

REPORT NO. 3

AQUATIC HABITAT AND INSTREAM FLOW
INVESTIGATIONS (MAY-OCTOBER 1983)

Chapter 3: Continuous Water Temperature Investigations



ALASKA DEPARTMENT OF FISH AND GAME
SUSITNA HYDRO AQUATIC STUDIES REPORT SERIES

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AQUATIC HABITAT AND INSTREAM FLOW
INVESTIGATIONS (MAY-OCTOBER 1983)

Chapter 3: Continuous Water Temperature Investigations

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PREFACE

This report is one of a series of reports prepared for the Alaska Power Authority (APA) by the Alaska Department of Fish and Game (ADF&G) to provide information to be used in evaluating the feasibility of the proposed Susitna Hydroelectric Project. The ADF&G Susitna Hydro Aquatic Studies program was initiated in November 1980. The five year study program was divided into three study sections: Adult Anadromous Fish Studies (AA), Resident and Juvenile Anadromous Studies (RJ), and Aquatic Habitat and Instream Flow Studies (AH). Reports prepared by the ADF&G prior to 1983 on this subject are available from the APA.

The information in this report summarizes the findings of the 1983 open water field season investigations. Beginning with the 1983 reports, all reports were sequentially numbered as part of the Alaska Department of Fish and Game Susitna Hydro Aquatic Studies Report Series.

TITLES IN THE 1983 SERIES

<u>Report Number</u>	<u>Title</u>	<u>Publication Date</u>
1	Adult Anadromous Fish Investigations: May - October 1983	April 1984
2	Resident and Juvenile Anadromous Fish Investigations: May - October 1983	July 1984
3	Aquatic Habitat and Instream Flow Investigations: May - October 1983	1984
4	Access and Transmission Corridor Aquatic Investigations: May - October 1983	1984

This report, "Aquatic Habitat and Instream Flow Investigations" is divided into two parts. Part I, the "Hydrologic and Water Quality Investigations", is a compilation of the physical and chemical data collected by the ADF&G Susitna Hydro Aquatic Studies team during 1983. These data are arranged by individual variables and geographic location for ease of access to user agencies. The combined data set represents the available physical habitat of the study area within the Cook Inlet to Oshetna River reach of the Susitna River. Part II, the "Adult Anadromous Fish Habitat Investigations", describes the subset of available habitat compiled in Part I that is utilized by adult anadromous fish studied in the middle and lower Susitna River (Cook Inlet to Devil Canyon) study area. The studies primarily emphasize the utilization of side slough and side channel habitats of the middle reach of the Susitna River for spawning (Figure A). It represents the first stage of development for an instream flow relationships analysis report which will be prepared by E.W. Trihey and Associates.

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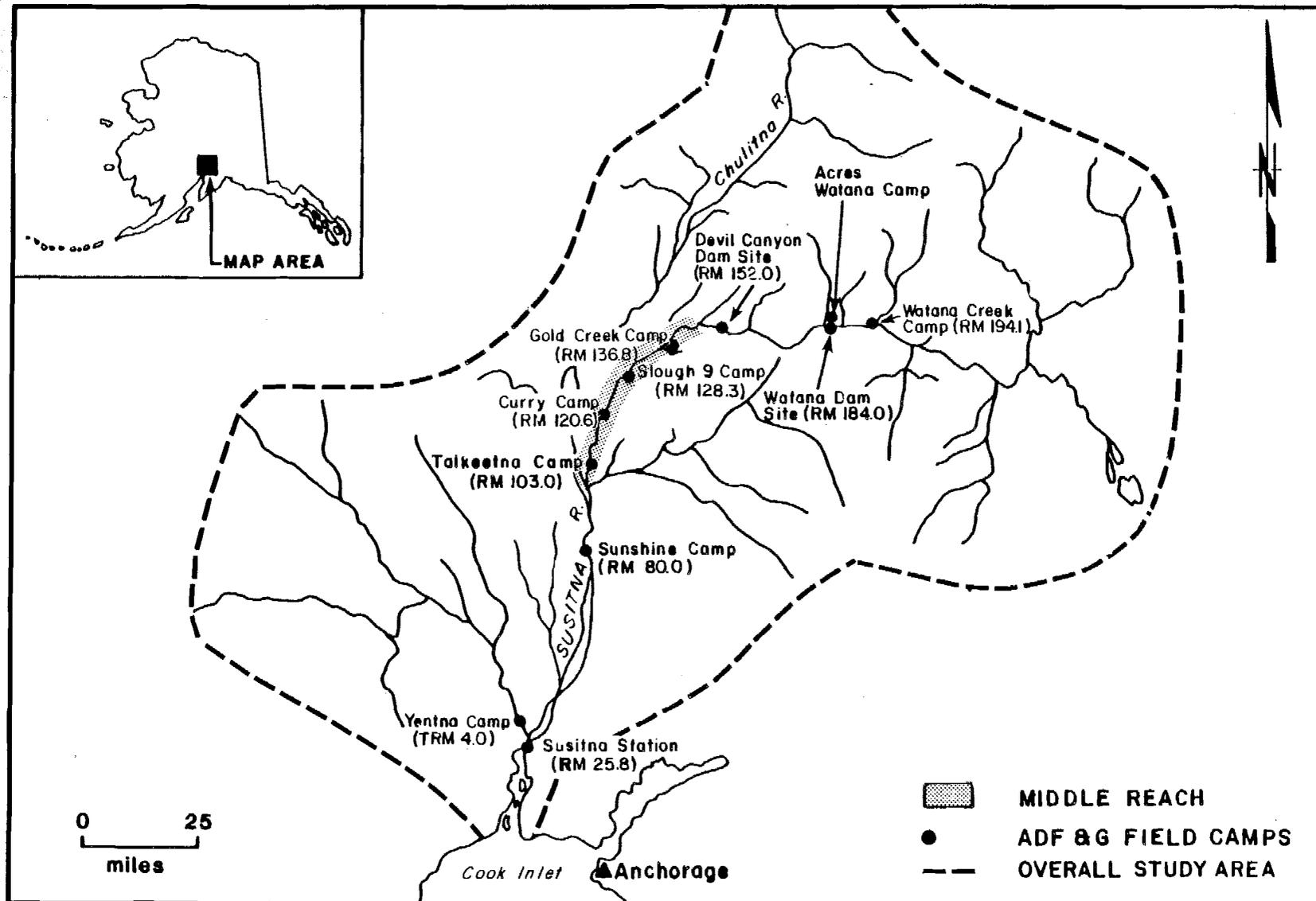


Figure A. Susitna River drainage basin.

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- 6 An Evaluation of Passage Conditions for Adult Salmon in Sloughs and Side Channels of the Middle Susitna River.
- 7 An Evaluation of Chum and Sockeye Salmon Spawning Habitat in Sloughs and Side Channels of the Middle Susitna River.
- 8 An Evaluation of Salmon Spawning Habitat in Selected Tributary Mouth Habitats of the Middle Susitna River.
- 9 Habitat Suitability Criteria for Chinook, Coho, and Pink Salmon Spawning.
- 10 The Effectiveness of Infrared Thermal Imagery Techniques for Detecting Upwelling Groundwater.

Questions concerning this and prior reports should be directed to:

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Continuous Water Temperature Investigations

1984 Report No. 3, Chapter 3

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ABSTRACT

Surface and intragravel water temperature data have been recorded on a continuous basis at selected locations throughout the Susitna River Basin since 1981 by the Alaska Department of Fish and Game Su Hydro Aquatic Studies Feasibility Team to characterize the water temperature regimes of the mainstem Susitna River and its peripheral habitats. During the 1983 open water season (May-October, 1983) baseline surface and intragravel water temperature data were recorded in the mainstem Susitna River and its peripheral side channel, side slough, upland slough and tributary habitats. Although data was collected from the estuary (RM 0.0) to above the Oshetna River (RM 235.7), the study concentrated on the reach of the river from the Parks Highway Bridge (RM 83.9) to the Oshetna River (RM 233.4). During the 1983 open water season surface water temperatures in the mainstem Susitna River generally increased downstream from RM 235.7 to RM 103.0. Surface water temperatures recorded at RM 83.9 were colder reflecting the influences of the Talkeetna and Chulitna Rivers. Intragravel temperatures were recorded at sites from RM 103.3 to RM 142.3. Warmest intragravel temperatures were recorded at the most upstream site. The influence of mainstem temperatures on surface water temperatures in side sloughs or side channels resulting from mainstem breaching discharges was observed in Side Channels 10, Upper 11, and 21, and in Side Sloughs 9 and 21. Intragravel temperatures recorded in side channels and side sloughs were influenced by groundwater upwelling or mainstem temperatures. Variability in intragravel temperatures recorded within a side channel or side slough was observed in Upper Side Channel 11 and Slough 8A.

Results of these investigations will be used to evaluate the influences that seasonal water temperatures have a fish and fish habitats and to calibrate or validate various temperature models.

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1.0 INTRODUCTION

1.1 Background

The Alaska Department of Fish and Game (ADF&G) Su-Hydro Aquatic Feasibility Study Team has collected surface and intragravel water temperature data on a continuous basis at selected locations throughout the Susitna River Basin since 1981. The primary intent of the data collection program has been to characterize the seasonal intragravel and surface water temperature regimes of the mainstem Susitna River and its peripheral side channel, side slough, upland slough, tributary mouth, and tributary habitats. Although temperature data has been collected at monitoring stations from the Estuary (RM 4.5) to above the Oshetna River (RM 235.7), the monitoring effort has concentrated on the reach of the river from the Parks Highway Bridge (RM 83.9) to the Oshetna River (RM 233.4). Results of these investigations have been used by project biologists to evaluate the effects of intragravel and surface water temperatures on fish and fish habitats, and by project engineers to validate or calibrate various temperature related models.

1.2 FY 84 Objectives

The overall objective of the continuous water temperature monitoring program conducted during the 1983 open water field season was to characterize the baseline seasonal surface and intragravel water temperature regimes of mainstem and peripheral side channel, side slough, upland slough, and tributary habitats of the Susitna River Basin. This chapter summarizes the results of these investigations. Temperature data collected will be used to evaluate the influences that seasonal water temperatures have on biological activity in various habitats and to support reservoir and mainstem temperature modeling studies. These efforts are or will be summarized in other chapters of this report and other reports.

1.2.1 Mainstem Habitats

Temperature monitoring stations were established in the mainstem Susitna River to provide baseline continuous surface and intragravel temperature data to:

1. project biologists for use in evaluating the effects of surface and intragravel water temperatures on the various fish resources and
2. project engineers for use in validating/calibrating various mainstem surface water temperature and ground water models.

1.2.2 Side Channel Habitats

Intragravel and surface water temperatures were collected in side channels to support fishery studies and to determine relationships between intragravel and surface water temperatures.

1.2.3 Side and Upland Slough Habitats

Temperature data was recorded in side and upland sloughs to continue the data record, to determine relationships between intragravel and surface water temperatures, and/or to support fishery studies.

1.2.4 Tributary Habitats

Surface water temperature monitoring stations were established in tributaries to monitor stream temperatures that influence the surface water temperature regime of the mainstem Susitna River and to continue the baseline data record. Intragravel temperatures were recorded in Fourth of July Creek to support the ADF&G Su Hydro incubation study.

2.0 METHODS

2.1 Site Selection

Locations of temperature monitoring stations established in the mainstem and its peripheral side channel, side slough, upland slough, tributary mouth, and tributary habitats during the FY 84 open water field season (May - October, 1983) are presented in Table 3-1 and Figure 3-1. Specific locations of monitoring stations within each habitat were chosen primarily to provide water temperature data representative of the area. Surface and/or intragravel water temperatures were recorded during the FY 84 open water season. Surface water temperatures were collected at all sites and intragravel temperatures were collected at selected sites only.

2.1.1 Mainstem Habitats

Temperature monitoring stations were established at 21 locations in the mainstem Susitna River from river mile 4.5 to river mile 235.7.

2.1.2 Side Channel Habitats

Intragravel and surface water temperature monitoring stations were established at three side channel sites: Side Channel 10, Upper Side Channel 11, and Side Channel 21.

2.1.3 Side and Upland Slough Habitats

Intragravel and surface water temperature monitoring stations were established in four side sloughs (8A, 9, 11, and 21) and two upland sloughs (10 and 19).

2.1.4 Tributary Habitats

Surface water temperature monitoring stations were established in the Yentna River, Talkeetna River, Chulitna River, Gold Creek, Indian River, Portage Creek, Tsusena Creek, Deadman Creek, Watana Creek, Kosina Creek, Goose Creek, and the Oshetna River. An intragravel temperature monitoring station was established in Fourth of July Creek to support the ADF&G SuHydro incubation study.

2.2 Field Data Collection

Water temperatures were continuously recorded using either Peabody Ryan model J-90 submersible thermographs or Omnidata two channel datapod recorders. The Peabody Ryan temperature recorders were used at monitoring stations where surface water temperature alone was recorded. Two channel datapod recorders were installed at monitoring stations to simultaneously record intragravel and surface water temperatures. Two channel datapods were also used to monitor surface water temperature in association with stage or dissolved gas.

Table 3-1. (Continued).

<u>Slough</u>	<u>River Mile</u>	<u>Temperature Data Type¹</u>
Lower 8A (Sites 2 and 3)	125.6	S, I
Upper 8A (Site 2)	126.6	S, I
9 (Site 3)	128.6	S, I
10 (Northeast & Northwest Channels)	134.0	S, I
11 (Site 2)	135.7	S, I
19	140.0	S, I
Lower 21 (Site 2)	141.8	S, I
Upper 21	142.0	S, I
<u>Tributary</u>		
Yentna River (Site 2 TRM 4.0)	28.0	S
Talkeetna River (Site 2, TRM 1.5)	97.2	S
Chulitna River (Site 2, TRM 0.6)	98.6	S
(Site 3, TRM 2.4)		S
(Site 4, TRM 4.4)		S
Fourth of July Creek & Plume (Site 1, TRM 0.0)	131.1	I
Gold Creek (Site 2, TRM 0.2)	136.7	S
Indian River (Site 2, TRM 1.0)	138.6	S
Portage Creek (Site 2, TRM 0.2)	148.8	S
Tsusena Creek (TRM 0.1)	181.8	S
Deadman Creek (TRM 0.1)	186.7	S
Watana Creek (TRM 0.1)	194.1	S
Kosina Creek (TRM 0.1)	206.8	S
Goose Creek (TRM 0.1)	231.3	S
Oshetna River (TRM 0.1)	233.4	S

¹ S = Continuous surface water temperature,
I = Continuous intragravel water temperature.

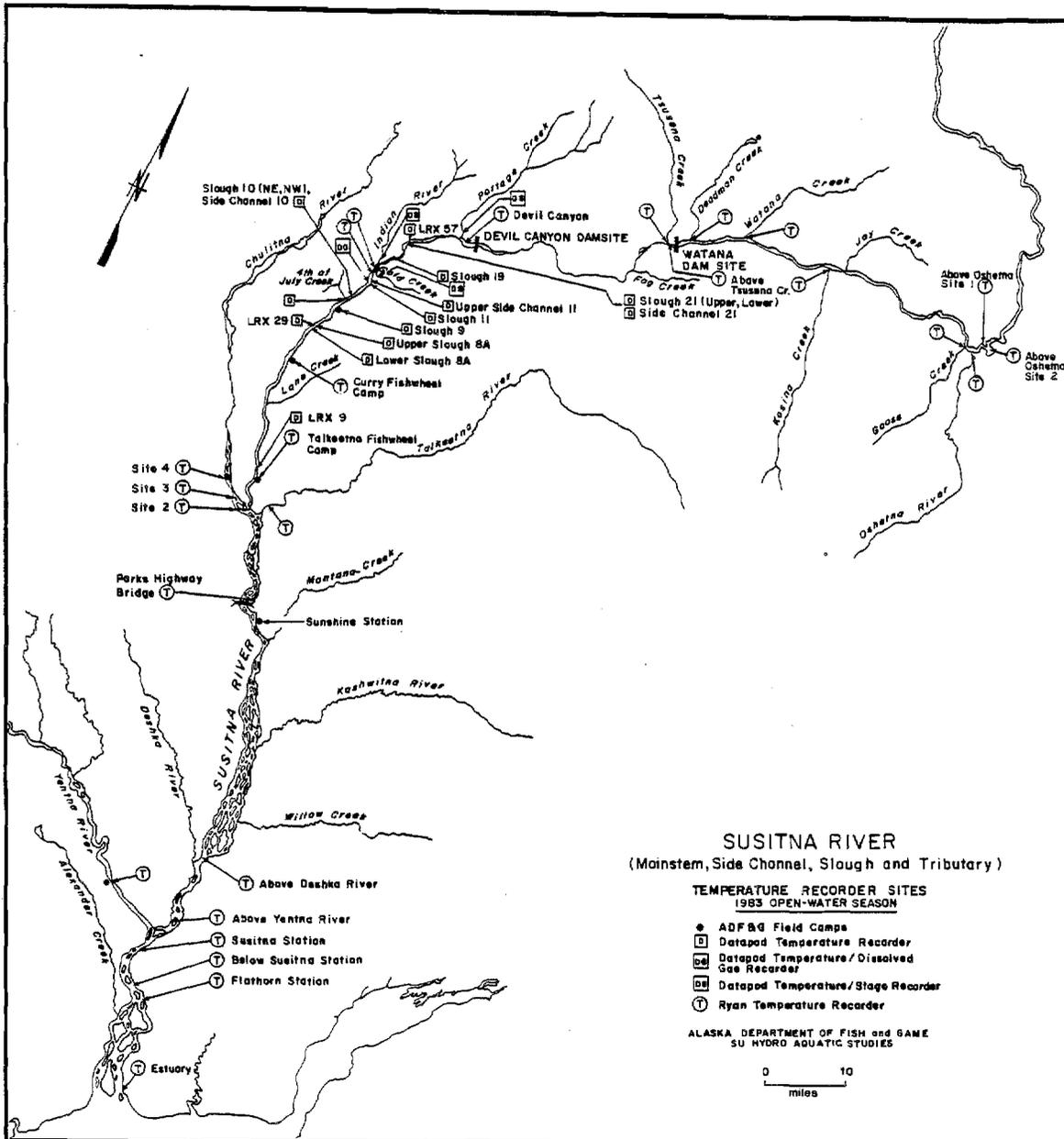


Figure 3-1. Locations of temperature monitoring stations in mainstem, side channel, slough, and tributary habitats of the Susitna River during the 1983 open water season.

2.2.1 Peabody Ryan Temperature Recorders (Thermographs)

The Peabody Ryan model J-90 temperature recorders (thermographs) continuously record temperatures on a 90-day strip chart. Instrument accuracy, as stated by the manufacturer, is $\pm 0.6^{\circ}\text{C}$. Prior to field installation, each instrument was screened at two temperatures (0°C and between 10 - 16°C) using a calibrated American Society for Testing and Manufacturing (ASTM) thermometer as a standard. Thermographs found in error by more than 2°C at either screening temperature were returned to the manufacturer for calibration.

Field installation procedures are outlined in the FY 84 ADF&G Su Hydro Aquatic Studies (May, 1983 - June, 1984) Procedures Manual (ADF&G 1983d). Temperatures were measured approximately two inches above the streambed.

All thermographs were inspected twice each month to ensure accuracy and to detect malfunctioning instruments. Each time the thermographs were checked an instantaneous water temperature measurement was taken using a calibrated Brooklyn thermometer (accuracy $\pm 0.1^{\circ}\text{C}$).

2.2.2 Omnidata Temperature Recorders (Datapods)

Omnidata model DP2321 two channel temperature recorders (datapods) simultaneously record intragravel and surface water temperatures using TP10V temperature probes. Instrument accuracy, as stated by the manufacturer, Omnidata International, is $\pm 0.1^{\circ}\text{C}$. Temperature data are recorded on an ultraviolet, erasable electronic memory chip referred to as a data storage module (DSM). Temperatures are measured every five minutes and the mean, minimum, and maximum temperature measured during each six-hour interval are recorded on the DSM. Prior to installation each temperature probe was calibrated by Dryden and LaRue Engineers and assigned a correction factor.

Field installation procedures are outlined in the ADF&G Su Hydro Aquatic Studies (May, 1983 - June, 1984) Procedures Manual (ADF&G 1983d). Intragravel temperatures are measured at a depth of approximately 15 inches. Surface water temperatures are measured approximately two inches above the substrate.

Datapods were examined twice each month to ensure accuracy and to detect malfunctioning units. The temperature probes and cables were checked for physical damage, dewatering, or siltation. The operating condition of the datapod is checked by activating a short display sequence. The following information is displayed by the instrument, and recorded by the biologist: errors made in storage, number of storage points used, minutes until the next recording, and current temperatures. An instantaneous surface water temperature was also measured with a calibrated Brooklyn thermometer (accuracy $\pm 0.1^{\circ}\text{C}$).

A datapod model DP211SG two channel millivolt/temperature recorder was used to record temperature in association with stage or dissolved gas. Data are measured and stored every hour. Accuracy of the temperature sensor is $\pm 0.5^{\circ}\text{C}$.

Field installation methods for the model DP211SG two channel datapods are outlined in the FY 84 ADF&G Su Hydro Aquatic Studies (May, 1983 - June, 1984) Procedures Manual (ADF&G, 1983d). These units were also examined twice each month using methods outlined for the model DP 2321 datapod.

2.2.3 Advantages and Disadvantages of the Instrumentation

The datapod temperature recorder has several favorable features not offered by the Ryan temperature recorder. The datapod measures water temperatures more accurately ($\pm 0.1^{\circ}\text{C}$ versus $\pm 0.6^{\circ}\text{C}$). The datapod is capable of monitoring temperatures at two locations, or recording surface and intragravel temperatures simultaneously. Because the Ryan temperature recorder is an immersible unit, it is subject to potential loss or damage caused by high flow conditions or debris. The datapod recorder which houses the data storage module is installed on land and therefore is considered safe from water or debris damage. Only the datapod probes which are immersed in the water are subject to loss or damage. Because the datapod data is retrieved directly from the data storage module using a computer, data reduction is more accurate and efficient. The advantages of the Ryan thermographs include the relatively simple installation and monitoring procedures, and the availability of a strip chart recording to evaluate the temperature recordings. Disadvantages of the datapod temperature recorder include high instrument cost, and complex installation and monitoring procedures. Also because the datapod temperature record is retrieved as tables of mean, minimum, and maximum temperatures, occasionally it is difficult to detect erroneous data.

2.3 Analytical Approach

2.3.1 Peabody Ryan Temperature Recorders (Thermographs)

Using field notes as a guide, all Ryan thermograph strip charts were screened for anomalous temperatures which may have resulted from instrument failure, dewatering, or siltation. From the strip charts, a reduced temperature data base is obtained as two hour point temperatures.

A correction value for each strip chart was determined as the difference between the temperature obtained with a calibrated Brooklyn thermometer (accuracy $\pm 0.1^{\circ}\text{C}$) and the thermograph reading at the time the strip chart was removed. (A correction value is determined at the time of strip chart removal rather than installation because response time of the recorder to actual water temperatures can vary with each installation.) The correction value was then used to correct the two-hour point temperature data obtained from each strip chart. From these corrected data bases, daily, USGS water year weekly, and monthly minimum, mean, and maximum surface water temperatures were computer calculated.

2.3.2 Omnidata Temperature Recorders (Datapods)

Water temperature data were retrieved from the datapod temperature recorders as six-hour minimum, mean, and maximum temperatures by reading the data storage module (DSM) via an Omnidata model 217 Datapod/cassette reader into a microcomputer. These six-hour data bases were edited and corrected for storage errors and anomalous data which may have resulted from dewatering, siltation or instrument failure. From these corrected data bases, daily, USGS water year weekly, and monthly mean, minimum, and maximum temperatures were computer calculated.

3.0 RESULTS

Results of the 1983 open water field season continuous water temperature monitoring program are presented according to the following habitat types: mainstem, side channel, slough (side and upland) and tributary.

3.1 Mainstem Habitats

Results of the 1983 open water season continuous temperature monitoring program conducted in the mainstem Susitna River are presented below according to reach of river: Lower Reach (Estuary, RM 4.5 to Parks Highway Bridge, RM 83.9), Middle Reach (Parks Highway Bridge, RM 83.9 to Devil Canyon RM 150.0), and Upper Reach (Devil Canyon, RM 83.9 to above the Oshetna River, RM 235.7). Within each reach of river, data which were recorded at temperature stations to comply with similar objectives are compared and presented together.

3.1.1 Lower Reach (Estuary, RM 4.5 to Parks Highway Bridge, RM 83.9)

Continuous surface water temperature data were collected at seven monitoring stations in the lower Susitna River from the Estuary temperature station located at river mile 4.5 to the Parks Highway Bridge located at river mile 83.9. Site maps for each of these temperature stations are presented in Appendix Figures 3-A-1 to 3-A-4 and 3-A-6 to 3-A-8. Daily and monthly minimum, mean, and maximum surface water temperatures for each station are presented in Appendix Tables 3-A-2 to 3-A-8. Water year weekly temperatures are presented in Appendix Tables 3-A-54 to 3-A-60. The entire period of record, 1981-1983, for each monitoring station is presented in Appendix Table 3-A-1.

3.1.1.1 Estuary (RM 4.5) to Mainstem above the Yentna River (RM 29.5)

The temperature monitoring stations located in the Mainstem Susitna River from the Estuary upstream to above the Yentna River were established to collect baseline surface water temperature data and to support the evaluation of eulachon spawning habitat (Chapter 5 of this report). Temperature stations established at the Estuary (RM 4.5), Flathorn Station (RM 18.2), below Susitna Station (RM 20.5), Susitna Station (RM 25.8), and above the Yentna River (RM 29.5) were monitored only from mid-May to mid-June or mid-July. To compare temperatures recorded at these stations, a plot of the mean daily surface water temperatures was developed (Figure 3-2). Ranges, 25th, 50th (median), and 75th percentiles of surface water temperatures collected at these stations are shown in Figure 3-3.

Surface water temperatures recorded at these monitoring stations ranged from 4.3° (recorded at the Estuary in May) to 14.7° (recorded at Flathorn Station in June). Because periods of records vary, it is difficult to observe trends in temperature data collected at monitoring stations from May to mid-June. The temperature stations located at the

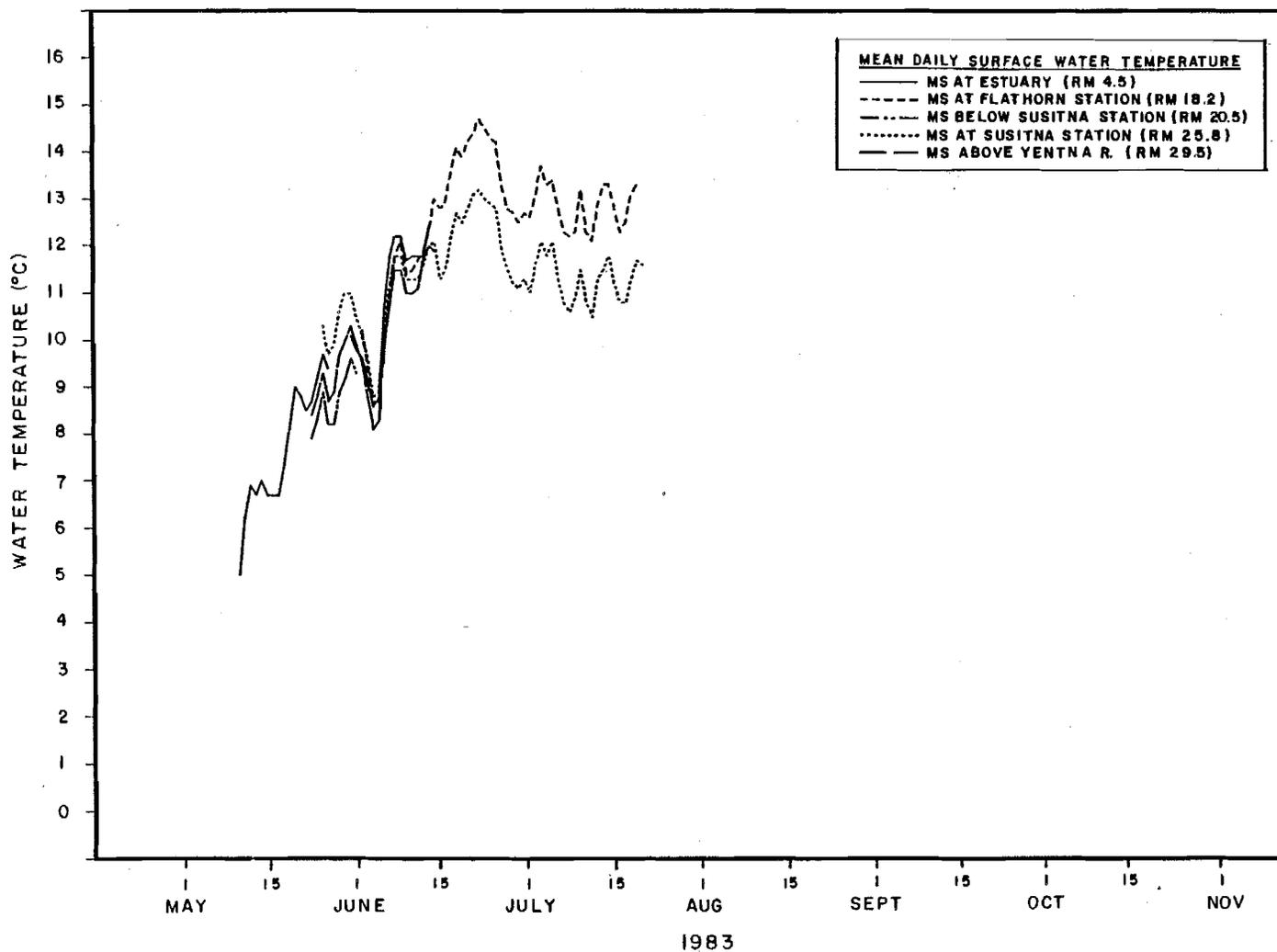


Figure 3-2. Mean daily surface water temperatures collected during the 1983 open water season at Mainstem Susitna River at the Estuary (RM 4.5), Mainstem Susitna River at Flathorn Station (RM 18.2), Mainstem Susitna River below Susitna Station (RM 20.5), Mainstem Susitna River at Susitna Station (RM 25.8), and Mainstem Susitna River above the Yentna River (RM 29.5).

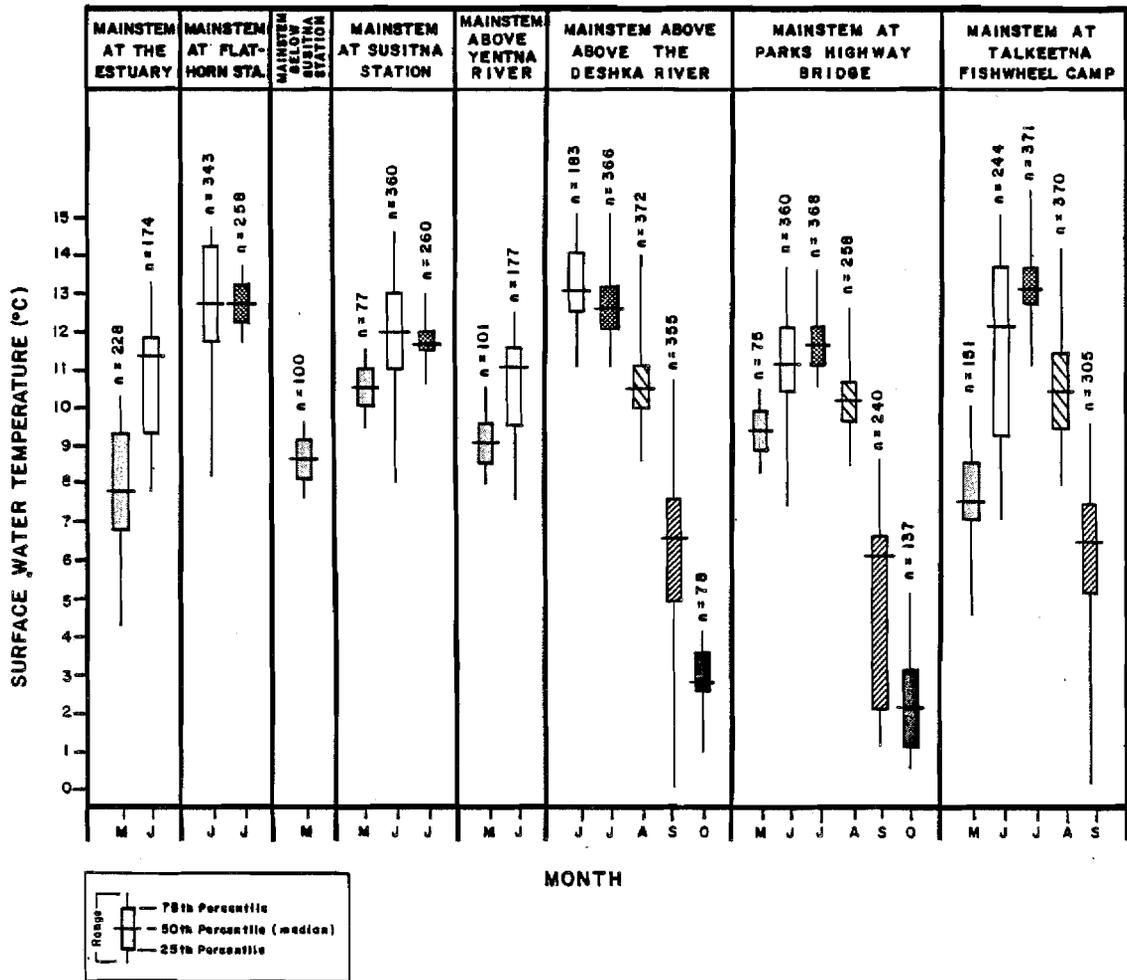


Figure 3-3 Monthly water temperature data summary showing range, 25th, 50th (median), and 75th percentile for Mainstem Susitna River at the Estuary (RM 4.5), at Flathorn Station (RM 18.2), below Susitna Station (RM 20.5), at Susitna Station (RM 25.8), above the Yentna River (RM 29.5), above the Deshka River (RM 41.1), at Parks Highway Bridge (RM 83.9), and at Talkeetna Fishwheel Camp (RM 103.0).

Estuary, below Susitna Station, and above the Yentna River were removed in mid-June leaving only Flathorn Station and Susitna Station. Surface water temperatures were monitored at these sites through July. During this period, daily mean temperatures were consistently warmer at Flathorn Station.

3.1.1.2 Above the Deshka River (RM 41.1) to Parks Highway Bridge (RM 83.9)

Surface water monitoring stations were established above the Deshka River (RM 41.1) and at the Parks Highway Bridge (RM 83.9) to collect baseline mainstem Susitna River temperature data and to determine if the Delta Islands affect mainstem surface water temperatures. Ranges, 25th, 50th (median), and 75th percentiles of surface water temperatures collected at these stations are presented in Figure 3-3. A Plot of mean daily surface water temperatures is presented in Figure 3-4.

Although surface water temperatures recorded at the two stations differed, it is difficult to relate this directly to the influence of the Delta Islands. Mean daily surface water temperatures were higher at the monitoring station located above the Deshka River than at the Parks Highway Bridge from mid-June until mid-September when the trend reversed. Slightly warmer surface water temperatures were recorded at the Parks Highway Bridge monitoring station through mid-October. A gap in the data recorded at the Parks Highway Bridge from August 22 to September 10 resulted from instrument failure.

3.1.2 Middle Reach (Parks Highway Bridge, RM 83.9 to Devil Canyon, RM 150.0)

Continuous surface and/or intragravel water temperature data were obtained at ten monitoring stations in the middle reach of the Susitna River from the Parks Highway Bridge located at river mile 83.9 to Devil Canyon located at river mile 150.0. Site maps of these temperature stations are presented in Appendix Figures 3-A-8, 3-A-11 to 3-A-13, 3-A-17, 3-A-18, 3-A-21, and 3-A-23. Daily and monthly minimum, mean, and maximum surface water temperature for each station are presented in Appendix Tables 3-A-8 to 3-A-19. Water year weekly temperatures are presented in Appendix Tables 3-A-60 to 3-A-71. The periods of record for these monitoring stations, 1981-1983, are presented in Appendix Table 3-A-1.

3.1.2.1 Parks Highway Bridge (RM 83.9) to Talkeetna Fishwheel Camp (RM 103.0)

To determine the influence of the Chulitna River and the Talkeetna River on mainstem Susitna River temperatures, surface water temperature data collected at the monitoring station at Parks Highway Bridge (RM 83.9) was compared to temperature data collected at the monitoring station at the Talkeetna Fishwheel Camp (RM 103.0). The monitoring station at Parks Highway Bridge is located downstream of the tributaries while the monitoring station at Talkeetna Fishwheel Camp is located upstream of the tributaries. A plot of the mean daily surface water temperatures recorded at the two temperature stations is presented in Figure 3-5.

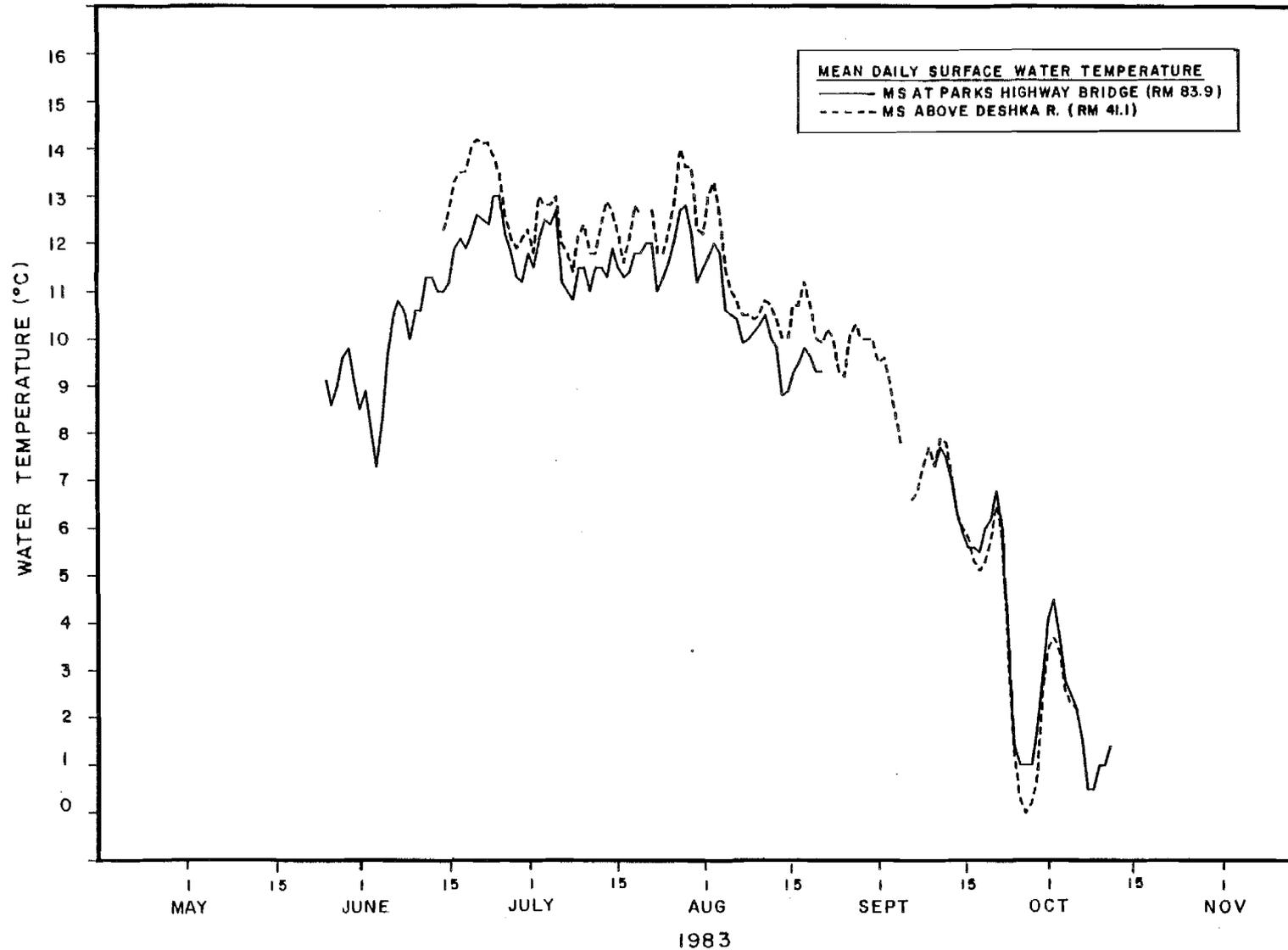


Figure 3-4. Mean daily surface water temperatures collected during the 1983 open water season at Mainstem Susitna River at Parks Highway Bridge - Site 3 (RM 83.9), and at Mainstem Susitna above the Deshka River (RM 41.1).

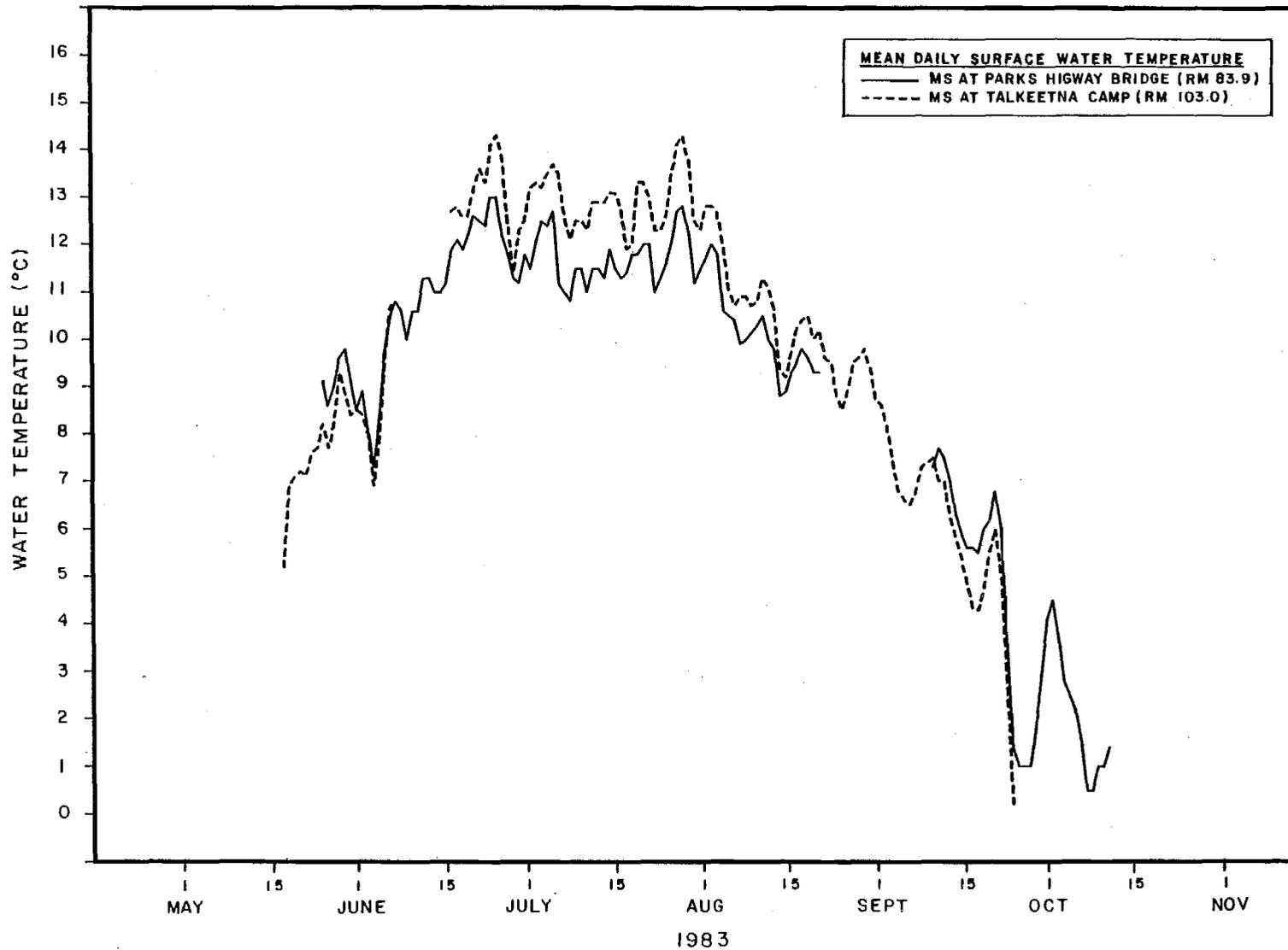


Figure 3-5. Mean daily surface water temperatures collected during the 1983 open water season at Mainstem Susitna River at Parks Highway Bridge - Site 3 (RM 83.9), and at Mainstem Susitna River at Talkeetna Fishwheel Camp (RM 103.0).

Ranges, 25th, 50th (median), and 75th percentiles of surface water temperatures collected are shown in Figure 3-3.

Daily mean surface water temperatures recorded at the monitoring station located at the Parks Highway Bridge (RM 83.9) were lower than those recorded at the Talkeetna Fishwheel Camp (RM 103.0) from mid-June until late August. The temperature trends were reversed from mid-May to early June and in September.

3.1.2.2 Talkeetna Fishwheel Camp (RM 103.0), Curry Fishwheel Camp (RM 120.7), Above Gold Creek (RM 136.8) and Devil Canyon (RM 150.0)

Continuous surface water temperature monitoring stations were established at Talkeetna Fishwheel Camp (RM 103.0), Curry Fishwheel Camp (RM 102.7), above Gold Creek (RM 136.8), and at Devil Canyon (RM 150.0), to compare temperatures in the reach of the river from Talkeetna to above Portage Creek. A plot of mean daily temperatures recorded at the monitoring stations is shown in Figure 3-6. Ranges, 25th, 50th (median), and 75th percentiles of surface water temperatures collected at these sites are presented in Figures 3-7 and 3-19.

Temperatures ranged from 15.5°C in July to 0°C in late September. Generally, temperatures increased downstream from Devil Canyon (RM 150.0) to Talkeetna Fishwheel (RM 103.0).

3.1.2.3 Curry Fishwheel Camp (RM 120.7), Gold Creek Bridge (RM 136.6) (site of old USGS recorder), Above Gold Creek (RM 136.8)

Mean daily surface water temperatures recorded at the temperature monitoring station at Gold Creek Bridge (RM 136.6) (site of old USGS recorder) were compared to mean daily mainstem surface water temperatures recorded at Curry Fishwheel Camp (RM 120.7) and above Gold Creek (RM 136.8). The comparison was made to determine the influence of Gold Creek tributary water temperatures on the mainstem water temperatures recorded in the Gold Creek thermal plume at the monitoring station at Gold Creek Bridge. A plot of the mean daily surface water temperatures recorded at the temperature stations is presented in Figure 3-8. The ranges, 25th, 50th (median), and 75th percentiles of surface water temperatures collected at these sites are presented in Figure 3-7.

Mean daily surface water temperatures recorded at the monitoring station at the Gold Creek Bridge (RM 136.6) were found to be consistently lower than those collected at the monitoring stations above Gold Creek (RM 136.8) and Curry Fishwheel (RM 120.7) (Figure 3-8). Maximum temperature recorded at all three of the sites was 14.3° (recorded in July).

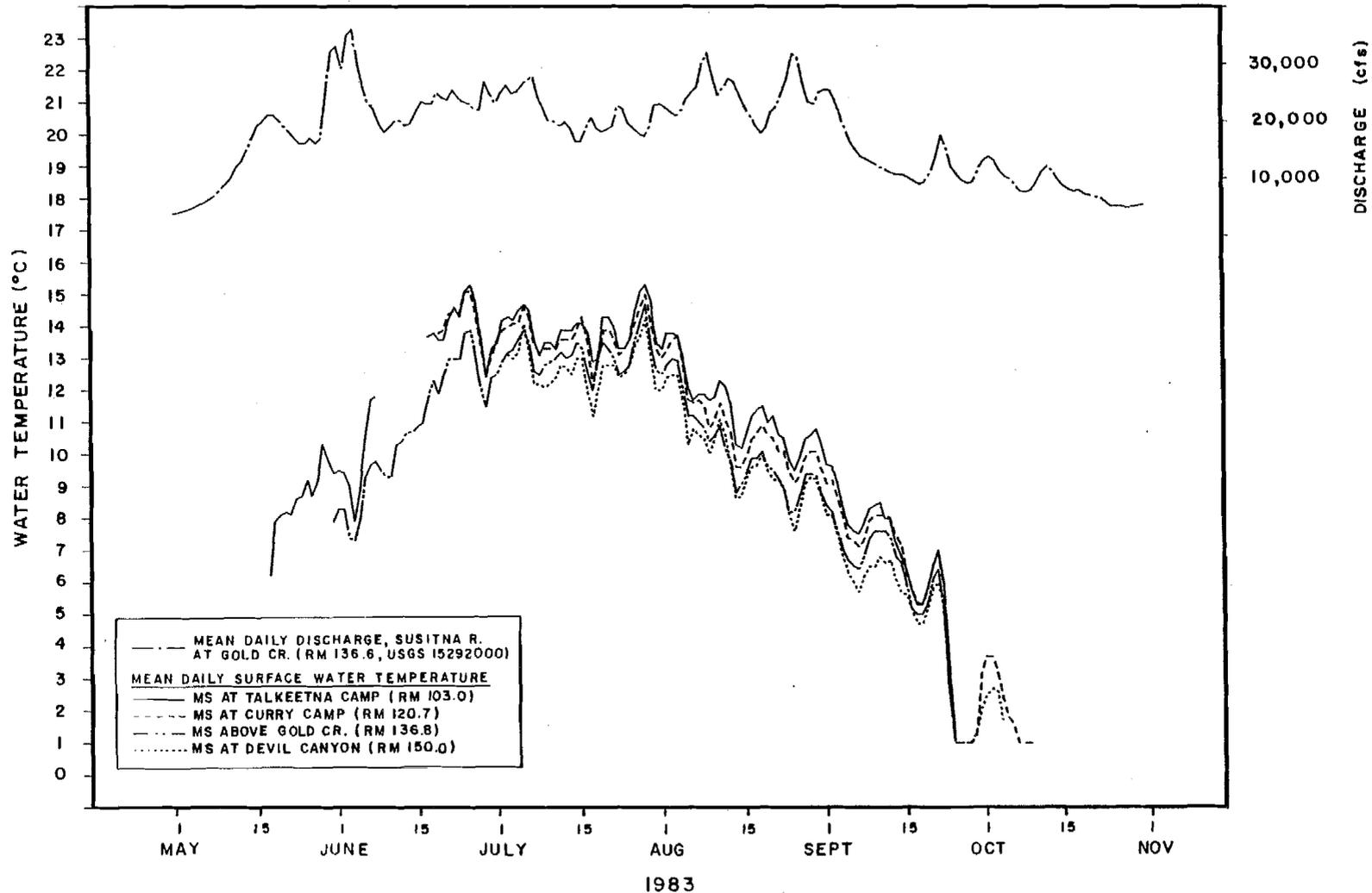


Figure 3-6 Mean daily surface water temperatures collected during the 1983 open water season at Mainstem Susitna River at Talkeetna Fishwheel Camp (RM 103.0), at Mainstem Susitna River at Curry Fishwheel Camp (RM 120.7), at Mainstem Susitna River above Gold Creek - Site 2 (RM 136.8), at Mainstem Susitna River at Devil Canyon (RM 150.0), and mean daily Susitna River discharge at Gold Creek (USGS gaging station 15292000).

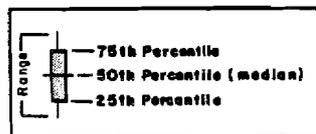
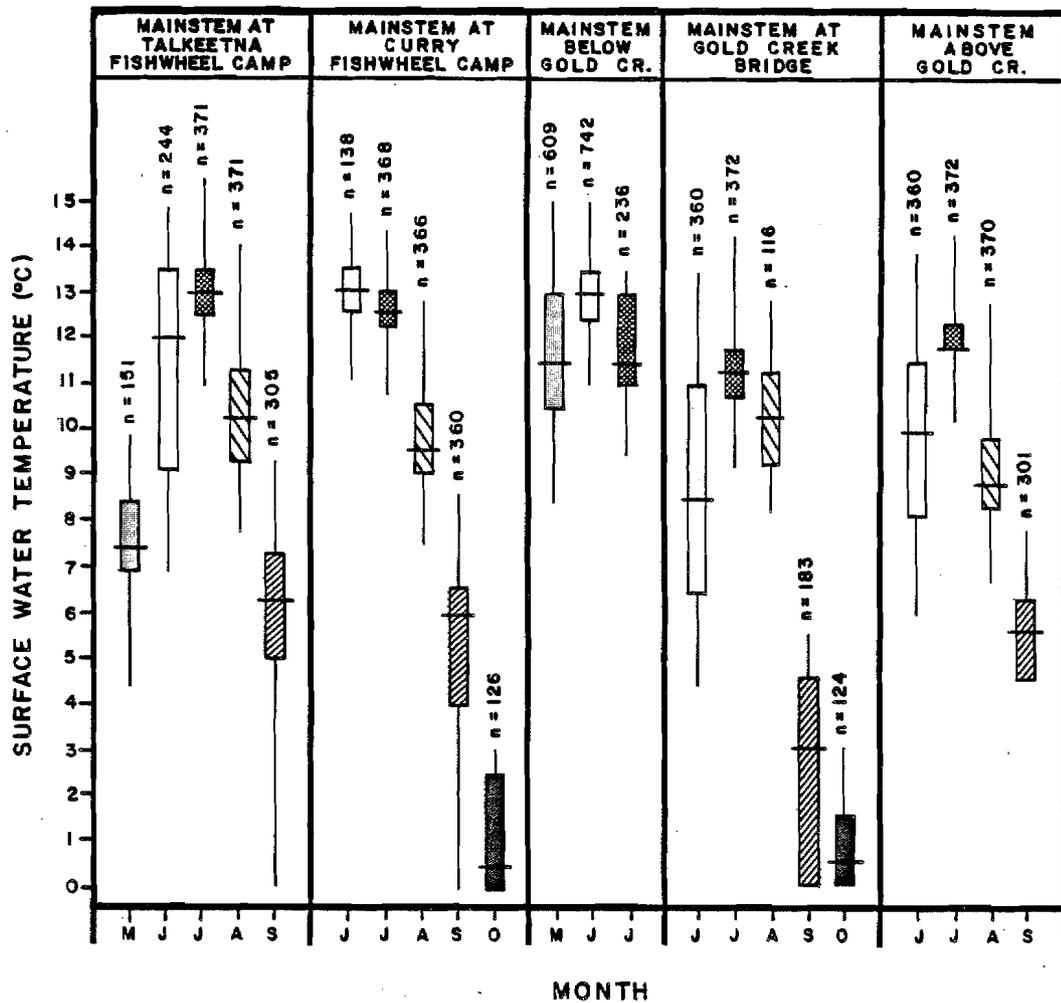


Figure 3-7. Monthly water temperature data summary showing range, 25th, 50th (median), and 75th percentile for Mainstem Susitna River at Talkeetna Fishwheel Camp (RM 103.0), at Curry Fishwheel Camp (RM 120.7), below Gold Creek (RM 135.8), at Gold Creek Bridge (RM 136.6), and above Gold Creek - Site 2 (RM 136.8).

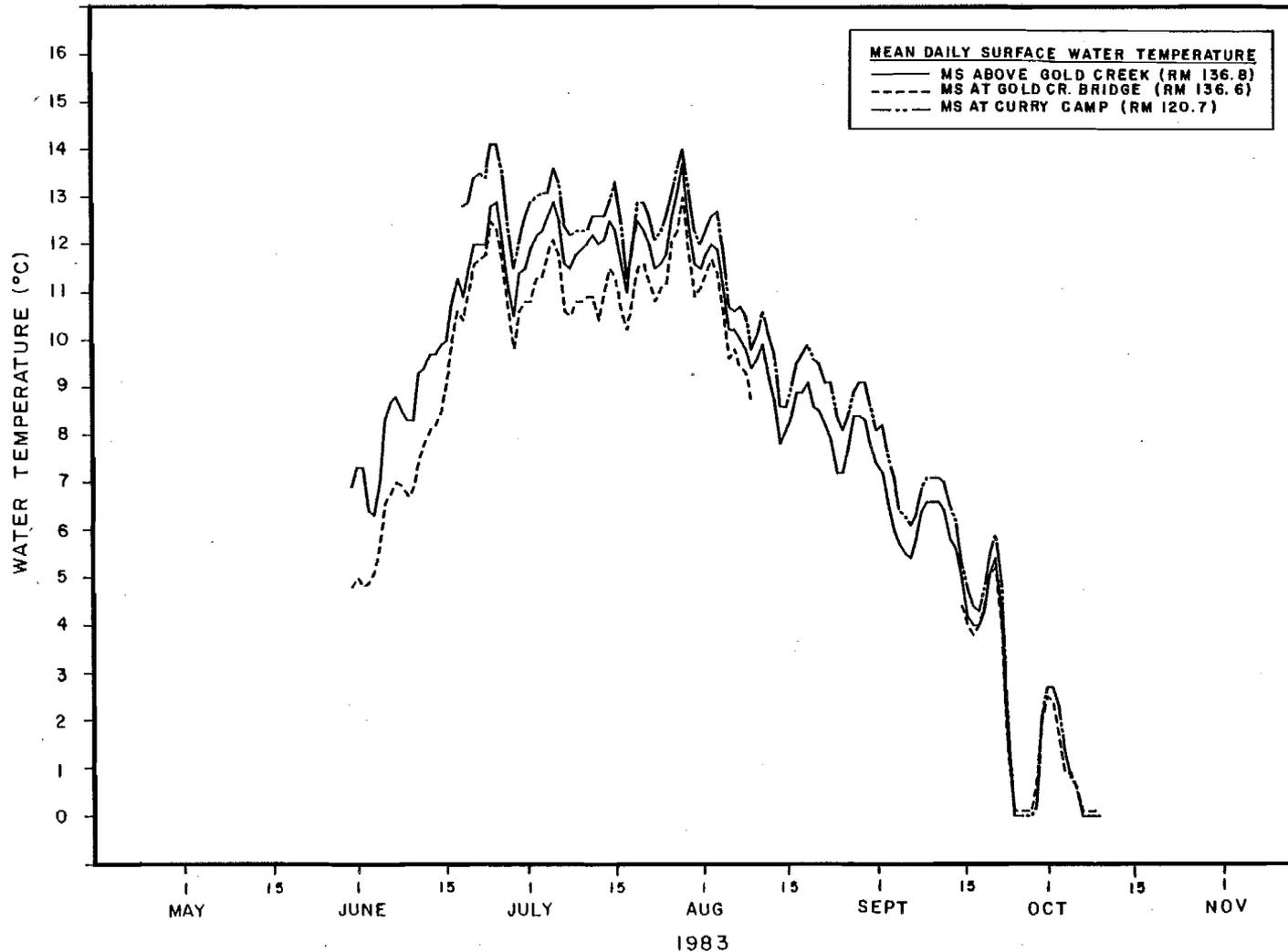


Figure 3-8. Mean daily surface water temperatures collected during the 1983 open water season at Mainstem Susitna River at Curry Fishwheel Camp (RM 120.7), at Mainstem Susitna River above Gold Creek - Site 2 (RM 136.8), at Mainstem Susitna River at Gold Creek Bridge (RM 136.6), and mean daily Susitna River discharge at Gold Creek (USGS gaging station 15292000).

3.1.2.4 Talkeetna Fishwheel Camp (RM 103.0), Curry Fishwheel Camp (RM 120.7), Below Gold Creek (RM 135.8), (site of dissolved gas recorder) and Above Gold Creek (RM 136.8)

Continuous surface water temperatures recorded in the mainstem Susitna River at the monitoring station below Gold Creek (RM 135.8) (site of dissolved gas recorder) were compared to temperatures recorded at the monitoring stations at Talkeetna Fishwheel Camp (RM 103.0), Curry Fishwheel Camp (RM 120.7), and above Gold Creek (RM 136.8). A plot of the mean daily surface water temperatures recorded at these temperature stations is presented in Figure 3-9. The ranges, 25th, 50th (median), and 75th percentiles of the temperatures obtained at these sites are presented in Figure 3-7.

The temperature recorder at the monitoring station located below Gold Creek (RM 135.8) was installed on June 5 to provide temperature data to support the dissolved gas study. This station was removed on August 10. Temperatures collected at this monitoring station were generally warmer than those recorded at the site above Gold Creek (RM 136.8), and were sometimes warmer than temperatures recorded at the downstream sites located at Talkeetna Fishwheel Camp (RM 103.0) and Curry Fishwheel Camp (RM 120.7).

3.1.2.5 LRX 9 (RM 103.2), LRX 29 (RM 126.1), and LRX 57 (RM 142.3)

Surface and intragravel water temperature monitoring stations were established at LRX 9 (RM 103.2), LRX 29 (RM 126.1), and LRX 57 (RM 142.3) to determine downstream temperature trends and to compare intragravel and surface water temperatures measured at each of these monitoring stations (Appendix Tables 3-A-1, 3-A-10, 3-A-11, 3-A-13, 3-A-17, 3-A-18). The ranges, 25th, 50th (median), and 75th percentiles of surface and intragravel temperatures collected at these sites are presented in Figure 3-10.

3.1.2.5.1 Surface water temperature at LRX 9 (RM 103.2), LRX 29 (RM 126.1), and LRX 57 (RM 142.3)

To compare surface water temperatures, a plot of the mean daily surface water temperatures recorded at the temperature monitoring stations at LRX 9 (RM 103.2), LRX 29 (RM 126.1), and LRX 57 (RM 142.3) was developed (Figure 3-11). During the 1983 open water field season surface water temperatures ranged from 16.5°C (at LRX 9) to -0.1°C (at LRX 29). Surface water temperatures at LRX 9 were generally warmer than surface water temperatures recorded at LRX 29 and LRX 57.

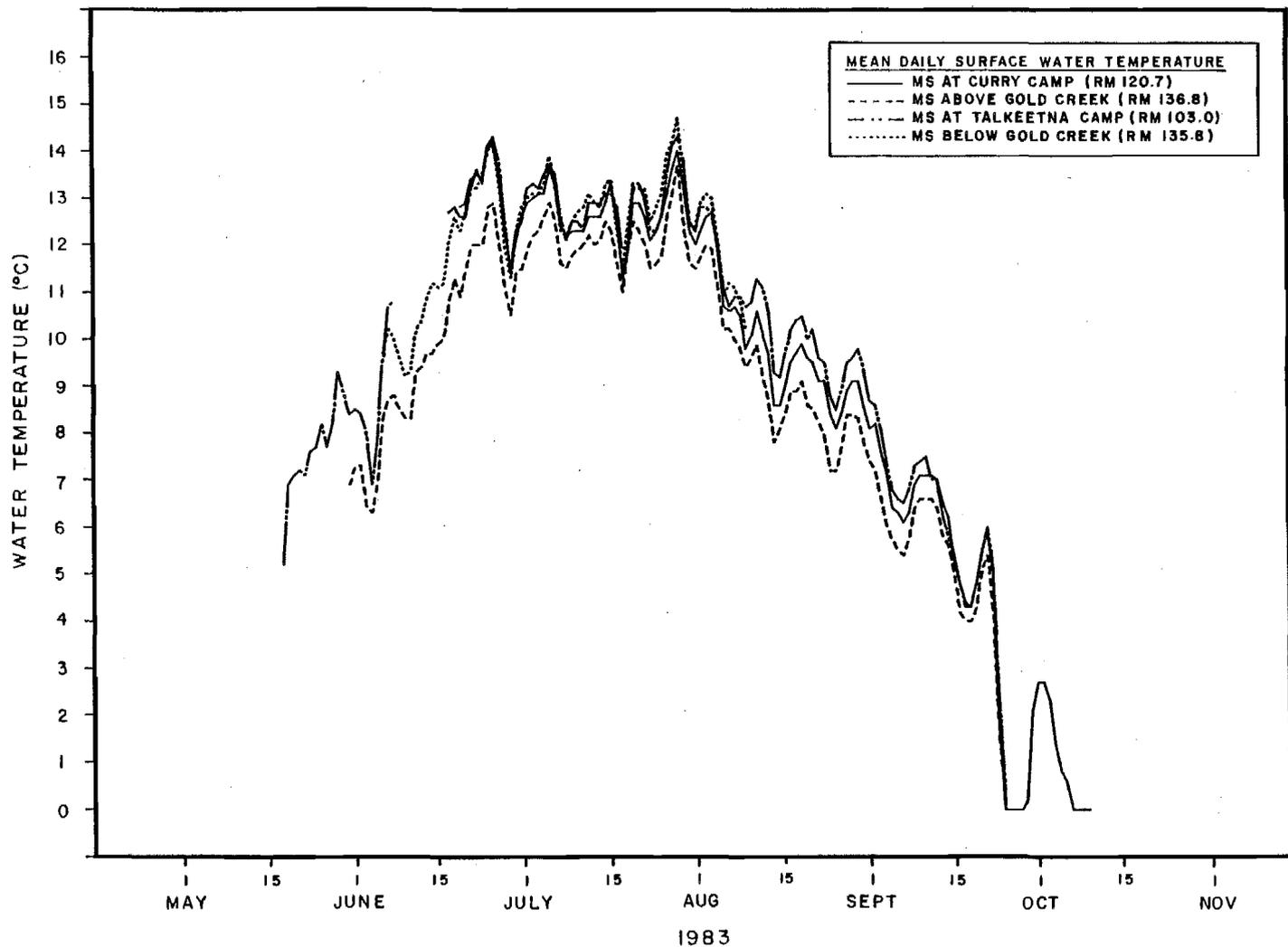


Figure 3-9. Mean daily surface water temperatures collected during the 1983 open water season at Mainstem Susitna River at Curry Fishwheel Camp (RM 120.7), at Mainstem Susitna River above Gold Creek (RM 136.8), at Mainstem Susitna River at Talkeetna Fishwheel Camp (RM 103.0), and at Mainstem Susitna River below Gold Creek (RM 135.8).

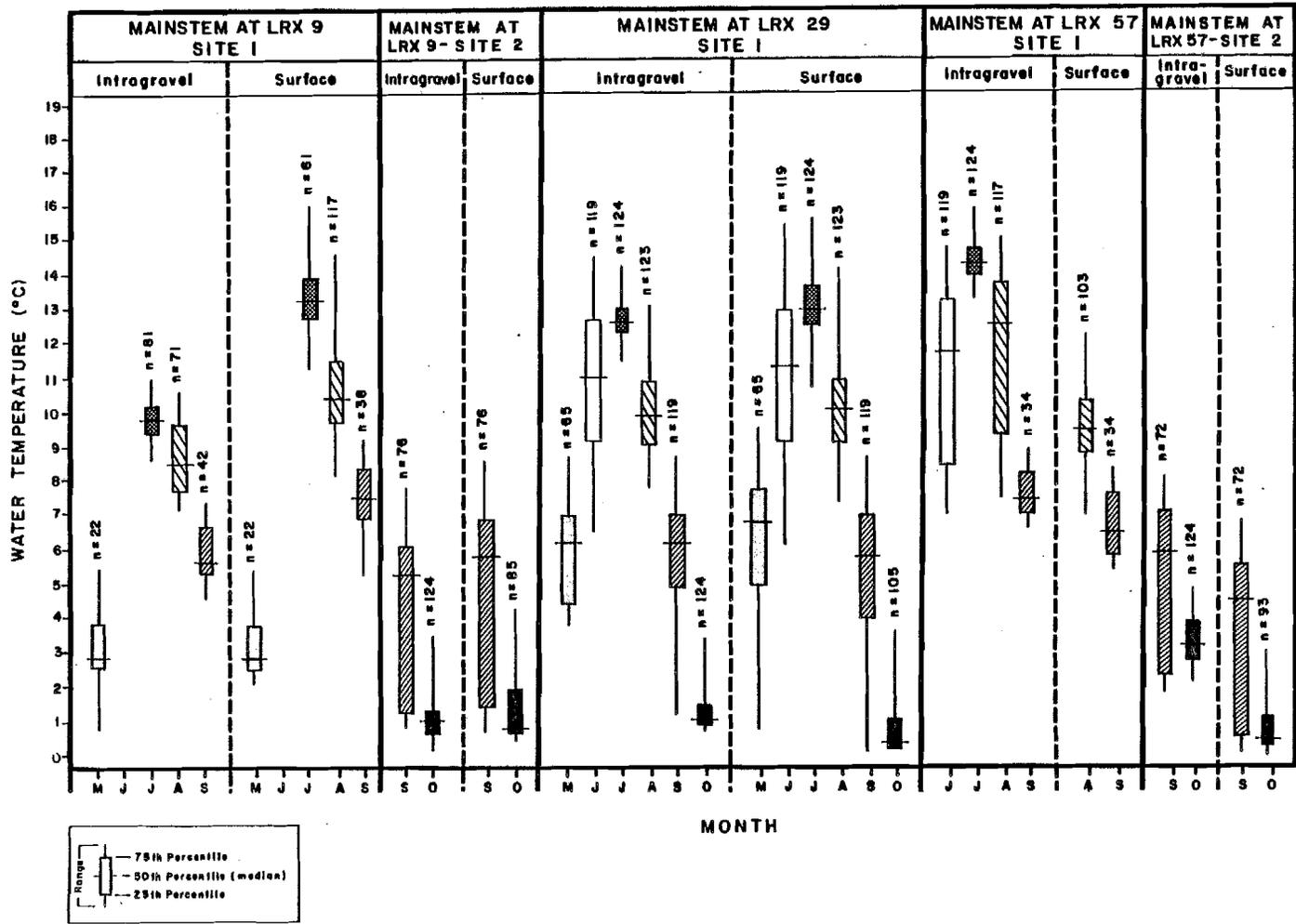


Figure 3-10. Monthly water temperature data summary showing range, 25th, 50th (median), and 75th percentile for Mainstem Susitna at LRX 9 - Site 1 (RM 103.2), LRX 9 - Site 2 (RM 103.2), LRX 29 - Site 1 (RM 126.1), LRX 57 - Site 1 (RM 142.3), and LRX 57 - Site 2 (RM 142.3).

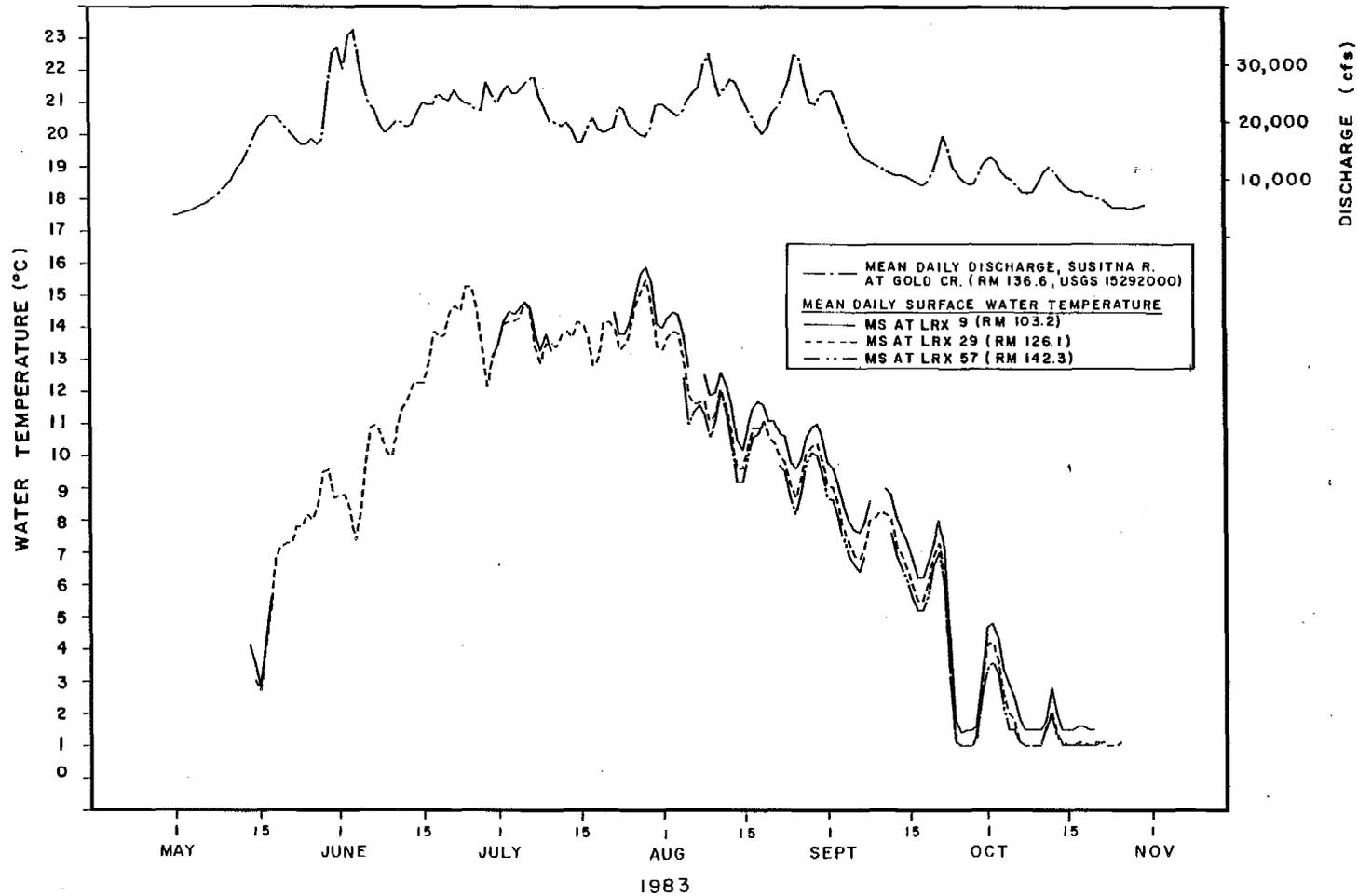


Figure 3-11. Mean daily surface water temperatures collected during the 1983 open water season at Mainstem Susitna River at LRX 9 - Sites 1 and 2 (RM 103.2), at Mainstem Susitna River at LRX 29 - Site 1 (RM 126.1), at Mainstem Susitna River at LRX 57 - Sites 1 and 2 (RM 142.3), and mean daily Susitna River discharge at Gold Creek (USGS Gaging Station 15292000).

3.1.2.5.2 Intragravel water temperatures at LRX 9 (RM 103.2), LRX 29 (RM 126.1), and LRX 57 (RM 142.3)

To compare intragravel water temperatures recorded at LRX 9 (RM 103.2), LRX 29 (RM 126.1), and LRX 57 (RM 142.3), a plot of mean daily intragravel temperatures recorded at the monitoring stations is presented in Figure 3-12. Intragravel mainstem water temperatures recorded at the three monitoring stations were similar during the warming and cooling periods of the spring (May-June) and early fall (September). However, large variations in intragravel temperatures were observed at the sites during the summer (July-September) and late fall (October). Temperatures recorded at LRX 57 actually increased in October. Generally, higher temperatures were recorded at LRX 57 (RM 142.3) and lower temperatures were recorded at LRX 9 (RM 103.3).

Temperature monitoring stations at LRX 9 and LRX 57 were each relocated to new sites (LRX 9 - Site 2 and LRX 57 - Site 2) on September 13 to avoid dewatering (see Appendix Tables 3-A-10, 3-A-11, 3-A-17, 3-A-18 and Appendix Figures 3-A-11 and 3-A-12).

3.1.2.5.3 Intragravel and surface water temperatures at LRX 9 (RM 103.2), LRX 29 (RM 126.1), and LRX 57 (RM 142.3)

A plot of mean daily intragravel and surface water temperatures at LRX 9 (RM 103.2), LRX 29 (RM 126.1), and LRX 57 (RM 142.3) was developed to show general temperature trends among these sites (Figure 3-13).

Surface water temperatures recorded at LRX 9, LRX 29, and LRX 57, and the intragravel water temperatures recorded at LRX 29 follow similar temperature trends. However, intragravel temperatures recorded at LRX 9 were lower, and intragravel temperatures recorded at LRX 57 were warmer than the general temperature trend.

3.1.2.5.4 Intragravel versus surface water temperature at LRX 9 (RM 103.2).

A plot of mean daily intragravel and surface water temperature recorded at LRX 9 (RM 103.2) is presented in Figure 3-14.

Surface water temperatures were warmer than intragravel temperature from July to mid-September. At this time the probes were moved further into the river to Site 2 to avoid dewatering (see Appendix Figure 3-A-11). After the change in location, intragravel and surface water temperatures were similar. Gaps in the data in June and July resulted from dewatered probes. The intragravel probe malfunctioned in August.

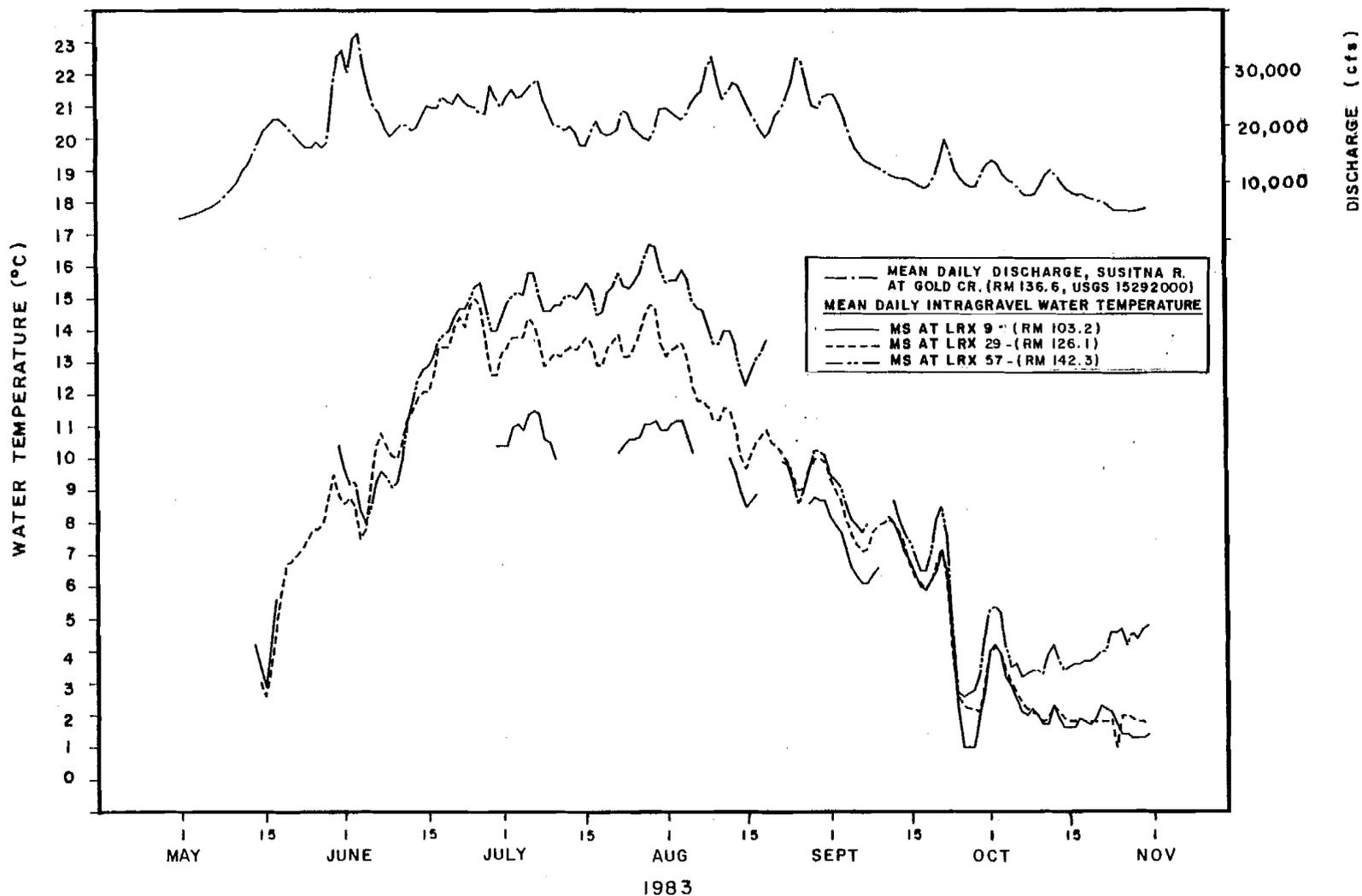


Figure 3-12. Mean daily surface water temperatures collected during the 1983 open water season at Mainstem Susitna River at LRX 9 - Sites 1 and 2 (RM 103.2), at Mainstem Susitna River at LRX 29 - Site 1 (RM 126.1), at Mainstem Susitna River at LRX 57 - Sites 1 and 2 (RM 142.3), and mean daily Susitna River discharge at Gold Creek (USGS Gaging Station 15292000).

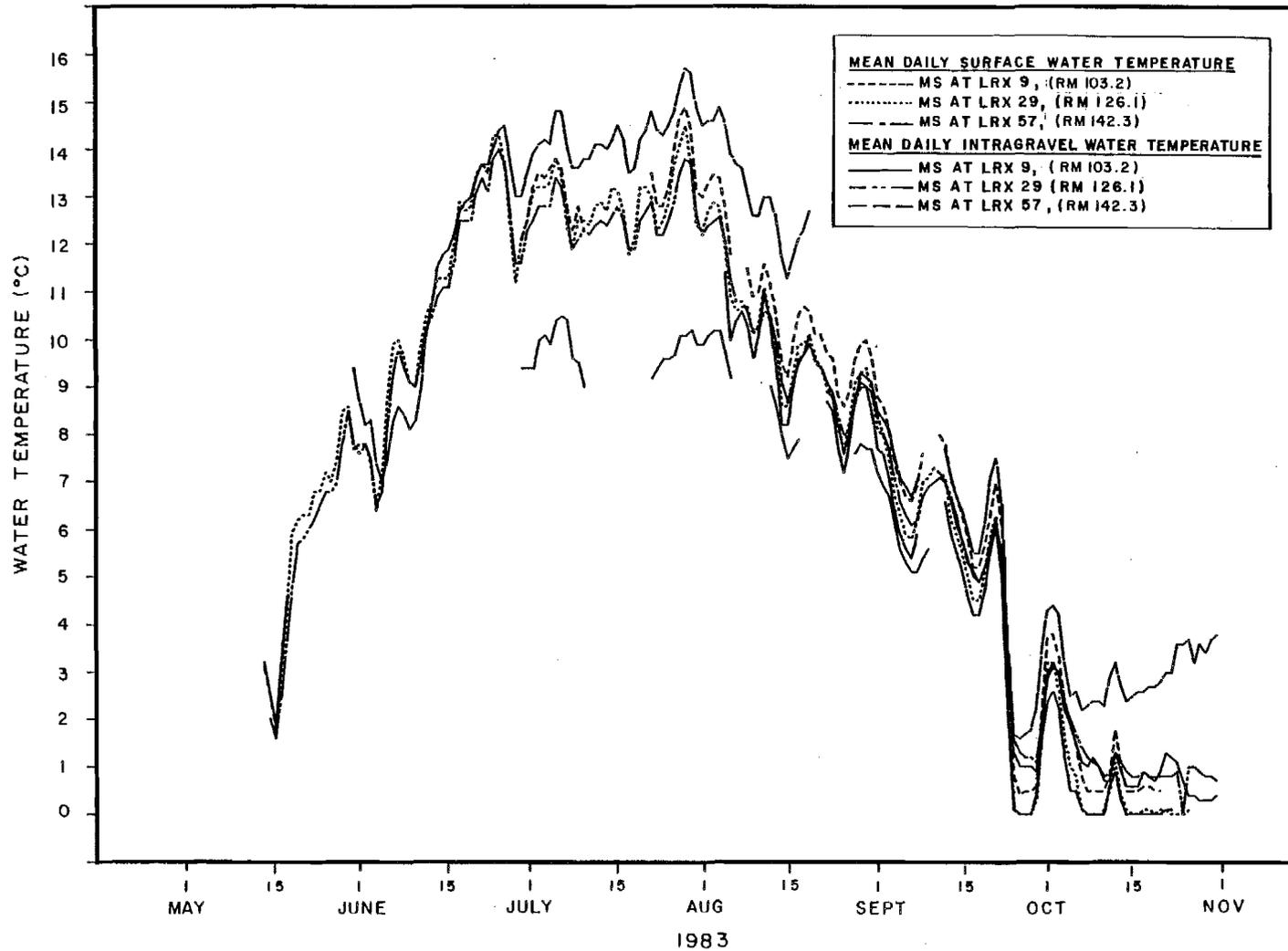


Figure 3-13. Mean daily intragravel and surface water temperatures collected during the 1983 open water season at Mainstem Susitna River at LRX 9 - Sites 1 and 2 (RM 103.2), at Mainstem Susitna River at LRX 29 - Site 1 (RM 126.1), at Mainstem Susitna River at LRX 57 - Sites 1 and 2 (RM 142.3), and mean daily Susitna River discharge at Gold Creek (USGS gaging station 15292000).

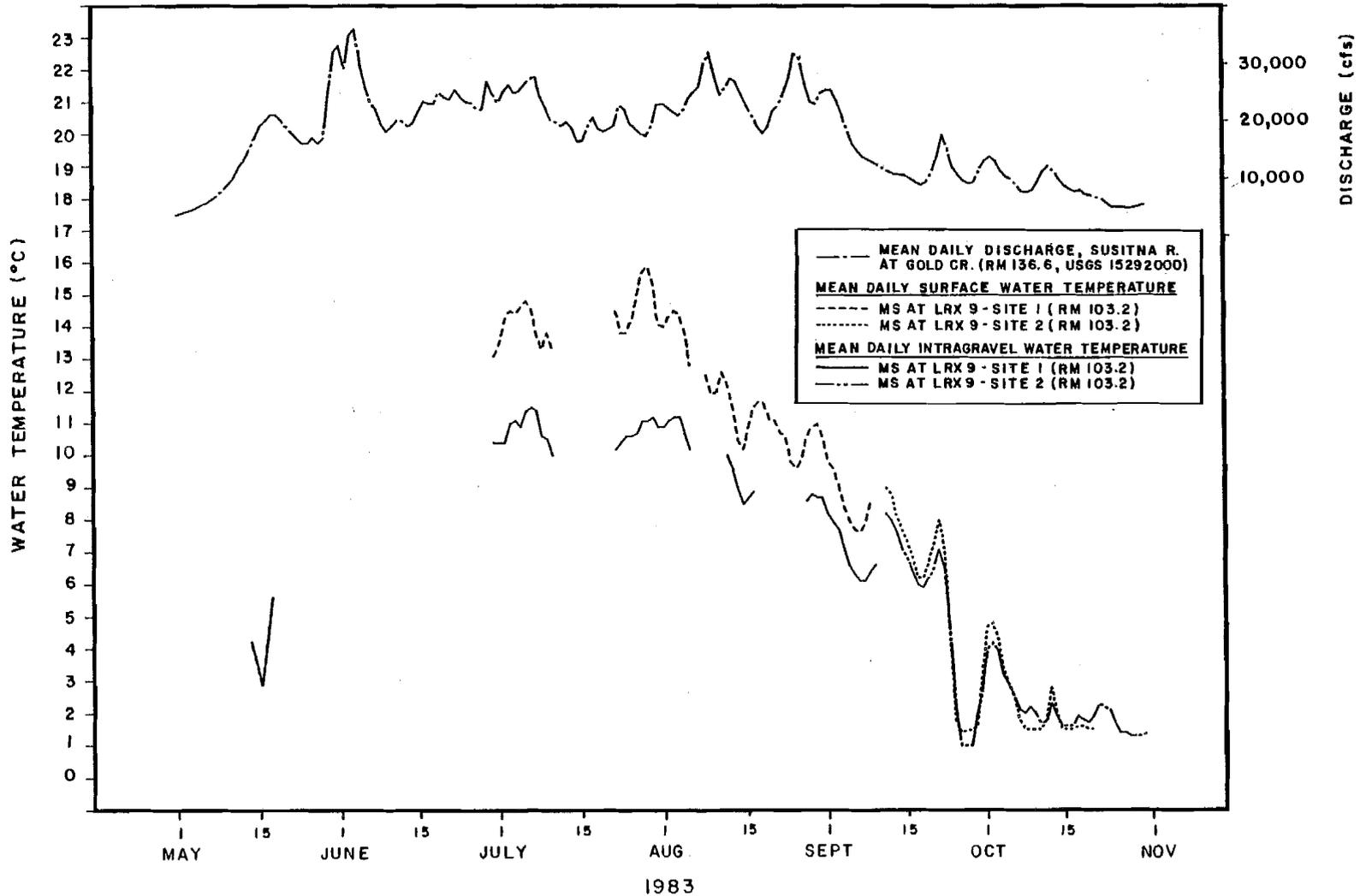


Figure 3-14. Mean daily intragravel and surface water temperatures collected during the 1983 open water season at Mainstem Susitna River at LRX 9 - Sites 1 and 2 (RM 103.2), and mean daily Susitna River discharge at Gold Creek (USGS Gaging Station 15292000).

3.1.2.5.5 Intragravel versus surface water temperature at LRX 29 (RM 126.1)

A plot of mean daily intragravel and surface water temperatures recorded at LRX 29 is presented in Figure 3-15.

Surface and intragravel water temperatures at LRX 29 were similar from mid-May until late September. In late September mean surface water temperature cooled to a minimum of -0.1°C while the minimum intragravel temperature was 1.0°C . In early October intragravel and surface water temperatures increased to 3.9°C and 3.4°C , respectively, and then declined. Throughout October intragravel temperatures were warmer than surface water temperatures.

3.1.2.5.6 Intragravel versus surface water temperature at LRX 57 (RM 142.3)

A plot of intragravel and surface water temperature recorded at LRX 57 (RM 142.3) is presented in Figure 3-16.

Because of a malfunctioning probe, surface water temperatures were not recorded at LRX 57 until August 4. Between August 4 and September 11 intragravel temperatures were generally higher than the surface water temperatures. The probes were relocated to Site 2 on September 11 to prevent dewatering. In September and October mean daily intragravel temperatures remained warmer than surface water temperatures. In late September minimum surface water temperature was -0.1°C , while the minimum intragravel temperature was 2.1°C . Mean monthly water temperatures calculated for October were 3.0°C (intragravel) and 0.5°C (surface).

3.1.2.6 LRX 9 (RM 103.2) and Talkeetna Fishwheel Camp (RM 103.0)

Because the temperature monitoring stations at Talkeetna Fishwheel Camp (RM 103.0) and LRX 9 (RM 103.2) were in close proximity, a comparison between surface water temperatures recorded at the sites was made. A plot of mean daily surface water temperatures recorded at LRX 9 and Talkeetna Fishwheel Camp is presented in Figure 3-17.

Surface water temperatures measured at the monitoring station at LRX 9 correspond closely to surface water temperatures recorded at Talkeetna Fishwheel Camp. The greatest difference in mean daily surface water temperature occurred on September 17 when the temperature at the monitoring station at LRX 9 was 1.0°C higher than the temperature at the monitoring station at Talkeetna Fishwheel Camp.

3.1.3 Upper Reach (Devil Canyon, RM 150.0 to above the Oshetna River, RM 235.7)

Continuous surface water temperature data were recorded at three mainstem locations in the upper reach of the Susitna River from Devil Canyon (RM 150.0) to above the Oshetna River (RM 235.7). Mainstem temperature monitoring stations were established at Devil Canyon (RM

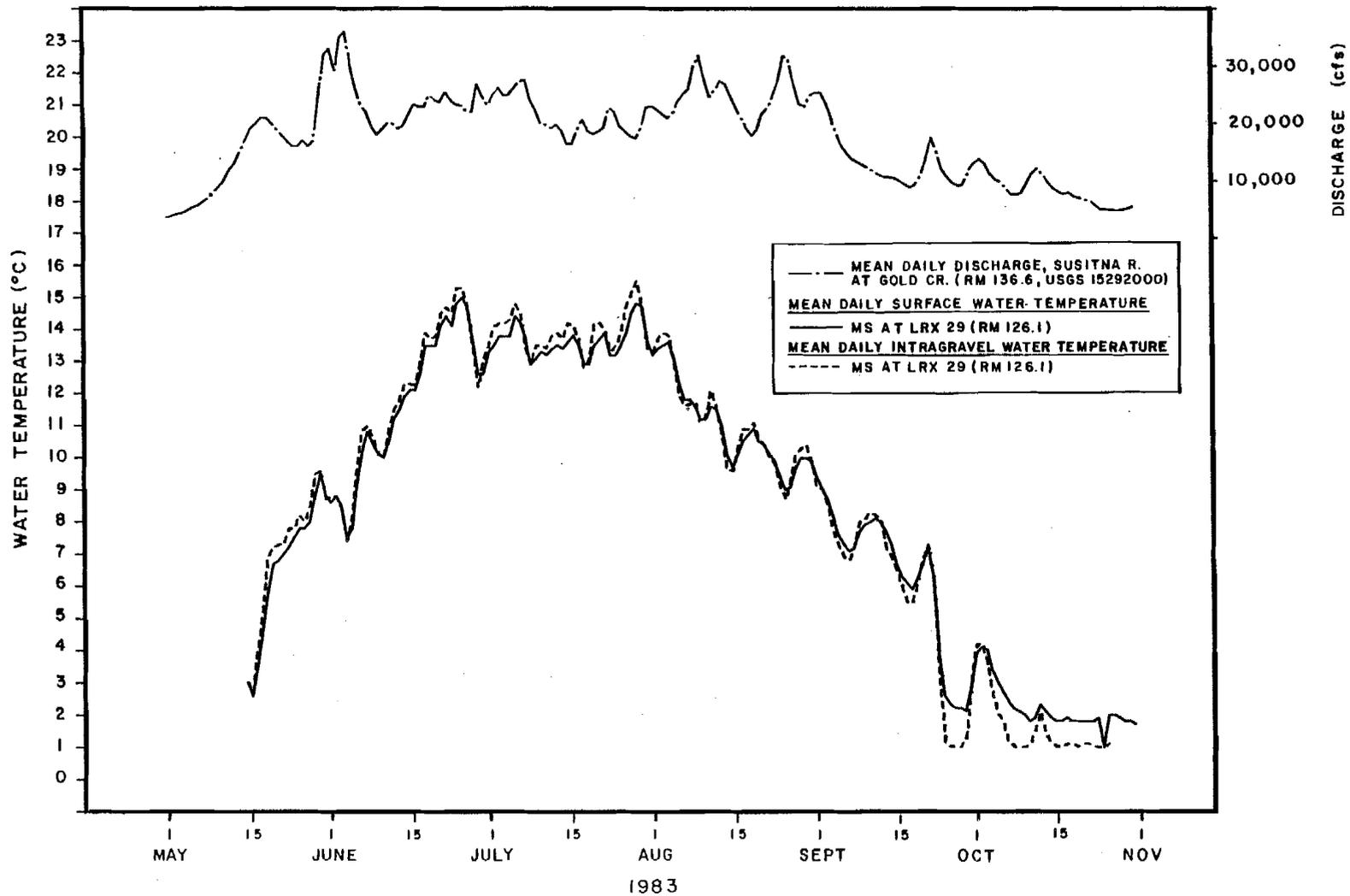


Figure 3-15 Mean daily intragravel and surface water temperatures collected during the 1983 open water season at Mainstem Susitna River at LRX 29 - Site 1 (RM 126.1), and mean daily Susitna River discharge at Gold Creek (USGS Gaging Station 15292000).

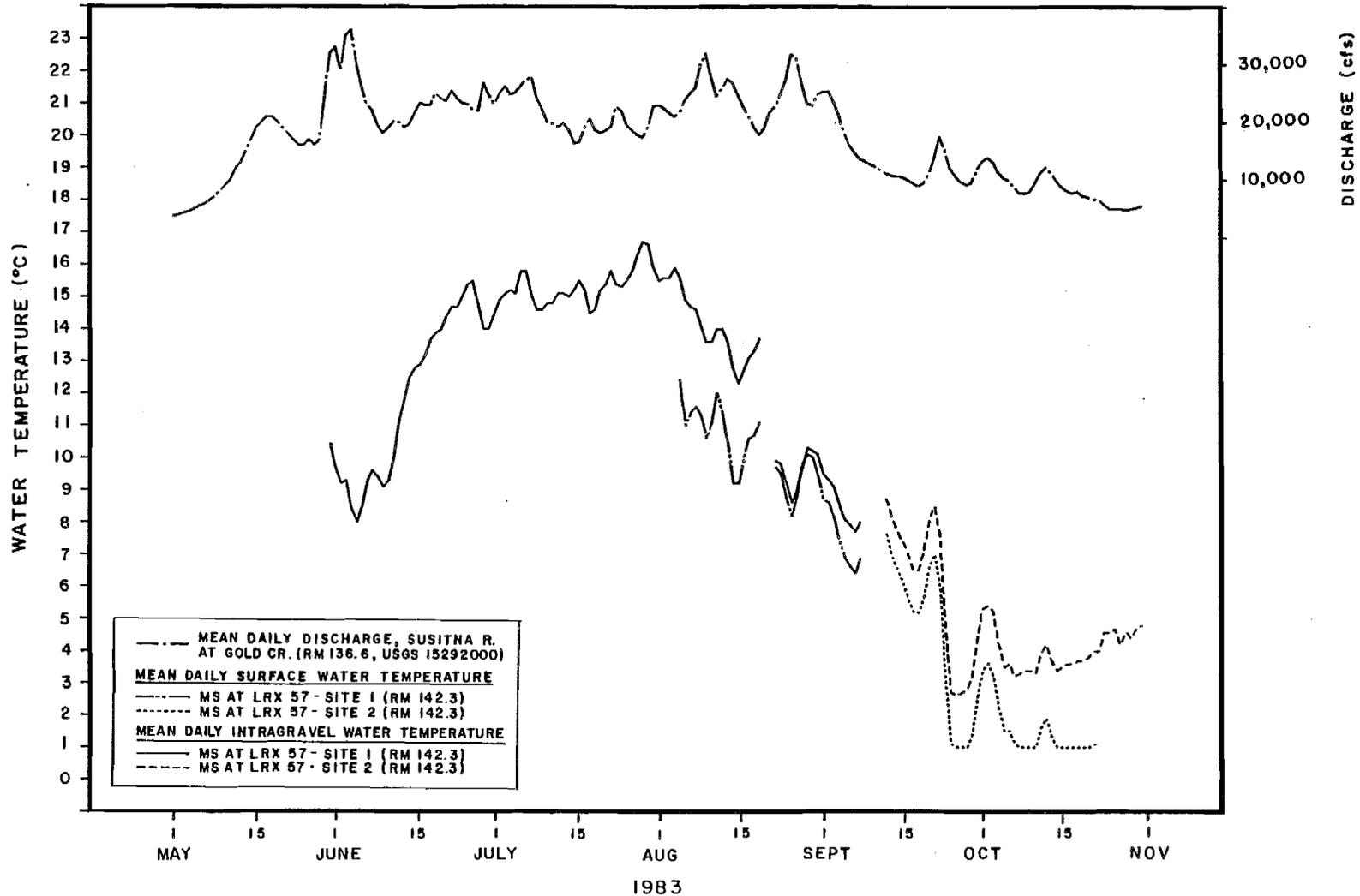


Figure 3-16. Mean daily intragravel and surface water temperatures collected during the 1983 open water season at Mainstem Susitna River at LRX 57 - Sites 1 and 2 (RM 142.3), and mean daily Susitna River discharge at Gold Creek (USGS Gaging Station 15292000).

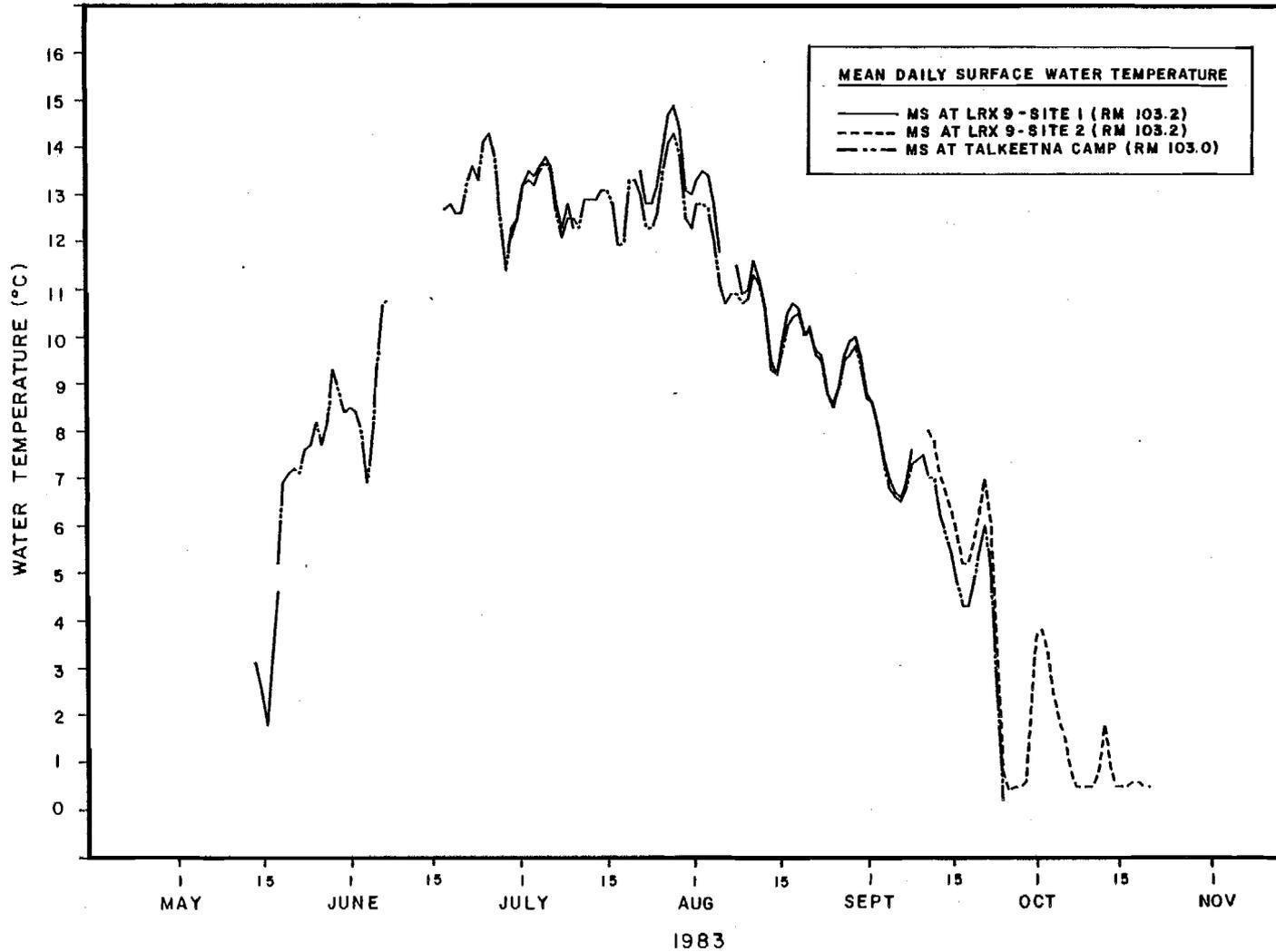


Figure 3-17. Mean daily intragravel and surface water temperatures collected during the 1983 open water season at Mainstem Susitna River at LRX 9 - Sites 1 and 2 (RM 103.2), and at Mainstem Susitna River at Talkeetna Fishwheel Camp (RM 103.0).

150.0), above Tsusena Creek (RM 181.9), and above the Oshetna River (Site 1, RM 234.9; Site 2, RM 235.7). Site maps for each of the temperature stations are presented in Appendix Figures 3-A-23, 3-A-24, and 3-A-30. Daily and monthly minimum, mean, and maximum surface water temperatures recorded at these monitoring stations are presented in Appendix Tables 3-A-19 to 3-A-22. The data are presented as water year weekly temperatures in Appendix Tables 3-A-71 to 3-A-74. A plot of the mean daily surface water temperatures is presented in Figure 3-18. The ranges, 25th, 50th (median), and 75th percentiles of surface water temperatures collected at these stations are shown in Figure 3-19. The periods of record are presented in Appendix Table 3-A-1.

A comparison of surface water temperatures recorded at the monitoring stations above the Oshetna River (Site 1, RM 234.9; Site 2, RM 235.7), above Tsusena Creek (RM 181.9), at Devil Canyon (RM 150.0), and above Gold Creek (RM 136.6) shows that from late May to late July similar temperatures were recorded at the sites. From late July to late September, temperatures recorded above the Oshetna River were colder than those recorded at the other three locations.

Temperature data from the Devil Canyon station were not available until July 2 when the instrument was installed. A gap in the temperature data recorded at the site above the Oshetna from June 22 to July 28 was due to a malfunctioning instrument. On July 28 the recorder was installed at Site 2, RM 235.7.

3.1.4 Susitna River (Parks Highway Bridge, RM 89.3 to above the Oshetna River, RM 235.7).

Figure 3-20 is a plot of mean monthly surface water temperatures recorded at selected mainstem sites between the Parks Highway Bridge (RM 83.9) and above the Oshetna River (RM 235.7). Generally the temperatures increased downstream to Talkeetna, and decreased between Talkeetna and the Parks Highway Bridge. However, the mean monthly June and August temperature recorded above Gold Creek are lower than those recorded upstream. In August, the mean monthly temperature at Devil Canyon is also lower than the upstream temperature.

3.2 Side Channel Habitats

Continuous surface and intragravel water temperatures were recorded at three side channels located in the Talkeetna to Devil Canyon reach of the Susitna River during 1983. Stations were located at Side Channel 10 (RM 134.0), Upper Side Channel 11 (Sites 1 and 2, RM 136.3) and Side Channel 21 (RM 142.0). Site maps for each station are presented in Appendix Figures 3-A-16, 3-A-17, and 3-A-21. Daily and monthly minimum, mean and maximum surface and intragravel water temperatures are presented in Appendix Tables 3-A-23 to 3-A-27. Water year weekly intragravel and surface water temperatures are presented in Appendix Tables 3-A-75 to 3-A-79. Plots of mean daily surface and intragravel water temperatures recorded at each station are presented in Figures 3-21, 3-23, and 3-24. Ranges, 25th, 50th (median), and 75th percentiles of surface water temperatures collected at these stations are presented in Figure 3-22. The periods of record for the monitoring stations, 1981-1983, are presented in Appendix Table 3-A-1.

