0	12.0	11.5	11.5	11.5	12.0	12.5	12.5	13.0	13.0	13.0	12.5	11.5	13.0	12.3
810707	12	12.5	12.0	12.0	11.5	11.5	11.5	12.0	12.0	12.0	12.0	12.0	12.0	11.5	12.5	12.0
810708	12	11.5	11.5	11.0	11.0	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.0	10.0	11.5	10.8
810709	12	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.1
810710	6	10.0	9.5	9.5	9.5	9.5	9.5	-.0	-.0	-.0	-.0	-.0	-.0	9.5	10.0	9.6
810807	2	-.0	-.0	-.0	-.0	-.0	-.0	-.0	-.0	-.0	-.0	11.0	10.5	10.5	11.0	10.8
810808	12	10.5	10.5	10.5	10.5	10.5	11.0	11.0	11.5	11.0	11.0	11.0	11.0	10.5	11.5	10.9
810809	12	10.5	10.5	10.5	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.5	10.2
810810	12	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.1
810811	12	10.0	10.0	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	10.0	9.6
810812	12	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.6
810813	12	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	8.5	8.5	8.5	9.0	9.0
810814	12	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.6
810815	12	8.5	8.0	8.5	8.5	8.5	8.0	8.0	8.0	8.0	8.0	7.5	7.5	7.5	8.5	8.1

VALUES= -.0 INDICATE MISSING DATA

TABLE 14. DAILY THERMOGRAPH STATISTICS, LOWER SUSITNA RIVER, 1981.

TALK. BASE CAMP - 103.0

DATE	# OBS.	0200	0400	0600	0800	1000	1200	1400	1600	1800	2000	2200	2400	MIN. TEMP.	MAX. TEMP.	MEAN TEMP.
		TEMPERATURE AT TIME														
810816	12	7.5	7.5	7.5	7.0	7.0	7.0	7.5	7.5	7.5	7.5	7.5	7.0	7.0	7.5	7.4
810817	12	7.0	7.0	6.5	6.5	6.5	6.5	6.5	7.0	7.0	7.0	7.0	7.0	6.5	7.0	6.8
810818	12	7.0	7.0	7.0	7.0	7.0	7.0	7.5	8.0	8.0	8.0	8.0	8.0	7.0	8.0	7.5
810819	12	8.0	8.0	8.0	8.0	8.0	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.0	8.5	8.3
810820	12	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.6
810821	12	8.0	8.0	8.0	8.0	8.0	8.5	8.5	9.0	9.0	8.5	8.5	8.5	8.0	9.0	8.4
810822	12	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.6
810823	12	8.5	8.5	8.5	8.5	8.5	8.5	9.0	9.5	9.5	9.5	9.0	9.0	8.5	9.5	8.9
810824	12	9.0	8.5	8.5	8.5	8.5	9.0	9.5	9.5	9.5	9.5	9.0	9.0	8.5	9.5	9.1
810825	7	9.0	9.0	9.0	9.0	9.0	9.5	9.5	-.0	-.0	-.0	-.0	-.0	9.0	9.5	9.2
810909	1	-.0	-.0	-.0	-.0	-.0	-.0	-.0	-.0	-.0	-.0	-.0	8.0	8.0	8.0	8.1
810910	12	8.0	7.5	7.5	7.5	8.0	8.0	8.5	9.0	9.0	8.5	8.5	8.0	7.5	9.0	8.2
810911	12	8.0	8.0	8.0	8.0	8.0	8.0	8.5	9.0	9.0	9.0	8.5	8.0	8.0	9.0	8.4
810912	12	8.0	7.5	7.5	7.0	7.5	8.0	8.5	8.5	8.5	8.0	8.0	8.0	7.0	8.5	8.0
810913	12	8.0	8.0	7.5	7.5	8.0	8.0	8.5	8.5	8.5	8.0	8.0	8.0	7.5	8.5	8.1

VALUES= -.0 INDICATE MISSING DATA

TABLE 14. DAILY THERMOGRAPH STATISTICS, LOWER SUSITNA RIVER, 1981.

TALK. BASE CAMP - 103.0

DATE	# OBS.	0200	0400	0600	0800	1000	1200	1400	1600	1800	2000	2200	2400	MIN. TEMP.	MAX. TEMP.	MEAN TEMP.
		TEMPERATURE AT TIME														
810914	12	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.1
810915	12	7.0	7.0	7.0	6.5	6.5	7.0	7.0	7.0	7.0	7.0	7.0	7.0	6.5	7.0	7.0
810916	12	7.0	7.0	7.0	7.0	7.0	7.0	7.5	7.5	7.0	7.0	7.0	7.0	7.0	7.5	7.1
810917	12	7.0	7.0	7.0	7.0	7.0	7.0	8.0	9.0	9.0	8.5	8.0	8.0	7.0	9.0	7.8
810918	12	8.0	8.0	7.5	7.0	7.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	7.0	8.0	7.8
810919	12	8.0	8.0	7.5	7.0	7.0	7.5	7.5	8.0	8.0	8.0	7.5	7.5	7.0	8.0	7.7
810920	12	7.0	7.0	7.0	7.0	7.0	7.5	8.0	8.0	8.0	8.0	7.5	7.0	7.0	8.0	7.5
810921	12	7.0	7.0	7.0	6.5	6.5	7.0	7.0	7.0	7.0	7.0	7.0	7.0	6.5	7.0	7.0
810922	12	7.0	6.5	6.0	5.5	5.5	5.5	6.0	6.5	6.5	6.5	6.5	6.0	5.5	7.0	6.2
810923	12	6.0	5.5	5.5	5.0	5.0	5.0	5.5	5.5	5.5	5.5	5.5	5.0	5.0	6.0	5.4
810924	12	5.0	5.0	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.0	4.0	5.0	4.6
810925	12	3.5	3.0	3.0	3.0	3.0	3.5	4.0	4.0	4.0	4.0	3.5	3.5	3.0	4.0	3.5
810926	12	3.0	3.0	3.0	2.5	2.5	3.0	3.5	3.5	3.5	3.0	2.5	2.5	2.5	3.5	3.0
810927	12	2.0	2.0	2.0	1.5	1.5	1.5	2.0	2.0	2.0	2.0	1.5	1.5	1.5	2.0	1.8
810928	12	1.5	1.0	1.0	.5	.5	1.0	1.5	1.5	1.5	1.5	1.0	1.0	.5	1.5	1.2

VALUES= -.0 INDICATE MISSING DATA

TABLE 14. DAILY THERMOGRAPH STATISTICS, LOWER SUSITNA RIVER, 1981.

TALK. BASE CAMP - 103.0

DATE	# OBS.	TEMPERATURE AT TIME 0200	0400	0600	0800	1000	1200	1400	1600	1800	2000	2200	2400	MIN. TEMP.	MAX. TEMP.	MEAN TEMP.
810929	12	1.0	.5	.5	.5	.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	.5	1.5	1.2
810930	4	1.0	1.0	1.0	1.0	-.0	-.0	-.0	-.0	-.0	-.0	-.0	.0	1.0	1.0	1.0

VALUES= -.0 INDICATE MISSING DATA

TABLE 15. DAILY THERMOGRAPH STATISTICS, LOWER SUSITNA RIVER, 1981.

ABOVE 4TH JULY - 131.3

DATE	# OBS.	TEMPERATURE AT TIME 0200	0400	0600	0800	1000	1200	1400	1600	1800	2000	2200	2400	MIN. TEMP.	MAX. TEMP.	MEAN TEMP.
810616	2	-.0	-.0	-.0	-.0	-.0	-.0	-.0	-.0	-.0	-.0	12.5	12.5	12.5	12.5	12.6
810617	12	12.5	12.0	12.0	12.0	12.5	12.5	13.0	13.0	12.5	13.0	13.0	13.0	12.0	13.0	12.6
810618	12	13.0	12.5	12.5	13.0	13.0	13.5	13.5	13.5	13.5	13.5	13.0	12.5	12.5	13.5	13.1
810619	12	12.5	12.5	12.5	12.5	13.0	13.5	13.5	13.5	13.5	13.5	13.0	13.0	12.5	13.5	13.1
810620	12	12.5	12.5	12.5	12.5	12.5	13.0	13.5	13.5	13.0	12.5	12.5	12.5	12.5	13.5	12.8
810621	12	12.0	12.0	12.5	12.5	12.5	12.0	12.0	12.0	11.5	11.5	11.5	11.5	11.5	12.5	12.0
810622	12	11.5	11.0	11.0	11.0	11.5	11.5	12.5	12.5	12.5	12.5	12.5	12.0	11.0	12.5	11.9
810623	12	11.5	11.5	11.5	11.5	12.0	12.5	13.0	13.0	12.5	12.5	12.5	12.0	11.5	13.0	12.2
810624	12	12.0	12.0	12.0	12.0	12.5	13.0	13.5	13.5	13.5	13.0	13.0	12.5	12.0	13.5	12.8
810625	12	12.5	12.5	12.5	12.5	12.5	13.0	13.5	13.5	13.0	13.0	13.0	12.5	12.5	13.5	12.9
810626	12	12.5	12.0	12.0	12.0	12.0	11.5	11.5	11.5	11.0	11.0	10.5	10.5	10.5	12.5	11.6
810627	12	10.0	10.0	10.0	9.5	9.5	9.5	9.5	9.0	9.0	9.0	8.5	8.5	8.5	10.0	9.4
810628	12	8.0	8.0	7.5	7.5	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	8.0	7.3
810629	12	7.0	7.0	7.0	7.0	7.0	7.0	7.0	6.5	6.5	6.5	6.5	6.5	6.5	7.0	6.8
810630	12	5.5	5.5	5.0	5.0	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.0	5.5	5.5

VALUES= -.0 INDICATE MISSING DATA

TABLE 15. DAILY THERMOGRAPH STATISTICS, LOWER SUSITNA RIVER, 1981.

ABOVE 4TH JULY - 131.3

DATE	# OBS.	TEMPERATURE AT TIME 0200	0400	0600	0800	1000	1200	1400	1600	1800	2000	2200	2400	MIN. TEMP.	MAX. TEMP.	MEAN TEMP.
810701	12	5.5	5.5	5.5	5.0	5.5	6.0	6.5	6.0	6.0	6.5	6.5	7.0	5.0	7.0	6.0
810702	12	7.0	7.5	7.5	7.5	7.5	7.5	8.0	8.5	8.5	8.5	8.5	8.0	7.0	8.5	7.9
810703	12	8.0	7.5	7.5	7.5	8.0	9.0	9.0	9.0	9.0	9.0	9.0	8.5	7.5	9.0	8.5
810704	12	8.5	8.5	8.5	8.5	9.0	9.0	9.5	9.5	9.5	9.5	9.5	9.0	8.5	9.5	9.1
810705	12	9.0	9.0	9.0	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.0	9.5	9.4
810706	11	9.0	9.0	9.0	9.0	9.5	9.5	9.5	10.0	-.0	10.0	9.5	9.5	9.0	10.0	9.5
810707	12	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.0	8.5	8.5	9.5	9.4
810708	12	8.0	8.0	8.0	8.0	8.0	8.0	7.5	7.5	7.5	7.5	7.5	7.5	7.5	8.0	7.8
810709	12	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.6
810710	12	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.6
810711	12	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.6
810712	12	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.6
810713	12	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.1
810714	12	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.5	8.5	8.5	8.0	8.5	8.2
810715	12	8.5	8.5	8.5	9.0	9.5	10.5	10.5	10.5	10.0	10.0	9.5	9.5	8.5	10.5	9.6

VALUES= -.0 INDICATE MISSING DATA

TABLE 15. DAILY THERMOGRAPH STATISTICS, LOWER SUSITNA RIVER, 1981.

ABOVE 4TH JULY - 131.3

DATE	# OBS.	TEMPERATURE AT TIME 0200	0400	0600	080[illegible]	1000	1200	1400	1600	1800	2000	2200	2400	MIN. TEMP.	MAX. TEMP.	MEAN TEMP.
810716	12	9.0	9.0	9.0	9.[illegible]	9.0	9.0	9.0	9.5	9.5	9.5	9.5	9.5	9.0	9.5	9.3
810717	12	9.5	9.5	9.5	9.[illegible]	9.5	9.5	9.5	10.0	10.5	10.5	10.5	10.5	9.5	10.5	9.9
810718	12	10.5	10.5	10.5	10.[illegible]	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.5	10.2
810719	12	10.5	10.5	10.0	10.5	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.5	10.1
810720	12	10.0	10.0	10.0	10.[illegible]	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.1
810721	11	10.0	9.5	9.5	9.[illegible]	9.5	9.5	-.0	10.0	10.0	10.0	10.0	10.5	9.5	10.5	9.9
810722	12	10.5	10.5	10.5	10.0	10.0	10.0	10.0	10.5	10.5	10.5	10.5	10.5	10.0	10.5	10.4
810723	12	10.5	10.5	10.5	10.[illegible]	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.6
810724	12	10.5	10.5	10.5	10.[illegible]	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.6
810725	12	10.5	10.5	10.5	10.[illegible]	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.6
810726	12	10.5	10.5	10.5	10.[illegible]	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.5	10.2
810727	12	10.0	10.0	10.0	10.[illegible]	10.0	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.0	10.5	10.3
810728	12	10.5	10.5	10.5	10.[illegible]	10.5	10.5	10.0	10.0	10.5	10.5	10.5	10.5	10.0	10.5	10.5
810729	12	10.5	10.5	10.5	10.[illegible]	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.6
810730	12	10.5	10.5	10.5	10.[illegible]	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.6

VALUES= -.0 INDICATE MISSING DATA

DATE	# OBS.	TEMPERATURE AT TIME 0200	0400	0600	0800	1000	1200	1400	1600	1800	2000	2200	2400	MIN. TEMP.	MAX. TEMP.	MEAN TEMP.
810731	12	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.6
810801	12	10.5	10.5	10.5	10.0	10.0	10.0	10.0	10.0	10.0	9.5	9.5	9.5	9.5	10.5	10.1
810802	12	9.0	9.0	9.0	8.5	8.5	8.5	9.0	9.0	9.0	9.0	9.0	9.0	8.5	9.0	8.9
810803	12	9.0	9.0	9.0	8.5	8.5	9.0	9.0	9.5	9.5	9.5	9.5	9.5	8.5	9.5	9.2
810804	12	9.5	9.5	9.5	9.5	9.5	9.5	9.5	10.0	10.0	10.5	10.5	10.5	9.5	10.5	9.9
810805	12	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.6
810806	12	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.6
810807	12	10.5	10.5	10.5	10.5	10.0	10.0	10.0	10.0	10.0	10.0	10.0	9.5	9.5	10.5	10.2
810808	12	9.5	9.5	9.5	9.5	10.0	10.0	10.0	10.0	10.0	10.0	10.0	9.5	9.5	10.0	9.8
810809	12	9.5	9.5	9.5	9.0	9.0	9.0	9.0	9.0	9.0	9.5	9.5	9.5	9.0	9.5	9.3
810810	12	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.0	9.0	9.5	9.5
810811	11	9.0	9.0	9.0	8.5	8.5	8.5	8.5	8.5	-.0	8.5	8.5	8.5	8.5	9.0	8.7
810812	12	8.5	8.5	8.5	8.5	8.5	8.5	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.5	8.3
810813	12	8.0	8.0	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	8.0	7.6
810814	12	7.5	7.5	7.5	7.5	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.5	7.2

VALUES= -.0 INDICATE MISSING DATA

TABLE 15. DAILY THERMOGRAPH STATISTICS, LOWER SUSITNA RIVER, 1981.

ABOVE 4TH JULY - 131.3

		TEMPERATURE AT TIME												MIN.	MAX.	MEAN
DATE	# OBS.	0200	0400	0600	0800	1000	1200	1400	1600	1800	2000	2200	2400	TEMP.	TEMP.	TEMP.
810815	12	7.0	7.0	7.0	7.0	7.0	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	7.0	6.8
810816	12	6.0	6.0	6.0	6.0	5.5	5.5	5.5	5.5	5.5	6.0	5.5	5.5	5.5	6.0	5.8
810817	12	5.5	5.5	5.0	5.0	5.0	5.0	5.5	5.5	5.5	5.5	5.5	5.5	5.0	5.5	5.4
810818	12	5.5	5.5	5.5	5.5	6.0	6.5	6.5	6.5	6.5	6.5	6.5	6.5	5.5	6.5	6.2
810819	12	6.5	6.5	6.5	6.5	6.5	6.5	6.5	7.0	7.0	7.0	7.0	7.0	6.5	7.0	6.8
810820	12	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.1
810821	12	7.0	7.0	6.5	6.5	6.5	7.0	7.0	7.0	7.0	7.0	7.0	7.0	6.5	7.0	6.9
810822	12	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.1
810823	12	7.0	7.0	7.0	7.0	7.0	7.0	7.5	7.5	7.5	7.5	7.5	7.5	7.0	7.5	7.3
810824	12	7.5	7.5	7.5	7.0	7.0	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.0	7.5	7.5
810825	5	7.5	7.5	7.5	7.5	7.5	-.0	-.0	-.0	-.0	-.0	-.0	-.0	7.5	7.5	7.6
810827	4	-.0	-.0	-.0	-.0	-.0	-.0	-.0	-.0	11.5	11.5	11.5	11.5	11.5	11.5	11.6
810828	12	11.5	11.5	11.5	11.5	11.5	12.0	12.0	12.0	12.0	12.0	12.0	11.5	11.5	12.0	11.8
810829	12	11.5	11.5	11.5	11.5	11.5	11.0	11.0	11.0	11.0	10.5	10.5	10.5	10.5	11.5	11.1
810830	12	10.5	10.5	10.5	10.5	10.5	10.5	11.0	11.0	11.0	11.0	10.5	10.5	10.5	11.0	10.7

VALUES= -.0 INDICATE MISSING DATA

TABLE 15. DAILY THERMOGRAPH STATISTICS, LOWER SUSITNA RIVER, 1981.

ABOVE 4TH JULY - 131.3

DATE	# OBS.	TEMPERATURE AT TIME 0200	0400	0600	0800	1000	1200	1400	1600	1800	2000	2200	2400	MIN. TEMP.	MAX. TEMP.	MEAN TEMP.
810831	12	10.5	10.5	10.5	10.5	10.5	10.5	11.0	11.0	11.0	11.0	10.5	10.5	10.5	11.0	10.7
810901	12	10.0	10.0	9.5	9.5	9.5	9.5	10.0	10.0	9.5	9.5	9.0	9.0	9.0	10.0	9.6
810902	12	9.0	9.0	9.0	9.0	8.5	8.5	8.5	8.5	8.0	8.0	8.0	8.0	8.0	9.0	8.6
810903	12	8.0	8.0	8.0	8.0	8.0	8.5	8.5	8.5	8.5	8.0	8.0	8.0	8.0	8.5	8.2
810904	4	8.0	7.5	7.5	8.0	-.0	-.0	-.0	-.0	-.0	-.0	-.0	-.0	7.5	8.0	7.8
810907	4	-.0	-.0	-.0	-.0	-.0	-.0	-.0	-.0	8.5	8.0	7.5	7.5	7.5	8.5	7.9
810908	12	7.5	7.5	7.5	7.5	7.5	7.5	8.0	8.0	8.0	7.5	7.5	7.0	7.0	8.0	7.6
810909	12	7.0	6.5	6.5	6.5	7.0	7.0	8.0	8.0	7.5	7.0	7.0	7.0	6.5	8.0	7.1
810910	12	7.0	7.0	7.0	7.0	7.5	7.5	8.0	8.0	8.0	7.5	7.5	7.0	7.0	8.0	7.5
810911	12	7.0	7.0	7.0	7.0	7.5	8.0	8.0	8.0	7.5	7.5	7.0	7.0	7.0	8.0	7.4
810912	12	7.0	7.0	7.0	7.0	7.5	8.0	8.0	8.0	8.0	7.5	7.5	7.5	7.0	8.0	7.6
810913	12	7.5	7.5	7.0	7.0	7.5	8.0	8.0	8.0	7.5	7.0	7.0	7.0	7.0	8.0	7.5
810914	12	6.5	6.0	6.0	6.0	7.0	7.0	8.0	8.0	8.0	8.0	8.0	8.0	6.0	8.0	7.3
810915	12	8.0	8.5	8.5	9.0	9.0	9.0	7.0	7.0	7.0	7.0	6.5	6.5	6.5	9.0	7.8
810916	12	6.5	6.0	6.0	6.0	6.5	7.5	7.5	7.5	7.0	7.0	7.0	7.0	6.0	7.5	6.8

VALUES= -.0 INDICATE MISSING DATA

TABLE 15. DAILY THERMOGRAPH STATISTICS, LOWER SUSITNA RIVER, 1981.

