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AN EVALUATION OF THE INCUBATION LIFE PHASE OF CHUM SALMON
IN THE MIDDLE SUSITNA RIVER

SUSITNA HYDRO AQUATIC STUDIES

WINTER AQUATIC INVESTIGATIONS:
SEPTEMBER, 1983 - MAY, 1984
1985 REPORT NO. 5
VOLUME 2
APPENDICES A-F

-by-

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With the exception of Appendix B, the information presented within all appendices consists primarily of raw data tables and figures. Appendix A includes text materials presented in standard report format, with Introduction, Objectives, Methods, Results and Discussion sections. This format was selected in order to make it easier for people to use information in Appendix A for purposes other than those related to salmon incubation. Appendix B provides a complete list of all study sites used on this report and thus concludes no text or data tables. Appendices C-F primarily include tabular information, some summary figures and very little text.

Tabular data presented in Appendices C, D, E and F is organized according to study site location. Study sites are organized by river mile, ascending from a downstream to upstream direction.

A P P E N D I X A

WINTER TEMPERATURE DATA

Appendix A: Winter Temperature Investigations

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1.0 INTRODUCTION

1.1 Background

The Alaska Department of Fish and Game (ADF&G) Susitna 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. Results of these studies are summarized in ADF&G (1981a), ADF&G (1981b), ADF&G (1983a), ADF&G (1983b), ADF&G (1983c) and Keklak and Quane (1984). 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.

During the 1983-1984 winter study season (October 1983 to May 1984) temperature monitoring stations were located at 20 sites within the middle reach (Talkeetna to Devil Canyon) of the Susitna River.

1.2 Objectives

The objectives of the 1983-84 winter temperature study were:

- 1) to determine and evaluate the winter surface and intragravel water temperature regimes of the middle reach (Talkeetna to Devil Canyon) of the mainstem Susitna River,
- 2) to determine and evaluate the intragravel and surface water temperatures associated with chum salmon spawning/incubation areas in selected slough, side channel and tributary habitats, and,
- 3) to determine the winter surface water temperature regime of a tributary selected as a potential water source for possible mitigation activities.

This appendix summarizes the results of these winter temperature investigations.

2.0 METHODS

2.1 Site Selection

The locations of the temperature monitoring stations established during the 1983-84 winter study season are presented in Appendix Table A-1 and Appendix Figure A-1. The monitoring stations and the rationale for their selection are presented below according to study objective.

2.1.1 Mainstem Temperature Evaluation (Objective 1)

During the 1983-84 winter study season, intragravel and surface water temperatures were recorded in the mainstem Susitna River at three stations which had been established during the 1983 open water season. The locations included LRX 9 (RM 103.2), LRX 29 (RM 126.1), and LRX 57 (RM 142.3). The sites were located in the lower, middle, and upper portions of the Susitna River in areas considered to be representative of the mainstem.

2.1.2 Chum Salmon Spawning/Incubation Temperature Evaluation (Objective 2)

Temperature monitoring stations were installed at fourteen chum spawning/incubation sites (Appendix Table A-1, Appendix Figure A-1) located in side channel, side slough, upland slough and tributary habitats. Initially each temperature station was installed in a salmon redd

Appendix Table A-1. Continuous temperature monitoring stations located in the Susitna River basin during the 1983-84 winter season.

Site	River Mile/ ^a Trib. Mile	Study Objective	Habitat	Temperature Data Type
LRX 9	103.2	mainstem temp. eval.	mainstem	surface and intragravel
LRX 29	126.1	mainstem temp. eval.	mainstem	surface intragravel
LRX 57	142.3	mainstem temp. eval.	mainstem	surface and intragravel
Slough 8A (lower portion of slough)	125.6	incubation eval. secondary spawn./	side slough	surface and intragravel
Slough 8A (upper portion of slough)	126.6	incubation eval. secondary spawn./	side slough	surface and intragravel
Slough 9	128.5	incubation eval. secondary spawn./	side slough	surface
Slough 9	128.6	incubation eval. secondary spawn./	side slough	surface and intragravel
Fourth of July Creek	131.1/ 0.0	incubation eval. primary spawn./	tributary	surface and intragravel
Side Channel 10	134.0	incubation eval. primary spawn./	side channel	surface and intragravel
Slough 10 (northeast chann.)	134.0	incubation eval. primary spawn./	upland slough	surface and intragravel
Slough 10 (northwest chann.)	134.0	incubation eval. primary spawn./	upland slough	surface and intragravel
Slough 11	135.5	incubation eval. primary spawn./	side slough	intragravel
Slough 11	135.7	incubation eval. primary spawn./	side slough	surface and intragravel
Mainstem at RM 136.1	136.1	incubation eval. primary spawn./	mainstem	surface and intragravel

^a River mile is calculated to within 0.1 mile of temperature station.

Appendix Table A-1 (Continued).

Site	River Mile/ ^a Trib. Mile	Study Objective	Habitat	Temperature Data Type
Upper Side Channel 11	136.3	incubation eval. primary spawn./	side channel	surface and intragravel
Indian River	138.6/ 0.2	incubation eval. secondary spawn./	tributary	surface and intragravel
Side Channel 21	141.0	incubation eval. primary spawn./	side channel	surface and intragravel
Slough 21 (lower portion)	141.8	incubation eval. primary spawn./	side slough	surface and intragravel
Slough 21 (upper portion)	142.0	incubation eval. secondary spawn./	side slough	surface and intragravel
Deadhorse Creek	120.9 /1.0	preliminary mitigation eval.	tributary	surface

^a River mile is calculated to within 0.1 mile of temperature station.

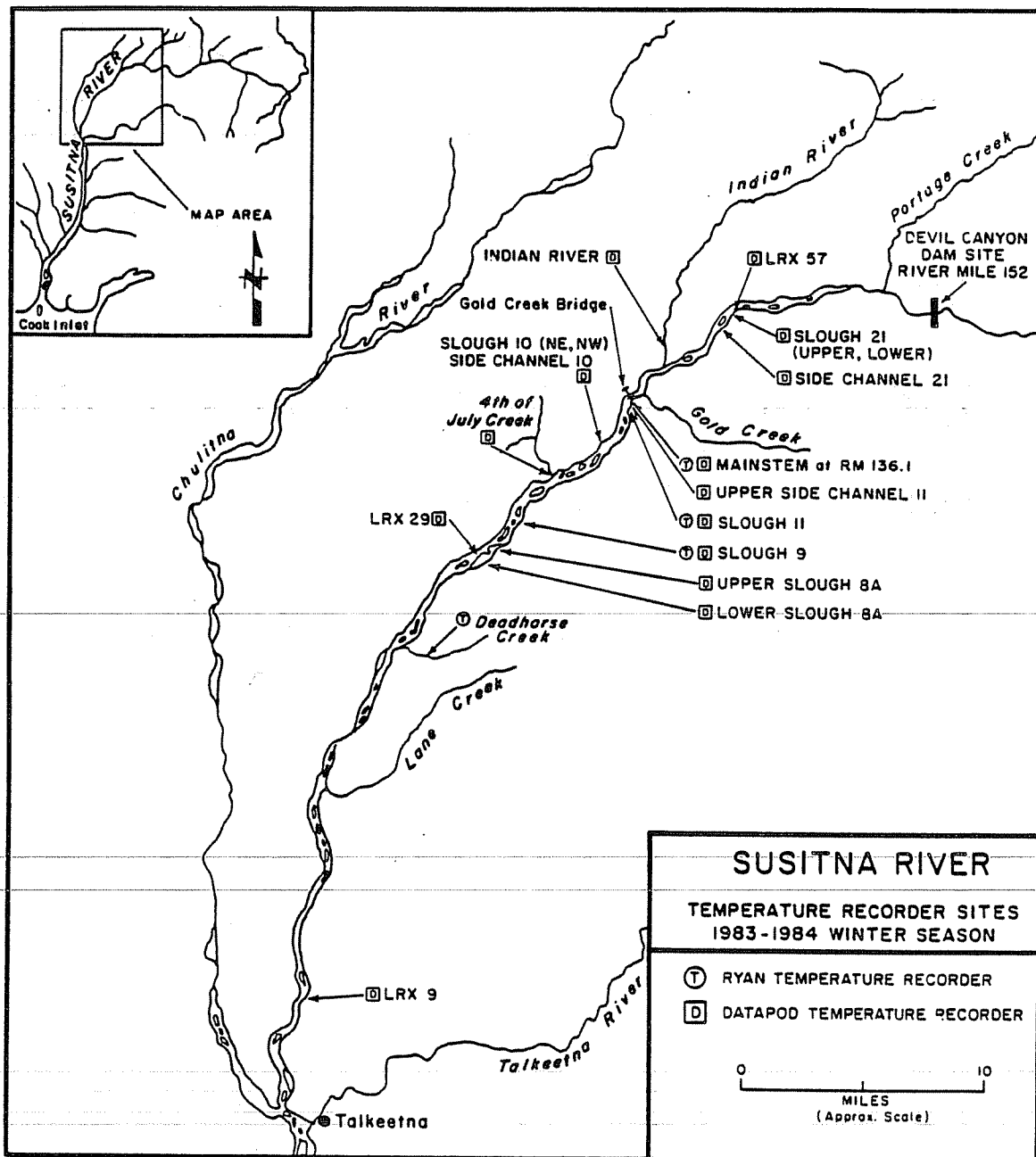


Figure A-1. Locations of temperature monitoring stations in mainstem, side channel, slough and tributary habitats of the Susitna River during the 1983-84 winter season.

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whenever possible, or in a location which was considered representative of the spawning area within each study site.

Temperature stations which had been disrupted by ice movement or instrument failure were reinstalled in the same location whenever possible. Additional sites were also installed within a study location to determine variable conditions within the site, to avoid data loss, or to collect temperatures at sites which were not likely to dewater or freeze.

2.1.3 Preliminary Mitigation Evaluation (Objective 3)

Surface water temperatures were recorded in Deadhorse Creek to evaluate the feasibility of using the creek as a water source for possible mitigative activities. Continuous temperatures were collected in a pool located below a diversion dam approximately one mile from the mouth of the tributary. Instantaneous temperatures were measured above and below the diversion dam, and at an outflow pipe at Curry which is used to channel the diverted water into the Susitna River.

2.2 Field Data Collection

Water temperatures were continuously recorded using either Peabody-Ryan model J-90 temperature recorders or Omnidata two channel datapod recorders. The Peabody-Ryan temperature recorders were used to record surface water temperatures or were buried in the substrate to record intragravel

37.17

water temperatures. The two channel datapod recorders were installed at monitoring stations to simultaneously record both intragravel and surface water temperatures, or intragravel water temperature only at two locations within a study site.

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. Following this screening process a calibration factor was applied to each instrument. Thermographs found in error by more than 2°C at either screening temperature are returned to the manufacturer for calibration.

Peabody-Ryan temperature recorders are used to monitor surface water temperatures, or to record intragravel water temperatures at a depth of approximately 12 inches. Thermographs are inspected twice each month to retrieve the charts and to detect malfunctioning instruments. Each time the thermographs are checked, an instantaneous water temperature measurement is taken using a calibrated Brooklyn thermometer (accuracy $\pm 0.1^{\circ}\text{C}$). Field installation procedures are outlined in the FY 84 ADF&G Su Hydro Aquatic Studies (May, 1983 - June, 1984) Procedures Manual (ADF&G 1984).

2.2.2 Omnicdata Temperature Recorders (Datapods)

Omnicdata model DP2321 two channel temperature recorders (datapods) simultaneously record water temperatures using TP10V temperature probes. Instrument accuracy, as stated by the manufacturer, Omnicdata 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 is calibrated by Dryden and LaRue Engineers and assigned a correction factor. Intragravel temperatures are measured at a substrate depth of approximately 15 inches, whereas surface water temperatures are measured approximately two inches above the substrate.

The datapods are also examined twice each month to exchange DSM's and to detect malfunctioning units. A short display sequence is activated on the datapod which enables the field investigator to determine the operating condition of the instrument and associated probes. The following information is displayed by the instrument, and recorded by the field investigator: 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 using a calibrated Brooklyn thermometer (accuracy $\pm 0.1^{\circ}\text{C}$).

During the winter months, the datapod recorders and probes are periodically exposed to extreme environmental conditions which include ambient

air temperatures outside the manufacturer's (Omnidata International) stated operating range of -20°C to $+60^{\circ}\text{C}$, ice formation, and ice movement. Extremely low air temperatures result in poor instrument performance and brittle probe connectors. Ice formation increases the difficulty of probe installation and ice movement can sever the temperature probe wires. Field installation of new probes through the ice often requires drilling through five feet of ice. During severe ice conditions it is also difficult to detect damaged probes making it necessary to rely on the short display sequence to determine the operating condition of the instrument.

Field installation procedures are outlined in the ADF&G Su Hydro Aquatic Studies (May, 1983 - June 1984) Procedures Manual (ADF&G 1983d).

2.3 Data Analysis

2.3.1 Peabody Ryan Temperature Recorders (Thermographs)

Using field notes as as guide, all Peabody-Ryan thermograph strip charts were screened for anomalous temperatures which may have resulted from instrument failure. From the strip charts, a reduced temperature data base was 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 and reported in tables and plots.

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. From these corrected data bases, daily, USGS water year weekly, and monthly minimum, mean, and maximum temperatures were computer calculated and reported in tables and plots.

During the winter season, field observations indicated that several intragravel and surface water temperature sites were frozen. These resulting low temperatures were removed from the original base data file and included in a separate data base. Tables of daily, USGS water year weekly, and monthly minimum, mean, and maximum temperatures recorded at these frozen sites were developed. Daily mean temperatures of these data are also included in the temperature plots developed for each site.

3.0 RESULTS

A summary of the results of the 1983-84 winter temperature studies is presented by study objective. The applications of these temperature data to modelling, effects on biological activity, and impact analyses are addressed in the body of this report and in other reports. The 1983-84 winter season period of record for each of the stations are presented in Appendix Table A-2. Instantaneous water temperatures recorded at selected sites are listed in Appendix Tables A-3, A-4, and A-5. Site maps for each of the locations are presented in Appendix B.

3.1 Objective 1: Mainstem Temperature Evaluation

Continuous intragravel and/or surface water temperature data were recorded at three mainstem locations in the middle reach of the Susitna River: LRX 9 (RM 103.2), LRX 29 (RM 126.1), and LRX 57 (RM 142.3).

3.1.1 LRX 9 Sites 1 and 2 (RM 103.2) and Site 3 (RM 103.5)

Surface and intragravel water temperatures were collected at three LRX 9 locations using a datapod temperature recorder: Site 1, Site 2 and Site 3. Temperatures were recorded at Site 1 until September 11 when the temperature probes were moved further into the river, to Site 2 to avoid dewatering. Temperatures were recorded at Site 2 from September 11 to late December when the probes were severed by ice

movement. The Site 3 monitoring station was installed on February 8, in an open lead, to replace the Site 2 station.

Daily and monthly minimum, mean, and maximum surface and intragravel water temperatures recorded at each site are presented in Appendix Tables A-6 to A-8. Water year weekly temperatures are presented in Appendix Tables A-44 to A-46. A plot of the mean daily temperatures is presented in Figure A-2.

Overall temperatures recorded at Site 1 were decreasing from August 24 to September 11. However, surface water temperatures were generally warmer than intragravel temperatures. At Site 2 temperatures continued to decrease through October. Although surface and intragravel water temperatures recorded at Site 2 were generally similar, intragravel water temperatures were slightly warmer than surface water temperatures by late-October. Mean daily intragravel temperatures at Site 2 ranged from -0.1°C to 7.2°C , while surface temperatures varied between -0.1°C and 8.0°C . From February through mid-May, intragravel water temperatures recorded at Site 3 were much warmer than surface water temperatures. For example, the mean monthly February intragravel water temperature at Site 3 was 2.8°C while the average surface water temperature was 0.3°C . In mid-May both surface and intragravel water temperatures increased. May surface water temperatures ranged from -0.2°C to 11.5°C , while intragravel temperatures varied between 1.6°C and 4.9°C .

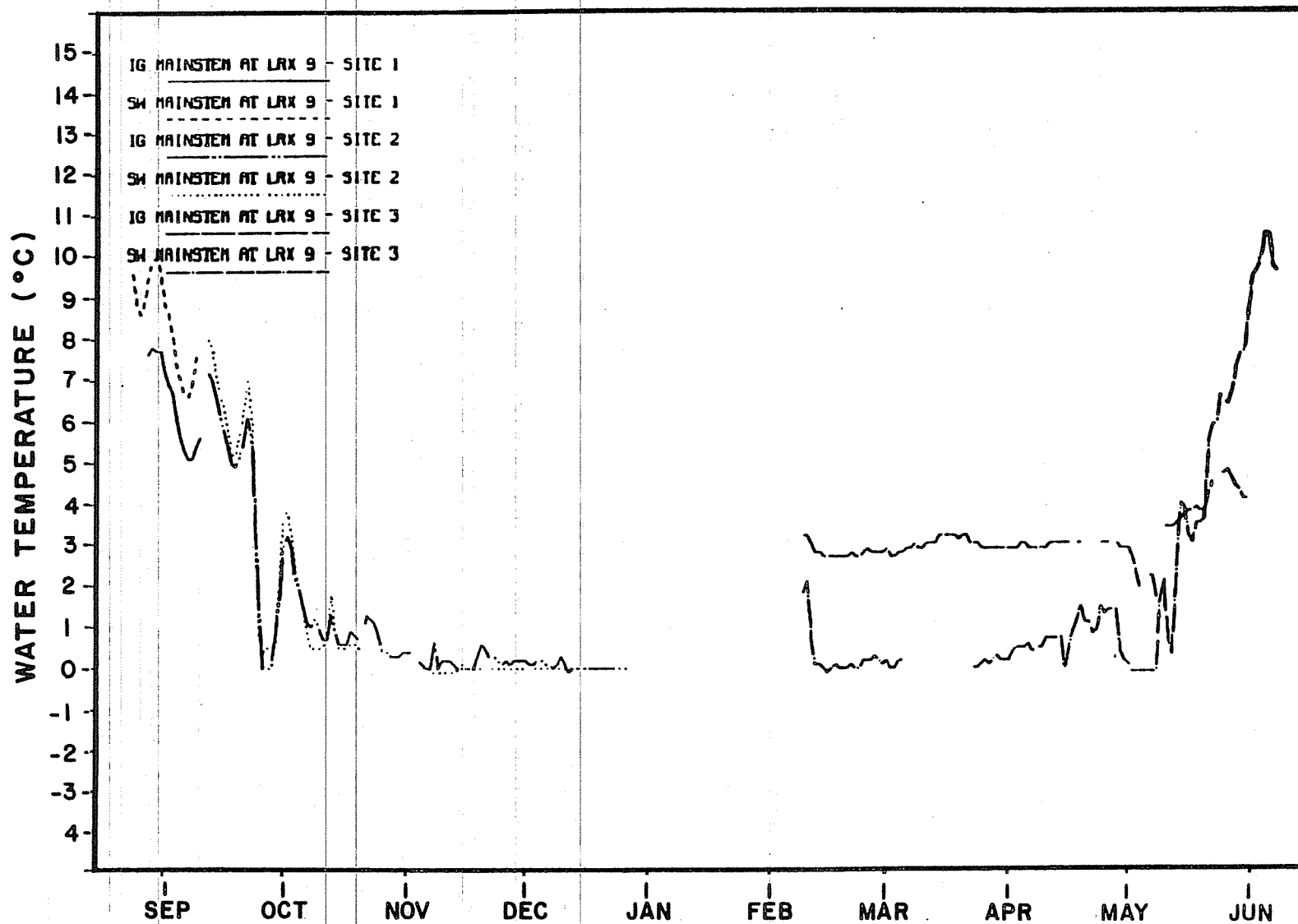


Figure A-2. Mean daily surface and intragravel water temperatures recorded at Mainstem Susitna River at LRX 9 - Sites 1 and 2 (RM 103.2) and LRX 9 - Site 3 (RM 103.5) during the 1983-84 winter season.

3.1.2 LRX 29 (RM 126.1)

At LRX 29, surface and intragravel water temperatures at were collected using datapod recorders at two locations: Site 1 and Site 2. Temperatures were obtained at Site 1 until November 2, when the temperature probes were moved further into the river, to Site 2, to avoid dewatering. Temperatures were recorded at Site 2 from November 2 until December 17 when the probes were severed by ice movement. A surface water probe was reinstalled at Site 2 on January 12, however, ice conditions and deep water prevented the installation of an intragravel probe until March 4. Both surface and intragravel water temperature were recorded at Site 2 through April 21 when both probes were severed by ice movement.

Daily and monthly minimum, mean and maximum surface and intragravel temperatures recorded at both sites are presented in Appendix Tables A-9 and A-10. Water year weekly temperatures are presented in Appendix Tables A-47 and A-48. A plot of the mean daily surface and intragravel temperatures is presented in Figure A-3.

Although temperatures at LRX 29 - Site 1 were generally declining through late September, intragravel and surface water temperatures remained similar. In late September, surface water temperatures decreased to -0.1°C , while the minimum intragravel temperature recorded was 1.0°C . Intragravel temperatures remained warmer than surface water

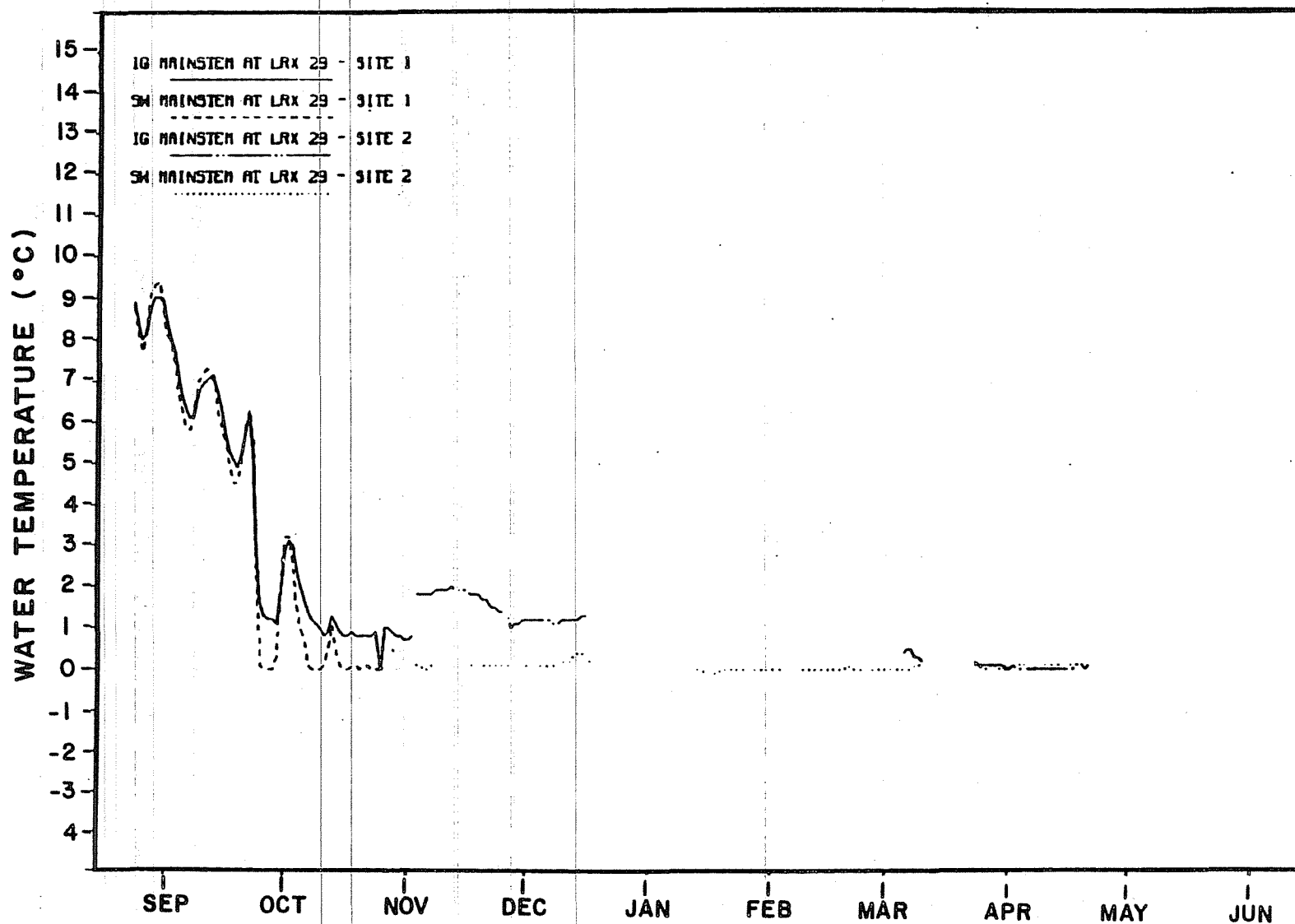


Figure A-3. Mean daily surface and intragravel water temperatures recorded at Mainstem Susitna River at LRX 29 - Sites 1 and 2 (RM 126.1) during the 1983-84 winter season.

temperatures through November 2, when the station was moved to Site 2. Mean daily intragravel temperatures at Site 1 (August 24 to November 2) varied between 0.7°C and 8.9°C, while mean daily surface temperatures ranged from 0.0°C to 9.4°C. Between November 3 and December 17, intragravel temperatures at Site 2 were warmer than surface water temperatures. During this time mean daily intragravel temperatures ranged from 1.0 to 2.0°C, while mean daily surface temperatures varied between 0.0°C and 0.4°C. From January 12 through March 4 only surface water temperatures were recorded at LRX 9. Surface water temperatures remained near 0.0°C from January through April. From March 4 to April 21, mean daily intragravel temperatures near 0.0°C were recorded.

3.1.3 LRX 57 (RM 142.3)

At LRX 57, surface and intragravel water temperatures were recorded using datapod temperature recorders at two locations: Site 1 and Site 2. Temperatures were recorded at Site 1 from August 24 to September 11 when the probes were relocated to Site 2 to prevent dewatering. Both intragravel and surface water temperatures were recorded at Site 2 until May 31. Mean daily and monthly minimum, mean and maximum temperatures recorded at both sites are presented in Appendix Tables A-13 and A-14. Water year weekly temperatures are presented in Appendix Tables A-51 and A-52. A plot of mean daily temperatures is shown in Figure A-4.

Although intragravel temperatures were warmer than surface water temperatures throughout the period of record, large differences in

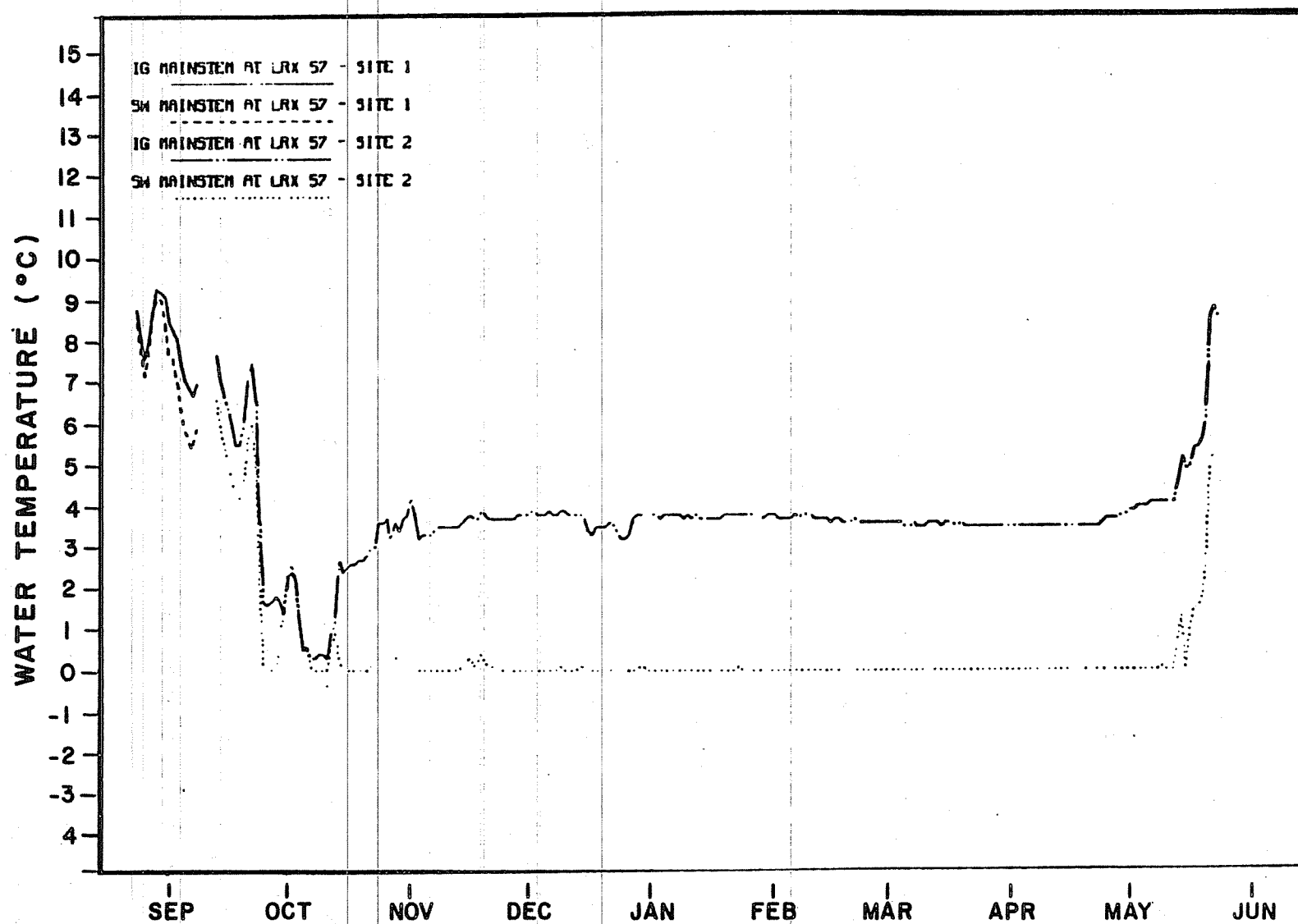


Figure A-4. Mean daily surface and intragravel water temperatures recorded at Mainstem Susitna River at LRX 57 - Sites 1 and 2 (RM 142.3) during the 1983-84 winter season.

temperature were not observed until mid-October. In early October both surface and intragravel water temperatures had declined to approximately 0.5°C. However, by late October surface water temperatures had decreased to 0.0°C, while intragravel water temperatures had increased to approximately 3.5°C. Similar surface and intragravel temperatures were recorded until mid-May when surface water temperatures increased to 6.3°C and intragravel temperatures increased to 9.4°C.

3.2 Objective 2: Chum Salmon Spawning/Incubation Temperature Evaluation

In support of Objective 2 continuous surface and intragravel water temperatures were recorded at one mainstem site, three side channel sites, eight slough sites, and two tributary locations throughout the 1983-84 winter study season. Results of these efforts are presented below by habitat type.

3.2.1 Mainstem Habitats

3.2.1.1 Mainstem Susitna River at RM 136.1

Although both surface and intragravel water temperatures were recorded at the mainstem Susitna River site at RM 136.1, surface water temperatures were not obtained until March 2.

Mean daily and monthly minimum, mean, and maximum temperatures recorded at the mainstem Susitna River at RM 136.1 are presented in Appendix

Tables A-11 and A-12. Water year weekly temperatures are presented in Appendix Tables A-49 and A-50. A plot of mean daily temperatures is shown in Figure A-5.

Intragravel temperatures were recorded with a buried Ryan temperature recorder from October 1, 1983 through January 4, 1984. At the time of installation (October 1, 1983), intragravel water temperatures as high as 3.0°C were measured. By October 7, mean daily intragravel temperatures had decreased to 0.0°C. Throughout the remainder of the recording period intragravel temperatures near 0.0°C were recorded.

Intragravel and surface water temperatures were recorded using a datapod temperature recorder from March 2 through May 3. Intragravel and surface water temperatures were similar until mid-April, with temperatures averaging near 0.0°C. In mid-April, slight increases in intragravel temperatures were observed, while larger increases in surface water temperatures were seen. April surface water temperatures ranged from 0.1°C to 2.9°C, while intragravel temperatures varied between 0.0°C and 0.8°C.

3.2.2 Side Channel Habitats

3.2.2.1 Side Channel 10 (RM 134.0)

Surface and intragravel water temperatures were collected at Side Channel 10 using a datapod temperature recorder from August 24 to May 31. Two temperature sites were established in the side channel: Site 1

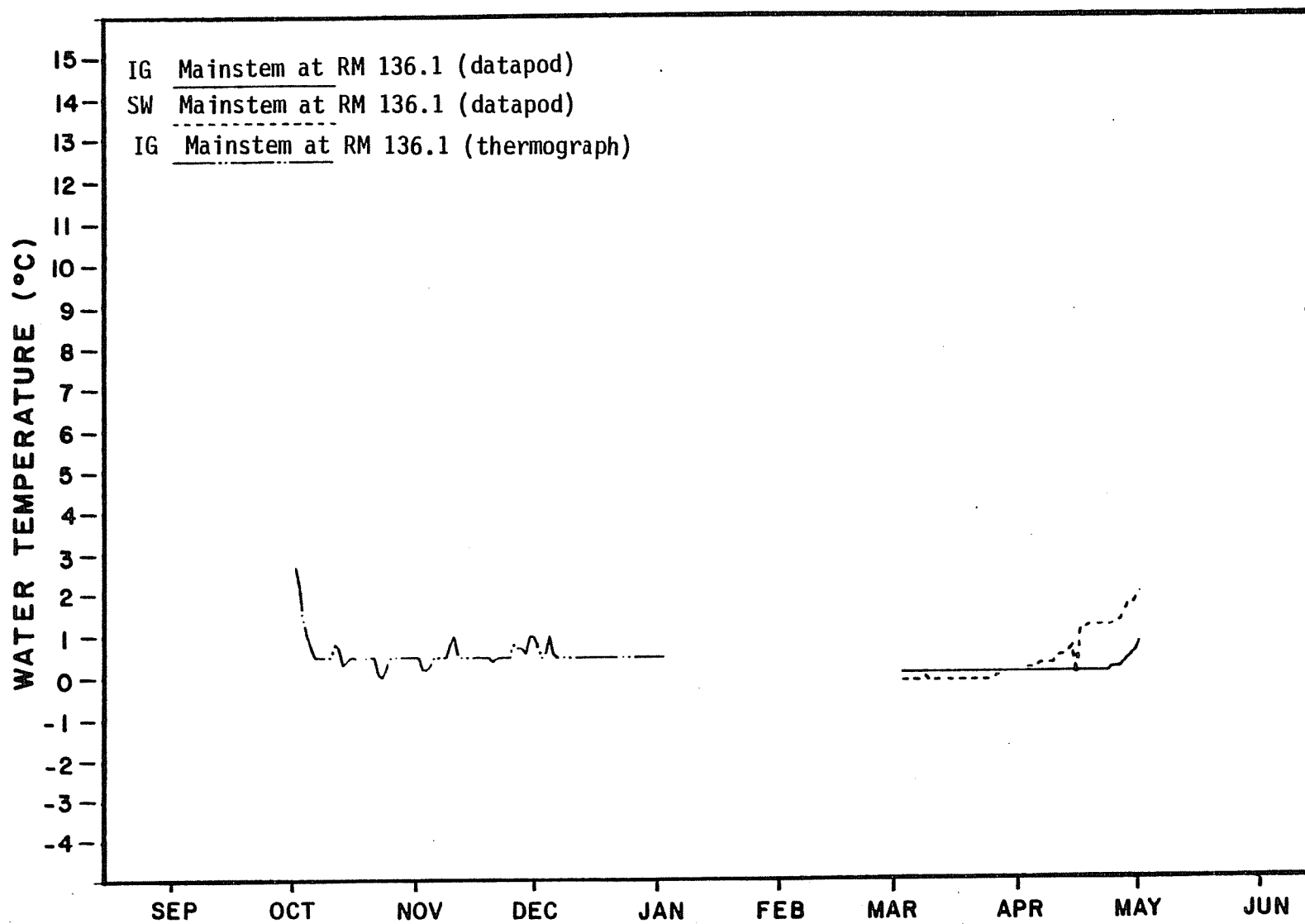


Figure A-5. Mean daily surface and intragravel water temperatures recorded at the Mainstem Susitna River at RM 136.1 during the 1983-84 winter season.

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and Site 2. Mean daily and monthly minimum, mean, and maximum temperatures recorded at the sites are presented in Appendix Tables A-15 to A-18. Water year weekly temperatures are listed in Appendix Tables A-53 to A-56. Mean daily temperatures recorded at the sites are shown in Appendix Figure A-6.

The temperature station at Site 1 was operated from August 24 to November 5 when the datapod recorder malfunctioned. During this period both surface and intragravel water temperatures were decreasing. However, surface water temperatures were more variable than intragravel temperatures. Surface water temperatures were also warmer than intragravel temperatures until late October when the trend reversed. From August 24 to November 5 surface water temperatures at Site 1 ranged from 0.4°C to 10.3°C and corresponding intragravel water temperatures ranged from 2.7°C to 5.1°C.

On November 16 a new recorder was installed at Site 1, but the site was frozen, and both surface and intragravel temperatures measured below 0°C. Therefore, a new recorder and a surface probe were installed at Site 2. (Due to time constraints an intragravel probe was not installed in Site 2 at this time.) Site 1 remained frozen, and on November 30 the intragravel probe was moved to Site 2.

Site 2 was monitored through May 31, however, frozen conditions were recorded at the surface water station from December 15 to December 18. Intragravel temperatures at Site 2 were stable, while surface water

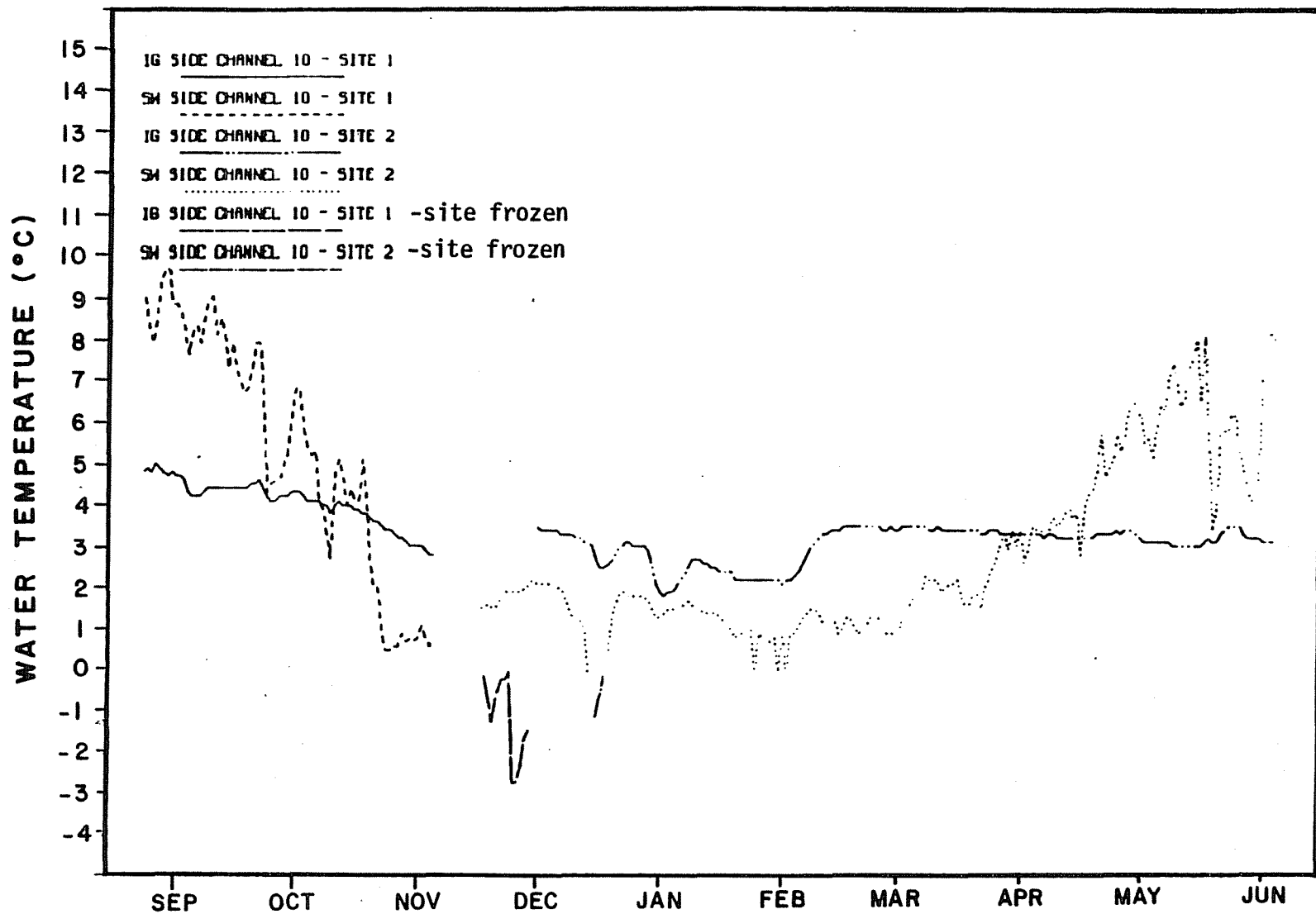


Figure A-6. Mean daily surface and intragravel water temperatures recorded at Side Channel 10 - Sites 1 and 2 (RM 134.0) during the 1983-84 winter season.

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temperatures were variable. From November 16 to May 31, surface water temperatures ranged from 0.0°C to 14.7°C. Between November 30 and May 31 intragravel water temperatures varied from 1.8°C to 3.6°C.

3.2.2.2 Upper Side Channel 11 (RM 136.3)

Surface and intragravel water temperatures were recorded in Upper Side Channel 11 at three locations: Site 1, Site 2 and Site 3. Temperatures were recorded at Site 1 from August 24 to September 12 when the recorder was relocated to Site 2. The Site 2 station was monitored from September 12 to May 31. The temperature station at Site 3 was installed on January 11 to determine variations in temperatures occurring within the side channel. Temperatures were recorded at the site through May 31.

Mean daily and monthly minimum, mean, and maximum temperatures recorded at the Upper Side Channel 11 sites are reported in Appendix Tables A-19 to A-21. Water year weekly temperatures recorded are presented in Appendix Tables A-57 to A-59. Plots of mean daily surface and intragravel temperatures are shown in Appendix Figures A-7 and A-8.

Mean daily surface water temperatures recorded at Site 1 ranged from 5.6 to 9.0°C, while mean daily intragravel temperatures varied between 5.3 and 6.1°C. At Site 2, surface water temperatures were warmer than intragravel temperatures in the fall (late August and early September) and spring (April and May), and were colder than intragravel

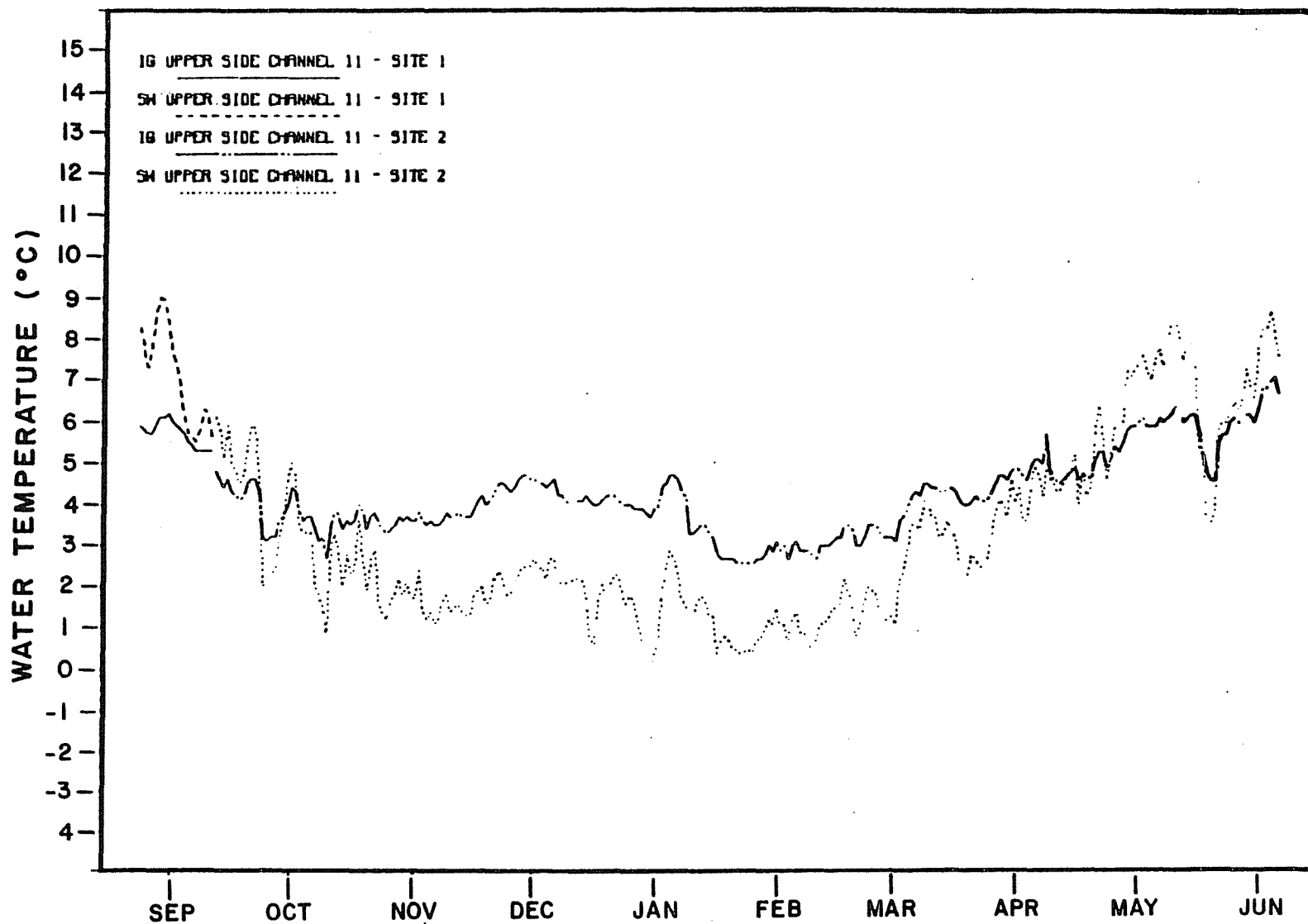


Figure A-7. Mean daily surface and intragravel water temperatures recorded at Upper Side Channel 11 - Sites 1 and 2 (RM 136.3) during the 1983-84 winter season.

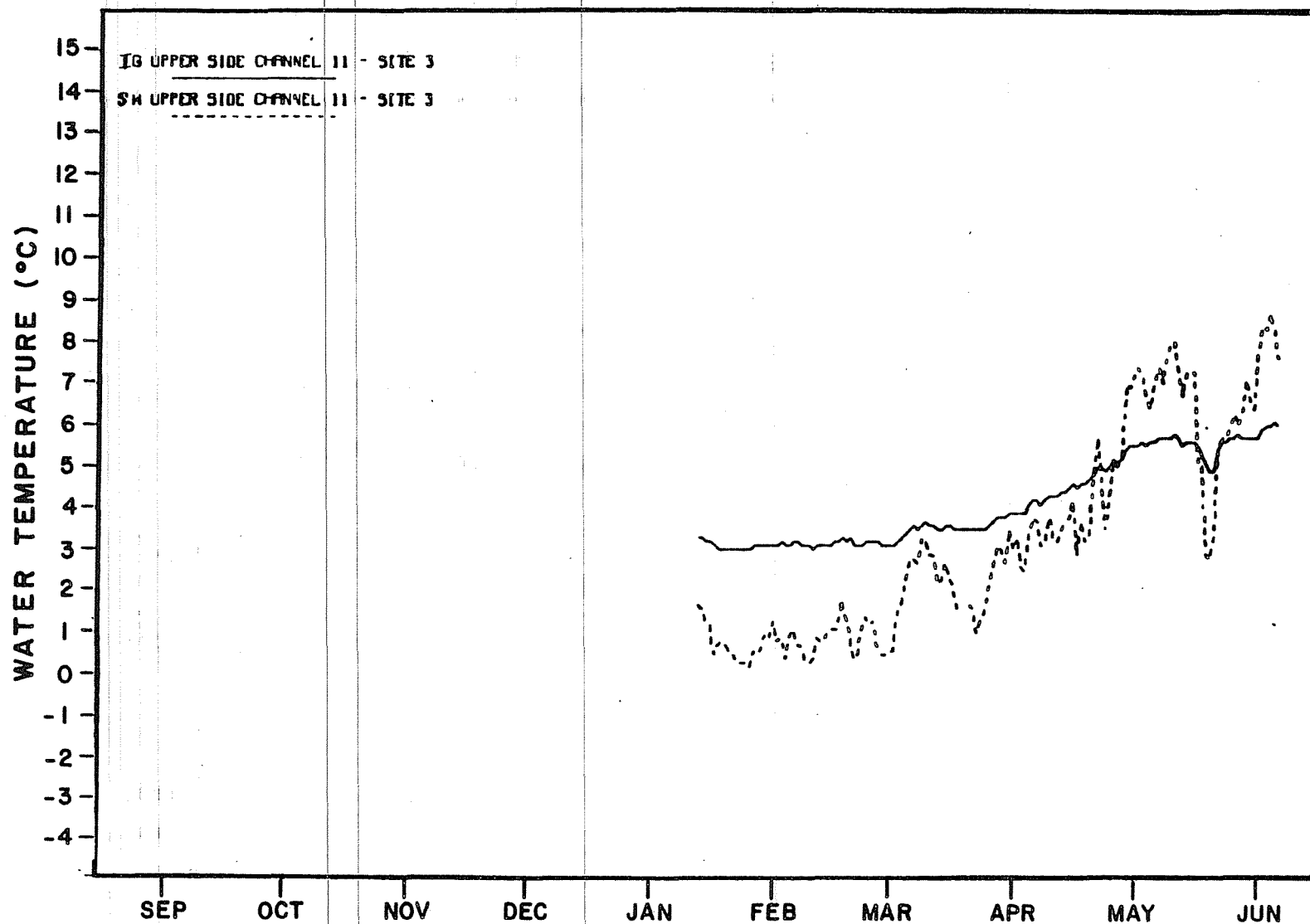


Figure A-8. Mean daily surface and intragravel water temperatures recorded at Upper Side Channel 11 - Site 3 (RM 136.3) during the 1983-84 winter season.

temperatures throughout the winter. Mean monthly surface water temperatures at Site 2 ranged from 0.4°C to 8.6°C, while mean monthly intragravel water temperatures varied from 2.6°C to 6.4°C. Surface and intragravel water temperatures recorded at Site 3 followed the same trend as the temperatures observed at Site 2. Between January 11 and May 31 mean daily surface water temperatures at Site 3 ranged from 0.2 to 8.0°C while mean daily intragravel temperatures ranged between 3.0 and 5.7°C. The similarities between temperatures recorded in Sites 2 and 3 are illustrated in Appendix Figure A-9.

3.2.2.3 Side Channel 21 (RM 141.0)

Surface and intragravel water temperatures were recorded at three locations (Sites 1, 2, and 3) in Side Channel 21. Surface and intragravel temperatures were monitored at Site 1 from August 24 to September 12 when the station was moved to Site 2. Both intragravel and surface water temperatures were recorded at Site 2 from September 12 through January 10 when the intragravel probe was severed by ice movement. From January 11 to May 22, only surface water temperatures were recorded at the Site. A monitoring station was established at Site 3 on November 30 to ensure the collection of data in the side channel. The Site 3 station was monitored through May 22.

Mean daily and monthly minimum, mean, and maximum temperatures recorded at the sites were presented in Appendix Tables A-22 to A-25. Water year weekly temperatures are listed in Appendix Tables A-60 to A-63. Mean

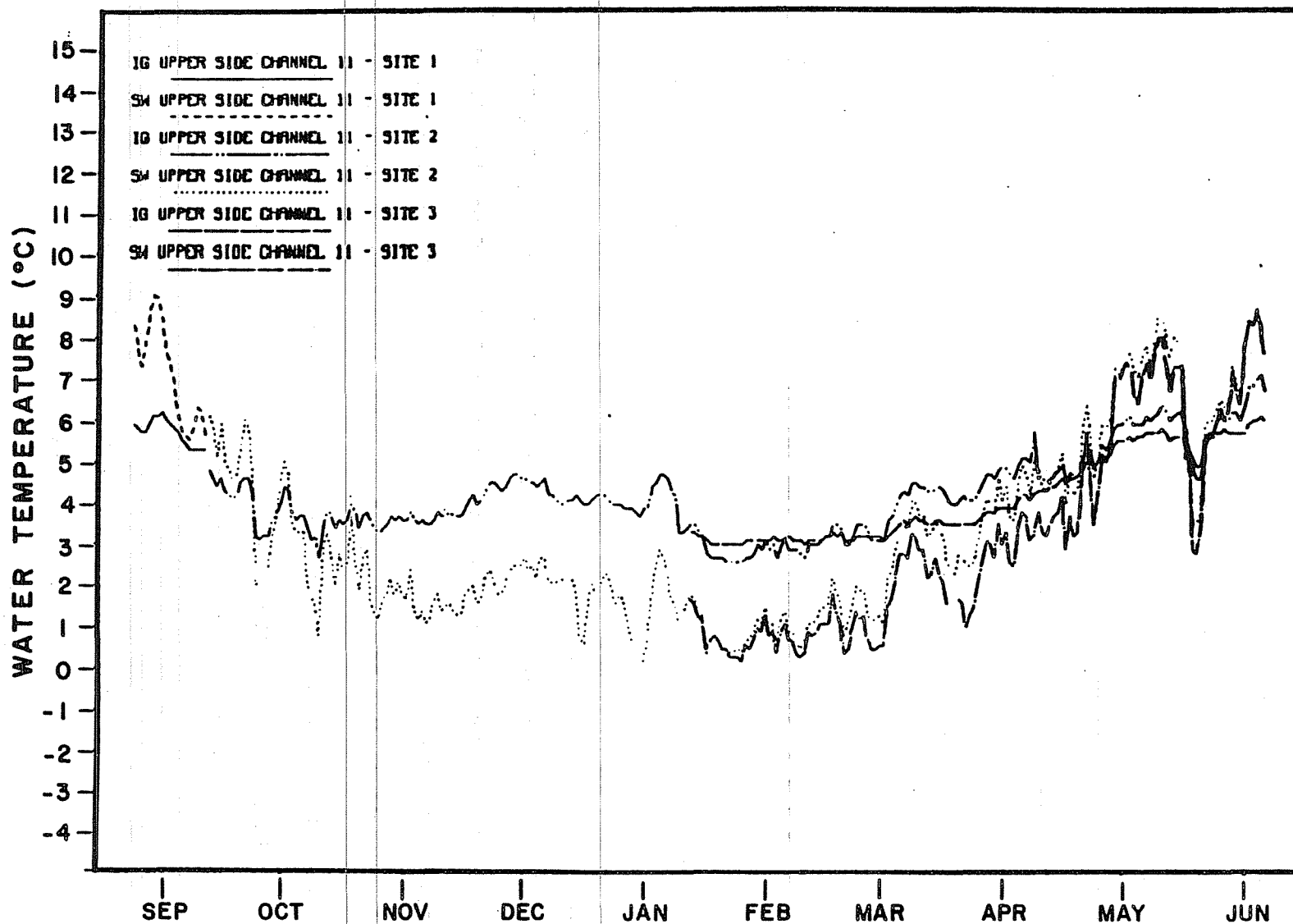


Figure A-9. Mean daily surface and intragravel water temperatures recorded at Upper Side Channel 11 - Sites 1, 2 and 3 (RM 136.1) during the 1983-84 winter season.

daily temperatures recorded at the sites are presented in Appendix Figures A-10 and A-11.

Although both intragravel and surface water temperatures at Site 1 were declining, surface water temperatures were warmer. Surface water temperatures ranged from 4.7°C to 9.2°C, and intragravel temperatures varied between 3.9 and 7.9°C.

Surface and intragravel water temperatures were recorded at Site 2 from September 13 to January 10 when the intragravel probe was severed by ice movement. From January 11 through May 22 only surface water temperatures were recorded at Site 2.

In September and October both surface and intragravel water temperatures were decreasing, however, intragravel water temperatures were warmer through September. Surface water temperatures were warmer than intragravel temperatures throughout October. From September 13 through October 31 surface water temperatures at Site 2 ranged from 1.6°C to 7.5°C while intragravel temperatures varied from 1.6°C to 6.3°C. In November both surface and intragravel water temperatures increased slightly. From November to January 10, intragravel water temperatures were warmer than surface water temperatures although both showed similar trends. From November until January 10 intragravel temperatures remained near 2.5°C. Except for a short period in January when surface temperatures decreased to 0.7°C, surface water temperatures remained near 1.5°C until late April when the temperatures began to increase. In May, surface water temperatures at Site 2 ranged between 2.1°C and 13.1°C.

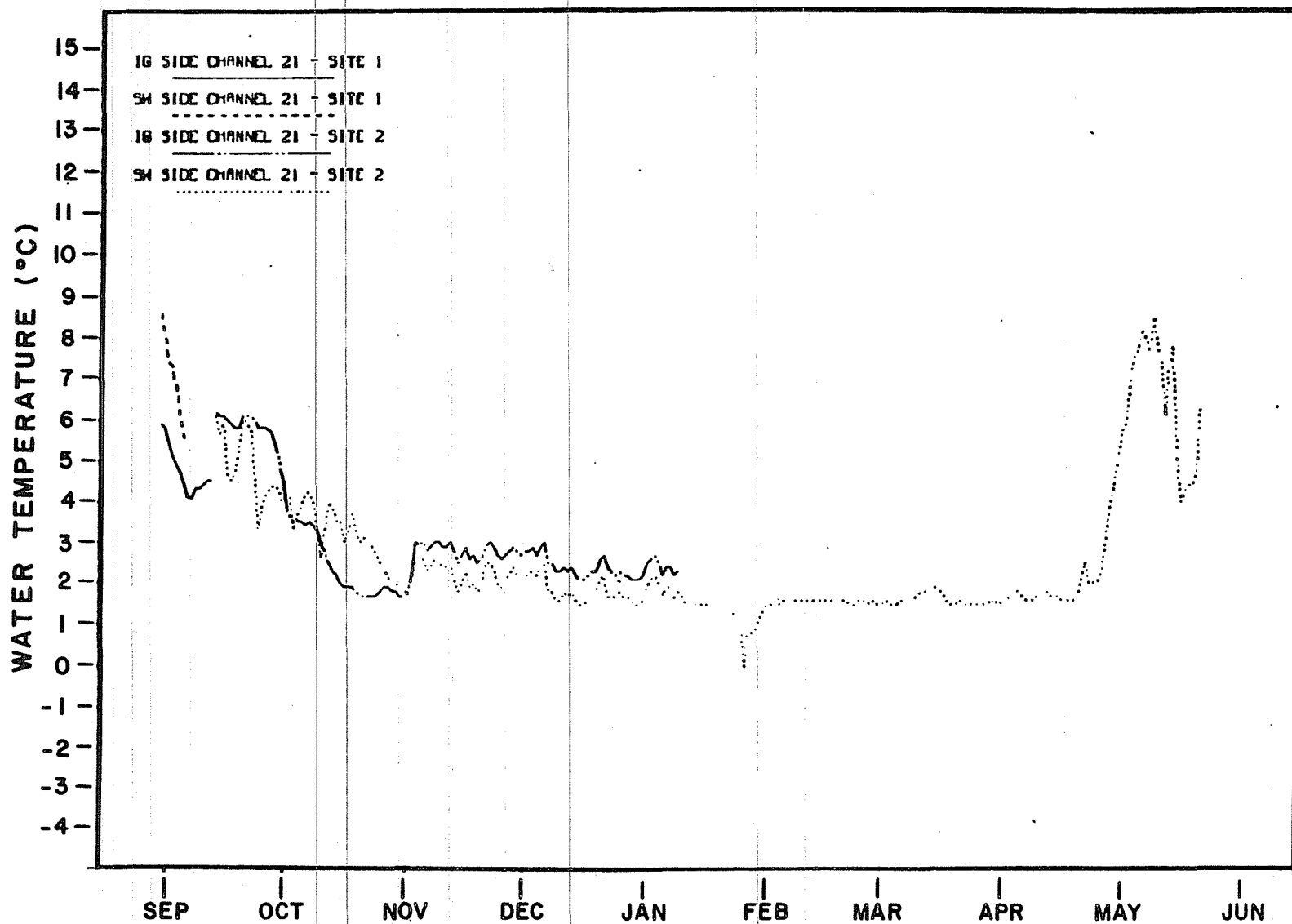


Figure A-10. Mean daily surface and intragravel water temperatures recorded at Side Channel 21 - Sites 1 and 2 (RM 141.0) during the 1983-84 winter season.