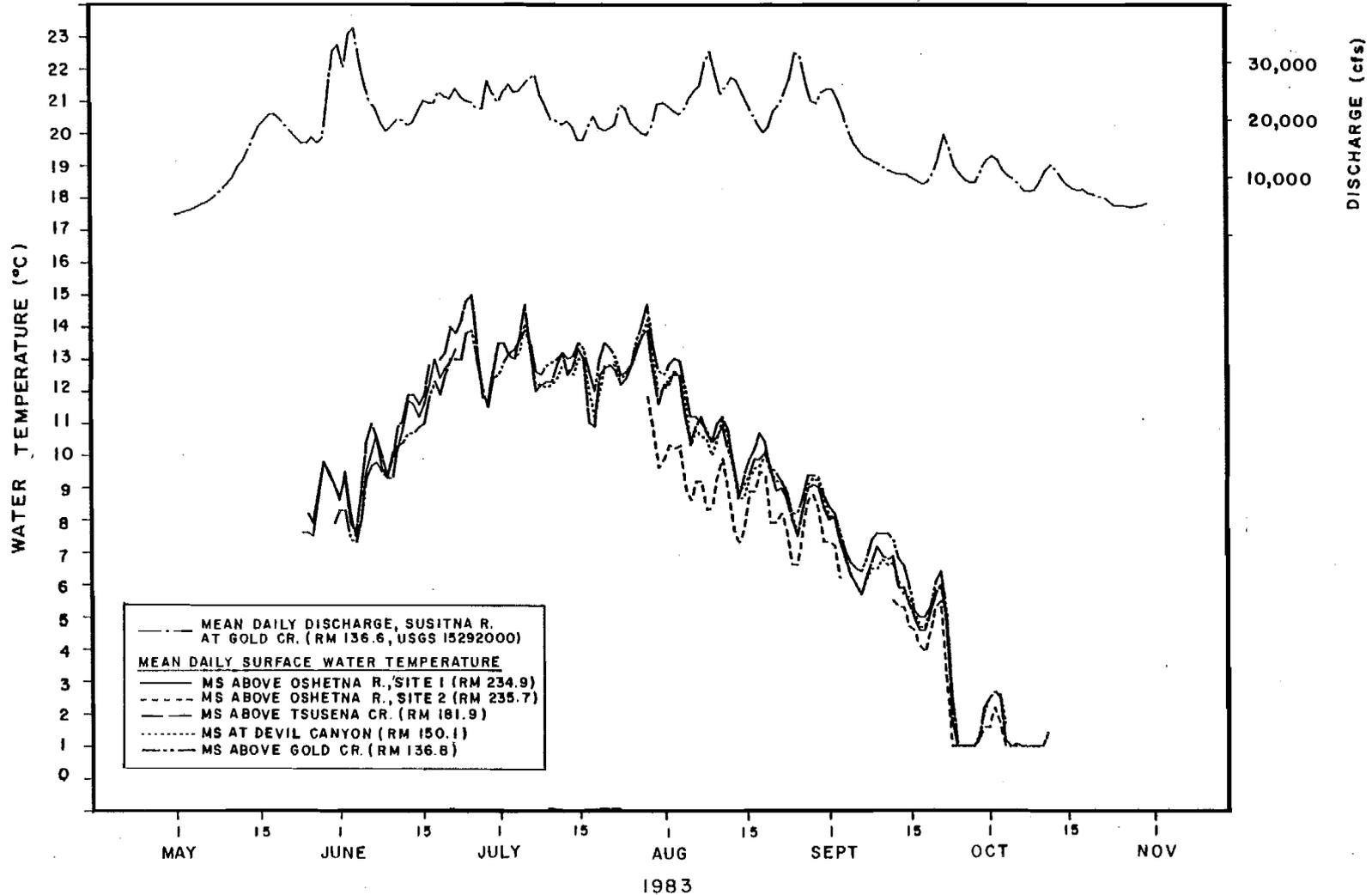


Figure 3-18. Mean daily intragravel and surface water temperatures collected during the 1983 open water season at Mainstem Susitna River above the Oshetna River - Site 1 (RM 134.9), at Mainstem Susitna River above the Oshetna River - Site 2 (RM 235.7), at Mainstem Susitna River above Tsusena Creek (RM 181.8), and at Mainstem Susitna River at Devil Canyon (RM 150.0).

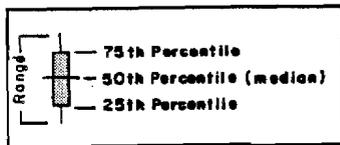
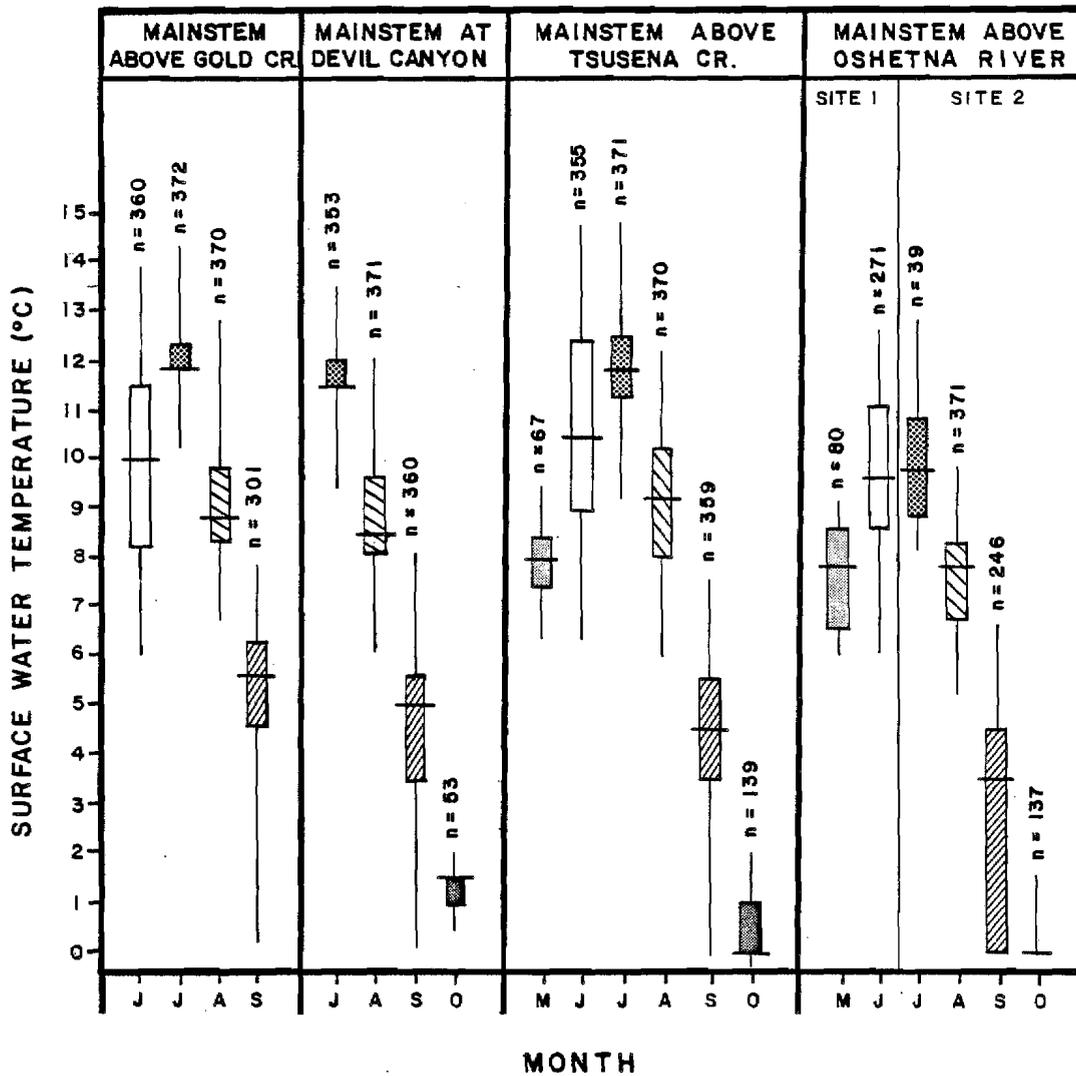


Figure 3-19 Monthly water temperature data summary showing range, 25th, 50th (median), and 75th percentile for Mainstem Susitna above Gold Creek (RM 136.8), at Devil Canyon (RM 150.0), above Tsusena Creek (181.9), above the Oshetna River - Site 1 (RM 234.9), and above the Oshetna River - Site 1 (RM 235.7).

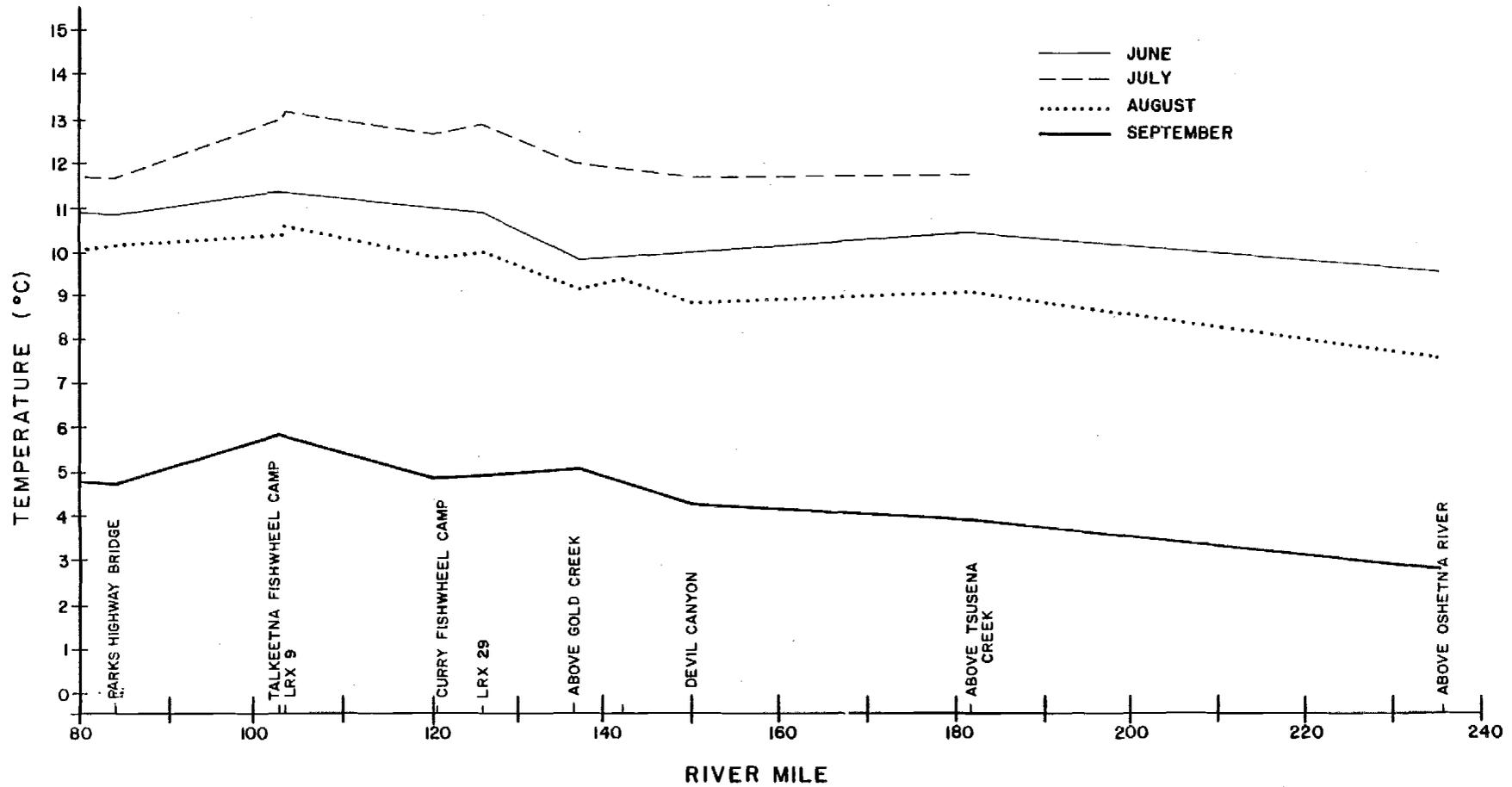


Figure 3-20. Longitudinal profile of mean monthly surface water temperatures recorded at sites on the mainstem Susitna River during the 1983 open water season.

3.2.1 Side Channel 10 (RM 134.0)

A temperature monitoring station was installed on July 17 at Side Channel 10 (RM 134.0) to monitor surface and intragravel temperatures. Figure 3-21 indicates that intragravel temperatures exhibit less variation than surface water temperatures. Surface water temperatures recorded between July 17 and October 31 ranged from 0.2°C to 18.6°C. Intragravel temperatures varied between 3.0°C and 5.8°C. In general intragravel temperatures were cooler than surface water temperatures from mid-July through late September. At this time surface water temperatures decreased greatly while intragravel temperatures declined slightly.

3.2.2 Upper Side Channel 11 - Sites 1 and 2 (RM 136.3)

The temperature recorder at the monitoring station in Side Channel 21 - Site 1 was installed on July 28 to record surface and intragravel water temperatures (Figures 3-22 and 3-23). The temperature recorder was relocated to Site 2 on September 12 to monitor an egg development site for the ADF&G egg incubation study. Surface water temperatures recorded at Site 1 ranged from 3.3°C to 15.3°C and intragravel water temperatures varied between 5.2°C and 6.5°C.

When the recorder was moved to Site 2 on September 12, the mean daily intragravel temperature decreased from 5.3°C to 4.8°C while the mean daily surface water temperature increased from 5.6°C to 6.1°C. At Site 2, surface water continued to be warmer than intragravel temperatures until late September when the trend was reversed. Intragravel temperatures remained warmer than surface water temperatures through October. Surface water temperatures recorded at Site 2 (September 12 to October 31) ranged from 0.6°C to 9.5°C, and intragravel temperatures ranged from 2.6°C to 5.5°C.

3.2.3 Side Channel 21 - Sites 1 and 2 (RM 141.0)

The temperature monitoring station located at Side Channel 21 - Site 1 was installed on August 29 to record surface and intragravel water temperatures. The recorder was relocated to Site 2 on September 13 to monitor an egg development site for the ADF&G incubation study. The limited data available from Site 1 show that surface water temperatures were warmer than intragravel water temperatures (Figures 3-22 and 3-24). Surface water temperatures ranged from 4.7°C to 9.2°C and intragravel temperatures varied between 3.9°C and 7.9°C.

After installation at Site 2, mean intragravel water temperatures increased from 4.9°C (Site 1) to 6.2°C (Site 2). Because the surface water probe was dewatered prior to installation at Site 2 (data gap) no immediate comparisons can be made between surface water temperatures recorded at Sites 1 and 2. Mean intragravel water temperatures were warmer than the surface water from September 13 to October 1. However, during this time period, surface water temperatures exhibited daily fluctuations of up to 3.8°C per day while intragravel daily fluctuations were usually less than 0.5°C. In October mean daily surface water

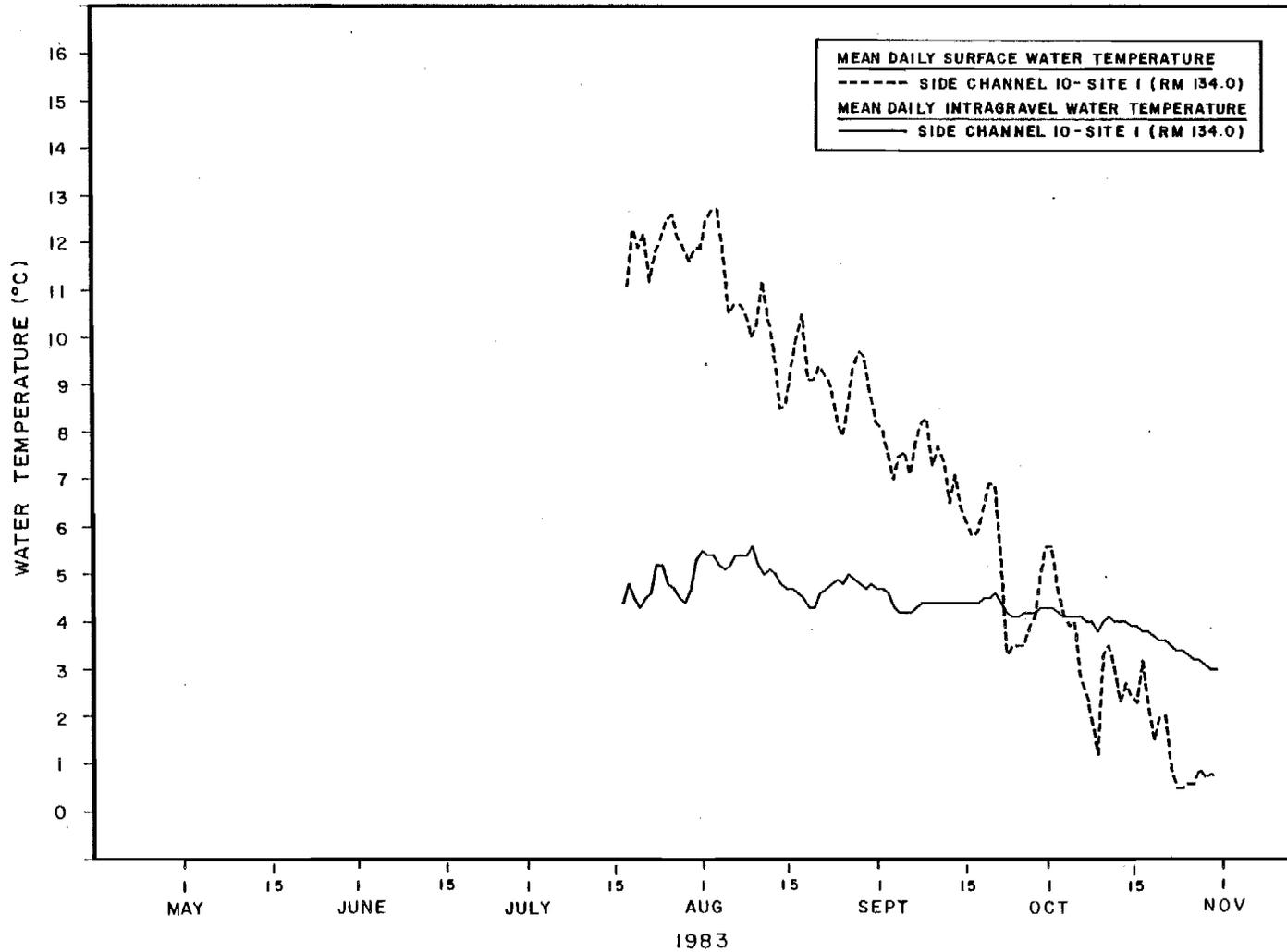


Figure 3-21. Mean daily intragravel and surface water temperatures collected at Side Channel 10 - Site 1 (RM 134.0) during the 1983 open water season.

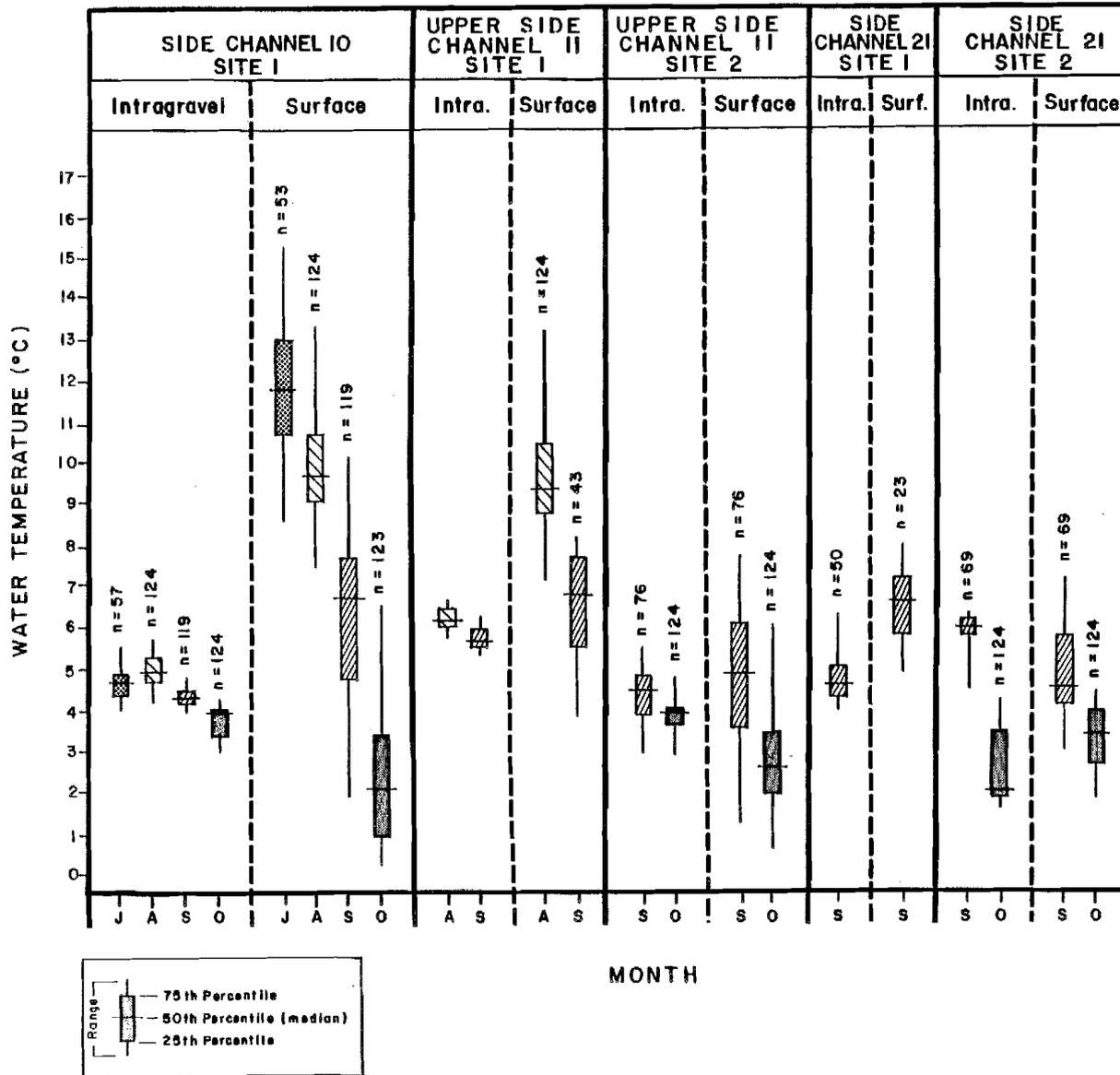


Figure 3-22. Monthly water temperature data summary showing range, 25th, 50th (median, and 75th percentiles for Side Channel 10 - Site 1 (RM 134.0), Upper Side Channel 11 - Sites 1 and 2 (RM 136.3), and Side Channel 21 - Sites 1 and 2 (RM 141.0).

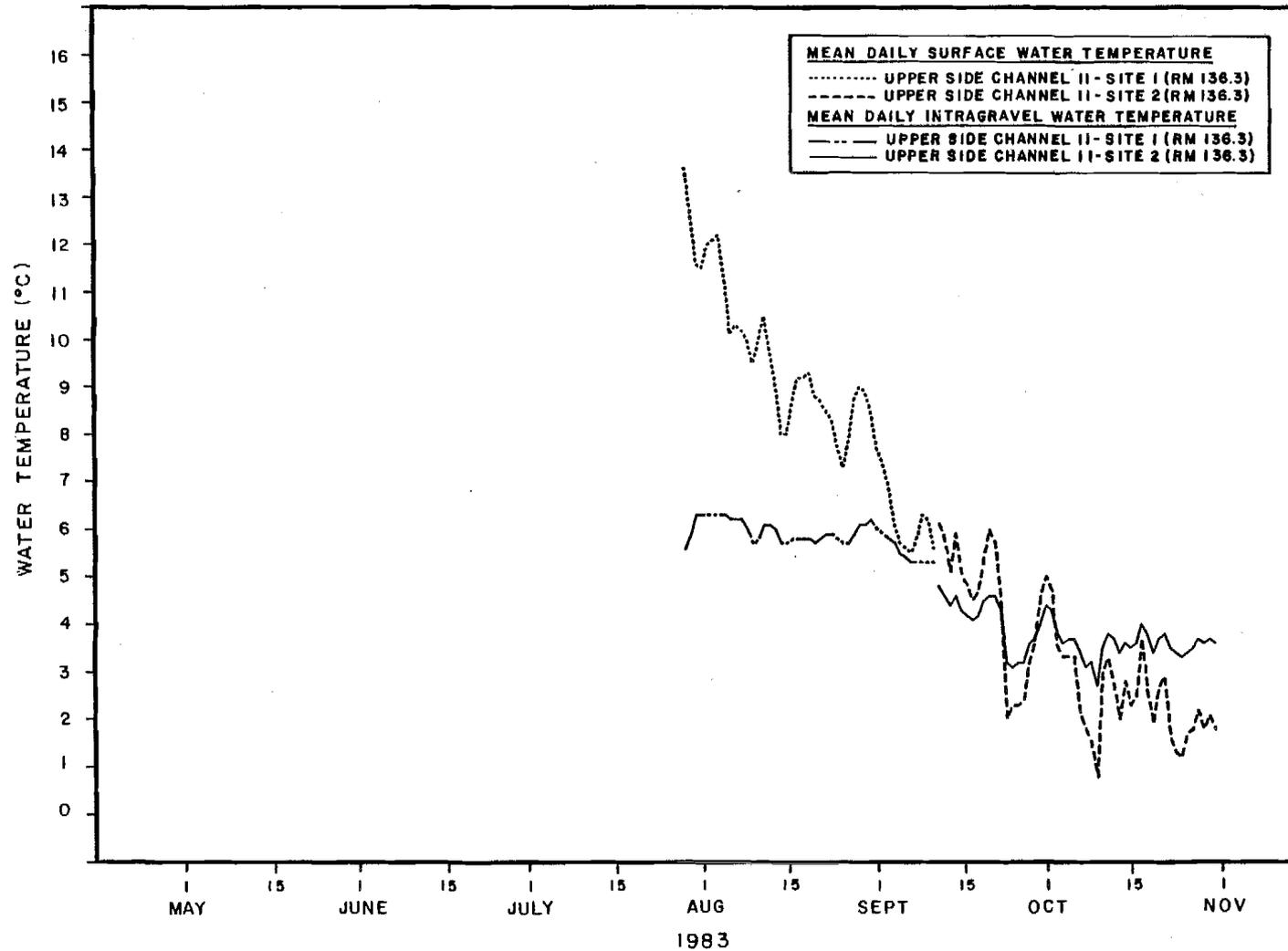


Figure 3-23. Mean daily surface and intragravel water temperatures collected at Upper Side Channel 11 - Sites 1 and 2 (RM 136.3) during the 1983 open water season.

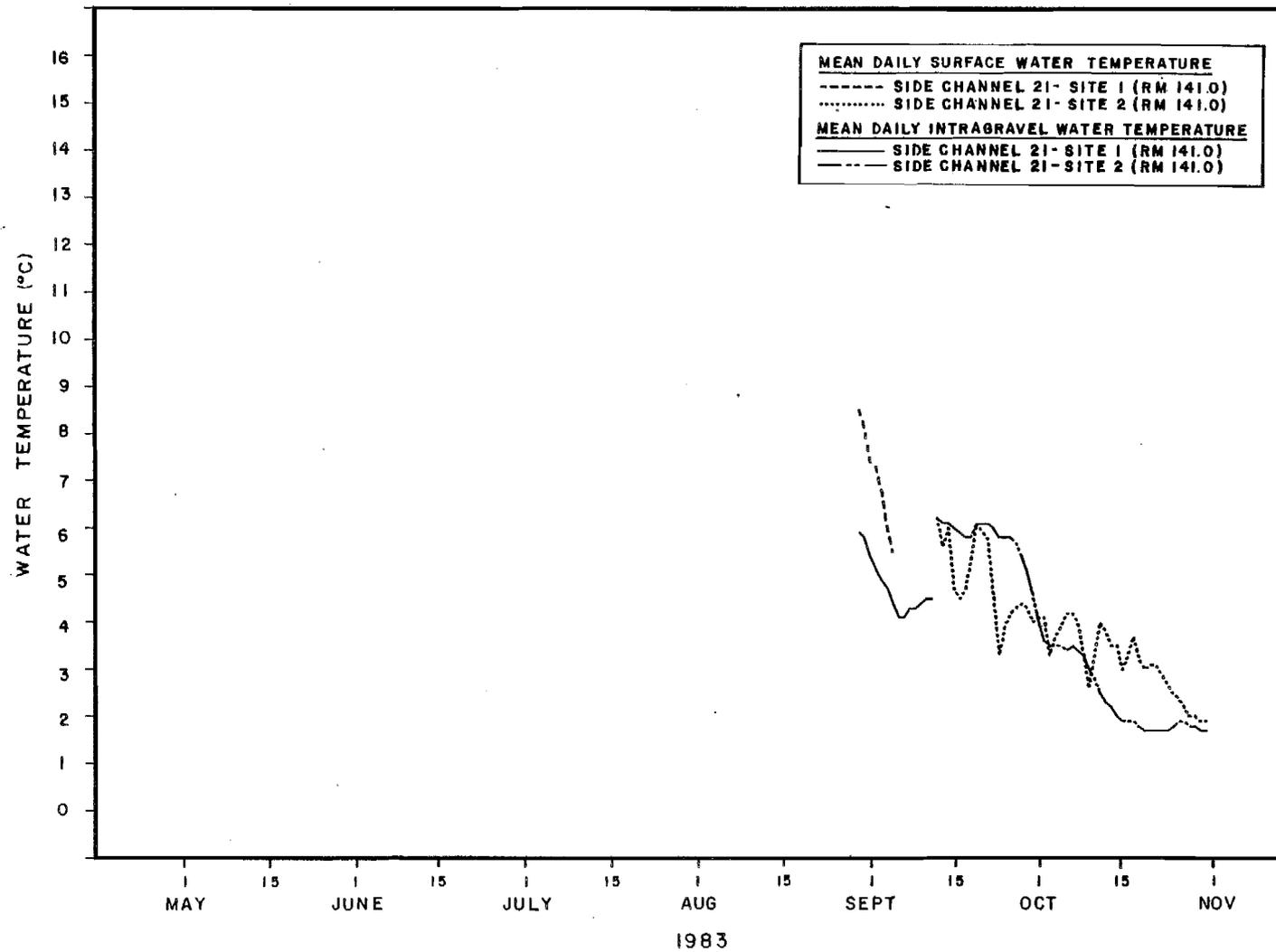


Figure 3-24. Mean daily surface and intragravel water temperatures collected at Side Channel 21 - Sites 1 and 2 (RM 141.0) during the 1983 open water season.

temperatures were greater than intragravel temperatures. Surface water temperatures in Side Channel 21 - Site 2 ranged from 1.6°C to 7.5°C and intragravel temperatures ranged from 1.6°C to 6.2°C.

3.3 Side and Upland Slough Habitats

Continuous surface and intragravel water temperatures were recorded at ten locations in six sloughs located in the Talkeetna to Devil Canyon reach of the Susitna River. Site maps for each of these temperature stations are shown in Appendix Figures 3-A-13 to 3-A-21. Daily and monthly minimum, mean, and maximum surface and intragravel water temperatures are presented in Appendix Tables 3-A-28 to 3-A-38. Water year weekly temperatures are presented in Appendix Tables 3-A-80 to 3-A-90. The periods of record for the monitoring stations, 1981-1983, are presented in Appendix Table 3-A-1.

3.3.1 Side Slough 8A (RM 125.6)

Temperature monitoring stations in Side Slough 8A were located at Lower Side Slough 8A (RM 125.6) and Upper Side Slough 8A (RM 126.6). See Appendix Figure 3-A-13 for site locations.

3.3.1.1 Lower Side Slough 8A - Sites 2 and 3 (RM 125.6)

Surface and intragravel water temperatures were recorded at Lower Side Slough 8A (Site 2) from May 1 to August 24. Surface water temperatures were consistently warmer than intragravel water temperatures (Figures 3-25 and 3-26). Surface water temperatures ranged from 1.3°C to 17.4°C and intragravel water temperatures varied between 3.1°C and 5.5°C. The gap in the surface water temperature data from June 2 to July 5 was due to siltation of the temperature probe. This problem was not apparent when the temperature recorder was serviced in June because of high water conditions.

On August 25 the recorder was reinstalled at Site 3 because it was felt that the new site would be more appropriate for winter data collection. Between August 25 and mid-September surface water and intragravel water temperatures were dissimilar. During this time period, mean daily temperatures recorded were sometimes 4° warmer than intragravel temperatures.

From mid-September through October surface and intragravel water temperatures decreased and the temperatures recorded were similar. The mean monthly surface water temperature in September was 6.0°C while the mean monthly intragravel temperature was 5.5°C. The mean monthly surface and intragravel temperatures recorded in October were 1.8°C and 1.7°C, respectively.

3.3.1.2 Upper Side Slough 8A (RM 126.6)

Surface water temperatures recorded at the monitoring station at Upper Side Slough 8A (RM 126.6) were warmer than intragravel temperatures from May to late August (Figures 3-26 and 3-27). Between May 1 and August 25 surface water temperatures varied from 1.3°C to 11.3°C, while intra-

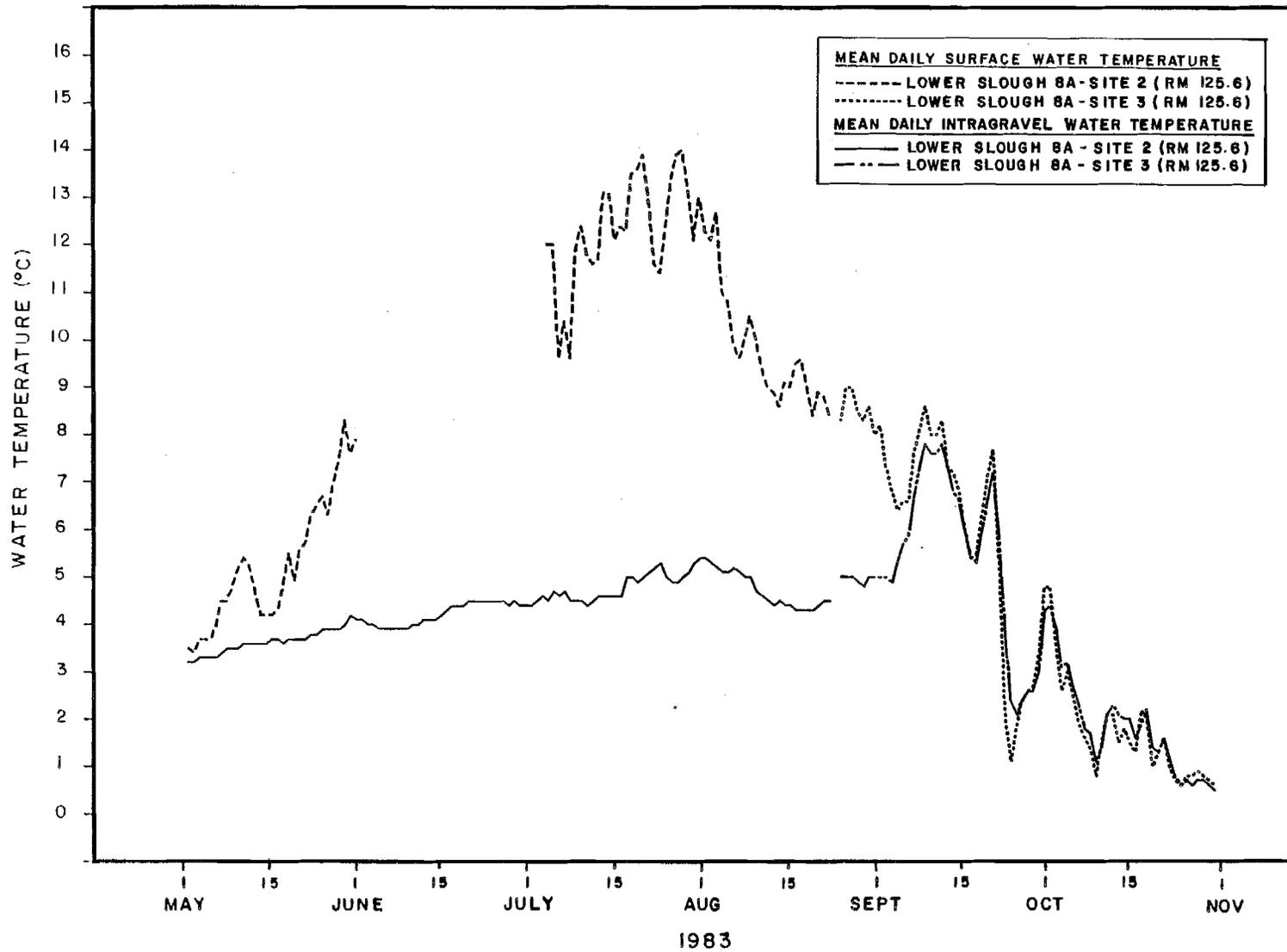


Figure 3-25. Mean daily surface and intragravel water temperatures collected at Lower Slough 8A - Sites 2 and 3 (RM 125.6) during the 1983 open water season.

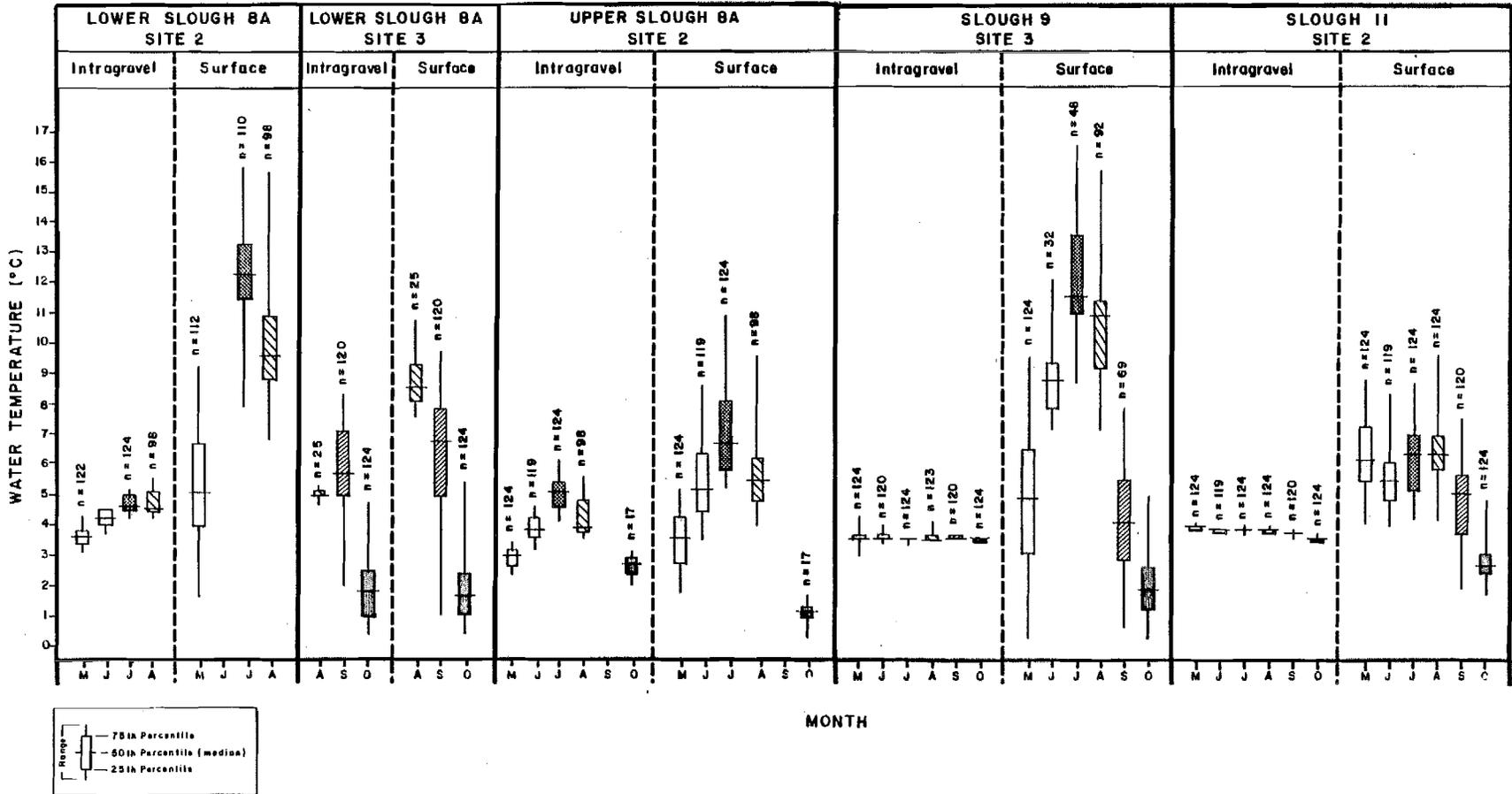


Figure 3-26. Monthly water temperature data summary showing range, 25th, 50th (median), and 75th percentiles for Lower Slough 8A - Sites 2 and 3 (RM 125.6), Upper Slough 8A - Site 2 (RM 126.6), Slough 9 - Site 3 (RM 128.6), and Slough 11 - Site 2 (RM 135.7).

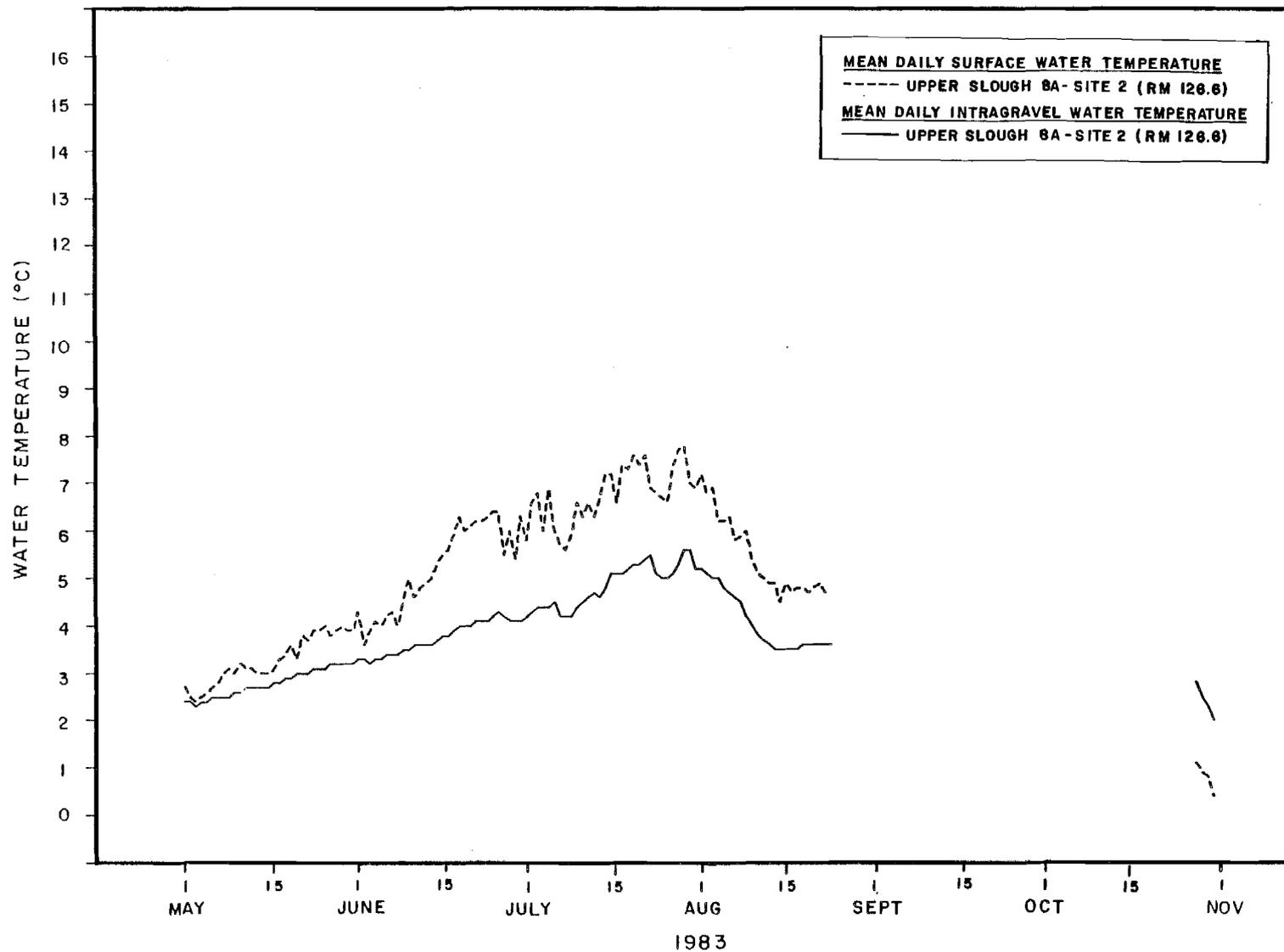


Figure 3-27. Mean daily surface and intragravel water temperatures collected at Upper Slough 8A - Site 2 (RM 126.6) during the 1983 open water season.

gravel temperatures ranged from 1.2°C to 6.0°C. Maximum intragravel and surface water temperatures were recorded in July. A gap in surface and intragravel water temperature data from August 25 to October 27 resulted from a malfunctioning instrument. From October 27 to October 31 intragravel temperatures were approximately 1.5° warmer than surface water temperatures. During this time intragravel temperatures ranged from 1.7°C to 3.0°C, while surface temperatures ranged from 0.0°C to 1.6°C.

3.3.1.3 Lower Side Slough 8A (RM 125.6) versus Upper Side Slough 8A (RM 126.6)

To determine temperature differences in Side Slough 8A, surface and intragravel temperatures recorded at the monitoring station in Lower Side Slough 8A (RM 125.6) were compared to temperatures measured at the Upper Side Slough 8A (RM 126.6) monitoring station (Figures 3-26 and 3-28). Intragravel temperatures recorded at the monitoring stations at Upper 8A and Lower 8A - Site 2 were similar. Surface water temperatures recorded at Lower 8A - Site 2 were consistently warmer than surface water temperatures recorded in Upper 8A from May through August. Due to a malfunction in the recorder located in Upper 8A from August 25 to October 27, no further comparisons can be made.

3.3.2 Side Slough 9 (RM 128.6)

Figure 3-29 shows that intragravel water temperatures recorded at Side Slough 9 exhibited little variation. Between May 1 and October 31, intragravel temperatures ranged from 2.8°C to 4.2°C, while surface water temperatures varied between 0.0°C and 17.8°C. From early May to late September surface water temperatures were warmer than intragravel temperatures. During late September and October intragravel water temperatures were higher. Due to siltation of the probe, several gaps in the surface water temperature data occurred between July and mid-September.

3.3.3 Side Slough 9 Incubation Site (RM 128.3)

A thermograph temperature recorder was installed in the ADF&G Slough 9 Incubation Study Site (RM 128.3) on August 31 to record surface water temperatures. Data was recorded only until September 21 when instrument failure occurred. During this time surface water temperatures ranged from 1.0°C to 8.0°C (see Appendix Table 3-A-32).

3.3.4 Upland Slough 10 Northeast and Northwest Channels (RM 134.0)

Temperature recorders were installed at Slough 10 in both the Northeast and Northwest channels on October 19 to record surface and intragravel water temperatures (Appendix Tables 3-A-33 and 3-A-34) to support the ADF&G egg incubation study. Because the open water season data record is brief (October 19-31), plots of these data were not developed. Mean daily surface water temperatures recorded during late October ranged from 1.5°C to 3.7°C in the Northeast channel, and from 1.8°C to 3.5°C in the Northwest channel. Intragravel water temperatures ranged from 3.3°C to 4.0°C in the Northeast channel, and from 3.5°C to 3.7°C in the Northwest channel.

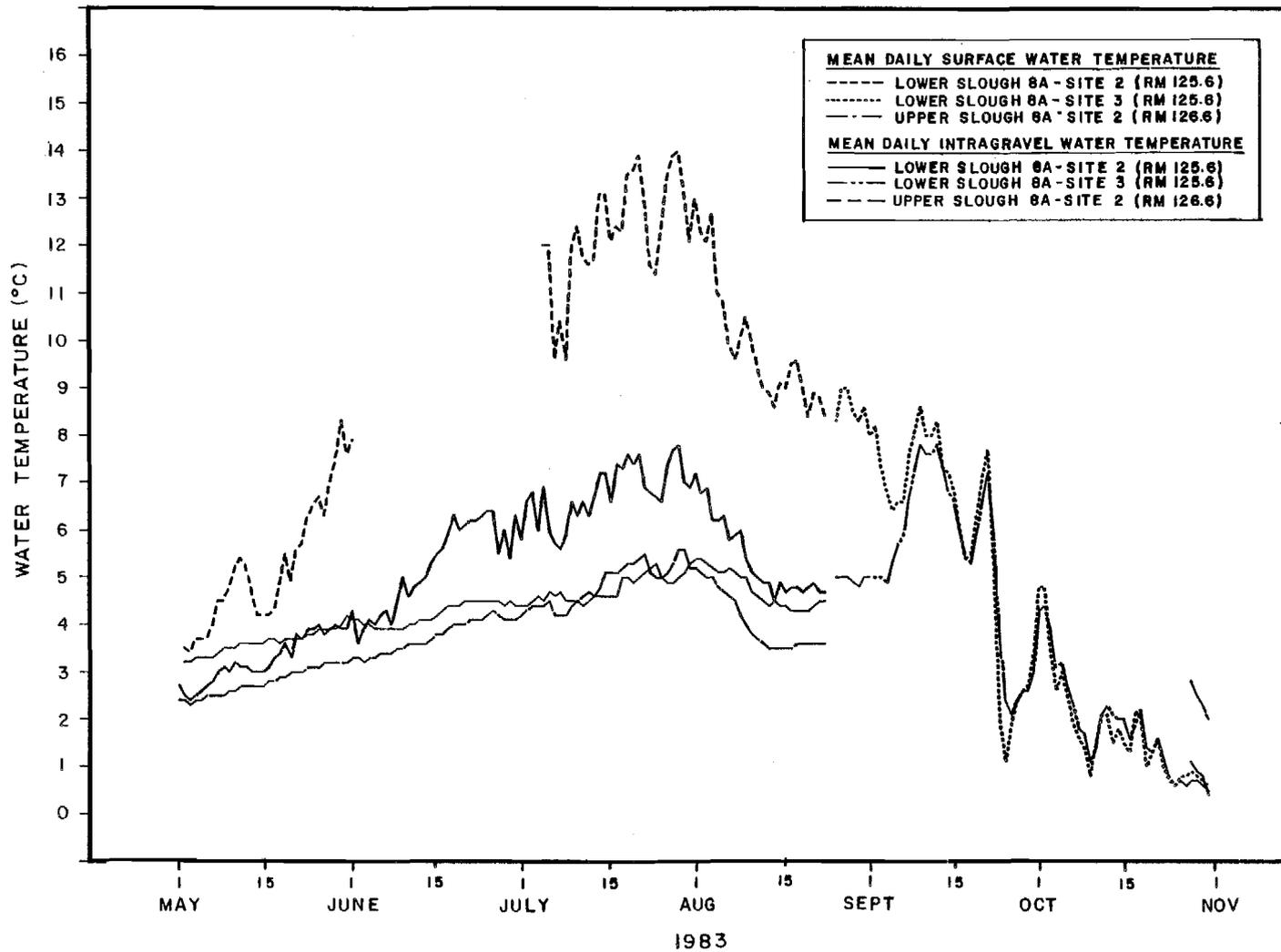


Figure 3-28 Mean daily surface and intragravel water temperatures collected at Lower Slough 8A - Sites 2 and 3 (RM 125.6), and Upper Slough 8A - Site 2 (RM 126.6) during the 1983 open water season.

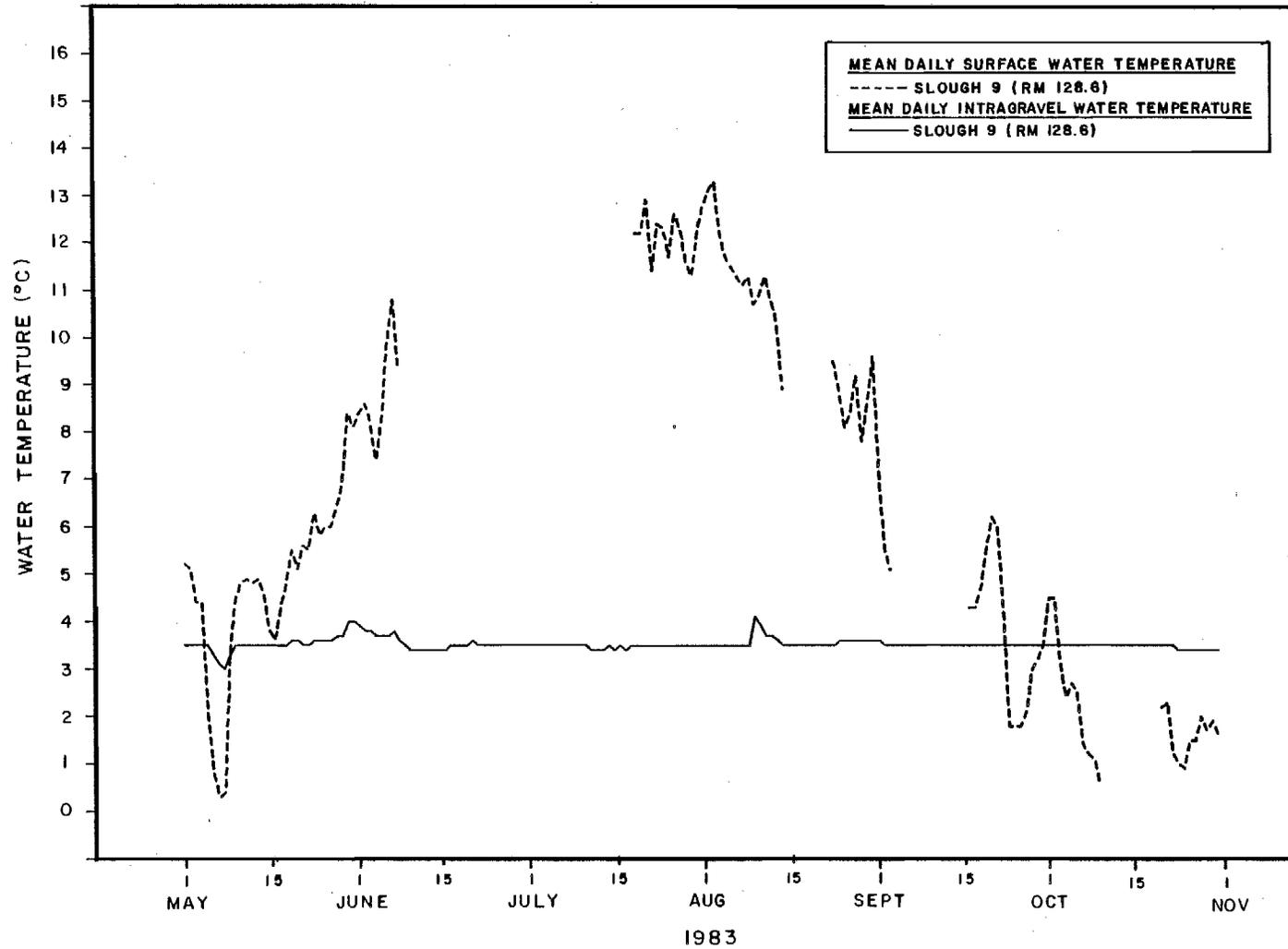


Figure 3-29. Mean daily surface and intragravel water temperatures collected at Slough 9 - Site 3 (RM 128.6) during the 1983 open water season.

3.3.5 Side Slough 11 (RM 135.7)

Surface and intragravel water temperatures were recorded in Side Slough 11 from May 1 to October 31. Side Slough 11 was not observed breached by mainstem discharge during the 1983 open water period. Surface water temperatures were higher than intragravel temperatures until September when the trend reversed (Figure 3-30). Between May and September surface water temperatures ranged from 1.1°C to 3.9°C. However, intragravel temperatures were stable, ranging from 3.2°C to 3.9°C. The warmest surface water temperatures were recorded in August when the mean monthly temperature was 6.1°C.

3.3.6 Upland Slough 19 (RM 140.0)

Surface and intragravel water temperatures were recorded in Upland Slough 19 from May 1 to October 31. A gap in the data from May 17 to June 5 was caused by instrument failure. From May 1 to May 17 mean daily surface water temperatures were warmer than intragravel water temperatures (Figures 3-31 and 3-32). During this period surface water temperature ranged from 1.6°C to 8.5°C while intragravel temperature ranged from 2.3°C to 4.2°C. During June surface and intragravel water temperatures were similar. The mean monthly temperature calculated for both surface and intragravel water temperatures was 5.2°C. In July mean daily surface water temperatures increased and intragravel temperatures decreased. Surface water remained warmer until September 26 when the trend reversed. Between June 5 and October 31 surface water temperature varied between 1.9°C and 10.0°C, and intragravel temperatures ranged from 3.6°C and 7.3°C.

3.3.7 Side Slough 21 (RM 141.8)

Temperature monitoring stations in Side Slough 21 were located at Lower Side Slough 21 (RM 141.8) and Upper Side Slough 21 (RM 142.0). See Appendix Figure 3-A-21 for site locations.

3.3.7.1 Lower Side Slough 21 (RM 141.8)

Surface and intragravel water temperatures were recorded in Lower Side Slough 21 from May 28 to October 31. Surface water temperatures were warmer than intragravel water until September when the trend reversed (Figures 3-31 and 3-33). During the sampling period surface water temperatures varied between 0.2°C (in October) and 17.5°C (in June). Mean daily surface water temperatures recorded in July were lower than those recorded in June or August. Intragravel temperatures were stable throughout the open water season ranging from 3.5°C to 4.2°C.

3.3.7.2 Upper Side Slough 21 (RM 142.0)

Surface and intragravel water temperatures were recorded in the upper portion of Side Slough 21 from May 1 to October 31 (Figure 3-34). Surface and intragravel water temperature recorded at the monitoring station corresponded closely to each other. Surface water temperatures ranged from 0.0°C to 14.9°C, while intragravel temperatures ranged from

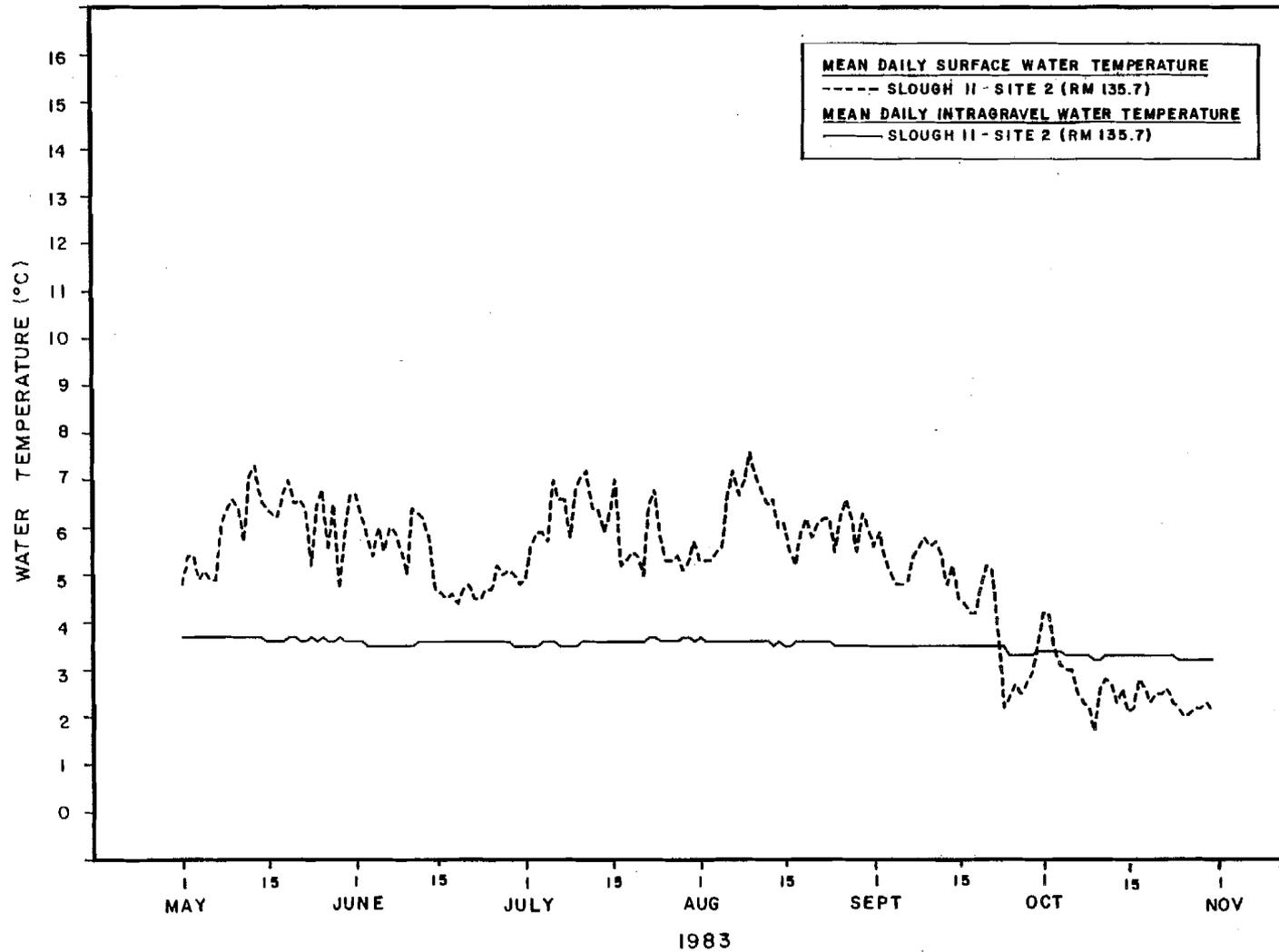


Figure 3-30. Mean daily surface and intragravel water temperatures collected at Slough 11 - Site 2 (RM 135.7) during the 1983 open water season.

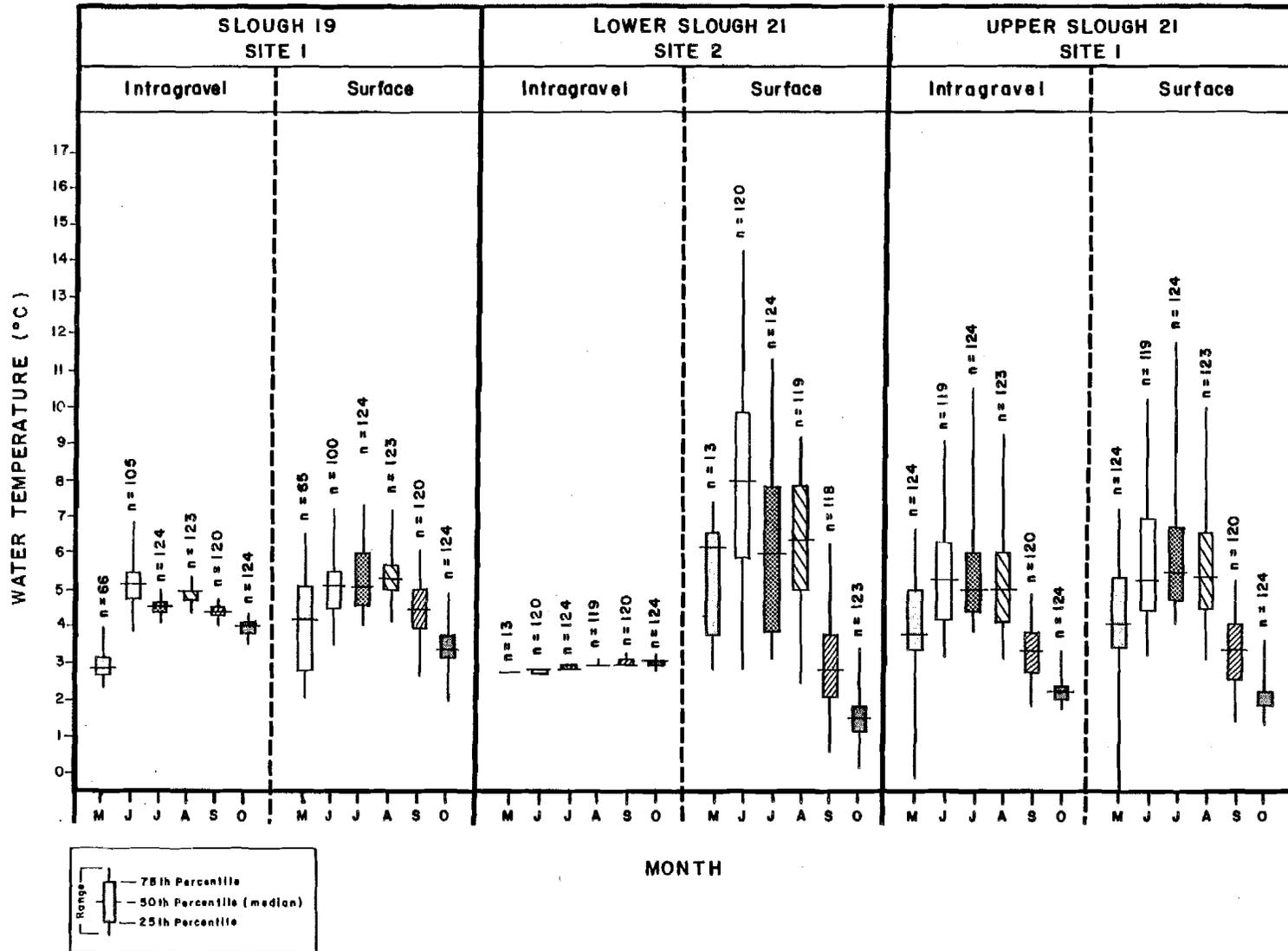


Figure 3-31. Monthly water temperature data summary showing range, 25th, 50th (median), and 75th percentiles for Slough 19 - Site 1 (RM 140.0), Lower Slough 21 - Site 2 (RM 141.8), and Upper Slough 21 - Site 1 (RM 142.0).

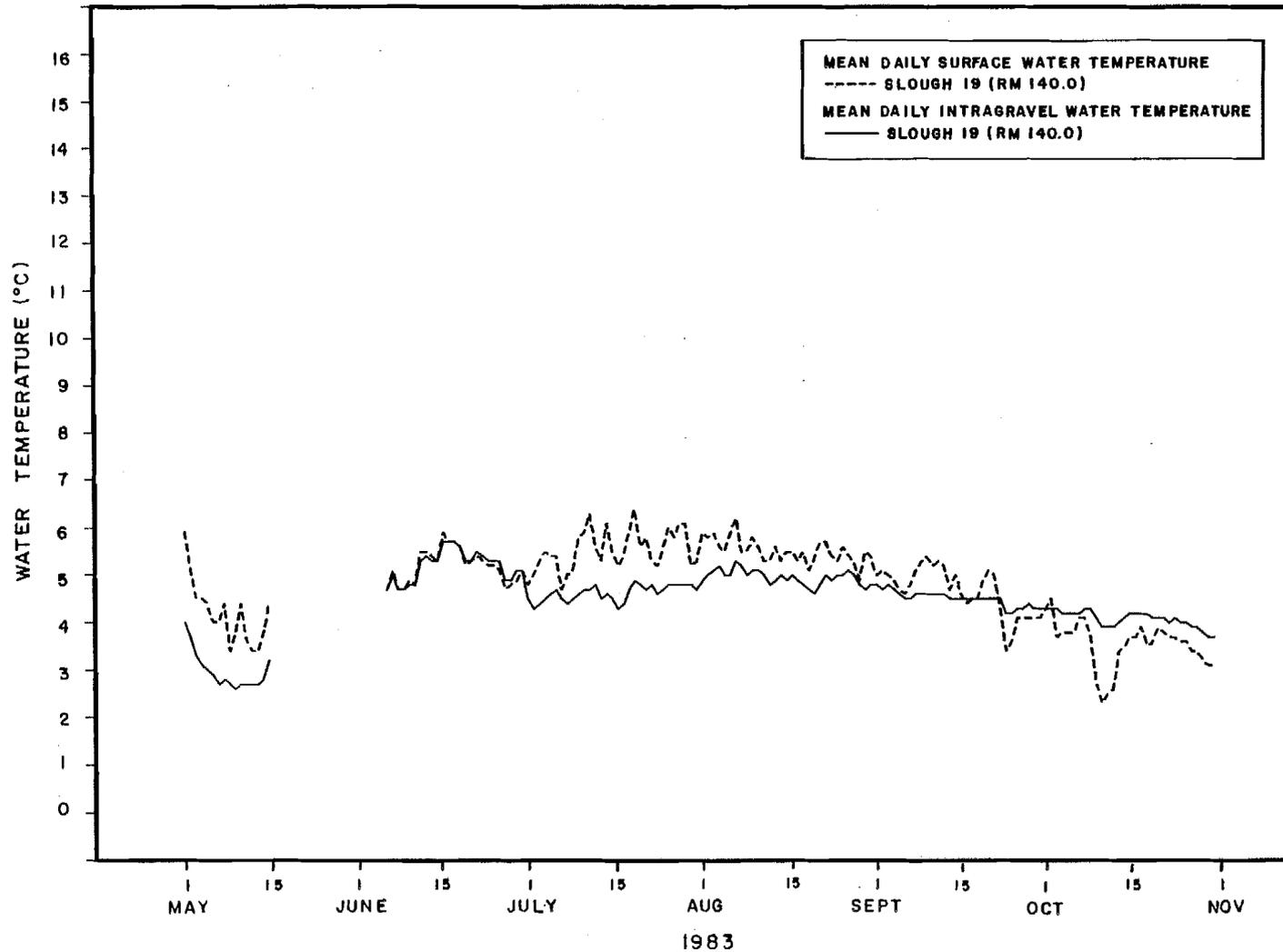


Figure 3-32. Mean daily surface and intragravel water temperatures collected at Slough 19 - Site 1 (RM 140.0) during the 1983 open water season.

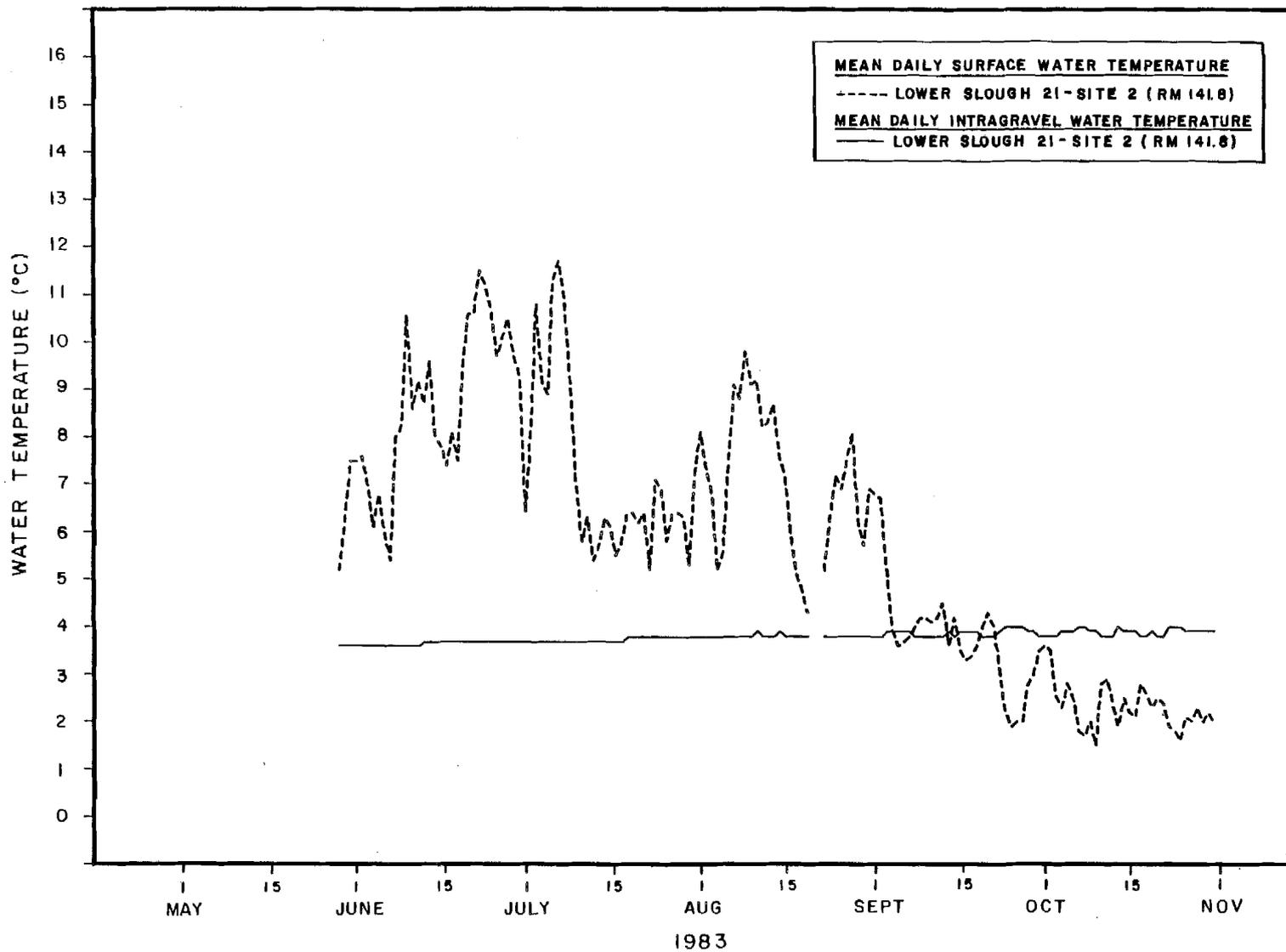


Figure 3-33. Mean daily surface and intragravel water temperatures collected at Lower Slough 21 - Site 2 (RM 141.8), during the 1983 open water season.

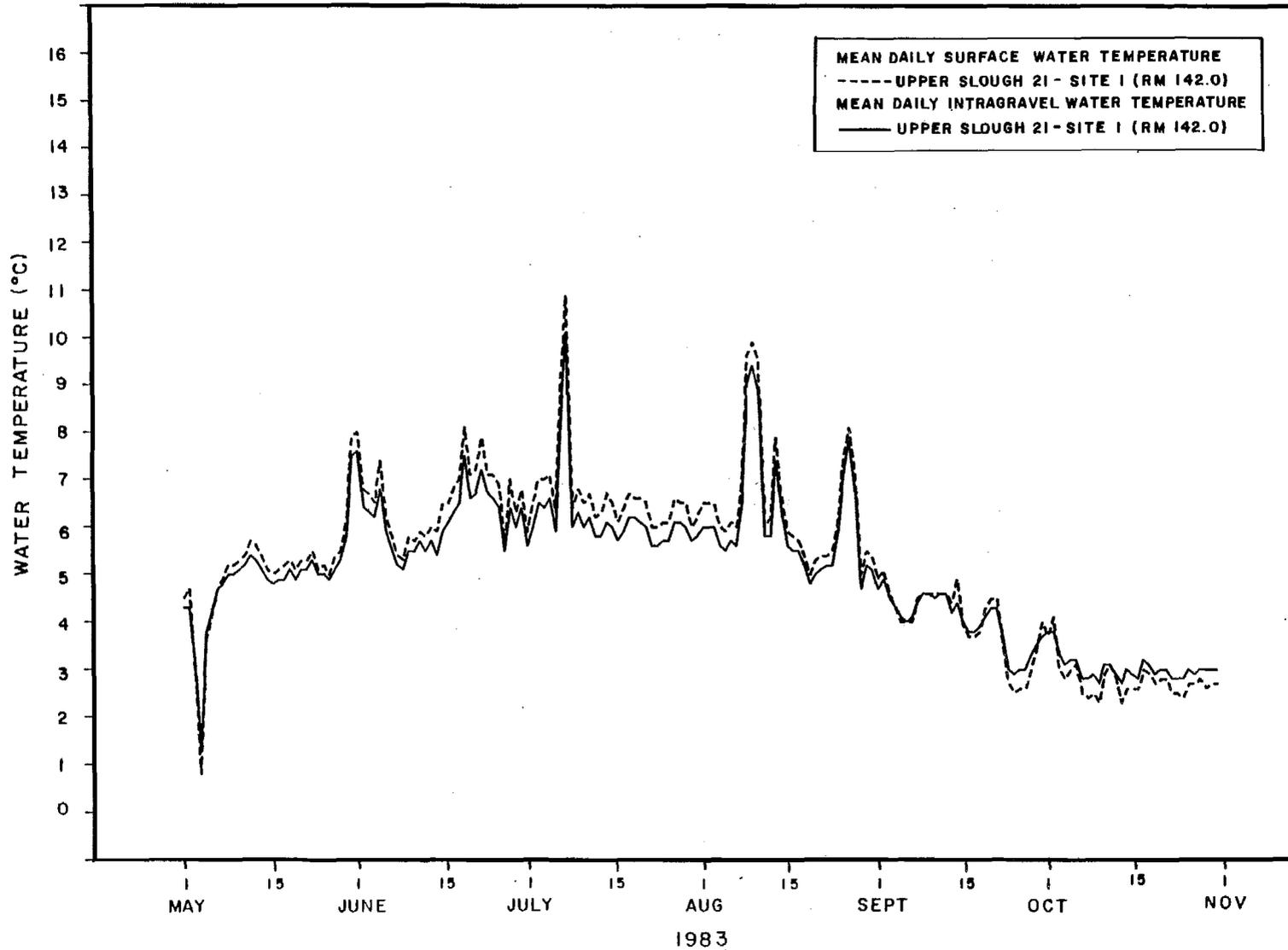


Figure 3-34. Mean daily surface and intragravel water temperatures collected at Upper Slough 21 - Site 1 (RM 142.0) during the 1983 open water season.

0.4°C to 13.1°C. Surface water remained warmer than intragravel from May to late-September when the trend reversed. An extreme decrease in both surface and intragravel water temperatures occurred on May 3.

3.3.7.3 Lower Side Slough 21 (RM 141.8) versus Upper Side Slough 21 (RM 142.0)

To determine variations in water temperatures occurring in Side Slough 21, surface and intragravel water temperatures recorded at the lower and upper portion of the slough were compared (Figure 3-35). Overall, surface water temperatures recorded at the lower station, and both surface and intragravel temperature recorded at the upper station were dynamic while the intragravel water temperatures measured in the lower portion of the slough were stable. During June and early July the range of surface water temperatures recorded in the lower slough was greater than the range of surface water temperatures recorded in the upper portion of the slough. Throughout the remainder of the sampling period similar surface water temperatures were recorded at the two monitoring stations. Intragravel water temperature recorded in the upper slough followed the same general trend as the surface water temperatures recorded at this station. Intragravel water temperatures recorded in the lower slough showed little variation throughout the open water season.

3.4 Tributary Habitats

Surface water temperature data were collected continuously at thirteen tributaries from the Yentna River (RM 28.0) upstream to the Oshetna River (RM 233.4). Site maps for each of these temperature stations are presented in Appendix Figures 3-A-5, 3-A-9, 3-A-10, 3-A-15, 3-A-18, 3-A-19, 3-A-22, 3-A-24 to 3-A-29. Daily and monthly minimum, mean, and maximum surface water temperatures for each tributary are presented in Appendix Tables 3-A-39 to 3-A-53. Water year weekly temperatures are presented in Appendix Tables 3-A-91 to 3-A-105. The 1981-1983 period of record for these temperature stations are presented in Appendix Table 3-A-1.

3.4.1 Tributaries Below Talkeetna

The Yentna River was the only tributary located downstream of Talkeetna in which temperature was monitored during the 1983 open water season.

3.4.1.1 Yentna River (RM 28.0, TRM 4.0)

From June 15 to October 7 surface water temperatures recorded in the Yentna River ranged from 0.0°C (in September) to 12.8°C (in June). Warmest temperatures generally were recorded in June and July (Figures 3-36 and 3-37). During this time period daily fluctuations of 2°C per day were recorded. Temperatures declined in August and diurnal fluctuations were reduced to approximately 0.5°C per day.

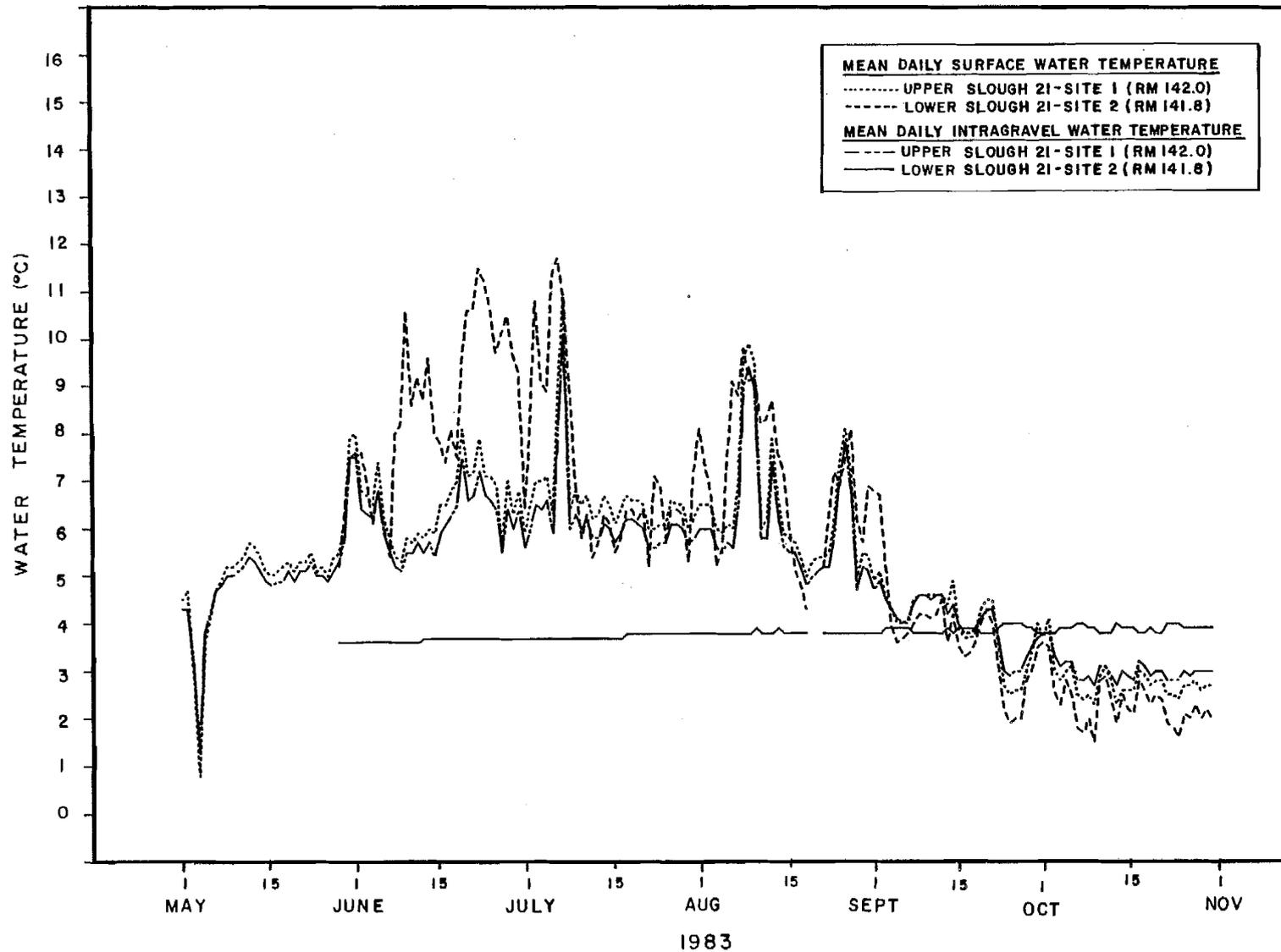


Figure 3-35. Mean daily surface and intragravel water temperatures collected at Lower Slough 21 - Site 2 (RM 141.8), and Upper Slough 21 - Site 1 (RM 142.0) during the 1983 open water season.

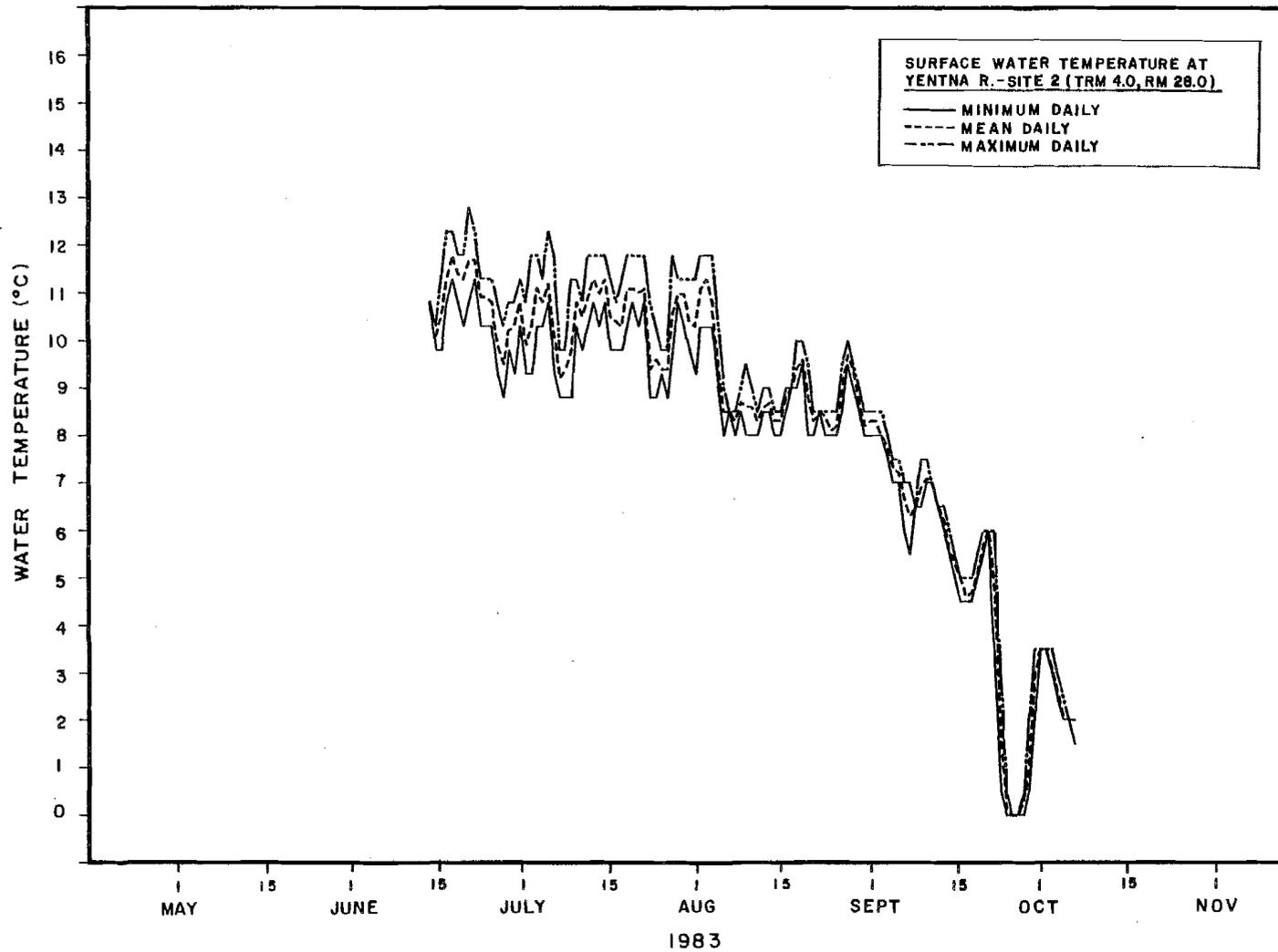


Figure 3-36. Minimum, mean, and maximum daily surface water temperatures collected at the Yentna River - Site 2 (RM 28.0, TRM 4.0) during the 1983 open water season.

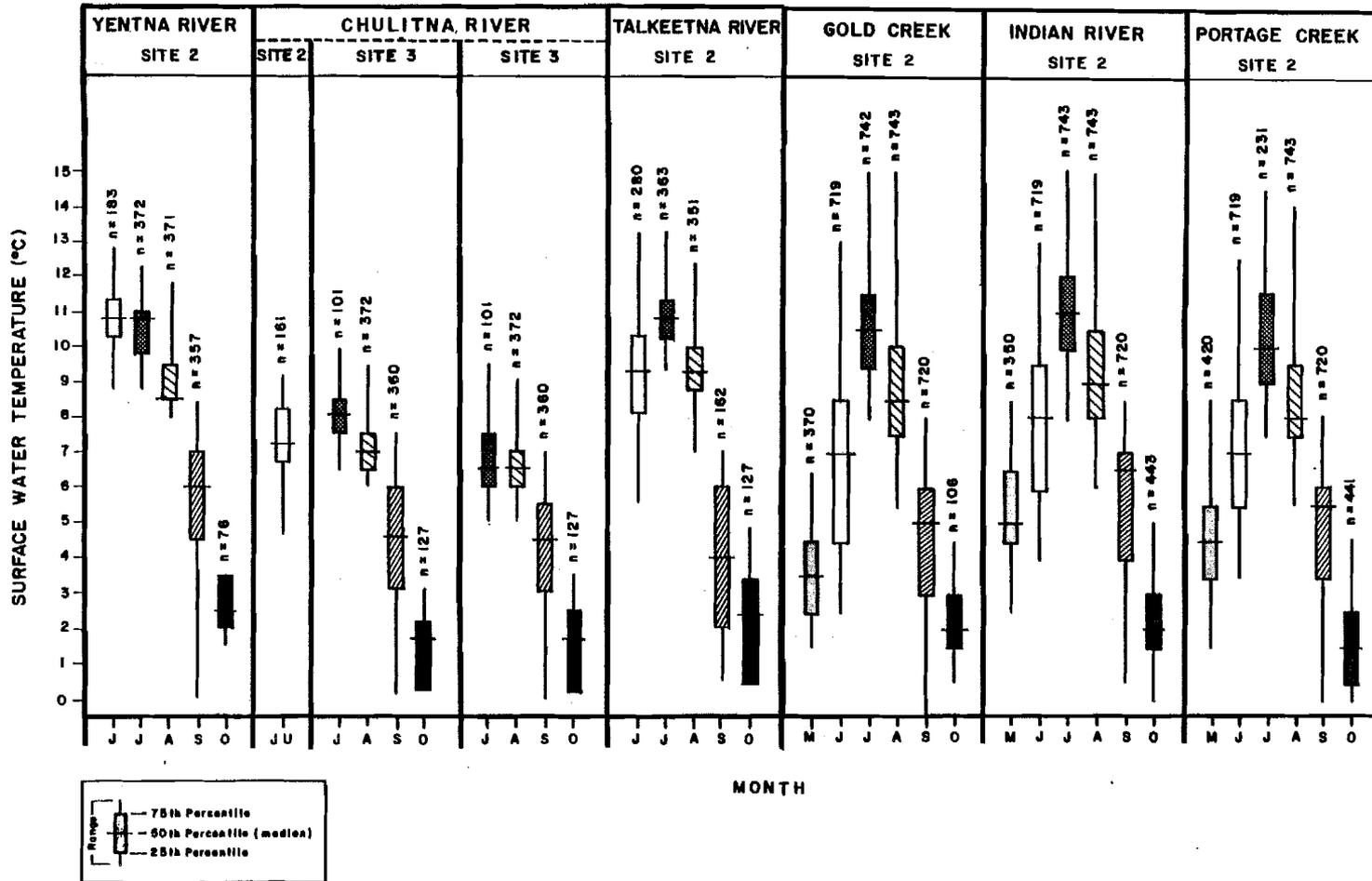


Figure 3-37. Monthly water temperature data summary showing range, 25th, 50th (median), and 75th percentile for Yentna River - Site 2 (RM 28.0, TRM 4.0); Chulitna River - Site 2 (RM 98.6, TRM 0.6), Site 3 (RM 98.6, TRM 2.4), Site 4 (RM 98.6, TRM 4.4); Talkeetna River - Site 2 (RM 97.2, TRM 1.5), Gold Creek - Site 2 (RM 136.7, TRM 0.2), Indian River - Site 2 (RM 138.6, TRM 1.0), and Portage Creek - Site 2 (RM 148.8, TRM 0.2).

3.4.2 Tributaries Between Talkeetna and Devil Canyon

Temperatures were monitored in six tributaries in the Talkeetna to Devil Canyon reach of the Susitna River during the 1983 open water field season.

3.4.2.1 Talkeetna River (RM 97.2, TRM 1.5)

Surface water temperatures were monitored in the Talkeetna River from May 29 to October 11. A plot of the mean daily temperatures is presented in Figure 3-38. Temperatures in the Talkeetna River ranged from 0.4° (in October) to 13.3°C (in June and July). In July and August, diurnal fluctuations as great as 3°C per day were observed. Gaps in the June and September data were the result of instrument failure.

3.4.2.2 Chulitna River (RM 98.6, TRM 0.6, 2.4, 4.4)

A temperature station was installed in the Chulitna River on May 29 at Site 2 (TRM 0.6). The recorder was lost during a peak flow event resulting in a data gap from June 14 to July 23. Temperature monitoring stations were installed at two locations on July 23, Site 3 (TRM 2.4) and Site 4 (TRM 4.4), to insure data collection. A plot of the mean daily surface water temperatures recorded at each site (Figure 3-39), and a plot of the minimum, mean, and maximum temperatures recorded at Sites 2 and 3 were developed (Figure 3-40). Figure 3-39 indicates that surface water temperatures recorded at Site 3 were generally warmer than the temperatures recorded at Site 4 from mid-July to mid-September. A gap in the Site 4 data in August resulted from instrument failure. Throughout the remainder of the open water season temperatures recorded at Sites 3 and 4 were similar.

Figure 3-40 illustrates the daily fluctuation which occurred at Sites 2 and 3. In June temperatures often fluctuated 2.5° per day. Temperatures recorded at Site 2 (May 29 to June 14) ranged from 6.7°C to 9.2°C. Temperatures at Site 3 ranged from 0.0°C (in September) to 10.0°C (in July), while temperatures at Site 4 ranged from 0.0°C (in September) to 9.5°C (in July).

3.4.2.3 Fourth of July Creek (RM 131.1, TRM 0.0)

In support of the ADF&G egg incubation study, intragravel temperature monitoring stations were installed in Fourth of July Creek and downstream of the tributary mouth within the clearwater plume on September 1. Generally, temperatures recorded in the Creek and in the plume were similar. However, the plume temperatures appear to lag behind the Creek temperatures (Figure 3-41). For example, when temperatures decreased rapidly in late September, the minimum creek temperature was recorded on September 25, while the minimum plume temperature was recorded on September 29. Intragravel temperatures recorded in the Creek from September 1 to October 31 varied from -0.3°C to 8.9°C. Intragravel temperatures recorded in the clearwater plume ranged from -0.2°C to 7.9°C.

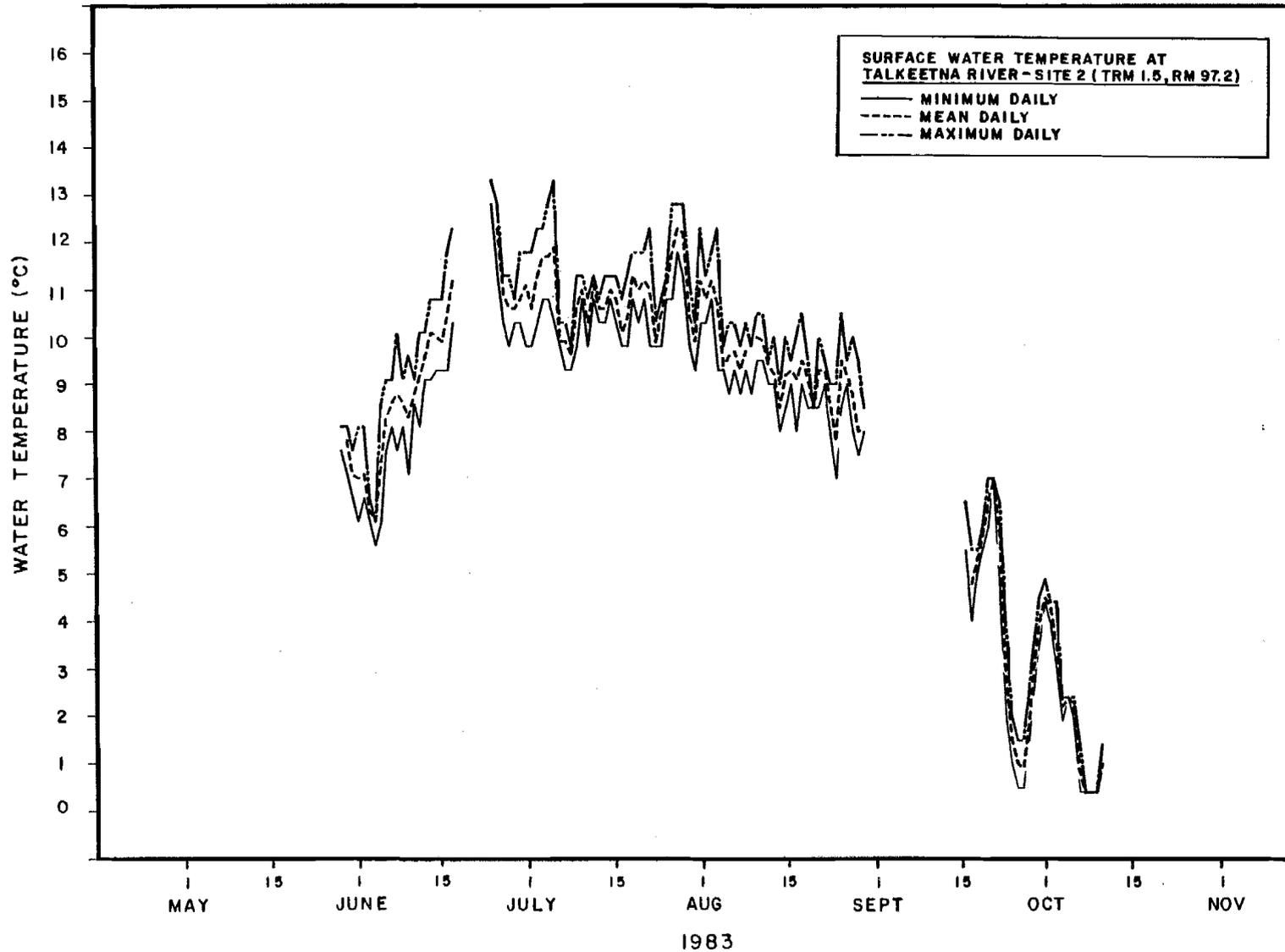


Figure 3-38. Minimum, mean, and maximum daily surface water temperatures collected at the Talkeetna River - Site 2 (RM 97.2, TRM 1.5) during the 1983 open water season.

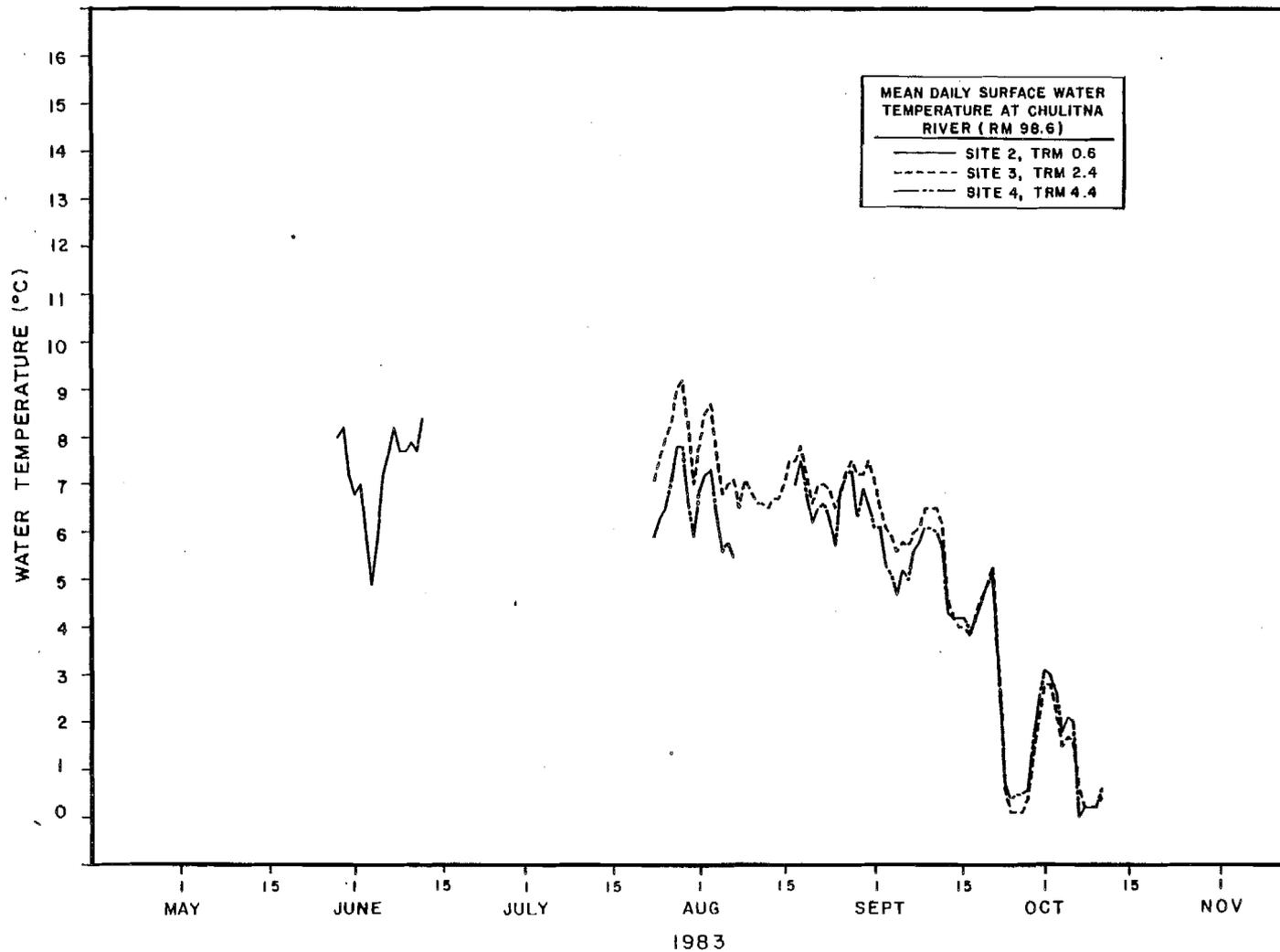


Figure 3-39. Mean daily surface water temperatures collected at the Chulitna River Site - Site 2 (RM 98.6, TRM 0.6), Site 3 (RM 98.6, TRM 2.4), and Site 4 (RM 98.6, TRM 4.4) during the 1983 open water season.

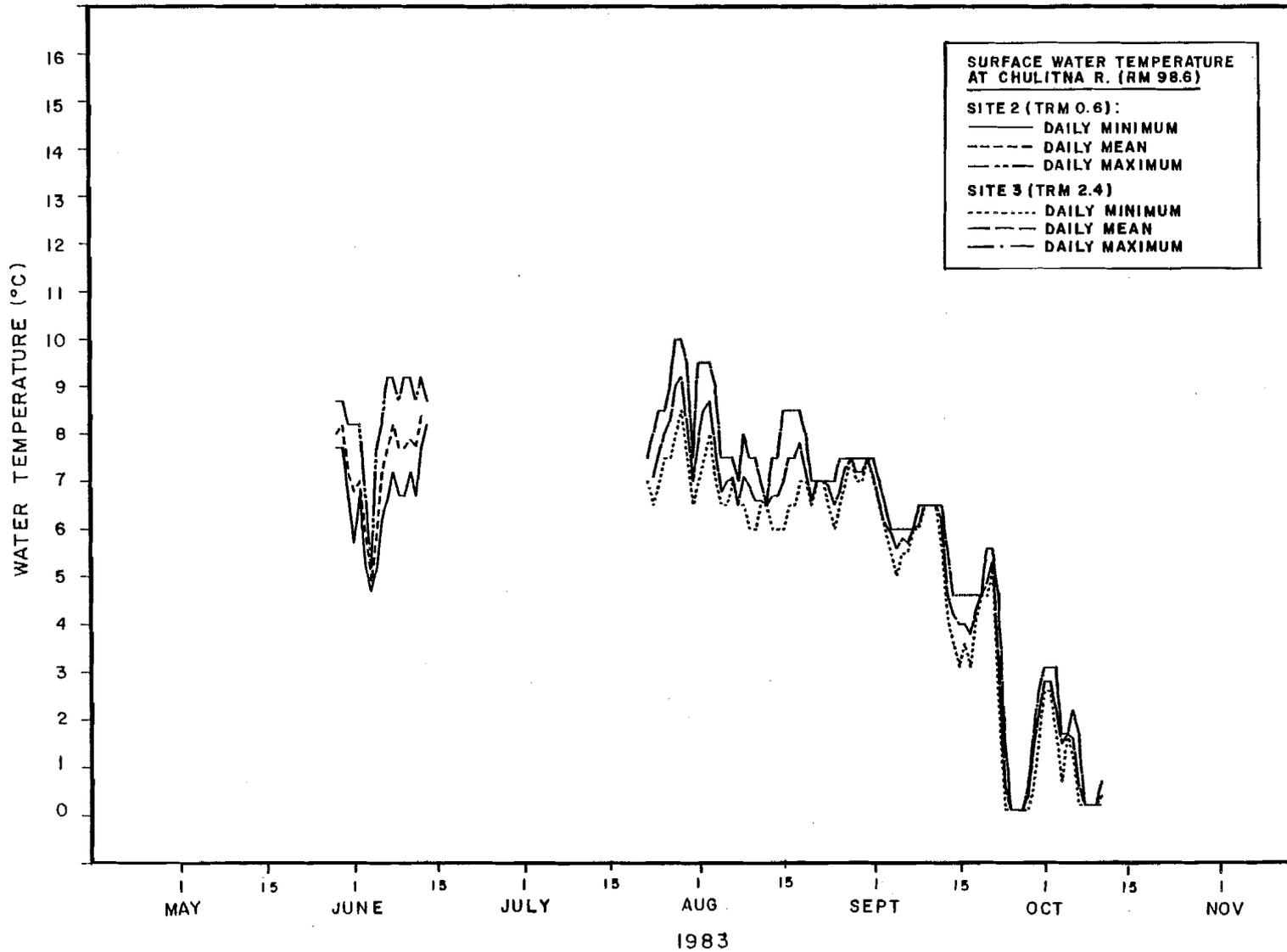


Figure 3-40. Minimum, mean and maximum daily surface water temperatures collected at Chulitna River - Site 2 (RM 98.6, TRM 0.6) and Site 3 (RM 98.6, TRM 2.4) during the 1983 open water season.