ABOVE 4TH JULY - 131.3

DATE	# OBS.	TEMPERATURE AT TIME 0200	0400	0600	0800	1000	1200	1400	1600	1800	2000	2200	2400	MIN. TEMP.	MAX. TEMP.	MEAN TEMP.
810917	12	7.0	7.0	6.5	6.5	7.0	7.5	8.0	8.0	8.0	7.5	7.0	7.0	6.5	8.0	7.3
810918	12	7.0	7.0	7.0	7.0	7.0	7.5	8.0	8.0	7.5	7.5	7.0	7.0	7.0	8.0	7.3
810919	12	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.1
810920	12	7.0	6.5	6.5	6.5	6.5	7.0	7.0	7.0	7.0	7.0	6.5	6.0	6.0	7.0	6.8
810921	12	6.0	6.0	6.0	6.0	6.0	6.5	6.5	7.0	7.0	6.5	6.0	6.0	6.0	7.0	6.3
810922	12	5.5	5.5	5.0	5.0	5.0	6.0	6.5	6.5	6.0	5.5	5.0	5.0	5.0	6.5	5.6
810923	12	5.0	5.0	4.5	4.5	5.0	5.0	5.0	5.0	5.0	4.5	4.0	4.0	4.0	5.0	4.8
810924	12	4.0	4.0	4.0	4.0	4.0	4.5	4.5	4.5	4.0	4.0	3.5	3.0	3.0	4.5	4.1
810925	12	3.0	3.0	3.0	3.0	3.0	3.5	4.5	4.5	4.0	4.0	3.5	3.0	3.0	4.5	3.5
810926	12	3.0	2.5	2.5	2.0	2.5	3.0	4.0	4.0	3.5	3.0	3.0	3.0	2.0	4.0	3.0
810927	12	2.5	2.5	2.0	2.0	2.5	2.5	3.0	3.0	3.0	2.5	2.0	2.0	2.0	3.0	2.5
810928	7	2.0	1.5	1.0	1.0	1.0	1.5	2.0	-.0	-.0	-.0	-.0	-.0	1.0	2.0	1.5

VALUES= -.0 INDICATE MISSING DATA

TABLE 16. DAILY THERMOGRAPH STATISTICS, LOWER SUSITNA RIVER, 1981.

GOLD CR. - 136.8

DATE	# OBS.	TEMPERATURE AT TIME 0200	0400	0600	0800	1000	1200	1400	1600	1800	2000	2200	2400	MIN. TEMP.	MAX. TEMP.	MEAN TEMP.
810724	3	-.0	-.0	-.0	-.0	-.0	-.0	-.0	-.0	-.0	9.0	9.0	8.5	8.5	9.0	8.9
810725	12	8.5	8.5	8.5	8.5	8.5	9.0	9.5	9.5	9.5	9.0	8.5	8.5	8.5	9.5	8.9
810726	12	8.0	8.0	8.0	8.0	8.5	8.5	8.5	9.0	9.0	8.5	8.5	8.0	8.0	9.0	8.4
810727	12	7.5	7.5	7.5	7.5	8.0	8.5	9.0	9.5	9.0	9.0	8.5	8.0	7.5	9.5	8.3
810728	12	8.0	8.0	7.5	7.5	8.0	8.0	8.0	8.5	8.5	8.0	8.0	8.0	7.5	8.5	8.1
810729	12	8.0	8.0	8.0	8.0	8.0	8.5	9.0	9.5	9.0	8.5	8.5	8.5	8.0	9.5	8.5
810730	12	8.0	8.0	8.0	8.0	8.0	8.5	8.5	9.0	9.0	8.5	8.5	8.5	8.0	9.0	8.4
810731	12	8.0	8.0	8.0	8.0	8.0	8.5	8.5	9.0	9.0	8.5	8.5	8.5	8.0	9.0	8.4
810801	12	8.5	8.5	8.5	8.5	8.5	9.0	9.0	9.0	9.0	9.0	9.0	9.0	8.5	9.0	8.8
810802	12	9.0	8.5	8.5	8.5	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	8.5	9.0	8.9
810803	12	9.0	8.5	8.5	8.5	9.0	9.5	9.5	9.5	9.5	9.5	9.5	9.5	8.5	9.5	9.2

VALUES= -.0 INDICATE MISSING DATA

TABLE 17. DAILY THERMOGRAPH STATISTICS, LOWER SUSITNA RIVER, 1981.

ABOVE GOLD CR. - 136.8

DATE	# OBS.	TEMPERATURE AT TIME 0200	0400	0600	0800	1000	1200	1400	1600	1800	2000	2200	2400	MIN. TEMP.	MAX. TEMP.	MEAN TEMP.
810724	4	-.0	-.0	-.0	-.0	-.0	-.0	-.0	-.0	11.0	10.5	10.5	10.5	10.5	11.0	10.7
810725	12	10.5	10.5	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.5	10.1
810726	12	10.0	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	10.0	9.6
810727	12	9.5	9.5	9.5	9.5	9.5	9.5	9.5	10.0	10.0	10.0	10.0	10.0	9.5	10.0	9.8
810728	12	10.0	10.0	9.5	9.5	9.5	9.5	9.5	9.5	9.0	9.0	9.0	9.0	9.0	10.0	9.5
810729	12	9.0	9.0	9.0	9.0	9.5	9.5	10.0	9.5	9.5	9.5	9.0	9.0	9.0	10.0	9.3
810730	12	8.5	8.0	8.5	8.5	9.0	9.5	9.5	10.0	10.0	10.0	9.5	9.5	8.0	10.0	9.3
810731	6	9.5	9.5	9.0	9.0	9.0	9.5	-.0	-.0	-.0	-.0	-.0	-.0	9.0	9.5	9.3
810801	9	-.0	-.0	-.0	8.5	8.5	9.0	9.0	9.0	9.0	9.0	9.0	9.0	8.5	9.0	8.9
810802	12	9.0	9.0	8.5	8.5	8.5	8.5	8.5	8.5	8.5	9.0	9.0	9.0	8.5	9.0	8.8
810803	11	9.0	9.0	8.5	8.5	8.5	8.5	9.0	9.0	9.5	9.5	9.5	-.0	8.5	9.5	9.0
810807	7	-.0	-.0	-.0	-.0	-.0	8.5	9.0	9.0	9.0	8.5	8.5	8.5	8.5	9.0	8.8
810808	12	8.5	8.5	8.0	8.0	8.5	8.5	9.0	9.5	9.5	9.0	9.0	9.0	8.0	9.5	8.8
810809	12	9.0	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	9.0	9.0	9.0	8.5	9.0	8.7
810810	12	9.0	8.5	8.5	8.5	8.5	9.0	9.0	9.0	9.0	9.0	8.5	8.5	8.5	9.0	8.8

VALUES= -.0 INDICATE MISSING DATA

TABLE 17. DAILY THERMOGRAPH STATISTICS, LOWER SUSITNA RIVER, 1981.

ABOVE GOLD CR. - 136.8

DATE	# OBS.	TEMPERATURE AT TIME 0200	0400	0600	0800	1000	1200	1400	1600	1800	2000	2200	2400	MIN. TEMP.	MAX. TEMP.	MEAN TEMP.
810811	12	8.5	8.5	8.5	8.0	8.0	8.0	8.0	8.0	8.5	8.5	8.5	8.5	8.0	8.5	8.3
810812	12	8.5	8.5	8.5	8.5	8.5	8.5	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.5	8.3
810813	12	8.0	8.0	8.0	8.0	8.0	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	8.0	7.8
810814	12	7.5	7.5	7.5	7.0	7.0	7.0	7.0	7.0	7.5	7.5	7.0	7.0	7.0	7.5	7.3
810815	9	7.0	7.0	7.0	7.0	6.5	6.5	-.0	-.0	-.0	7.0	7.0	6.5	6.5	7.0	6.9
810816	12	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.6
810817	6	6.0	6.0	5.5	5.5	5.5	5.5	-.0	-.0	-.0	-.0	-.0	-.0	5.5	6.0	5.7
810821	9	-.0	-.0	-.0	7.0	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.0	7.5	7.5
810822	12	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	8.0	8.0	8.0	8.0	7.5	8.0	7.7
810823	6	7.5	7.5	7.5	-.0	-.0	-.0	-.0	-.0	-.0	8.5	8.5	8.5	7.5	8.5	8.1
810824	12	8.0	8.0	8.0	7.5	7.5	7.5	7.5	8.0	8.0	8.0	8.0	8.0	7.5	8.0	7.9
810825	12	8.5	8.5	8.5	8.0	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.0	8.5	8.5
810826	12	9.0	9.0	9.0	9.0	9.0	9.0	9.5	10.5	10.5	10.5	9.5	9.5	9.0	10.5	9.6
810827	12	9.5	9.5	9.5	9.5	10.0	10.5	10.5	11.0	11.0	11.0	11.0	11.0	9.5	11.0	10.4
810828	12	11.0	11.0	11.0	11.0	11.0	11.0	11.5	11.5	11.5	11.5	11.5	11.5	11.0	11.5	11.3

VALUES= -.0 INDICATE MISSING DATA

TABLE 17. DAILY THERMOGRAPH STATISTICS, LOWER SUSITNA RIVER, 1981.

ABOVE GOLD CR. - 136.8

DATE	# OBS.	TEMPERATURE AT TIME 0200	0400	0600	0800	1000	1200	1400	1600	1800	2000	2200	2400	MIN. TEMP.	MAX. TEMP.	MEAN TEMP.
810829	12	11.5	11.5	11.5	11.5	11.0	11.0	10.5	10.5	10.5	10.5	10.0	10.0	10.0	11.5	10.9
810830	11	10.0	10.0	10.0	10.5	10.5	10.5	10.5	10.5	-.0	10.0	10.0	10.0	10.0	10.5	10.3
810831	12	10.0	10.0	9.5	9.5	9.5	10.0	10.0	10.0	10.0	9.5	9.0	9.0	9.0	10.0	9.7
810901	12	9.0	8.5	8.0	8.0	8.0	8.5	8.5	8.5	8.0	8.0	8.0	8.0	8.0	9.0	8.3
810902	12	8.0	8.0	8.0	8.0	7.5	7.5	7.5	7.5	7.5	7.0	7.0	7.0	7.0	8.0	7.6
810903	12	7.0	7.0	7.0	7.0	7.0	7.5	7.5	7.5	7.5	7.0	7.0	7.0	7.0	7.5	7.2
810904	12	7.0	7.0	7.0	7.0	7.0	7.5	7.5	8.0	7.5	7.0	7.0	7.0	7.0	8.0	7.3
810905	12	7.0	7.0	7.0	7.0	7.0	7.5	7.5	7.5	7.5	7.0	7.0	7.0	7.0	7.5	7.2
810906	12	6.5	6.5	6.5	6.5	7.0	8.0	8.0	7.5	7.0	7.0	6.0	5.0	5.0	8.0	6.8
810907	12	4.0	4.5	5.0	5.5	6.0	6.5	8.0	7.5	7.0	6.5	6.0	6.0	4.0	8.0	6.1
810908	12	6.0	6.0	6.0	6.0	6.0	6.5	7.0	7.5	7.0	6.0	4.0	3.0	3.0	7.5	6.0
810909	3	2.0	0.0	0.0	-.0	-.0	-.0	-.0	-.0	-.0	-.0	-.0	-.0	0.0	2.0	.7
810910	12	5.5	5.5	5.5	5.5	6.0	6.5	7.0	7.0	6.5	6.0	6.0	6.0	5.5	7.0	6.1
810911	12	6.0	6.0	6.0	6.0	6.0	7.0	7.0	6.5	6.5	6.0	6.0	6.0	6.0	7.0	6.3
810912	12	6.0	6.0	6.0	6.0	6.0	6.0	6.5	6.5	6.0	5.5	5.0	5.0	5.0	6.5	5.9

VALUES= -.0 INDICATE MISSING DATA

TABLE 17. DAILY THERMOGRAPH STATISTICS, LOWER SUSITNA RIVER, 1981.

ABOVE GOLD CR. - 136.8

DATE	# OBS.	TEMPERATURE AT TIME 0200	0400	0600	0800	1000	1200	1400	1600	1800	2000	2200	2400	MIN. TEMP.	MAX. TEMP.	MEAN TEMP.
810913	12	5.0	5.0	5.0	5.5	6.0	6.0	7.0	6.5	6.0	5.5	5.0	5.0	5.0	7.0	5.7
810914	12	4.5	4.0	4.0	4.5	5.0	6.0	6.5	6.0	5.5	5.0	4.5	4.5	4.0	6.5	5.1
810915	9	4.5	4.5	4.5	5.0	5.5	6.0	6.5	7.0	6.0	-.0	-.0	-.0	4.5	7.0	5.6
810916	3	-.0	-.0	-.0	-.0	-.0	-.0	-.0	-.0	-.0	6.5	6.5	6.5	6.5	6.5	6.6
810917	12	6.0	6.0	6.0	6.0	6.5	6.5	6.5	7.0	7.0	6.5	6.5	6.0	6.0	7.0	6.4
810918	12	6.0	6.0	6.0	6.0	6.0	6.5	6.5	6.5	6.5	6.5	6.5	6.0	6.0	6.5	6.3
810919	12	6.0	6.0	6.0	6.0	6.0	6.0	6.5	6.5	6.5	6.5	6.5	6.0	6.0	6.5	6.3
810920	11	6.0	6.0	6.0	5.5	-.0	5.5	6.0	6.0	6.0	6.0	6.0	6.0	5.5	6.0	6.0
810921	12	6.0	6.0	5.5	5.5	5.0	5.5	5.5	6.0	6.0	5.5	5.5	5.0	5.0	6.0	5.6
810922	12	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	4.5	4.5	4.5	5.0	5.0
810923	12	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.0	4.0	3.5	3.5	3.5	4.5	4.3
810924	12	3.5	3.5	3.5	3.5	3.0	3.0	3.0	3.0	2.5	2.5	2.5	2.0	2.0	3.5	3.0
810925	12	2.5	2.5	2.5	2.5	2.5	2.5	2.5	3.0	3.0	3.0	2.5	2.5	2.5	3.0	2.7
810926	12	2.0	2.0	2.0	1.5	1.5	1.5	1.5	1.5	1.5	1.0	1.0	.5	.5	2.0	1.5
810927	12	.5	.5	.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.5	.2

VALUES= -.0 INDICATE MISSING DATA

TABLE 17. DAILY THERMOGRAPH STATISTICS, LOWER SUSITNA RIVER, 1981.

ABOVE GOLD CR. - 136.8

DATE	# OBS.	TEMPERATURE AT TIME 0200	0400	0600	0800	1000	1200	1400	1600	1800	2000	2200	2400	MIN. TEMP.	MAX. TEMP.	MEAN TEMP.
810928	12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.0
810929	9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-.0	-.0	-.0	0.0	0.0	.0

VALUES= -.0 INDICATE MISSING DATA

TABLE 18. DAILY THERMOGRAPH STATISTICS, LOWER SUSITNA RIVER, 1981.

INDIAN R. - 131.3

DATE	# OBS.	TEMPERATURE AT TIME 0200	0400	0600	0800	1000	1200	1400	1600	1800	2000	2200	2400	MIN. TEMP.	MAX. TEMP.	MEAN TEMP.
810718	3	-.0	-.0	-.0	-.0	-.0	-.0	-.0	-.0	-.0	8.5	8.0	7.5	7.5	8.5	8.1
810719	12	7.5	7.5	7.5	7.5	7.5	8.0	8.0	8.5	9.0	8.5	8.5	8.0	7.5	9.0	8.1
810720	12	8.0	8.0	7.5	7.5	7.5	8.0	8.5	8.5	8.5	8.5	8.5	8.0	7.5	8.5	8.1
810721	12	8.0	7.5	7.5	7.5	8.0	8.5	9.0	9.0	9.0	8.0	8.5	8.5	7.5	9.0	8.3
810722	12	8.0	8.0	8.0	8.0	8.0	8.0	8.5	9.0	9.0	9.0	8.5	8.5	8.0	9.0	8.4
810723	12	8.5	8.0	8.0	8.0	10.0	8.5	9.0	9.5	10.0	9.5	9.0	8.5	8.0	10.0	8.9
810724	12	8.5	8.5	8.5	8.5	8.5	9.5	10.5	10.5	10.0	9.5	9.0	9.0	8.5	10.5	9.3
810725	12	8.5	8.5	8.5	8.5	8.5	8.5	9.0	9.5	9.5	9.5	9.5	9.0	8.5	9.5	9.0
810726	12	8.5	8.5	8.0	8.5	8.5	8.5	9.0	9.0	9.5	9.0	8.5	8.5	8.0	9.5	8.7
810727	12	8.0	8.0	8.0	8.0	8.5	9.5	10.0	10.0	10.0	10.0	9.5	9.0	8.0	10.0	9.1
810801	9	-.0	-.0	-.0	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.6
810802	12	8.5	8.0	8.0	8.0	8.0	8.0	8.5	8.5	8.5	8.5	8.5	8.0	8.0	8.5	8.3
810803	12	8.0	8.0	7.5	7.5	8.0	8.5	9.5	10.0	10.0	9.5	9.0	8.5	7.5	10.0	8.7
810804	12	8.0	7.5	7.5	7.5	7.5	8.5	9.5	10.5	10.5	10.0	9.5	9.0	7.5	10.5	8.8
810805	12	8.5	8.0	7.5	8.0	8.5	9.5	10.0	10.0	10.0	9.5	9.5	9.0	7.5	10.0	9.1

VALUES= -.0 INDICATE MISSING DATA

TABLE 18. DAILY THERMOGRAPH STATISTICS, LOWER SUSITNA RIVER, 1981.

INDIAN R. - 131.3

DATE	# OBS.	0200	0400	0600	0800	1000	1200	1400	1600	1800	2000	2200	2400	MIN. TEMP.	MAX. TEMP.	MEAN TEMP.
		TEMPERATURE AT TIME														
810806	12	8.5	8.5	8.0	8.0	8.5	8.5	9.0	9.5	9.5	9.5	9.0	9.0	8.0	9.5	8.8
810807	12	8.5	8.5	8.0	8.0	8.0	8.5	9.0	9.5	9.5	9.0	9.0	8.5	8.0	9.5	8.7
810808	12	8.5	8.5	8.5	8.5	8.5	9.5	9.5	10.5	10.5	10.0	9.5	9.0	8.5	10.5	9.3
810809	12	9.0	8.5	8.5	8.5	8.5	9.0	9.5	9.5	9.5	9.0	9.0	9.0	8.5	9.5	9.0
810810	12	8.5	8.5	8.5	8.5	8.5	8.5	9.0	9.0	9.0	9.0	9.0	8.5	8.5	9.0	8.8
810811	6	8.5	8.0	8.0	8.0	8.0	8.5	-.0	-.0	-.0	-.0	-.0	-.0	8.0	8.5	8.2
810812	3	-.0	-.0	-.0	-.0	-.0	-.0	-.0	-.0	-.0	8.0	8.0	8.0	8.0	8.0	8.1
810813	12	7.5	7.5	7.5	7.5	7.5	7.5	8.0	8.0	8.0	7.5	7.5	7.5	7.5	8.0	7.7
810814	12	7.5	7.0	7.0	7.0	7.0	7.0	7.5	7.5	7.5	7.5	7.0	7.0	7.0	7.5	7.3
810815	12	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.1
810816	12	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.5	7.5	7.0	7.5	7.1
810817	6	7.5	7.5	7.5	7.5	7.5	7.5	-.0	-.0	-.0	-.0	-.0	-.0	7.5	7.5	7.6
810818	7	-.0	-.0	-.0	-.0	-.0	7.5	8.0	7.5	7.5	7.5	7.5	7.5	7.5	8.0	7.6
810819	12	7.0	7.0	7.0	7.0	7.0	7.5	7.5	7.5	7.5	7.5	7.5	7.0	7.0	7.5	7.3
810820	12	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.1

VALUES= -.0 INDICATE MISSING DATA

TABLE 18. DAILY THERMOGRAPH STATISTICS, LOWER SUSITNA RIVER, 1981.