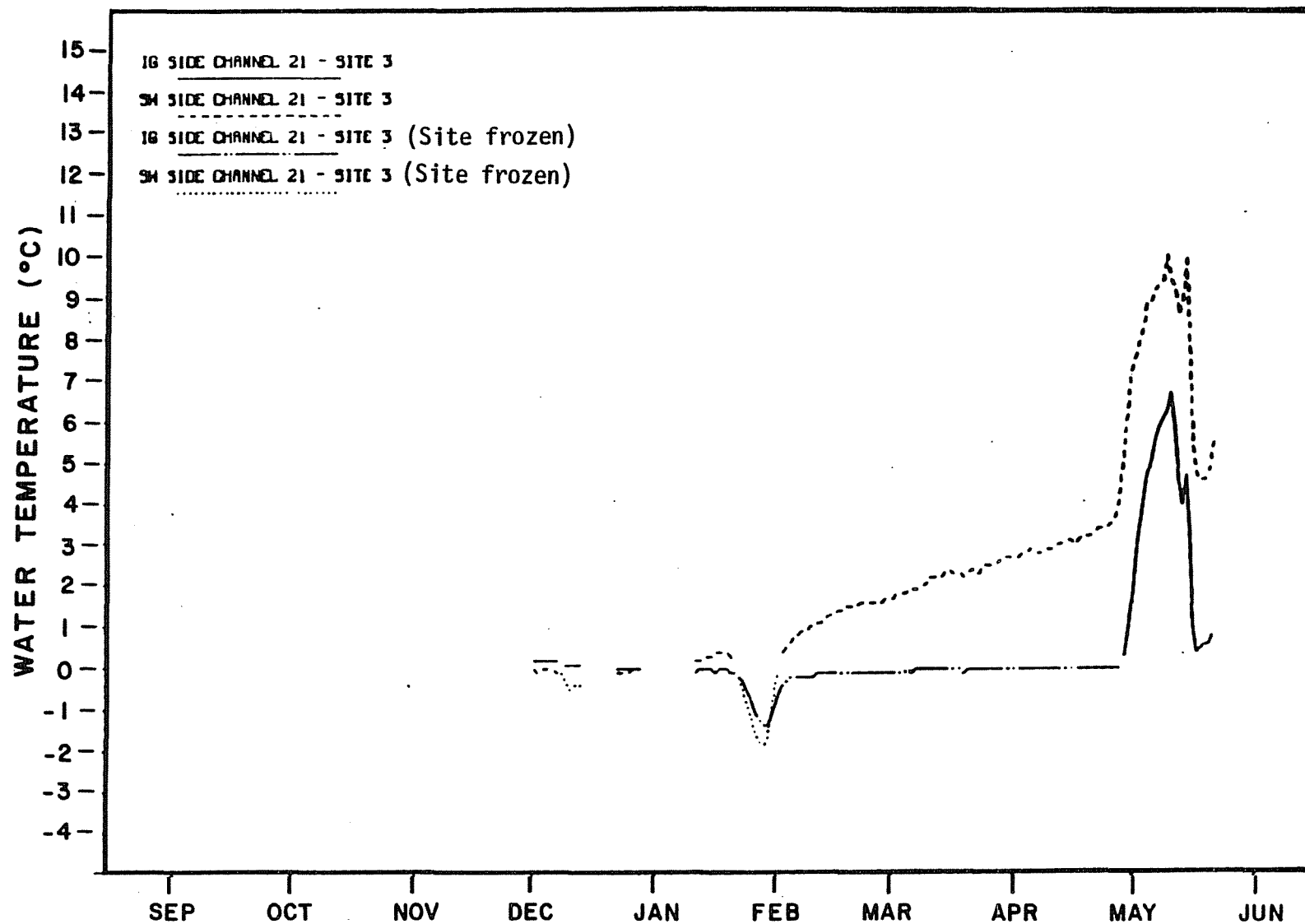


Figure A-11. Mean daily surface and intragravel water temperatures recorded at Side Channel 21 - Site 3 (RM 141.0) during the 1983-84 winter season.

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Surface and intragravel water temperatures were recorded at Side Channel 21 - Site 3 from November 30 through May 22. The surface water temperature monitoring location was frozen from December 8 through December 14, and from January 22 to January 31. The actual status of the intragravel water temperature monitoring station is uncertain from January 22 to April 27. However, the low and constant temperatures indicate that the station was also frozen during this time period.

Surface water temperatures at Site 3 increased gradually from late January until late April. Mean monthly, February, March, and April surface water temperatures were 1.2, 2.2 and 3.4°C, respectively. In late April, a sharp increase in surface water temperatures occurred. Temperatures as high as 12.8°C were recorded in mid-May before temperatures decreased sharply. Temperatures measuring less than 0.5°C were recorded in late May before temperatures began to increase again.

Intragravel water temperatures at Site 3 remained near -0.1°C from February through late April, possibly due to ice conditions. A sharp increase in intragravel temperatures also occurred in late April.

Intragravel water temperatures followed a temperature trend similar to the surface water temperature trend through May although intragravel temperatures were lower.

A comparison of surface water temperatures recorded within Side Channel 21 was made to determine variations on temperatures occurring within the site (Appendix Figure A-12). Because the data recorded at Site 3 prior

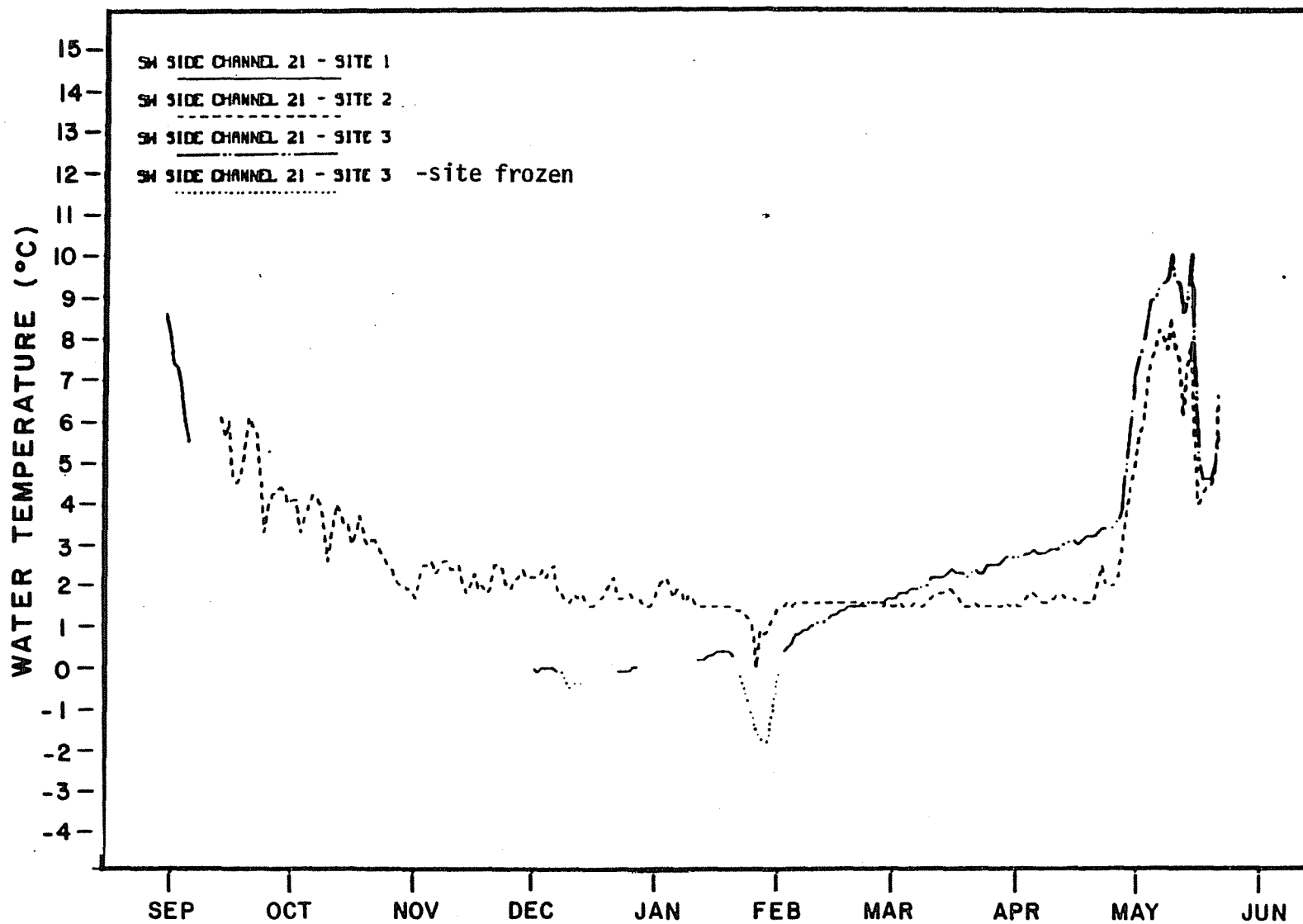


Figure A-12. Mean daily surface water temperatures recorded at Side Channel 21 - Sites 1, 2 and 3 (RM 141.0) during the 1983-84 winter season.

to January 10 is not continuous, only the periods of record from January 10 to May 22 were compared. From January 22 to January 31, the surface water temperature station at Site 3 was presumed frozen. The lowest temperature, -1.5°C , was recorded at this site on January 29. Temperatures recorded at Site 2 had also decreased at this time. The lowest temperature recorded at Site 2, 0.7°C , was also recorded on January 29. By January 31, surface water temperatures at Site 2 had increased to 1.5°C . Surface temperatures remained near 1.5°C through April and increased sharply in early May. Surface water temperatures at Site 3 increased gradually through April and also rose rapidly in early May. Although temperatures at Site 3 were generally higher, surface temperatures at Sites 2 and 3 followed similar temperature trends through May.

Because very little concurrent intragravel temperature data are available for Sites 2 and 3, a comparison of the intragravel temperatures recorded within Side Channel 21 was not made (Appendix Figure A-13).

3.2.3 Slough Habitats

3.2.3.1 Slough 8A

Surface and intragravel water temperature monitoring stations were located in both the lower and upper portions of Slough 8A.

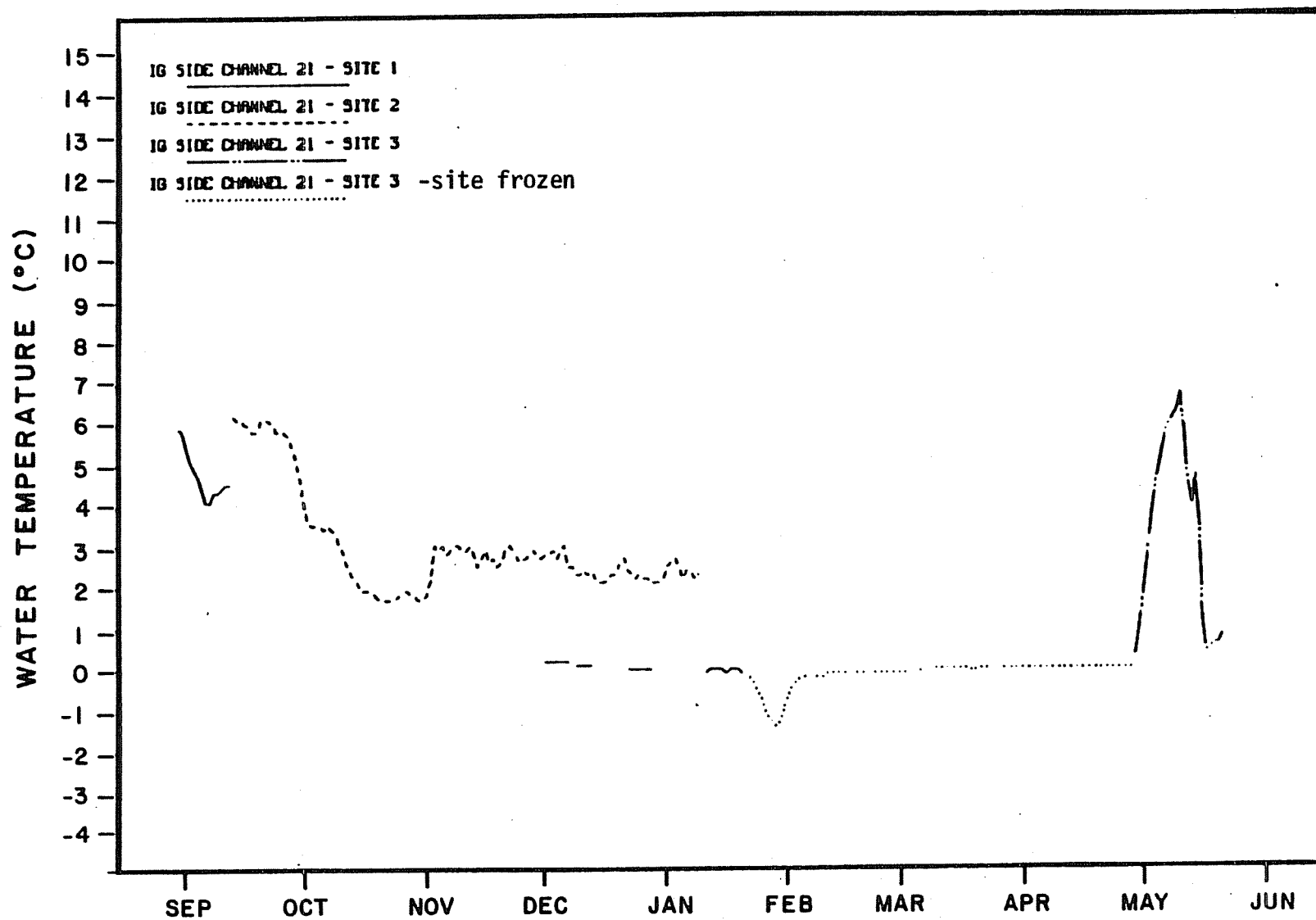


Figure A-13. Mean daily intragravel water temperatures recorded at Side Channel 21 - Sites 1, 2 and 3 (RM 141.0) during the 1983-84 winter season.

3.2.3.1.1 Lower Slough 8A (RM 125.6)

Both surface and intragravel water temperatures were recorded at the stage monitoring station in the lower portion of Slough 8A at Site 3 from August 24 through May 22. Gaps occurred in the data in November due to instrument failure. Mean daily and monthly minimum, mean, and maximum temperatures recorded at Lower Slough 8A are presented in Appendix Tables A-26 and A-27. Water year weekly temperatures are listed in Appendix Tables A-64 and A-65. A plot of the mean daily temperatures recorded at the site is shown in Figure A-14.

Except for brief periods in late August and early December, intragravel and surface water temperatures recorded at the site were relatively similar. In August, mean daily surface water temperatures were approximately 8.5°C while mean daily intragravel temperatures were approximately 5.0°C. By late October, both intragravel and surface temperatures were near 0.5°C.

From November 27 to December 18 increased intragravel temperatures of approximately 2.0°C were recorded while surface water temperatures remained near 0.5°C. Although these elevated intragravel temperatures appear to be anomalous, the instrument and probe appeared to be operating accurately during this period. On December 18 intragravel temperatures of approximately 0.5°C were again recorded. Both intragravel and surface temperatures measured approximately 0.5°C from December through early March. In March and April, surface and

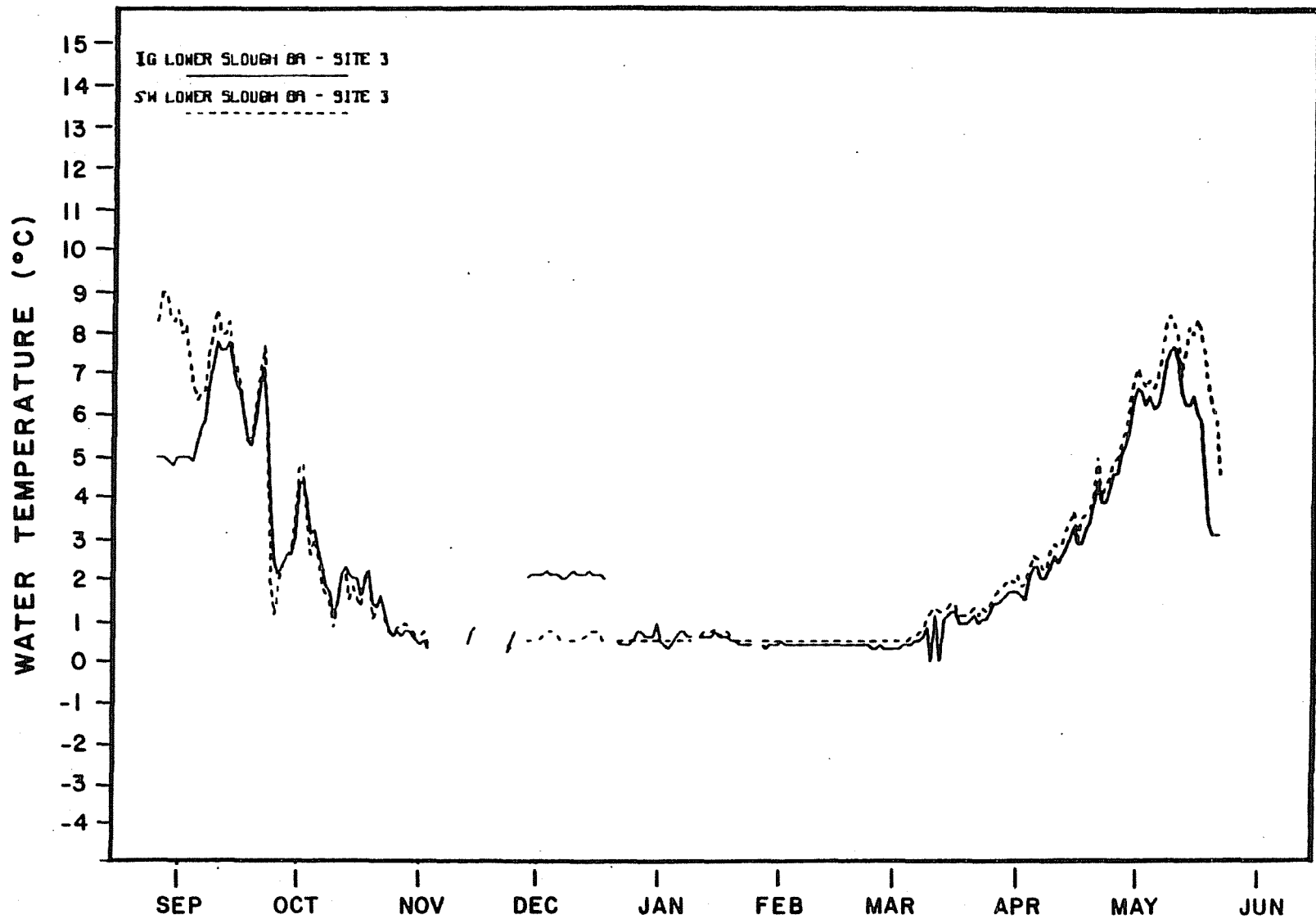


Figure A-14. Mean daily surface and intragravel water temperatures recorded at Lower Slough 8A - Site 3 (RM 125.6) during the 1983-84 winter season.

intragravel water temperatures increased. Mean monthly intragravel and surface temperatures in April were 3.3°C and 3.6°C, respectively. In May intragravel temperatures ranged from 3.0°C to 8.4°C, while surface temperatures varied between 3.5°C and 11.2°C.

3.2.3.1.2 Upper Slough 8A (RM 126.6)

Intragravel and surface water temperatures were recorded at two locations in Upper Slough 8A at Site 2 and Site 3. Mean daily and monthly minimum, mean and maximum temperatures recorded at the sites are presented in Appendix Tables A-28 to A-30. Water year weekly temperatures are listed in Appendix Tables A-66 to A-68. A plot of mean daily temperatures recorded at the sites is presented in Appendix Figure A-15.

Between October 27 and November 11 intragravel temperatures at Site 2 ranged from 0.1°C to 3.0°C, and surface water temperatures ranged from 0.0°C to 1.6°C. Both intragravel and surface water temperature stations were frozen from November 3 through December 21 when the stations were moved to an open water lead at Site 3 .

Mean daily intragravel water temperatures recorded at Site 3 remained near 2.8°C throughout the recording period. Due to a recurring probe malfunction and therefore an incomplete data record, mean daily surface water temperatures were not calculated from December 21 through March 5. During this time, however, surface water temperatures were generally

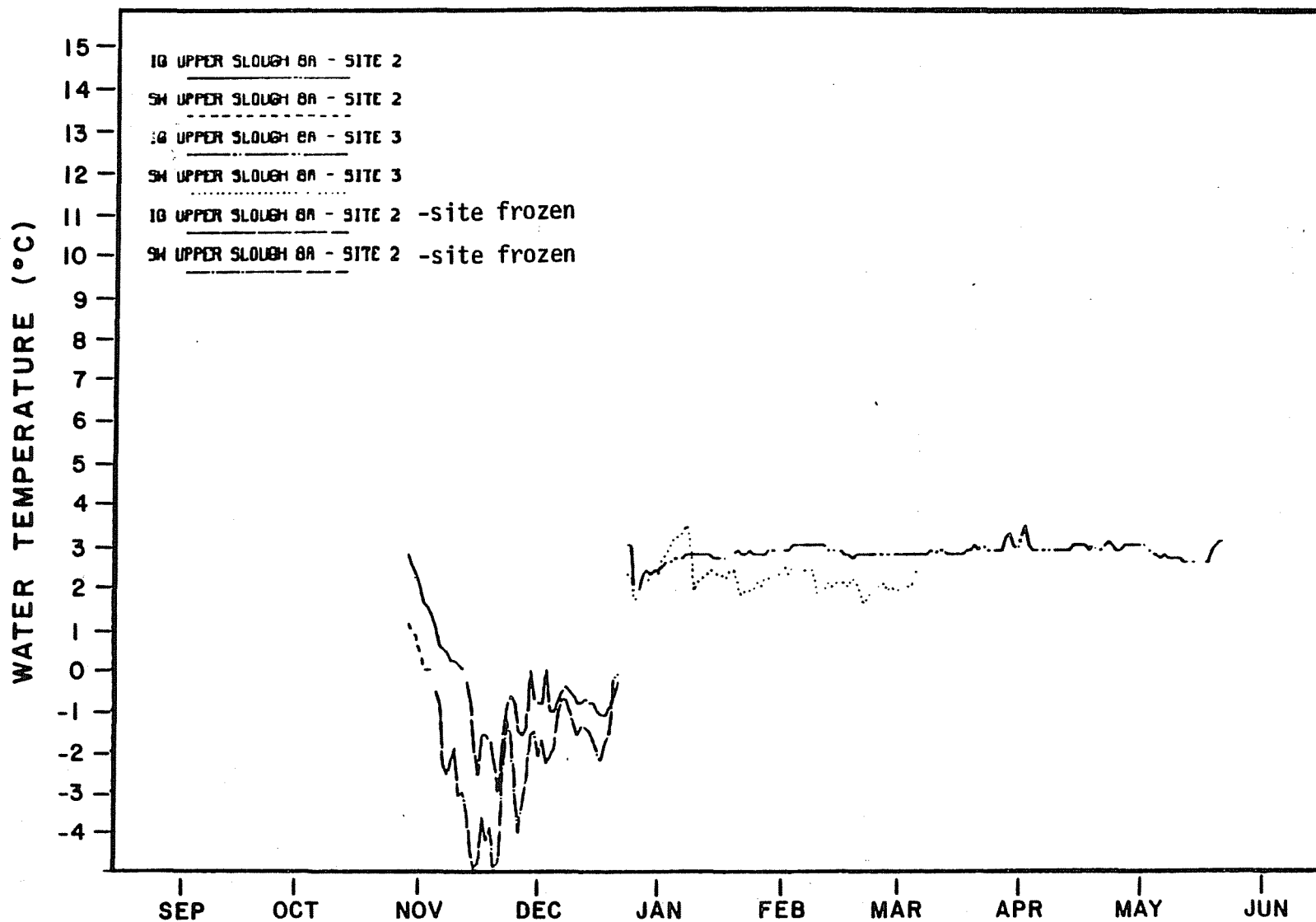


Figure A-15. Mean daily surface and intragravel water temperatures recorded at Upper Slough 8A-Sites 2 and 3 (RM 126.6) during the 1983-84 winter season.

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lower than intragravel water temperatures. The limited data available indicate that surface water temperatures were generally near 2.0°C.

3.2.3.1.3 Upper Slough 8A and Lower Slough 8A

A plot of mean daily intragravel and surface water temperatures recorded in the lower and upper portions of Slough 8A was developed to determine temperature variations occurring within the Slough (Appendix Figure A-16). Due to a malfunctioning recorder and a frozen site at Upper Slough 8A, only temperatures recorded between December 21 and May 22 were compared. Between December and March warmer intragravel and surface temperatures were observed at Upper Slough 8A. The surface water temperature probe in Upper Slough 8A malfunctioned in early March, while the intragravel temperatures remained stable through May. At Lower Slough 8A, both the intragravel and surface temperatures increased sharply from March through early May.

3.2.3.2 Slough 9 (RM 128.3)

Intragravel and surface water temperatures were recorded at one location in Slough 9 at Site 3. Temperatures were collected from August 24 through May 31. A gap in the data occurring from January 10 through March 23 was due to a malfunctioning datapod recorder. Surface water temperatures were also recorded using a Ryan temperature recorder at a site referred to as the Slough 9 Incubation site from August 31 to September 2.

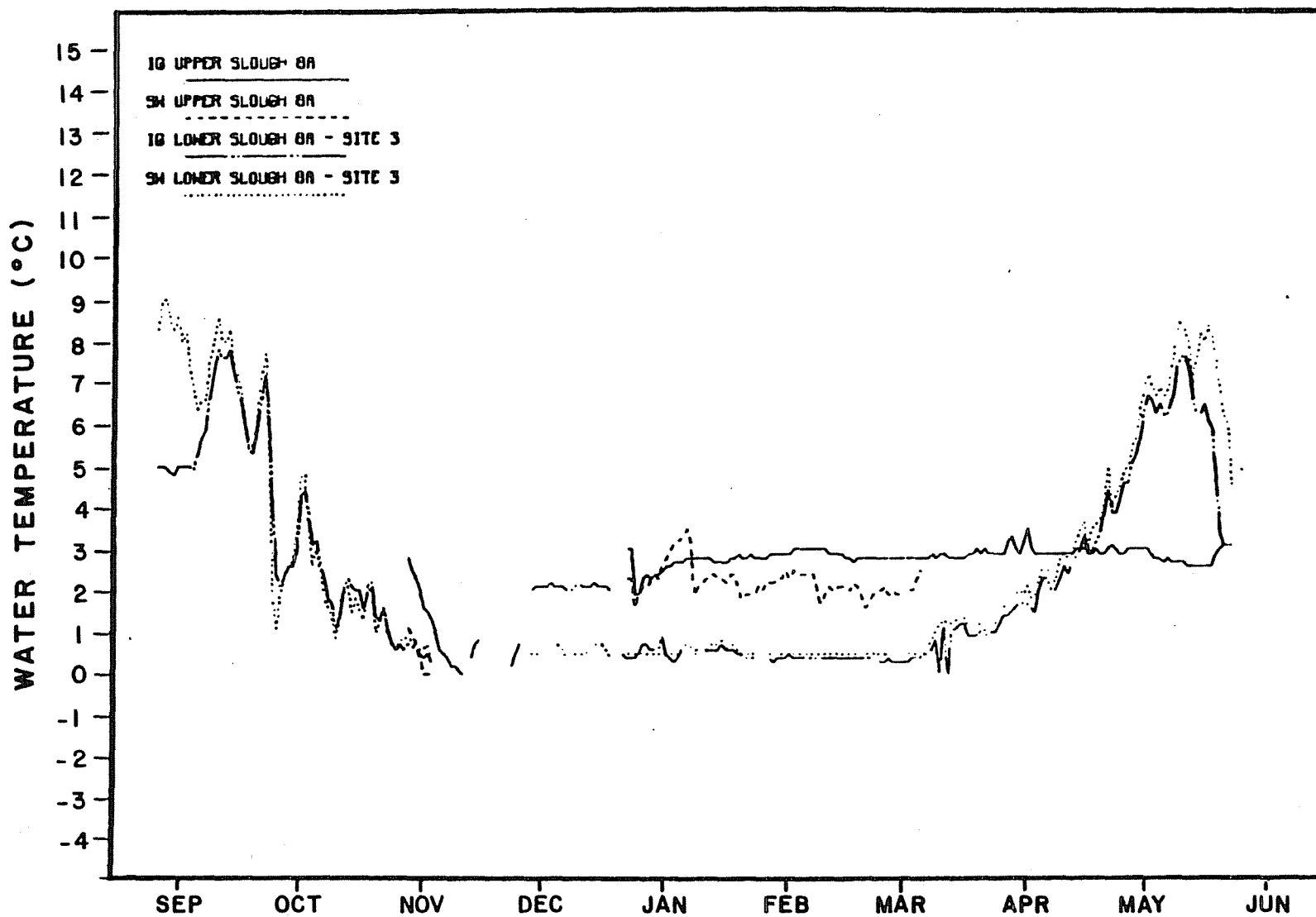


Figure A-16. Mean daily intragravel and surface water temperatures recorded at Lower Slough 8A - Site 3 (RM 125.6) and Upper Slough 8A (RM 126.6) during the 1983-84 winter season.

Mean daily and monthly minimum, mean and maximum temperatures recorded at Slough 9 are presented in Appendix Tables A-31 and A-32. Water year weekly temperatures are listed on Appendix Tables A-69 and A-70. A plot of the mean daily intragravel and surface temperatures recorded at Slough 9 - Site 3 is shown on Appendix Figure A-17.

At Slough 9 intragravel temperatures were relatively stable throughout the period of record with temperatures ranging from 3.0°C to 3.7°C. Surface water temperatures were more variable ranging from 0.1°C to 12.2°C.

3.2.3.3 Slough 10

Surface and intragravel water temperatures were recorded at both the northeast and northwest channels.

3.2.3.3.1 Slough 10 Northeast Channel (RM 134.0)

Surface and intragravel water temperatures were recorded in the northeast channel of Slough 10 from October 19 through May 22. Daily and monthly minimum, mean, and maximum temperatures recorded are presented in Appendix Table A-33. Water year weekly temperatures are listed in Appendix Table A-71. A plot of mean daily temperatures is shown in Appendix Figure A-18.

Intragravel temperatures in the northeast channel were warmer than surface water temperatures from October 19 until April 23 when the trend

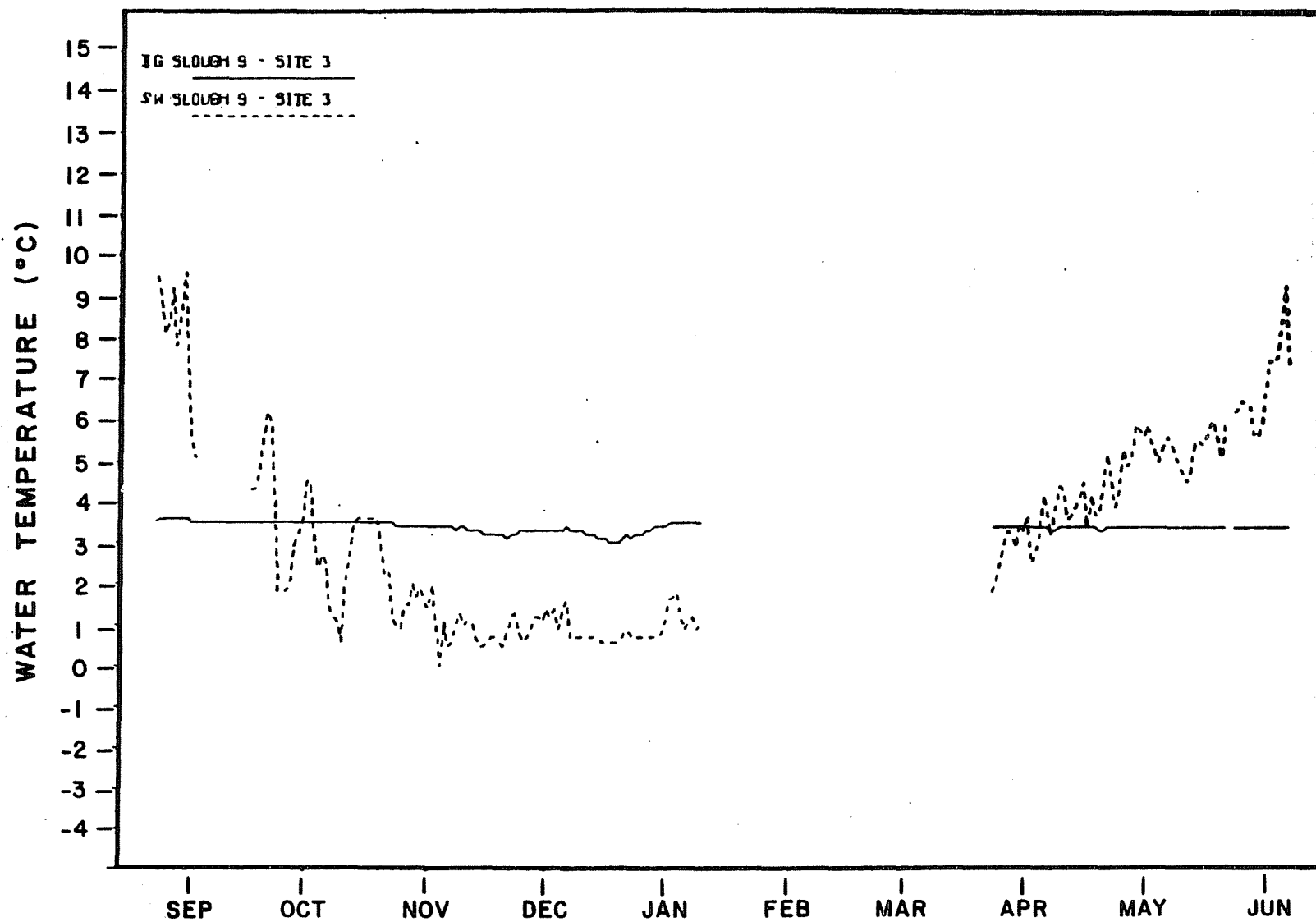


Figure A-17. Mean daily surface and intragravel water temperatures recorded at Slough 9 - Site 3 (RM 128.6) during the 1983-84 winter season.

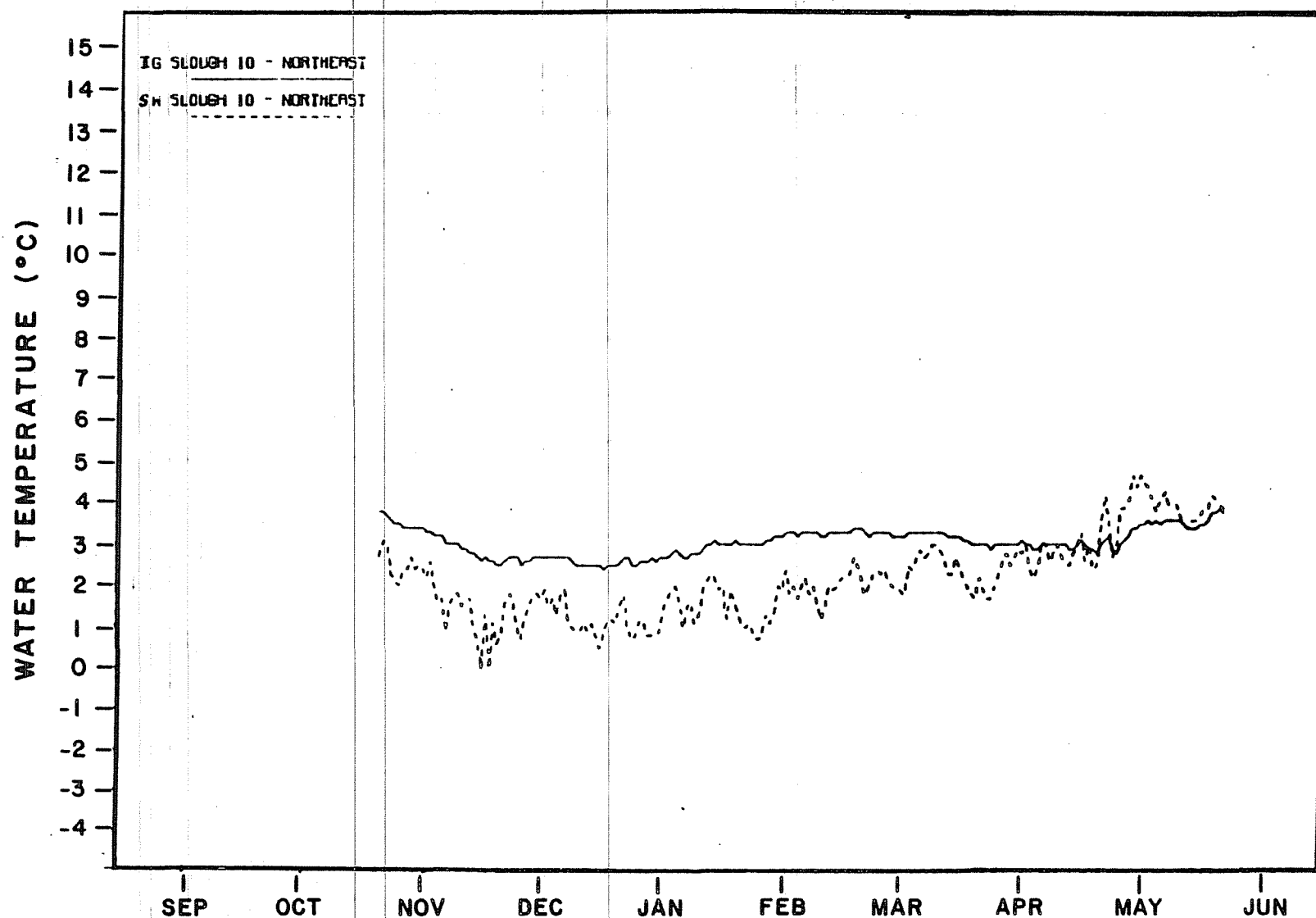


Figure A-18. Mean daily surface and intragravel water temperatures recorded at Slough 10 Northeast (RM 134.0) during the 1983-84 winter season.

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reversed. In general, intragravel temperatures were stable ranging from 2.4°C to 4.2°C, while surface water temperatures were more variable ranging from 0.3°C (in December) to 8.6°C (in April).

3.2.3.3.2 Slough 10 Northwest Channel (RM 134.0)

Surface and intragravel temperatures were recorded at one location in the northwest channel of Slough 10 from October 19 through May 22. A gap in the data occurring from February 5 through February 22 was caused by a malfunctioning recorder. Daily and monthly minimum, mean and maximum temperatures recorded at Slough 10 - Northwest Channel are presented in Appendix Table A-34. Water year weekly temperatures are reported in Appendix Table A-72. Mean daily temperatures are plotted in Appendix Figure A-19.

Intragravel temperatures were stable throughout the period of record with temperatures varying from 2.9°C to 3.9°C. Surface water temperatures were more variable, ranging from 1.2°C to 7.8°C. Intragravel temperatures were warmer than surface water temperatures until mid-April when the trend reversed.

3.2.3.3.3 Slough 10 Northeast and Slough 10 Northwest

A plot comparing the mean daily temperatures recorded in the Northeast and Northwest channels of Slough 10 is presented in Appendix Figure A-20. The mean daily intragravel temperatures in the Northeast and

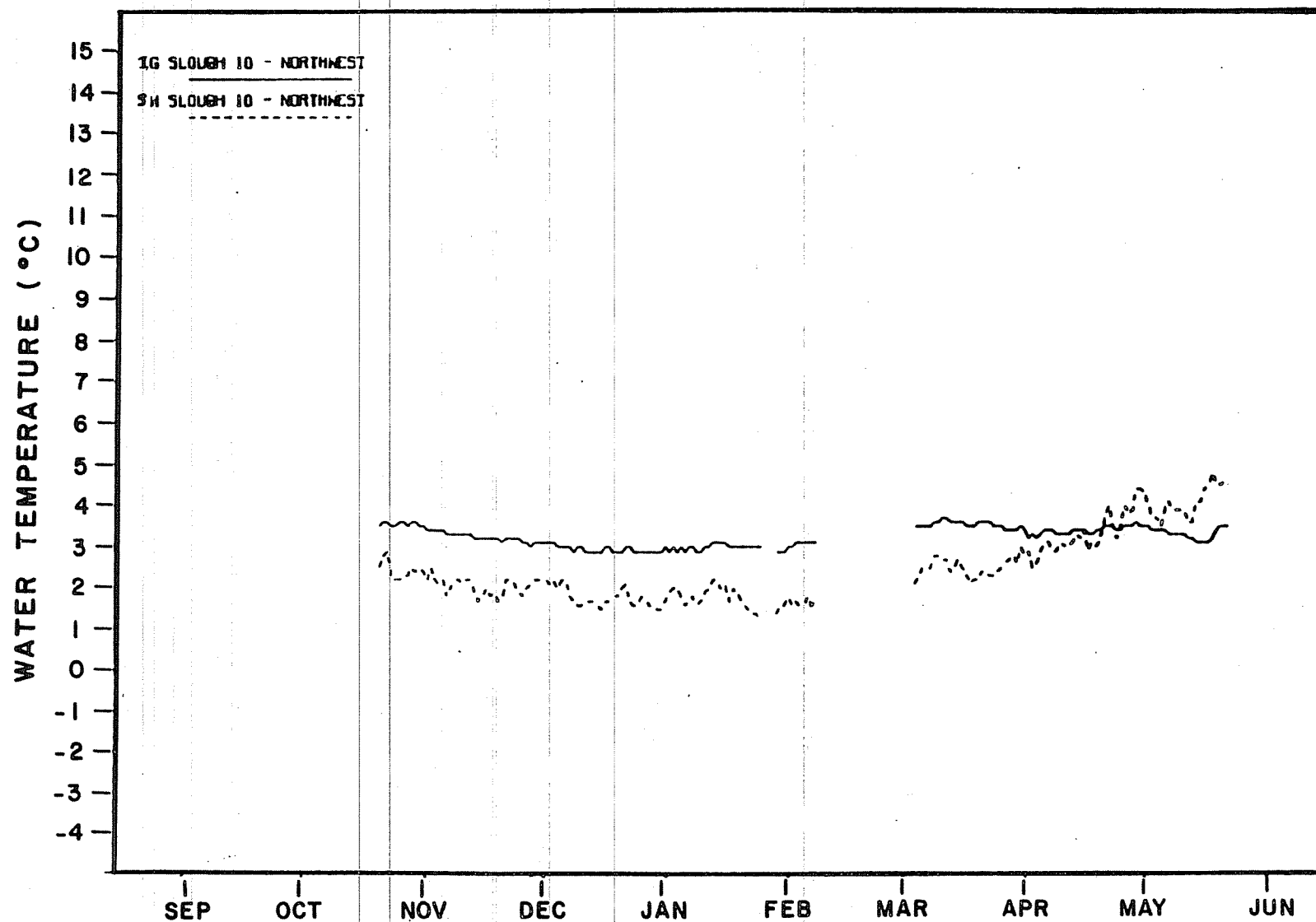


Figure A-19. Mean daily surface and intragravel water temperatures recorded at Slough 10 Northwest (RM 134.0) during the 1983-84 winter season.

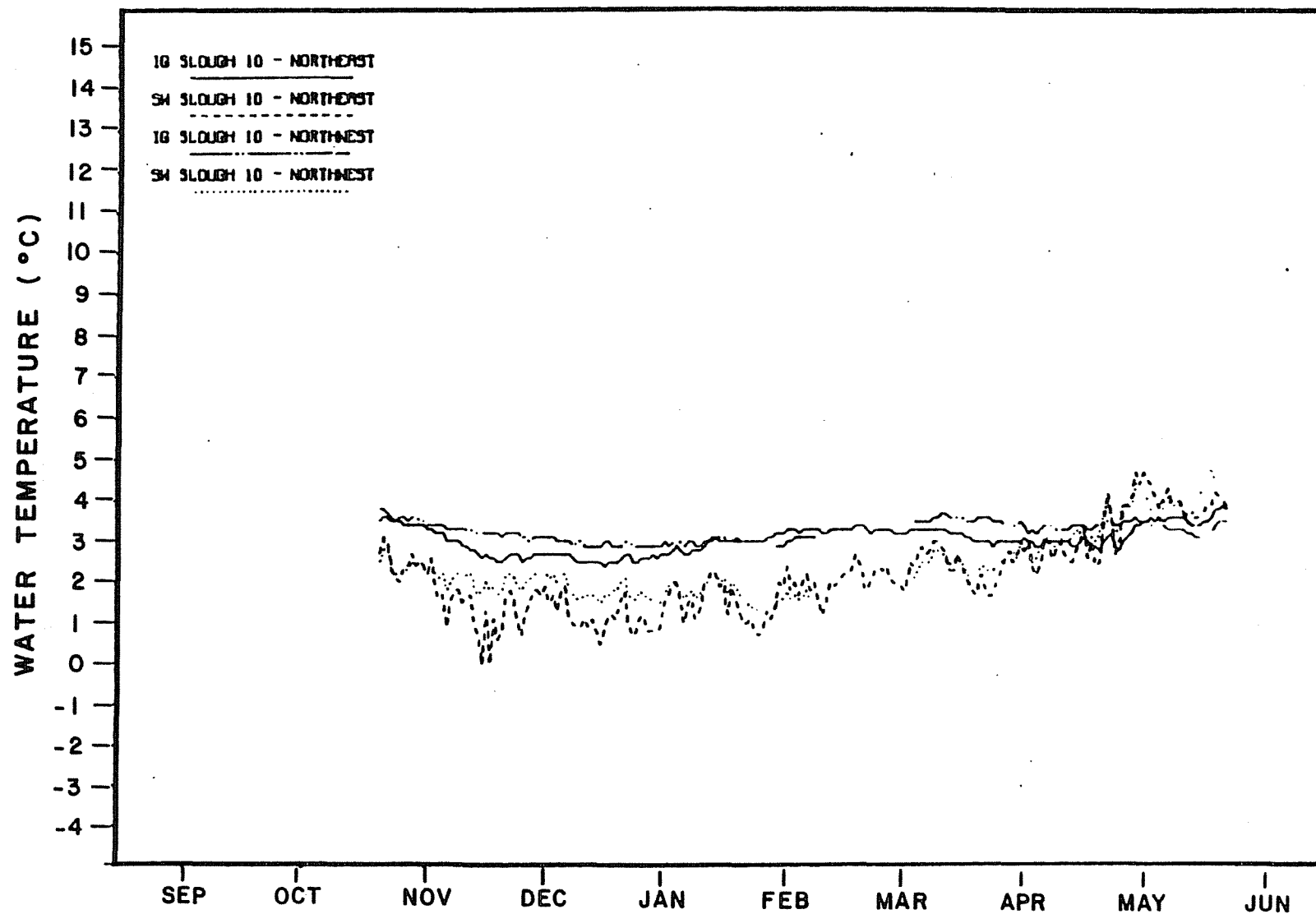


Figure A-20. Mean daily surface and intragravel water temperatures recorded at Slough 10 Northeast (RM 134.0) and Slough 10 Northwest (RM 134.0) during the 1983-84 winter season.

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Northwest channels were similar and stable throughout the recording period. Surface water temperatures recorded in the Northeast and Northwest channels were also similar.

3.2.3.4 Slough 11 (RM 135.7)

Water temperatures were collected at two locations in Slough 11: Site 2 and the Slough 11 Incubation station. A datapod temperature recorder was used to collect surface and intragravel data at Site 2 from August 24 to May 22. A Ryan temperature recorder was used to collect intragravel data at the incubation site from December 30 to February 25. Daily and monthly minimum, mean, and maximum temperatures recorded at Slough 11 sites are presented in Appendix Tables A-35 and A-36. Water year weekly temperatures are listed in Appendix Tables A-73 and A-74. A plot of the mean daily temperatures recorded at Slough 11 - Site 2 is shown on Appendix Figure A-21.

Surface water temperatures were warmer than intragravel temperatures from August 24 to September 24, and from April 3 through the end of the recording period. Surface water temperatures recorded at Site 2 ranged from 0.9°C (in September) to 11.6°C (in May). Intragravel temperatures were relatively stable throughout the period of record with temperatures ranging between 3.0° (in March) and 4.4°C (in May).

Mean daily intragravel temperatures recorded at the Slough 11 Incubation site were stable and ranged from 0.5°C to 0.7°C.

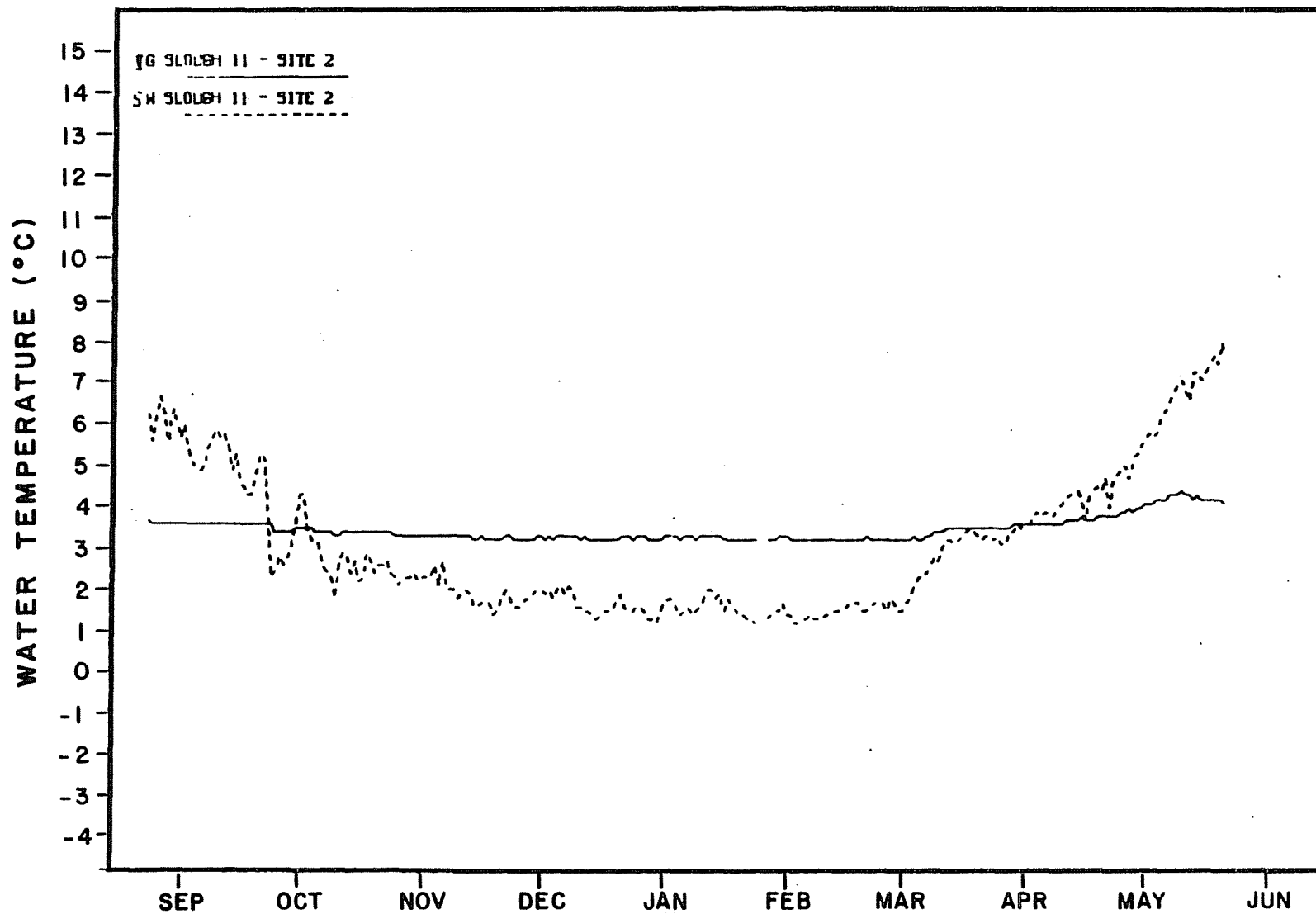


Figure A-21. Mean daily surface and intragravel water temperatures recorded at Slough 11 - Site 2 (RM 135.7) during the 1983-84 winter season.

3.2.3.5 Slough 21

Datapod temperature recorders were used to record surface and intragravel water temperatures from both the lower and upper portions of Side Slough 21.

3.2.3.5.1 Lower Slough 21 (RM 141.8)

Surface and intragravel water temperatures were recorded at one site in the lower portion of Slough 21 from August 24 through May 31. Daily and monthly minimum, mean, and maximum temperatures recorded are presented in Appendix Table A-37. Water year weekly temperatures are reported in Appendix Table A-75. A plot of mean daily temperatures recorded at the site is presented in Appendix Figure A-22.

Intragravel water temperatures recorded in Lower Slough 21 exhibited little variation throughout the recording period. Between August 24 and May 31 intragravel temperature ranged from 3.4°C to 4.3°C. However, a wide range of surface water temperatures were recorded with temperatures ranging between 0.0 and 11.6°C. Surface water temperatures were warmer than intragravel temperatures through mid-September, and from April 25 to the end of the recording season.

3.2.3.5.2 Upper Slough 21 (RM 142.0)

Surface and intragravel water temperatures were recorded at one location the upper portion of Slough 21 at Site 1. Surface water temperatures

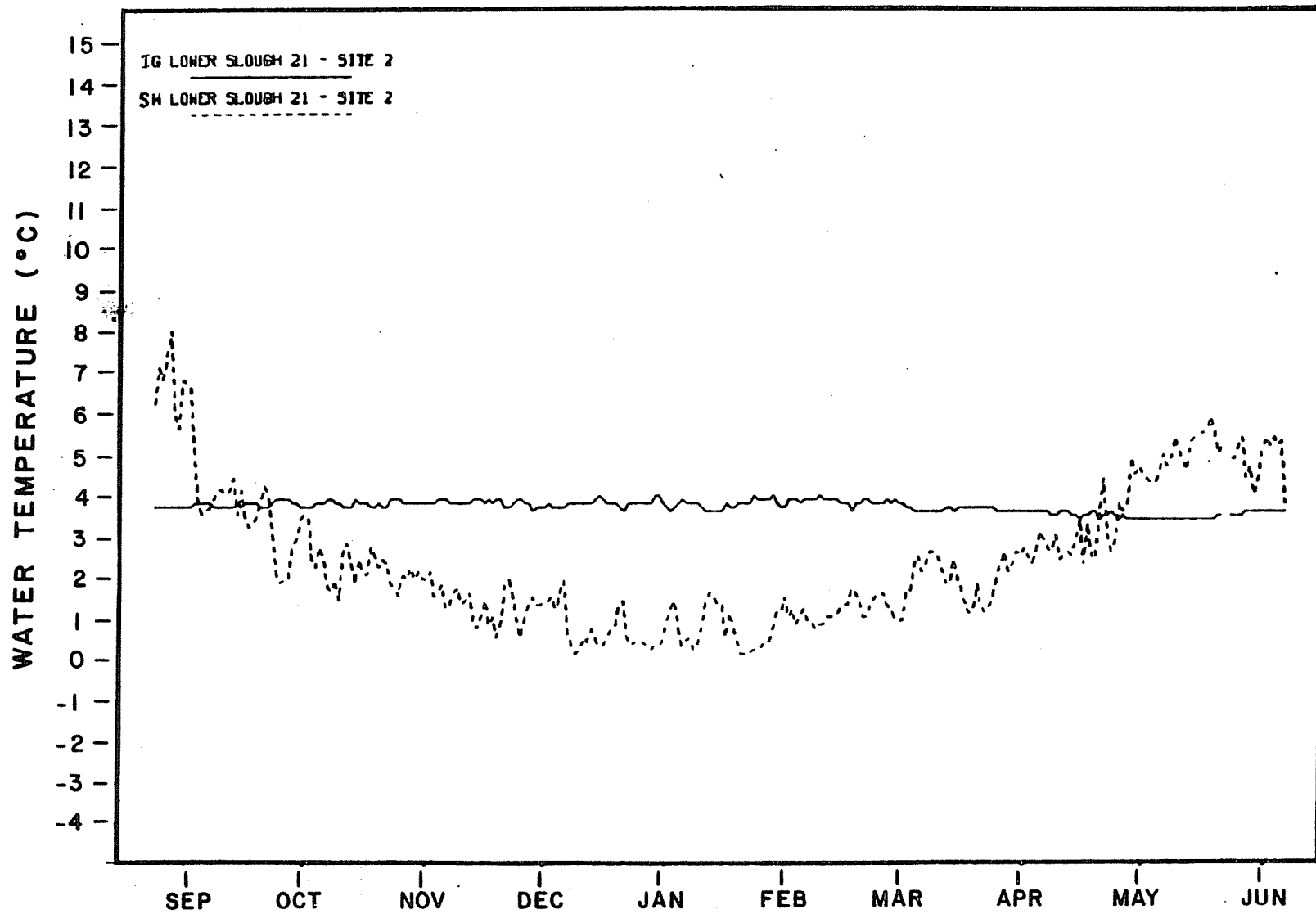


Figure A-22. Mean daily surface and intragravel water temperatures recorded at Lower Slough 21 - Site 2 (RM 141.8) during the 1983-84 winter season.

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were recorded from August 24 through May 22. However, because of a malfunctioning probe intragravel water temperatures were collected only from August 24 to January 11.

Daily and monthly minimum, mean and maximum temperatures recorded at Upper Slough 21 are presented in Appendix Table A-38. Water year weekly temperatures are listed in Appendix Table A-76. A plot of surface and intragravel temperatures is presented in Appendix Figure A-23.

Surface and intragravel temperatures recorded in the upper portion of Slough 21 corresponded closely to each other. During the winter surface water temperatures ranged from 1.0°C to 9.9°C while intragravel temperatures varied between 1.8°C and 8.6°C.

3.2.3.5.3 Upper Slough 21 and Lower Slough 21

Surface and intragravel water temperatures recorded in the upper and lower portion of Slough 21 were compared to evaluate the temperature differences occurring within the slough (Appendix Figure A-24). The intragravel and surface water temperatures recorded in the upper portion of the slough and the surface water temperatures recorded at the lower slough exhibited similar temperature trends throughout the winter season. However, intragravel water temperatures recorded from the lower portion of the slough were stable from September through May.