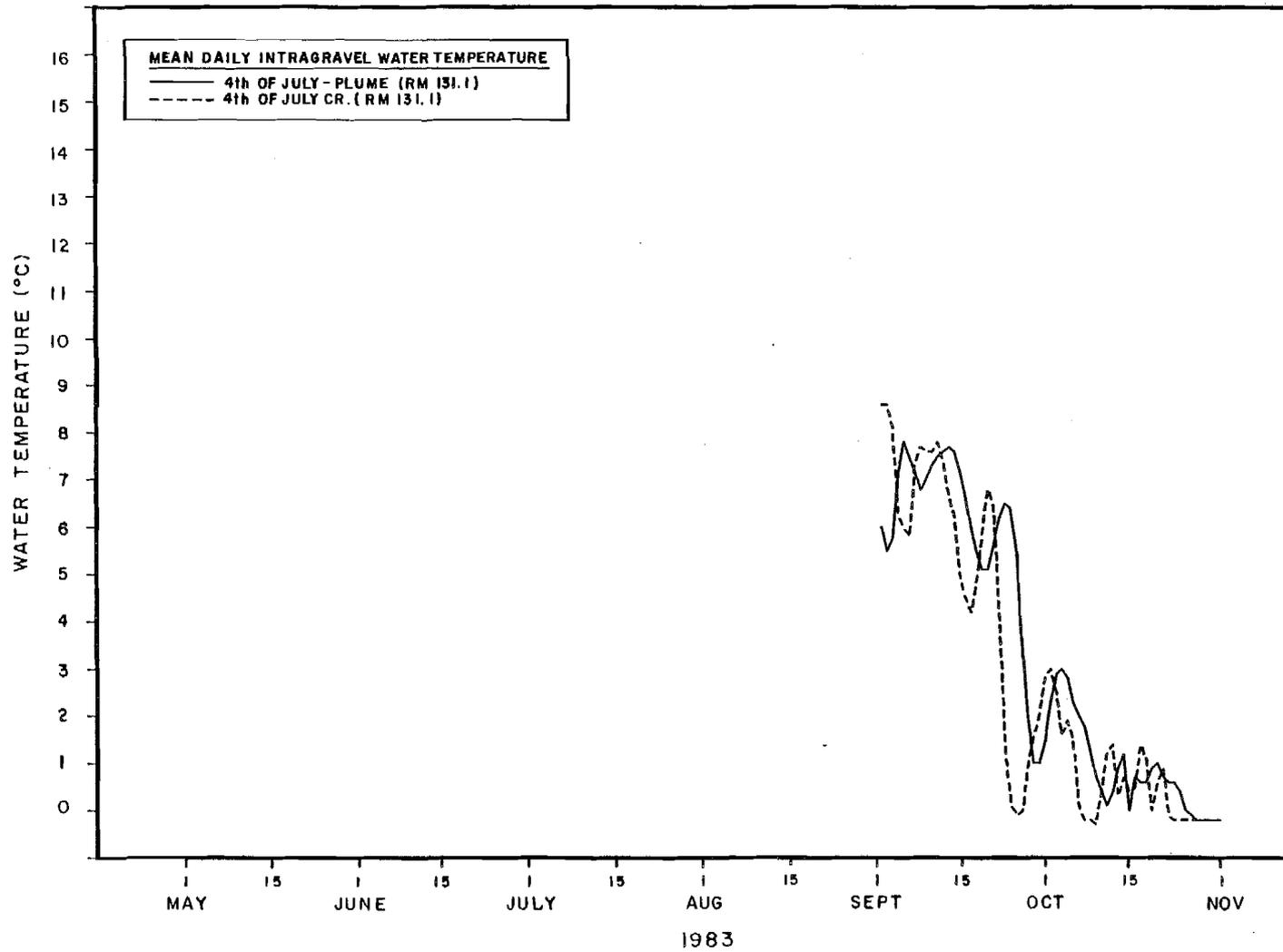


Figure 3-41. Mean daily intragravel temperatures collected at Fourth of July Creek - Site 1: Creek and Plume (RM 131.1, TRM 0.0) during the 1983 open water season.

3.4.2.4 Gold Creek (RM 136.7, TRM 0.2)

Surface water temperature data were collected at Gold Creek from May 6 to October 5. Temperatures ranged from -0.5°C to 15.0°C . Generally temperatures increased through July and declined in August and September (Figures 3-37 and 3-42).

3.4.2.5 Indian River (RM 138.6, TRM 1.0)

Surface water temperature data were recorded in Indian River from May 17 to October 19. Temperatures ranged from 0.0°C (in October) to 15.0°C (in July and August). Generally, water temperatures increased from May through late July or early August when cooling occurred (Figures 3-36 and 3-43).

3.4.2.6 Portage Creek (RM 148.8, TRM 0.2)

Surface water temperatures were measured in Portage Creek from June 16 to October 19. A data gap occurring from July 7 to July 28 was the result of a malfunctioning recorder. Temperatures ranged from 0.0°C (in September and October) to 14.5°C (in July). Generally, temperatures increased from May to August with an overall decline occurring in August and September (Figures 3-37 and 3-44).

3.4.2.7 Comparison of Gold Creek, Indian River, and Portage Creek

Mean daily surface water temperatures recorded at Gold Creek, Indian River, and Portage Creek (Figure 3-45) were similar. Warmer temperatures generally occurred in Indian River while cooler temperatures were recorded in Gold Creek. Diurnal fluctuations of up to 5°C per day were observed at all three locations (Figures 3-42 to 3-46).

3.4.3 Tributaries above Devil Canyon

Surface water temperatures were continuously monitored in six clearwater tributaries located upstream of Devil Canyon. The tributaries included Tsusena Creek (RM 181.8), Deadman Creek (RM 186.7), Watana Creek (RM 194.1), Kosina Creek (RM 206.8), Goose Creek, (RM 231.8), and the Oshetna River (RM 233.4).

Plots of minimum, mean, and maximum daily temperatures recorded at each of the tributaries (Figures 3-46 to 3-52) show that water temperatures were generally warmest during June or July and declined in August. Water temperatures often fluctuated $5\text{-}6^{\circ}\text{C}$ per day. Overall temperatures were warmest in Deadman Creek and coldest in Tsusena Creek.

3.4.3.1 Tsusena Creek (RM 181.8, TRM 0.1)

Surface water temperatures were collected in Tsusena Creek from May 26 to September 27. A gap in the data which occurred from July 18 to August 24 was due to instrument failure. Surface water temperatures ranged from 0.0°C in September to 14.0°C in July (Figure 3-47).

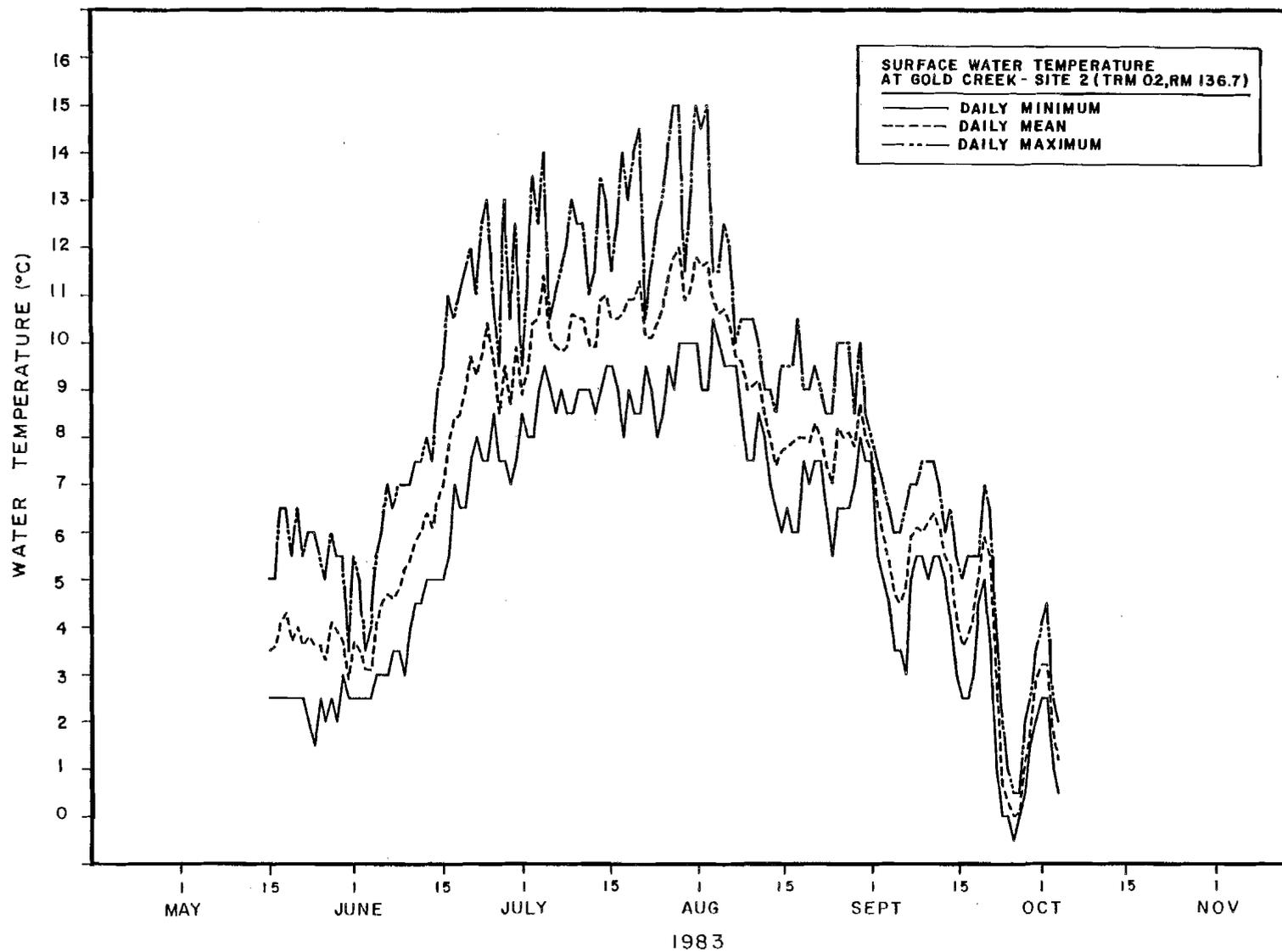


Figure 3-42. Minimum, mean, and maximum daily surface water temperatures collected at Gold Creek - Site 2 (RM 136.7, TRM 0.2) during the 1983 open water season.

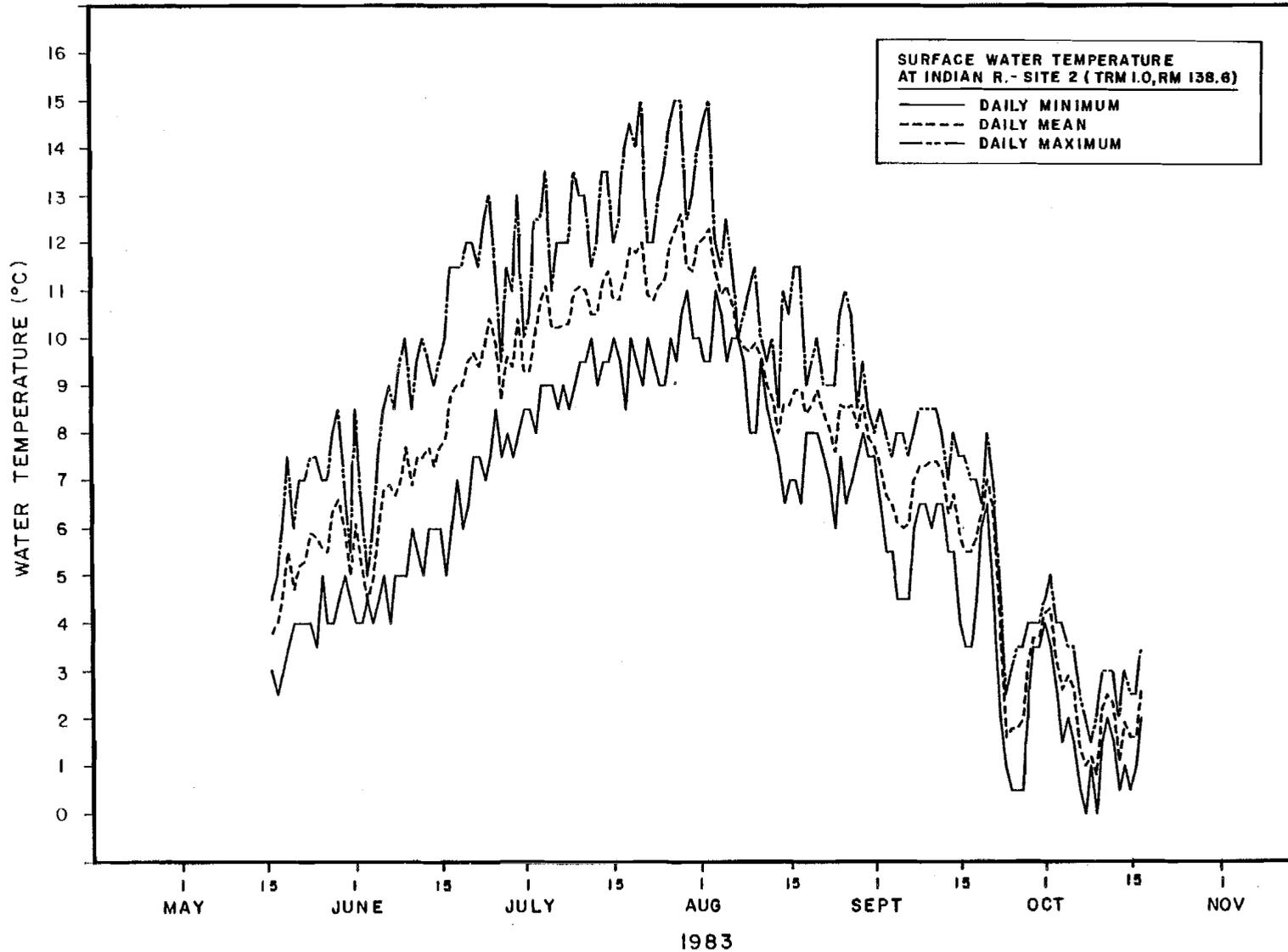


Figure 3-43. Minimum, mean, and maximum daily surface water temperatures collected at Indian River - Site 2 (RM 138.6, TRM 1.0) during the 1983 open water season.

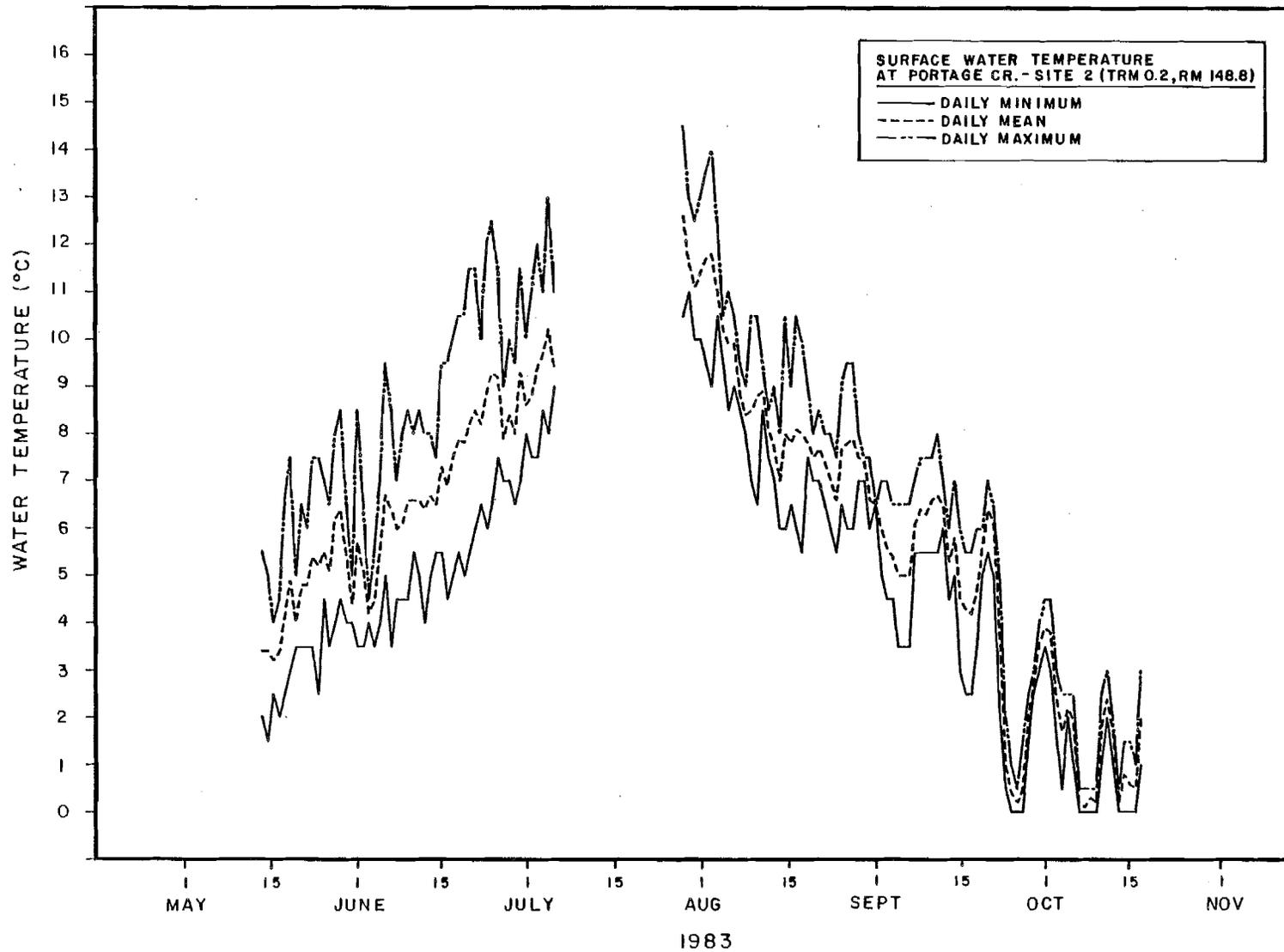


Figure 3-44. Minimum, mean, and maximum daily surface water temperatures collected at Portage Creek - Site 2 (RM 148.8, TRM 0.2) during the 1983 open water season.

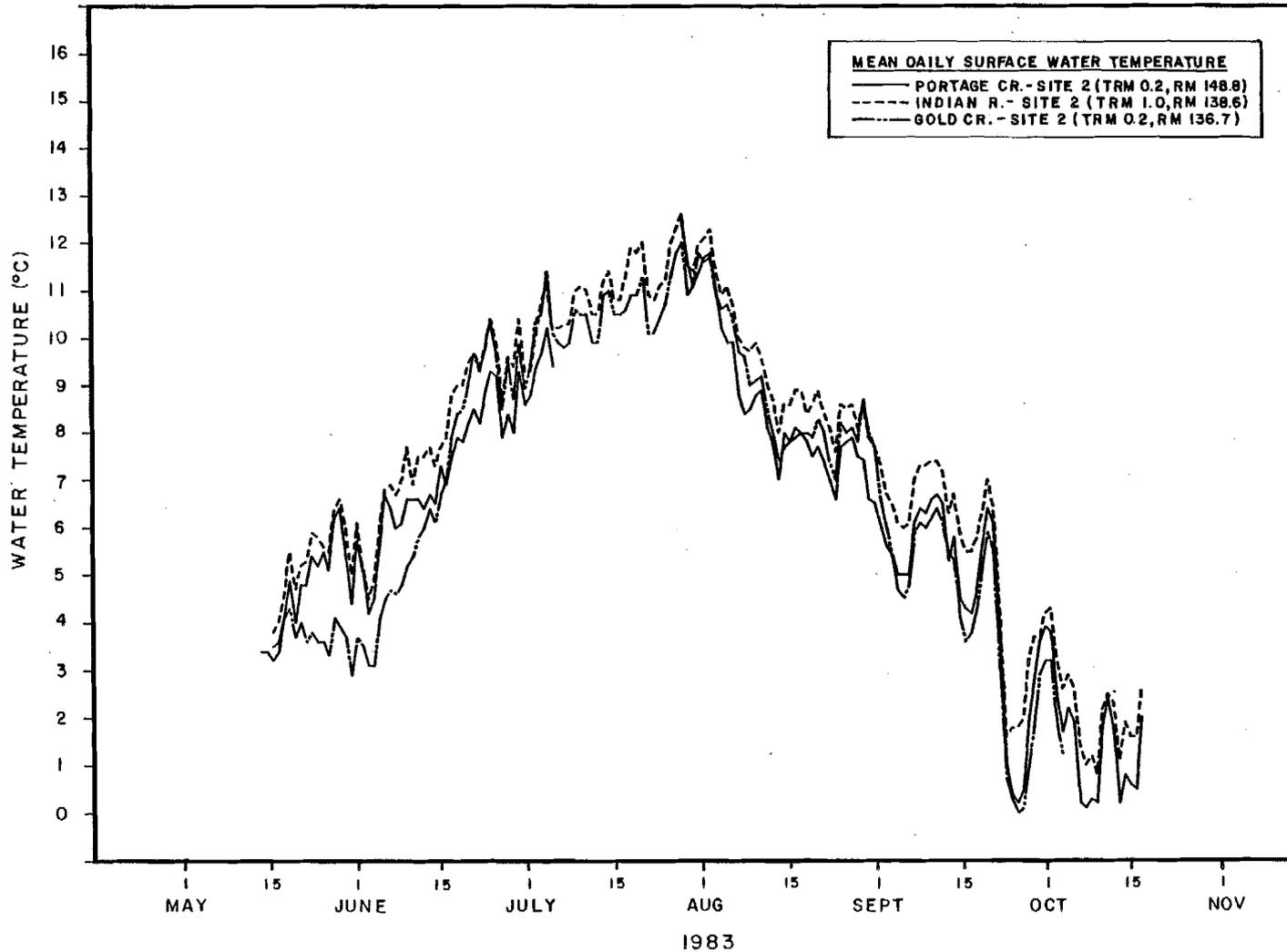


Figure 3-45. Mean daily surface water temperatures collected at Gold Creek - Site 2 (RM 136.7, TRM 0.2), Indian River - Site 2 (RM 138.6, TRM 1.0), and Portage Creek - Site 2 (RM 148.8, TRM 0.2) during the 1983 open water season.

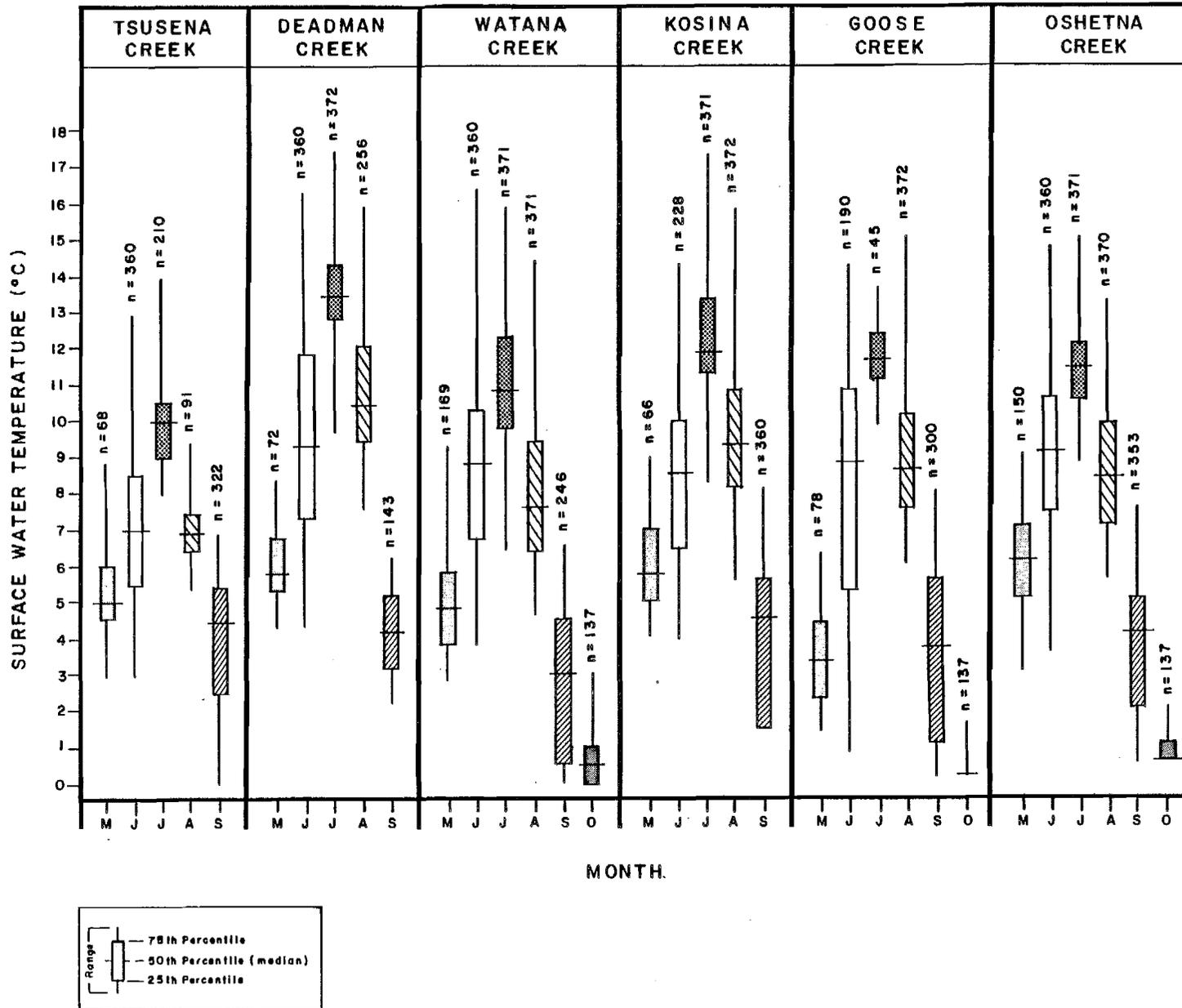


Figure 3-46 Monthly water temperature data summary showing range, 25th, 50th (median), and 75th percentile for Tsusena Creek (RM 181.8, TRM 0.1), Deadman Creek (RM 186.7, TRM 0.1), Watana Creek (RM 194.1, TRM 0.1), Kosina Creek (RM 206.8, TRM 0.1), Goose Creek (RM 231.3, TRM 0.1), and Oshetna River (RM 233.4, TRM 0.1).

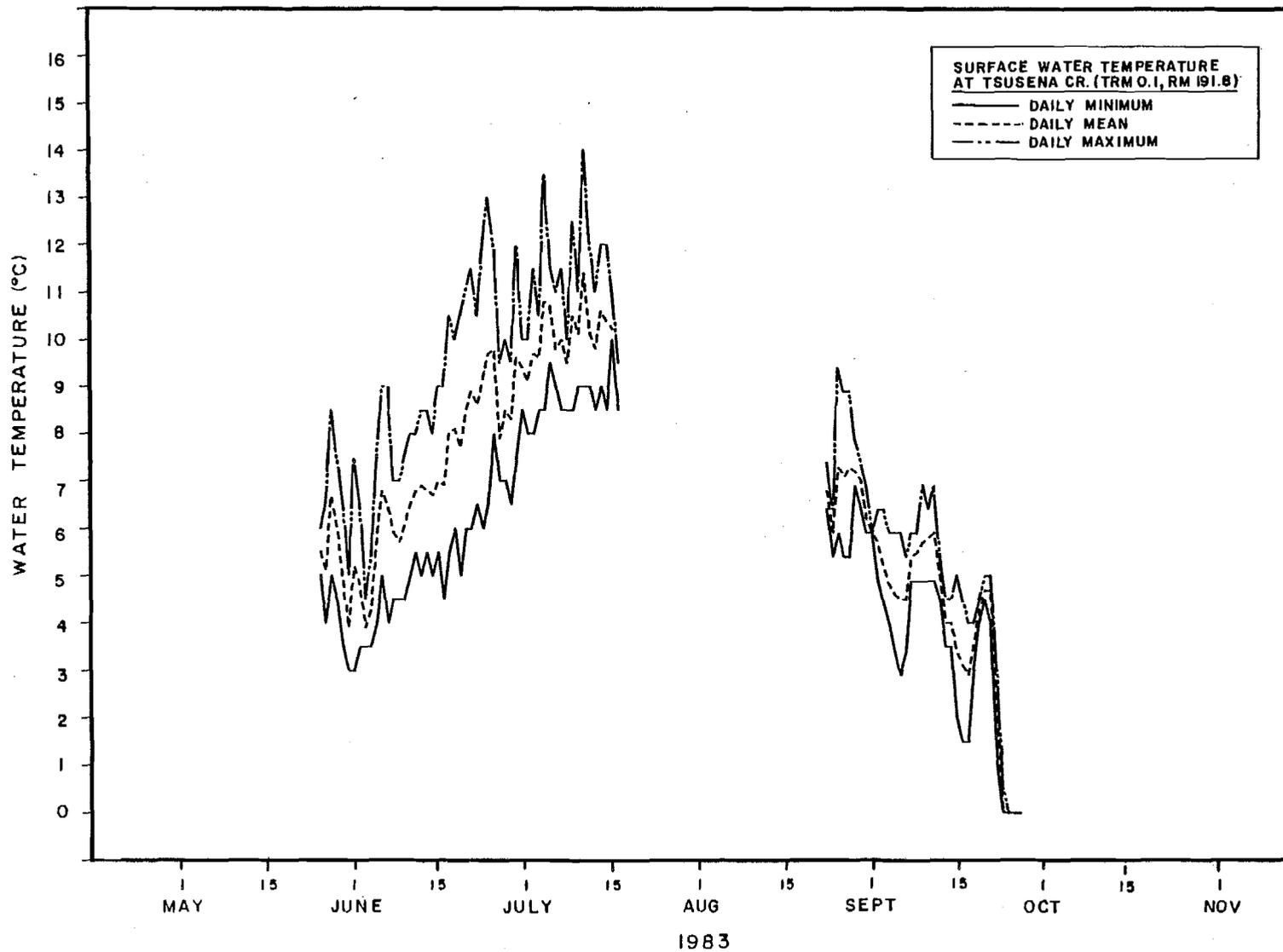
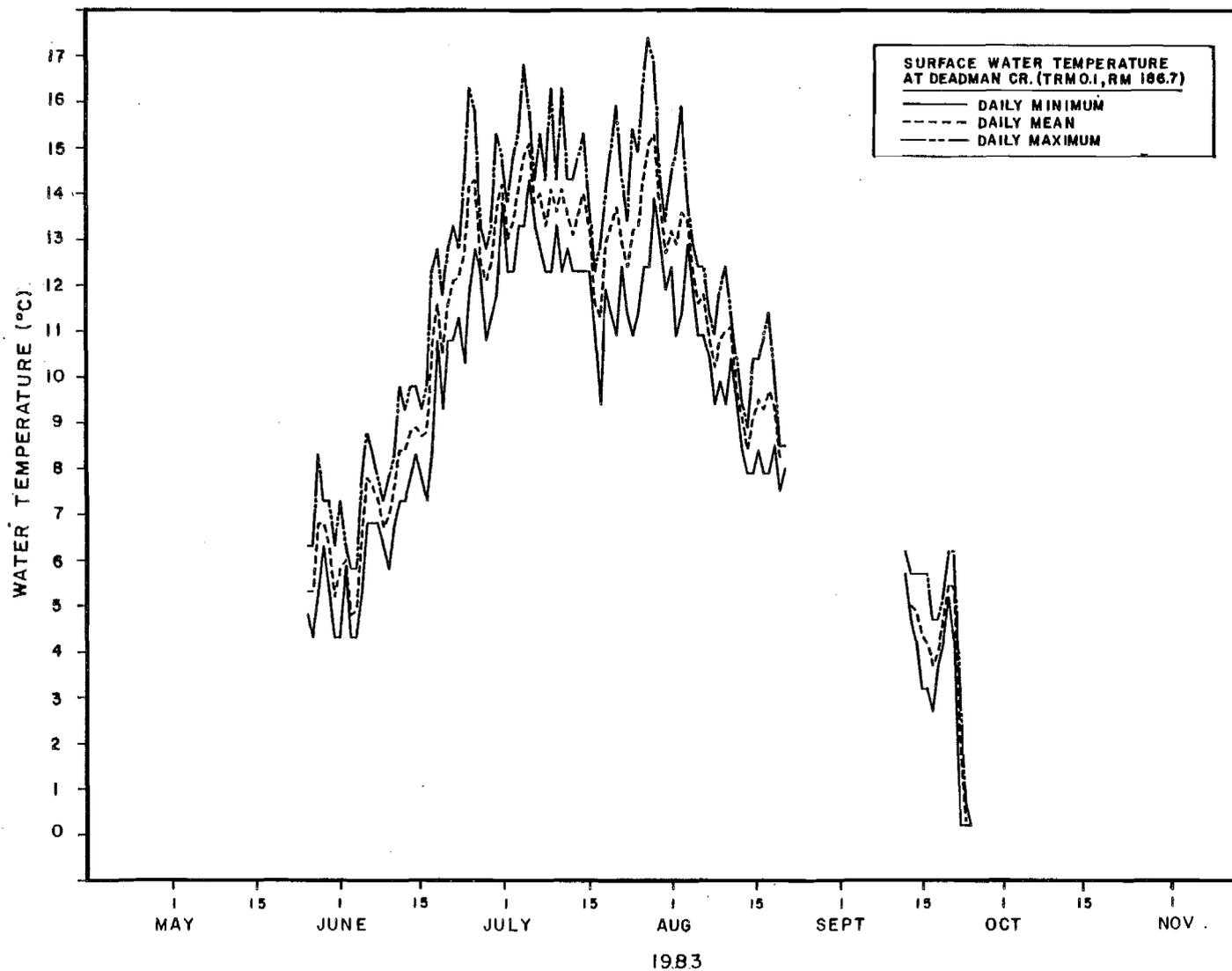


Figure 3-47. Minimum, mean, and maximum daily surface water temperatures collected at Tsusena Creek (RM 181.8, TRM 0.1) during the 1983 open water season.



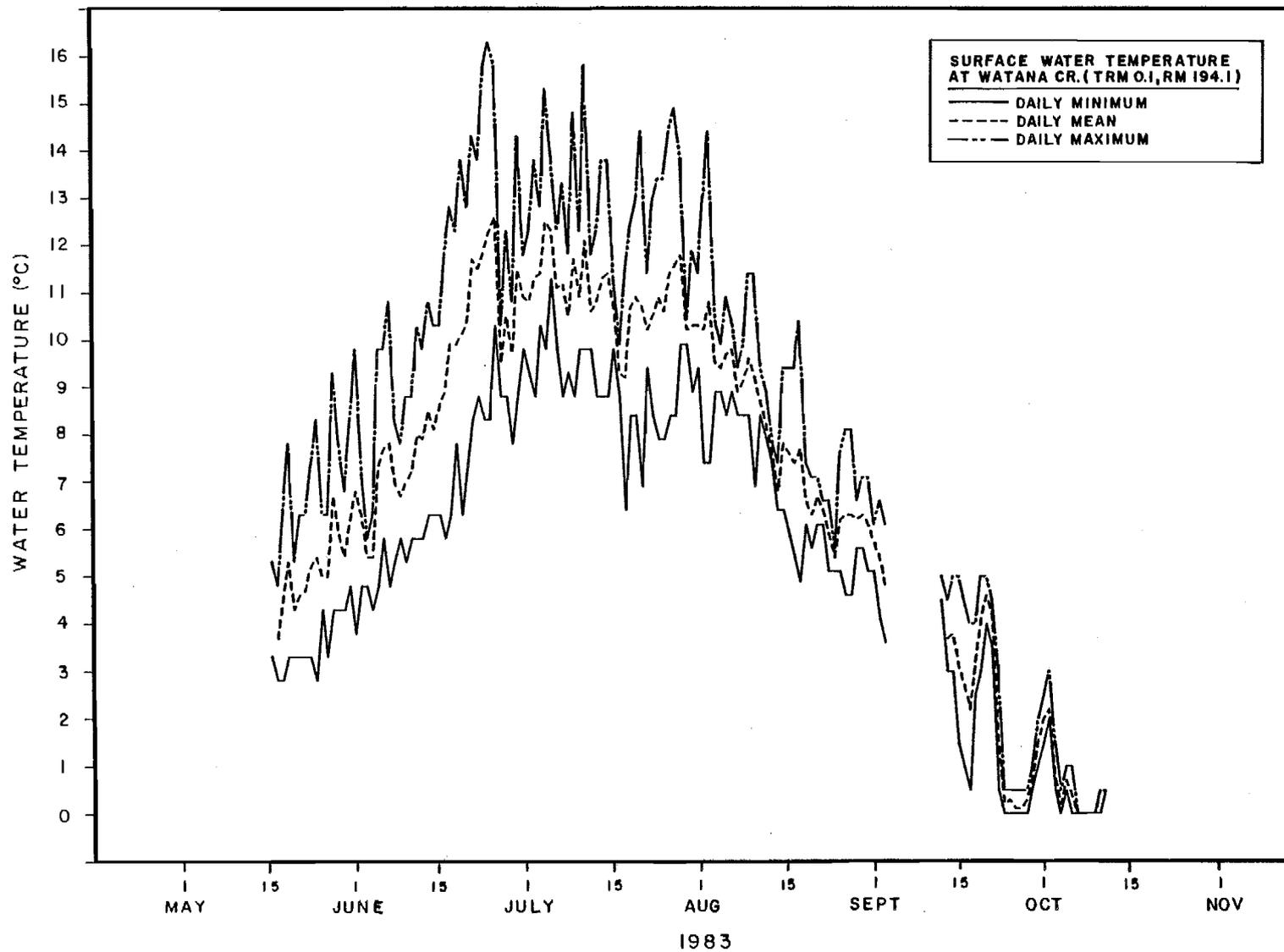


Figure 3-49. Minimum, mean, and maximum daily surface water temperatures collected at Watana Creek (RM 194.1, TRM 0.1) during the 1983 open water season.

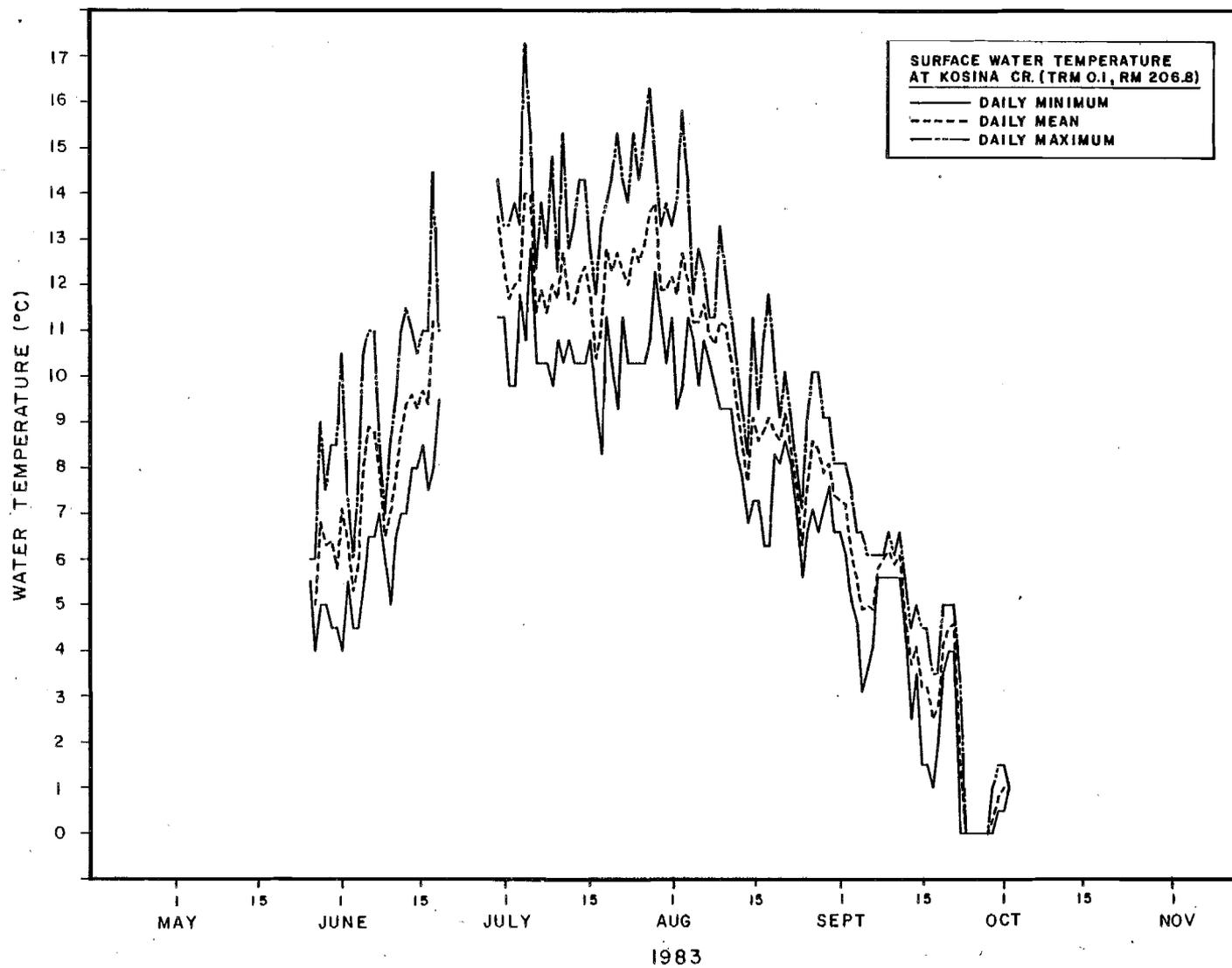


Figure 3-50. Minimum, mean, and maximum daily surface water temperatures collected at Kosina Creek (RM 206.8, TRM 0.1) during the open water season.

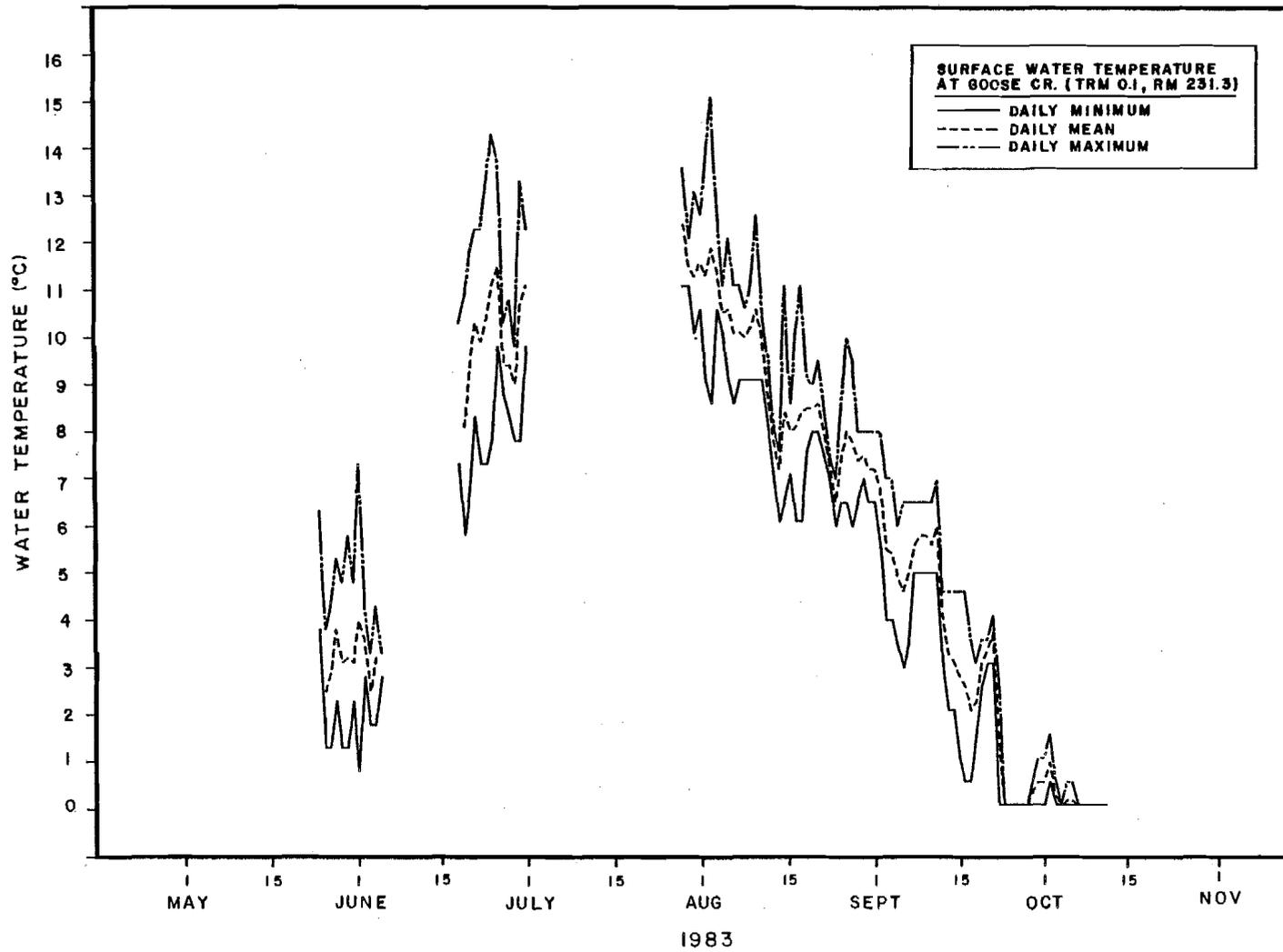


Figure 3-51. Minimum, mean, and maximum daily surface water temperatures collected at Goose Creek (RM 231.3, TRM 0.1) during the 1983 open water season.

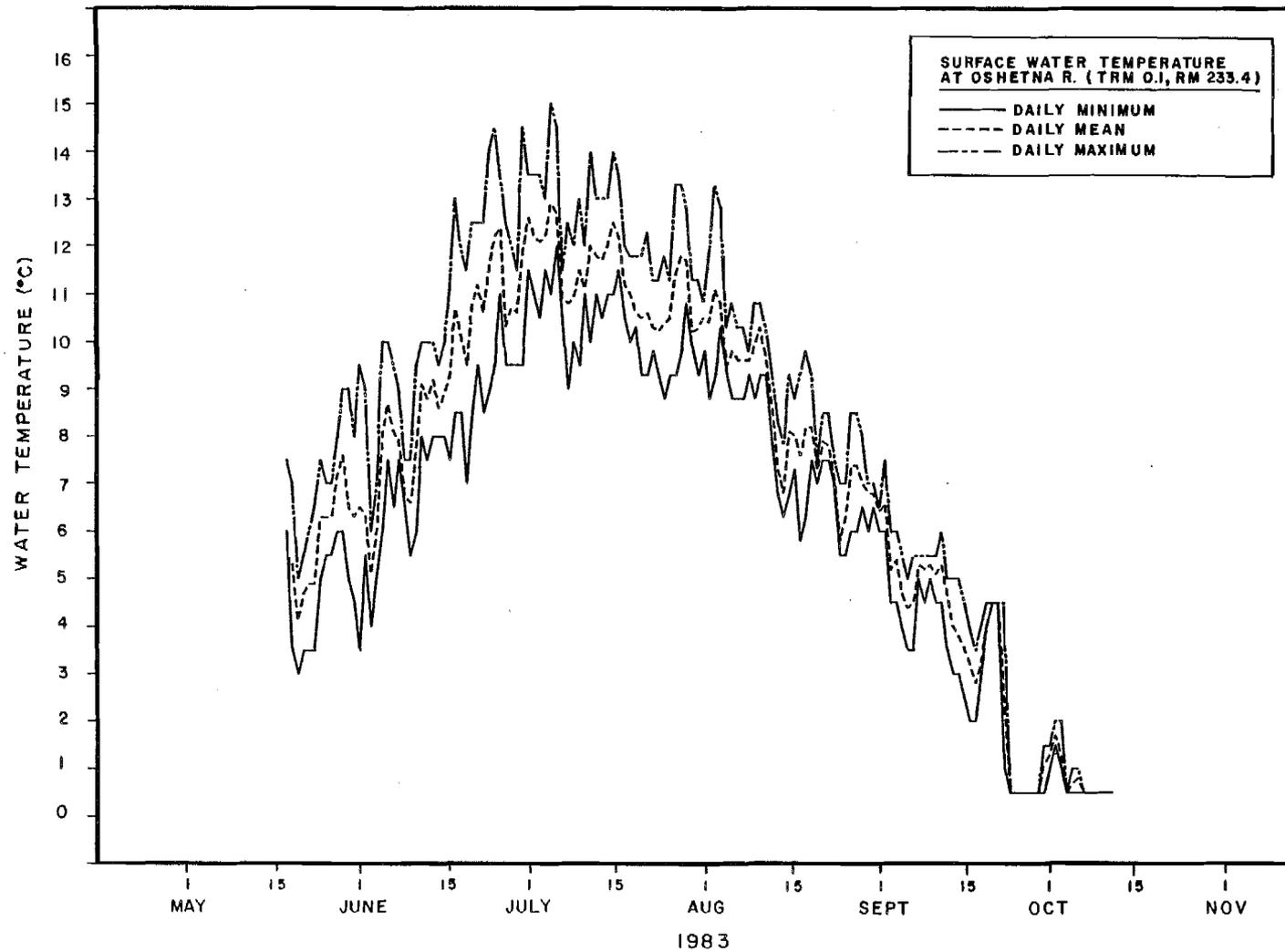


Figure 3-52. Minimum, mean, and maximum daily surface water temperatures collected at the Oshetna River (RM 233.4, TRM 0.1) during the 1983 open water season.

3.4.3.2 Deadman Creek (RM 186.7, TRM 0.1)

Surface water temperatures were collected in Deadman Creek from May 26 to September 25. The gap in the data occurring from August 22 to September 13 resulted from instrument failure. Surface water temperatures ranged from 0.2°C in September to 17.4°C in August (Figure 3-48).

3.4.3.3 Watana Creek (RM 194.1, TRM 0.1)

Surface water temperatures were measured in Watana Creek from May 17 to October 12. A gap in the data occurred from September 3 to September 13 and was due to instrument failure. Surface water temperatures ranged from 0.0°C in September and October to 16.3°C in June (Figure 3-49).

3.4.3.4 Kosina Creek (RM 206.8, TRM 0.1)

Surface water temperature data were recorded in Kosina Creek from May 26 to October 2. A gap in the data occurring from June 19 to June 30 resulted from instrument failure. Surface water temperatures ranged from 0.0°C in September to 17.3°C in July (Figure 3-50).

3.4.3.5 Goose Creek (RM 231.3, TRM 0.1)

Surface water temperatures were collected in Goose Creek from May 25 to October 10. Gaps in the data occurring from June 5 to June 19, and from July 1 to July 28 were the result of instrument failure. Temperatures ranged from 0.1°C in September and October to 15.1°C in August (Figure 3-51).

3.4.3.6 Oshetna River (RM 233.4, TRM 0.1)

Surface water temperature data were recorded in the Oshetna River from May 19 to October 12. Temperatures ranged from 0.5°C (in September and October) to 15.0°C (in July and August) (Figure 3-52).

3.5 Interhabitat Relationships

To determine possible temperature relationships comparisons were made between water temperature data recorded in the various habitats. These comparisons are summarized below.

3.5.1 Mainstem habitats versus tributary habitats

To determine the temperature influences of tributaries on the temperature regime of the mainstem Susitna River, water temperatures recorded at tributary monitoring stations were compared to mainstem Susitna River water temperatures.

3.5.1.1 Comparison of the surface water temperatures recorded in the Yentna River and in the mainstem Susitna River

A plot of surface water temperatures recorded at the Yentna River (RM 28.0, TRM 4.0), mainstem Susitna River above the Deshka River (RM 41.1),

and the mainstem Susitna River at Susitna Station (RM 25.8) is presented in Figure 3-53. During June and July surface water temperatures recorded at the Yentna River were lower than those recorded at the mainstem monitoring stations located above the Deshka River and at Susitna Station. July surface water temperatures recorded above the Deshka River were often 3° higher than those recorded in the Yentna River. The average July surface water temperatures were 10.5° in the Yentna River and 12.4° in the Susitna River at the monitoring station located above the Deshka River.

Temperature differences between the Yentna River and the mainstem Susitna River at Susitna Station were not as great. The average July mainstem temperature at Susitna Station was 11.3°. Because temperature data were not recorded at Susitna Station after July, further comparisons between mainstem Susitna River temperatures at Susitna Station and temperatures in the Yentna River were not made.

In August surface water temperatures recorded at the Yentna River were also lower than temperatures recorded in the mainstem above the Deshka River. Average August temperatures were 9.0°C in the Yentna River and 10.7° in the the mainstem Susitna River above the Deshka. In September and October, temperatures recorded in the Yentna River were similar to mainstem temperatures recorded above the Deshka River.

3.5.1.2 A comparison of the surface water temperatures in the Chulitna and Talkeetna Rivers to mainstem Susitna River surface water temperatures

A plot of mean daily surface water temperatures recorded at the Susitna River monitoring stations at the Parks Highway Bridge (RM 83.9) and Talkeetna Fishwheel Camp (RM 103.0), and those recorded in the Chulitna River (RM 98.6 TRM 0.6, 2.4, 4.4) and the Talkeetna River (RM 97.2, TRM 1.5) is presented in Figure 3-54. From mid-June to September temperatures in the Chulitna River were colder than those recorded in the Talkeetna and Susitna Rivers. During this time the warmest temperatures were recorded in the mainstem monitoring station located upstream of the tributaries at Talkeetna Fishwheel Camp. For example, during August the mean monthly surface water temperatures were 6.9° in the Chulitna River and 9.4° in the Talkeetna River. The mean monthly surface water temperatures in the mainstem were 10.4° at Talkeetna Fishwheel Camp and 10.2° at the Parks Highway Bridge (located downstream of the tributaries). Temperatures recorded at the Parks Highway station and the Talkeetna River were similar in mid-September. By late September similar temperatures were recorded at all of the stations.

3.5.1.3 Comparison of intragravel water temperatures recorded at Fourth of July Creek and in the clearwater plume of Fourth of July Creek to the mainstem Susitna River intragravel temperatures

Intragravel water temperatures were recorded in Fourth of July Creek (RM 131.1, TRM 0.1) and the clearwater plume of Fourth of July Creek from September 1 to October 31. These water temperatures were compared to the mainstem intragravel water temperatures obtained at LRX 29 (RM

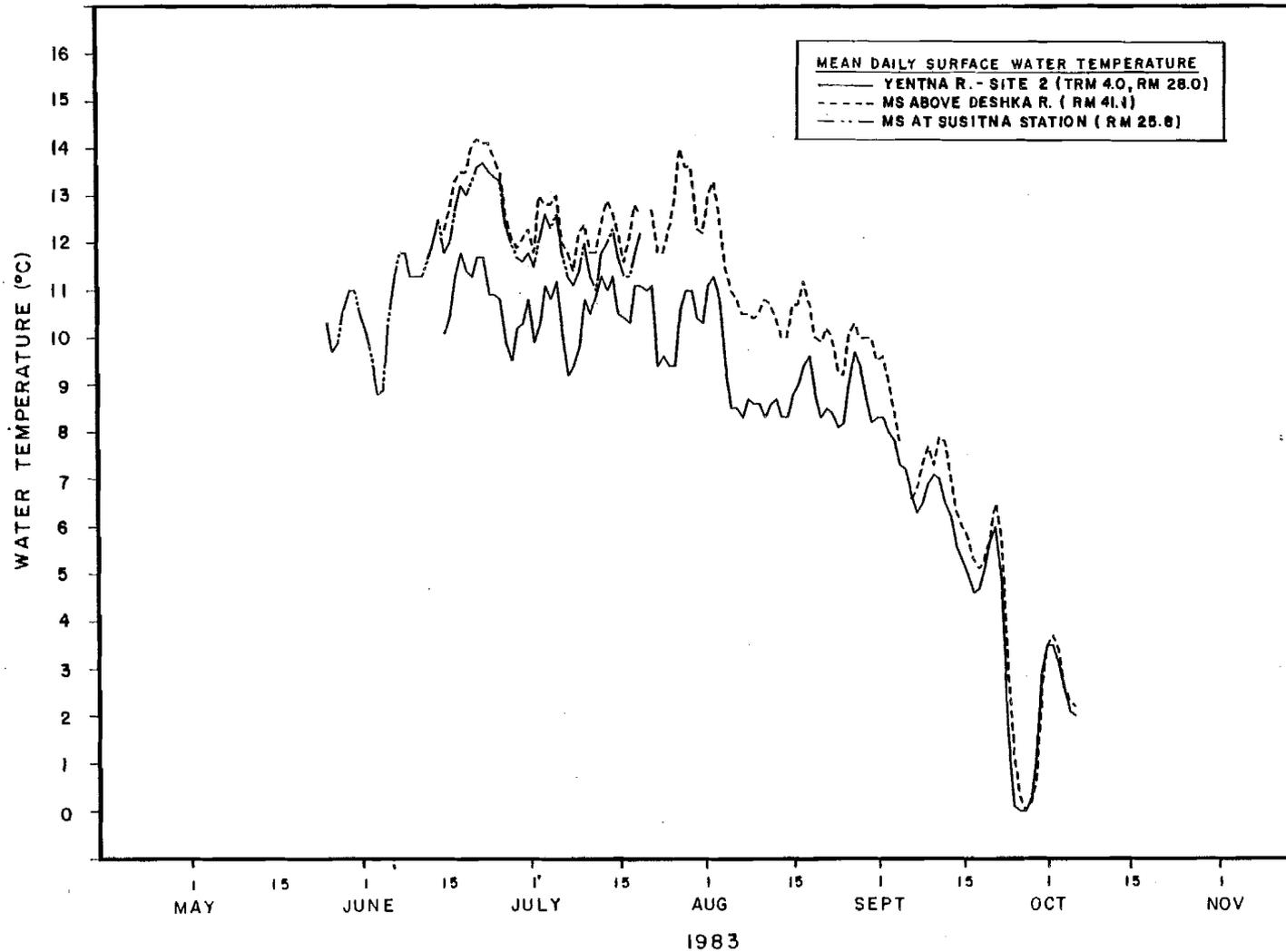


Figure 3-53 Mean daily surface water temperatures collected during the 1983 open water season at the Yentna River - Site 2 (RM 28.0, TRM 4.0), Mainstem Susitna River above the Deshka River (RM 41.1), and Mainstem Susitna River at Susitna Station (RM 25.8).

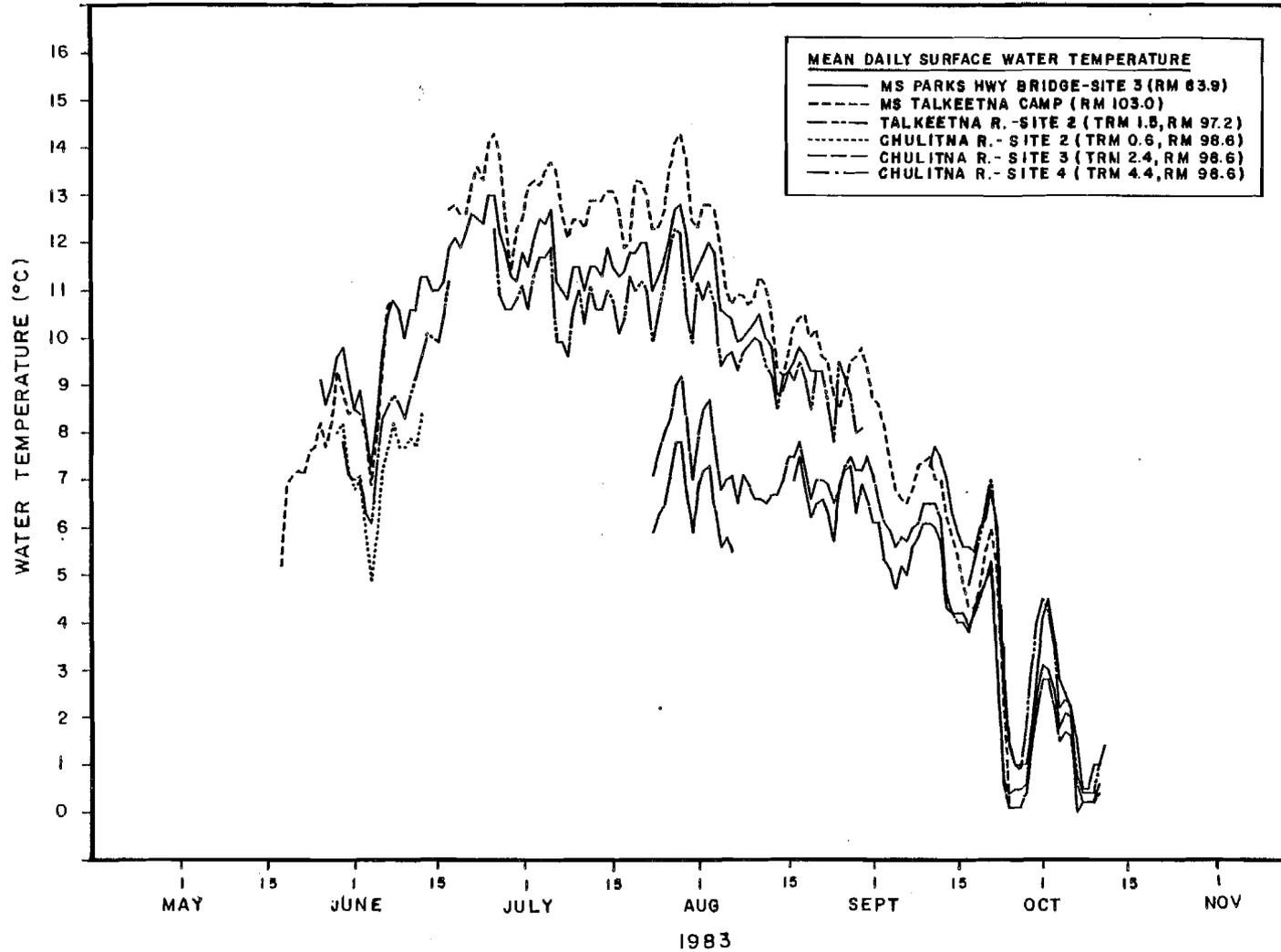


Figure 3-54. Mean daily surface water temperatures collected during the 1983 open water season at Mainstem Susitna River at Parks Highway Bridge - Site 3 (RM 83.9), Mainstem Susitna River at Talkeetna Fishwheel Camp (RM 103.0), Talkeetna River - Site 2 (RM 97.2, TRM 1.5), and the Chulitna River - Site 2 (RM 98.6, TRM 0.6), Site 3 (RM 98.6, TRM 2.4), Site 4 (RM 98.6, TRM 4.4).

126.1) (Figure 3-55). The creek and plume temperatures were compared primarily to determine if a similarity exists between intragravel water temperatures in the creek and those recorded slightly downstream of the mouth in the clearwater plume. The comparison to the mainstem intragravel water temperature at LRX 29 (5 miles downstream of Fourth of July Creek) was done to evaluate the general intragravel temperature characteristics of these three distinct habitat areas.

Figure 3-55 indicates that the temperature trends recorded at all three locations appear to be similar. However, the temperatures obtained in the plume seems to lag behind the temperatures recorded in the creek and in the mainstem. For example, in late September when temperatures declined, minimum temperatures were first recorded in the creek on September 25 and in the plume on September 29. At this time the minimum temperatures were recorded in the mainstem at LRX 29 on September 26.

Minimum temperatures recorded in the creek were lower than those recorded in the plume or the mainstem. The minimum September temperatures were 0.8°C in the plume, -0.3°C in the creek and 1.0°C in the mainstem. Further comparisons among these three sites are difficult because of the variability occurring in the plume of Fourth of July Creek which is dependent upon flow from the creek, the availability of surface water in the side channel where the plume is located, and the limited data including the absence of surface water temperature data from Fourth of July Creek.

3.5.1.4 A comparison of surface water temperatures in Gold Creek to Mainstem Susitna River surface water temperatures.

The surface water temperatures recorded in the Gold Creek tributary (RM 136.7, TRM 0.2) were compared to those recorded in the mainstem Susitna River. Figure 3-56 is a plot of mean daily surface water temperatures recorded in the Gold Creek tributary and in the mainstem Susitna River above Gold Creek (RM 138.6), at Gold Creek Bridge (RM 136.6) (in the Gold Creek thermal plume), and at Curry Fishwheel Camp (RM 120.7). A review of this plot shows that from mid-May to early October the Gold Creek tributary is consistently cooler than the mainstem Susitna River. The mainstem station downstream of the tributary in the thermal plume, was also cooler than the remaining Susitna River sites. Warmest temperatures were recorded at the Station at Curry Fishwheel Camp. No relationship between discharge and temperature can be defined.

3.5.1.5 A comparison of Indian River Surface water temperatures to surface surface water temperatures in the mainstem Susitna River

A comparison of surface water temperatures in Indian River (RM 138.6, TRM 1.0) to mainstem Susitna River surface water temperatures recorded at Devil Canyon (RM 150.0) and above Gold Creek (RM 136.8) is presented in Figure 3-57. Between May and July temperatures recorded at the monitoring station at Indian River (RM 138.6, TRM 1.0) were generally lower than mainstem temperatures recorded at Devil Canyon (RM 150.0) and above Gold Creek (RM 136.8) (Figure 3-56). Mean June temperature in

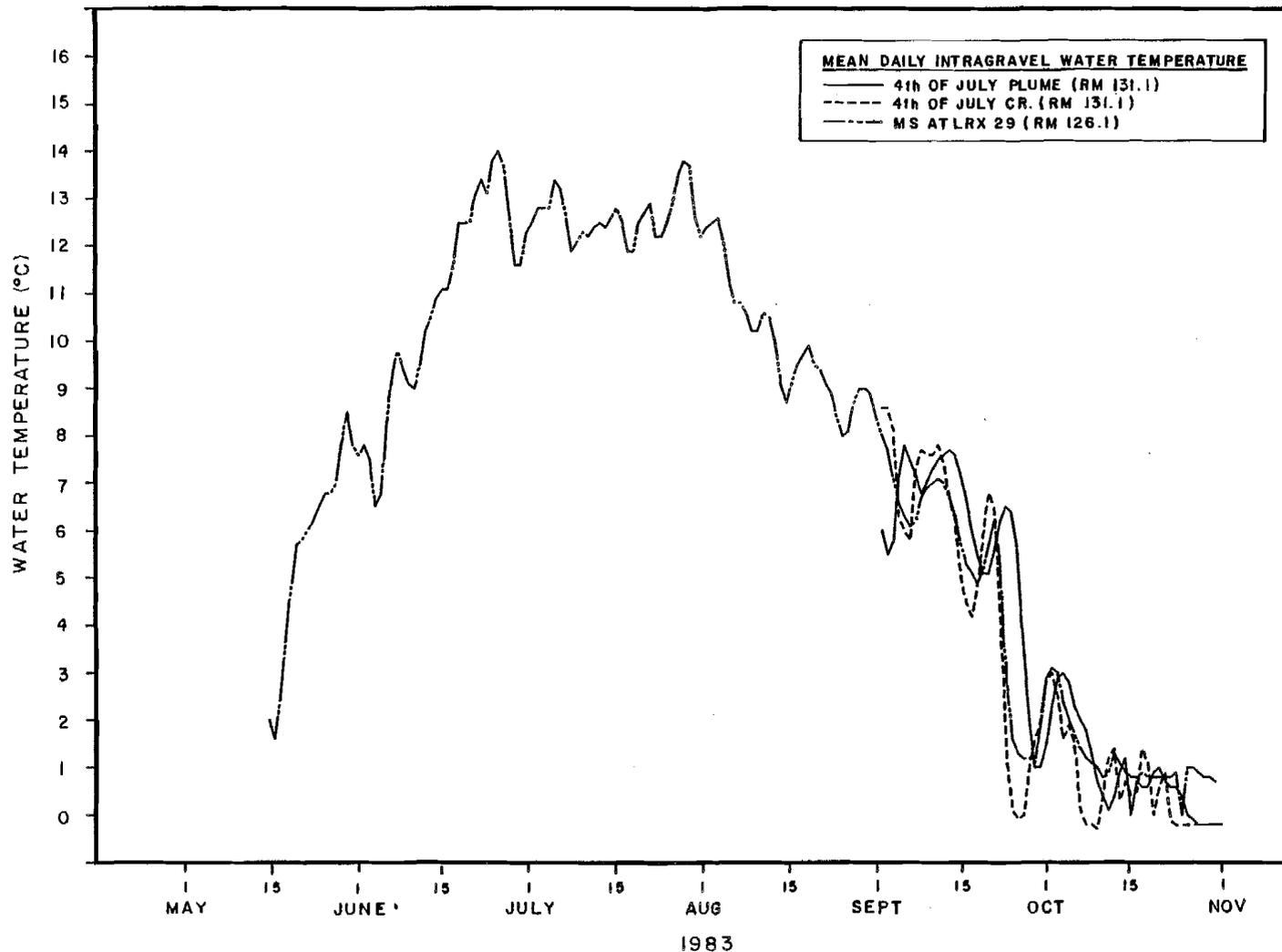


Figure 3-55. Mean daily intragravel water temperatures collected during the 1983 open water season at Fourth of July Creek - Site 1: Creek and Plume (RM 131.1), and mean daily surface and intragravel water temperature collected at Mainstem Susitna River at LRX 29 (RM 126.1).

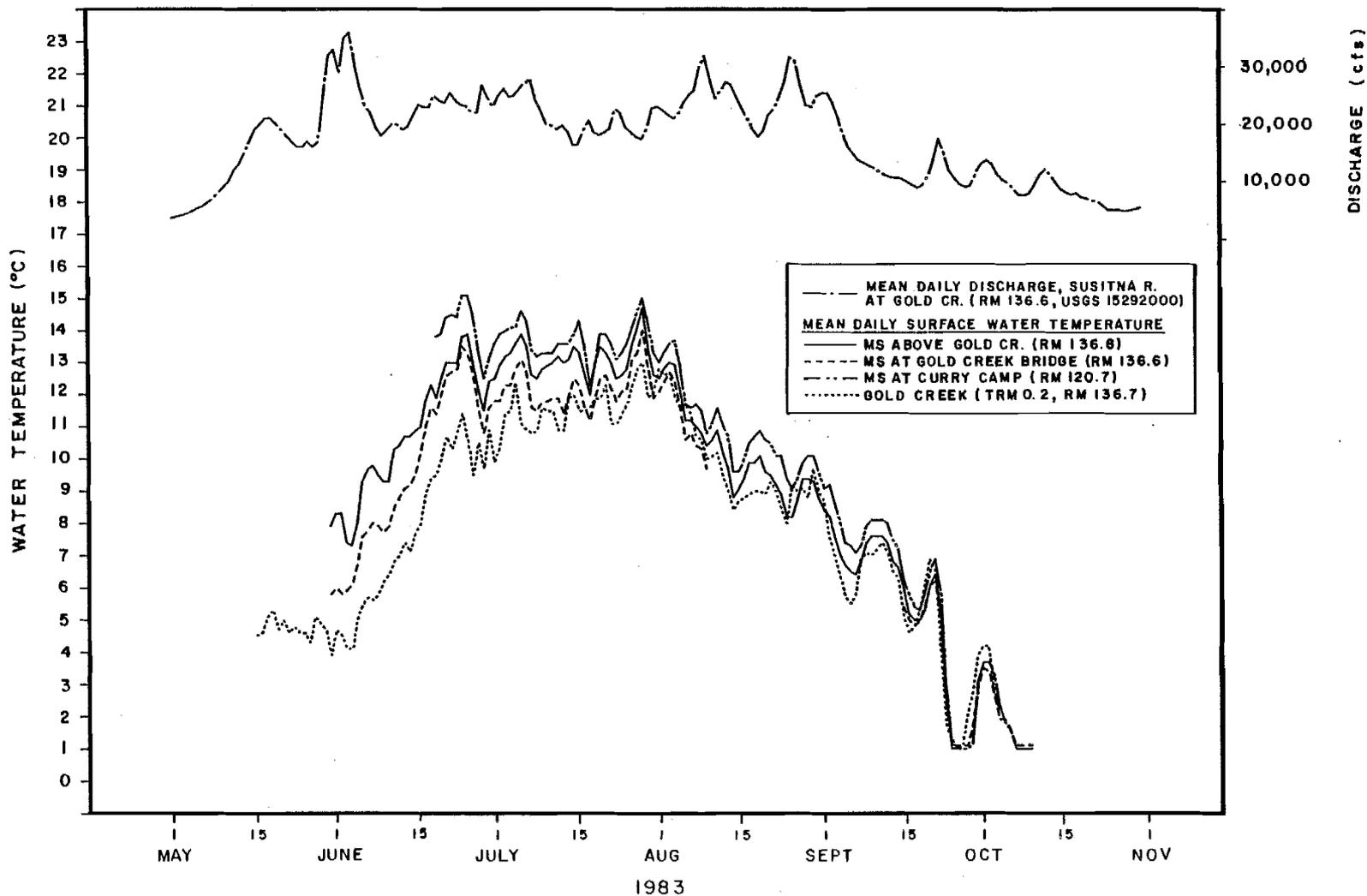


Figure 3-56. Mean daily surface water temperatures collected during the 1983 open water season at Mainstem Susitna River above Gold Creek (RM 136.8), at Mainstem Susitna River at Gold Creek Bridge (RM 136.6), at Mainstem Susitna River at Curry Fishwheel Camp (RM 120.7), at Gold Creek - Site 2 (RM 136.7, TRM 0.2), and mean daily Susitna River discharge at Gold Creek (USGS gaging station 15292000).

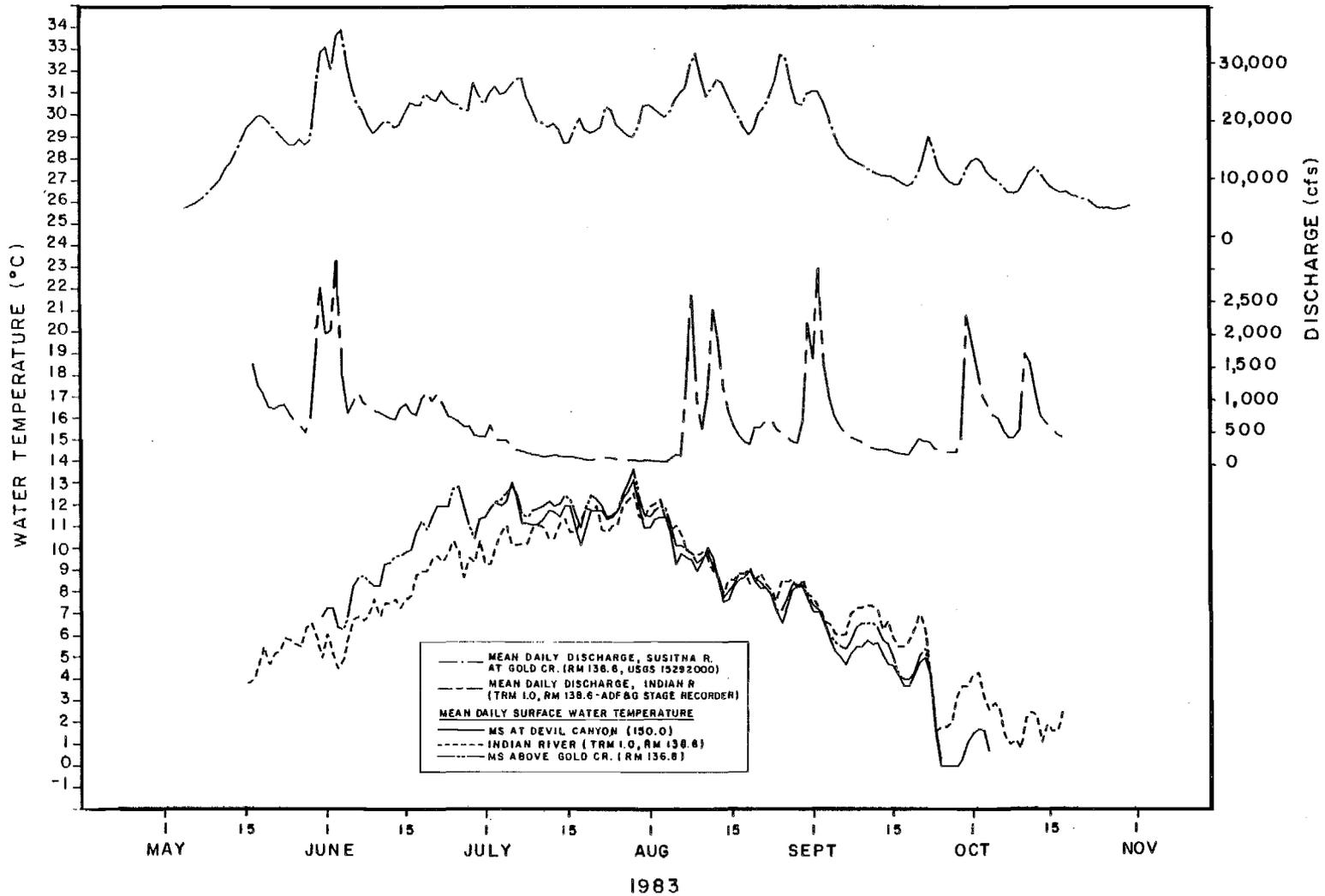


Figure 3-57 Mean daily surface water temperatures collected during the 1983 open water season at Mainstem Susitna River at Devil Canyon (RM 150.1), Mainstem Susitna River above Gold Creek (RM 136.8), at Indian River - Site 2 (RM 136.6, TRM 1.0), and mean daily Susitna River discharge at Gold Creek (USGS gaging station 15292000).

Indian River was 7.9 while the mean June temperature calculated for mainstem Susitna River above Gold Creek was 9.8°C. No temperature data were recorded at Devil Canyon in June. In August surface water temperatures at Indian River were comparable to mainstem temperatures. August temperatures averaged 9.4° in Indian River, 9.2°C at the mainstem monitoring station above Gold Creek, and 9.4°C in Devil Canyon. In September and October the temperatures in Indian River were warmer than those recorded at the mainstem temperature locations. Mean monthly surface temperatures for September were 5.6° at Indian River and 4.3°C at the mainstem at Devil Canyon.

3.5.1.6 A comparison of Portage Creek surface water temperature and mainstem Susitna River surface water temperatures

A comparison of Portage Creek (RM 148.8, TRM 0.2) surface water temperatures to mainstem Susitna River surface water temperatures recorded at the stations at Devil Canyon (RM 150.0) and above Gold Creek (RM 136.8) is presented in Figure 3-58. Surface water temperatures recorded at the monitoring station at Portage Creek were colder than mainstem surface water temperatures from mid-May through August. Mean August temperatures were 8.5° at Portage Creek, 9.2°C at the mainstem Susitna River above Gold Creek, and 9.4°C at the mainstem Susitna River at Devil Canyon. From September 1 to September 26 temperatures from Mainstem Susitna River at Devil Canyon and from Portage Creek correspond closely to each other. Average September temperatures were 4.3°C and 4.6°C respectively. Mean monthly September temperature in the mainstem above Gold Creek was 5.2°C. In late September and October surface water temperatures in Portage Creek were warmer than mainstem temperatures.

3.5.1.7 Mainstem Susitna River and Tributaries above Devil Canyon

Mainstem surface water temperatures were recorded above Devil Canyon at only two locations: above Tsusena Creek (RM 181.9) and above the Oshetna River (RM 234.9, 235.7). A comparison of tributary surface water temperatures to mainstem surface water temperatures was not made because of the distance between the mainstem stations and the potential mixing of tributary and mainstem water.

3.5.2 Mainstem Susitna River and Side Channels

Surface and intragravel water temperatures recorded at the monitoring stations in Side Channel 10, Upper Side Channel 11, and Side Channel 21 were compared to mainstem Susitna River temperatures.

3.5.2.1 Side Channel 10 (RM 134.0) and Mainstem Susitna River above Gold Creek (RM 136.8)

A comparison of surface and intragravel water temperatures recorded in Side Channel 10 to mainstem surface water temperatures recorded at the station above Gold Creek is presented in Figure 3-59. Although the surface water temperatures at Side Channel 10 were warmer than the mainstem, the general temperature trends were similar. The intragravel

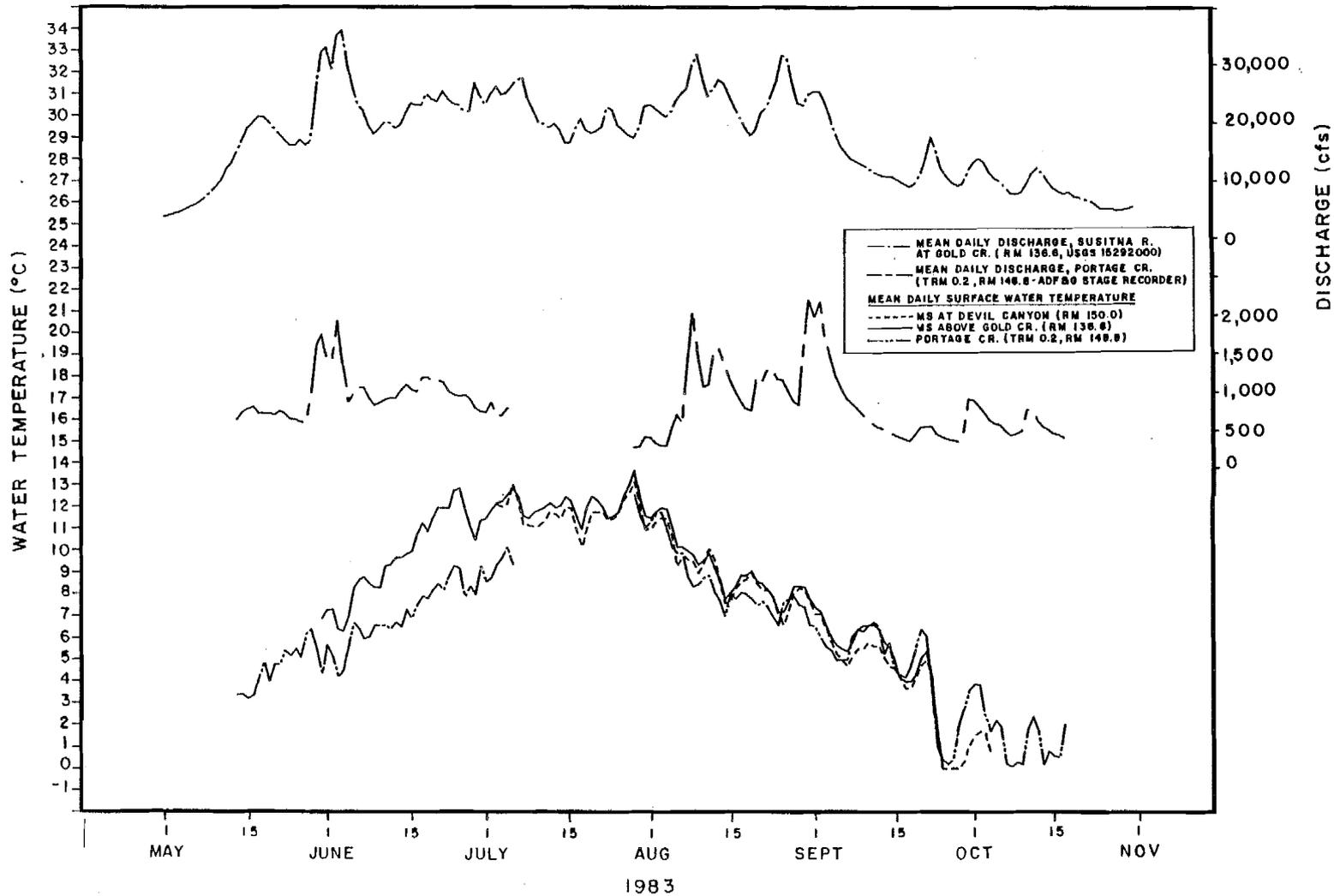


Figure 3-58. Mean daily surface water temperatures collected during the 1983 open water season at Mainstem Susitna River at Devil Canyon (RM 150.0), Mainstem Susitna River above Gold Creek (RM 136.8), at Portage Creek - Site 2 (RM 148.8, TRM 0.2), and mean daily Susitna River discharge at Gold Creek (USGS gaging station 15292000).

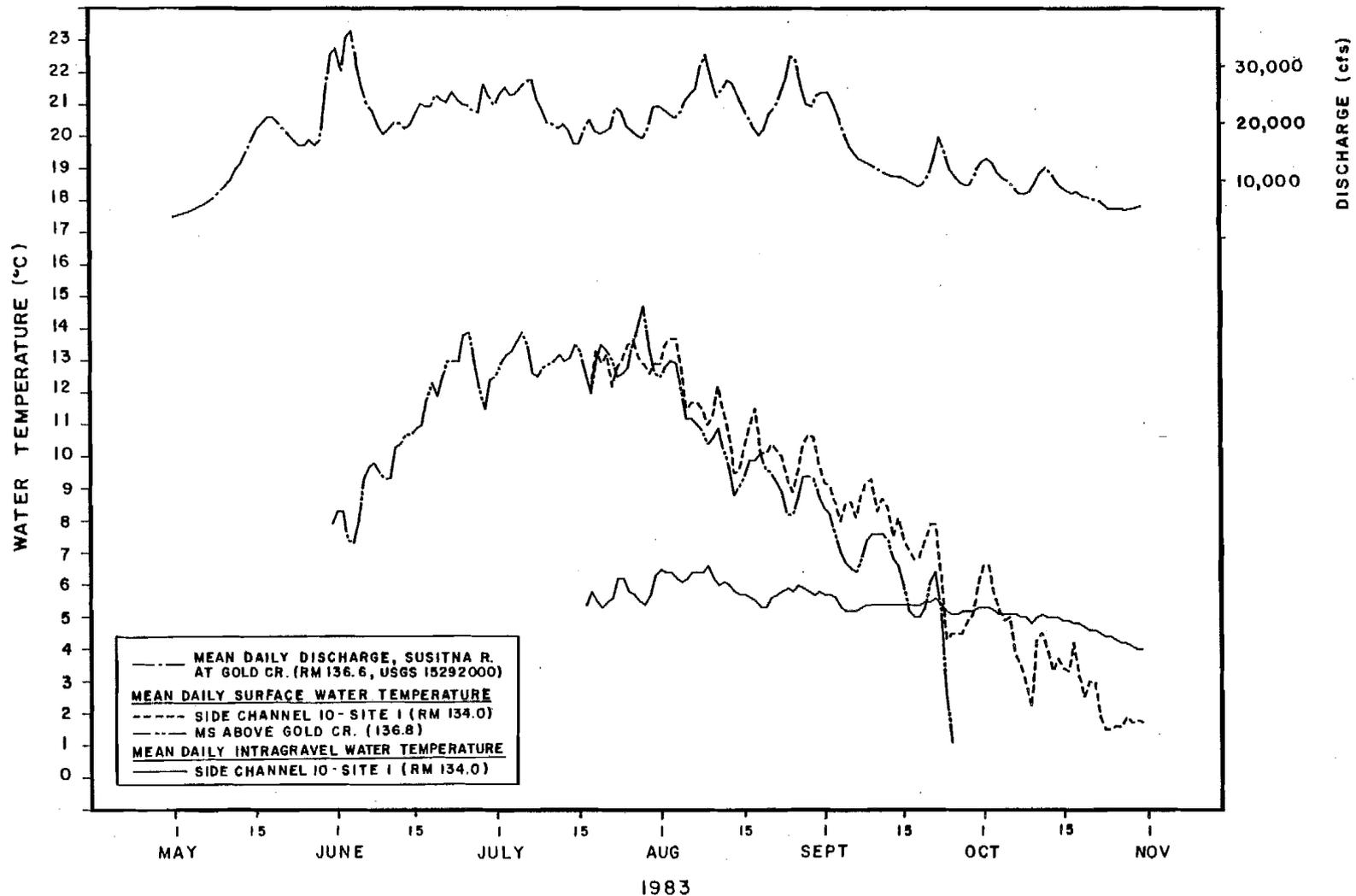


Figure 3-59 Mean daily surface water temperatures collected during the 1983 open water season at Mainstem Susitna River above Gold Creek (RM 136.8), mean daily surface and intragravel water temperatures collected at Side Channel 10 - Site 1 (RM 134.0) and mean daily Susitna River discharge at Gold Creek (USGS gaging station 15292000).

temperatures recorded in Side Channel 10 were colder than the surface temperature until late September and the fluctuations were minimal. In October intragravel water temperatures in the side channel were warmer than the surface water temperatures recorded in the side channel or in the mainstem.

3.5.2.2 Upper Side Channel 11 (RM 136.3) and Mainstem Susitna River Above Gold Creek (RM 136.8)

A comparison of surface and intragravel water water temperatures recorded in Upper Side Channel 11 to mainstem surface water temperatures recorded upstream at the station above Gold Creek is presented in Figure 3-60. Surface water temperatures occurring in this side channel were similar to the mainstem Susitna River temperatures from mid-July to September. It has been determined that this side channel is breached at mainstem discharges of as low as 12,700 cfs (Chapter 1). During mid-July to September, the side channel was breached continuously.

In September, the temperature station in Upper Side Channel 11 was moved to a new location - Site 2. At this site surface temperatures in the side channel continued to be similar to mainstem temperatures until late September. During this time, however, the mean daily surface water temperature in the mainstem declined to 0.1°C, while the lowest mean daily side channel temperature was 2.0°C.

Intragravel water temperatures in the side channel were cooler than surface temperatures and showed little variation from late-July to September. When the temperature probes in Side Channel 11 were reinstalled at Site 2, the intragravel temperatures corresponded closely to side channel and mainstem surface temperatures. Mainstem data were not recorded in October.

3.5.2.3 Side Channel 21 (RM 141.0) and Mainstem Susitna River at LRX 57 (RM 142.3)

A plot of surface and intragravel water temperatures recorded in Side Channel 21 and mainstem surface and intragravel water temperatures recorded at LRX 57 is presented in Figure 3-61. In late August and early September, surface and intragravel temperatures recorded at Side Channel 21 - Site 1 correspond closely to intragravel and surface water temperatures recorded at LRX 57. Generally, mainstem surface water temperatures were warmest and side channel intragravel temperatures were coolest.

The temperature recorders in the mainstem and the side channel were relocated to new sites in mid-September. In late September and October, intragravel temperatures recorded in the side channel showed smaller fluctuations than did side channel surface temperatures or mainstem temperatures. Although the side channel surface temperatures were generally warmer, surface temperatures in the side channel showed trends similar to mainstem temperatures.

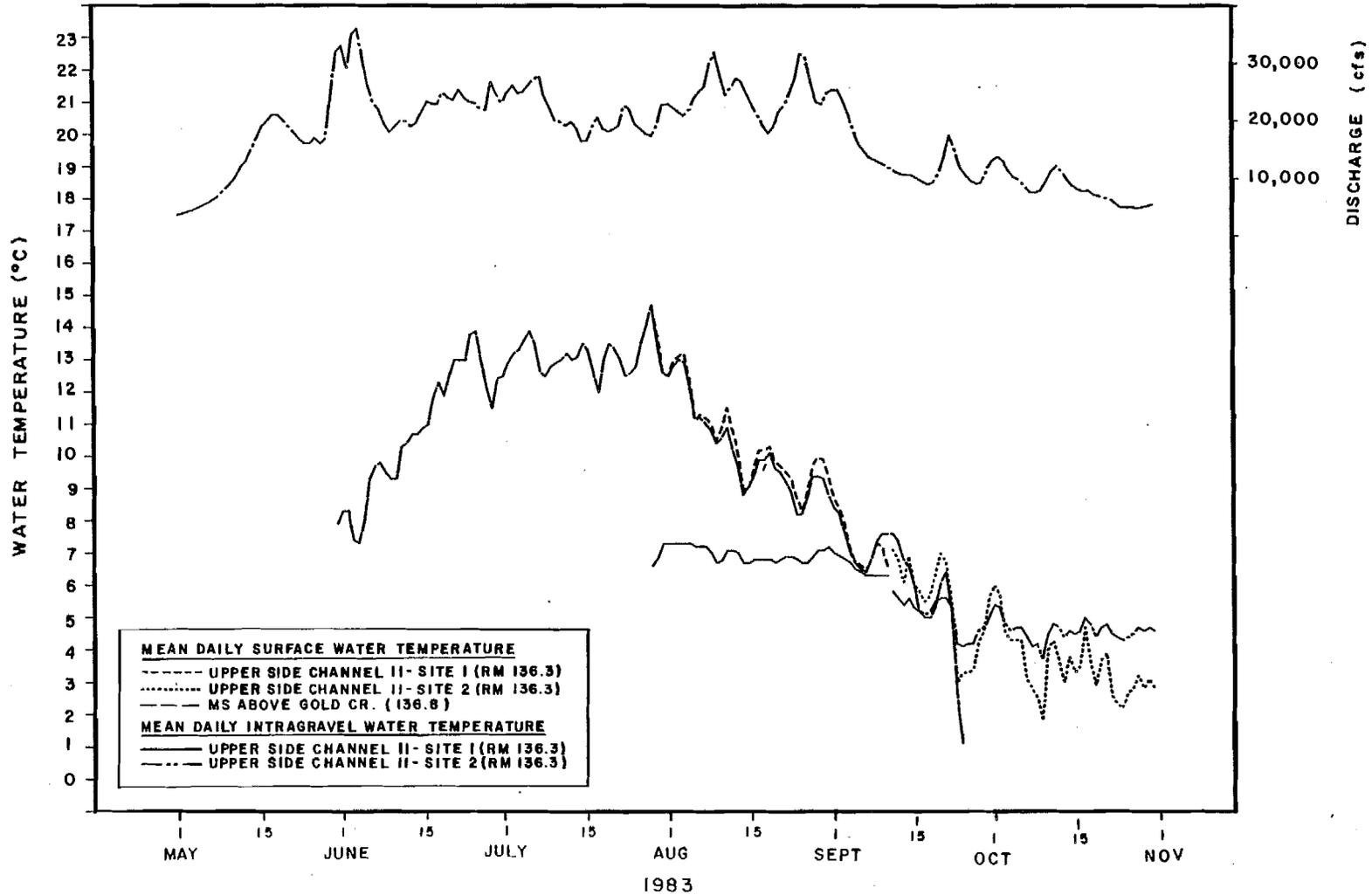


Figure 3-60. Mean daily surface water temperatures collected during the 1983 open water season at Mainstem Susitna River above Gold Creek (RM 136.8), mean daily intragravel and surface water temperatures collected at Upper Side Channel 11 - Sites 1 and 2 (RM 136.3) and mean daily Susitna River discharge at Gold Creek (USGS gaging station 15292000).

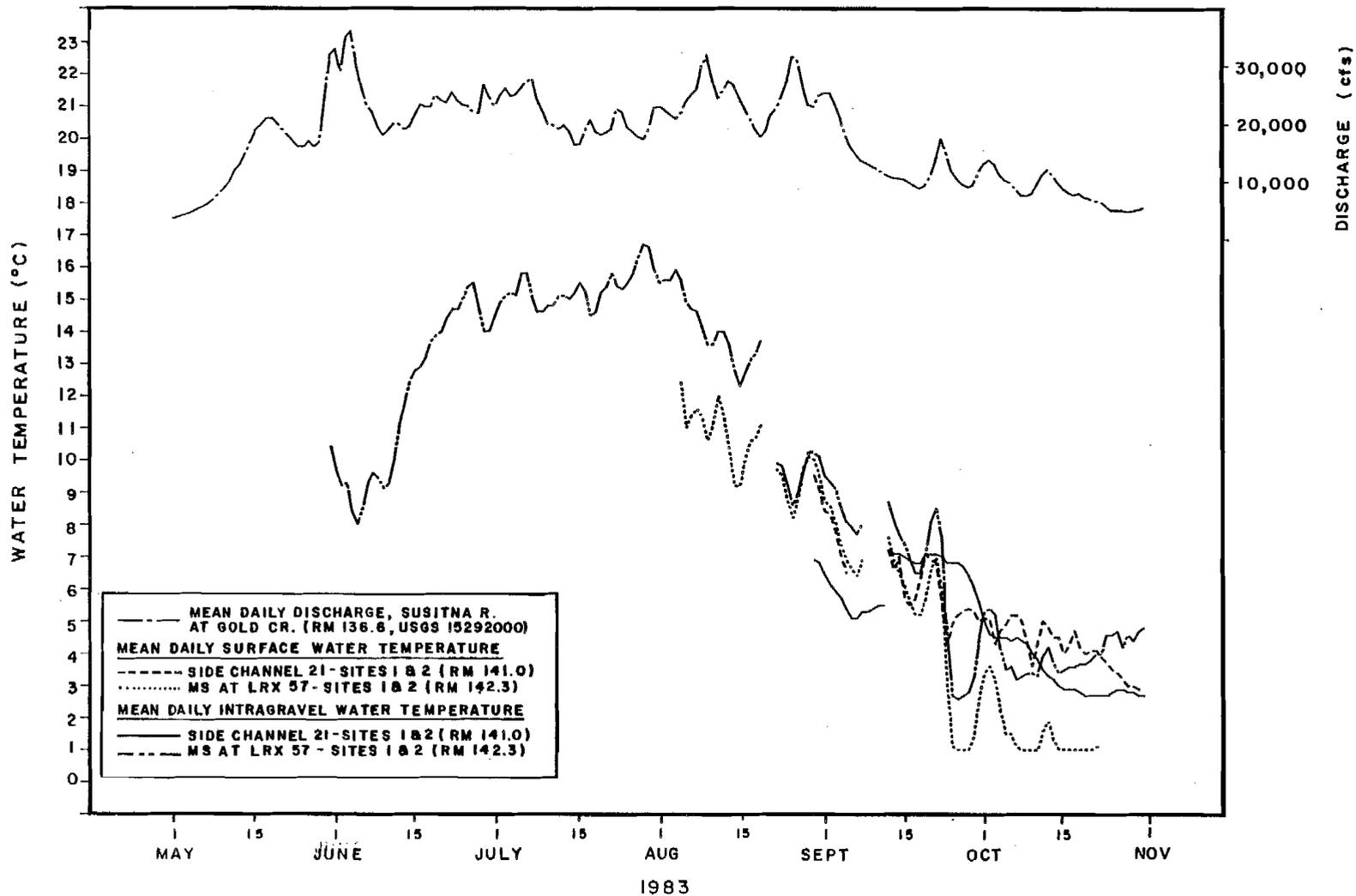


Figure 3-61 Mean daily intragravel and surface water temperatures collected during the 1983 open water season at Side Channel 21 - Sites 1 and 2 (RM 141.0), at Mainstem Susitna River LRX 57 - Site 1 and 2 (RM 142.3), and mean daily Susitna River discharge at Gold Creek (USGS gaging station 15292000).

3.5.3 Mainstem Susitna River and Sloughs

Temperatures recorded at Lower Slough 8A, Upper Slough 8A, Slough 9, Slough 19, Lower Slough 21 and Upper Slough 21 were compared to Mainstem Susitna River temperatures.

3.5.3.1 Lower Side Slough 8A (RM 125.6) and Mainstem Susitna River at LRX 29 (RM 126.1)

A comparison of surface and intragravel temperatures recorded in Lower Side Slough 8A to mainstem surface and intragravel water temperatures recorded at LRX 29 is presented in Figure 3-62. Surface and intragravel water temperatures recorded at the mainstem station were generally similar to the surface water temperatures recorded in Lower Side Slough 8A - Site 2. Intragravel water temperatures in Side Slough 8A - Site 2 showed very little variation during the period of record from May to mid-August.

The temperature station in Lower Slough 8A was moved to Site 3 in August. The intragravel water temperatures recorded at the new slough temperature station corresponded closely to the slough surface water temperatures and to mainstem surface and intragravel temperatures throughout most of September. From late September through October intragravel and surface temperatures recorded in the slough were warmer and showed greater fluctuations than surface and intragravel temperatures obtained in the mainstem.

3.5.3.2 Upper Side Slough 8A-Site 2 (RM 126.6) and Mainstem Susitna River at LRX 29 (RM 126.1)

A comparison of surface and intragravel temperatures recorded in Upper Side Slough 8A to mainstem surface and intragravel water temperatures at LRX 29 is presented in Figure 3-63. Both the surface and intragravel water temperatures recorded in the upper portion of the slough at Upper Side Slough 8A - Site 2 were substantially lower than the mainstem surface and intragravel water temperatures recorded at LRX 29. Maximum surface water temperature obtained at this slough station was 12.8°C, while the maximum mainstem surface temperature was 15.8°C. Maximum intragravel temperatures recorded at Upper Slough 8A and at the mainstem at LRX 29 were 6.0°C and 14.4°C, respectively. The upper portion of Side Slough 8A is estimated to breach at mainstem discharge levels of 33,000 cfs.

3.5.3.3 Slough 9 (RM 128.6) and Mainstem Susitna River at LRX 29 (RM 126.1)

A comparison of surface and intragravel water temperatures recorded at Side Slough 9 to mainstem surface and intragravel water temperatures recorded at LRX 29 is presented in Figure 3-64. LRX 29 is located approximately 2.5 mile downstream of Side Slough 9. However, the extensive period of record available (May through October) made LRX 29 the preferred mainstem site for comparison to Side Slough 9. Surface water temperatures in Side Slough 9 correspond closely to the surface and intragravel temperatures recorded in the mainstem at LRX 29 from

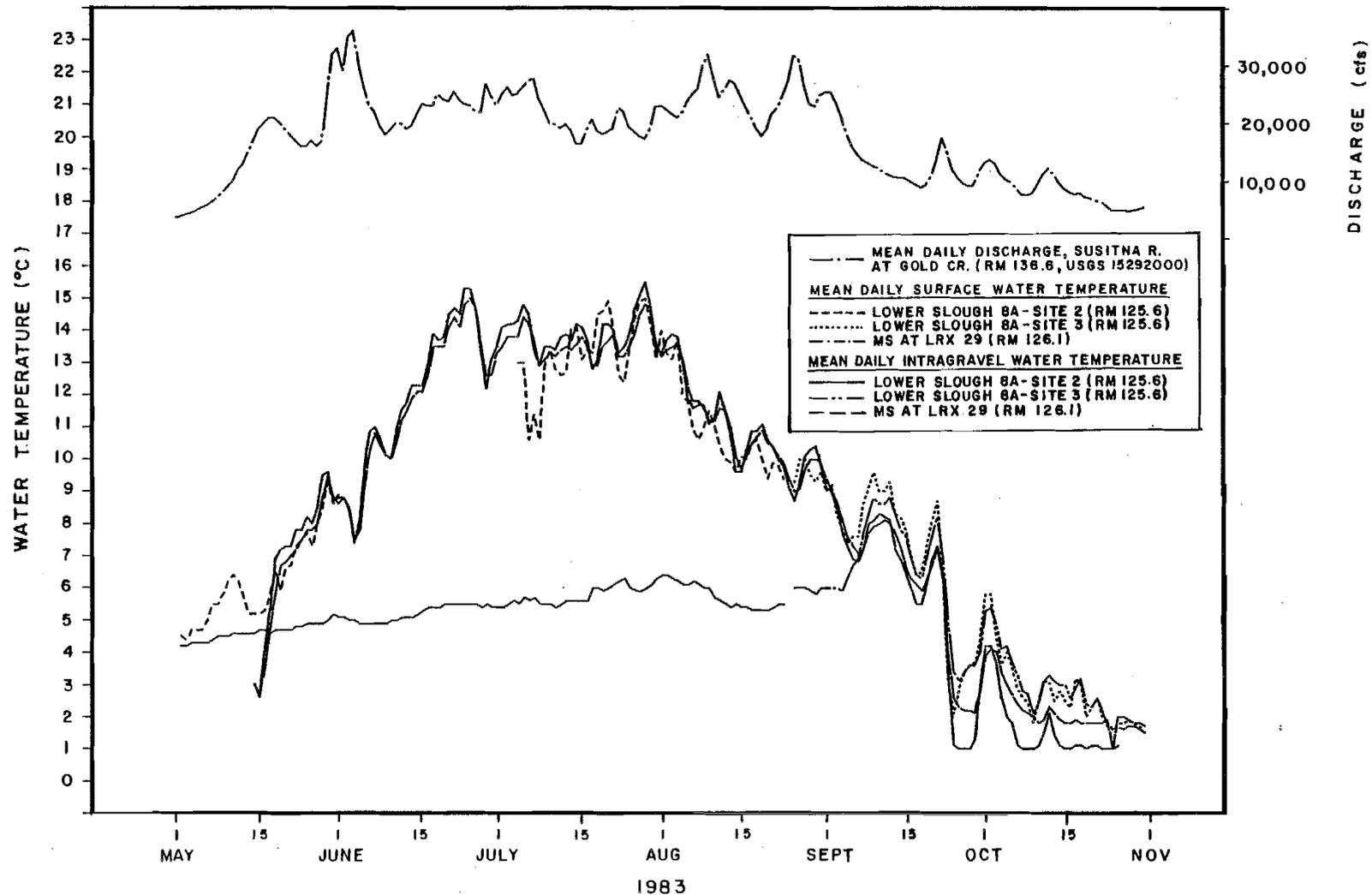


Figure 3-62 Mean daily intragravel and surface water temperatures collected during the 1983 open water season at Lower Slough 8A - Sites 2 and 3 (RM 125.6), at Mainstem Susitna River at LRX 29 - Sites 1 and 2 (RM 126.1), and mean daily Susitna River discharge at Gold Creek (USGS gaging station 15292000).