INDIAN R. - 131.3

DATE	# OBS.	0200	0400	0600	0800	1000	1200	1400	1600	1800	2000	2200	2400	MIN. TEMP.	MAX. TEMP.	MEAN TEMP.
		TEMPERATURE AT TIME														
810821	12	7.0	6.5	6.5	6.5	7.0	7.5	8.5	8.5	8.5	8.5	8.0	7.5	6.5	8.5	7.6
810822	12	7.5	7.5	7.5	7.0	7.0	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.0	7.5	7.5
810823	12	7.5	7.0	7.0	7.0	7.0	7.5	8.5	8.5	8.5	8.0	7.5	7.5	7.0	8.5	7.7
810824	4	7.0	7.5	7.5	7.5	-.0	-.0	-.0	-.0	-.0	-.0	-.0	-.0	7.0	7.5	7.4
810825	8	7.5	7.0	7.0	7.0	7.5	7.5	8.5	9.0	-.0	-.0	-.0	-.0	7.0	9.0	7.7
810912	12	6.0	6.0	6.0	6.0	6.0	6.5	6.5	6.5	7.0	6.5	6.0	6.0	6.0	7.0	6.3
810913	12	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	5.5	5.5	6.0	6.0
810914	12	5.5	5.0	5.0	5.0	5.5	5.5	6.0	6.0	5.5	5.0	5.0	5.0	5.0	6.0	5.4
810915	12	5.0	5.0	5.0	5.0	5.5	5.5	6.0	6.0	6.0	6.0	5.5	5.5	5.0	6.0	5.6
810916	12	5.5	5.5	5.5	5.5	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	5.5	6.0	5.9
810917	12	6.0	6.0	6.0	6.0	6.0	6.5	7.0	6.5	6.0	6.0	6.0	6.0	6.0	7.0	6.2
810918	12	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.1
810919	12	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.1
810920	12	6.0	6.0	5.5	5.5	6.0	6.0	6.0	6.0	6.0	6.0	5.5	5.5	5.5	6.0	5.9
810921	12	5.5	5.5	5.5	5.0	5.5	6.0	6.0	6.0	5.5	5.5	5.0	5.0	5.0	6.0	5.6

VALUES= -.0 INDICATE MISSING DATA

TABLE 18. DAILY THERMOGRAPH STATISTICS, LOWER SUSITNA RIVER, 1981.

INDIAN R. - 131.3

DATE	# OBS.	TEMPERATURE AT TIME 0200	0400	0600	0800	1000	1200	1400	1600	1800	2000	2200	2400	MIN. TEMP.	MAX. TEMP.	MEAN TEMP.
810922	12	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.1
810923	12	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.1
810924	12	5.0	5.0	4.5	4.5	4.5	4.5	4.5	5.0	4.0	4.0	4.0	4.0	4.0	5.0	4.5
810925	4	3.5	3.5	3.5	3.5	-.0	-.0	-.0	-.0	-.0	-.0	-.0	-.0	3.5	3.5	3.5

VALUES= -.0 INDICATE MISSING DATA

TABLE 19. DAILY THERMOGRAPH STATISTICS, LOWER SUSITNA RIVER, 1981.

ABOVE INDIAN R. - 138.7

DATE	# OBS.	0200	0400	0600	0800	1000	1200	1400	1600	1800	2000	2200	2400	MIN. TEMP.	MAX. TEMP.	MEAN TEMP.
		TEMPERATURE AT TIME														
810719	6	-.0	-.0	-.0	-.0	-.0	-.0	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.6
810720	12	9.5	9.5	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	8.5	8.5	8.5	9.5	9.1
810721	12	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	9.0	9.0	9.0	8.5	9.0	8.7
810722	12	9.0	9.0	9.0	9.0	9.0	9.0	9.5	9.5	9.5	9.5	9.5	9.5	9.0	9.5	9.3
810723	12	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.6
810724	12	9.5	9.5	9.5	9.5	9.5	9.5	10.0	10.0	9.5	9.5	9.5	9.5	9.5	10.0	9.6
810725	12	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.6
810726	12	9.5	9.0	9.0	9.0	8.5	8.5	9.0	9.0	9.0	9.0	9.0	9.0	8.5	9.5	9.0
810727	12	9.0	9.0	9.0	9.0	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.0	9.5	9.4
810728	12	9.0	9.0	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.0	8.0	8.0	8.0	9.0	8.5
810729	5	8.0	8.0	8.0	8.0	8.0	-.0	-.0	-.0	-.0	-.0	-.0	-.0	8.0	8.0	8.1
810801	7	-.0	-.0	-.0	-.0	-.0	8.5	8.5	8.5	8.5	8.0	8.0	7.5	7.5	8.5	8.3
810802	12	7.5	7.5	7.0	7.0	7.0	7.5	7.5	7.5	7.5	8.0	8.0	8.0	7.0	8.0	7.6
810803	12	7.5	7.5	7.5	7.5	7.5	8.0	8.5	8.5	8.5	8.5	8.5	8.5	7.5	8.5	8.1
810804	12	8.5	8.0	8.0	8.0	8.0	8.5	9.0	9.5	9.0	9.0	8.5	8.5	8.0	9.5	8.6

VALUES= -.0 INDICATE MISSING DATA

TABLE 19. DAILY THERMOGRAPH STATISTICS, LOWER SUSITNA RIVER, 1981.

ABOVE INDIAN R. - 138.7

DATE	# OBS.	0200	0400	0600	0800	1000	1200	1400	1600	1800	2000	2200	2400	MIN. TEMP.	MAX. TEMP.	MEAN TEMP.
		TEMPERATURE AT TIME														
810805	4	8.5	8.5	8.5	8.5	-.0	-.0	-.0	-.0	-.0	-.0	-.0	-.0	8.5	8.5	8.6
810808	3	-.0	-.0	-.0	-.0	-.0	-.0	-.0	-.0	-.0	8.5	8.5	8.5	8.5	8.5	8.6
810809	12	8.5	8.5	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.5	8.1
810810	12	8.0	8.0	8.0	8.0	8.0	8.0	8.5	8.5	8.5	8.0	8.0	8.0	8.0	8.5	8.2
810811	12	8.0	8.0	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	8.0	7.6
810812	12	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.6
810813	12	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.1
810814	12	7.0	7.0	7.0	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	7.0	6.7
810815	12	6.5	6.5	6.5	6.5	6.5	6.0	6.0	6.0	6.0	6.0	6.0	5.5	5.5	6.5	6.2
810816	12	5.5	5.5	5.5	5.5	5.0	5.0	5.0	5.5	5.5	5.5	5.5	5.5	5.0	5.5	5.4
810817	12	5.0	5.0	4.5	4.5	4.5	5.0	5.5	5.5	5.5	5.5	5.5	5.5	4.5	5.5	5.2
810818	12	5.5	5.5	5.5	5.5	6.0	6.5	6.5	6.5	6.5	6.5	6.5	6.5	5.5	6.5	6.2
810819	4	6.5	6.5	6.5	6.5	-.0	-.0	-.0	-.0	-.0	-.0	-.0	-.0	6.5	6.5	6.6
810820	11	-.0	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.6
810821	12	6.5	6.5	6.0	6.0	6.5	6.5	6.5	7.0	7.0	7.0	7.0	7.0	6.0	7.0	6.7

VALUES= -.0 INDICATE MISSING DATA

TABLE 19. DAILY THERMOGRAPH STATISTICS, LOWER SUSITNA RIVER, 1981.

ABOVE INDIAN R. - 138.7

DATE	# OBS.	0200	0400	0600	0800	1000	1200	1400	1600	1800	2000	2200	2400	MIN. TEMP.	MAX. TEMP.	MEAN TEMP.
		TEMPERATURE AT TIME														
810822	12	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.1
810823	12	7.0	6.5	6.5	6.5	6.5	7.0	7.5	7.5	7.0	7.0	7.0	6.5	6.5	7.5	6.9
810824	12	6.5	6.5	6.0	6.5	7.5	7.5	7.5	7.5	7.5	7.0	7.0	7.0	6.0	7.5	7.1
810825	11	7.0	7.0	7.0	7.0	7.5	7.5	7.5	7.5	-.0	8.0	8.0	8.0	7.0	8.0	7.5
810826	12	8.5	8.5	8.0	8.0	8.5	8.5	9.0	9.0	9.5	9.5	9.5	9.5	8.0	9.5	8.9
810827	12	9.5	9.0	9.0	9.0	9.0	9.5	9.5	10.0	10.0	10.0	10.0	10.0	9.0	10.0	9.6
810828	12	10.0	10.0	9.5	9.5	9.5	10.0	10.5	10.5	10.5	10.5	10.5	10.5	9.5	10.5	10.2
810829	12	10.0	10.0	10.0	10.0	9.5	9.5	9.5	9.5	9.5	9.5	9.0	9.0	9.0	10.0	9.6
810830	12	9.0	9.0	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.0	9.0	9.0	9.5	9.4
810831	11	9.0	8.5	8.5	8.5	-.0	10.0	10.0	10.0	10.0	10.0	9.5	9.5	8.5	10.0	9.5
810901	12	9.0	9.0	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.0	8.0	8.0	8.0	9.0	8.5
810902	12	8.0	8.0	8.0	8.0	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	8.0	7.7
810903	12	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.6
810904	12	7.5	7.5	7.5	7.5	7.5	7.5	8.0	8.0	8.0	8.0	7.5	7.5	7.5	8.0	7.7
810905	12	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.6

VALUES= -.0 INDICATE MISSING DATA

TABLE 19. DAILY THERMOGRAPH STATISTICS, LOWER SUSITNA RIVER, 1981.

ABOVE INDIAN R. - 138.7

DATE	# OBS.	TEMPERATURE AT TIME 0200	0400	0600	0800	1000	1200	1400	1600	1800	2000	2200	2400	MIN. TEMP.	MAX. TEMP.	MEAN TEMP.
810906	12	7.5	7.5	7.5	7.5	7.5	8.0	8.0	7.5	7.5	7.0	7.0	7.0	7.0	8.0	7.5
810907	12	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.1
810908	12	7.0	7.0	7.0	6.5	6.5	6.5	7.0	7.0	7.0	7.0	6.5	6.5	6.5	7.0	6.8
810909	12	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.1
810910	12	6.0	6.0	6.0	6.0	6.0	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.0	6.5	6.3
810911	12	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.0	6.0	6.0	6.5	6.5
810925	12	3.5	3.5	3.5	3.5	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.5	3.2
810926	12	2.5	2.5	2.0	2.0	2.0	2.0	2.5	2.5	2.0	1.5	1.5	1.5	1.5	2.5	2.1
810927	12	1.0	1.0	1.0	1.0	1.0	1.5	1.5	1.5	1.5	1.0	1.0	1.0	1.0	1.5	1.2
810928	12	1.0	1.0	1.0	1.0	1.0	.5	.5	0.0	0.0	0.0	.5	1.0	0.0	1.0	.7
810929	7	1.0	1.0	1.0	1.0	1.0	1.5	2.0	-.0	-.0	-.0	-.0	-.0	1.0	2.0	1.3

VALUES= -.0 INDIC TE MISSING DATA

TABLE 20. DAILY THERMOGRAPH STATISTICS, LOWER SUSITNA RIVER, 1981.

SLOUGH 19 (W) - 140.0

DATE	# OBS.	TEMPERATURE AT TIME 0200	0400	0600	0800	1000	1200	1400	1600	1800	2000	2200	2400	MIN. TEMP.	MAX. TEMP.	MEAN TEMP.
810827	1	-.0	-.0	-.0	-.0	-.0	-.0	-.0	-.0	-.0	-.0	-.0	5.0	5.0	5.0	5.1
810828	12	4.5	4.5	4.5	4.5	4.5	4.5	5.0	5.0	6.0	6.5	6.0	5.0	4.5	6.5	5.1
810829	12	5.0	4.5	4.5	4.5	4.5	4.5	5.0	5.0	5.0	5.0	5.0	5.0	4.5	5.0	4.8
810830	12	5.0	4.5	4.5	4.5	4.5	5.0	5.0	5.0	5.0	5.0	5.0	5.0	4.5	5.0	4.9
810831	12	4.5	4.5	4.5	4.5	4.5	5.0	5.0	6.0	6.0	6.5	5.5	4.5	4.5	6.5	5.1
810901	12	4.0	4.0	4.0	4.0	4.0	4.0	4.5	5.0	5.5	6.0	5.5	5.0	4.0	6.0	4.7
810902	12	4.0	4.0	4.0	4.0	4.0	4.5	4.5	5.0	5.5	5.5	5.0	4.5	4.0	5.5	4.6
810903	12	4.5	4.5	4.5	4.5	4.5	4.5	4.5	5.0	5.5	6.0	6.0	5.0	4.5	6.0	5.0
810904	12	4.5	4.5	4.5	4.5	4.5	5.0	6.0	6.0	6.0	5.5	5.0	5.0	4.5	6.0	5.1
810905	12	4.5	4.5	4.5	4.5	5.0	5.0	5.5	5.5	5.5	5.0	4.5	4.5	4.5	5.5	4.9
810906	12	4.5	4.0	4.0	4.0	4.0	4.0	4.5	5.0	5.5	5.0	4.5	4.5	4.0	5.5	4.5
810907	12	4.0	3.5	3.5	3.5	4.0	4.0	4.5	5.5	6.0	5.5	5.0	4.5	3.5	6.0	4.5
810908	12	4.5	5.0	5.0	4.5	4.5	4.5	5.0	6.0	7.0	6.0	5.0	4.0	4.0	7.0	5.1
810909	12	4.0	3.5	3.5	3.5	4.0	5.0	6.0	6.5	6.0	5.5	5.0	5.0	3.5	6.5	4.8
810910	12	5.0	5.0	5.0	5.0	5.0	5.5	6.0	6.0	6.0	5.5	5.0	4.5	4.5	6.0	5.3

VALUES= -.0 INDICATE MISSING DATA

TABLE 20. DAILY THERMOGRAPH STATISTICS, LOWER SUSITNA RIVER, 1981.

SLOUGH 19 (W) - 140.0

		TEMPERATURE AT TIME												MIN.	MAX.	MEAN
DATE	# OBS.	0200	0400	0600	0800	1000	1200	1400	1600	1800	2000	2200	2400	TEMP.	TEMP.	TEMP.
810911	12	4.5	4.0	4.0	4.0	4.0	4.5	5.0	6.0	6.0	6.0	6.0	5.0	4.0	6.0	5.0
810912	12	5.0	5.0	4.5	4.0	4.0	4.0	4.0	5.0	5.5	6.0	5.5	5.0	4.0	6.0	4.8
810913	3	4.5	4.0	4.0	-.0	-.0	-.0	-.0	-.0	-.0	-.0	-.0	-.0	4.0	4.5	4.2

VALUES= -.0 INDICATE MISSING DATA

TABLE 21. DAILY THERMOGRAPH STATISTICS, LOWER SUSITNA RIVER, 1981.

SLOUGH 21 (W) - 142.0

DATE	# OBS.	TEMPERATURE AT TIME 0200	0400	0600	0800	1000	1200	1400	1600	1800	2000	2200	2400	MIN. TEMP.	MAX. TEMP.	MEAN TEMP.
810828	12	5.0	5.0	5.0	5.0	5.5	5.5	8.0	9.0	8.5	7.0	6.0	5.5	5.0	9.0	6.3
810829	12	5.0	5.0	5.0	5.0	5.5	6.0	6.0	6.0	5.5	5.5	5.5	5.5	5.0	6.0	5.5
810830	12	5.5	5.5	5.5	5.5	5.5	6.0	6.5	5.5	5.0	5.0	5.5	5.0	5.0	6.5	5.6
810831	12	5.0	5.0	5.0	5.0	5.5	6.5	7.0	8.5	8.0	6.0	5.5	5.0	5.0	8.5	6.1
810901	12	4.5	4.5	4.5	4.5	4.5	4.5	6.5	8.0	8.0	6.5	5.5	5.0	4.5	8.0	5.6
810902	12	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.5	6.0	6.5	6.0	5.5	5.0	6.5	5.4
810903	12	5.5	5.5	5.0	5.0	5.0	5.5	6.0	6.0	7.0	6.0	5.5	5.5	5.0	7.0	5.7
810904	12	5.0	5.0	5.0	5.0	5.5	5.5	6.5	7.0	7.0	6.0	6.0	5.0	5.0	7.0	5.8
810905	12	5.5	5.5	5.5	5.5	5.5	6.5	7.0	7.0	6.0	6.0	5.0	5.0	5.0	7.0	5.9
810906	12	5.0	5.0	5.0	5.0	5.0	5.5	7.0	6.5	6.0	6.0	5.0	5.0	5.0	7.0	5.6
810907	12	5.0	4.5	4.5	4.5	4.5	5.0	6.0	7.0	6.5	6.0	5.5	5.0	4.5	7.0	5.4
810908	12	5.0	5.0	5.0	5.0	5.5	5.0	6.5	8.5	8.0	6.0	5.0	5.0	5.0	8.5	5.8
810909	12	4.5	4.5	4.5	4.5	5.0	5.0	6.5	7.0	6.0	6.0	5.5	5.5	4.5	7.0	5.4
810910	12	5.5	5.5	5.5	5.0	5.5	6.0	6.5	6.5	6.0	5.5	5.0	5.0	5.0	6.5	5.7
810911	12	5.0	5.0	5.0	5.0	5.5	6.0	6.0	6.0	6.5	6.0	6.0	6.0	5.0	6.5	5.7

VALUES= -.0 INDICATE MISSING DATA

TABLE 21. DAILY THERMOGRAPH STATISTICS, LOWER SUSITNA RIVER, 1981.

SLOUGH 21 (W) - 142.0

DATE	# OBS.	TEMPERATURE AT TIME 0200	0400	0600	0800	1000	1200	1400	1600	1800	2000	2200	2400	MIN. TEMP.	MAX. TEMP.	MEAN TEMP.
810912	12	5.0	5.0	5.0	5.0	5.0	5.0	6.0	7.0	7.0	6.0	5.5	5.0	5.0	7.0	5.6
810913	12	5.0	5.0	5.0	5.0	5.0	5.5	6.0	6.5	7.0	6.0	5.5	5.5	5.0	7.0	5.6
810914	12	4.5	4.5	4.5	4.5	4.5	5.0	6.0	6.5	6.5	5.5	5.0	5.0	4.5	6.5	5.2
810915	12	4.5	4.5	4.5	4.5	5.0	5.5	6.5	7.0	6.0	6.0	5.0	5.0	4.5	7.0	5.4
810916	12	5.0	5.0	5.0	5.0	5.0	5.5	6.0	7.0	7.0	5.0	5.0	5.0	5.0	7.0	5.5
810917	12	5.0	5.0	5.0	5.0	5.0	5.0	5.5	7.5	7.5	6.0	5.5	5.0	5.0	7.5	5.6
810918	12	5.0	5.0	5.0	5.0	5.0	5.5	6.0	6.5	6.0	5.5	5.5	5.5	5.0	6.5	5.5
810919	12	5.0	5.0	5.0	5.0	5.0	5.5	6.0	6.0	6.0	6.0	5.0	5.0	5.0	6.0	5.4
810920	12	5.0	5.0	5.0	5.0	5.0	5.0	5.5	7.0	6.0	5.5	5.0	5.0	5.0	7.0	5.4
810921	12	4.5	4.5	4.5	4.5	5.0	5.5	5.5	6.5	6.0	5.5	5.0	5.0	4.5	6.5	5.2
810922	12	4.5	4.5	4.0	4.0	4.0	4.0	4.5	6.5	6.5	5.0	4.5	4.5	4.0	6.5	4.8
810923	12	4.5	4.5	4.5	4.5	4.5	5.0	5.5	5.5	5.0	4.5	4.0	4.0	4.0	5.5	4.7
810924	12	3.5	4.0	4.0	4.0	4.0	5.0	5.5	5.5	5.0	4.5	4.0	4.0	3.5	5.5	4.5
810925	12	4.0	4.0	4.0	4.0	4.0	4.5	5.0	6.0	6.0	4.5	4.0	4.0	4.0	6.0	4.6
810926	12	3.5	3.5	3.0	3.0	3.0	3.0	3.5	5.0	5.5	4.0	3.5	3.5	3.0	5.5	3.7

VALUES= -.0 INDICATE MISSING DATA

TABLE 21. DAILY THERMOGRAPH STATISTICS, LOWER SUSITNA RIVER, 1981.

SLOUGH 21 (W) - 142.0

DATE	# OBS.	TEMPERATURE AT TIME 0200	0400	0600	0800	1000	1200	1400	1600	1800	2000	2200	2400	MIN. TEMP.	MAX. TEMP.	MEAN TEMP.
810927	12	3.0	3.0	3.0	3.0	3.0	4.0	5.0	5.0	5.0	4.0	4.0	4.0	3.0	5.0	3.9
810928	12	4.0	4.0	3.5	3.0	3.0	4.0	4.5	5.0	5.0	4.0	4.0	3.5	3.0	5.0	4.0
810929	8	3.5	3.0	3.0	3.0	3.5	4.0	4.0	5.0	-.0	-.0	-.0	-.0	3.0	5.0	3.7

VALUES= -.0 INDICATE MISSING DATA

TABLE 22. DAILY THERMOGRAPH STATISTICS, LOWER SUSITNA RIVER, 1981.