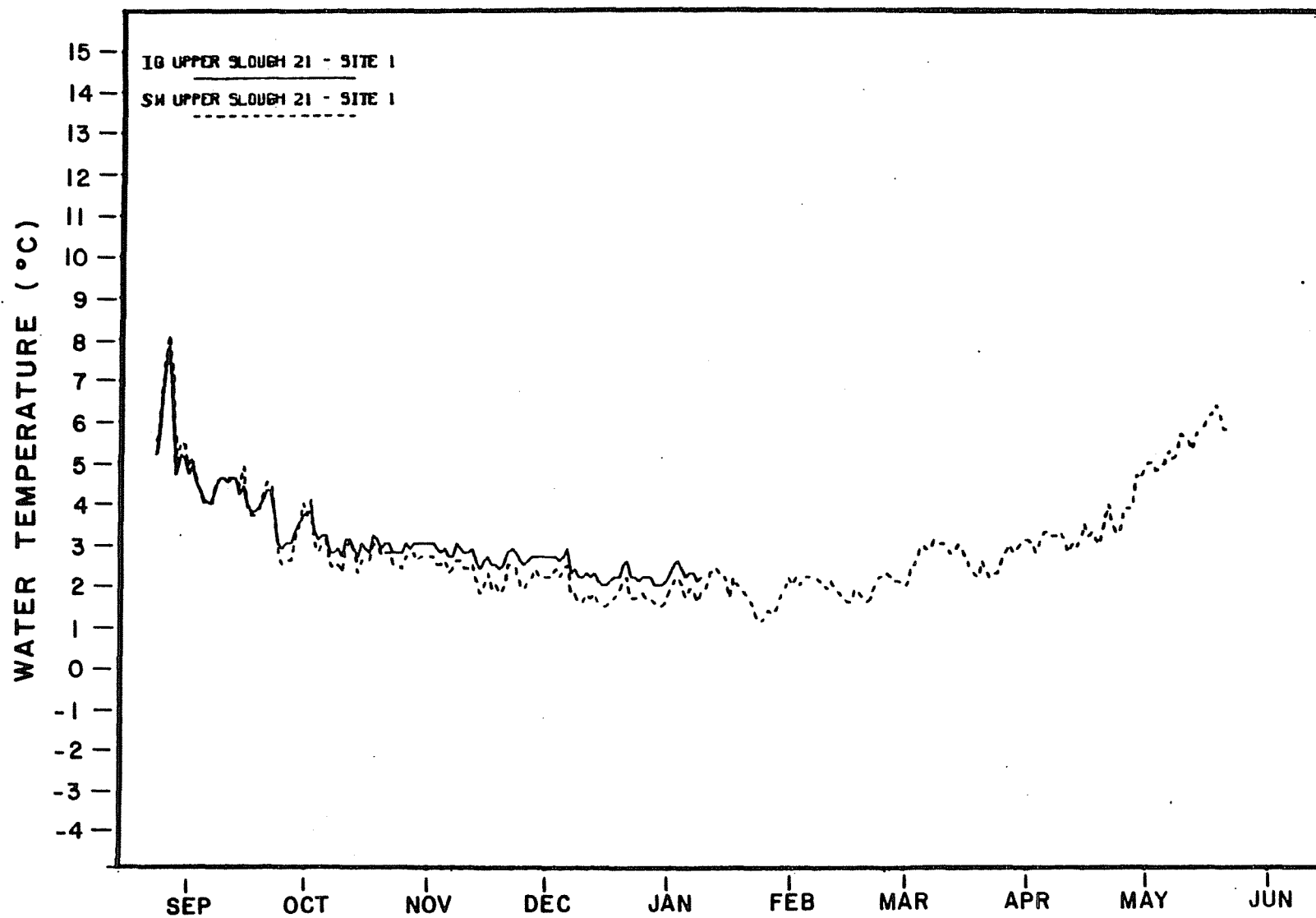


Figure A-23. Mean daily surface and intragravel water temperatures recorded at Upper Slough 21 - Site 1 (RM 142.0) during the 1983-84 winter season.

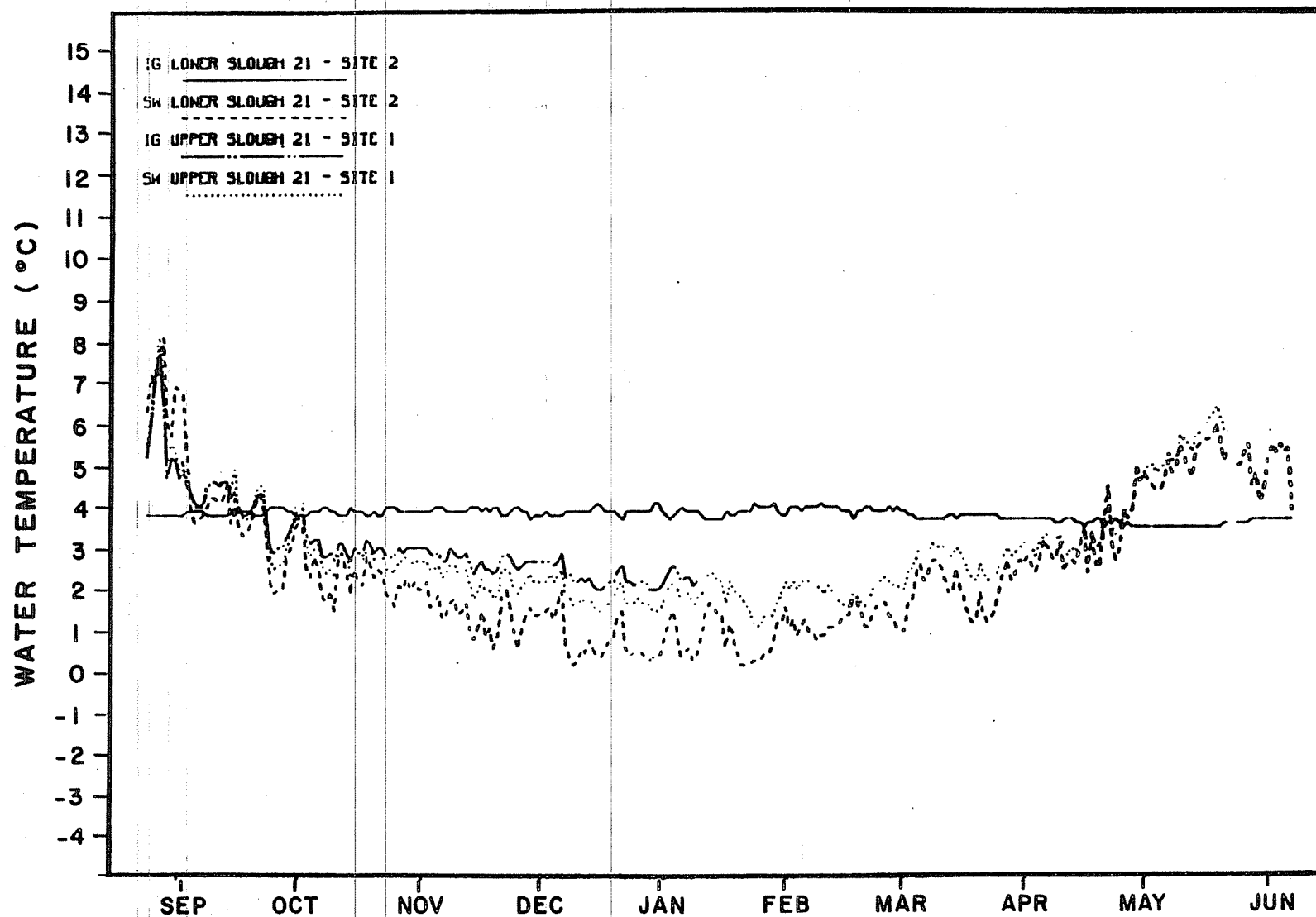


Figure A-24. Mean daily intragravel and surface water temperatures recorded at Lower Slough 21 - Site 2 (RM 141.8) and Upper Slough 21 - Site 1 (RM 142.0) during the 1983-84 winter season.

3.2.4 Tributary Habitats

3.2.4.1 Fourth of July Creek (RM 131.1; TRM 0.0)

Two datapod temperature recorder stations were installed in Fourth of July Creek at Sites 1 and 2. At Site 1 intragravel water temperatures were recorded at the mouth of the tributary and downstream of the tributary mouth in the clearwater plume. Temperatures were recorded at Site 1 from September 1 to May 31. Due to a malfunctioning recorder, data gaps occurred from January 28 to February 6, and from February 10 to March 11. Between October 27 and May 20, the temperature station located in the plume was observed frozen.

Surface and intragravel water temperatures were recorded in Fourth of July Creek at Site 2 from January 11 to May 31. This station was installed to monitor surface water temperatures in the creek, and to supplement the intragravel data from Site 1.

Daily and monthly minimum, mean and maximum temperatures recorded at Sites 1 and 2 in Fourth of July Creek are presented in Appendix Tables A-40 to A-42. Water year weekly temperatures are presented in Appendix Tables A-78 to A-80. Plots of the mean daily temperatures recorded at the sites are shown in Appendix Figures A-25 and A-26.

Intragravel temperatures recorded in the tributary and the plume were similar in September and October. However, plume temperatures appear to lag behind the creek temperatures. During this period intragravel

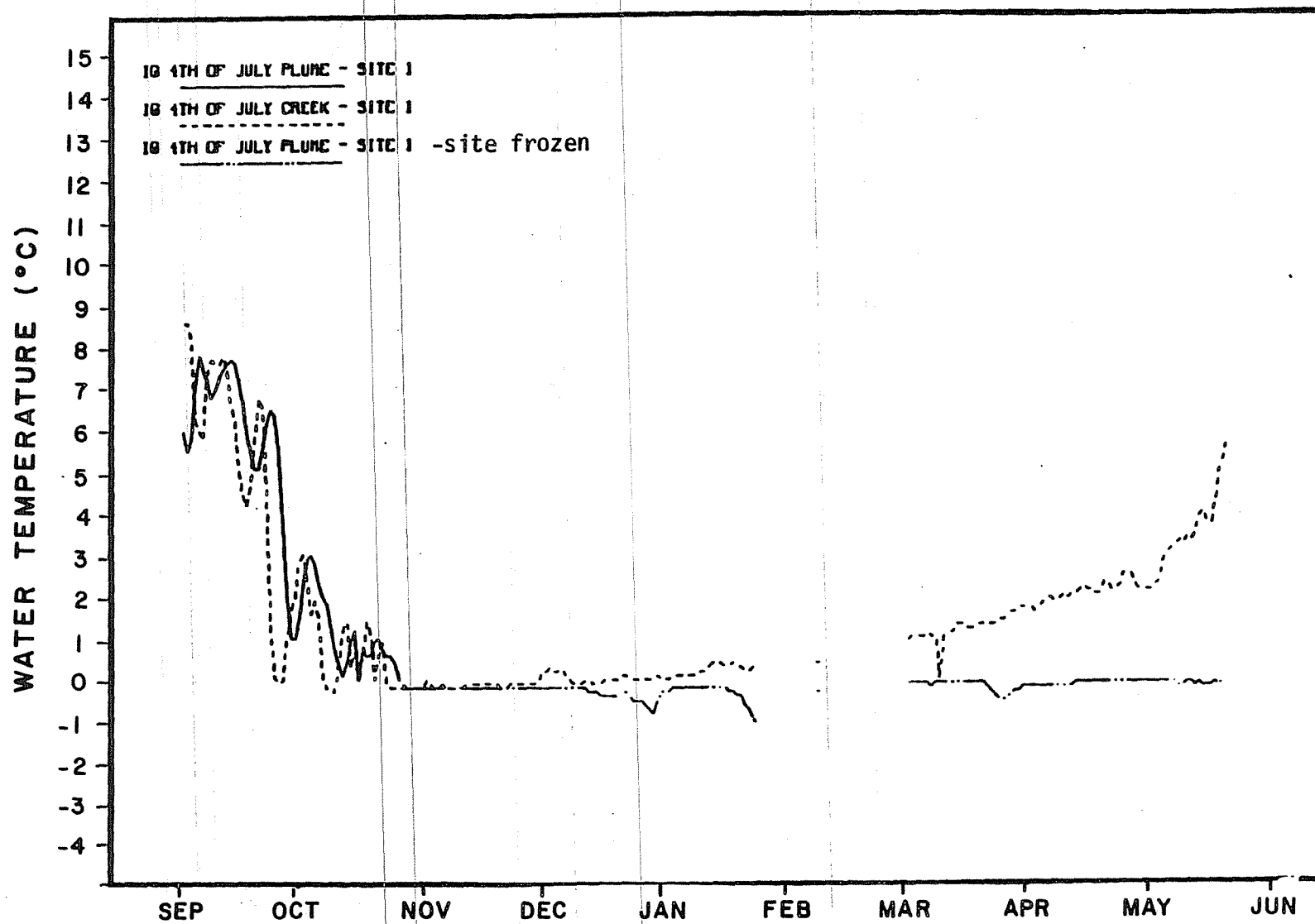


Figure A-25. Mean daily intragravel water temperatures recorded at Fourth of July Creek and Plume - Site 1 (RM 131.1) during the 1983-84 winter season.

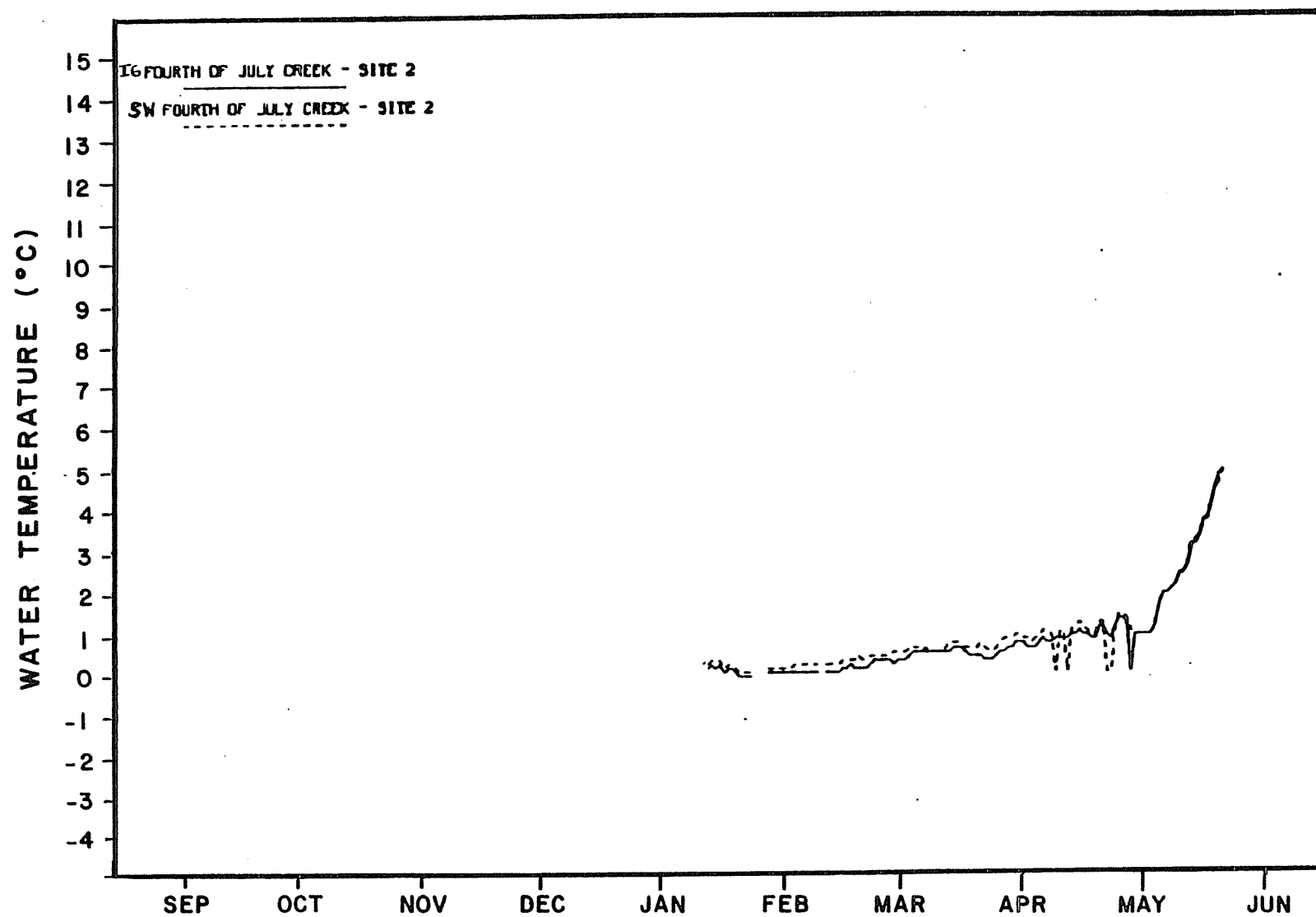


Figure A-26. Mean daily surface and intragravel water temperatures recorded at Fourth of July Creek - Site 2 (RM 131.1) during the 1983-84 winter season.

temperatures in the creek ranged from -0.3°C to 8.9°C while plume to temperatures varied from -0.2°C to 7.9°C . From October 27 to May 31 intragravel water temperatures in the creek ranged from -0.3°C to 8.9°C and intragravel temperatures in the plume ranged from -0.3°C to 6.2°C . During the period that the temperature station in the plume was frozen, temperature as low as -1.9°C were recorded.

Surface and intragravel temperatures recorded at the Site 2 station corresponded closely to each other. Surface water temperatures ranged from 0.1°C to 7.0°C and intragravel temperatures varied between -0.2°C to 6.7°C .

3.2.4.2 Indian River (RM 138.6; TRM 0.2)

Surface and intragravel water temperatures were obtained in Indian River at one location referred to as Site 3. Data were recorded from February 29 until April 25 when the recorder failed. Due to a malfunctioning probe surface water temperatures were not obtained until March 23. Daily and monthly minimum, mean and maximum temperatures recorded at Indian River are presented in Appendix Table A-43. Water year weekly temperatures are reported in Appendix Table A-81. A plot of mean daily temperatures recorded at the site is shown in Appendix Figure A-27.

Surface and intragravel temperatures at Indian River were relatively similar. Surface water temperatures ranged from -0.3°C to 4.3°C while intragravel temperatures varied between -0.2°C and 4.2°C .

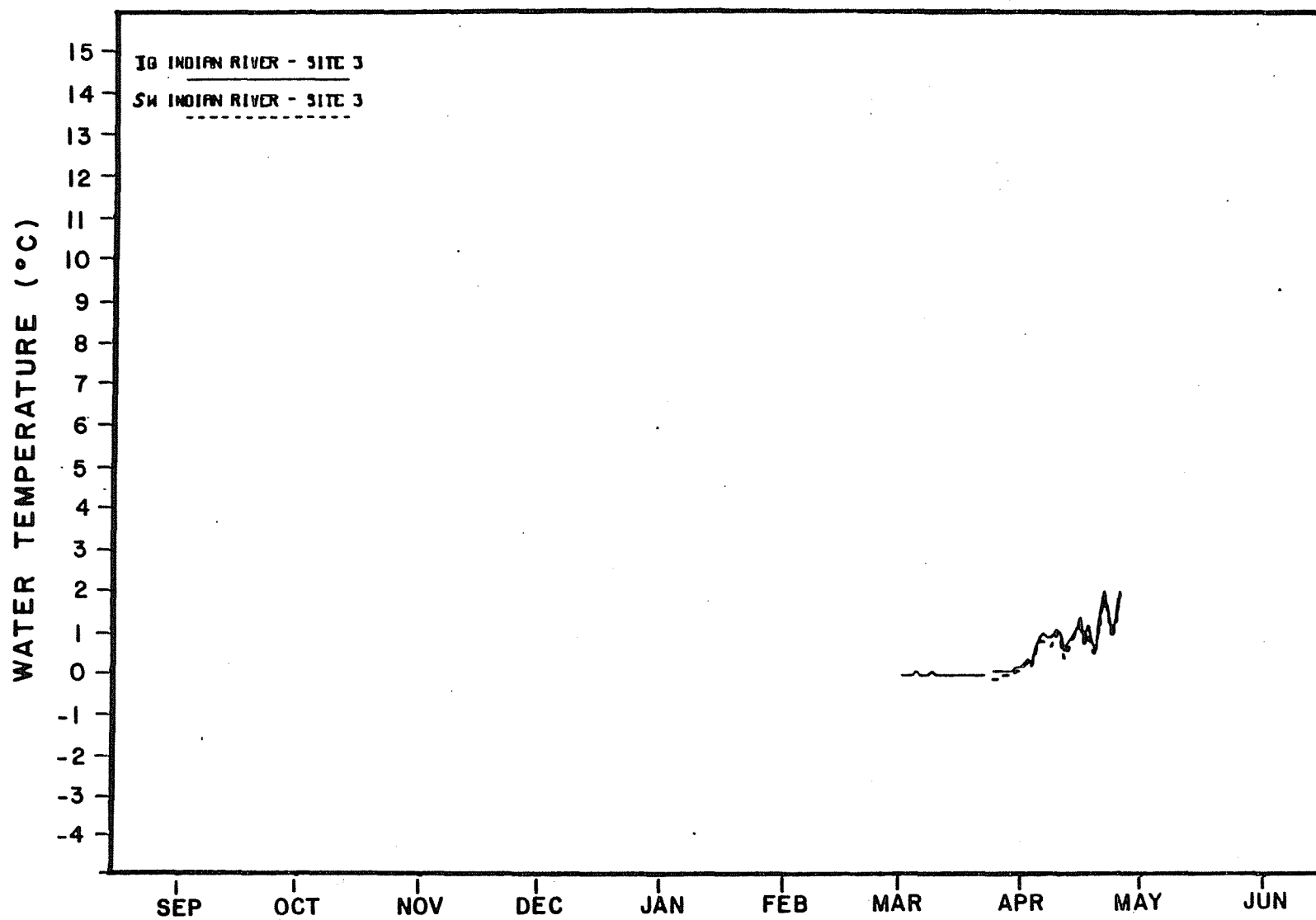


Figure A-27. Mean daily surface and intragravel water temperatures recorded at Indian River - Site 3 (RM 138.6, TRM 0.2) during the 1983-84 winter season.

3.3 Objective 3: Preliminary Mitigation Evaluation

Continuous surface water temperatures were recorded at Deadhorse Creek to evaluate the feasibility of using the tributary as a water source for possible mitigative activities.

3.3.1 Deadhorse Creek (RM 120.9; TRM 1.0)

Surface water temperatures were recorded at one location in Deadhorse Creek using a Peabody-Ryan temperature recorder from December 22 through May 31. Daily and monthly minimum, mean and maximum temperatures are presented in Appendix Table A-39. Water year weekly temperatures are listed in Appendix Table A-77. A plot of daily minimum, mean and maximum temperatures is shown in Appendix Figure A-28.

Between December 22 and March 31 surface water temperatures in Deadhorse Creek ranged from 0.0°C to 0.5°C. Daily fluctuations in surface water temperatures were not observed until mid-April corresponding to increases in temperature. Between April 1 and May 31 surface water temperatures ranged between 0.5°C to 5.5°C.

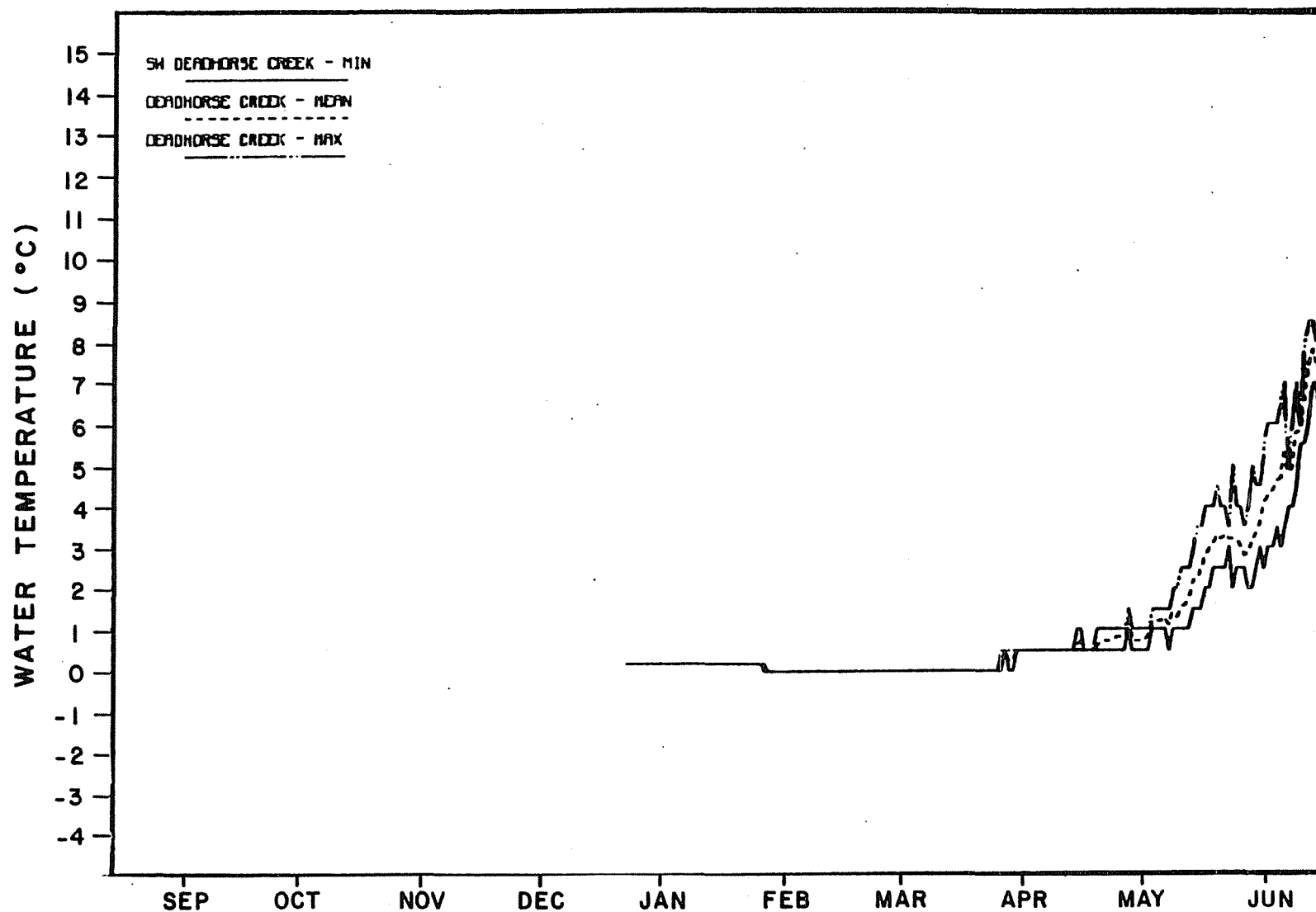


Figure A-28. Minimum, mean, and maximum daily surface water temperatures recorded at Deadhorse Creek (RM 120.9, TRM 1.0) during the 1983-84 winter season.

3.4 Habitat Relationships

3.4.1 Mainstem Habitat Relationships

3.4.1.1 Surface Water Temperatures at LRX 9 (RM 103.2), LRX 29 (RM 126.1) and LRX 57 (RM 142.3)

A plot of the mean daily surface water temperatures recorded at the mainstem temperature stations located at LRX 9, LRX 29, and LRX 57 is presented in Appendix Figure A-29. A comparison of data recorded during the entire winter season cannot be made due to gaps in the data. However, the available data indicate that surface water temperatures at these three stations were similar from mid-August to late-March.

During the September and October surface temperatures at all three stations generally declined to near 0.0°C. At LRX 29, surface temperatures remained near 0.0°C until April 21 when the recorder failed. Temperatures at LRX 57 did not increase until mid-May. At LRX 9, temperatures near 0.0°C were recorded until January when the recorder failed. When the new probe was installed in an open lead on February 8, surface temperatures as high as 2.4°C were recorded before the temperatures decreased to approximately 0.0°C. Temperatures at the site remained near 0.0°C through March. Temperatures as high as 4.9°C were recorded at LRX 9 in April. In early May, surface temperatures at the site again decreased to 0.0°C and then increased rapidly.

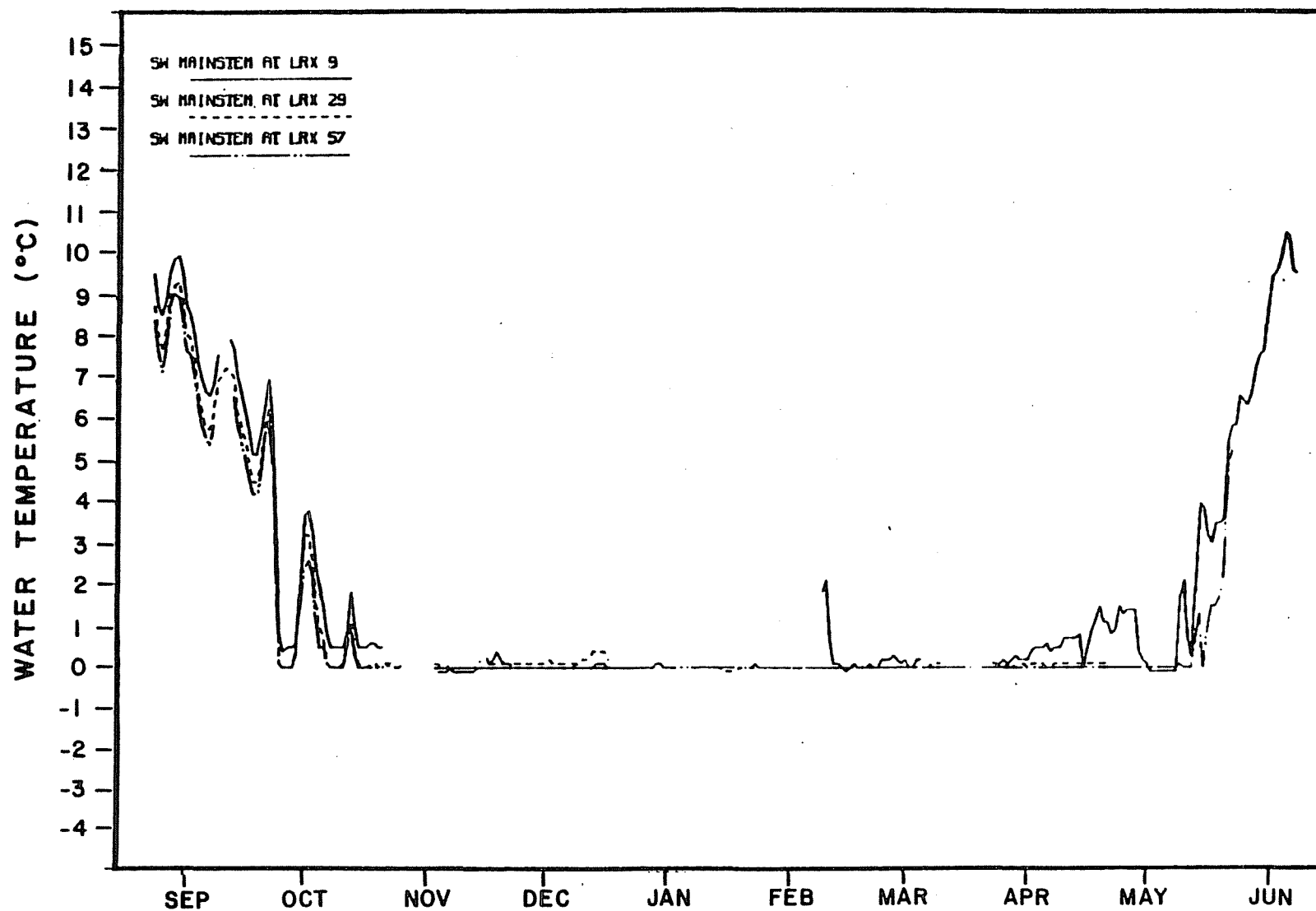


Figure A-29. Mean daily surface water temperatures recorded at Mainstem Susitna River at LRX 9 (RM 103.2), LRX 29 (RM 126.1), and LRX 57 (RM 142.3) during the 1983-84 winter season.

3.4.1.2 Intragravel Temperatures at LRX 9 (RM 103.2), LRX 29 (RM 126.1), and LRX 57 (RM 142.3)

A comparison of intragravel water temperatures recorded at LRX 9 (RM 103.2), LRX 29 (RM 126.1), and LRX 57 (RM 142.3) is illustrated in Figure A-30.

Intragravel temperatures recorded at the three sites are similar until mid-October when temperatures at LRX 57 increased from approximately 0.5°C to 3.5°C. Temperature values near 3.5°C were recorded at LRX 57 through mid-May when increased temperatures were observed. From October 1 through December 23, when the recorder failed, mean daily intragravel temperatures at LRX 9 varied between 0.0°C and 3.0°C. From February 8 through May 31 mean daily intragravel temperatures at the reinstalled LRX 9 site ranged from 2.7 to 3.6°C. Between October 1 and December 17, when the recorder failed, mean daily intragravel temperatures at LRX 29 ranged from 0.7°C to 3.1°C. Between March 5 and April 21, intragravel temperatures near 0.0°C were recorded at the LRX 29 site.

3.4.2 Side Channel Habitat Relationships

3.4.2.1 Surface Water Temperatures at Side Channels 10 (RM 134.0), Upper 11 (RM 136.3), and 21 (RM 141.0)

Mean daily surface water temperatures recorded at Side Channel 10, Upper Side Channel 11, and Side Channel 21 are shown in Appendix Figure A-31. Between late August and early November intragravel temperatures in

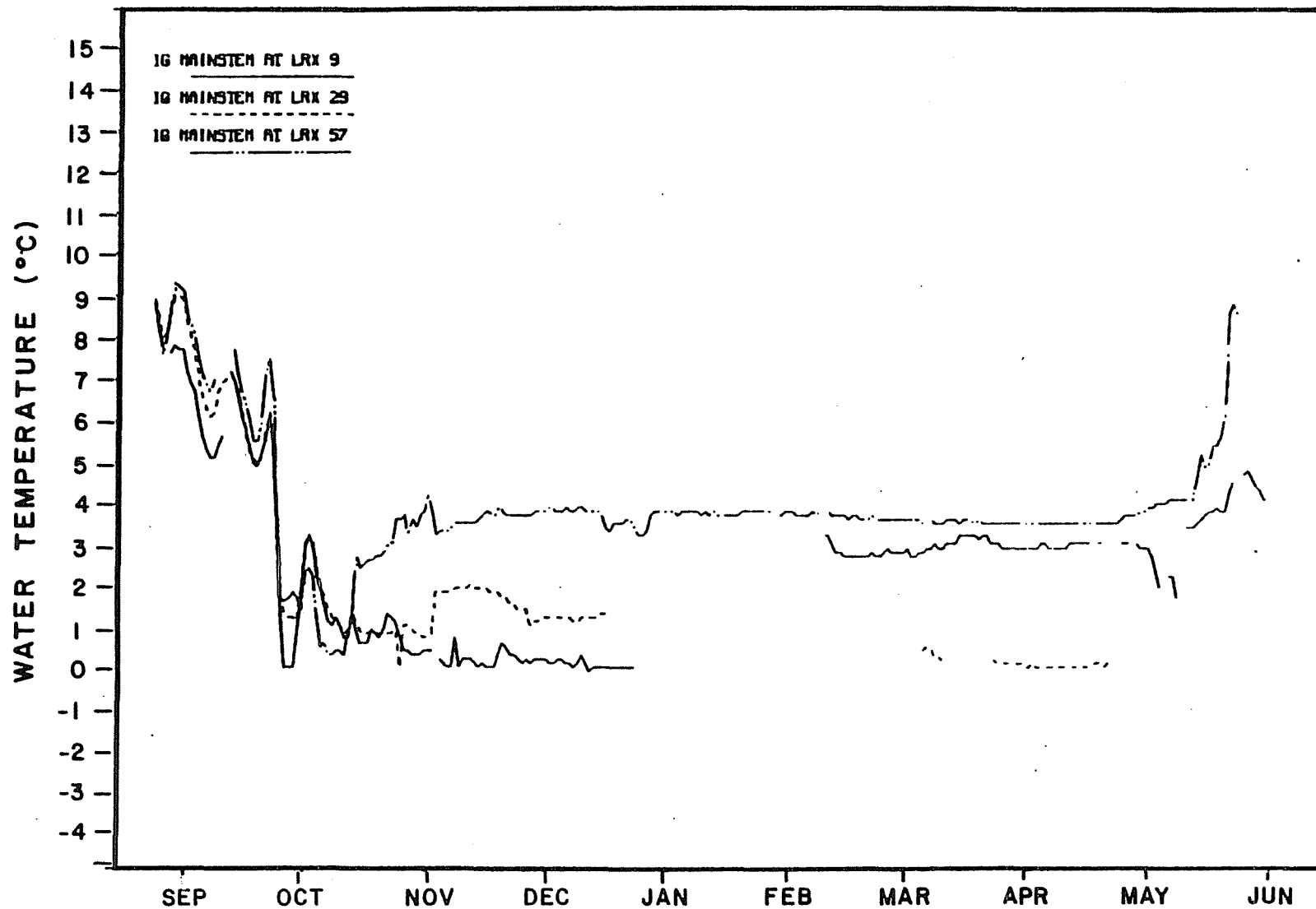


Figure A-30. Mean daily intragravel water temperatures recorded at Mainstem Susitna River at LRX 9 (RM 103.2), LRX 29 (RM 126.1) and LRX 57 (RM 142.3) during the 1983-84 winter season.

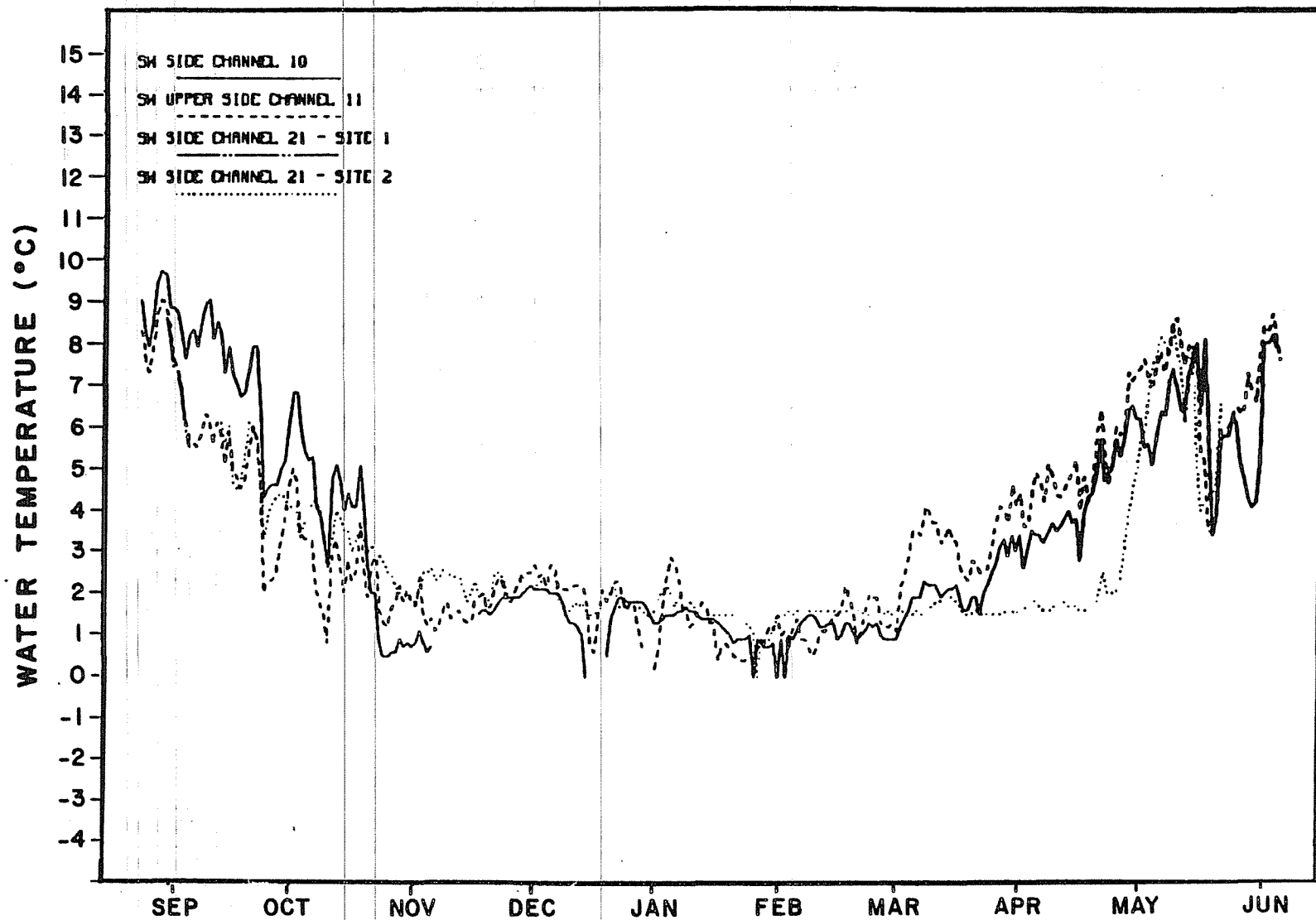


Figure A-31. Mean daily surface water temperatures recorded at Side Channel 10 (RM 134.0), Upper Side Channel 11 - Site 2 (RM 136.1), and Side Channel 21 - Sites 1 and 2 (RM 141.0) during the 1983-84 winter season.

general were decreasing at all three sites. During the time period, warmest temperatures and largest temperature fluctuations were recorded at Side Channel 10. Overall coolest temperatures were recorded at Upper Side Channel 11. Side Channel 21 exhibited the least variation in temperatures through early November.

Between November 1 and March 1, temperature variations at all three locations were minimal. However at Upper Side Channel 11, mean daily temperatures did vary between 0.4 and 2.9°C. Surface water temperatures at Side Channel 10 and Upper Side Channel 11 began to increase in March. At Side Channel 21 surface water temperatures remained near 1.5°C until late April when sharp increases were observed. Temperatures at all three sites decreased to approximately 3.5-4.0°C in late May and then increased.

3.4.2.2 Intragravel Temperatures at Side Channels 10 (RM 134.0), Upper 11 (RM 136.3), and 21 (RM 141.0)

A comparison of intragravel water temperatures recorded at Side Channels 10, Upper 11 and 21 is presented in Appendix Figure A-32. Overall temperatures at Upper Side Channel 11 were warmer and fluctuated more than those recorded at the other side channels. Temperatures at Side Channel 10 were stable especially between February and May when mean daily temperatures remained near 3.3°C. By November 3, intragravel temperatures at Side Channel 21 had increased from 1.7°C to 3.0°C temperatures remained near 2.5°C to 3.0°C through early January when the probe malfunctioned.

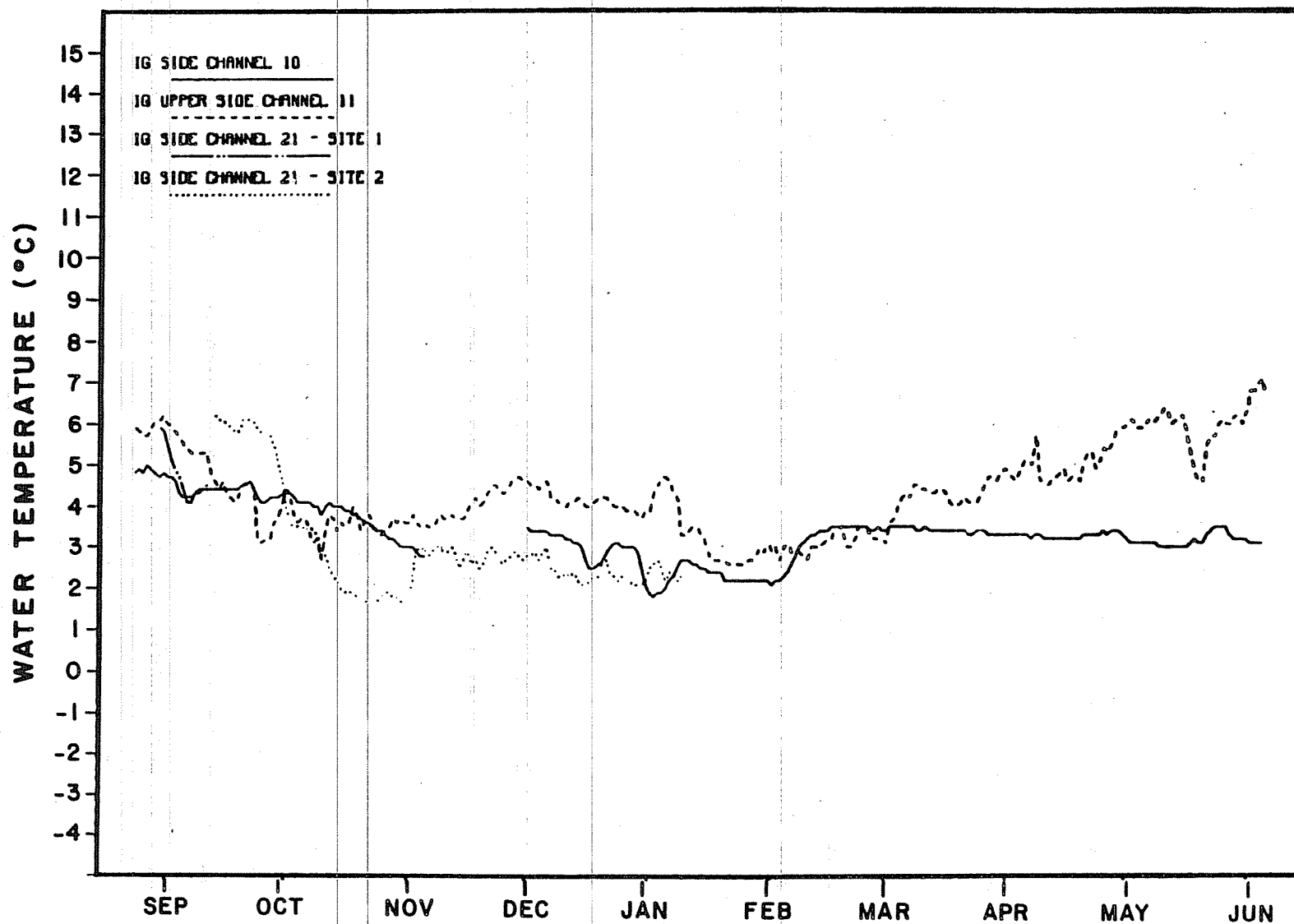


Figure A-32. Mean daily intragravel water temperatures recorded at Side Channel 10 (RM 134.0), Upper Side Channel 11 - Site 2 (RM 136.1), and Side Channel 21 - Sites 1 and 2 (RM 141.0) during the 1983-84 winter season.

3.4.3 Slough Habitat Relationships

3.4.3.1 Surface Water Temperatures at Side Sloughs 8A (RM 126.6), 9 (RM 128.3), 11 (RM 135.7), 21 (RM 142.0)

A comparison of surface water temperatures recorded at Upper Slough 8A, Slough 9, Slough 11 and Upper Slough 21 is shown in Appendix Figure A-33. Because mean daily data is available from Upper Slough 8A only between December 21 and March 5, it is difficult to compare temperatures recorded at the site to those from other locations.

Generally temperatures recorded at the sites exhibited a similar trend. By early November mean daily surface water temperatures at Sloughs 9, 11, and 21 had decreased to approximately 1.4°C, 2.0°C, and 2.3°C respectively. Similar temperatures were recorded at the monitoring stations through February. Surface water temperatures at Upper Slough 8A generally were warmer. Mean daily surface water temperatures as high as 3.5°C were recorded at Upper Slough 8A in January.

Between March 1 and May 31 temperatures increased overall. However, temperatures at Slough 11 increased more rapidly than the temperatures at other locations. By May 21 mean daily temperatures as high as 7.6°C were recorded at Slough 11 while temperatures recorded at Slough 9 and 21 were approximately 6.1°C and 5.8°C respectively.

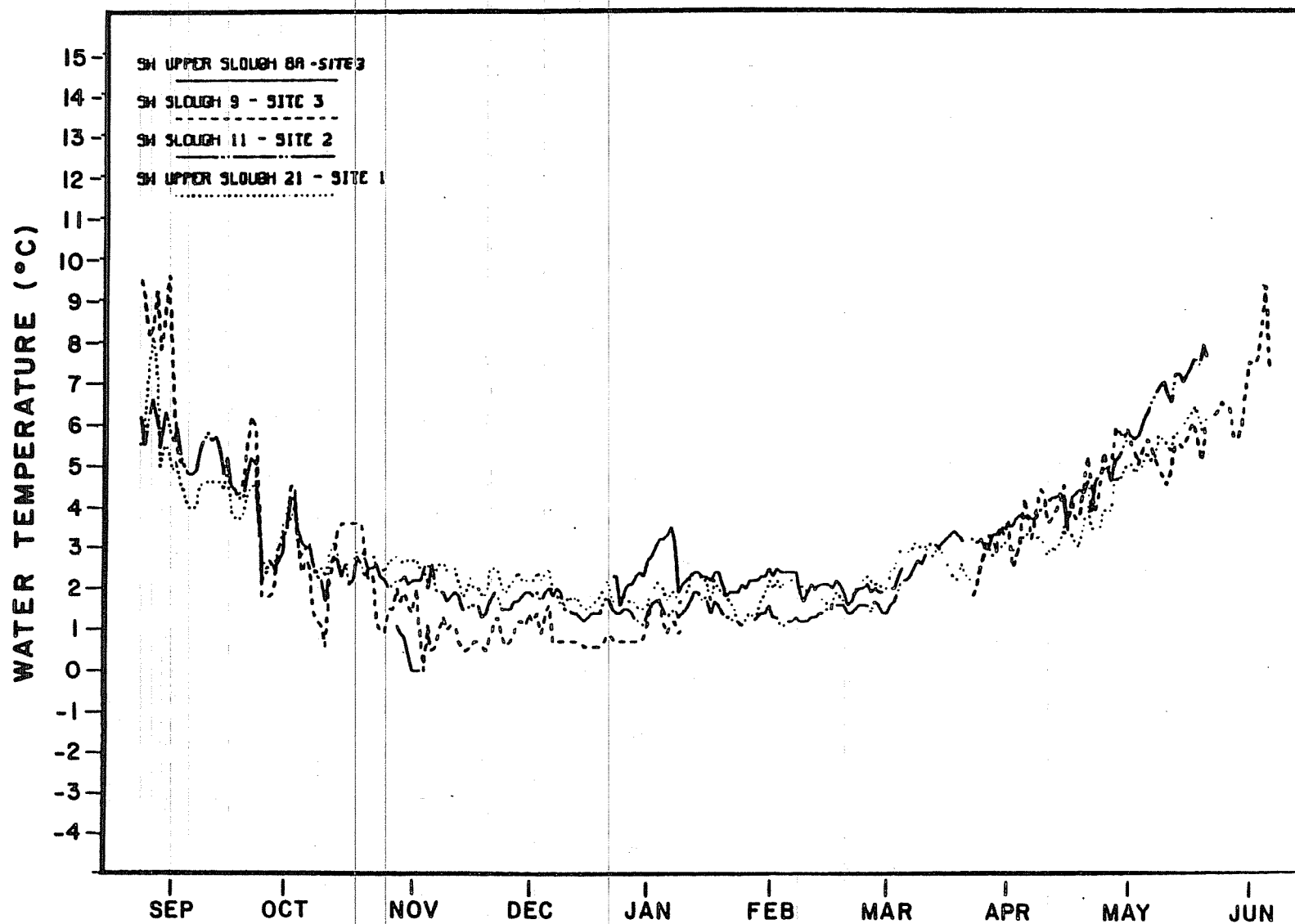


Figure A-33. Mean daily surface water temperatures recorded at Upper Slough 8A - Site 3 (RM 126.6), Slough 9 - Site 3 (RM 128.3), Slough 11 - Site 2 (RM 135.7) and Upper Slough 21 - Site 1 (RM 142.0) during the 1983-84 winter season.

3.4.3.2 Intragravel Water Temperatures at Side Sloughs 8A (RM 126.6), 9 (RM 128.3), 11 (RM 135.7) and 21 (RM 142.0)

Mean daily intragravel temperatures recorded at Upper Slough 8A (RM 126.6), Slough 9 (RM 128.6), Slough 11 (RM 135.7) and Upper Slough 21 (RM 142.0) are compared in Appendix Figure A-34. A complete data record is available for Slough 11 only making direct comparisons difficult.

The greatest variations in temperature were observed at Upper Slough 21. Between August 24 and October 1 mean daily intragravel temperatures at the site ranged from 2.0°C to 7.1°C. However between October 1 and January 9, when the probe failed, mean daily surface water temperatures varied only from 2.0°C to 3.8°C. In general the temperatures recorded at Upper Slough 8A, Slough 9 and Slough 11 were stable. Mean temperatures at Upper Slough 8A between December 21 and May 22 varied from 1.9°C to 3.5°C. From August 24 to May 31, intragravel temperatures at Slough 9 ranged from 3.1°C to 3.7°C. Mean daily intragravel temperatures recorded at Slough 11 from August 24 through May 31 ranged from 3.1°C to 4.3°C.

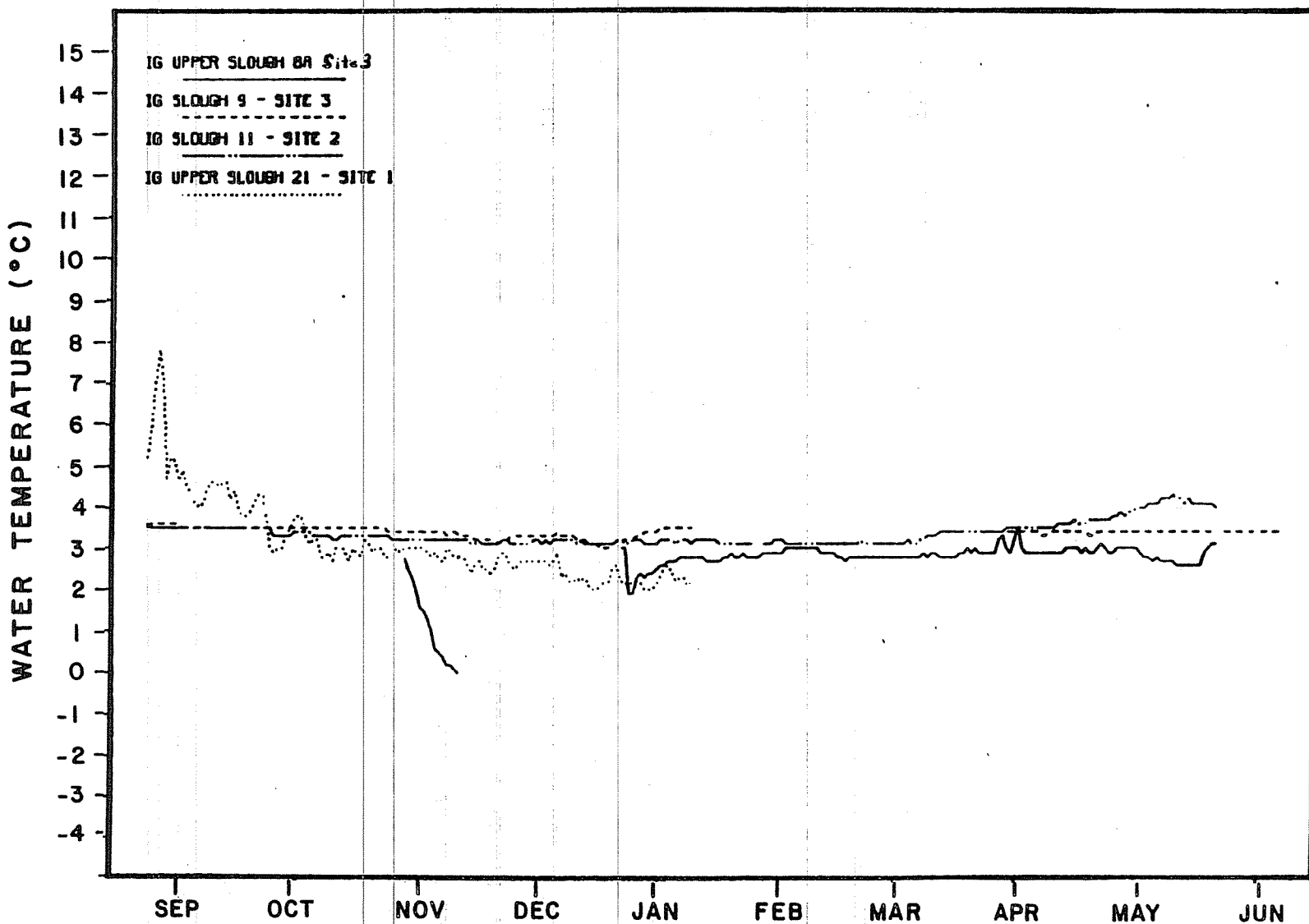


Figure A-34. Mean daily intragravel water temperatures recorded at Upper Slough 8A - Site 3 (RM 126.6), Slough 9 - Site 3 (RM 128.3), Slough 11 - Site 2 (RM 135.7) and Upper Slough 21 - Site 1 (RM 142.0) during the 1983-84 winter season.

3.4.4 Interhabitat Relationships

3.4.4.1 Slough 8A (RM 125.6, 126.6) and Susitna River at LRX 29 (RM 126.1)

Temperatures recorded at Slough 8A (upper and lower sections) and at the Susitna River at LRX 29 were compared to determine possible relationships between the habitat types (Appendix Figures A-35, A-36). Because the periods of record for each site are incomplete, direct comparisons are not possible for the entire season. In general intragravel temperatures recorded at Lower Slough 8A and mainstem Susitna River at LRX 29 were similar from September through February. In March surface temperatures in Lower Slough 8A began to increase rapidly. Mainstem surface temperatures remained near zero through mid-April when the recorder malfunctioned. The small amount of data collected in the upper portion of the slough indicate that surface temperatures at this site are not directly comparable to those recorded in the lower section of slough or in the mainstem.

Again the intragravel temperature data records for Slough 8A and mainstem Susitna River at LRX 29 are incomplete. Figure A-36 shows that between early September and late October intragravel temperatures at Lower Slough 8A and the mainstem Susitna River were similar. Throughout the rest of the winter season, no similarities were found between the intragravel data recorded in the slough and the mainstem.