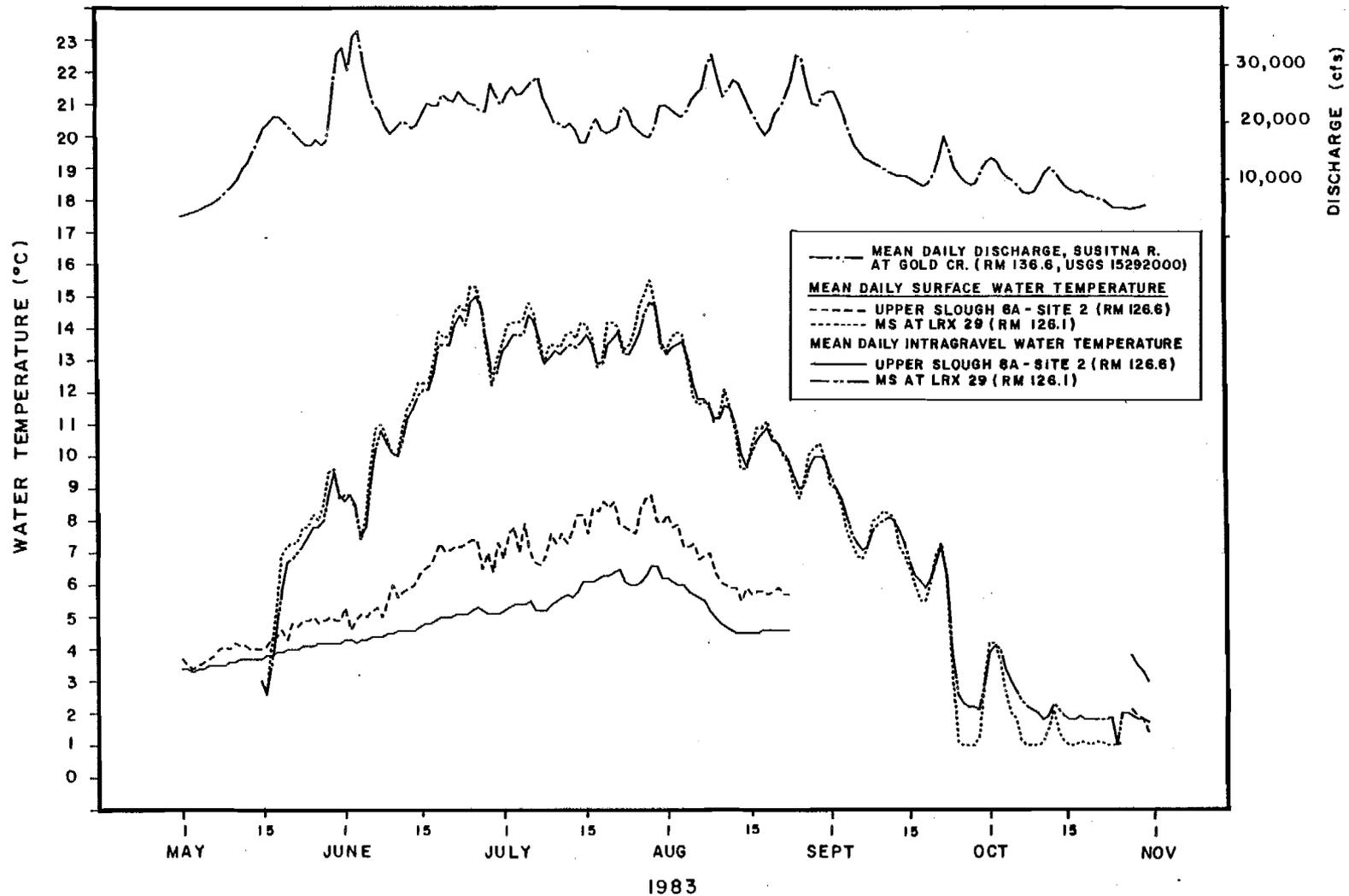


Figure 3-63. Mean daily intragravel and surface water temperature collected during the 1983 open water season at Upper Slough 8A - Site 2 (RM 126.6), Mainstem Susitna River at LRX 29 - Sites 1 and 2 (RM 126.1), and mean daily Susitna River discharge at Gold Creek (USGS gaging station 15292000).

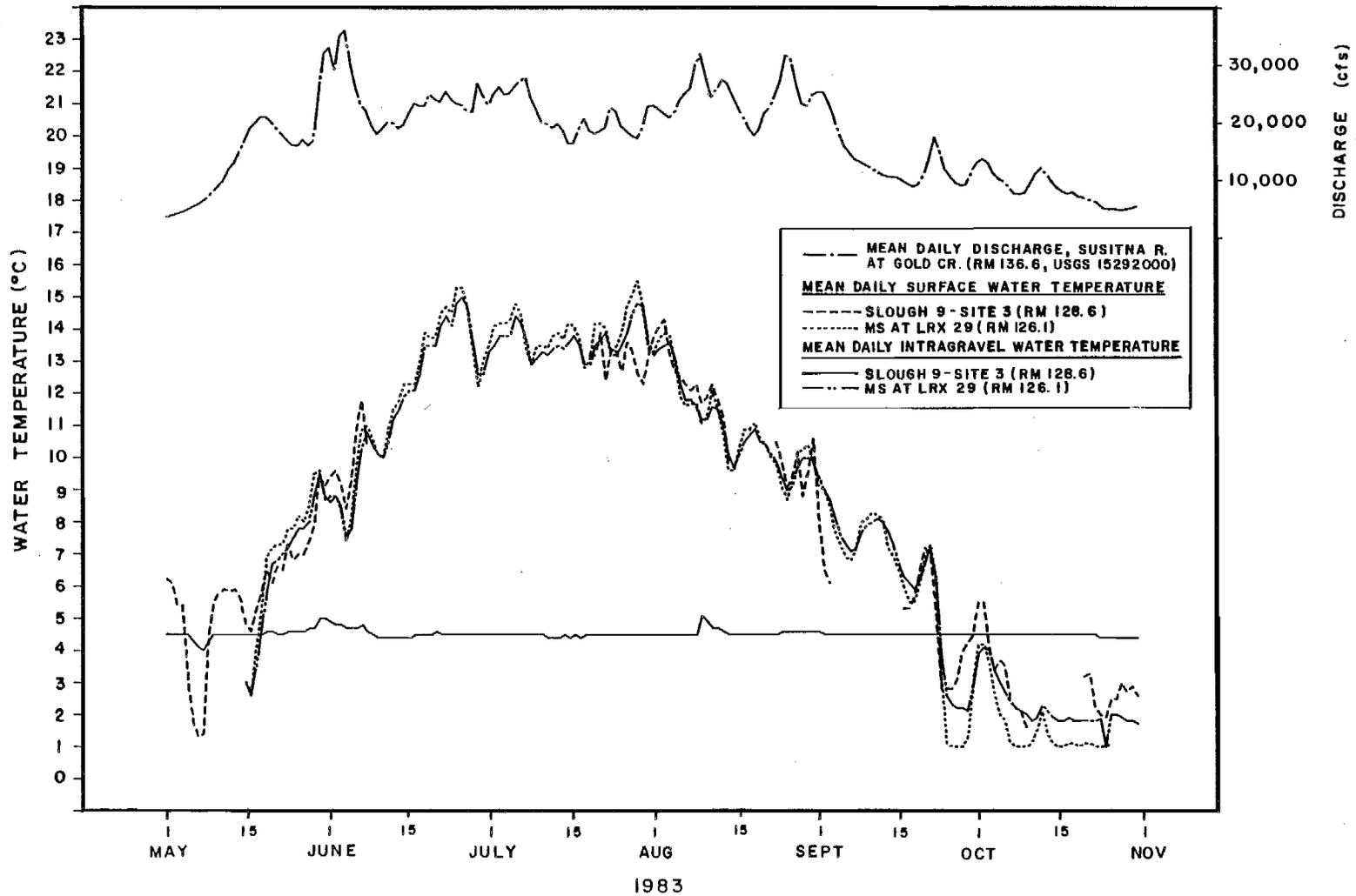


Figure 3-64. Mean daily intragravel and surface water temperatures collected during the 1983 open water season at Mainstem Susitna River at Slough 9 - Site 3 (RM 128.6), LRX 29 - Site 1 (RM 126.1), and mean daily Susitna River discharge at Gold Creek (USGS gaging station 15292000).

mid-May through late-August. Surface water temperatures recorded at Slough 9 were generally within 1°C of those recorded at LRX 29. During September and October there was more variation between slough surface water temperatures, and mainstem surface and intragravel temperatures. However, slough surface temperatures were generally the warmest. It has been determined that Slough 9 is substantially breached by mainstem discharges exceeding 19,000 cfs.

Intragravel water temperatures in Side Slough 9 showed very little variation from May through October. The intragravel water temperatures in the slough did not correspond directly to Slough 9 surface or mainstem surface water temperatures.

3.5.3.4 Slough 11 (RM 135.7) and Mainstem Susitna River at LRX 29 (RM 126.1)

A comparison of surface and intragravel water temperatures recorded in Side Slough 11 to mainstem surface and intragravel water temperatures recorded at LRX 29 is presented in Figure 3-65. LRX 29 is approximately 9.5 miles downstream of Side Slough 11 but was chosen as the representative mainstem surface water temperature site because of the extensive period of record (May through October) available. Surface water temperatures in Side Slough 11 correspond to mainstem surface water temperatures only in late September and October. During this time surface temperatures in the slough were generally warmer than mainstem temperatures. Side Slough 11 was never breached in 1983.

3.5.3.5 Upland Slough 19 (RM 140.0) and Mainstem Susitna River at LRX 57 (RM 142.3)

A comparison of surface and intragravel water temperatures recorded in Upland Slough 19 to mainstem surface and intragravel water temperatures recorded at LRX 57 is presented in Figure 3-66. Surface and intragravel temperatures recorded in Upland Slough 19 do not correspond to mainstem temperatures. During the open water season, intragravel and surface water temperatures in Slough 19 were generally stable while mainstem temperatures showed greater fluctuations. Between May and October mean daily surface water temperatures recorded in Upland Slough 19 varied between 3.4 and 6.4°C.

3.5.3.6 Side Slough 21 (RM 141.8) and Mainstem Susitna River at LRX 57 (RM 142.3)

A comparison of surface and intragravel water temperatures recorded in Side Slough 21 to mainstem surface and intragravel water temperatures recorded at LRX 57 was made. Surface and intragravel water temperatures were obtained at two locations in Side Slough 21: Lower Side Slough 21 (Figure 3-67) and Upper Side Slough 21 (Figure 3-68). A review of Figure 3-67 shows that generally surface and intragravel water temperatures recorded in the slough were cooler than mainstem surface and intragravel water temperatures until October.

The intragravel temperatures recorded in Lower Side Slough 21 were stable throughout the open water season. However, although the actual

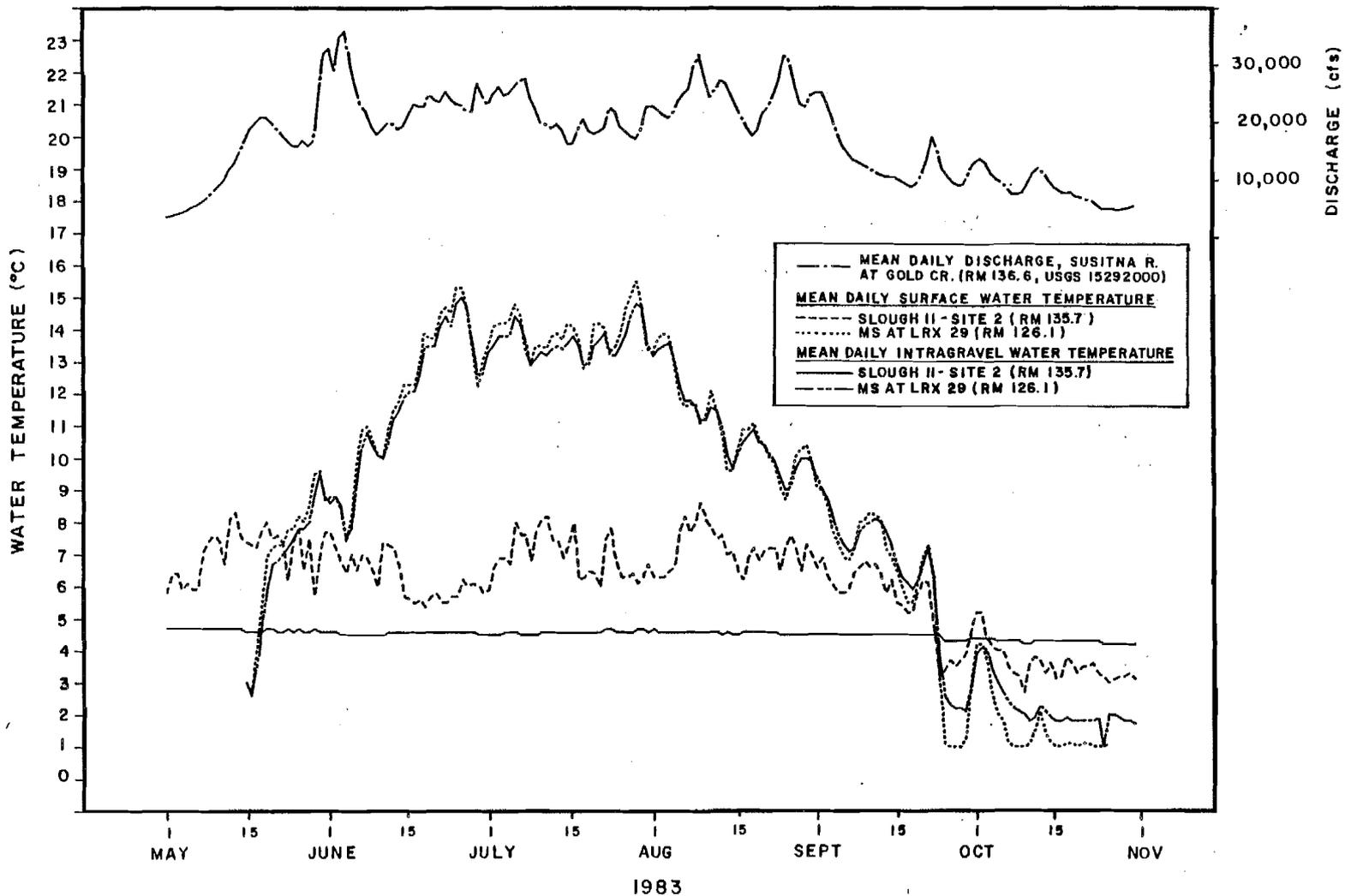


Figure 3-65. Mean daily intragravel and surface water temperatures collected during the 1983 open water season at Slough 11 - Site 2 (RM 135.7), Mainstem Susitna River at LRX 29 - Site 1 (RM 126.1), and mean daily Susitna River discharge at Gold Creek (USGS gaging station 15292000).

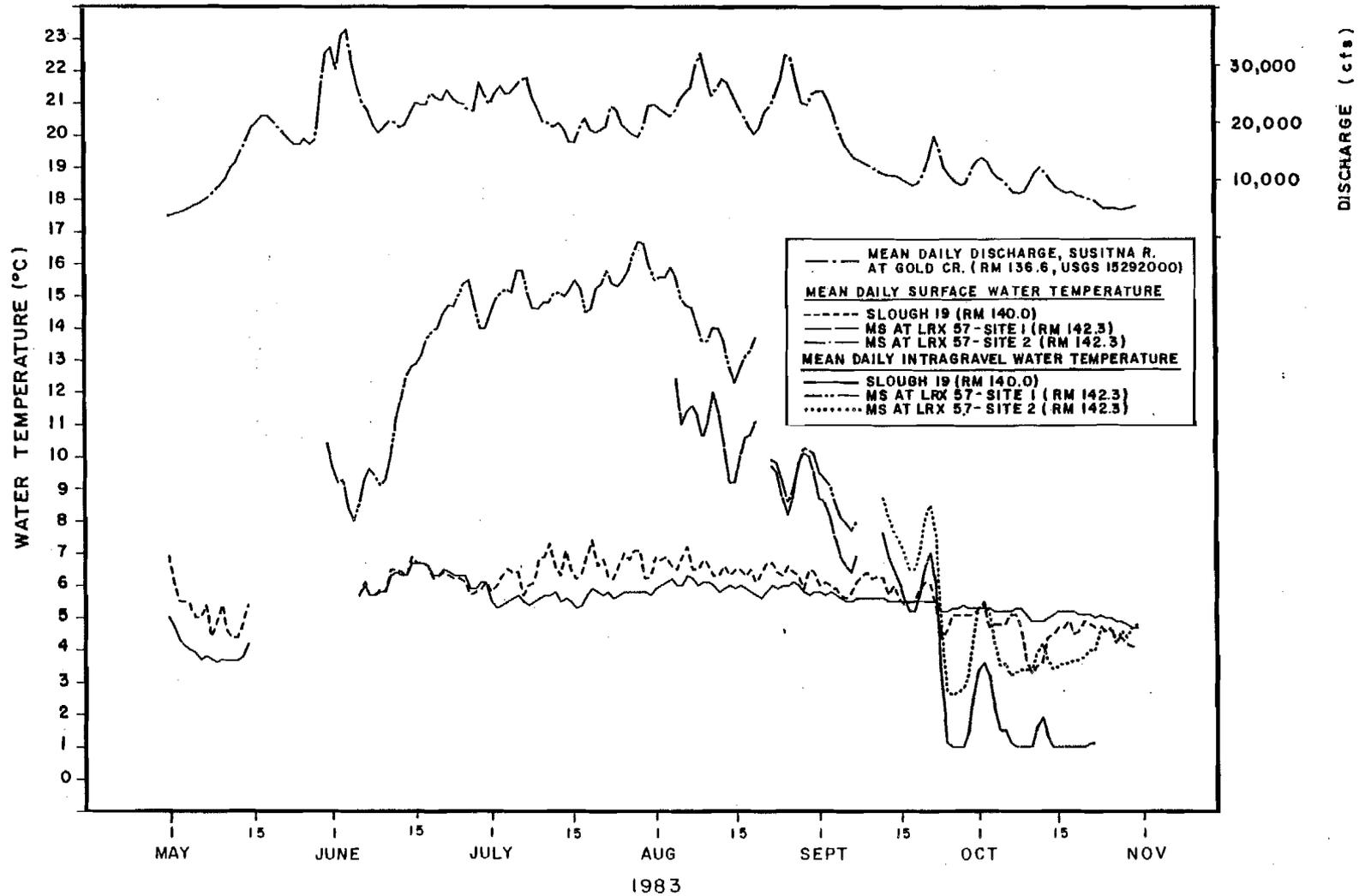


Figure 3-66. Mean daily intragravel and surface water temperatures collected during the 1983 open water season at Slough 19 (RM 140.0), Mainstem Susitna River at LRX 57 - Sites 1 and 2 (RM 142.3), and mean daily Susitna River discharge at Gold Creek (USGS gaging station 15292000).

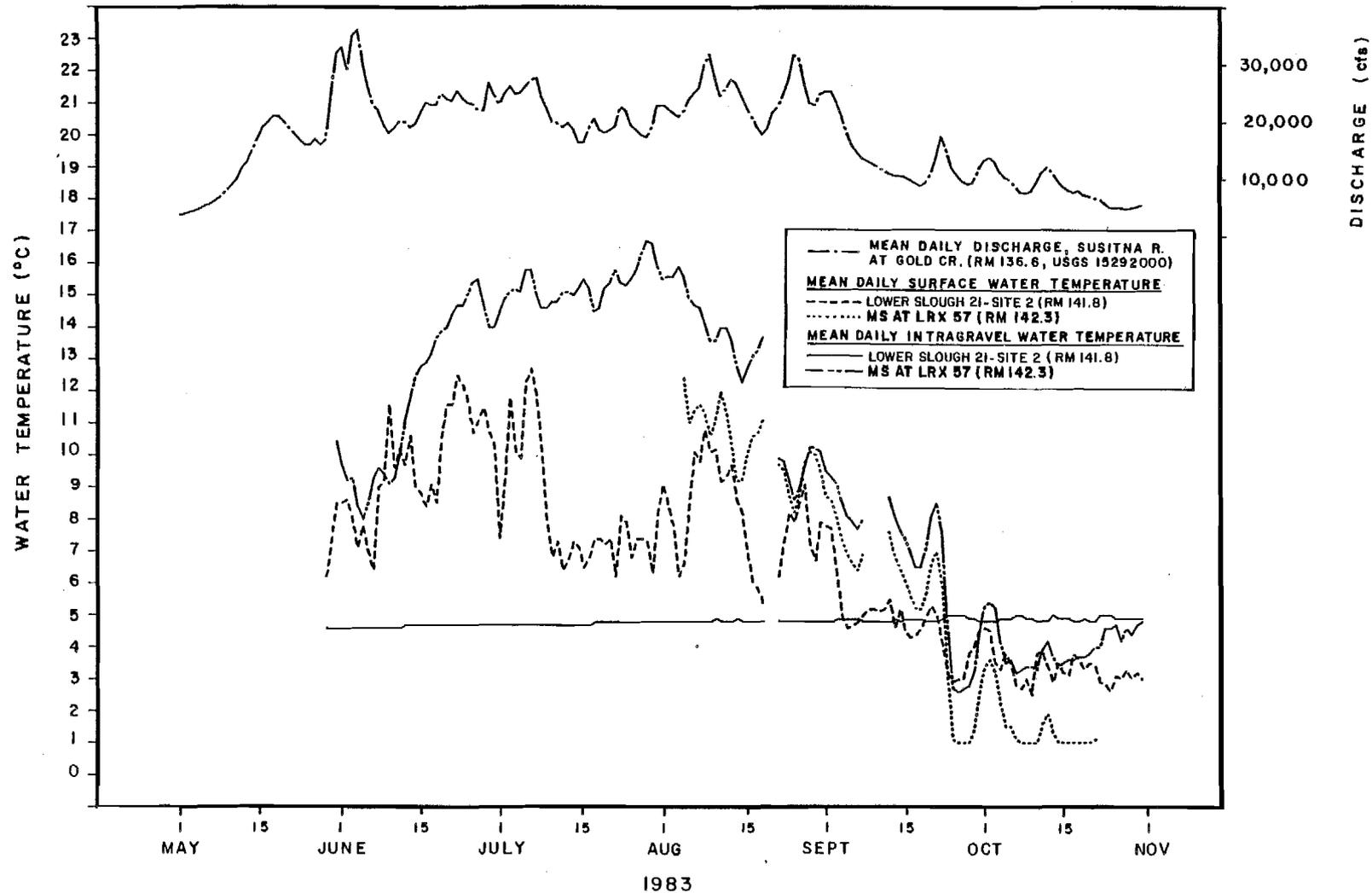


Figure 3-67 Mean daily intragravel and surface water temperatures collected during the 1983 open water season at Lower Slough 21 - Site 2 (RM 141.8), Mainstem Susitna River at LRX 57 - Sites 1 and 2 (RM 142.3), and mean daily Susitna River discharge at Gold Creek (USGS gaging station 15292000).

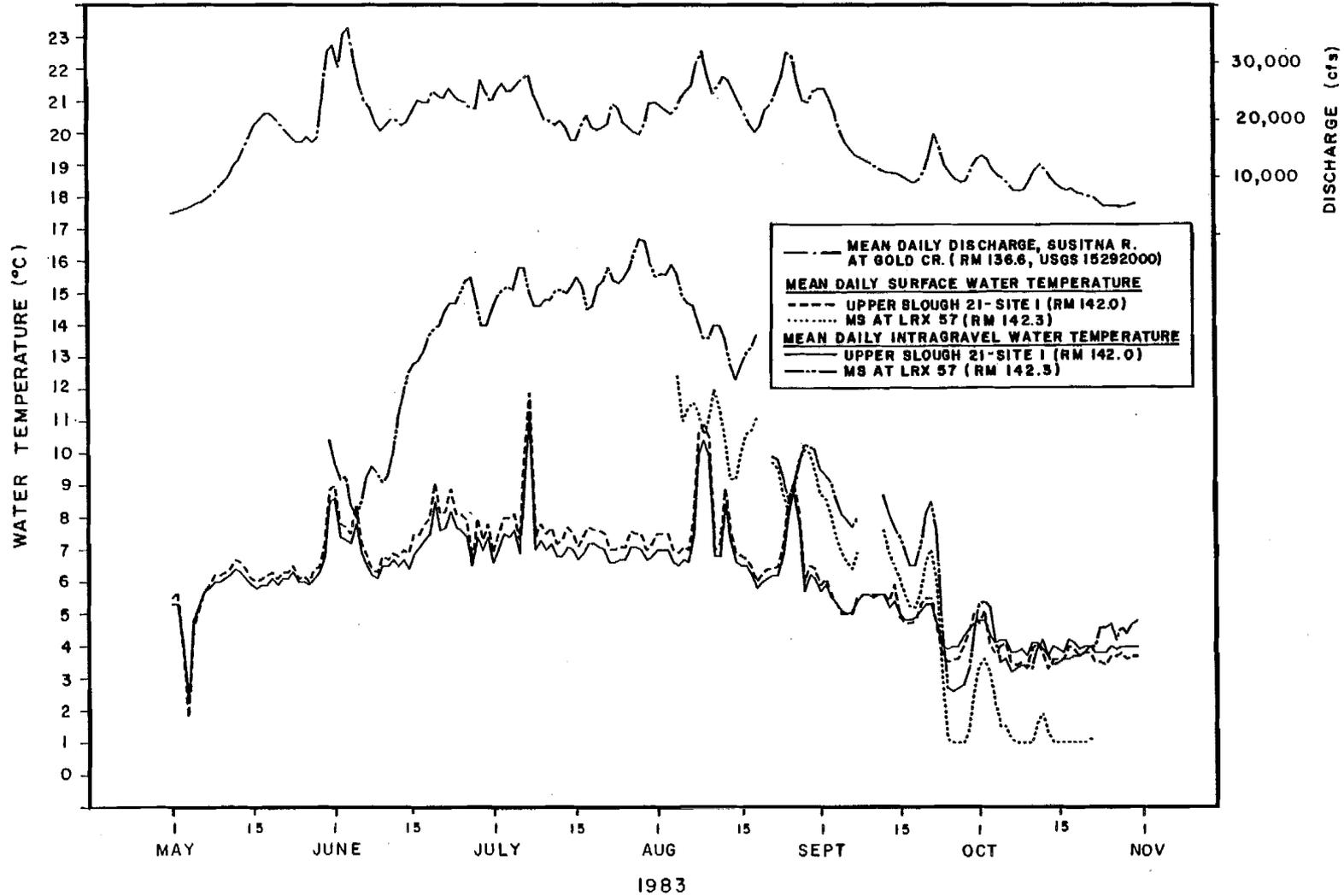


Figure 3-68 Mean daily intragravel and surface water temperatures collected during the 1983 open water season at Upper Slough 21 - Site 1 (RM 142.0), Mainstem Susitna River at LRX 57 - Sites 1 and 2 (RM 142.3), and mean daily Susitna River discharge at Gold Creek (USGS gaging station 15292000).

temperatures values differed, surface water temperatures recorded in the slough generally followed a trend similar to the mainstem intragravel and surface water temperatures. This relationship is clearly evident in late September and October.

The surface and intragravel water temperatures recorded in Upper Side Slough 21 were also cooler than mainstem temperatures recorded at LRX 57 until late September. In late September and October, slough intragravel and surface temperatures were comparable to surface and intragravel temperatures recorded in the mainstem. However, mainstem surface water temperatures were much cooler than the mainstem intragravel or slough temperatures.

3.5.4 Susitna River Side Channels and Sloughs

3.5.4.1 Upper Side Channel 11 (RM 136.3) and Side Slough 11

A comparison of surface and intragravel water temperatures recorded in Upper Side Channel 11 to those obtained in Side Slough 11 is presented in Figure 3-69. The range of surface water temperatures recorded in the side channel is wider than the slough temperature range. Intragravel temperatures in the slough were stable throughout the open water season and are not directly comparable to side channel or slough surface temperatures.

Intragravel water temperatures recorded at the side channel temperature station were similar to the surface water temperatures recorded in the slough for much of July to late-September. In late September and October the slough surface water temperatures and the surface and intragravel temperatures recorded in the side channel showed similar trends. However, the intragravel temperatures recorded in the side channel were warmest.

3.5.4.2 Side Channel 21 (RM 141.0) and Side Slough 21 (RM 141.8)

Surface and intragravel water temperatures recorded in Side Channel 21 were compared to temperatures recorded in Side Slough 21 (Figure 3-70 and 3-71). The limited intragravel temperature data available for Side Channel 21 shows that the intragravel water temperatures in the side channel were warmer than intragravel temperatures occurring in the slough in late September, and cooler than slough temperatures in October (Figure 3-70).

The surface water temperature data for Side Channel 21 is available only from late-August, and from early September through October. Generally surface water temperatures recorded in the side channel were warmer than surface water temperatures recorded in the slough.

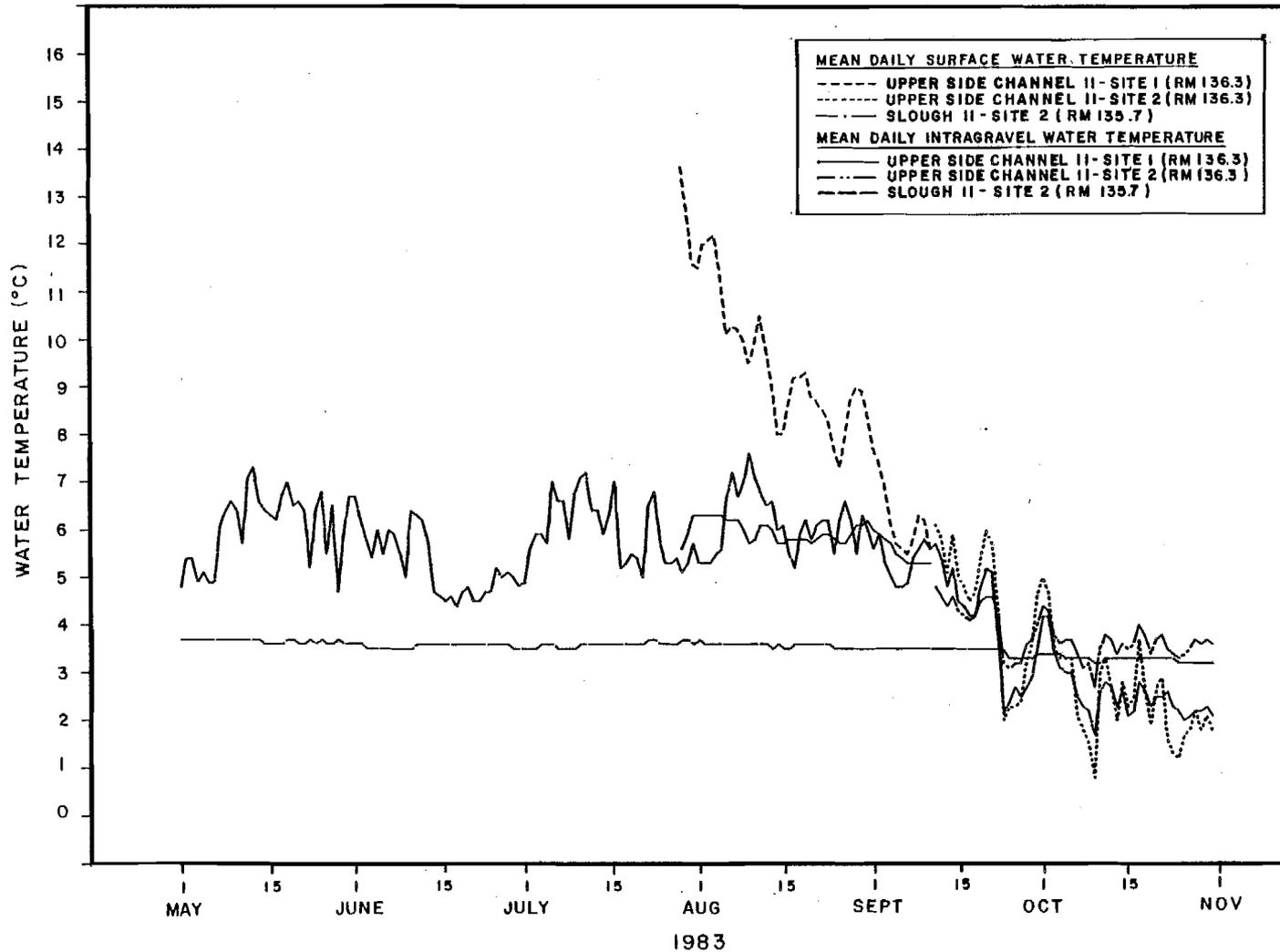


Figure 3-69. Mean daily intragravel and surface water temperatures collected during the 1983 open water season at Upper Side Channel 11 - Sites 1 and 2 (RM 136.3), and at Slough 11 - Site 2 (RM 135.7) during the 1983 open water season.

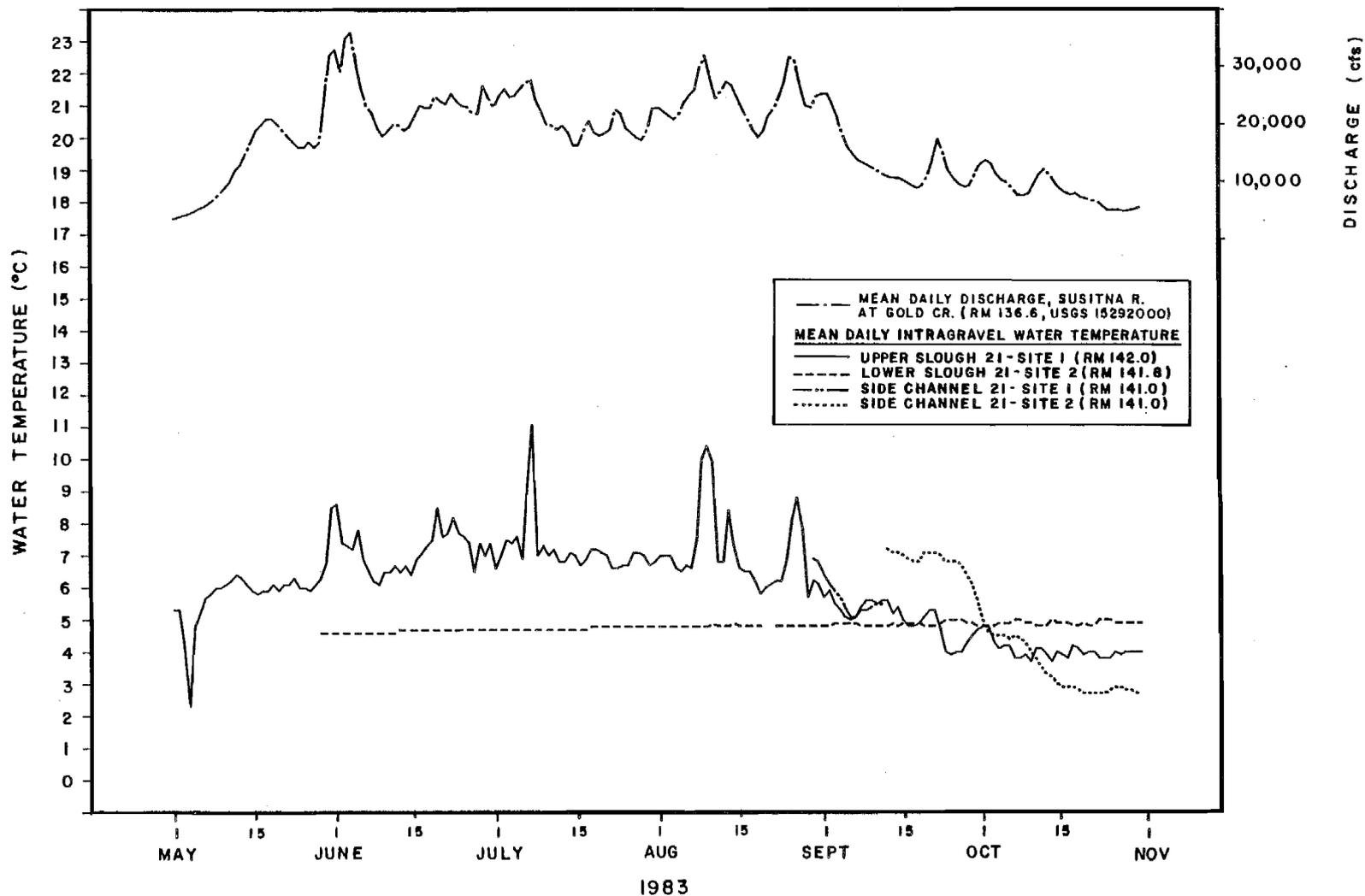


Figure 3-70 Mean daily intragravel water temperatures collected during the 1983 open water season at Upper Slough 21 - Site 1 (RM 142.0), Lower Slough 21 - Site 2 (RM 141.8), Side Channel 21 - Sites 1 and 2 (RM 141.0), and mean daily Susitna River discharge at Gold Creek (USGS gaging station 15292000).

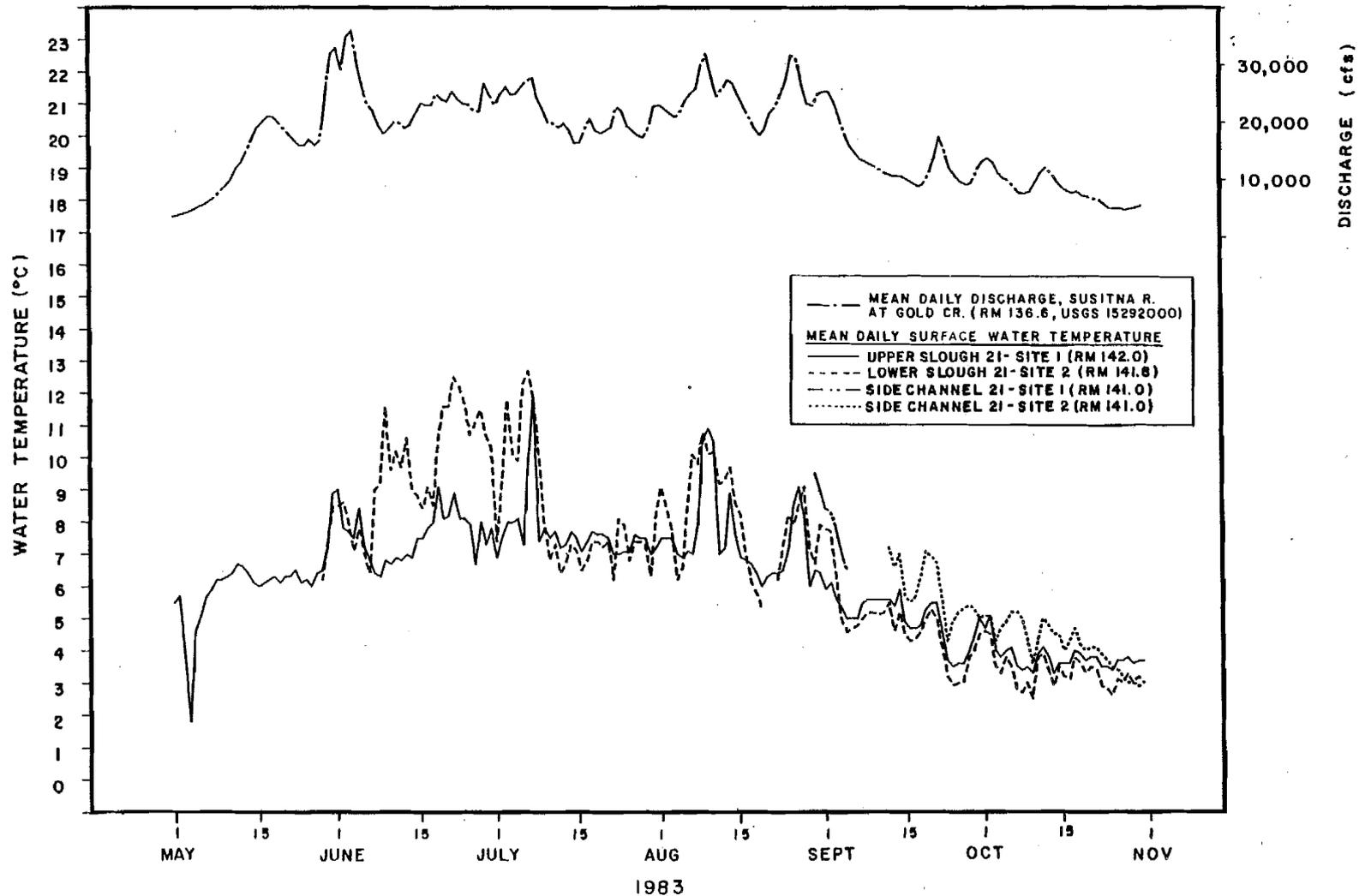


Figure 3-71. Mean daily water temperatures collected during the 1983 open water season at Upper Slough 21 - Site 1 (RM 142.0), Lower Slough 21 - Site 2 (RM 141.8), Side Channel 21 - Sites 1 and 2 (RM 141.0), and mean daily Susitna River discharge at Gold Creek (USGS gaging station 15292000).

4.0 DISCUSSION

4.1 Mainstem Habitat

4.1.1 Lower Reach - Estuary (RM 4.5) to Parks Highway Bridge (RM 83.9)

Surface water temperature monitoring stations were established in this reach of the Susitna River primarily to support the eulachon study. Therefore, surface water temperature data were not collected continuously during the 1983 open water season at many of the monitoring stations. The limited data available from May to mid-June indicate that during this time downstream surface water temperature trends are not apparent. This may be due in part to the variable periods of record or because the temperature stations were established at eulachon study areas which may not have been representative temperature sites.

From mid-June through July surface water temperature data was recorded at four monitoring stations located at Flathorn station (RM 18.2), Susitna Station (RM 25.8), above the Deshka River (RM 41.1) and at the Parks Highway Bridge (RM 83.9). During this time temperatures generally increased downstream. Only the data recorded at Susitna Station does not fit this temperature trend. The temperatures recorded at Susitna Station (RM 25.8) are cooler than those recorded above the Deshka River (RM 41.1). This is likely due to cooling caused by the influence of Yentna River which provides a substantial discharge to the Susitna River.

Temperatures were recorded at mainstem monitoring stations located above the Deshka River (RM 41.1) and at the Parks Highway Bridge from mid-June through October. From mid-June through August, surface water temperatures recorded above the Deshka River were warmer than those recorded at the Parks Highway Bridge. This increase in temperature is probably due to the influence of Delta Island complex which extends from river mile 43 to river mile 51. The complex divides the Susitna River into two main channels and a series of small islands and channels.

In September and October, surface water temperatures recorded at the two locations were similar. This is probably due to the decreased influence of air temperatures and solar radiation on surface water flowing through the Delta Islands.

4.1.2 Middle Reach - Parks Highway Bridge (RM 83.9) to Devil Canyon (RM 150.0)

Surface Water Temperature

Surface water temperatures recorded in the Susitna River generally increased downstream from Devil Canyon (RM 150.0) to the Talkeetna Fishwheel Camp (RM 103.0). Surface water temperatures recorded at the Parks Bridge (RM 83.9) were colder, reflecting the influence of the Talkeetna and Chulitna Rivers.

Mean monthly temperatures for June and August recorded at the mainstem station above Gold Creek are lower than upstream temperatures. This may be due in part to the influence of the Indian River thermal plume on mainstem temperatures at this location.

Surface water temperatures were recorded at river mile 135.8 in association with dissolved gas. The warmer temperatures recorded at this site may be attributed to the accuracy or calibration of the temperature probe.

The surface water temperatures recorded in the mainstem Susitna River at Gold Creek Bridge (RM 136.6) were colder because the probe was located in the Gold Creek thermal plume. The data were collected in this location to aid in the evaluation of previous temperature data collected by the USGS at the Gold Creek Station (USGS 15292000), which had also been located in the Gold Creek thermal plume.

Intragravel Water Temperatures

Intragravel temperatures recorded at LRX 9 (RM 103.3), LRX 29 (RM 126.1) and LRX 57 (RM 142.3) all exhibit similar temperature patterns; however, actual temperatures varied among the three stations. The warmest intragravel water temperatures were recorded at the most upstream site, LRX 57, and the coolest were recorded at the most downstream site, LRX 9.

Only at LRX 29 did intragravel temperatures correspond closely to surface water temperatures. Intragravel and surface temperatures at LRX 9 were similar; however, intragravel temperatures were lower indicating the influence of the substrate on intragravel temperatures. At LRX 57 intragravel water temperatures were consistently warmer than surface water temperatures indicating that either the intragravel mainstem water source differs from that of the surface water or the substrate conditions are influencing the intragravel temperatures. This phenomenon was noted in September, 1983. At this time both the temperature probes and the recording instrument were evaluated and found to be operating correctly. The increase in intragravel temperatures at LRX 57 in October may, however, be due to drift in a temperature probe.

4.1.3 Upper Reach - Devil Canyon (RM 150.0) to Above the Oshetna River (RM 234.9)

Surface water temperatures were monitored at two locations upstream of Devil Canyon during the 1983 open water season. Above the Oshetna River (Site 1, RM 234.9; Site 2, RM 235.7) and above Tsusena Creek (RM 181.9). Generally, surface water temperatures were warmer at the downstream site located above Tsusena Creek. The increased temperatures are primarily the result of the influence of several small tributaries. Temperatures recorded at Devil Canyon (RM 150.0) were similar to those recorded above Tsusena Creek throughout the 1983 open water season.

4.2 Side Channel and Side Slough Habitats

Surface and intragravel water temperatures were obtained at side channel and side slough habitats located in the reach of Susitna river from Talkeetna to Devil Canyon. A major characteristic of these two habitat types is that at various mainstem discharges, mainstem water breaches or enters these habitats at their head portions. When these habitats are not breached by mainstem discharges the flow is primarily generated by surface water runoff and groundwater flow. Temperatures are influenced by solar radiation and groundwater. When breaching provides a sufficient volume of mainstem water to the slough or side channel, temperatures parallel the mainstem temperature. Side channel habitats are overtopped more often than side sloughs. Therefore, temperatures in side channels are more often similar to mainstem temperatures.

Surface water temperatures recorded in Side Channel 10 (RM 134.0) correspond closely to mainstem temperatures when the side channel is breached by mainstem flows of 19,000 cfs or greater (see Chapter 1). Intragravel temperatures recorded in Side Channel 10 do not correspond to surface water temperatures indicating that the intragravel temperatures were probably located in an area of groundwater upwelling.

Upper Side Channel 11 is breached by mainstem discharges as low as 12,700 cfs. During mid-July to September this side channel was continuously breached, and mainstem and side channel temperatures corresponded closely. In late September and October more variability between mainstem and side channel temperatures is evident. This is primarily attributed to the reduced frequency of mainstem breaching discharges.

Intragravel water temperatures recorded at Upper Side Channel 11 from July to early September were not similar to surface water temperatures indicating the influence of groundwater. In early September the temperature probes were relocated to Site 3. The intragravel temperatures then corresponded to surface temperatures showing the variability in intragravel temperatures within a side channel.

The effects of mainstem temperatures on temperatures recorded in Side Channel 21 is evident through September.

Surface water temperatures recorded in Lower Side Slough 8A reflect mainstem surface water temperatures because the location of the temperature monitoring station was influenced by mainstem backwater effects. The intragravel temperature monitoring station in Lower Slough 8A was not influenced by mainstem or slough surface water temperatures. The intragravel temperatures are likely the result of groundwater upwelling. When the intragravel station was relocated to a new site, the effects of mainstem temperatures on the intragravel temperatures in the slough are apparent. Again the variation in temperatures occurring within a slough is seen.

A mainstem discharge of greater than 33,000 cfs is estimated to breach the upper portion of Side Slough 8A and influence the temperatures recorded at the monitoring station located in Upper Side Slough 8A.

Surface water temperatures recorded in Side Slough 9 correspond closely to mainstem temperatures from mid-May through August. A mainstem discharge necessary to breach the slough (19,000 cfs) occurred frequently throughout this period. More variation in slough and mainstem temperatures occurred in September and October when discharges decreased. Intragravel temperatures recorded in Slough 9 exhibited little variation throughout the open water season. The intragravel temperature probe was apparently located in an area of groundwater upwelling.

Surface and intragravel water temperatures recorded in Slough 11 differed from mainstem temperatures. Slough 11 was never breached during the 1983 open water season.

Surface water temperatures recorded at Lower Side Slough 21 reflected the influence of mainstem temperatures directly when Channel A6 Upper breached. Intragravel temperatures recorded in Lower Side Slough 21 were not directly influenced by mainstem temperatures or discharges.

Surface and intragravel temperatures recorded at Upper Slough 21 were influenced by mainstem temperatures when Slough 21 NW Head breached. In early May a breaching event caused by breakup of the mainstem dramatically reduced surface and intragravel temperatures in Upper Side Slough 21.

4.3 Upland Slough Habitat

Upland Slough 19 maintained a narrow range of temperatures during the 1983 open water season indicating the lack of mainstem influences.

4.4 Tributary Habitats

Surface water temperatures recorded in the mainstem Susitna River directly reflect the influence of the lower surface water temperatures contributed by the Yentna River, Talkeetna River, and the Chulitna River. Although the temperature influence is less evident, tributaries contributing smaller volumes of water also affect mainstem surface water temperatures. Usually the clearwater plume of a smaller tributary is a good indicator of the effect of the tributary on mainstem water temperatures. The extent of the thermal plume depends upon tributary and mainstem discharge.

Although tributaries such as Portage Creek, the Chulitna River, Talkeetna River, and Indian River decreased mainstem temperatures during the warmer periods of the year, these tributaries can increase the mainstem temperatures during September or October.

The temperatures in the small tributaries located above Devil Canyon are largely affected by air temperature and solar radiation. The combined influence of these warmer tributaries contributes to the increase in downstream Susitna River temperatures occurring from above the Oshetna River to Devil Canyon.

The late fall intragravel temperatures recorded at Fourth of July Creek were as low as -0.3°C . These temperatures were probably the result of anchor ice which was observed on the stream bottom. Data is not available to explain the lag time which was observed between intragravel temperatures measured in Fourth of July Creek and those recorded in the plume.

The low temperatures recorded in Gold Creek (-0.5°C) were probably due to the accuracy of the temperature probe which is $\pm 0.5^{\circ}\text{C}$.

5.0 GLOSSARY

- Backwater Area** - A reach of stream with reduced or no velocity and a rise in stage resulting from a hydraulic or physical barrier. Backwater areas in habitats adjacent to the Susitna River usually are due to an increase in mainstem discharge and occur at the mouth of or within a side channel or slough.
- Breaching** - The overtopping of the head of a side channel or side slough by the mainstem river.
- Clearwater Plume** - the extension of the clearwater of a tributary into the turbid mainstem at and below the confluence of the two. Due to the different densities of the mainstem and tributary waters, these two water bodies do not readily mix, causing a clearly defined clearwater extension of the tributary along the river bank at and below the actual confluence. Size of the plume is a function of tributary flow and mainstem discharge.
- Datapod** - A dual channel, electronic instrument capable of simultaneously measuring and recording from each channel on a continuous basis. Datapods have been used to monitor stage, temperature and dissolved gas concentrations.
- Discharge** - Discharge, or streamflow, is defined as the volume rate of flow of water passing a specific location for a specific point in time. Dimensions are usually expressed as cubic feet per second (cfs). For the purpose of this report discharge will refer specifically to mainstem habitat and streamflow for side channel, slough and tributary habitats.
- DSM** - A non-volatile, ultraviolet (UV) erasable, solid state data storage module capable of storing approximately 3 months of stage, temperature or dissolved gas concentration data.
- Gaging Station** - A location which has been established for monitoring stage, flow and/or discharge.
- Habitat** - The surrounding environmental conditions to which a particular species and life stage of fish responds both behaviorally and physiologically.
- Head** - The upstream or point of origin of a lotic water body.
- Lower Reach (of the Susitna River)** - The segment of the Susitna River between Cook Inlet and the Chulitna River confluence. (See also middle reach and upper reach).
- Mainstem Habitat** - Consists of those portions of the Susitna River that normally convey water throughout the year. Both single and multiple channel reaches are included in this habitat category. Groundwater and tributary inflow appear to be inconsequential contributors to the overall characteristics of mainstem habitat. Mainstem habitat is typically characterized by high water velocities and well armored streambeds. Substrates generally consist of boulder

and cobble size materials with interstitial spaces filled with a grout-like mixture of small gravels and glacial sands. Suspended sediment concentrations and turbidity are high during summer due to the influence of glacial melt-water. Discharges recede in early fall and the mainstem clears appreciably in October. An ice cover forms on the river in late November or December.

Mean Daily Discharge - The computed mean mainstem discharge per 24 hour period for a USGS gaging station.

Middle Reach (of the Susitna River) - The segment of the Susitna River between the Chulitna River confluence and Devil Canyon. (See also lower reach and upper reach).

Monitoring Station - A station set up for the collection of a particular data base.

Mouth - The downstream confluence of a lotic water body with another water body.

Overtopping - See breaching.

Peripheral Habitats - Aquatic habitats adjacent to the mainstem Susitna River habitat (e.g. side channel, side slough, upland slough, tributary mouth and/or tributary habitats).

Side Channel Habitat - Consists of those portions of the Susitna River that normally convey water during the open water season but become appreciably dewatered during periods of low mainstem discharge. Side channel habitat may exist either in well defined overflow channels, or in poorly defined water courses flowing through partially submerged gravel bars and islands along the margins of the mainstem river. Side channel streambed elevations are typically lower than the mean monthly water surface elevations of the mainstem Susitna River observed during June, July, and August. Side channel habitats are characterized by shallower depths, lower velocities and smaller streambed materials than the adjacent habitat of the mainstem river.

Side Slough Habitat - is located in overflow channels between the edge of the floodplain and the mainstem and side channels of the Susitna River. It is usually separated from the mainstem and/or side channels by well vegetated bars. An exposed alluvial berm often separates the head of the slough from mainstem discharge or side channel flows. The controlling streambed/bank elevations at the upstream end of the side sloughs are slightly less than the water surface elevations of the mean monthly discharges of the mainstem Susitna River observed for June, July, and August. At intermediate and low-discharge periods, the side sloughs convey clear water from small tributaries and/or upwelling groundwater. These clear water inflows are essential contributors to the existence of this habitat

type. The water surface elevation of the Susitna River generally causes a backwater to extend well up into the slough from its lower end. Even though this substantial backwater exists, the sloughs function hydraulically very much like small stream systems and several hundred feet of the slough channel often conveys water independent of mainstem backwater effects. At high discharges the water surface elevations of the mainstem river is sufficient to overtop the upper end of the slough. Surface water temperatures in the side sloughs during summer months are principally a function of air temperature, solar radiation, and the temperature of the local runoff.

Stage - The height of the water surface above an established datum plane. Stage can be converted to true water surface elevation if the observations are converted into project datum.

Streamflow - Same as discharge but refers specifically to side channel, slough and tributary habitats whereas discharge denotes streamflow in mainstem habitats. See Discharge.

Tributary Habitat - Consists of the full complement of hydraulic and morphologic conditions that occur in the tributaries. Their seasonal flow, sediment, and thermal regimes reflect the integration of the hydrology, geology, and climate of the tributary drainage. The physical attributes of tributary habitat are not dependent on mainstem conditions.

Tributary Mouth Habitat - Extends from the uppermost point in the tributary influenced by mainstem Susitna River or slough backwater effects to the downstream extent of the tributary plume which extends into the mainstem Susitna River or slough.

Upland Slough Habitat - Differs from side slough habitat in that the upstream end of the slough does not interconnect with the surface waters of the mainstem Susitna River or its side channels even at high mainstem discharges. These sloughs are characterized by the presence of beaver dams and an accumulation of silt covering the substrate resulting from the absence of mainstem scouring discharges.

Upper Reach (of the Susitna River) - The segment of the Susitna River between Devil Canyon and the headwaters (See also lower reach and middle reach).

USGS Water Year - The USGS water year runs from October to September and the years designation is determined by the end of the period. The 1983 water year occurs from October 1 of 1982 to September 30 of 1983.



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Location	Instrument/ Temperature Type	Period of Record	ADF&G Su Hydro Report Sources			
			1981 Final Draft Report Vol. 2 Part 1	1983 Basic Data Report Vol. 4	1983 Winter Aquatic Studies	1984 Report No.3
Mainstem at the Estuary RM 4.5 S14N07W05ADB	Thermograph Surface	05/10/83-06/15/83				X
Alexander Creek RM 10.1 TRM 0.5 S15N07W05CBC	Thermograph Surface	06/06/81-10/09/81	X			
Mainstem above Alexander Creek RM 10.1 S15N07W05CDB	Thermograph Surface	06/06/81-09/01/81	X			
3-A-1 Mainstem at Flathorn Station RM 18.2 S16N07W15DDD	Thermograph Surface	06/02/83-07/22/83				X
Mainstem below Susitna Station RM 20.5 S16N07W08DDB	Thermograph Surface	05/23/83-06/02/83				X
Mainstem at Susitna Station RM 25.8 S17N07W22DCD	Thermograph Surface	05/16/82-06/10/82 05/25/83-07/22/83		X		X
Yentna River Site #1 RM 28.0 TRM 2.0 S17N07W01CAB (Previously RM 30.1)	Thermograph Surface	06/05/81-09/14/81	X			X
Site #2 RM 28.0 TRM 4.0 S18N07W34DBC	Thermograph Surface	06/08/82-09/27/82 10/04/82-10/11/82 06/15/83-10/07/83		X X		X
Mainstem above Yentna River RM 29.5 S17N06W07CAD (Previously RM 32.3)	Thermograph Surface	06/06/81-10/09/81 06/08/82-06/14/82 06/18/82-10/17/82 05/23/83-06/15/83	X	X X		X
Deshka River RM 40.6 TRM 1.2 S19N06W26CBB	Thermograph Surface	06/10/81-10/09/81	X			

Table 3-A-1 (Continued)

Location	Instrument/ Temperature Type	Period of Record	ADF&G Su Hydro Report Sources			
			1981 Final Draft Report Vol. 2 Part 1	1983 Basic Data Report Vol. 4	1983 Winter Aquatic Studies	1984 Report No.3
Mainstem above Deshka River RM 41.1 S19N06W26CBC	Thermograph Surface	06/15/83-10/07/83				X
Little Willow Creek RM 50.5 TRM 1.0 S20N05W23CBC	Thermograph Surface	06/24/81-09/30/81	X			
Mainstem above Little Willow Creek RM 50.5 S20N05W27BAC	Thermograph Surface	06/24/81-09/09/81 09/15/81-09/29/81	X X			
Mainstem above Kashwitna River RM 61.2 S21N05W13ABA	Thermograph Surface	08/30/81-09/27/81	X			
Montana Creek RM 77.2 TRM 0.0 S23N04W07AAB	Thermograph Surface	06/12/81-07/24/81 09/30/81-10/13/81	X X			
Mainstem above Montana Creek RM 77.5 S23N04W06CAA	Thermograph Surface	06/12/81-07/03/81 08/30/81-10/13/81	X X			
Mainstem at Parks Highway Bridge Site #1 East Shore RM 83.9 S24N05W15BAD	Thermograph Surface	06/11/81-07/14/81	X			
Site #2 West Shore RM 83.9 S24N05W15BAB	Thermograph Surface	06/08/82-07/09/82		X		
Site #3 East Shore RM 83.9 S24N05W15BAD	Thermograph Surface	08/22/82-10/26/82 05/25/83-08/22/83 09/10/83-10/12/83		X		X X
Mainstem - LRX1 RM 97.0 S26N05W23DCB	Thermograph Surface	06/08/82-06/24/82		X		

3-A-2

Table 3-A-1 (Continued)

Location	Instrument/ Temperature Type	Period of Record	ADF&G Su Hydro Report Sources			
			1981 Final Draft Report Vol. 2 Part 1	1983 Basic Data Report Vol. 4	1983 Winter Aquatic Studies	1984 Report No.3
Talkeetna River Site #1 RM 97.2 TRM 1.0 S26N05W24BDA (Previously RM 97.0)	Thermograph Surface	06/21/81-10/04/81	X			
Site #2 RM 97.2 TRM 1.5 S26N05W24BDA	Thermograph Surface	06/08/82-06/24/82 07/31/82-10/22/82 05/29/83-06/18/83 06/25/83-08/30/83 09/17/83-10/11/83		X X		X X X
Chulitna River Site #1 RM 98.6 TRM 0.5 S26N05W15DAA (Previously RM 98.0)	Thermograph Surface	06/20/81-07/16/81 09/09/81-09/28/81	X X			
Site #2 RM 98.6 TRM 0.6 S26N05W15DAB	Thermograph Surface	06/08/82-06/24/82 08/22/82-09/25/82 10/09/82-10/22/82 05/29/83-06/14/83		X X X		X
Site #3 RM 98.6 TRM 2.4 S26N05W09ACA	Thermograph Surface	07/23/83-10/11/83				X
Site #4 RM 98.6 TRM 4.4 S27N05W32DAA	Thermograph Surface	07/23/83-08/08/83 08/17/83-10/11/83				X X
Whiskers Slough RM 101.2 S26N05W03ADB	Thermograph Surface	02/22/82-05/06/82		X		
Mainstem at Talkeetna Fishwheel Camp RM 103.0 S27N05W26DDD	Thermograph Surface	06/20/81-07/10/81 08/07/81-08/25/81 09/09/81-09/30/81 06/24/82-07/03/82 07/07/82-09/15/82 09/22/82-10/26/82 05/18/83-06/08/83 06/18/83-09/26/83	X X X		X X X	X X
Mainstem at LRX 9 Site #1 RM 103.2 S27N05W26DAA	Datapod Intra/Surface Surface Intra/Surface Surface Intra/Surface	05/14/83-05/20/83 06/29/83-07/11/83 07/22/83-08/07/83 08/09/83-08/11/83 08/12/83-08/19/83 08/20/83-08/26/83 08/27/83-09/10/83				X X X X X X X

3-A-3

Table 3-A-1 (Continued)

Location	Instrument/ Temperature Type	Period of Record	ADF&G Su Hydro Report Sources			
			1981 Final Draft Report Vol. 2 Part 1	1983 Basic Data Report Vol. 4	1983 Winter Aquatic Studies	1984 Report No.3
Mainstem at LRX 9 (Cont'd)						
Site #2 RM 103.2 S27N05W26DAA	Datapod Intra/Surface Intragravel	09/12/83-10/22/83 10/23/83-10/31/83				X X
Mainstem at LRX 18 RM 113.0 S28N04W12DAB	Thermograph Surface	07/07/82-10/17/82		X		
Mainstem at Curry Fishwheel Camp RM 120.7 S29N04W10CBA	Thermograph Surface	07/07/82-09/30/82 06/19/83-10/11/83		X		X
Lower Slough 8A Site #1 RM 125.4 S30N03W30BCD (Also referred to as Slough 8A Mouth)	Datapod Intra/Surface Surface	08/21/82-10/25/82 10/30/82-12/02/82 12/21/82-03/09/83 03/09/83-04/28/83		X	X X X X	X
Site #2 RM 125.6 S30N03W30BD8 (Also referred to as Slough 8A Middle)	Datapod Intra/Surface Intragravel Intra/Surface	04/28/83-04/30/83 05/01/83-06/01/83 06/02/83-07/03/83 07/04/83-08/25/83			X X	X X
Site #3 RM 125.6 S30N03W30BDB	Intra/Surface	08/25/83-10/31/83				X
Slough 8A-Northeast Fork RM 126.0 S30N03W20BCA (Also referred to as Slough 8A Area of R&M Stage Recorder)	Thermograph Surface	07/28/82-10/20/82		X		
Mainstem LRX 29 Site #1 RM 126.1 S30N03W19DCA	Thermograph Surface Datapod Intra/Surface Intragravel Intra/Surface Intragravel	07/09/82-07/27/82 07/29/82-10/01/82 10/30/82-11/09/82 11/09/82-04/28/83 05/15/83-10/26/83 10/27/83-10/31/83		X X	X X	X X

3-A-4

Table 3-A-1 (Continued)

Location	Instrument/ Temperature Type	Period of Record	ADF&G Su Hydro Report Sources			
			1981 Final Draft Report Vol. 2 Part 1	1983 Draft Basic Data Report Vol. 4	1983 Winter Aquatic Studies	1984 Report No.3
Upper Slough 8A Site #1 RM 126.6 S30N03W20CCD (Previously RM 126.4)	Datapod Intra/Surface	08/21/82-10/25/82		X	X	
Site #2 RM 126.6 S30N03W20CCA	Intra/Surface	03/11/83-06/02/83 05/01/83-08/25/83 10/27/83-10/31/83			X	X X
Slough 9 Incubation Site RM 128.3 S30N03W16CBC	Thermograph Surface	08/31/83-09/21/83				X
Slough 9 Site #1 RM 128.8 S30N03NW16ABC (Previously RM 129.0)	Thermograph Surface	03/28/82-05/02/82		X		
(Also referred to as Slough 9 Downstream of Tributary B)	Thermograph Intragravel Water	02/09/82-05/06/82		X		
Site #2 RM 128.7 S30N03W16ACB (Previously RM 129.2)	Thermograph Surface	07/28/82-09/13/82 09/20/82-10/30/82		X X		
(Also referred to as Slough 9 - area of R&M stage recorder)						
Site #3 RM 128.6 GC S30N03W16BDC (Previously 128.7)	Datapod Intragravel	08/21/82-11/14/82 03/18/83-06/02/83 05/01/83-06/08/83 06/09/83-07/19/83		X	X X	X X X X X X X X
	Intra/Surface Intragravel Intra/Surface Intragravel Intra/Surface Intragravel Intra/Surface Intragravel Intra/Surface	07/20/83-08/15/83 08/16/83-08/22/83 08/23/83-09/04/83 09/05/83-09/16/83 09/17/83-10/10/83 10/11/83-10/20/83 10/21/83-10/31/83				
Slough 9B RM 129.0 S30N03W16ABB	Thermograph Intra/Surface	02/27/82-05/06/82		X		

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Table 3-A-1 (Continued)

Location	Instrument/ Temperature Type	Period of Record	ADF&G Su Hydro Report Sources			
			1981 Final Draft Report Vol. 2 Part 1	1983 Draft Basic Data Report Vol. 4	1983 Winter Aquatic Studies	1984 Report No.3
Mainstem at LRX 35 RM 130.8 S30N03W03DCA	Thermograph Surface	09/02/82-09/18/82		X		
Fourth of July Creek Site #1 RM 131.1 Plume and Creek S30N03W03DAC	Datapod Intragravel	09/01/83-10/31/83				X
Mainstem above Fourth of July Creek RM 131.3 S30N03W03DAB	Themograph Surface	06/16/81-09/04/81 09/07/81-09/28/81	X X			
Side Channel 10 Site #1 RM 134.0 S31N03W31BBB	Datapod Intra/Surface	07/17/83-10/31/83				X
Slough 10 Northeast RM 134.0 S31N03W36AAA	Datapod Intra/Surface	10/19/83-10/31/83				X
Slough 10 Northwest RM 134.0 S31N03W36AAA	Datapod Intra/Surface	10/19/83-10/31/83				X
Slough 11 Site #1 RM 135.3 S31N02W19DDD	Thermograph Surface	02/24/82-04/22/82		X		
Site #2 RM 135.7 S31N02W19DAD	Datapod Intra/Surface	08/21/82-10/21/82 11/28/82-06/02/83 05/01/83-10/31/83		X	X X	X
Upper Side Channel 11 Site #1 RM 136.3 S31N02W20BBB	Datapod Intra/Surface	07/29/83-09/11/83				X
Site #2 RM 136.3 S31N02W20BBB	Intra/Surface	09/12/83-10/31/83				X
Mainstem below Gold Creek RM 135.8 S31N02W20BAA	Datapod Surface/ Dissolved Gas	06/05/83-08/10/83				X

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Table 3-A-1 (Continued)

Location	Instrument/ Temperature Type	Period of Record	ADF&G Su Hydro Report Sources			
			1981 Final Draft Report Vol. 2 Part 1	1983 Draft Basic Data Report Vol. 4	1983 Winter Aquatic Studies	1984 Report No. 3
Mainstem at Gold Creek Bridge RM 136.6 S31N02W20BAC (Site of old USGS recorder)	Thermograph Surface	05/30/83-08/10/83 09/15/83-10/11/83				X X
Gold Creek Site #1 RM 136.7 TRM 0.1 S31N02W20BAA (Previously RM 136.8)	Thermograph Surface	07/24/81-08/03/81	X			
Site #2 RM 136.7 TRM 0.2 S31N02W20BAD	Datapod Surface/Stage	05/06/83-10/05/83				X
Mainstem above Gold Creek Site #1 RM 136.8 S31N02W20BAA	Thermograph Surface	07/24/81-08/03/81 08/07/81-08/17/81 08/21/81-09/29/81	X X X			
Site #2 RM 136.8 S31N02W17CDD	Datapod Intra/Surface Surface	10/13/82-01/24/83 01/24/83-01/31/83			X X	
	Thermograph Surface	05/30/83-09/26/83				X
Slough 16B RM 138.0 S31N02W17AAA	Datapod Intra/Surface	08/21/82-10/25/82		X	X	
Indian River Site #1 RM 138.6 TRM 0.1 S31N02W09CDA (Previously 138.7)	Thermograph Surface	07/18/81-07/27/81 08/01/81-08/25/81 09/12/81-09/25/81 06/08/82-08/04/82	X X X			
Site #2 RM 138.6 TRM 1.0 S31N02W09CBA	Datapod Surface/Stage	08/08/82-10/22/82 05/17/83-10/19/83		X		X
Mainstem above Indian River RM 138.7 S31N02W09DCB	Thermograph Surface	07/19/81-07/29/81 08/01/81-08/05/81 09/25/81-09/29/81	X X X			

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Table 3-A-1 (Continued)

Location	Instrument/ Temperature Type	Period of Record	ADF&G Su Hydro Report Sources			
			1981 Final Draft Report Vol. 2 Part 1	1983 Draft Basic Data Report Vol. 4	1983 Winter Aquatic Studies	1984 Report No.3
Slough 19 Site RM 140.0 S31N02W10DBA	Thermograph Surface	08/27/81-09/13/81	X			
	Thermograph Intragravel	02/05/82-04/13/82		X		
	Thermograph Surface	02/07/82-05/06/82		X		
	Datapod Intragravel	08/21/82-09/30/82		X	X	
	Surface	10/01/82-10/25/82		X	X	
	Intra/Surface	10/29/82-11/28/82			X	
		01/14/83-05/01/83			X	
		05/01/83-05/17/83 06/05/83-10/31/83			X	X X
Mainstem at LRX 53 RM 140.1 S31N11W10AAC	Thermograph Surface	08/04/82-09/14/82		X		
Side Channel 21 Site #1 RM 141.0 S31N02W02CAA	Datapod Intra/Surface	08/29/83-09/05/83				X
	Intragravel	09/06/83-09/12/83				X
Site #2 RM 141.0 S31N02W02CAA	Datapod Intra/Surface	09/13/83-10/31/83				X
Lower Slough 21 Site #1 RM 141.8 (Previously RM 142.0) S31N02W02AAA (Also Referred to as Slough 21 - Mouth)	Thermograph Intragravel	02/06/82-04/24/82		X		
	Thermograph Surface	02/06/82-05/03/82		X		
Site #2 RM 141.8 S31N02W02AAB (Also Referred to as Slough 21 - Mouth)	Datapod Intra/Surface	09/17/82-10/25-82 10/29/82-04/30/83 05/28/83-10/31/83		X	X X	X
	Thermograph Surface	03/08/82-05/03/82 07/28/82-10/27/82		X X		
Slough 21 - Middle RM 142.0 S31N11W09AAA	Thermograph Surface			X X		
Upper Slough 21 Site #1 RM 142.0 S32N02W36CCC	Datapod Intra/Surface	08/21/82-10/25/82 10/29/82-05/01/83 05/01/83-10/31/83		X	X X	X

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Table 3-A-1 (Continued)

Location	Instrument/ Temperature Type	Period of Record	ADF&G Su Hydro Report Sources			
			1981 Final Draft Report Vol. 2 Part 1	1983 Draft Basic Data Report Vol. 4	1983 Winter Aquatic Studies	1984 Report No.3
Mainstem at LRX 57 Site #1 RM 142.3 S32N02W36CBA	Datapod Intragravel Intra/Surface	05/31/83-08/03/83 08/04/83-09/09/83				X X
Site #2 RM 142.3 S32N02W36CBA	Datapod Intra/Surface intragravel	09/13/83-10/24/83 10/24/83-10/31/83				X X
Portage Creek Site #1 RM 148.8 TRM 0.1 S32N01W25CAB	Thermograph Surface	06/08/82-06/13/82 06/24/82-07/02/82 07/04/82-07/31/82 08/04/82-08/31/82	X X X X			
Site #2 RM 148.8 TRM 0.2 S32N01W25CAB	Datapod Surface/ Stage	08/09/82-10/22/82 05/14/83-07/07/83 07/28/83-10/19/83		X		X X
Mainstem above Portage Creek RM 148.8 S32N01W25CDA	Thermograph Surface	07/17/81-07/29/81 08/01/81-09/08/81 09/10/81-10/03/81	X X X			
Mainstem at Devil Canyon RM 150.0 S32N01E31CBD	Thermograph Surface	07/02/83-10/05/83				X
Mainstem at Devil Canyon RM 150.1 S32N01E31CBD	Datapod Surface/ Dissolved Gas	08/08/82-10/10/82		X		
Tsusena Creek RM 181.8 TRM 0.1 S32N04E36ADB (Previously RM 181.3)	Thermograph Surface	06/19/82-10/16/82 05/26/83-07/18/83 08/24/83-09/27/83		X		X X
Mainstem above Tsusena Creek RM 181.9 S32N04E36ADA	Thermograph Surface	05/26/83-10/12/83				X
Deadman Creek RM 186.7 TRM 0.1 S32N05E26CDB	Thermograph Surface	05/26/83-08/22/83 09/13/83-09/25/83				X X

Table 3-A-1 (Continued)

<u>Location</u>	<u>Instrument/ Temperature Type</u>	<u>Period of Record</u>	<u>1981 Final Draft Report Vol. 2 Part 1</u>	<u>1983 Draft Basic Data Report Vol. 4</u>	<u>1983 Winter Aquatic Studies</u>	<u>1984 Report No.3</u>
Watana Creek RM 194.1 TRM 0.1 S32N06E25CCA	Thermograph Surface	06/20/82-08/15/82		X		
		09/08/82-09/19/82		X		
		09/27/82-10/16/82			X	
		05/17/83-09/03/83				X
		09/13/83-10/12/83				X
Kosina Creek RM 206.8 TRM 0.1 S31N08E15BAB	Thermograph Surface	06/27/82-08/17/82		X		
		09/19/82-10/16/82		X		
		05/26/83-06/19/83				X
		06/30/83-10/12/83				X
Goose Creek RM 231.3 TRM 0.1 S30N11E32DBC	Thermograph Surface	06/27/82-10/16/82		X		
		05/25/83-06/05/83				X
		06/19/83-07/01/83				X
		07/29/83-10/12/83				X
Oshetna River RM 233.4 TRM 0.1 S30N11E34CCD	Thermograph Surface	06/27/82-07/02/82		X		
		07/08/82-07/22/82		X		
		07/28/82-09/27/82			X	
		05/19/83-10/12/83				X
Mainstem above the Oshetna River Site #1 RM 234.9 S30N11E35BCD	Thermograph Surface	05/25/83-06/23/83				X
Site #2 RM 235.7 S29N11E02ABD	Thermograph Surface	07/28/83-09/03/83 09/13/83-10/12/83				X X

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Table 3-A-2. Ryan temperature recorder data summary:
 surface water temperature (C) at Mainstem
 Susitna River at the Estuary, RM 4.5,
 GC S14N07W05ADB, 1983.

May 1983			
Date	Surface Water Temperature (C)		
	Min	Mean	Max
830510	4.8	---	4.8
830511	4.3	5.0	5.3
830512	5.3	6.2	6.8
830513	6.3	6.9	7.8
830514	6.3	6.7	6.8
830515	6.3	7.0	7.8
830516	6.3	6.7	6.8
830517	6.3	6.7	7.3
830518	6.3	6.7	7.3
830519	6.8	7.3	7.8
830520	7.3	8.1	8.8
830521	8.3	9.0	9.3
830522	8.8	8.8	8.8
830523	8.3	8.5	8.8
830524	8.3	8.7	9.3
830525	8.3	9.2	9.8
830526	9.3	9.7	10.3
830527	9.3	9.4	9.8
830528	8.8	---	9.3
830530	9.8	---	10.3
830531	9.8	10.1	10.3
Monthly Value	4.3	---	10.3

Table 3-A-2. (continued).

June 1983			
Date	Surface Water Temperature (C)		
	Min	Mean	Max
830601	9.3	9.8	10.3
830602	9.3	9.6	9.8
830603	8.8	9.1	9.3
830604	8.3	8.6	8.8
830605	7.8	8.8	9.3
830606	9.3	10.7	11.3
830607	11.3	11.8	12.3
830608	11.8	12.2	12.8
830609	11.8	12.2	12.3
830610	11.3	11.7	12.3
830611	11.3	11.8	12.3
830612	11.3	11.8	12.3
830613	11.3	11.8	12.3
830614	11.8	12.4	13.3
830615	12.3	-----	12.8
Monthly Value	7.8	-----	13.3

Table 3-A-3. Ryan temperature recorder data summary:
 surface water temperature (C) at Mainstem
 Susitna River at Flathorn Station,
 RM 18.2, GC S16N07W15DDD, 1983.

June 1983			
Date	Surface Water Temperature (C)		
	Min	Mean	Max
830602	10.2	---	10.2
830603	9.2	9.4	10.2
830604	8.7	8.7	9.2
830605	8.2	8.7	9.7
830606	9.7	10.0	10.7
830607	10.7	11.0	11.7
830608	11.7	11.8	12.2
830609	11.7	12.1	12.2
830610	10.7	11.4	11.7
830611	11.2	11.5	11.7
830612	11.7	11.7	11.7
830613	11.7	11.9	12.2
830614	12.2	12.3	12.7
830615	12.7	13.0	13.7
830616	12.7	12.8	13.2
830617	12.7	12.9	13.7
830618	13.2	13.6	14.2
830619	13.7	14.1	14.2
830620	13.7	13.9	14.2
830621	14.2	14.2	14.2
830622	14.2	14.4	14.7
830623	14.7	14.7	14.7
830624	14.2	14.5	14.7
830625	14.2	14.3	14.7
830626	14.2	14.2	14.2
830627	13.2	13.3	13.7
830628	12.7	12.8	13.2
830629	12.7	12.7	12.7
830630	12.2	12.5	12.7
Monthly Value	8.2	12.4	14.7

Table 3-A-3. (continued).

July 1983			
Date	Surface Water Temperature (C)		
	Min	Mean	Max
830701	12.7	12.7	12.7
830702	12.2	12.6	12.7
830703	12.7	13.1	13.7
830704	13.7	13.7	13.7
830705	13.2	13.3	13.7
830706	13.2	13.4	13.7
830707	12.7	12.8	13.2
830708	12.2	12.3	12.7
830709	12.2	12.2	12.2
830710	11.7	12.3	13.2
830711	12.7	13.2	13.2
830712	12.2	12.3	12.7
830713	11.7	12.1	12.7
830714	12.7	12.9	13.2
830715	13.2	13.3	13.7
830716	13.2	13.3	13.7
830717	12.7	12.8	13.2
830718	12.2	12.3	12.7
830719	12.2	12.5	13.2
830720	12.7	13.1	13.7
830721	13.2	13.3	13.7
830722	12.7	----	13.2
Monthly Value	11.7	12.8	13.7

Table 3-A-4. Ryan temperature recorder data summary:
 surface water temperature (C) at Mainstem
 Susitna River below Susitna Station,
 RM 20.5, GC S16N07W08DDB, 1983.

May 1983			
Date	Surface Water Temperature (C)		
	Min	Mean	Max
830523	8.6	---	8.6
830524	7.6	7.9	8.6
830525	7.6	8.3	9.1
830526	8.6	8.9	9.1
830527	8.1	8.2	8.6
830528	8.1	8.2	8.6
830529	8.6	8.9	9.1
830530	9.1	9.2	9.6
830531	9.6	9.6	9.6
Monthly Value	7.6	---	9.6

Table 3-A-4. (continued).

June 1983			
Date	Surface Water Temperature (C)		
	Min	Mean	Max
830601	9.1	9.3	9.6
830602	9.1	-----	9.1
Monthly Value	9.1	-----	9.6

Table 3-A-5. Ryan temperature recorder data summary:
 surface water temperature (C) at Mainstem
 Susitna River at Susitna Station,
 RM 25.8, GC S17N07W22DCD, 1983.

May 1983			
Date	Surface Water Temperature (C)		
	Min	Mean	Max
830525	10.5	---	11.0
830526	10.0	10.3	10.5
830527	9.5	9.7	10.0
830528	9.5	9.9	10.5
830529	10.0	10.6	11.0
830530	10.5	11.0	11.5
830531	10.5	11.0	11.5
Monthly Value	9.5	---	11.5

Table 3-A-5. (continued).

June 1983			
Date	Surface Water Temperature (C)		
	Min	Mean	Max
830601	10.0	10.5	11.5
830602	10.0	10.1	10.5
830603	9.5	9.6	10.0
830604	8.5	8.8	9.0
830605	8.0	8.9	10.0
830606	10.0	10.4	11.5
830607	10.5	11.2	12.0
830608	11.5	11.8	12.5
830609	11.5	11.8	12.5
830610	11.0	11.3	11.5
830611	11.0	11.3	11.5
830612	11.0	11.3	11.5
830613	11.5	11.6	12.0
830614	12.0	12.0	12.5
830615	12.0	12.5	13.0
830616	11.5	11.8	12.5
830617	11.0	12.0	13.0
830618	12.0	12.7	13.5
830619	12.5	13.2	13.5
830620	12.5	13.0	14.0
830621	12.5	13.3	14.0
830622	13.0	13.6	14.5
830623	13.5	13.7	14.5
830624	13.0	13.5	14.0
830625	13.0	13.4	14.0
830626	13.0	13.3	14.0
830627	12.0	12.4	13.0
830628	11.5	12.0	12.5
830629	11.0	11.7	12.0
830630	11.0	11.6	12.0
Monthly Value	8.0	11.8	14.5

Table 3-A-5. (continued).

July 1983			
Date	Surface Water Temperature (C)		
	Min	Mean	Max
830701	11.5	11.8	12.0
830702	11.0	11.5	12.0
830703	11.5	12.1	13.0
830704	12.5	12.6	13.0
830705	11.5	12.3	13.0
830706	12.5	12.6	13.0
830707	11.5	11.8	12.5
830708	11.0	11.3	11.5
830709	10.5	11.1	11.5
830710	10.5	11.4	12.5
830711	11.5	12.0	12.5
830712	11.0	11.3	11.5
830713	10.5	11.0	11.5
830714	11.5	11.8	12.0
830715	11.5	12.0	12.5
830716	11.5	12.3	12.5
830717	11.5	11.7	12.0
830718	11.0	11.3	12.0
830719	11.0	11.3	12.0
830720	11.5	11.8	12.5
830721	12.0	12.2	12.5
830722	12.0	----	12.5
Monthly Value	10.5	11.8	13.0

Table 3-A-6. Ryan temperature recorder data summary:
 surface water temperature (C) at Mainstem
 Susitna River above the Yentna River,
 RM 29.5, GC S17N06W07CAD, 1983.

May 1983			
Date	Surface Water Temperature (C)		
	Min	Mean	Max
830523	8.5	---	9.0
830524	8.0	8.4	9.0
830525	8.0	8.8	9.5
830526	9.0	9.3	9.5
830527	8.5	8.7	9.0
830528	8.5	8.9	9.5
830529	9.5	9.7	10.0
830530	9.5	10.0	10.5
830531	10.0	10.3	10.5
Monthly Value	8.0	---	10.5

Table 3-A-6. (continued).

June 1983			
Date	Surface Water Temperature (C)		
	Min	Mean	Max
830601	9.5	9.9	10.5
830602	9.5	9.5	9.5
830603	8.5	8.8	9.5
830604	7.5	8.1	8.5
830605	7.5	8.3	9.5
830606	9.0	9.9	11.0
830607	10.0	10.8	11.5
830608	11.0	11.5	12.0
830609	11.0	11.5	12.0
830610	10.5	11.0	11.5
830611	10.5	11.0	11.5
830612	10.5	11.1	11.5
830613	11.0	11.7	12.5
830614	11.5	12.0	12.5
830615	11.5	11.9	12.5
Monthly Value	7.5	---	12.5

Table 3-A-7. Ryan temperature recorder data summary:
 surface water temperature (C) at Mainstem
 Susitna River above the Deshka River,
 RM 41.1, GC S19N06W26CBC, 1983.

June 1983			
Date	Surface Water Temperature (C)		
	Min	Mean	Max
830615	11.5	----	12.5
830616	11.5	12.3	13.0
830617	11.5	12.7	13.5
830618	12.0	13.3	14.0
830619	13.0	13.5	14.0
830620	12.5	13.5	14.5
830621	13.0	14.0	15.0
830622	13.0	14.2	15.0
830623	13.5	14.1	14.5
830624	13.5	14.1	15.0
830625	13.0	13.8	14.5
830626	13.0	13.5	14.0
830627	12.0	12.6	13.0
830628	11.5	12.1	13.0
830629	11.0	11.9	12.5
830630	11.0	12.1	13.0
Monthly Value	11.0	----	15.0

Table 3-A-7. (continued).

July 1983			
Date	Surface Water Temperature (C)		
	Min	Mean	Max
830701	11.5	12.3	13.0
830702	11.0	11.8	12.5
830703	11.5	13.0	14.0
830704	12.5	12.8	13.0
830705	12.0	12.8	13.5
830706	12.5	13.0	13.5
830707	11.5	12.0	12.5
830708	11.5	11.8	12.0
830709	11.0	11.4	12.0
830710	11.0	12.2	13.0
830711	12.0	12.4	12.5
830712	11.5	11.8	12.0
830713	11.0	11.8	12.5
830714	11.5	12.4	13.0
830715	12.0	12.9	14.0
830716	12.0	12.7	13.0
830717	12.0	12.2	13.0
830718	11.0	11.6	12.0
830719	11.0	12.1	13.0
830720	11.5	12.8	13.5
830721	12.0	12.6	13.0
830722	12.0	---	14.5
830723	12.5	12.7	13.0
830724	11.5	11.8	12.5
830725	11.0	11.8	12.5
830726	11.5	12.3	13.0
830727	12.0	12.9	14.0
830728	12.5	14.0	15.0
830729	13.0	13.6	14.0
830730	13.0	13.6	14.0
830731	12.0	12.3	13.0
Monthly Value	11.0	12.4	15.5

Table 3-A-7. continued

August 1983			
Date	Surface Water Temperature (C)		
	Min	Mean	Max
830801	11.5	12.2	13.0
830802	12.0	13.0	14.0
830803	12.5	13.3	14.0
830804	12.0	12.6	13.0
830805	11.0	11.5	12.0
830806	10.5	11.0	11.5
830807	10.5	10.8	11.0
830808	10.0	10.5	11.0
830809	10.0	10.5	11.0
830810	10.0	10.4	11.0
830811	10.0	10.5	11.0
830812	10.5	10.8	11.5
830813	10.5	10.7	11.0
830814	10.0	10.4	11.0
830815	9.5	10.0	10.5
830816	9.0	10.0	11.0
830817	10.5	10.7	11.0
830818	10.0	10.7	11.5
830819	10.5	11.2	12.0
830820	10.5	10.7	11.0
830821	10.0	10.0	10.0
830822	9.0	9.9	10.5
830823	10.0	10.2	10.5
830824	9.5	10.0	10.5
830825	9.0	9.3	10.0
830826	8.5	9.2	10.0
830827	9.5	10.1	11.0
830828	10.0	10.3	10.5
830829	10.0	10.0	10.5
830830	10.0	10.0	10.0
830831	9.5	10.0	10.0
Monthly Value	8.5	10.7	14.0

Table 3-A-7. (continued).

September 1983			
Date	Surface Water Temperature (C)		
	Min	Mean	Max
830901	9.0	9.5	10.0
830902	9.0	9.6	10.5
830903	8.5	9.1	9.5
830904	8.0	8.4	9.0
830905	7.0	7.8	8.5
830906	7.0	---	7.5
830907	6.0	6.6	7.0
830908	6.5	6.8	7.0
830909	7.0	7.3	7.5
830910	7.0	7.7	8.5
830911	7.0	7.3	7.5
830912	7.5	7.9	8.5
830913	7.5	7.8	8.0
830914	7.0	7.1	7.5
830915	6.0	6.3	6.5
830916	5.5	6.0	6.5
830917	5.5	5.8	6.5
830918	5.0	5.3	5.5
830919	5.0	5.1	5.5
830920	5.0	5.3	5.5
830921	5.5	5.8	6.0
830922	6.0	6.5	7.0
830923	4.5	5.8	6.5
830924	2.0	3.1	4.0
830925	1.0	1.2	1.5
830926	0.0	.3	.5
830927	0.0	0.0	0.0
830928	0.0	.2	.5
830929	.5	.7	1.5
830930	1.5	2.6	3.5
Monthly Value	0.0	5.4	10.5

Table 3-A-7. (continued).

October 1983			
Date	Surface Water Temperature (C)		
	Min	Mean	Max
831001	3.5	3.5	3.5
831002	3.5	3.7	4.0
831003	3.0	3.4	3.5
831004	2.5	2.6	3.0
831005	2.0	2.3	2.5
831006	2.0	2.2	2.5
831007	1.0	---	1.5
Monthly Value	1.0	---	4.0

Table 3-A-8. Ryan temperature recorder data summary:
 surface water temperature (C) at Mainstem
 Susitna River at Parks Highway Bridge -
 Site 3, RM 83.9, GC S24N05W15BAD, 1983.

May 1983			
Date	Surface Water Temperature (C)		
	Min	Mean	Max
830525	9.8	---	10.3
830526	8.8	9.1	9.3
830527	8.3	8.6	8.8
830528	8.3	9.0	9.8
830529	9.3	9.6	9.8
830530	9.8	9.8	9.8
830531	8.8	9.1	9.8
Monthly Value	8.3	---	10.3

Table 3-A-8. (continued).

June 1983			
Date	Surface Water Temperature (C)		
	Min	Mean	Max
830601	7.8	8.5	9.3
830602	8.3	8.9	9.3
830603	7.8	8.1	8.3
830604	7.3	7.3	7.3
830605	7.3	8.3	9.3
830606	8.8	9.7	10.8
830607	9.8	10.5	11.3
830608	9.8	10.8	11.8
830609	9.8	10.6	10.8
830610	9.3	10.0	10.8
830611	10.3	10.6	10.8
830612	9.8	10.6	11.3
830613	10.8	11.3	11.8
830614	10.8	11.3	12.0
830615	10.5	11.0	11.5
830616	10.5	11.0	12.0
830617	10.5	11.2	12.0
830618	11.0	11.9	13.0
830619	12.0	12.1	12.5
830620	11.5	11.9	12.5
830621	12.0	12.2	12.5
830622	12.5	12.6	13.0
830623	12.5	12.5	12.5
830624	12.0	12.4	13.0
830625	12.5	13.0	13.5
830626	12.5	13.0	13.5
830627	12.0	12.2	12.5
830628	11.5	11.8	12.0
830629	11.0	11.3	11.5
830630	10.5	11.2	12.0
Monthly Value	7.3	10.9	13.5

Table 3-A-8. (continued).

July 1983			
Date	Surface Water Temperature (C)		
	Min	Mean	Max
830701	11.5	11.8	12.0
830702	11.0	11.5	12.5
830703	11.5	12.1	13.0
830704	12.0	12.5	13.0
830705	12.0	12.4	13.0
830706	11.5	12.7	13.0
830707	11.0	11.2	11.5
830708	11.0	11.0	11.0
830709	10.5	10.8	11.0
830710	11.0	11.5	12.0
830711	11.5	11.5	12.0
830712	11.0	11.0	11.0
830713	11.0	11.5	12.0
830714	11.0	11.5	12.0
830715	11.0	---	12.0
830716	11.5	11.9	12.5
830717	11.5	11.5	12.0
830718	11.0	11.3	11.5
830719	11.0	11.4	12.0
830720	11.0	11.8	12.5
830721	11.0	11.8	12.5
830722	11.5	12.0	12.5
830723	11.0	12.0	12.5
830724	10.5	11.0	11.5
830725	10.5	11.3	12.0
830726	11.5	11.6	12.0
830727	11.5	12.1	13.0
830728	12.0	12.7	13.5
830729	12.5	12.8	13.0
830730	11.5	12.2	13.0
830731	11.0	11.2	11.5
Monthly Value	10.5	11.7	13.5

Table 3-A-8. (continued).

August 1983			
Date	Surface Water Temperature (C)		
	Min	Mean	Max
830801	11.0	11.5	12.0
830802	11.0	11.7	12.5
830803	11.5	12.0	12.5
830804	11.0	11.8	12.5
830805	10.5	10.6	11.0
830806	10.5	10.5	10.5
830807	10.0	10.4	10.5
830808	9.5	9.9	10.0
830809	9.5	10.0	10.5
830810	9.5	-----	10.5
830811	10.0	10.3	10.5
830812	10.5	10.5	10.5
830813	10.0	10.0	10.0
830814	9.5	9.8	10.0
830815	8.5	8.8	9.5
830816	8.5	8.9	9.5
830817	9.0	9.3	9.5
830818	8.5	9.5	10.5
830819	9.0	9.8	10.5
830820	9.5	9.6	10.0
830821	9.0	9.3	9.5
830822	9.0	9.3	9.5
Monthly Value	8.5	10.2	12.5

Table 3-A-8. (continued).

September 1983			
Date	Surface Water Temperature (C)		
	Min	Mean	Max
830910	7.5	-----	8.5
830911	7.0	7.3	7.5
830912	7.5	7.7	8.0
830913	7.5	7.5	7.5
830914	6.5	7.0	7.5
830915	6.0	6.3	6.5
830916	5.5	5.9	6.5
830917	5.5	-----	6.0
830918	5.0	5.6	6.5
830919	5.5	5.5	5.5
830920	5.5	6.0	6.0
830921	6.0	6.2	6.5
830922	6.5	6.8	7.0
830923	5.0	6.0	6.5
830924	2.5	3.5	4.5
830925	1.0	1.4	2.0
830926	1.0	1.0	1.0
830927	1.0	1.0	1.0
830928	1.0	1.0	1.0
830929	1.0	1.7	2.0
830930	2.0	2.9	3.5
Monthly Value	1.0	4.8	8.5

Table 3-A-8. (continued).

October 1983			
Date	Surface Water Temperature (C)		
	Min	Mean	Max
831001	3.5	4.1	4.5
831002	4.0	4.5	5.0
831003	3.5	3.7	4.5
831004	2.5	2.8	3.0
831005	2.5	2.5	2.5
831006	2.0	2.2	2.5
831007	1.0	1.5	2.0
831008	.5	.5	1.0
831009	.5	.5	.5
831010	1.0	1.0	1.0
831011	1.0	1.0	1.0
831012	1.0	----	1.5
Monthly Value	.5	----	5.0

Table 3-A-9. Ryan temperature recorder data summary:
 surface water temperature (C) at Mainstem
 Susitna River at Talkeetna Fishwheel Camp,
 RM 103.0, GC S27N05W26DDD, 1983.

May 1983			
Date	Surface Water Temperature (C)		
	Min	Mean	Max
830518	4.9	---	5.4
830519	4.4	5.2	5.9
830520	5.4	6.9	8.4
830521	6.9	7.1	7.4
830522	6.4	7.2	7.9
830523	6.4	7.1	7.4
830524	6.4	7.6	8.9
830525	6.9	7.7	8.9
830526	6.9	8.2	9.4
830527	6.9	7.7	8.4
830528	6.9	8.2	9.4
830529	8.4	9.3	9.9
830530	9.4	---	9.9
830531	7.9	8.4	8.9
Monthly Value	4.4	---	9.9

Table 3-A-9. (continued).

June 1983			
Date	Surface Water Temperature (C)		
	Min	Mean	Max
830601	7.4	8.5	9.9
830602	7.9	8.4	8.9
830603	6.9	8.0	8.4
830604	6.9	6.9	7.4
830605	6.9	7.9	8.9
830606	8.4	9.5	10.9
830607	9.9	10.7	11.4
830608	9.9	---	12.4
830618	12.0	---	13.5
830619	12.0	12.8	13.5
830620	12.0	12.6	13.5
830621	11.5	12.6	13.5
830622	12.5	13.2	14.0
830623	13.0	13.6	14.5
830624	12.5	13.3	14.0
830625	13.0	14.1	15.0
830626	14.0	14.3	14.5
830627	13.0	13.8	14.0
830628	12.0	12.5	13.0
830629	11.0	11.4	12.0
830630	11.0	12.3	13.5
Monthly Value	6.9	11.4	15.0

Table 3-A-9. (continued).

July 1983			
Date	Surface Water Temperature (C)		
	Min	Mean	Max
830701	12.5	12.5	13.0
830702	12.0	13.2	14.5
830703	12.5	13.3	14.0
830704	13.0	13.2	13.5
830705	12.5	13.5	14.5
830706	13.5	13.7	14.0
830707	13.0	13.5	14.0
830708	12.0	12.6	13.0
830709	11.5	12.1	12.5
830710	12.0	12.5	13.0
830711	12.0	12.5	13.0
830712	12.0	12.3	12.5
830713	12.5	12.9	13.5
830714	12.0	12.9	13.5
830715	12.0	12.9	14.0
830716	12.0	13.1	14.0
830717	13.0	13.1	13.5
830718	12.5	12.8	13.5
830719	11.0	11.9	13.0
830720	11.5	12.0	12.5
830721	12.0	13.3	14.5
830722	12.0	13.3	14.5
830723	12.5	13.0	13.5
830724	11.5	12.3	13.0
830725	11.5	12.3	13.0
830726	12.0	12.6	13.0
830727	12.5	13.5	15.0
830728	13.0	14.1	15.5
830729	13.5	14.3	15.0
830730	13.0	13.8	14.5
830731	12.0	12.5	13.0
Monthly Value	11.0	13.0	15.5

Table 3-A-9. (continued).

August 1983			
Date	Surface Water Temperature (C)		
	Min	Mean	Max
830801	11.5	12.3	13.0
830802	11.5	12.8	14.0
830803	12.0	12.8	14.0
830804	12.5	12.7	13.0
830805	12.0	12.0	12.5
830806	11.0	11.1	11.5
830807	10.5	10.7	11.0
830808	10.5	10.9	11.5
830809	10.5	10.9	11.5
830810	10.0	10.7	11.3
830811	10.3	10.8	11.3
830812	10.8	11.3	11.8
830813	10.8	11.1	11.3
830814	10.3	10.6	11.3
830815	8.8	9.3	9.8
830816	8.3	9.2	10.3
830817	9.3	9.7	10.3
830818	9.3	10.2	11.3
830819	9.3	10.4	11.3
830820	10.3	10.5	10.8
830821	9.8	10.0	10.3
830822	9.8	10.2	10.8
830823	9.3	9.6	9.8
830824	9.3	9.5	9.8
830825	8.3	8.8	9.3
830826	7.8	8.5	8.8
830827	8.3	8.9	9.8
830828	8.8	9.5	10.3
830829	9.3	9.6	9.8
830830	9.3	9.8	10.3
830831	9.3	9.4	9.8
Monthly Value	7.8	10.4	14.0

Table 3-A-9. (continued).

September 1983			
Date	Surface Water Temperature (C)		
	Min	Mean	Max
830901	8.3	8.7	8.8
830902	8.3	8.6	9.3
830903	7.8	8.1	8.3
830904	6.8	7.3	7.8
830905	6.3	6.8	7.3
830906	5.8	6.6	7.3
830907	5.8	6.5	7.3
830908	6.3	6.8	7.3
830909	6.8	7.3	7.8
830910	6.8	7.4	7.8
830911	6.8	7.5	8.5
830912	6.5	7.0	7.5
830913	6.5	7.0	7.5
830914	6.0	6.2	7.0
830915	5.0	5.8	6.5
830916	4.5	5.4	6.0
830917	4.0	4.8	5.5
830918	3.5	4.3	5.0
830919	4.0	4.3	4.5
830920	4.5	4.8	5.0
830921	5.0	5.5	6.0
830922	6.0	6.0	6.0
830923	4.0	5.0	5.5
830924	1.5	2.5	3.5
830925	0.0	.2	1.0
830926	0.0	---	0.0
Monthly Value	0.0	5.9	9.3

Table 3-A-10. Datapod temperature recorder data summary:
 intragravel and surface water temperature (C)
 at Mainstem Susitna River at LRX 9 Site - 1,
 RM 103.2, GC S27N05W26DAA.

May 1983						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
830514	3.1	----	4.6	3.0	----	4.3
830515	2.5	3.2	3.9	2.4	3.1	3.8
830516	2.1	2.5	3.1	2.1	2.5	3.0
830517	.3	1.9	2.9	.2	1.8	3.0
830518	2.3	3.3	4.9	2.4	3.3	4.9
830519	3.6	4.6	5.6	3.6	4.6	5.6
830520	4.2	----	4.9	4.2	----	4.9
Monthly Value	.3	----	5.6	.2	----	5.6

Table 3-A-10. (continued).

June 1983						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
830629	9.4	---	9.7	11.3	---	12.1
830630	8.9	9.4	10.0	11.0	12.1	13.6
Monthly Value	8.9	---	10.0	11.0	---	13.6

Table 3-A-10. (continued).

July 1983						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
830701	9.0	9.4	9.9	12.0	12.5	13.2
830702	8.7	9.4	10.6	11.7	13.2	15.3
830703	9.4	10.0	10.6	12.4	13.5	14.9
830704	9.7	10.1	10.5	12.6	13.4	14.2
830705	9.3	9.9	10.6	12.4	13.6	15.0
830706	10.1	10.4	10.6	13.5	13.8	14.4
830707	10.1	10.5	11.0	13.1	13.6	14.2
830708	9.9	10.4	10.9	12.0	12.8	13.6
830709	9.3	9.6	10.0	11.3	12.3	13.4
830710	8.9	9.5	10.0	11.5	12.8	14.7
830711	8.5	9.0	9.7	11.0	12.3	13.6
830722	9.2	---	9.6	14.3	---	15.5
830723	8.9	9.2	9.6	12.9	13.5	14.4
830724	9.1	9.4	9.9	12.0	12.8	13.6
830725	9.3	9.6	10.0	11.9	12.8	13.9
830726	9.3	9.6	10.0	12.3	13.2	14.0
830727	9.2	9.7	10.5	12.6	14.0	15.9
830728	9.4	10.1	10.7	12.9	14.7	16.5
830729	9.4	10.1	10.6	13.1	14.9	16.5
830730	9.9	10.2	10.6	13.5	14.4	15.4
830731	9.5	9.9	10.2	12.5	13.1	13.6
Monthly Value	8.5	9.8	10.9	11.0	13.2	16.5

Table 3-A-10. (continued).

August 1983						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
830801	9.6	9.9	10.3	12.2	13.0	14.1
830802	9.5	10.1	10.7	12.0	13.3	14.9
830803	9.7	10.2	10.7	12.2	13.5	14.9
830804	9.9	10.2	10.6	13.0	13.4	14.2
830805	9.4	9.7	10.0	12.3	12.8	13.2
830806	8.9	9.2	9.7	11.3	11.8	12.6
830807	8.7	----	9.1	10.9	----	11.5
830809	----	----	----	10.9	11.5	12.1
830810	----	----	----	10.2	10.9	11.5
830811	----	----	----	10.3	11.0	11.7
830812	9.0	----	9.3	11.0	11.6	12.1
830813	8.7	9.0	9.3	9.0	11.2	11.7
830814	8.4	8.6	9.0	10.1	10.6	11.3
830815	7.6	8.0	8.7	8.8	9.5	10.5
830816	7.0	7.5	7.9	8.4	9.2	10.3
830817	7.5	7.7	8.0	9.3	9.9	10.7
830818	7.4	7.9	8.6	9.2	10.5	12.0
830819	7.5	----	8.5	9.5	10.7	12.1
830820	----	----	----	10.1	10.6	11.3
830821	----	----	----	9.7	10.1	10.6
830822	----	----	----	9.7	10.1	10.7
830823	----	----	----	9.3	9.7	10.2
830824	----	----	----	9.2	9.6	10.1
830825	----	----	----	8.4	8.8	9.4
830826	----	----	----	8.1	8.6	9.1
830827	7.4	----	7.7	8.2	8.9	9.8
830828	7.3	7.6	8.1	8.9	9.6	10.4
830829	7.6	7.8	8.1	9.5	9.9	10.3
830830	7.5	7.7	8.0	9.6	10.0	10.6
830831	7.5	7.7	8.0	9.2	9.6	10.2
Monthly Value	7.0	----	10.7	8.1	10.7	14.9

Table 3-A-10. (continued).