SLOUGH 21 (S) - 142.0

DATE	# OBS.	TEMPERATURE AT TIME 0200	0400	0600	0800	1000	1200	1400	1600	1800	2000	2200	2400	MIN. TEMP.	MAX. TEMP.	MEAN TEMP.
810908	12	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
810910	12	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
810911	12	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
810912	12	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
810913	12	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
810914	12	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
810915	12	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
810916	12	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
810917	12	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
810918	12	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
810919	12	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
810920	12	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
810921	12	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
810827	12	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
810828	12	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0

VALUES= -.0 INDICATE MISSING DATA

TABLE 22. DAILY THERMOGRAPH STATISTICS, LOWER SUSITNA RIVER, 1981.

SLOUGH 21 (S) - 142.0

DATE	# OBS.	TEMPERATURE AT TIME 0200	0400	0600	0800	1000	1200	1400	1600	1800	2000	2200	2400	MIN. TEMP.	MAX. TEMP.	MEAN TEMP.
810829	12	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
810830	12	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
810831	12	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
810901	12	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
810902	12	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
810903	12	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
810904	12	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
810905	12	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
810906	12	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
810907	12	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
810922	12	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
810923	12	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
810924	12	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
810925	12	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
810926	12	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0

VALUES= -.0 INDICATE MISSING DATA

TABLE 22. DAILY THERMOGRAPH STATISTICS, LOWER SUSITNA RIVER, 1981.

SLOUGH 21 (S) - 142.0

DATE	# OBS.	TEMPERATURE AT TIME 0200	0400	0600	0800	1000	1200	1400	1600	1800	2000	2200	2400	MIN. TEMP.	MAX. TEMP.	MEAN TEMP.
810927	12	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
810928	12	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
810929	5	3.0	3.0	3.0	3.0	3.0	-.0	-.0	-.0	-.0	-.0	-.0	-.0	3.0	3.0	3.0

VALUES= -.0 INDICATE MISSING DATA

TABLE 23. DAILY THERMOGRAPH STATISTICS, LOWER SUSITNA RIVER, 1981.

ABOVE PORTAGE CR. 148.8

DATE	# OBS.	0200	0400	0600	0800	1000	1200	1400	1600	1800	2000	2200	2400	MIN. TEMP.	MAX. TEMP.	MEAN TEMP.
		TEMPERATURE AT TIME														
810717	6	-.0	-.0	-.0	-.0	-.0	-.0	9.5	10.0	10.0	10.5	10.5	10.5	9.5	10.5	10.2
810718	12	10.0	10.0	10.0	10.0	9.5	9.5	9.5	10.0	10.0	10.0	10.5	10.5	9.5	10.5	10.0
810719	12	10.5	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.5	10.1
810720	12	10.0	10.0	10.0	10.0	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	10.0	9.7
810721	12	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	10.0	10.0	10.5	10.5	9.5	10.5	9.8
810722	12	10.0	10.0	9.5	9.5	9.5	9.5	9.5	10.0	10.5	10.5	10.5	10.5	9.5	10.5	10.0
810723	12	10.5	10.5	10.5	10.5	10.0	10.0	10.0	10.0	10.5	10.5	10.5	10.5	10.0	10.5	10.4
810724	12	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.5	10.5	10.5	10.5	10.5	10.0	10.5	10.3
810725	12	10.5	10.0	10.0	10.0	10.0	10.0	10.0	10.5	10.0	10.0	10.0	10.0	10.0	10.5	10.1
810726	12	10.0	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	10.0	9.5	10.0	9.6
810727	12	10.0	10.0	10.0	9.5	9.5	9.5	9.5	10.0	10.0	10.5	10.5	10.5	9.5	10.5	10.0
810728	12	10.5	10.0	10.0	10.0	10.5	10.5	11.5	11.5	11.0	10.5	10.0	10.0	10.0	11.5	10.6
810729	3	10.0	10.0	10.0	-.0	-.0	-.0	-.0	-.0	-.0	-.0	-.0	-.0	10.0	10.0	10.1
810801	12	10.5	10.5	10.5	10.5	10.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	10.5	10.0
810802	12	9.0	9.0	8.5	8.5	8.5	8.5	8.5	8.5	9.0	9.0	9.0	9.0	8.5	9.0	8.8

VALUES= -.0 INDICATE MISSING DATA

TABLE 23. DAILY THERMOGRAPH STATISTICS, LOWER SUSITNA RIVER, 1981.

ABOVE PORTAGE CR. 148.8

DATE	# OBS.	TEMPERATURE AT TIME 0200	0400	0600	0800	1000	1200	1400	1600	1800	2000	2200	2400	MIN. TEMP.	MAX. TEMP.	MEAN TEMP.
810803	12	9.0	9.0	8.5	8.5	8.5	8.5	9.0	9.5	9.5	9.5	10.0	9.5	8.5	10.0	9.1
810804	12	9.5	9.5	9.5	9.0	9.0	9.0	9.5	9.5	10.0	10.5	10.5	10.5	9.0	10.5	9.7
810805	11	10.5	10.5	10.0	10.0	10.0	-.0	10.5	10.5	11.0	11.0	11.0	11.0	10.0	11.0	10.6
810806	12	10.5	10.5	10.5	10.5	10.0	10.0	10.0	10.0	10.5	10.5	10.5	10.5	10.0	10.5	10.4
810807	12	10.5	10.5	10.0	10.0	10.0	9.5	9.5	10.0	10.0	10.0	9.5	9.5	9.5	10.5	10.0
810808	12	9.5	9.5	9.5	9.0	9.0	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.0	9.5	9.5
810809	12	9.0	9.0	9.0	8.5	8.5	8.5	8.5	8.5	9.0	9.0	9.0	9.0	8.5	9.0	8.8
810810	12	9.0	9.0	9.0	8.5	8.5	9.0	9.0	9.0	9.0	9.0	8.5	8.5	8.5	9.0	8.9
810811	12	8.5	8.5	8.0	8.0	8.0	8.0	8.0	8.0	8.5	8.5	8.5	8.5	8.0	8.5	8.3
810812	12	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.6
810813	12	8.5	8.5	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.5	8.1
810814	12	8.0	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	8.0	7.6
810815	12	7.5	7.5	7.5	7.5	7.0	7.0	7.0	7.0	7.0	6.5	6.5	6.5	6.5	7.5	7.1
810816	12	6.5	6.5	6.5	6.5	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.5	6.2
810817	12	6.0	6.0	5.5	5.5	5.5	5.5	5.5	5.5	6.0	6.0	6.5	6.5	5.5	6.5	5.9

VALUES= -.0 INDICATE MISSING DATA

TABLE 23. DAILY THERMOGRAPH STATISTICS, LOWER SUSITNA RIVER, 1981.

ABOVE PORTAGE CR. 148.8

DATE	# OBS.	TEMPERATURE AT TIME 0200	0400	0600	0800	1000	1200	1400	1600	1800	2000	2200	2400	MIN. TEMP.	MAX. TEMP.	MEAN TEMP.
810818	12	6.5	6.5	6.0	6.0	6.0	6.5	6.5	6.5	7.0	7.0	7.5	7.5	6.0	7.5	6.7
810819	12	7.5	7.5	7.0	7.0	7.0	7.0	7.5	7.5	7.5	7.5	8.0	8.0	7.0	8.0	7.5
810820	12	8.0	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	8.0	7.6
810821	12	7.5	7.5	7.5	7.0	7.0	7.0	7.0	7.5	7.5	7.5	7.5	7.5	7.0	7.5	7.4
810822	12	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	8.0	8.0	8.0	8.0	7.5	8.0	7.7
810823	12	8.0	8.0	7.5	7.5	7.5	7.5	7.5	7.5	8.0	8.0	8.0	8.0	7.5	8.0	7.8
810824	12	8.0	7.5	7.5	7.5	7.5	7.5	8.0	8.5	8.5	9.0	9.0	9.0	7.5	9.0	8.2
810825	12	9.0	9.0	9.0	9.0	10.0	10.0	10.0	10.0	10.0	9.5	9.5	9.5	9.0	10.0	9.6
810826	12	10.0	10.0	10.5	11.0	11.0	11.0	11.0	11.0	11.5	10.0	10.0	10.0	10.0	11.5	10.6
810827	12	11.0	11.0	11.0	11.5	12.0	12.5	12.0	11.0	11.0	11.0	11.0	11.0	11.0	12.5	11.4
810828	12	11.0	11.0	11.5	12.0	12.0	11.5	12.0	11.5	11.0	11.0	10.5	10.0	10.0	12.0	11.3
810829	12	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	9.5	9.5	9.5	10.0	10.0
810830	12	10.0	10.0	10.0	10.0	10.0	10.0	10.0	9.5	9.5	9.0	9.0	9.5	9.0	10.0	9.8
810831	12	10.0	10.0	10.0	10.0	10.0	10.0	9.5	9.0	9.0	8.0	8.0	8.0	8.0	10.0	9.3
810901	11	8.5	9.0	-.0	9.0	9.0	9.0	9.0	8.0	8.5	8.0	8.0	8.0	8.0	9.0	8.6

VALUES= -.0 INDICATE MISSING DATA

TABLE 23. DAILY THERMOGRAPH STATISTICS, LOWER SUSITNA RIVER, 1981.

ABOVE PORTAGE CR. 148.8

DATE	# OBS.	TEMPERATURE AT TIME 0200	0400	0600	0800	1000	1200	1400	1600	1800	2000	2200	2400	MIN. TEMP.	MAX. TEMP.	MEAN TEMP.
810902	12	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.1
810903	12	8.0	8.0	8.0	8.0	8.5	8.5	8.5	8.5	8.0	8.0	8.0	8.0	8.0	8.5	8.2
810904	12	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.0	8.0	8.0	8.0	8.0	8.5	8.4
810905	12	8.5	8.5	9.0	9.0	8.5	8.5	8.5	8.5	8.5	8.0	8.0	8.5	8.0	9.0	8.6
810906	12	8.5	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.5	8.1
810907	11	8.0	8.0	-.0	7.5	7.5	7.5	7.5	7.5	7.5	7.0	7.0	7.5	7.0	8.0	7.6
810908	7	7.5	8.0	7.5	7.5	7.0	7.0	6.0	-.0	-.0	-.0	-.0	-.0	6.0	8.0	7.3
810910	7	-.0	-.0	-.0	-.0	-.0	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.6
810911	12	8.0	8.0	7.5	7.5	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	8.0	7.3
810912	12	7.5	7.5	7.5	7.0	7.0	7.0	7.0	7.5	7.5	7.5	7.5	7.5	7.0	7.5	7.4
810913	12	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.1
810914	12	7.0	7.0	7.0	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	7.0	6.7
810915	12	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.6
810916	12	6.5	6.5	6.5	6.5	6.5	6.5	7.0	7.0	7.0	7.0	7.0	7.0	6.5	7.0	6.8
810917	12	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.1

VALUES= -.0 INDICATE MISSING DATA

TABLE 23. DAILY THERMOGRAPH STATISTICS, LOWER SUSITNA RIVER, 1981.

ABOVE PORTAGE CR. 148.8

DATE	# OBS.	0200	0400	0600	0800	1000	1200	1400	1600	1800	2000	2200	2400	MIN. TEMP.	MAX. TEMP.	MEAN TEMP.
		TEMPERATURE AT TIME														
810918	12	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.1
810919	12	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.1
810920	12	7.0	7.0	7.0	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	7.0	6.7
810921	12	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.6
810922	12	6.5	6.0	6.0	6.0	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	6.5	5.8
810923	12	5.5	5.5	5.5	5.0	5.0	5.0	5.0	5.0	5.0	5.0	4.5	4.5	4.5	5.5	5.1
810924	12	4.5	4.5	4.0	3.5	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.5	3.0	4.5	3.5
810925	11	3.5	3.5	3.5	3.5	3.0	3.0	-.0	3.5	3.5	3.5	3.5	3.5	3.0	3.5	3.5
810926	12	3.0	3.0	2.5	2.0	2.0	1.5	1.5	1.5	1.5	1.5	1.5	1.0	1.0	3.0	1.9
810927	12	1.0	1.0	1.0	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.0	1.5	1.4
810928	12	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
810929	12	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
810930	12	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
811001	12	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
811002	12	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5

VALUES= -.0 INDICATE MISSING DATA

TABLE 23. DAILY THERMOGRAPH STATISTICS, LOWER SUSITNA RIVER, 1981.

ABOVE PORTAGE CR. 148.8

		TEMPERATURE AT TIME												MIN.	MAX.	MEAN
DATE	# OBS.	0200	0400	0600	0800	1000	1200	1400	1600	1800	2000	2200	2400	TEMP.	TEMP.	TEMP.
811003	9	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	-.0	-.0	-.0	1.5	1.5	1.5

VALUES= -.0 INDICATE MISSING DATA

Appendix D

Stage data tables for AA

fishwheel and sonar sites.

Table 1. Staff gage readings from Sunshine Base Camp.

River Mile 79

Geographic Code 24N 05W 36 BDC

Date	Time	Height
810712	0400	2.57
810713	0400	2.75
810713	1100	2.60
810714	1100	1.80
810714	2045	1.55
810715	0033	1.59
810715	0910	1.57
810715	1705	1.62
810715	2125	1.60
810716	0840	1.80
810716	1440	1.92
810717	1100	2.05
810718	2230	1.80
810719	0800	1.90
810719	1200	1.95
810719	2100	1.98
810720	0930	1.85
810720	1900	1.98
810720	2200	2.00
810721	1600	1.98
810721	2100	1.85
810722	1400	1.60
810722	1900	1.45
810723	0900	1.22
810723	1500	1.30
810723	1730	1.38
810724	1400	1.20
810724	1900	1.15
810725	1200	1.40
810725	1900	1.40
810726	0530	1.36
810726	0930	1.40
810726	1800	1.30
810727	1600	1.10
810728	0700	0.80
810728	1300	0.70
810728	1930	0.50
810729	0930	0.34
810729	1445	0.34
810730	0710	0.34
810730	1930	0.38
810730	0830	0.24

Table 1 (Continued)

Date	Time	Height
810731	1800	0.15
810731	2250	0.50
810801	0700	0.18
810801	1030	0.18
810801	1600	0.52
810801	2000	1.20
810801	2200	1.65
810801	2345	2.00
810802	0800	3.20
810802	0930	3.30
810802	1200	3.70
810802	1330	3.75
810802	2030	3.66
810802	2330	3.47
810803	New Gage	
810804	1546	2.75
810805	1200	2.20
810806	1100	1.60
810806	1500	1.58
810806	2000	1.48
810807	0830	1.36
810807	1630	1.35
810808	0700	1.30
810808	1500	1.40
810808	2100	1.40
810809	1200	2.15
810809	1500	2.22
810809	2000	2.30
810810	1200	2.58
810810	1600	2.60
810811	1200	2.70
810811	1630	2.60
810811	2000	2.58
810811	2200	2.55
810812	0800	2.62
810812	1500	2.85
810812	2000	2.95
810812	2230	2.98
810813	0800	3.22
810818	1400	3.30
810813	2100	3.30
810814*		
810815*		
810816*		
810817	0730	3.30
810817	2000	2.60

Table 1 (Continued)

Date	Time	Height
810818	0900	2.10
810818	1600	1.88
810819	0930	1.45
810819	1200	1.40
810819	1900	1.30
810820	0900	1.45
810820	1730	1.70

* Readings absent due to submerged gage.

Table 2. Staff gage readings from Sunshine fishwheel located on the west shore immediately below the sonar site.

River Mile 81

Geographic Code 24N 05W 26 BAA

Date	Time	Height
810729	1800	2.20
810730	0900	2.24
810730	2150	2.20
810731	0906	2.10
810731	1445	2.08
810731	1930	1.98
810801	0500	1.92
810801	1425	2.20
810801	1905	2.26
810802-810805*		
810806	1021	2.41
810806	1920	2.29
810806	2235	2.28
810807	1000	2.21
810807	1400	2.20
810808	0530	2.18
810808	0805	2.20
810808	1310	2.28
810808	1716	2.26
810808	2050	2.28
810809	0908	2.59
810809	1645	2.75
810810	0800	2.85
810810	1710	2.90
810810	2100	2.95
810811-810816*		
810817	1700	3.3
810818	1020	2.84
810818	1700	2.70
810818	1940	2.74
810819	1053	2.48
810821	0600	2.65
810821	1550	2.65
810825	0830	2.10
810825	1600	2.00
810828	0830	1.84
810830	0925	1.82
810830	1920	1.80
810831	1005	1.76
810901	2000	1.58
810902	1001	1.48
810903	0928	1.18

Table 2 (Continued)

Date	Time	Height
810903	1948	1.01
810904	1730	0.80
810905	1055	0.64
810905	1950	0.64
810906	0916	0.62
810906	1844	0.59
810907	0930	0.61

* Readings absent due to a submerged gage.

Table 3. Staff gage readings from Talkeetna Base Camp.

River Mile 101

Gographic Code 27N 05W 26 DDD

Date	Time	Height
810625	1130	1.51
810625	1205	1.53
810626	0830	1.59
810627	1030	1.71
810627	1700	1.85
810628	0800	2.64
810628	2000	3.05
810629	0800	3.30
810629	1800	3.35
810701	New Gage was installed	
810701	0900	2.84
810702	0830	2.35
810703	0930	1.73
810704	1300	1.21
810705	1700	0.89
810706	1000	0.94
810707	0830	1.27
810708	0800	2.85
810708	1000	3.10
810709	0800	3.09
810710	0800	4.18
810710	1200	4.52
810710	2000	6.10
810710	2300	6.35
810711	0900	6.35
810711	1800	6.60
810711	2300	6.60
810712	0900	6.76
810712	1500	7.10
810712	1800	7.43
810713	0930	6.51
810713	1400	6.26
810713	1930	6.09
810714	0930	5.51
810714	1900	5.01
810715	0830	4.68
810716	0800	4.85
810716	1500	5.01
810716	1800	5.18
810717	0830	5.22
810717	1400	5.35
810717	2100	5.51
810718	0900	5.76
810719	0900	5.95

Table 3 (Continued)

Date	Time	Height
810720	0900	5.76
810721	0800	5.85
810721	2000	5.35
810722	0800	5.18
810722	2200	5.01
810723	0800	4.89
810724	0900	4.68
810725	0900	5.01
810726	0900	5.14
810727	0900	5.10
810728	0930	4.51
810728	2000	4.14
810729	0900	4.01
810730	0900	4.01
810731	0900	3.76
810801	0900	3.68
810801	1300	4.18
810801	2200	5.76
810801	2400	6.55
810802	0400	7.14
810802	0800	7.63
810802	1900	7.05
810803	0900	6.75
810803	2300	6.43
810804	0900	5.76
810805	0930	4.93
810806	0900	4.26
810806	1800	4.08
810807	1000	3.68
810808	1100	3.97
810809	1000	5.43
810809	1800	5.93
810810	0800	5.89
810811	0400	6.05
810811	1000	6.18
810812	0800	6.01
810812	1400	6.18
810813	0800	6.43
810813	1700	6.68
810814	1000	7.21
810815	0900	7.47
810815	1600	7.73
810816	0900	7.13
810816	1400	6.97
810817	0900	6.59
810817	1200	6.30
810817	2300	5.72

Table 3 (Continued)

Date	Time	Height
810818	0900	5.30
810819	0900	4.60
810820	0900	4.88
810820	1400	5.22
810821	0900	5.59
810821	1100	5.76
810822	0900	6.10
810823	1000	5.72
810824	0900	5.30
810825	0900	4.51
810826	0900	3.97
810826	1800	3.89
810827	0700	3.68
810828	0900	3.64
810829	0800	3.60
810830	0900	3.58
810831	0900	3.39
810901	0930	3.19
810902	0930	3.04
810903	0900	2.68
810904	0900	2.36
810905	1030	2.19
810906	1100	2.08
810909	1100	1.89
810910	1000	1.72
810911	0900	1.81
810912	0900	1.86

Table 4. Staff gage readings from Curry Fishwheel Camp.