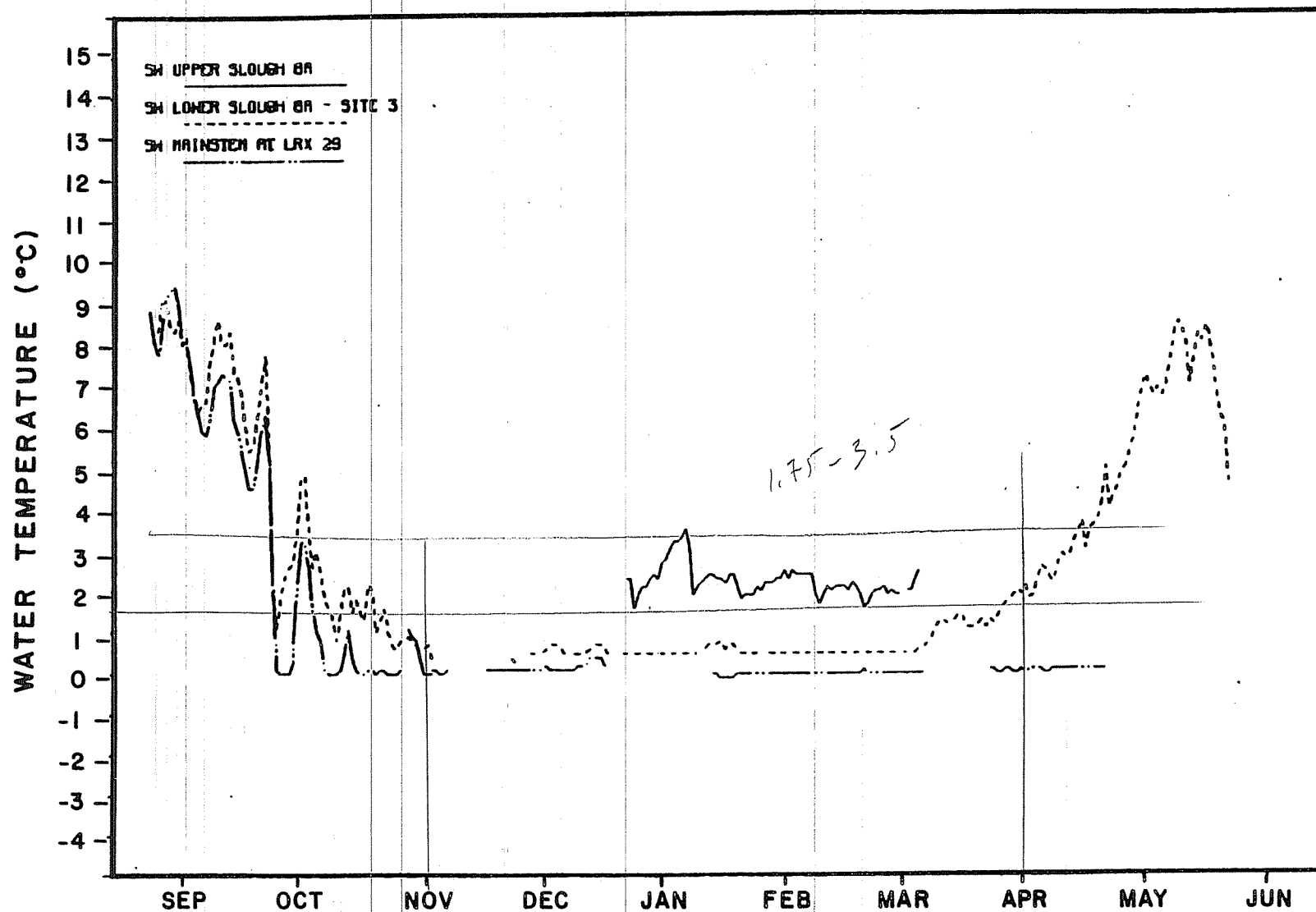


Figure A-35. Mean daily surface water temperatures recorded at Upper Slough 8A - Site 3 (RM 126.6), Lower Slough 8A - Site 3 (RM 125.6) and Mainstem Susitna River at LRX 29 Sites 1 and 2 (RM 126.1) during the 1983-84 winter season.

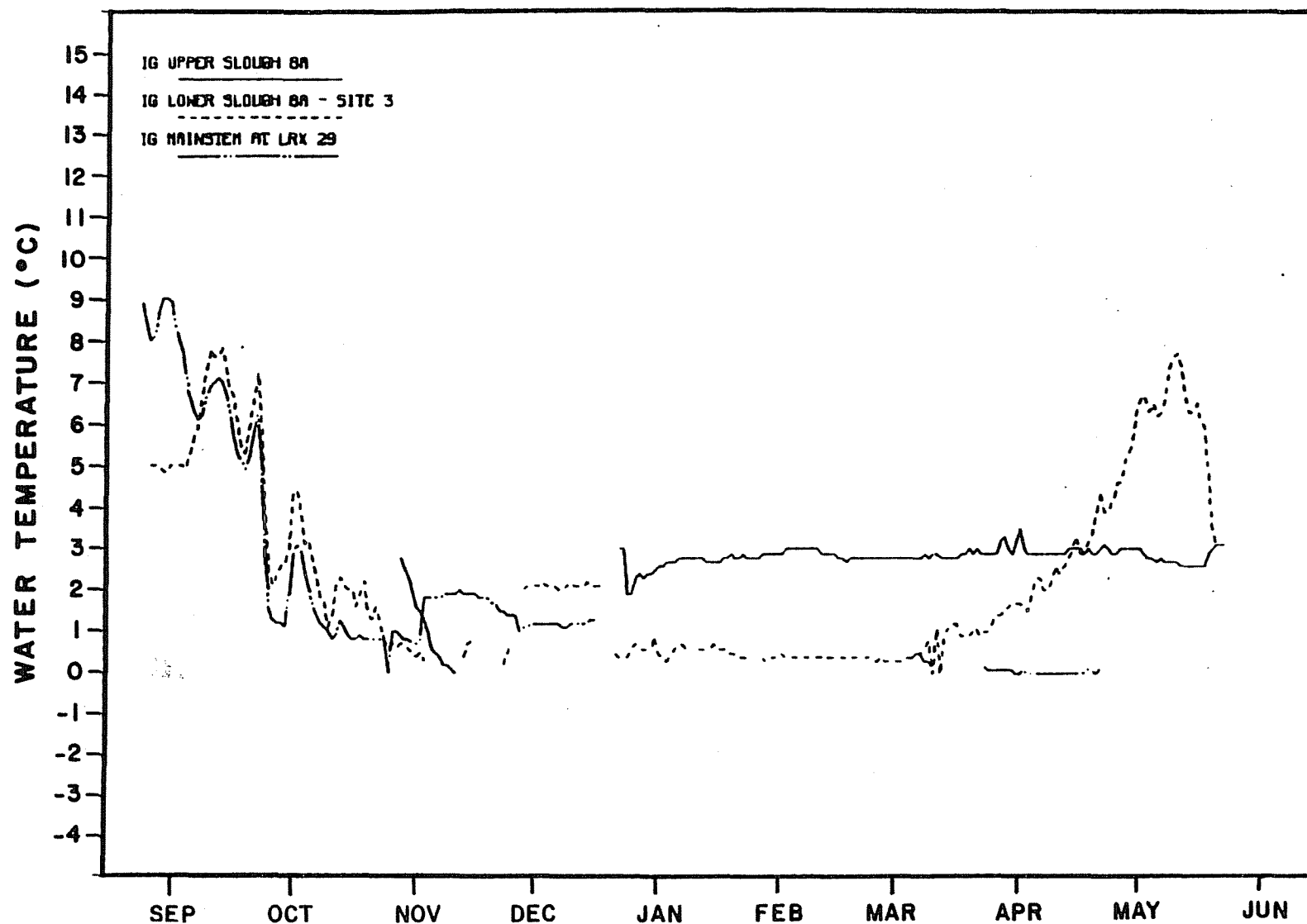


Figure A-36. Mean daily intragravel water temperatures recorded at Upper Slough 8A - Site 3 (RM 126.6), Lower Slough 9A - Site 3 (RM 125.6), and Mainstem Susitna River at LRX 29 - Sites 1 and 2 (RM 126.1) during the 1983-84 winter season.

3.4.4.2 Upper Side Channel 11 (RM 136.3) and Slough 11 (RM 135.7)

A comparison of surface and intragravel temperatures recorded in Upper Side Channel 11 and Slough 11 was made to determine similarities or differences between habitat types. The overall surface water temperature trends observed in Slough 11 and Upper Side Channel 11 are similar. However, a wider range of temperatures and greater fluctuations in temperature were shown in Upper Side Channel 11. For example, a dramatic decrease in temperatures which occurred in mid-May at Upper Side Channel 11 was not observed in Slough 11 (Appendix Figure A-37).

The mean daily intragravel water temperatures recorded at Upper Side Channel 11 and Slough 11 are shown in Appendix Figure A-38. Intragravel water temperatures at Slough 11 were stable throughout the recording period while intragravel temperatures at Upper Side Channel 11 were variable. From September through May mean daily intragravel temperatures at Slough 11 ranged from 3.1°C to 4.3°C. Mean daily intragravel temperatures at open Side Channel 11 ranged from 2.4°C to 6.3°C.

3.4.4.3 Slough 21 (RM 141.8, 142.0), Side Channel 21 (RM 141.0) and Susitna River at LRX 57 (RM 142.3)

A comparison of temperatures recorded in Slough 21, Side Channel 21, and mainstem Susitna River at LRX 57 was made to examine similarities among the temperatures occurring at the sites. Appendix Figure A-39 shows

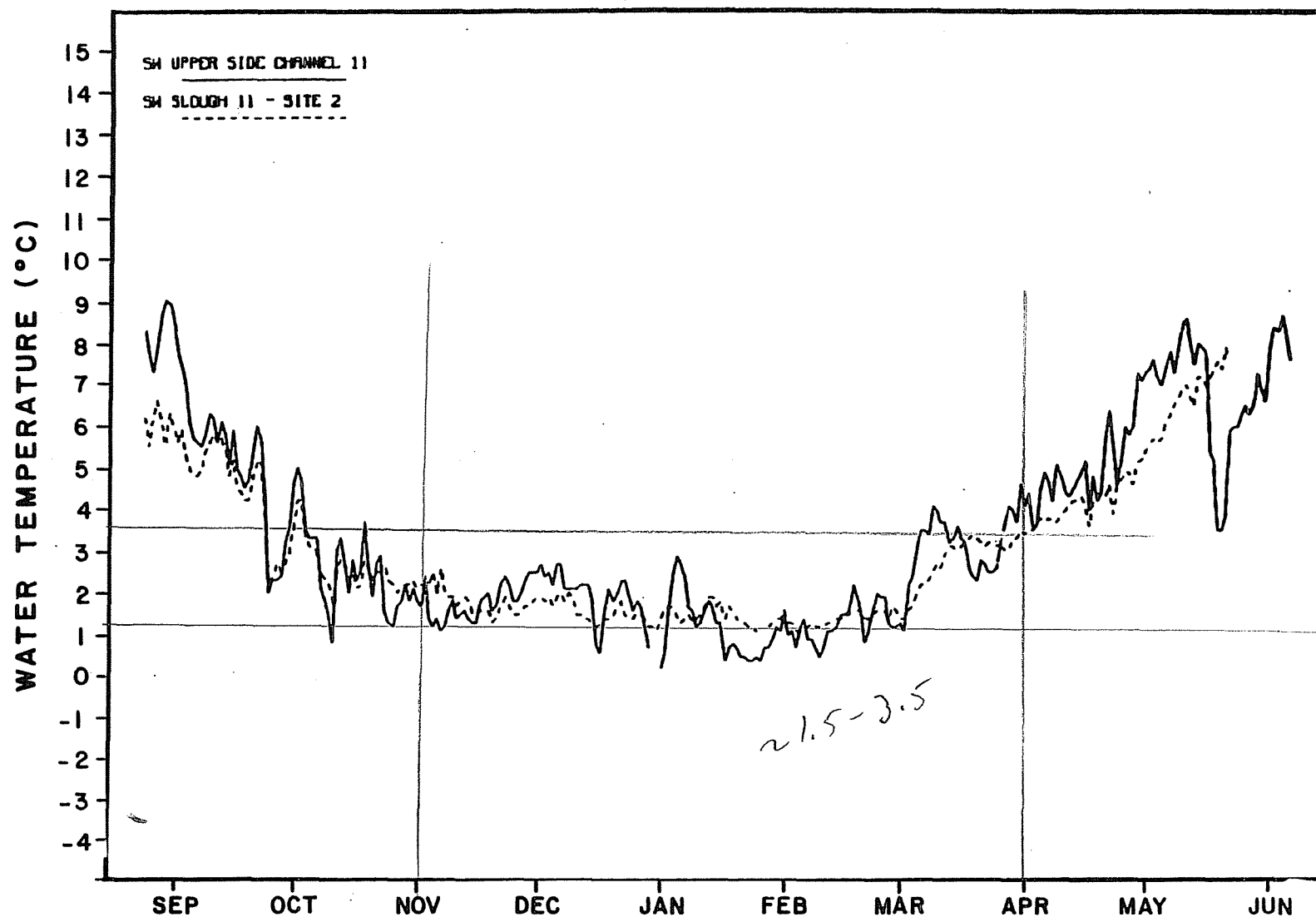


Figure A-37. Mean daily surface water temperatures recorded at Upper Side Channel 11 - Sites 1 and 2 (RM 136.3) and Slough 11 - Site 2 (RM 135.7) during the 1983-84 winter season.

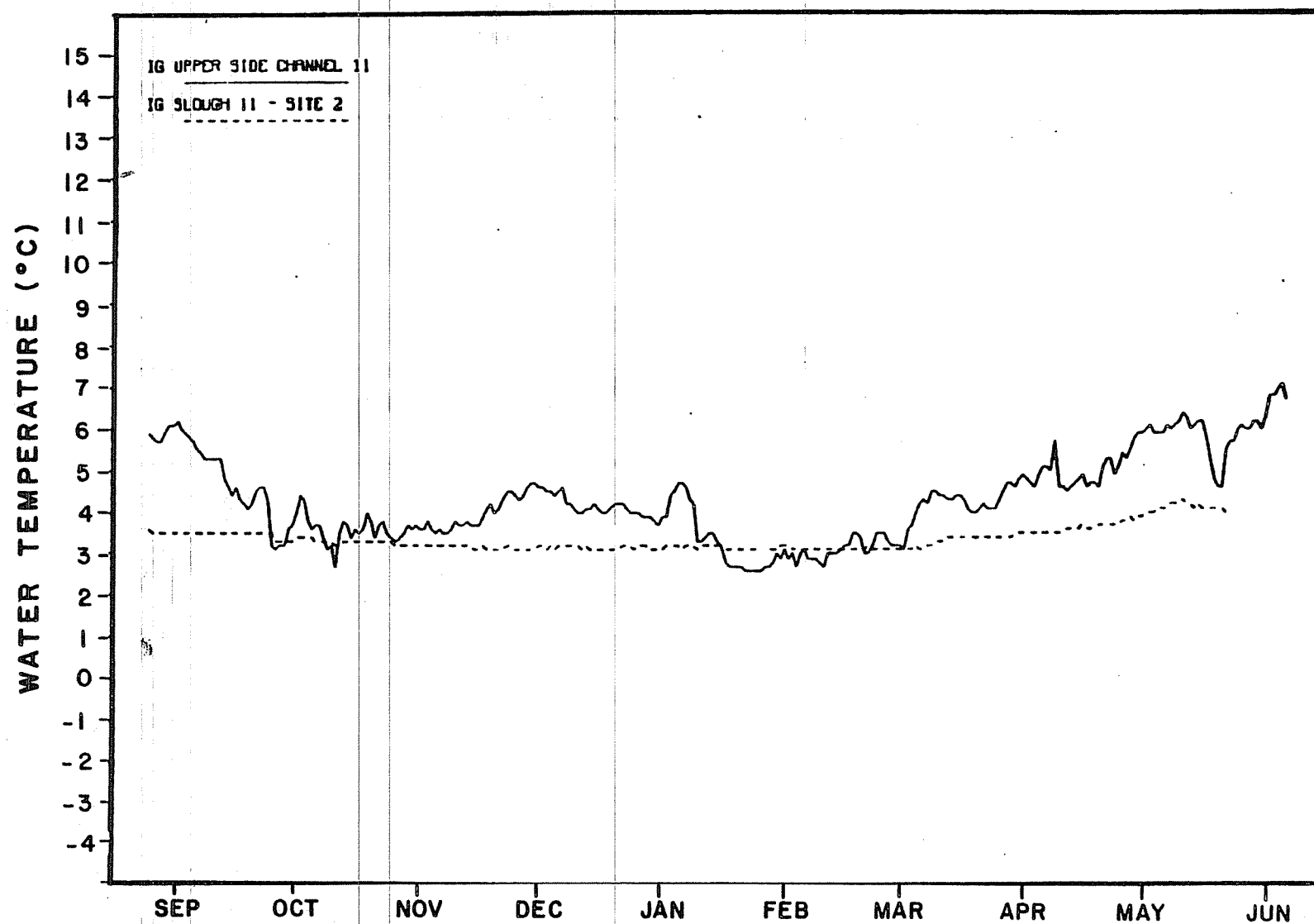


Figure A-38. Mean daily intragravel water temperatures recorded at Upper Side Channel 11 - Sites 1 and 2 (RM 136.3) and Slough 11 - Site 2 (RM 135.7) during the 1983-84 winter season.

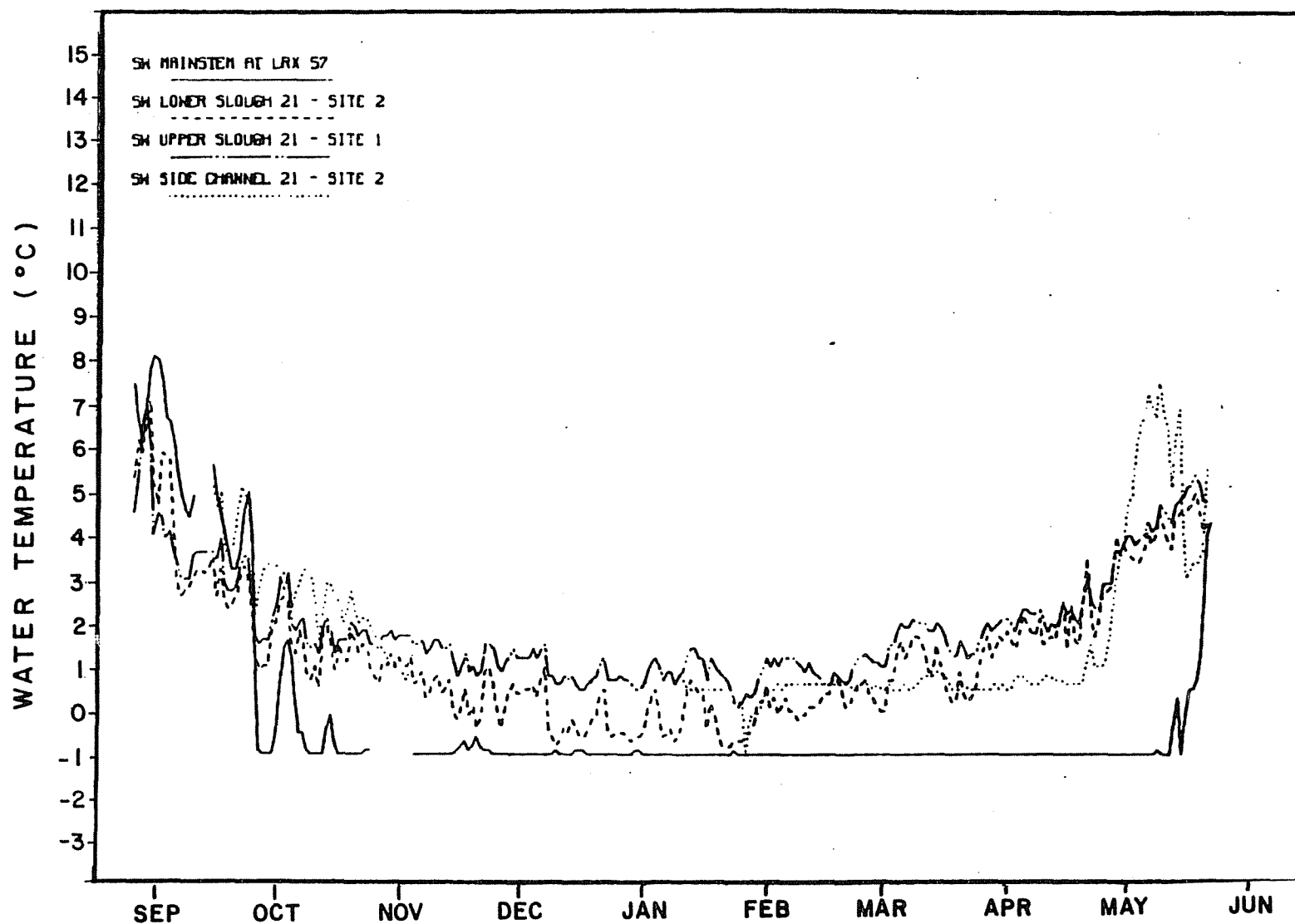


Figure A-39. Mean daily surface water temperatures recorded at the Mainstem Susitna River at LRX 57 - Sites 1 and 2 (RM 142.3), Lower Slough 21 - Site 2 (RM 141.8), Upper Slough 21 - Site 1 (RM 142.0) and Side Channel 21 - Site 2 (RM 141.0) during the 1983-84 winter season.

that in general surface water temperatures at all sites were decreasing through September. By mid-October, mainstem surface water temperatures at LRX 57 had decreased to near 0.0°C. Surface temperatures at the site (LRX 57) remained near 0.0°C through early May when sharp increases in temperature were observed. From September through May the most similar temperatures occurred in the upper and lower sections of Slough 21. However, from November to May, surface water temperatures in the lower section of the slough were cooler than those recorded in the upper section. Due to a failed recorder, temperatures in the side channel were not recorded from November to early January. From January through May surface water temperatures recorded in Side Channel 21 were not comparable to those recorded at any of the other sites.

Intragravel temperatures recorded in the slough, side channel and mainstem at LRX 57 are presented in Appendix Figure 40. Due to failed recorders, intragravel temperatures were recorded at Side Channel 21 - Site 2 and Upper Slough 21 only from September through mid-January. Intragravel temperatures recorded at Side Channel 21 - Site 3 were not plotted because the site was probably frozen until early May. In September and October, intragravel temperatures at all sites were dissimilar.

From early November to mid-January, when the recorders malfunctioned, intragravel temperatures at Upper Slough 21 and Side Channel 21 were extremely similar. From November through April, intragravel temperatures at Lower Slough 21 and the mainstem Susitna River at LRX 57

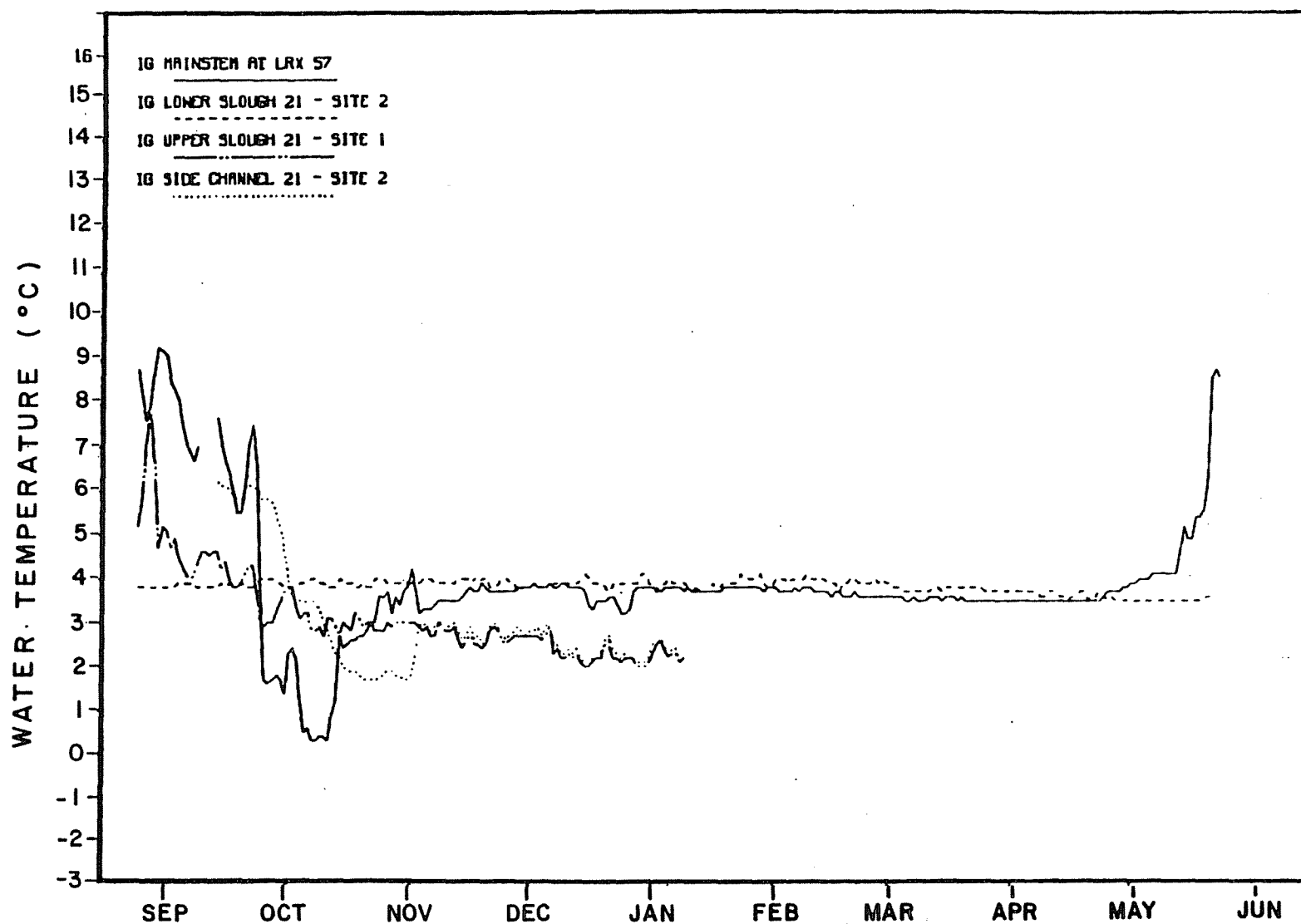


Figure A-40. Mean daily intragravel water temperatures recorded at the Mainstem Susitna River at LRX 57 - Sites 1 and 2 (RM 142.3), Lower Slough 21 - Site 2 (RM 141.8), Upper Slough 21 - Site 1 (RM 142.0) and Side Channel 21 - Site 2 (RM 141.0) during the 1983-84 winter season.

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were stable and similar. Intragravel temperatures of approximately 3.5°C were recorded at both sites during this time. In early May mainstem intragravel temperatures increased sharply while temperatures on the lower portion of the slough remained near 3.5°C.

4.0 DISCUSSION

A discussion of the results of the 1983-84 winter temperature studies is presented by study objective. Discussions of the temperature data as applied to modelling, effects on biological activity, and impact analyses are addressed in the body of this report and in other reports.

4.1 Objective 1: Mainstem Temperature Evaluation

During the 1983-84 winter season surface and intragravel water temperatures were recorded at sites located at LRX 9 (RM 103.2), LRX 29 (RM 126.1) and LRX 57 (RM 142.3). Similar surface water temperature patterns were exhibited at all of the mainstem locations except LRX 9 - Site 3. Generally, surface water temperatures decreased to approximately 0°C by October, and remained near 0°C through May when temperatures increased. However, surface water temperatures near 2.0°C were recorded at LRX 9 - Site 3 for approximately two days following the installation of the intragravel and surface water probes at the site on February 8. Temperatures at the site decreased to 0°C by February 12, and remained stable through March. Beginning in April temperatures recorded at the site were again warmer and more variable than the surface temperatures recorded at the LRX 29 and LRX 57 locations. The warmer surface temperatures occurring at LRX 9 - Site 3 may be the result of groundwater upwelling which was also reflected in the increased intragravel temperatures which were recorded at the site.

From August through early October, intragravel temperatures recorded at the mainstem sites at LRX 9, LRX 29, and LRX 57 are similar. However, from mid-October through May intragravel temperatures at the stations were dissimilar. Often temperature differences were observed within the habitat location when a new probe (or site) was installed within a monitoring location. The temperature differences can probably be attributed to the variable groundwater influences and the effects of mainstem discharge.

The high intragravel temperatures recorded at LRX 9 were observed at Site 3 when the intragravel probe was installed in an open-lead upwelling area. Increased intragravel temperatures were also recorded at LRX 29 - Site 2 from November 11 to December 17 when the intragravel probe was damaged by ice movement. The warm temperatures observed may be due to the influence of groundwater from the upper portion of Slough 8A. However, no data are available from Upper Slough 8A at this time because the temperature station was frozen from November until mid-December.

Variations in intragravel temperature were also seen at LRX 57 when the site was moved from Site 1 to Site 2 in September. Warm intragravel temperatures of approximately 3.5°C were recorded at LRX 57 - Site 2 from mid-October to early May. The temperatures recorded during this time corresponded directly to the intragravel temperatures recorded in the lower portion of Slough 21. Stable temperatures were no longer observed at the mainstem site beginning in mid-May possibly due to the effects of increased mainstem discharge.

4.2 Objective 2: Chum salmon spawning/Incubation Temperature Evaluation

Mainstem Habitats

In support of Objective 2, intragravel water temperatures were recorded only at one mainstem monitoring station established at RM 136.1. Temperatures were monitored from October 1 to January 4, and from March 2 through May 3. Intragravel temperatures at the site averaging near 0.0°C were recorded until mid-April when temperatures began to increase. Surface water temperatures recorded from March 2 to May 3 ranged from -0.1°C to 2.0°C. Intragravel water temperatures recorded at this site did not reflect the influence of groundwater upwelling.

Side Channel Habitats

Variable intragravel and surface water temperatures were recorded at Side Channel 10 (RM 134.0), Upper Side Channel 11 (RM 136.3) and Side Channel 21 (RM 142.3) throughout the 1983-84 winter season. Temperatures recorded within a habitat location were also often dissimilar reflecting the influences of various groundwater sources. Within a location one site was often observed frozen for various periods of time while others remained free-flowing. No clear pattern of freezing was observed within the side channel habitats. Although data is not available to define the relationship, the freezing and thawing are probably influenced by mainstem stage. Increased stage caused by ice jams can

increase side channel (and slough) discharge either by overtopping or by increasing groundwater flow. When overtopping occurs side channel or slough temperatures often decrease, whereas groundwater changes generally thaw previously frozen areas.

At Side Channel 10, both the intragravel and surface water stations at Site 1 were frozen from November to mid-February, while the surface water station at Site 2 was observed frozen only for a short period in December. Throughout the winter the intragravel station at Site 2 never fell below 0.7°C.

The monitoring station at Upper Side Channel 11 were not observed frozen throughout the period of record. Temperatures recorded at both sites within the side channel were similar indicating a common water source.

At Upper Side Channel 21 variable temperatures were recorded at all of the sites indicating the influences of groundwater upwelling and various water sources charging the sites. Variable temperatures were observed in the side channel when the station was moved from Site 1 to Site 2.

Also temperature differences were observed at Sites 2 and 3 throughout the winter. At Site 3, the surface water temperature site was frozen in December and January only, while the intragravel site was frozen from December through April. Although surface temperatures at Site 2 decreased to 0°C the site was not observed frozen throughout the period of record. The freezing at Site 3 in January 1 was concurrent with extremely low ambient temperatures.

Slough Habitats

Although the actual temperatures varied, surface water temperatures recorded at all side slough habitats except Lower Slough 8A, generally followed similar trends. Surface water temperatures recorded at the Lower Slough 8A site were similar to mainstem surface water temperatures. Surface water temperatures at the other side slough sites (Upper 8A, 9, 11, 21) were generally warmer than mainstem temperatures. Surface temperatures at these sites ranged from approximately 1° to 2°C.

Surface water temperatures recorded in the Northeast and Northwest channels of upland Slough 10 were also similar to the general slough temperature trends. However, temperatures at the sites did not increase as sharply as the surface water temperatures at the side slough sites.

The only slough station which was observed frozen was the site located in the upper portion of Slough 8A. The surface and intragravel station at Upper Slough 8A - Site 2 was observed frozen from November to mid-December when mainstem discharges increased.

Intragravel temperatures recorded at the sites in Upper Slough 8A, Slough 9, and Slough 11 were similar throughout the winter season averaging between 2.5 and 3.5°C. The monitoring stations were probably located in areas of groundwater upwelling.

Variability in intragravel temperatures within sloughs was observed in Slough 8A, Slough 11 and Slough 21. The intragravel temperatures

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recorded at the Lower Slough 8A site were similar to mainstem temperatures. In Upper Slough 21 intragravel temperatures varied throughout the winter and were generally similar to temperatures recorded at the monitoring station at Side Channel 21 - Site 2. Intragravel temperatures recorded at Lower Slough 21 were stable throughout the winter, however, the temperatures were generally warmer than those recorded at the other slough monitoring stations. Intragravel temperatures recorded at Upper Slough 21 corresponded directly to those recorded at the mainstem monitoring station at LRX 57 indicating a possible common water source. In Slough 11 the intragravel temperatures recorded at the incubation site were much lower than those recorded at the Slough 11 - Site 2 station indicating the variability within the site.

Tributaries

In support of Objective 2, temperatures were recorded at Fourth of July Creek and Indian River. At Fourth of July Creek the intragravel water station located in the plume was frozen from mid-October to May.

Intragravel and surface water temperatures recorded within the creek at Site 2 were similar. Intragravel temperatures were also recorded in the creek at Site 1. However, although intragravel temperatures recorded at Site 1 were similar to those recorded at Site 2, the actual temperatures are warmer. It is difficult to explain the variability between these two sites. It is possible, however, that the intragravel probe located at Site 1 was damaged from mid-March to mid-May possibly due to the cold

temperatures. Throughout the winter season, intragravel and surface temperatures recorded at Fourth of July Creek (Site 2) followed a trend similar to the surface water temperatures recorded in the mainstem. Temperature remained near 0°C through March and increased in April and May. Daily fluctuations were minimal until mid-May when temperatures varied as much as 4°C per day.

At Indian River very little data were collected due to malfunctioning recorders. However, during the short period of record no differences between intragravel and surface temperatures were observed. Temperatures recorded at Indian River also followed a trend similar to mainstem temperatures. Daily fluctuations of up to 3.5°C were observed at the site beginning in mid-April.

4.2 Objective 3: Preliminary Mitigation Evaluation

Temperatures recorded at Deadhorse Creek in support of Objective 3 remained near 0.0°C through March when temperatures began to increase and daily fluctuations were observed.

Table A-2. ADF&G Susitna River mainstem, side channel, sloughs, and tributary winter temperature index, 1983-1984.

Location	Instrument/ Temperature Type	Record
Susitna River at LRX 9 Site #1 RM 103.2 S27N05W26DAA	Datapod Surface Intra/Surface Intragravel	08/24/83-08/26/83 08/27/83-09/10/83 09/10/83-09/11/83
Susitna River at LRX 9 Site #2 RM 103.2 S27N05W26DAA	Datapod Intra/Surface Intragravel Intragravel Intra/Surface Surface	09/12/83-10/22/83 10/23/83-10/31/83 11/01/83-11/03/83 11/04/83-12/23/83 12/24/83-12/29/83
Susitna River at LRX 9 Site #3 RM 103.5 S27N05W26ADD	Datapod Intra/Surface Intragravel Intra/Surface	02/08/84-03/06/84 03/07/84-03/22/84 03/23/84-05/31/84
Deadhorse Creek RM 120.9 TRM 1.0 S29N04W14BCB	Thermograph Surface	12/22/83-05/31/84
Lower Slough 8A Site #3 RM 125.6 S30N03W30BDB	Datapod Intra/Surface Intra/Surface Intra/Surface Intragravel Intra/Surface	08/25/83-11/04/83 11/12/83-11/13/83 11/14/83-11/15/83 11/25/83-11/26/83 11/27/83-05/22/84
Susitna River at LRX 29 Site #1 RM 126.1 S30N03W19DCA	Datapod Intra/Surface Intragravel	08/24/83-10/26/83 10/27/83-11/02/83
Susitna River at LRX 29 Site #2 RM 126.1 S30N03W19DCA	Datapod Intra/Surface Intragravel Intra/Surface Surface Intra/Surface	11/03/83-11/08/83 11/09/83-11/15/83 11/16/83-12/17/83 01/12/84-03/04/84 03/05/84-04/21/84
Upper Slough 8A Site #2 RM 126.6 S30N03W20CCA	Datapod Intra/Surface	10/27/83-12/21/84

Location	Instrument/ Temperature Type	Record
Upper Slough 8A Site #3 RM 126.6 S30N03W20CCA	Datapod Intra/Surface Intragravel Intra/Surface Intragravel	12/21/83-03/12/84 03/13/84-03/22/84 03/23/84-05/15/84 05/16/84-05/22/84
Slough 9 Incubation site RM 128.5 S30N03W16CBC	Thermograph Surface	08/31/83-09/21/83
Slough 9 Site #3 RM 128.6 S30N03W16BDC	Datapod Intra/Surface Intragravel Intra/Surface Intragravel Intra/Surface Intra/Surface	08/24/83-09/04/83 09/05/83-09/16/83 09/17/83-10/10/83 10/11/83-10/20/83 10/21/83-01/10/84 03/23/84-05/31/84
Fourth of July Creek Site #1 RM 131.1 Plume and Creek S30N03W03DAC	Datapod Intragravel Intragravel Intragravel	09/01/83-01/27/84 02/07/84-02/10/84 03/01/84-05/20/84
Fourth of July Creek Site #2 RM 131.1 S30N03W03DAC	Datapod Intra/Surface	01/11/84-05/22/84
Side Channel 10 Site #1 RM 134.0 S31N03W31BBB	Datapod Intra/Surface Intragravel	08/24/83-11/05/83 11/16/83-11/30/83
Side Channel 10 Site #2 RM 134.0 S31N03W31BBB	Datapod Surface Intra/Surface	11/16/83-11/29/83 11/30/83-05/31/84
Slough 10 Northwest RM 134.0 S31N03W36AAA	Datapod Intra/Surface	10/19/83-05/22/84
Slough 10 Northeast RM 134.0 S31N03W36AAA	Datapod Intra/Surface	10/19/83-05/22/84
Slough 11 Incubation site RM 135.5 S31N02W19DDD	Thermograph Intragravel	12/30/83-02/25/84

Location	Instrument/ Temperature Type	Record
Slough 11 Site #2 RM 135.7 S31N02W19DAD	Datapod Intra/Surface	08/24/83-05/22/84
Susitna River at RM 136.1 RM 136.1 S31N02W19ADB	Thermograph Intragravel Datapod Intra/Surface	10/01/83-01/04/84 03/02/84-05/03/84
Upper Side Channel 11 Site #1 RM 136.3 S31N02W20BBD	Datapod Intra/Surface	08/24/83-09/11/83
Upper Side Channel 11 Site #2 RM 136.3 S31N02W20BBD	Datapod Intra/Surface Intragravel Intra/Surface	09/12/83-12/29/83 12/29/83-12/30/83 12/31/83-05/31/83
Upper Side Channel 11 Site #3 RM 136.3 S31N02W20BBD	Datapod Intra/Surface Intragravel Intra/Surface	01/11/84-03/17/84 03/18/84-03/19/84 03/20/84-05/31/84
Indian River Site #3 RM 138.6 TRM 0.2 S31N02W09CAB	Datapod Intra/Surface Intragravel Intra/Surface	03/01/84-03/03/84 03/04/84-03/22/84 03/28/84-04/25/84
Side Channel 21 Site #1 RM 141.0 S31N02W02CAA	Datapod Intra/Surface Intragravel	08/29/83-09/05/83 09/06/83-09/12/83
Side Channel 21 Site #2 RM 141.0 S31N02W02CAA	Datapod Intra/Surface Surface	09/13/83-01/10/84 01/11/84-05/22/84
Side Channel 21 Site #3 RM 141.0 S31N02W02CAA	Datapod Intra/Surface Intra/Surface	12/01/83-12/28/83 01/10/84-05/22/84
Lower Slough 21 Site #2 RM 141.8 S31N02W02AAB	Datapod Intra/Surface	08/24/83-05/31/84
Upper Slough 21 Site #1 RM 142.0 S32N02W36CCC	Datapod Intra/Surface Surface	08/24/83-01/10/84 01/11/84-05/22/84

SECRET

Location	Instrument/ Temperature Type	Record
Susitna River at LRX 57 Site #1 RM 142.3 S32N02W36CBA	Datapod Intra/Surface	08/24/83-09/09/83
Susitna River at LRX 57 Site #2 RM 142.3 S32N02W36CBA	Datapod	
	Intra/Surface	09/13/83-10/24/83
	Intragravel	10/24/83-11/02/83
	Intra/Surface	11/03/83-05/22/84
	Intragravel	05/22/84-05/23/84

Appendix Table A-3. Instantaneous water temperatures recorded at sites in the Susitna River basin during the 1983-84 ice-covered season.

<u>Location</u>	<u>Site Number</u>	<u>Date</u>	<u>Time</u>	<u>Water Temp° C</u>	<u>Data Type</u>	<u>Instrument</u>
Upper Slough 8A RM 126.6	2	831221	1303	-0.1 ^a	surface	datapod recorder
	2	831221	1303	-0.2 ^b	intragravel	datapod recorder
	2	840110	1350	2.1	surface	datapod recorder
	2	840110	1350	2.8	intragravel	datapod recorder
	2	840126	1346	1.0	surface	mercury thermometer
	2	840126	1346	2.7	intragravel	datapod recorder
	2	840207	1538	1.4	surface	mercury thermometer
	2	840207	1538	3.0	intragravel	datapod recorder
	2	840301	1100	4.0	surface	mercury thermometer
	2	840301	1100	2.9	intragravel	datapod recorder
	2	840322	1526	3.4	surface	mercury thermometer
	2	840522	1600	3.4	surface	mercury thermometer
4th of July Creek RM 131.1	2	831201	1046	0.4	surface	datapod recorder
	2	831201	1046	0.3	intragravel	datapod recorder
	2	831206	1445	0.3	surface	datapod recorder
	2	831206	1445	0.2	intragravel	datapod recorder
	2	831221	1234	0.0	surface	mercury thermometer
	2	831221	1234	0.1	intragravel	datapod recorder
Side Channel 10 RM 134.0	3 ^c	831130	1440	1.4	surface	mercury thermometer
	3 ^c	831130	1440	2.7	intragravel	datapod recorder
	1	831206	1329	0.1	intragravel	datapod recorder
	3 ^c	831206	1319	1.3	surface	mercury thermometer

- ^a Water was observed flowing over the temperature probe.
- ^b Anchor ice was observed adjacent to the temperature probe.
- ^c Instantaneous measurements only were taken at this site.

Appendix Table A-3 (Continued).

<u>Location</u>	<u>Site Number</u>	<u>Date</u>	<u>Time</u>	<u>Water Temp°C</u>	<u>Data Type</u>	<u>Instrument</u>
Side Channel 10 RM 134.0 (Continued)	3 ^a	831206	1319	2.7	intragravel	datapod recorder
	3 ^a	831207	1125	1.6	surface	datapod recorder
	3 ^a	831207	1125	2.7	intragravel	datapod recorder
	1	831221	1149	-0.2	surface	datapod recorder
	1	831221	1149	-0.1	surface	datapod recorder
	1	840111	1206	-0.1 ^b	intragravel	datapod recorder
	3 ^a	840111	1200	0.0	surface	datapod recorder
	3 ^a	840111	1200	0.0	intragravel	datapod recorder
	3 ^a	840127	1232	0.5	surface	datapod recorder
	3 ^a	840127	1232	1.5 ^b	intragravel	datapod recorder
	1	840127	1230	-1.2 ^b	intragravel	datapod recorder
	1	840208	1124	-0.1	intragravel	datapod recorder
	3 ^a	840208	1115	0.6	surface	mercury thermometer
	3 ^a	840208	1115	2.5	intragravel	datapod recorder
	1	840302	1115	1.8	surface	mercury thermometer
	1	840302	1115	3.0	intragravel	datapod recorder
	3 ^a	840302	1100	2.0	surface	datapod recorder
	3 ^a	840302	1100	3.4	intragravel	datapod recorder
	3 ^a	840322	1324	3.4	surface	mercury thermometer
	3 ^a	840322	1324	3.5	intragravel	datapod recorder
	1	840322	1329	2.6	surface	mercury thermometer
	1	840322	1329	2.5	intragravel	datapod recorder
	1	840522	1302	5.2	surface	mercury thermometer
	1	840522	1302	3.6	intragravel	datapod recorder
	3 ^a	840522	1318	5.2	surface	mercury thermometer
	3 ^a	840522	1318	3.9	intragravel	datapod recorder

^a Instantaneous measurements only were taken at this site.

^b Surface water was observed frozen to the substrate.

Appendix Table A-3 (Continued).

<u>Location</u>	<u>Site Number</u>	<u>Date</u>	<u>Time</u>	<u>Water Temp° C</u>	<u>Data Type</u>	<u>Instrument</u>
Side Channel 21 RM 141.0	4 ^a	831130	1300	0.1	surface	mercury thermometer
	4 ^a	831130	1300	0.3	intragravel	datapod recorder
	4 ^a	831206	1234	0.5	surface	datapod recorder
	4 ^a	831206	1234	0.7	intragravel	datapod recorder
	4 ^a	831221	1042	-0.1	surface	datapod recorder
	4 ^a	831221	1042	-0.1	intragravel	datapod recorder
	4 ^a	840110	1118	-0.1	surface	datapod recorder
	4 ^a	840127	1121	-0.1	surface	datapod recorder
	5 ^a	840228	1247	0.3	surface	mercury thermometer
	5 ^a	840228	1246	0.5	intragravel	datapod recorder
LRX 57 RM 142.3	2	831116	1020	0.4	surface	datapod recorder
	2	831116	1020	0.3	surface	mercury thermometer
	2	831116	1020	3.7	intragravel	datapod recorder
	2	831206	1207	0.0	surface	datapod recorder
	2	831206	1207	3.9	intragravel	datapod recorder
	2	931221	1020	0.0	surface	datapod recorder
	2	831221	1020	3.6	intragravel	datapod recorder
	2	840110	1024	0.0	surface	datapod recorder
	2	840110	1024	3.7	intragravel	datapod recorder
	2	840126	1004	0.0	surface	datapod recorder
	2	840126	1004	-0.1	surface	mercury thermometer
	2	840126	1004	3.4	intragravel	datapod recorder
	2	840127	1127	0.0	surface	datapod recorder
	2	840127	1127	3.8	intragravel	datapod recorder
	2	840207	1001	0.0	surface	datapod recorder

^a Instantaneous measurements only were taken at this site.

Appendix Table A-3 (Continued).

<u>Location</u>	<u>Site Number</u>	<u>Date</u>	<u>Time</u>	<u>Water Temp°C</u>	<u>Data Type</u>	<u>Instrument</u>
LRX 57 (Continued)	2	840207	1001	3.7	intragravel	datapod recorder
	2	840229	1500	-0.1	surface	mercury thermometer
	2	840322	910	1.3	surface	mercury thermometer
	2	840322	910	3.5	intragravel	datapod recorder
	3 ^a	831206	1207	0.0	surface	datapod recorder
	3 ^a	831221	1020	0.0	surface	datapod recorder
	3 ^a	840110	1024	0.0	surface	datapod recorder
	3 ^a	840322	910	1.6	surface	datapod recorder
	4 ^a	840229	1500	-0.1	intragravel	datapod recorder
	4 ^a	840302	844	-0.2	intragravel	datapod recorder
	4 ^a	840322	910	0.1	intragravel	datapod recorder

^a Instantaneous measurements only were taken at this site.

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Date	Time	Temperature (°C)					pH	DO (mg/l)	Conductivity (umhos/cm)	
		Air	Water		pH	DO (mg/l)				Conductivity (umhos/cm)
			Below Dam	Above Dam						
831222	1113	--	0.2	0.2	--	15.3	117			
840110	1437	-0.8	0.2	0.0	7.6	14.0	--			
840126	1515	--	0.2	0.4	6.9	14.9	131			
840207	1430	1.8	0.0	0.1	7.5	15.3	121			
840302	1002	-4.0	0.0	0.3	7.1	12.4	119			
840322	1630	4.0	0.2	0.1	7.2	12.5	115			
840522	1647	10.5	3.4	3.4	7.3	13.5	--			

Appendix Table A-5. Water quality data collected at Curry outflow pipe during the 1983-84 winter season.

Date	Time	Temperature (°C)		pH	DO (mg/l)	Conductivity (umhos/cm)
		Air	Water			
831222	1226	--	0.2	--	15.7	124
840110	1518	-0.8	0.1	7.2	14.6	--
840126	1536	--	0.1	7.5	15.6	131
840207	1455	1.8	0.1	7.6	15.0	119
840302	1032	-2.5	0.1	7.3	13.1	122
840322	1710	6.5	0.1	7.2	13.3	118
840522	1713	12.5	2.8	7.3	13.8	--

Appendix Table A-6. Datapod temperature recorder data summary:
intragravel and surface water temperatures (C)
recorded at Mainstem Susitna River at LRX 9 -
Site 1, RM 103.2, GC S27N05W26DAA.

August 1983						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
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	7.3	-----	8.1	8.1	-----	10.6

----- Data not available.

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Appendix Table A-6 (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	5.0	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	5.6	6.0	6.0	-----	8.1
830911	5.1	-----	5.8	-----	-----	-----
Monthly Value	4.5	-----	7.6	5.2	-----	9.8

----- Data not available.

Appendix Table A-7. Datapod temperature recorder data summary:
intragravel and surface water temperatures (C)
recorded 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	3.3	5.2
830925	.9	1.3	2.4	.4	.8	2.0
830926	.9	1.0	1.1	.4	.5	.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	-----	7.8	.4	-----	8.8

----- Data not available.

Appendix Table A-7 (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	1.8	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	.7	.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

----- Data not available.

Appendix Table A-7 (continued).

November 1983						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
831101	.4	.4	.5	-----	-----	-----
831102	.4	.4	.5	-----	-----	-----
831103	.4	-----	.5	-----	-----	-----
831104	-.1	.2	.4	-.1	-.1	0.0
831105	0.0	.1	.2	-.2	-.1	0.0
831106	-.1	.0	.4	-.1	-.1	0.0
831107	-.1	.0	.5	-.1	-.0	0.0
831108	.2	.7	.9	-.1	-.1	0.0
831109	-.1	.0	.4	-.1	-.1	0.0
831110	-.1	.2	.3	-.1	-.1	0.0
831111	0.0	.2	.3	-.1	-.1	0.0
831112	.1	.2	.3	-.1	-.1	0.0
831113	0.0	.1	.3	-.1	-.1	0.0
831114	-.1	.0	.2	-.1	-.0	0.0
831115	-.1	.1	.3	-.1	-.0	0.0
831116	-.1	.0	.3	-.1	0.0	0.0
831117	-.1	-.0	.2	-.1	-.0	0.0
831118	-.1	-.0	.1	-.1	0.0	0.0
831119	0.0	.3	.4	-.1	0.0	.1
831120	.1	.6	.9	0.0	.0	.1
831121	.4	.5	.9	0.0	.0	.1
831122	0.0	.3	.4	-.1	-.0	0.0
831123	.1	.3	.4	-.1	0.0	0.0
831124	.1	.2	.3	-.1	0.0	0.0
831125	.1	.1	.3	-.1	0.0	.1
831126	.1	.2	.3	0.0	0.0	0.0
831127	0.0	.1	.3	0.0	0.0	0.0
831128	0.0	.2	.3	0.0	.0	.1
831129	.1	.2	.3	0.0	0.0	.1
831130	.1	.2	.3	0.0	0.0	.1
Monthly Value	-.1	.2	.9	-.2	-.0	.1

----- Data not available.

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Appendix Table A-7 (continued).

December 1983						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
831201	.1	.2	.3	0.0	0.0	.1
831202	0.0	.1	.3	0.0	0.0	.1
831203	0.0	.1	.3	0.0	.0	.1
831204	.1	.2	.3	0.0	0.0	0.0
831205	0.0	.2	.3	0.0	.0	.1
831206	0.0	.1	.2	0.0	.0	.1
831207	-.1	.1	.2	-.1	0.0	.1
831208	-.1	.0	.2	0.0	0.0	0.0
831209	0.0	.1	.2	0.0	.0	.1
831210	0.0	.3	.7	0.0	.0	.2
831211	-.1	.1	.5	-.1	0.0	.1
831212	-.1	-.1	0.0	-.1	0.0	0.0
831213	-.1	-.0	0.0	-.1	0.0	0.0
831214	-.1	0.0	.1	-.1	0.0	.1
831215	-.1	0.0	.1	-.1	.0	.1
831216	-.1	.0	.1	-.1	.0	.1
831217	-.1	0.0	.1	-.1	0.0	.1
831218	0.0	.0	.1	-.1	0.0	0.0
831219	0.0	0.0	.1	0.0	0.0	0.0
831220	0.0	0.0	.1	0.0	0.0	0.0
831221	0.0	0.0	.1	0.0	.0	.1
831222	-.1	0.0	.1	0.0	0.0	.1
831223	0.0	0.0	.1	0.0	.0	.1
831224	-----	-----	-----	0.0	.0	.1
831225	-----	-----	-----	0.0	0.0	.1
831226	-----	-----	-----	0.0	.0	.1
831227	-----	-----	-----	0.0	0.0	.1
831228	-----	-----	-----	0.0	.0	.1
831229	-----	-----	-----	0.0	-----	.1
Monthly Value	-.1	.1	.7	-.1	.0	.2

----- Data not available.

Appendix Table A-8 Datapod temperature recorder data summary:
intragravel and surface water temperatures (C)
recorded at Mainstem Susitna River at LRX 9 -
Site 3, RM 103.5, GC S27N05W26ADD.

February 1984						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
840208	2.9	-----	3.0	.1	-----	.5
840209	3.0	3.2	3.3	.5	1.8	2.1
840210	3.1	3.2	3.3	1.7	2.1	2.4
840211	2.8	3.0	3.2	0.0	.8	2.4
840212	2.7	2.8	2.9	-.1	.1	.4
840213	2.7	2.8	2.9	-.1	.1	.4
840214	2.7	2.7	2.8	-.1	.0	.4
840215	2.6	2.7	2.8	-.1	-.1	.1
840216	2.7	2.7	2.7	-.1	0.0	.2
840217	2.7	2.7	2.7	-.1	.1	.2
840218	2.6	2.7	2.7	-.1	-.0	0.0
840219	2.6	2.7	2.7	-.1	-.0	0.0
840220	2.6	2.7	2.7	-.1	-.0	.1
840221	2.7	2.8	2.9	-.1	.1	.4
840222	2.7	2.7	2.9	-.1	.0	.2
840223	2.7	2.7	2.8	-.1	0.0	.1
840224	2.7	2.8	2.9	0.0	.2	.3
840225	2.8	2.9	2.9	.1	.2	.3
840226	2.7	2.8	2.9	0.0	.2	.5
840227	2.8	2.8	2.9	.1	.3	.5
840228	2.7	2.8	2.9	0.0	.2	.5
840229	2.7	2.8	2.9	0.0	.1	.4
Monthly Value	2.6	2.8	3.3	-.1	.3	2.4

----- Data not available.

Appendix Table A-8 (continued).

March 1984						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
840301	2.7	2.9	3.1	0.0	.2	1.5
840302	2.7	2.7	2.9	-.1	0.0	.3
840303	2.7	2.7	2.8	-.1	.0	.2
840304	2.7	2.8	2.9	.1	.2	.4
840305	2.7	2.8	2.9	0.0	.2	.9
840306	2.8	2.9	3.0	.1	-----	.5
840307	2.8	2.9	3.0	-----	-----	-----
840308	2.9	3.0	3.2	-----	-----	-----
840309	2.8	2.9	3.0	-----	-----	-----
840310	2.8	2.9	3.0	-----	-----	-----
840311	2.9	3.0	3.2	-----	-----	-----
840312	2.8	3.0	3.2	-----	-----	-----
840313	2.9	3.0	3.2	-----	-----	-----
840314	3.1	3.2	3.3	-----	-----	-----
840315	3.1	3.2	3.4	-----	-----	-----
840316	3.1	3.2	3.4	-----	-----	-----
840317	3.0	3.2	3.4	-----	-----	-----
840318	3.0	3.2	3.4	-----	-----	-----
840319	3.0	3.2	3.4	-----	-----	-----
840320	3.0	3.2	3.4	-----	-----	-----
840321	3.0	3.2	3.4	-----	-----	-----
840322	2.9	3.0	3.3	-----	-----	-----
840323	2.3	3.0	3.1	-.1	.0	.3
840324	2.9	3.0	3.0	-.1	.0	.3
840325	2.9	2.9	3.0	-.1	.1	.6
840326	2.8	2.9	3.0	0.0	.2	.5
840327	2.9	2.9	3.0	0.0	.1	.4
840328	2.8	2.9	3.0	0.0	.2	.7
840329	2.8	2.9	3.0	0.0	.3	.8
840330	2.8	2.9	3.0	0.0	.2	.8
840331	2.9	2.9	3.0	0.0	.2	.4
Monthly Value	2.3	3.0	3.4	-.1	-----	1.5

----- Data not available.

Appendix Table A-B (continued).

April 1984						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
840401	2.8	2.9	3.3	0.0	.2	.8
840402	2.8	2.9	3.0	0.0	.4	1.1
840403	2.9	2.9	3.0	-.1	.5	1.7
840404	2.9	3.0	3.0	-.1	.5	1.5
840405	2.9	3.0	3.0	.2	.5	1.1
840406	2.9	2.9	3.0	0.0	.6	2.2
840407	2.9	2.9	3.0	-.1	.4	1.2
840408	2.9	2.9	3.0	-.1	.5	1.6
840409	2.9	2.9	3.0	0.0	.5	1.5
840410	2.9	2.9	3.0	0.0	.7	2.1
840411	2.9	3.0	3.0	0.0	.7	2.0
840412	2.9	3.0	3.1	-.1	.7	2.1
840413	2.9	3.0	3.0	0.0	.7	1.8
840414	2.9	3.0	7.6	.1	.8	2.4
840415	2.9	3.0	3.2	.3	1.0	2.6
840416	2.9	3.0	3.0	0.0	.5	1.2
840417	2.9	-----	3.0	.2	.9	2.6
840418	2.9	3.0	3.0	0.0	1.2	4.3
840419	2.9	3.0	3.1	0.0	1.5	4.9
840420	3.0	-----	3.1	.2	1.1	2.3
840421	2.9	3.0	3.0	.4	1.1	2.8
840422	2.9	-----	3.0	0.0	.8	2.6
840423	2.9	-----	3.0	-.1	.9	3.0
840424	2.9	3.0	3.0	0.0	1.5	4.2
840425	2.9	3.0	3.1	.2	1.3	3.4
840426	2.9	3.0	3.1	.1	1.4	3.6
840427	2.9	-----	3.0	.5	1.4	3.6
840428	2.9	3.0	3.1	.3	1.4	4.3
840429	2.8	2.9	3.0	0.0	.4	1.3
840430	2.8	2.9	3.0	0.0	.2	.7
Monthly Value	2.8	3.0	7.6	-.1	.8	4.9

----- Data not available.

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Appendix Table A-8 (continued).

May 1984						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
840501	2.8	2.9	3.0	-.1	.1	.5
840502	2.5	2.7	2.9	-.1	-.1	.2
840503	1.9	2.3	2.5	-.1	-.1	0.0
840504	1.9	1.9	2.0	-.1	-.1	-.1
840505	2.1	-----	2.2	-.1	-.1	0.0
840506	2.0	2.2	2.4	-.2	-.1	-.1
840507	2.1	2.2	3.4	-.1	-.1	-.1
840508	1.6	1.7	2.1	-.2	-.1	.2
840509	2.0	-----	3.4	-.1	1.7	2.4
840510	3.3	3.4	3.5	.2	2.1	2.7
840511	3.3	3.4	3.5	0.0	.7	2.8
840512	3.3	3.4	3.5	0.0	.3	.8
840513	3.4	3.5	3.6	.1	2.2	5.5
840514	3.6	3.6	3.8	1.8	4.0	6.9
840515	3.6	3.7	3.9	1.8	3.9	6.2
840516	3.7	3.8	3.9	1.8	3.2	5.1
840517	3.6	3.8	4.0	.6	3.0	5.1
840518	3.7	3.9	4.0	1.9	3.5	4.6
840519	3.7	3.8	4.1	2.8	3.5	4.3
840520	3.6	3.8	4.0	2.4	3.6	5.0
840521	4.0	4.2	4.7	4.3	5.5	6.8
840522	4.4	4.5	4.6	5.4	5.9	6.4
840523	4.4	-----	4.6	4.8	5.9	7.1
840524	4.6	4.7	4.7	6.0	6.6	7.2
840525	4.6	4.7	4.9	5.9	6.5	7.4
840526	4.7	4.8	4.9	5.9	6.4	6.9
840527	4.5	4.6	4.7	5.9	6.7	7.7
840528	4.3	4.4	4.6	6.0	7.3	8.9
840529	4.2	4.3	4.5	6.4	7.6	9.1
840530	4.1	4.1	4.3	6.7	7.7	8.8
840531	4.0	4.1	4.2	6.6	8.7	11.5
Monthly Value	1.6	3.6	4.9	-.2	3.4	11.5

----- Data not available.