September 1983						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
830901	7.0	7.2	7.6	8.5	8.8	9.2
830902	6.6	6.9	7.3	7.9	8.6	9.3
830903	6.4	6.7	7.2	7.7	8.1	8.8
830904	5.8	6.1	6.7	6.8	7.4	8.0
830905	5.2	5.6	6.1	6.0	7.0	8.1
830906	4.7	5.3	5.7	5.3	6.7	8.4
830907	4.5	5.1	5.6	5.2	6.6	8.6
830908	4.7	5.1	5.6	5.8	6.9	8.9
830909	5.0	5.4	6.0	6.6	7.6	9.8
830910	5.3	----	6.0	5.2	----	9.8
830911	5.1	----	5.8	----	----	----
Monthly Value	4.5	----	7.6	5.2	----	9.8

Table 3-A-11. Datapod temperature recorder data summary:
 intragravel and surface water temperature (C)
 at Mainstem Susitna River at LRX 9 - Site 2,
 RM 103.2, GC S27N05W26DAA.

September 1983						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
830912	6.6	7.2	7.8	7.1	8.0	8.8
830913	6.7	7.0	7.4	7.2	7.8	8.5
830914	6.2	6.6	7.2	6.6	7.1	8.0
830915	5.6	6.1	6.6	5.9	6.7	7.6
830916	5.1	5.8	6.3	5.1	6.3	7.4
830917	4.6	5.4	5.9	4.5	5.8	6.8
830918	4.5	5.0	5.5	4.2	5.2	6.0
830919	4.6	4.9	5.2	4.6	5.2	5.7
830920	5.0	5.2	5.3	5.4	5.7	6.1
830921	5.2	5.5	6.0	5.7	6.3	7.2
830922	5.8	6.1	6.4	6.7	7.0	7.2
830923	4.9	5.5	6.3	5.2	6.1	7.1
830924	2.4	3.5	4.9	2.0	3.4	5.2
830925	.9	1.3	2.4	.4	.8	2.0
830926	.9	1.0	1.1	.4	.4	.5
830927	.8	1.0	1.0	.4	.5	.5
830928	.9	1.0	1.0	.4	.5	.6
830929	.8	.9	1.1	.4	.6	1.1
830930	1.1	1.7	2.6	1.1	2.2	3.5
Monthly Value	.8	4.2	7.8	.4	4.5	8.8

Table 3-A-11. (continued).

October 1983						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
831001	2.6	3.0	3.2	3.4	3.7	4.0
831002	2.9	3.2	3.5	3.5	3.8	4.3
831003	2.5	2.9	3.4	2.7	3.3	4.0
831004	1.8	2.2	2.8	1.8	2.4	3.1
831005	1.6	1.9	2.2	1.6	1.9	2.4
831006	1.1	1.5	1.8	.6	1.5	2.3
831007	.8	1.1	1.6	.4	.8	1.6
831008	.9	1.0	1.1	.4	.5	.9
831009	1.1	1.2	1.2	.5	.5	.6
831010	.8	1.0	1.2	.4	.5	.6
831011	.5	.7	.8	.4	.5	.6
831012	.5	.7	1.1	.4	.8	1.5
831013	1.0	1.3	1.6	1.4	1.8	2.2
831014	.6	.9	1.2	.7	1.0	1.4
831015	.5	.6	.8	.4	.5	.9
831016	.5	.6	.6	.4	.5	.6
831017	.6	.6	.8	.4	.5	.9
831018	.7	.9	1.1	.4	.6	.9
831019	.7	.8	1.0	.4	.6	1.1
831020	.7	.7	.8	.3	.5	.6
831021	.8	.9	1.1	.4	.5	.6
831022	1.1	1.3	1.4	.4	----	.5
831023	1.1	1.2	1.3	----	----	----
831024	1.0	1.1	1.2	----	----	----
831025	.5	.7	1.1	----	----	----
831026	.3	.4	.5	----	----	----
831027	.3	.4	.5	----	----	----
831028	.2	.3	.4	----	----	----
831029	.3	.3	.4	----	----	----
831030	.3	.3	.4	----	----	----
831031	.4	.4	.5	----	----	----
Monthly Value	.2	1.1	3.5	.3	1.3	4.3

Table 3-A-12. Ryan temperature recorder data summary:
 surface water temperature (C) at Mainstem
 Susitna River at Curry Fishwheel Camp,
 RM 120.7, GC S29N04W10CBA, 1983.

June 1983			
Date	Surface Water Temperature (C)		
	Min	Mean	Max
830619	13.1	----	13.6
830620	12.6	12.8	13.1
830621	12.6	12.9	13.1
830622	13.1	13.4	13.6
830623	13.1	13.5	13.6
830624	13.1	13.4	13.6
830625	13.6	14.1	14.6
830626	14.1	14.1	14.6
830627	12.6	13.5	14.1
830628	11.6	12.3	12.6
830629	11.1	11.5	11.6
830630	11.6	12.1	12.6
Monthly Value	11.1	----	14.6

Table 3-A-12. (continued).

July 1983			
Date	Surface Water Temperature (C)		
	Min	Mean	Max
830701	12.6	12.6	12.6
830702	12.1	12.9	13.6
830703	12.6	13.0	13.6
830704	13.1	13.1	13.1
830705	12.6	13.1	13.6
830706	13.6	13.6	13.6
830707	13.1	13.3	13.6
830708	12.1	12.4	13.1
830709	12.1	12.2	12.6
830710	12.1	12.3	12.6
830711	12.1	12.3	12.6
830712	12.1	12.3	12.6
830713	12.6	12.6	12.6
830714	12.1	12.6	13.1
830715	12.1	12.6	13.1
830716	12.6	---	13.6
830717	13.3	13.3	13.3
830718	11.8	12.5	12.8
830719	10.8	11.3	11.8
830720	11.3	11.9	12.8
830721	12.3	12.9	13.8
830722	12.3	12.9	13.3
830723	12.3	12.6	12.8
830724	11.8	12.1	12.3
830725	11.8	12.3	12.8
830726	12.3	12.6	12.8
830727	12.3	13.1	13.8
830728	13.3	13.6	13.8
830729	13.3	14.0	14.3
830730	12.3	13.2	13.8
830731	11.8	12.3	12.3
Monthly Value	10.8	12.7	14.3

Table 3-A-12. (continued).

August 1983			
Date	Surface Water Temperature (C)		
	Min	Mean	Max
830801	11.8	12.0	12.3
830802	11.8	12.3	12.8
830803	12.3	12.6	12.8
830804	12.3	12.7	12.8
830805	11.6	11.9	12.3
830806	10.6	10.7	11.1
830807	10.6	10.6	10.6
830808	10.6	10.7	11.1
830809	10.1	10.5	10.6
830810	9.1	9.8	10.1
830811	10.1	10.1	10.1
830812	10.1	10.6	10.6
830813	10.1	10.1	10.1
830814	9.1	9.7	10.1
830815	8.6	8.6	9.1
830816	8.1	8.6	9.1
830817	8.6	9.0	9.1
830818	9.1	9.5	10.1
830819	9.1	9.7	10.1
830820	9.6	9.9	10.1
830821	9.6	9.6	9.6
830822	9.1	9.5	9.6
830823	9.1	9.1	9.1
830824	9.1	9.1	9.1
830825	8.1	8.4	9.1
830826	7.6	8.1	8.6
830827	8.1	8.4	8.6
830828	8.6	8.9	9.1
830829	9.1	9.1	9.1
830830	9.1	9.1	9.1
830831	8.1	8.6	9.1
Monthly Value	7.6	9.9	12.8

Table 3-A-12. (continued).

September 1983			
Date	Surface Water Temperature (C)		
	Min	Mean	Max
830901	8.1	8.1	8.1
830902	8.1	8.2	8.6
830903	7.1	7.6	7.6
830904	6.6	7.1	7.1
830905	6.1	6.4	6.6
830906	6.1	6.3	6.6
830907	5.6	6.1	6.6
830908	6.1	6.3	6.6
830909	6.6	6.9	7.6
830910	6.6	7.1	7.6
830911	6.6	7.1	7.6
830912	6.6	7.1	7.6
830913	6.6	7.0	7.6
830914	6.1	6.5	6.6
830915	5.5	6.2	6.6
830916	5.0	5.3	6.0
830917	4.0	4.8	5.5
830918	4.0	4.4	5.0
830919	4.0	4.3	4.5
830920	4.5	4.8	5.0
830921	5.0	5.5	6.0
830922	5.5	5.9	6.0
830923	3.5	4.9	5.5
830924	.5	1.9	3.0
830925	0.0	.0	.5
830926	0.0	0.0	0.0
830927	0.0	0.0	0.0
830928	0.0	0.0	0.0
830929	0.0	.2	.5
830930	1.0	2.1	5.5
Monthly Value	0.0	4.9	8.6

Table 3-A-12. (continued).

October 1983			
Date	Surface Water Temperature (C)		
	Min	Mean	Max
831001	2.5	2.7	3.0
831002	2.5	2.7	3.0
831003	2.0	2.3	2.5
831004	1.0	1.4	1.5
831005	0.0	.8	1.0
831006	0.0	.6	1.0
831007	0.0	0.0	0.0
831008	0.0	0.0	0.0
831009	0.0	0.0	0.0
831010	0.0	0.0	0.0
831011	0.0	---	0.0
Monthly Value	0.0	---	3.0

Table 3-A-13. Datapod temperature recorder data summary:
 intragravel and surface water temperature (C)
 at Mainstem Susitna River at LRX 29 - Site 1,
 RM 126.1, GC S3ON03W19DCA.

May 1983						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max

830515	2.0	----	2.5	2.4	----	3.1
830516	1.5	2.0	2.6	.5	2.0	3.0
830517	1.2	1.6	2.4	.2	1.7	3.1
830518	2.0	2.5	3.6	2.0	3.1	4.6
830519	3.2	3.7	4.5	3.3	4.3	5.5
830520	4.3	4.8	5.9	4.6	5.9	7.5
830521	5.4	5.7	6.0	5.7	6.2	6.8
830522	5.3	5.8	6.5	5.4	6.3	7.7
830523	5.5	6.0	6.4	5.4	6.3	7.7
830524	5.7	6.2	7.1	5.7	6.8	8.4
830525	5.9	6.5	6.9	5.6	6.8	8.0
830526	6.3	6.8	7.2	6.4	7.2	8.5
830527	6.2	6.8	7.3	6.0	7.0	8.3
830528	6.3	7.0	7.8	6.2	7.5	9.0
830529	7.3	7.8	8.7	7.4	8.5	9.6
830530	8.1	8.5	8.9	8.1	8.6	9.4
830531	7.5	7.8	8.3	7.3	7.7	8.1
Monthly Value	1.2	----	8.9	.2	----	9.6

Table 3-A-13. (continued).

June 1983						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
830601	7.1	7.6	8.5	6.8	7.8	8.9
830602	7.4	7.8	8.3	7.2	7.8	8.4
830603	6.9	7.5	7.9	6.4	7.4	8.1
830604	6.3	6.5	6.9	6.0	6.4	6.8
830605	6.5	6.8	7.6	6.5	7.2	8.4
830606	7.6	8.2	9.3	7.9	8.8	10.1
830607	8.7	9.3	10.3	8.8	9.9	11.1
830608	9.3	9.8	10.3	9.2	10.0	11.1
830609	8.8	9.4	10.0	8.6	9.6	10.9
830610	8.4	9.1	9.8	7.9	9.1	10.6
830611	8.6	9.0	9.7	8.5	9.0	9.9
830612	8.8	9.5	10.6	8.7	9.9	11.5
830613	9.4	10.2	11.0	9.2	10.5	11.9
830614	9.9	10.5	11.2	9.8	10.8	11.9
830615	10.4	10.9	11.7	10.3	11.3	12.5
830616	10.4	11.1	12.0	10.3	11.3	12.7
830617	10.2	11.1	12.1	10.0	11.3	12.9
830618	10.8	11.6	12.8	10.7	12.0	13.6
830619	11.9	12.5	13.4	11.9	12.9	14.4
830620	11.8	12.5	13.3	11.7	12.7	13.8
830621	11.9	12.5	13.4	11.6	12.8	14.1
830622	12.5	13.1	13.8	12.4	13.5	14.8
830623	12.9	13.4	13.8	12.8	13.7	14.7
830624	12.6	13.1	13.9	12.3	13.5	14.8
830625	13.1	13.8	14.6	13.2	14.3	15.6
830626	13.7	14.0	14.4	13.8	14.3	15.2
830627	13.4	13.7	14.2	12.9	13.7	14.4
830628	12.1	12.6	13.4	11.7	12.4	13.3
830629	11.2	11.6	12.5	10.4	11.2	12.0
830630	11.2	11.6	12.6	11.1	12.1	13.9
Monthly Value	6.3	10.7	14.6	6.0	10.9	15.6

Table 3-A-13. (continued).

July 1983						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
830701	12.1	12.3	12.6	12.3	12.5	13.2
830702	12.1	12.5	13.2	12.2	13.1	14.5
830703	12.3	12.8	13.4	12.3	13.2	14.4
830704	12.6	12.8	13.3	12.7	13.2	13.6
830705	12.3	12.8	13.7	12.4	13.3	15.0
830706	13.2	13.4	13.7	13.3	13.8	14.5
830707	13.0	13.2	13.3	13.1	13.5	13.8
830708	12.1	12.7	13.2	11.8	12.4	13.4
830709	11.6	11.9	12.3	11.3	11.9	12.9
830710	11.7	12.1	12.7	11.6	12.5	13.6
830711	12.0	12.3	12.7	11.9	12.5	13.3
830712	11.9	12.2	12.6	11.8	12.4	13.6
830713	12.3	12.4	12.6	12.4	12.8	13.4
830714	12.0	12.5	12.9	11.9	12.9	14.0
830715	12.1	12.4	12.9	12.1	12.7	14.1
830716	12.2	12.6	13.1	12.2	13.2	14.2
830717	12.6	12.8	13.1	12.8	13.1	13.5
830718	12.1	12.5	12.8	12.0	12.7	13.6
830719	11.2	11.9	12.7	10.4	11.8	13.3
830720	11.5	11.9	12.5	11.2	12.1	13.9
830721	11.9	12.5	13.4	12.0	13.2	15.2
830722	12.2	12.7	13.4	11.9	13.2	14.7
830723	12.6	12.9	13.4	12.4	13.0	13.8
830724	11.9	12.2	12.6	11.7	12.3	12.9
830725	11.8	12.2	12.7	11.7	12.5	13.6
830726	12.2	12.5	12.8	12.2	12.9	13.7
830727	12.4	12.9	13.8	12.5	13.7	15.3
830728	12.9	13.5	14.2	13.0	14.1	15.7
830729	13.3	13.8	14.4	13.5	14.5	15.8
830730	13.1	13.7	14.4	12.8	13.7	14.9
830731	12.3	12.6	13.1	11.9	12.4	12.8
Monthly Value	11.2	12.6	14.4	10.4	12.9	15.8

Table 3-A-13. (continued).

August 1983						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
830801	11.8	12.2	12.6	11.5	12.3	13.7
830802	12.0	12.4	12.9	11.8	12.7	13.9
830803	12.0	12.5	13.2	11.8	12.9	14.4
830804	12.5	12.6	13.1	12.5	12.8	13.5
830805	11.9	12.1	12.6	11.5	12.0	12.6
830806	10.9	11.3	11.9	10.3	10.9	11.5
830807	10.7	10.8	11.1	10.5	10.6	11.0
830808	10.6	10.8	10.9	10.6	10.7	10.9
830809	10.4	10.6	10.9	10.3	10.7	11.3
830810	9.9	10.2	10.8	9.4	10.1	11.0
830811	10.0	10.2	10.5	9.9	10.3	11.1
830812	10.4	10.6	11.0	10.6	11.1	11.5
830813	10.3	10.5	10.9	10.1	10.5	11.0
830814	9.7	10.0	10.4	9.3	9.8	10.6
830815	8.7	9.1	9.9	8.0	8.6	9.4
830816	8.3	8.7	9.3	7.7	8.6	10.0
830817	8.8	9.1	9.6	8.6	9.3	10.3
830818	9.0	9.5	10.2	8.9	9.9	11.4
830819	9.1	9.7	10.2	8.7	9.9	11.4
830820	9.8	9.9	10.1	9.6	10.1	10.4
830821	9.3	9.5	9.8	9.2	9.6	10.1
830822	9.2	9.4	9.6	9.1	9.4	10.0
830823	8.8	9.1	9.4	8.6	9.0	9.5
830824	8.7	8.9	9.1	8.4	8.8	9.4
830825	8.1	8.4	8.8	7.5	8.1	8.8
830826	7.7	8.0	8.4	7.2	7.7	8.5
830827	7.9	8.1	8.6	7.7	8.3	9.3
830828	8.4	8.7	9.2	8.5	9.1	10.2
830829	8.9	9.0	9.1	9.0	9.3	9.5
830830	8.9	9.0	9.4	9.0	9.4	10.2
830831	8.7	8.9	9.3	8.5	8.9	9.4
Monthly Value	7.7	10.0	13.2	7.2	10.0	14.4

Table 3-A-13. (continued).

September 1983						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
830901	8.1	8.4	8.8	7.7	8.1	8.5
830902	7.7	8.0	8.3	7.4	8.0	8.8
830903	7.4	7.7	8.2	7.0	7.5	8.1
830904	6.8	7.1	7.7	6.1	6.7	7.4
830905	6.2	6.6	7.0	5.5	6.3	7.3
830906	5.9	6.3	6.8	5.1	5.9	7.1
830907	5.7	6.1	6.6	5.1	5.8	7.0
830908	5.9	6.2	6.7	5.5	6.2	7.2
830909	6.4	6.7	7.2	6.4	7.0	8.3
830910	6.7	6.9	7.3	6.6	7.1	8.3
830911	6.7	7.0	7.5	6.5	7.3	8.4
830912	6.7	7.1	7.4	6.4	7.2	8.2
830913	6.7	7.0	7.3	6.5	7.1	8.1
830914	6.4	6.7	7.2	5.5	6.2	7.2
830915	5.9	6.3	6.7	5.2	5.9	7.1
830916	5.2	5.7	6.3	4.5	5.5	6.7
830917	4.8	5.3	5.8	4.0	5.0	6.3
830918	4.6	5.1	5.6	3.6	4.5	5.5
830919	4.6	4.9	5.3	3.6	4.5	5.4
830920	5.0	5.2	5.3	4.7	5.1	5.4
830921	5.3	5.7	6.2	5.3	5.9	6.7
830922	6.0	6.2	6.6	6.0	6.3	6.8
830923	4.4	5.3	6.1	3.8	5.3	6.0
830924	2.2	2.9	4.3	.8	2.2	3.8
830925	1.3	1.6	2.3	0.0	.1	.8
830926	1.2	1.3	1.4	-.1	.0	.1
830927	1.1	1.2	1.3	-.1	.0	.1
830928	1.1	1.2	1.2	0.0	.0	.1
830929	1.0	1.1	1.4	0.0	.3	.9
830930	1.4	1.9	2.6	.9	2.0	3.3
Monthly Value	1.0	5.3	8.8	-.1	5.0	8.8

Table 3-A-13. (continued).

October 1983						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
831001	2.6	2.9	3.2	2.9	3.2	3.6
831002	2.9	3.1	3.4	2.7	3.2	3.9
831003	2.7	3.0	3.3	2.1	2.6	3.2
831004	2.1	2.4	2.9	1.1	1.6	2.2
831005	1.8	2.0	2.4	.4	1.0	1.5
831006	1.5	1.7	1.9	.1	.8	1.8
831007	1.2	1.4	1.9	-.1	.1	.9
831008	1.1	1.2	1.3	-.1	.0	.2
831009	1.0	1.1	1.2	0.0	0.0	0.0
831010	.9	1.0	1.1	0.0	0.0	0.0
831011	.8	.8	.9	0.0	.1	.3
831012	.7	.9	1.2	0.0	.5	1.2
831013	1.2	1.3	1.5	.7	1.1	1.3
831014	.9	1.1	1.4	0.0	.4	1.0
831015	.7	.9	1.0	0.0	.1	.5
831016	.7	.8	.9	0.0	.0	.2
831017	.7	.8	.9	0.0	0.0	.1
831018	.8	.9	1.0	0.0	.1	.3
831019	.7	.8	.9	0.0	.1	.4
831020	.7	.8	.9	0.0	.0	.2
831021	.7	.8	.9	0.0	.1	.3
831022	.7	.8	.9	-.1	.1	.2
831023	.7	.8	.9	-.1	.0	.2
831024	.7	.9	1.0	-.1	.0	.2
831025	.9	.0	1.1	0.0	.0	.3
831026	.9	1.0	1.1	0.0	.1	.3
831027	.9	1.0	1.1	0.0	---	.1
831028	.8	.9	1.0	---	---	---
831029	.7	.8	.9	---	---	---
831030	.7	.8	.8	---	---	---
831031	.7	.7	.8	---	---	---
Monthly Value	.7	1.2	3.4	-.1	.6	3.9

Table 3-A-14. Datapod temperature recorder data
summary: surface water temperature (C)
at Mainstem Susitna River below Gold
Creek, RM 135.8, GC S31N02W20BAA.

June 1983			
Date	Surface Water Temperature (C)		
	min	mean	max
830605	8.5	-----	9.5
830606	9.0	9.7	10.5
830607	9.5	10.2	11.0
830608	10.0	10.0	10.5
830609	9.0	9.6	10.0
830610	8.5	9.2	10.0
830611	8.5	9.3	10.0
830612	9.5	10.2	11.0
830613	9.5	10.4	11.0
830614	10.5	10.9	11.5
830615	10.5	11.2	11.5
830616	10.5	11.1	11.5
830617	10.5	11.2	12.0
830618	11.0	12.1	13.0
830619	12.0	12.6	13.0
830620	11.5	12.3	13.0
830621	12.0	12.7	13.5
830622	12.5	13.3	14.0
830623	13.0	13.2	13.5
830624	12.5	13.5	14.5
830625	13.0	14.0	15.0
830626	13.5	14.2	14.5
830627	12.0	13.3	14.5
830628	11.5	11.9	12.5
830629	10.5	11.3	12.0
830630	11.5	12.3	13.0
Monthly Value	8.5	11.6	15.0

Table 3-A-14. continued

July 1983			
Date	Surface Water Temperature (C)		
	min	mean	max
830701	12.5	12.8	13.0
830702	13.0	13.0	13.0
830703	12.5	13.1	13.5
830704	13.0	13.1	13.5
830705	12.5	13.3	14.5
830706	13.5	13.9	14.0
830707	13.0	13.3	14.0
830708	12.0	12.3	13.0
830709	12.0	12.2	12.5
830710	12.0	12.5	13.0
830711	12.0	12.7	13.0
830712	12.0	12.8	13.5
830713	13.0	13.1	13.5
830714	12.5	12.9	13.0
830715	12.0	12.8	13.0
830716	13.0	13.3	13.5
830717	13.0	13.4	13.5
830718	11.5	12.3	13.0
830719	11.0	11.5	12.0
830720	12.0	12.5	13.0
830721	13.0	13.2	13.5
830722	12.5	13.2	14.0
830723	12.5	13.2	14.0
830724	12.5	12.5	13.0
830725	12.5	12.8	13.5
830726	13.0	13.1	13.5
830727	13.5	13.9	14.5
830728	13.5	14.2	14.5
830729	14.5	14.7	15.0
830730	12.5	13.4	14.5
830731	12.0	12.4	12.5
Monthly Value	11.0	13.0	15.0

Table 3-A-14. continued

August 1983			
Date	Surface Water Temperature (C)		
	min	mean	max
830801	11.5	12.4	13.0
830802	12.5	12.9	13.0
830803	12.5	13.1	13.5
830804	12.5	13.0	13.5
830805	11.5	12.1	12.5
830806	10.5	10.9	11.5
830807	11.0	11.2	11.5
830808	11.0	11.1	11.5
830809	10.5	10.8	11.0
830810	9.5	10.2	11.0
Monthly Value	9.5	-----	13.5

Table 3-A-15. Ryan temperature recorder data summary:
 surface water temperature (C) at Mainstem
 Susitna River at Gold Creek Bridge,
 RM 136.6, GC S31N02W20BAC, 1983.

May 1983			
Date	Surface Water Temperature (C)		
	Min	Mean	Max
830530	5.0	---	5.5
830531	4.5	4.8	5.0
Monthly Value	4.5	---	5.5

Table 3-A-15. (continued).

June 1983			
Date	Surface Water Temperature (C)		
	Min	Mean	Max
830601	4.5	5.0	5.5
830602	4.5	4.8	5.0
830603	4.5	4.9	5.0
830604	4.5	5.1	5.5
830605	5.0	5.7	6.5
830606	5.5	6.6	7.5
830607	6.0	6.8	7.5
830608	6.5	7.0	7.5
830609	6.0	6.9	7.5
830610	6.0	6.7	7.5
830611	6.5	6.9	7.5
830612	6.5	7.5	8.5
830613	7.0	7.8	8.5
830614	7.5	8.1	9.0
830615	7.5	8.2	9.0
830616	7.5	8.5	9.5
830617	8.0	9.1	10.0
830618	9.0	10.0	11.0
830619	10.0	10.6	11.5
830620	9.5	10.4	11.5
830621	10.0	11.0	12.0
830622	10.5	11.6	13.0
830623	11.0	11.7	12.5
830624	11.0	11.8	12.5
830625	11.5	12.5	13.5
830626	12.0	12.3	12.5
830627	10.5	11.6	12.0
830628	10.0	10.6	11.0
830629	9.0	9.8	10.0
830630	9.5	10.6	11.5
Monthly Value	4.5	8.7	13.5

Table 3-A-15. (continued).

July 1983			
Date	Surface Water Temperature (C)		
	Min	Mean	Max
830701	10.3	10.8	11.0
830702	10.3	10.8	11.3
830703	10.3	11.3	12.3
830704	10.8	11.3	11.8
830705	10.8	11.8	13.3
830706	11.8	12.1	12.3
830707	11.3	11.8	12.3
830708	10.3	10.6	11.3
830709	9.8	10.5	11.3
830710	9.8	10.8	11.8
830711	10.3	10.8	11.3
830712	10.3	10.9	11.8
830713	10.3	10.9	11.3
830714	9.8	10.4	10.8
830715	10.3	11.0	12.3
830716	10.8	11.5	12.3
830717	10.8	11.3	11.8
830718	9.8	10.6	11.3
830719	9.3	10.2	11.3
830720	10.3	10.9	12.3
830721	10.8	11.5	12.8
830722	10.3	11.6	12.8
830723	10.3	11.2	11.8
830724	10.3	10.8	11.3
830725	10.3	11.1	11.8
830726	10.8	11.2	11.8
830727	11.3	12.1	13.3
830728	11.3	12.3	13.3
830729	12.3	13.0	14.3
830730	10.8	11.8	12.3
830731	10.8	10.9	11.3
Monthly Value	9.3	11.2	14.3

Table 3-A-15. (continued).

August 1983			
Date	Surface Water Temperature (C)		
	Min	Mean	Max
830801	10.3	11.1	11.8
830802	10.8	11.4	11.8
830803	10.8	11.7	12.8
830804	10.8	11.4	11.8
830805	9.8	10.6	10.8
830806	9.3	9.6	9.8
830807	9.8	9.8	10.3
830808	9.3	9.4	9.8
830809	8.8	9.3	9.8
830810	8.3	----	9.3
Monthly Value	8.3	----	12.8

Table 3-A-15. (continued).

September 1983			
Date	Surface Water Temperature (C)		
	Min	Mean	Max
830915	4.6	---	5.6
830916	4.1	4.4	5.1
830917	3.6	4.0	4.6
830918	3.1	3.8	4.6
830919	3.1	4.0	4.6
830920	4.1	4.4	4.6
830921	4.6	5.1	5.6
830922	4.6	5.2	5.6
830923	2.6	3.9	4.6
830924	.1	1.3	2.1
830925	.1	.1	.1
830926	.1	.1	.1
830927	.1	.1	.1
830928	.1	.1	.1
830929	.1	.7	1.1
830930	1.1	2.0	2.6
Monthly Value	.1	---	5.6

Table 3-A-15. (continued).

October 1983			
Date	Surface Water Temperature (C)		
	Min	Mean	Max
831001	2.1	2.5	2.6
831002	2.1	2.4	3.1
831003	1.1	1.7	2.1
831004	.6	.9	1.1
831005	.6	.9	1.1
831006	.1	.6	1.1
831007	.1	.1	.1
831008	.1	.1	.1
831009	.1	.1	.1
831010	.1	.1	.1
831011	.1	---	.1
Monthly Value	.1	---	3.1

Table 3-A-16. Ryan temperature recorder data summary:
 surface water temperature (C) at Mainstem
 Susitna River above Gold Creek - Site 2,
 RM 136.8, GC S31N02W17CDD, 1983.

May 1983			
Date	Surface Water Temperature (C)		
	Min	Mean	Max
830530	7.5	---	8.0
830531	6.5	6.9	7.5
Monthly Value	6.5	---	8.0

Table 3-A-16. (continued).

June 1983			
Date	Surface Water Temperature (C)		
	Min	Mean	Max
830601	6.5	7.3	8.0
830602	7.0	7.3	7.5
830603	6.0	6.4	7.0
830604	6.0	6.3	6.5
830605	6.5	7.0	8.0
830606	7.5	8.3	9.0
830607	7.5	8.7	9.5
830608	8.0	8.8	9.0
830609	8.0	8.5	9.0
830610	7.5	8.3	9.0
830611	8.0	8.3	8.5
830612	8.0	9.3	10.5
830613	8.5	9.4	10.0
830614	9.0	9.7	10.5
830615	9.5	9.7	10.0
830616	9.0	9.9	10.5
830617	9.0	10.0	11.0
830618	9.5	10.8	12.0
830619	10.5	11.3	12.0
830620	9.5	10.9	12.0
830621	10.5	11.5	12.5
830622	11.0	12.0	13.0
830623	11.5	12.0	12.5
830624	11.0	12.0	13.0
830625	11.5	12.8	14.0
830626	12.5	12.9	13.5
830627	11.0	12.0	13.0
830628	10.5	11.1	11.5
830629	10.0	10.5	11.0
830630	10.0	11.4	12.5
Monthly Value	6.0	9.8	14.0

Table 3-A-16. (continued).

July 1983			
Date	Surface Water Temperature (C)		
	Min	Mean	Max
830701	11.3	11.5	12.0
830702	11.8	11.9	12.3
830703	11.3	12.2	12.8
830704	11.8	12.3	12.8
830705	11.8	12.6	13.3
830706	12.8	12.9	13.3
830707	12.3	12.5	12.8
830708	11.3	11.6	12.3
830709	11.3	11.5	11.8
830710	11.3	11.8	12.3
830711	11.3	11.9	12.3
830712	11.8	12.0	12.3
830713	11.8	12.2	12.3
830714	11.8	12.0	12.3
830715	11.3	12.1	12.8
830716	11.8	12.5	12.8
830717	11.8	12.3	12.8
830718	11.3	11.6	11.8
830719	10.3	11.0	11.8
830720	11.3	12.0	12.8
830721	11.8	12.5	13.3
830722	11.3	12.3	13.3
830723	11.3	12.0	12.8
830724	11.3	11.5	11.8
830725	11.3	11.6	11.8
830726	11.3	11.8	12.3
830727	11.8	12.6	13.3
830728	12.3	13.1	13.8
830729	12.8	13.7	14.3
830730	11.8	12.4	13.3
830731	11.3	11.6	11.8
Monthly Value	10.3	12.1	14.3

Table 3-A-16. (continued).

August 1983			
Date	Surface Water Temperature (C)		
	Min	Mean	Max
830801	10.8	11.5	11.8
830802	11.3	11.8	12.3
830803	11.3	12.0	12.8
830804	11.3	11.9	12.3
830805	10.3	11.1	11.3
830806	9.8	10.2	10.3
830807	9.8	10.2	10.3
830808	9.8	10.0	10.3
830809	9.8	9.8	10.3
830810	8.8	9.4	9.8
830811	8.8	9.6	10.3
830812	9.8	9.9	10.3
830813	8.8	9.2	9.3
830814	8.3	8.7	9.3
830815	7.8	7.8	7.8
830816	7.3	8.1	8.8
830817	7.8	8.4	8.8
830818	8.3	8.9	9.8
830819	8.3	8.9	9.8
830820	8.8	9.1	9.3
830821	8.3	8.6	8.8
830822	8.3	8.5	8.8
830823	7.8	8.2	8.3
830824	7.8	7.9	8.3
830825	6.8	7.2	7.3
830826	6.8	7.2	7.8
830827	6.8	7.7	8.3
830828	7.8	8.4	8.8
830829	8.3	8.4	8.8
830830	7.8	8.3	8.8
830831	7.3	7.8	7.8
Monthly Value	6.8	9.2	12.8

Table 3-A-16. (continued).

September 1983			
Date	Surface Water Temperature (C)		
	Min	Mean	Max
830901	7.3	7.4	7.8
830902	6.8	7.2	7.8
830903	6.3	6.6	7.3
830904	5.8	6.0	6.3
830905	5.3	5.7	6.3
830906	4.8	5.5	6.3
830907	4.8	5.4	5.8
830908	5.3	5.8	6.3
830909	5.8	6.4	6.8
830910	6.3	6.6	7.3
830911	6.3	6.6	7.3
830912	6.3	6.6	7.3
830913	6.3	6.4	6.8
830914	5.8	5.8	6.3
830915	5.3	5.6	6.3
830916	4.6	5.0	5.3
830917	3.6	4.2	5.1
830918	3.6	4.0	4.6
830919	3.6	4.0	4.6
830920	4.1	4.3	4.6
830921	4.6	5.1	5.6
830922	4.6	5.4	5.6
830923	3.1	4.2	4.6
830924	.6	1.6	2.6
830925	.1	.1	.1
830926	.1	---	.1
Monthly Value	.1	5.2	7.8

Table 3-A-17. Datapod temperature recorder data summary:
 intragravel and surface water temperature (C)
 at Mainstem Susitna River at LRX 57 - Site 1,
 RM 142.3, GC S32N02W36CBA.

May 1983						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
830531	8.7	9.4	10.0	---	---	---
Monthly Value	8.7	---	10.0	---	---	---

Table 3-A-17. (continued).

June 1983						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
830601	8.3	8.7	9.5	----	----	----
830602	8.1	8.2	8.4	----	----	----
830603	7.9	8.3	8.6	----	----	----
830604	7.1	7.4	8.0	----	----	----
830605	6.9	7.0	7.2	----	----	----
830606	7.2	7.5	8.0	----	----	----
830607	8.0	8.3	8.5	----	----	----
830608	8.4	8.6	8.7	----	----	----
830609	8.3	8.4	8.6	----	----	----
830610	7.9	8.1	8.3	----	----	----
830611	8.1	8.3	8.6	----	----	----
830612	8.5	9.0	9.7	----	----	----
830613	9.5	10.1	10.5	----	----	----
830614	10.4	10.8	11.1	----	----	----
830615	11.1	11.5	11.7	----	----	----
830616	11.6	11.8	11.9	----	----	----
830617	11.7	11.9	12.1	----	----	----
830618	12.0	12.2	12.4	----	----	----
830619	12.4	12.7	12.9	----	----	----
830620	12.7	12.9	13.1	----	----	----
830621	12.9	13.0	13.2	----	----	----
830622	13.2	13.4	13.6	----	----	----
830623	13.6	13.7	13.8	----	----	----
830624	13.5	13.7	13.9	----	----	----
830625	13.8	14.0	14.3	----	----	----
830626	14.2	14.4	14.6	----	----	----
830627	14.2	14.5	14.8	----	----	----
830628	13.4	13.7	14.2	----	----	----
830629	12.7	13.0	13.4	----	----	----
830630	12.8	13.0	13.2	----	----	----
Monthly Value	6.9	10.9	14.8	----	----	----

Table 3-A-17. (continued).

July 1983						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
830701	13.2	13.5	13.6	----	----	----
830702	13.6	13.9	14.1	----	----	----
830703	14.0	14.1	14.2	----	----	----
830704	14.1	14.2	14.3	----	----	----
830705	14.0	14.1	14.4	----	----	----
830706	14.4	14.8	14.9	----	----	----
830707	14.5	14.8	15.0	----	----	----
830708	13.7	14.1	14.6	----	----	----
830709	13.5	13.6	13.8	----	----	----
830710	13.5	13.6	13.7	----	----	----
830711	13.6	13.8	13.9	----	----	----
830712	13.6	13.8	13.9	----	----	----
830713	13.9	14.1	14.2	----	----	----
830714	13.9	14.1	14.3	----	----	----
830715	13.8	14.0	14.1	----	----	----
830716	13.9	14.2	14.3	----	----	----
830717	14.3	14.5	14.6	----	----	----
830718	13.8	14.2	14.6	----	----	----
830719	13.2	13.5	13.9	----	----	----
830720	13.4	13.6	13.9	----	----	----
830721	13.8	14.2	14.4	----	----	----
830722	14.2	14.4	14.6	----	----	----
830723	14.6	14.8	14.9	----	----	----
830724	14.2	14.4	14.6	----	----	----
830725	14.1	14.3	14.4	----	----	----
830726	14.2	14.5	14.7	----	----	----
830727	14.6	14.8	15.2	----	----	----
830728	15.0	15.3	15.4	----	----	----
830729	15.4	15.7	15.9	----	----	----
830730	15.2	15.6	15.9	----	----	----
830731	14.6	14.9	15.2	----	----	----
Monthly Value	13.2	14.3	15.9	----	----	----

Table 3-A-17. (continued).

August 1983						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
830801	14.2	14.5	14.7	----	----	----
830802	14.4	14.6	14.8	----	----	----
830803	14.4	14.6	14.8	----	----	----
830804	14.7	14.9	15.0	11.7	----	12.2
830805	14.3	14.6	14.8	10.8	11.4	11.8
830806	13.5	13.9	14.3	9.6	10.0	10.7
830807	13.5	13.7	13.7	10.0	10.4	10.7
830808	13.4	13.6	13.7	10.3	10.6	10.9
830809	12.8	13.1	13.4	10.0	10.3	10.6
830810	12.3	12.6	12.9	9.1	9.6	10.3
830811	12.4	12.6	12.8	9.6	10.1	10.9
830812	12.6	13.0	13.1	10.6	11.0	11.5
830813	12.8	13.0	13.1	10.1	10.4	10.7
830814	12.3	12.6	12.9	9.0	9.4	10.1
830815	11.4	11.8	12.4	7.7	8.2	9.0
830816	11.1	11.3	11.5	7.7	8.2	9.3
830817	11.5	11.7	11.8	8.5	9.0	9.6
830818	11.8	12.1	12.2	9.0	9.6	10.0
830819	12.2	12.3	12.4	9.2	9.7	10.4
830820	12.4	12.7	12.8	9.6	10.1	10.7
830821	12.5	----	12.7	9.3	----	9.7
830823	8.7	8.9	9.0	8.5	8.7	8.9
830824	8.5	8.8	9.0	8.2	8.5	8.8
830825	7.9	8.2	8.6	7.4	7.7	8.4
830826	7.2	7.6	8.0	6.6	7.2	7.8
830827	7.8	8.0	8.5	7.4	7.8	8.7
830828	8.5	8.7	9.1	8.2	8.8	9.4
830829	9.1	9.3	9.4	8.9	9.1	9.6
830830	9.2	9.2	9.3	8.8	9.0	9.1
830831	8.8	9.1	9.4	8.1	8.5	9.0
Monthly Value	7.2	11.7	15.0	6.6	9.4	12.2

Table 3-A-17. (continued).

September 1983						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
830901	8.2	8.5	8.8	7.3	7.7	8.1
830902	8.2	8.3	8.4	7.4	7.6	7.9
830903	7.7	8.1	8.5	6.7	7.1	7.8
830904	7.2	7.5	7.8	5.8	6.4	6.8
830905	6.9	7.1	7.3	5.6	5.9	6.3
830906	6.7	6.9	7.0	5.2	5.6	5.9
830907	6.6	6.7	6.9	5.2	5.4	5.6
830908	6.7	7.0	7.5	5.2	5.9	6.4
830909	7.4	---	7.5	6.3	---	6.4
Monthly Value	6.6	---	8.8	5.2	---	8.1

Table 3-A-18. Datapod temperature recorder data summary:
 intragravel and surface water temperature (C)
 at Mainstem Susitna River at LRX 57 - Site 2,
 RM 142.3, GC S32N02W36CBA.

September 1983						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
830913	7.6	7.7	8.0	6.5	6.6	6.8
830914	6.6	7.1	7.7	5.4	5.9	6.6
830915	6.4	6.7	7.1	5.2	5.5	5.9
830916	6.0	6.4	6.9	4.7	5.1	5.7
830917	5.7	6.0	6.2	4.4	4.6	4.9
830918	5.3	5.5	5.8	3.9	4.2	4.5
830919	5.2	5.5	6.0	3.8	4.2	4.6
830920	5.8	6.1	6.7	4.4	4.7	5.3
830921	6.7	7.1	7.5	5.2	5.6	6.0
830922	7.3	7.5	7.6	5.8	6.0	6.1
830923	5.3	6.6	7.5	3.7	5.0	5.9
830924	2.3	3.7	5.4	.6	2.1	3.7
830925	1.6	1.7	2.4	-.1	.1	.6
830926	1.6	1.6	1.7	-.1	-.0	0.0
830927	1.7	1.7	1.8	-.1	0.0	0.0
830928	1.7	1.8	1.8	0.0	0.0	0.0
830929	1.7	2.2	2.9	-.1	.4	1.1
830930	2.9	3.4	4.1	1.0	1.6	2.3
Monthly Value	1.6	---	8.0	-.1	---	6.8

Table 3-A-18. (continued).

October 1983						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
831001	4.0	4.3	4.5	2.3	2.4	2.7
831002	4.2	4.4	4.7	2.4	2.6	2.8
831003	3.8	4.2	4.7	1.9	2.2	2.8
831004	2.7	3.2	3.8	.7	1.2	1.9
831005	2.2	2.5	2.7	.1	.5	.7
831006	2.2	2.6	2.9	.1	.5	.9
831007	2.1	2.2	2.6	-.1	.1	.6
831008	2.2	2.3	2.4	-.1	0.0	.1
831009	2.3	2.4	2.4	0.0	.0	.1
831010	2.3	2.4	2.4	-.1	0.0	.1
831011	2.3	2.3	2.4	-.1	0.0	0.0
831012	2.4	2.9	3.5	0.0	.6	1.2
831013	2.5	3.2	3.5	.1	.9	1.2
831014	2.4	2.7	3.4	-.1	.3	1.0
831015	2.4	2.4	2.5	-.1	0.0	.1
831016	2.4	2.5	2.6	-.1	0.0	.1
831017	2.5	2.6	2.8	-.1	0.0	.1
831018	2.6	2.6	2.8	-.1	0.0	0.0
831019	2.6	2.7	2.9	-.1	.0	.2
831020	2.6	2.7	2.8	-.1	.0	.1
831021	2.7	2.8	3.0	0.0	.0	.1
831022	2.9	3.0	3.0	0.0	.1	.2
831023	2.9	3.0	3.2	0.0	.1	.3
831024	3.2	3.6	3.9	.1	----	.4
831025	3.2	3.6	3.9	----	----	----
831026	3.5	3.7	4.0	----	----	----
831027	2.8	3.2	3.8	----	----	----
831028	3.3	3.6	4.0	----	----	----
831029	3.0	3.4	4.0	----	----	----
831030	3.5	3.7	3.9	----	----	----
831031	3.7	3.8	4.1	----	----	----
Monthly Value	2.1	3.0	4.7	-.1	.5	2.8

Table 3-A-19. Ryan temperature recorder data summary:
 surface water temperature (C) at Mainstem
 Susitna River at Devil Canyon, RM 150.0,
 GC S32N01E31CBD, 1983.

July 1983			
Date	Surface Water Temperature (C)		
	Min	Mean	Max
830702	12.5	----	12.5
830703	11.5	12.1	12.5
830704	12.0	12.0	12.5
830705	11.5	12.2	13.0
830706	13.0	13.1	13.5
830707	12.0	12.3	13.0
830708	11.0	11.2	12.0
830709	11.0	11.2	11.5
830710	10.5	11.1	11.5
830711	10.5	11.2	11.5
830712	10.5	11.4	12.0
830713	11.5	11.8	12.0
830714	11.5	11.7	12.0
830715	11.0	11.5	12.0
830716	11.5	12.0	12.5
830717	11.5	12.0	12.5
830718	10.5	11.0	11.5
830719	9.5	10.2	11.0
830720	10.5	11.0	12.0
830721	11.5	11.8	12.0
830722	11.0	11.8	12.5
830723	11.5	11.8	12.5
830724	11.0	11.4	12.0
830725	11.0	11.5	12.0
830726	11.5	11.8	12.0
830727	12.0	12.4	13.0
830728	12.0	12.7	13.5
830729	12.5	13.2	13.5
830730	11.5	12.0	13.0
830731	11.0	11.0	11.5
Monthly Value	9.5	11.7	13.5

Table 3-A-19. (continued).

August 1983			
Date	Surface Water Temperature (C)		
	Min	Mean	Max
830801	10.5	11.0	12.0
830802	11.0	11.4	12.0
830803	11.0	11.5	12.0
830804	11.0	11.5	12.0
830805	10.0	10.7	11.0
830806	9.0	9.3	10.0
830807	9.5	9.8	10.0
830808	9.5	9.6	10.0
830809	9.5	9.5	9.5
830810	8.5	9.0	9.5
830811	9.0	9.5	10.5
830812	10.0	10.1	10.5
830813	9.5	9.6	10.0
830814	8.5	8.6	9.0
830815	7.5	7.6	8.0
830816	7.0	7.7	8.5
830817	7.5	8.3	9.0
830818	8.0	8.6	9.0
830819	8.0	8.7	9.5
830820	8.5	9.0	9.5
830821	8.5	8.5	8.5
830822	8.0	8.2	8.5
830823	8.0	8.2	8.5
830824	7.5	7.9	8.0
830825	7.0	7.1	7.5
830826	6.0	6.6	7.0
830827	6.5	7.3	8.0
830828	7.5	8.1	9.0
830829	8.0	8.3	9.0
830830	8.0	8.2	8.5
830831	7.5	7.7	8.0
Monthly Value	6.0	8.9	12.0

Table 3-A-19. continued

September 1983			
Date	Surface Water Temperature (C)		
	Min	Mean	Max
830901	7.0	7.1	7.5
830902	7.0	7.1	7.5
830903	6.0	6.5	7.0
830904	5.5	5.8	6.5
830905	5.0	5.3	6.0
830906	4.5	5.0	5.5
830907	4.5	4.7	5.0
830908	5.0	5.2	5.5
830909	5.5	5.5	5.5
830910	5.5	5.5	6.0
830911	5.5	5.8	6.0
830912	5.5	5.6	6.0
830913	5.0	5.7	6.0
830914	4.0	5.1	5.5
830915	4.0	4.7	5.5
830916	4.0	4.6	5.0
830917	4.0	4.2	4.5
830918	3.5	3.7	4.0
830919	3.5	3.7	4.0
830920	4.0	4.2	4.5
830921	4.5	4.8	5.0
830922	5.0	5.0	5.0
830923	3.5	4.2	5.0
830924	.5	1.5	3.0
830925	0.0	0.0	0.0
830926	0.0	0.0	0.0
830927	0.0	0.0	0.0
830928	0.0	0.0	0.0
830929	0.0	.3	1.0
830930	.5	1.1	1.5
Monthly Value	0.0	4.3	8.0

Table 3-A-19. (continued).

October 1983			
Date	Surface Water Temperature (C)		
	Min	Mean	Max
831001	1.5	1.5	1.5
831002	1.5	1.7	2.0
831003	1.5	1.6	2.0
831004	.5	.7	1.0
831005	.5	---	.5
Monthly Value	.5	---	2.0

Table 3-A-20. Ryan temperature recorder data summary:
 surface water temperature (C) at Mainstem
 Susitna River above Tsusena Creek,
 RM 181.9, GC S32N04E36ADA, 1983.

May 1983			
Date	Surface Water Temperature (C)		
	Min	Mean	Max
830526	6.9	----	7.4
830527	6.4	6.9	7.4
830528	6.9	7.9	9.4
830529	8.4	8.8	9.4
830530	7.9	8.4	8.9
830531	7.9	8.1	8.4
Monthly Value	6.4	----	9.4

Table 3-A-20. (continued).

June 1983			
Date	Surface Water Temperature (C)		
	Min	Mean	Max
830601	6.9	7.7	8.4
830602	8.4	8.4	8.4
830603	6.4	6.9	7.9
830604	6.4	6.6	6.9
830605	6.9	7.9	8.9
830606	8.4	9.4	10.4
830607	9.4	10.0	10.9
830608	8.9	9.6	9.9
830609	8.4	9.0	9.4
830610	7.9	8.4	8.9
830611	8.4	8.9	9.9
830612	9.4	9.9	10.4
830613	9.4	10.1	10.9
830614	9.9	10.9	11.9
830615	10.4	10.9	11.4
830616	9.9	10.6	11.4
830617	9.9	10.9	11.9
830618	10.9	11.8	12.9
830619	11.9	-----	12.4
830620	11.5	12.0	13.0
830621	11.0	12.2	13.0
830622	12.5	13.0	13.5
830623	12.5	12.8	13.0
830624	12.5	13.2	14.0
830625	13.0	13.8	14.5
830626	13.5	14.0	14.5
830627	11.5	12.4	13.5
830628	10.5	10.8	11.0
830629	10.0	10.7	11.0
830630	10.5	11.6	12.5
Monthly Value	6.4	10.5	14.5

Table 3-A-20. (continued).

July 1983			
Date	Surface Water Temperature (C)		
	Min	Mean	Max
830701	12.0	12.5	13.5
830702	12.0	12.5	13.0
830703	11.5	12.1	12.5
830704	12.0	12.0	12.0
830705	12.0	12.7	13.5
830706	13.5	13.7	14.5
830707	11.5	12.3	12.5
830708	10.5	11.0	11.5
830709	11.0	11.2	11.5
830710	10.5	11.3	12.0
830711	11.0	11.3	12.0
830712	11.0	11.8	12.5
830713	12.0	12.2	12.5
830714	11.0	11.5	12.0
830715	11.0	11.8	12.5
830716	11.5	12.3	13.0
830717	11.5	12.0	12.5
830718	9.2	10.0	10.7
830719	9.2	9.9	10.7
830720	10.2	11.5	12.7
830721	10.7	11.7	12.7
830722	10.7	11.8	12.7
830723	11.2	11.6	12.2
830724	10.7	11.2	11.7
830725	10.7	11.4	12.2
830726	11.2	11.8	12.7
830727	11.7	12.3	13.2
830728	11.7	12.7	13.7
830729	12.2	12.9	13.2
830730	11.2	11.6	12.2
830731	10.2	10.6	10.7
Monthly Value	9.2	11.8	14.5

Table 3-A-20. (continued).

August 1983			
Date	Surface Water Temperature (C)		
	Min	Mean	Max
830801	10.7	11.2	12.2
830802	10.7	11.2	11.7
830803	10.7	11.6	12.2
830804	11.2	11.4	12.2
830805	9.2	10.2	11.2
830806	9.2	9.4	9.7
830807	9.7	9.9	10.2
830808	10.2	10.2	10.2
830809	9.2	9.7	10.2
830810	8.7	9.4	10.2
830811	9.2	10.0	11.2
830812	10.2	10.2	10.7
830813	9.7	9.8	10.2
830814	8.2	8.7	9.2
830815	7.7	7.7	8.2
830816	7.7	8.4	9.2
830817	8.2	8.9	9.7
830818	8.7	9.2	9.7
830819	8.7	9.7	10.7
830820	9.0	9.4	9.7
830821	8.5	8.6	9.0
830822	7.5	7.9	8.0
830823	8.0	8.0	8.0
830824	7.5	7.7	8.0
830825	6.5	7.0	7.5
830826	6.0	6.5	7.0
830827	6.5	7.3	8.0
830828	7.5	8.0	8.5
830829	8.0	8.1	8.5
830830	8.0	8.0	8.0
830831	7.0	7.4	8.0
Monthly Value	6.0	9.1	12.2

Table 3-A-20. (continued).

September 1983			
Date	Surface Water Temperature (C)		
	Min	Mean	Max
830901	7.0	7.0	7.0
830902	7.0	7.1	7.5
830903	6.0	6.3	7.0
830904	5.5	5.8	6.0
830905	4.5	5.3	5.5
830906	4.5	5.0	5.5
830907	4.0	4.7	5.0
830908	5.0	5.2	5.5
830909	5.5	5.7	6.0
830910	6.0	6.2	6.5
830911	5.5	5.9	6.5
830912	5.5	5.8	6.0
830913	5.5	5.9	6.0
830914	4.5	4.9	5.5
830915	4.5	4.9	5.0
830916	4.0	4.4	5.0
830917	3.5	4.0	4.5
830918	3.0	3.6	4.0
830919	3.5	3.6	4.0
830920	4.0	4.1	4.5
830921	4.5	4.7	5.0
830922	5.0	5.0	5.5
830923	2.5	3.9	5.0
830924	.5	.8	2.0
830925	0.0	.0	.5
830926	0.0	0.0	0.0
830927	0.0	0.0	0.0
830928	0.0	0.0	0.0
830929	0.0	.2	.5
830930	1.0	1.2	1.5
Monthly Value	0.0	4.0	7.5

Table 3-A-20. (continued).

October 1983			
Date	Surface Water Temperature (C)		
	Min	Mean	Max
831001	1.5	1.5	1.5
831002	1.5	1.7	2.0
831003	1.0	1.5	2.0
831004	0.0	.2	1.0
831005	0.0	0.0	0.0
831006	0.0	.1	.5
831007	0.0	0.0	0.0
831008	0.0	0.0	0.0
831009	0.0	0.0	0.0
831010	0.0	0.0	0.0
831011	0.0	0.0	0.0
831012	0.0	----	.5
Monthly Value	0.0	----	2.0

Table 3-A-21. Ryan temperature recorder data summary:
 surface water temperature (C) at Mainstem
 Susitna River above the Oshetna River -
 Site 1, RM 234.9, GC S30N11E35BCD, 1983.

May 1983			
Date	Surface Water Temperature (C)		
	Min	Mean	Max
830525	6.6	---	6.6
830526	6.6	6.6	7.1
830527	6.1	6.5	6.6
830528	6.6	7.7	8.6
830529	8.6	8.8	9.1
830530	8.1	8.5	8.6
830531	7.1	8.1	8.6
Monthly Value	6.1	---	9.1

Table 3-A-21. (continued).

June 1983			
Date	Surface Water Temperature (C)		
	Min	Mean	Max
830601	6.6	7.6	8.6
830602	8.1	8.5	8.6
830603	7.1	7.3	7.6
830604	6.1	6.5	7.1
830605	6.6	7.0	7.6
830606	8.1	8.5	9.1
830607	9.1	9.1	9.6
830608	9.6	9.6	9.6
830609	8.6	8.6	9.1
830610	7.6	8.3	8.6
830611	8.6	9.1	9.6
830612	8.6	9.2	9.6
830613	9.1	9.8	10.6
830614	10.1	10.7	11.1
830615	10.1	10.6	10.6
830616	9.6	10.2	10.6
830617	10.1	10.6	11.1
830618	10.1	11.2	12.1
830619	11.6	12.0	12.6
830620	11.1	11.4	12.1
830621	11.1	11.7	12.1
830622	11.6	11.9	12.1
830623	12.1	-----	12.6
Monthly Value	6.1	9.6	12.6

Table 3-A-22. Ryan temperature recorder data summary:
 surface water temperature (C) at Mainstem
 Susitna River above the Oshetna River -
 Site 2, RM 235.7, GC S29N11E02ABD, 1983.

July 1983			
Date	Surface Water Temperature (C)		
	Min	Mean	Max
830728	11.3	---	12.8
830729	10.3	10.8	11.3
830730	9.3	9.8	10.3
830731	8.3	8.6	8.8
Monthly Value	8.3	---	12.8

Table 3-A-22. (continued).

August 1983			
Date	Surface Water Temperature (C)		
	Min	Mean	Max
830801	8.8	8.9	9.3
830802	8.8	9.3	9.8
830803	8.8	9.2	9.8
830804	8.8	9.3	9.8
830805	7.8	8.0	8.8
830806	7.3	7.6	7.8
830807	7.8	8.2	8.8
830808	7.8	8.2	8.3
830809	6.8	7.3	7.8
830810	6.8	7.4	7.8
830811	7.8	8.4	9.3
830812	8.8	8.9	9.3
830813	7.3	7.9	8.8
830814	6.3	6.7	6.8
830815	6.3	6.3	6.3
830816	5.8	6.7	7.8
830817	7.8	7.9	8.3
830818	7.3	7.9	8.3
830819	7.8	8.5	8.8
830820	7.8	8.4	8.8
830821	6.3	6.9	7.8
830822	6.3	6.9	7.3
830823	6.8	7.2	7.3
830824	6.3	6.7	6.8
830825	5.3	5.6	6.3
830826	5.3	5.6	5.8
830827	5.8	6.7	7.3
830828	7.3	7.6	7.8
830829	7.3	7.8	7.8
830830	6.8	7.3	7.8
830831	6.3	6.3	6.8
Monthly Value	5.3	7.6	9.8

Table 3-A-22. (continued).

September 1983			
Date	Surface Water Temperature (C)		
	Min	Mean	Max
830901	5.8	6.3	6.8
830902	5.3	6.2	6.8
830903	4.8	5.2	5.8
830913	4.5	---	4.5
830914	4.0	4.3	4.5
830915	4.0	4.3	4.5
830916	3.5	3.7	4.0
830917	3.0	3.6	4.0
830918	2.5	3.1	3.5
830919	2.5	2.9	3.0
830920	3.0	3.5	4.0
830921	4.0	4.3	4.5
830922	4.5	4.5	4.5
830923	.5	2.1	4.0
830924	0.0	0.0	0.0
830925	0.0	0.0	0.0
830926	0.0	0.0	0.0
830927	0.0	0.0	0.0
830928	0.0	0.0	0.0
830929	0.0	.2	.5
830930	.5	.6	1.0
Monthly Value	0.0	2.8	6.8

Table 3-A-22. (continued).

October 1983			
Date	Surface Water Temperature (C)		
	Min	Mean	Max
831001	.5	.6	1.0
831002	1.0	1.2	1.5
831003	0.0	.7	1.5
831004	0.0	0.0	0.0
831005	0.0	0.0	0.0
831006	0.0	0.0	0.0
831007	0.0	0.0	0.0
831008	0.0	0.0	0.0
831009	0.0	0.0	0.0
831010	0.0	0.0	0.0
831011	0.0	0.0	0.0
831012	0.0	-----	0.0
Monthly Value	0.0	-----	1.5

Table 3-A-23. Datapod temperature recorder data summary:
 intragravel and surface water temperature (C)
 at Side Channel 10 - Site 1, RM 134.0,
 GC S31N03W31BBB.

July 1983						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
830717	4.0	---	4.1	---	---	---
830718	3.9	4.4	4.9	11.4	---	13.5
830719	4.7	4.8	4.9	10.1	11.1	12.2
830720	4.4	4.5	4.7	10.6	12.3	16.2
830721	3.9	4.3	4.9	7.7	11.9	18.6
830722	4.1	4.5	5.0	8.1	12.2	16.1
830723	4.2	4.6	4.9	9.3	11.2	12.6
830724	4.8	5.2	5.4	11.5	11.8	12.1
830725	5.0	5.2	5.4	11.5	12.1	12.6
830726	4.7	4.8	5.1	11.4	12.5	13.8
830727	4.2	4.7	5.1	9.4	12.6	16.9
830728	4.1	4.5	5.0	8.0	12.1	18.4
830729	4.1	4.4	4.8	8.3	11.9	16.8
830730	4.3	4.7	5.0	9.6	11.6	13.1
830731	4.9	5.3	5.6	11.6	11.9	12.2
Monthly Value	3.9	---	5.6	7.7	---	18.6

Table 3-A-23. (continued).

August 1983						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
830801	5.3	5.5	5.6	11.1	11.9	12.8
830802	5.3	5.4	5.5	12.1	12.5	12.9
830803	5.2	5.4	5.6	12.0	12.7	13.7
830804	5.1	5.2	5.4	12.2	12.7	13.0
830805	5.0	5.1	5.3	11.2	11.8	12.1
830806	5.0	5.2	5.4	10.0	10.5	11.2
830807	5.3	5.4	5.5	10.4	10.7	10.9
830808	5.3	5.4	5.4	10.5	10.7	11.0
830809	5.3	5.4	5.6	10.2	10.5	10.7
830810	5.3	5.6	5.8	9.3	10.0	10.5
830811	4.9	5.2	5.4	9.8	10.3	11.0
830812	4.9	5.0	5.1	10.7	11.2	11.6
830813	4.9	5.1	5.2	10.2	10.4	10.8
830814	4.9	5.0	5.1	9.3	9.7	10.2
830815	4.7	4.8	5.0	8.2	8.5	9.3
830816	4.5	4.7	4.7	8.0	8.6	9.5
830817	4.6	4.7	4.7	8.9	9.4	10.0
830818	4.5	4.6	4.7	9.5	10.0	10.9
830819	4.3	4.5	4.7	9.0	10.5	12.8
830820	4.2	4.3	4.6	8.4	9.1	10.2
830821	4.2	4.3	4.5	8.1	9.1	10.4
830822	4.5	4.6	4.7	9.1	9.4	9.6
830823	4.7	4.7	4.8	9.0	9.2	9.4
830824	4.7	4.8	5.0	8.7	9.0	9.3
830825	4.7	4.9	5.0	8.0	8.3	8.8
830826	4.7	4.8	5.0	7.3	7.9	8.3
830827	4.9	5.0	5.1	8.0	8.5	9.2
830828	4.7	4.9	5.0	8.8	9.4	9.9
830829	4.7	4.8	4.9	9.4	9.7	10.0
830830	4.6	4.7	4.8	9.4	9.6	10.3
830831	4.7	4.8	4.8	8.5	8.8	9.4
Monthly Value	4.2	5.0	5.8	7.3	10.0	13.7

Table 3-A-23. (continued).

September 1983						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
830901	4.6	4.7	4.8	8.0	8.2	8.5
830902	4.6	4.7	4.7	7.8	8.1	8.5
830903	4.4	4.6	4.7	7.2	7.6	8.1
830904	4.2	4.3	4.5	6.6	7.0	7.6
830905	4.0	4.2	4.5	5.2	7.5	11.4
830906	3.9	4.2	4.6	4.5	7.6	12.1
830907	4.0	4.2	4.5	4.9	7.1	11.1
830908	4.2	4.3	4.4	6.7	7.8	9.1
830909	4.2	4.4	4.6	6.8	8.2	11.9
830910	4.2	4.4	4.7	6.7	8.3	12.4
830911	4.3	4.4	4.6	6.3	7.3	9.4
830912	4.2	4.4	4.5	6.4	7.7	10.1
830913	4.2	4.4	4.5	6.3	7.4	9.7
830914	4.2	4.4	4.5	5.7	6.5	7.3
830915	4.2	4.4	4.6	5.5	7.1	10.9
830916	4.1	4.4	4.7	4.0	6.4	10.6
830917	4.1	4.4	4.7	3.8	6.1	10.3
830918	4.1	4.4	4.6	3.8	5.8	9.5
830919	4.2	4.4	4.6	4.2	5.9	8.1
830920	4.4	4.5	4.5	5.9	6.4	7.2
830921	4.5	4.5	4.7	6.1	6.9	8.7
830922	4.5	4.6	4.6	5.8	6.9	8.3
830923	4.3	4.4	4.6	3.7	5.4	7.7
830924	4.1	4.2	4.4	2.2	3.3	4.7
830925	4.0	4.1	4.3	2.2	3.5	6.4
830926	4.0	4.1	4.3	2.0	3.5	6.5
830927	4.0	4.2	4.3	2.0	3.5	5.9
830928	4.1	4.2	4.3	3.0	3.9	4.9
830929	4.2	4.2	4.3	3.4	4.1	4.6
830930	4.2	4.3	4.4	4.1	5.0	6.9
Monthly Value	3.9	4.3	4.8	2.0	6.3	12.4

Table 3-A-23. (continued).

October 1983						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
831001	4.2	4.3	4.4	4.9	5.6	7.3
831002	4.2	4.3	4.3	4.8	5.6	7.6
831003	4.1	4.2	4.3	3.4	4.7	7.1
831004	4.0	4.1	4.3	2.8	4.2	7.1
831005	4.0	4.1	4.2	2.3	3.9	5.0
831006	4.0	4.1	4.3	2.3	4.0	7.0
831007	3.9	4.1	4.2	1.8	2.8	5.4
831008	3.9	4.0	4.2	1.2	2.5	5.0
831009	3.9	4.0	4.0	.7	1.9	2.9
831010	3.7	3.8	3.9	.4	1.2	2.5
831011	3.8	4.0	4.1	2.5	3.3	5.0
831012	4.0	4.1	4.1	3.1	3.5	4.3
831013	3.9	4.0	4.1	.7	3.0	4.6
831014	3.9	4.0	4.1	1.6	2.3	4.0
831015	3.9	4.0	4.0	1.8	2.7	3.8
831016	3.8	3.9	4.0	1.3	2.4	4.0
831017	3.8	3.9	4.0	1.3	2.3	4.2
831018	3.8	3.8	4.0	2.2	3.2	6.1
831019	3.7	3.8	3.9	.8	2.2	3.2
831020	3.6	3.7	3.7	.8	1.5	2.1
831021	3.6	3.6	3.7	.9	2.0	3.5
831022	3.5	3.6	3.7	.9	2.0	3.6
831023	3.4	3.5	3.6	.2	.9	2.3
831024	3.3	3.4	3.5	.2	.5	1.4
831025	3.2	3.4	3.4	.2	.5	1.1
831026	3.2	3.3	3.3	.2	.6	1.9
831027	3.1	3.2	3.3	.3	.6	1.4
831028	3.1	3.2	3.2	.4	.9	1.6
831029	3.0	3.1	3.2	.3	.7	1.1
831030	3.0	3.0	3.1	.5	.8	1.4
831031	3.0	3.0	3.1	.3	.7	1.0
Monthly Value	3.0	3.7	4.4	.2	2.4	7.6

Table 3-A-24. Datapod temperature recorder data summary:
 intragravel and surface water temperature (C)
 at Upper Side Channel 11 - Site 1, RM 136.3,
 GC S31N02W20BBD.

July 1983						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
830729	5.4	5.6	5.7	12.3	13.6	15.3
830730	5.6	5.9	6.2	11.8	12.7	13.5
830731	6.0	6.3	6.5	11.3	11.6	12.0
Monthly Value	5.4	---	6.5	11.3	---	15.3

Table 3-A-24. (continued).

August 1983						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
830801	6.2	6.3	6.4	10.7	11.5	12.5
830802	6.2	6.3	6.4	11.5	12.0	12.6
830803	6.2	6.3	6.4	11.4	12.1	13.2
830804	6.3	6.3	6.4	11.6	12.2	12.5
830805	6.1	6.3	6.4	10.7	11.3	11.6
830806	6.1	6.2	6.3	9.6	10.1	10.7
830807	6.1	6.2	6.3	10.0	10.3	10.5
830808	6.0	6.2	6.2	9.9	10.2	10.6
830809	5.8	6.0	6.1	9.5	10.0	10.5
830810	5.6	5.7	5.9	8.8	9.5	9.9
830811	5.7	5.8	6.0	9.3	9.9	10.4
830812	5.9	6.1	6.2	10.1	10.5	10.9
830813	6.0	6.1	6.2	9.4	9.8	10.1
830814	5.8	6.0	6.2	8.7	9.1	9.6
830815	5.6	5.7	5.9	7.5	8.0	8.7
830816	5.6	5.7	5.7	7.2	8.0	9.0
830817	5.7	5.8	5.9	8.2	8.7	9.5
830818	5.7	5.8	5.9	8.5	9.2	10.0
830819	5.7	5.8	5.9	8.3	9.2	10.2
830820	5.7	5.8	5.9	8.8	9.3	9.6
830821	5.6	5.7	5.8	8.5	8.8	9.2
830822	5.7	5.8	5.9	8.5	8.7	9.0
830823	5.8	5.9	5.9	8.3	8.5	8.8
830824	5.8	5.9	6.0	8.0	8.3	8.6
830825	5.7	5.8	5.9	7.2	7.7	8.2
830826	5.5	5.7	5.8	6.7	7.3	7.8
830827	5.5	5.7	5.8	7.3	7.9	8.6
830828	5.7	5.9	6.1	8.3	8.7	9.4
830829	6.0	6.1	6.2	8.7	9.0	9.1
830830	6.0	6.1	6.2	8.7	8.9	9.4
830831	6.0	6.2	6.2	8.0	8.4	8.9
Monthly Value	5.5	6.0	6.4	6.7	9.4	13.2

Table 3-A-24. (continued).

September 1983						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
830901	5.8	6.0	6.1	7.4	7.7	8.0
830902	5.7	5.9	5.9	6.9	7.4	7.9
830903	5.7	5.8	5.9	6.5	6.9	7.3
830904	5.5	5.7	5.8	5.8	6.1	6.5
830905	5.4	5.5	5.6	5.0	5.7	6.7
830906	5.2	5.4	5.5	4.2	5.6	8.0
830907	5.2	5.3	5.5	3.3	5.5	9.3
830908	5.2	5.3	5.4	4.8	5.8	7.5
830909	5.2	5.3	5.4	4.8	6.3	10.0
830910	5.2	5.3	5.4	4.8	6.2	9.4
830911	5.2	5.3	5.4	4.5	5.6	8.9
Monthly Value	5.2	---	6.1	3.3	---	10.0

Table 3-A-25. Datapod temperature recorder data summary:
 intragravel and surface water temperature (C)
 at Upper Side Channel 11 - Site 2, RM 136.3,
 GC S31N02W20BBD.

September 1983						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
830912	4.2	4.8	5.5	4.6	6.1	9.3
830913	4.2	4.6	5.1	4.5	5.8	8.1
830914	4.0	4.4	4.9	3.9	5.1	6.2
830915	4.1	4.6	5.4	4.4	5.9	9.5
830916	3.4	4.3	5.3	2.2	5.0	9.1
830917	3.3	4.2	5.2	2.1	4.8	8.8
830918	3.3	4.1	5.0	2.1	4.5	8.2
830919	3.6	4.2	4.8	2.8	4.7	7.2
830920	4.2	4.5	4.7	4.8	5.4	6.3
830921	4.3	4.6	5.2	4.9	6.0	8.0
830922	4.4	4.6	4.9	4.8	5.7	7.2
830923	3.8	4.3	4.7	2.8	4.5	5.2
830924	2.9	3.2	3.8	1.0	2.0	3.1
830925	2.7	3.1	3.8	.6	2.3	4.9
830926	2.7	3.2	3.8	.8	2.3	4.9
830927	2.7	3.2	3.8	.8	2.4	4.7
830928	3.3	3.6	3.9	2.2	3.2	4.3
830929	3.6	3.7	3.9	3.0	3.6	4.3
830930	3.8	4.0	4.5	3.7	4.6	6.2
Monthly Value	2.7	----	5.5	.6	----	9.5

Table 3-A-25. (continued).

October 1983						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
831001	4.1	4.4	4.7	4.3	5.0	6.6
831002	3.9	4.3	4.8	3.6	4.7	7.0
831003	3.4	3.8	4.3	2.2	3.5	5.9
831004	3.2	3.6	4.3	1.7	3.3	6.2
831005	3.6	3.7	4.0	1.9	3.3	4.6
831006	3.2	3.7	4.4	1.7	3.3	6.5
831007	3.0	3.4	3.9	1.0	2.1	4.5
831008	2.7	3.1	3.6	.4	1.8	4.0
831009	2.7	3.2	3.5	.5	1.5	2.5
831010	2.6	2.7	3.0	.2	.8	2.0
831011	3.0	3.5	4.0	2.0	3.0	4.8
831012	3.6	3.8	4.0	2.9	3.3	4.3
831013	3.2	3.7	3.8	.3	2.7	4.0
831014	3.0	3.4	3.8	.9	2.0	4.1
831015	3.4	3.6	4.0	1.7	2.8	4.3
831016	3.1	3.5	3.8	.9	2.3	4.1
831017	3.3	3.6	4.0	1.4	2.5	4.5
831018	3.7	4.0	4.6	2.4	3.7	6.2
831019	3.6	3.8	4.3	1.4	2.6	3.5
831020	3.3	3.4	3.6	1.2	1.9	2.6
831021	3.4	3.7	4.0	1.1	2.7	4.1
831022	3.5	3.8	4.2	1.6	2.9	4.7
831023	3.1	3.5	4.0	.7	1.6	3.1
831024	3.1	3.4	3.6	.7	1.3	2.8
831025	3.0	3.3	3.5	.6	1.2	2.2
831026	3.2	3.4	3.7	1.1	1.7	3.0
831027	3.2	3.5	3.8	.7	1.8	3.1
831028	3.6	3.7	3.9	1.6	2.2	3.4
831029	3.4	3.6	3.8	1.0	1.8	2.6
831030	3.5	3.7	3.9	1.4	2.1	3.1
831031	3.5	3.6	3.8	.8	1.8	2.2
Monthly Value	2.6	3.6	4.8	.2	2.5	7.0

Table 3-A-26. Datapod temperature recorder data summary:
 intragravel and surface water temperature (C)
 at Side Channel 21 - Site 1, RM 141.0,
 GC S31N02W02CAA.

August 1983						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
830829	5.9	----	6.0	8.2	----	8.5
830830	5.8	5.9	6.0	8.2	8.5	9.2
830831	5.6	5.8	6.1	7.7	8.1	8.7
Monthly Value	5.6	----	6.1	7.7	----	9.2

Table 3-A-26. (continued).

September 1983						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
830901	5.2	5.4	5.6	7.1	7.4	7.7
830902	4.9	5.1	5.2	6.8	7.3	8.2
830903	4.7	4.9	5.2	6.4	6.8	7.3
830904	4.5	4.7	4.9	5.5	6.0	6.6
830905	4.2	4.4	4.6	4.7	5.5	6.5
830906	3.9	4.1	4.4	---	---	---
830907	3.9	4.1	4.4	---	---	---
830908	4.1	4.3	4.5	---	---	---
830909	4.1	4.3	4.7	---	---	---
830910	4.2	4.4	4.8	---	---	---
830911	4.2	4.5	4.8	---	---	---
830912	4.3	4.5	4.8	---	---	---
Monthly Value	3.9	---	5.6	4.7	---	8.2

Table 3-A-27. Datapod temperature recorder data summary:
 intragravel and surface water temperature (C)
 at Side Channel 21 - Site 2, RM 141.0,
 GC S31N02W02CAA.

September 1983						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
830913	6.1	6.2	6.2	5.3	6.1	7.5
830914	6.0	6.1	6.2	4.5	5.6	6.5
830915	6.0	6.1	6.2	5.1	6.0	7.3
830916	5.8	6.0	6.2	3.1	4.7	6.8
830917	5.7	5.9	6.0	2.9	4.5	6.7
830918	5.6	5.8	5.9	3.2	4.7	6.5
830919	5.7	5.8	5.9	3.8	5.3	7.1
830920	6.0	6.1	6.1	5.7	6.1	6.7
830921	6.1	6.1	6.2	5.3	5.9	6.6
830922	6.1	6.1	6.2	4.9	5.8	6.7
830923	5.9	6.0	6.2	3.3	4.6	5.0
830924	5.8	5.8	6.0	2.4	3.3	4.0
830925	5.7	5.8	5.8	3.1	3.9	4.9
830926	5.7	5.8	5.8	3.6	4.2	4.9
830927	5.5	5.7	5.7	3.5	4.3	4.8
830928	5.2	5.4	5.5	3.4	4.4	4.9
830929	4.9	5.1	5.3	3.8	4.3	4.8
830930	4.3	4.6	4.9	3.2	4.0	4.6
Monthly Value	4.3	----	6.2	2.4	----	7.5

Table 3-A-27. (continued).

October 1983						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
831001	3.8	4.0	4.3	3.6	4.1	4.7
831002	3.6	3.6	3.8	3.5	4.1	4.6
831003	3.4	3.5	3.6	2.5	3.3	4.2
831004	3.4	3.5	3.5	2.4	3.7	4.7
831005	3.4	3.5	3.5	3.3	3.9	4.6
831006	3.4	3.4	3.5	3.5	4.2	4.6
831007	3.4	3.5	3.6	3.8	4.2	4.4
831008	3.3	3.4	3.5	3.5	4.0	4.3
831009	3.1	3.3	3.4	2.7	3.4	3.7
831010	2.9	3.0	3.2	1.9	2.6	3.2
831011	2.6	2.8	2.9	2.6	3.3	4.2
831012	2.4	2.5	2.7	3.5	4.0	4.4
831013	2.2	2.3	2.4	3.0	3.8	4.5
831014	2.1	2.2	2.3	3.1	3.5	3.9
831015	1.9	2.0	2.2	3.2	3.5	4.2
831016	1.9	1.9	2.0	2.6	3.0	3.6
831017	1.8	1.9	1.9	2.7	3.3	3.9
831018	1.8	1.9	1.9	3.2	3.7	4.5
831019	1.7	1.8	1.9	2.7	3.2	3.6
831020	1.7	1.7	1.8	2.5	3.0	3.4
831021	1.7	1.7	1.7	2.7	3.1	3.9
831022	1.7	1.7	1.7	2.8	3.1	3.7
831023	1.6	1.7	1.7	2.7	2.9	3.2
831024	1.6	1.7	1.8	2.4	2.7	3.2
831025	1.7	1.8	1.9	2.2	2.5	2.9
831026	1.8	1.9	1.9	2.1	2.4	2.8
831027	1.8	1.9	2.0	1.9	2.2	2.5
831028	1.8	1.8	1.9	1.8	2.0	2.2
831029	1.7	1.8	1.9	1.9	2.0	2.1
831030	1.7	1.7	1.8	1.6	1.9	2.0
831031	1.7	1.7	1.8	1.8	1.9	2.0
Monthly Value	1.6	2.4	4.3	1.6	3.2	4.7

Table 3-A-28. Datapod temperature recorder data summary:
 intragravel and surface water temperature (C)
 at Lower Sl. 8A - Site 2, RM 125.6,
 GC S30N03W30BDB.

May 1983						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
830501	3.2	---	3.2	4.4	---	4.9
830502	3.1	3.2	3.3	2.5	3.5	4.5
830503	3.2	3.2	3.3	2.3	3.4	4.7
830504	3.2	3.3	3.4	2.0	3.7	5.7
830505	3.3	3.3	3.4	1.8	3.7	6.1
830506	3.3	3.3	3.4	1.4	3.7	6.5
830507	3.3	3.3	3.4	1.3	4.0	7.2
830508	3.3	3.4	3.5	1.8	4.5	7.4
830509	3.4	3.5	3.5	2.1	4.5	7.2
830510	3.4	3.5	3.6	2.5	4.8	7.0
830511	3.5	3.5	3.6	2.7	5.2	8.0
830512	3.5	3.6	3.7	3.4	5.4	7.4
830513	3.6	3.6	3.7	3.0	5.2	7.6
830514	3.6	3.6	3.7	2.8	4.7	7.1
830515	3.6	3.6	3.7	2.5	4.2	6.0
830516	3.6	3.6	3.7	2.4	4.2	5.7
830517	3.6	3.7	3.7	2.7	4.2	5.9
830518	3.6	3.7	3.7	2.5	4.3	6.5
830519	3.6	3.6	3.7	2.9	4.8	6.6
830520	3.6	3.7	3.7	3.0	5.5	8.0
830521	3.6	3.7	3.8	3.4	4.9	7.0
830522	3.7	3.7	3.8	3.7	5.6	8.5
830523	3.7	3.7	3.8	3.7	5.7	7.8
830524	3.8	3.8	3.9	4.1	6.3	9.2
830525	3.8	3.8	3.9	3.8	6.5	9.2
830526	3.8	3.9	3.9	5.1	6.7	8.4
830527	3.8	3.9	4.0	4.4	6.3	8.3
830528	3.8	3.9	4.0	4.5	7.0	9.8
830529	3.8	3.9	4.0	5.6	7.5	9.3
830530	3.9	4.0	4.2	6.7	8.3	9.7
830531	4.1	4.2	4.2	6.2	7.6	8.7
Monthly Value	3.1	3.6	4.2	1.3	5.2	9.8

Table 3-A-28. (continued).

June 1983						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
830601	4.0	4.1	4.2	6.5	7.9	9.9
830602	4.0	4.1	4.1	-----	-----	-----
830603	3.9	4.0	4.0	-----	-----	-----
830604	3.9	4.0	4.0	-----	-----	-----
830605	3.8	3.9	4.0	-----	-----	-----
830606	3.8	3.9	3.9	-----	-----	-----
830607	3.8	3.9	3.9	-----	-----	-----
830608	3.8	3.9	4.0	-----	-----	-----
830609	3.8	3.9	4.0	-----	-----	-----
830610	3.8	3.9	3.9	-----	-----	-----
830611	3.9	4.0	4.0	-----	-----	-----
830612	4.0	4.0	4.1	-----	-----	-----
830613	4.0	4.1	4.2	-----	-----	-----
830614	4.1	4.1	4.2	-----	-----	-----
830615	4.1	4.1	4.2	-----	-----	-----
830616	4.2	4.2	4.3	-----	-----	-----
830617	4.3	4.3	4.4	-----	-----	-----
830618	4.3	4.4	4.5	-----	-----	-----
830619	4.3	4.4	4.4	-----	-----	-----
830620	4.4	4.4	4.5	-----	-----	-----
830621	4.4	4.5	4.5	-----	-----	-----
830622	4.4	4.5	4.5	-----	-----	-----
830623	4.4	4.5	4.6	-----	-----	-----
830624	4.4	4.5	4.5	-----	-----	-----
830625	4.4	4.5	4.5	-----	-----	-----
830626	4.4	4.5	4.5	-----	-----	-----
830627	4.4	4.5	4.5	-----	-----	-----
830628	4.4	4.4	4.5	-----	-----	-----
830629	4.4	4.5	4.5	-----	-----	-----
830630	4.3	4.4	4.5	-----	-----	-----
Monthly Value	3.8	4.2	4.6	6.5	-----	9.9

Table 3-A-28. (continued).

July 1983						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
830701	4.3	4.4	4.5	----	----	----
830702	4.3	4.4	4.4	----	----	----
830703	4.4	4.5	4.6	----	----	----
830704	4.5	4.6	4.6	11.3	----	13.2
830705	4.5	4.5	4.6	8.7	12.0	16.3
830706	4.6	4.7	4.7	9.6	12.0	13.8
830707	4.6	4.6	4.7	7.1	9.6	12.4
830708	4.6	4.7	4.7	7.9	10.4	11.8
830709	4.4	4.5	4.6	7.2	9.6	12.5
830710	4.4	4.5	4.5	10.1	11.9	14.9
830711	4.4	4.5	4.5	11.3	12.4	13.8
830712	4.4	4.4	4.5	10.9	11.8	13.6
830713	4.5	4.5	4.6	10.8	11.6	13.2
830714	4.5	4.6	4.6	9.8	11.7	14.4
830715	4.6	4.6	4.7	11.6	13.1	15.6
830716	4.5	4.6	4.7	11.4	13.1	14.7
830717	4.5	4.6	4.6	11.1	12.1	13.0
830718	4.6	4.6	4.8	10.5	12.4	15.6
830719	4.8	5.0	5.1	9.8	12.3	15.4
830720	4.9	5.0	5.0	12.3	13.5	15.7
830721	4.8	4.9	5.0	10.4	13.6	17.1
830722	4.9	5.0	5.1	10.9	13.9	16.9
830723	5.0	5.1	5.2	12.0	13.0	13.9
830724	5.1	5.2	5.3	8.6	11.6	13.0
830725	5.1	5.3	5.3	8.5	11.4	14.0
830726	4.9	5.0	5.2	11.1	12.4	13.5
830727	4.8	4.9	5.0	11.1	13.4	16.8
830728	4.8	4.9	5.0	10.9	13.9	16.8
830729	4.8	5.0	5.0	11.0	14.0	16.8
830730	5.0	5.1	5.2	12.4	13.2	13.8
830731	5.1	5.3	5.4	10.4	12.1	13.8
Monthly Value	4.3	4.8	5.4	7.1	12.3	17.1

Table 3-A-28. (continued).

August 1983						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
830801	5.3	5.4	5.4	9.3	13.0	16.5
830802	5.3	5.4	5.5	9.3	12.3	15.2
830803	5.2	5.3	5.4	8.7	12.1	17.4
830804	5.2	5.2	5.3	11.2	12.7	14.3
830805	5.1	5.1	5.2	9.4	11.0	12.1
830806	5.1	5.1	5.2	8.2	10.8	12.8
830807	5.1	5.2	5.3	8.6	9.9	11.4
830808	5.0	5.1	5.2	8.5	9.6	10.1
830809	4.9	5.0	5.1	8.9	10.0	12.4
830810	4.8	5.0	5.0	9.5	10.5	12.1
830811	4.6	4.7	4.9	8.7	10.0	11.5
830812	4.5	4.6	4.7	8.4	9.4	11.1
830813	4.4	4.5	4.6	7.9	9.0	10.1
830814	4.4	4.4	4.5	7.3	8.9	11.1
830815	4.4	4.5	4.5	6.7	8.6	10.7
830816	4.3	4.4	4.4	6.9	9.1	12.0
830817	4.3	4.4	4.4	7.0	9.0	11.4
830818	4.2	4.3	4.4	6.7	9.5	12.7
830819	4.2	4.3	4.4	7.0	9.6	12.1
830820	4.2	4.3	4.3	8.2	9.0	11.4
830821	4.3	4.3	4.4	7.7	8.4	9.5
830822	4.4	4.4	4.5	7.9	8.9	10.1
830823	4.4	4.5	4.6	7.1	8.8	9.9
830824	4.5	4.5	4.6	7.1	8.4	9.6
830825	4.5	---	4.6	6.2	---	8.7
Monthly Value	4.2	4.7	5.5	6.2	9.9	17.4

Table 3-A-29. Datapod temperature recorder data summary:
 intragravel and surface water temperature (C)
 at Lower Sl. 8A - Site 3, RM 125.6,
 GC S30N03W30BDB.

August 1983						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
830825	4.9	----	4.9	8.3	----	9.2
830826	4.9	5.0	5.1	6.9	8.3	9.2
830827	4.9	5.0	5.1	7.9	9.0	11.1
830828	4.9	5.0	5.1	7.2	9.0	11.1
830829	4.8	4.9	5.1	7.4	8.5	11.0
830830	4.7	4.8	4.9	7.7	8.3	9.6
830831	4.9	5.0	5.1	8.0	8.6	9.3
Monthly Value	4.7	----	5.1	6.9	----	11.1

Table 3-A-29. (continued).

September 1983						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
830901	5.0	5.0	5.1	7.3	8.0	8.6
830902	5.0	5.0	5.1	6.8	8.2	9.9
830903	4.9	5.0	5.1	6.0	7.3	9.1
830904	4.8	4.9	5.1	5.4	6.8	8.1
830905	4.8	5.3	6.0	4.7	6.4	7.7
830906	4.7	5.7	6.5	4.6	6.6	8.0
830907	5.1	5.9	6.6	5.1	6.6	7.8
830908	6.3	6.7	7.1	6.8	7.6	8.1
830909	6.8	7.3	8.0	7.2	8.1	9.5
830910	7.3	7.8	8.6	7.8	8.6	10.0
830911	6.9	7.6	8.3	7.1	8.0	9.1
830912	7.1	7.6	8.2	7.3	8.0	9.2
830913	7.3	7.8	8.6	7.6	8.3	9.5
830914	6.8	7.3	8.2	6.6	7.3	8.1
830915	6.1	6.8	8.1	6.2	7.2	9.3
830916	5.7	6.6	7.7	5.5	6.8	8.6
830917	5.1	6.0	7.2	4.8	6.0	7.8
830918	4.6	5.4	6.4	4.4	5.4	7.0
830919	4.6	5.3	6.1	4.5	5.5	6.8
830920	5.6	5.9	6.3	5.8	6.3	6.7
830921	6.2	6.6	7.4	6.5	7.1	8.3
830922	7.0	7.2	7.4	6.8	7.7	8.3
830923	5.4	6.0	7.1	4.0	5.3	6.7
830924	2.9	3.9	5.4	.6	1.9	3.9
830925	1.6	2.4	2.9	.5	1.1	1.8
830926	1.8	2.1	2.7	1.2	1.9	3.0
830927	2.1	2.4	2.8	1.8	2.4	3.2
830928	2.5	2.6	2.7	2.3	2.6	2.9
830929	2.5	2.6	2.8	2.5	2.7	3.0
830930	2.7	3.0	3.9	2.6	3.4	5.0
Monthly Value	1.6	5.5	8.6	.5	6.0	10.0

Table 3-A-29. (continued).

October 1983						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
831001	3.9	4.3	4.7	4.4	4.8	5.4
831002	4.0	4.4	4.9	4.1	4.8	5.6
831003	3.2	3.9	4.9	2.6	3.5	4.8
831004	2.6	3.1	3.8	1.8	2.6	3.4
831005	3.1	3.2	3.3	2.5	3.0	3.4
831006	2.5	2.7	3.1	2.0	2.5	3.3
831007	1.9	2.3	3.0	1.2	1.9	2.7
831008	1.5	1.8	2.1	1.0	1.6	2.2
831009	1.2	1.7	2.1	.8	1.4	2.0
831010	.7	1.1	1.3	.3	.8	1.2
831011	1.1	1.4	1.8	1.1	1.5	1.9
831012	1.8	2.1	2.5	1.8	2.1	2.5
831013	2.1	2.3	2.6	1.3	2.1	2.5
831014	1.7	2.1	2.6	1.0	1.5	2.2
831015	1.8	2.0	2.3	1.4	1.8	2.4
831016	1.6	2.0	2.4	.9	1.5	2.4
831017	1.4	1.6	1.8	1.0	1.3	1.6
831018	1.6	1.9	2.5	1.5	2.2	3.0
831019	1.9	2.2	2.4	1.3	2.0	2.6
831020	1.0	1.4	1.9	.4	1.0	1.6
831021	1.1	1.3	1.7	.7	1.3	1.9
831022	1.4	1.6	1.8	1.1	1.6	2.1
831023	.8	1.2	1.7	.6	1.0	1.5
831024	.6	.8	1.2	.4	.7	1.4
831025	.4	.6	.9	.3	.6	1.0
831026	.6	.7	.9	.4	.8	1.5
831027	.4	.6	1.0	.3	.8	1.5
831028	.6	.7	1.0	.6	.9	1.4
831029	.4	.7	.9	.3	.8	1.3
831030	.4	.6	.8	.3	.7	1.2
831031	.3	.5	.6	.3	.6	.8
Monthly Value	.3	1.8	4.9	.3	1.7	5.6

Table 3-A-30. Datapod temperature recorder data summary:
 intragravel and surface water temperature (C)
 at Upper Sl. 8A - Site 2, RM 126.6,
 GC S30N03W20CCA.

May 1983.						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
830501	2.3	2.4	2.6	1.3	2.7	5.7
830502	2.2	2.4	2.5	1.7	2.5	4.0
830503	2.2	2.3	2.5	1.6	2.4	3.6
830504	2.2	2.4	2.5	1.6	2.5	4.6
830505	2.3	2.4	2.5	1.7	2.6	4.8
830506	2.4	2.5	2.6	1.7	2.7	5.0
830507	2.4	2.5	2.7	1.7	2.8	5.2
830508	2.5	2.5	2.7	1.8	3.0	5.3
830509	2.4	2.5	2.7	2.0	3.1	5.4
830510	2.5	2.6	2.7	2.0	3.0	5.3
830511	2.5	2.6	2.8	2.0	3.2	5.5
830512	2.5	2.7	2.8	2.2	3.1	4.8
830513	2.6	2.7	2.8	2.2	3.1	5.4
830514	2.6	2.7	2.8	2.3	3.0	4.6
830515	2.6	2.7	2.8	2.2	3.0	4.2
830516	2.6	2.7	2.9	2.2	3.0	4.3
830517	2.7	2.8	2.9	2.4	3.1	4.1
830518	2.7	2.8	2.9	2.4	3.3	4.7
830519	2.8	2.9	3.0	2.4	3.4	4.9
830520	2.8	2.9	3.0	2.4	3.6	5.7
830521	2.9	3.0	3.1	2.6	3.3	4.4
830522	2.9	3.0	3.1	2.8	3.8	5.9
830523	2.9	3.0	3.2	2.8	3.7	6.0
830524	2.9	3.1	3.3	2.8	3.9	6.5
830525	3.0	3.1	3.3	2.6	3.9	6.2
830526	3.0	3.1	3.3	3.1	4.0	6.4
830527	3.0	3.2	3.3	2.8	3.8	5.8
830528	3.0	3.2	3.3	2.8	3.9	5.6
830529	3.1	3.2	3.4	2.9	4.0	5.4
830530	3.2	3.2	3.3	3.3	3.9	5.0
830531	3.2	3.2	3.3	3.4	3.9	5.1
Monthly Value	2.2	2.8	3.4	1.3	3.3	6.5

Table 3-A-30. (continued).

June 1983						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
830601	3.1	3.3	3.4	3.2	4.3	6.7
830602	3.2	3.3	3.4	3.2	3.6	4.1
830603	3.2	3.2	3.3	3.4	3.9	5.2
830604	3.3	3.3	3.3	3.5	4.1	5.0
830605	3.2	3.3	3.4	3.3	4.0	6.1
830606	3.3	3.4	3.5	3.1	4.2	6.1
830607	3.3	3.4	3.5	3.1	4.3	6.9
830608	3.3	3.4	3.5	3.3	4.0	5.6
830609	3.3	3.5	3.7	3.3	4.5	7.5
830610	3.4	3.5	3.7	3.4	5.0	7.7
830611	3.4	3.6	3.8	3.7	4.6	6.3
830612	3.4	3.6	3.8	3.6	4.8	7.8
830613	3.5	3.6	3.8	3.7	4.9	7.7
830614	3.5	3.6	3.8	3.9	5.0	6.8
830615	3.6	3.7	4.0	4.0	5.3	7.6
830616	3.6	3.8	4.0	4.0	5.5	8.6
830617	3.6	3.8	4.1	3.8	5.6	9.7
830618	3.7	3.9	4.2	4.1	5.9	10.3
830619	3.8	4.0	4.3	4.5	6.3	9.9
830620	3.8	4.0	4.3	4.4	6.0	9.3
830621	3.8	4.0	4.3	4.3	6.1	9.7
830622	3.9	4.1	4.3	4.7	6.2	9.9
830623	3.9	4.1	4.3	4.6	6.2	8.9
830624	3.9	4.1	4.4	4.6	6.3	10.1
830625	3.9	4.2	4.5	4.5	6.4	10.6
830626	4.1	4.3	4.5	5.0	6.4	9.3
830627	4.0	4.2	4.4	4.6	5.5	6.7
830628	3.9	4.1	4.4	4.6	6.0	8.7
830629	4.0	4.1	4.4	4.5	5.4	6.9
830630	4.0	4.1	4.5	4.7	6.3	9.3
Monthly Value	3.1	3.8	4.5	3.1	5.2	10.6

Table 3-A-30. (continued).

July 1983						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
830701	4.1	4.2	4.5	4.9	5.8	6.9
830702	4.1	4.3	4.6	5.1	6.6	10.2
830703	4.2	4.4	4.7	4.8	6.8	10.2
830704	4.2	4.4	4.6	5.0	6.0	7.2
830705	4.2	4.4	4.8	5.0	6.9	10.7
830706	4.3	4.5	4.8	5.3	6.0	7.3
830707	4.1	4.2	4.3	4.8	5.7	7.7
830708	4.1	4.2	4.4	5.0	5.6	6.9
830709	4.0	4.2	4.4	4.7	5.9	8.6
830710	4.1	4.4	4.7	4.9	6.6	10.3
830711	4.3	4.5	4.7	4.8	6.3	8.8
830712	4.4	4.6	4.9	5.2	6.6	9.4
830713	4.5	4.7	4.9	5.3	6.3	8.2
830714	4.4	4.6	5.0	4.8	6.7	10.6
830715	4.5	4.8	5.3	5.3	7.2	11.6
830716	4.7	5.1	5.4	5.2	7.2	10.2
830717	4.8	5.1	5.4	5.7	6.6	8.4
830718	4.7	5.1	5.6	5.4	7.4	10.7
830719	4.8	5.2	5.6	5.0	7.3	12.1
830720	4.9	5.3	5.7	5.6	7.6	11.8
830721	4.9	5.3	5.7	5.1	7.4	12.4
830722	4.9	5.4	5.9	5.0	7.6	12.5
830723	5.2	5.5	5.9	6.2	6.9	8.7
830724	4.8	5.1	5.3	5.4	6.8	8.7
830725	4.7	5.0	5.3	5.0	6.7	8.9
830726	4.7	5.0	5.2	5.0	6.6	9.1
830727	4.8	5.1	5.5	5.4	7.4	11.1
830728	4.9	5.3	5.9	5.2	7.7	12.7
830729	5.2	5.6	6.0	5.5	7.8	11.8
830730	5.3	5.6	6.0	6.1	7.0	8.2
830731	5.0	5.2	5.5	5.7	6.9	8.7
Monthly Value	4.0	4.8	6.0	4.7	6.8	12.7

Table 3-A-30. (continued).

August 1983						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
830801	4.9	5.2	5.5	5.5	7.2	11.3
830802	4.8	5.1	5.4	5.2	6.8	10.8
830803	4.7	5.0	5.4	4.9	6.9	11.3
830804	4.8	5.0	5.4	5.5	6.2	7.1
830805	4.6	4.8	4.9	5.5	6.2	7.1
830806	4.5	4.7	4.9	5.3	6.3	8.1
830807	4.5	4.6	4.9	5.4	5.8	6.6
830808	4.3	4.5	4.5	5.5	5.9	6.5
830809	4.0	4.2	4.3	5.2	6.0	7.2
830810	3.8	4.0	4.1	4.6	5.4	7.8
830811	3.7	3.8	3.9	4.4	5.1	6.6
830812	3.7	3.7	3.8	4.6	5.0	5.7
830813	3.6	3.6	3.7	4.4	4.9	6.4
830814	3.5	3.5	3.7	4.3	4.9	7.0
830815	3.4	3.5	3.7	3.9	4.5	5.9
830816	3.4	3.5	3.7	4.0	4.9	7.2
830817	3.4	3.5	3.6	3.9	4.7	6.2
830818	3.4	3.5	3.8	3.7	4.8	7.8
830819	3.4	3.6	3.8	3.7	4.8	7.5
830820	3.6	3.6	3.8	4.2	4.7	5.3
830821	3.6	3.6	3.7	4.4	4.8	5.5
830822	3.5	3.6	3.7	4.3	4.9	6.1
830823	3.5	3.6	3.7	4.3	4.7	5.5
830824	3.5	3.6	3.7	4.2	4.7	6.0
830825	3.5	---	3.7	3.6	---	4.4
Monthly Value	3.4	4.1	5.5	3.6	5.4	11.3

Table 3-A-30. (continued).

October 1983						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
831027	2.9	----	3.0	1.2	----	1.6
831028	2.7	2.8	2.9	.7	1.1	1.4
831029	2.4	2.5	2.7	.6	.9	1.2
831030	2.1	2.3	2.5	.5	.8	1.0
831031	1.7	2.0	2.2	0.0	.4	.6
Monthly Value	1.7	----	3.0	0.0	----	1.6

Table 3-A-31. Ryan temperature recorder data summary:
 surface water temperature (C) at Slough
 9 Incubation Site, RM 128.3,
 GC S30N03W16CBC, 1983.

August 1983			
Date	Surface Water Temperature (C)		
	Min	Mean	Max
830831	8.0	---	9.0
Monthly Value	8.0	---	9.0

Table 3-A-31. (continued).

September 1983			
Date	Surface Water Temperature (C)		
	Min	Mean	Max
830901	7.5	8.0	8.0
830902	5.5	6.6	7.5
830903	5.0	5.8	6.5
830904	4.5	5.4	6.0
830905	3.0	4.2	5.0
830906	3.5	4.0	5.0
830907	3.0	4.2	5.0
830908	5.0	5.5	6.0
830909	5.5	5.9	6.5
830910	5.0	5.7	6.0
830911	5.0	5.9	7.0
830912	5.5	6.1	7.0
830913	5.0	5.7	6.5
830914	4.5	5.1	5.5
830915	3.0	4.7	5.5
830916	1.5	2.7	4.0
830917	1.0	2.3	3.5
830918	1.0	2.5	4.0
830919	1.5	3.7	5.5
830920	4.0	4.7	5.0
830921	5.0	---	6.5
Monthly Value	1.0	5.0	8.0

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Table 3-A-32. Datapod temperature recorder data summary:
 intragravel and surface water temperature (C)
 at Slough 9 - Site 3, RM 128.6, GC S30N03W16BDC.

May 1983						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
830501	3.4	3.5	3.7	1.9	5.2	9.7
830502	3.4	3.5	3.6	3.4	5.1	7.6
830503	3.4	3.5	3.6	2.8	4.4	6.9
830504	3.4	3.5	3.5	2.1	4.4	7.8
830505	3.4	3.5	3.5	.6	2.1	4.1
830506	3.3	3.3	3.4	.2	.8	3.4
830507	3.1	3.1	3.3	0.0	.3	.9
830508	2.8	3.0	3.1	0.0	.4	.9
830509	2.9	3.3	3.5	.6	3.4	7.1
830510	3.3	3.5	3.7	2.1	4.5	7.7
830511	3.4	3.5	3.7	2.1	4.8	8.5
830512	3.4	3.5	3.8	2.7	4.9	8.0
830513	3.4	3.5	3.7	2.5	4.8	8.5
830514	3.4	3.5	3.7	2.8	4.9	8.5
830515	3.4	3.5	3.7	2.5	4.6	7.2
830516	3.3	3.5	3.7	2.2	3.8	6.0
830517	3.4	3.5	3.6	1.7	3.6	5.9
830518	3.4	3.5	3.6	2.4	4.3	7.1
830519	3.4	3.5	3.7	2.8	4.8	7.1
830520	3.4	3.6	3.8	2.8	5.5	8.7
830521	3.5	3.6	3.8	3.5	5.1	7.2
830522	3.5	3.5	3.7	3.7	5.6	8.2
830523	3.5	3.5	3.7	3.6	5.5	8.1
830524	3.5	3.6	3.8	3.7	6.3	9.6
830525	3.5	3.6	3.8	3.1	5.8	8.3
830526	3.5	3.6	3.8	4.5	6.0	8.0
830527	3.5	3.6	3.8	3.8	6.0	8.8
830528	3.5	3.7	3.9	3.7	6.4	9.0
830529	3.6	3.7	3.9	4.5	6.9	9.3
830530	3.8	4.0	4.2	7.2	8.4	10.0
830531	3.9	4.0	4.2	7.7	8.1	8.5
Monthly Value	2.8	3.5	4.2	0.0	4.7	10.0

Table 3-A-32. (continued).

June 1983						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
830601	3.8	3.9	4.0	7.5	8.4	9.6
830602	3.8	3.8	4.0	8.0	8.6	9.5
830603	3.7	3.8	3.9	7.4	8.2	8.8
830604	3.7	3.7	3.9	7.1	7.4	7.9
830605	3.6	3.7	3.8	7.6	8.3	9.5
830606	3.6	3.7	3.9	8.6	9.9	11.8
830607	3.7	3.8	3.9	9.1	10.8	13.3
830608	3.5	3.6	3.9	8.1	9.3	11.1
830609	3.4	3.5	3.6	-----	-----	-----
830610	3.4	3.4	3.5	-----	-----	-----
830611	3.4	3.4	3.5	-----	-----	-----
830612	3.4	3.4	3.5	-----	-----	-----
830613	3.4	3.4	3.5	-----	-----	-----
830614	3.4	3.4	3.5	-----	-----	-----
830615	3.4	3.4	3.5	-----	-----	-----
830616	3.4	3.4	3.5	-----	-----	-----
830617	3.4	3.5	3.6	-----	-----	-----
830618	3.5	3.5	3.7	-----	-----	-----
830619	3.5	3.5	3.5	-----	-----	-----
830620	3.4	3.5	3.6	-----	-----	-----
830621	3.5	3.6	3.6	-----	-----	-----
830622	3.5	3.5	3.6	-----	-----	-----
830623	3.5	3.5	3.5	-----	-----	-----
830624	3.5	3.5	3.5	-----	-----	-----
830625	3.4	3.5	3.5	-----	-----	-----
830626	3.5	3.5	3.5	-----	-----	-----
830627	3.5	3.5	3.6	-----	-----	-----
830628	3.5	3.5	3.5	-----	-----	-----
830629	3.4	3.5	3.5	-----	-----	-----
830630	3.5	3.5	3.5	-----	-----	-----
Monthly Value	3.4	3.6	4.0	7.1	-----	13.3

Table 3-A-32. (continued).

July 1983						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
830701	3.4	3.5	3.5	----	----	----
830702	3.4	3.5	3.5	----	----	----
830703	3.4	3.5	3.5	----	----	----
830704	3.4	3.5	3.5	----	----	----
830705	3.5	3.5	3.5	----	----	----
830706	3.4	3.5	3.5	----	----	----
830707	3.4	3.5	3.5	----	----	----
830708	3.5	3.5	3.5	----	----	----
830709	3.5	3.5	3.5	----	----	----
830710	3.5	3.5	3.5	----	----	----
830711	3.4	3.5	3.5	----	----	----
830712	3.4	3.4	3.5	----	----	----
830713	3.4	3.4	3.5	----	----	----
830714	3.4	3.4	3.5	----	----	----
830715	3.4	3.5	3.5	----	----	----
830716	3.4	3.4	3.5	----	----	----
830717	3.4	3.5	3.5	----	----	----
830718	3.4	3.4	3.5	----	----	----
830719	3.4	3.5	3.5	----	----	----
830720	3.4	3.5	3.5	9.5	12.2	16.1
830721	3.4	3.5	3.5	8.2	12.2	17.0
830722	3.4	3.5	3.5	8.6	12.9	17.8
830723	3.4	3.5	3.5	8.7	11.4	13.8
830724	3.4	3.5	3.5	10.8	12.4	14.1
830725	3.4	3.5	3.5	10.6	12.3	14.1
830726	3.4	3.5	3.5	9.2	11.7	14.6
830727	3.4	3.5	3.5	9.2	12.6	17.4
830728	3.4	3.5	3.5	8.1	12.3	17.3
830729	3.4	3.5	3.5	8.2	11.6	15.7
830730	3.4	3.5	3.5	9.2	11.3	13.0
830731	3.4	3.5	3.5	10.3	12.2	14.2
Monthly Value	3.4	3.5	3.5	8.1	----	17.8

Table 3-A-32. (continued).