River Mile 120.0

Geographic Code 29N 04W 16 DBA

Date	Time	Height
810626	1600	2.16
810627	1100	2.21
810628	0930	3.13
810629	0930	3.23
810630	0900	3.63
810701	1800	2.91
810702	0930	2.53
810703	0830	2.06
810704	0900	1.72
810705	1100	1.52
810706	0900	1.55
810707	0900	1.83
810708	1000	3.29
810709	0930	3.21
810710	1400	4.73
810711	--	--
810712	1145	6.07
810713	0830	5.82
810714	0930	4.96
810715	0830	4.37
810716	1200	4.62
810717	1800	4.92
810718	0830	5.16
810719	1400	5.29
810720	1030	5.22
810721	1100	5.10
810722	0930	4.67
810723	0930	4.46
810724	0930	4.64
810725	--	--
810726	1000	5.16
810727	1000	5.16
810728	1030	4.31
810729	1030	4.11
810730	1400	2.96
810731	1000	3.76
810801	1030	4.01
810802	0700	7.25
810803	0900	6.52
810804	0900	5.85
810805	0730	5.10
810806	1330	4.08

Table 4 (Continued)

Date	Time	Height
810807	2000	3.88
810808	1000	3.92
810809	0900	5.08
810810	0800	5.29
810811	0800	5.52
810812	0900	5.46
810813	0930	5.76
810814	1100	6.26
810815	0800	6.35
810816	0800	6.23
810817	0800	5.72
810818	0830	4.78
810819	0830	4.31
810820	0700	4.63
810821	0800	5.17
810822	0800	5.44
810823	0830	5.07
810824	0800	4.74
810825	0830	4.18
810826	0830	3.78
810827	0800	3.56
810828	0900	3.53
810829	1000	3.52
810830	0900	3.51
810831	0800	3.37
810901	0800	3.22
810902	0800	3.09
810903	0730	2.83
810904	1000	2.55
810905	0830	2.46
810906	0830	2.41
810907	0830	2.41
810908	0830	2.42
810909	1000	2.25
810910	0830	2.13
810911	0900	2.17
810912	1100	2.23
810913	--	--
810914	--	--
810915	1000	0.29
810916	0700	0.22
810917	0830	0.17
810918	0900	0.11
810919	0830	0.00
810920	0900	0.15
810921	0730	0.36

Appendix E

Cross section survey data of each selected habitat evaluation study site.

Table 1. Cross section survey of slough 8A.

October 10, 1981

Transect 1 Dewatered

Station	Elevation
LBHP*	586.91
GB**	586.595
2.70 Bankfull	586.42
15.50	580.26
18.5	580.83
21.95	581.32
26.20	582.00
31.40	582.61
39.10	582.90
46.45	584.18
50.2	582.83
52.6	582.51
54.95	582.81
57.40	583.14
59.0	584.10
65.0	584.12
67.1	585.59
68.8 Bankfull	586.38
78.0 GB**	586.41
RBHP***	586.81

LBHP* - Left Bank Head Pin
GB** - Ground Elevation Beside Head Pin
RBHP*** - Right Bank Head Pin

Table 2. Cross section survey of slough 8A.

October 10, 1981

Transect 2 Dewatered

Station	Elevation
LBHP2*	585.81
GB**	585.42
11.3	585.77
21.1	585.15
26.6 Bankfull	585.07
37.2	584.31
48.55	583.80
57.4	583.60
70.8	583.91
77.8	583.20
88.35	583.76
95.2	584.03
103.4	583.87
116.85	584.31
125.5	584.23
131.3	583.77
137.9	583.49
150.9	583.65
166.3	583.77
170.55	583.50
137.8	583.91
194.1	583.50
199.95	583.20
207.0	583.57
233.25	583.57
247.65	583.51
257.6	583.29
269.4	583.62
264.3	583.32
328.5	583.16
336.05	582.86
381.7	582.86
396.3	583.21
427.6	583.21
443.9	582.76
452.7	583.49
463.45	583.79
480.4	584.07
486.7	584.11
490.6 Bankfull	584.70
487.3	585.44
507. GB**	586.23
RBHP***	586.58

Table 3. Cross section survey of slough 8A.

October 10, 1981

Transect 3 Dewatered

Station	Elevation
LBHP3*	585.43
GB**	585.06
11.8	584.79
21.5 Bankfull	584.12
24.6	583.41
26.4	582.43
34.5	580.88
45.0	580.29
48.3	581.48
52.4	581.27
56.45	581.05
61.70	581.49
70.6	581.68
81.25	581.76
91.4	581.66
99.70	581.32
107.6	581.17
111.6	580.98
116.0	581.07
119.1	581.50
121.5	582.16
123.4	582.52
125.85	582.77
129.0	583.55
131.2 Bankfull	584.31
138.2	584.89
147.1 GB**	585.15
RBHP***	585.48

Table 4. Cross section survey of slough 8A.

October 10, 1981

Transect 4 Dewatered

Station	Elevation
LBHP4*	583.43
GB**	583.01
3.7	582.70
19.2	582.07
41.6	581.90
46.5	581.83
49.7	581.42
53.5	581.04
59.0	580.59
69.0	580.10
74.8	580.48
77.55	581.13
80.80	581.42
116.7	581.39
145.9	581.55
168.4	581.12
184.4	580.95
200.85	581.01
221.7	585.26
228.8	581.57
233.2	581.77
236.0	582.14
237.4	582.84
240.3	583.03
242.4 Bankfull	583.66
246.9	583.90
255.0	584.68
259.9 GB**	584.78
RBHP***	585.19

Table 5. Cross section survey of slough 8A.

October 11, 1981

Transect 5 Dewatered

Station	Elevation
LBHP5*	583.08
GB**	582.56
5.0 Bankfull	582.37
8.2	580.21
10.1	579.37
13.5	578.27
16.35	577.67
19.5	576.98
24.1	576.76
28.8	577.53
31.1	576.86
34.8	577.50
39.3	576.06
45.7	574.99
47.3	575.28
50.45	574.97
52.4	575.61
55.2	576.25
57.7	577.05
61.5	576.73
63.65	577.11
66.9	576.41
70.3	575.94
74.2	576.11
78.3	576.47
81.9	576.62
84.0	576.21
86.5	576.33
88.75	575.51
90.7	574.66
93.0	574.02
95.0	573.74
98.7	574.23
100.9	575.17
102.3	575.56
104.2	575.91
106.1	575.77
108.0	575.05
109.3	574.54
110.7	573.48
114.7	573.54
116.1	574.26

Table 5 Continued

Slough 8A

Transect 5 (Continued).

Station	Elevation
118.4	573.88
121.8	573.54
126.3	573.17
129.5	573.40
140.3	573.24
147.8	573.61
153.3	573.59
156.0	573.95
164.0	574.14
170.6	574.58
175.55	574.95
178.5	574.77
182.0	575.30
185.55	574.75
187.35	574.66
188.7	575.09
144.9	575.12
198.1	575.43
202.7	575.03
208.4	575.25
211.7	574.79
216.2	575.81
217.2	576.93
218.6 Bankfull	577.72
226.1 GB**	578.22
RBHP***	578.68

Table 6. Cross section survey of slough 8A.

October 10, 1981

Transect 6 Dewatered

Station	Elevation
LBHP6*	576.39
GB**	575.85
14.0 Bankfull	575.66
33.6	574.74
58.3	574.07
105.3	573.82
123.45	573.44
130.5	573.47
194.55	573.03
222.5	573.39
240.35	573.77
257.3	573.30
269.15	573.19
278.4	574.23
286.9	575.09
291.2	575.39
294.3 Bankfull	576.57
298.4	477.15
304.0	577.80
309.0	578.37
314.1 GB**	578.27
RBHP***	578.77

Table 7. Cross section survey of slough 8A.

October 10, 1981

Transect 7 Mouth of Slough 8A

Station	Elevation
LBHP7*	566.56
GB**	566.09
11.7 Bankfull	566.21
16.3	565.38
22.0	564.21
28.85	563.47
36.6	563.10
38.9	563.13
44.8	562.40
53.6	562.36
62.85	562.25
100.55 L. Water Edge	561.07
L. Water Sur. Elev.	561.11
112.4	560.76
131.65	560.38
141.7	659.89
156.3	559.48
165.6	559.12
171.6	558.93
178	558.59
181	559.60
183.1 R. Water Edge	561.04
R. Water Sur. Elev.	561.13
185.8	562.72
190.6 Bankfull	568.47
194.16 GB**	568.52
RBHP***	569.00

Table 8. Cross section survey of slough 9.

October 14, 1981

Transect 1 Dewatered

Station	Elevation
LBHP1*	608.48
GB**	608.04
5.4	607.78
8.2 Bankfull	607.06
9.15	605.57
11.0	604.93
13.30	604.35
15.90	603.405
25.80	604.260
33.80	603.53
39.35	603.975
98.80	604.525
111.85	603.945
140.75	604.465
149.30	604.435
176.10	604.685
195.25	604.300
206.70	603.855
221.75	604.495
238.00	604.855
244.95	604.625
255.60	604.955
257.05	604.485
258.40	604.785
263.00	605.135
273.10	605.475
284.15	605.800
289.45	605.525
291.95	605.640
298.70	605.805

Table 8 Continued

Slough 9

Transect 1 (Continued)

Station	Elevation
301.45	605.905
304.15	605.365
310.00	604.450
335.00	604.205
336.35	603.945
341.20	604.245
370.30	604.325
376.25	604.695
381.00	604.075
384.40	603.225
391.00	602.385
393.60	602.155
398.40	602.450
400.35	603.235
402.45	603.765
404.25	604.315
410.85	602.655
413.00	606.525
414.55 Bankfull	607.625
418.30	608.895
423.00 GB**	608.595
RBHP***	699.140

Table 9. Cross section survey of slough 9.

October 14, 1981

Transect 5 Mouth of Slough 9

Station		Elevation
LBHP5*		597.705
GB**		597.295
2.00	Bankfull	597.225
4.60		596.295
7.60		595.645
12.10		594.805
15.15		593.985
17.50		593.335
21.9		593.675
33.25		594.075
42.00		593.640
47.45		593.325
53.95		593.725
67.30		592.545
81.35		591.710
90.40		591.395
103.10		591.475
112.05		591.225
130.05		591.355
146.60		591.545
167.70		591.330
181.90		591.115
188.15		591.030
188.80	L Water Sur. Elev.	590.745
188.80	L Water Edge	590.675
194.35		590.275
204.85		590.325
209.90		590.645
215.80	R. Water Sur. Elev.	590.725
215.80	R. Water Edge	590.665
216.30		590.750
221.20		591.31
226.90		593.705
231.40	Bankfull	598.985
238.25	GB**	599.075
238.25	RBNP***	599.675

Table 10. Cross section survey of slough 16B.

September 9, 1981

Transect 1 Mouth of Slough 16B

Station	Elevation
LBHP1*	703.49
GB**	702.98
2.0	702.43
5.0	701.70
7.0	700.81
10.0	700.55
12.0	700.30
16.0	699.74
19.0	699.32
22.0	699.04
25.0	698.82
30.0	698.58
35.0	698.38
40.0	698.04
45.0	697.80
50.0	697.66
56.0 L. Water Sur. Elev.	697.24
56.0 L. Water Edge	697.44
59.0	697.29
62.0	697.05
64.0	696.91
66.0	696.88
68.0	696.75
70.0	696.72
72.0	696.62
74.0	696.50
76.0	696.39
77.6	696.40
78.5	696.65
79.8 R. Water Sur. Elev.	697.23
79.8 R. Water Edge	697.15
84.9	700.17
95.35	700.91
95.35 GB**	700.91
95.35 RBHP***	701.32

Table 11. Cross section survey of slough 16B.

September 9, 1981

Transect 17 Dewatered

Station	Elevation
LBHP*	708.02
GB**	707.63
2.0	707.52
6.0	705.52
8.0	704.17
20.0	703.16
60.0	703.02
84.0	703.04
114.0	703.17
130.0	703.50
142.0	703.97
155.0	704.02
174.0	704.49
182.5	704.44
185.0	704.17
187.0	704.73
189.0	705.23
189.5	705.90
191.0	707.65
194.5 GB**	708.20
RBHP***	708.67

Table 12. Cross section survey of slough 19.

September 26, 1981

Transect 1 Mouth of Slough 19

Station	Elevation
LBHP1*	723.96
GB**	723.58
8.0	723.04
18.0	722.04
23.0	722.47
31.4	721.98
34.0	721.73
43.5	722.01
46.3 Bankfull	722.41
49.9	721.84
51.2	720.58
53.4	720.13
55.5 L. Water Sur. Elev.	719.18
55.5 L. Water Edge	719.06
56.05	718.92
56.55	718.86
57.1	718.79
57.55	718.91
57.85 R. Water Sur. Elev.	719.18
57.85 R. Water Edge	719.10
59.15	791.81
62.20	720.16
64.80	721.455
71.40	721.99
74.30	722.71
80.85	721.51
97.15 Bankfull	722.22
101.50	724.15
106.65	724.91
RBHP***	725.38

Table 13. Cross section survey of slough 19.

September 26, 1981

Transect 10

Station	Elevation
LBHP10*	725.32
GB**	724.94
3.45 Bankfull	723.82
4.50	722.30
5.70 L. Water Sur. Elev.	721.98
5.70 L. Water Edge	721.96
7.20	721.89
9.60 R. Water Sur. Elev.	721.98
9.60 R. Water Edge	721.95
16.55	722.33
12.2	723.60
13.5 Bankfull	723.82
16.15 GB**	725.16
16.15 RBHP***	725.72

Table 14. Cross section survey of slough 21.

September 5, 1981

Transect 1 Dewatered

Station	Elevation
LBHP*	759.42
GB**	758.82
22.0	758.18
34.0	756.52
40.0	755.86
50.0	754.32
61.5	753.81
69.0	754.53
75.5	754.30
79.0	753.72
81.9	754.05
96.0	754.01
105.0	755.03
123.0	755.70
135.6	755.85
139.3	755.24
155.8	755.98
159.1 GB**	756.06
RBHP***	756.67

Table 15. Cross section survey of slough 21.

September 5, 1981

Transect 1A Dewatered

Station	Elevation
LBHP*	757.30
GB**	756.88
50	756.79
12.0	756.42
20.5	755.97
26.6	755.81
29.5	755.35
34.5	756.80
39.0	757.90
50.0	758.90
57.6 GB**	759.94
RBHP***	760.47

Table 16. Cross section survey of slough 21.

August 25, 1981

Transect 13

Station	Elevation
LBHP*	750.45
GB**	750.08
2.0	750.04
7.0	746.02
13.5	745.07
20.0	745.75
42.0	745.08
66.0	745.51
82.0	745.71
86.2 L. Water Sur. Elev.	744.73
94.0	743.15
108.5	743.44
120.0	744.10
127.5	743.48
134.5	744.27
134.7 R. Water Sur. Elev.	744.73
138	750.77
141.5 GB**	750.96
RBHP***	751.30

Appendix F

Mainstem Susitna River discharge at

Gold Creek versus time (May - October, 1981).

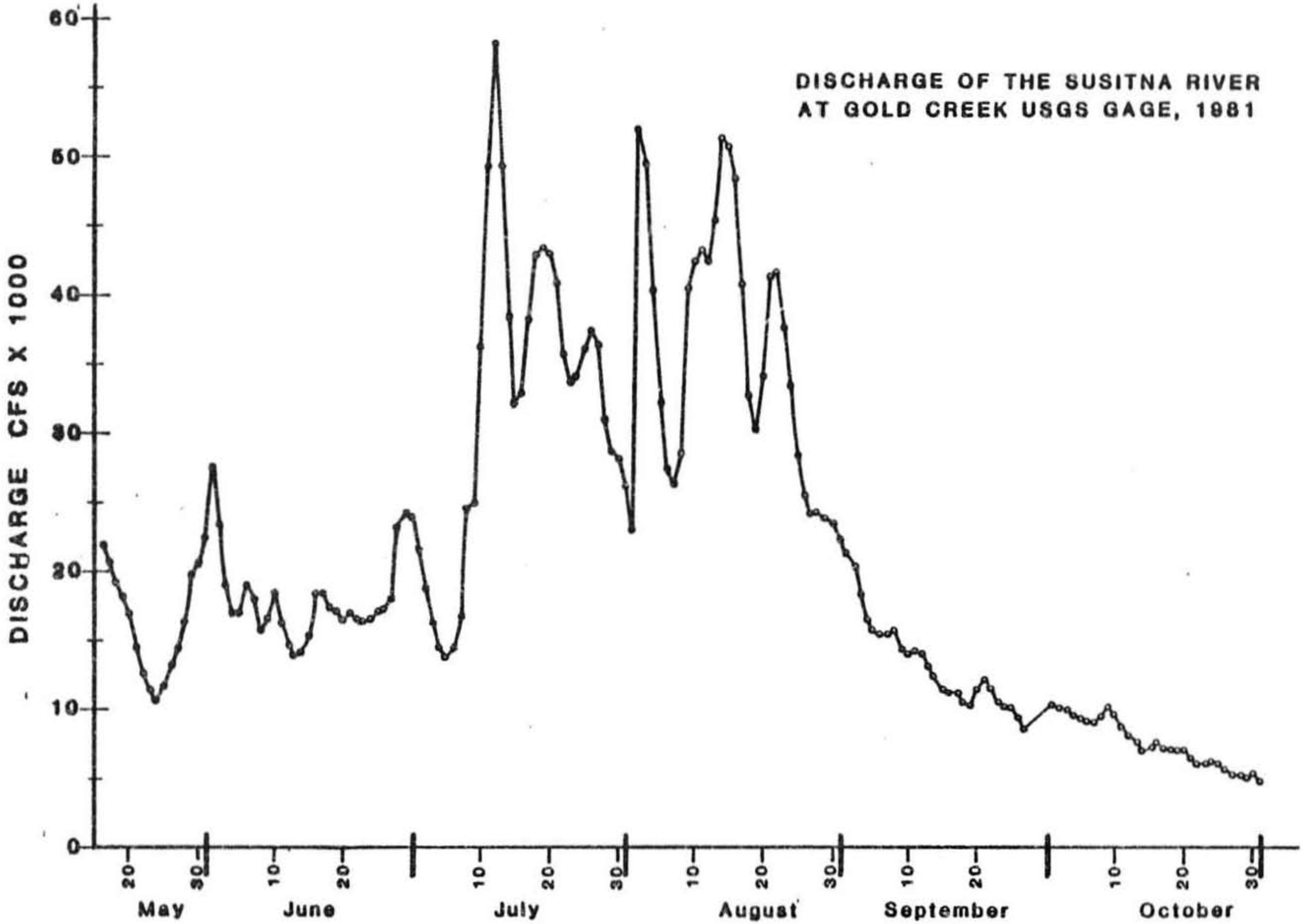


Figure 1. Mainstem Susitna River discharge at Gold Creek versus time (May - October, 1981).

Appendix G

Methods Supplement.

X. APPENDIX G

METHODS SUPPLEMENT

Water Quality

Water Quality was evaluated at the fishery habitat evaluation and selected habitat evaluation staff gage placement sites in the study area below Devil Canyon and from the center of each index area in the study area above Devil Canyon. General habitat evaluation water quality data were collected twice monthly below Devil Canyon and once per month above Devil Canyon. Selected habitat evaluation water quality data were collected one time per seasonal period of low, medium, and high flows.

Dissolved oxygen (DO), pH, temperature, and specific conductance of surface waters were measured in the field with a Hydrolab model 4041 multiparameter meter. The instruments were operated following the manufacturers' instructions and when applicable calibrated according to the procedures established by the USGS (1981). Water samples for turbidity analysis were collected at the same time the preceding water quality field parameters were measured. Samples were collected in 250 ml plastic bottles filled two-thirds full and stored in a cool, dark location prior to analysis. Turbidity samples were returned to Anchorage at the conclusion of each sampling period for analysis on a Hach model 2100A turbidimeter. Air temperature was measured at these sites with a thermometer and shielded from the direct rays of the sun.

Surface water temperatures were continuously monitored at selected sites by Model J-90 Ryan thermographs to identify thermal characteristics within the study area. In addition to surface water temperatures, intragravel temperatures were continuously monitored by thermographs buried in the gravel to characterize the relationships between surface and ground water temperatures at selected habitat locations.

Hydrology

Mean column, point velocity, and depth measurements were measured with Marsh-McBirney, Price AA, or Pygmy flow meters and topsetting wading rods according to the respective manufacturers' instructions and procedures approved by the USGS (Smoot and Novak 1977; Buchanan and Somers 1973). Point velocities were measured at the same depth as the organism (i.e., fish) or object (i.e. minnow traps, spawning redd, etc.) of interest. The mean column velocity is the measurement of the average velocity in the same vertical plane as the preceding point velocity. In water with a depth of 2.5 feet or less, as measured with a topsetting wading rod, the mean column velocity was measured at the point located .6 of the total depth from the surface of the water. For depths greater than 2.5 feet, two velocities were measured to compute the mean column velocity. They were measured at .2 and .8 of the total depth from the surface of the water and averaged.