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Appendix Table A-9 Datapod temperature recorder data summary:
intragravel and surface water temperatures (C)
recorded at Mainstem Susitna River at LRX 29 -
Site 1, RM 126.1, GC S30N03W19DCA.

August 1983						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
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	-----	9.4	7.2	-----	10.2

----- Data not available.

Appendix Table A-9 (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

Appendix Table A-9 (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	1.6	1.9	.1	.8	1.8
831007	1.2	1.4	1.9	-.1	.1	.9
831008	1.1	1.1	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	1.0	1.3
831014	.9	1.1	1.4	0.0	.5	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	1.0	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

----- Data not available.

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Appendix Table A-9 (continued).

November 1983						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
831101	.7	.7	.8	----	----	----
831102	.7	.8	.8	----	----	----
Monthly Value	.7	----	.8	----	----	----

---- Data not available.

2-21-87

Appendix Table A-10 Datapod temperature recorder data summary:
intragravel and surface water temperatures (C)
recorded at Mainstem Susitna River at LRX 29 -
Site 2, RM 126.1, GC S30N03W19DCA.

November 1983						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
831103	1.6	1.8	1.9	0.0	.1	.1
831104	1.7	1.8	1.9	0.0	.1	.1
831105	1.7	1.8	1.9	0.0	.0	.1
831106	1.7	1.8	1.8	0.0	.0	.1
831107	1.7	1.8	1.9	0.0	.1	.2
831108	1.8	1.9	1.9	0.0	-----	.2
831109	1.8	1.9	2.0	-----	-----	-----
831110	1.8	1.9	2.0	-----	-----	-----
831111	1.9	1.9	2.0	-----	-----	-----
831112	1.9	2.0	2.0	-----	-----	-----
831113	1.9	1.9	2.0	-----	-----	-----
831114	1.9	1.9	2.0	-----	-----	-----
831115	1.9	1.9	2.0	-----	-----	-----
831116	1.8	1.9	2.0	0.0	-----	.1
831117	1.8	1.8	1.9	0.0	.1	.1
831118	1.8	1.8	1.9	0.0	.1	.2
831119	1.7	1.8	1.9	0.0	.1	.2
831120	1.7	1.7	1.8	0.0	.1	.2
831121	1.6	1.7	1.7	.1	.1	.3
831122	0.0	1.5	1.7	.1	.1	.3
831123	1.4	1.5	1.6	.1	.1	.2
831124	1.3	1.4	1.5	0.0	.1	.2
831125	1.3	1.4	1.5	0.0	.1	.2
831126	1.2	1.4	1.5	0.0	.1	.2
831127	-.1	1.0	1.3	.1	.1	.2
831128	.8	1.1	1.2	.1	.1	.2
831129	1.1	1.2	1.3	.1	.1	.2
831130	1.2	1.2	1.3	.1	.1	.2
Monthly Value	-.1	1.7	2.0	0.0	-----	.3

----- Data not available.

Appendix Table A-10 (continued).

December 1983						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
831201	1.2	1.2	1.3	.1	.1	.2
831202	1.2	1.2	1.3	.1	.2	.3
831203	1.1	1.2	1.3	.1	.1	.3
831204	1.1	1.2	1.3	.1	.1	.3
831205	1.2	1.2	1.3	.1	.1	.2
831206	1.1	1.2	1.3	.1	.1	.2
831207	1.1	1.2	1.2	.1	.1	.2
831208	1.1	1.1	1.2	.1	.1	.2
831209	1.0	1.1	1.2	0.0	.1	.4
831210	1.1	1.2	1.2	.1	.3	.4
831211	1.1	1.2	1.2	.1	.2	.5
831212	1.1	1.2	1.2	.1	.2	.4
831213	1.1	1.2	1.3	.2	.4	.5
831214	1.2	1.2	1.3	.2	.3	.5
831215	1.2	1.3	1.3	.3	.4	.6
831216	1.2	1.3	1.4	.3	.4	.6
831217	.1	-----	1.3	0.0	.2	.6
Monthly Value	.1	-----	1.4	0.0	-----	.6

----- Data not available.

22.27

Appendix Table A-10 (continued).

January 1984						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
840112	-----	-----	-----	0.0	-----	0.0
840113	-----	-----	-----	-.1	-.0	0.0
840114	-----	-----	-----	-.1	-.0	0.0
840115	-----	-----	-----	-.1	-.1	0.0
840116	-----	-----	-----	-.1	-.1	0.0
840117	-----	-----	-----	-.1	-.1	0.0
840118	-----	-----	-----	-.1	-.1	0.0
840119	-----	-----	-----	-.1	-.0	0.0
840120	-----	-----	-----	-.1	-.0	0.0
840121	-----	-----	-----	-.1	-.0	0.0
840122	-----	-----	-----	-.1	-.0	0.0
840123	-----	-----	-----	-.1	0.0	.1
840124	-----	-----	-----	-.1	0.0	.1
840125	-----	-----	-----	-.1	0.0	.1
840126	-----	-----	-----	-.1	0.0	0.0
840127	-----	-----	-----	-.1	0.0	0.0
840128	-----	-----	-----	-.1	0.0	0.0
840129	-----	-----	-----	-.1	0.0	0.0
840130	-----	-----	-----	-.1	0.0	0.0
840131	-----	-----	-----	-.1	0.0	0.0
Monthly Value	-----	-----	-----	-.1	-----	.1

----- Data not available.

Appendix Table A-10 (continued).

February 1984						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
840201	-----	-----	-----	-.1	0.0	.1
840202	-----	-----	-----	0.0	0.0	0.0
840203	-----	-----	-----	0.0	0.0	.1
840204	-----	-----	-----	-.1	0.0	0.0
840205	-----	-----	-----	0.0	0.0	0.0
840206	-----	-----	-----	0.0	0.0	.1
840207	-----	-----	-----	0.0	0.0	.1
840208	-----	-----	-----	0.0	0.0	.1
840209	-----	-----	-----	0.0	.0	.1
840210	-----	-----	-----	0.0	.0	.1
840211	-----	-----	-----	0.0	.0	.1
840212	-----	-----	-----	0.0	0.0	.1
840213	-----	-----	-----	0.0	0.0	.1
840214	-----	-----	-----	0.0	0.0	.1
840215	-----	-----	-----	0.0	0.0	.1
840216	-----	-----	-----	0.0	.0	.1
840217	-----	-----	-----	0.0	0.0	.1
840218	-----	-----	-----	0.0	0.0	.1
840219	-----	-----	-----	0.0	0.0	.1
840220	-----	-----	-----	0.0	.1	.1
840221	-----	-----	-----	0.0	0.0	.1
840222	-----	-----	-----	0.0	.0	.1
840223	-----	-----	-----	0.0	0.0	.1
840224	-----	-----	-----	0.0	0.0	.1
840225	-----	-----	-----	0.0	0.0	.1
840226	-----	-----	-----	0.0	.0	.1
840227	-----	-----	-----	0.0	0.0	.1
840228	-----	-----	-----	0.0	.0	.1
840229	-----	-----	-----	0.0	.0	.1
Monthly Value	-----	-----	-----	-.1	.0	.1

----- Data not available.

Appendix Table A-10 (continued).

March 1984						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
840301	-----	-----	-----	0.0	.0	.1
840302	-----	-----	-----	0.0	0.0	.1
840303	-----	-----	-----	0.0	.0	.1
840304	-----	-----	-----	0.0	0.0	.1
840305	.3	.4	.5	0.0	.0	.1
840306	.4	.5	.6	0.0	.0	.1
840307	.4	.5	.6	0.0	0.0	.1
840308	.2	.3	.6	0.0	.1	.1
840309	.2	.3	.5	0.0	.1	.1
840310	.1	.2	.3	0.0	.1	.1
840311	.2	-----	.4	0.0	-----	.1
840323	0.0	.2	.4	0.0	.1	.1
840324	.1	.1	.3	0.0	.1	.1
840325	0.0	.1	.3	0.0	.0	.1
840326	0.0	.1	.2	0.0	.0	.1
840327	0.0	.1	.2	0.0	.1	.1
840328	0.0	.1	.2	0.0	.1	.1
840329	0.0	.1	.2	0.0	0.0	.1
840330	0.0	.1	.1	0.0	.0	.1
840331	0.0	.0	.1	0.0	.1	.1
Monthly Value	0.0	-----	.6	0.0	-----	.1

----- Data not available.

Appendix Table A-10 (continued).

April 1984						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
840401	0.0	0.0	.1	0.0	.0	.1
840402	0.0	.1	.1	0.0	.1	.1
840403	-.1	.0	.2	0.0	.1	.1
840404	0.0	.0	.1	0.0	.1	.1
840405	-.1	0.0	.1	0.0	.1	.1
840406	0.0	.0	.2	0.0	.0	.1
840407	-.1	0.0	.1	0.0	.0	.1
840408	-.1	0.0	.1	0.0	.1	.1
840409	-.1	0.0	.1	0.0	.1	.1
840410	-.1	0.0	.1	0.0	.1	.1
840411	-.1	0.0	.1	0.0	.1	.1
840412	-.1	0.0	.1	0.0	.1	.1
840413	-.1	0.0	.1	0.0	.1	.1
840414	0.0	0.0	.1	0.0	.1	.1
840415	0.0	.0	.1	0.0	.1	.1
840416	0.0	.0	.1	0.0	.1	.1
840417	0.0	.0	.1	0.0	.1	.1
840418	0.0	.1	.2	0.0	.1	.2
840419	-.1	.1	.2	0.0	.1	.2
840420	0.0	.0	.1	0.0	.1	.2
840421	0.0	.1	.2	0.0	.1	.2
Monthly Value	-.1	.0	.2	0.0	.1	.2

SECRET

Appendix Table A-11 Ryan temperature data summary: intragravel water temperatures (C) recorded at Mainstem Susitna River at RM 136.1, GC S31N02W19ADB.

October 1983			
DATE	Intragravel Water Temperature (C)		
	Min	Mean	Max
831001	2.0	-----	3.0
831002	2.0	2.2	2.5
831003	1.0	1.7	2.0
831004	.5	.9	1.0
831005	0.0	.5	1.0
831006	0.0	.3	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	0.0
831012	0.0	.3	.5
831013	0.0	.2	.5
831014	0.0	0.0	0.0
831015	0.0	0.0	0.0
831016	0.0	0.0	0.0
831017	0.0	0.0	0.0
831018	0.0	0.0	0.0
831019	0.0	0.0	0.0
831020	0.0	0.0	0.0
831021	0.0	0.0	0.0
831022	0.0	0.0	0.0
831023	0.0	0.0	0.0
831024	0.0	0.0	0.0
831025	0.0	0.0	0.0
831026	0.0	0.0	0.0
831027	0.0	0.0	0.0
831028	0.0	0.0	0.0
831029	0.0	0.0	0.0
831030	0.0	0.0	0.0
831031	0.0	0.0	0.0
Monthly Value	0.0	.2	3.0

----- Data not available.

Appendix Table A-11 (continued).

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November 1983			
Date	Intragravel Water Temperature (C)		
	Min	Mean	Max
831101	0.0	0.0	0.0
831102	0.0	0.0	0.0
831103	0.0	0.0	0.0
831104	0.0	0.0	0.0
831105	0.0	0.0	0.0
831106	0.0	0.0	0.0
831107	0.0	0.0	0.0
831108	0.0	0.0	0.0
831109	0.0	0.0	0.0
831110	0.0	.3	.5
831111	.5	.5	.5
831112	0.0	.0	.5
831113	0.0	.0	.5
831114	0.0	.0	.5
831115	0.0	0.0	0.0
831116	0.0	0.0	0.0
831117	0.0	0.0	0.0
831118	0.0	0.0	0.0
831119	0.0	0.0	0.0
831120	0.0	0.0	0.0
831121	0.0	0.0	0.0
831122	0.0	0.0	0.0
831123	0.0	0.0	0.0
831124	0.0	0.0	0.0
831125	0.0	0.0	0.0
831126	0.0	.3	.5
831127	0.0	.2	.5
831128	0.0	.2	.5
831129	0.0	.1	.5
831130	.5	.5	.5
Monthly Value	0.0	.1	.5

Appendix Table A-1) (continued).

December 1983			
DATE	Intragravel Water Temperature (C)		
	Min	Mean	Max
831201	.5	.5	.5
831202	0.0	.3	.5
831203	0.0	0.0	0.0
831204	0.0	.0	.5
831205	.5	.5	.5
831206	0.0	.1	.5
831207	0.0	0.0	0.0
831208	0.0	0.0	0.0
831209	0.0	0.0	0.0
831210	0.0	0.0	0.0
831211	0.0	0.0	0.0
831212	0.0	0.0	0.0
831213	0.0	0.0	0.0
831214	0.0	0.0	0.0
831215	0.0	0.0	0.0
831216	0.0	0.0	0.0
831217	0.0	0.0	0.0
831218	0.0	0.0	0.0
831219	0.0	0.0	0.0
831220	0.0	0.0	0.0
831221	0.0	0.0	0.0
831222	0.0	0.0	0.0
831223	0.0	0.0	0.0
831224	0.0	0.0	0.0
831225	0.0	0.0	0.0
831226	0.0	0.0	0.0
831227	0.0	0.0	0.0
831228	0.0	0.0	0.0
831229	0.0	0.0	0.0
831230	0.0	0.0	0.0
831231	0.0	0.0	0.0
Monthly Value	0.0	.0	.5

Appendix Table A-11 (continued).

0000

January 1984			
DATE	Intragravel Water Temperature (C)		
	Min	Mean	Max
840101	0.0	0.0	0.0
840102	0.0	0.0	0.0
840103	0.0	0.0	0.0
840104	0.0	-----	0.0
Monthly Value	0.0	-----	0.0

----- Data not available.

Appendix Table A-12 Datapod temperature recorder data summary:
intragravel and surface water temperatures (C)
recorded at Mainstem Susitna River at
RM 136.1, GC S31N02W19ADB.

March 1984						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
840302	0.0	-----	.1	-.1	-----	0.0
840303	0.0	.1	.1	-.1	-.1	0.0
840304	0.0	.1	.1	-.1	-.1	0.0
840305	0.0	.1	.1	-.1	-.1	0.0
840306	0.0	.1	.1	-.1	-.1	0.0
840307	0.0	.1	.1	-.1	-.1	0.0
840308	0.0	.1	.1	-.1	-.1	0.0
840309	0.0	.1	.1	-.1	-.0	0.0
840310	0.0	.1	.1	-.1	-.1	0.0
840311	0.0	.1	.1	-.1	-.1	0.0
840312	0.0	.1	.1	-.2	-.1	0.0
840313	0.0	.1	.2	-.1	-.1	0.0
840314	0.0	.1	.1	-.1	-.1	0.0
840315	0.0	.1	.2	-.1	-.1	0.0
840316	0.0	.1	.1	-.1	-.1	0.0
840317	0.0	.1	.2	-.1	-.1	0.0
840318	0.0	.1	.2	-.2	-.1	0.0
840319	0.0	.1	.1	-.2	-.1	0.0
840320	0.0	.1	.1	-.2	-.1	0.0
840321	0.0	.1	.1	-.1	-.1	0.0
840322	0.0	.1	.1	-.1	-.1	0.0
840323	0.0	.1	.1	-.1	-.1	0.0
840324	0.0	.1	.1	-.1	-.1	0.0
840325	0.0	.1	.2	-.1	-.1	0.0
840326	0.0	.1	.2	-.1	-.1	0.0
840327	0.0	.1	.2	-.1	-.0	0.0
840328	0.0	.1	.2	0.0	.0	.1
840329	0.0	.1	.1	0.0	.1	.2
840330	0.0	.1	.2	0.0	.1	.2
840331	0.0	.1	.1	.1	.1	.2
Monthly Value	0.0	.1	.2	-.2	-.1	.2

----- Data not available.

SECRET

Appendix Table A-12 (continued).

April 1984						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
840401	0.0	.1	.1	.1	.1	.2
840402	0.0	.1	.1	.1	.1	.2
840403	0.0	.1	.2	.1	.1	.2
840404	0.0	.1	.2	.1	.2	.3
840405	0.0	.1	.1	.1	.2	.3
840406	0.0	.1	.1	.2	.2	.3
840407	0.0	.1	.1	.2	.2	.3
840408	0.0	.1	.1	.2	.2	.3
840409	0.0	.1	.2	.2	.2	.4
840410	0.0	.1	.1	.2	.3	.4
840411	0.0	.1	.2	.3	.4	.5
840412	0.0	.1	.2	.3	.5	.6
840413	0.0	.1	.2	.4	.5	.6
840414	0.0	.1	.2	.5	.7	.7
840415	0.0	.1	.2	.6	.7	.9
840416	.1	.1	.1	.8	1.0	1.0
840417	0.0	.1	.2	1.0	1.1	1.2
840418	.1	.1	.2	1.0	1.2	1.3
840419	.1	.1	.2	1.1	1.2	1.3
840420	.1	.1	.2	1.1	1.2	1.4
840421	0.0	.1	.2	1.1	1.2	1.4
840422	.1	.1	.2	1.1	1.2	1.3
840423	.1	.1	.2	1.1	1.2	1.4
840424	.1	.1	.2	1.0	1.2	1.4
840425	.1	.2	.3	1.1	1.2	1.5
840426	.1	.2	.3	1.0	1.3	1.6
840427	.1	.2	.3	1.1	1.3	1.7
840428	.2	.3	.5	1.1	1.5	2.4
840429	.3	.5	.8	1.1	1.7	2.9
840430	.4	.5	.7	1.2	1.7	2.5
Monthly Value	0.0	.1	.8	.1	.8	2.9

Appendix Table A-12 (continued).

May 1984						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
840501	.4	.6	.9	1.1	1.9	3.1
840502	.5	.7	1.0	1.4	2.0	3.2
840503	.5	-----	.9	1.1	-----	1.9
Monthly Value	.4	-----	1.0	1.1	-----	3.2

----- Data not available.

Appendix Table A-13 Datapod temperature recorder data summary:
intragravel and surface water temperatures (C)
recorded at Mainstem Susitna River at LRX 57 -
Site 1, RM 142.3, GC S32N02W36CBA.

August 1983						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
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	-----	9.4	6.6	-----	9.6

----- Data not available.

Appendix Table A-13 (continued).

SECRET

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

----- Data not available.

Appendix Table A-14. Datapod temperature recorder data summary:
intragravel and surface water temperatures (C)
recorded 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	7.8	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	.5	1.7	2.5	-.1	.4	1.1
830930	.9	1.4	2.1	1.0	1.6	2.3
Monthly Value	.5	-----	8.0	-.1	-----	6.8

----- Data not available.

DRAFT

Appendix Table A-14 (continued).

October 1983						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
831001	2.0	2.3	2.5	2.3	2.5	2.7
831002	2.2	2.4	2.7	2.4	2.6	2.8
831003	1.8	2.2	2.7	1.9	2.2	2.8
831004	.7	1.2	1.8	.7	1.2	1.9
831005	.2	.5	.7	.1	.5	.7
831006	.2	.6	.9	.1	.5	.9
831007	.1	.3	.6	-.1	.1	.6
831008	.2	.3	.4	-.1	0.0	.1
831009	.3	.4	.4	0.0	.0	.1
831010	.3	.4	.4	-.1	0.0	.1
831011	.3	.3	.4	-.1	0.0	0.0
831012	.4	.9	1.5	0.0	.6	1.2
831013	.5	1.2	1.5	.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	.1	2.2	4.1	-.1	.5	2.8

----- Data not available.

Appendix Table A-14 (continued).

DRAFT

November 1983						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
831101	4.0	4.2	4.5	-----	-----	-----
831102	3.2	3.8	4.2	-.1	-----	.1
831103	3.1	3.2	3.3	0.0	0.0	.1
831104	3.2	3.3	3.3	0.0	0.0	.1
831105	3.2	3.3	3.4	0.0	0.0	.1
831106	3.3	3.3	3.4	0.0	0.0	0.0
831107	3.3	3.4	3.5	0.0	.0	.1
831108	3.4	3.5	3.5	0.0	0.0	.1
831109	3.4	3.5	3.6	0.0	0.0	.2
831110	3.4	3.5	3.5	0.0	0.0	.1
831111	3.5	3.5	3.5	0.0	.0	.1
831112	3.5	3.5	3.6	0.0	.0	.1
831113	3.5	3.5	3.6	0.0	.0	.1
831114	3.6	3.6	3.7	0.0	.1	.3
831115	3.6	3.7	3.9	.1	.2	.5
831116	3.6	3.8	4.0	0.0	.3	.6
831117	3.6	3.7	3.7	0.0	.1	.2
831118	3.6	3.7	3.9	0.0	.2	.4
831119	3.8	3.9	3.9	.3	.4	.4
831120	3.7	3.8	3.8	.2	.2	.4
831121	3.6	3.7	3.8	0.0	.1	.2
831122	3.7	3.7	3.7	0.0	.1	.1
831123	3.6	3.7	3.8	0.0	.0	.1
831124	3.6	3.7	3.8	0.0	.0	.1
831125	3.7	3.7	3.8	0.0	0.0	.1
831126	3.7	3.7	3.8	0.0	0.0	.1
831127	3.7	3.7	3.9	0.0	0.0	.1
831128	3.8	3.8	3.9	0.0	.0	.1
831129	3.8	3.8	3.9	0.0	0.0	.1
831130	3.8	3.8	3.9	0.0	0.0	.1
Monthly Value	3.1	3.6	4.5	-.1	.1	.6

----- Data not available.

Appendix Table A-14 (continued).

December 1983						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
831201	3.8	3.8	3.9	0.0	0.0	.1
831202	3.8	3.9	3.9	0.0	.0	.1
831203	3.8	3.8	3.9	0.0	.0	.1
831204	3.8	3.8	3.9	0.0	.0	.1
831205	3.8	3.8	3.9	0.0	0.0	.1
831206	3.8	3.9	3.9	0.0	0.0	.1
831207	3.8	3.8	3.9	0.0	0.0	.1
831208	3.8	3.8	3.9	0.0	.0	.1
831209	3.8	3.9	3.9	0.0	.1	.1
831210	3.8	3.9	3.9	0.0	.0	.1
831211	3.8	3.8	3.9	0.0	0.0	.1
831212	3.8	3.8	3.9	0.0	.0	.1
831213	3.8	3.8	3.9	0.0	.0	.1
831214	3.8	3.8	3.9	0.0	.1	.1
831215	3.5	3.7	3.9	0.0	.1	.1
831216	3.3	3.4	3.5	0.0	.1	.1
831217	3.3	3.3	3.4	0.0	.0	.1
831218	3.3	3.5	3.5	0.0	0.0	.1
831219	3.4	3.5	3.5	0.0	0.0	.1
831220	3.4	3.5	3.6	0.0	0.0	.1
831221	3.3	3.6	3.7	0.0	0.0	.1
831222	3.5	3.6	3.7	0.0	.0	.1
831223	3.3	3.4	3.5	0.0	.0	.1
831224	3.2	3.2	3.3	0.0	.0	.1
831225	3.1	3.2	3.3	0.0	0.0	.1
831226	3.1	3.3	3.6	0.0	0.0	.1
831227	3.5	3.7	3.8	0.0	.0	.1
831228	3.7	3.8	3.8	0.0	.0	.1
831229	3.7	3.8	3.8	0.0	.1	.1
831230	3.7	3.8	3.8	0.0	.1	.2
831231	3.7	3.8	3.8	0.0	.0	.1
Monthly Value	3.1	3.7	3.9	0.0	.0	.2

Appendix Table A-14 (continued).

January 1984						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
840101	3.7	3.8	3.8	0.0	0.0	.1
840102	3.7	3.8	3.8	0.0	0.0	0.0
840103	3.7	3.7	3.8	0.0	0.0	.1
840104	3.7	3.8	3.8	0.0	0.0	.1
840105	3.8	3.8	3.9	0.0	.0	.1
840106	3.7	3.8	3.8	0.0	.0	.1
840107	3.7	3.8	3.8	0.0	0.0	.1
840108	3.7	3.8	3.8	0.0	0.0	.1
840109	3.7	3.7	3.8	0.0	0.0	.1
840110	3.1	3.8	3.8	0.0	0.0	.1
840111	3.1	3.7	3.8	0.0	0.0	0.0
840112	3.1	3.8	3.8	0.0	0.0	0.0
840113	3.1	3.7	3.8	0.0	0.0	.1
840114	3.1	3.7	3.8	0.0	0.0	.1
840115	3.1	3.7	3.8	0.0	0.0	.1
840116	3.2	3.7	3.8	0.0	0.0	.1
840117	3.1	3.7	3.8	0.0	0.0	.1
840118	3.1	3.7	3.8	0.0	0.0	0.0
840119	3.2	3.8	3.8	0.0	0.0	.1
840120	3.2	3.8	3.8	0.0	.0	.1
840121	3.2	3.8	3.8	0.0	.0	.1
840122	3.2	3.8	3.8	0.0	.0	.1
840123	3.2	3.8	3.8	0.0	.1	.1
840124	3.1	3.8	3.9	0.0	0.0	.1
840125	3.2	3.8	3.8	0.0	.0	.1
840126	3.2	3.8	3.8	0.0	0.0	.1
840127	3.2	3.8	3.9	0.0	.0	.1
840128	3.2	3.8	3.9	0.0	.0	.1
840129	3.2	3.7	3.8	0.0	0.0	.1
840130	3.3	3.8	3.8	0.0	0.0	0.0
840131	3.3	3.8	3.8	0.0	0.0	.1
Monthly Value	3.1	3.8	3.9	0.0	.0	.1

Appendix Table A-14 (continued).

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February 1984						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
840201	3.2	3.8	3.8	0.0	0.0	.1
840202	3.2	3.7	3.8	0.0	.0	.1
840203	3.2	3.7	3.9	0.0	.0	.1
840204	3.3	3.7	3.8	0.0	0.0	.1
840205	3.2	3.7	3.8	0.0	0.0	0.0
840206	3.2	3.8	3.8	0.0	0.0	.1
840207	3.2	3.7	3.8	0.0	0.0	.1
840208	3.2	3.8	3.8	0.0	.0	.1
840209	3.3	3.8	3.8	0.0	.0	.1
840210	3.2	3.8	3.8	0.0	.0	.1
840211	3.2	3.7	3.8	0.0	.0	.1
840212	3.2	3.7	3.8	0.0	0.0	.1
840213	3.2	3.7	3.8	0.0	.0	.1
840214	3.2	3.7	3.7	0.0	0.0	.1
840215	3.2	3.7	3.7	0.0	0.0	.1
840216	3.2	3.7	3.7	0.0	0.0	.1
840217	3.2	3.7	3.7	0.0	0.0	.1
840218	3.2	3.6	3.7	0.0	0.0	.1
840219	3.2	3.6	3.7	-.1	0.0	.1
840220	3.2	3.7	3.7	0.0	0.0	.1
840221	3.1	3.6	3.7	0.0	.0	.1
840222	3.2	3.6	3.7	0.0	0.0	.1
840223	3.2	3.6	3.7	0.0	0.0	.1
840224	3.1	3.6	3.7	0.0	0.0	.1
840225	3.1	3.6	3.7	0.0	0.0	.1
840226	3.2	3.6	3.7	0.0	0.0	.1
840227	3.2	3.6	3.7	0.0	.0	.1
840228	3.2	3.6	3.7	0.0	0.0	.1
840229	3.4	3.6	3.7	0.0	0.0	.1
Monthly Value	3.1	3.7	3.9	-.1	.0	.1

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Appendix Table A-14 (continued).

DRAFT

March 1984						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
840301	3.4	3.6	3.7	0.0	.0	.1
840302	3.4	3.6	3.7	0.0	0.0	.1
840303	3.4	3.6	3.7	0.0	.0	.1
840304	3.4	3.6	3.7	0.0	0.0	.1
840305	3.4	3.5	3.6	0.0	0.0	.1
840306	3.4	3.5	3.6	0.0	0.0	.1
840307	3.4	3.6	3.6	0.0	0.0	.1
840308	3.4	3.5	3.6	0.0	0.0	.1
840309	3.4	3.5	3.6	0.0	0.0	.1
840310	3.4	3.5	3.6	0.0	0.0	.1
840311	3.4	3.6	3.6	0.0	0.0	.1
840312	3.4	3.6	3.6	0.0	0.0	.1
840313	3.4	3.6	3.6	0.0	0.0	.1
840314	3.4	3.5	3.6	0.0	0.0	.1
840315	3.4	3.6	3.6	0.0	0.0	.1
840316	3.4	3.6	3.6	0.0	0.0	.1
840317	3.4	3.6	3.6	0.0	0.0	.1
840318	3.4	3.5	3.6	0.0	0.0	.1
840319	3.4	3.6	3.6	0.0	0.0	.1
840320	3.4	3.5	3.6	0.0	0.0	.1
840321	3.4	3.5	3.6	0.0	0.0	.1
840322	3.4	3.5	3.6	0.0	0.0	.1
840323	3.4	3.5	3.6	0.0	0.0	.1
840324	3.3	3.5	3.6	0.0	0.0	.1
840325	3.4	3.5	3.6	0.0	0.0	.1
840326	3.4	3.5	3.6	0.0	0.0	.1
840327	3.4	3.5	3.6	0.0	0.0	.1
840328	3.4	3.5	3.6	0.0	0.0	.1
840329	3.4	3.5	3.6	0.0	0.0	.1
840330	3.4	3.5	3.6	0.0	0.0	.1
840331	3.4	3.5	3.6	0.0	0.0	.1
Monthly Value	3.3	3.6	3.7	0.0	.0	.1

Appendix Table A-14 (continued).

April 1984						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
840401	3.4	3.5	3.6	0.0	0.0	.1
840402	3.4	3.5	3.6	0.0	0.0	.1
840403	3.4	3.5	3.6	0.0	0.0	.1
840404	3.2	3.5	3.6	-.1	0.0	.1
840405	3.4	3.5	3.6	0.0	0.0	.1
840406	3.4	3.5	3.6	0.0	0.0	.1
840407	3.3	3.5	3.6	0.0	0.0	.1
840408	3.4	3.5	3.6	0.0	0.0	.1
840409	3.4	3.5	3.6	0.0	.0	.1
840410	3.4	3.5	3.6	0.0	.0	.1
840411	3.3	3.5	3.6	0.0	0.0	.1
840412	3.3	3.5	3.5	0.0	0.0	.1
840413	3.3	3.5	3.6	0.0	.0	.1
840414	3.3	3.5	3.6	0.0	.0	.1
840415	3.3	3.5	3.6	0.0	.0	.1
840416	3.4	3.5	3.5	0.0	0.0	.1
840417	3.3	3.5	3.5	0.0	0.0	.1
840418	3.4	3.5	3.6	0.0	.0	.1
840419	3.4	3.5	3.6	0.0	0.0	.1
840420	3.4	3.5	3.6	0.0	0.0	.1
840421	3.3	3.5	3.6	-.1	0.0	.1
840422	3.3	3.5	3.6	0.0	0.0	.1
840423	3.4	3.5	3.6	0.0	0.0	.1
840424	3.4	3.6	3.7	0.0	0.0	.1
840425	3.5	3.6	3.7	0.0	0.0	.1
840426	3.5	3.7	3.7	0.0	0.0	.1
840427	3.5	3.7	3.8	0.0	0.0	.1
840428	3.5	3.7	3.8	0.0	0.0	.1
840429	3.5	3.8	3.9	-.1	0.0	.1
840430	3.5	3.8	3.9	0.0	0.0	.1
Monthly Value	3.2	3.6	3.9	-.1	.0	.1

Appendix Table A-14 (continued).

May 1984						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
840501	3.5	3.9	3.9	0.0	0.0	.1
840502	3.5	3.9	4.0	0.0	0.0	.1
840503	3.5	4.0	4.0	0.0	0.0	.1
840504	3.5	4.0	4.1	0.0	0.0	.1
840505	3.6	4.1	4.1	0.0	0.0	.1
840506	3.6	4.1	4.1	-.1	0.0	.1
840507	3.6	4.1	4.1	0.0	0.0	.1
840508	3.6	4.1	4.1	0.0	0.0	.1
840509	3.6	4.2	4.5	0.0	.1	.5
840510	3.6	4.1	4.2	-.1	0.0	.1
840511	3.6	4.1	4.4	0.0	.0	.3
840512	3.6	4.1	4.3	0.0	.0	.3
840513	3.7	4.6	5.7	.1	.7	1.9
840514	4.1	5.2	6.5	.2	1.3	2.6
840515	3.9	4.9	5.9	.2	1.0	2.1
840516	3.9	4.9	6.1	-.1	.9	2.3
840517	4.2	5.4	6.6	.5	1.5	2.8
840518	4.5	5.4	6.4	.5	1.5	2.6
840519	4.6	5.6	6.6	.8	1.7	2.8
840520	4.8	6.2	8.3	.9	2.5	4.6
840521	7.9	8.6	9.0	4.6	5.0	5.5
840522	8.5	8.8	9.4	4.9	5.3	6.3
840523	8.1	8.6	9.1	-----	-----	-----
Monthly Value	3.5	5.0	9.4	-.1	.9	6.3

----- Data not available.

Appendix Table A-15. Datapod temperature recorder data summary:
intragravel and surface water temperatures (C)
recorded at Side Channel 10 - Site 1, RM 134.0,
GC S31N03W31BBB.

August 1983						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
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	4.6	-----	5.1	7.3	-----	10.3

----- Data not available.

Appendix Table A-15. (continued).

3217

September 1983						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
830901	4.6	4.7	4.8	8.6	8.8	9.1
830902	4.6	4.7	4.7	8.4	8.7	9.1
830903	4.4	4.6	4.7	7.8	8.2	8.7
830904	4.2	4.3	4.5	7.2	7.6	8.2
830905	4.0	4.2	4.5	5.9	8.2	12.1
830906	3.9	4.2	4.6	5.2	8.3	12.8
830907	4.0	4.2	4.5	5.6	7.9	11.8
830908	4.2	4.3	4.4	7.4	8.5	9.8
830909	4.2	4.4	4.6	7.5	8.9	12.6
830910	4.2	4.4	4.7	7.5	9.0	13.2
830911	4.3	4.4	4.6	7.1	8.1	10.2
830912	4.2	4.4	4.5	7.2	8.5	10.9
830913	4.2	4.4	4.5	7.1	8.2	10.5
830914	4.2	4.4	4.5	6.5	7.3	8.1
830915	4.2	4.4	4.6	6.4	7.9	11.8
830916	4.1	4.4	4.7	4.9	7.3	11.5
830917	4.1	4.4	4.7	4.7	7.0	11.2
830918	4.1	4.4	4.6	4.7	6.7	10.4
830919	4.2	4.4	4.6	5.1	6.8	9.0
830920	4.4	4.5	4.5	6.8	7.3	8.2
830921	4.5	4.5	4.7	7.1	7.9	9.7
830922	4.5	4.6	4.6	6.8	7.9	9.3
830923	4.3	4.4	4.6	4.7	6.4	8.7
830924	4.1	4.2	4.4	3.2	4.3	5.7
830925	4.0	4.1	4.3	3.2	4.5	7.4
830926	4.0	4.1	4.3	3.1	4.6	7.6
830927	4.0	4.2	4.3	3.1	4.6	7.0
830928	4.1	4.2	4.3	4.1	5.0	6.0
830929	4.2	4.2	4.3	4.5	5.2	5.7
830930	4.2	4.3	4.4	5.2	6.1	8.0
Monthly Value	3.9	4.3	4.8	3.1	7.2	13.2

Appendix Table A-15 (continued).

27.2 FT

October 1983						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
831001	4.2	4.3	4.4	6.1	6.8	8.5
831002	4.2	4.3	4.3	6.0	6.8	8.8
831003	4.1	4.2	4.3	4.6	5.9	8.3
831004	4.0	4.1	4.3	4.0	5.4	8.3
831005	4.0	4.1	4.2	3.6	5.2	6.3
831006	4.0	4.1	4.3	3.6	5.3	8.3
831007	3.9	4.1	4.2	3.2	4.1	6.8
831008	3.9	4.0	4.2	2.6	3.9	6.4
831009	3.9	4.0	4.0	2.2	3.3	4.3
831010	3.7	3.8	3.9	1.9	2.7	4.0
831011	3.8	4.0	4.1	4.0	4.8	6.5
831012	4.0	4.1	4.1	4.7	5.1	5.9
831013	3.9	4.0	4.1	2.3	4.7	6.2
831014	3.9	4.0	4.1	3.3	4.0	5.7
831015	3.9	4.0	4.0	3.5	4.4	5.5
831016	3.8	3.9	4.0	3.0	4.1	5.7
831017	3.8	3.9	4.0	3.1	4.1	6.0
831018	3.8	3.9	4.0	4.0	5.1	7.9
831019	3.7	3.8	3.9	2.6	4.1	5.1
831020	3.6	3.6	3.7	.8	2.7	3.5
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	3.1	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	3.3	8.8

Appendix Table A-15 (continued).

201 FT

November 1983						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
831101	2.9	3.0	3.0	.4	.7	1.4
831102	2.9	3.0	3.0	.7	1.1	1.9
831103	2.8	2.9	3.0	.5	.8	1.6
831104	2.8	2.8	2.9	.4	.6	.8
831105	2.7	2.8	2.8	.4	.7	1.0
831116	.4	-----	.4	-----	-----	-----
831117	-.1	.2	.4	-----	-----	-----
831118	*****	*****	*****	-----	-----	-----
831119	*****	*****	*****	-----	-----	-----
831120	*****	*****	*****	-----	-----	-----
831121	*****	*****	*****	-----	-----	-----
831122	*****	*****	*****	-----	-----	-----
831123	*****	*****	*****	-----	-----	-----
831124	*****	*****	*****	-----	-----	-----
831125	*****	*****	*****	-----	-----	-----
831126	*****	*****	*****	-----	-----	-----
831127	*****	*****	*****	-----	-----	-----
831128	*****	*****	*****	-----	-----	-----
831129	*****	*****	*****	-----	-----	-----
831130	*****	*****	*****	-----	-----	-----
Monthly Value	-.1	-----	3.0	.4	-----	1.9

----- Data not available.

***** Data available; site frozen.

Appendix Table A-16 Datapod temperature recorder data summary:
intragravel water temperatures (C) recorded
at Side Channel 10 - Site 1 when the site
was frozen, RM 134.0, GC S31N03W31BBB.

November 1983 (Site frozen)						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
831118	-0.2	-0.1	0.0	-----	-----	-----
831119	-1.0	-0.6	-0.2	-----	-----	-----
831120	-1.4	-1.2	-0.9	-----	-----	-----
831121	-0.9	-0.6	-0.3	-----	-----	-----
831122	-0.3	-0.2	-0.1	-----	-----	-----
831123	-0.3	-0.2	-0.1	-----	-----	-----
831124	-1.9	-0.0	-0.3	-----	-----	-----
831126	-3.0	-2.7	-2.4	-----	-----	-----
831127	-2.5	-2.3	-1.9	-----	-----	-----
831130	-1.7	-----	-1.4	-----	-----	-----
Monthly Value	-3.0	-----	0.0	-----	-----	-----

----- Data not available.

Appendix Table A-17. Datapod temperature recorder data summary:
intragravel and surface water temperatures (C)
recorded at Side Channel 10 - Site 2, RM 134.0,
GC S31N03W31BBB.

November 1983						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
831116	-----	-----	-----	1.1	-----	1.3
831117	-----	-----	-----	1.2	1.5	1.6
831118	-----	-----	-----	1.4	1.6	1.7
831119	-----	-----	-----	1.4	1.6	1.7
831120	-----	-----	-----	1.3	1.5	1.6
831121	-----	-----	-----	1.5	1.6	1.7
831122	-----	-----	-----	1.6	1.8	1.9
831123	-----	-----	-----	1.7	1.9	2.1
831124	-----	-----	-----	1.8	1.9	2.0
831125	-----	-----	-----	1.7	1.9	2.0
831126	-----	-----	-----	1.7	1.9	2.0
831127	-----	-----	-----	1.8	1.9	2.0
831128	-----	-----	-----	1.8	2.0	2.1
831129	-----	-----	-----	1.9	2.1	2.2
831130	3.4	-----	3.5	1.9	2.2	2.3
Monthly Value	3.4	-----	3.5	1.1	-----	2.3

----- Data not available.

Appendix Table A-17 (continued).

5377

December 1983						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
831201	3.4	3.5	3.5	2.0	2.2	2.3
831202	3.4	3.4	3.5	1.9	2.2	2.3
831203	3.4	3.4	3.5	1.9	2.2	2.2
831204	3.4	3.4	3.5	1.9	2.1	2.2
831205	3.4	3.4	3.4	1.8	2.0	2.1
831206	3.3	3.4	3.4	1.7	2.0	2.1
831207	3.3	3.3	3.4	1.7	2.0	2.0
831208	3.3	3.3	3.4	1.5	1.8	2.0
831209	3.2	3.3	3.4	1.3	1.5	1.7
831210	3.2	3.3	3.3	1.2	1.3	1.4
831211	3.2	3.2	3.3	1.2	1.3	1.4
831212	3.1	3.2	3.3	.8	1.2	1.5
831213	3.1	3.1	3.2	.8	1.0	1.1
831214	3.0	3.1	3.2	.7	1.0	1.2
831215	2.9	3.0	3.1	.1	-----	.7
831216	2.6	2.7	2.9	*****	*****	*****
831217	2.5	2.5	2.6	*****	*****	*****
831218	2.5	2.5	2.6	0.0	*****	.2
831219	2.5	2.6	2.7	.1	.5	1.2
831220	2.6	2.7	2.8	1.1	1.4	1.7
831221	2.8	2.9	3.0	1.6	1.7	1.9
831222	2.9	3.0	3.1	1.7	1.9	1.9
831223	3.0	3.1	3.1	1.7	1.9	1.9
831224	3.0	3.1	3.1	1.7	1.8	1.9
831225	2.9	3.0	3.1	1.7	1.8	1.9
831226	2.9	3.0	3.0	1.7	1.8	1.9
831227	2.9	3.0	3.0	1.7	1.8	1.9
831228	2.9	3.0	3.0	1.7	1.8	1.9
831229	2.7	2.9	2.9	1.6	1.7	1.8
831230	2.4	2.5	2.7	1.2	1.5	1.7
831231	2.0	2.2	2.4	1.0	1.3	1.4
Monthly Value	2.0	3.0	3.5	0.0	1.6	2.3

----- Data not available.

***** Data available; site frozen.

Appendix Table A-17 (continued).

SECRET

January 1984						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
840101	1.8	1.9	2.0	1.2	1.3	1.4
840102	1.8	1.8	1.9	1.3	1.4	1.5
840103	1.8	1.9	1.9	1.3	1.5	1.6
840104	1.8	1.9	2.0	1.4	1.5	1.6
840105	1.9	2.0	2.1	1.4	1.5	1.6
840106	2.1	2.2	2.2	1.5	1.6	1.7
840107	2.2	2.3	2.4	1.5	1.6	1.7
840108	2.4	2.5	2.6	1.6	1.7	1.7
840109	2.6	2.7	2.7	1.6	1.6	1.7
840110	2.7	2.7	2.8	1.5	1.6	1.7
840111	2.6	2.7	2.8	1.3	1.5	1.6
840112	2.5	2.6	2.6	1.3	1.4	1.5
840113	2.5	2.6	2.6	1.3	1.4	1.5
840114	2.4	2.5	2.5	1.3	1.4	1.4
840115	2.4	2.5	2.5	1.3	1.4	1.4
840116	2.4	2.4	2.4	1.2	1.3	1.3
840117	2.3	2.4	2.4	1.1	1.2	1.3
840118	2.3	2.4	2.4	1.0	1.1	1.2
840119	2.3	2.4	2.4	.7	1.0	1.2
840120	2.2	2.2	2.3	.7	.8	.9
840121	2.1	2.2	2.3	.8	.9	1.0
840122	2.1	2.2	2.2	.8	.9	1.0
840123	2.1	2.2	2.3	.8	.9	1.0
840124	2.2	2.2	2.3	.8	1.0	1.0
840125	2.2	2.2	2.3	.8	1.0	1.0
840126	2.2	2.2	2.3	.7	.9	1.0
840127	2.1	2.2	2.3	.7	.8	1.0
840128	2.2	2.2	2.3	.6	.7	.9
840129	2.2	2.2	2.3	.6	.7	.8
840130	2.2	2.2	2.3	.7	.8	.9
840131	2.1	2.2	2.2	.9	1.0	1.0
Monthly Value	1.8	2.3	2.8	.6	1.2	1.7

Appendix Table A-17 (continued).

0201

February 1984						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
840201	2.1	2.1	2.2	.7	.9	1.1
840202	2.2	2.2	2.3	.8	1.0	1.1
840203	2.2	2.2	2.3	.9	1.0	1.1
840204	2.2	2.4	2.5	.7	.9	1.1
840205	2.4	2.4	2.5	.9	1.1	1.3
840206	2.5	2.6	2.7	1.2	1.3	1.5
840207	2.7	2.8	2.9	1.2	1.4	1.5
840208	2.9	3.0	3.0	1.4	1.5	1.5
840209	3.0	3.1	3.2	1.4	1.5	1.5
840210	3.1	3.2	3.2	1.2	1.4	1.5
840211	3.2	3.3	3.4	1.1	1.2	1.4
840212	3.3	3.3	3.4	1.1	1.2	1.5
840213	3.3	3.4	3.4	1.1	1.3	1.5
840214	3.4	3.4	3.5	.9	1.3	1.6
840215	3.4	3.4	3.5	.7	.9	1.1
840216	3.4	3.5	3.5	.8	1.0	1.4
840217	3.4	3.5	3.5	1.0	1.3	1.6
840218	3.4	3.5	3.5	.9	1.3	1.7
840219	3.4	3.5	3.5	.7	1.1	1.8
840220	3.4	3.5	3.5	.7	.9	1.3
840221	3.4	3.5	3.5	.8	1.0	1.6
840222	3.4	3.5	3.5	.8	1.1	1.6
840223	3.4	3.5	3.5	.9	1.3	1.8
840224	3.4	3.5	3.5	.9	1.2	1.7
840225	3.4	3.5	3.5	.9	1.3	2.0
840226	3.4	3.4	3.5	.6	1.0	1.9
840227	3.4	3.4	3.5	.4	.9	1.7
840228	3.4	3.5	3.5	.4	.9	1.8
840229	3.4	3.4	3.5	.4	.9	1.9
Monthly Value	2.1	3.1	3.5	.4	1.1	2.0

Appendix Table A-17 (continued).

SECRET

March 1984						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
840301	3.4	3.4	3.5	.4	.9	1.9
840302	3.4	3.5	3.5	.7	1.2	2.1
840303	3.4	3.5	3.5	.7	1.4	2.6
840304	3.4	3.5	3.5	.8	1.6	3.3
840305	3.4	3.5	3.5	1.3	1.9	3.1
840306	3.4	3.5	3.5	1.0	1.9	3.8
840307	3.4	3.5	3.5	1.1	1.9	3.6
840308	3.4	3.5	3.5	1.6	2.3	4.1
840309	3.4	3.4	3.5	1.4	2.2	3.8
840310	3.4	3.4	3.5	1.3	2.2	3.9
840311	3.4	3.5	3.5	.9	2.2	4.9
840312	3.4	3.4	3.5	.7	1.9	4.8
840313	3.4	3.4	3.5	.7	2.0	5.0
840314	3.4	3.4	3.5	1.0	2.1	4.2
840315	3.4	3.4	3.5	.8	2.1	5.1
840316	3.3	3.4	3.5	.8	2.2	5.3
840317	3.3	3.4	3.5	.7	1.8	4.7
840318	3.3	3.4	3.5	.7	1.7	4.1
840319	3.3	3.4	3.5	.7	1.6	3.8
840320	3.3	3.4	3.5	.8	1.9	4.0
840321	3.3	3.4	3.5	.8	1.9	4.6
840322	3.3	3.3	3.5	.8	1.5	4.7
840323	3.3	3.3	3.5	.9	2.0	4.7
840324	3.2	3.4	3.5	1.0	2.2	4.6
840325	3.3	3.4	3.5	1.2	2.5	5.1
840326	3.3	3.4	3.5	1.6	2.7	5.8
840327	3.3	3.3	3.5	1.6	3.0	5.9
840328	3.2	3.3	3.4	1.2	3.3	7.4
840329	3.3	3.3	3.4	1.6	2.9	5.2
840330	3.2	3.3	3.5	1.5	3.4	6.5
840331	3.2	3.3	3.4	2.0	3.0	4.6
Monthly Value	3.2	3.4	3.5	.4	2.1	7.4

Appendix Table A-17 (continued).

April 1984						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
840401	3.2	3.3	3.4	1.7	3.4	6.2
840402	3.2	3.3	3.4	1.3	2.6	5.7
840403	3.2	3.3	3.4	1.2	3.1	6.6
840404	3.1	3.3	3.4	.9	3.5	8.3
840405	3.2	3.3	3.4	1.8	3.4	6.7
840406	3.2	3.3	3.4	1.4	3.4	7.5
840407	3.2	3.2	3.4	1.4	3.2	7.1
840408	3.2	3.3	3.4	1.7	3.4	6.5
840409	3.1	3.3	3.4	1.0	3.7	8.4
840410	3.1	3.2	3.4	1.3	3.5	7.1
840411	3.1	3.2	3.4	1.1	3.5	8.0
840412	3.1	3.2	3.4	.9	3.8	8.4
840413	3.1	3.2	3.4	1.0	4.0	8.4
840414	3.1	3.2	3.4	1.0	3.7	7.5
840415	3.1	3.2	3.3	2.3	3.8	7.5
840416	3.1	3.2	3.3	1.0	2.8	4.4
840417	3.1	3.2	3.4	1.7	4.0	8.4
840418	3.0	3.2	3.4	1.0	4.3	9.1
840419	3.0	3.2	3.5	1.3	4.4	10.2
840420	3.1	3.2	3.5	1.9	4.9	9.8
840421	3.1	3.3	3.5	1.9	5.7	12.1
840422	3.0	3.3	3.5	.7	4.7	11.2
840423	3.0	3.3	3.5	1.7	4.9	9.8
840424	3.0	3.3	3.5	1.7	5.1	10.6
840425	3.1	3.3	3.6	1.6	5.7	12.4
840426	3.1	3.3	3.6	1.9	5.3	10.7
840427	3.1	3.4	3.6	2.1	5.7	10.4
840428	3.2	3.4	3.6	3.7	6.4	11.3
840429	3.1	3.4	3.5	2.1	6.5	13.1
840430	3.1	3.2	3.5	3.2	6.2	12.1
Monthly Value	3.0	3.3	3.6	.7	4.3	13.1

Appendix Table A-17 (continued).

DRAFT

May 1984						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
840501	3.0	3.2	3.4	1.8	6.2	10.9
840502	3.0	3.1	3.3	3.2	5.5	9.0
840503	3.0	3.1	3.4	1.9	5.5	11.4
840504	3.0	3.1	3.3	2.1	5.1	9.6
840505	3.0	3.1	3.3	2.9	5.9	12.0
840506	3.0	3.1	3.3	2.3	6.4	11.9
840507	2.9	3.1	3.3	1.7	6.3	12.3
840508	2.9	3.1	3.2	2.3	7.1	13.5
840509	2.9	3.0	3.1	2.7	7.4	14.2
840510	2.9	3.0	3.1	2.9	6.9	13.6
840511	2.9	3.0	3.1	3.2	6.4	11.3
840512	2.9	3.0	3.1	2.6	6.6	12.1
840513	2.9	3.0	3.1	3.8	7.3	12.6
840514	2.9	3.0	3.1	3.7	7.6	12.4
840515	2.9	3.0	3.1	4.3	8.0	13.2
840516	3.0	3.0	3.2	2.1	6.6	13.2
840517	2.9	3.1	3.3	3.2	8.1	14.7
840518	3.0	3.2	3.4	3.6	5.8	10.8
840519	2.9	3.1	3.3	2.1	3.4	4.8
840520	2.9	3.1	3.2	2.0	3.9	6.0
840521	3.2	3.3	3.4	5.2	5.7	6.5
840522	3.3	3.4	3.5	5.4	5.8	6.2
840523	3.3	3.5	3.5	5.1	5.8	6.9
840524	3.4	3.5	3.5	5.9	6.2	6.7
840525	3.4	3.5	3.6	4.9	6.1	6.8
840526	3.3	3.5	3.6	4.9	5.2	6.6
840527	3.2	3.3	3.4	4.4	4.8	5.5
840528	3.1	3.2	3.3	3.8	4.3	4.7
840529	3.1	3.2	3.3	3.9	4.1	4.4
840530	3.1	3.2	3.2	3.9	4.2	4.5
840531	3.1	3.2	3.2	3.9	5.2	11.5
Monthly Value	2.9	3.2	3.6	1.7	5.9	14.7

Appendix Table A-18. Datapod temperature recorder data summary:
surface water temperatures (C) recorded
at Side Channel 10 - Site 2 when the site
was frozen, RM 134.0, GC S31N03W31BBB.

December 1983 (Site frozen)						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
831215	+++++	+++++	+++++	-1.0	-----	.1
831216	+++++	+++++	+++++	-1.2	-1.1	-1.0
831217	+++++	+++++	+++++	-1.1	-.6	-.1
831218	+++++	+++++	+++++	-.2	-.1	0.0
Monthly Value	+++++	+++++	+++++	-1.2	-----	.1

----- Data not available.

+++++ Data available; site not frozen.

Appendix Table A-19. Datapod temperature recorder data summary:
intragravel and surface water temperatures (C)
recorded at Upper Side Channel 11 - Site 1,
RM 136.3, GC S31N02W20BBD.

August 1983						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
830824	5.8	5.9	6.0	8.0	8.3	8.6
830825	5.7	5.8	5.9	7.2	7.6	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	-----	6.2	6.7	-----	9.4

----- Data not available.

Appendix Table A-19 (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

----- Data not available.

Appendix Table A-20. Datapod temperature recorder data summary:
intragravel and surface water temperatures (C)
recorded 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	4.1	4.5	3.7	4.6	6.2
Monthly Value	2.7	-----	5.5	.6	-----	9.5

----- Data not available.

Appendix Table A-20 (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	3.9	4.3	2.2	3.5	5.9
831004	3.2	3.7	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	2.9	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	1.7	3.1
831024	3.1	3.3	3.6	.7	1.3	2.8
831025	3.0	3.2	3.5	.6	1.2	2.2
831026	3.2	3.4	3.7	1.1	1.8	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

Appendix Table A-20 (continued).

DRIFT

November 1983						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
831101	3.4	3.6	3.8	1.0	1.7	2.7
831102	3.6	3.8	4.1	1.6	2.4	3.5
831103	3.2	3.7	3.9	.8	1.4	2.3
831104	3.1	3.5	3.6	.8	1.2	1.8
831105	3.3	3.6	3.7	.8	1.4	1.9
831106	3.1	3.5	3.6	.8	1.1	1.3
831107	3.2	3.5	3.6	.9	1.2	1.5
831108	3.3	3.6	3.8	1.0	1.5	1.9
831109	3.5	3.8	3.9	1.2	1.8	2.2
831110	3.4	3.7	3.9	1.0	1.4	2.0
831111	3.4	3.7	3.9	1.1	1.5	1.9
831112	3.4	3.8	4.0	1.1	1.7	2.1
831113	3.4	3.8	3.9	1.0	1.4	1.8
831114	3.4	3.7	3.8	1.0	1.3	1.4
831115	3.4	3.7	3.8	1.1	1.3	1.5
831116	3.5	3.9	4.1	1.2	1.8	2.0
831117	3.6	4.1	4.1	1.4	1.9	2.0
831118	3.7	4.2	4.3	1.6	2.0	2.2
831119	3.6	4.0	4.1	1.3	1.6	1.7
831120	3.6	4.1	4.2	1.2	1.7	2.0
831121	3.8	4.3	4.5	1.8	2.2	2.5
831122	4.1	4.5	4.6	2.1	2.4	2.6
831123	4.1	4.5	4.6	1.8	2.2	2.6
831124	3.8	4.4	4.5	1.3	1.9	2.3
831125	3.8	4.3	4.3	1.4	1.8	1.9
831126	3.9	4.4	4.5	1.6	2.0	2.2
831127	4.0	4.6	4.7	1.8	2.3	2.5
831128	4.2	4.7	4.8	2.1	2.5	2.8
831129	4.2	4.6	4.7	2.0	2.5	2.9
831130	4.2	4.6	4.7	1.8	2.5	3.0
Monthly Value	3.1	4.0	4.8	.8	1.8	3.5

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Appendix Table A-20 (continued).

DRAFT

December 1983						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
831201	4.1	4.6	4.7	2.0	2.7	3.0
831202	4.0	4.5	4.7	1.7	2.4	2.8
831203	4.0	4.5	4.6	2.1	2.5	2.8
831204	4.0	4.4	4.5	1.8	2.2	2.5
831205	3.9	4.5	4.5	2.1	2.7	2.9
831206	4.1	4.6	4.6	2.1	2.7	3.1
831207	3.7	4.2	4.4	1.7	2.1	2.3
831208	3.6	4.2	4.3	1.7	2.1	2.2
831209	3.6	4.1	4.1	1.8	2.1	2.2
831210	3.6	4.0	4.1	1.7	2.1	2.2
831211	3.6	4.0	4.1	1.8	2.2	2.3
831212	3.6	4.1	4.2	1.9	2.2	2.4
831213	3.6	4.2	4.2	1.8	2.2	2.4
831214	3.6	4.2	4.3	1.2	1.8	2.1
831215	3.6	4.1	4.2	0.0	.8	1.5
831216	3.4	4.0	4.1	.1	.6	.8
831217	3.5	4.0	4.2	.4	1.5	2.2
831218	3.5	4.1	4.2	1.8	2.1	2.3
831219	3.6	4.2	4.2	1.2	1.8	2.0
831220	3.7	4.2	4.3	1.6	2.0	2.1
831221	3.6	4.2	4.2	1.7	2.3	2.3
831222	3.5	4.1	4.2	1.9	2.3	2.3
831223	3.5	4.0	4.0	1.5	1.9	2.2
831224	3.4	4.0	4.0	1.1	1.6	1.8
831225	3.4	4.0	4.1	1.4	1.8	1.9
831226	3.5	3.9	4.0	1.2	1.7	1.9
831227	3.3	3.9	4.0	.7	1.2	1.5
831228	3.3	3.9	3.9	.1	.7	1.0
831229	3.3	3.8	3.8	0.0	-----	.5
831230	3.1	3.6	3.8	-----	-----	-----
831231	3.2	3.8	4.0	-----	-----	-----
Monthly Value	3.1	4.1	4.7	0.0	1.9	3.1

----- Data not available.

Appendix Table A-20 (continued).

DRAFT

January 1984						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
840101	3.3	3.9	4.2	-.2	.6	1.6
840102	3.6	4.4	4.5	.9	1.7	2.7
840103	3.9	4.5	4.7	1.6	2.5	2.9
840104	4.1	4.7	4.7	2.3	2.9	3.2
840105	4.1	4.7	4.8	2.2	2.7	3.2
840106	4.0	4.6	4.7	1.4	2.4	2.9
840107	3.7	4.3	4.4	1.2	1.7	2.5
840108	3.6	4.2	4.3	.9	1.6	2.4
840109	2.7	3.3	3.5	.7	1.2	2.0
840110	2.8	3.3	3.4	.8	1.3	1.5
840111	2.8	3.4	3.5	1.0	1.6	1.8
840112	3.0	3.5	3.6	1.1	1.8	2.1
840113	3.0	3.5	3.6	1.1	1.7	2.2
840114	2.6	3.3	3.5	.6	1.3	1.8
840115	2.7	3.2	3.3	.4	1.3	1.8
840116	2.1	2.8	3.1	-.2	.4	.9
840117	2.1	2.7	2.8	0.0	.7	.9
840118	2.2	2.7	2.9	.3	.8	1.0
840119	2.1	2.7	2.8	-.1	.7	1.2
840120	2.1	2.7	2.8	-.1	.5	.7
840121	1.9	2.6	2.7	-.2	.5	.8
840122	2.0	2.6	2.7	-.2	.4	.7
840123	1.9	2.6	2.7	-.2	.4	.5
840124	2.0	2.6	2.7	-.1	.5	.7
840125	1.9	2.6	2.7	-.3	.4	.6
840126	2.0	2.7	2.9	0.0	.7	1.0
840127	2.0	2.7	2.9	-.1	.7	1.1
840128	2.2	2.8	2.9	.2	.9	1.3
840129	2.3	3.0	3.1	.7	1.2	1.6
840130	2.3	2.9	3.1	.1	1.1	1.6
840131	2.5	3.1	3.2	.9	1.5	1.9
Monthly Value	1.9	3.3	4.8	-.3	1.2	3.2

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Appendix Table A-20 (continued).