August 1983						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
830801	3.5	3.5	3.5	11.4	12.8	15.7
830802	3.4	3.5	3.5	10.6	13.1	16.7
830803	3.4	3.5	3.5	10.1	13.3	17.0
830804	3.4	3.5	3.5	10.0	12.2	13.8
830805	3.5	3.5	3.5	10.2	11.7	13.2
830806	3.5	3.5	3.5	10.5	11.5	13.0
830807	3.5	3.5	3.6	10.7	11.3	11.9
830808	3.5	3.5	3.6	10.7	11.1	11.7
830809	3.5	3.5	3.7	10.9	11.3	11.9
830810	3.7	4.1	4.2	10.1	10.7	11.4
830811	3.7	3.9	4.1	10.5	10.9	11.6
830812	3.7	3.7	3.8	10.6	11.3	12.1
830813	3.6	3.7	3.8	10.3	10.8	11.8
830814	3.6	3.6	3.7	9.7	10.3	11.3
830815	3.5	3.5	3.6	7.8	8.9	10.6
830816	3.5	3.5	3.5	----	----	----
830817	3.4	3.5	3.5	----	----	----
830818	3.4	3.5	3.5	----	----	----
830819	3.4	3.5	3.5	----	----	----
830820	3.4	3.5	3.5	----	----	----
830821	3.4	3.5	3.5	----	----	----
830822	3.4	3.5	3.5	----	----	----
830823	3.5	3.5	3.5	6.3	----	10.7
830824	3.5	3.5	3.6	8.4	9.5	10.9
830825	3.5	3.6	3.6	7.9	8.9	10.2
830826	3.5	3.6	3.7	7.2	8.1	8.7
830827	3.5	3.6	3.7	8.0	8.4	8.9
830828	3.5	3.6	3.7	8.2	9.2	11.6
830829	3.5	3.6	3.6	7.2	7.8	8.2
830830	3.5	3.6	3.7	6.8	8.6	12.2
830831	3.6	3.6	3.7	8.7	9.6	10.4
Monthly Value	3.4	3.6	4.2	6.3	10.5	17.0

Table 3-A-32. (continued).

September 1983						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
830901	3.5	3.6	3.7	6.1	7.1	8.8
830902	3.5	3.5	3.6	5.2	5.5	6.1
830903	3.5	3.5	3.6	5.0	5.1	5.3
830904	3.5	3.5	3.5	4.8	-----	5.1
830905	3.5	3.5	3.5	-----	-----	-----
830906	3.5	3.5	3.5	-----	-----	-----
830907	3.5	3.5	3.5	-----	-----	-----
830908	3.5	3.5	3.6	-----	-----	-----
830909	3.5	3.5	3.6	-----	-----	-----
830910	3.5	3.5	3.6	-----	-----	-----
830911	3.5	3.5	3.6	-----	-----	-----
830912	3.5	3.5	3.6	-----	-----	-----
830913	3.5	3.5	3.6	-----	-----	-----
830914	3.5	3.5	3.6	-----	-----	-----
830915	3.5	3.5	3.6	-----	-----	-----
830916	3.5	3.5	3.6	-----	-----	-----
830917	3.5	3.5	3.6	2.3	4.3	7.6
830918	3.5	3.5	3.6	2.2	4.3	7.1
830919	3.5	3.5	3.6	2.9	4.7	7.1
830920	3.5	3.5	3.5	4.9	5.5	6.3
830921	3.5	3.5	3.6	5.4	6.2	8.0
830922	3.5	3.5	3.5	5.0	6.0	7.7
830923	3.5	3.5	3.5	2.6	4.2	6.0
830924	3.5	3.5	3.5	.7	1.8	3.5
830925	3.5	3.5	3.5	.6	1.8	4.0
830926	3.5	3.5	3.5	.6	1.8	4.0
830927	3.5	3.5	3.5	.5	2.1	4.2
830928	3.5	3.5	3.5	2.2	3.0	4.0
830929	3.5	3.5	3.5	2.4	3.2	3.7
830930	3.5	3.5	3.5	2.7	3.5	5.0
Monthly Value	3.5	3.5	3.7	.5	-----	8.8

Table 3-A-32. (continued).

October 1983						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
831001	3.5	3.5	3.5	4.1	4.5	5.4
831002	3.5	3.5	3.5	3.7	4.5	5.7
831003	3.5	3.5	3.5	2.4	3.1	4.1
831004	3.5	3.5	3.5	1.5	2.4	3.7
831005	3.5	3.5	3.5	1.8	2.7	3.6
831006	3.5	3.5	3.5	1.5	2.5	3.7
831007	3.5	3.5	3.5	.7	1.4	2.4
831008	3.4	3.5	3.5	.3	1.2	2.6
831009	3.5	3.5	3.5	.4	1.1	1.9
831010	3.4	3.5	3.5	.1	.6	1.7
831011	3.4	3.5	3.5	----	----	----
831012	3.4	3.5	3.5	----	----	----
831013	3.4	3.5	3.5	----	----	----
831014	3.4	3.5	3.5	----	----	----
831015	3.4	3.5	3.5	----	----	----
831016	3.4	3.5	3.5	----	----	----
831017	3.4	3.5	3.5	----	----	----
831018	3.4	3.5	3.5	----	----	----
831019	3.4	3.5	3.5	----	----	----
831020	3.4	3.5	3.5	----	----	----
831021	3.4	3.5	3.5	1.1	2.2	3.4
831022	3.4	3.5	3.5	1.5	2.3	3.4
831023	3.4	3.5	3.5	.4	1.2	2.4
831024	3.4	3.4	3.5	.4	1.0	2.0
831025	3.4	3.4	3.5	.4	.9	1.5
831026	3.4	3.4	3.5	1.0	1.5	2.7
831027	3.4	3.4	3.5	.5	1.5	2.7
831028	3.4	3.4	3.5	1.4	2.0	2.6
831029	3.4	3.4	3.5	.7	1.7	2.6
831030	3.4	3.4	3.5	1.3	1.9	2.6
831031	3.4	3.4	3.5	1.2	1.6	1.9
Monthly Value	3.4	3.5	3.5	.1	2.0	5.7

Table 3-A-33. Datapod temperature recorder data summary:
 intragravel and surface water temperature (C)
 at Slough 10 Northeast, RM 134.0,
 GC S31N03W36AAA.

October 1983						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
831019	3.9	----	4.0	2.5	----	3.6
831020	3.8	3.8	3.9	2.2	2.7	3.2
831021	3.7	3.8	3.9	2.4	3.1	3.7
831022	3.7	3.7	3.8	2.6	3.0	3.6
831023	3.5	3.6	3.7	1.7	2.3	3.1
831024	3.4	3.5	3.6	1.6	2.1	2.9
831025	3.4	3.5	3.6	1.5	2.0	2.4
831026	3.4	3.4	3.5	2.1	2.4	3.2
831027	3.3	3.4	3.5	1.6	2.4	3.2
831028	3.4	3.4	3.5	2.3	2.7	3.3
831029	3.3	3.4	3.5	1.7	2.4	2.9
831030	3.3	3.4	3.4	2.1	2.5	3.0
831031	3.3	3.4	3.4	1.7	2.4	2.7
Monthly Value	3.3	----	4.0	1.5	----	3.7

Table 3-A-34. Datapod temperature recorder data summary:
 intragravel and surface water temperature (C)
 at Slough 10 Northwest, RM 134.0,
 GC S31N03W36AAA.

October 1983						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
831019	3.5	---	3.6	2.4	---	3.3
831020	3.5	3.5	3.6	2.1	2.5	2.7
831021	3.5	3.6	3.6	2.3	2.8	3.3
831022	3.5	3.6	3.7	2.4	2.9	3.5
831023	3.6	3.6	3.7	1.8	2.3	2.9
831024	3.6	3.6	3.7	1.8	2.2	2.7
831025	3.6	3.7	3.7	1.8	2.2	2.6
831026	3.6	3.7	3.7	2.1	2.3	2.8
831027	3.6	3.6	3.7	1.9	2.3	2.8
831028	3.6	3.7	3.7	2.2	2.5	2.8
831029	3.6	3.7	3.7	2.0	2.4	2.7
831030	3.6	3.7	3.7	2.2	2.5	2.8
831031	3.6	3.7	3.7	2.1	2.4	2.6
Monthly Value	3.5	---	3.7	1.8	---	3.5

Table 3-A-35. Datapod temperature recorder data summary:
 intragravel and surface water temperature (C)
 at Slough 11 - Site 2, RM 135.7, GC S31N02W19DAD.

May 1983.						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
830501	3.6	3.7	3.8	3.5	4.8	7.7
830502	3.6	3.7	3.8	3.7	5.4	7.4
830503	3.6	3.7	3.8	3.7	5.4	7.4
830504	3.6	3.7	3.8	3.8	4.9	6.9
830505	3.6	3.7	3.8	3.6	5.1	8.7
830506	3.6	3.7	3.8	3.7	4.9	8.1
830507	3.6	3.7	3.8	3.7	4.9	8.5
830508	3.6	3.7	3.8	3.8	6.1	9.5
830509	3.6	3.7	3.9	3.8	6.4	8.8
830510	3.7	3.7	3.8	3.8	6.6	9.0
830511	3.6	3.7	3.8	3.8	6.4	9.5
830512	3.7	3.7	3.8	3.9	5.7	8.3
830513	3.6	3.7	3.8	3.7	7.1	9.7
830514	3.6	3.7	3.8	4.7	7.3	9.6
830515	3.6	3.7	3.8	5.3	6.6	8.0
830516	3.6	3.6	3.7	4.6	6.4	8.2
830517	3.6	3.6	3.7	5.3	6.3	7.6
830518	3.6	3.6	3.7	4.9	6.2	7.7
830519	3.5	3.6	3.7	4.1	6.7	9.1
830520	3.6	3.7	3.7	4.5	7.0	9.0
830521	3.6	3.7	3.7	4.1	6.5	7.7
830522	3.6	3.6	3.7	4.4	6.6	8.7
830523	3.6	3.6	3.7	4.0	6.4	8.4
830524	3.6	3.7	3.7	3.8	5.2	7.6
830525	3.6	3.6	3.7	3.6	6.4	8.5
830526	3.6	3.7	3.7	4.2	6.8	8.9
830527	3.6	3.6	3.7	3.9	5.5	8.6
830528	3.6	3.6	3.7	3.9	6.5	9.7
830529	3.6	3.7	3.7	3.8	4.7	7.9
830530	3.6	3.6	3.7	3.9	5.9	8.2
830531	3.5	3.6	3.7	4.1	6.7	8.0
Monthly Value	3.5	3.7	3.9	3.5	6.0	9.7

Table 3-A-35. (continued).

June 1983						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
830601	3.5	3.6	3.7	4.0	6.7	10.0
830602	3.5	3.6	3.6	4.0	6.2	7.6
830603	3.5	3.5	3.6	5.5	5.8	6.5
830604	3.4	3.5	3.6	4.8	5.4	6.2
830605	3.4	3.5	3.5	5.1	6.0	7.5
830606	3.4	3.5	3.6	3.7	5.5	8.4
830607	3.4	3.5	3.6	3.7	6.0	9.3
830608	3.5	3.5	3.6	3.8	5.9	8.3
830609	3.5	3.5	3.6	4.0	5.5	8.5
830610	3.5	3.5	3.6	3.8	5.0	7.0
830611	3.5	3.5	3.6	3.7	6.4	8.2
830612	3.5	3.6	3.6	4.5	6.3	9.4
830613	3.5	3.6	3.7	4.0	6.2	8.8
830614	3.5	3.6	3.7	3.9	5.7	7.6
830615	3.5	3.6	3.7	3.8	4.7	6.3
830616	3.5	3.6	3.7	3.9	4.6	6.2
830617	3.5	3.6	3.7	3.8	4.5	6.2
830618	3.5	3.6	3.7	3.7	4.6	6.1
830619	3.5	3.6	3.7	3.7	4.4	6.4
830620	3.5	3.6	3.7	3.8	4.7	6.4
830621	3.5	3.6	3.7	3.8	4.8	6.3
830622	3.5	3.6	3.7	3.7	4.5	5.7
830623	3.5	3.6	3.7	3.7	4.5	6.2
830624	3.5	3.6	3.7	3.9	4.7	6.4
830625	3.5	3.6	3.7	3.8	4.7	6.7
830626	3.6	3.6	3.7	4.3	5.2	8.1
830627	3.5	3.6	3.6	4.3	5.0	6.2
830628	3.5	3.6	3.6	4.0	5.1	7.3
830629	3.5	3.5	3.6	4.1	5.0	6.7
830630	3.5	3.5	3.6	4.0	4.8	6.2
Monthly Value	3.4	3.6	3.7	3.7	5.3	10.0

Table 3-A-35. (continued).

July 1983						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
830701	3.5	3.5	3.6	3.9	4.9	6.2
830702	3.5	3.5	3.6	4.3	5.6	8.2
830703	3.5	3.5	3.6	3.9	5.9	9.2
830704	3.5	3.6	3.6	3.8	5.9	8.4
830705	3.5	3.6	3.7	4.9	5.7	6.8
830706	3.5	3.6	3.6	4.6	7.0	7.8
830707	3.5	3.5	3.6	5.5	6.6	8.3
830708	3.5	3.5	3.6	5.5	6.6	8.5
830709	3.5	3.5	3.6	4.0	5.8	8.7
830710	3.5	3.5	3.6	4.2	6.8	9.5
830711	3.5	3.6	3.6	4.3	7.1	9.3
830712	3.5	3.6	3.7	4.2	7.2	9.4
830713	3.5	3.6	3.7	4.1	6.4	8.4
830714	3.5	3.6	3.7	4.1	6.4	8.8
830715	3.5	3.6	3.7	4.0	5.9	9.8
830716	3.5	3.6	3.7	4.0	6.3	9.7
830717	3.6	3.6	3.7	3.9	7.0	8.5
830718	3.6	3.6	3.7	4.0	5.2	7.2
830719	3.5	3.6	3.7	3.9	5.3	8.2
830720	3.6	3.6	3.7	3.9	5.5	8.6
830721	3.6	3.6	3.7	3.9	5.4	8.6
830722	3.6	3.6	3.7	3.9	5.0	8.5
830723	3.6	3.7	3.8	4.3	6.5	8.6
830724	3.6	3.7	3.7	4.6	6.8	8.5
830725	3.5	3.6	3.7	4.2	5.8	8.9
830726	3.5	3.6	3.7	3.9	5.3	8.5
830727	3.6	3.6	3.7	3.9	5.3	7.7
830728	3.5	3.6	3.7	3.9	5.4	8.9
830729	3.6	3.7	3.8	3.9	5.1	8.7
830730	3.6	3.7	3.7	3.9	5.3	7.8
830731	3.6	3.6	3.7	4.1	5.7	7.0
Monthly Value	3.5	3.6	3.8	3.8	5.9	9.8

Table 3-A-35. (continued).

August 1983						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
830801	3.6	3.7	3.7	4.0	5.3	8.6
830802	3.6	3.6	3.7	4.0	5.3	7.5
830803	3.6	3.6	3.7	3.9	5.3	7.8
830804	3.6	3.6	3.7	3.9	5.5	8.0
830805	3.6	3.6	3.7	4.6	5.6	6.4
830806	3.6	3.6	3.7	4.7	6.7	9.1
830807	3.6	3.6	3.7	6.4	7.2	8.1
830808	3.6	3.6	3.7	6.4	6.7	7.2
830809	3.5	3.6	3.6	6.1	7.0	8.6
830810	3.5	3.6	3.7	5.8	7.6	10.2
830811	3.5	3.6	3.6	5.8	7.1	8.5
830812	3.5	3.6	3.7	6.4	6.8	7.3
830813	3.5	3.6	3.6	5.8	6.5	7.6
830814	3.5	3.5	3.6	5.5	6.6	8.8
830815	3.5	3.6	3.6	5.1	6.0	7.3
830816	3.5	3.5	3.6	3.7	6.1	9.0
830817	3.5	3.5	3.6	3.7	5.5	7.5
830818	3.5	3.6	3.7	3.8	5.2	7.7
830819	3.5	3.6	3.7	3.8	5.9	8.8
830820	3.6	3.6	3.7	4.7	6.2	6.7
830821	3.5	3.6	3.6	3.8	5.8	7.2
830822	3.5	3.6	3.6	4.0	6.1	7.5
830823	3.5	3.6	3.6	5.0	6.2	7.1
830824	3.5	3.6	3.6	5.3	6.2	7.5
830825	3.5	3.5	3.6	4.3	5.5	6.8
830826	3.5	3.5	3.6	5.1	6.2	8.1
830827	3.5	3.5	3.6	5.3	6.6	8.8
830828	3.5	3.5	3.6	4.7	6.2	8.1
830829	3.5	3.5	3.6	5.0	5.5	6.7
830830	3.5	3.5	3.6	5.4	6.3	8.2
830831	3.5	3.5	3.6	5.5	6.0	6.8
Monthly Value	3.5	3.6	3.7	3.7	6.1	10.2

Table 3-A-35. (continued).

September 1983						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
830901	3.5	3.5	3.6	5.2	5.6	6.2
830902	3.5	3.5	3.6	4.6	5.9	7.7
830903	3.4	3.5	3.5	4.3	5.3	6.8
830904	3.4	3.5	3.6	3.9	5.0	6.3
830905	3.5	3.5	3.5	3.3	4.8	6.6
830906	3.4	3.5	3.5	3.4	4.8	6.7
830907	3.4	3.5	3.5	3.6	4.9	6.7
830908	3.5	3.5	3.5	4.7	5.4	6.1
830909	3.5	3.5	3.6	4.7	5.6	7.2
830910	3.5	3.5	3.6	4.8	5.8	7.3
830911	3.5	3.5	3.6	4.6	5.6	6.8
830912	3.5	3.5	3.6	4.6	5.7	7.1
830913	3.5	3.5	3.6	4.4	5.4	6.5
830914	3.5	3.5	3.6	3.9	4.8	5.6
830915	3.5	3.5	3.6	4.1	5.2	6.9
830916	3.5	3.5	3.6	3.3	4.5	6.2
830917	3.5	3.5	3.6	3.1	4.4	5.7
830918	3.4	3.5	3.5	3.1	4.2	5.4
830919	3.4	3.5	3.5	3.2	4.2	5.3
830920	3.5	3.5	3.5	4.0	4.8	5.2
830921	3.5	3.5	3.5	4.6	5.2	6.0
830922	3.5	3.5	3.6	4.0	5.1	5.7
830923	3.4	3.5	3.5	2.8	3.8	4.7
830924	3.3	3.5	3.5	1.1	2.2	3.2
830925	3.2	3.3	3.4	.9	2.4	3.6
830926	3.2	3.3	3.4	1.5	2.7	4.5
830927	3.2	3.3	3.4	1.8	2.5	3.4
830928	3.2	3.3	3.3	2.3	2.7	3.2
830929	3.2	3.3	3.3	2.7	2.9	3.2
830930	3.3	3.4	3.4	3.1	3.5	4.4
Monthly Value	3.2	3.5	3.6	.9	4.5	7.7

Table 3-A-35. (continued).

October 1983						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
831001	3.3	3.4	3.5	3.8	4.2	5.1
831002	3.4	3.4	3.5	3.7	4.2	5.4
831003	3.3	3.4	3.5	2.5	3.4	4.2
831004	3.3	3.4	3.4	2.2	3.1	3.8
831005	3.3	3.3	3.4	2.6	3.0	3.5
831006	3.3	3.3	3.4	2.2	3.0	4.4
831007	3.2	3.3	3.4	1.9	2.5	3.4
831008	3.2	3.3	3.3	1.7	2.3	3.2
831009	3.3	3.3	3.3	1.5	2.2	2.7
831010	3.2	3.2	3.3	1.1	1.7	2.6
831011	3.2	3.2	3.3	2.2	2.6	3.3
831012	3.2	3.3	3.3	2.6	2.8	3.3
831013	3.2	3.3	3.3	2.0	2.7	3.1
831014	3.2	3.3	3.3	1.8	2.3	3.1
831015	3.2	3.3	3.3	2.3	2.6	3.0
831016	3.2	3.3	3.3	1.6	2.1	2.6
831017	3.2	3.3	3.3	1.7	2.2	3.0
831018	3.2	3.3	3.3	2.3	2.8	3.6
831019	3.2	3.3	3.3	2.2	2.6	3.2
831020	3.2	3.3	3.3	1.8	2.3	3.3
831021	3.2	3.3	3.3	2.0	2.5	3.3
831022	3.2	3.3	3.3	2.0	2.5	3.3
831023	3.2	3.3	3.3	2.0	2.6	3.3
831024	3.2	3.3	3.3	2.0	2.3	2.8
831025	3.2	3.2	3.3	1.9	2.2	2.8
831026	3.2	3.2	3.3	1.6	2.0	2.5
831027	3.2	3.2	3.3	1.8	2.1	2.5
831028	3.2	3.2	3.3	2.0	2.2	2.7
831029	3.2	3.2	3.3	1.9	2.2	2.4
831030	3.2	3.2	3.3	2.0	2.3	2.5
831031	3.2	3.2	3.3	1.9	2.1	2.4
Monthly Value	3.2	3.3	3.5	1.1	2.6	5.4

Table 3-A-36. Datapod temperature recorder data summary:
intragravel and surface water temperature (C)
at Slough 19, RM 140.0, GC S31N02W10DBA.

May 1983						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
830501	3.6	4.0	4.2	4.7	5.9	8.5
830502	3.5	3.7	4.2	4.0	5.1	6.6
830503	2.9	3.3	3.7	2.8	4.5	6.4
830504	2.8	3.1	3.4	2.9	4.5	6.5
830505	2.6	3.0	3.3	2.7	4.4	6.7
830506	2.5	2.9	3.2	2.5	4.0	7.0
830507	2.3	2.7	3.0	2.2	4.0	6.7
830508	2.5	2.8	3.1	2.6	4.4	6.7
830509	2.3	2.7	3.1	1.6	3.4	5.3
830510	2.3	2.6	2.8	2.1	3.8	6.1
830511	2.3	2.7	2.9	2.5	4.4	6.4
830512	2.4	2.7	2.9	2.0	3.6	5.7
830513	2.5	2.7	2.9	2.1	3.4	5.7
830514	2.4	2.7	2.9	2.0	3.4	5.6
830515	2.5	2.8	3.2	2.3	3.8	5.7
830516	3.0	3.2	3.5	3.4	4.4	6.1
830517	3.1	----	3.5	2.9	----	4.2
Monthly Value	2.3	----	4.2	1.6	----	8.5

Table 3-A-36. (continued).

June 1983						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
830605	4.5	---	5.0	4.2	---	5.2
830606	3.9	4.7	5.8	3.6	4.7	6.2
830607	4.3	5.0	5.9	4.0	5.1	6.5
830608	4.2	4.7	5.5	3.8	4.7	6.1
830609	3.8	4.7	5.7	3.4	4.7	6.3
830610	3.8	4.8	6.5	3.4	4.9	7.2
830611	3.8	4.8	6.2	3.4	4.8	7.0
830612	4.2	5.3	6.9	3.9	5.5	7.8
830613	4.6	5.4	6.2	4.4	5.5	6.4
830614	4.4	5.3	6.6	4.0	5.4	7.3
830615	4.5	5.3	6.5	4.2	5.3	7.1
830616	4.6	5.7	7.3	4.3	5.9	8.1
830617	4.9	5.7	6.7	4.5	5.7	7.1
830618	4.8	5.7	6.9	4.5	5.7	7.5
830619	4.8	5.6	6.7	4.5	5.6	7.0
830620	4.8	5.3	6.1	4.4	5.2	6.1
830621	4.6	5.3	6.1	4.4	5.3	6.3
830622	4.8	5.5	6.0	4.5	5.4	6.2
830623	4.9	5.4	5.9	4.6	5.3	5.9
830624	4.8	5.3	5.8	4.5	5.2	6.1
830625	4.6	5.3	5.6	4.3	5.2	5.7
830626	4.8	5.3	5.6	4.5	5.1	5.5
830627	4.6	4.9	5.6	4.3	4.7	5.6
830628	4.5	4.9	5.5	4.2	4.8	5.6
830629	4.6	5.1	5.6	4.3	4.9	5.5
830630	4.6	5.1	6.6	4.3	5.1	7.2
Monthly Value	3.8	5.2	7.3	3.4	5.2	8.1

Table 3-A-36. (continued).

July 1983						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
830701	4.3	4.5	4.7	4.1	4.8	6.2
830702	4.2	4.3	4.4	4.1	5.0	5.7
830703	4.3	4.4	4.5	4.2	5.3	6.5
830704	4.4	4.5	4.6	4.5	5.5	7.4
830705	4.5	4.6	4.7	4.3	5.4	6.9
830706	4.5	4.7	4.8	4.9	5.4	6.1
830707	4.4	4.5	4.6	4.2	4.7	5.2
830708	4.4	4.4	4.5	4.4	5.0	6.0
830709	4.4	4.5	4.6	4.1	5.1	6.7
830710	4.5	4.6	4.9	4.3	5.8	8.4
830711	4.6	4.7	4.9	4.1	5.9	8.0
830712	4.5	4.7	5.0	4.5	6.3	9.1
830713	4.5	4.8	5.0	4.5	5.6	7.1
830714	4.5	4.5	4.7	4.4	5.3	6.6
830715	4.5	4.6	4.8	4.5	6.1	9.1
830716	4.3	4.5	4.8	3.9	5.5	8.1
830717	4.1	4.3	4.5	4.1	5.2	6.5
830718	4.2	4.4	4.7	4.1	5.4	7.2
830719	4.6	4.7	5.0	4.5	5.9	7.9
830720	4.6	4.9	5.0	4.4	6.4	9.4
830721	4.5	4.8	5.0	4.1	5.6	8.2
830722	4.6	4.7	5.0	4.4	5.8	8.2
830723	4.7	4.8	5.0	4.6	5.3	6.7
830724	4.6	4.6	4.8	4.6	5.2	5.9
830725	4.6	4.7	4.8	4.5	5.6	7.1
830726	4.6	4.8	5.0	4.5	6.0	8.3
830727	4.7	4.8	5.0	4.5	5.8	8.0
830728	4.6	4.8	5.0	4.2	6.1	10.0
830729	4.5	4.8	5.0	4.4	6.1	9.7
830730	4.7	4.8	5.0	4.7	5.2	6.1
830731	4.6	4.7	4.8	4.7	5.3	6.2
Monthly Value	4.1	4.6	5.0	3.9	5.5	10.0

Table 3-A-36. (continued).

August 1983						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
830801	4.7	4.9	5.1	5.0	5.9	7.4
830802	4.9	5.0	5.1	4.5	5.8	7.4
830803	4.9	5.1	5.3	4.9	5.9	8.0
830804	5.0	5.2	5.3	5.0	5.6	6.7
830805	4.9	5.0	5.1	4.9	5.5	6.1
830806	4.8	5.0	5.2	4.8	5.9	7.9
830807	5.2	5.3	5.3	5.5	6.2	6.9
830808	5.0	5.2	5.3	5.0	5.5	6.2
830809	4.9	5.0	5.1	5.0	5.5	6.1
830810	5.0	5.1	5.2	5.3	5.8	6.7
830811	5.0	5.1	5.2	4.7	5.6	6.7
830812	4.8	5.0	5.1	4.8	5.3	6.5
830813	4.7	4.8	4.9	4.7	5.3	6.2
830814	4.8	4.9	5.1	4.8	5.6	7.0
830815	4.9	5.0	5.1	4.4	5.3	6.3
830816	4.8	4.9	5.1	4.5	5.5	7.6
830817	4.8	5.0	5.2	4.1	5.5	7.3
830818	4.7	4.9	5.1	4.0	5.3	7.4
830819	4.7	4.8	5.0	4.0	5.5	8.0
830820	4.6	4.7	4.9	4.5	5.1	6.0
830821	4.5	4.6	4.8	4.7	5.4	6.5
830822	4.7	4.8	5.0	4.9	5.7	7.0
830823	4.9	5.0	5.0	5.0	5.7	6.5
830824	4.8	4.9	5.0	4.8	5.4	6.2
830825	4.8	5.0	5.0	4.5	5.3	6.1
830826	4.9	5.0	5.2	5.1	5.6	6.1
830827	5.0	5.1	5.2	4.6	5.4	5.8
830828	4.8	5.0	5.1	4.4	5.3	6.6
830829	4.7	4.8	5.0	4.3	4.9	5.9
830830	4.6	4.7	4.9	4.7	5.5	6.7
830831	4.7	4.8	4.9	4.9	5.4	5.9
Monthly Value	4.5	4.9	5.3	4.0	5.5	8.0

Table 3-A-36. (continued).

September 1983						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
830901	4.7	4.8	4.9	4.6	5.0	5.4
830902	4.6	4.7	4.9	4.6	5.1	5.9
830903	4.6	4.8	4.9	4.1	5.0	6.3
830904	4.6	4.7	4.9	4.1	4.9	6.0
830905	4.5	4.6	4.7	3.8	4.7	6.4
830906	4.3	4.5	4.6	3.4	4.6	6.6
830907	4.3	4.5	4.6	3.5	4.8	6.9
830908	4.5	4.6	4.7	4.5	5.1	6.2
830909	4.5	4.6	4.7	4.5	5.3	7.0
830910	4.5	4.6	4.7	4.5	5.4	7.7
830911	4.5	4.6	4.7	4.3	5.2	6.3
830912	4.4	4.6	4.7	4.3	5.3	7.2
830913	4.5	4.6	4.7	4.3	5.2	6.5
830914	4.4	4.5	4.6	4.0	4.7	5.3
830915	4.4	4.5	4.6	4.3	5.0	6.7
830916	4.4	4.5	4.6	3.7	4.6	6.2
830917	4.3	4.5	4.6	3.6	4.4	6.2
830918	4.3	4.5	4.5	3.9	4.5	5.5
830919	4.3	4.5	4.5	3.8	4.5	5.6
830920	4.5	4.5	4.5	4.5	4.9	5.5
830921	4.5	4.5	4.6	4.6	5.1	6.0
830922	4.5	4.5	4.6	3.8	5.0	5.5
830923	4.3	4.5	4.5	3.0	4.3	5.5
830924	4.1	4.2	4.5	2.4	3.4	4.7
830925	4.0	4.2	4.3	2.4	3.6	4.8
830926	4.2	4.3	4.4	3.7	4.1	4.8
830927	4.2	4.3	4.4	3.7	4.1	5.4
830928	4.3	4.4	4.4	3.8	4.1	4.8
830929	4.2	4.3	4.4	3.7	4.1	4.7
830930	4.2	4.3	4.4	3.6	4.1	4.7
Monthly Value	4.0	4.5	4.9	2.4	4.7	7.7

Table 3-A-36. (continued).

October 1983						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
831001	4.2	4.3	4.4	3.9	4.3	5.0
831002	4.2	4.3	4.4	3.7	4.5	5.7
831003	4.1	4.3	4.4	3.1	3.7	4.6
831004	4.1	4.2	4.3	3.2	3.8	4.5
831005	4.1	4.2	4.3	3.0	3.8	4.2
831006	4.1	4.2	4.3	3.2	3.8	4.6
831007	4.1	4.2	4.4	3.5	4.1	5.0
831008	4.1	4.3	4.4	3.5	4.1	5.3
831009	4.2	4.3	4.4	3.3	3.7	4.2
831010	3.8	4.1	4.2	1.9	2.7	3.4
831011	3.8	3.9	3.9	1.9	2.3	2.6
831012	3.8	3.9	3.9	2.3	2.5	2.7
831013	3.9	3.9	4.0	2.3	2.6	2.9
831014	3.9	4.0	4.1	2.7	3.4	4.0
831015	4.0	4.1	4.2	3.3	3.5	4.0
831016	4.0	4.2	4.2	3.3	3.7	4.6
831017	4.1	4.2	4.3	3.4	3.7	4.5
831018	4.1	4.2	4.3	3.5	3.9	5.0
831019	4.1	4.2	4.2	3.0	3.5	4.1
831020	4.0	4.1	4.1	3.4	3.6	4.1
831021	4.0	4.1	4.2	3.3	3.9	5.0
831022	4.0	4.1	4.2	3.5	3.8	4.5
831023	4.0	4.0	4.2	3.4	3.7	4.3
831024	3.9	4.1	4.1	3.4	3.7	4.5
831025	3.9	4.0	4.1	3.4	3.6	4.0
831026	3.9	4.0	4.0	3.3	3.6	4.1
831027	3.8	3.9	4.0	3.2	3.4	3.9
831028	3.8	3.9	3.9	3.1	3.4	3.7
831029	3.7	3.8	3.9	3.1	3.2	3.3
831030	3.7	3.7	3.8	3.0	3.1	3.2
831031	3.6	3.7	3.7	3.0	3.1	3.2
Monthly Value	3.6	4.1	4.4	1.9	3.5	5.7

Table 3-A-37. Datapod temperature recorder data summary:
 intragravel and surface water temperature (C)
 at Lower Sl. 21 - Site 2, RM 141.8,
 GC S31N02W02AAB.

May 1983						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
830528	3.5	-----	3.6	4.5	-----	8.5
830529	3.5	3.6	3.7	3.1	5.2	7.8
830530	3.5	3.6	3.6	3.8	6.3	8.5
830531	3.5	3.6	3.6	7.2	7.5	7.9
Monthly Value	3.5	-----	3.7	3.1	-----	8.5

Table 3-A-37. (continued).

June 1983						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
830601	3.5	3.6	3.7	7.1	7.5	8.4
830602	3.5	3.6	3.7	7.0	7.6	8.2
830603	3.5	3.6	3.6	6.1	7.0	7.9
830604	3.5	3.6	3.7	5.9	6.1	6.5
830605	3.6	3.6	3.7	6.0	6.8	7.9
830606	3.6	3.6	3.7	4.3	6.0	8.9
830607	3.6	3.6	3.8	3.3	5.4	8.7
830608	3.6	3.6	3.7	3.3	8.0	13.2
830609	3.6	3.6	3.7	3.4	8.2	13.6
830610	3.6	3.6	3.7	3.1	10.6	17.5
830611	3.6	3.6	3.7	5.3	8.6	13.7
830612	3.5	3.6	3.7	4.2	9.2	15.7
830613	3.6	3.7	3.7	2.6	8.7	16.0
830614	3.6	3.7	3.7	4.3	9.6	16.8
830615	3.6	3.7	3.7	3.9	8.0	14.5
830616	3.6	3.7	3.7	4.7	7.8	14.0
830617	3.6	3.7	3.8	3.8	7.4	11.6
830618	3.6	3.7	3.7	5.5	8.1	11.4
830619	3.6	3.7	3.7	4.3	7.5	12.0
830620	3.6	3.7	3.7	6.0	9.6	12.4
830621	3.6	3.7	3.7	8.9	10.6	12.6
830622	3.6	3.7	3.7	8.4	10.6	13.3
830623	3.6	3.7	3.7	9.7	11.5	13.1
830624	3.6	3.7	3.8	9.3	11.2	13.4
830625	3.6	3.7	3.7	8.4	10.7	13.8
830626	3.6	3.7	3.7	7.4	9.7	13.3
830627	3.6	3.7	3.8	8.4	10.1	11.9
830628	3.6	3.7	3.8	9.4	10.5	11.4
830629	3.6	3.7	3.8	8.5	9.7	10.4
830630	3.6	3.7	3.8	6.9	9.3	11.7
Monthly Value	3.5	3.7	3.8	2.6	8.7	17.5

Table 3-A-37. (continued).

July 1983						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
830701	3.6	3.7	3.8	5.3	6.4	7.7
830702	3.6	3.7	3.8	4.5	8.2	12.4
830703	3.6	3.7	3.8	9.4	10.8	12.6
830704	3.6	3.7	3.8	6.5	9.1	10.7
830705	3.6	3.7	3.8	5.5	8.9	12.4
830706	3.7	3.7	3.8	9.8	11.3	12.6
830707	3.7	3.7	3.8	10.1	11.7	12.7
830708	3.7	3.7	3.8	9.8	10.9	12.1
830709	3.7	3.7	3.8	5.8	9.0	10.3
830710	3.7	3.7	3.8	4.5	6.9	11.0
830711	3.7	3.7	3.8	3.9	5.8	8.9
830712	3.7	3.7	3.8	4.5	6.3	10.0
830713	3.7	3.7	3.8	4.3	5.4	8.2
830714	3.7	3.7	3.8	4.0	5.7	8.6
830715	3.7	3.7	3.8	4.3	6.3	10.6
830716	3.7	3.7	3.8	4.0	6.1	9.9
830717	3.7	3.7	3.8	4.2	5.5	7.0
830718	3.7	3.7	3.8	4.2	5.8	8.4
830719	3.7	3.8	3.8	3.7	6.4	11.2
830720	3.7	3.8	3.8	4.1	6.4	10.4
830721	3.7	3.8	3.8	3.7	6.2	10.7
830722	3.7	3.8	3.8	3.6	6.4	10.9
830723	3.7	3.8	3.8	4.5	5.2	6.1
830724	3.7	3.8	3.8	4.1	7.1	10.1
830725	3.7	3.8	3.8	5.3	6.9	9.5
830726	3.7	3.8	3.8	3.8	5.8	8.7
830727	3.7	3.8	3.9	4.2	6.4	10.4
830728	3.7	3.8	3.8	3.8	6.4	10.9
830729	3.7	3.8	3.8	4.0	6.3	10.3
830730	3.7	3.8	3.9	4.5	5.3	6.7
830731	3.7	3.8	3.9	4.4	7.2	10.9
Monthly Value	3.6	3.7	3.9	3.6	7.2	12.7

Table 3-A-37. (continued).

August 1983						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
830801	3.7	3.8	3.8	6.4	8.1	11.2
830802	3.7	3.8	3.9	5.4	7.4	11.1
830803	3.7	3.8	3.9	4.0	6.8	11.4
830804	3.7	3.8	3.9	4.4	5.2	7.2
830805	3.7	3.8	3.9	4.3	5.6	7.4
830806	3.7	3.8	3.9	4.5	7.5	9.9
830807	3.7	3.8	3.9	7.7	9.1	10.1
830808	3.8	3.8	3.8	7.0	8.8	10.0
830809	3.8	3.8	3.9	9.3	9.8	10.2
830810	3.8	3.8	3.9	8.5	9.1	9.6
830811	3.8	3.9	3.9	8.5	9.2	9.9
830812	3.7	3.8	3.9	6.0	8.2	9.2
830813	3.8	3.8	3.9	5.0	8.3	9.8
830814	3.8	3.8	3.9	8.2	8.7	9.3
830815	3.8	3.9	4.0	6.9	7.6	8.3
830816	3.8	3.8	3.9	5.6	7.2	9.1
830817	3.8	3.8	3.9	4.5	6.0	8.7
830818	3.8	3.8	3.9	3.2	5.1	8.7
830819	3.8	3.8	3.9	3.1	4.8	8.4
830820	3.8	3.8	3.9	3.8	4.3	5.2
830821	3.8	---	3.9	3.9	---	4.3
830822	3.7	---	3.9	4.7	---	7.7
830823	3.7	3.8	3.9	4.3	5.2	7.0
830824	3.7	3.8	3.9	4.4	6.3	8.3
830825	3.7	3.8	3.9	6.5	7.2	7.7
830826	3.7	3.8	3.9	6.3	6.9	7.5
830827	3.7	3.8	3.9	7.0	7.5	8.3
830828	3.8	3.8	3.9	7.6	8.1	9.0
830829	3.7	3.8	3.9	4.6	6.2	7.9
830830	3.7	3.8	3.9	4.5	5.7	8.3
830831	3.7	3.8	3.9	6.1	6.9	7.6
Monthly Value	3.7	3.8	4.0	3.1	7.1	11.4

Table 3-A-37. (continued).

September 1983						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
830901	3.7	3.8	3.9	6.2	6.8	7.3
830902	3.7	3.8	3.9	5.6	6.7	7.8
830903	3.7	3.9	4.0	4.1	5.3	6.9
830904	3.7	3.9	4.0	2.8	3.9	5.5
830905	3.7	3.9	4.1	2.5	3.6	5.9
830906	3.7	3.9	4.0	2.8	3.7	6.3
830907	3.7	3.9	4.0	2.8	3.8	5.6
830908	3.7	3.8	3.8	3.4	4.0	5.0
830909	3.7	3.8	3.8	3.4	4.2	5.8
830910	3.7	3.8	3.9	3.4	4.2	6.4
830911	3.7	3.8	3.9	3.4	4.1	5.2
830912	3.7	3.8	3.9	3.4	4.2	6.0
830913	3.7	3.8	3.9	3.4	4.5	6.1
830914	3.7	3.9	3.9	3.0	3.6	4.5
830915	3.7	3.8	3.9	3.3	4.2	6.4
830916	3.7	3.9	4.0	2.5	3.5	6.2
830917	3.7	3.9	4.1	2.3	3.3	6.0
830918	3.7	3.9	4.1	2.3	3.4	5.4
830919	3.7	3.9	4.0	2.6	3.6	5.2
830920	3.7	3.8	3.8	3.5	4.0	4.5
830921	3.7	3.8	3.9	3.7	4.3	5.7
830922	3.7	3.8	3.9	3.0	4.0	4.9
830923	3.8	3.9	4.0	1.9	3.1	4.1
830924	3.8	4.0	4.1	1.5	2.2	3.6
830925	3.8	4.0	4.1	1.3	1.9	3.6
830926	3.8	4.0	4.2	1.4	2.0	3.7
830927	3.8	4.0	4.2	1.3	2.0	3.2
830928	3.7	3.9	4.0	2.2	2.8	3.5
830929	3.7	3.9	3.9	2.6	3.0	3.5
830930	3.7	3.8	3.9	3.0	3.5	4.1
Monthly Value	3.7	3.9	4.2	1.3	3.8	7.8

Table 3-A-37. (continued).

October 1983						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
831001	3.7	3.8	3.9	3.3	3.6	4.2
831002	3.7	3.8	3.9	2.7	3.5	4.7
831003	3.7	3.8	3.9	1.8	2.5	3.7
831004	3.7	3.9	4.1	1.9	2.3	3.6
831005	3.8	3.9	4.0	2.4	2.8	3.4
831006	3.7	3.9	4.0	1.6	2.5	4.3
831007	3.8	4.0	4.2	1.4	1.8	2.6
831008	3.8	4.0	4.2	.9	1.7	2.8
831009	3.8	3.9	4.0	1.4	2.0	2.4
831010	3.7	3.9	4.0	.3	1.5	2.5
831011	3.7	3.8	3.9	2.4	2.8	3.6
831012	3.7	3.8	3.9	2.6	2.9	3.4
831013	3.7	3.8	4.0	.2	2.4	3.4
831014	3.8	4.0	4.1	1.5	1.9	2.7
831015	3.7	3.9	4.0	1.7	2.5	3.4
831016	3.7	3.9	4.1	1.5	2.2	3.3
831017	3.7	3.9	4.0	1.7	2.1	2.8
831018	3.6	3.8	4.0	2.3	2.8	4.0
831019	3.7	3.8	4.0	1.8	2.6	3.3
831020	3.7	3.9	4.0	1.8	2.3	2.7
831021	3.7	3.8	4.0	1.7	2.5	3.3
831022	3.7	3.8	4.0	1.8	2.4	3.2
831023	3.8	4.0	4.0	1.5	1.9	2.7
831024	3.7	4.0	4.1	1.2	1.8	2.6
831025	3.9	4.0	4.1	1.2	1.6	2.1
831026	3.7	3.9	4.0	1.6	2.1	2.6
831027	3.7	3.9	4.1	1.3	2.0	2.7
831028	3.7	3.9	4.0	1.8	2.3	3.0
831029	3.8	3.9	4.0	1.3	2.0	2.5
831030	3.7	3.9	4.0	1.7	2.2	2.8
831031	3.8	3.9	3.9	1.1	2.0	2.4
Monthly Value	3.6	3.9	4.2	.2	2.3	4.7

Table 3-A-38. Datapod temperature recorder data summary:
 intragravel and surface water temperature (C)
 at Upper Sl. 21 - Site 1, RM 142.0,
 GC S32N02W36CCC.

May 1983						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
830501	3.2	4.3	5.7	2.8	4.5	7.3
830502	4.0	4.3	5.1	4.1	4.7	5.9
830503	.4	3.2	5.0	.1	3.0	5.7
830504	.5	1.3	3.3	0.0	.8	3.0
830505	2.7	3.8	5.7	2.4	3.6	6.1
830506	3.4	4.2	5.8	3.0	4.1	6.4
830507	3.5	4.7	7.0	3.0	4.7	7.9
830508	3.6	4.8	7.3	3.4	4.9	8.3
830509	4.0	5.0	7.5	3.9	5.2	8.2
830510	4.1	5.0	7.1	4.1	5.2	7.9
830511	3.9	5.1	7.4	3.8	5.3	8.6
830512	4.3	5.2	6.4	4.3	5.4	6.9
830513	4.2	5.4	8.0	4.2	5.7	9.2
830514	4.3	5.3	7.2	4.3	5.6	7.9
830515	4.1	5.1	6.6	4.1	5.4	7.2
830516	3.2	4.9	7.0	2.9	5.1	7.8
830517	4.1	4.8	5.8	4.2	5.0	6.2
830518	3.8	4.9	6.3	3.8	5.1	6.8
830519	3.9	4.9	6.3	3.9	5.2	7.0
830520	3.8	5.1	6.8	3.8	5.3	7.6
830521	3.9	4.9	6.5	3.9	5.1	7.0
830522	4.1	5.1	7.2	4.2	5.3	7.9
830523	4.1	5.1	6.9	4.1	5.3	7.5
830524	3.9	5.3	7.2	3.9	5.5	7.8
830525	3.5	5.0	7.0	3.3	5.1	7.6
830526	4.2	5.0	6.6	4.3	5.2	7.2
830527	3.8	4.9	6.6	3.7	5.0	7.2
830528	3.6	5.1	7.0	3.5	5.4	7.7
830529	3.8	5.3	6.9	3.8	5.5	7.5
830530	4.5	5.8	7.8	4.6	6.2	8.6
830531	7.2	7.5	7.8	7.6	7.9	8.4
Monthly Value	.4	4.8	8.0	0.0	5.0	9.2

Table 3-A-38. (continued).

June 1983						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
830601	7.2	7.6	8.4	7.4	8.0	8.9
830602	5.2	6.4	7.5	5.5	6.8	8.1
830603	4.8	6.3	7.1	5.0	6.7	7.6
830604	6.0	6.2	6.4	6.3	6.5	6.8
830605	6.1	6.8	8.2	6.6	7.4	8.8
830606	4.2	5.9	8.6	4.3	6.2	9.4
830607	3.6	5.5	8.5	3.5	5.8	9.3
830608	4.0	5.2	7.4	3.9	5.4	7.8
830609	3.9	5.1	7.1	3.8	5.3	7.5
830610	3.8	5.5	7.8	3.6	5.8	8.5
830611	4.3	5.5	7.3	4.3	5.7	7.9
830612	4.2	5.7	7.9	4.2	5.9	8.7
830613	4.1	5.5	7.2	4.1	5.8	7.8
830614	4.3	5.7	7.5	4.4	6.0	8.1
830615	4.4	5.4	7.1	4.4	5.9	8.7
830616	4.5	5.9	8.2	4.6	6.5	9.2
830617	4.2	6.1	8.8	4.1	6.5	9.8
830618	4.4	6.3	8.8	4.4	6.8	9.8
830619	4.9	6.5	8.3	5.0	7.0	9.4
830620	4.6	7.5	13.1	4.7	8.1	14.9
830621	4.6	6.6	8.9	4.7	7.1	10.0
830622	4.9	6.7	9.0	5.1	7.2	10.0
830623	4.9	7.2	11.0	5.1	7.9	12.8
830624	4.6	6.7	9.1	4.7	7.1	10.1
830625	4.6	6.6	9.2	4.7	7.1	10.2
830626	5.1	6.4	8.6	5.3	6.9	9.4
830627	4.6	5.5	6.4	4.7	5.7	6.9
830628	4.6	6.4	8.7	4.8	7.0	9.7
830629	4.7	6.0	7.4	4.9	6.3	8.0
830630	4.6	6.4	8.7	4.7	6.8	9.8
Monthly Value	3.6	6.2	13.1	3.5	6.6	14.9

Table 3-A-38. (continued).

July 1983						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
830701	5.0	5.6	6.6	5.2	5.9	7.1
830702	4.8	6.0	8.3	5.0	6.5	9.2
830703	4.9	6.5	8.7	5.0	7.0	9.6
830704	5.0	6.4	8.1	5.5	7.0	9.0
830705	5.0	6.6	8.9	5.3	7.1	10.0
830706	5.3	5.9	6.9	5.6	6.3	7.5
830707	4.7	8.2	12.3	5.0	9.0	13.7
830708	6.5	10.1	11.1	6.9	10.9	12.0
830709	4.7	6.0	8.2	4.9	6.4	9.1
830710	4.8	6.3	8.5	5.0	6.8	9.6
830711	4.7	6.0	7.6	4.8	6.5	8.5
830712	5.0	6.2	8.1	5.3	6.7	9.2
830713	5.0	5.8	7.2	5.2	6.2	8.1
830714	4.7	5.8	7.5	4.8	6.3	8.4
830715	4.8	6.1	8.2	5.0	6.7	9.4
830716	4.8	6.0	7.7	5.1	6.5	8.9
830717	5.0	5.7	6.5	5.2	6.1	7.2
830718	4.9	5.9	7.5	5.2	6.4	8.4
830719	4.6	6.2	8.6	4.7	6.7	9.8
830720	4.8	6.2	8.1	5.0	6.6	9.1
830721	4.7	6.1	8.3	4.9	6.6	9.5
830722	4.6	6.0	8.2	4.7	6.5	9.1
830723	5.2	5.6	6.1	5.6	6.0	6.8
830724	4.7	5.6	6.9	5.0	6.0	7.7
830725	4.4	5.7	7.1	4.5	6.1	8.0
830726	4.6	5.7	7.1	4.7	6.1	8.0
830727	4.8	6.1	8.1	5.1	6.6	9.0
830728	4.7	6.1	8.1	4.9	6.5	9.2
830729	4.8	6.0	7.8	5.1	6.5	8.7
830730	5.2	5.7	6.3	5.4	6.0	6.9
830731	5.0	5.8	7.3	5.3	6.2	8.3
Monthly Value	4.4	6.2	12.3	4.5	6.7	13.7

Table 3-A-38. (continued).

August 1983						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
830801	4.9	6.0	7.9	5.2	6.5	8.8
830802	4.6	6.0	8.2	4.8	6.5	9.3
830803	4.6	6.0	8.2	4.9	6.5	9.2
830804	5.1	5.6	6.5	5.4	6.0	7.0
830805	5.0	5.5	6.3	5.2	5.9	6.8
830806	4.7	5.7	7.2	4.9	6.1	7.9
830807	4.9	5.6	6.8	5.2	6.0	7.3
830808	5.3	6.5	9.2	5.6	7.0	10.3
830809	7.3	9.0	10.5	8.0	9.6	11.1
830810	8.8	9.4	9.8	9.2	9.9	10.3
830811	6.4	8.9	9.7	6.8	9.5	10.5
830812	5.3	5.8	6.5	5.6	6.0	6.9
830813	4.9	5.8	7.5	5.0	6.2	8.1
830814	5.0	7.4	11.0	5.3	7.9	12.1
830815	5.3	6.3	7.2	5.5	6.6	7.7
830816	4.3	5.6	7.9	4.4	5.9	8.7
830817	4.1	5.5	7.6	4.0	5.8	8.4
830818	3.9	5.5	7.8	3.8	5.7	8.6
830819	3.8	5.2	7.3	3.7	5.4	8.0
830820	4.5	4.8	5.3	4.5	5.0	5.5
830821	4.4	5.0	6.0	4.6	5.3	6.4
830822	4.6	5.1	6.6	4.7	5.4	7.0
830823	4.6	5.2	6.1	4.7	5.4	6.5
830824	4.4	5.2	6.6	4.7	5.5	7.0
830825	4.0	5.9	8.6	4.0	6.2	9.6
830826	6.6	7.1	7.7	6.9	7.5	8.0
830827	7.1	7.8	8.6	7.4	8.1	9.1
830828	5.6	6.8	8.0	5.8	7.2	8.5
830829	4.3	4.7	5.6	4.3	5.0	5.8
830830	4.6	5.2	6.8	4.9	5.5	7.3
830831	4.6	5.1	5.8	4.9	5.4	6.2
Monthly Value	3.8	6.1	11.0	3.7	6.5	12.1

Table 3-A-38. (continued).

September 1983						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
830901	4.4	4.7	5.3	4.5	4.9	5.6
830902	3.9	4.9	6.6	3.9	5.1	7.2
830903	3.5	4.5	6.1	3.4	4.6	6.7
830904	3.3	4.3	5.5	3.1	4.3	5.8
830905	3.1	4.1	5.7	2.8	4.0	6.2
830906	3.2	4.0	5.8	2.8	4.0	6.4
830907	3.3	4.1	5.5	2.9	4.0	5.9
830908	4.0	4.4	5.2	3.9	4.5	5.4
830909	4.0	4.6	5.8	4.0	4.6	6.3
830910	4.0	4.6	5.9	4.0	4.6	6.4
830911	4.0	4.5	5.4	3.9	4.6	5.8
830912	4.0	4.6	5.8	3.9	4.6	6.3
830913	4.0	4.6	5.5	3.9	4.6	5.9
830914	3.7	4.2	4.6	3.6	4.4	5.5
830915	3.9	4.4	5.6	3.8	4.9	6.0
830916	3.4	4.0	5.3	3.0	3.9	5.8
830917	3.3	3.8	5.1	2.9	3.7	5.6
830918	3.3	3.8	4.8	2.9	3.7	4.9
830919	3.4	3.9	4.7	3.2	3.8	4.8
830920	3.9	4.1	4.4	3.9	4.3	4.6
830921	4.0	4.3	5.1	4.1	4.5	5.4
830922	3.8	4.3	4.8	4.0	4.5	5.4
830923	2.9	3.7	4.7	2.5	3.6	4.7
830924	2.6	3.0	4.1	2.1	2.7	4.0
830925	2.6	2.9	4.0	2.0	2.5	3.9
830926	2.6	3.0	4.0	2.2	2.6	3.8
830927	2.6	3.0	3.7	2.1	2.6	3.5
830928	3.0	3.3	3.6	2.6	3.0	3.4
830929	3.2	3.5	3.7	3.1	3.4	3.9
830930	3.4	3.7	4.0	3.6	4.0	4.4
Monthly Value	2.6	4.0	6.6	2.0	4.0	7.2

Table 3-A-38. (continued).

October 1983						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
831001	3.5	3.8	4.2	3.4	3.7	4.2
831002	3.4	3.8	4.7	3.2	4.1	4.8
831003	2.8	3.3	4.1	2.5	3.0	4.1
831004	2.8	3.1	3.9	2.4	2.8	3.8
831005	2.9	3.2	3.6	2.6	3.0	3.4
831006	2.7	3.2	4.2	2.5	3.1	4.6
831007	2.6	2.8	3.3	2.1	2.5	3.0
831008	2.4	2.8	3.4	1.8	2.4	3.1
831009	2.6	2.9	3.0	2.1	2.5	2.7
831010	2.4	2.7	2.9	1.8	2.3	2.7
831011	2.9	3.1	3.6	2.6	2.9	3.4
831012	3.0	3.1	3.4	2.8	3.1	3.5
831013	2.0	2.9	3.4	1.6	2.8	3.4
831014	2.5	2.7	3.2	2.0	2.3	2.9
831015	2.6	3.0	3.5	2.2	2.6	3.2
831016	2.6	2.9	3.4	2.1	2.6	3.2
831017	2.6	2.8	3.3	2.2	2.6	3.1
831018	2.8	3.2	3.8	2.5	3.0	3.7
831019	2.7	3.1	3.5	2.4	2.9	3.3
831020	2.6	2.9	3.2	2.2	2.7	3.0
831021	2.8	3.0	3.5	2.4	2.8	3.3
831022	2.8	3.0	3.4	2.4	2.8	3.2
831023	2.6	2.8	3.2	2.2	2.5	3.0
831024	2.6	2.8	3.2	2.1	2.5	3.0
831025	2.6	2.8	3.0	2.0	2.4	2.7
831026	2.8	3.0	3.2	2.4	2.7	3.0
831027	2.6	2.9	3.3	2.2	2.7	3.0
831028	2.8	3.0	3.4	2.5	2.8	3.1
831029	2.6	3.0	3.2	2.1	2.6	2.9
831030	2.9	3.0	3.2	2.5	2.7	3.0
831031	2.7	3.0	3.1	2.3	2.7	2.8
Monthly Value	2.0	3.0	4.7	1.6	2.8	4.8

Table 3-A-39. Ryan temperature recorder data summary:
 surface water temperature (C) at the
 Yentna River - Site 2, RM 28.0, TRM 4.0,
 GC S18N07W34DBC, 1983.

June 1983			
Date	Surface Water Temperature (C)		
	Min	Mean	Max
830615	10.8	-----	10.8
830616	9.8	10.1	10.3
830617	9.8	10.5	11.3
830618	10.8	11.3	12.3
830619	11.3	11.8	12.3
830620	10.8	11.4	11.8
830621	10.3	11.3	11.8
830622	10.8	11.7	12.8
830623	11.3	11.7	12.3
830624	10.3	10.9	11.3
830625	10.3	10.9	11.3
830626	10.3	10.8	11.3
830627	9.3	9.9	10.8
830628	8.8	9.5	10.3
830629	9.8	10.2	10.8
830630	9.3	10.3	10.8
Monthly Value	8.8	-----	12.8

Table 3-A-39. (continued).

July 1983			
Date	Surface Water Temperature (C)		
	Min	Mean	Max
830701	10.3	10.8	11.3
830702	9.3	9.9	10.8
830703	9.3	10.3	11.8
830704	10.3	11.1	11.8
830705	10.3	10.8	11.3
830706	10.8	11.2	12.3
830707	9.3	10.1	11.8
830708	8.8	9.2	9.8
830709	8.8	9.4	9.8
830710	8.8	9.8	11.3
830711	10.3	10.8	11.3
830712	9.8	10.5	10.8
830713	10.3	10.9	11.8
830714	10.8	11.3	11.8
830715	10.3	11.0	11.8
830716	10.8	11.3	11.8
830717	9.8	10.5	11.3
830718	9.8	10.4	10.8
830719	9.8	10.3	11.3
830720	10.3	11.1	11.8
830721	10.8	11.1	11.8
830722	10.3	11.0	11.8
830723	10.8	11.1	11.8
830724	8.8	9.4	10.8
830725	8.8	9.6	10.3
830726	9.3	9.4	9.8
830727	8.8	9.4	9.8
830728	9.8	10.6	11.8
830729	10.8	11.0	11.3
830730	10.3	11.0	11.3
830731	9.8	10.4	11.3
Monthly Value	8.8	10.5	12.3

Table 3-A-39. (continued).

August 1983			
Date	Surface Water Temperature (C)		
	Min	Mean	Max
830801	9.3	10.3	11.3
830802	10.3	11.1	11.8
830803	10.3	11.3	11.8
830804	10.3	10.8	11.8
830805	9.0	9.4	10.5
830806	8.0	8.5	9.0
830807	8.5	8.5	8.5
830808	8.0	8.3	8.5
830809	8.5	8.7	9.0
830810	8.0	8.6	9.5
830811	8.0	8.6	9.0
830812	8.0	8.3	8.5
830813	8.5	8.6	9.0
830814	8.5	8.7	9.0
830815	8.0	8.3	8.5
830816	8.0	8.3	8.5
830817	8.5	8.8	9.0
830818	9.0	9.0	9.0
830819	9.0	9.4	10.0
830820	9.5	9.6	10.0
830821	8.0	8.8	9.5
830822	8.0	8.3	8.5
830823	8.5	8.5	8.5
830824	8.0	8.4	8.5
830825	8.0	8.1	8.5
830826	8.0	8.2	8.5
830827	8.5	9.0	9.5
830828	9.5	9.7	10.0
830829	9.0	9.4	9.5
830830	8.5	8.7	9.0
830831	8.0	8.2	8.5
Monthly Value	8.0	9.0	11.8

Table 3-A-39. (continued).

September 1983			
Date	Surface Water Temperature (C)		
	Min	Mean	Max
830901	8.0	8.3	8.5
830902	8.0	8.3	8.5
830903	8.0	8.0	8.5
830904	7.5	7.8	8.0
830905	7.0	7.3	7.5
830906	7.0	7.2	7.5
830907	6.0	6.7	7.0
830908	5.5	6.3	7.0
830909	6.5	6.5	6.5
830910	6.5	6.9	7.5
830911	7.0	7.1	7.5
830912	7.0	7.0	7.0
830913	6.5	6.5	6.5
830914	6.0	6.2	6.5
830915	5.5	5.6	6.0
830916	5.0	5.3	5.5
830917	4.5	5.0	5.0
830918	4.5	4.6	5.0
830919	4.5	4.7	5.0
830920	5.0	5.1	5.5
830921	5.5	5.7	6.0
830922	6.0	6.0	6.0
830923	3.0	4.8	6.0
830924	.5	1.6	3.0
830925	0.0	.1	.5
830926	0.0	0.0	0.0
830927	0.0	0.0	0.0
830928	0.0	.3	.5
830929	.5	1.1	2.0
830930	2.0	2.9	3.5
Monthly Value	0.0	5.1	8.5

Table 3-A-39. (continued).

October 1983			
Date	Surface Water Temperature (C)		
	Min	Mean	Max
831001	3.5	3.5	3.5
831002	3.5	3.5	3.5
831003	3.0	3.1	3.5
831004	2.5	2.6	3.0
831005	2.0	2.1	2.5
831006	2.0	2.0	2.0
831007	1.5	---	2.0
Monthly Value	1.5	---	3.5

Table 3-A-40. Ryan temperature recorder data summary:
 surface water temperature (C) at the
 Talkeetna River - Site 2, RM 97.2,
 TRM 1.5, GC S26N05W24BDA, 1983.

May 1983			
Date	Surface Water Temperature (C)		
	Min	Mean	Max
830529	7.6	---	8.1
830530	7.1	7.8	8.1
830531	6.6	7.1	7.6
Monthly Value	6.6	---	8.1

Table 3-A-40. (continued).

June 1983			
Date	Surface Water Temperature (C)		
	Min	Mean	Max
830601	6.1	7.0	8.1
830602	6.6	7.1	8.1
830603	6.1	6.3	6.6
830604	5.6	6.1	6.1
830605	6.1	7.3	8.6
830606	7.6	8.3	9.1
830607	8.1	8.6	9.1
830608	7.6	8.8	10.1
830609	8.1	8.6	9.1
830610	7.1	8.3	9.6
830611	8.6	8.8	9.1
830612	8.1	9.2	10.1
830613	9.1	9.6	10.1
830614	9.1	10.1	10.8
830615	9.3	10.0	10.8
830616	9.3	9.9	10.8
830617	9.3	10.5	11.8
830618	10.3	11.2	12.3
830625	12.8	---	13.3
830626	11.3	12.3	12.8
830627	10.3	10.9	11.3
830628	9.8	10.6	11.3
830629	10.3	10.6	10.8
830630	10.3	10.8	11.8
Monthly Value	5.6	9.2	13.3

Table 3-A-40. (continued).

July 1983			
Date	Surface Water Temperature (C)		
	Min	Mean	Max
830701	9.8	11.1	11.8
830702	9.8	10.6	11.8
830703	10.3	11.3	12.3
830704	10.8	11.7	12.3
830705	10.8	11.7	12.8
830706	10.3	11.9	13.3
830707	9.8	----	10.3
830708	9.3	9.9	10.3
830709	9.3	9.6	9.8
830710	9.8	10.6	11.3
830711	10.8	11.0	11.3
830712	9.8	10.3	10.8
830713	10.8	11.1	11.3
830714	10.3	10.6	10.8
830715	10.3	----	11.3
830716	10.8	11.0	11.3
830717	10.3	10.8	11.3
830718	9.8	10.1	10.8
830719	9.8	10.4	11.3
830720	10.8	11.3	11.8
830721	10.3	11.0	11.8
830722	10.8	11.2	11.8
830723	9.8	11.0	12.3
830724	9.8	9.9	10.3
830725	9.8	10.5	10.8
830726	10.8	11.1	11.3
830727	10.8	11.8	12.8
830728	11.8	12.3	12.8
830729	11.3	12.2	12.8
830730	9.8	10.5	11.3
830731	9.3	9.9	10.3
Monthly Value	9.3	10.9	13.3

Table 3-A-40. (continued).

August 1983			
Date	Surface Water Temperature (C)		
	Min	Mean	Max
830801	10.3	11.2	12.3
830802	10.3	10.8	11.3
830803	10.8	11.2	11.8
830804	9.3	10.7	12.3
830805	9.3	9.4	9.8
830806	8.8	9.6	10.3
830807	9.3	9.7	10.3
830808	8.8	9.3	9.8
830809	9.3	9.7	10.3
830810	8.8	---	9.8
830811	9.5	10.0	10.5
830812	9.5	9.9	10.5
830813	9.0	9.4	9.5
830814	9.0	9.2	10.0
830815	8.0	8.5	9.0
830816	8.5	9.2	10.0
830817	9.0	9.3	9.5
830818	8.0	9.1	10.0
830819	9.0	9.5	10.5
830820	8.5	9.1	9.5
830821	8.5	8.5	8.5
830822	8.5	9.3	10.0
830823	9.0	9.3	9.5
830824	8.0	8.6	9.0
830825	7.0	7.8	9.0
830826	8.5	9.5	10.5
830827	9.0	9.2	9.5
830828	8.0	8.8	10.0
830829	7.5	8.0	9.5
830830	8.0	8.1	8.5
Monthly Value	7.0	9.4	12.3

Table 3-A-40. (continued).

September 1983			
Date	Surface Water Temperature (C)		
	Min	Mean	Max
830917	5.5	---	6.5
830918	4.0	4.8	5.5
830919	5.0	5.3	5.5
830920	5.5	5.8	6.0
830921	6.0	6.5	7.0
830922	7.0	7.0	7.0
830923	4.5	5.8	6.5
830924	2.0	2.8	4.0
830925	1.0	1.5	2.0
830926	.5	1.0	1.5
830927	.5	.9	1.5
830928	1.5	1.8	2.5
830929	2.5	3.0	3.5
830930	3.5	4.0	4.5
Monthly Value	.5	---	7.0

Table 3-A-40. (continued).

October 1983			
Date	Surface Water Temperature (C)		
	Min	Mean	Max
831001	4.4	4.5	4.9
831002	3.9	4.3	4.4
831003	2.9	3.5	4.4
831004	1.9	2.2	2.4
831005	2.4	2.4	2.4
831006	1.9	2.2	2.4
831007	.4	.8	1.4
831008	.4	.4	.4
831009	.4	.4	.4
831010	.4	.4	.4
831011	.9	---	1.4
Monthly Value	.4	---	4.9

Table 3-A-41. Ryan temperature recorder data summary:
 surface water temperature (C) at the
 Chulitna River - Site 2, RM 98.6, TRM 0.6,
 GC S26N05W15DAB, 1983.

May 1983			
Date	Surface Water Temperature (C)		
	Min	Mean	Max
830529	7.7	---	8.7
830530	7.7	8.2	8.7
830531	6.7	7.2	8.2
Monthly Value	6.7	---	8.7

Table 3-A-41. (continued).

June 1983			
Date	Surface Water Temperature (C)		
	Min	Mean	Max
830601	5.7	6.8	8.2
830602	6.7	7.0	8.2
830603	5.2	5.9	6.7
830604	4.7	4.9	5.2
830605	5.2	5.9	7.7
830606	6.2	7.2	8.2
830607	6.7	7.7	9.2
830608	7.2	8.2	9.2
830609	6.7	7.7	8.7
830610	6.7	7.7	9.2
830611	7.2	7.9	9.2
830612	6.7	7.7	8.7
830613	7.7	8.4	9.2
830614	8.2	-----	8.7
Monthly Value	4.7	-----	9.2

Table 3-A-42. Ryan temperature recorder data summary:
 surface water temperature (C) at the
 Chulitna River - Site 3, RM 98.6,
 TRM 2.4, GC S26N05W09ACA, 1983.

July 1983			
Date	Surface Water Temperature (C)		
	Min	Mean	Max
830723	7.0	---	7.5
830724	6.5	7.1	8.0
830725	7.0	7.6	8.5
830726	7.5	8.0	8.5
830727	7.5	8.3	9.0
830728	8.0	9.0	10.0
830729	8.5	9.2	10.0
830730	7.5	8.2	9.5
830731	6.5	7.0	7.5
Monthly Value	6.5	---	10.0

Table 3-A-42. (continued).

August 1983			
Date	Surface Water Temperature (C)		
	Min	Mean	Max
830801	7.0	7.9	9.5
830802	7.5	8.5	9.5
830803	8.0	8.7	9.5
830804	7.0	7.6	9.0
830805	6.5	6.8	7.5
830806	6.5	7.0	7.5
830807	7.0	7.1	7.5
830808	6.5	6.5	7.0
830809	6.5	7.1	8.0
830810	6.0	6.9	7.5
830811	6.0	6.6	7.5
830812	6.5	6.6	7.0
830813	6.5	6.5	6.5
830814	6.0	6.7	7.5
830815	6.0	6.7	7.5
830816	6.0	7.0	8.5
830817	6.5	7.5	8.5
830818	6.5	7.5	8.5
830819	7.0	7.8	8.5
830820	7.0	7.2	8.0
830821	6.5	6.6	7.0
830822	7.0	7.0	7.0
830823	7.0	7.0	7.0
830824	6.5	6.9	7.0
830825	6.0	6.5	7.0
830826	6.5	6.8	7.5
830827	7.0	7.3	7.5
830828	7.5	7.5	7.5
830829	7.0	7.2	7.5
830830	7.0	7.2	7.5
830831	7.5	7.5	7.5
Monthly Value	6.0	7.2	9.5

Table 3-A-42. (continued).

September 1983			
Date	Surface Water Temperature (C)		
	Min	Mean	Max
830901	7.0	7.1	7.5
830902	6.5	6.5	7.0
830903	6.0	6.1	6.5
830904	5.5	5.9	6.0
830905	5.0	5.6	6.0
830906	5.5	5.8	6.0
830907	5.5	5.7	6.0
830908	6.0	6.0	6.0
830909	6.0	6.1	6.5
830910	6.5	6.5	6.5
830911	6.5	6.5	6.5
830912	6.5	6.5	6.5
830913	5.6	6.2	6.5
830914	4.1	4.6	5.6
830915	3.6	4.2	4.6
830916	3.1	4.0	4.6
830917	3.6	4.0	4.6
830918	3.1	3.8	4.6
830919	4.1	4.3	4.6
830920	4.6	4.6	4.6
830921	4.6	4.9	5.6
830922	5.1	5.3	5.6
830923	2.1	3.1	4.6
830924	.1	.6	1.6
830925	.1	.1	.1
830926	.1	.1	.1
830927	.1	.1	.1
830928	.1	.4	.6
830929	.6	1.3	1.6
830930	1.6	2.1	2.6
Monthly Value	.1	4.3	7.5

Table 3-A-42. (continued).

October 1983			
Date	Surface Water Temperature (C)		
	Min	Mean	Max
831001	2.6	2.8	3.1
831002	2.6	2.8	3.1
831003	1.7	2.2	3.1
831004	.7	1.5	1.7
831005	1.7	1.7	1.7
831006	1.2	1.6	2.2
831007	.2	.6	1.7
831008	.2	.2	.2
831009	.2	.2	.2
831010	.2	.2	.2
831011	.2	---	.7
Monthly Value	.2	---	3.1

Table 3-A-43. Ryan temperature recorder data summary:
 surface water temperature (C) at the
 Chulitna River - Site 4, RM 98.6,
 TRM 4.4, GC S27N05W32DAA, 1983.

July 1983			
Date	Surface Water Temperature (C)		
	Min	Mean	Max
830723	6.0	---	6.0
830724	5.0	5.9	7.0
830725	5.0	6.3	7.5
830726	6.0	6.5	7.0
830727	5.5	7.1	8.5
830728	6.0	7.8	9.5
830729	6.5	7.8	9.0
830730	6.0	6.6	8.0
830731	5.0	5.9	7.0
Monthly Value	5.0	---	9.5

Table 3-A-43. (continued).

August 1983			
Date	Surface Water Temperature (C)		
	Min	Mean	Max
830801	5.5	6.9	9.0
830802	6.0	7.2	8.5
830803	6.0	7.3	8.5
830804	6.0	6.3	7.5
830805	5.5	5.6	6.0
830806	5.0	5.8	6.5
830807	5.0	5.5	6.5
830808	5.0	---	5.0
830817	8.0	---	8.0
830818	5.5	7.0	9.0
830819	6.5	7.5	8.5
830820	6.5	6.8	8.0
830821	5.5	6.2	7.0
830822	6.0	6.5	7.0
830823	6.0	6.6	7.0
830824	6.0	6.3	7.0
830825	5.0	5.7	6.5
830826	6.0	6.9	8.5
830827	6.0	7.2	8.5
830828	6.5	7.3	8.0
830829	6.0	6.3	7.5
830830	6.0	6.9	8.0
830831	6.0	6.6	7.0
Monthly Value	5.0	6.6	9.0

Table 3-A-43. (continued).

September 1983			
Date	Surface Water Temperature (C)		
	Min	Mean	Max
830901	6.0	6.1	6.5
830902	5.5	6.1	7.0
830903	4.5	5.3	6.0
830904	4.5	5.1	6.0
830905	3.5	4.7	6.0
830906	4.0	5.2	6.0
830907	4.0	5.0	6.0
830908	5.5	5.6	6.0
830909	5.0	5.8	6.5
830910	5.5	6.1	7.0
830911	5.0	6.1	7.0
830912	5.5	6.0	6.5
830913	5.5	5.7	6.0
830914	4.0	4.3	5.0
830915	3.5	4.2	5.0
830916	3.5	4.2	5.0
830917	3.5	4.2	5.0
830918	3.0	3.9	4.5
830919	3.5	4.2	4.5
830920	4.5	4.5	4.5
830921	4.5	4.9	5.5
830922	5.0	5.1	5.5
830923	2.5	2.9	4.5
830924	.5	.7	2.0
830925	0.0	.4	.5
830926	0.0	.5	.5
830927	.5	.5	.5
830928	.5	.6	1.0
830929	1.0	1.6	2.0
830930	2.0	2.5	3.0
Monthly Value	0.0	4.1	7.0

Table 3-A-43. (continued).

October 1983			
Date	Surface Water Temperature (C)		
	Min	Mean	Max
831001	3.0	3.1	3.5
831002	2.5	3.0	3.5
831003	2.0	2.6	3.0
831004	1.2	1.8	2.2
831005	1.7	2.1	2.2
831006	1.2	2.0	2.7
831007	.7	.0	1.7
831008	.2	.2	.7
831009	.2	.2	.2
831010	.2	.2	.2
831011	.2	----	.7
Monthly Value	.2	----	3.5

Table 3-A-44. Datapod temperature recorder data summary:
 intragravel water temperature (C) at Fourth
 of July Creek - Site 1, RM 131.1, TRM 0.0,
 GC S30N03W03DAC.

SEPTEMBER 1983						
Date	Plume			Creek		
	Min	Mean	Max	Min	Mean	Max
830901	6.3	-----	6.4	8.8	-----	8.8
830902	5.6	6.0	6.4	8.1	8.6	8.8
830903	5.4	5.5	5.7	8.5	8.6	8.8
830904	5.5	5.8	6.3	7.5	8.1	8.6
830905	6.3	7.1	7.7	4.8	6.3	7.9
830906	7.7	7.8	7.9	4.6	6.0	7.3
830907	7.3	7.5	7.8	4.5	5.8	7.5
830908	6.9	7.2	7.4	6.7	7.3	8.1
830909	6.8	6.8	6.9	6.9	7.7	8.6
830910	6.8	7.0	7.2	6.9	7.6	8.5
830911	7.2	7.3	7.5	6.6	7.6	8.9
830912	7.4	7.5	7.6	6.9	7.8	8.6
830913	7.5	7.6	7.7	6.6	7.4	8.3
830914	7.6	7.7	7.7	6.1	6.7	7.8
830915	7.4	7.6	7.7	5.6	6.2	7.2
830916	6.9	7.2	7.5	3.5	5.0	6.4
830917	6.3	6.7	6.9	3.0	4.5	5.9
830918	5.7	6.0	6.4	2.8	4.2	5.7
830919	5.2	5.5	5.7	3.6	4.8	6.0
830920	4.9	5.1	5.2	5.5	5.9	6.4
830921	4.9	5.1	5.3	6.3	6.8	7.7
830922	5.3	5.6	5.9	5.9	6.5	7.3
830923	5.9	6.2	6.4	3.5	4.2	6.6
830924	6.4	6.5	6.5	.4	1.2	3.5
830925	6.2	6.4	6.5	-.3	.1	.6
830926	4.6	5.6	6.2	-.3	-.1	.4
830927	2.7	3.6	4.6	-.3	0.0	1.0
830928	1.4	1.9	2.7	.6	1.0	1.6
830929	.8	1.0	1.4	1.3	1.6	2.0
830930	.8	1.0	1.3	1.6	2.0	2.8
Monthly Value	.8	5.9	7.9	-.3	5.2	8.9

Table 3-A-44. (continued).

October 1983						
Date	Plume			Creek		
	Min	Mean	Max	Min	Mean	Max
831001	1.3	1.5	1.8	2.6	2.8	3.1
831002	1.9	2.3	2.6	2.9	3.0	3.4
831003	2.6	2.9	3.0	1.9	2.5	3.4
831004	2.9	3.0	3.1	.7	1.6	2.5
831005	2.6	2.8	3.0	1.3	1.9	2.5
831006	2.1	2.3	2.6	.8	1.5	2.1
831007	1.9	2.0	2.2	-.3	.1	1.3
831008	1.6	1.8	2.0	-.3	-.2	-.1
831009	1.0	1.3	1.6	-.3	-.2	0.0
831010	.5	.7	1.0	-.3	-.3	-.2
831011	.2	.4	.6	-.2	.4	.9
831012	.1	.1	.2	.9	1.2	1.7
831013	.1	.4	.6	.8	1.4	1.9
831014	.6	.9	1.1	-.3	.3	1.5
831015	1.1	1.2	1.2	0.0	.7	1.5
831016	.7	.0	1.2	-.2	.4	1.2
831017	.6	.7	.7	-.1	.5	1.2
831018	.6	.6	.7	.7	1.4	2.4
831019	.6	.6	.7	.5	1.1	1.9
831020	.7	.9	1.0	-.3	0.0	.5
831021	.9	1.0	1.0	0.0	.6	1.3
831022	.6	.7	.9	.3	.9	1.4
831023	.6	.6	.6	-.3	-.1	.9
831024	.6	.6	.6	-.3	-.2	-.1
831025	.2	.4	.6	-.3	-.2	-.2
831026	-.1	.0	.2	-.3	-.2	-.2
831027	-.2	-.1	0.0	-.3	-.2	-.2
831028	-.2	-.2	-.2	-.3	-.2	-.2
831029	-.2	-.2	-.2	-.3	-.2	-.2
831030	-.2	-.2	-.2	-.2	-.2	-.2
831031	-.2	-.2	-.2	-.2	-.2	-.2
Monthly Value	-.2	1.0	3.1	-.3	.6	3.4

Table 3-A-45. Datapod temperature recorder data
 summary: surface water temperature (C)
 at Gold Creek - Site 2, RM 136.7,
 TRM 0.2, GC S31N02W20BAD.

May 1983			
Date	Surface Water temperature (C)		
	Min	Mean	Max
830516	3.0	-----	5.5
830517	2.5	3.5	5.0
830518	2.5	3.6	5.0
830519	2.5	4.1	6.5
830520	2.5	4.3	6.5
830521	2.5	3.7	5.5
830522	2.5	4.0	6.5
830523	2.5	3.6	5.5
830524	2.0	3.8	6.0
830525	1.5	3.6	6.0
830526	2.5	3.6	5.5
830527	2.0	3.3	5.0
830528	2.5	4.1	6.0
830529	2.0	3.9	5.5
830530	3.0	3.7	5.5
830531	2.5	2.9	3.5
Monthly Value	1.5	-----	6.5

Table 3-A-45. continued

June 1983			
Date	Surface Water temperature (C)		
	Min	Mean	Max
830601	2.5	3.7	5.5
830602	2.5	3.5	5.0
830603	2.5	3.1	3.5
830604	2.5	3.1	4.0
830605	3.0	4.1	5.5
830606	3.0	4.5	6.0
830607	3.0	4.7	7.0
830608	3.5	4.6	6.5
830609	3.5	4.8	7.0
830610	3.0	5.2	7.0
830611	4.0	5.4	7.0
830612	4.5	5.8	7.5
830613	4.5	6.0	7.5
830614	5.0	6.4	8.0
830615	5.0	6.1	7.5
830616	5.0	6.7	9.0
830617	5.0	7.0	9.5
830618	5.5	7.9	11.0
830619	7.0	8.4	10.5
830620	6.5	8.5	11.0
830621	6.5	9.0	11.5
830622	7.5	9.7	12.0
830623	8.0	9.3	11.0
830624	7.5	9.8	12.5
830625	7.5	10.4	13.0
830626	8.5	9.6	11.0
830627	7.5	8.5	9.5
830628	7.5	9.5	13.0
830629	7.0	8.7	10.5
830630	7.5	9.9	12.5
Monthly Value	2.5	6.8	13.0

Table 3-A-45. continued

July 1983			
Date	Surface Water temperature (C)		
	Min	Mean	Max
830701	8.5	8.9	9.5
830702	8.0	9.4	11.0
830703	8.0	10.4	13.5
830704	9.0	10.5	12.5
830705	9.5	11.4	14.0
830706	9.0	10.1	10.5
830707	8.5	9.9	11.0
830708	9.0	9.8	11.5
830709	8.5	9.9	12.0
830710	8.5	10.6	13.0
830711	9.0	10.5	12.5
830712	9.0	10.5	12.5
830713	9.0	9.9	11.0
830714	8.5	9.9	11.5
830715	9.0	10.9	13.5
830716	9.5	11.0	13.0
830717	9.5	10.5	11.5
830718	9.0	10.5	12.5
830719	8.0	10.6	14.0
830720	9.0	10.9	13.0
830721	8.5	10.9	14.0
830722	8.5	11.3	14.5
830723	9.5	10.1	10.5
830724	9.0	10.1	11.5
830725	8.0	10.4	12.5
830726	8.5	10.7	13.0
830727	9.5	11.3	14.0
830728	9.0	11.8	15.0
830729	10.0	12.0	15.0
830730	10.0	10.9	11.5
830731	10.0	11.1	13.0
Monthly Value	8.0	10.5	15.0

Table 3-A-45. continued

August 1983			
Date	Surface Water temperature (C)		
	Min	Mean	Max
830801	10.0	11.8	15.0
830802	9.0	11.6	14.5
830803	9.0	11.7	15.0
830804	10.5	10.9	11.5
830805	10.0	10.6	11.5
830806	9.5	10.7	12.5
830807	9.5	10.4	12.0
830808	9.5	9.7	10.0
830809	8.5	9.6	10.5
830810	7.5	9.0	10.5
830811	7.5	9.1	10.5
830812	8.5	9.2	10.0
830813	8.0	8.5	9.0
830814	7.0	8.0	9.0
830815	6.5	7.4	8.5
830816	6.0	7.7	9.5
830817	6.5	7.8	9.5
830818	6.0	7.9	9.5
830819	6.0	8.0	10.5
830820	7.5	8.0	9.0
830821	7.0	7.9	9.0
830822	7.5	8.3	9.5
830823	7.5	8.0	9.0
830824	6.5	7.4	8.5
830825	5.5	7.0	8.5
830826	6.5	8.2	10.0
830827	6.5	8.0	10.0
830828	6.5	8.1	10.0
830829	7.0	7.8	8.5
830830	8.0	8.7	10.0
830831	7.5	8.0	8.5
Monthly Value	5.5	8.9	15.0

Table 3-A-45. continued

September 1983			
Date	Surface Water temperature (C)		
	Min	Mean	Max
830901	7.5	7.7	8.0
830902	5.5	6.6	7.5
830903	5.0	6.0	7.0
830904	4.5	5.4	6.5
830905	3.5	4.7	6.0
830906	3.5	4.5	6.0
830907	3.0	4.8	6.5
830908	5.0	5.9	7.0
830909	5.5	6.1	7.0
830910	5.5	6.0	7.5
830911	5.0	6.2	7.5
830912	5.5	6.4	7.5
830913	5.5	6.1	7.0
830914	5.0	5.5	6.0
830915	4.0	5.3	6.5
830916	3.0	4.1	5.5
830917	2.5	3.6	5.0
830918	2.5	3.8	5.5
830919	3.0	4.3	5.5
830920	4.5	5.1	5.5
830921	5.0	5.9	7.0
830922	3.5	5.5	6.5
830923	1.0	3.0	4.0
830924	0.0	.7	2.0
830925	0.0	.3	1.0
830926	-.5	.0	.5
830927	0.0	.1	.5
830928	.5	1.1	2.0
830929	1.5	1.8	2.5
830930	2.0	2.9	3.5
Monthly Value	-.5	4.3	8.0

Table 3-A-45. continued

October 1983			
Date	Surface Water temperature (C)		
	Min	Mean	Max
831001	2.5	3.2	4.0
831002	2.5	3.2	4.5
831003	1.0	1.8	2.5
831004	.5	1.2	2.0
831005	1.5	-----	2.0
Monthly Value	.5	-----	4.5

Table 3-A-46. Datapod temperature recorder data
summary: surface water temperature (C)
at Indian River - Site 2, RM 138.6,
TRM 1.0, GC S31N02W09CBA.

May 1983			
Date	Surface Water temperature (C)		
	Min	Mean	Max
830517	3.0	-----	4.5
830518	2.5	4.0	5.0
830519	3.0	4.6	6.0
830520	3.5	5.5	7.5
830521	4.0	4.7	6.0
830522	4.0	5.2	7.0
830523	4.0	5.3	7.0
830524	4.0	5.9	7.5
830525	3.5	5.8	7.5
830526	5.0	5.6	7.0
830527	4.0	5.5	7.0
830528	4.0	6.4	8.0
830529	4.5	6.6	8.5
830530	5.0	6.0	7.0
830531	4.5	5.0	5.5
Monthly Value	2.5	-----	8.5

Table 3-A-46. continued

June 1983			
Date	Surface Water temperature (C)		
	Min	Mean	Max
830601	4.0	6.1	8.5
830602	4.0	5.2	6.5
830603	4.5	4.5	5.0
830604	4.0	4.9	6.0
830605	4.5	6.0	7.5
830606	5.0	6.8	8.5
830607	4.0	6.9	9.0
830608	5.0	6.7	8.5
830609	5.0	7.0	9.5
830610	5.0	7.7	10.0
830611	6.0	6.9	8.5
830612	5.5	7.5	9.5
830613	5.0	7.5	10.0
830614	6.0	7.7	9.5
830615	6.0	7.3	9.0
830616	6.0	7.7	9.5
830617	5.0	7.9	10.0
830618	6.0	8.8	11.5
830619	7.0	9.0	11.5
830620	6.0	9.0	11.5
830621	6.5	9.5	12.0
830622	7.5	9.7	12.0
830623	7.5	9.4	11.5
830624	7.0	9.8	12.5
830625	7.5	10.4	13.0
830626	8.5	9.9	11.5
830627	7.5	8.7	9.5
830628	8.0	9.6	11.5
830629	7.5	9.4	11.0
830630	8.0	10.4	13.0
Monthly Value	4.0	7.9	13.0

Table 3-A-46. continued

July 1983			
Date	Surface Water temperature (C)		
	Min	Mean	Max
830701	8.5	9.3	10.0
830702	8.5	9.3	10.5
830703	8.0	10.1	12.5
830704	9.0	10.8	12.5
830705	9.0	11.1	13.5
830706	9.0	10.2	11.0
830707	8.5	10.2	12.0
830708	9.0	10.3	12.0
830709	8.5	10.3	12.0
830710	9.0	11.0	13.5
830711	9.5	11.1	13.0
830712	9.5	11.0	13.0
830713	10.0	10.5	11.5
830714	9.0	10.5	12.0
830715	9.5	11.2	13.5
830716	9.5	11.4	13.5
830717	10.0	10.8	12.0
830718	9.5	10.8	12.5
830719	8.5	11.3	14.0
830720	10.0	11.9	14.5
830721	9.5	11.8	14.0
830722	9.0	12.0	15.0
830723	10.0	10.9	12.0
830724	9.5	10.8	12.0
830725	9.0	11.1	13.0
830726	9.0	11.2	13.5
830727	10.0	12.0	14.5
830728	9.5	12.3	15.0
830729	10.5	12.6	15.0
830730	11.0	11.5	12.5
830731	10.0	11.4	13.0
Monthly Value	8.0	11.0	15.0

Table 3-A-46. continued

August 1983			
Date	Surface Water temperature (C)		
	Min	Mean	Max
830801	10.0	12.0	14.0
830802	9.5	12.1	14.5
830803	9.5	12.3	15.0
830804	11.0	11.4	12.0
830805	10.5	10.9	11.5
830806	9.5	11.1	12.5
830807	10.0	10.7	11.5
830808	10.0	10.0	10.0
830809	9.5	9.8	10.5
830810	8.0	9.7	11.0
830811	8.0	9.9	11.5
830812	9.5	9.6	10.0
830813	8.5	9.0	9.5
830814	8.0	8.7	10.0
830815	7.5	8.0	8.5
830816	6.5	8.6	11.0
830817	7.0	8.6	10.5
830818	7.0	8.9	11.5
830819	6.5	8.9	11.5
830820	8.0	8.4	9.0
830821	8.0	8.6	9.5
830822	8.0	8.9	10.0
830823	7.5	8.4	9.0
830824	7.0	8.1	9.0
830825	6.0	7.6	9.0
830826	7.5	8.6	10.5
830827	6.5	8.5	11.0
830828	7.0	8.6	10.5
830829	7.5	8.1	8.5
830830	8.0	8.6	9.5
830831	7.5	7.9	8.5
Monthly Value	6.0	9.4	15.0

Table 3-A-46. continued

September 1983			
Date	Surface Water temperature (C)		
	Min	Mean	Max
830901	7.5	7.7	8.0
830902	6.5	7.3	8.5
830903	5.5	6.7	8.0
830904	5.5	6.5	7.5
830905	4.5	6.1	8.0
830906	4.5	6.0	8.0
830907	4.5	6.1	7.5
830908	6.0	7.0	8.0
830909	6.5	7.3	8.5
830910	6.5	7.3	8.5
830911	6.0	7.4	8.5
830912	6.5	7.4	8.5
830913	6.5	7.2	8.0
830914	5.5	6.3	7.0
830915	5.5	6.7	8.0
830916	4.0	5.9	7.5
830917	3.5	5.5	7.5
830918	3.5	5.5	7.0
830919	4.5	5.8	7.0
830920	6.0	6.3	6.5
830921	6.5	7.0	8.0
830922	4.5	6.4	7.0
830923	2.0	4.2	5.0
830924	1.0	1.6	2.5
830925	.5	1.8	3.0
830926	.5	1.8	3.5
830927	.5	2.0	3.5
830928	2.5	3.2	4.0
830929	3.5	3.7	4.0
830930	3.5	3.7	4.0
Monthly Value	.5	5.6	8.5

Table 3-A-46. continued

October 1983			
Date	Surface Water temperature (C)		
	Min	Mean	Max
831001	4.0	4.2	4.5
831002	3.5	4.3	5.0
831003	2.5	3.2	4.0
831004	1.5	2.6	4.0
831005	2.0	2.9	3.5
831006	1.5	2.6	3.5
831007	.5	1.4	2.5
831008	0.0	1.0	2.0
831009	1.0	1.2	1.5
831010	0.0	.8	2.0
831011	1.5	2.2	3.0
831012	2.0	2.5	3.0
831013	1.5	2.3	3.0
831014	.5	1.1	2.0
831015	1.0	1.9	3.0
831016	.5	1.6	2.5
831017	1.0	1.6	2.5
831018	2.0	2.6	3.5
831019	1.0	-----	2.0
Monthly Value	0.0	-----	5.0

Table 3-A-47. Datapod temperature recorder data
 summary: surface water temperature (C)
 at Portage Creek - Site 2, RM 148.8,
 TRM 0.2, GC S32N01W25CAB.

May 1983			
Date	Surface Water temperature (C)		
	Min	Mean	Max
830514	3.0	-----	5.0
830515	2.0	3.4	5.5
830516	1.5	3.4	5.0
830517	2.5	3.2	4.0
830518	2.0	3.4	4.5
830519	2.5	4.1	6.5
830520	3.0	4.9	7.5
830521	3.5	4.0	5.0
830522	3.5	4.8	6.5
830523	3.5	4.8	6.0
830524	3.5	5.4	7.5
830525	2.5	5.2	7.5
830526	4.5	5.5	7.0
830527	3.5	5.1	6.5
830528	4.0	6.2	8.0
830529	4.5	6.4	8.5
830530	4.0	5.4	6.5
830531	4.0	4.4	5.0
Monthly Value	1.5	-----	8.5

Table 3-A-47. continued

June 1983			
Date	Surface Water temperature (C)		
	Min	Mean	Max
830601	3.5	5.7	8.5
830602	3.5	5.1	6.5
830603	4.0	4.2	4.5
830604	3.5	4.5	5.5
830605	4.0	5.6	7.0
830606	5.0	6.7	9.5
830607	3.5	6.4	8.5
830608	4.5	6.0	7.0
830609	4.5	6.1	8.0
830610	4.5	6.6	8.5
830611	5.5	6.6	8.0
830612	5.0	6.6	8.5
830613	4.0	6.4	8.0
830614	5.0	6.7	8.0
830615	5.5	6.5	7.5
830616	5.5	7.3	9.5
830617	4.5	6.9	9.5
830618	5.0	7.5	10.0
830619	5.5	7.9	10.5
830620	5.0	7.8	10.5
830621	5.5	8.2	11.5
830622	6.0	8.5	11.5
830623	6.5	8.2	10.0
830624	6.0	8.9	12.0
830625	6.5	9.3	12.5
830626	7.5	9.2	11.5
830627	7.0	7.9	9.0
830628	7.0	8.4	10.0
830629	6.5	8.0	9.5
830630	7.0	9.3	11.5
Monthly Value	3.5	7.1	12.5

Table 3-A-47. continued

July 1983			
Date	Surface Water temperature (C)		
	Min	Mean	Max
830701	8.0	8.6	10.0
830702	7.5	8.8	11.0
830703	7.5	9.4	12.0
830704	8.5	9.7	11.0
830705	8.0	10.2	13.0
830706	9.0	9.4	11.0
830707	8.5	-----	8.5
830728	12.5	-----	14.5
830729	10.5	12.6	14.5
830730	11.0	11.6	13.0
830731	10.0	11.1	12.5
Monthly Value	7.5	-----	14.5

Table 3-A-47. continued

AUGUST 1983			
Date	Surface Water temperature (C)		
	Min	Mean	Max
830801	10.0	11.4	13.0
830802	9.5	11.7	13.5
830803	9.0	11.8	14.0
830804	10.5	11.0	12.5
830805	9.5	10.2	10.5
830806	8.5	9.9	11.0
830807	9.0	9.9	10.5
830808	8.5	8.8	9.5
830809	8.0	8.4	9.0
830810	7.0	8.5	10.5
830811	6.5	8.8	10.5
830812	8.5	8.9	9.5
830813	7.5	8.1	8.5
830814	7.0	7.7	9.0
830815	6.0	7.0	8.0
830816	6.0	8.0	10.5
830817	6.5	7.8	9.0
830818	6.0	8.1	10.5
830819	5.5	8.0	10.0
830820	7.5	7.8	9.0
830821	7.0	7.5	8.0
830822	7.0	7.7	8.5
830823	6.5	7.4	8.0
830824	6.0	7.0	8.0
830825	5.5	6.6	7.5
830826	6.5	7.7	9.0
830827	6.0	7.8	9.5
830828	6.0	7.9	9.5
830829	7.0	7.5	8.0
830830	7.0	7.4	7.5
830831	6.0	6.6	7.5
Monthly Value	5.5	8.5	14.0

Table 3-A-47. continued

September 1983			
Date	Surface Water temperature (C)		
	Min	Mean	Max
830901	6.5	6.5	6.5
830902	5.0	6.0	7.0
830903	4.5	5.6	7.0
830904	4.5	5.4	6.5
830905	3.5	5.0	6.5
830906	3.5	5.0	6.5
830907	3.5	5.0	6.5
830908	5.5	6.1	7.0
830909	5.5	6.4	7.5
830910	5.5	6.3	7.5
830911	5.5	6.6	7.5
830912	5.5	6.7	8.0
830913	6.0	6.5	7.0
830914	4.5	5.3	6.0
830915	5.0	5.8	7.0
830916	3.0	4.5	6.0
830917	2.5	4.3	5.5
830918	2.5	4.2	5.5
830919	3.5	4.7	6.0
830920	5.0	5.6	6.0
830921	5.5	6.4	7.0
830922	5.0	6.1	6.5
830923	2.0	3.7	5.0
830924	.5	1.0	2.0
830925	0.0	.4	1.0
830926	0.0	.2	.5
830927	0.0	.5	1.5
830928	1.5	2.0	2.5
830929	2.5	2.7	3.0
830930	3.0	3.6	4.0
Monthly Value	0.0	4.6	8.0

Table 3-A-47. continued

October 1983			
Date	Surface Water temperature (C)		
	Min	Mean	Max
831001	3.5	3.9	4.5
831002	3.0	3.8	4.5
831003	1.5	2.4	3.0
831004	.5	1.7	2.5
831005	2.0	2.2	2.5
831006	1.0	1.9	2.5
831007	0.0	.2	.5
831008	0.0	.1	.5
831009	0.0	.3	.5
831010	0.0	.2	.5
831011	1.0	1.8	2.5
831012	2.0	2.4	3.0
831013	1.0	1.7	2.0
831014	0.0	.2	.5
831015	0.0	.8	1.5
831016	0.0	.6	1.5
831017	0.0	.5	1.0
831018	1.0	2.0	3.0
831019	1.5	-----	2.0
Monthly Value	0.0	-----	4.5

Table 3-A-48. Ryan temperature recorder data summary:
 surface water temperature (C) at Tsusena
 Creek, RM 181.8, TRM 0.1,
 GC S32N04E36ADB, 1983.

May 1983			
Date	Surface Water Temperature (C)		
	Min	Mean	Max
830526	5.0	----	6.0
830527	4.0	5.1	6.5
830528	5.0	6.7	8.5
830529	4.5	6.0	7.5
830530	3.5	4.9	6.5
830531	3.0	3.9	5.0
Monthly Value	3.0	----	8.5

Table 3-A-48. (continued).

June 1983			
Date	Surface Water Temperature (C)		
	Min	Mean	Max
830601	3.0	5.2	7.5
830602	3.5	4.8	6.5
830603	3.5	3.9	4.5
830604	3.5	4.3	5.5
830605	4.0	5.8	7.5
830606	5.0	6.8	9.0
830607	4.0	6.5	9.0
830608	4.5	5.9	7.0
830609	4.5	5.7	7.0
830610	4.5	6.1	7.5
830611	5.0	6.5	8.0
830612	5.5	6.8	8.0
830613	5.0	6.9	8.5
830614	5.5	6.8	8.5
830615	5.0	6.7	8.0
830616	5.5	7.0	9.0
830617	4.5	6.9	9.0
830618	5.5	8.0	10.5
830619	6.0	8.1	10.0
830620	5.0	7.7	10.5
830621	6.0	8.5	11.0
830622	6.0	8.9	11.5
830623	6.5	8.6	10.5
830624	6.0	9.1	12.0
830625	6.5	9.7	13.0
830626	8.0	9.8	12.0
830627	7.0	7.9	9.5
830628	7.0	8.5	10.0
830629	6.5	8.3	9.5
830630	7.5	9.6	12.0
Monthly Value	3.0	7.2	13.0

Table 3-A-48. (continued).

July 1983			
Date	Surface Water Temperature (C)		
	Min	Mean	Max
830701	8.5	9.4	10.0
830702	8.0	9.1	10.0
830703	8.0	9.7	11.5
830704	8.5	9.6	10.5
830705	8.5	10.8	13.5
830706	9.5	10.7	11.5
830707	9.0	9.8	11.0
830708	8.5	10.0	11.5
830709	8.5	9.5	10.0
830710	8.5	10.5	12.5
830711	9.0	10.1	11.0
830712	9.0	11.4	14.0
830713	9.0	10.1	12.0
830714	8.5	9.8	11.0
830715	9.0	10.6	12.0
830716	8.5	10.4	12.0
830717	10.0	10.2	11.0
830718	8.5	----	9.5
Monthly Value	8.0	----	14.0

Table 3-A-48. (continued).

August 1983			
Date	Surface Water Temperature (C)		
	Min	Mean	Max
830824	6.4	---	7.4
830825	5.4	5.9	6.4
830826	5.9	7.3	9.4
830827	5.4	7.1	8.9
830828	5.4	7.3	8.9
830829	6.9	7.2	7.9
830830	6.4	7.0	7.4
830831	5.9	6.2	6.9
Monthly Value	5.4	---	9.4

Table 3-A-48. (continued).

September 1983			
Date	Surface Water Temperature (C)		
	Min	Mean	Max
830901	5.9	5.9	5.9
830902	4.9	5.7	6.4
830903	4.4	5.2	6.4
830904	3.9	4.8	5.9
830905	3.4	4.6	5.9
830906	2.9	4.5	5.9
830907	3.4	4.5	5.4
830908	4.9	5.4	5.9
830909	4.9	5.5	5.9
830910	4.9	5.7	6.9
830911	4.9	5.8	6.4
830912	4.9	5.9	6.9
830913	4.5	5.0	5.4
830914	3.5	4.0	4.5
830915	3.5	4.0	4.5
830916	2.0	3.4	5.0
830917	1.5	3.1	4.5
830918	1.5	2.9	4.0
830919	3.0	3.5	4.0
830920	4.0	4.3	4.5
830921	4.5	4.7	5.0
830922	4.0	4.7	5.0
830923	1.0	2.0	3.0
830924	0.0	.0	.5
830925	0.0	0.0	0.0
830926	0.0	0.0	0.0
830927	0.0	0.0	0.0
Monthly Value	0.0	3.9	6.9

Table 3-A-49. Ryan temperature recorder data summary:
 surface water temperature (C) at Deadman
 Creek, RM 186.7, TRM 0.1, GC S32N04E26CBD,
 1983.

May 1983			
Date	Surface Water Temperature (C)		
	Min	Mean	Max
830526	4.8	5.3	6.3
830527	4.3	5.3	6.3
830528	5.3	6.8	8.3
830529	6.3	6.8	7.3
830530	5.3	6.3	7.3
830531	4.3	5.2	6.3
Monthly Value	4.3	---	8.3

Table 3-A-49. (continued).

June 1983			
Date	Surface Water Temperature (C)		
	Min	Mean	Max
830601	4.3	5.8	7.3
830602	5.8	6.0	6.3
830603	4.3	4.8	5.8
830604	4.3	4.9	5.8
830605	5.3	6.6	7.8
830606	6.8	7.8	8.8
830607	6.8	7.6	8.3
830608	6.8	7.3	7.8
830609	6.3	6.7	7.3
830610	5.8	7.0	7.8
830611	6.8	7.6	8.3
830612	7.3	8.4	9.8
830613	7.3	8.4	9.3
830614	7.8	8.8	9.8
830615	8.3	8.9	9.8
830616	7.8	8.7	9.3
830617	7.3	8.8	9.8
830618	8.3	10.6	12.3
830619	10.8	11.6	12.8
830620	9.3	10.5	11.8
830621	10.8	11.6	12.8
830622	10.8	12.1	13.3
830623	11.3	12.2	12.8
830624	10.3	12.7	14.3
830625	11.8	14.2	16.3
830626	12.8	14.3	15.8
830627	12.3	12.5	13.3
830628	10.8	12.1	12.8
830629	11.3	12.5	13.3
830630	11.8	13.7	15.3
Monthly Value	4.3	9.5	16.3

Table 3-A-49. (continued).

July 1983			
Date	Surface Water Temperature (C)		
	Min	Mean	Max
830701	13.8	14.2	14.8
830702	12.3	13.0	13.8
830703	12.3	13.4	14.8
830704	13.3	14.1	15.3
830705	13.3	14.8	16.8
830706	14.3	15.1	15.8
830707	13.3	13.8	14.3
830708	12.8	14.0	15.3
830709	12.3	13.3	14.3
830710	12.3	14.1	16.3
830711	13.3	13.6	14.3
830712	12.3	14.1	16.3
830713	12.8	13.5	14.3
830714	12.3	13.1	14.3
830715	12.3	13.6	14.8
830716	12.3	14.0	15.3
830717	12.3	13.3	13.8
830718	10.9	11.6	12.3
830719	9.4	11.3	12.9
830720	11.9	12.9	13.9
830721	11.4	13.3	14.9
830722	10.9	13.7	15.9
830723	12.4	12.9	14.4
830724	11.4	12.4	13.4
830725	10.9	13.2	15.4
830726	11.4	13.3	14.9
830727	12.4	14.4	16.4
830728	12.4	15.1	17.4
830729	13.9	15.3	16.9
830730	12.9	13.7	14.4
830731	11.9	12.7	13.4
Monthly Value	9.4	13.6	17.4

Table 3-A-49. (continued).

August 1983			
Date	Surface Water Temperature (C)		
	Min	Mean	Max
830801	12.4	13.2	14.4
830802	10.9	12.9	14.9
830803	11.4	13.6	15.9
830804	12.9	13.4	13.9
830805	11.9	12.3	12.9
830806	10.9	11.6	12.4
830807	10.9	11.8	12.4
830808	10.4	10.9	11.4
830809	9.4	10.2	10.9
830810	9.9	10.8	11.9
830811	9.4	11.0	12.4
830812	10.4	11.1	11.4
830813	9.4	9.7	10.4
830814	8.4	9.1	9.4
830815	7.9	8.4	8.9
830816	7.9	9.1	10.4
830817	8.4	9.5	10.4
830818	7.9	9.3	10.9
830819	7.9	9.7	11.4
830820	8.5	9.3	9.9
830821	7.5	8.2	8.5
830822	8.0	-----	8.5
Monthly Value	7.5	10.7	15.9

Table 3-A-49. (continued).