When using a Price AA or Pygmy flow meter, the velocity at the point of the current meter was determined by counting the number of signals ("clicks") per unit of time. Each meter was calibrated by the commercial supplier and an equation for the relationship between velocity and revolutions per unit time was derived. To facilitate field use, the equation was solved for a number of revolutions ("stop counts") and various time steps. A rating table (Figure 1) which shows the velocity for a given number of revolutions per time interval was provided with each meter. The real trick in using the rating table was to memorize the "stop counts". One counted clicks for at least 40 seconds, remembering to stop counting at one of the stop counts in the rating table. (Failure to do so would negate the ability to obtain the velocity directly from the rating table. One could not simply interpolate between stop count values given in the table; the rating curve equation had to be solved). The rating table was usually constructed in one-second steps from 40 seconds to 70 seconds. When using a Marsh-McBirney electronic flow meter, the meter was set at the desired water depth and allowed to calibrate for 20 seconds prior to reading the meter.

Locations of point and mean column velocity measurements included minnow traps, salmon redds, gillnets, and trot line sites. Velocities were also measured at sites where fish were observed.

Minnow trap velocities were measured at the upstream mouths of traps each time they were set. Location and identification of salmon redds where velocity and depth were measured were based on standards established by the ADF&G (Estes, Hepler, and Hoffmann 1981) and the Arctic Environmental Information and Data Center, AEIDC (Baldridge 1981). Biologists selected vantage points within

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
Water Resources Division

RATING TABLE FOR TYPE AA CURRENT METER

EQUATIONS: V=2.180R + .020 (2.200) 2.170R + .030 Std Rating No. 1

Time in Seconds	VELOCITY IN FEET PER SECOND									Time in Seconds
	Revolutions									
	3	5	7	10	15	20	25	30	40	
40	.183	.292	.401	.565	.837	1.11	1.38	1.65	2.20	40
41	.180	.286	.392	.552	.818	1.08	1.35	1.62	2.15	41
42	.176	.280	.383	.539	.799	1.06	1.32	1.58	2.10	42
43	.172	.273	.375	.527	.780	1.03	1.29	1.54	2.05	43
44	.167	.268	.367	.515	.763	1.01	1.26	1.51	2.00	44
45	.165	.262	.359	.504	.747	.989	1.23	1.47	1.96	45
46	.162	.257	.352	.494	.731	.968	1.20	1.44	1.92	46
47	.159	.252	.345	.484	.716	.948	1.18	1.41	1.88	47
48	.156	.247	.338	.474	.701	.928	1.16	1.38	1.84	48
49	.153	.242	.331	.465	.687	.910	1.13	1.35	1.80	49
50	.151	.238	.325	.456	.674	.892	1.11	1.33	1.76	50
51	.148	.234	.319	.447	.661	.875	1.09	1.30	1.73	51
52	.146	.230	.313	.439	.649	.858	1.07	1.28	1.70	52
53	.143	.226	.308	.431	.637	.843	1.05	1.25	1.67	53
54	.141	.222	.303	.424	.626	.827	1.03	1.23	1.63	54
55	.139	.218	.297	.416	.615	.813	1.01	1.21	1.61	55
56	.137	.215	.292	.409	.604	.799	.993	1.19	1.58	56
57	.135	.211	.288	.402	.594	.785	.976	1.17	1.55	57
58	.133	.208	.283	.396	.584	.772	.960	1.15	1.52	58
59	.131	.205	.279	.389	.574	.759	.944	1.13	1.50	59
60	.129	.202	.274	.383	.565	.747	.928	1.11	1.47	60
61	.127	.199	.270	.377	.556	.735	.913	1.09	1.45	61
62	.125	.196	.266	.372	.547	.723	.899	1.07	1.43	62
63	.124	.193	.262	.366	.539	.712	.885	1.06	1.40	63
64	.122	.190	.258	.361	.531	.701	.872	1.04	1.38	64
65	.121	.188	.255	.355	.523	.691	.858	1.03	1.36	65
66	.119	.185	.251	.350	.515	.681	.846	1.01	1.34	66
67	.118	.183	.248	.345	.508	.671	.833	.996	1.32	67
68	.116	.180	.244	.341	.501	.661	.821	.982	1.30	68
69	.115	.178	.241	.336	.494	.652	.810	.968	1.28	69
70	.113	.176	.238	.331	.487	.643	.799	.954	1.27	70
	3	5	7	10	15	20	25	30	40	

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Water Resources Division

RATING TABLE FOR TYPE AA CURRENT METER

Actual Rating Limits: 0.25 to 8.0 feet per second Date: 03-05-70

Time in Seconds	VELOCITY IN FEET PER SECOND									Time in Seconds
	Revolutions									
	50	60	80	100	150	200	250	300	350	
40	2.74	3.28	4.37	5.45	8.17	10.88	13.59	16.30	19.02	40
41	2.68	3.21	4.26	5.32	7.97	10.62	13.26	15.91	18.55	41
42	2.61	3.13	4.16	5.20	7.78	10.36	12.95	15.53	18.11	42
43	2.55	3.06	4.07	5.08	7.60	10.12	12.65	15.17	17.69	43
44	2.50	2.99	3.98	4.96	7.43	9.89	12.36	14.83	17.29	44
45	2.44	2.92	3.89	4.85	7.26	9.67	12.09	14.50	16.91	45
46	2.39	2.86	3.80	4.75	7.11	9.46	11.82	14.18	16.54	46
47	2.34	2.80	3.72	4.65	6.96	9.26	11.57	13.88	16.19	47
48	2.29	2.74	3.65	4.55	6.81	9.07	11.33	13.59	15.85	48
49	2.24	2.69	3.57	4.46	6.67	8.89	11.10	13.32	15.53	49
50	2.20	2.63	3.50	4.37	6.54	8.71	10.88	13.05	15.22	50
51	2.16	2.58	3.43	4.28	6.41	8.54	10.67	12.79	14.92	51
52	2.12	2.53	3.37	4.20	6.29	8.38	10.46	12.55	14.64	52
53	2.08	2.49	3.31	4.12	6.17	8.22	10.27	12.31	14.36	53
54	2.04	2.44	3.24	4.05	6.06	8.07	10.08	12.09	14.09	54
55	2.00	2.40	3.19	3.98	5.95	7.92	9.89	11.87	13.84	55
56	1.97	2.35	3.13	3.90	5.84	7.78	9.72	11.65	13.59	56
57	1.93	2.31	3.08	3.84	5.74	7.64	9.55	11.45	13.35	57
58	1.90	2.27	3.02	3.77	5.64	7.51	9.38	11.25	13.12	58
59	1.87	2.24	2.97	3.71	5.55	7.39	9.22	11.06	12.90	59
60	1.84	2.20	2.92	3.65	5.45	7.26	9.07	10.88	12.69	60
61	1.81	2.16	2.88	3.59	5.37	7.14	8.92	10.70	12.48	61
62	1.78	2.13	2.83	3.53	5.28	7.03	8.78	10.53	12.28	62
63	1.75	2.10	2.79	3.47	5.20	6.92	8.64	10.36	12.09	63
64	1.72	2.06	2.74	3.42	5.12	6.81	8.51	10.20	11.90	64
65	1.70	2.03	2.70	3.37	5.04	6.71	8.38	10.05	11.71	65
66	1.67	2.00	2.66	3.32	4.96	6.61	8.25	9.89	11.54	66
67	1.65	1.97	2.62	3.27	4.89	6.51	8.13	9.75	11.37	67
68	1.62	1.94	2.58	3.22	4.82	6.41	8.01	9.60	11.20	68
69	1.60	1.92	2.55	3.17	4.75	6.32	7.89	9.46	11.04	69
70	1.58	1.89	2.51	3.13	4.68	6.23	7.78	9.33	10.88	70
	50	60	80	100	150	200	250	300	350	

Figure 1. USGS type AA current meter rating table.

study sites that allowed both good visability for observation and created the least disturbance to the fish. Polarized sun glasses were worn to screen out reflected glare from the water and increase the observer's efficiency. Redds were defined by direct observation of the repeated fanning and digging actions of the female at the same site. Redds were located by observing characteristic spawning behavior including biting and chasing of intruders by a male-female pair, or an individual adult remaining over a distinct excavated depression in the streambed. When a redd was located, the site was marked by methods similar to those used by Bovee and Cochnauer (197?). After all of the redds within a sampling site were identified, the velocities and depths were measured.

Velocities at set gillnet and trot line sites were measured at three equally spaced intervals along the length of the initial set when set perpendicular to the flow. When set parallel to the flow, one velocity measurement was taken immediately upstream of the net or trot line. Measurements which were recorded were collected when the gillnets and trot lines were set.

Every attempt was made to obtain velocity measurements. When location of fish sampling gear and water depth made these measurements impossible to obtain, this was noted on the point specific habitat evaluation form.

Staff gages were installed at fishery habitat and selected habitat evaluation sites in the study area below Devil Canyon. Staff gages were read twice monthly, with the exception of side sonar and fishwheel site staff gages which were read every six (6) hours when the sites were manned by AA crews.

A transect was surveyed and the stream bed profile determined in a plane perpendicular to the flow of water at each selected habitat gage site prior to installing a gage. Selected habitat staff gage elevations in the study area between Talkeetna and Devil Canyon were determined from the R&M Consultants datum used to establish streambed elevations. The staff gage was read before and after collecting the selected habitat discharge data. This information can be used to develop stage/discharge rating curves. Where applicable, mainstem discharge information will be obtained from the closest USGS gaging station as a control.

Discharge was measured at selected habitat locations during three seasonal flow periods (high, medium, and low). These measurements and the following discussion were based on procedures developed by the USGS (Smoot and Novak, 1977; Buchanan and Somers 1973), and USFWS Instream Flow Group (Bovee and Milhous 1978; Trihey and Wegner 1981).

Discharge was computed from the mean column velocity and depth information recorded at vertical columns (verticals) collected along the transects surveyed when placing the staff gages. A tagline was stretched across the water parallel to the transect. One attempted to subdivide the channel such that no more than 5% of the total flow passed between successive verticals. The spaces between verticals were termed cells. Verticals were placed such that they best described velocity distribution and changes in the cross sectional channel geometry. If the direction of flow was not at right angles to the cross section, the velocity vector normal to the section was located. The cosine of the horizontal angle (Figure 2) was measured by holding the discharge measurement note sheet in a horizontal position with the point of origin (O) on the left edge over the tag line, bridge rail, or any other feature parallel to the cross section. With the long side parallel to the direction of flow, the tagline or bridge rail would intersect the value of the cosine of the angle (a) on the top, bottom, or right edge. The measured velocity was multiplied by the cosine of the angle to determine the velocity vector component normal to the section measured.

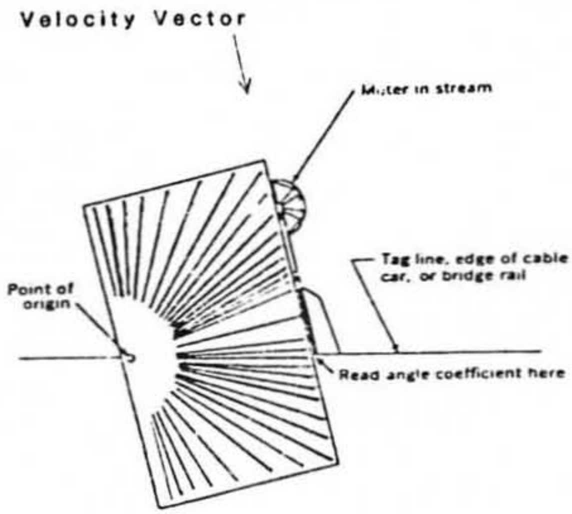


Figure 2. Measurement of Horizontal Angles (from Buchanan and Somers 1973).

Substrate data were collected based on procedures used by the AEIDC (1981), ADF&G (Estes, Hepler, and Hoffmann 1981) and Shirazi (1979), at fishery habitat evaluation (point specific and general habitat) and selected habitat evaluation sites.

Selected habitat evaluation substrate data were collected along the discharge measurement transect(s) at each velocity and depth measurement site. Point specific habitat evaluation substrate data collected from a 2 foot radius around velocity and depth measurement sites.

Substrate classes were assessed by selecting up to three prodominant substrate groups and recording the percent of each. The size and type of substrate was grouped into the following classes:

0. Organic Detrius
1. Silt Clay
2. Sand
3. 1/16" - 1/4"
4. 1/4" - 1"
5. 1" - 3"
6. 3" - 5"
7. 5" - 10"
8. 10" +
9. Bedrock

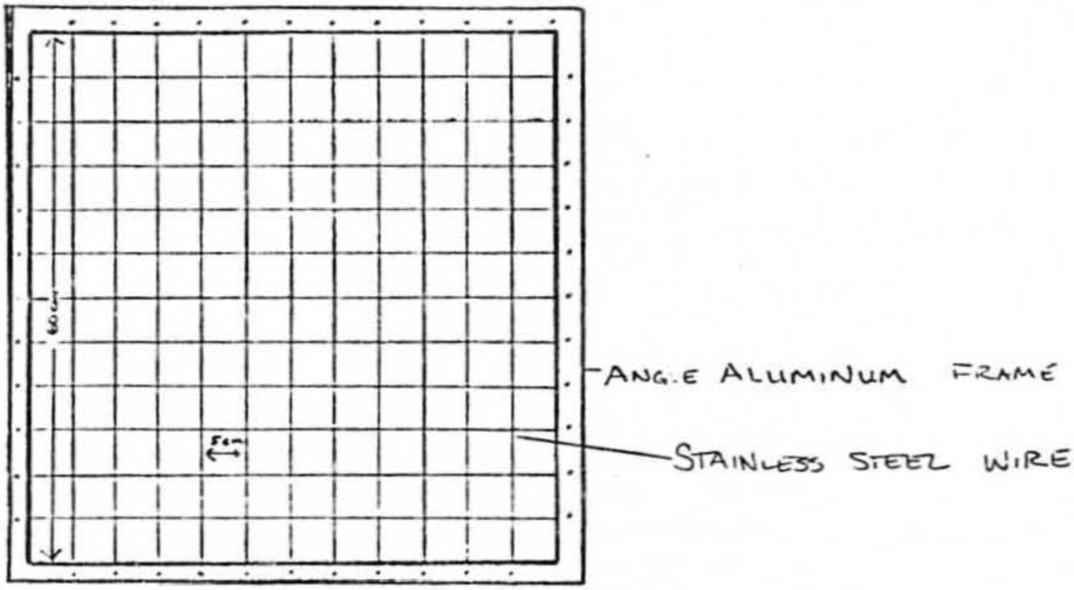
Notes were also made as to the presence and amount (% cover) of periphyton (attached algae) and other aquatic vegetation.

Maps were drafted which identified substrate data sampling sites and the locations of various substrate classes (DATA PROCEDURES). The boundary between each distinct substrate class area within the sampling site was delineated on the planimetric View Map form (AH-81-03). The substrate classification within each of these distinct areas was also identified and recorded on the map. Substrate from each of these areas was photographed. Photographs were taken at each transect using photography procedures similar to those used by R&M Consultants (Griffiths 1981). A 60 x 60 cm grid subdivided into 5 x 5 cm squares (Figure 3) or a ruler was placed on top of the substrate and photographed (Kellerhals and Bray 1970; Griffiths 1981).

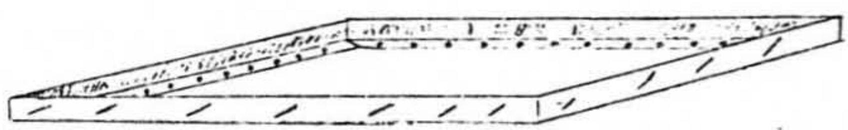
Mapping

An upstream view cross-sectional profile map was drafted for each staff gage transect (Figure 4). The staff gage location and the channel dimensions; top width, wetted perimeter, bankfull top width, and water's edges, of the cross sectional profile were included when possible. Definition of terms follow:

> Top Width: The top length of the water surface of a channel cross section measured in a plane perpendicular to the direction of the flow between the two water's edges.
>
> Wetted Perimeter: The length of the submerged portion of a channel cross section measured in a plane perpendicular to the direction of flow between the two water's edges.
>
> Bankfull Top Width: The top width of a channel cross section measured in a plane perpendicular to the direction of flow between the two highest water's edgemarks.
>
> Water's Edge: The point where the water surface comes into contact with the bank.



TOP VIEW



SIDE VIEW WITH FRAME UPSIDE DOWN
SHOWN WITHOUT WIRES

Figure 3. Substrate Grid Diagram.

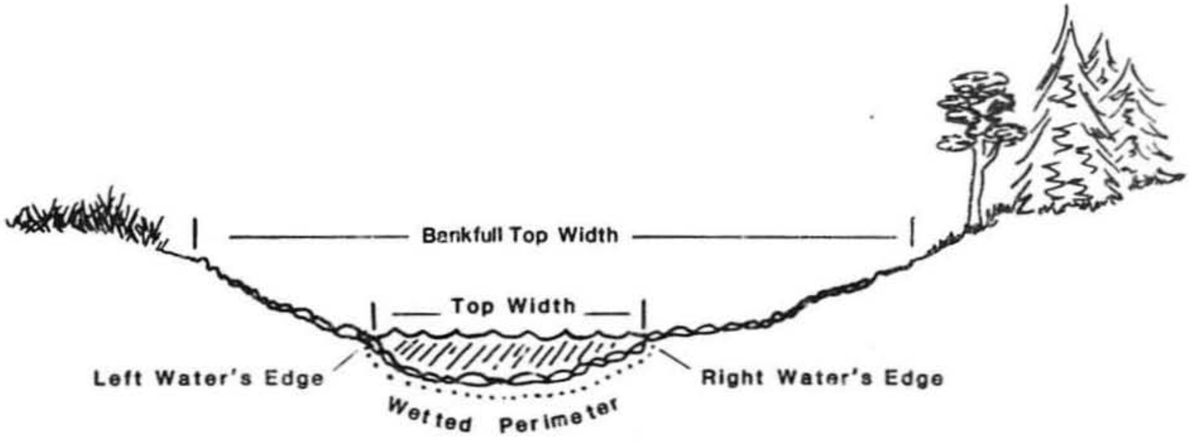


Figure 4. Cross-Sectional Profile Diagram.

Selected habitat evaluation sites were morphometrically mapped (Figure 5). A tag line was stretched along transects to determine horizontal distances between the two banks and the position of each vertical depth measurement between them. An electronic distance measuring (EDM) system was substituted for taglines when the distance between the bank was greater than 150 feet. Depths were measured from a boat with a Raytheon Model DE-719B portable survey fathometer or on foot with a wading rod depending upon depth and accessibility. Where use of the tag line and/or wading rod was not feasible due to the length of transect and depth of water, the following method was used. A person located on the shore would operate an EDM and direct the boat operator via two-way radio. When the boat crossed the transect, a distance registered on the EDM and manually recorded. At the same time that distances were measured, a radio signal was transmitted to the boat and a marking device was triggered by the boat operator to record the depth on the fathometer chart.