DRAFT

February 1984						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
840201	2.2	2.9	3.2	.1	1.0	1.5
840202	2.4	3.0	3.1	.3	1.1	1.7
840203	2.2	2.7	2.9	-.1	.7	1.2
840204	2.3	3.0	3.1	.2	1.2	1.5
840205	2.5	3.1	3.2	.8	1.4	1.8
840206	2.3	2.9	3.1	.2	.9	1.4
840207	2.2	2.9	3.1	.2	.9	1.5
840208	2.2	2.9	3.0	0.0	.7	1.1
840209	2.1	2.8	2.8	-.1	.5	.7
840210	2.0	2.7	2.9	-.1	.7	1.0
840211	2.2	3.0	3.2	.4	1.1	1.7
840212	2.3	3.0	3.2	.3	1.1	1.7
840213	2.4	3.0	3.2	.4	1.2	1.8
840214	2.4	3.1	3.4	.5	1.5	2.0
840215	2.5	3.2	3.4	.8	1.5	2.0
840216	2.6	3.2	3.4	.7	1.6	2.3
840217	2.7	3.5	3.8	1.3	2.2	3.2
840218	2.7	3.5	3.8	.8	1.9	3.1
840219	2.6	3.4	3.6	.3	1.6	2.6
840220	2.4	3.0	3.3	.2	.8	1.1
840221	2.4	3.0	3.3	.2	1.1	1.9
840222	2.5	3.2	3.5	.5	1.6	2.3
840223	2.7	3.5	3.7	1.2	2.0	2.8
840224	2.7	3.5	3.7	.8	1.9	2.7
840225	2.7	3.5	3.8	1.0	1.9	3.1
840226	2.5	3.3	3.6	.3	1.3	2.5
840227	2.4	3.2	3.4	.3	1.2	2.1
840228	2.4	3.2	3.4	.3	1.2	2.0
840229	2.5	3.2	3.6	.4	1.3	2.6
Monthly Value	2.0	3.1	3.8	-.1	1.3	3.2

Appendix Table A-20 (continued).

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March 1984						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
840301	2.5	3.1	3.4	.3	1.1	2.7
840302	3.1	3.6	4.0	1.2	2.2	3.7
840303	3.3	3.7	4.1	1.2	2.4	4.1
840304	3.4	4.0	4.5	1.5	3.0	5.3
840305	3.8	4.2	4.7	2.4	3.5	5.5
840306	3.8	4.3	4.8	1.8	3.5	5.9
840307	3.7	4.2	4.9	2.0	3.4	5.8
840308	3.9	4.5	5.1	2.8	4.1	6.4
840309	3.9	4.5	5.1	2.7	4.0	6.0
840310	3.8	4.4	5.1	2.3	3.7	6.3
840311	3.8	4.4	5.2	1.8	3.7	7.0
840312	3.5	4.3	5.0	1.3	3.2	6.3
840313	3.6	4.3	5.0	1.3	3.3	6.2
840314	3.8	4.4	5.1	2.1	3.6	6.1
840315	3.7	4.4	5.0	1.8	3.3	6.2
840316	3.6	4.3	5.0	1.4	3.2	6.0
840317	3.5	4.1	4.7	1.1	2.6	5.5
840318	3.4	4.0	4.6	1.0	2.4	5.1
840319	3.4	4.0	4.6	1.0	2.4	5.1
840320	3.6	4.1	4.8	1.2	2.8	5.6
840321	3.6	4.2	4.8	1.1	2.7	5.6
840322	3.5	4.1	4.7	1.1	2.5	5.3
840323	3.6	4.1	4.7	1.1	2.5	5.0
840324	3.5	4.1	4.7	1.1	2.6	5.2
840325	3.6	4.3	5.2	1.4	3.2	6.5
840326	3.8	4.5	5.3	1.8	3.7	7.0
840327	3.9	4.7	5.4	2.2	4.1	7.2
840328	3.8	4.7	5.5	1.6	4.0	7.4
840329	3.9	4.6	5.2	2.0	3.7	6.3
840330	3.9	4.8	5.7	2.1	4.5	8.2
840331	4.2	4.9	5.5	3.0	4.1	6.2
Monthly Value	2.5	4.3	5.7	.3	3.2	8.2

Appendix Table A-20 (continued).

SECRET

April 1984						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
840401	4.0	4.8	5.6	2.3	4.4	7.5
840402	3.9	4.7	5.4	1.6	3.6	7.5
840403	3.7	4.6	5.5	1.3	3.6	7.2
840404	3.9	4.9	5.9	1.6	4.5	8.7
840405	4.4	5.1	5.9	2.9	4.9	8.4
840406	4.3	5.1	5.8	2.7	4.7	8.5
840407	4.0	5.0	5.7	1.5	4.1	8.3
840408	4.0	5.7	8.9	1.6	5.1	10.9
840409	3.6	4.6	5.7	2.2	4.8	9.1
840410	3.6	4.6	5.4	1.7	4.4	7.9
840411	3.5	4.5	5.6	1.4	4.3	9.1
840412	3.5	4.6	5.7	1.5	4.5	9.4
840413	3.6	4.7	5.8	1.7	4.7	9.6
840414	3.7	4.8	5.7	2.0	4.9	8.6
840415	4.1	4.9	5.7	2.4	5.2	8.7
840416	3.9	4.6	5.3	2.7	4.0	5.6
840417	3.8	4.7	5.7	2.2	4.8	8.4
840418	3.7	4.7	5.7	1.5	4.2	8.6
840419	3.7	4.6	5.8	1.5	4.4	9.1
840420	4.2	5.1	6.1	3.0	5.8	9.8
840421	4.4	5.3	6.5	3.1	6.4	11.0
840422	4.1	5.3	6.3	2.3	5.5	9.4
840423	4.0	4.9	5.9	1.6	4.6	8.7
840424	4.1	5.1	6.1	1.8	5.2	9.9
840425	4.3	5.4	6.4	3.0	6.0	10.1
840426	4.3	5.3	6.2	2.7	5.8	9.9
840427	4.5	5.5	6.3	3.0	6.0	9.4
840428	4.9	5.8	6.6	4.8	7.3	11.3
840429	4.9	5.9	6.7	3.5	7.1	10.8
840430	5.0	5.9	6.6	4.6	7.3	10.4
Monthly Value	3.5	5.0	8.9	1.3	5.1	11.3

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Appendix Table A-20 (continued).

DRAFT

May 1984						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
840501	5.0	6.0	6.7	4.0	7.4	11.2
840502	5.2	6.1	6.8	5.2	7.6	11.1
840503	4.9	5.9	6.9	3.6	7.2	11.7
840504	4.9	5.9	6.7	3.9	7.0	11.3
840505	5.0	5.9	6.9	4.4	7.5	12.6
840506	5.0	6.1	7.1	3.9	7.8	13.5
840507	4.8	6.0	7.0	2.9	7.3	12.4
840508	5.0	6.1	7.0	3.7	7.9	12.8
840509	5.1	6.2	7.6	3.9	8.5	14.1
840510	5.2	6.4	7.7	4.0	8.6	14.3
840511	5.2	6.3	7.4	4.1	8.0	12.9
840512	4.7	6.0	7.3	3.1	7.5	13.0
840513	5.0	6.1	7.4	4.1	8.0	12.8
840514	4.9	6.2	7.5	3.5	7.9	13.3
840515	4.9	6.2	7.6	3.8	7.8	13.2
840516	5.2	5.8	7.2	2.1	5.4	11.0
840517	4.3	5.3	6.2	2.1	5.2	10.3
840518	4.3	4.8	5.7	2.3	3.5	5.0
840519	4.1	4.6	5.0	2.3	3.5	4.8
840520	4.0	4.6	5.2	2.1	3.9	5.7
840521	5.1	5.5	6.0	5.0	5.9	6.9
840522	5.2	5.7	5.9	5.4	6.0	6.1
840523	4.8	5.7	6.2	4.6	6.0	7.2
840524	5.2	6.0	6.2	5.2	6.3	6.9
840525	5.3	6.1	6.4	5.7	6.5	7.1
840526	5.2	6.0	6.2	5.2	6.3	7.0
840527	5.1	6.0	6.3	5.3	6.5	7.5
840528	5.1	6.2	6.9	5.3	7.3	9.7
840529	4.9	6.2	6.9	4.4	6.9	9.0
840530	4.8	6.0	6.7	4.3	6.6	9.7
840531	4.5	6.3	7.9	3.4	7.8	13.0
Monthly Value	4.0	5.9	7.9	2.1	6.8	14.3

Appendix Table A-21. Datapod temperature recorder data summary:
intragravel and surface water temperatures (C)
recorded at Upper Side Channel 11 - Site 3,
RM 136.3, GC S31N02W20BBD.

January 1984						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
840111	3.3	-----	3.3	1.3	-----	1.9
840112	3.3	3.3	3.3	1.3	1.7	2.0
840113	3.2	3.3	3.3	1.0	1.5	1.9
840114	3.2	3.2	3.3	.7	1.3	1.8
840115	3.1	3.2	3.3	.5	1.2	1.8
840116	3.0	3.1	3.2	.3	.5	.7
840117	3.0	3.0	3.1	.5	.7	.9
840118	3.0	3.0	3.1	.5	.8	1.0
840119	3.0	3.0	3.1	.3	.7	1.1
840120	3.0	3.0	3.1	.3	.5	.6
840121	2.9	3.0	3.1	.2	.5	.8
840122	3.0	3.0	3.1	.2	.4	.7
840123	2.9	3.0	3.1	.2	.3	.4
840124	2.9	3.0	3.1	.3	.3	.5
840125	2.9	3.0	3.1	0.0	.2	.3
840126	3.0	3.1	3.2	.2	.6	.9
840127	3.0	3.1	3.2	.3	.5	.8
840128	3.0	3.1	3.2	.5	.7	1.1
840129	3.1	3.1	3.2	.7	1.0	1.4
840130	3.0	3.1	3.1	.2	.9	1.3
840131	3.1	3.2	3.2	.9	1.3	1.7
Monthly Value	2.9	3.1	3.3	0.0	.8	2.0

----- Data not available.

Appendix Table A-21. (continued).

DRAFT

February 1984						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
840201	3.0	3.1	3.3	.2	.8	1.3
840202	3.1	3.2	3.3	.1	.9	1.4
840203	3.0	3.1	3.1	.2	.4	.9
840204	3.1	3.1	3.2	.3	.9	1.3
840205	3.1	3.2	3.3	.9	1.2	1.5
840206	3.1	3.2	3.3	.1	.7	1.2
840207	3.1	3.1	3.2	.2	.7	1.2
840208	3.0	3.1	3.2	.2	.4	.8
840209	3.0	3.1	3.1	.1	.2	.4
840210	3.0	3.0	3.1	.2	.4	.8
840211	3.0	3.1	3.2	.5	.9	1.3
840212	3.1	3.1	3.2	.5	.8	1.4
840213	3.1	3.1	3.2	.5	.9	1.4
840214	3.1	3.2	3.2	.6	1.1	1.6
840215	3.1	3.2	3.3	.4	1.1	1.7
840216	3.1	3.2	3.3	.6	1.1	1.9
840217	3.2	3.3	3.4	1.3	1.8	2.8
840218	3.2	3.2	3.4	.6	1.4	2.5
840219	3.1	3.3	3.4	.3	1.1	2.1
840220	3.0	3.1	3.3	.2	.4	.6
840221	3.0	3.1	3.2	.2	.5	1.2
840222	3.1	3.2	3.2	.3	1.0	1.7
840223	3.2	3.2	3.4	.8	1.4	2.3
840224	3.1	3.2	3.3	.7	1.2	2.1
840225	3.2	3.2	3.4	.8	1.3	2.6
840226	3.1	3.2	3.3	.2	.7	1.8
840227	3.0	3.1	3.2	.1	.5	1.3
840228	3.0	3.1	3.2	.1	.5	1.3
840229	3.0	3.1	3.2	.1	.6	1.8
Monthly Value	3.0	3.2	3.4	.1	.9	2.8

Appendix Table A-21. (continued).

37.17

March 1984						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
840301	3.0	3.1	3.2	.1	.6	1.8
840302	3.1	3.2	3.4	.6	1.5	2.9
840303	3.2	3.3	3.5	.7	1.7	3.4
840304	3.2	3.4	3.6	.9	2.3	4.7
840305	3.4	3.5	3.7	1.7	2.8	4.8
840306	3.4	3.6	3.7	1.3	2.8	5.1
840307	3.3	3.5	3.8	1.4	2.7	5.1
840308	3.5	3.6	3.9	2.1	3.3	5.7
840309	3.5	3.7	3.9	1.8	3.2	5.4
840310	3.4	3.6	3.8	1.6	2.9	5.7
840311	3.4	3.6	3.9	1.0	2.9	6.2
840312	3.3	3.5	3.8	.3	2.2	5.4
840313	3.3	3.6	3.8	.3	2.3	5.3
840314	3.4	3.6	3.9	1.2	2.7	5.4
840315	3.4	3.6	3.8	.8	2.3	5.4
840316	3.4	3.6	3.8	.3	2.1	5.1
840317	3.3	3.5	3.7	.2	1.6	4.4
840318	3.3	3.5	3.6	-----	-----	-----
840319	3.3	3.5	3.6	-----	-----	-----
840320	3.3	3.5	3.7	.1	1.7	4.7
840321	3.3	3.5	3.7	.2	1.6	4.6
840322	3.4	3.5	3.7	0.0	1.0	4.3
840323	3.3	3.5	3.7	.2	1.3	4.0
840324	3.3	3.5	3.7	.2	1.5	4.2
840325	3.4	3.6	4.0	.2	2.1	5.6
840326	3.5	3.7	4.0	.8	2.6	6.2
840327	3.6	3.8	4.0	1.0	3.0	6.4
840328	3.6	3.8	4.1	.4	3.0	6.4
840329	3.6	3.8	4.0	.9	2.7	5.4
840330	3.6	3.9	4.3	.9	3.5	7.3
840331	3.7	3.9	4.2	1.9	3.0	5.4
Monthly Value	3.0	3.6	4.3	0.0	2.3	7.3

----- Data not available.

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Appendix Table A-21 (continued).

SECRET

April 1984						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
840401	3.7	3.9	4.3	1.3	3.3	6.7
840402	3.6	3.9	4.2	.1	2.5	6.8
840403	3.6	3.9	4.3	.3	2.5	6.3
840404	3.7	4.1	4.5	.3	3.4	7.8
840405	3.9	4.2	4.5	1.8	3.8	7.6
840406	3.9	4.2	4.5	1.4	3.7	7.6
840407	3.8	4.1	4.4	.1	3.1	7.4
840408	3.8	4.2	4.6	.3	3.2	7.2
840409	3.9	4.3	4.7	.9	3.8	8.3
840410	3.9	4.3	4.7	.6	3.3	7.1
840411	3.9	4.3	4.7	.3	3.2	8.5
840412	4.0	4.4	4.8	.3	3.5	8.6
840413	4.0	4.4	4.9	.4	3.7	8.9
840414	4.1	4.5	4.9	.7	3.8	7.9
840415	4.3	4.6	4.9	1.2	4.2	8.0
840416	4.2	4.5	4.8	1.5	2.9	4.6
840417	4.2	4.6	5.0	1.0	3.7	7.8
840418	4.2	4.6	5.0	.3	3.2	8.1
840419	4.3	4.7	5.1	.4	3.3	8.5
840420	4.5	4.8	5.3	1.7	4.9	9.2
840421	4.6	5.0	5.5	2.2	5.7	10.9
840422	4.6	5.0	5.5	1.0	4.6	8.8
840423	4.5	4.9	5.4	.3	3.5	8.3
840424	4.6	5.0	5.5	.4	4.2	9.8
840425	4.7	5.2	5.6	1.6	5.1	9.6
840426	4.7	5.1	5.6	1.5	5.0	9.6
840427	4.8	5.2	5.6	1.8	5.3	9.3
840428	5.0	5.4	5.8	3.8	7.0	11.4
840429	5.0	5.5	5.9	2.3	6.9	11.7
840430	5.1	5.5	5.8	3.7	7.2	11.7
Monthly Value	3.6	4.6	5.9	.1	4.1	11.7

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Appendix Table A-21 (continued).

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May 1984						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
840501	5.1	5.5	5.9	3.0	7.4	11.7
840502	5.2	5.6	5.9	4.3	7.2	10.9
840503	5.1	5.5	6.0	2.5	6.6	12.6
840504	5.2	5.6	6.0	2.9	6.4	11.3
840505	5.1	5.6	6.1	3.5	7.1	13.1
840506	5.2	5.7	6.2	2.9	7.4	14.4
840507	5.1	5.7	6.2	1.9	7.0	12.9
840508	5.2	5.7	6.2	2.6	7.6	13.6
840509	5.2	5.7	6.3	2.8	8.0	14.1
840510	5.2	5.8	6.2	3.0	8.0	13.8
840511	5.2	5.7	6.1	3.4	7.3	12.5
840512	5.0	5.6	6.0	2.1	6.7	12.8
840513	5.2	5.6	6.0	3.2	7.3	12.6
840514	5.1	5.6	6.0	2.5	7.3	13.1
840515	5.2	5.6	6.2	2.8	7.3	13.4
840516	5.3	5.6	6.1	1.4	5.1	11.1
840517	4.9	5.3	5.7	1.6	5.1	10.9
840518	4.9	5.1	5.6	1.6	2.9	4.7
840519	4.7	4.9	5.1	1.6	2.8	4.2
840520	4.7	4.9	5.3	1.6	3.4	5.3
840521	5.2	5.4	5.6	4.8	5.5	6.7
840522	5.5	5.6	5.7	5.5	5.7	5.8
840523	5.4	5.6	5.7	4.7	5.7	7.0
840524	5.6	5.7	5.8	5.5	6.0	6.6
840525	5.7	5.7	5.9	6.0	6.3	6.9
840526	5.6	5.7	5.9	5.4	6.0	6.8
840527	5.6	5.7	5.8	5.4	6.3	7.4
840528	5.5	5.7	6.0	4.9	7.1	10.3
840529	5.4	5.7	6.0	4.2	6.6	8.9
840530	5.4	5.7	5.9	4.2	6.4	9.8
840531	5.3	5.7	6.3	3.2	7.7	13.3
Monthly Value	4.7	5.6	6.3	1.4	6.4	14.4

Appendix Table A-22 Datapod temperature recorder data summary:
intragravel and surface water temperatures (C)
recorded 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	8.6	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

----- Data not available.

Appendix Table A-22 (continued).

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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	4.2	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

----- Data not available.

Appendix Table A-23 Datapod temperature recorder data summary:
intragravel and surface water temperatures (C)
recorded 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	5.7	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	5.9	6.0	2.4	3.3	4.0
830925	5.7	5.8	5.8	3.1	3.9	4.9
830926	5.7	5.7	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

----- Data not available.

Appendix Table A-23 (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	3.4	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	4.1	4.6
831007	3.4	3.5	3.6	3.8	4.2	4.4
831008	3.3	3.5	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

Appendix Table A-23 (continued).

November 1983						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
831101	1.7	1.8	1.8	1.7	1.7	1.9
831102	1.7	2.2	3.4	1.7	2.1	3.1
831103	2.8	3.0	3.2	2.2	2.5	2.8
831104	2.7	2.9	3.2	2.2	2.5	2.8
831105	2.7	3.0	3.2	2.2	2.6	2.8
831106	2.7	2.8	3.1	2.0	2.3	2.6
831107	2.7	2.9	3.0	2.2	2.4	2.6
831108	2.8	3.1	3.3	2.3	2.6	2.8
831109	2.8	3.0	3.2	2.2	2.6	2.8
831110	2.7	2.9	3.2	2.0	2.4	2.7
831111	2.7	2.9	3.2	2.2	2.4	2.7
831112	2.7	3.0	3.2	2.0	2.5	2.7
831113	2.5	2.7	3.1	1.7	2.1	2.7
831114	2.4	2.5	2.8	1.6	1.8	2.2
831115	2.4	2.7	3.0	1.6	2.0	2.6
831116	2.7	2.9	3.0	2.0	2.3	2.6
831117	2.3	2.6	2.9	1.5	1.9	2.4
831118	2.2	2.7	2.9	1.3	2.0	2.4
831119	2.3	2.5	2.7	1.4	1.8	2.1
831120	2.3	2.6	2.8	1.5	1.9	2.3
831121	2.7	2.9	3.1	2.1	2.5	2.6
831122	2.9	3.0	3.1	2.3	2.5	2.7
831123	2.7	2.9	3.1	2.0	2.4	2.6
831124	2.4	2.7	2.9	1.6	2.0	2.5
831125	2.5	2.6	2.7	1.7	1.9	2.2
831126	2.5	2.7	2.8	1.8	2.1	2.4
831127	2.6	2.8	3.0	1.8	2.2	2.5
831128	2.7	2.9	3.0	2.0	2.4	2.6
831129	2.7	2.8	3.0	2.0	2.2	2.5
831130	2.6	2.7	3.0	1.9	2.2	2.6
Monthly Value	1.7	2.8	3.4	1.3	2.2	3.1

Appendix Table A-23 (continued).

December 1983						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
831201	2.6	2.8	3.0	1.8	2.2	2.6
831202	2.5	2.8	2.9	1.8	2.2	2.5
831203	2.7	2.9	3.0	2.1	2.4	2.6
831204	2.5	2.7	2.9	1.8	2.2	2.5
831205	2.8	2.9	3.0	2.2	2.4	2.6
831206	2.5	3.0	3.1	1.7	2.5	2.7
831207	2.2	2.5	2.7	1.3	1.8	2.1
831208	2.3	2.5	2.6	1.6	1.8	2.1
831209	2.2	2.3	2.4	1.4	1.6	1.8
831210	2.2	2.3	2.5	1.4	1.6	1.9
831211	2.2	2.4	2.6	1.6	1.8	2.0
831212	2.2	2.3	2.5	1.6	1.7	2.0
831213	2.3	2.4	2.5	1.6	1.8	2.0
831214	2.1	2.2	2.4	1.3	1.6	1.9
831215	2.0	2.1	2.2	1.3	1.5	1.6
831216	2.0	2.1	2.2	1.3	1.5	1.6
831217	2.0	2.2	2.4	1.4	1.6	1.8
831218	2.1	2.3	2.4	1.4	1.7	1.9
831219	2.1	2.4	2.5	1.4	1.8	2.0
831220	2.5	2.6	2.7	1.9	2.1	2.3
831221	2.5	2.7	2.8	1.9	2.2	2.4
831222	2.1	2.3	2.7	1.3	1.7	2.2
831223	2.1	2.3	2.4	1.5	1.7	1.9
831224	2.1	2.2	2.4	1.4	1.7	1.9
831225	2.2	2.3	2.5	1.7	1.8	2.0
831226	2.0	2.2	2.4	1.4	1.7	1.9
831227	2.1	2.2	2.4	1.5	1.7	1.8
831228	2.1	2.2	2.3	1.4	1.6	1.7
831229	2.0	2.1	2.2	1.4	1.5	1.7
831230	2.0	2.1	2.2	1.3	1.5	1.6
831231	2.0	2.2	2.4	1.4	1.6	1.8
Monthly Value	2.0	2.4	3.1	1.3	1.8	2.7

Appendix Table A-23 (continued).

January 1984						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
840101	2.1	2.5	2.7	1.5	1.9	2.2
840102	2.3	2.6	2.7	1.7	2.1	2.3
840103	2.5	2.7	2.8	1.9	2.2	2.4
840104	2.2	2.5	2.8	1.6	2.0	2.4
840105	2.1	2.2	2.5	1.5	1.7	1.9
840106	2.3	2.4	2.5	1.7	1.9	2.0
840107	2.0	2.4	2.6	1.3	1.9	2.1
840108	1.9	2.2	2.4	1.2	1.6	1.8
840109	2.1	2.3	2.5	1.6	1.8	2.1
840110	2.3	-----	2.5	1.5	1.7	2.0
840111	-----	-----	-----	1.4	1.4	1.5
840112	-----	-----	-----	1.4	1.5	1.5
840113	-----	-----	-----	1.4	1.5	1.5
840114	-----	-----	-----	1.4	1.5	1.5
840115	-----	-----	-----	1.4	1.5	1.5
840116	-----	-----	-----	1.4	1.5	1.6
840117	-----	-----	-----	1.5	1.5	1.5
840118	-----	-----	-----	1.5	1.5	1.5
840119	-----	-----	-----	1.5	1.5	1.5
840120	-----	-----	-----	1.4	1.5	1.5
840121	-----	-----	-----	1.3	1.4	1.5
840122	-----	-----	-----	1.3	1.4	1.4
840123	-----	-----	-----	1.2	1.3	1.4
840124	-----	-----	-----	1.1	1.2	1.3
840125	-----	-----	-----	1.0	1.1	1.2
840126	-----	-----	-----	.8	1.0	1.1
840127	-----	-----	-----	.8	.9	.9
840128	-----	-----	-----	.8	.8	.9
840129	-----	-----	-----	.7	.9	1.1
840130	-----	-----	-----	1.0	1.2	1.4
840131	-----	-----	-----	1.4	1.4	1.5
Monthly Value	1.9	-----	2.8	.7	1.5	2.4

----- Data not available.

Appendix Table A-23 (continued).

SECRET

February 1984						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
840201	-----	-----	-----	1.4	1.5	1.6
840202	-----	-----	-----	1.5	1.5	1.6
840203	-----	-----	-----	1.5	1.6	1.6
840204	-----	-----	-----	1.5	1.5	1.6
840205	-----	-----	-----	1.5	1.6	1.6
840206	-----	-----	-----	1.6	1.6	1.7
840207	-----	-----	-----	1.6	1.6	1.7
840208	-----	-----	-----	1.5	1.6	1.7
840209	-----	-----	-----	1.6	1.6	1.7
840210	-----	-----	-----	1.6	1.6	1.7
840211	-----	-----	-----	1.6	1.6	1.6
840212	-----	-----	-----	1.6	1.6	1.7
840213	-----	-----	-----	1.6	1.6	1.6
840214	-----	-----	-----	1.5	1.6	1.6
840215	-----	-----	-----	1.5	1.6	1.6
840216	-----	-----	-----	1.5	1.6	1.6
840217	-----	-----	-----	1.5	1.6	1.6
840218	-----	-----	-----	1.5	1.6	1.6
840219	-----	-----	-----	1.5	1.6	1.6
840220	-----	-----	-----	1.5	1.6	1.6
840221	-----	-----	-----	1.5	1.6	1.6
840222	-----	-----	-----	1.5	1.5	1.6
840223	-----	-----	-----	1.5	1.5	1.6
840224	-----	-----	-----	1.5	1.6	1.6
840225	-----	-----	-----	1.5	1.6	1.6
840226	-----	-----	-----	1.5	1.6	1.6
840227	-----	-----	-----	1.5	1.5	1.6
840228	-----	-----	-----	1.5	1.6	1.6
840229	-----	-----	-----	1.5	1.5	1.6
Monthly Value	-----	-----	-----	1.4	1.6	1.7

----- Data not available.

Appendix Table A-23 (continued).

March 1984						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
840301	-----	-----	-----	1.5	1.5	1.6
840302	-----	-----	-----	1.5	1.6	1.6
840303	-----	-----	-----	1.5	1.6	1.6
840304	-----	-----	-----	1.5	1.5	1.6
840305	-----	-----	-----	1.5	1.5	1.6
840306	-----	-----	-----	1.5	1.6	1.6
840307	-----	-----	-----	1.5	1.5	1.6
840308	-----	-----	-----	1.5	1.5	1.6
840309	-----	-----	-----	1.5	1.6	1.6
840310	-----	-----	-----	1.5	1.7	2.3
840311	-----	-----	-----	1.7	1.8	2.2
840312	-----	-----	-----	1.6	1.8	2.3
840313	-----	-----	-----	1.6	1.8	2.4
840314	-----	-----	-----	1.7	1.9	2.3
840315	-----	-----	-----	1.6	1.9	2.4
840316	-----	-----	-----	1.4	1.8	2.4
840317	-----	-----	-----	1.5	1.6	2.2
840318	-----	-----	-----	1.5	1.5	1.7
840319	-----	-----	-----	1.5	1.5	1.6
840320	-----	-----	-----	1.5	1.5	1.6
840321	-----	-----	-----	1.5	1.5	1.7
840322	-----	-----	-----	1.5	1.5	1.7
840323	-----	-----	-----	1.5	1.5	1.6
840324	-----	-----	-----	1.5	1.5	1.6
840325	-----	-----	-----	1.5	1.5	1.7
840326	-----	-----	-----	1.5	1.6	1.6
840327	-----	-----	-----	1.5	1.5	1.6
840328	-----	-----	-----	1.5	1.5	1.7
840329	-----	-----	-----	1.5	1.6	1.6
840330	-----	-----	-----	1.5	1.6	1.7
840331	-----	-----	-----	1.5	1.6	1.7
Monthly Value	-----	-----	-----	1.4	1.6	2.4

----- Data not available.

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Appendix Table A-23 (continued).

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April 1984						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
840401	-----	-----	-----	1.5	1.6	1.7
840402	-----	-----	-----	1.5	1.6	1.6
840403	-----	-----	-----	1.5	1.7	2.3
840404	-----	-----	-----	1.6	1.8	2.3
840405	-----	-----	-----	1.6	1.8	2.1
840406	-----	-----	-----	1.6	1.7	2.0
840407	-----	-----	-----	1.6	1.6	1.9
840408	-----	-----	-----	1.5	1.6	1.7
840409	-----	-----	-----	1.5	1.6	1.7
840410	-----	-----	-----	1.6	1.7	2.1
840411	-----	-----	-----	1.6	1.8	2.0
840412	-----	-----	-----	1.6	1.8	1.9
840413	-----	-----	-----	1.6	1.7	1.8
840414	-----	-----	-----	1.6	1.7	1.9
840415	-----	-----	-----	1.5	1.6	2.1
840416	-----	-----	-----	1.6	1.6	1.8
840417	-----	-----	-----	1.5	1.6	1.7
840418	-----	-----	-----	1.5	1.6	1.7
840419	-----	-----	-----	1.5	1.6	1.8
840420	-----	-----	-----	1.5	1.6	1.9
840421	-----	-----	-----	1.5	2.1	4.2
840422	-----	-----	-----	2.0	2.5	4.0
840423	-----	-----	-----	1.8	2.0	2.4
840424	-----	-----	-----	1.8	2.0	2.3
840425	-----	-----	-----	1.7	2.0	2.5
840426	-----	-----	-----	1.8	2.2	3.1
840427	-----	-----	-----	2.0	2.9	4.9
840428	-----	-----	-----	2.6	3.9	5.7
840429	-----	-----	-----	3.0	4.4	6.1
840430	-----	-----	-----	3.3	4.9	7.6
Monthly Value	-----	-----	-----	1.5	2.1	7.6

----- Data not available.

Appendix Table A-23 (continued).

57.37

May 1984						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
840501	-----	-----	-----	4.1	5.7	8.2
840502	-----	-----	-----	4.2	5.9	8.2
840503	-----	-----	-----	5.6	6.9	9.7
840504	-----	-----	-----	5.5	7.5	11.1
840505	-----	-----	-----	5.4	7.7	11.2
840506	-----	-----	-----	5.5	8.2	12.5
840507	-----	-----	-----	5.6	8.0	11.3
840508	-----	-----	-----	4.6	7.7	11.5
840509	-----	-----	-----	5.7	8.5	12.7
840510	-----	-----	-----	3.6	7.8	11.2
840511	-----	-----	-----	5.1	7.6	11.2
840512	-----	-----	-----	3.2	6.1	10.5
840513	-----	-----	-----	4.3	7.3	13.1
840514	-----	-----	-----	4.9	7.9	12.2
840515	-----	-----	-----	3.9	5.2	10.2
840516	-----	-----	-----	2.1	4.0	7.4
840517	-----	-----	-----	2.4	4.1	6.4
840518	-----	-----	-----	3.2	4.4	6.6
840519	-----	-----	-----	3.1	4.4	5.9
840520	-----	-----	-----	3.0	4.7	6.8
840521	-----	-----	-----	5.2	6.6	8.2
840522	-----	-----	-----	6.1	-----	7.0
Monthly Value	-----	-----	-----	2.1	6.5	13.1

----- Data not available.

Appendix Table A-24 Datapod temperature recorder data summary:
 intragravel and surface water temperatures (C)
 recorded at Side Channel 21 - Site 3, RM 141.0,
 GC S31N02W02CAA.

32.17

November 1983						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
831130	.1	----	.2	-.1	----	0.0
Monthly Value	.1	----	.2	-.1	----	0.0

---- Data not available.

Appendix Table A-24 (continued).

December 1983						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
831201	.1	.2	.2	-.1	-.0	0.0
831202	.1	.2	.2	-.1	-.1	0.0
831203	.2	.2	.2	-.1	-.0	0.0
831204	.2	.2	.2	-.1	0.0	0.0
831205	.2	.2	.2	0.0	0.0	0.0
831206	.2	.2	.2	0.0	0.0	0.0
831207	.1	.2	.2	-.1	-.1	0.0
831209	.1	.1	.2	*****	*****	*****
831210	.1	.1	.2	*****	*****	*****
831211	.1	.1	.1	*****	*****	*****
831212	0.0	.1	.1	*****	*****	*****
831213	0.0	.1	.1	*****	*****	*****
831214	0.0	-----	.1	*****	*****	*****
831221	0.0	-----	0.0	-.1	-----	0.0
831222	0.0	0.0	0.0	-.1	-.1	0.0
831223	-.1	0.0	0.0	-.1	-.1	0.0
831224	-.1	0.0	0.0	-.2	-.1	-.1
831225	0.0	0.0	0.0	-.1	-.1	0.0
831226	0.0	0.0	0.0	-.1	0.0	0.0
831227	-.1	-.0	0.0	-.1	-.0	0.0
831228	-.1	0.0	0.0	-.1	-----	0.0
Monthly Value	-.1	-----	.2	-.2	-----	0.0

----- Data not available.

***** Data available; site frozen.

Appendix Table A-24 (continued).

DRAFT

January 1984						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
840110	-.1	-----	0.0	.1	-----	.2
840111	-.1	-.1	0.0	.1	.2	.3
840112	-.1	-.0	0.0	.2	.2	.3
840113	-.1	-.0	0.0	.2	.2	.3
840114	-.1	-.0	0.0	.2	.3	.3
840115	-.1	-.0	0.0	.2	.3	.4
840116	-.1	-.1	0.0	.3	.4	.4
840117	-.1	0.0	0.0	.4	.4	.5
840118	-.1	-.0	0.0	.4	.4	.5
840119	-.1	-.0	0.0	.4	.4	.5
840120	-.2	-.1	0.0	.2	.3	.5
840121	-.2	-.1	0.0	0.0	.2	.3
840122	*****	*****	*****	*****	*****	*****
840123	*****	*****	*****	*****	*****	*****
840124	*****	*****	*****	*****	*****	*****
840125	*****	*****	*****	*****	*****	*****
840126	*****	*****	*****	*****	*****	*****
840127	*****	*****	*****	*****	*****	*****
840128	*****	*****	*****	*****	*****	*****
840129	*****	*****	*****	*****	*****	*****
840130	*****	*****	*****	*****	*****	*****
840131	*****	*****	*****	*****	*****	*****
Monthly Value	-.2	-----	0.0	0.0	-----	.5

----- Data not available.

***** Data available; site frozen.

Appendix Table A-24 (continued).

07.17

February 1984						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
840202	*****	*****	*****	.2	.4	.5
840203	*****	*****	*****	.4	.5	.6
840204	*****	*****	*****	.6	.7	.8
840205	*****	*****	*****	.7	.8	.8
840206	*****	*****	*****	.7	.8	.9
840207	*****	*****	*****	.8	.9	1.0
840208	*****	*****	*****	.9	.9	1.0
840209	*****	*****	*****	.9	1.0	1.1
840210	*****	*****	*****	.9	1.1	1.1
840211	*****	*****	*****	1.0	1.1	1.2
840212	*****	*****	*****	1.1	1.2	1.2
840213	*****	*****	*****	1.1	1.2	1.3
840214	*****	*****	*****	1.2	1.3	1.4
840215	*****	*****	*****	1.3	1.3	1.4
840216	*****	*****	*****	1.3	1.4	1.5
840217	*****	*****	*****	1.4	1.4	1.5
840218	*****	*****	*****	1.4	1.5	1.5
840219	*****	*****	*****	1.4	1.5	1.5
840220	*****	*****	*****	1.4	1.5	1.6
840221	*****	*****	*****	1.5	1.5	1.6
840222	*****	*****	*****	1.5	1.6	1.6
840223	*****	*****	*****	1.5	1.6	1.6
840224	*****	*****	*****	1.5	1.6	1.6
840225	*****	*****	*****	1.6	1.6	1.7
840226	*****	*****	*****	1.6	1.6	1.7
840227	*****	*****	*****	1.6	1.6	1.7
840228	*****	*****	*****	1.6	1.7	1.8
840229	*****	*****	*****	1.6	1.7	1.8
Monthly Value	*****	*****	*****	.2	1.2	1.8

***** Data available; site frozen.

Appendix Table A-24 (continued).

March 1984						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
840301	*****	*****	*****	1.6	1.7	1.8
840302	*****	*****	*****	1.7	1.8	1.8
840303	*****	*****	*****	1.7	1.8	1.8
840304	*****	*****	*****	1.7	1.8	1.9
840305	*****	*****	*****	1.8	1.9	1.9
840306	*****	*****	*****	1.8	1.9	1.9
840307	*****	*****	*****	1.8	1.9	2.0
840308	*****	*****	*****	1.9	2.0	2.1
840309	*****	*****	*****	2.0	2.0	2.2
840310	*****	*****	*****	2.0	2.2	2.4
840311	*****	*****	*****	2.1	2.2	2.4
840312	*****	*****	*****	2.0	2.2	2.5
840313	*****	*****	*****	2.0	2.2	2.6
840314	*****	*****	*****	2.2	2.3	2.6
840315	*****	*****	*****	2.2	2.4	2.7
840316	*****	*****	*****	2.1	2.3	2.7
840317	*****	*****	*****	2.1	2.3	2.6
840318	*****	*****	*****	2.1	2.3	3.0
840319	*****	*****	*****	2.2	2.2	2.4
840320	*****	*****	*****	2.2	2.4	2.7
840321	*****	*****	*****	2.2	2.4	2.6
840322	*****	*****	*****	2.2	2.3	2.5
840323	*****	*****	*****	2.3	2.4	2.5
840324	*****	*****	*****	2.3	2.5	2.6
840325	*****	*****	*****	2.3	2.5	2.8
840326	*****	*****	*****	2.4	2.5	2.8
840327	*****	*****	*****	2.4	2.5	2.8
840328	*****	*****	*****	2.4	2.6	2.9
840329	*****	*****	*****	2.5	2.7	2.9
840330	*****	*****	*****	2.5	2.7	3.1
840331	*****	*****	*****	2.5	2.7	3.0
Monthly Value	*****	*****	*****	1.6	2.2	3.1

***** Data available; site frozen.

Appendix Table A-24 (continued).

DRAFT

April 1984						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
840401	*****	*****	*****	2.6	2.7	3.0
840402	*****	*****	*****	2.6	2.7	3.0
840403	*****	*****	*****	2.6	2.8	3.4
840404	*****	*****	*****	2.6	2.8	3.3
840405	*****	*****	*****	2.6	2.9	3.3
840406	*****	*****	*****	2.7	2.8	3.0
840407	*****	*****	*****	2.7	2.8	2.9
840408	*****	*****	*****	2.7	2.8	2.9
840409	*****	*****	*****	2.7	2.9	3.0
840410	*****	*****	*****	2.8	2.9	3.0
840411	*****	*****	*****	2.8	2.9	3.1
840412	*****	*****	*****	2.8	3.0	3.2
840413	*****	*****	*****	2.9	3.0	3.3
840414	*****	*****	*****	2.9	3.1	3.4
840415	*****	*****	*****	2.9	3.1	3.4
840416	*****	*****	*****	3.0	3.0	3.1
840417	*****	*****	*****	3.0	3.1	3.2
840418	*****	*****	*****	3.0	3.2	3.3
840419	*****	*****	*****	3.0	3.2	3.4
840420	*****	*****	*****	3.1	3.2	3.4
840421	*****	*****	*****	3.1	3.3	3.8
840422	*****	*****	*****	3.1	3.4	3.7
840423	*****	*****	*****	3.1	3.4	3.7
840424	*****	*****	*****	3.1	3.4	3.9
840425	*****	*****	*****	3.2	3.5	4.1
840426	*****	*****	*****	3.2	3.6	4.3
840427	*****	*****	*****	3.3	3.9	5.0
840428	.1	-----	.2	3.4	5.0	6.9
840429	.1	.3	.8	4.4	6.0	7.9
840430	.7	1.0	2.0	5.2	7.1	9.8
Monthly Value	.1	-----	2.0	2.6	3.4	9.8

----- Data not available.

***** Data available; site frozen.

Appendix Table A-24 (continued).

DRAFT

May 1984						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
840501	1.5	1.9	3.1	5.9	7.5	9.5
840502	2.6	3.0	3.7	6.7	7.9	9.7
840503	3.5	3.8	4.5	7.2	8.3	10.0
840504	4.3	4.6	5.4	7.5	8.9	11.8
840505	4.7	5.1	5.8	7.3	8.9	11.7
840506	5.1	5.6	6.2	7.5	9.2	12.6
840507	5.4	5.9	6.3	7.8	9.3	11.6
840508	5.5	6.1	6.6	7.8	9.4	11.7
840509	5.8	6.3	6.9	8.1	10.0	12.8
840510	5.9	6.7	7.2	6.3	9.4	11.8
840511	5.5	5.9	6.2	8.3	9.3	10.2
840512	4.0	4.6	5.5	7.4	8.6	9.9
840513	3.8	4.0	4.8	7.5	8.9	12.2
840514	4.3	4.7	5.0	8.6	10.0	11.8
840515	2.0	3.3	4.7	5.8	7.4	10.7
840516	.5	1.1	2.0	4.4	5.1	6.6
840517	.3	.4	.6	4.0	4.6	5.2
840518	.3	.5	.6	4.2	4.6	5.0
840519	.5	.6	.7	4.3	4.6	5.0
840520	.6	.7	.8	4.4	4.9	5.4
840521	.7	.8	.8	5.2	5.6	6.1
840522	.8	-----	.8	5.7	-----	5.9
Monthly Value	.3	3.5	7.2	4.0	7.7	12.8

----- Data not available.

A-184

Appendix Table A-25 Datapod temperature recorder data summary:
intragravel and surface water temperatures
(C) recorded at Side Channel 21 - Site 3
when the site was frozen, RM 141.0,
GC S31N02W02CAA.

December 1983 (Site frozen)						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
831208	+++++	+++++	+++++	-.2	-.1	-.1
831209	+++++	+++++	+++++	-.4	-.2	-.2
831210	+++++	+++++	+++++	-.5	-.4	-.4
831211	+++++	+++++	+++++	-.4	-.4	-.4
831212	+++++	+++++	+++++	-.4	-.4	-.4
831213	+++++	+++++	+++++	-.5	-.4	-.4
831214	+++++	+++++	+++++	-.4	-----	-.4
Monthly Value	-----	-----	-----	-.5	-----	-.1

----- Data not available.

+++++ Data available; site not frozen.

Appendix Table A-25 (continued).

DRAFT

January 1984 (Site frozen)						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
840122	-.3	-.2	-.1	-.4	-.2	.1
840123	-.4	-.3	-.2	-.6	-.5	-.3
840124	-.7	-.5	-.4	-1.0	-.8	-.6
840125	-.9	-.7	-.6	-1.4	-1.1	-.9
840126	-1.1	-1.0	-.8	-1.7	-1.5	-1.3
840127	-1.3	-1.2	-1.1	-1.8	-1.7	-1.6
840128	-1.4	-1.3	-1.2	-1.9	-1.8	-1.8
840129	-1.5	-1.4	-1.3	-1.9	-1.9	-1.6
840130	-1.4	-1.2	-1.1	-1.7	-1.2	-.8
840131	-1.1	-.9	-.7	-.8	-.4	-.2
Monthly Value	-1.5	-----	-.1	-1.9	-----	.1

----- Data not available.

Appendix Table A-25 (continued).

February 1984 (Site frozen)						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
840201	-.8	-.6	-.5	-.2	.0	.2
840202	-.5	-.5	-.3	+++++	+++++	+++++
840203	-.4	-.3	-.3	+++++	+++++	+++++
840204	-.3	-.2	-.2	+++++	+++++	+++++
840205	-.2	-.2	-.2	+++++	+++++	+++++
840206	-.2	-.2	-.1	+++++	+++++	+++++
840209	-.2	-.2	-.1	+++++	+++++	+++++
840210	-.2	-.2	-.1	+++++	+++++	+++++
840211	-.2	-.1	-.1	+++++	+++++	+++++
840212	-.2	-.1	-.1	+++++	+++++	+++++
840213	-.2	-.1	-.1	+++++	+++++	+++++
840214	-.2	-.1	0.0	+++++	+++++	+++++
840215	-.2	-.1	-.1	+++++	+++++	+++++
840216	-.2	-.1	0.0	+++++	+++++	+++++
840217	-.1	-.1	0.0	+++++	+++++	+++++
840218	-.2	-.1	0.0	+++++	+++++	+++++
840219	-.2	-.1	0.0	+++++	+++++	+++++
840222	-.1	-.1	0.0	+++++	+++++	+++++
840223	-.1	-.1	0.0	+++++	+++++	+++++
840226	-.1	-.1	0.0	+++++	+++++	+++++
840227	-.2	-.1	0.0	+++++	+++++	+++++
840228	-.2	-.1	0.0	+++++	+++++	+++++
840229	-.1	-.1	0.0	+++++	+++++	+++++
Monthly Value	-.8	-.2	0.0	-.2	+++++	.2

+++++ Data available; site not frozen.

Appendix Table A-25 (continued).

SECRET

March 1984 (Site frozen)						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
840301	-.1	-.1	0.0	+++++	+++++	+++++
840302	-.1	-.1	0.0	+++++	+++++	+++++
840303	-.1	-.1	0.0	+++++	+++++	+++++
840304	-.1	-.1	0.0	+++++	+++++	+++++
840305	-.1	-.0	0.0	+++++	+++++	+++++
840306	-.1	-.1	0.0	+++++	+++++	+++++
840307	-.1	-.0	0.0	+++++	+++++	+++++
840308	-.1	-.0	0.0	+++++	+++++	+++++
840309	-.1	-.0	0.0	+++++	+++++	+++++
840310	-.1	-.0	0.0	+++++	+++++	+++++
840311	-.1	-.0	0.0	+++++	+++++	+++++
840312	-.1	-.0	0.0	+++++	+++++	+++++
840313	-.1	-.0	0.0	+++++	+++++	+++++
840314	-.1	-.0	0.0	+++++	+++++	+++++
840315	-.1	0.0	0.0	+++++	+++++	+++++
840316	-.1	0.0	0.0	+++++	+++++	+++++
840317	-.1	-.0	0.0	+++++	+++++	+++++
840318	-.1	-.0	0.0	+++++	+++++	+++++
840319	-.1	-.1	0.0	+++++	+++++	+++++
840320	-.1	-.0	0.0	+++++	+++++	+++++
840321	-.1	-.0	0.0	+++++	+++++	+++++
840322	-.1	-.0	0.0	+++++	+++++	+++++
840323	-.1	-.0	0.0	+++++	+++++	+++++
840324	-.1	-.0	0.0	+++++	+++++	+++++
840325	-.1	0.0	0.0	+++++	+++++	+++++
840326	-.1	0.0	0.0	+++++	+++++	+++++
840327	-.1	0.0	0.0	+++++	+++++	+++++
840328	-.1	0.0	0.0	+++++	+++++	+++++
840329	-.1	0.0	0.0	+++++	+++++	+++++
840330	-.1	0.0	0.0	+++++	+++++	+++++
840331	-.1	0.0	0.0	+++++	+++++	+++++
Monthly Value	-.1	-.0	0.0	+++++	+++++	+++++

+++++ Data available; site not frozen.

Appendix Table A-25 (continued).

JLST

April 1984 (Site frozen)

Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
840401	-.1	0.0	0.0	+++++	+++++	+++++
840402	-.1	0.0	0.0	+++++	+++++	+++++
840403	-.1	0.0	0.0	+++++	+++++	+++++
840404	-.1	0.0	0.0	+++++	+++++	+++++
840405	-.1	0.0	0.0	+++++	+++++	+++++
840406	-.1	0.0	0.0	+++++	+++++	+++++
840407	-.1	0.0	0.0	+++++	+++++	+++++
840408	-.1	0.0	0.0	+++++	+++++	+++++
840409	-.1	0.0	.1	+++++	+++++	+++++
840410	-.1	0.0	0.0	+++++	+++++	+++++
840411	-.1	0.0	.1	+++++	+++++	+++++
840412	-.1	0.0	.1	+++++	+++++	+++++
840413	-.1	0.0	.1	+++++	+++++	+++++
840414	-.1	0.0	.1	+++++	+++++	+++++
840415	-.1	0.0	.1	+++++	+++++	+++++
840416	-.1	-.0	0.0	+++++	+++++	+++++
840417	-.1	0.0	.1	+++++	+++++	+++++
840418	-.1	0.0	.1	+++++	+++++	+++++
840419	-.1	0.0	.1	+++++	+++++	+++++
840420	-.1	0.0	.1	+++++	+++++	+++++
840421	-.1	0.0	.1	+++++	+++++	+++++
840422	-.1	0.0	.1	+++++	+++++	+++++
840423	-.1	0.0	.1	+++++	+++++	+++++
840424	-.1	0.0	.1	+++++	+++++	+++++
840425	-.1	0.0	.1	+++++	+++++	+++++
840426	-.1	0.0	.1	+++++	+++++	+++++
840427	-.1	0.0	.1	+++++	+++++	+++++
840428	-.1	0.0	.1	+++++	+++++	+++++
Monthly Value	-.1	-.0	.1	+++++	+++++	+++++

+++++ Data available; site not frozen.

DRAFT

Appendix Table A-26 Datapod temperature recorder data summary:
intragravel and surface water temperatures (C)
recorded at Lower Slough 8A - Site 2, RM 125.6,
GC S30N03W30BDB.

August 1983						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
830824	4.5	4.5	4.6	7.1	8.4	9.6
830825	4.5	-----	4.6	6.2	-----	8.7
Monthly Value	4.5	-----	4.6	6.2	-----	9.6

----- Data not available.

Appendix Table A-27 Datapod tempertaure recorder data summary:
intragravel and surface water temperatures (C)
recorded at Lower Slough 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	8.4	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

----- Data not available.

Appendix Table A-27 (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	6.7	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

Appendix Table A-27 (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	1.4	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	.8	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	.6	.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

Appendix Table A-27(continued).

November 1983						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
831101	.3	.4	.6	.3	.6	1.1
831102	.4	.5	.8	.4	.7	1.2
831103	.2	.3	.6	.3	.4	.7
831104	.2	-----	.4	.3	-----	.4
831112	.2	-----	.3	.5	-----	.6
831113	.2	.4	.6	.2	.4	.5
831114	.6	.7	.9	-----	-----	-----
831115	.8	.8	.9	-----	-----	-----
831123	.2	.2	.3	-.1	.4	.6
831124	.3	.5	.7	-.1	.2	.4
831125	.7	.7	.9	-----	-----	-----
831126	.8	-----	.9	-----	-----	-----
831127	1.9	-----	2.0	.4	-----	.5
831128	2.0	2.0	2.1	.5	.5	.5
831129	2.1	2.1	2.2	.5	.5	.6
831130	2.1	2.2	2.2	.5	.5	.6
Monthly Value	.2	-----	2.2	-.1	-----	1.2

----- Data not available.

Appendix Table A-27(continued).

December 1983						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
831201	2.1	2.1	2.2	.5	.5	.6
831202	2.1	2.1	2.2	.5	.6	.7
831203	2.1	2.2	2.2	.6	.7	.7
831204	2.1	2.1	2.2	.7	.7	.8
831205	2.1	2.1	2.2	.7	.7	.8
831206	2.1	2.1	2.2	.5	.6	.8
831207	1.9	2.0	2.2	.3	.4	.5
831208	2.0	2.0	2.1	.5	-----	.6
831209	2.0	2.1	2.2	.5	.5	.6
831210	2.1	2.2	2.2	.5	.5	.6
831211	2.1	2.1	2.2	.5	.5	.6
831212	2.1	2.1	2.2	.5	.5	.6
831213	2.1	2.1	2.2	.5	.6	.7
831214	2.1	2.2	2.2	.6	.7	.7
831215	2.1	2.1	2.2	.7	.7	.8
831216	2.1	2.1	2.2	.7	.7	.8
831217	2.0	2.1	2.2	.4	.6	.7
831218	1.9	2.0	2.1	.3	.4	.6
831219	1.2	-----	2.1	.5	-----	.5
831220	.7	-----	1.0	.5	-----	.5
831221	.4	.5	.7	.5	.5	.5
831222	.3	.4	.4	.5	.5	.5
831223	.3	.3	.4	.5	.5	.5
831224	.3	.4	.5	.5	.5	.5
831225	.4	.5	.6	.5	.5	.6
831226	.6	.7	.7	.5	.5	.6
831227	.6	.7	.8	.5	.5	.6
831228	.6	.6	.7	.5	.5	.6
831229	.6	.6	.7	.5	.5	.6
831230	.6	.6	.6	.5	.5	.6
831231	.6	.9	1.1	.5	.5	.5
Monthly Value	.3	1.5	2.2	.3	.6	.8

----- Data not available.

Appendix Table A-27 (continued).

January 1984						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
840101	.4	.5	.6	.5	.5	.5
840102	.3	.4	.4	.5	.5	.5
840103	.3	.3	.5	.5	.5	.5
840104	.3	.4	.5	.5	.5	.5
840105	.4	.6	.7	.5	.5	.6
840106	.6	.7	.8	.5	.5	.6
840107	.6	.7	.7	.5	.5	.6
840108	.6	.6	.7	.5	.5	.6
840109	.6	.6	.7	.5	.5	.6
840110	.5	-----	.6	.5	-----	.7
840111	.5	.6	.6	.5	.6	.7
840112	.5	.6	.7	.5	.6	.8
840113	.6	.7	.7	.6	.7	.9
840114	.6	.6	.7	.6	.7	.9
840115	.6	.7	.8	.6	.8	.9
840116	.5	.6	.7	.5	.6	.7
840117	.6	.6	.6	.6	.7	.8
840118	.5	.6	.6	.6	.7	.8
840119	.5	.5	.6	.5	.6	.7
840120	.4	.5	.6	.5	.5	.6
840121	.4	.4	.5	.5	.5	.6
840122	.3	.4	.5	.5	.5	.6
840123	.3	.4	.5	.5	.5	.6
840124	.3	.4	.4	.5	.5	.6
840126	.3	-----	.5	.5	-----	.6
840127	.3	.4	.4	.5	.5	.5
840128	.3	.3	.4	.5	.5	.5
840129	.3	.4	.4	.5	.5	.6
840130	.4	.4	.5	.5	.5	.5
840131	.4	.4	.5	.5	.5	.6
Monthly Value	.3	.5	.8	.5	.6	.9

----- Data not available.

Appendix Table A-27 (continued).

February 1984						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
840201	.4	.5	.5	.5	.5	.6
840202	.4	.4	.5	.5	.5	.6
840203	.4	.4	.5	.5	.5	.6
840204	.4	.4	.5	.4	.5	.5
840205	.4	.4	.4	.5	.5	.5
840206	.4	.4	.5	.5	.5	.6
840207	.3	.4	.5	.5	.5	.6
840208	.3	.4	.5	.5	.5	.6
840209	.3	.4	.4	.5	.5	.6
840210	.3	.4	.4	.5	.5	.6
840211	.3	.4	.4	.5	.5	.5
840212	.3	.4	.4	.5	.5	.5
840213	.3	.4	.4	.5	.5	.5
840214	.3	.4	.5	.5	.5	.6
840215	.3	.4	.5	.5	.5	.6
840216	.3	.4	.5	.5	.5	.6
840217	.3	.4	.5	.5	.5	.6
840218	.3	.4	.5	.5	.5	.6
840219	.4	.4	.5	.5	.5	.6
840220	.3	.4	.5	.5	.5	.6
840221	.3	.4	.4	.5	.5	.6
840222	.3	.4	.4	.5	.5	.6
840223	.3	.4	.4	.5	.5	.6
840224	.3	.3	.4	.4	.5	.5
840225	.3	.3	.4	.4	.5	.5
840226	.3	.4	.4	.4	.5	.5
840227	.3	.3	.4	.4	.5	.5
840228	.3	.3	.4	.4	.5	.6
840229	.3	.4	.4	.5	.5	.6
Monthly Value	.3	.4	.5	.4	.5	.6

Appendix Table A-27 (continued).

March 1984						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
840301	.3	.3	.4	.5	.5	.6
840302	.3	.3	.4	.5	.5	.6
840303	.3	.4	.4	.5	.5	.6
840304	.3	.4	.5	.5	.5	.7
840305	.4	.4	.5	.5	.6	.7
840306	.4	.5	.6	.5	.7	1.0
840307	.5	.5	.7	.6	.7	1.1
840308	.5	.6	.7	.5	.8	1.0
840309	.6	.8	1.0	.7	1.1	1.4
840310	.8	1.0	1.2	.9	1.2	1.6
840311	.8	1.0	1.3	.8	1.3	1.8
840312	.6	1.0	1.3	.7	1.2	1.8
840313	.7	1.0	1.4	.8	1.2	1.8
840314	.9	1.1	1.4	1.0	1.3	1.8
840315	.9	1.2	1.6	1.0	1.4	2.1
840316	.8	1.1	1.5	.9	1.4	2.1
840317	.6	1.0	1.4	.7	1.1	1.9
840318	.6	.9	1.4	.5	1.1	2.0
840319	.5	.9	1.4	.6	1.1	2.0
840320	.7	1.0	1.4	.8	1.2	1.9
840321	.8	1.1	1.6	.8	1.3	2.3
840322	.6	.9	1.3	.5	1.1	2.2
840323	.6	1.0	1.6	.6	1.3	2.3
840324	.6	1.0	1.6	.6	1.2	2.2
840325	.8	1.2	1.8	.8	1.5	2.3
840326	1.1	1.4	1.8	1.2	1.6	2.7
840327	1.2	1.4	1.8	1.3	1.6	2.5
840328	.9	1.5	2.4	1.0	1.8	3.3
840329	1.3	1.6	2.1	1.2	1.9	3.0
840330	1.2	1.7	2.4	1.3	2.0	3.3
840331	1.5	1.7	2.1	1.0	1.9	2.6
Monthly Value	.3	1.0	2.4	.5	1.2	3.3

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Appendix Table A-27 (continued).