September 1983			
Date	Surface Water Temperature (C)		
	Min	Mean	Max
830913	5.7	-----	6.2
830914	4.7	5.0	5.7
830915	4.2	4.9	5.7
830916	3.2	4.4	5.7
830917	3.2	4.2	5.7
830918	2.7	3.7	4.7
830919	3.7	4.0	4.7
830920	4.2	4.7	5.2
830921	5.2	5.5	6.2
830922	4.2	5.4	6.2
830923	.2	2.0	3.2
830924	.2	.3	.7
830925	.2	-----	.2
Monthly Value	.2	-----	6.2

Table 3-A-50. Ryan temperature recorder data summary:
 surface water temperature (C) at Watana
 Creek, RM 194.1, TRM 0.1,
 GC S32N06E25CCA, 1983.

May 1983			
Date	Surface Water Temperature (C)		
	Min	Mean	Max
830517	3.3	-----	5.3
830518	2.8	3.7	4.8
830519	2.8	4.5	6.3
830520	3.3	5.3	7.8
830521	3.3	4.3	5.3
830522	3.3	4.6	6.3
830523	3.3	4.7	6.3
830524	3.3	5.2	7.3
830525	2.8	5.4	8.3
830526	4.3	5.0	6.3
830527	3.3	5.0	6.3
830528	4.3	6.7	9.3
830529	4.3	5.9	7.8
830530	4.3	5.4	6.8
830531	4.8	-----	8.3
Monthly Value	2.8	-----	9.3

Table 3-A-50. (continued).

June 1983			
Date	Surface Water Temperature (C)		
	Min	Mean	Max
830601	3.8	6.8	9.8
830602	4.8	6.3	7.3
830603	4.8	5.4	5.8
830604	4.3	5.4	6.3
830605	4.8	7.3	9.8
830606	5.8	7.7	9.8
830607	4.8	7.8	10.8
830608	5.3	7.0	8.3
830609	5.8	6.7	7.8
830610	5.3	7.0	8.8
830611	5.8	7.2	8.8
830612	5.8	8.0	10.3
830613	5.8	7.9	9.8
830614	6.3	8.5	10.8
830615	6.3	8.1	10.3
830616	6.3	8.6	10.3
830617	5.8	8.9	11.8
830618	6.3	9.9	12.8
830619	7.8	9.9	12.3
830620	6.3	10.1	13.8
830621	7.3	10.4	12.8
830622	8.3	11.7	14.3
830623	8.8	11.5	13.8
830624	8.3	11.9	15.8
830625	8.3	12.3	16.3
830626	10.3	12.6	15.8
830627	8.8	9.5	10.3
830628	8.8	10.5	12.3
830629	7.8	9.7	10.8
830630	8.8	11.5	14.3
Monthly Value	3.8	8.9	16.3

Table 3-A-50. (continued).

July 1983			
Date	Surface Water Temperature (C)		
	Min	Mean	Max
830701	9.8	10.9	11.8
830702	9.3	10.8	12.3
830703	8.8	11.3	13.8
830704	10.3	11.4	12.8
830705	9.8	12.5	15.3
830706	11.3	12.3	13.8
830707	9.8	11.1	12.3
830708	8.8	11.2	13.3
830709	9.3	10.5	11.8
830710	8.8	11.7	14.8
830711	9.8	10.9	12.3
830712	9.8	12.1	15.8
830713	9.8	10.6	11.8
830714	8.8	10.8	12.3
830715	8.8	11.3	13.8
830716	8.8	11.4	13.8
830717	9.8	10.7	11.3
830718	8.8	9.3	9.9
830719	6.4	9.2	11.4
830720	8.4	10.7	12.4
830721	8.4	10.9	12.9
830722	6.9	10.7	14.4
830723	9.4	10.2	11.4
830724	8.4	10.5	12.9
830725	7.9	10.9	13.4
830726	7.9	10.6	13.4
830727	8.4	11.4	14.4
830728	8.4	11.6	14.9
830729	9.9	11.8	13.9
830730	9.9	10.2	10.4
830731	8.9	10.3	11.9
Monthly Value	6.4	11.0	15.8

Table 3-A-50. (continued).

August 1983			
Date	Surface Water Temperature (C)		
	Min	Mean	Max
830801	9.4	10.3	11.4
830802	7.4	10.2	12.9
830803	7.4	10.8	14.4
830804	8.9	9.5	10.4
830805	8.9	9.4	9.9
830806	8.4	9.7	10.9
830807	8.9	9.8	10.4
830808	8.4	8.9	9.4
830809	8.4	9.1	9.9
830810	8.4	9.6	11.4
830811	6.9	9.2	11.4
830812	8.4	8.7	9.4
830813	7.9	8.2	8.9
830814	7.4	7.6	7.9
830815	6.4	6.8	7.4
830816	6.4	7.8	9.4
830817	5.9	7.6	9.4
830818	5.4	7.4	9.4
830819	4.9	7.7	10.4
830820	6.1	6.6	7.4
830821	5.6	6.3	7.1
830822	6.1	6.7	7.1
830823	6.1	6.4	6.6
830824	5.1	5.9	6.6
830825	5.1	5.4	5.6
830826	5.1	6.2	7.6
830827	4.6	6.3	8.1
830828	4.6	6.3	8.1
830829	5.6	6.2	6.6
830830	5.6	6.3	7.1
830831	5.1	6.1	7.1
Monthly Value	4.6	7.8	14.4

Table 3-A-50. (continued).

September 1983			
Date	Surface Water Temperature (C)		
	Min	Mean	Max
830901	5.1	5.7	6.1
830902	4.1	5.4	6.6
830903	3.6	4.8	6.1
830913	4.5	---	5.0
830914	3.0	3.7	4.5
830915	3.0	3.8	5.0
830916	1.5	3.1	5.0
830917	1.0	2.7	4.5
830918	.5	2.2	4.0
830919	2.5	3.2	4.0
830920	3.0	4.1	5.0
830921	4.0	4.6	5.0
830922	3.5	4.2	4.5
830923	.5	1.5	3.0
830924	0.0	.2	.5
830925	0.0	.3	.5
830926	0.0	.1	.5
830927	0.0	.1	.5
830928	0.0	.3	.5
830929	.5	.7	1.0
830930	1.0	1.5	2.0
Monthly Value	0.0	2.7	6.6

Table 3-A-50. (continued).

October 1983			
Date	Surface Water Temperature (C)		
	Min	Mean	Max
831001	1.5	2.0	2.5
831002	2.0	2.2	3.0
831003	.5	.8	1.5
831004	0.0	.2	.5
831005	.5	.7	1.0
831006	0.0	.4	1.0
831007	0.0	0.0	0.0
831008	0.0	0.0	0.0
831009	0.0	0.0	0.0
831010	0.0	0.0	0.0
831011	0.0	.5	.5
831012	.5	-----	.5
Monthly Value	0.0	-----	3.0

Table 3-A-51. Ryan temperature recorder data summary:
 surface water temperature (C) at Kosina
 Creek, RM 206.8, TRM 0.1,
 GC S31N08E15BAB, 1983.

May 1983			
Date	Surface Water Temperature (C)		
	Min	Mean	Max
830526	5.5	---	6.0
830527	4.0	5.0	6.0
830528	5.0	6.8	9.0
830529	5.0	6.3	7.5
830530	4.5	6.4	8.5
830531	4.5	5.8	8.5
Monthly Value	4.0	---	9.0

Table 3-A-51. (continued).

June 1983			
Date	Surface Water Temperature (C)		
	Min	Mean	Max
830601	4.0	7.1	10.5
830602	5.5	6.4	7.5
830603	4.5	5.3	6.0
830604	4.5	5.9	7.5
830605	5.5	8.0	10.5
830606	6.5	8.9	11.0
830607	6.5	8.8	11.0
830608	7.0	7.9	8.5
830609	6.0	6.5	7.0
830610	5.0	7.0	8.5
830611	6.5	7.8	9.5
830612	7.0	8.8	11.0
830613	7.0	9.4	11.5
830614	8.0	9.6	11.0
830615	8.0	9.3	10.5
830616	8.5	9.7	11.0
830617	7.5	9.4	11.0
830618	8.0	11.3	14.5
830619	9.5	---	11.0
830630	11.3	---	14.3
Monthly Value	4.0	---	14.5

Table 3-A-51. (continued).

July 1983			
Date	Surface Water Temperature (C)		
	Min	Mean	Max
830701	11.3	12.5	13.3
830702	9.8	11.7	13.3
830703	9.8	12.0	13.8
830704	11.8	12.1	13.3
830705	10.8	14.0	17.3
830706	12.8	14.0	15.3
830707	10.3	11.4	12.3
830708	10.3	11.9	13.8
830709	10.3	11.4	12.8
830710	9.8	12.0	14.8
830711	10.8	11.7	12.3
830712	10.3	12.7	15.3
830713	10.8	11.7	12.8
830714	10.3	11.6	13.3
830715	10.3	12.1	14.3
830716	10.3	12.4	14.3
830717	10.8	11.8	12.8
830718	9.3	10.4	11.8
830719	8.3	11.0	13.3
830720	11.3	12.8	13.8
830721	10.3	12.3	14.3
830722	9.3	12.7	15.3
830723	11.3	12.3	14.3
830724	10.3	12.0	13.8
830725	10.3	12.8	15.3
830726	10.3	12.5	14.3
830727	10.3	12.9	15.3
830728	10.8	13.6	16.3
830729	12.3	13.8	14.8
830730	11.3	11.9	13.3
830731	10.3	11.9	13.8
Monthly Value	8.3	12.3	17.3

Table 3-A-51. (continued).

August 1983			
Date	Surface Water Temperature (C)		
	Min	Mean	Max
830801	11.3	12.2	13.3
830802	9.3	11.8	13.8
830803	9.8	12.7	15.8
830804	11.3	12.1	14.3
830805	10.8	11.2	11.8
830806	9.8	11.2	12.8
830807	10.8	11.6	12.3
830808	10.3	10.9	11.3
830809	9.8	10.7	11.3
830810	9.3	11.2	13.3
830811	9.3	11.1	12.3
830812	9.3	10.4	11.3
830813	8.3	9.4	10.3
830814	7.8	8.5	9.3
830815	6.8	7.7	8.3
830816	7.3	9.1	11.3
830817	7.3	8.6	9.3
830818	6.3	8.8	10.8
830819	6.3	9.1	11.8
830820	8.3	8.8	10.3
830821	8.1	8.6	9.1
830822	8.6	9.2	10.1
830823	8.1	8.4	9.1
830824	7.1	7.6	8.1
830825	5.6	6.3	7.1
830826	6.6	7.6	9.1
830827	7.1	8.6	10.1
830828	6.6	8.4	10.1
830829	7.1	7.9	9.1
830830	7.6	8.1	9.1
830831	6.6	7.4	8.1
Monthly Value	5.6	9.5	15.8

Table 3-A-51. (continued).

September 1983			
Date	Surface Water Temperature (C)		
	Min	Mean	Max
830901	6.6	7.3	8.1
830902	6.1	7.2	8.1
830903	5.1	6.2	7.6
830904	4.6	5.6	6.6
830905	3.1	4.9	6.6
830906	3.6	5.0	6.1
830907	4.1	4.9	6.1
830908	5.6	5.8	6.1
830909	5.6	6.0	6.1
830910	5.6	6.2	6.6
830911	5.6	5.9	6.1
830912	5.6	6.1	6.6
830913	4.5	4.8	5.6
830914	2.5	3.7	4.5
830915	3.5	4.1	5.0
830916	1.5	3.2	4.5
830917	1.5	3.2	4.5
830918	1.0	2.5	3.5
830919	2.0	2.8	3.5
830920	3.5	4.1	5.0
830921	4.0	4.5	5.0
830922	4.0	4.6	5.0
830923	0.0	1.5	3.5
830924	0.0	0.0	0.0
830925	0.0	0.0	0.0
830926	0.0	0.0	0.0
830927	0.0	0.0	0.0
830928	0.0	0.0	0.0
830929	0.0	.3	1.0
830930	.5	.8	1.5
Monthly Value	0.0	3.7	8.1

Table 3-A-51. (continued).

October 1983			
Date	Surface Water Temperature (C)		
	Min	Mean	Max
831001	.5	1.0	1.5
831002	1.0	---	1.0
Monthly Value	.5	---	1.5

Table 3-A-52. Ryan temperature recorder data summary:
 surface water temperature (C) at Goose
 Creek, RM 231.3, TRM 0.1,
 GC S30N11E32DBC, 1983.

May 1983			
Date	Surface Water Temperature (C)		
	Min	Mean	Max
830525	3.8	---	6.3
830526	1.3	2.5	3.8
830527	1.3	2.9	4.3
830528	2.3	3.8	5.3
830529	1.3	3.1	4.8
830530	1.3	3.2	5.8
830531	2.3	3.1	4.8
Monthly Value	1.3	---	6.3

Table 3-A-52. (continued).

June 1983			
Date	Surface Water Temperature (C)		
	Min	Mean	Max
830601	.8	4.0	7.3
830602	2.8	3.6	4.3
830603	1.8	2.5	3.3
830604	1.8	3.2	4.3
830605	2.8	---	3.3
830619	7.3	---	10.3
830620	5.8	8.1	10.8
830621	6.8	9.4	11.8
830622	8.3	10.3	12.3
830623	7.3	9.9	12.3
830624	7.3	10.4	13.3
830625	7.8	11.1	14.3
830626	9.8	11.5	13.8
830627	8.8	9.4	10.3
830628	8.3	9.4	10.8
830629	7.8	9.0	9.8
830630	7.8	10.7	13.3
Monthly Value	.8	---	14.3

Table 3-A-52. (continued).

July 1983			
Date	Surface Water Temperature (C)		
	Min	Mean	Max
830701	9.8	11.1	12.3
830729	11.1	12.4	13.6
830730	11.1	11.5	12.1
830731	10.1	11.3	13.1
Monthly Value	9.8	---	13.6

Table 3-A-52. (continued).

August 1983			
Date	Surface Water Temperature (C)		
	Min	Mean	Max
830801	10.6	11.6	12.6
830802	9.1	11.3	13.6
830803	8.6	11.9	15.1
830804	10.6	11.4	12.6
830805	10.1	10.5	11.1
830806	9.1	10.6	12.1
830807	8.6	10.1	11.1
830808	9.1	10.1	11.1
830809	9.1	10.0	10.6
830810	9.1	10.2	11.1
830811	9.1	10.6	12.6
830812	9.1	10.0	10.6
830813	8.1	8.7	9.6
830814	7.1	7.8	8.1
830815	6.1	7.2	7.6
830816	6.6	8.4	11.1
830817	7.1	8.0	8.6
830818	6.1	8.1	10.1
830819	6.1	8.4	11.1
830820	7.6	8.5	9.1
830821	8.0	8.5	9.0
830822	8.0	8.6	9.5
830823	7.5	8.0	8.5
830824	7.0	7.3	7.5
830825	6.0	6.5	7.0
830826	6.5	7.4	8.5
830827	6.5	8.0	10.0
830828	6.0	7.8	9.5
830829	6.5	7.4	8.0
830830	7.0	7.5	8.0
830831	6.5	7.2	8.0
Monthly Value	6.0	9.0	15.1

Table 3-A-52. (continued).

September 1983			
Date	Surface Water Temperature (C)		
	Min	Mean	Max
830901	6.5	7.2	8.0
830902	5.5	6.8	8.0
830903	4.0	5.5	7.0
830904	4.0	5.4	7.0
830905	3.5	4.9	6.0
830906	3.0	4.6	6.5
830907	3.5	5.0	6.5
830908	5.0	5.6	6.5
830909	5.0	5.8	6.5
830910	5.0	5.8	6.5
830911	5.0	5.6	6.5
830912	5.0	6.0	7.0
830913	3.1	4.1	4.6
830914	2.1	3.3	4.6
830915	2.1	3.1	4.6
830916	1.1	2.8	4.6
830917	.6	2.6	4.6
830918	.6	2.1	3.6
830919	1.6	2.3	3.1
830920	2.6	3.1	3.6
830921	3.1	3.4	3.6
830922	3.1	3.7	4.1
830923	.1	1.4	2.6
830924	.1	.1	.1
830925	.1	.1	.1
830926	.1	.1	.1
830927	.1	.1	.1
830928	.1	.1	.1
830929	.1	.4	.6
830930	.1	.6	1.1
Monthly Value	.1	3.4	8.0

Table 3-A-52. (continued).

October 1983			
Date	Surface Water Temperature (C)		
	Min	Mean	Max
831001	.1	.6	1.1
831002	.6	1.0	1.6
831003	.1	.3	.6
831004	.1	.1	.1
831005	.1	.2	.6
831006	.1	.2	.6
831007	.1	.1	.1
831008	.1	.1	.1
831009	.1	.1	.1
831010	.1	.1	.1
831011	.1	.1	.1
831012	.1	---	.1
Monthly Value	.1	---	1.6

Table 3-A-53. Ryan temperature recorder data summary:
 surface water temperature (C) at the
 Oshetna River, RM 233.4, TRM 0.1,
 GC S30N11E34CCD, 1983.

May 1983			
Date	Surface Water Temperature (C)		
	Min	Mean	Max
830519	6.0	----	7.5
830520	3.5	5.3	7.0
830521	3.0	4.1	5.0
830522	3.5	4.7	5.5
830523	3.5	4.9	6.0
830524	3.5	4.9	6.5
830525	5.0	6.3	7.5
830526	5.5	6.3	7.0
830527	5.5	6.3	7.0
830528	6.0	7.2	8.0
830529	6.0	7.6	9.0
830530	5.0	6.5	9.0
830531	4.5	6.3	8.0
Monthly Value	3.0	----	9.0

Table 3-A-53. (continued).

June 1983			
Date	Surface Water Temperature (C)		
	Min	Mean	Max
830601	3.5	6.5	9.5
830602	5.5	6.3	9.0
830603	4.0	5.1	6.0
830604	5.0	6.0	7.0
830605	6.0	8.0	10.0
830606	7.5	8.7	10.0
830607	6.5	8.1	9.5
830608	7.5	7.9	9.0
830609	6.5	6.7	7.5
830610	5.5	6.6	7.5
830611	6.0	7.7	9.5
830612	8.0	9.1	10.0
830613	7.5	8.8	10.0
830614	8.0	9.2	10.0
830615	8.0	8.6	9.5
830616	8.0	8.9	10.0
830617	7.5	9.3	11.0
830618	8.5	10.7	13.0
830619	8.5	10.1	12.0
830620	7.0	9.5	11.5
830621	8.5	10.7	12.5
830622	9.5	11.2	12.5
830623	8.5	10.6	12.5
830624	9.0	11.5	14.0
830625	9.5	12.2	14.5
830626	11.0	12.4	13.5
830627	9.5	10.3	12.5
830628	9.5	10.7	12.0
830629	9.5	10.6	11.5
830630	9.5	11.9	14.5
Monthly Value	3.5	9.1	14.5

Table 3-A-53. (continued).

July 1983			
Date	Surface Water Temperature (C)		
	Min	Mean	Max
830701	11.5	12.6	13.5
830702	11.0	12.2	13.5
830703	10.5	12.1	13.5
830704	11.5	12.2	13.0
830705	11.0	12.9	15.0
830706	12.0	12.7	14.5
830707	10.5	10.9	11.5
830708	9.0	10.8	12.5
830709	10.0	10.9	12.0
830710	9.5	11.5	13.0
830711	11.0	11.1	12.0
830712	10.0	12.0	14.0
830713	11.0	11.8	13.0
830714	10.5	11.7	13.0
830715	11.0	12.0	13.0
830716	11.0	12.5	14.0
830717	11.5	12.2	13.5
830718	10.5	11.2	12.0
830719	10.0	11.0	11.8
830720	10.3	10.6	11.8
830721	9.3	10.5	11.8
830722	9.3	10.6	12.3
830723	9.8	10.3	11.3
830724	9.3	10.2	11.3
830725	8.8	10.4	11.8
830726	9.3	10.5	11.3
830727	9.3	11.4	13.3
830728	9.8	11.8	13.3
830729	10.8	11.7	12.8
830730	9.8	10.2	11.3
830731	9.3	10.3	11.3
Monthly Value	8.8	11.4	15.0

Table 3-A-53. (continued).

August 1983			
Date	Surface Water Temperature (C)		
	Min	Mean	Max
830801	9.8	10.5	10.8
830802	8.8	10.4	11.8
830803	9.3	11.1	13.3
830804	10.3	10.8	12.8
830805	9.3	9.5	10.3
830806	8.8	9.8	10.8
830807	8.8	9.6	10.3
830808	8.8	9.6	10.3
830809	9.3	9.6	9.8
830810	8.8	9.9	10.8
830811	9.3	10.3	10.8
830812	9.3	9.6	10.3
830813	7.8	8.6	9.3
830814	6.8	7.3	8.3
830815	6.3	6.8	7.8
830816	6.8	8.1	9.3
830817	7.3	8.0	8.8
830818	5.8	7.6	9.3
830819	6.3	8.2	9.8
830820	7.5	8.2	9.3
830821	7.0	7.3	7.5
830822	7.5	7.9	8.5
830823	7.5	7.8	8.5
830824	7.0	7.1	7.5
830825	5.5	5.8	7.0
830826	5.5	6.3	7.0
830827	6.0	7.4	8.5
830828	6.0	7.4	8.5
830829	6.5	7.0	8.0
830830	6.0	6.8	7.0
830831	6.5	6.8	7.0
Monthly Value	5.5	8.4	13.3

Table 3-A-53. (continued).

September 1983			
Date	Surface Water Temperature (C)		
	Min	Mean	Max
830901	6.0	6.4	6.5
830902	6.0	6.6	7.5
830903	4.5	5.2	6.0
830904	4.5	5.4	6.0
830905	4.0	4.7	5.5
830906	3.5	4.4	5.0
830907	3.5	4.5	5.5
830908	5.0	5.3	5.5
830909	4.5	5.2	5.5
830910	5.0	5.3	5.5
830911	4.5	5.1	5.5
830912	4.5	5.3	6.0
830913	3.5	---	5.0
830914	3.0	4.0	5.0
830915	3.0	3.8	5.0
830916	2.5	3.5	4.5
830917	2.0	3.2	4.0
830918	2.0	2.8	3.5
830919	3.0	3.3	4.0
830920	4.0	4.0	4.5
830921	4.5	4.5	4.5
830922	4.5	4.5	4.5
830923	1.0	2.5	4.5
830924	.5	.5	.5
830925	.5	.5	.5
830926	.5	.5	.5
830927	.5	.5	.5
830928	.5	.5	.5
830929	.5	.5	.5
830930	.5	1.1	1.5
Monthly Value	.5	3.6	7.5

Table 3-A-53. (continued).

October 1983			
Date	Surface Water Temperature (C)		
	Min	Mean	Max
831001	1.0	1.3	1.5
831002	1.5	1.7	2.0
831003	1.0	1.3	2.0
831004	.5	.5	.5
831005	.5	.7	1.0
831006	.5	.8	1.0
831007	.5	.5	.5
831008	.5	.5	.5
831009	.5	.5	.5
831010	.5	.5	.5
831011	.5	.5	.5
831012	.5	---	.5
Monthly Value	.5	---	2.0

Table 3-A-54. Weekly minimum, mean and maximum surface water temperatures (C) at Mainstem Susitna River at the Estuary, RM 4.5, GC S14N07W05ADB. Values were obtained from temperatures measured at two-hour intervals by a Ryan temperature recorder.

Water Year Week	Starting Calendar Date	Weekly Value (C)			n	No. of days in record
		Min	Mean	Max		
32	830506	4.3	---	6.8	26	3
33	830513	6.3	6.9	7.8	84	7
34	830520	7.3	8.9	10.3	84	7
35	830527	8.8	---	10.3	58	6
36	830603	7.8	10.5	12.8	84	7
37	830610	11.3	11.9	13.3	66	6

Table 3-A-55. Weekly minimum, mean and maximum surface water temperatures (C) at Mainstem Susitna River at Flathorn Station, RM 18.2, GC S16N07W15DDD. Values were obtained from temperatures measured at two-hour intervals by a Ryan temperature recorder.

Water Year Week	Starting Calendar Date	Weekly Value (C)			n	No. of days in record
		Min	Mean	Max		
35	830527	10.2	----	10.2	7	1
36	830603	8.2	10.3	12.2	84	7
37	830610	10.7	12.1	13.7	84	7
38	830617	12.7	14.0	14.7	84	7
39	830624	12.2	13.5	14.7	84	7
40	830701	12.2	13.1	13.7	84	7
41	830708	11.7	12.5	13.2	84	7
42	830715	12.2	13.0	13.7	84	7
43	830722	12.7	----	13.2	6	1

Table 3-A-56. Weekly minimum, mean and maximum surface water temperatures (C) at Mainstem Susitna River below Susitna Station, RM 20.5, GC S16N07W08DDB. Values were obtained from temperatures measured at two-hour intervals by a Ryan temperature recorder.

Water Year Week	Starting Calendar Date	Weekly Value (C)			n	No. of days in record
		Min	Mean	Max		
34	830520	7.6	---	9.1	40	4
35	830527	8.1	8.9	9.6	77	7

Table 3-A-57. Weekly minimum, mean and maximum surface water temperatures (C) at Mainstem Susitna River at Susitna Station, RM 25.8, GC S17N07W22DCD. Values were obtained from temperatures measured at two-hour intervals by a Ryan temperature recorder.

Water Year Week	Starting Calendar Date	Weekly Value (C)			n	No. of days in record
		Min	Mean	Max		
34	830520	10.0	----	11.0	17	2
35	830527	9.5	10.4	11.5	84	7
36	830603	8.0	10.3	12.5	84	7
37	830610	11.0	11.7	13.0	84	7
38	830617	11.0	13.1	14.5	84	7
39	830624	11.0	12.5	14.0	84	7
40	830701	11.0	12.1	13.0	84	7
41	830708	10.5	11.4	12.5	84	7
42	830715	11.0	11.8	12.5	84	7
43	830722	12.0	----	12.5	8	1

Table 3-A-58. Weekly minimum, mean and maximum surface water temperatures (C) at Mainstem Susitna River above the Yentna River, RM 29.5, GC S17N06W07CAD. Values were obtained from temperatures measured at two-hour intervals by a Ryan temperature recorder.

Water Year Week	Starting Calendar Date	Weekly Value (C)			n	No. of days in record
		Min	Mean	Max		
34	830520	8.0	---	9.5	41	4
35	830527	8.5	9.6	10.5	84	7
36	830603	7.5	9.8	12.0	84	7
37	830610	10.5	11.4	12.5	69	6

Table 3-A-59. Weekly minimum, mean and maximum surface water temperatures (C) at Mainstem Susitna River above the Deshka River, RM 41.1, GC S19N06W26CBC. Values were obtained from temperatures measured at two-hour intervals by a Ryan temperature recorder.

Water Year Week	Starting Calendar Date	Weekly Value (C)			n	No. of days in record
		Min	Mean	Max		
37	830610	11.5	---	13.0	15	2
38	830617	11.5	13.6	15.0	84	7
39	830624	11.0	12.9	15.0	84	7
40	830701	11.0	12.5	14.0	84	7
41	830708	11.0	12.0	13.0	84	7
42	830715	11.0	12.4	14.0	84	7
43	830722	12.0	12.5	15.0	78	7
44	830729	11.5	12.9	14.0	84	7
45	830805	10.0	10.7	12.0	84	7
46	830812	9.0	10.5	11.5	84	7
47	830819	9.0	10.2	12.0	84	7
48	830826	8.5	9.9	11.0	84	7
49	830902	6.0	8.1	10.5	76	7
50	830909	6.0	7.3	8.5	84	7
51	830916	5.0	5.7	7.0	84	7
52	830923	0.0	1.7	6.5	96	8
1	831001	1.0	2.8	4.0	78	7

Table 3-A-60. Weekly minimum, mean and maximum surface water temperatures (C) at Mainstem Susitna River at Parks Hwy Bridge - Site 3, RM 83.9, GCS24N05W15BAD. Values were obtained from temperatures measured at two-hour intervals by a Ryan temperature recorder.

Water Year Week	Starting Calendar Date	Weekly Value (C)			n	No. of days in record
		Min	Mean	Max		
34	830520	8.8	-----	10.3	15	2
35	830527	7.8	9.1	9.8	84	7
36	830603	7.3	9.3	11.8	84	7
37	830610	9.3	10.8	12.0	84	7
38	830617	10.5	12.1	13.0	84	7
39	830624	10.5	12.1	13.5	84	7
40	830701	11.0	12.0	13.0	84	7
41	830708	10.5	11.3	12.0	84	7
42	830715	11.0	11.6	12.5	80	7
43	830722	10.5	11.8	13.5	84	7
44	830729	11.0	11.9	13.0	84	7
45	830805	9.5	10.3	11.0	78	7
46	830812	8.5	9.5	10.5	84	7
47	830819	9.0	-----	10.5	48	4
50	830909	6.0	7.2	8.5	65	6
51	830916	5.0	5.9	7.0	79	7
52	830923	1.0	2.3	6.5	96	8
1	831001	1.0	3.0	5.0	82	7
2	831008	.5	-----	1.5	55	5

Table 3-A-61. Weekly minimum, mean and maximum surface water temperatures (C) at Mainstem Susitna River at Talkeetna Fishwheel Camp, RM 103.0, GC S27N05W26DDD. Values were obtained from temperatures measured at two-hour intervals by a Ryan temperature recorder.

WATER YEAR WEEK	STARTING CALENDAR DATE	WEEKLY VALUE (C)			n	NO. OF DAYS IN RECORD
		Min	Mean	Max		
33	830513	4.4	-----	5.9	16	2
34	830520	5.4	7.4	9.4	81	7
35	830527	6.9	8.5	9.9	78	7
36	830603	6.9	8.8	12.4	68	6
38	830617	11.5	12.9	14.5	68	6
39	830624	11.0	13.1	15.0	84	7
40	830701	12.0	13.3	14.5	84	7
41	830708	11.5	12.5	13.5	84	7
42	830715	11.0	12.7	14.5	84	7
43	830722	11.5	13.0	15.5	83	7
44	830729	11.5	13.0	15.0	84	7
45	830805	10.0	11.0	12.5	83	7
46	830812	8.3	10.2	11.8	84	7
47	830819	8.3	9.8	11.3	83	7
48	830826	7.8	9.2	10.3	84	7
49	830902	5.8	7.2	9.3	84	7
50	830909	5.0	6.9	8.5	84	7
51	830916	3.5	5.0	6.0	84	7
52	830923	0.0	-----	5.5	41	4

Table 3-A-62. Weekly minimum, mean and maximum intragravel and surface water temperatures (C) at Mainstem Susitna River at LRX 9 - Site 1, RM 103.2, GC S27N05W26DAA. Values were obtained from temperatures measured at six-hour intervals by a datapod temperature recorder.

Water Year Week	Starting Calendar Date	Intragravel Weekly Values					Surface Water Weekly Values				
		Min (C)	Mean (C)	Max (C)	n	No. of days in record	Min (C)	Mean (C)	Max (C)	n	No. of days in record
33	830513	.3	3.1	5.6	21	6	.2	3.1	5.6	21	6
34	830520	4.2	----	4.9	1	1	4.2	----	4.9	1	1
39	830624	8.9	----	10.0	5	2	11.0	----	13.6	5	2
40	830701	8.7	9.9	11.0	28	7	11.7	13.4	15.3	28	7
41	830708	8.5	----	10.9	16	4	11.0	----	14.7	16	4
42	830715	----	----	----	0	0	----	----	----	0	0
43	830722	8.9	9.6	10.7	25	7	11.9	13.5	16.5	25	7
44	830729	9.4	10.1	10.7	28	7	12.0	13.7	16.5	28	7
45	830805	8.7	----	10.0	10	3	10.2	11.5	13.2	21	6
46	830812	7.0	8.2	9.3	26	7	8.4	10.3	12.1	28	7
47	830819	7.5	----	8.5	2	1	8.4	10.0	12.1	28	7
48	830826	7.0	7.6	8.1	21	6	8.1	9.3	10.6	28	7
49	830902	4.5	5.8	7.3	28	7	5.2	7.3	9.3	28	7
50	830909	5.0	----	6.0	10	3	6.0	----	9.8	6	2

Table 3-A-63. Weekly minimum, mean and maximum intragravel and surface water temperatures (C) at Mainstem Susitna River at LRX 9 - Site 2, RM 103.2, GC S27N05W26DAA. Values were obtained from temperatures measured at six-hour intervals by a datapod temperature recorder.

Water Year Week	Starting Calendar Date	Intragravel Weekly Values					Surface Water Weekly Values				
		Min (C)	Mean (C)	Max (C)	n	No. of days in record	Min (C)	Mean (C)	Max (C)	n	No. of days in record
50	830909	5.1	----	7.8	18	5	5.9	----	8.8	16	4
51	830916	4.5	5.4	6.4	28	7	4.2	5.9	7.4	28	7
52	830923	.8	2.0	6.3	32	8	.4	1.8	7.1	32	8
1	831001	.8	2.2	3.5	28	7	.4	2.5	4.3	28	7
2	831008	.5	1.0	1.6	28	7	.4	.8	2.2	28	7
3	831015	.5	.7	1.1	28	7	.3	.5	1.1	28	7
4	831022	.2	.8	1.4	28	7	.4	----	.5	1	1
5	831029	.3	----	.5	12	3	----	----	----	0	0

Table 3-A-64. Weekly minimum, mean and maximum surface water temperatures (C) at Mainstem Susitna River at Curry Fishwheel Camp, RM 120.7, GC S29N04W10CBA. Values were obtained from temperatures measured at two-hour intervals by a Ryan temperature recorder.

Water Year Week	Starting Calendar Date	Weekly Value (C)			n	No. of days in record
		Min	Mean	Max		
38	830617	12.6	----	13.6	54	5
39	830624	11.1	13.0	14.6	84	7
40	830701	12.1	13.1	13.6	84	7
41	830708	12.1	12.4	13.1	84	7
42	830715	10.8	12.5	13.8	80	7
43	830722	11.8	12.8	13.8	84	7
44	830729	11.8	12.7	14.3	84	7
45	830805	9.1	10.6	12.3	79	7
46	830812	8.1	9.4	10.6	84	7
47	830819	8.1	9.3	10.1	83	7
48	830826	7.6	8.6	9.1	84	7
49	830902	5.6	6.9	8.6	84	7
50	830909	5.5	6.8	7.6	84	7
51	830916	4.0	5.0	6.0	84	7
52	830923	0.0	1.1	5.5	96	8
1	831001	0.0	1.5	3.0	84	7
2	831008	0.0	----	0.0	42	4

Table 3-A-65. Weekly minimum, mean and maximum intragravel and surface water temperatures (C) at Mainstem Susitna River at LRX 29 - Site 1, RM 126.1, GC S30N03W19DGA. Values were obtained from temperatures measured at six-hour intervals by a datapod temperature recorder.

Water Year Week	Starting Calendar Date	Intragravel Weekly Values					Surface Water Weekly Values				
		Min (C)	Mean (C)	Max (C)	n	No. of days in record	Min (C)	Mean (C)	Max (C)	n	No. of days in record
33	830513	1.2	----	4.5	17	5	.2	----	5.5	17	5
34	830520	4.3	6.0	7.2	28	7	4.6	6.5	8.5	28	7
35	830527	6.2	7.6	8.9	27	7	6.0	7.8	9.6	27	7
36	830603	6.3	8.2	10.3	28	7	6.0	8.4	11.1	28	7
37	830610	8.4	10.0	12.0	28	7	7.9	10.3	12.7	28	7
38	830617	10.2	12.4	13.8	28	7	10.0	12.7	14.8	28	7
39	830624	11.2	12.9	14.6	28	7	10.4	13.1	15.6	28	7
40	830701	12.1	12.8	13.7	28	7	12.2	13.2	15.0	28	7
41	830708	11.6	12.3	13.2	28	7	11.3	12.5	14.0	28	7
42	830715	11.2	12.4	13.4	28	7	10.4	12.7	15.2	28	7
43	830722	11.8	12.7	14.2	28	7	11.7	13.1	15.7	28	7
44	830729	11.8	12.8	14.4	28	7	11.5	13.0	15.8	28	7
45	830805	9.9	10.9	12.6	27	7	9.4	10.8	12.6	27	7
46	830812	8.3	9.6	11.0	28	7	7.7	9.7	11.5	28	7
47	830819	8.1	9.3	10.2	28	7	7.5	9.3	11.4	28	7
48	830826	7.7	8.6	9.4	28	7	7.2	8.7	10.2	28	7
49	830902	5.7	6.8	8.3	28	7	5.1	6.6	8.8	28	7
50	830909	5.9	6.8	7.5	27	7	5.2	6.9	8.4	27	7
51	830916	4.6	5.4	6.6	28	7	3.6	5.3	6.8	28	7
52	830923	1.0	2.1	6.1	32	8	-.1	1.3	6.0	32	8
1	831001	1.2	2.3	3.4	28	7	-.1	1.8	3.9	28	7
2	831008	.7	1.1	1.5	28	7	-.1	.3	1.3	28	7
3	831015	.7	.8	1.0	28	7	0.0	.1	.5	28	7
4	831022	.7	.9	1.1	28	7	-.1	.1	.3	21	6
5	831029	.7	----	.9	12	3	----	----	----	0	0

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Table 3-A-66. Weekly minimum, mean and maximum surface water temperatures (C) at Mainstem Susitna River below Gold Creek, RM 135.8, GC S31N02W20BAA. Values were obtained from temperatures measured at hourly intervals by a datapod temperature recorder.

Water Year Week	Starting Calendar Date	Weekly Value (C)			n	No. of days in record
		Min	Mean	Max		
36	830603	8.5	---	11.0	105	5
37	830610	8.5	10.3	11.5	168	7
38	830617	10.5	12.5	14.0	168	7
39	830624	10.5	12.9	15.0	168	7
40	830701	12.5	13.2	14.5	168	7
41	830708	12.0	12.7	13.5	168	7
42	830715	11.0	12.7	13.5	166	7
43	830722	12.5	13.3	14.5	168	7
44	830729	11.5	13.1	15.0	168	7
45	830805	9.5	11.1	12.5	140	6

Table 3-A-67. Weekly minimum, mean and maximum surface water temperatures (C) at Mainstem Susitna River at Gold Creek Bridge, RM 136.6, GC S31N02W20BAC. Values were obtained from temperatures measured at two-hour intervals by a Ryan temperature recorder.

Water Year Week	Starting Calendar Date	Weekly Value (C)			n	No. of days in record
		Min	Mean	Max		
35	830527	4.5	---	5.5	40	4
36	830603	4.5	6.1	7.5	84	7
37	830610	6.0	7.7	9.5	84	7
38	830617	8.0	10.6	13.0	84	7
39	830624	9.0	11.3	13.5	84	7
40	830701	10.3	11.4	13.3	84	7
41	830708	9.8	10.7	11.8	84	7
42	830715	9.3	11.0	12.8	84	7
43	830722	10.3	11.5	13.3	84	7
44	830729	10.3	11.6	14.3	84	7
45	830805	8.3	9.6	10.8	68	6
50	830909	4.6	---	5.6	3	1
51	830916	3.1	4.4	5.6	84	7
52	830923	.1	1.0	4.6	96	8
1	831001	.1	1.3	3.1	83	7
2	831008	.1	---	.1	41	4

Table 3-A-68. Weekly minimum, mean and maximum surface water temperatures (C) at Mainstem Susitna River above Gold Creek - Site 2, RM 136.8, GC S31N02W17CDD. Values were obtained from temperatures measured at two-hour intervals by a Ryan temperature recorder.

Water Year Week	Starting Calendar Date	Weekly Value (C)			n	No. of days in record
		Min	Mean	Max		
35	830527	6.5	---	8.0	40	4
36	830603	6.0	7.7	9.5	84	7
37	830610	7.5	9.2	10.5	84	7
38	830617	9.0	11.2	13.0	84	7
39	830624	10.0	11.8	14.0	84	7
40	830701	11.3	12.3	13.3	84	7
41	830708	11.3	11.9	12.3	84	7
42	830715	10.3	12.0	13.3	84	7
43	830722	11.3	12.1	13.8	84	7
44	830729	10.8	12.1	14.3	84	7
45	830805	8.8	10.0	11.3	82	7
46	830812	7.3	8.7	10.3	84	7
47	830819	6.8	8.3	9.8	84	7
48	830826	6.8	7.9	8.8	84	7
49	830902	4.8	6.0	7.8	84	7
50	830909	5.3	6.3	7.3	84	7
51	830916	3.6	4.6	5.6	82	7
52	830923	.1	---	4.6	39	4

Table 3-A-69. Weekly minimum, mean and maximum intragravel and surface water temperatures (C) at Mainstem Susitna River at LRX 57 - Site 1, RM 142.3, GC 32N02W36CBA. Values were obtained from temperatures measured at six-hour intervals by a datapod temperature recorder.

Water Year Week	Starting Calendar Date	Intragravel Weekly Values					Surface Water Weekly Values				
		Min (C)	Mean (C)	Max (C)	n	No. of days in record	Min (C)	Mean (C)	Max (C)	n	No. of days in record
35	830527	8.1	---	10.0	11	3	---	---	---	0	0
36	830603	6.9	7.9	8.7	28	7	---	---	---	0	0
37	830610	7.9	9.9	11.9	27	7	---	---	---	0	0
38	830617	11.7	12.8	13.8	28	7	---	---	---	0	0
39	830624	12.7	13.8	14.8	28	7	---	---	---	0	0
40	830701	13.2	14.2	15.0	28	7	---	---	---	0	0
41	830708	13.5	13.9	14.6	28	7	---	---	---	0	0
42	830715	13.2	14.0	14.6	28	7	---	---	---	0	0
43	830722	14.1	14.6	15.4	28	7	---	---	---	0	0
44	830729	14.2	15.0	15.9	27	7	11.7	---	12.2	1	1
45	830805	12.3	13.4	14.8	28	7	9.1	10.3	11.8	28	7
46	830812	11.1	12.2	13.1	28	7	7.7	9.4	11.5	28	7
47	830819	7.9	10.4	12.8	22	6	7.4	9.0	10.7	22	6
48	830826	7.2	8.6	9.4	28	7	6.6	8.3	9.6	28	7
49	830902	6.6	7.4	8.5	28	7	5.2	6.3	7.9	28	7
50	830909	7.4	---	7.5	2	1	6.3	---	6.4	2	1

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Table 3-A-70. Weekly minimum, mean and maximum intragravel and surface water temperatures (C) at Mainstem Susitna River at LRX 57 - Site 2, RM 142.3, GC 32N02W36CBA. Values were obtained from temperatures measured at six-hour intervals by a datapod temperature recorder.

Water Year Week	Starting Calendar Date	Intragravel Weekly Values					Surface Water Weekly Values				
		Min (C)	Mean (C)	Max (C)	n	No. of days in record	Min (C)	Mean (C)	Max (C)	n	No. of days in record
50	830909	6.4	----	8.0	12	3	5.2	----	6.8	12	3
51	830916	5.2	6.3	7.6	28	7	3.8	4.9	6.1	28	7
52	830923	1.6	2.8	7.5	32	8	-.1	1.1	5.9	32	8
1	831001	2.1	3.3	4.7	28	7	-.1	1.4	2.8	28	7
2	831008	2.2	2.6	3.5	28	7	-.1	.3	1.2	28	7
3	831015	2.4	2.6	3.0	28	7	-.1	.0	.2	28	7
4	831022	2.8	3.4	4.0	28	7	0.0	----	.4	9	3
5	831029	3.0	----	4.1	12	3	----	----	----	0	0

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Table 3-A-71. Weekly minimum, mean and maximum surface water temperatures (C) at Mainstem Susitna River at Devil Canyon, RM 150.0, GC S32N01E31CBD. Values were obtained from temperatures measured at two-hour intervals by a Ryan temperature recorder.

Water Year Week	Starting Calendar Date	Weekly Value (C)			n	No. of days in record
		Min	Mean	Max		
40	830701	11.5	12.4	13.5	65	6
41	830708	10.5	11.4	12.0	84	7
42	830715	9.5	11.4	12.5	84	7
43	830722	11.0	11.9	13.5	84	7
44	830729	10.5	11.6	13.5	84	7
45	830805	9.0	9.6	11.0	83	7
46	830812	7.0	8.6	10.5	84	7
47	830819	7.0	8.2	9.5	84	7
48	830826	6.0	7.6	9.0	84	7
49	830902	4.5	5.7	8.5	84	7
50	830909	4.5	5.4	6.0	84	7
51	830916	3.5	4.3	5.0	84	7
52	830923	0.0	.9	5.0	96	8
1	831001	.5	-----	2.0	53	5

Table 3-A-72. Weekly minimum, mean and maximum surface water temperatures (C) at Mainstem Susitna River above Tsusena Creek, RM 181.9, GC S32N04E36ADA. Values were obtained from temperatures measured at two-hour intervals by a Ryan temperature recorder.

Water Year Week	Starting Calendar Date	Weekly Value (C)			n	No. of days in record
		Min	Mean	Max		
34	830520	6.9	---	7.4	7	1
35	830527	6.4	8.0	9.4	84	7
36	830603	6.4	8.5	10.9	84	7
37	830610	7.9	10.0	11.9	84	7
38	830617	9.9	12.1	13.5	79	7
39	830624	10.0	12.3	14.5	84	7
40	830701	11.5	12.5	14.5	84	7
41	830708	10.5	11.5	12.5	84	7
42	830715	9.2	11.3	13.0	83	7
43	830722	10.7	11.8	13.7	84	7
44	830729	10.2	11.5	13.2	84	7
45	830805	8.7	9.8	11.2	84	7
46	830812	7.7	9.0	10.7	84	7
47	830819	6.5	8.3	10.7	82	7
48	830826	6.0	7.5	8.5	84	7
49	830902	4.0	5.6	7.5	84	7
50	830909	4.5	5.6	6.5	83	7
51	830916	3.0	4.2	5.5	84	7
52	830923	0.0	.8	5.0	96	8
1	831001	0.0	.7	2.0	84	7
2	831008	0.0	---	.5	55	5

Table 3-A-73. Weekly minimum, mean and maximum surface water temperatures (C) at Mainstem Susitna River above the Oshetna River - Site 1, RM 234.9, GC S30N11E35BCD. Values were obtained from temperatures measured at two-hour intervals by a Ryan temperature recorder.

Water Year Week	Starting Calendar Date	Weekly Value (C)			n	No. of days in record
		Min	Mean	Max		
34	830520	6.6	---	7.1	20	2
35	830527	6.1	7.9	9.1	84	7
36	830603	6.1	8.1	9.6	84	7
37	830610	7.6	9.7	11.1	84	7
38	830617	10.1	11.5	12.6	79	7

Table 3-A-74. Weekly minimum, mean and maximum surface water temperatures (C) at Mainstem Susitna River above the Oshetna River - Site 2, RM 235.7, GC S29N11E02ABD. Values were obtained from temperatures measured at two-hour intervals by a Ryan temperature recorder.

Water Year Week	Starting Calendar Date	Weekly Value (C)			n	No. of days in record
		Min	Mean	Max		
43	830722	11.3	----	12.8	4	1
44	830729	8.3	9.4	11.3	83	7
45	830805	6.8	7.8	9.3	84	7
46	830812	5.8	7.5	9.3	84	7
47	830819	5.3	7.2	8.8	83	7
48	830826	5.3	6.8	7.8	84	7
49	830902	4.8	----	6.8	23	2
50	830909	4.0	----	4.5	31	3
51	830916	2.5	3.7	4.5	84	7
52	830923	0.0	.4	4.0	96	8
1	831001	0.0	.4	1.5	84	7
2	831008	0.0	----	0.0	53	5

Table 3-A-75. Weekly minimum, mean and maximum intragravel and surface water temperatures (C) at Side Channel 10 - Site 1, RM 134.0, GC 31N03W31BBB. Values were obtained from temperatures measured at six-hour intervals by a datapod temperature recorder.

Water Year Week	Starting Calendar Date	Intragravel Weekly Values					Surface Water Weekly Values				
		Min (C)	Mean (C)	Max (C)	n	No. of days in record	Min (C)	Mean (C)	Max (C)	n	No. of days in record
42	830715	3.9	---	4.9	17	5	7.7	---	18.6	13	4
43	830722	4.1	4.8	5.4	28	7	8.0	12.1	18.4	28	7
44	830729	4.1	5.1	5.6	28	7	8.3	12.2	16.8	28	7
45	830805	4.9	5.3	5.8	28	7	9.3	10.6	12.1	28	7
46	830812	4.5	4.8	5.2	28	7	8.0	9.7	11.6	28	7
47	830819	4.2	4.6	5.0	28	7	8.0	9.2	12.8	28	7
48	830826	4.6	4.8	5.1	28	7	7.3	8.9	10.3	28	7
49	830902	3.9	4.3	4.7	28	7	4.5	7.5	12.1	28	7
50	830909	4.2	4.4	4.7	27	7	5.5	7.5	12.4	27	7
51	830916	4.1	4.4	4.7	28	7	3.8	6.3	10.6	28	7
52	830923	4.0	4.2	4.6	32	8	2.0	4.0	7.7	32	8
1	831001	3.9	4.2	4.4	28	7	1.8	4.4	7.6	28	7
2	831008	3.7	4.0	4.2	28	7	.4	2.5	5.0	28	7
3	831015	3.6	3.8	4.0	28	7	.8	2.4	6.1	27	7
4	831022	3.1	3.4	3.7	28	7	.2	.9	3.6	28	7
5	831029	3.0	---	3.2	12	3	.3	---	1.4	12	3

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Table 3-A-76. Weekly minimum, mean and maximum intragravel and surface water temperatures (C) at Upper Side Channel 11 - Site 1, RM 136.3, GC S31N02W20BBD. Values were obtained from temperatures measured at six-hour intervals by a datapod temperature recorder.

Water Year Week	Starting Calendar Date	Intragravel Weekly Values					Surface Water Weekly Values				
		Min (C)	Mean (C)	Max (C)	n	No. of days in record	Min (C)	Mean (C)	Max (C)	n	No. of days in record
44	830729	5.4	6.1	6.5	28	7	10.7	12.2	15.3	28	7
45	830805	5.6	6.0	6.4	28	7	8.8	10.2	11.6	28	7
46	830812	5.6	5.9	6.2	28	7	7.2	9.0	10.9	28	7
47	830819	5.6	5.8	6.0	28	7	7.2	8.6	10.2	28	7
48	830826	5.5	5.9	6.2	28	7	6.7	8.3	9.4	28	7
49	830902	5.2	5.5	5.9	28	7	3.3	6.1	9.3	28	7
50	830909	5.2	----	5.4	11	3	4.5	----	10.0	11	3

Table 3-A-77. Weekly minimum, mean and maximum intragravel and surface water temperatures (C) at Upper Side Channel 11 - Site 2, RM 136.2, GC S31N02W20BBD. Values were obtained from temperatures measured at six-hour intervals by a datapod temperature recorder.

Water Year Week	Starting Calendar Date	Intragravel Weekly Values					Surface Water Weekly Values				
		Min (C)	Mean (C)	Max (C)	n	No. of days in record	Min (C)	Mean (C)	Max (C)	n	No. of days in record
50	830909	4.0	----	5.5	16	4	3.9	----	9.5	16	4
51	830916	3.3	4.4	5.3	28	7	2.1	5.1	9.1	28	7
52	830923	2.7	3.5	4.7	32	8	.6	3.1	6.2	32	8
1	831001	3.0	3.8	4.8	28	7	1.0	3.6	7.0	28	7
2	831008	2.6	3.3	4.0	28	7	.2	2.2	4.8	28	7
3	831015	3.1	3.7	4.6	28	7	.9	2.7	6.2	28	7
4	831022	3.0	3.5	4.2	28	7	.6	1.8	4.7	28	7
5	831029	3.4	----	3.9	12	3	.8	----	3.1	12	3

3-A-250

Table 3-A-78. Weekly minimum, mean and maximum intragravel and surface water temperatures (C) at Side Channel 21 - Site 1, RM 141.0, GC S31NO2W02CAA. Values were obtained from temperatures measured at six-hour intervals by a datapod temperature recorder.

Water Year Week	Starting Calendar Date	Intragravel Weekly Values					Surface Water Weekly Values				
		Min (C)	Mean (C)	Max (C)	n	No. of days in record	Min (C)	Mean (C)	Max (C)	n	No. of days in record
48	830826	5.2	----	6.1	13	4	7.1	----	9.2	13	4
49	830902	3.9	4.5	5.2	28	7	4.7	----	8.2	16	4
50	830909	4.1	----	4.8	14	4	----	----	----	0	0

3-A-251

Table 3-A-79. Weekly minimum, mean and maximum intragravel and surface water temperatures (C) at Side Channel 21 - Site 2, RM 141.0, GC S30N02W02CAA. Values were obtained from temperatures measured at six-hour intervals by a datapod temperature recorder.

Water Year Week	Starting Calendar Date	Intragravel Weekly Values					Surface Water Weekly Values				
		Min (C)	Mean (C)	Max (C)	n	No. of days in record	Min (C)	Mean (C)	Max (C)	n	No. of days in record
50	830909	6.0	---	6.2	12	3	4.5	---	7.5	12	3
51	830916	5.6	6.0	6.2	28	7	2.9	5.3	7.1	28	7
52	830923	4.3	5.5	6.2	32	8	2.4	4.1	5.0	32	8
1	831001	3.4	3.6	4.3	28	7	2.4	3.9	4.7	28	7
2	831008	2.1	2.8	3.5	28	7	1.9	3.5	4.5	28	7
3	831015	1.7	1.8	2.2	28	7	2.5	3.3	4.5	28	7
4	831022	1.6	1.8	2.0	28	7	1.8	2.5	3.7	28	7
5	831029	1.7	---	1.9	12	3	1.6	---	2.1	12	3

3-A-252

Table 3-A-80. Weekly minimum, mean and maximum intragravel and surface water temperatures (C) at Lower SL. 8A - Site 2, RM 125.6, GC S30N03W30BDB. Values were obtained from temperatures measured at six-hour intervals by a datapod temperature recorder.

Water Year Week	Starting Calendar Date	Intragravel Weekly Values					Surface Water Weekly Values				
		Min (C)	Mean (C)	Max (C)	n	No. of days in record	Min (C)	Mean (C)	Max (C)	n	No. of days in record
31	830429	3.1	---	3.4	18	5	1.8	---	6.1	18	5
32	830506	3.3	3.4	3.7	28	7	1.3	4.6	8.0	28	7
33	830513	3.6	3.6	3.7	28	7	2.4	4.5	7.6	28	7
34	830520	3.6	3.8	3.9	28	7	3.0	5.9	9.2	28	7
35	830527	3.8	4.0	4.2	27	7	4.4	7.4	9.9	24	6
36	830603	3.8	3.9	4.0	28	7	---	---	---	0	0
37	830610	3.8	4.1	4.3	28	7	---	---	---	0	0
38	830617	4.3	4.4	4.6	28	7	---	---	---	0	0
39	830624	4.3	4.5	4.5	28	7	---	---	---	0	0
40	830701	4.3	4.5	4.7	28	7	7.1	---	16.3	14	4
41	830708	4.4	4.5	4.7	28	7	7.2	11.3	14.9	28	7
42	830715	4.5	4.8	5.1	28	7	9.8	12.9	17.1	28	7
43	830722	4.8	5.1	5.3	28	7	8.5	12.8	16.9	28	7
44	830729	4.8	5.2	5.5	28	7	8.7	12.8	17.4	28	7
45	830805	4.6	5.0	5.3	28	7	8.2	10.3	12.8	28	7
46	830812	4.2	4.4	4.7	28	7	6.7	9.1	12.7	28	7
47	830819	4.2	4.4	4.6	26	7	6.2	8.7	12.1	26	7

3-A-253

Table 3-A-81. Weekly minimum, mean and maximum intragravel and surface water temperatures (C) at Lower Sl. 8A - Site 3, RM 125.6, GC S30N03W30BDB. Values were obtained from temperatures measured at six-hour intervals by a datapod temperature recorder.

Water Year Week	Starting Calendar Date	Intragravel Weekly Values					Surface Water Weekly Values				
		Min (C)	Mean (C)	Max (C)	n	No. of days in record	Min (C)	Mean (C)	Max (C)	n	No. of days in record
47	830819	---	4.9	4.9	1	1	8.3	---	9.2	1	1
48	830826	4.7	4.9	5.1	28	7	6.9	8.5	11.1	28	7
49	830902	4.7	5.5	7.1	28	7	4.6	7.0	9.9	28	7
50	830909	6.1	7.4	8.6	28	7	6.2	7.9	10.0	28	7
51	830916	4.6	6.1	7.7	28	7	4.4	6.4	8.6	28	7
52	830923	1.6	3.1	7.1	32	8	.5	2.7	6.7	32	8
1	831001	1.9	3.4	4.9	28	7	1.2	3.3	5.6	28	7
2	831008	.7	1.8	2.6	28	7	.3	1.6	2.5	28	7
3	831015	1.0	1.8	2.5	28	7	.4	1.6	3.0	28	7
4	831022	.4	.9	1.8	28	7	.3	.9	2.1	28	7
5	831029	.3	---	.9	12	3	.3	---	1.3	12	3

3-A-254

Table 3-A-82. Weekly minimum, mean and maximum intragravel and surface water temperatures (C) at Upper Sl. 8A - Site 2, RM 126.6, GC S30N03W20CCA. Values were obtained from temperatures measured at six-hour intervals by a datapod temperature recorder.

Water Year Week	Starting Calendar Date	Intragravel Weekly Values					Surface Water Weekly Values				
		Min (C)	Mean (C)	Max (C)	n	No. of days in record	Min (C)	Mean (C)	Max (C)	n	No. of days in record
31	830429	2.2	----	2.6	20	5	1.3	----	5.7	20	5
32	830506	2.4	2.6	2.8	28	7	1.7	3.0	5.5	28	7
33	830513	2.6	2.8	3.0	28	7	2.2	3.1	5.4	28	7
34	830520	2.8	3.0	3.3	28	7	2.4	3.7	6.5	28	7
35	830527	3.0	3.2	3.4	27	7	2.8	3.9	6.7	27	7
36	830603	3.2	3.4	3.7	28	7	3.1	4.1	7.5	28	7
37	830610	3.4	3.6	4.0	28	7	3.4	5.0	8.6	28	7
38	830617	3.6	4.0	4.3	28	7	3.8	6.0	10.3	28	7
39	830624	3.9	4.1	4.5	28	7	4.5	6.0	10.6	28	7
40	830701	4.1	4.3	4.8	28	7	4.8	6.2	10.7	28	7
41	830708	4.0	4.4	5.0	28	7	4.7	6.3	10.6	28	7
42	830715	4.5	5.1	5.7	28	7	5.0	7.2	12.4	28	7
43	830722	4.7	5.2	5.9	28	7	5.0	7.1	12.7	28	7
44	830729	4.7	5.2	6.0	28	7	4.9	7.0	11.8	28	7
45	830805	3.7	4.4	4.9	28	7	4.4	5.8	8.1	28	7
46	830812	3.4	3.6	3.8	28	7	3.7	4.8	7.8	28	7
47	830819	3.4	3.6	3.8	26	7	3.6	4.7	7.5	26	7
4	831022	2.7	----	3.0	5	2	.7	----	1.6	5	2
5	831029	1.7	----	2.7	12	3	0.0	----	1.2	12	3

3-A-255

Table 3-A-83. Weekly minimum, mean and maximum surface water temperatures (C) at Slough 9 Incubation Site, RM 128.3, GC S30N03W16CBC. Values were obtained from temperatures measured at two-hour intervals by a Ryan temperature recorder.

Water Year Week	Starting Calendar Date	Weekly Value (C)			n	No. of days in record
		Min	Mean	Max		
48	830826	7.5	-----	9.0	16	2
49	830902	3.0	5.1	7.5	84	7
50	830909	3.0	5.6	7.0	84	7
51	830916	1.0	3.5	6.5	68	6

Table 3-A-84 Weekly minimum, mean and maximum intragravel and surface water temperatures (C) at Slough 9 - Site 3, RM 128.6, GC S30N03W16BDC. Values were obtained from temperatures measured at six-hour intervals by a datapod temperature recorder.

Water Year Week	Starting Calendar Date	Intragravel Weekly Values					Surface Water Weekly Values				
		Min (C)	Mean (C)	Max (C)	n	No. of days in record	Min (C)	Mean (C)	Max (C)	n	No. of days in record
31	830429	3.4	----	3.7	20	5	.6	----	9.7	20	5
32	830506	2.8	3.3	3.8	28	7	0.0	2.7	8.5	28	7
33	830513	3.3	3.5	3.7	28	7	1.7	4.4	8.5	28	7
34	830520	3.4	3.6	3.8	28	7	2.8	5.7	9.6	28	7
35	830527	3.5	3.8	4.2	28	7	3.7	7.5	10.0	28	7
36	830603	3.4	3.7	3.9	28	7	7.1	9.0	13.3	24	6
37	830610	3.4	3.4	3.5	28	7	----	----	----	0	0
38	830617	3.4	3.5	3.7	28	7	----	----	----	0	0
39	830624	3.4	3.5	3.6	28	7	----	----	----	0	0
40	830701	3.4	3.5	3.5	28	7	----	----	----	0	0
41	830708	3.4	3.5	3.5	28	7	----	----	----	0	0
42	830715	3.4	3.5	3.5	28	7	8.2	----	17.0	8	2
43	830722	3.4	3.5	3.5	28	7	8.1	12.2	17.8	28	7
44	830729	3.4	3.5	3.5	28	7	8.2	12.3	17.0	28	7
45	830805	3.5	3.6	4.2	28	7	10.1	11.2	13.2	28	7
46	830812	3.4	3.6	3.8	28	7	7.8	----	12.1	15	4
47	830819	3.4	3.5	3.6	27	7	6.3	----	10.9	9	3
48	830826	3.5	3.6	3.7	28	7	6.1	8.4	12.2	28	7
49	830902	3.5	3.5	3.6	28	7	4.8	----	6.1	9	3
50	830909	3.5	3.5	3.6	28	7	----	----	----	0	0
51	830916	3.5	3.5	3.6	28	7	2.2	5.2	8.0	24	6
52	830923	3.5	3.5	3.5	32	8	.5	2.7	6.0	32	8
1	831001	3.5	3.5	3.5	28	7	.7	3.0	5.7	28	7
2	831008	3.4	3.5	3.5	28	7	.1	----	2.6	12	3
3	831015	3.4	3.5	3.5	28	7	1.1	----	3.4	4	1
4	831022	3.4	3.4	3.5	28	7	.4	1.5	3.4	28	7
5	831029	3.4	----	3.5	12	3	.7	----	2.6	12	3

3-A-257

Table 3-A-85. Weekly minimum, mean and maximum intragravel and surface water temperatures (C) at Slough 10 Northeast, RM 134.0, GC S31N03W36AAA. Values were obtained from temperatures measured at six-hour intervals by a datapod temperature recorder.

Water Year Week	Starting Calendar Date	Intragravel Weekly Values					Surface Water Weekly Values				
		Min (C)	Mean (C)	Max (C)	n	No. of days in record	Min (C)	Mean (C)	Max (C)	n	No. of days in record
3	831015	3.7	---	4.0	10	3	2.2	---	3.7	10	3
4	831022	3.3	3.5	3.8	28	7	1.5	2.4	3.6	28	7
5	831029	3.3	---	3.5	12	3	1.7	---	3.0	12	3

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Table 3-A-86. Weekly minimum, mean and maximum intragravel and surface water temperatures (C) at Slough 10 Northwest, RM 134.0, GC S31N03W36AAA. Values were obtained from temperatures measured at six-hour intervals by a datapod temperature recorder.

Water Year Week	Starting Calendar Date	Intragravel Weekly Values					Surface Water Weekly Values				
		Min (C)	Mean (C)	Max (C)	n	No. of days in record	Min (C)	Mean (C)	Max (C)	n	No. of days in record
3	831015	3.5	----	3.6	9	3	2.1	----	3.3	9	3
4	831022	3.5	3.6	3.7	28	7	1.8	2.4	3.5	28	7
5	831029	3.6	----	3.7	12	3	2.0	----	2.8	12	3

3-A-259

Table 3-A-87. Weekly minimum, mean and maximum intragravel and surface water temperatures (C) at Slough 11 - Site 2, RM 135.7, GC S31N02W19DAD. Values were obtained from temperatures measured at six-hour intervals by a datapod temperature recorder.

Water Year Week	Starting Calendar Date	Intragravel Weekly Values					Surface Water Weekly Values				
		Min (C)	Mean (C)	Max (C)	n	No. of days in record	Min (C)	Mean (C)	Max (C)	n	No. of days in record
31	830429	3.6	----	3.8	20	5	3.5	----	8.7	20	5
32	830506	3.6	3.7	3.9	28	7	3.7	5.8	9.5	28	7
33	830513	3.5	3.7	3.8	28	7	3.7	6.6	9.7	28	7
34	830520	3.6	3.6	3.7	28	7	3.6	6.4	9.0	28	7
35	830527	3.5	3.6	3.7	27	7	3.8	6.0	10.0	27	7
36	830603	3.4	3.5	3.6	28	7	3.7	5.7	9.3	28	7
37	830610	3.5	3.6	3.7	28	7	3.7	5.5	9.4	28	7
38	830617	3.5	3.6	3.7	28	7	3.7	4.6	6.4	28	7
39	830624	3.5	3.6	3.7	28	7	3.8	4.9	8.1	28	7
40	830701	3.5	3.5	3.7	28	7	3.8	5.9	9.2	27	7
41	830708	3.5	3.6	3.7	28	7	4.0	6.6	9.5	28	7
42	830715	3.5	3.6	3.7	28	7	3.9	5.8	9.8	28	7
43	830722	3.5	3.6	3.8	28	7	3.9	5.7	8.9	28	7
44	830729	3.6	3.7	3.8	28	7	3.9	5.4	8.7	28	7
45	830805	3.5	3.6	3.7	28	7	4.6	6.8	10.2	28	7
46	830812	3.5	3.6	3.7	28	7	3.7	6.1	9.0	28	7
47	830819	3.5	3.6	3.7	28	7	3.8	6.0	8.8	28	7
48	830826	3.5	3.5	3.6	28	7	4.7	6.1	8.8	28	7
49	830902	3.4	3.5	3.6	28	7	3.3	5.2	7.7	28	7
50	830909	3.5	3.5	3.6	28	7	3.9	5.4	7.3	28	7
51	830916	3.4	3.5	3.6	28	7	3.1	4.6	6.2	28	7
52	830923	3.2	3.4	3.5	32	8	.9	2.8	4.7	32	8
1	831001	3.2	3.4	3.5	28	7	1.9	3.3	5.4	28	7
2	831008	3.2	3.3	3.3	28	7	1.1	2.4	3.3	28	7
3	831015	3.2	3.3	3.3	28	7	1.6	2.5	3.6	28	7
4	831022	3.2	3.3	3.3	28	7	1.6	2.3	3.3	28	7
5	831029	3.2	----	3.3	12	3	1.9	----	2.5	12	3

3-A-260

Table 3-A-88. Weekly minimum, mean and maximum intragravel and surface water temperatures (C) at Slough 19, RM 140.0, CC S31N02W10DBA. Values were obtained from temperatures measured at six-hour intervals by a datapod temperature recorder.

Water Year Week	Starting Calendar Date	Intragravel Weekly Values					Surface Water Weekly Values				
		Min (C)	Mean (C)	Max (C)	n	No. of days in record	Min (C)	Mean (C)	Max (C)	n	No. of days in record
31	830429	2.6	----	4.2	20	5	2.7	----	8.5	20	5
32	830506	2.3	2.7	3.2	28	7	1.6	3.9	7.0	27	7
33	830513	2.4	----	3.5	18	5	2.0	----	6.1	18	5
36	830603	3.8	----	5.9	17	5	3.4	----	6.5	17	5
37	830610	3.8	5.2	7.3	28	7	3.4	5.3	8.1	28	7
38	830617	4.6	5.5	6.9	28	7	4.4	5.4	7.5	28	7
39	830624	4.5	5.1	6.6	27	7	4.2	5.0	7.2	27	7
40	830701	4.2	4.5	4.8	28	7	4.1	5.1	7.4	28	7
41	830708	4.4	4.6	5.0	28	7	4.1	5.6	9.1	28	7
42	830715	4.1	4.6	5.0	28	7	3.9	5.7	9.4	28	7
43	830722	4.6	4.7	5.0	28	7	4.2	5.7	10.0	28	7
44	830729	4.5	4.9	5.3	28	7	4.4	5.7	9.7	28	7
45	830805	4.8	5.1	5.3	28	7	4.7	5.7	7.9	28	7
46	830812	4.7	4.9	5.2	28	7	4.0	5.4	7.6	28	7
47	830819	4.5	4.8	5.0	27	7	4.0	5.4	8.0	27	7
48	830826	4.6	4.9	5.2	28	7	4.3	5.3	6.7	28	7
49	830902	4.3	4.6	4.9	28	7	3.4	4.9	6.9	28	7
50	830909	4.4	4.5	4.7	28	7	4.0	5.1	7.7	28	7
51	830916	4.3	4.5	4.6	28	7	3.6	4.7	6.2	28	7
52	830923	4.0	4.3	4.5	32	8	2.4	4.0	5.5	32	8
1	831001	4.1	4.2	4.4	28	7	3.0	4.0	5.7	28	7
2	831008	3.8	4.0	4.4	28	7	1.9	3.1	5.3	28	7
3	831015	4.0	4.1	4.3	28	7	3.0	3.7	5.0	28	7
4	831022	3.8	4.0	4.2	28	7	3.1	3.6	4.5	28	7
5	831029	3.6	----	3.9	12	3	3.0	----	3.3	12	3

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Table 3-A-89. Weekly minimum, mean and maximum intragravel and surface water temperatures (C) at Lower Sl. 21 - Site 2, RM 141.8, GC S31N02W02AAB. Values were obtained from temperatures measured at six-hour intervals by a datapod temperature recorder.

Water Year Week	Starting Calendar Date	Intragravel Weekly Values					Surface Water Weekly Values				
		Min (C)	Mean (C)	Max (C)	n	No. of days in record	Min (C)	Mean (C)	Max (C)	n	No. of days in record
35	830527	3.5	---	3.7	21	6	3.1	---	8.5	21	6
36	830603	3.5	3.6	3.8	28	7	3.3	6.8	13.6	28	7
37	830610	3.5	3.7	3.7	28	7	2.6	8.9	17.5	28	7
38	830617	3.6	3.7	3.8	28	7	3.8	9.3	13.3	28	7
39	830624	3.6	3.7	3.8	28	7	6.9	10.2	13.8	28	7
40	830701	3.6	3.7	3.8	28	7	4.5	9.5	12.7	28	7
41	830708	3.7	3.7	3.8	28	7	3.9	7.1	12.1	28	7
42	830715	3.7	3.8	3.8	28	7	3.7	6.1	11.2	28	7
43	830722	3.7	3.8	3.9	28	7	3.6	6.3	10.9	28	7
44	830729	3.7	3.8	3.9	28	7	4.0	6.6	11.4	28	7
45	830805	3.7	3.8	3.9	28	7	4.3	8.4	10.2	28	7
46	830812	3.7	3.8	4.0	28	7	3.2	7.3	9.8	28	7
47	830819	3.7	3.8	3.9	23	7	3.1	5.5	8.4	23	7
48	830826	3.7	3.8	3.9	28	7	4.5	6.9	9.0	28	7
49	830902	3.7	3.8	4.1	28	7	2.5	4.4	7.8	28	7
50	830909	3.7	3.8	3.9	28	7	3.0	4.2	6.4	26	7
51	830916	3.7	3.8	4.1	28	7	2.3	3.7	6.2	28	7
52	830923	3.7	3.9	4.2	32	8	1.3	2.6	4.1	32	8
1	831001	3.7	3.9	4.2	28	7	1.4	2.7	4.7	27	7
2	831008	3.7	3.9	4.2	28	7	.2	2.2	3.6	28	7
3	831015	3.6	3.9	4.1	28	7	1.5	2.4	4.0	28	7
4	831022	3.7	3.9	4.1	28	7	1.2	2.0	3.2	28	7
5	831029	3.7	---	4.0	12	3	1.1	---	2.8	12	3

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Table 3-A-90. Weekly minimum, mean and maximum intragravel and surface water temperatures (C) at Upper Sl. 21- Site 1, RM 142.0, GC S32N02W36CCC. Values were obtained from temperatures measured at six-hour intervals by a datapod temperature recorder.

Water Year Week	Starting Calendar Date	Intragravel Weekly Values					Surface Water Weekly Values				
		Min (C)	Mean (C)	Max (C)	n	No. of days in record	Min (C)	Mean (C)	Max (C)	n	No. of days in record
31	830429	.4	----	5.7	20	5	0.0	----	7.3	20	5
32	830506	3.4	4.9	7.5	28	7	3.0	5.0	8.6	28	7
33	830513	3.2	5.0	8.0	28	7	2.9	5.3	9.2	28	7
34	830520	3.5	5.0	7.2	28	7	3.3	5.2	7.9	28	7
35	830527	3.6	6.1	8.4	27	7	3.5	6.4	8.9	27	7
36	830603	3.6	5.9	8.6	28	7	3.5	6.2	9.4	28	7
37	830610	3.8	5.6	8.2	28	7	3.6	5.9	9.2	28	7
38	830617	4.2	6.7	13.1	28	7	4.1	7.2	14.9	28	7
39	830624	4.6	6.3	9.2	28	7	4.7	6.7	10.2	28	7
40	830701	4.7	6.5	12.3	28	7	5.0	7.0	13.7	28	7
41	830708	4.7	6.6	11.1	28	7	4.8	7.1	12.0	28	7
42	830715	4.6	6.0	8.6	28	7	4.7	6.5	9.8	28	7
43	830722	4.4	5.8	8.2	28	7	4.5	6.3	9.2	28	7
44	830729	4.6	5.9	8.2	28	7	4.8	6.3	9.3	28	7
45	830805	4.7	7.2	10.5	28	7	4.9	7.7	11.1	28	7
46	830812	3.9	6.0	11.0	28	7	3.8	6.3	12.1	28	7
47	830819	3.8	5.2	8.6	27	7	3.7	5.4	9.6	27	7
48	830826	4.3	5.9	8.6	28	7	4.3	6.2	9.1	28	7
49	830902	3.1	4.3	6.6	28	7	2.8	4.3	7.2	28	7
50	830909	3.7	4.5	5.9	28	7	3.6	4.6	6.4	28	7
51	830916	3.3	4.0	5.3	28	7	2.9	4.0	5.8	28	7
52	830923	2.6	3.3	4.7	32	8	2.0	3.1	4.7	32	8
1	831001	2.6	3.3	4.7	28	7	2.1	3.2	4.8	28	7
2	831008	2.0	2.9	3.6	28	7	1.6	2.6	3.5	28	7
3	831015	2.6	3.0	3.8	28	7	2.1	2.7	3.7	28	7
4	831022	2.6	2.9	3.4	28	7	2.0	2.6	3.2	28	7
5	831029	2.6	----	3.2	12	3	2.1	----	3.0	12	3

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Table 3-A-91. Weekly minimum, mean and maximum surface water temperatures (C) at the Yentna River - Site 2, RM 28.0, TRM 4.0, GC S18N07W34DBC. Values were obtained from temperatures measured at two-hour intervals by a Ryan temperature recorder.

Water Year Week	Starting Calendar Date	Weekly Value (C)			n	No. of days in record
		Min	Mean	Max		
37	830610	9.8	---	10.8	15	2
38	830617	9.8	11.4	12.8	84	7
39	830624	8.8	10.3	11.3	84	7
40	830701	9.3	10.6	12.3	84	7
41	830708	8.8	10.3	11.8	84	7
42	830715	9.8	10.8	11.8	84	7
43	830722	8.8	10.1	11.8	84	7
44	830729	9.3	10.8	11.8	83	7
45	830805	8.0	8.7	10.5	84	7
46	830812	8.0	8.6	9.0	84	7
47	830819	8.0	8.7	10.0	84	7
48	830826	8.0	8.8	10.0	84	7
49	830902	5.5	7.4	8.5	81	7
50	830909	5.5	6.5	7.5	84	7
51	830916	4.5	5.2	6.0	84	7
52	830923	0.0	1.4	6.0	96	8
1	831001	1.5	2.7	3.5	78	7

Table 3-A-92. Weekly minimum, mean and maximum surface water temperatures (C) at the Talkeetna River - Site 2, RM 97.2, TRM 1.5, GC S26N05W24BDA. Values were obtained from temperatures measured at two-hour intervals by a Ryan temperature recorder.

Water Year Week	Starting Calendar Date	Weekly Value (C)			n	No. of days in record
		Min	Mean	Max		
35	830527	6.1	-----	8.1	54	5
36	830603	5.6	7.7	10.1	84	7
37	830610	7.1	9.4	10.8	83	7
38	830617	9.3	-----	12.3	24	2
39	830624	9.8	11.2	13.3	65	6
40	830701	9.8	11.2	13.3	79	7
41	830708	9.3	10.4	11.3	84	7
42	830715	9.8	10.7	11.8	80	7
43	830722	9.8	11.1	12.8	84	7
44	830729	9.3	10.9	12.8	84	7
45	830805	8.8	9.6	10.5	77	7
46	830812	8.0	9.3	10.5	84	7
47	830819	7.0	8.9	10.5	83	7
48	830826	7.5	-----	10.5	59	5
51	830916	4.0	5.9	7.0	66	6
52	830923	.5	2.6	6.5	96	8
1	831001	.4	2.8	4.9	84	7
2	831008	.4	-----	1.4	43	4

Table 3-A-93. Weekly minimum, mean and maximum surface water temperatures (C) at the Chulitna River - Site 2, RM 98.6, TRM 0.6, GC S26N05W15DAB. Values were obtained from temperatures measured at two-hour intervals by a Ryan temperature recorder.

Water Year Week	Starting Calendar Date	Weekly Value (C)			n	No. of days in record
		Min	Mean	Max		
35	830527	5.7	---	8.7	55	5
36	830603	4.7	6.8	9.2	84	7
37	830610	6.7	---	9.2	53	5

Table 3-A-94. Weekly minimum, mean and maximum surface water temperatures (C) at the Chulitna River - Site 3, RM 98.6, TRM 2.4, GC S26N05W09ACA. Values were obtained from temperatures measured at two-hour intervals by a Ryan temperature recorder,

Water Year Week	Starting Calendar Date	Weekly Value (C)			n	No. of days in record
		Min	Mean	Max		
43	830722	6.5	7.9	10.0	65	6
44	830729	6.5	8.1	10.0	84	7
45	830805	6.0	6.9	8.0	84	7
46	830812	6.0	6.9	8.5	84	7
47	830819	6.0	7.0	8.5	84	7
48	830826	6.5	7.2	7.5	84	7
49	830902	5.0	5.9	7.0	84	7
50	830909	3.6	5.8	6.5	84	7
51	830916	3.1	4.4	5.6	84	7
52	830923	.1	1.0	4.6	96	8
1	831001	.2	1.9	3.1	84	7
2	831008	.2	---	.7	43	4

Table 3-A-95. Weekly minimum, mean and maximum surface water temperatures (C) at the Chulitna River - Site 4, RM 98.6, TRM 4.4, GC S27N05W32DAA. Values were obtained from temperatures measured at two-hour intervals by a Ryan temperature recorder.

Water Year Week	Starting Calendar Date	Weekly Value (C)			n	No. of days in record
		Min	Mean	Max		
43	830722	5.0	6.7	9.5	65	6
44	830729	5.0	6.8	9.0	84	7
45	830805	5.0	-----	6.5	42	4
46	830812	5.5	-----	9.0	16	2
47	830819	5.0	6.5	8.5	84	7
48	830826	6.0	6.7	8.5	84	7
49	830902	3.5	5.3	7.0	84	7
50	830909	3.5	5.4	7.0	84	7
51	830916	3.0	4.4	5.5	84	7
52	830923	0.0	1.2	4.5	96	8
1	831001	.7	2.2	3.5	83	7
2	831008	.2	-----	.7	43	4

Table 3-A-96. Weekly minimum, mean and maximum intragravel water temperatures (C) at Fourth of July Creek - Site 1, RM 131.1, TRM 0.0, GC S3ON03W03DAC. Values were obtained from temperatures measured at six-hour intervals by a datapod temperature recorder.

Water Year Week	Starting Calendar Date	Plume Weekly Values					Creek Weekly Values				
		Min (C)	Mean (C)	Max (C)	n	No. of days in record	Min (C)	Mean (C)	Max (C)	n	No. of days in record
48	830826	6.3	6.4	6.4	1	1	8.8	8.8	8.8	1	1
49	830902	5.4	6.7	7.9	28	7	4.5	7.2	8.8	28	7
50	830909	6.8	7.4	7.7	28	7	5.6	7.3	8.9	28	7
51	830916	4.9	5.9	7.5	28	7	2.8	5.4	7.7	28	7
52	830923	.8	4.0	6.5	32	8	-.3	1.3	6.6	32	8
1	831001	1.3	2.4	3.1	28	7	-.3	1.9	3.4	28	7
2	831008	.1	.8	2.0	28	7	-.3	.4	1.9	28	7
3	831015	.6	.8	1.2	28	7	-.3	.7	2.4	28	7
4	831022	-.2	.3	.9	28	7	-.3	-.0	1.4	28	7
5	831029	-.2	-.2	-.2	18	5	-.3	-.2	-.1	18	5

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Table 3-A-97. Weekly minimum, mean, and maximum surface water temperatures (C) at Gold Creek - Site 2, RM 136.7, TRM 0.2, GC S31N02W20BAD. Values were obtained from temperatures measured at hourly intervals by a datapod temperature recorder.

Water Year Week	Starting Calendar Date	Weekly Value (C)			n	No. of days in record
		Min	Mean	Max		
33	830513	2.5	----	6.5	82	4
34	830520	1.5	3.8	6.5	168	7
35	830527	2.0	3.6	6.0	168	7
36	830603	2.5	4.1	7.0	168	7
37	830610	3.0	5.9	9.0	168	7
38	830617	5.0	8.6	12.0	167	7
39	830624	7.0	9.5	13.0	168	7
40	830701	8.0	10.1	14.0	168	7
41	830708	8.5	10.2	13.0	168	7
42	830715	8.0	10.8	14.0	166	7
43	830722	8.0	10.8	15.0	168	7
44	830729	9.0	11.4	15.0	168	7
45	830805	7.5	9.9	12.5	168	7
46	830812	6.0	8.1	10.0	168	7
47	830819	5.5	7.8	10.5	167	7
48	830826	6.5	8.1	10.0	168	7
49	830902	3.0	5.4	7.5	168	7
50	830909	4.0	5.9	7.5	168	7
51	830916	2.5	4.6	7.0	168	7
52	830923	-.5	1.2	4.0	192	8
1	831001	.5	----	4.5	108	5

Table 3-A-98. Weekly minimum, mean, and maximum surface water temperatures (C) at Indian River - Site 2, RM 138.6, TRM 1.0, GC S31N02W09CBA. Values were obtained from temperatures measured at hourly intervals by a datapod temperature recorder.

Water Year Week	Starting Calendar Date	Weekly Value (C)			n	No. of days in record
		Min	Mean	Max		
33	830513	2.5	-----	6.0	62	3
34	830520	3.5	5.4	7.5	168	7
35	830527	4.0	5.8	8.5	168	7
36	830603	4.0	6.1	9.5	168	7
37	830610	5.0	7.5	10.0	168	7
38	830617	5.0	9.0	12.0	167	7
39	830624	7.0	9.7	13.0	168	7
40	830701	8.0	10.1	13.5	168	7
41	830708	8.5	10.7	13.5	168	7
42	830715	8.5	11.3	14.5	167	7
43	830722	9.0	11.5	15.0	168	7
44	830729	9.5	11.9	15.0	168	7
45	830805	8.0	10.3	12.5	168	7
46	830812	6.5	8.8	11.5	168	7
47	830819	6.0	8.4	11.5	168	7
48	830826	6.5	8.3	11.0	167	7
49	830902	4.5	6.5	8.5	168	7
50	830909	5.5	7.1	8.5	168	7
51	830916	3.5	6.1	8.0	168	7
52	830923	.5	2.8	5.0	192	8
1	831001	.5	3.0	5.0	167	7
2	831008	0.0	1.6	3.0	168	7
3	831015	.5	-----	3.5	108	5

Table 3-A-99. Weekly minimum, mean, and maximum surface water temperatures (C) at Portage Creek - Site 2, RM 148.8, TRM 0.2, GC S32N01W25CAB. Values were obtained from temperatures measured at hourly intervals by a datapod temperature recorder.

Water Year Week	Starting Calendar Date	Weekly Value (C)			n	No. of days in record
		Min	Mean	Max		
33	830513	1.5	3.5	6.5	132	6
34	830520	2.5	4.9	7.5	168	7
35	830527	3.5	5.5	8.5	168	7
36	830603	3.5	5.6	9.5	168	7
37	830610	4.0	6.7	9.5	168	7
38	830617	4.5	7.9	11.5	167	7
39	830624	6.0	8.7	12.5	168	7
40	830701	7.5	9.3	13.0	147	7
43	830722	12.5	-----	14.5	12	1
44	830729	9.0	11.6	14.5	168	7
45	830805	6.5	9.2	11.0	168	7
46	830812	6.0	7.9	10.5	168	7
47	830819	5.5	7.4	10.0	168	7
48	830826	6.0	7.3	9.5	167	7
49	830902	3.5	5.4	7.0	168	7
50	830909	4.5	6.2	8.0	168	7
51	830916	2.5	5.1	7.0	168	7
52	830923	0.0	1.7	5.0	192	8
1	831001	0.0	2.3	4.5	167	7
2	831008	0.0	1.0	3.0	168	7
3	831015	0.0	-----	3.0	106	5

Table 3-A-100. Weekly minimum, mean and maximum surface water temperatures (C) at Tsusena Creek, RM 181.8, TRM 0.1, GC S32N04E36ADB. Values were obtained from temperatures measured at two-hour intervals by a Ryan temperature recorder.

Water Year Week	Starting Calendar Date	Weekly Value (C)			n	No. of days in record
		Min	Mean	Max		
34	830520	5.0	-----	6.0	8	1
35	830527	3.0	5.2	8.5	84	7
36	830603	3.5	5.6	9.0	84	7
37	830610	4.5	6.7	9.0	84	7
38	830617	4.5	8.1	11.5	84	7
39	830624	6.0	9.0	13.0	84	7
40	830701	8.0	9.9	13.5	84	7
41	830708	8.5	10.2	14.0	84	7
42	830715	8.5	-----	12.0	42	4
47	830819	5.4	-----	7.4	19	2
48	830826	5.4	6.9	9.4	84	7
49	830902	2.9	5.0	6.4	84	7
50	830909	3.5	5.1	6.9	83	7
51	830916	1.5	3.8	5.0	84	7
52	830923	0.0	-----	3.0	59	5

Table 3-A-101. Weekly minimum, mean and maximum surface water temperatures (C) At Deadman Creek, RM 186.7, TRM 0.1, GC S32NO4E26CDB. Values were obtained from temperatures measured at two-hour intervals by a Ryan temperature recorder.

Water Year Week	Starting Calendar Date	Weekly Value (C)			n	No. of days in record
		Min	Mean	Max		
34	830520	4.8	---	6.3	12	1
35	830527	4.3	6.0	8.3	84	7
36	830603	4.3	6.5	8.8	84	7
37	830610	5.8	8.3	9.8	84	7
38	830617	7.3	11.0	13.3	84	7
39	830624	10.3	13.1	16.3	84	7
40	830701	12.3	14.0	16.8	84	7
41	830708	12.3	13.7	16.3	84	7
42	830715	9.4	12.9	15.3	84	7
43	830722	10.9	13.6	17.4	84	7
44	830729	10.9	13.6	16.9	84	7
45	830805	9.4	11.2	12.9	84	7
46	830812	7.9	9.4	11.4	84	7
47	830819	7.5	---	11.4	40	4
50	830909	4.2	---	6.2	30	3
51	830916	2.7	4.6	6.2	84	7
52	830923	.2	---	3.2	29	3

Table 3-A-102. Weekly minimum, mean and maximum surface water temperatures (C) at Watana Creek, RM 194.1, TRM 0.1, GC S32N06E25CCA. Values were obtained from temperatures measured at two-hour intervals by a Ryan temperature recorder.

Water Year Week	Starting Calendar Date	Weekly Value (C)			n	No. of days in record
		Min	Mean	Max		
33	830513	2.8	---	6.3	30	3
34	830520	2.8	4.9	8.3	84	7
35	830527	3.3	6.0	9.8	79	7
36	830603	4.3	6.8	10.8	84	7
37	830610	5.3	7.9	10.8	84	7
38	830617	5.8	10.3	14.3	84	7
39	830624	7.8	11.1	16.3	84	7
40	830701	8.8	11.5	15.3	84	7
41	830708	8.8	11.1	15.8	83	7
42	830715	6.4	10.5	13.8	84	7
43	830722	6.9	10.8	14.9	84	7
44	830729	7.4	10.4	14.4	84	7
45	830805	6.9	9.4	11.4	84	7
46	830812	5.4	7.7	9.4	84	7
47	830819	4.9	6.4	10.4	83	7
48	830826	4.6	6.1	8.1	84	7
49	830902	3.6	---	6.6	24	2
50	830909	3.0	---	5.0	30	3
51	830916	.5	3.4	5.0	84	7
52	830923	0.0	.6	3.0	96	8
1	831001	0.0	.9	3.0	84	7
2	831008	0.0	---	.5	53	5

Table 3-A-103. Weekly minimum, mean and maximum surface water temperatures (C) at Kosina Creek, RM 206.8, TRM 0.1, GC S31N08E15RAB. Values were obtained from temperatures measured at two-hour intervals by a Ryan temperature recorder.

Water Year Week	Starting Calendar Date	Weekly Value (C)			n	No. of days in record
		Min	Mean	Max		
34	830520	5.5	----	6.0	6	1
35	830527	4.0	6.3	10.5	84	7
36	830603	4.5	7.3	11.0	84	7
37	830610	5.0	8.8	11.5	84	7
38	830617	7.5	----	14.5	29	3
39	830624	11.3	----	14.3	7	1
40	830701	9.8	12.5	17.3	84	7
41	830708	9.8	11.9	15.3	84	7
42	830715	8.3	11.8	14.3	83	7
43	830722	9.3	12.7	16.3	84	7
44	830729	9.3	12.4	15.8	84	7
45	830805	9.3	11.1	13.3	84	7
46	830812	6.3	8.9	11.3	84	7
47	830819	5.6	8.3	11.8	84	7
48	830826	6.6	7.9	10.1	84	7
49	830902	3.1	5.7	8.1	84	7
50	830909	2.5	5.2	6.6	84	7
51	830916	1.0	3.6	5.0	84	7
52	830923	0.0	.3	3.5	96	8
1	831001	.5	----	1.5	14	2

Table 3-A-104. Weekly minimum, mean and maximum surface water temperatures (C) at Goose Creek, RM 231.3, TRM 0.1, GC S30N11E32DBC. Values were obtained from temperatures measured at two-hour intervals by a Ryan temperature recorder.

Water Year Week	Starting Calendar Date	Weekly Value (C)			n	No. of days in record
		Min	Mean	Max		
34	830520	1.3	----	6.3	18	2
35	830527	.8	3.4	7.3	84	7
36	830603	1.8	----	4.3	28	3
38	830617	5.8	----	12.3	54	5
39	830624	7.3	10.2	14.3	84	7
40	830701	9.8	----	12.3	9	1
44	830729	8.6	11.6	15.1	84	7
45	830805	8.6	10.3	12.6	84	7
46	830812	6.1	8.3	11.1	84	7
47	830819	6.0	8.0	11.1	84	7
48	830826	6.0	7.5	10.0	84	7
49	830902	3.0	5.4	8.0	84	7
50	830909	2.1	4.8	7.0	84	7
51	830916	.6	2.9	4.6	84	7
52	830923	.1	.4	2.6	96	8
1	831001	.1	.4	1.6	84	7
2	831008	.1	----	.1	53	5

Table 3-A-105. Weekly minimum, mean and maximum surface water temperatures (C) at the Oshetna River, RM 233.4, TRM 0.1, GC S30N11E34CCD. Values were obtained from temperatures measured at two-hour intervals by a Ryan temperature recorder.

Water Year Week	Starting Calendar Date	Weekly Value (C)			n	No. of days in record
		Min	Mean	Max		
33	830513	6.0	-----	7.5	6	1
34	830520	3.0	5.2	7.5	84	7
35	830527	3.5	6.7	9.5	84	7
36	830603	4.0	7.2	10.0	84	7
37	830610	5.5	8.4	10.0	84	7
38	830617	7.0	10.3	13.0	84	7
39	830624	9.0	11.4	14.5	84	7
40	830701	10.5	12.2	15.0	84	7
41	830708	9.0	11.4	14.0	84	7
42	830715	9.3	11.4	14.0	83	7
43	830722	8.8	10.7	13.3	84	7
44	830729	8.8	10.7	13.3	84	7
45	830805	8.8	9.8	10.8	84	7
46	830812	5.8	8.0	10.3	83	7
47	830819	5.5	7.4	9.8	83	7
48	830826	5.5	6.8	8.5	84	7
49	830902	3.5	5.2	7.5	84	7
50	830909	3.0	4.7	6.0	77	7
51	830916	2.0	3.7	4.5	84	7
52	830923	.5	.8	4.5	96	8
1	831001	.5	1.0	2.0	84	7
2	831008	.5	-----	.5	53	5

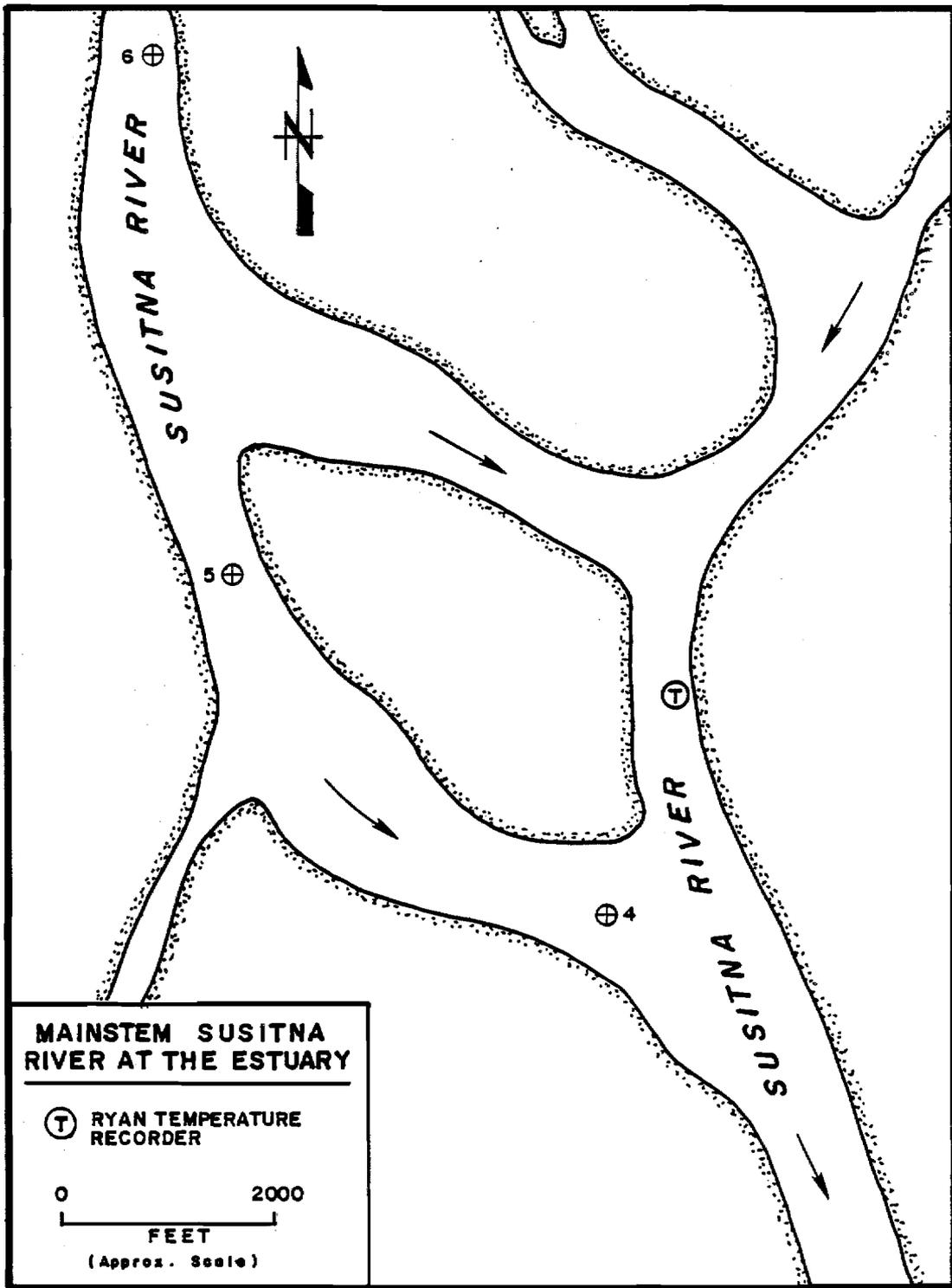


Figure 3-A-1. Location of the temperature monitoring station at Mainstem Susitna River at the Estuary, RM 4.5, GC S14N07W05ADB.

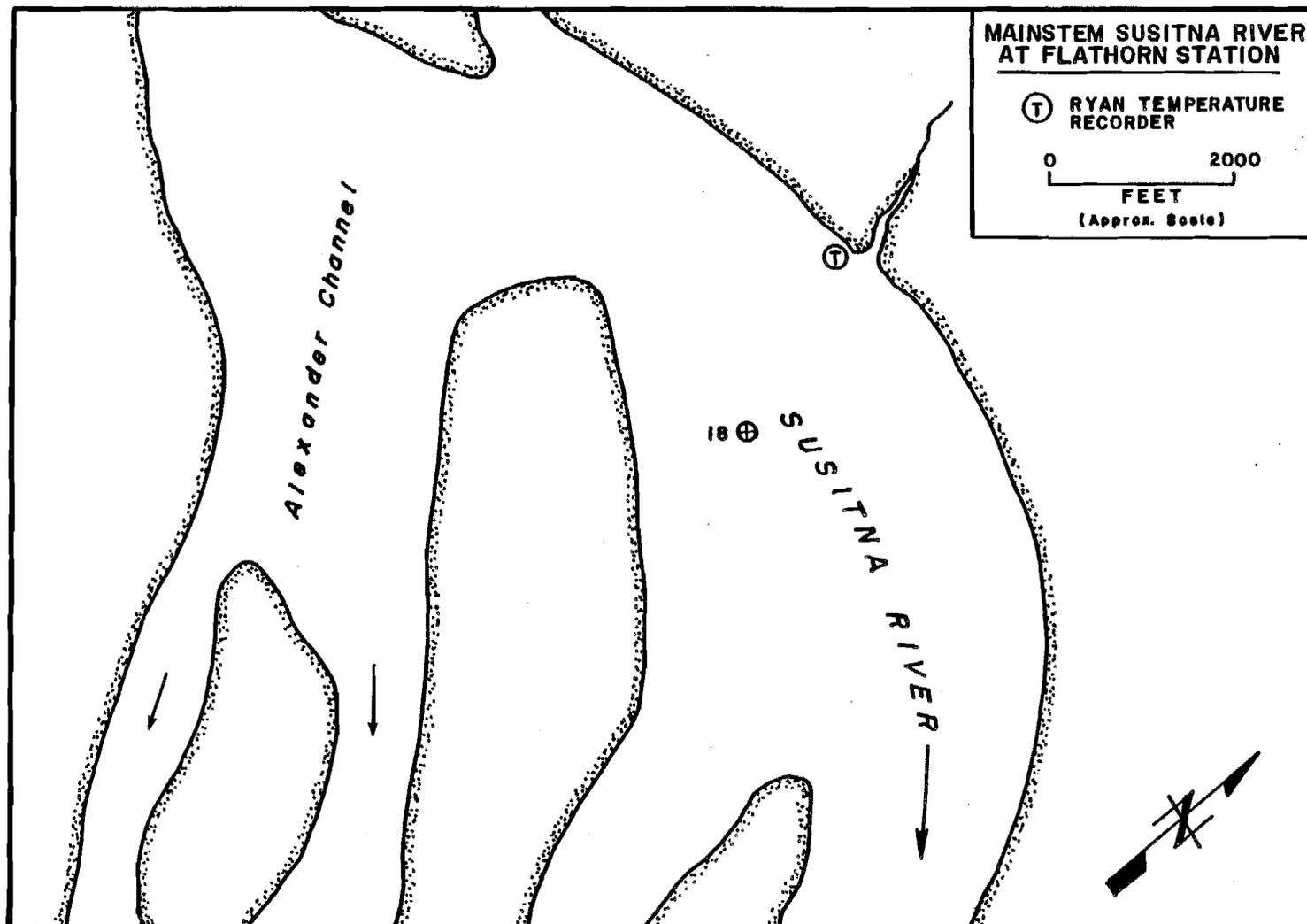


Figure 3-A-2. Location of the temperature monitoring station at Mainstem Susitna River at Flathorn Station, RM 18.2, GC S16N07W15DDD.

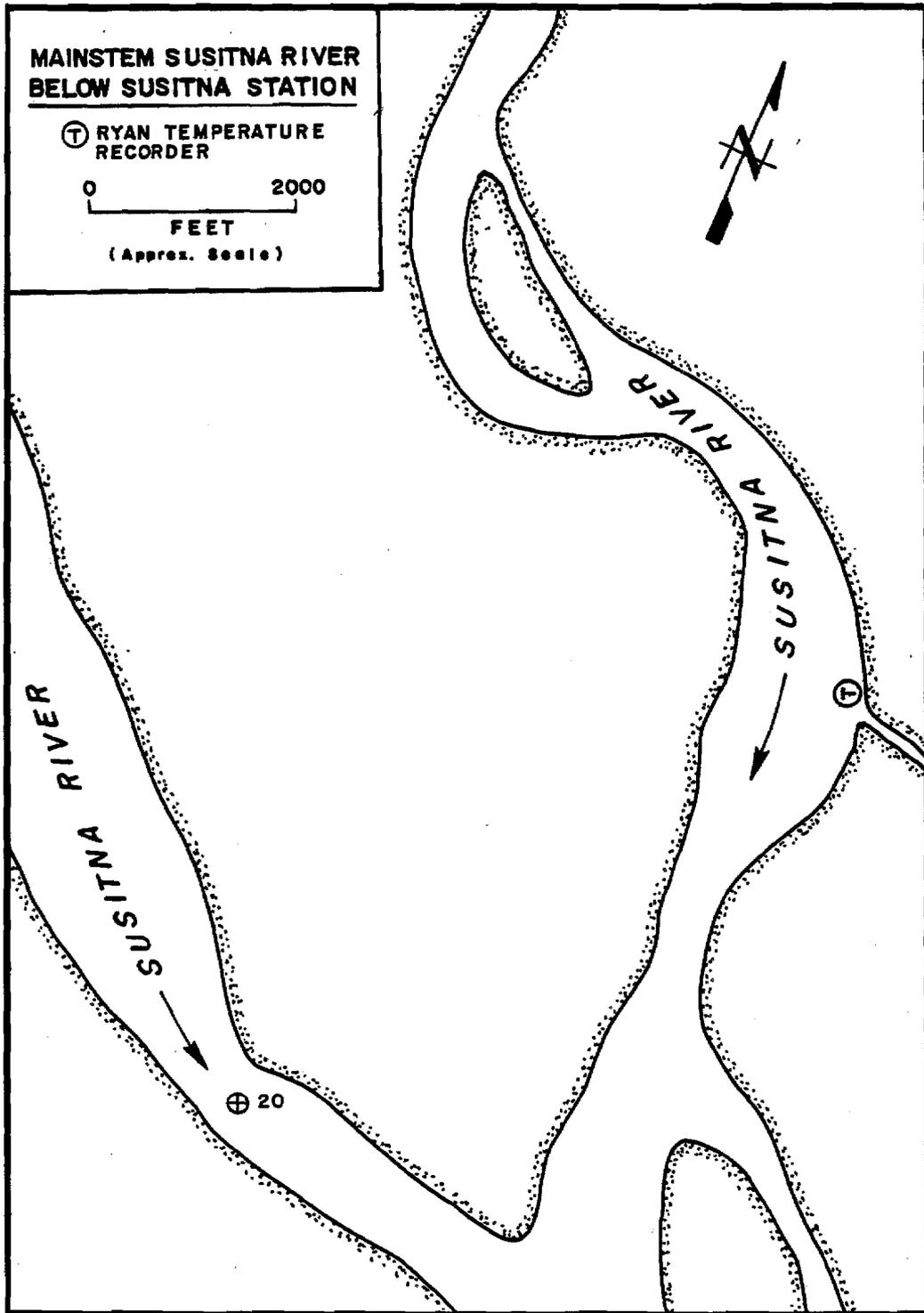


Figure 3-A-3 Location of the temperature monitoring station at Mainstem Susitna River below Susitna Station, RM 20.5, GC S16N07W08DDB.