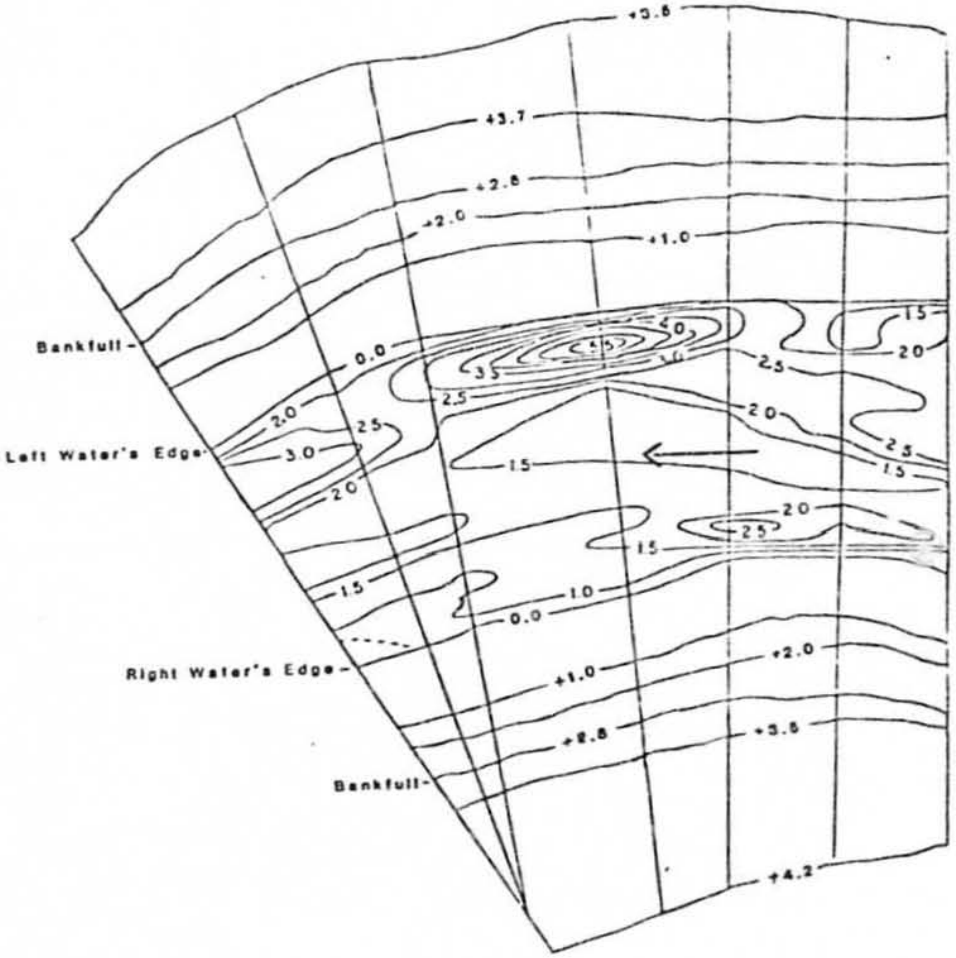


Figure 5. Example of morphometric map with depths and elevations in feet (modified from Bovee and Cochnauer, 1977).

At least one photograph was taken at each of the fishery habitat and selected habitat evaluation sampling sites which represented the general habitat. Additional slides were taken to depict a unique situation or habitat type.

The information recorded on the top of the General Aquatic Habitat form (AH-81-01) was photographed for site identification prior to photographing the sampling site. Each AH crew member maintained a personal log book and established a section to record the photography information. Orientation (i.e. upstream view, downstream view, etc.), subject, time, and date were noted. Each roll of film and canister was assigned a number before use. As an example, the first roll of film being used by Roy Ball in 1979 would be labeled RB-79-01, the second RB-79-02, etc. He would list each photo under this number in his logbook, identify the date, stream name, survey area, and section number. The roll and canister number and the quantity of photos taken will also be recorded in the related data column space of the General Habitat Evaluation form (AH-81-01).

Level of Effort

Aquatic Habitat personnel were distributed within the study area as illustrated in Figures 6 and 7. The AH staff included one (1) FB III, two (2) FB II's and six (6) FB I's. Aquatic Habitat, RJ and AA crew members jointly collected Fishery Habitat Evaluation data.

RESIDENT AND JUVENILE ANADROMOUS (RJ) AND AQUATIC HABITAT AND INSTREAM FLOW (AH) STUDY
PERSONNEL DEPLOYMENT - ICE FREE MONTHS

RESIDENT/JUVENILE - AQUATIC HABITAT
PROJECT LEADERS

R/J FB III AH FB III

- Estuary to Talkeetna
  - Yentna Base
    - RJ FB I
    - AH FB I
  - Sunshine Base
    - AH FB I
    - RJ FB I
    - RJ FB I
- Talkeetna to Devil Canyon
  - Talkeetna Base
    - RJ FB I
    - RJ FB I
    - AH FB I
  - Gold Creek Base
    - RJ FB I
    - RJ FB I
    - RJ FB I
    - AH FB I
    - AH FB II*
    - AH FB II
    - AH FB I
- Upper River (Devil Canyon to Tyone River)
  - RJ FB II
  - RJ FB I
  - RJ FB I
  - AH FB I

*Selected Habitat Evaluation Study Crew.

Figure 6.

RESIDENT AND JUVENILE ANADROMOUS (RJ) AND AQUATIC HABITAT AND INSTREAM FLOW (AH) STUDY

PERSONNEL DEPLOYMENT - ICE COVERED MONTHS

RESIDENT/JUVENILE - AQUATIC HABITAT
PROJECT LEADERS

FB III FB III

RJ FB II

Estuary to Talkeetna
Montana Creek Base

RJ FB I
RJ FB I
AH FB I

Talkeetna to Devil's Canyon

Talkeetna Base

RJ FB I
RJ FB I
AH FB I

Gold Creek Base

RJ FB I
RJ FB I
AH FB I

Upper River

Personnel will include project leaders and FB I's shifted as required

Figure 7.

DATA PROCEDURES

Assigning Gear Placement Site Numbers (GPSN)

The GPSN is a two-part code which identifies gear type and sample number, thus providing a sampling location designation for each point specific measurement made within a given sampling site.

The first part of the code indicates gear type employed at the sampling location; the second part indicates sample number. For example, if three minnow traps were set within a sampling site, the GPSN's would be: 5-01, 5-02, 5-03.

Gear code designations are as follows:

Gear Type	Code
Beach Seine	3
Burbot Set	10a
Drift Gillnet	1a
Electroshock	2
Gillnet	1
Hook and Line	9
Minnow Trap	5
Trot Line	10
Observation	0

GPSN's were included when mapping a sampling site. RJ and AA crew members assigned GPSN's and provided AH personnel with this information to facilitate the correlation of data. AH personnel assigned GPSN's when fishery data were not being collected.

Personal Log Book

A personal log book was maintained by each AH crew member. Daily entries were to include the following:

- Date: Year, month, day
- Sites visited and activities of that day
- Weather: Air temperature, precipitation, cloud cover, wind, etc.
- Military Time: Twenty-four (24) hour system
- Water Conditions: Turbidity, clarity, color, odor, ice stage, floating debris, etc.
- Sampling Problems
- Equipment Problems
- Suggestions for changes or improvements
- Personal Impressions
- Record of Photographs: Establish a separate section in the personnel log book for the following data: frame number, roll number, orientation, location, date, and time.
- Crew Members: Names of AA, RJ, and AH sampling crew.

Completing Aquatic Habitat Forms

Instructions that were followed for completing the AH forms are explained in this section. The numbers introducing each instruction corresponds to a number encircled in the appropriate form. Numbers one (1) through ten (10) apply to all forms with the exception of Staff Gage form (AH-81-05) while numbers greater than ten (10) apply to the specific form under which they are listed. On the staff gage form, numbers one (1) through six (6) refer to the general instructions whereas numbers seven (7) through thirteen (13) refer to specific information.

General Instructions

1. File No.: Indicates file location.

2. Crew: List names or initials of personnel making measurements and entering data on form.

3. Habitat Location: Enter descriptive name of study area (i.e. Slough 8A).

4. Sampling Site: Enter descriptive name of the sampling area within the habitat study location (i.e. head, mouth, etc.).

5. River Mile: Enter the number of miles from the river mouth to the habitat location. River miles are indicated on the Alaska Power Authority's Susitna River hydrographic map set.

6. Geographical Code (GC): Enter the 12 digit code identifying the sampling location.

7. Gage Number (no.) and Height (ht.): Record the established identification number for the gage and the stage reading (i.e., water depth at the gage).

8. Sampling period: Enter the the beginning and ending dates (General Habitat Form AH-81-01) for period which data was collected.

9. Page: Indicate the page number and the total number of pages used (i.e. 1 of 5, 2 of 5, 5 of 5).

10. Description: Enter any information which helps describe the sampling site or the sampling location (i.e. bend in river, riffle 100 yards downstream of small island, river is braided, straight, or meandering, etc. Figure 8).

General Aquatic Habitat Evaluation Form (AH-81-01)

This form to be completed in the field when measuring the general aquatic habitat parameters discussed in the study description.

Instructions:

1-10. Refer to general instructions.

11. Date: Enter date measurement is being taken.

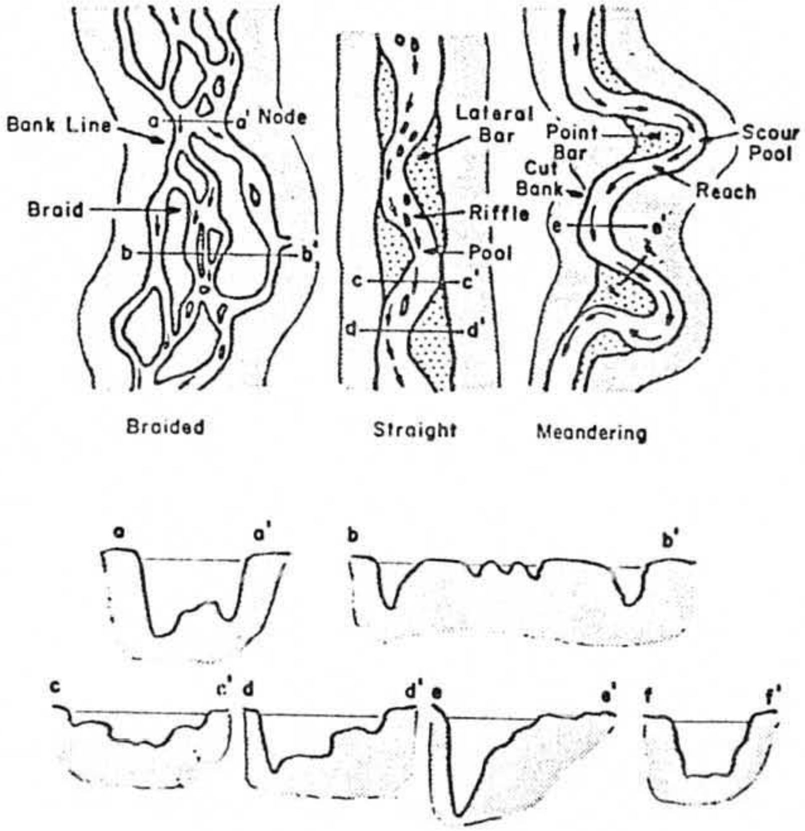


Figure 8. River channel patterns (from Richardson et al, 1975).

12. Military Time: Enter time using the 24 hour system (i.e. for 1:00 p.m., enter 1300).

13. Temperature (Temp) °C: Enter air and water temperature.

14. Specific Conductance (Cond, mhos/cm): Enter specific conductance value as measured by the procedure described in the methods section.

15. pH: Enter value as measured using the procedure described in the methods section.

16. Dissolved Oxygen (D.O., mg/l): Enter value as measured following the procedure in the methods section.

17. Meter and Serial Number: Enter type of meter and serial number.

18. Turbidity (NTU): Indicate with a check ( ) on left side of blank that a turbidity sample was taken, enter turbidity value after analysis.

19. Discharge (cfs): Indicate with a check on left side of blank when measurement is made, enter value after calculated from the discharge data form.

20. Related Data: Record number of any data forms that you know were filled out at the same time and place, film roll number and number

of photos taken and identification of photographer or other data that will relate (i.e., USGS, R&M etc.).

21. Date: Enter date data collected.

22. Aquatic Vegetation: Estimate the percent of the area within the sampling site covered by aquatic vegetation, specify if algae or macrophyte.

23. Substrate Classification (0-9): Estimate the three major substrate types within the sampling site and enter their respective percentages, also not if other identifiable size classes are present in minor amounts by entering a P for present.

24. Embeddedness: These data were not collected.

Point Specific Aquatic Habitat Evaluation Form (AH-81-02)

This form to be completed in the field when measuring the point specific habitat parameters discussed in the study description.

Instructions:

1-10. Refer to general instructions.

11. Date: Enter the date these measurements were taken.

12. GPSN: Enter the two-part gear placement site number (GPSN) which identifies the type of fish sampling gear indicated in the gear code and the sample number (i.e. trot line sample #3 would be 10-3).

13. Depth: Enter water depth at the gear placement site.

14. Velocity: Enter the point velocity at the depth of the sampling gear and the mean column velocity.

15. Substrate: Enter the percent and the class number of each sediment size class (up to three) identified within a two (2) foot radius of each velocity/depth measurement point.

16. Embeddedness: These date were not collected.

17. Aquatic Vegetation: Enter the percent (%) cover of algae or vascular plants within a two (2) foot radius of the gear placement site.

18. Related Data: Record the data form number of any data collected at the same time and site. Also note any observation which may be pertinent to the sample (i.e. minnow trap placed under cut bank, number of fish at three (3) foot intervals along gill net, etc.).

19. Notes: Include any information which may help in interpreting data. For example: document <u>any</u> deviation from the methods described in

the Procedures Manual and the conditions which prevented use of conventional methods, unusual weather or other circumstances.

Planimetric Map Form (AH-81-03)

A map describing the study habitat site is drawn on this form in the field.

Instructions:

1-10. Refer to general instructions.

11. Draft map to include the following:

Substrate

Cover

Bankfull top width and top water width

Pools and riffles

Channel dimensions

Location of staff gages and transect

Location of sampling gear (use GPSN)

Compass orientation

Discharge Form (AH-81-04)

This form to be completed in the field to record total discharge measurements and calculations.

Instructions:

1-10. Refer to general instructions.

11. Type Meter and Number: Record the type of meter (i.e., Price AA, Pygmy or Marsh McBirney meter) and the serial number.

12. Distance From Head Pin or Water's Edge: The horizontal measurement from the head pin or waters edge to each vertical along the transect.

13. Angle Coefficient: A correction factor for the angle of flow as it intersects the transect line. Values fall between 0.00 and 1.00 and are determined by use of an angle coefficient chart.

14. Velocity Depth: This is the vertical distance from the water surface to the channel bottom at each vertical measured to the nearest 0.1 foot if possible.

15. Streambed Elevation: Computed at each vertical by subtracting the velocity depth from the average of the right bank (RB) and left bank (LB) water surface elevations for that transect at that particular flow. Left and Right banks are determined by looking upstream. These data are collected only where surveyed head pins are established.

16. Observation Depth: Indicate at what depth the point velocity was measured. Velocity will be measured at .6 of the depth from the surface for a depth less than three (2.5) feet and .2 and .8 for depth greater than three (2.5) feet.

17. Revolutions: Recorded number of revolutions when using a Price AA or Pygmy flow meter. When using a Marsh McBirney meter draw a line through this column.

18. Time: Recorded in seconds by use of a stopwatch, when using a Price AA or Pygmy flow meter. When using a Marsh McBirney meter draw a line through this column.

19. Point Velocity: This is the velocity obtained from the rating table using revolution and time information or the velocity reading from a direct readout meter.

20. Mean Vertical Velocity: The average of the 0.2 and 0.8 point velocity readings for the vertical. If the velocity was measured only at 0.6 the depth this is the same as the point velocity.

21. Mean Cell Velocity: The average of the two adjacent mean vertical velocities. These are normally grouped beginning from the LB to the RB water's edges.

22. Mean Cell Depth: The average of the depths of two adjacent verticals.

23. Cell Width: The horizontal distance between adjacent verticals.

24. Cell Area: Computed by multiplying each mean cell depth with the cell width.

25. Flow (Discharge): Computed by multiplying each cell area by its respective mean cell velocity, and when applicable, the angle coefficient and totalling the resultant values.

26. Date: Enter the date the measurement is taken.

Staff Gage Form (AH-81-05)

Used to keep a complete record of all readings made on a specific staff gage.

Instructions:

1-6. Refer to general instructions.

7. Page: Indicate the page number and the total number of pages used.

8. Staff Gage No.: Enter the established identification number.

9. Calibration Factor: Distance from channel bottom to zero mark on gage.

10. Date: Enter date of reading.

11. Time: Record military time of reading.

12. Height: Record stage reading to the nearest 0.01 foot.

13. Q: Enter discharge of nearest USGS gage when available.

14. Initial: Initials of person who records staff gage data.

QUALITY CONTROL

A systematic approach for maintaining desired standards for the measurement of field parameters was established for the instruments used in this study. Thermometers were periodically compared to a National Bureau of Standards (NBS) standard thermometer for the range of temperatures to be encountered. If present, variations were noted and correction factors calculated and taped onto each thermometer.

Thermographs were calibrated by the manufacturer for temperature and timing. Operational thermographs were periodically inspected in the field comparing the temperature and time on the chart with the known time and temperature data. A mark was made on the chart at that point.

Water quality instruments were periodically evaluated by the USGS. Whenever a question arose concerning quality control, the USGS, EPA, and manufacturer of the data collection device were consulted.

Literature was periodically reviewed to insure that state-of-the-art data collection and analysis techniques were being observed. A hydraulic engineer was consulted to evaluate the accuracy of data collection and analysis techniques. The USFWS was periodically consulted to evaluate the accuracy of instream flow data collection and analysis techniques.

The project biometrician was consulted to evaluate the accuracy and statistical merit for collecting data.

State-of-the-art habitat data collection and analysis courses were attended when it was determined attendance will improve the quality of the program.

The field data were reviewed periodically by the field biologist responsible for its collection. A brief narrative (trip report) was prepared upon returning from the field summarizing the habitat characteristics described by the data set. Any abnormal or intervening field conditions or sampling problems which might have biased the data set are also to be discussed in the narrative.

Data Routing

Raw data were returned by the field crews to the Anchorage Su Hydro office for copying and filing at the end of each sampling period.

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File No. ______________

GENERAL AQUATIC
HABITAT EVALUATION
AH-81-01

Page____of_____

Crew________________________

Habitat Location ______________ Sampling Site __________ River Mile _____ GC ___ ___/___ ___/___/___ ___/___

Description ____

DATE	TIME	GAGE NO.	GAGE HT.	TEMP. AIR	TEMP. H_2O	D.O. mg/l	pH	SPEC. COND.	METER* & SERIAL#	TURBIDITY (NTU)	DISCHARGE (CFS)	COMMENTS AND RELATED DATA

NOTES:

*Meter Type: A-Hydrolab; B-Other (Specify)

(ADF&G/Su Hydro, Habitat, 7/81)

File No. 03-81-7.10-_____

Crew ________________

POINT SPECIFIC AQUATIC HABITAT EVALUATION

AH-81-02

Page _____ of _____

Sampling Period _____ to ________

Habitat Location ____________ Sampling Site _____ ___ River Mile ___ GC __ __ __ / __ __ __ / __ __ / __ __ __ / __

Description ____ Gage No. ________ height ______

DATE	GPSN	DEPTH	VELOCITY POINT*	VELOCITY MEAN	METER** SER.NO.	SUBSTRATE*** %CLASS	SUBSTRATE*** %CLASS	SUBSTRATE*** %CLASS	EMBEDDEDNESS Size 4-9	EMBEDDEDNESS %	EMBEDDEDNESS Size 0-3	VEG	COMMENTS AND RELATED DATA

* ≤ 2.5 ft. measure at .6
> 2.5 ft. measure at .2 and .8

** Meter type: A-Marsh McBirney: B- Price AA; C Pygmy

*** Substrate Codes

0 Organics
1 Silt
2 Sand
3 1/6"-1/4"
4 1/4"-1"
5 1"-3"
6 3"-5"
7 5"-10"
8 7"-10"
9 Bedrock

(ADF&G/Su Hydro, Habitat, 7/81)

File No. ________

PLANIMETRIC MAP

AH-81-03

Page _____ of _____

Date ____________________

Gage #__________ Height _________

Crew __________________________

Habitat Location ____________ Sampling Site __________ River Mile _______ GC ___ / ___ / ___ / ___ / ___

Description ____

(ADF&G/Su Hydro, Habitat 5/81)

File No.__________ DISCHARGE AH-81-04 Page____of____

Crew________________ Date__________

Habitat Location__________ Sampling Site____________ River Mile_____ Meter Type_____ No._____

GC _ _ _ / _ _ _ / _ _ / _ _ _ / _ Gage Number_____ Height_____

Description

Distance from Head Pin (ft) LB RB	Angle Coef.	Vel. Depth (ft.)	*Stream-bed Elev.*	Obs. Depth %	Revo-lutions #	Time (sec)	*Velocity fps*			*Mean Cell Depth (ft.)*	*Cell Width (ft.)*	*Cell Area (ft.²)*	*Flow (ft³/s)*
							Point	*Mean Vertical*	*Mean Cell*				

STAFF GAGE NO.____
AH-81-05

File No.____________ Page____ of ____

Crew____________ GC__ __ __/__ __ __/__ __/__ __ __/__

Habitat Location______________________________

Sampling Site______________ River Mile ____________

Calibration Factor____________

Date	Time	Height	Q	Initial	Date	Time	Height	Q	Initial

Appendix H

Incidental Data.