April 1984						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
840401	1.4	1.7	2.4	1.5	2.1	3.4
840402	1.2	1.6	2.3	1.1	1.8	3.4
840403	.6	1.5	3.0	.5	1.9	4.2
840404	1.0	2.0	3.4	1.1	2.3	4.6
840405	1.8	2.3	3.2	1.8	2.6	4.7
840406	1.8	2.3	2.9	1.9	2.5	4.2
840407	1.4	2.0	2.7	.8	2.3	4.1
840408	1.2	2.0	2.9	.4	2.2	3.9
840409	1.6	2.3	3.5	1.6	2.7	4.7
840410	1.8	2.6	3.7	1.9	2.9	4.8
840411	1.5	2.4	3.8	1.4	2.8	5.0
840412	1.4	2.6	4.3	1.3	2.9	5.7
840413	1.7	2.8	4.4	1.5	3.2	5.8
840414	1.9	3.0	4.4	1.9	3.4	5.9
840415	2.7	3.4	4.5	2.5	3.7	5.8
840416	2.3	2.9	4.1	1.9	3.0	4.2
840417	1.8	2.9	5.0	1.7	3.5	6.9
840418	1.6	3.2	5.6	1.3	3.6	7.4
840419	1.7	3.4	5.5	1.4	3.7	7.5
840420	2.8	3.9	5.5	2.8	4.2	6.9
840421	3.0	4.4	7.0	2.9	5.0	9.1
840422	1.9	3.9	6.4	.7	4.0	7.7
840423	2.0	3.9	6.3	1.7	4.3	8.2
840424	2.4	4.2	6.2	1.9	4.5	7.9
840425	3.0	4.6	6.6	2.6	4.9	8.6
840426	3.0	4.6	6.8	2.5	5.0	8.7
840427	3.3	5.1	7.0	3.0	5.4	8.8
840428	4.2	5.3	6.6	4.2	5.7	8.1
840429	4.1	5.7	7.8	3.7	6.4	10.1
840430	5.4	6.4	7.8	5.3	6.9	10.0
Monthly Value	.6	3.3	7.8	.4	3.6	10.1

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Appendix Table A-27 (continued).

May 1984						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
840501	5.7	6.7	7.5	5.6	7.2	8.9
840502	6.1	6.6	7.5	5.8	6.9	8.1
840503	5.7	6.3	6.9	5.6	6.7	8.2
840504	6.0	6.5	6.9	5.7	6.9	8.5
840505	5.8	6.2	6.7	5.9	6.7	8.5
840506	5.7	6.3	7.0	5.8	6.9	8.5
840507	5.8	6.7	7.8	5.5	7.5	9.8
840508	6.7	7.4	8.2	6.6	8.1	10.1
840509	7.0	7.6	8.2	6.6	8.5	10.6
840510	7.1	7.7	8.4	6.4	8.3	10.1
840511	6.8	7.4	7.9	5.9	8.0	9.9
840512	6.0	6.6	7.3	4.5	7.0	9.5
840513	5.8	6.3	6.8	5.3	7.6	10.1
840514	5.9	6.3	6.7	5.7	8.2	10.5
840515	6.0	6.5	6.9	5.6	8.0	10.2
840516	4.7	6.2	6.8	5.8	8.4	11.2
840517	5.3	5.9	6.5	5.2	8.1	11.2
840518	4.0	4.7	6.0	4.8	7.5	10.1
840519	3.2	3.4	4.0	4.0	6.7	9.6
840520	3.0	3.1	3.3	3.6	6.2	8.5
840521	3.0	3.1	3.1	3.9	6.0	8.1
840522	3.0	3.1	3.1	3.5	4.5	6.6
Monthly Value	3.0	6.0	8.4	3.5	7.3	11.2

SECRET

Appendix Table A-28 Datapod temperature recorder data summary:
intragravel and surface water temperatures (C)
recorded at Upper Slough 8A - Site 2, RM 126.6,
GC S30N03W20CCA.

August 1983						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
830824	3.5	3.6	3.7	4.2	4.7	6.0
830825	3.5	-----	3.7	3.6	-----	4.4
Monthly Value	3.5	-----	3.7	3.6	-----	6.0

----- Data not available.

SECRET

Appendix Table A-28 (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

----- Data not available.

Appendix Table A-28 (continued).

November 1983						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
831101	1.5	1.6	1.8	0.0	.0	.1
831102	1.4	1.5	1.6	0.0	.0	.3
831103	1.1	1.3	1.5	-.1	.0	.1
831104	.8	1.0	1.2	*****	*****	*****
831105	.5	.6	.8	*****	*****	*****
831106	.5	.5	.5	*****	*****	*****
831107	.3	.4	.5	*****	*****	*****
831108	.2	.2	.4	*****	*****	*****
831109	.1	.2	.2	*****	*****	*****
831110	.1	.1	.2	*****	*****	*****
831111	-.1	.0	.1	*****	*****	*****
831112	*****	*****	*****	*****	*****	*****
831113	*****	*****	*****	*****	*****	*****
831114	*****	*****	*****	*****	*****	*****
831115	*****	*****	*****	*****	*****	*****
831116	*****	*****	*****	*****	*****	*****
831117	*****	*****	*****	*****	*****	*****
831118	*****	*****	*****	*****	*****	*****
831119	*****	*****	*****	*****	*****	*****
831120	*****	*****	*****	*****	*****	*****
831121	*****	*****	*****	*****	*****	*****
831122	*****	*****	*****	*****	*****	*****
831123	*****	*****	*****	*****	*****	*****
831124	*****	*****	*****	*****	*****	*****
831125	*****	*****	*****	*****	*****	*****
831126	*****	*****	*****	*****	*****	*****
831127	*****	*****	*****	*****	*****	*****
831128	*****	*****	*****	*****	*****	*****
831129	*****	*****	*****	*****	*****	*****
831130	*****	*****	*****	*****	*****	*****
Monthly Value	-.1	-----	1.8	-.1	-----	.3

----- Data not available.

***** Data available; site frozen.

3717

Appendix Table A-29 Datapod temperature recorder data summary:
 intragravel and surface water temperatures
 (C) recorded at Upper Slough 8A - Site 2
 when the site was frozen, RM 126.6,
 GC S30N03W20CCA.

November 1983 (Site frozen)						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
831104	+++++	+++++	+++++	-.8	-.4	-.1
831105	+++++	+++++	+++++	-1.5	-.8	-.3
831106	+++++	+++++	+++++	-3.3	-2.3	-1.5
831107	+++++	+++++	+++++	-3.3	-2.6	-1.7
831108	+++++	+++++	+++++	-3.4	-2.2	-1.2
831109	+++++	+++++	+++++	-3.5	-1.9	-1.2
831110	+++++	+++++	+++++	-4.0	-3.1	-1.7
831111	+++++	+++++	+++++	-4.4	-3.0	-2.1
831112	-.4	-.3	-.1	-4.9	-3.5	-1.9
831113	-1.4	-.8	-.3	-4.9	-4.5	-2.8
831114	-2.4	-2.0	-1.4	-4.9	-4.9	-4.9
831115	-2.8	-2.6	-2.1	-4.9	-4.8	-4.3
831116	-2.1	-1.6	-1.4	-4.4	-3.6	-3.1
831117	-1.8	-1.6	-1.4	-4.7	-4.2	-3.4
831118	-1.8	-1.7	-1.5	-4.9	-3.9	-3.3
831119	-2.7	-2.2	-1.6	-4.9	-4.9	-4.9
831120	-3.2	-3.0	-2.6	-4.9	-4.8	-4.2
831121	-2.6	-1.9	-1.3	-4.2	-2.8	-1.6
831122	-1.3	-.9	-.6	-1.6	-1.2	-1.0
831123	-.7	-.6	-.5	-2.1	-1.5	-1.2
831124	-1.1	-.8	-.6	-4.0	-2.7	-1.9
831125	-1.7	-1.5	-1.1	-4.4	-4.0	-3.7
831126	-1.7	-1.6	-1.5	-3.8	-3.3	-2.8
831127	-1.5	-1.4	-1.2	-3.3	-2.6	-1.9
831128	-1.2	-1.0	-.8	-2.0	-1.6	-1.2
831129	-.8	-.7	-.7	-1.8	-1.5	-1.3
831130	-1.0	-.8	-.7	-2.7	-2.1	-1.5
Monthly Value	-3.2	-----	-.1	-4.9	-2.9	-.1

----- Data not available.

+++++ Data available; site not frozen.

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Appendix Table A-29 (continued).

December 1983 (Site frozen)						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
831201	-0.9	-0.8	-0.8	-2.0	-1.7	-1.5
831202	-1.1	-1.0	-0.8	-2.9	-2.3	-1.5
831203	-1.1	-1.0	-1.0	-2.4	-2.1	-1.9
831204	-1.1	-1.0	-0.9	-2.6	-1.9	-1.3
831205	-0.9	-0.8	-0.6	-1.4	-1.0	-0.8
831206	-0.6	-0.5	-0.4	-0.8	-0.7	-0.5
831207	-0.5	-0.4	-0.4	-0.9	-0.7	-0.5
831208	-0.6	-0.5	-0.4	-1.2	-1.1	-0.9
831209	-0.7	-0.6	-0.5	-1.6	-1.3	-1.2
831210	-0.9	-0.8	-0.7	-1.6	-1.5	-1.5
831211	-0.8	-0.8	-0.7	-1.5	-1.4	-1.3
831212	-0.8	-0.7	-0.6	-1.6	-1.4	-1.3
831213	-0.8	-0.8	-0.7	-1.6	-1.5	-1.3
831214	-0.9	-0.8	-0.7	-1.9	-1.7	-1.3
831215	-1.1	-1.0	-0.8	-2.3	-2.1	-1.8
831216	-1.2	-1.2	-1.0	-2.4	-2.2	-2.1
831217	-1.2	-1.1	-1.0	-2.1	-1.8	-1.6
831218	-1.0	-0.9	-0.8	-1.6	-1.5	-1.4
831219	-0.8	-0.6	-0.3	-1.4	-0.2	-0.1
831220	-0.4	-0.3	-0.2	-0.2	-0.1	0.0
831221	-0.2	-----	-0.1	-0.1	-----	0.0
Monthly Value	-1.2	-0.8	-0.1	-2.9	-1.4	0.0

----- Data not available.

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

December 1983						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
831221	3.0	-----	3.1	2.0	-----	2.9
831222	3.0	3.0	3.1	2.0	2.3	2.6
831223	2.8	3.0	3.1	1.8	2.3	2.5
831224	1.5	1.9	2.8	1.2	1.6	2.4
831225	1.5	1.9	2.3	1.5	1.9	2.2
831226	2.2	2.3	2.4	1.9	2.1	2.3
831227	2.3	2.4	2.4	1.9	2.1	2.4
831228	2.3	2.3	2.4	2.0	2.3	2.5
831229	2.3	2.4	2.5	2.1	2.4	2.6
831230	2.4	2.4	2.5	2.0	2.3	2.6
831231	2.4	2.5	2.6	2.4	2.7	2.8
Monthly Value	1.5	-----	3.1	1.2	-----	2.9

----- Data not available.

1.2 - 4.0

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Appendix Table A-30(continued).

January 1984						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
840101	2.5	2.6	2.6	2.6	2.8	3.1
840102	2.6	2.6	2.7	2.6	3.0	3.2
840103	2.6	2.7	2.7	3.0	3.2	3.4
840104	2.6	2.7	2.8	2.7	3.2	3.4
840105	2.7	2.7	2.8	3.0	3.3	3.5
840106	2.7	2.8	2.8	3.3	3.5	3.6
840107	2.7	2.8	2.9	1.5	3.1	3.6
840108	2.7	2.8	2.9	1.6	1.9	2.1
840109	2.7	2.8	2.8	1.6	2.1	2.2
840110	2.7	2.8	2.8	2.0	2.2	2.3
840111	2.7	2.8	2.9	2.2	2.3	2.5
840112	2.7	2.8	2.8	2.3	2.4	2.5
840113	2.7	2.7	2.8	2.1	2.4	2.5
840114	2.7	2.7	2.8	2.0	2.3	2.5
840115	2.6	2.7	2.8	2.1	2.3	2.5
840116	2.6	2.7	2.8	1.9	2.2	2.4
840117	2.7	2.8	2.8	2.2	2.4	2.5
840118	2.7	2.8	2.9	2.1	2.4	2.5
840119	2.8	2.9	2.9	1.7	2.1	2.3
840120	2.8	2.8	2.9	1.6	1.8	2.2
840121	2.8	2.8	2.9	1.5	1.9	2.2
840122	2.8	2.9	2.9	1.5	1.9	2.2
840123	2.8	2.8	2.9	1.3	1.9	2.3
840124	2.8	2.8	2.9	1.7	2.1	2.3
840125	2.7	2.8	2.9	1.5	2.0	2.3
840126	2.8	2.8	2.9	1.7	2.2	2.5
840127	2.8	2.9	2.9	1.7	2.2	2.5
840128	2.8	2.9	2.9	1.8	2.2	2.5
840129	2.8	2.9	3.0	1.9	2.3	2.6
840130	2.8	2.9	2.9	1.7	2.3	2.7
840131	2.8	2.9	2.9	2.1	2.5	2.6
Monthly Value	2.5	2.8	3.0	1.3	2.4	3.6

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Appendix Table A-30 (continued).

February 1984						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
840201	2.8	2.9	3.0	1.8	2.3	2.6
840202	2.9	3.0	3.1	2.2	2.5	2.6
840203	2.9	3.0	3.1	2.2	2.4	2.6
840204	2.9	3.0	3.1	2.2	2.4	2.6
840205	2.9	3.0	3.0	2.3	2.4	2.5
840206	2.9	3.0	3.0	2.2	2.4	2.5
840207	2.9	3.0	3.1	1.7	2.4	4.0
840208	2.9	3.0	3.0	1.4	1.9	2.2
840209	2.9	3.0	3.0	1.2	1.7	2.2
840210	2.9	3.0	3.0	1.3	1.9	2.3
840211	2.9	2.9	3.0	1.8	2.1	2.3
840212	2.8	2.9	3.0	1.7	2.0	2.4
840213	2.8	2.9	2.9	1.7	2.1	2.3
840214	2.8	2.9	2.9	1.8	2.1	2.4
840215	2.7	2.8	2.9	1.8	2.1	2.3
840216	2.7	2.8	2.8	1.6	2.0	2.4
840217	2.7	2.7	2.8	1.9	2.2	2.6
840218	2.7	2.8	2.8	1.7	2.1	2.6
840219	2.7	2.8	2.8	1.5	1.9	2.2
840220	2.7	2.8	2.9	1.4	1.6	2.0
840221	2.7	2.8	2.9	1.4	1.7	2.3
840222	2.8	2.8	2.9	1.6	2.0	2.3
840223	2.8	2.8	2.9	1.8	2.0	2.4
840224	2.8	2.8	2.9	1.7	2.0	2.3
840225	2.8	2.8	2.9	1.8	2.1	2.6
840226	2.8	2.8	2.9	1.6	1.9	2.6
840227	2.8	2.8	2.9	1.6	2.0	2.6
840228	2.7	2.8	2.9	1.6	1.9	2.8
840229	2.7	2.8	2.9	1.7	2.0	2.8
Monthly Value	2.7	2.9	3.1	1.2	2.1	4.0

Appendix Table A-30 (continued).

March 1984						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
840301	2.7	2.8	2.9	1.5	-----	1.8
840302	2.8	2.8	2.9	1.7	2.0	2.7
840303	2.8	2.8	2.9	1.7	2.0	2.6
840304	2.8	2.8	2.9	1.8	2.3	3.1
840305	2.8	2.8	2.9	2.0	2.5	3.1
840306	2.7	2.8	2.9	1.9	-----	2.4
840307	2.8	2.8	2.9	1.9	-----	2.4
840308	2.8	2.9	2.9	2.1	-----	2.4
840309	2.8	2.8	2.9	2.0	-----	2.3
840310	2.8	2.9	2.9	1.9	-----	2.2
840311	2.8	2.9	2.9	1.6	-----	2.2
840312	2.8	2.8	2.9	1.4	-----	2.0
840313	2.8	2.8	2.9	-----	-----	-----
840314	2.8	2.8	2.9	-----	-----	-----
840315	2.8	2.8	2.9	-----	-----	-----
840316	2.8	2.8	2.9	-----	-----	-----
840317	2.8	2.9	6.3	-----	-----	-----
840318	2.8	2.9	3.2	-----	-----	-----
840319	2.8	3.0	3.1	-----	-----	-----
840320	2.8	2.9	3.1	-----	-----	-----
840321	2.8	3.0	3.3	-----	-----	-----
840322	2.8	2.9	3.2	-----	-----	-----
840323	2.8	2.9	3.1	1.6	-----	2.1
840324	2.8	2.9	2.9	1.5	-----	2.0
840325	2.8	2.9	3.0	1.8	-----	2.3
840326	2.9	2.9	3.0	2.0	-----	2.3
840327	2.9	3.2	4.8	2.2	2.5	3.1
840328	3.0	3.3	4.3	2.0	-----	2.6
840329	2.9	3.0	3.1	2.3	-----	2.5
840330	2.9	2.9	3.0	2.3	-----	2.6
840331	2.9	3.2	4.1	2.4	2.7	3.2
Monthly Value	2.7	2.9	6.3	1.4	-----	3.2

----- Data not available.

SECRET

Appendix Table A-30 (continued).

April 1984						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
840401	2.9	3.5	4.1	2.3	-----	2.6
840402	2.9	3.0	3.0	2.2	-----	2.7
840403	2.8	2.9	3.0	2.0	-----	2.4
840404	2.8	2.9	3.0	2.2	-----	2.6
840405	2.8	2.9	3.0	2.4	-----	2.7
840406	2.8	2.9	3.0	2.3	-----	2.7
840407	2.8	2.9	3.0	2.1	-----	2.6
840408	2.8	2.9	2.9	2.1	-----	2.6
840409	2.8	2.9	3.0	2.2	-----	2.6
840410	2.8	2.9	3.0	2.3	-----	2.8
840411	2.8	2.9	3.0	2.3	-----	2.7
840412	2.8	2.9	3.0	2.3	-----	2.8
840413	2.9	3.0	3.0	2.4	-----	2.8
840414	2.9	3.0	3.0	2.5	-----	2.9
840415	2.9	3.0	3.0	2.7	-----	2.9
840416	2.9	3.0	3.0	2.7	2.8	3.1
840417	2.8	2.9	3.0	2.6	-----	2.8
840418	2.9	3.0	3.0	2.7	-----	2.8
840419	2.8	2.9	3.0	2.6	-----	2.8
840420	2.9	2.9	3.0	2.7	-----	2.8
840421	2.9	3.0	3.1	2.7	-----	2.9
840422	2.9	3.1	3.1	2.8	-----	2.9
840423	2.9	3.0	3.1	2.7	-----	2.8
840424	2.9	2.9	3.0	2.7	-----	2.8
840425	2.9	2.9	3.0	2.7	-----	2.9
840426	2.9	3.0	3.0	2.7	-----	2.9
840427	2.9	3.0	3.1	2.7	-----	2.9
840428	3.0	3.0	3.1	2.8	-----	2.9
840429	3.0	3.0	3.2	2.8	-----	2.9
840430	2.9	3.0	3.1	2.8	-----	2.9
Monthly Value	2.8	3.0	4.1	2.0	-----	3.1

----- Data not available

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Appendix Table A-30 (continued).

May 1984						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
840501	2.8	3.0	3.0	2.7	-----	2.8
840502	2.8	2.9	2.9	2.6	-----	2.8
840503	2.7	2.8	2.9	2.5	-----	2.7
840504	2.7	2.8	2.8	2.3	-----	2.8
840505	2.7	2.7	2.8	2.5	-----	2.7
840506	2.7	2.8	2.8	2.3	-----	2.7
840507	2.7	2.7	2.8	2.2	-----	2.8
840508	2.7	2.7	2.8	2.2	-----	2.7
840509	2.6	2.7	2.8	2.3	-----	2.7
840510	2.6	2.7	2.8	2.1	-----	2.7
840511	2.6	2.6	2.7	2.1	-----	2.8
840512	2.6	2.6	2.7	1.9	-----	2.4
840513	2.6	2.6	2.7	2.2	-----	2.6
840514	2.5	2.6	2.7	2.1	-----	2.6
840515	2.4	2.6	2.7	2.0	-----	2.8
840516	2.3	2.6	2.7	-----	-----	-----
840517	2.1	2.6	2.8	-----	-----	-----
840518	2.7	2.9	3.0	-----	-----	-----
840519	2.5	3.0	3.3	-----	-----	-----
840520	2.0	3.1	3.5	-----	-----	-----
840521	1.9	3.1	3.5	-----	-----	-----
840522	1.7	-----	3.5	-----	-----	-----
Monthly Value	1.7	2.8	3.5	1.9	-----	2.8

----- Data not available.

Appendix Table A-31 Ryan temperature recorder data summary: surface water temperatures (C) recorded at Slough 9 Incubation Site, RM 128.5, GC S30N03W09DCB.

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

----- Data not available.

Appendix Table A-31 (continued).

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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

----- Data not available.

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

August 1983						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
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	3.7	3.7	8.7	9.6	10.4
Monthly Value	3.5	-----	3.7	6.8	-----	12.2

----- Data not available.

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Appendix Table 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	5.2	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

----- Data not available.

Appendix Table 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	2.4	5.7

----- Data not available.

37.17

Appendix Table A-32 (continued).

November 1983						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
831101	3.4	3.4	3.5	.7	1.4	2.1
831102	3.4	3.4	3.5	1.4	2.0	3.1
831103	3.4	3.4	3.5	.5	1.0	2.1
831104	3.4	3.4	3.5	.5	1.0	1.7
831105	3.4	3.4	3.5	.3	1.1	1.6
831106	3.3	3.4	3.4	.3	.5	.7
831107	3.3	3.4	3.4	.5	.7	1.0
831108	3.3	3.3	3.4	.6	1.0	1.4
831109	3.3	3.4	3.4	.7	1.3	1.8
831110	3.3	3.4	3.4	.5	1.0	1.8
831111	3.3	3.3	3.4	.7	1.1	1.6
831112	3.3	3.3	3.4	.4	1.1	1.9
831113	3.2	3.3	3.4	.3	.7	1.3
831114	3.2	3.3	3.3	.5	.5	.7
831115	3.2	3.2	3.3	.5	.5	.7
831116	3.1	3.2	3.2	.6	.6	.7
831117	3.1	3.2	3.3	.5	.7	.7
831118	3.2	3.2	3.3	.6	.7	.9
831119	3.2	3.2	3.3	.5	.6	.6
831120	3.1	3.2	3.3	.4	.5	.6
831121	3.1	3.1	3.2	.5	.7	1.0
831122	3.1	3.2	3.2	.8	1.2	1.6
831123	3.2	3.2	3.3	.8	1.3	1.7
831124	3.2	3.3	3.3	.6	.8	1.2
831125	3.2	3.3	3.3	.6	.7	.7
831126	3.2	3.3	3.3	.6	.7	.8
831127	3.2	3.3	3.3	.7	.9	1.1
831128	3.2	3.3	3.4	1.0	1.2	1.4
831129	3.3	3.3	3.4	.9	1.2	1.6
831130	3.3	3.3	3.4	.6	1.1	1.7
Monthly Value	3.1	3.3	3.5	.3	.9	3.1

.9

Appendix Table A-32 (continued).

December 1983						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
831201	3.3	3.3	3.4	1.1	1.5	1.7
831202	3.3	3.3	3.4	.7	1.2	1.7
831203	3.3	3.3	3.4	1.2	1.4	1.7
831204	3.3	3.3	3.4	.4	.9	1.4
831205	3.3	3.3	3.4	1.0	1.4	1.7
831206	3.3	3.4	3.4	.7	1.6	1.9
831207	3.3	3.3	3.4	.6	.7	.8
831208	3.3	3.3	3.3	.6	.7	.7
831209	3.2	3.3	3.4	.6	.7	.7
831210	3.2	3.3	3.3	.6	.7	.7
831211	3.2	3.2	3.3	.7	.7	.8
831212	3.1	3.2	3.3	.6	.7	.7
831213	3.1	3.2	3.2	.7	.7	.7
831214	3.1	3.1	3.2	.6	.7	.7
831215	3.0	3.1	3.1	.6	.6	.7
831216	3.0	3.1	3.1	.6	.6	.7
831217	3.0	3.0	3.1	.6	.6	.7
831218	3.0	3.0	3.1	.6	.6	.7
831219	3.0	3.0	3.1	.6	.7	.7
831220	3.0	3.1	3.1	.7	.7	.9
831221	3.1	3.2	3.2	.8	.9	1.0
831222	3.1	3.2	3.2	.6	.8	1.0
831223	3.1	3.2	3.2	.6	.7	.7
831224	3.2	3.2	3.3	.6	.7	.7
831225	3.2	3.2	3.3	.6	.7	.8
831226	3.2	3.3	3.4	.7	.7	.9
831227	3.3	3.3	3.4	.7	.7	.8
831228	3.3	3.4	3.4	.7	.7	.8
831229	3.3	3.4	3.4	.7	.7	.7
831230	3.3	3.4	3.5	.7	.8	1.0
831231	3.4	3.4	3.5	.9	1.1	1.4
Monthly Value	3.0	3.2	3.5	.4	.8	1.9

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Appendix Table A-32 (continued).

January 1984						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
840101	3.4	3.5	3.5	1.2	1.6	1.9
840102	3.4	3.5	3.5	1.1	1.7	2.0
840103	3.4	3.5	3.5	1.5	1.8	2.1
840104	3.4	3.5	3.5	.7	1.2	1.9
840105	3.4	3.5	3.5	.7	.9	1.1
840106	3.4	3.5	3.5	.8	1.1	1.3
840107	3.4	3.5	3.5	.7	1.2	1.6
840108	3.4	3.5	3.5	.7	.9	1.0
840109	3.4	3.5	3.5	.8	1.0	1.2
840110	3.4	-----	3.5	1.0	-----	1.4
Monthly Value	3.4	-----	3.5	.7	-----	2.1

----- Data not available.

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Appendix Table A-32 (continued).

March 1984						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
840323	3.3	3.4	3.4	.6	1.8	4.0
840324	3.3	3.4	3.4	.5	2.0	4.7
840325	3.3	3.4	3.4	.7	2.6	5.6
840326	3.3	3.4	3.4	1.5	2.9	5.8
840327	3.3	3.4	3.5	1.7	3.3	5.9
840328	3.3	3.4	3.4	.9	3.3	6.2
840329	3.3	3.4	3.4	1.2	2.9	5.4
840330	3.3	3.4	3.4	1.5	3.5	6.6
840331	3.3	3.4	3.4	2.2	3.3	5.2
Monthly Value	3.3	-----	3.5	.5	-----	6.6

----- Data not available.

A-220

Appendix Table A-32 (continued).

April 1984						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
840401	3.3	3.4	3.4	1.8	3.7	6.5
840402	3.3	3.4	3.4	.7	2.5	5.4
840403	3.3	3.4	3.4	.7	2.8	6.3
840404	3.3	3.4	3.4	.7	3.2	7.0
840405	3.3	3.4	3.4	2.1	4.2	7.7
840406	3.3	3.4	3.4	1.9	3.8	6.8
840407	3.3	3.3	3.4	.7	3.2	5.7
840408	3.3	3.3	3.4	.6	3.9	8.3
840409	3.3	3.4	3.4	1.5	4.4	8.8
840410	3.3	3.4	3.4	1.4	4.3	8.4
840411	3.3	3.4	3.4	.8	3.5	7.8
840412	3.3	3.4	3.4	.6	3.7	8.3
840413	3.3	3.4	3.4	.7	3.9	8.2
840414	3.3	3.4	3.4	1.0	4.1	7.9
840415	3.3	3.4	3.4	2.6	4.5	7.2
840416	3.3	3.4	3.4	1.7	3.4	4.8
840417	3.3	3.4	3.4	1.7	4.2	8.2
840418	3.3	3.4	3.4	.7	3.7	8.0
840419	3.3	3.3	3.4	.7	3.7	8.0
840420	3.3	3.3	3.4	2.6	4.5	7.7
840421	3.3	3.4	3.4	2.7	5.2	10.4
840422	3.3	3.4	3.4	.7	4.5	9.3
840423	3.3	3.4	3.4	.9	3.9	8.5
840424	3.3	3.4	3.4	.9	4.4	8.9
840425	3.3	3.4	3.4	1.8	5.3	9.6
840426	3.3	3.4	3.4	1.8	4.9	9.4
840427	3.3	3.4	3.4	2.3	5.0	8.6
840428	3.3	3.4	3.4	3.6	5.9	9.7
840429	3.3	3.4	3.4	2.4	5.8	10.8
840430	3.3	3.4	3.4	3.2	5.6	10.0
Monthly Value	3.3	3.4	3.4	.6	4.2	10.8

Appendix Table A-32 (continued).

May 1984						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
840501	3.3	3.4	3.4	2.7	5.9	9.2
840502	3.3	3.4	3.4	3.2	5.5	8.7
840503	3.3	3.4	3.4	2.2	5.3	10.5
840504	3.3	3.4	3.4	2.4	5.0	9.3
840505	3.3	3.4	3.4	3.0	5.4	10.4
840506	3.3	3.4	3.4	2.2	5.6	10.0
840507	3.3	3.4	3.4	1.7	5.5	10.7
840508	3.3	3.4	3.4	1.6	5.2	10.3
840509	3.3	3.4	3.4	1.6	4.9	9.5
840510	3.3	3.4	3.4	1.5	4.7	9.2
840511	3.3	3.4	3.4	1.7	4.5	8.4
840512	3.3	3.4	3.4	1.4	4.8	9.3
840513	3.3	3.4	3.5	2.5	5.5	9.5
840514	3.3	3.4	3.4	2.1	5.5	9.8
840515	3.3	3.4	3.5	2.2	5.4	9.5
840516	3.3	3.4	3.4	2.3	5.6	11.3
840517	3.3	3.4	3.4	2.2	5.9	10.4
840518	3.3	3.4	3.5	3.1	6.0	10.0
840519	3.3	3.4	3.5	2.9	5.4	8.8
840520	3.3	3.4	3.4	2.1	5.1	8.9
840521	3.3	3.4	3.5	4.0	6.1	8.8
840522	3.3	-----	3.4	4.9	-----	5.7
840523	3.3	3.4	3.5	4.6	6.2	8.8
840524	3.3	3.4	3.5	5.5	6.3	7.4
840525	3.4	3.4	3.5	5.8	6.6	8.2
840526	3.3	3.4	3.5	5.6	6.4	7.8
840527	3.3	3.4	3.5	4.9	6.4	8.7
840528	3.3	3.4	3.4	2.8	5.7	9.3
840529	3.3	3.4	3.4	3.4	5.6	8.2
840530	3.3	3.4	3.4	4.3	5.9	8.6
840531	3.3	3.4	3.5	3.9	6.8	11.1
Monthly Value	3.3	3.4	3.5	1.4	5.6	11.3

----- Data not available.

DRAFT

Appendix Table A-33 Datapod temperature recorder data summary:
intragravel and surface water temperatures (C)
recorded 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	3.1	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	2.3	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

----- Data not available.

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Appendix Table A-33 (continued).

DRAFT

November 1983						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
831101	3.2	3.3	3.4	1.8	2.2	2.8
831102	3.3	3.3	3.4	2.3	2.6	3.3
831103	3.1	3.2	3.4	1.6	1.9	2.6
831104	3.1	3.2	3.3	1.1	1.6	2.3
831105	3.1	3.2	3.3	1.0	1.7	2.1
831106	2.9	3.0	3.2	.6	.9	1.4
831107	2.9	3.0	3.2	.9	1.5	1.9
831108	2.9	3.0	3.1	1.3	1.8	2.2
831109	2.9	3.0	3.1	1.3	1.8	2.2
831110	2.9	2.9	3.0	1.2	1.6	2.1
831111	2.8	2.9	2.9	1.2	1.6	2.0
831112	2.8	2.8	2.9	1.1	1.7	2.2
831113	2.7	2.8	2.9	.6	1.0	1.8
831114	2.6	2.7	2.7	.7	.7	1.0
831115	2.6	2.6	2.7	.7	1.0	1.4
831116	2.6	2.7	2.7	1.1	1.3	1.6
831117	2.5	2.6	2.7	.7	1.0	1.4
831118	2.5	2.6	2.7	.6	1.1	1.5
831119	2.5	2.5	2.6	.5	.6	.7
831120	2.4	2.5	2.5	.6	.8	1.2
831121	2.5	2.6	2.7	1.2	1.6	2.0
831122	2.6	2.7	2.7	1.5	1.8	2.0
831123	2.6	2.7	2.7	1.2	1.6	1.9
831124	2.6	2.7	2.7	.5	1.0	1.6
831125	2.5	2.5	2.6	.6	.7	1.0
831126	2.5	2.6	2.6	.9	1.2	1.5
831127	2.6	2.6	2.7	1.1	1.5	1.8
831128	2.7	2.7	2.7	1.6	1.8	2.1
831129	2.7	2.7	2.8	1.6	1.8	2.0
831130	2.7	2.7	2.8	1.3	1.7	2.0
Monthly Value	2.4	2.8	3.4	.5	1.4	3.3

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Appendix Table A-33 (continued).

SECRET

December 1983						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
831201	2.7	2.7	2.8	1.6	1.9	2.1
831202	2.7	2.7	2.8	1.0	1.5	2.1
831203	2.7	2.7	2.7	1.5	1.7	1.8
831204	2.7	2.7	2.7	.9	1.3	1.7
831205	2.7	2.7	2.8	1.3	1.8	2.0
831206	2.7	2.7	2.8	1.2	1.9	2.3
831207	2.6	2.7	2.8	.7	1.1	1.5
831208	2.6	2.6	2.7	.8	1.0	1.4
831209	2.5	2.5	2.6	.6	.9	1.2
831210	2.4	2.5	2.6	.7	.9	1.2
831211	2.5	2.5	2.6	.8	1.1	1.3
831212	2.5	2.5	2.6	.7	.9	1.2
831213	2.5	2.5	2.6	.9	1.1	1.5
831214	2.5	2.5	2.6	.6	.8	1.3
831215	2.4	2.5	2.6	.3	.5	.8
831216	2.4	2.4	2.5	.4	.9	1.2
831217	2.4	2.5	2.6	1.0	1.2	1.5
831218	2.5	2.5	2.6	.8	1.2	1.6
831219	2.5	2.5	2.6	.8	1.1	1.6
831220	2.5	2.6	2.7	1.5	1.6	1.8
831221	2.6	2.7	2.7	1.5	1.8	2.0
831222	2.5	2.7	2.7	.6	1.0	1.7
831223	2.5	2.5	2.6	.6	.7	.7
831224	2.5	2.5	2.6	.6	.8	1.1
831225	2.5	2.6	2.7	1.0	1.2	1.4
831226	2.6	2.6	2.7	.9	1.1	1.3
831227	2.6	2.6	2.7	.7	.8	1.0
831228	2.6	2.7	2.7	.7	.8	.9
831229	2.6	2.6	2.7	.7	.8	1.0
831230	2.6	2.7	2.7	.7	.9	1.2
831231	2.7	2.7	2.8	1.2	1.5	1.7
Monthly Value	2.4	2.6	2.8	.3	1.2	2.3

Appendix Table A-33 (continued).

DRAFT

January 1984						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
840101	2.7	2.7	2.8	1.4	1.7	2.1
840102	2.8	2.8	2.9	1.3	1.9	2.2
840103	2.8	2.9	2.9	1.7	2.0	2.2
840104	2.7	2.8	2.9	1.1	1.6	2.0
840105	2.7	2.7	2.8	.6	1.0	1.5
840106	2.7	2.7	2.8	1.3	1.5	1.6
840107	2.7	2.8	2.9	1.0	1.5	1.8
840108	2.7	2.8	2.8	.8	1.1	1.3
840109	2.7	2.8	2.9	1.0	1.3	1.8
840110	2.8	2.9	3.0	1.6	1.9	2.2
840111	2.9	3.0	3.0	2.0	2.1	2.2
840112	2.9	3.0	3.0	2.0	2.3	2.5
840113	3.0	3.1	3.1	1.6	2.2	2.5
840114	2.9	3.0	3.1	1.2	1.9	2.3
840115	3.0	3.0	3.1	1.1	2.0	2.5
840116	2.9	3.0	3.0	.9	1.2	1.7
840117	2.9	3.0	3.1	1.6	1.9	2.3
840118	3.0	3.1	3.1	1.1	1.6	2.0
840119	2.9	3.0	3.1	.8	1.3	1.8
840120	3.0	3.0	3.1	.7	1.0	1.4
840121	2.9	3.0	3.0	.7	1.0	1.5
840122	3.0	3.0	3.1	.9	1.1	1.3
840123	3.0	3.0	3.1	.6	.8	1.0
840124	3.0	3.0	3.1	.6	.7	.9
840125	3.0	3.0	3.1	.6	.8	1.2
840126	3.0	3.1	3.2	1.0	1.3	1.5
840127	3.0	3.1	3.2	.8	1.1	1.6
840128	3.1	3.1	3.2	1.0	1.3	1.7
840129	3.1	3.2	3.3	1.6	1.9	2.4
840130	3.2	3.2	3.3	1.3	1.9	2.4
840131	3.2	3.3	3.3	2.1	2.4	2.7
Monthly Value	2.7	3.0	3.3	.6	1.5	2.7

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Appendix Table A-33 (continued).

February 1984						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
840201	3.2	3.3	3.3	1.3	1.8	2.3
840202	3.3	3.3	3.4	.8	2.0	2.3
840203	3.2	3.2	3.3	1.0	1.6	2.2
840204	3.2	3.3	3.4	1.4	2.1	2.4
840205	3.3	3.3	3.4	2.0	2.2	2.4
840206	3.2	3.3	3.4	1.4	1.8	2.2
840207	3.2	3.3	3.4	1.6	2.0	2.4
840208	3.2	3.3	3.3	1.5	1.6	1.8
840209	3.1	3.2	3.3	1.0	1.2	1.6
840210	3.1	3.2	3.3	.9	1.5	2.1
840211	3.2	3.3	3.4	1.7	2.0	2.2
840212	3.2	3.3	3.4	1.6	1.9	2.4
840213	3.3	3.3	3.4	1.7	2.0	2.3
840214	3.3	3.3	3.4	1.8	2.2	2.7
840215	3.3	3.3	3.4	1.8	2.2	2.4
840216	3.3	3.3	3.4	1.8	2.3	2.7
840217	3.3	3.4	3.5	2.4	2.7	3.1
840218	3.3	3.4	3.4	2.1	2.5	2.9
840219	3.3	3.4	3.4	1.7	2.2	2.7
840220	3.2	3.3	3.4	1.6	1.8	2.0
840221	3.2	3.2	3.3	1.7	2.0	2.6
840222	3.2	3.3	3.4	1.9	2.3	2.7
840223	3.3	3.3	3.4	2.1	2.4	2.8
840224	3.2	3.3	3.3	2.1	2.3	2.7
840225	3.2	3.3	3.4	2.2	2.4	2.9
840226	3.2	3.3	3.4	1.7	2.1	2.7
840227	3.2	3.2	3.3	1.7	2.0	2.7
840228	3.1	3.2	3.3	1.3	1.9	2.4
840229	3.2	3.2	3.3	1.7	2.0	2.4
Monthly Value	3.1	3.3	3.5	.8	2.0	3.1

Appendix Table A-33 (continued).

DRAFT

March 1984						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
840301	3.1	3.2	3.3	1.4	1.8	2.4
840302	3.2	3.3	3.4	2.0	2.5	3.1
840303	3.2	3.3	3.3	2.0	2.4	3.0
840304	3.2	3.3	3.4	2.1	2.7	3.6
840305	3.3	3.3	3.4	2.6	2.9	3.6
840306	3.2	3.3	3.4	2.3	2.7	3.2
840307	3.2	3.3	3.4	2.3	2.8	3.8
840308	3.2	3.3	3.4	2.6	2.9	3.8
840309	3.2	3.3	3.4	2.5	3.0	3.7
840310	3.2	3.3	3.4	2.4	2.9	3.9
840311	3.2	3.3	3.3	2.1	2.7	4.0
840312	3.1	3.2	3.3	1.7	2.3	3.5
840313	3.1	3.2	3.3	1.7	2.3	3.4
840314	3.1	3.2	3.3	2.0	2.7	3.8
840315	3.1	3.2	3.3	1.9	2.5	3.6
840316	3.1	3.1	3.2	1.7	2.2	3.4
840317	3.0	3.1	3.2	1.4	2.0	3.2
840318	2.9	3.0	3.2	1.0	1.8	3.1
840319	2.9	3.0	3.1	.9	1.7	3.2
840320	2.9	3.0	3.2	1.3	2.2	3.6
840321	2.9	3.0	3.2	1.1	1.9	3.2
840322	2.9	3.0	3.1	.9	1.7	3.4
840323	2.8	2.9	3.0	.9	1.7	3.4
840324	2.8	3.0	3.1	1.0	2.0	3.8
840325	2.9	3.0	3.1	1.3	2.3	4.0
840326	2.9	3.0	3.2	1.8	2.6	4.3
840327	2.9	3.0	3.2	1.9	2.8	4.4
840328	2.9	3.0	3.2	1.5	2.5	4.4
840329	2.9	3.0	3.2	1.8	2.6	4.1
840330	2.9	3.0	3.2	1.8	2.9	4.9
840331	3.0	3.1	3.2	2.2	2.8	3.9
Monthly Value	2.8	3.1	3.4	.9	2.4	4.9

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Appendix Table A-33 (continued).

DRAFT

April 1984						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
840401	2.9	3.0	3.2	2.0	3.0	4.6
840402	2.8	3.0	3.2	.7	2.4	4.6
840403	2.7	2.9	3.1	.8	2.2	4.7
840404	2.8	2.9	3.1	1.1	2.4	5.0
840405	2.9	3.0	3.2	2.0	3.0	5.1
840406	2.9	3.0	3.2	1.4	3.0	5.1
840407	2.8	3.0	3.2	.9	2.6	4.6
840408	2.8	3.0	3.2	.9	2.8	5.3
840409	2.8	3.0	3.2	1.6	3.0	5.6
840410	2.8	3.0	3.2	1.5	2.7	4.9
840411	2.7	3.0	3.1	1.0	2.5	5.6
840412	2.7	2.9	3.1	.9	2.5	5.6
840413	2.7	2.9	3.1	1.0	2.8	5.8
840414	2.7	3.0	3.2	1.3	3.0	5.6
840415	2.9	3.0	3.2	1.7	3.3	5.7
840416	2.9	3.0	3.2	1.7	2.6	3.6
840417	2.7	2.9	3.2	1.6	3.0	6.1
840418	2.6	2.9	3.2	.6	2.4	5.9
840419	2.5	2.8	3.1	.5	2.5	6.0
840420	2.7	3.0	3.3	1.7	3.6	6.4
840421	2.8	3.1	3.5	2.0	4.2	8.6
840422	2.9	3.2	3.6	1.4	3.5	7.5
840423	2.6	2.9	3.3	.6	2.7	6.9
840424	2.5	2.8	3.2	.7	3.0	6.9
840425	2.7	3.0	3.4	1.6	3.9	8.2
840426	2.8	3.1	3.4	1.5	3.9	7.3
840427	2.9	3.2	3.5	1.7	4.1	7.1
840428	3.2	3.4	3.6	2.9	4.7	8.0
840429	3.1	3.4	3.7	1.9	4.4	8.6
840430	3.2	3.5	3.7	2.6	4.7	8.3
Monthly Value	2.5	3.0	3.7	.5	3.1	8.6

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Appendix Table A-33 (continued).

DRAFT

May 1984						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
840501	3.2	3.5	3.7	2.2	4.5	7.7
840502	3.3	3.5	3.7	2.7	4.4	7.2
840503	3.2	3.5	3.7	1.7	4.0	8.4
840504	3.3	3.5	3.8	2.0	3.8	7.1
840505	3.3	3.5	3.7	2.4	4.1	8.3
840506	3.4	3.6	3.9	1.9	4.3	8.3
840507	3.3	3.6	3.9	1.5	4.0	8.1
840508	3.4	3.6	3.9	1.6	4.0	8.0
840509	3.3	3.5	3.8	1.7	4.0	7.8
840510	3.3	3.5	3.8	1.8	3.7	7.6
840511	3.3	3.5	3.6	1.9	3.5	6.4
840512	3.2	3.4	3.6	1.7	3.4	6.4
840513	3.2	3.4	3.6	2.0	3.6	6.4
840514	3.2	3.4	3.6	1.9	3.6	6.6
840515	3.3	3.5	3.7	2.0	3.7	6.6
840516	3.3	3.6	3.8	2.0	3.9	8.0
840517	3.4	3.6	3.9	2.0	3.9	6.9
840518	3.6	3.8	4.1	2.5	4.2	7.4
840519	3.6	3.8	4.2	2.5	4.1	7.0
840520	3.6	3.9	4.2	2.4	4.0	6.5
840521	3.6	3.8	4.0	2.7	3.9	6.2
840522	3.6	-----	3.9	2.9	-----	3.4
Monthly Value	3.2	3.6	4.2	1.5	3.9	8.4

----- Data not available.

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DRAFT

Appendix Table *A-34* Datapod temperature recorder data summary:
intragravel and surface water temperatures (C)
recorded 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	2.8	3.5
831023	3.5	3.5	3.6	1.8	2.3	2.9
831024	3.5	3.5	3.6	1.8	2.2	2.7
831025	3.5	3.6	3.6	1.8	2.2	2.6
831026	3.5	3.6	3.6	2.1	2.4	2.8
831027	3.5	3.5	3.6	1.9	2.3	2.8
831028	3.5	3.6	3.6	2.2	2.5	2.8
831029	3.5	3.6	3.6	2.0	2.4	2.7
831030	3.4	3.5	3.5	2.2	2.5	2.8
831031	3.4	3.5	3.5	2.1	2.3	2.6
Monthly Value	3.4	-----	3.7	1.8	-----	3.5

----- Data not available.

Appendix Table A-34 (continued).

07.17

November 1983						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
831101	3.4	3.4	3.5	1.9	2.2	2.4
831102	3.4	3.4	3.5	2.2	2.5	2.8
831103	3.4	3.4	3.5	1.9	2.2	2.6
831104	3.4	3.4	3.5	1.8	2.1	2.5
831105	3.4	3.4	3.5	1.9	2.2	2.5
831106	3.2	3.3	3.3	1.7	1.8	2.1
831107	3.2	3.3	3.3	1.8	2.0	2.2
831108	3.3	3.3	3.3	1.9	2.2	2.4
831109	3.3	3.3	3.4	1.9	2.2	2.6
831110	3.3	3.3	3.3	1.9	2.1	2.4
831111	3.3	3.3	3.3	1.9	2.2	2.5
831112	3.3	3.3	3.3	1.9	2.2	2.5
831113	3.1	3.2	3.2	1.7	1.9	2.2
831114	3.1	3.2	3.2	1.6	1.7	1.9
831115	3.1	3.2	3.2	1.7	1.8	2.1
831116	3.2	3.2	3.2	1.9	2.0	2.1
831117	3.2	3.2	3.2	1.7	1.8	2.1
831118	3.2	3.2	3.3	1.7	1.9	2.1
831119	3.2	3.2	3.3	1.6	1.7	1.8
831120	3.0	3.1	3.2	1.6	1.8	2.1
831121	3.1	3.2	3.2	1.9	2.2	2.4
831122	3.1	3.2	3.3	2.0	2.2	2.3
831123	3.1	3.2	3.2	1.9	2.1	2.3
831124	3.1	3.1	3.2	1.6	1.9	2.1
831125	3.1	3.1	3.2	1.6	1.8	1.9
831126	3.1	3.1	3.2	1.8	2.0	2.1
831127	3.0	3.0	3.2	1.9	2.1	2.3
831128	3.0	3.1	3.2	2.1	2.2	2.3
831129	3.1	3.1	3.2	2.1	2.2	2.4
831130	3.0	3.1	3.2	1.9	2.2	2.4
Monthly Value	3.0	3.2	3.5	1.6	2.0	2.8

Appendix Table A-34 (continued).

December 1983						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
831201	3.1	3.1	3.2	2.1	2.2	2.4
831202	3.1	3.1	3.2	1.9	2.1	2.4
831203	3.1	3.1	3.2	2.1	2.2	2.3
831204	2.9	3.0	3.0	1.8	2.0	2.2
831205	3.0	3.0	3.1	1.9	2.2	2.3
831206	3.0	3.0	3.1	1.9	2.2	2.4
831207	2.9	3.0	3.0	1.7	1.8	2.0
831208	2.9	2.9	3.0	1.6	1.7	1.8
831209	2.9	3.0	3.0	1.5	1.6	1.7
831210	2.9	3.0	3.0	1.5	1.6	1.7
831211	2.8	2.9	2.9	1.6	1.7	1.8
831212	2.8	2.9	3.0	1.6	1.7	1.8
831213	2.9	2.9	3.0	1.6	1.7	1.8
831214	2.8	2.9	3.0	1.5	1.6	1.8
831215	2.9	2.9	3.0	1.4	1.5	1.7
831216	2.9	3.0	3.0	1.5	1.7	1.8
831217	2.9	3.0	3.0	1.7	1.7	1.9
831218	2.8	2.9	2.9	1.6	1.8	1.9
831219	2.8	2.9	3.0	1.6	1.8	2.0
831220	2.9	2.9	3.0	1.9	2.0	2.1
831221	2.9	3.0	3.0	1.9	2.1	2.2
831222	2.9	3.0	3.0	1.6	1.7	2.1
831223	2.9	2.9	3.0	1.5	1.6	1.7
831224	2.9	2.9	3.0	1.5	1.6	1.7
831225	2.8	2.9	3.0	1.7	1.8	1.9
831226	2.8	2.9	3.0	1.6	1.7	1.8
831227	2.9	2.9	3.0	1.5	1.6	1.7
831228	2.9	2.9	3.0	1.5	1.6	1.6
831229	2.8	2.9	3.0	1.4	1.5	1.6
831230	2.9	2.9	3.0	1.4	1.5	1.6
831231	2.9	3.0	3.1	1.6	1.7	1.8
Monthly Value	2.8	3.0	3.2	1.4	1.8	2.4

Appendix Table A-34 (continued).

DRAFT

January 1984						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
840101	2.8	2.9	3.0	1.7	1.9	2.0
840102	2.9	3.0	3.0	1.7	2.0	2.2
840103	2.9	2.9	3.0	1.8	2.0	2.2
840104	2.9	3.0	3.0	1.5	1.8	2.1
840105	2.9	2.9	3.0	1.4	1.6	1.7
840106	2.9	3.0	3.1	1.7	1.7	1.8
840107	2.9	3.0	3.1	1.6	1.8	2.0
840108	2.8	2.9	3.0	1.5	1.6	1.7
840109	2.9	2.9	3.0	1.6	1.7	1.9
840110	2.9	3.0	3.0	1.7	1.9	2.1
840111	2.9	3.0	3.1	1.9	2.0	2.1
840112	3.0	3.1	3.1	2.0	2.2	2.4
840113	3.0	3.1	3.2	1.9	2.2	2.4
840114	3.0	3.1	3.2	1.7	2.0	2.3
840115	2.9	3.1	3.2	1.7	2.1	2.4
840116	2.9	3.0	3.1	1.5	1.7	1.9
840117	2.9	3.0	3.1	1.8	2.0	2.2
840118	3.0	3.0	3.1	1.7	1.9	2.1
840119	3.0	3.0	3.1	1.5	1.7	1.9
840120	3.0	3.0	3.1	1.4	1.6	1.7
840121	2.9	3.0	3.1	1.3	1.5	1.7
840122	2.9	3.0	3.0	1.3	1.4	1.6
840123	2.8	3.0	3.1	1.2	1.4	1.5
840124	2.8	3.0	3.1	1.2	1.3	1.5
840127	2.8	-----	3.0	1.3	-----	1.5
840128	2.7	2.9	2.9	1.2	1.4	1.6
840129	2.7	2.9	2.9	1.4	1.6	1.8
840130	2.7	2.9	3.0	1.4	1.6	1.7
840131	2.8	3.0	3.1	1.6	1.8	2.0
Monthly Value	2.7	3.0	3.2	1.2	1.8	2.4

----- Data not available.

A-234

February 1984						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
840201	2.9	3.0	3.1	1.4	1.6	1.8
840202	2.9	3.1	3.2	1.4	1.7	1.9
840203	2.9	3.1	3.2	1.4	1.6	1.8
840204	3.0	3.1	3.2	1.2	1.6	1.8
840205	2.9	3.1	3.1	1.7	1.8	1.9
840206	2.9	3.1	3.1	1.5	1.6	1.8
840207	3.0	3.1	3.2	1.5	1.7	2.0
840208	3.0	-----	3.1	1.5	-----	1.7
Monthly Value	2.9	-----	3.2	1.2	-----	2.0

----- Data not available.

Appendix Table A-34 (continued).

SECRET

March 1984						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
840302	3.5	-----	3.7	2.0	-----	2.5
840303	3.4	3.5	3.6	1.8	2.1	2.7
840304	3.4	3.5	3.6	1.9	2.3	3.0
840305	3.4	3.5	3.7	2.1	2.5	3.0
840306	3.4	3.5	3.7	2.0	2.5	3.4
840307	3.5	3.5	3.6	2.0	2.5	3.4
840308	3.5	3.6	3.7	2.3	2.8	3.6
840309	3.5	3.6	3.7	2.2	2.8	3.6
840310	3.6	3.7	3.9	2.1	2.7	3.7
840311	3.5	3.7	3.8	1.9	2.7	3.8
840312	3.5	3.6	3.8	1.7	2.4	3.8
840313	3.5	3.6	3.7	1.7	2.5	3.9
840314	3.5	3.6	3.6	1.9	2.6	3.6
840315	3.5	3.6	3.6	1.9	2.5	3.8
840316	3.4	3.5	3.6	1.7	2.4	3.8
840317	3.4	3.5	3.7	1.3	2.1	3.6
840318	3.5	3.5	3.7	1.6	2.2	3.6
840319	3.5	3.6	3.7	1.6	2.2	3.6
840320	3.5	3.6	3.7	1.8	2.4	3.4
840321	3.5	3.6	3.7	1.7	2.4	3.7
840322	3.5	3.6	3.7	1.7	2.3	3.7
840323	3.4	3.5	3.6	1.7	2.3	3.8
840324	3.4	3.5	3.6	1.6	2.4	3.6
840325	3.3	3.5	3.5	1.8	2.5	3.7
840326	3.3	3.4	3.5	2.0	2.6	3.7
840327	3.3	3.4	3.5	2.0	2.7	3.8
840328	3.3	3.4	3.5	1.8	2.8	4.5
840329	3.2	3.4	3.4	1.9	2.6	3.7
840330	3.2	3.5	3.8	1.9	3.0	4.5
840331	3.2	3.4	3.6	2.3	2.8	3.6
Monthly Value	3.2	3.5	3.9	1.3	2.5	4.5

----- Data not available.

Appendix Table A-34 (continued).

DRAFT

April 1984						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
840401	3.1	3.2	3.4	2.1	2.9	4.1
840402	3.1	3.3	3.3	1.7	2.5	3.5
840403	3.1	3.2	3.4	1.7	2.6	4.4
840404	3.1	3.3	3.5	1.7	2.9	5.0
840405	3.2	3.4	3.5	2.2	3.0	4.6
840406	3.2	3.4	3.5	2.2	3.1	4.6
840407	3.2	3.4	3.5	1.8	2.8	4.5
840408	3.1	3.3	3.5	1.6	2.9	4.6
840409	3.1	3.3	3.5	1.9	3.1	5.6
840410	3.1	3.3	3.5	1.8	3.0	4.8
840411	3.1	3.3	3.6	1.8	3.1	5.0
840412	3.1	3.4	3.6	1.7	3.1	5.6
840413	3.2	3.4	3.6	1.9	3.3	5.5
840414	3.2	3.4	3.6	1.9	3.3	5.1
840415	3.1	3.4	3.5	2.4	3.4	4.7
840416	3.1	3.3	3.5	2.1	2.9	3.5
840417	3.1	3.3	3.5	2.1	3.1	4.8
840418	3.1	3.4	3.6	1.8	3.0	5.6
840419	3.1	3.4	3.6	1.8	3.2	5.6
840420	3.2	3.5	3.7	2.4	3.7	5.7
840421	3.2	3.6	3.8	2.5	4.0	7.6
840422	3.2	3.5	3.6	1.9	3.5	6.3
840423	3.1	3.4	3.6	1.8	3.2	5.8
840424	3.1	3.4	3.7	1.9	3.5	5.8
840425	3.2	3.5	3.8	2.3	4.0	6.5
840426	3.2	3.5	3.7	2.4	3.8	5.8
840427	3.3	3.5	3.7	2.3	3.9	5.7
840428	3.3	3.6	3.8	3.0	4.4	6.5
840429	3.2	3.5	3.8	2.1	4.4	7.6
840430	3.2	3.5	3.7	2.3	4.3	6.8
Monthly Value	3.1	3.4	3.8	1.6	3.3	7.6

Appendix Table A-34. (continued).

SECRET

May 1984						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
840501	3.2	3.5	3.7	1.9	4.0	6.3
840502	3.1	3.4	3.6	2.3	3.7	5.7
840503	3.1	3.4	3.6	1.7	3.7	6.8
840504	3.2	3.4	3.6	1.9	3.6	5.8
840505	3.1	3.4	3.6	2.2	3.9	6.8
840506	3.0	3.3	3.5	1.9	4.1	7.3
840507	3.0	3.3	3.5	1.7	3.9	7.3
840508	3.0	3.3	3.5	1.7	3.9	7.5
840509	3.0	3.3	3.5	1.7	3.9	7.5
840510	3.0	3.3	3.5	1.8	3.9	7.5
840511	3.0	3.2	3.4	2.0	3.6	6.3
840512	3.0	3.2	3.4	1.7	3.5	6.7
840513	2.9	3.1	3.3	2.4	4.1	7.1
840514	3.0	3.1	3.3	2.2	4.1	7.1
840515	3.0	3.1	3.3	2.5	4.4	7.1
840516	2.9	3.1	3.3	2.6	4.5	7.2
840517	3.0	3.2	3.4	2.7	4.8	7.8
840518	3.1	3.4	3.5	3.4	4.5	7.2
840519	3.2	3.5	3.8	3.4	4.5	6.7
840520	3.3	3.5	3.7	3.4	4.6	6.9
840521	3.4	3.5	3.7	3.6	4.5	5.9
840522	3.5	-----	3.7	3.6	-----	4.3
Monthly Value	2.9	3.3	3.8	1.7	4.1	7.8

----- Data not available.

SECRET

Appendix Table A-35 Ryan temperature recorder data summary:
intragravel water temperatures (C) recorded
at Slough 11 - Incubation Site, RM 135.5,
GC 31N02W19DDD.

December 1983			
Date	Intragravel Water Temperature (C)		
	Min	Mean	Max
831230	0.0	-----	.5
831231	.5	.5	.5
Monthly Value	0.0	-----	.5

----- Data not available.

Appendix Table A-35 (continued).

January 1984			
Date	Intragravel Water Temperature (C)		
	Min	Mean	Max
840101	.5	.5	.5
840102	.5	.5	.5
840103	.5	.6	1.0
840104	.5	.6	1.0
840105	.5	.5	.5
840106	.5	.5	.5
840107	.5	.5	.5
840108	.5	.5	.5
840109	.5	.5	.5
840110	.5	.5	.5
840111	.5	.5	.5
840112	.5	.5	.5
840113	.5	.5	.5
840114	.5	.5	.5
840115	.5	.5	.5
840116	.5	.5	.5
840117	.5	.5	.5
840118	.5	.5	.5
840119	.5	.5	.5
840120	.5	.5	.5
840121	.5	.5	.5
840122	.5	.5	.5
840123	.5	.5	.5
840124	.5	.5	.5
840125	.5	.5	.5
840126	.5	.5	.5
840127	.5	.5	.5
840128	.5	.5	.5
840129	.5	.5	.5
840130	.5	.5	.5
840131	.5	.5	.5
Monthly Value	.5	.5	1.0

Appendix Table A-35 (continued).