3-A-282

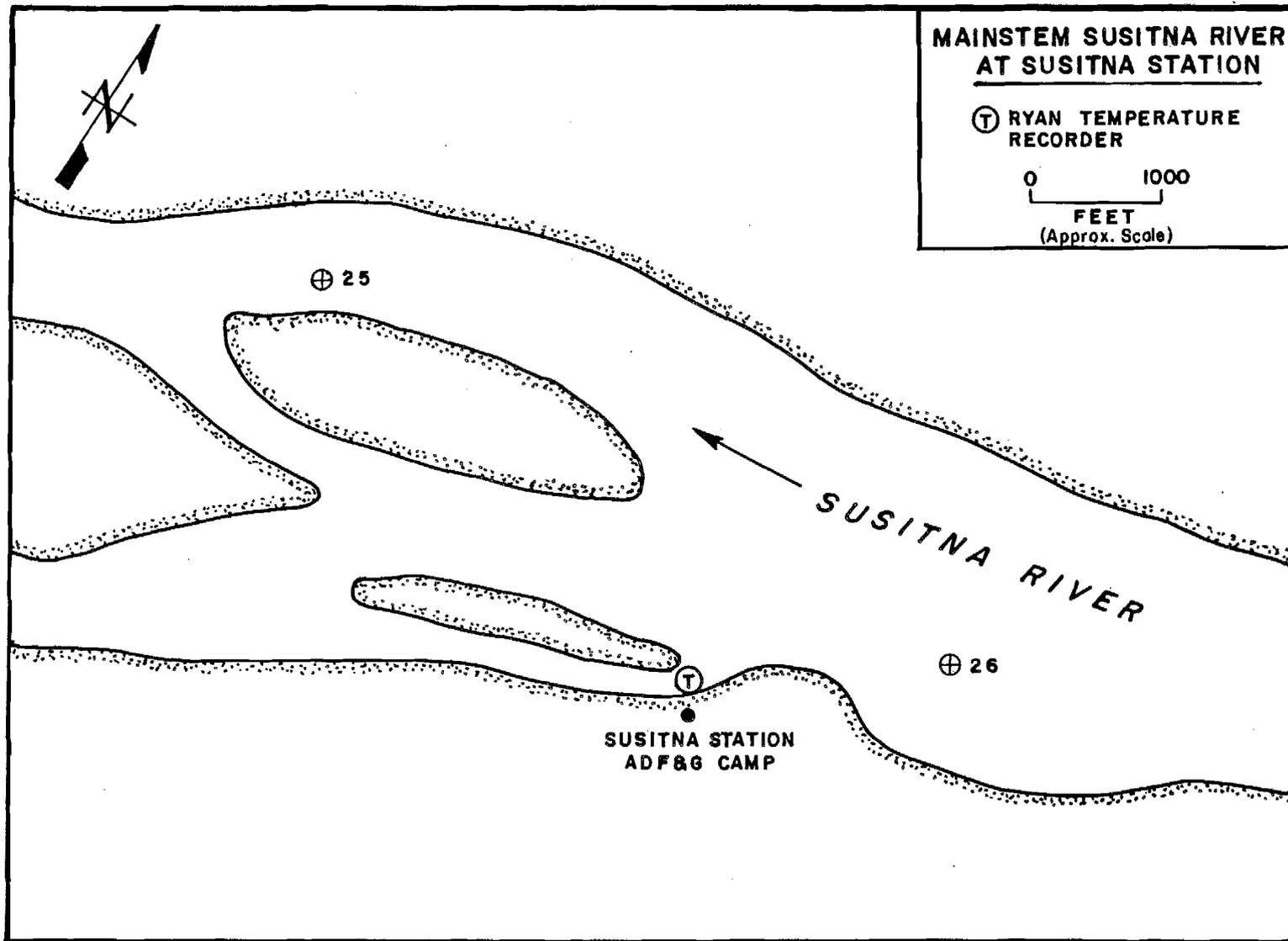


Figure 3-A-4. Location of the temperature monitoring station at Mainstem Susitna River at Susitna Station, RM 25.8, GC S17N07W22DCD.

3-A-283

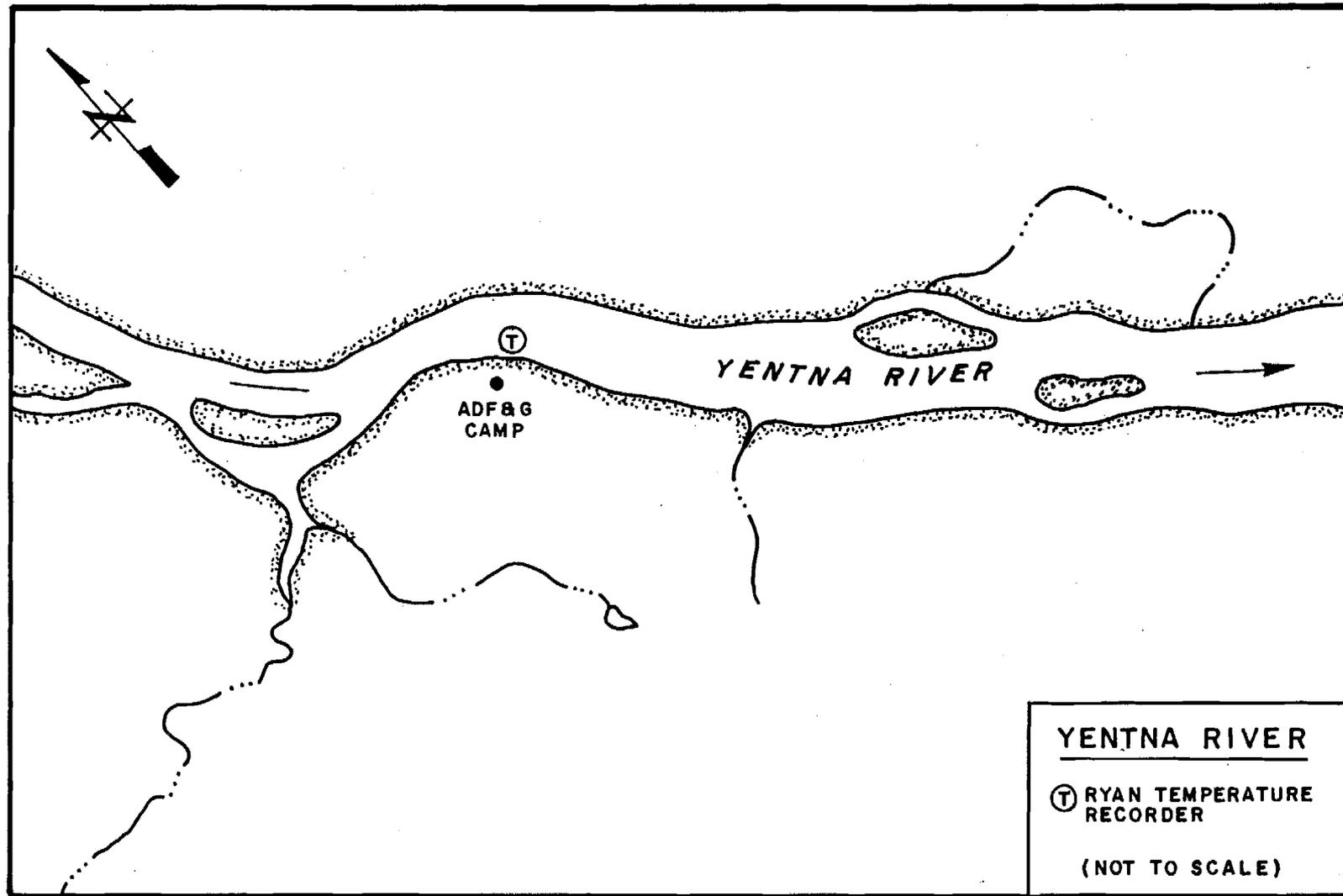


Figure 3-A-5. Location of the temperature monitoring station at the Yentna River - Site 2, RM 28.0, TRM 4.0, GC S18N07W34DBC.

3-A-284

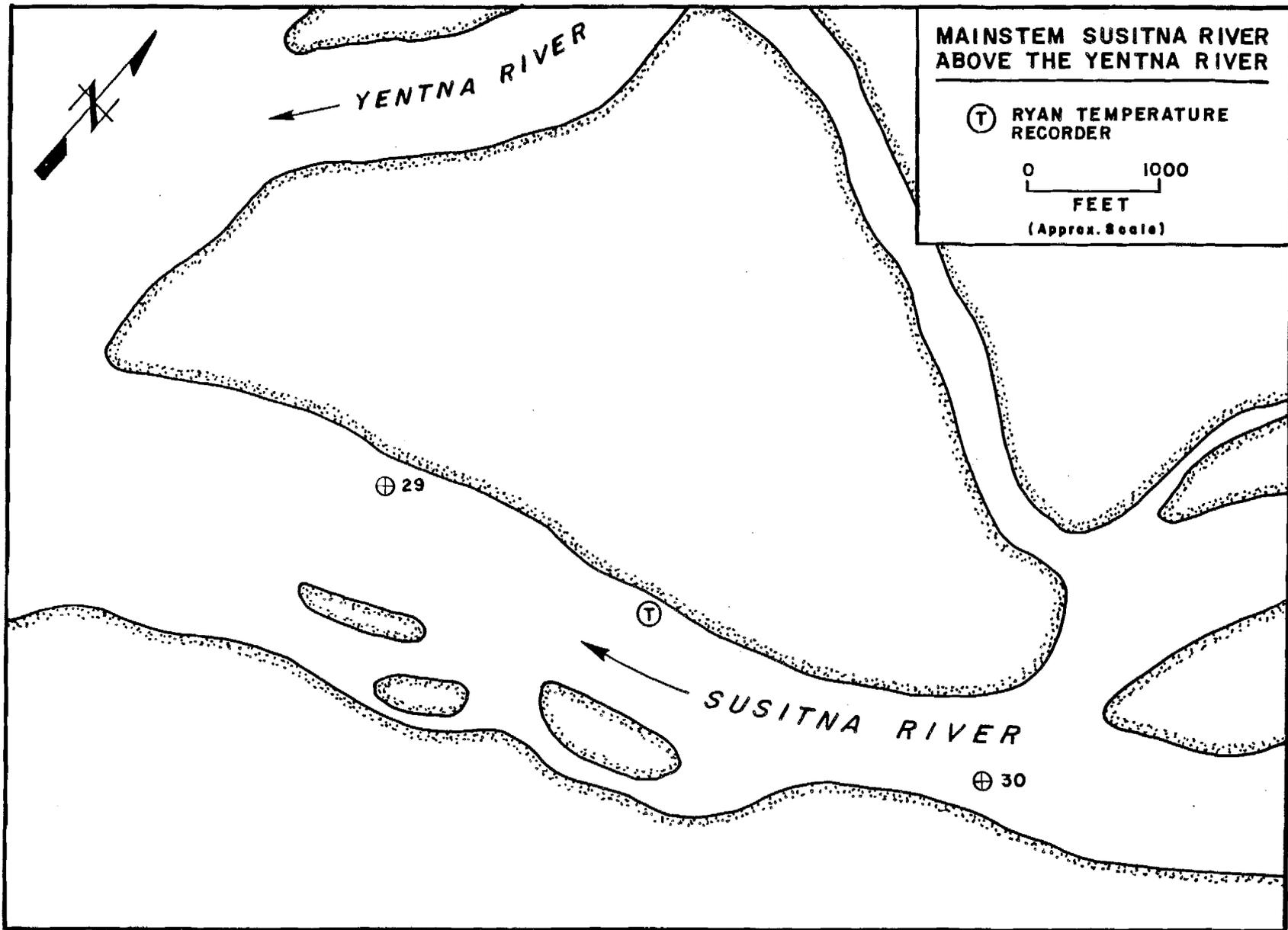


Figure 3-A-6. Location of the temperature monitoring station at Mainstem Susitna River above the Yentna River, RM 29.5, GC S17N06W07CAD.

3-A-285

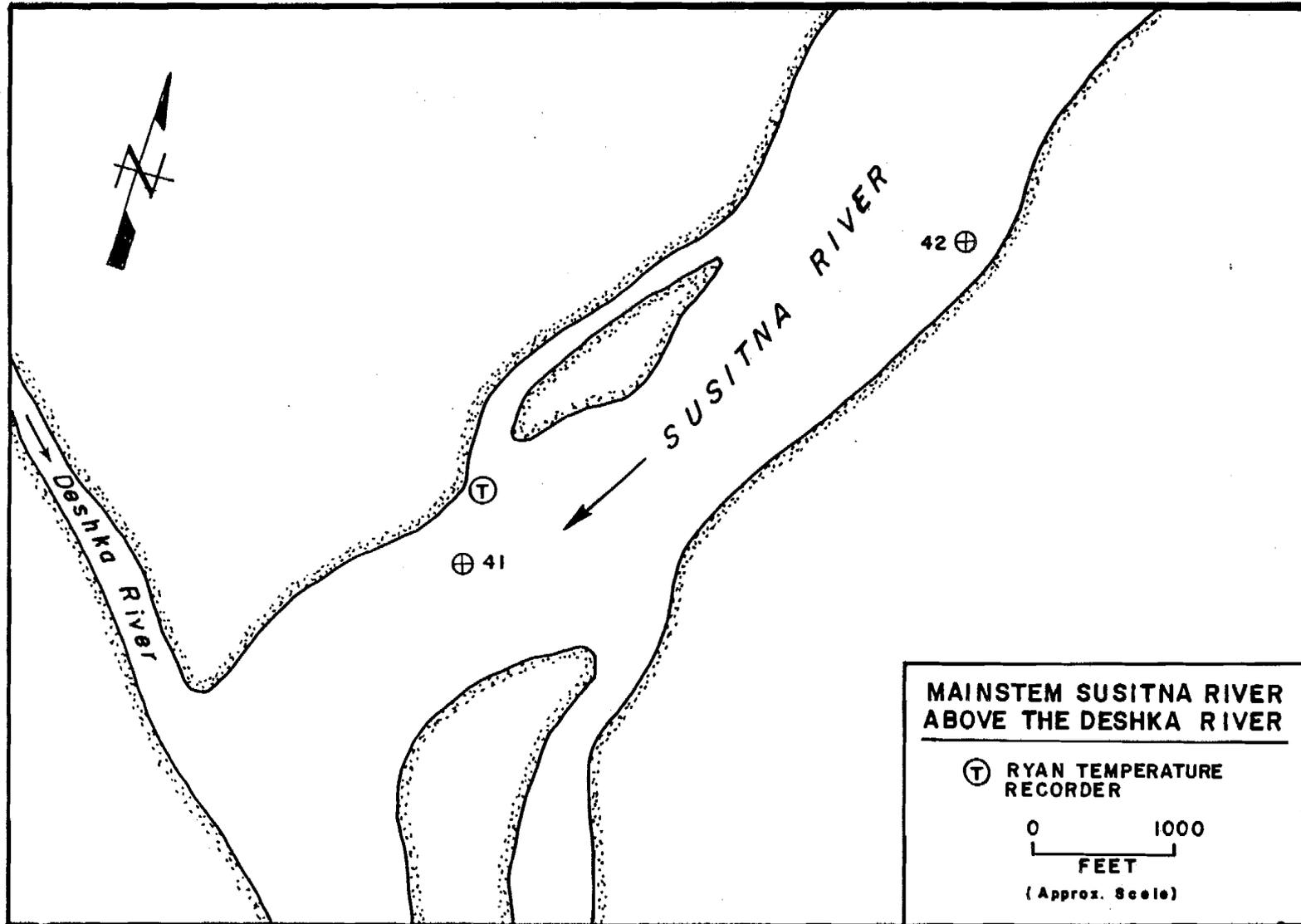
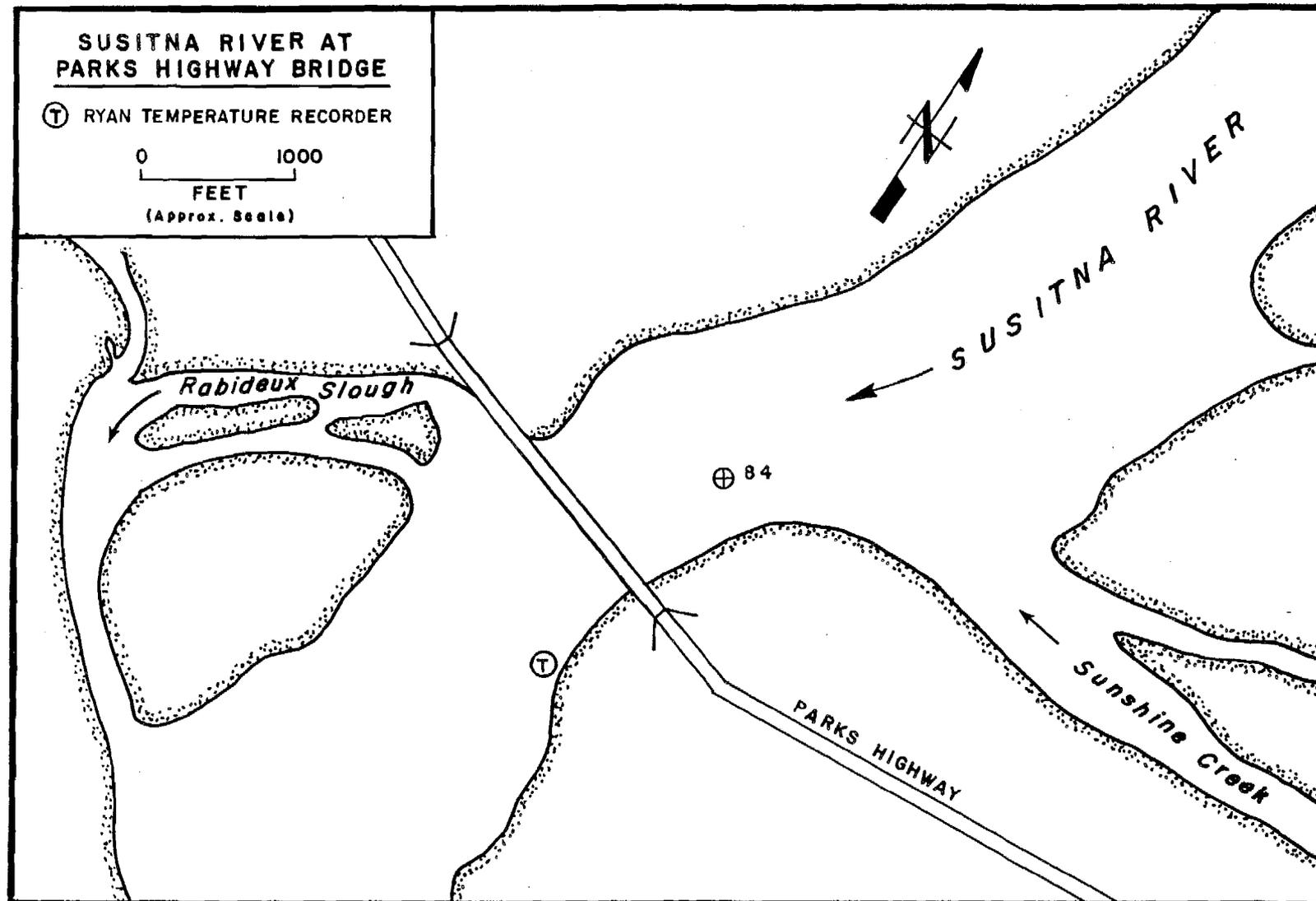


Figure 3-A-7. Location of the temperature monitoring station at Mainstem Susitna River above the Deshka River, RM 41.1, GC S19N06W26CBC.



3-A-286

Figure 3-A-8. Location of the temperature monitoring station at Mainstem Susitna River at Parks Highway Bridge - Site 3, RM 83.9, GC S24N05W15BAD.

3-A-287

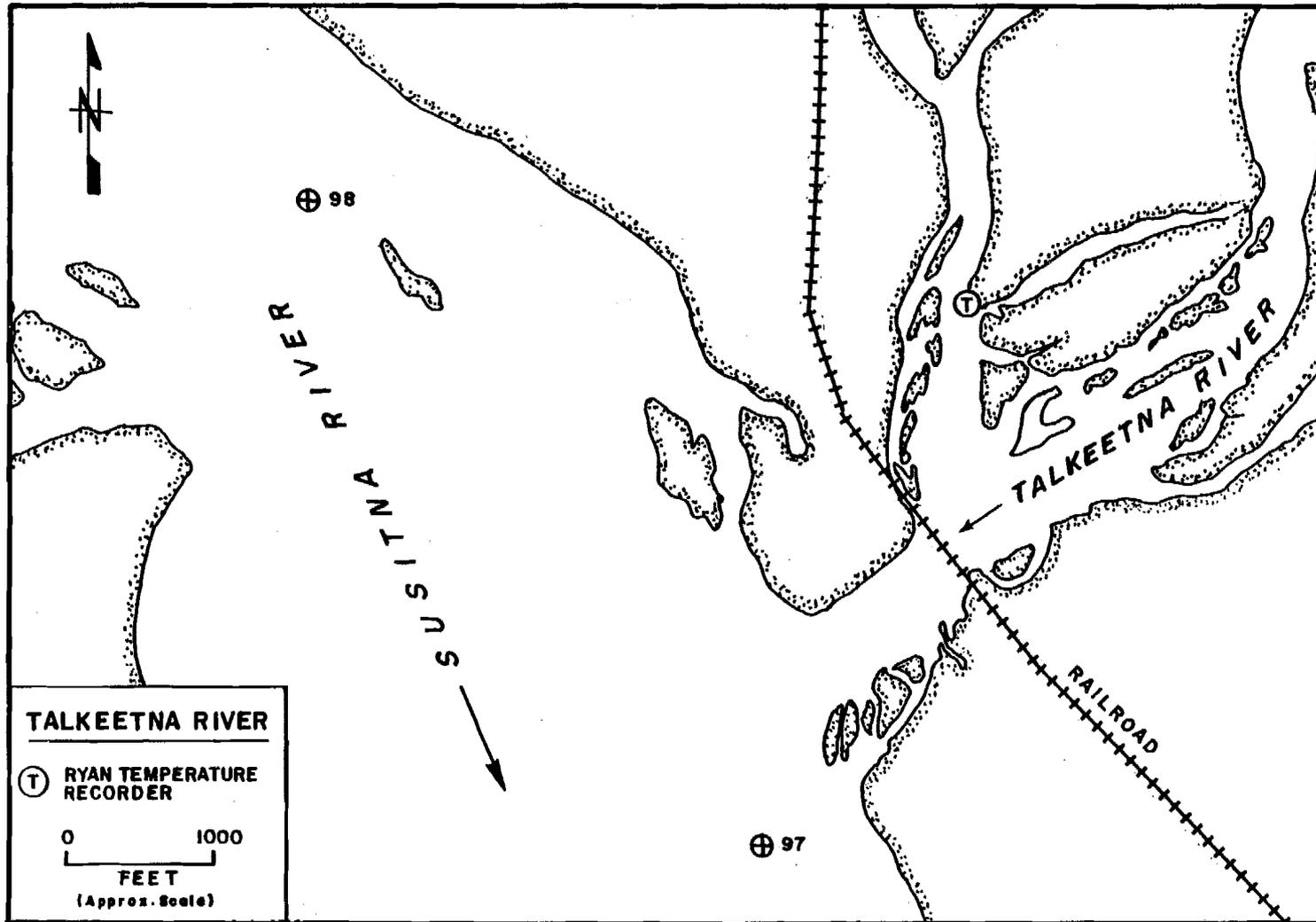


Figure 3-A-9. Location of the temperature monitoring station at the Talkeetna River - Site 2, RM 97.2, TRM 1.5, GC S26N05W24BDA.

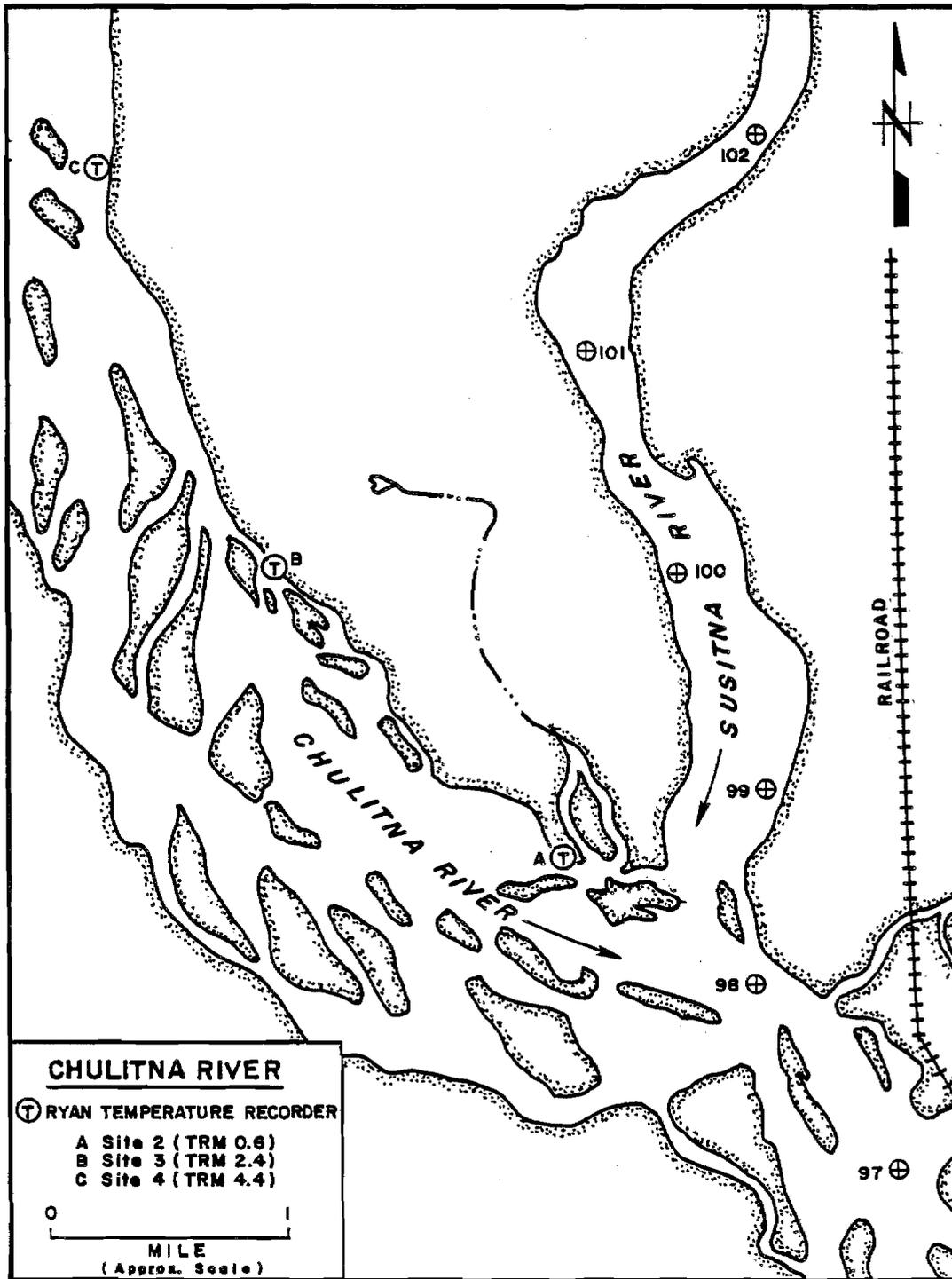


Figure 3-A-10 Locations of the temperature monitoring stations at the Chulitna River - Site 2, RM 98.6, TRM 0.6, GC S26N05W15DAB; Site - 3, RM 98.6 TRM 2.4, GC S26N05W09ACA; Site - 4, RM 98.6, TRM 4.4, GC S27N05W32DAA.

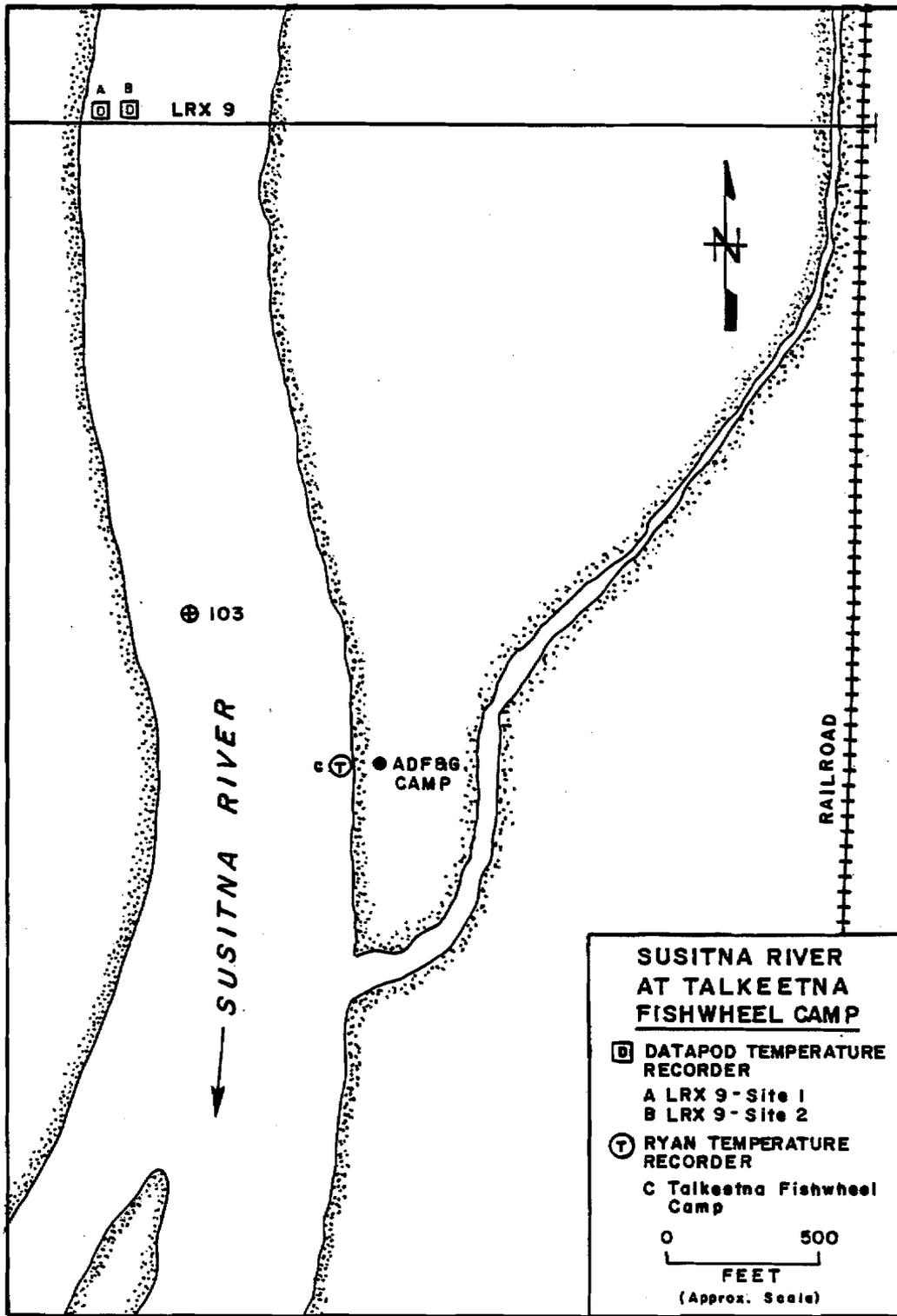


Figure 3-A-11. Locations of the temperature monitoring stations at Mainstem Susitna River at Talkeetna Fishwheel Camp, RM 103.0, GC S27N05W26DDD, and LRX 9 - Sites 1 and 2, RM 103.2, GC S27N05W26ADD.

3-A-290

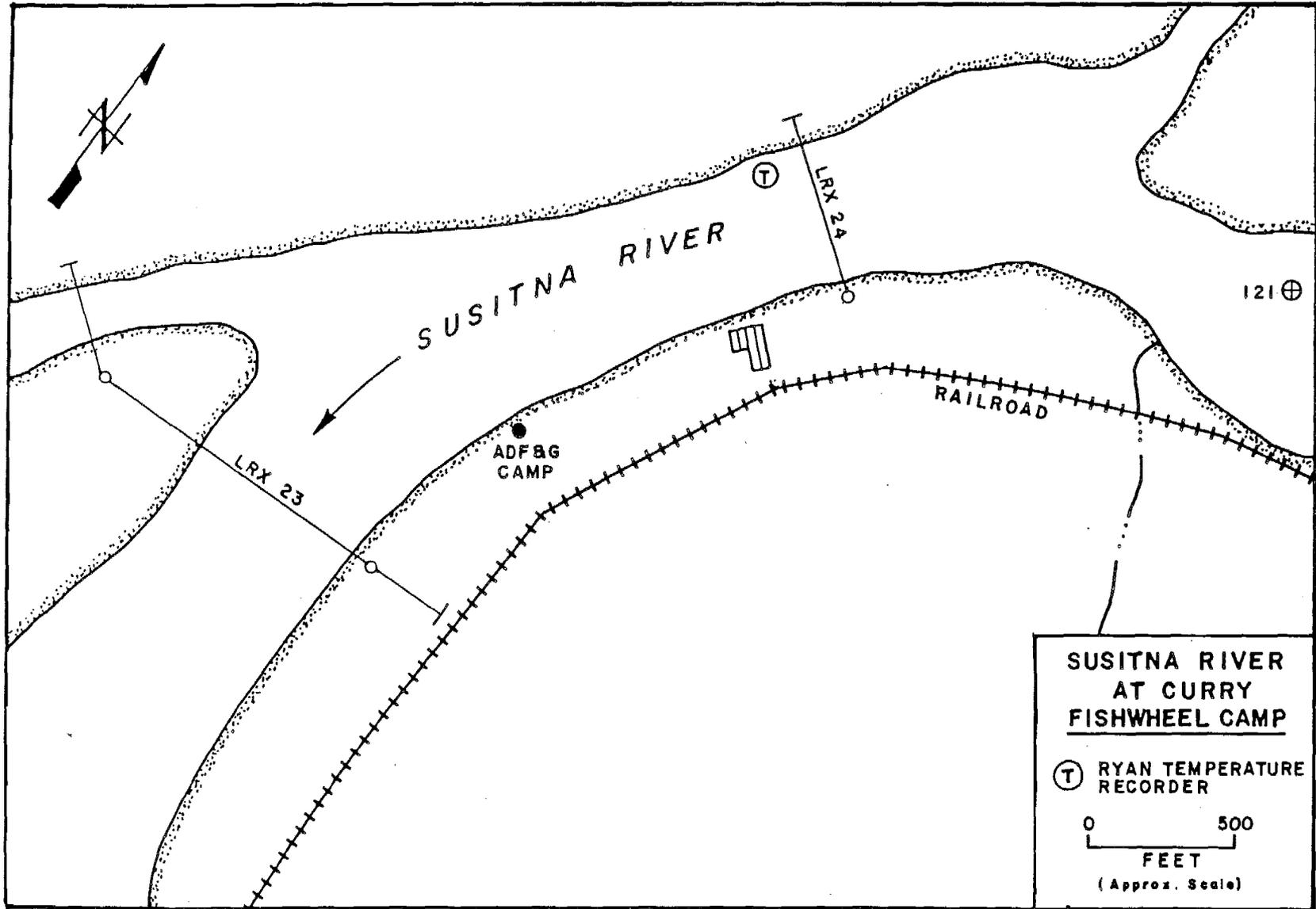


Figure 3-A-12. Location of the temperature monitoring station at Mainstem Susitna River at Curry Fishwheel Camp, RM 120.7, GC S29N04W10CBA.

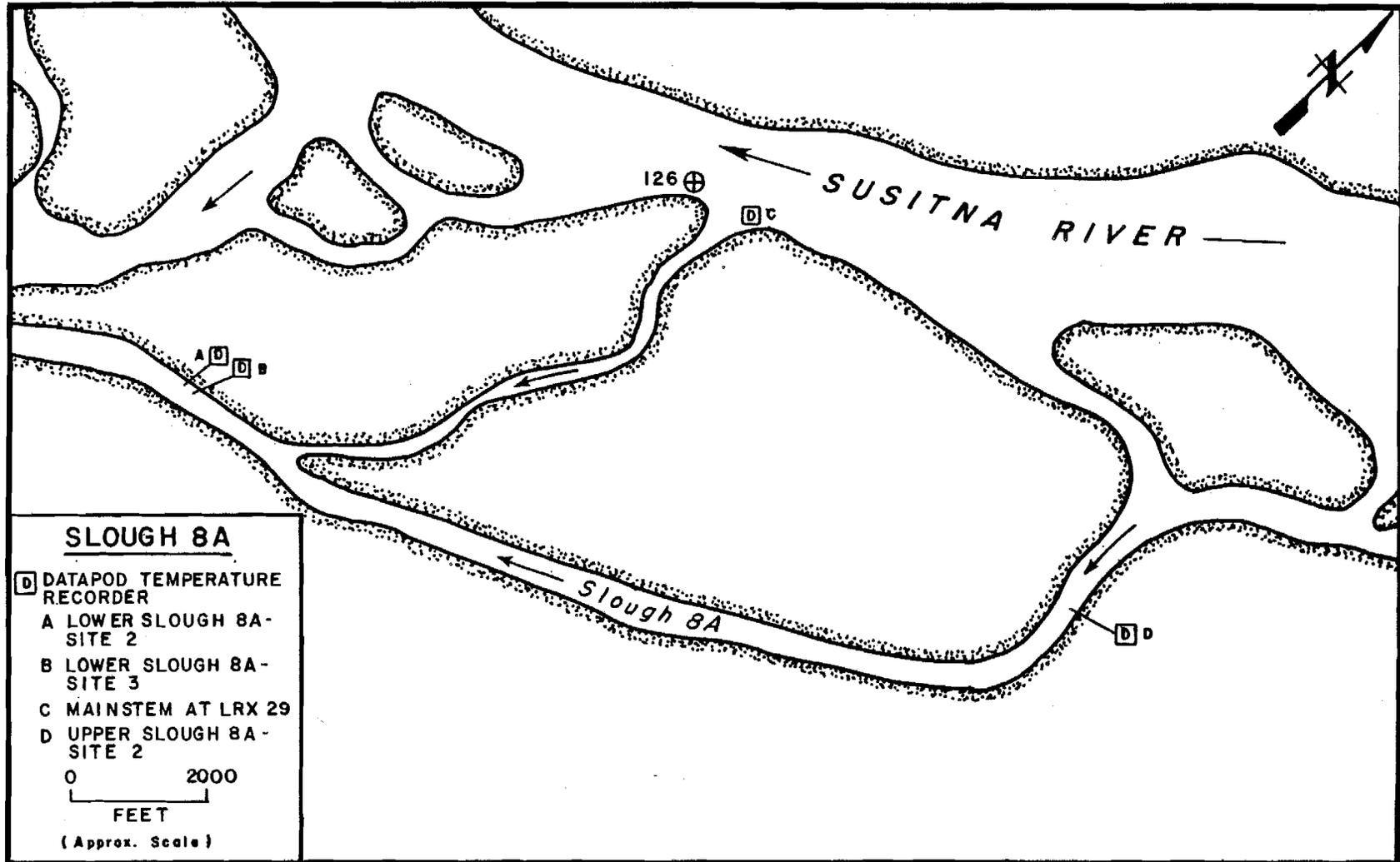


Figure 3-A-13. Locations of the temperature monitoring stations at Lower Slough 8A - Sites 2 and 3, RM 125.6, GC S30N03W30BCD, Upper Slough 8A - Site 2, RM 126.6, GC S30N03W20CDD, and Mainstem Susitna River at LRX 29, RM 126.1, GC S30N03W19DCA.

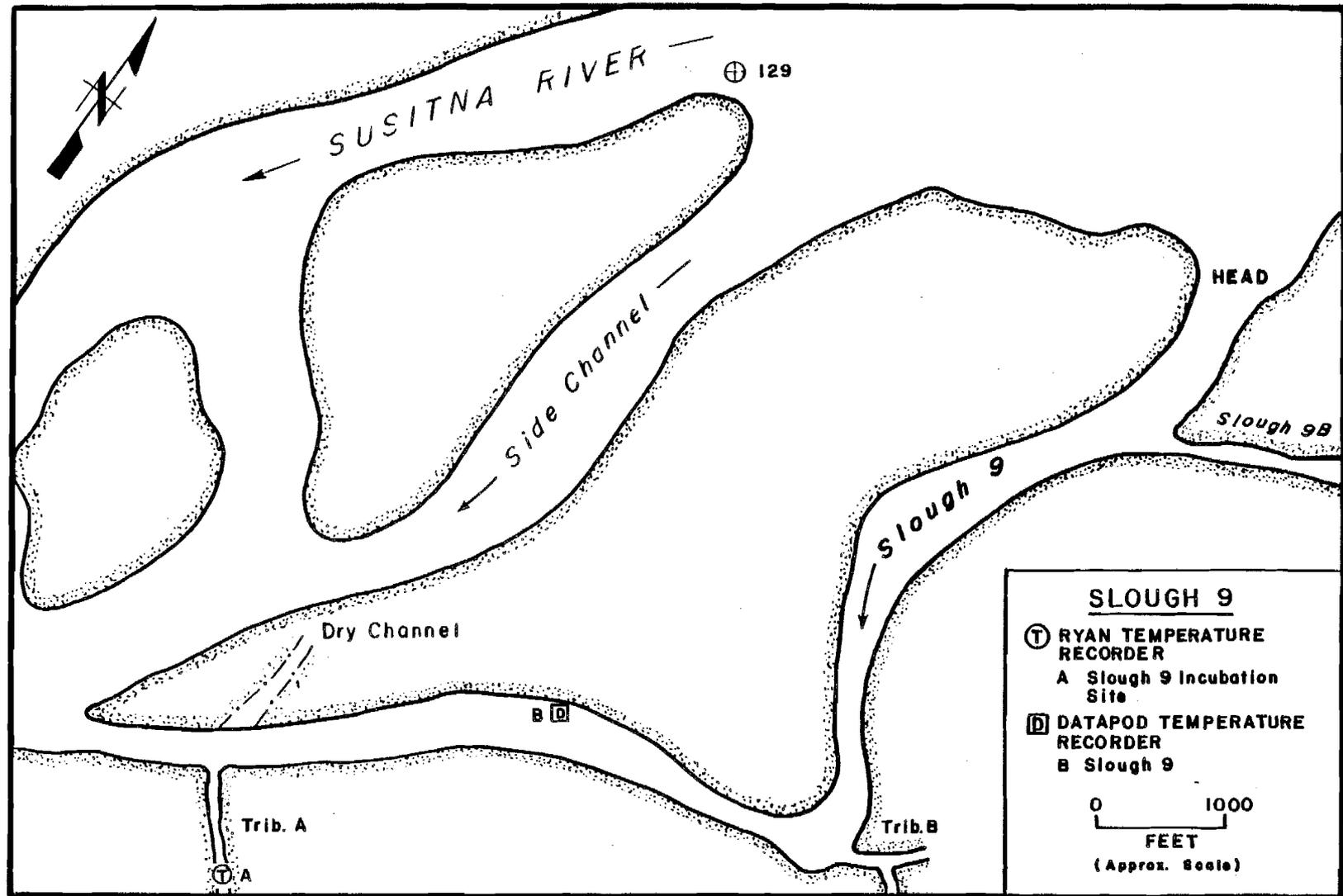
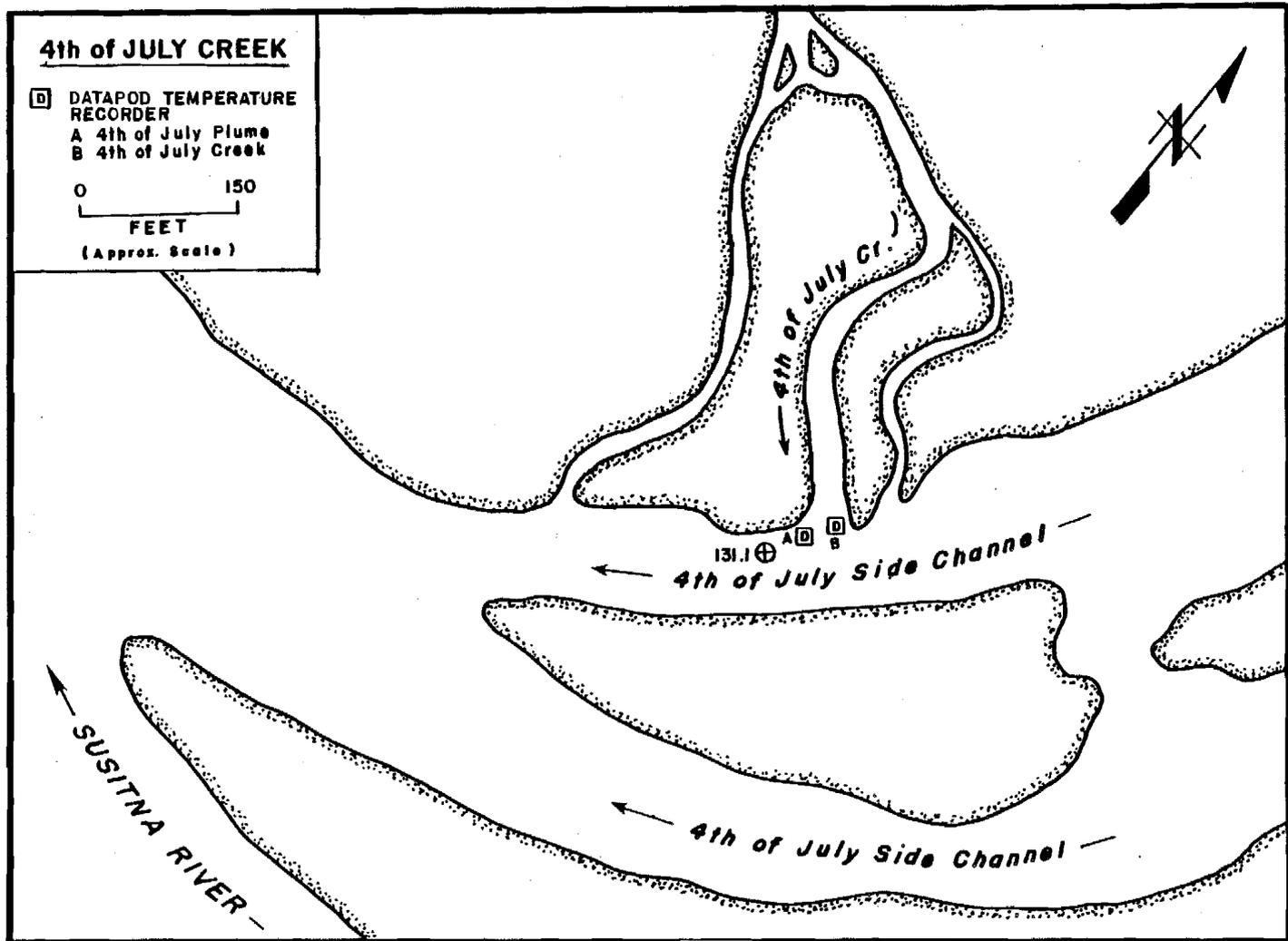


Figure 3-A-14. Locations of the temperature monitoring stations at Slough 9 - Site 3, RM 128.6, GC S3ON03W16BDC, and Slough 9 Incubation Site, RM 128.3, GC S3ON03W16CBC.



3-A-293

Figure 3-A-15. Location of the temperature monitoring stations at Fourth of July Creek - Site 1: Creek and Plume, RM 131.1, GC S30N03W03DAC.

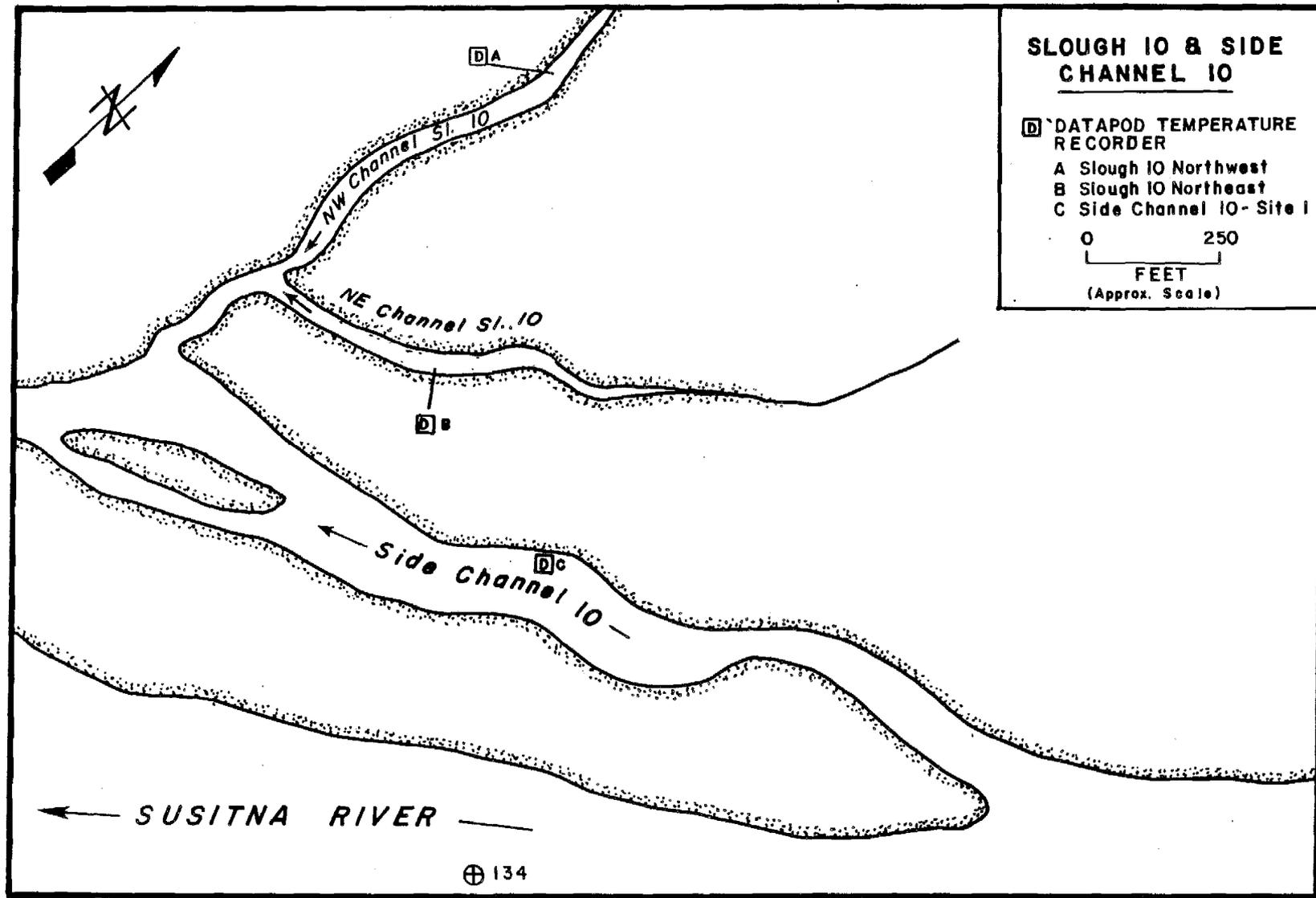


Figure 3-A-16. Locations of the temperature monitoring stations at Slough 10 Northeast, RM 134.0, GC S31N03W36AAA; Slough 10 Northwest, RM 134.0 GC S31N03W36AAA, and Side Channel 10 - Site 1, RM 134.0, GC S31N03W31BBB.

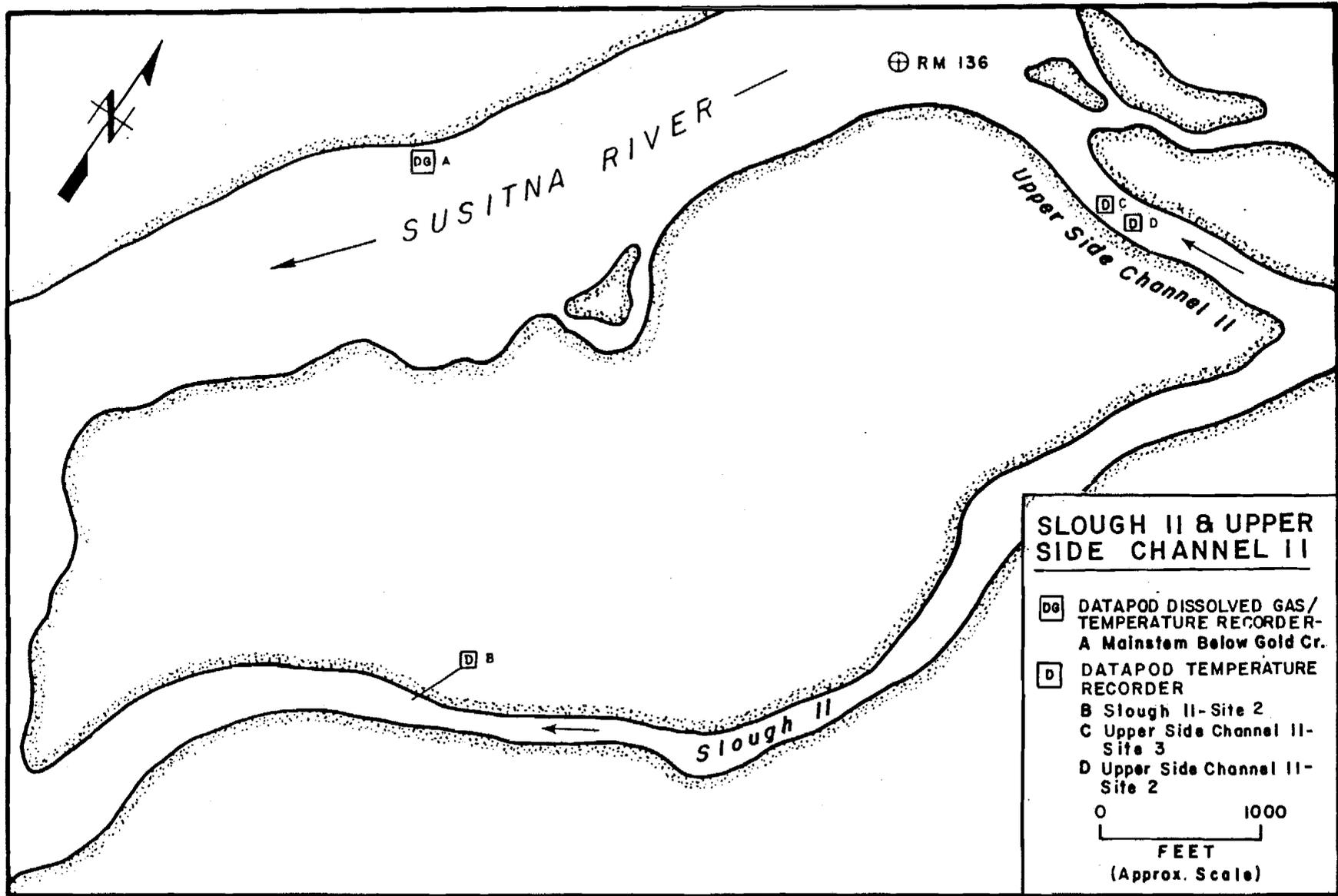


Figure 3-A-17. Locations of the temperature monitoring stations at Slough II - Site 2, RM 135.7, GC S31N02W19DAD; Upper Side Channel II - Sites 1 and 2, RM 136.3 GC S31N02W20BBD; and Mainstem Susitna River below Gold Creek, RM 135.8, GC S31N02W20BAC.

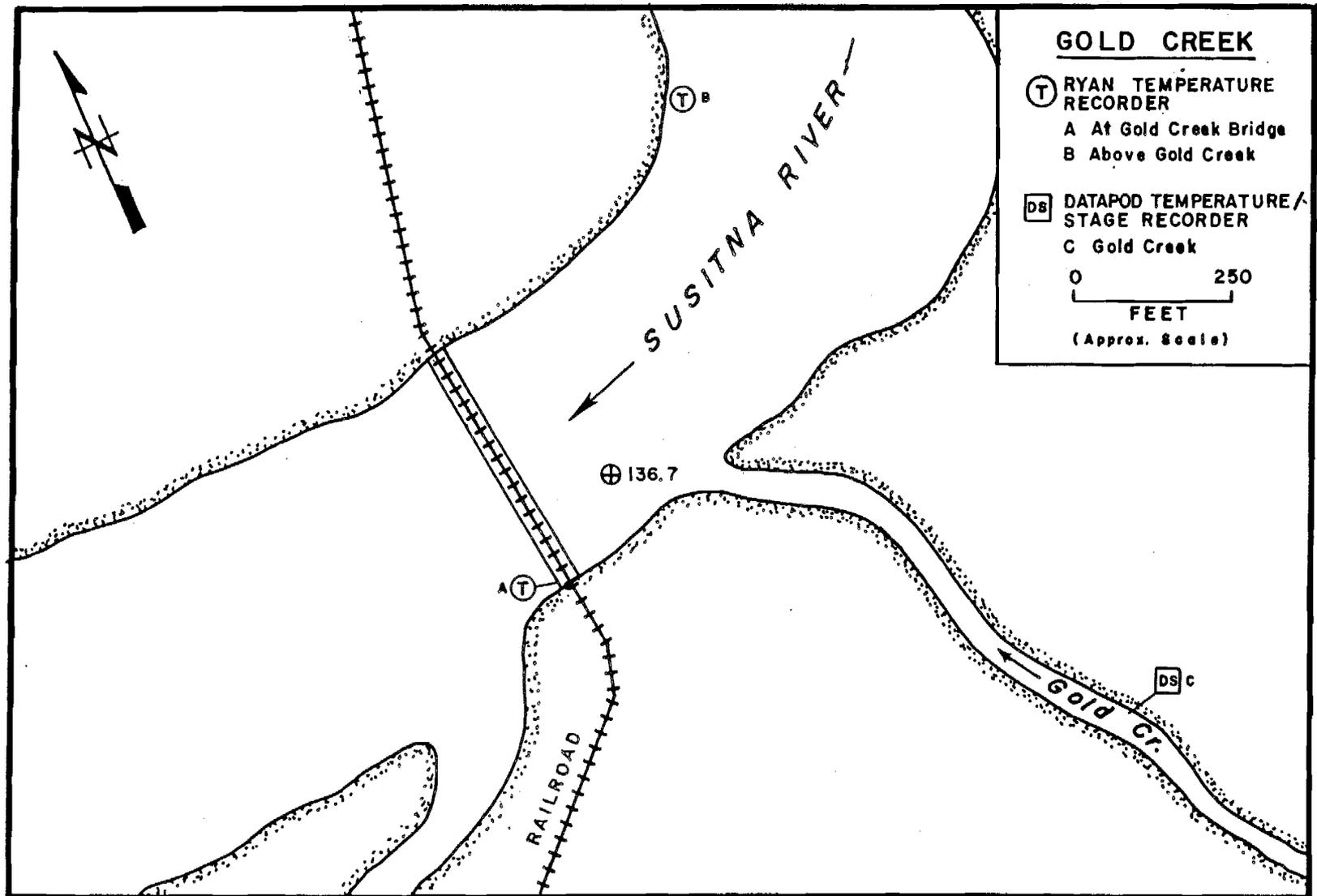


Figure 3-A-18. Locations of the temperature monitoring stations at Mainstem Susitna River at Gold Creek Bridge, RM 136.6, GC S31N02W20BAC; Mainstem Susitna River above Gold Creek - Site 2, RM 136.8, GC S31N02W20BAA; and at Gold Creek - Site 2, RM 136.7, TRM 0.2, GC S31N0W20BAD.

3-A-297

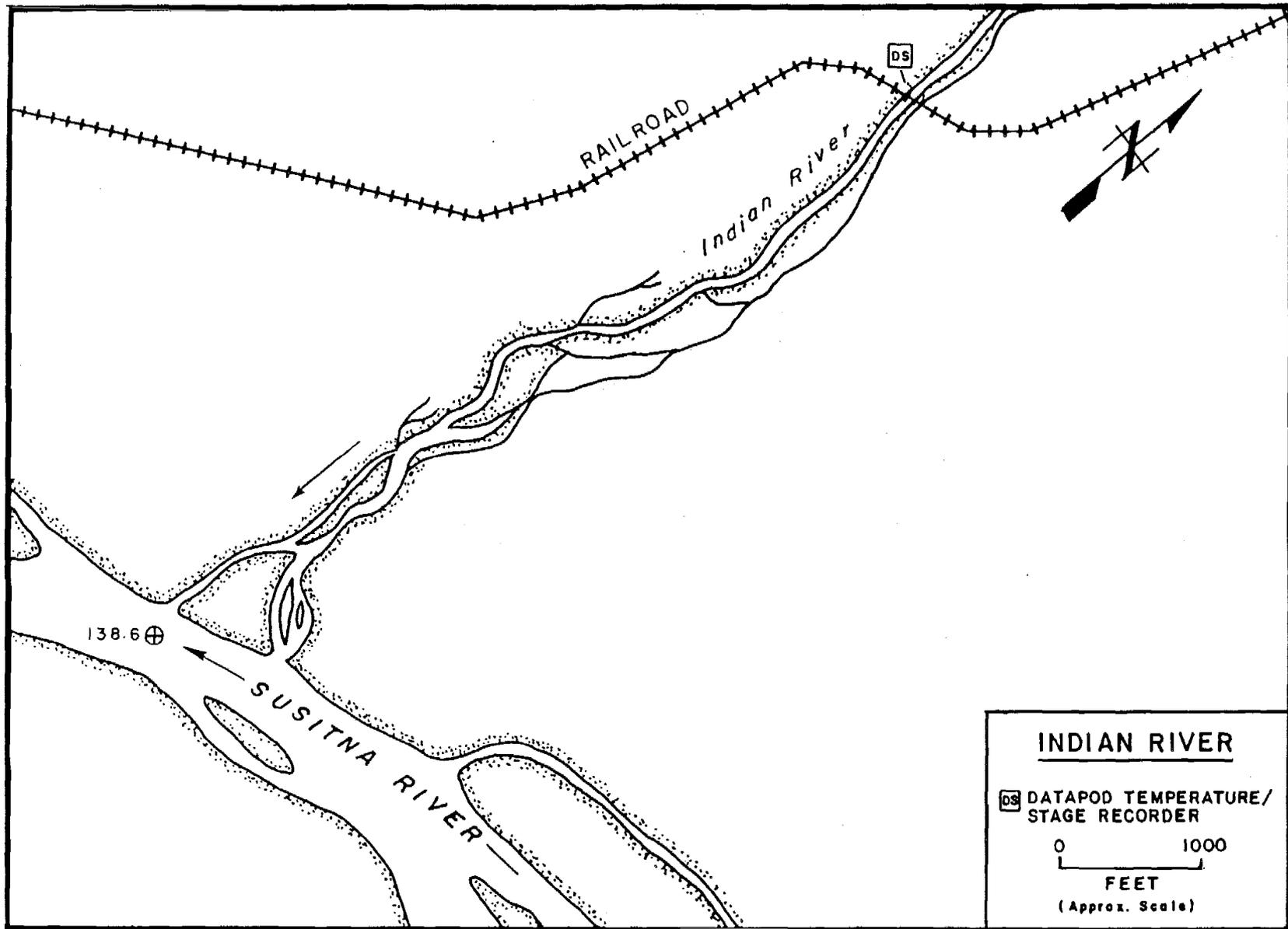


Figure 3-A-19. Location of the temperature monitoring station at Indian River - Site 2, RM 138.6, TRM 1.0, GC S31N02W09CDA.

3-A-298

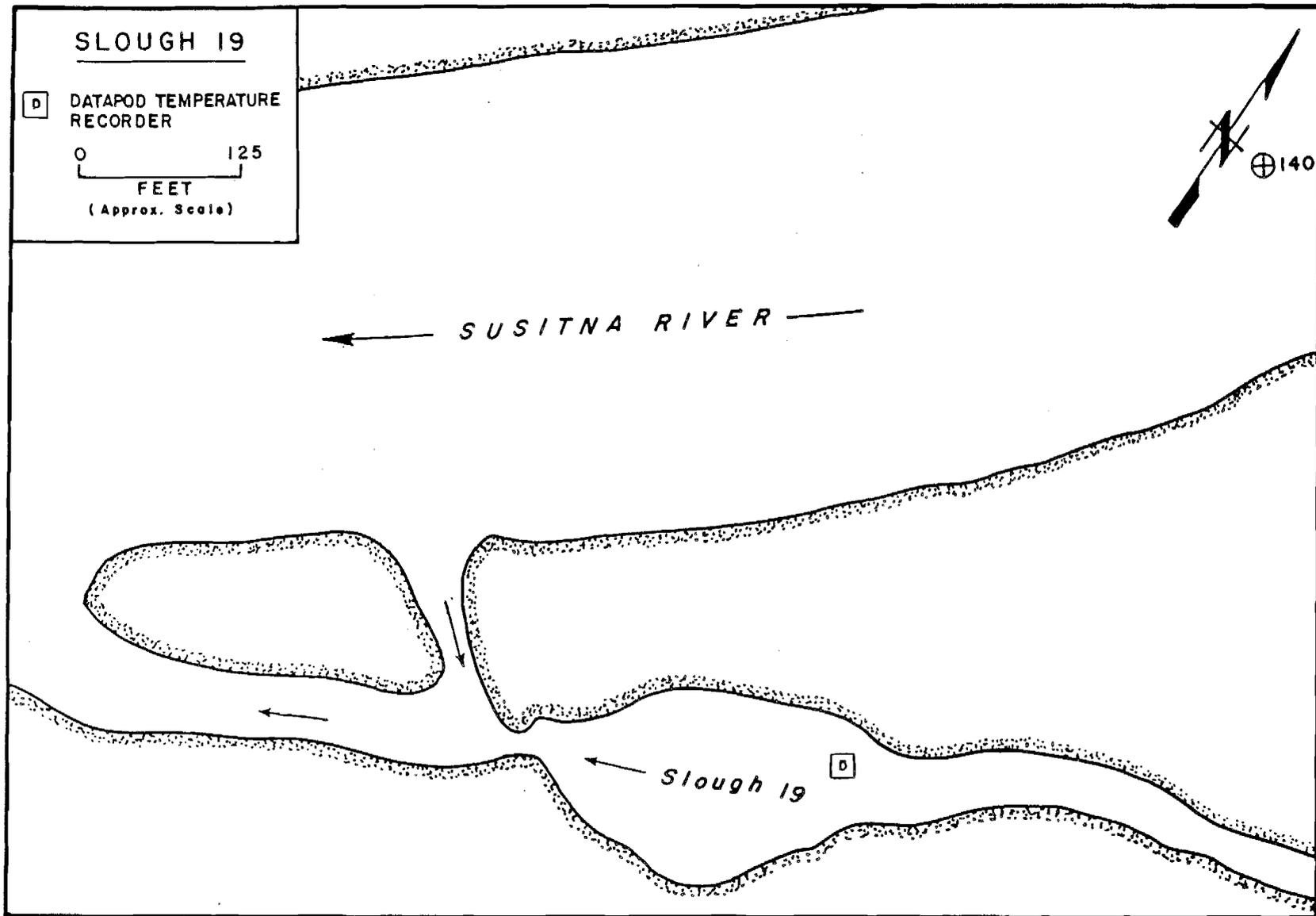


Figure 3-A-20. Location of the temperature monitoring station at Slough 19, RM 140.0, GC S31N02W10DBA.

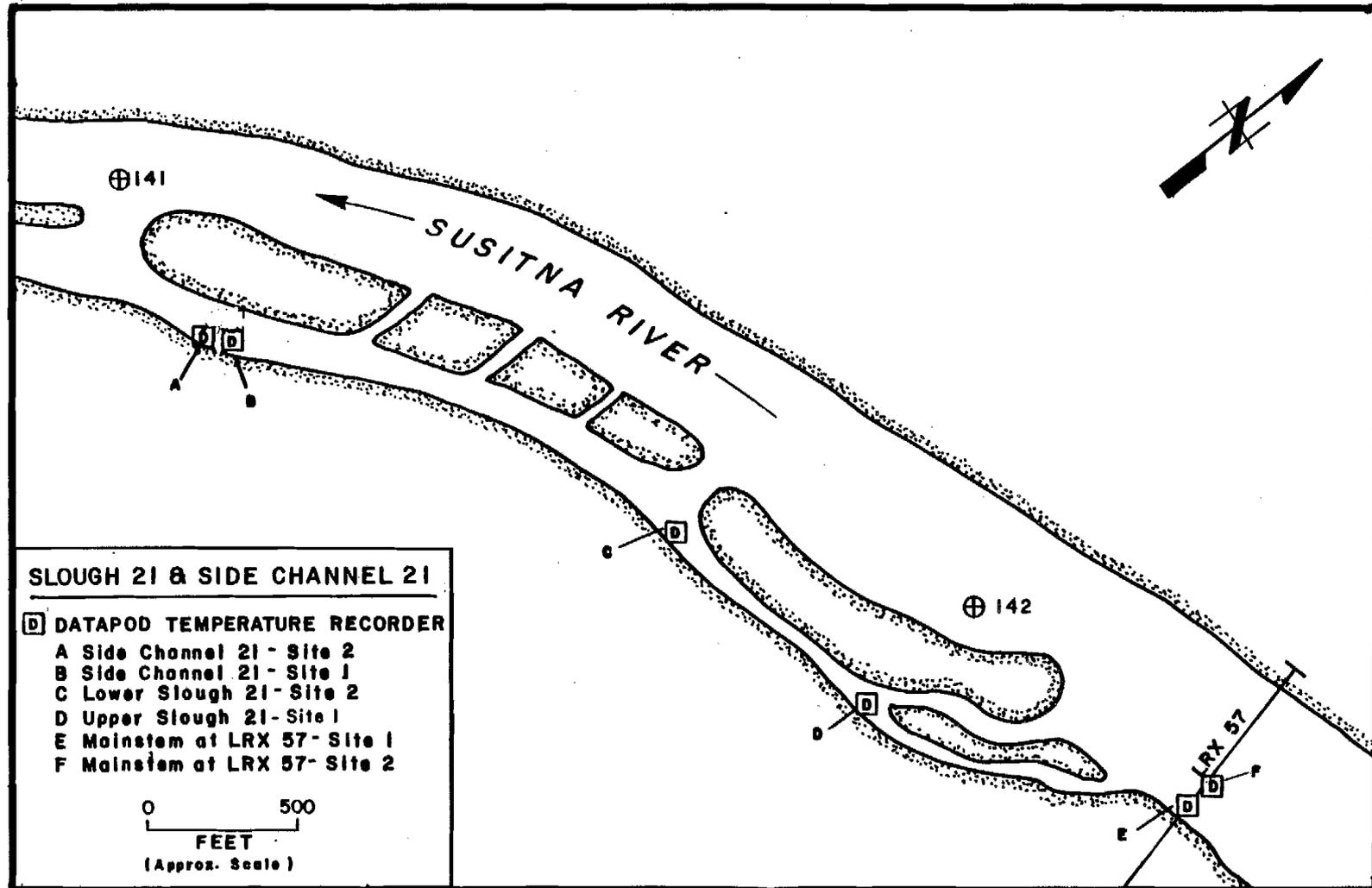


Figure 3-A-21. Locations of the temperature monitoring stations at Mainstem Susitna River at LRX 57 - Sites 1 and 2, RM 142.3, GC S32N02W36CBA; Upper Slough 21 - Site 1, RM 142.0, GC S2N02W36CCC; Lower Slough 21 - Site 2, RM 141.8, GC S31N02W02AAA; and Side Channel 21 - Sites 1 and 2, RM 141.0 GC S31N02W02CAA.

3-A-300

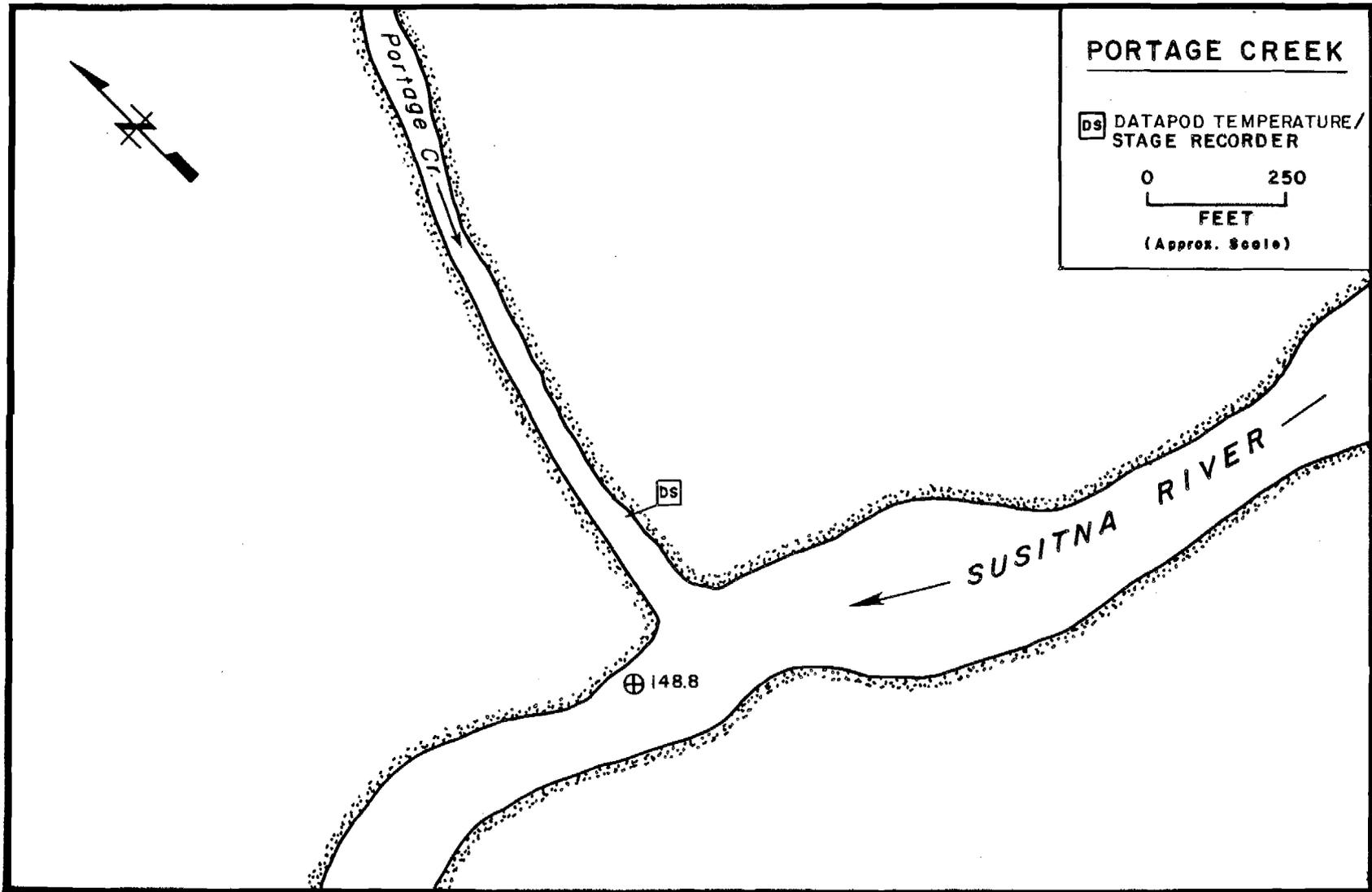


Figure 3-A-22. Location of the temperature monitoring station at Portage Creek - Site 2, RM 148.8, TRM 0.2, GC S32N01W25CAB.

3-A-301

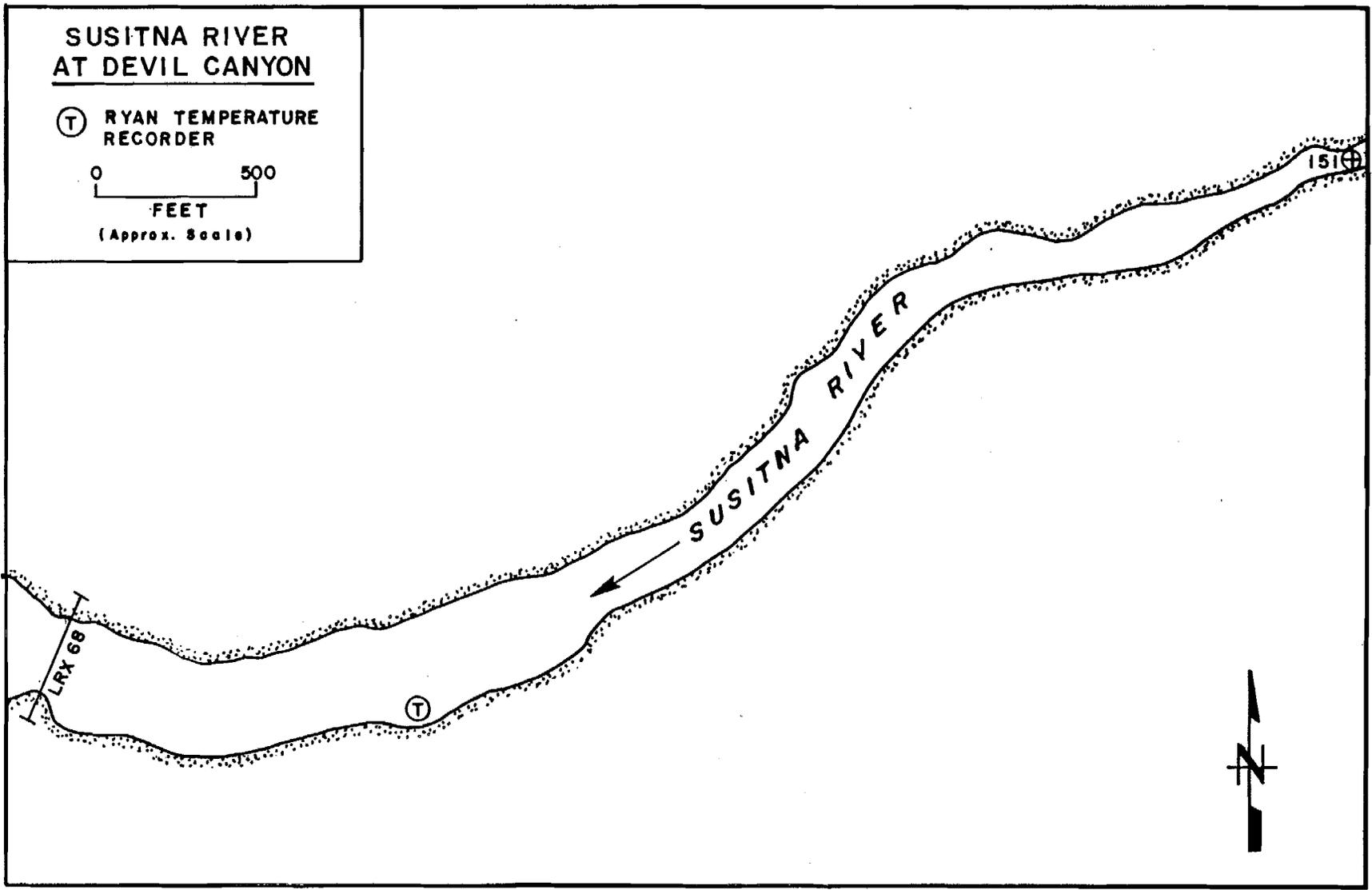


Figure 3-A-23. Location of the temperature monitoring station at Mainstem Susitna River at Devil Canyon, RM 150.0, GC S32N01E31CBD.

3-A-302

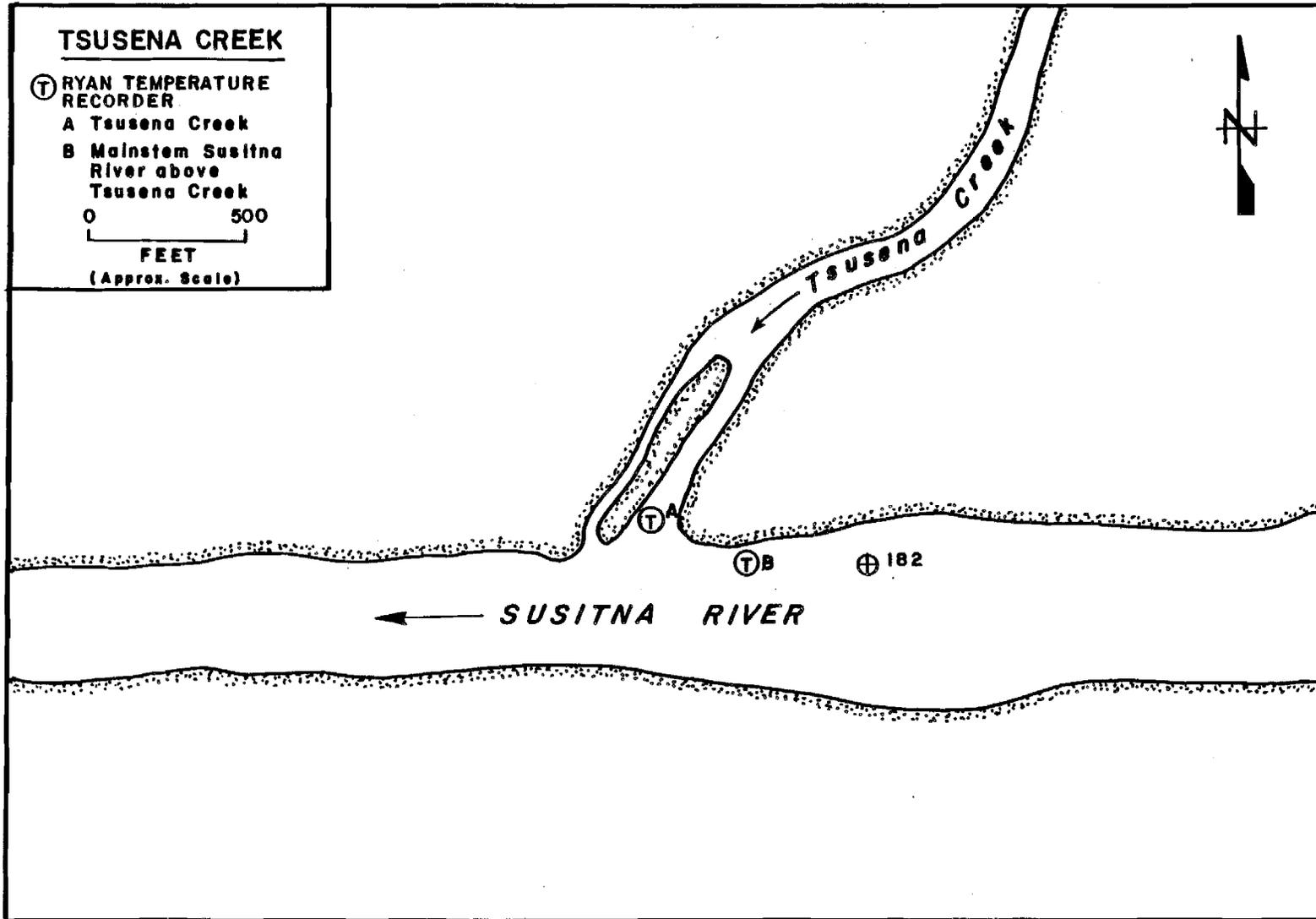


Figure 3-A-24. Locations of the temperature monitoring stations at Tsusena Creek, RM 181.8, TRM 0.1, GC S32N04E36ADB, and at Mainstem Susitna River above Tsusena Creek, RM 181.9, GC S32N04E36ADA.

3-A-303

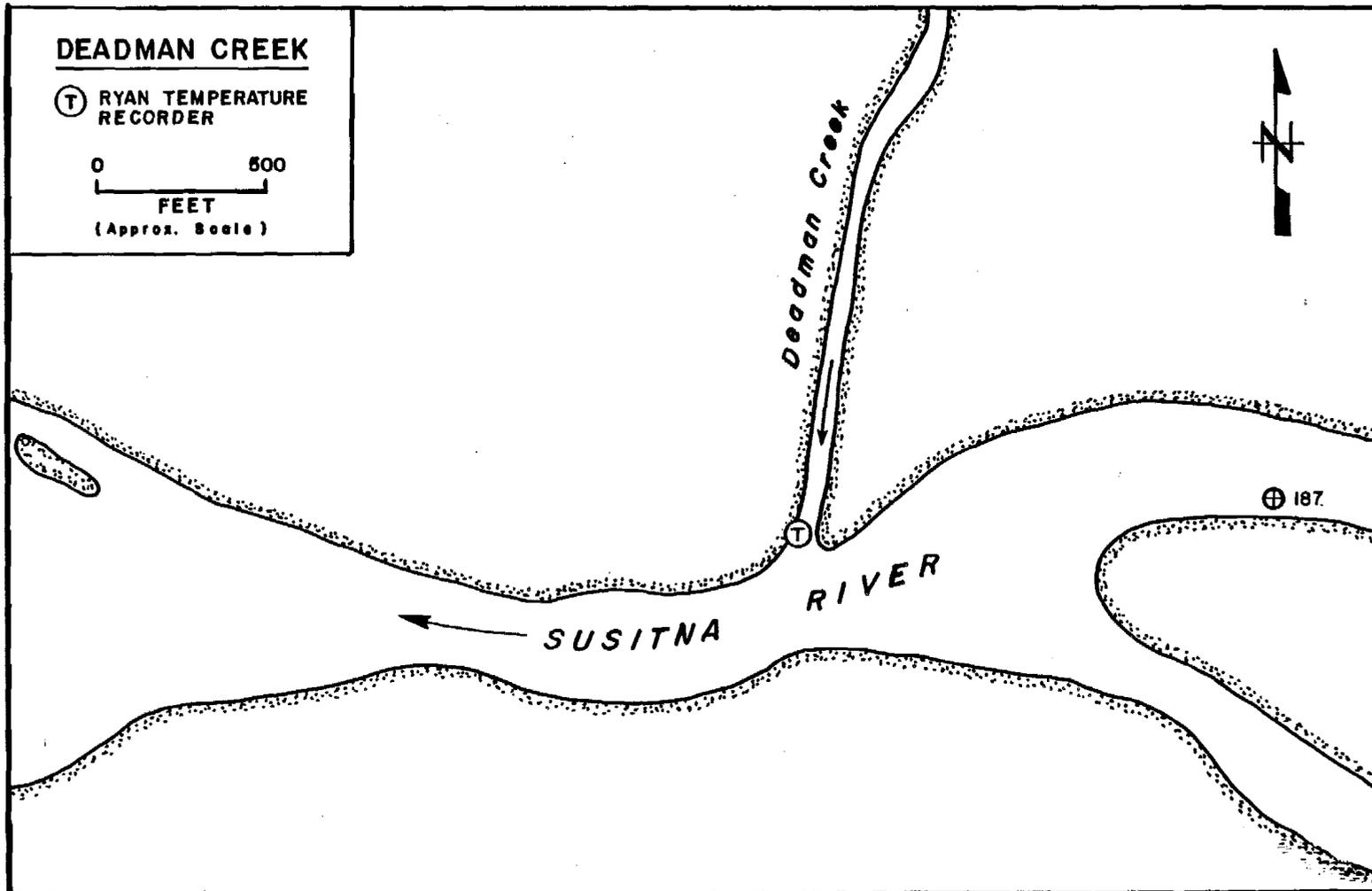


Figure 3-A-25. Location of the temperature monitoring station at Deadman Creek, RM 186.7, TRM 0.1, GC S32N05E26CDB.

3-A-304

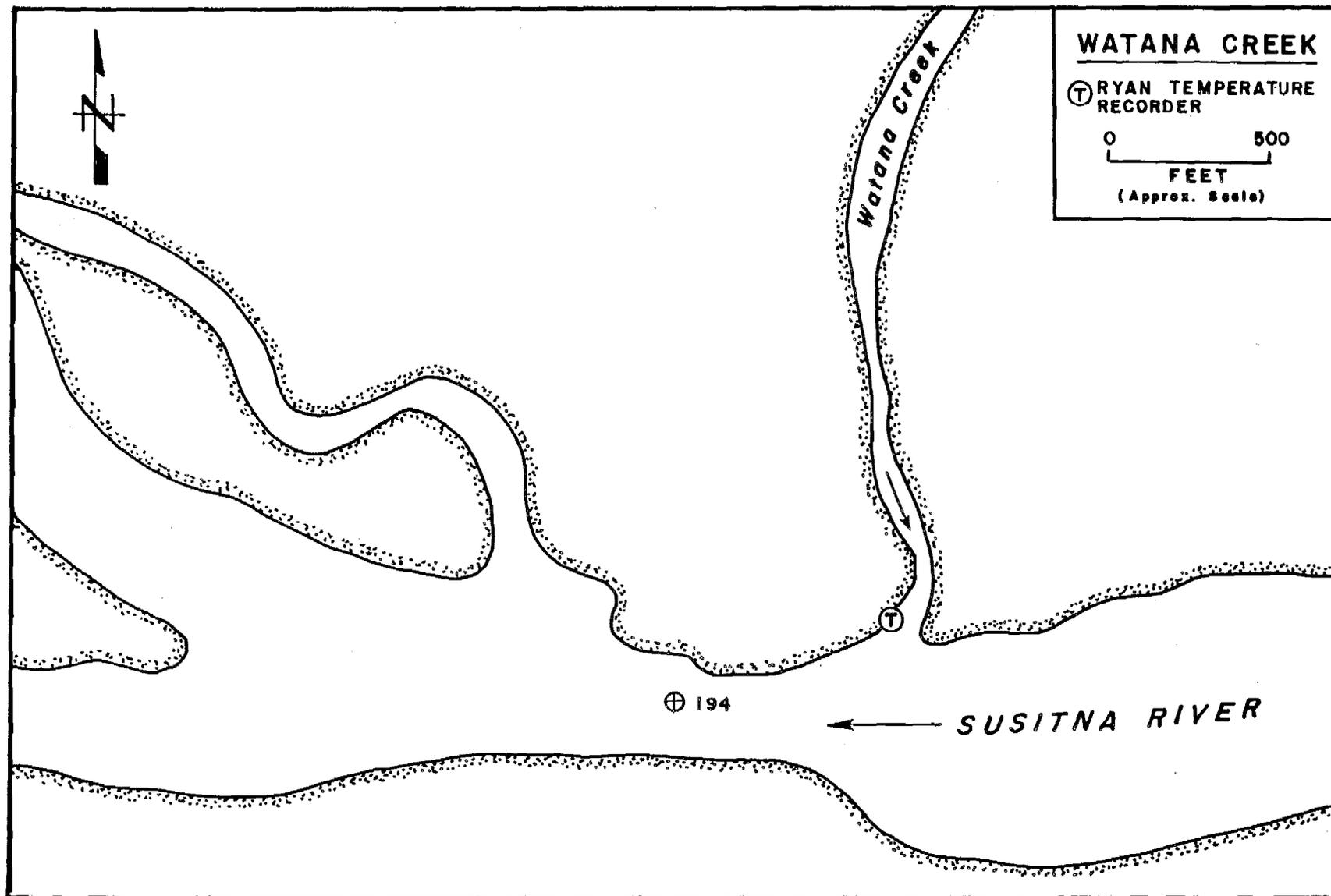


Figure 3-A-26. Location of the temperature monitoring station at Watana Creek, RM 194.1, TRM 0.1, GC S32N06E25CCA.

3-A-305

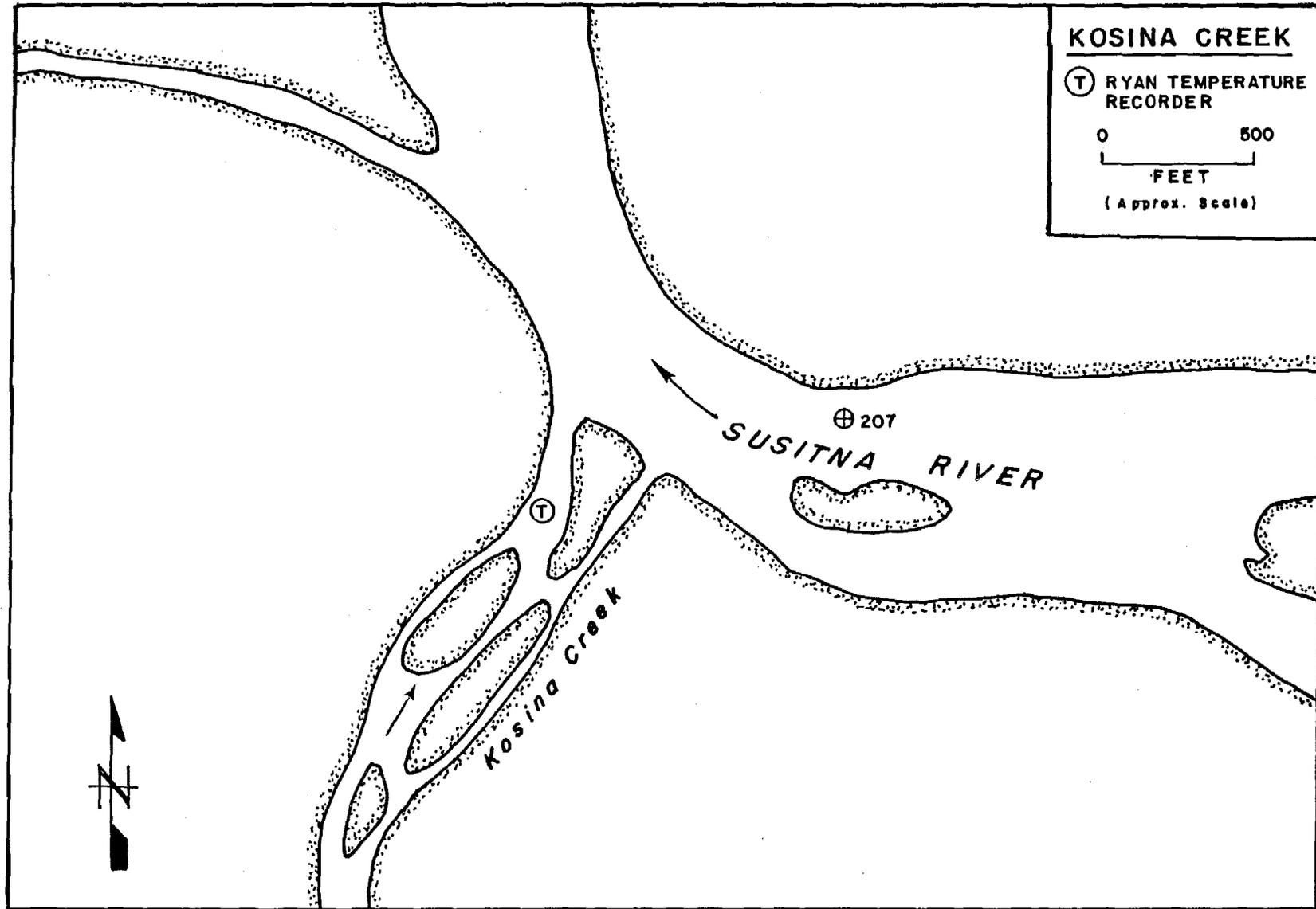


Figure 3-A-27. Location of the temperature monitoring station at Kosina Creek, RM 206.8, TRM 0.1, GC S31N08E15BAB.

3-A-306

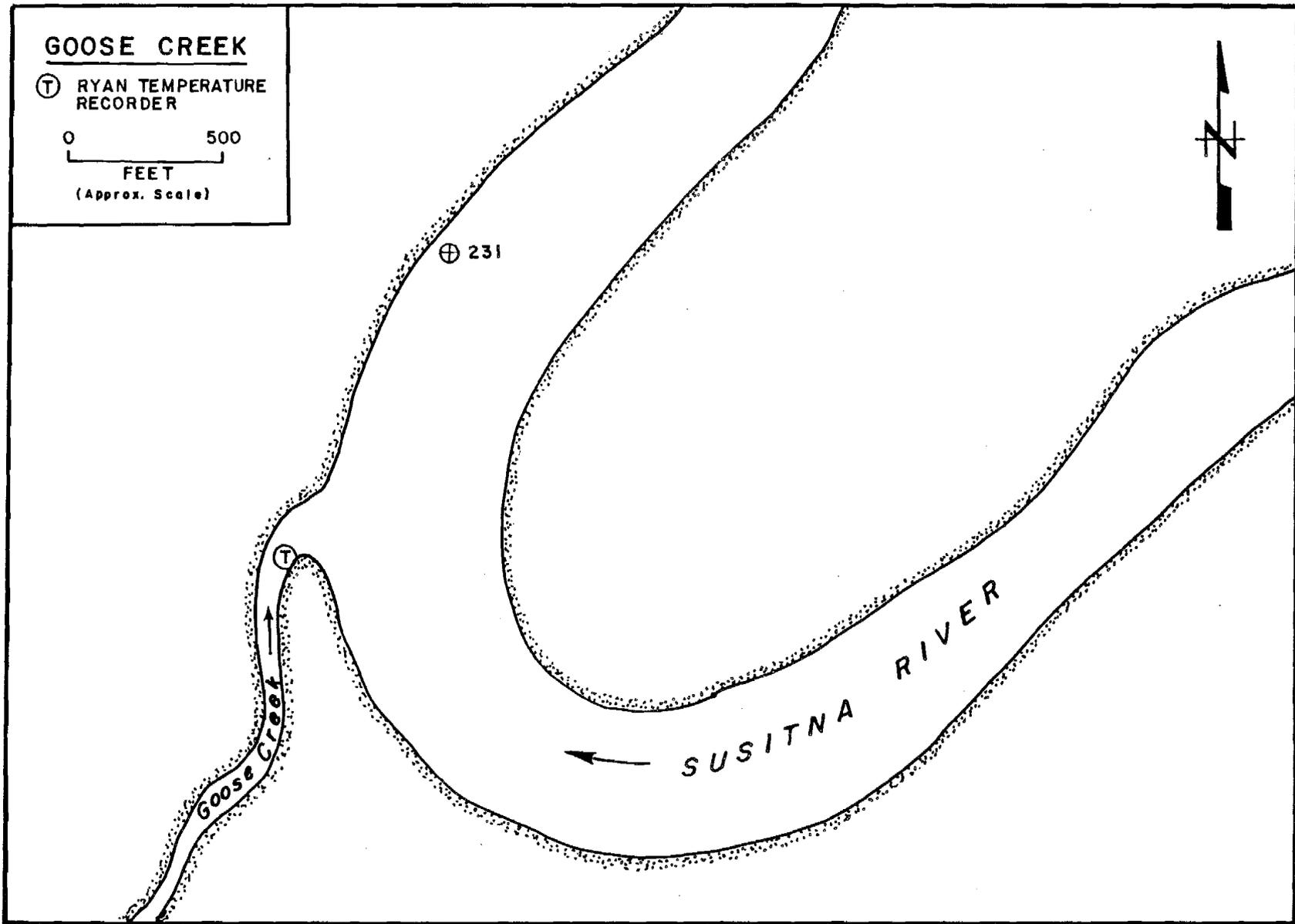


Figure 3-A-28. Location of the temperature monitoring station at Goose Creek, RM 231.3, TRM 0.1, GC S30N11E32DBC.

3-A-307

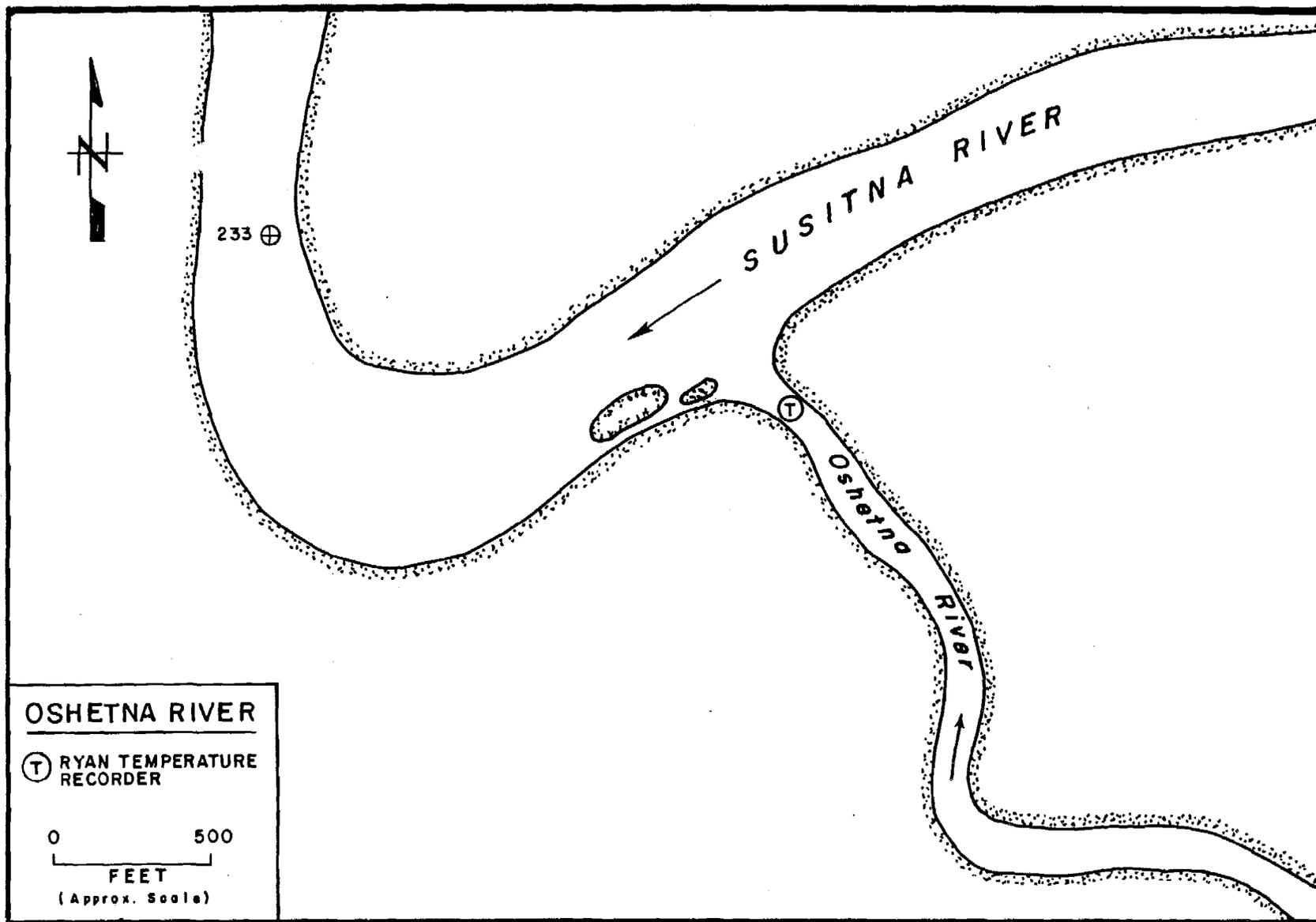


Figure 3-A-29. Location of the temperature monitoring station at the Oshetna River, RM 233.4, TRM 0.1, GC S30N11E34CCD.

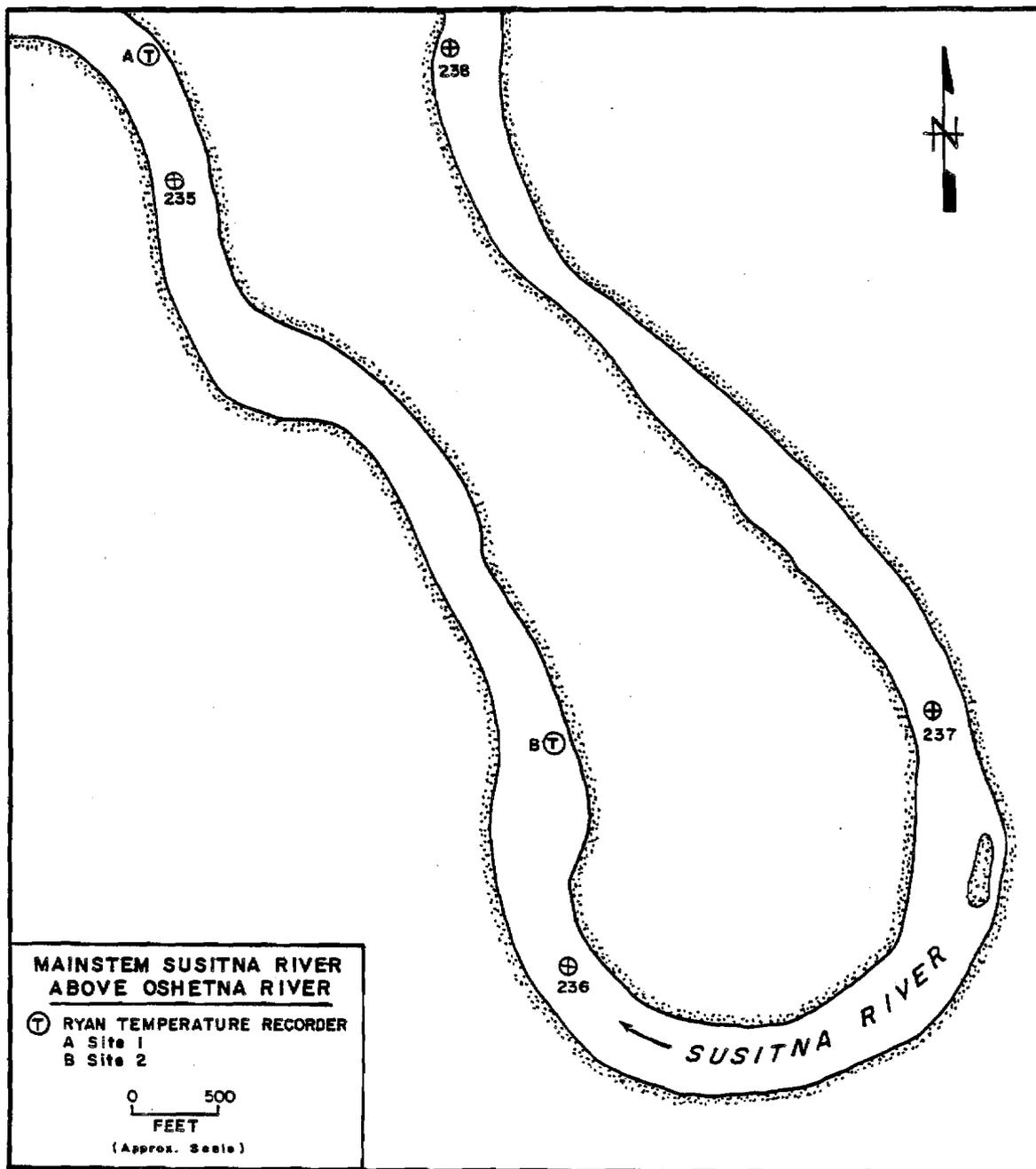


Figure 3-A-30. Locations of the temperature monitoring stations at Mainstem Susitna River above the Oshetna River - Site 1, RM 234.9, GC S30N11E35BCD, and Site 2, RM 235.7, GC S29N11E02ABD.