Study Site - Mushmeat Slough (MS-38)

River Mile 68.3

Geographic Code - 22N 05W 13 AAB

Date	Time	Depth (ft.)	Velocity	Location
810921		0.80	0.71	head of chum redd
810921		1.00	0.04	middle of chum redd
810921		0.75	0.06	below chum redd

Study Site - Perdidula Slough System

River Mile 97.8

Geographic Code - 26N 05W 23 B--

DATE	TIME	D O (MG/L)	PH	SPEC COND MICROMHOS/CM	TEMP - C AIR	TEMP - C H2O	LOCATION
811006	1130	10.70	7.60	136.00	9.00	4.80	Pool A
811006	1130	8.40	7.60	162.00	9.00	5.50	Pool B
811006	1130	8.10	7.30	245.00	9.00	4.70	Pool C
811006	1130	10.10	7.50	248.00	9.00	4.50	Pool D
811006	1130	10.10	7.40	252.00	9.00	4.50	Pool E
811006	1130	10.80	7.50	269.00	9.00	4.30	Pool F
811006	1130	11.50	7.60	274.00	9.00	4.00	Pool G

Study Site - Slough 8A

River Mile 125.3

Geographic Code 30N03W30BCD

Date	Time	Depth (ft)	Velocity	Location
810808		1.5-2.0	0-.01	Chum Redd (1)
810808		1.0-1.5	0-0+	Chum Redds (4)

Study Site - Indian River Mouth

River Mile 138.6

Geographic Code 31N02W09CDA

Date	Time	Depth (ft)	Velocity	Location
810810		1.6	2.20	King holding in current
810810		1.4	3.89	King holding in current

Study Site - Indian River Mouth

River Mile 138.6

Geographic Code 31N02W09CDA

Date	Time	Depth (ft)	Velocity	Location
810810		1.0	0.843	Male and Female chum holding

Study Site - Portage Creek Mouth

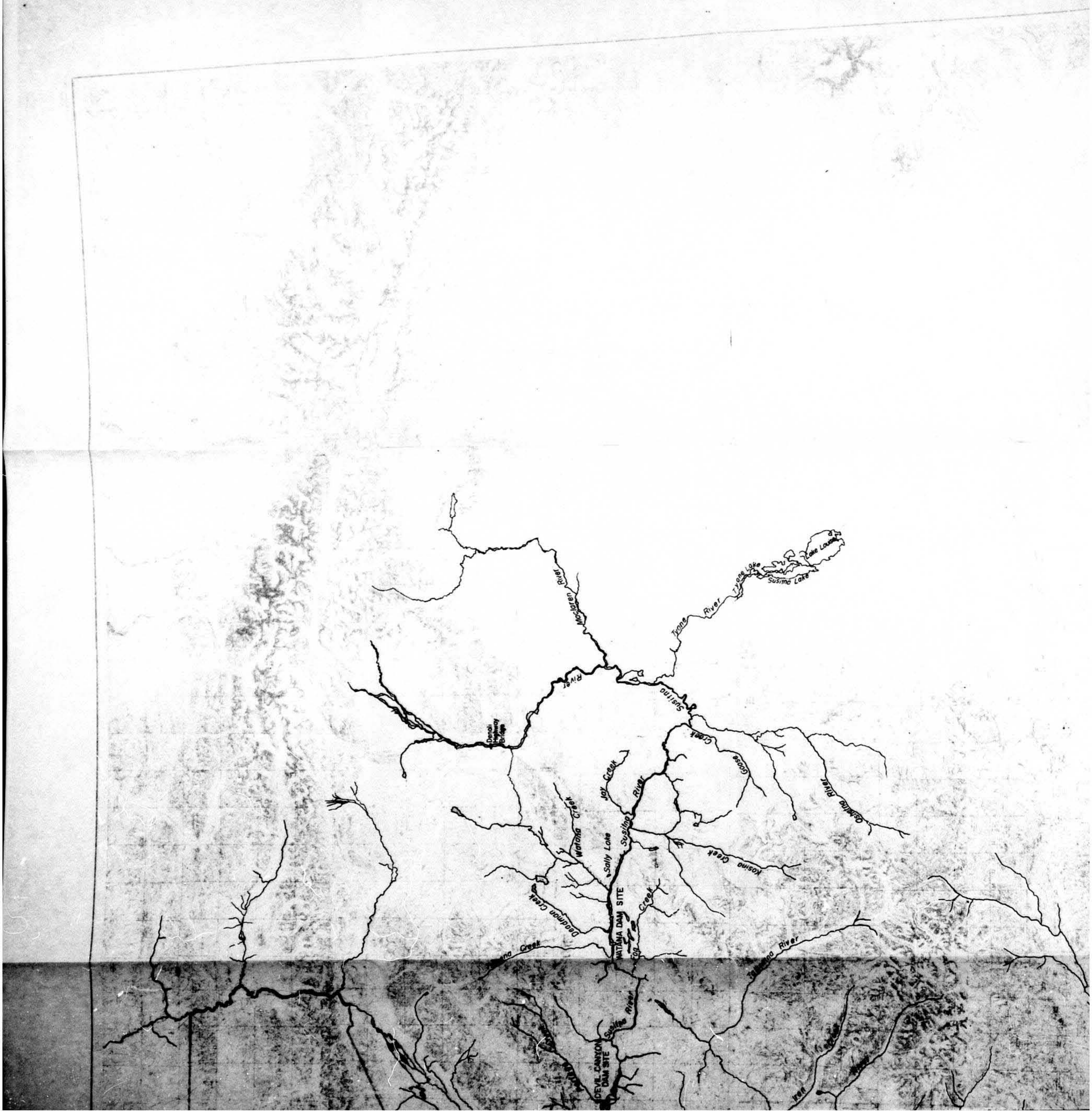
River Mile 148.8

Geographic Code 32N01W25CDB

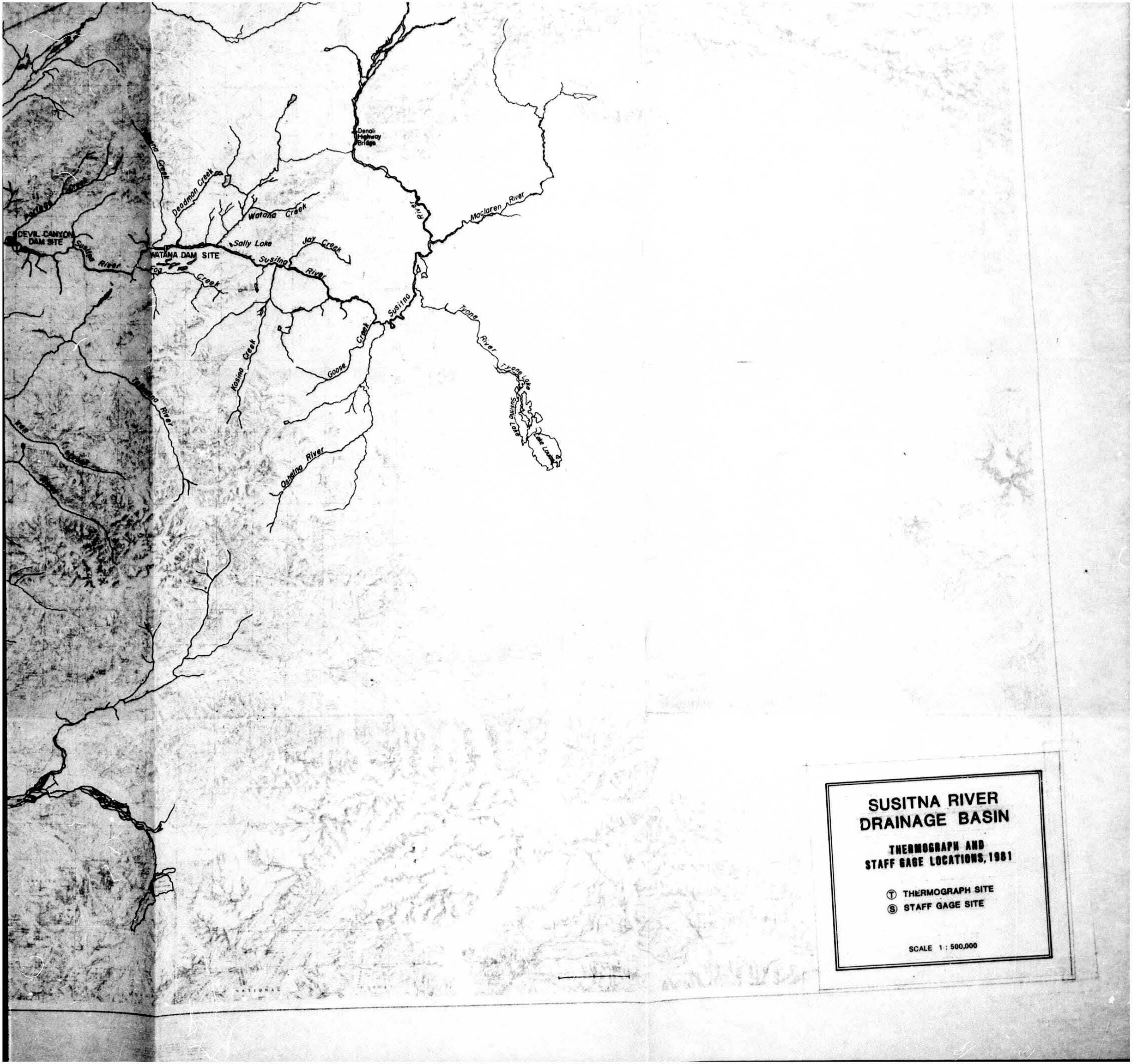
Date	Time	Depth (ft)	Velocity	Location
810805		1.5	0.383	Kings milling

SUS 84

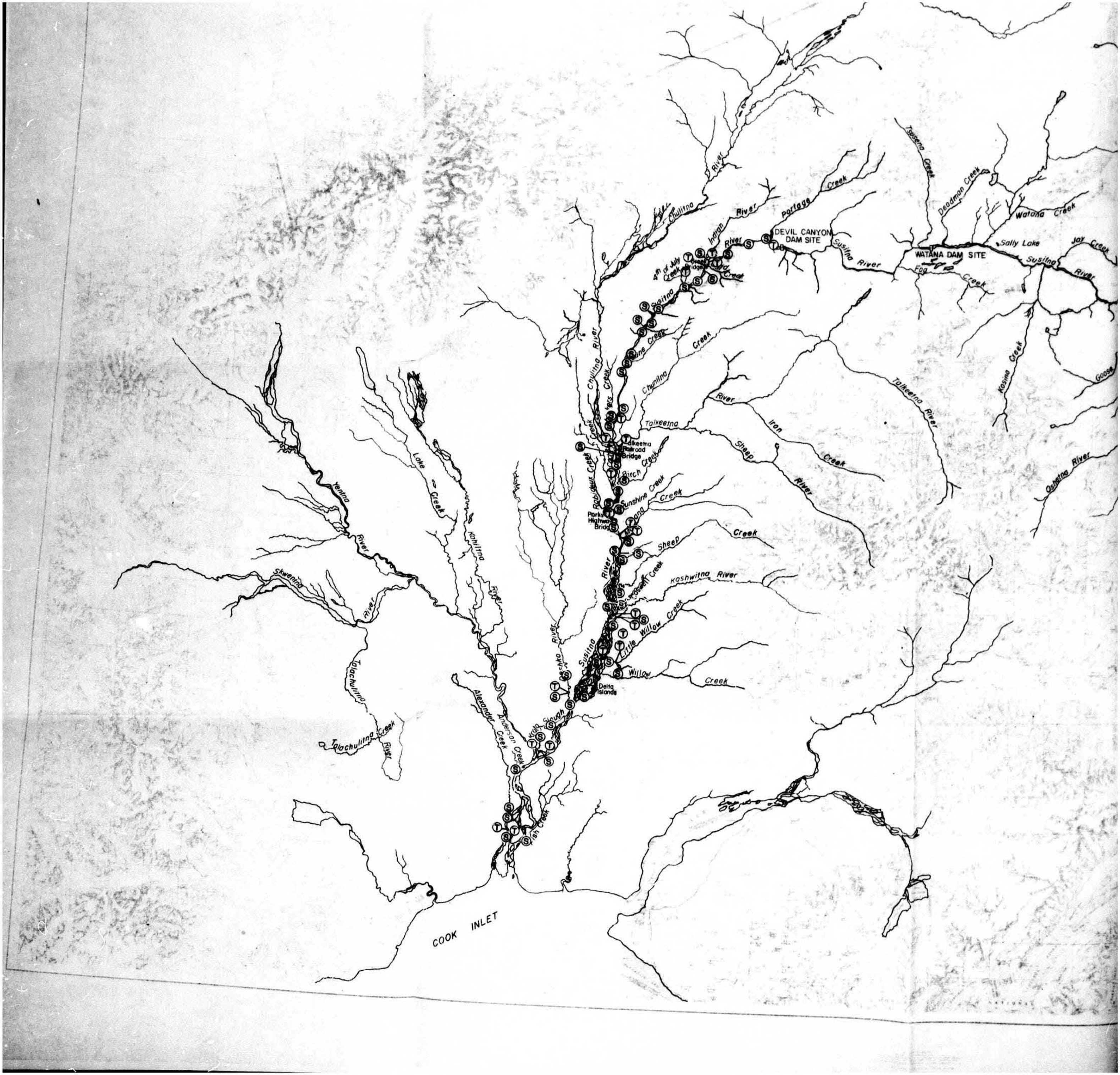
Figure 94. Susitna River drainage. Thermograph and staff gage sites, 1981.



Tyone River
Tyone Lake
Susitna Lake
Lake Louise
Maclaren River
Susitna River
Denali Highway Bridge
Goose Creek
Susitna River
Jay Creek
Watana Creek
Sally Lake
Susitna River
Kosina Creek
Deadman Creek
WATANA DAM SITE
Fog Creek
Susitna River
DEVIL CANYON DAM SITE


SUSITNA RIVER
DRAINAGE BASIN
THERMOGRAPH AND
STAFF GAGE LOCATIONS, 1981
T THERMOGRAPH SITE
S STAFF GAGE SITE
SCALE 1 : 500,000
Denali Highway Bridge
Maclaren River
Susitna River
Tyone River
Tyone Lake
Susitna Lake
Deadman Creek
Watana Creek
Sally Lake
Jay Creek
WATANA DAM SITE
Fog Creek
Kosina Creek
Goose Creek
Oshetna River
DEVIL CANYON DAM SITE

Joy Creek
Susitna River
Watana Creek
Sally Lake
Kosina Creek
Deadman Creek
Tsusena Creek
WATANA DAM SITE
Fog Creek
Talkeetna River
Susitna River
DEVIL CANYON DAM SITE
Portage Creek
Indian River
Chulitna River
Iron Creek
Sheep River
Creek
Talkeetna
Chunilna
Kashwitna River
Willow Creek
Willow Creek
Delta Islands
Chulitna River
Deshka River
Kahiltna River
Lake Creek
Alexander Creek
Yentna River
Talachulitna River
Skwentna



WATANA DAM SITE
DEVIL CANYON DAM SITE
Susitna River
Jay Creek
Sally Lake
Watana Creek
Deadman Creek
Tsusena Creek
Fog Creek
Kosina Creek
Goose
Oshetna River
Portage Creek
Indian River
Chulitna River
Talkeetna River
Iron Creek
Sheep River
Talkeetna Railroad Bridge
Birch Creek
Sunshine Creek
Parks Highway Bridge
Rabideaux Creek
Sheep Creek
Kashwitna River
Little Willow Creek
Willow Creek
Delta Islands
Yentna River
Lake Creek
Kahiltna River
Skwentna River
Talachulitna River
Talachulitna Creek
Alexander Creek
Anderson Creek
COOK INLET

154°00'
153°00'
152°00'
151°00'
150°00'
149°00'
148°00'
FAIRBANKS
64°00'
63°00'
62°00'
HEALY
MOUNT McKINLEY NATIONAL PARK
MOUNT McKINLEY ELEV 20320
PARKS HIGHWAY
DENALI HIGHWAY
WEST FORK
WINDY CREEK
BUTTE CREEK
PORTAGE CREEK
DEVIL CREEK
FOG CREEK
COAL CREEK
CHULITNA RIVER
SUSITNA RIVER
TALKEETNA RIVER
CHELATNA LAKE
KAHILTNA RIVER
MONTANA CREEK
KASHWITNA RIVER
SKWENTNA RIVER
YENTNA RIVER
DESHKA CREEK
WILLOW CREEK
ALEXANDER CREEK
OSHETNA RIVER
UPPER SUSITNA
WATERSHED BOUN
GLENN
ANCHORAGE

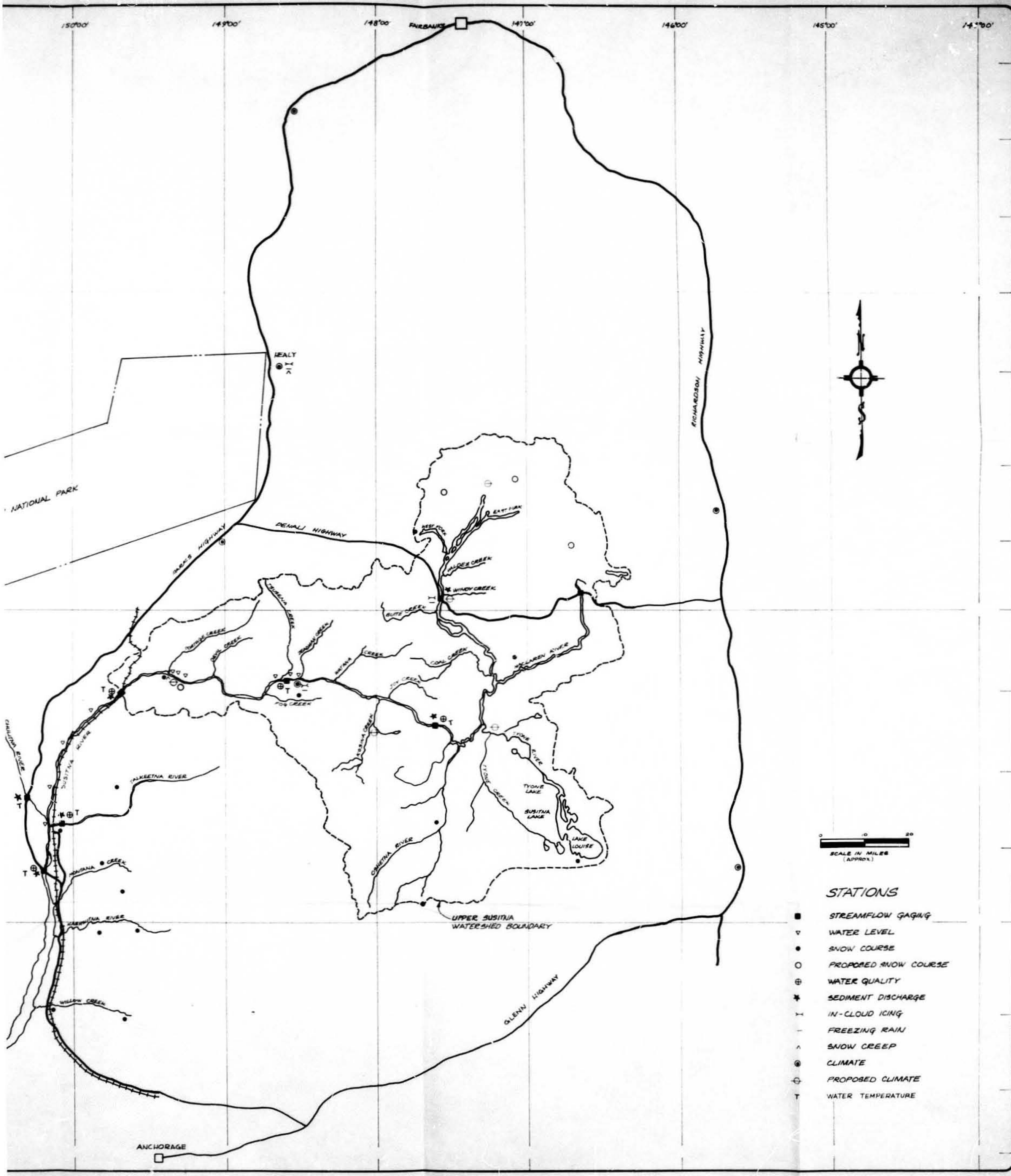


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PLATE I: DATA COLLECTION STATIONS FOR SUSITNA RIVER BASIN & PROPOSED TRANSMISSION LINE CORRIDOR 1980

NO.	DATE	REVISION	BY	APPVD
	6-28-80	UPDATED		

DES.
DRW Gold
CK.
APPVD.