February 1984			
Date	Intragravel Water Temperature (C)		
	Min	Mean	Max
840201	.5	.5	.5
840202	.5	.5	.5
840203	.5	.5	.5
840204	.5	.5	.5
840205	.5	.5	.5
840206	.5	.5	.5
840207	.5	.5	.5
840208	.5	.5	.5
840209	.5	.5	.5
840210	.5	.5	.5
840211	.5	.5	.5
840212	.5	.5	.5
840213	.5	.5	.5
840214	.5	.5	.5
840215	.5	.5	.5
840216	.5	.5	.5
840217	.5	.7	1.0
840218	.5	.5	.5
840219	.5	.5	1.0
840220	.5	.5	.5
840221	.5	.5	.5
840222	.5	.5	.5
840223	.5	.6	1.0
840224	.5	.5	.5
840225	.5	.5	.5
Monthly Value	.5	.5	1.0

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Appendix Table A-36 Datapod temperature recorder data summary:
intragravel and surface water temperatures (C)
recorded at Slough 11 - Site 2, RM 135.7,
GC S31N02W19DDD.

August 1983						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
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	4.3	----	8.8

---- Data not available.

Appendix Table A-36 (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	5.5	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

Appendix Table A-36 (continued).

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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	1.8	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	2.2	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

Appendix Table A-36 (continued).

November 1983						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
831101	3.2	3.2	3.3	1.8	2.2	2.5
831102	3.2	3.2	3.3	1.9	2.2	2.6
831103	3.2	3.2	3.3	2.0	2.2	2.6
831104	3.2	3.2	3.3	1.9	2.5	3.1
831105	3.2	3.2	3.3	1.8	2.0	2.6
831106	3.2	3.2	3.3	2.0	2.6	3.0
831107	3.2	3.2	3.3	1.7	2.0	2.5
831108	3.2	3.2	3.3	1.6	1.9	2.2
831109	3.1	3.2	3.3	1.6	1.9	2.1
831110	3.1	3.2	3.3	1.6	1.7	2.1
831111	3.1	3.2	3.2	1.6	1.8	2.1
831112	3.1	3.2	3.2	1.6	1.9	2.2
831113	3.1	3.2	3.2	1.6	1.8	2.0
831114	3.1	3.1	3.2	1.3	1.5	1.7
831115	3.1	3.1	3.2	1.3	1.5	1.7
831116	3.1	3.2	3.2	1.5	1.6	1.7
831117	3.1	3.1	3.2	1.4	1.5	1.7
831118	3.1	3.1	3.2	1.4	1.6	1.6
831119	3.0	3.1	3.1	1.1	1.3	1.5
831120	3.0	3.1	3.2	1.2	1.4	1.6
831121	3.1	3.1	3.2	1.5	1.7	1.9
831122	3.1	3.2	3.2	1.7	1.9	2.0
831123	3.1	3.2	3.2	1.6	1.8	2.0
831124	3.1	3.1	3.2	1.3	1.5	1.8
831125	3.1	3.1	3.2	1.3	1.5	1.6
831126	3.1	3.1	3.2	1.3	1.5	1.7
831127	3.1	3.2	3.2	1.5	1.7	1.8
831128	3.1	3.1	3.2	1.6	1.7	2.0
831129	3.1	3.2	3.2	1.7	1.8	2.0
831130	3.1	3.2	3.2	1.7	1.9	2.1
Monthly Value	3.0	3.2	3.3	1.1	1.8	3.1

Appendix Table A-3b (continued).

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December 1983						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
831201	3.1	3.2	3.2	1.7	1.9	2.1
831202	3.1	3.1	3.2	1.6	1.8	2.0
831203	3.1	3.1	3.2	1.8	1.9	2.0
831204	3.1	3.2	3.2	1.6	1.7	1.8
831205	3.2	3.2	3.2	1.8	1.9	2.0
831206	3.1	3.2	3.3	1.6	2.0	2.1
831207	3.1	3.2	3.2	1.6	1.8	2.1
831208	3.1	3.2	3.2	1.7	2.0	2.4
831209	3.1	3.2	3.2	1.6	1.9	2.3
831210	3.1	3.2	3.2	1.4	1.5	1.7
831211	3.1	3.1	3.2	1.3	1.5	1.6
831212	3.1	3.2	3.2	1.3	1.5	1.6
831213	3.1	3.1	3.2	1.3	1.5	1.6
831214	3.0	3.1	3.2	1.2	1.3	1.6
831215	3.1	3.1	3.2	1.1	1.2	1.3
831216	3.1	3.1	3.2	1.2	1.3	1.4
831217	3.1	3.1	3.2	1.3	1.5	1.5
831218	3.0	3.1	3.2	1.3	1.4	1.6
831219	3.0	3.1	3.2	1.3	1.5	1.6
831220	3.1	3.1	3.2	1.6	1.7	1.8
831221	3.1	3.2	3.2	1.7	1.8	2.0
831222	3.1	3.1	3.2	1.3	1.5	1.8
831223	3.1	3.2	3.2	1.3	1.4	1.6
831224	3.1	3.1	3.2	1.3	1.4	1.5
831225	3.1	3.1	3.2	1.4	1.5	1.6
831226	3.1	3.2	3.2	1.3	1.5	1.6
831227	3.1	3.2	3.2	1.2	1.4	1.6
831228	3.1	3.1	3.2	1.2	1.2	1.4
831229	3.0	3.1	3.2	1.1	1.2	1.3
831230	3.0	3.1	3.2	1.1	1.1	1.3
831231	3.1	3.2	3.2	1.2	1.4	1.6
Monthly Value	3.0	3.1	3.3	1.1	1.6	2.4

Appendix Table A-36 (continued).

January 1984						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
840101	3.1	3.1	3.2	1.3	1.6	1.7
840102	3.1	3.2	3.3	1.4	1.7	1.8
840103	3.1	3.2	3.2	1.5	1.7	1.9
840104	3.1	3.2	3.2	1.1	1.4	1.8
840105	3.1	3.1	3.2	1.1	1.3	1.5
840106	3.1	3.2	3.2	1.3	1.4	1.5
840107	3.1	3.2	3.2	1.2	1.5	1.6
840108	3.1	3.2	3.2	1.1	1.3	1.5
840109	3.1	3.1	3.2	1.2	1.4	1.6
840110	3.2	3.2	3.2	1.2	1.5	1.7
840111	3.1	3.2	3.2	1.6	1.7	1.9
840112	3.1	3.2	3.2	1.6	1.9	2.1
840113	3.1	3.2	3.3	1.6	1.9	2.1
840114	3.1	3.2	3.3	1.5	1.7	2.0
840115	3.1	3.2	3.3	1.5	1.8	2.1
840116	3.1	3.1	3.2	1.2	1.4	1.6
840117	3.1	3.1	3.2	1.5	1.7	1.9
840118	3.1	3.1	3.2	1.5	1.6	1.7
840119	3.1	3.1	3.2	1.2	1.5	1.6
840120	3.0	3.1	3.2	1.2	1.3	1.5
840121	3.1	3.1	3.2	1.1	1.3	1.5
840122	3.0	3.1	3.2	1.1	1.2	1.4
840123	3.1	3.1	3.2	1.1	1.2	1.3
840124	3.0	3.1	3.2	1.0	1.1	1.2
840125	3.0	-----	3.2	1.0	-----	1.1
840126	3.1	-----	3.1	1.1	-----	1.5
840127	3.0	3.1	3.1	1.0	1.2	1.7
840128	3.0	3.1	3.2	1.1	1.3	1.6
840129	3.1	3.2	3.2	1.2	1.4	1.7
840130	3.2	3.2	3.2	1.2	1.5	1.7
840131	3.2	3.2	3.2	1.4	1.6	1.7
Monthly Value	3.0	3.2	3.3	1.0	1.5	2.1

----- Data not available.

Appendix Table A-36 (continued).

SECRET

February 1984						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
840201	3.1	3.1	3.2	1.1	1.3	1.6
840202	3.1	3.1	3.1	1.0	1.3	1.5
840203	3.1	3.1	3.2	.9	1.1	1.3
840204	3.1	3.1	3.1	1.0	1.2	1.3
840205	3.1	3.1	3.1	1.2	1.2	1.4
840206	3.1	3.1	3.1	1.1	1.2	1.4
840207	3.1	3.1	3.1	1.1	1.3	1.4
840208	3.1	3.1	3.2	1.1	1.2	1.4
840209	3.0	3.1	3.2	1.0	1.2	1.3
840210	3.0	3.1	3.1	1.1	1.2	1.4
840211	3.1	3.1	3.2	1.2	1.3	1.4
840212	3.1	3.1	3.2	1.2	1.3	1.5
840213	3.1	3.1	3.2	1.3	1.4	1.6
840214	3.1	3.1	3.2	1.3	1.5	1.6
840215	3.1	3.1	3.2	1.4	1.5	1.6
840216	3.1	3.1	3.2	1.2	1.5	1.6
840217	3.1	3.2	3.2	1.4	1.6	2.0
840218	3.1	3.1	3.2	1.4	1.6	1.9
840219	3.1	3.1	3.2	1.3	1.6	1.9
840220	3.1	3.2	3.2	1.3	1.4	1.7
840221	3.1	3.2	3.2	1.3	1.5	1.8
840222	3.1	3.1	3.2	1.3	1.5	1.7
840223	3.1	3.1	3.1	1.5	1.6	1.8
840224	3.1	3.1	3.1	1.4	1.6	1.8
840225	3.1	3.1	3.1	1.3	1.6	1.8
840226	3.1	3.1	3.1	1.1	1.5	1.9
840227	3.1	3.1	3.1	1.3	1.7	2.3
840228	3.1	3.1	3.1	1.2	1.6	2.2
840229	3.0	3.1	3.1	1.2	1.4	1.9
Monthly Value	3.0	3.1	3.2	.9	1.4	2.3

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Appendix Table A-36 (continued).

SECRET

March 1984						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
840301	3.0	3.1	3.1	1.2	1.5	1.9
840302	3.0	3.1	3.1	1.4	1.6	2.1
840303	3.0	3.1	3.2	1.5	1.7	2.2
840304	3.1	3.2	3.2	1.6	2.0	2.7
840305	3.1	3.1	3.1	1.8	2.2	2.8
840306	3.1	3.1	3.2	1.8	2.2	3.3
840307	3.1	3.2	3.2	1.9	2.3	3.1
840308	3.1	3.2	3.3	2.1	2.5	3.4
840309	3.2	3.3	3.3	2.1	2.7	3.5
840310	3.2	3.3	3.3	1.9	2.6	3.6
840311	3.2	3.3	3.4	2.3	2.9	4.2
840312	3.2	3.4	3.5	2.7	3.1	3.9
840313	3.3	3.4	3.5	2.6	3.1	4.0
840314	3.3	3.4	3.4	2.6	3.0	3.8
840315	3.3	3.4	3.5	2.7	3.1	4.0
840316	3.3	3.4	3.5	2.3	3.2	4.2
840317	3.3	3.4	3.5	2.2	3.4	4.1
840318	3.3	3.4	3.5	3.0	3.3	4.3
840319	3.4	3.4	3.5	2.9	3.3	4.4
840320	3.4	3.4	3.5	2.7	3.2	4.1
840321	3.3	3.4	3.5	2.6	3.2	4.4
840322	3.4	3.4	3.5	2.7	3.2	4.3
840323	3.4	3.4	3.5	2.7	3.2	4.5
840324	3.4	3.4	3.5	2.6	3.1	4.3
840325	3.4	3.4	3.5	2.5	3.2	4.2
840326	3.4	3.4	3.5	2.6	3.0	4.3
840327	3.3	3.4	3.5	2.4	3.0	4.2
840328	3.3	3.4	3.5	2.4	3.3	4.9
840329	3.4	3.5	3.5	2.7	3.3	4.1
840330	3.4	3.5	3.5	2.8	3.5	4.8
840331	3.4	3.5	3.5	2.8	3.4	4.2
Monthly Value	3.0	3.3	3.5	1.2	2.8	4.9

Appendix Table A-36 (continued).

April 1984						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
840401	3.4	3.5	3.5	2.4	3.5	4.7
840402	3.4	3.5	3.5	3.0	3.5	4.5
840403	3.4	3.5	3.5	3.2	3.7	4.7
840404	3.4	3.5	3.6	3.2	3.8	5.2
840405	3.5	3.5	3.6	3.1	3.7	4.9
840406	3.5	3.5	3.6	3.1	3.7	5.0
840407	3.5	3.5	3.6	3.2	3.7	5.0
840408	3.5	3.5	3.6	2.9	3.7	5.0
840409	3.5	3.5	3.6	2.5	3.9	5.6
840410	3.5	3.5	3.6	2.9	4.0	4.9
840411	3.5	3.6	3.7	3.2	4.1	5.5
840412	3.5	3.6	3.7	3.3	4.2	5.6
840413	3.5	3.6	3.7	3.3	4.2	5.4
840414	3.5	3.6	3.8	3.5	4.3	5.5
840415	3.6	3.7	3.7	3.5	4.1	5.4
840416	3.5	3.6	3.7	2.6	3.6	4.1
840417	3.5	3.6	3.7	3.5	4.2	5.6
840418	3.5	3.6	3.8	3.4	4.3	5.6
840419	3.6	3.7	3.8	3.5	4.4	5.6
840420	3.6	3.7	3.8	3.0	4.3	6.0
840421	3.6	3.7	3.8	2.9	4.6	7.6
840422	3.6	3.7	3.9	1.8	3.9	6.8
840423	3.6	3.7	3.9	3.1	4.6	6.3
840424	3.6	3.7	3.9	3.2	4.7	7.0
840425	3.7	3.8	3.9	3.5	4.9	7.4
840426	3.7	3.8	4.0	3.5	4.9	7.0
840427	3.7	3.9	3.9	2.9	4.6	6.6
840428	3.7	3.8	4.0	3.6	5.1	7.6
840429	3.8	3.9	4.0	3.8	5.2	8.0
840430	3.8	3.9	4.1	3.9	5.4	7.9
Monthly Value	3.4	3.6	4.1	1.8	4.2	8.0

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Appendix Table A-3b (continued).

May 1984						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
840501	3.8	4.0	4.1	3.8	5.6	8.1
840502	3.9	4.0	4.1	4.2	5.7	7.8
840503	3.9	4.0	4.2	3.7	5.6	8.9
840504	3.9	4.1	4.2	4.2	5.7	8.3
840505	3.9	4.1	4.2	4.4	6.1	9.2
840506	4.0	4.1	4.3	4.4	6.3	10.0
840507	4.0	4.1	4.3	4.3	6.5	10.0
840508	4.0	4.2	4.3	4.2	6.7	10.4
840509	4.1	4.2	4.4	4.7	6.9	10.3
840510	4.1	4.3	4.4	4.7	7.0	10.2
840511	4.1	4.2	4.4	4.5	6.7	10.1
840512	4.0	4.1	4.3	4.1	6.5	9.6
840513	4.0	4.1	4.3	4.5	7.2	10.0
840514	4.0	4.1	4.3	4.7	7.2	10.3
840515	4.0	4.1	4.3	4.6	7.0	10.2
840516	4.0	4.1	4.2	4.6	7.2	10.9
840517	4.0	4.1	4.2	4.9	7.4	10.7
840518	4.0	4.1	4.2	4.8	7.6	10.8
840519	4.0	4.1	4.2	4.8	7.4	10.5
840520	3.9	4.1	4.2	4.5	7.9	11.6
840521	4.0	4.0	4.1	4.8	7.6	10.3
840522	3.9	-----	4.1	5.6	-----	7.9
Monthly Value	3.8	4.1	4.4	3.7	6.7	11.6

----- Data not available.

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

August 1983						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
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	-----	3.9	4.4	-----	9.0

----- Data not available.

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Appendix Table 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	3.0	4.1
830924	3.8	4.0	4.1	1.5	2.2	3.6
830925	3.8	4.0	4.1	1.3	2.0	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	3.1	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

Appendix Table 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	1.4	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

Appendix Table A-37 (continued).

DRAFT

November 1983						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
831101	3.7	3.9	4.0	1.4	2.0	2.7
831102	3.7	3.9	3.9	1.8	2.2	2.9
831103	3.8	3.9	4.0	1.2	1.6	2.3
831104	3.8	4.0	4.1	1.2	1.7	2.2
831105	3.8	4.0	4.1	1.4	1.9	2.3
831106	3.9	4.0	4.1	.9	1.3	1.8
831107	3.8	3.9	4.0	1.1	1.4	1.7
831108	3.7	3.9	3.9	1.2	1.7	2.2
831109	3.7	3.9	3.9	1.1	1.8	2.1
831110	3.7	3.9	4.0	1.1	1.4	1.9
831111	3.8	3.9	4.0	1.1	1.5	2.0
831112	3.7	3.9	4.0	1.1	1.7	2.1
831113	3.8	4.0	4.1	.3	1.0	2.0
831114	3.9	4.0	4.1	.6	.8	1.2
831115	3.8	4.0	4.1	.5	1.1	1.8
831116	3.7	3.9	4.0	1.2	1.5	1.8
831117	3.9	4.0	4.1	.5	.9	1.4
831118	3.8	3.9	4.1	.5	1.1	1.5
831119	3.9	4.0	4.1	.3	.6	.8
831120	3.8	4.0	4.3	.4	.9	1.4
831121	3.7	3.8	3.9	1.4	1.9	2.3
831122	3.7	3.8	3.9	1.7	2.0	2.3
831123	3.8	3.9	4.0	1.1	1.6	2.0
831124	3.8	4.0	4.1	.4	1.0	1.7
831125	3.9	4.0	4.1	.4	.6	.9
831126	3.8	3.9	4.0	.6	1.1	1.4
831127	3.7	3.9	3.9	.9	1.4	1.8
831128	3.6	3.7	3.9	1.2	1.6	1.9
831129	3.7	3.8	3.9	1.1	1.4	1.7
831130	3.7	3.8	3.9	1.1	1.4	2.0
Monthly Value	3.6	3.9	4.3	.3	1.4	2.9

Appendix Table A-37 (continued).

DRAFT

December 1983						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
831201	3.7	3.8	3.9	.9	1.5	1.9
831202	3.7	3.9	4.0	.9	1.5	1.9
831203	3.7	3.8	3.9	1.4	1.6	1.9
831204	3.7	3.8	3.9	.7	1.3	1.6
831205	3.7	3.8	3.9	1.4	1.7	2.0
831206	3.7	3.8	3.9	1.2	2.0	2.2
831207	3.8	3.9	4.0	.4	.7	1.2
831208	3.8	3.9	4.0	.1	.5	.6
831209	3.8	3.9	4.1	.1	.2	.4
831210	3.8	3.9	4.0	.2	.3	.5
831211	3.8	3.9	4.0	.3	.6	.9
831212	3.8	3.9	4.1	.4	.5	.8
831213	3.8	3.9	4.0	.5	.8	1.1
831214	3.8	4.0	4.2	.2	.6	1.1
831215	3.8	4.1	4.2	.1	.4	.5
831216	3.9	4.0	4.0	.2	.4	.5
831217	3.8	3.9	4.1	.3	.6	1.0
831218	3.8	3.9	4.0	.3	.8	1.2
831219	3.7	3.9	4.0	.3	.9	1.2
831220	3.7	3.8	3.9	1.0	1.4	1.6
831221	3.7	3.7	3.8	1.2	1.5	1.8
831222	3.7	3.9	4.0	.1	.6	1.4
831223	3.8	3.9	4.1	.2	.4	.6
831224	3.8	3.9	4.0	.2	.5	.7
831225	3.7	3.9	4.0	.4	.5	.7
831226	3.8	3.9	3.9	.3	.5	.7
831227	3.8	3.9	4.0	.2	.4	.6
831228	3.8	3.9	4.2	.1	.3	.5
831229	3.8	4.1	4.2	.1	.4	.5
831230	3.8	4.1	4.2	.2	.4	.5
831231	3.8	3.9	4.0	.2	.4	.8
Monthly Value	3.7	3.9	4.2	.1	.8	2.2

Appendix Table A-37(continued).

January 1984						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
840101	3.6	3.8	4.0	.4	1.0	1.4
840102	3.6	3.7	3.8	.5	1.3	1.6
840103	3.7	3.8	3.9	1.1	1.5	1.7
840104	3.7	3.9	4.0	.3	.9	1.7
840105	3.8	4.0	4.2	.1	.4	.6
840106	3.8	3.9	4.0	.2	.5	.7
840107	3.8	3.9	4.0	0.0	.6	1.0
840108	3.8	3.9	4.0	0.0	.2	.4
840109	3.7	3.9	4.0	.2	.4	.9
840110	3.6	3.8	3.9	.5	.9	1.4
840111	3.6	3.7	3.8	1.3	1.5	1.7
840112	3.6	3.7	3.8	1.4	1.7	2.1
840113	3.7	3.7	3.9	1.0	1.6	2.0
840114	3.6	3.7	3.9	.7	1.5	1.9
840115	3.6	3.7	3.9	.3	1.4	2.1
840116	3.7	3.9	4.0	.3	.6	.9
840117	3.7	3.8	3.9	.7	1.2	1.6
840118	3.7	3.8	4.0	.3	.9	1.5
840119	3.8	3.9	4.0	.1	.5	1.1
840120	3.8	3.9	4.1	0.0	.2	.5
840121	3.8	3.9	4.2	0.0	.2	.4
840122	3.8	3.9	4.2	0.0	.2	.4
840123	4.0	4.1	4.2	.2	.3	.5
840124	3.9	4.0	4.2	.2	.3	.5
840125	3.7	4.0	4.2	0.0	.3	.5
840126	3.8	4.0	4.2	.2	.5	.8
840127	3.8	4.0	4.2	.2	.5	.8
840128	3.9	4.0	4.2	.5	.7	1.0
840129	3.7	3.9	4.0	.5	1.2	1.6
840130	3.7	3.8	3.9	.6	1.2	1.7
840131	3.7	3.8	3.9	1.4	1.6	1.9
Monthly Value	3.6	3.9	4.2	0.0	.8	2.1

Appendix Table A-37 (continued).

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February 1984						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
840201	3.8	4.0	4.1	.5	1.1	1.5
840202	3.9	4.0	4.2	.4	1.3	1.6
840203	3.8	4.0	4.3	.5	.9	1.5
840204	3.7	3.9	4.0	.2	1.1	1.7
840205	3.8	4.0	4.0	1.0	1.3	1.6
840206	3.9	4.0	4.2	.5	1.0	1.5
840207	3.8	4.0	4.1	.5	1.0	1.4
840208	3.9	4.0	4.3	.5	.8	1.3
840209	3.9	4.1	4.3	.5	.9	1.3
840210	3.8	4.0	4.3	.5	.9	1.3
840211	3.9	4.0	4.1	.9	1.2	1.4
840212	3.8	4.0	4.1	.8	1.1	1.5
840213	3.8	4.0	4.1	.9	1.1	1.4
840214	3.7	3.9	4.1	1.0	1.3	1.6
840215	3.8	3.9	4.1	1.2	1.4	1.6
840216	3.7	3.9	4.0	1.1	1.4	1.8
840217	3.6	3.7	3.9	1.4	1.7	2.3
840218	3.6	3.9	4.0	1.4	1.7	2.2
840219	3.7	3.9	4.1	1.1	1.5	2.1
840220	3.9	4.0	4.1	.8	1.1	1.5
840221	3.8	4.0	4.1	.7	1.1	1.6
840222	3.7	3.9	4.1	1.0	1.5	1.9
840223	3.7	3.9	3.9	1.2	1.6	2.2
840224	3.7	3.9	4.0	1.2	1.6	2.2
840225	3.6	3.9	4.0	1.3	1.7	2.5
840226	3.7	4.0	4.1	.8	1.5	2.1
840227	3.7	3.9	4.1	.7	1.3	2.0
840228	3.7	4.0	4.2	.7	1.1	1.8
840229	3.7	3.9	4.1	.6	1.0	1.6
Monthly Value	3.6	3.9	4.3	.2	1.3	2.5

Appendix Table A-37(continued).

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March 1984						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
840301	3.7	3.9	4.1	.4	1.0	1.8
840302	3.6	3.8	4.0	1.2	1.7	2.4
840303	3.6	3.8	4.0	1.3	1.7	2.7
840304	3.5	3.7	3.9	1.3	2.4	3.6
840305	3.6	3.6	3.8	1.8	2.6	3.9
840306	3.6	3.7	3.8	1.6	2.2	3.3
840307	3.6	3.7	3.9	1.5	2.4	4.1
840308	3.6	3.6	3.8	2.2	2.7	4.0
840309	3.5	3.7	3.8	1.7	2.7	4.1
840310	3.6	3.7	3.8	1.7	2.6	4.6
840311	3.6	3.7	3.9	1.5	2.3	4.2
840312	3.5	3.7	3.9	1.0	1.9	4.1
840313	3.5	3.8	4.0	1.0	1.9	3.9
840314	3.6	3.7	3.9	1.3	2.5	4.2
840315	3.6	3.8	3.9	1.2	2.0	3.8
840316	3.6	3.8	3.9	.9	1.8	3.8
840317	3.6	3.9	4.0	.5	1.4	3.5
840318	3.6	3.9	4.0	.2	1.1	3.4
840319	3.6	3.9	4.0	.2	1.2	3.4
840320	3.6	3.8	4.0	.6	1.9	3.6
840321	3.5	3.8	4.0	.3	1.4	3.6
840322	3.5	3.8	4.0	.2	1.2	3.8
840323	3.5	3.8	4.0	.4	1.3	3.9
840324	3.5	3.8	4.0	.4	1.5	3.6
840325	3.5	3.7	4.0	.8	2.1	4.5
840326	3.5	3.7	3.9	1.5	2.4	4.6
840327	3.5	3.6	3.8	1.3	2.7	4.8
840328	3.5	3.7	3.9	.6	2.2	5.5
840329	3.5	3.7	3.9	1.1	2.4	4.3
840330	3.5	3.7	3.9	1.2	2.7	5.4
840331	3.5	3.6	3.8	1.8	2.6	4.3
Monthly Value	3.5	3.8	4.1	.2	2.0	5.5

Appendix Table A-37(continued).

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April 1984						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
840401	3.5	3.6	3.8	1.4	2.8	5.1
840402	3.5	3.7	3.9	1.2	2.6	6.1
840403	3.5	3.7	3.9	.5	2.4	6.0
840404	3.5	3.7	3.9	.9	2.8	6.6
840405	3.5	3.6	3.8	1.9	3.2	5.8
840406	3.5	3.6	3.8	1.7	3.0	5.3
840407	3.5	3.6	3.8	.6	2.8	6.6
840408	3.5	3.6	3.8	1.0	2.7	5.5
840409	3.5	3.6	3.9	1.1	3.1	6.7
840410	3.5	3.6	3.8	1.0	2.5	5.6
840411	3.5	3.7	3.9	.6	2.6	6.6
840412	3.5	3.7	3.9	.5	2.7	7.3
840413	3.5	3.7	3.8	.5	2.6	5.9
840414	3.5	3.6	3.9	1.0	3.0	6.2
840415	3.5	3.5	3.7	1.2	3.5	6.6
840416	3.5	3.6	3.8	1.1	2.4	3.6
840417	3.5	3.6	3.8	1.2	3.3	7.6
840418	3.5	3.7	3.9	.3	2.6	7.3
840419	3.5	3.7	4.0	.2	2.5	6.7
840420	3.5	3.5	3.7	1.2	3.7	6.8
840421	3.5	3.6	3.7	1.7	4.5	9.7
840422	3.5	3.6	3.7	.6	3.1	7.5
840423	3.5	3.7	3.9	.1	2.7	7.6
840424	3.5	3.6	3.9	.5	3.0	8.1
840425	3.4	3.5	3.7	1.5	3.9	8.6
840426	3.5	3.6	3.8	1.1	3.7	7.6
840427	3.4	3.5	3.8	1.1	3.8	7.4
840428	3.4	3.5	3.6	2.6	5.0	9.4
840429	3.5	3.5	3.7	1.6	4.6	9.9
840430	3.4	3.5	3.6	2.4	4.8	8.9
Monthly Value	3.4	3.6	4.0	.1	3.2	9.9

Appendix Table A-37 (continued).

May 1984						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
840501	3.4	3.5	3.7	1.9	4.6	8.3
840502	3.4	3.5	3.6	2.7	4.5	7.7
840503	3.4	3.5	3.7	1.6	4.4	9.1
840504	3.4	3.5	3.7	1.8	4.4	9.4
840505	3.4	3.5	3.6	2.2	4.6	9.5
840506	3.4	3.5	3.6	2.2	5.1	11.1
840507	3.4	3.5	3.7	1.4	4.8	10.7
840508	3.4	3.5	3.6	1.3	5.0	10.9
840509	3.4	3.5	3.6	1.6	5.5	11.3
840510	3.4	3.5	3.6	1.8	5.2	11.4
840511	3.4	3.5	3.6	1.8	4.9	10.0
840512	3.4	3.5	3.7	1.2	4.7	10.6
840513	3.4	3.5	3.6	2.1	5.4	11.0
840514	3.4	3.5	3.6	1.9	5.5	11.3
840515	3.5	3.5	3.7	2.0	5.6	10.9
840516	3.4	3.5	3.7	2.1	5.6	11.2
840517	3.5	3.5	3.7	2.1	5.7	11.2
840518	3.5	3.5	3.6	3.0	6.0	11.6
840519	3.5	3.5	3.7	3.0	5.6	9.9
840520	3.5	3.6	3.7	2.1	5.1	9.3
840521	3.5	3.6	3.7	3.0	5.3	10.0
840522	3.5	-----	3.6	3.5	-----	5.5
840523	3.5	3.6	3.8	3.7	5.0	8.1
840524	3.5	3.6	3.7	3.9	5.0	7.1
840525	3.6	3.6	3.7	4.5	5.3	6.5
840526	3.6	3.6	3.7	4.4	5.5	8.4
840527	3.6	3.7	3.8	3.0	4.5	7.4
840528	3.6	3.7	3.9	2.3	4.8	9.6
840529	3.6	3.7	3.8	2.4	4.1	6.3
840530	3.6	3.7	3.8	3.0	4.4	7.1
840531	3.6	3.7	3.9	2.3	5.2	9.4
Monthly Value	3.4	3.6	3.9	1.2	5.0	11.6

----- Data not available.

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

August 1983						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
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	4.0	-----	8.6	4.0	-----	9.6

----- Data not available.

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Appendix Table A-38 (continued).

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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	3.1	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

Appendix Table A-38 (continued).

October 1983						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
831001	3.5	3.8	4.2	3.4	3.8	4.2
831002	3.4	3.8	4.7	3.2	4.1	4.8
831003	2.8	3.2	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	2.9	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	2.8	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	2.9	3.5	2.2	2.6	3.2
831016	2.6	2.9	3.4	2.1	2.6	3.2
831017	2.6	2.9	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	2.7	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	2.7	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

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Appendix Table A-38 (continued).

November 1983						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
831101	2.7	3.0	3.3	2.3	2.7	3.0
831102	2.9	3.0	3.3	2.5	2.7	3.1
831103	2.7	2.9	3.1	2.2	2.5	2.8
831104	2.6	2.8	3.1	2.2	2.5	2.8
831105	2.6	2.9	3.1	2.2	2.6	2.8
831106	2.6	2.7	3.0	2.0	2.3	2.6
831107	2.6	2.7	2.9	2.2	2.4	2.6
831108	2.7	3.0	3.2	2.3	2.6	2.8
831109	2.7	2.9	3.1	2.2	2.6	2.8
831110	2.6	2.8	3.1	2.0	2.4	2.7
831111	2.6	2.8	3.1	2.2	2.4	2.7
831112	2.6	2.9	3.1	2.0	2.5	2.7
831113	2.4	2.6	3.0	1.7	2.1	2.7
831114	2.3	2.4	2.7	1.6	1.8	2.2
831115	2.3	2.6	2.9	1.6	2.0	2.6
831116	2.6	2.7	2.9	2.0	2.3	2.6
831117	2.2	2.5	2.8	1.5	1.9	2.4
831118	2.1	2.5	2.8	1.3	2.0	2.4
831119	2.2	2.4	2.6	1.4	1.8	2.1
831120	2.2	2.5	2.7	1.5	1.9	2.3
831121	2.6	2.8	3.0	2.1	2.5	2.6
831122	2.8	2.9	3.0	2.3	2.5	2.7
831123	2.6	2.8	3.0	2.0	2.4	2.6
831124	2.3	2.6	2.8	1.6	2.0	2.5
831125	2.4	2.5	2.6	1.7	1.9	2.2
831126	2.4	2.6	2.7	1.8	2.1	2.4
831127	2.5	2.7	2.9	1.8	2.2	2.5
831128	2.6	2.7	2.9	2.0	2.4	2.6
831129	2.6	2.7	2.9	2.0	2.2	2.5
831130	2.5	2.7	2.9	1.9	2.2	2.6
Monthly Value	2.1	2.7	3.3	1.3	2.3	3.1

Appendix Table A-38 (continued).

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December 1983						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
831201	2.5	2.7	2.9	1.8	2.2	2.6
831202	2.4	2.7	2.8	1.8	2.2	2.5
831203	2.6	2.7	2.9	2.1	2.4	2.6
831204	2.4	2.6	2.8	1.8	2.2	2.5
831205	2.7	2.7	2.9	2.2	2.4	2.6
831206	2.4	2.9	3.0	1.7	2.5	2.7
831207	2.1	2.4	2.6	1.3	1.8	2.1
831208	2.2	2.4	2.5	1.6	1.8	2.1
831209	2.1	2.2	2.3	1.4	1.6	1.8
831210	2.1	2.2	2.4	1.4	1.6	1.9
831211	2.1	2.3	2.5	1.6	1.8	2.0
831212	2.1	2.2	2.4	1.6	1.7	2.0
831213	2.2	2.3	2.4	1.6	1.8	2.0
831214	2.0	2.1	2.3	1.3	1.6	1.9
831215	1.9	2.0	2.1	1.3	1.5	1.6
831216	1.9	2.0	2.1	1.3	1.5	1.6
831217	1.9	2.1	2.3	1.4	1.6	1.8
831218	2.0	2.2	2.3	1.4	1.7	1.9
831219	2.0	2.2	2.4	1.4	1.8	2.0
831220	2.4	2.5	2.6	1.9	2.1	2.3
831221	2.4	2.6	2.7	1.9	2.2	2.4
831222	2.0	2.2	2.6	1.3	1.7	2.2
831223	2.0	2.2	2.3	1.5	1.7	1.9
831224	2.0	2.2	2.3	1.4	1.7	1.9
831225	2.1	2.2	2.4	1.7	1.8	2.0
831226	1.9	2.2	2.3	1.4	1.7	1.9
831227	2.0	2.2	2.3	1.5	1.7	1.8
831228	2.0	2.0	2.2	1.4	1.6	1.7
831229	1.9	2.0	2.1	1.4	1.5	1.7
831230	1.9	2.0	2.1	1.3	1.5	1.6
831231	1.9	2.1	2.3	1.4	1.6	1.8
Monthly Value	1.9	2.3	3.0	1.3	1.8	2.7

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Appendix Table A-3B (continued).

January 1984						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
840101	2.0	2.4	2.6	1.5	1.9	2.2
840102	2.2	2.5	2.6	1.7	2.1	2.3
840103	2.4	2.6	2.7	1.9	2.2	2.4
840104	2.1	2.4	2.7	1.6	2.0	2.4
840105	2.0	2.2	2.4	1.5	1.7	1.9
840106	2.2	2.3	2.4	1.7	1.9	2.0
840107	1.9	2.3	2.5	1.3	1.9	2.1
840108	1.8	2.1	2.3	1.2	1.6	1.8
840109	2.0	2.2	2.4	1.6	1.8	2.1
840110	2.2	-----	2.4	1.7	1.9	2.2
840111	-----	-----	-----	1.8	2.3	2.5
840112	-----	-----	-----	2.2	2.4	2.6
840113	-----	-----	-----	1.9	2.4	2.6
840114	-----	-----	-----	1.7	2.2	2.5
840115	-----	-----	-----	1.5	2.2	2.6
840116	-----	-----	-----	1.3	1.7	2.1
840117	-----	-----	-----	1.8	2.2	2.5
840118	-----	-----	-----	1.3	2.0	2.4
840119	-----	-----	-----	1.4	1.9	2.2
840120	-----	-----	-----	1.6	1.8	2.0
840121	-----	-----	-----	1.5	1.7	1.9
840122	-----	-----	-----	1.3	1.5	1.8
840123	-----	-----	-----	1.0	1.2	1.5
840124	-----	-----	-----	1.0	1.2	1.3
840125	-----	-----	-----	1.0	1.1	1.3
840126	-----	-----	-----	1.1	1.4	1.5
840127	-----	-----	-----	1.2	1.3	1.5
840128	-----	-----	-----	1.3	1.4	1.6
840129	-----	-----	-----	1.4	1.7	2.0
840130	-----	-----	-----	1.5	1.9	2.2
840131	-----	-----	-----	1.9	2.2	2.4
Monthly Value	1.8	-----	2.7	1.0	1.8	2.6

----- Data not available.

Appendix Table A-38 (continued).

February 1984						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
840201	-----	-----	-----	1.7	2.0	2.3
840202	-----	-----	-----	1.6	2.2	2.5
840203	-----	-----	-----	1.6	2.0	2.4
840204	-----	-----	-----	1.5	2.2	2.5
840205	-----	-----	-----	2.0	2.2	2.5
840206	-----	-----	-----	1.7	2.2	2.5
840207	-----	-----	-----	1.8	2.2	2.6
840208	-----	-----	-----	1.7	2.1	2.4
840209	-----	-----	-----	1.6	2.0	2.3
840210	-----	-----	-----	1.7	1.9	2.2
840211	-----	-----	-----	1.8	2.1	2.3
840212	-----	-----	-----	1.7	1.9	2.1
840213	-----	-----	-----	1.6	1.8	2.0
840214	-----	-----	-----	1.6	1.7	1.9
840215	-----	-----	-----	1.3	1.6	1.8
840216	-----	-----	-----	1.4	1.6	1.9
840217	-----	-----	-----	1.7	1.8	2.3
840218	-----	-----	-----	1.5	1.8	2.2
840219	-----	-----	-----	1.4	1.7	2.2
840220	-----	-----	-----	1.4	1.6	2.0
840221	-----	-----	-----	1.2	1.7	2.2
840222	-----	-----	-----	1.6	2.0	2.3
840223	-----	-----	-----	1.9	2.2	2.6
840224	-----	-----	-----	1.8	2.2	2.5
840225	-----	-----	-----	2.0	2.4	2.7
840226	-----	-----	-----	1.7	2.2	2.7
840227	-----	-----	-----	1.7	2.1	2.6
840228	-----	-----	-----	1.7	2.1	2.6
840229	-----	-----	-----	1.6	2.0	2.6
Monthly Value	-----	-----	-----	1.2	2.0	2.7

----- Data not available.

Appendix Table A-38 (continued).

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March 1984						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
840301	-----	-----	-----	1.4	2.0	2.5
840302	-----	-----	-----	1.9	2.5	2.8
840303	-----	-----	-----	2.2	2.5	2.9
840304	-----	-----	-----	2.2	2.8	3.4
840305	-----	-----	-----	2.6	3.0	3.5
840306	-----	-----	-----	2.5	2.9	3.4
840307	-----	-----	-----	2.5	2.9	3.6
840308	-----	-----	-----	2.8	3.1	3.6
840309	-----	-----	-----	2.7	3.1	3.6
840310	-----	-----	-----	2.6	3.0	3.9
840311	-----	-----	-----	2.6	3.0	3.8
840312	-----	-----	-----	2.4	2.8	3.6
840313	-----	-----	-----	2.3	2.8	3.6
840314	-----	-----	-----	2.6	3.0	3.6
840315	-----	-----	-----	2.4	2.8	3.6
840316	-----	-----	-----	2.1	2.7	3.6
840317	-----	-----	-----	1.8	2.4	3.5
840318	-----	-----	-----	1.7	2.3	3.5
840319	-----	-----	-----	1.7	2.2	3.4
840320	-----	-----	-----	1.9	2.6	3.4
840321	-----	-----	-----	1.7	2.4	3.5
840322	-----	-----	-----	1.6	2.2	3.6
840323	-----	-----	-----	1.7	2.3	3.5
840324	-----	-----	-----	1.5	2.3	3.4
840325	-----	-----	-----	1.9	2.6	3.6
840326	-----	-----	-----	2.4	2.8	3.8
840327	-----	-----	-----	2.4	3.0	3.7
840328	-----	-----	-----	2.0	2.8	4.2
840329	-----	-----	-----	2.4	2.9	3.6
840330	-----	-----	-----	2.4	3.0	4.3
840331	-----	-----	-----	2.6	3.1	3.6
Monthly Value	-----	-----	-----	1.4	2.7	4.3

----- Data not available.

Appendix Table A-38 (continued).

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April 1984						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
840401	-----	-----	-----	2.6	3.1	4.1
840402	-----	-----	-----	2.5	3.0	4.6
840403	-----	-----	-----	1.7	2.8	4.1
840404	-----	-----	-----	2.2	3.1	4.8
840405	-----	-----	-----	2.9	3.3	4.3
840406	-----	-----	-----	2.8	3.4	4.5
840407	-----	-----	-----	2.3	3.2	4.8
840408	-----	-----	-----	2.4	3.2	4.4
840409	-----	-----	-----	2.3	3.3	4.9
840410	-----	-----	-----	2.4	3.1	4.2
840411	-----	-----	-----	1.8	2.8	4.4
840412	-----	-----	-----	2.0	3.0	5.1
840413	-----	-----	-----	1.7	2.9	4.5
840414	-----	-----	-----	2.1	3.1	4.7
840415	-----	-----	-----	2.6	3.5	5.1
840416	-----	-----	-----	2.7	3.1	3.5
840417	-----	-----	-----	2.4	3.3	5.7
840418	-----	-----	-----	2.3	3.1	4.6
840419	-----	-----	-----	2.0	3.0	4.4
840420	-----	-----	-----	2.5	3.5	5.0
840421	-----	-----	-----	2.9	4.0	6.1
840422	-----	-----	-----	2.4	3.5	5.6
840423	-----	-----	-----	2.3	3.3	5.1
840424	-----	-----	-----	1.9	3.3	5.9
840425	-----	-----	-----	3.0	3.9	6.4
840426	-----	-----	-----	2.7	3.9	5.6
840427	-----	-----	-----	2.9	3.9	5.3
840428	-----	-----	-----	3.6	4.7	7.1
840429	-----	-----	-----	3.4	4.5	6.9
840430	-----	-----	-----	4.0	4.8	6.4
Monthly Value	-----	-----	-----	1.7	3.4	7.1

----- Data not available.

Appendix Table A-38 (continued).

May 1984						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
840501	-----	-----	-----	3.6	5.0	6.8
840502	-----	-----	-----	4.2	5.0	6.8
840503	-----	-----	-----	3.8	4.8	6.6
840504	-----	-----	-----	3.9	4.9	7.4
840505	-----	-----	-----	4.1	5.0	7.6
840506	-----	-----	-----	4.2	5.3	8.4
840507	-----	-----	-----	3.6	5.1	7.6
840508	-----	-----	-----	3.7	5.2	8.3
840509	-----	-----	-----	4.1	5.7	8.7
840510	-----	-----	-----	4.4	5.6	8.7
840511	-----	-----	-----	4.5	5.5	7.9
840512	-----	-----	-----	3.5	5.3	8.5
840513	-----	-----	-----	4.5	5.7	9.2
840514	-----	-----	-----	4.5	5.8	8.9
840515	-----	-----	-----	4.6	5.9	8.7
840516	-----	-----	-----	4.7	6.1	9.5
840517	-----	-----	-----	4.5	6.2	9.5
840518	-----	-----	-----	4.8	6.4	9.9
840519	-----	-----	-----	4.7	6.2	9.3
840520	-----	-----	-----	4.1	5.8	8.5
840521	-----	-----	-----	4.5	5.8	8.4
840522	-----	-----	-----	4.8	-----	5.5
Monthly Value	-----	-----	-----	3.5	5.5	9.9

----- Data not available.

Appendix Table A-39. Ryan temperature recorder data summary:
 surface water temperatures (C) recorded at
 Deadhorse Creek, RM 120.9, TRM 1.0,
 GC S29N04W14BCB.

December 1983			
Date	Surface Water Temperature (C)		
	Min	Mean	Max
831222	.2	-----	.2
831223	.2	.2	.2
831224	.2	.2	.2
831225	.2	.2	.2
831226	.2	.2	.2
831227	.2	.2	.2
831228	.2	.2	.2
831229	.2	.2	.2
831230	.2	.2	.2
831231	.2	.2	.2
Monthly Value	.2	-----	.2

----- Data not available.

Appendix Table A-39 (continued).

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January 1984			
Date	Surface Water Temperature (C)		
	Min	Mean	Max
840101	.2	.2	.2
840102	.2	.2	.2
840103	.2	.2	.2
840104	.2	.2	.2
840105	.2	.2	.2
840106	.2	.2	.2
840107	.2	.2	.2
840108	.2	.2	.2
840109	.2	.2	.2
840110	.2	.2	.2
840111	.2	.2	.2
840112	.2	.2	.2
840113	.2	.2	.2
840114	.2	.2	.2
840115	.2	.2	.2
840116	.2	.2	.2
840117	.2	.2	.2
840118	.2	.2	.2
840119	.2	.2	.2
840120	.2	.2	.2
840121	.2	.2	.2
840122	.2	.2	.2
840123	.2	.2	.2
840124	.2	.2	.2
840125	.2	.2	.2
840126	0.0	.1	.2
840127	0.0	0.0	0.0
840128	0.0	0.0	0.0
840129	0.0	0.0	0.0
840130	0.0	0.0	0.0
840131	0.0	0.0	0.0
Monthly Value	0.0	.2	.2

Appendix Table A-39 (continued).

22.1 FT

February 1984			
Date	Surface Water Temperature (C)		
	Min	Mean	Max
840201	0.0	0.0	0.0
840202	0.0	0.0	0.0
840203	0.0	0.0	0.0
840204	0.0	0.0	0.0
840205	0.0	0.0	0.0
840206	0.0	0.0	0.0
840207	0.0	0.0	0.0
840208	0.0	0.0	0.0
840209	0.0	0.0	0.0
840210	0.0	0.0	0.0
840211	0.0	0.0	0.0
840212	0.0	0.0	0.0
840213	0.0	0.0	0.0
840214	0.0	0.0	0.0
840215	0.0	0.0	0.0
840216	0.0	0.0	0.0
840217	0.0	0.0	0.0
840218	0.0	0.0	0.0
840219	0.0	0.0	0.0
840220	0.0	0.0	0.0
840221	0.0	0.0	0.0
840222	0.0	0.0	0.0
840223	0.0	0.0	0.0
840224	0.0	0.0	0.0
840225	0.0	0.0	0.0
840226	0.0	0.0	0.0
840227	0.0	0.0	0.0
840228	0.0	0.0	0.0
840229	0.0	0.0	0.0
Monthly Value	0.0	0.0	0.0

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Appendix Table A-39 (continued).

77.77

March 1984			
Date	Surface Water Temperature (C)		
	Min	Mean	Max
840301	0.0	0.0	0.0
840302	0.0	0.0	0.0
840303	0.0	0.0	0.0
840304	0.0	0.0	0.0
840305	0.0	0.0	0.0
840306	0.0	0.0	0.0
840307	0.0	0.0	0.0
840308	0.0	0.0	0.0
840309	0.0	0.0	0.0
840310	0.0	0.0	0.0
840311	0.0	0.0	0.0
840312	0.0	0.0	0.0
840313	0.0	0.0	0.0
840314	0.0	0.0	0.0
840315	0.0	0.0	0.0
840316	0.0	0.0	0.0
840317	0.0	0.0	0.0
840318	0.0	0.0	0.0
840319	0.0	0.0	0.0
840320	0.0	0.0	0.0
840321	0.0	0.0	0.0
840322	0.0	0.0	0.0
840323	0.0	0.0	0.0
840324	0.0	0.0	0.0
840325	0.0	0.0	0.0
840326	0.0	.2	.5
840327	.5	.5	.5
840328	0.0	.2	.5
840329	0.0	.3	.5
840330	.5	.5	.5
840331	.5	.5	.5
Monthly Value	0.0	.1	.5

Appendix Table A-39 (continued).

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April 1984			
Date	Surface Water Temperature (C)		
	Min	Mean	Max
840401	.5	.5	.5
840402	.5	.5	.5
840403	.5	.5	.5
840404	.5	.5	.5
840405	.5	.5	.5
840406	.5	.5	.5
840407	.5	.5	.5
840408	.5	.5	.5
840409	.5	.5	.5
840410	.5	.5	.5
840411	.5	.5	.5
840412	.5	.5	.5
840413	.5	.5	.5
840414	.5	.6	1.0
840415	.5	.7	1.0
840416	.5	.5	.5
840417	.5	.5	.5
840418	.5	.5	.5
840419	.5	.6	1.0
840420	.5	.7	1.0
840421	.5	.7	1.0
840422	.5	.7	1.0
840423	.5	.7	1.0
840424	.5	.8	1.0
840425	.5	.8	1.0
840426	.5	.8	1.0
840427	1.0	1.2	1.5
840428	.5	.7	1.0
840429	.5	.7	1.0
840430	.5	.7	1.0
Monthly Value	.5	.6	1.5

Appendix Table 439 (continued).

May 1984			
Date	Surface Water Temperature (C)		
	Min	Mean	Max
840501	.5	.7	1.0
840502	.5	.9	1.0
840503	1.0	1.2	1.5
840504	1.0	1.2	1.5
840505	1.0	1.2	1.5
840506	1.0	1.3	1.5
840507	.5	1.1	1.5
840508	1.0	1.4	2.0
840509	1.0	1.3	2.0
840510	1.0	1.5	2.5
840511	1.0	1.6	2.5
840512	1.0	1.8	2.5
840513	1.5	2.2	3.0
840514	1.5	2.2	3.5
840515	1.5	2.5	3.5
840516	2.0	2.8	4.0
840517	2.0	3.0	4.0
840518	2.5	3.1	4.0
840519	2.5	3.3	4.5
840520	2.5	3.2	4.0
840521	2.5	3.3	4.0
840522	3.0	3.2	3.5
840523	2.0	3.2	5.0
840524	2.5	3.2	4.0
840525	2.5	3.0	4.0
840526	2.5	2.8	3.5
840527	2.0	2.9	4.0
840528	2.0	3.2	5.0
840529	2.5	3.4	4.5
840530	3.0	3.7	4.5
840531	2.5	4.1	5.5
Monthly Value	.5	2.4	5.5

Appendix Table A-39 (continued).

27.17

June 1984			
Date	Surface Water Temperature (C)		
	Min	Mean	Max
840601	3.0	4.3	6.0
840602	3.0	4.4	6.0
840603	3.5	4.6	6.0
840604	3.0	4.7	6.5
840605	3.5	5.4	7.0
840606	4.0	4.8	5.0
840607	4.0	5.0	6.0
840608	4.5	5.8	7.0
840609	5.5	5.8	6.0
840610	5.5	6.5	8.0
840611	6.0	7.5	8.5
840612	7.0	7.8	8.5
840613	7.0	7.5	8.0
840614	6.0	7.4	8.5
840615	6.5	6.6	7.0
840616	6.0	6.0	6.0
840617	6.0	6.7	7.5
840618	6.0	7.6	9.0
840619	7.0	8.2	9.0
840620	8.0	8.6	9.5
840621	7.5	9.0	10.0
840622	8.5	9.4	10.5
840623	8.0	8.5	9.0
840624	7.5	8.5	9.0
840625	8.5	9.0	9.5
840626	8.0	8.5	9.0
840627	8.5	-----	8.5
Monthly Value	3.0	6.9	10.5

----- Data not available.

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Appendix Table A-40 Datapod temperature recorder data summary:
intragravel water temperatures (C) recorded
at Fourth of July Creek and Plume - 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	7.6	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	6.3	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	6.6	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

----- Data not available.

Appendix Table A-40 (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	2.8	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	.8	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	1.0	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	*****	*****	*****	-.3	-.2	-.2
831028	*****	*****	*****	-.3	-.2	-.2
831029	*****	*****	*****	-.3	-.2	-.2
831030	*****	*****	*****	-.2	-.2	-.2
831031	*****	*****	*****	-.2	-.2	-.2
Monthly Value	-.1	1.2	3.1	-.3	.6	3.4

***** Data available; site frozen.

Appendix Table A-40 (continued).

DRAFT

November 1983						
Date	Plume			Creek		
	Min	Mean	Max	Min	Mean	Max
831101	*****	*****	*****	-.2	-.2	-.1
831102	*****	*****	*****	-.2	-.0	.4
831103	*****	*****	*****	-.2	-.1	.3
831104	*****	*****	*****	-.2	-.2	-.1
831105	*****	*****	*****	-.2	-.2	-.1
831106	*****	*****	*****	-.2	-.1	-.1
831107	*****	*****	*****	-.2	-.2	-.1
831108	*****	*****	*****	-.2	-.2	-.1
831109	*****	*****	*****	-.2	-.2	-.1
831110	*****	*****	*****	-.2	-.2	-.1
831111	*****	*****	*****	-.2	-.2	-.1
831112	*****	*****	*****	-.2	-.1	-.1
831113	*****	*****	*****	-.2	-.1	-.1
831114	*****	*****	*****	-.2	-.1	-.1
831115	*****	*****	*****	-.2	-.1	-.1
831116	*****	*****	*****	-.2	-.1	-.1
831117	*****	*****	*****	-.2	-.1	-.1
831118	*****	*****	*****	-.2	-.1	-.1
831119	*****	*****	*****	-.2	-.1	-.1
831120	*****	*****	*****	-.2	-.1	-.1
831121	*****	*****	*****	-.2	-.2	-.1
831122	*****	*****	*****	-.2	-.2	-.1
831123	*****	*****	*****	-.1	-.1	-.1
831124	*****	*****	*****	-.2	-.1	-.1
831125	*****	*****	*****	-.2	-.1	-.1
831126	*****	*****	*****	-.1	-.1	-.1
831127	*****	*****	*****	-.2	-.1	-.1
831128	*****	*****	*****	-.2	-.1	-.1
831129	*****	*****	*****	-.2	-.1	-.1
831130	*****	*****	*****	-.2	-.1	.1
Monthly Value	*****	*****	*****	-.2	-.1	.4

***** Data available; site frozen.

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Appendix Table A-40 (continued).

December 1983						
Date	Plume			Creek		
	Min	Mean	Max	Min	Mean	Max
831201	*****	*****	*****	0.0	.2	.3
831202	*****	*****	*****	.2	.3	.3
831203	*****	*****	*****	.2	.3	.3
831204	*****	*****	*****	.1	.2	.3
831205	*****	*****	*****	.2	.2	.3
831206	*****	*****	*****	.3	.3	.4
831207	*****	*****	*****	0.0	.1	.4
831208	*****	*****	*****	-.1	-.0	.1
831209	*****	*****	*****	-.1	-.1	0.0
831210	*****	*****	*****	-.1	-.1	0.0
831211	*****	*****	*****	-.1	-.1	0.0
831212	*****	*****	*****	-.1	-.0	.1
831213	*****	*****	*****	-.1	-.0	0.0
831214	*****	*****	*****	-.1	-.1	0.0
831215	*****	*****	*****	-.1	-.1	0.0
831216	*****	*****	*****	-.1	-.1	0.0
831217	*****	*****	*****	-.1	-.0	0.0
831218	*****	*****	*****	-.1	-.0	0.0
831219	*****	*****	*****	-.1	0.0	0.0
831220	*****	*****	*****	0.0	.0	.1
831221	*****	*****	*****	.1	.1	.2
831222	*****	*****	*****	0.0	.1	.3
831223	*****	*****	*****	0.0	0.0	.1
831224	*****	*****	*****	-.1	0.0	0.0
831225	*****	*****	*****	0.0	0.0	0.0
831226	*****	*****	*****	-.1	0.0	0.0
831227	*****	*****	*****	0.0	0.0	.1
831228	*****	*****	*****	0.0	0.0	.1
831229	*****	*****	*****	0.0	0.0	0.0
831230	*****	*****	*****	0.0	.1	.1
831231	*****	*****	*****	0.0	0.0	.1
Monthly Value	*****	*****	*****	-.1	.0	.4

***** Data available; site frozen.

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Appendix Table A-40 (continued).

January 1984						
Date	Plume			Creek		
	Min	Mean	Max	Min	Mean	Max
840101	*****	*****	*****	0.0	.0	.1
840102	*****	*****	*****	0.0	0.0	.1
840103	*****	*****	*****	0.0	.1	.1
840104	*****	*****	*****	0.0	.1	.1
840105	*****	*****	*****	0.0	.1	.1
840106	*****	*****	*****	0.0	.1	.1
840107	*****	*****	*****	0.0	.1	.2
840108	*****	*****	*****	.1	.1	.2
840109	*****	*****	*****	0.0	.1	.2
840110	*****	*****	*****	.1	.2	.2
840111	*****	*****	*****	.2	.2	.3
840112	*****	*****	*****	.2	.3	.4
840113	*****	*****	*****	.3	.4	.4
840114	*****	*****	*****	.3	.4	.4
840115	*****	*****	*****	.4	.4	.5
840116	*****	*****	*****	.2	.3	.4
840117	*****	*****	*****	.3	.3	.4
840118	*****	*****	*****	.3	.4	.4
840119	*****	*****	*****	.2	.3	.4
840120	*****	*****	*****	.2	.3	.3
840121	*****	*****	*****	.2	.2	.3
840122	*****	*****	*****	.2	.2	.3
840123	*****	*****	*****	.2	.3	.3
840124	*****	*****	*****	.2	.3	.3
840126	*****	-----	*****	.2	-----	.4
840127	*****	-----	*****	.2	-----	.3
Monthly Value	*****	*****	*****	0.0	.2	.5

----- Data not available.

***** Data available; site frozen.

Appendix Table A-40 (continued).

DRAFT

February 1984						
Date	Plume			Creek		
	Min	Mean	Max	Min	Mean	Max
840207	*****	-----	*****	.3	-----	.4
840208	*****	*****	*****	.3	.4	.5
840209	*****	*****	*****	.3	.4	.5
Monthly Value	*****	-----	*****	.3	-----	.5

----- Data not available.

***** Data available; site frozen.

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Appendix Table A-40 (continued).

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March 1984						
Date	Plume			Creek		
	Min	Mean	Max	Min	Mean	Max
840302	*****	-----	*****	.9	.9	1.0
840303	*****	*****	*****	.9	1.0	1.0
840304	*****	*****	*****	1.0	1.0	1.1
840305	*****	*****	*****	1.0	1.0	1.1
840306	*****	*****	*****	1.0	1.0	1.1
840307	*****	*****	*****	1.0	1.1	1.1
840308	*****	*****	*****	.9	1.0	1.1
840309	*****	*****	*****	.9	1.0	1.0
840310	*****	*****	*****	.9	1.0	1.0
840311	*****	*****	*****	1.0	1.0	1.1
840312	*****	*****	*****	1.0	1.1	1.1
840313	*****	*****	*****	1.0	1.1	1.3
840314	*****	*****	*****	1.2	1.3	1.4
840315	*****	*****	*****	1.3	1.3	1.4
840316	*****	*****	*****	1.3	1.3	1.4
840317	*****	*****	*****	1.2	1.2	1.3
840318	*****	*****	*****	1.2	1.2	1.3
840319	*****	*****	*****	1.2	1.2	1.3
840320	*****	*****	*****	1.2	1.3	1.3
840321	*****	*****	*****	1.2	1.3	1.4
840322	*****	*****	*****	1.3	1.3	1.4
840323	*****	*****	*****	1.3	1.3	1.4
840324	*****	*****	*****	1.3	1.3	1.4
840325	*****	*****	*****	1.3	1.4	1.4
840326	*****	*****	*****	1.4	1.5	1.5
840327	*****	*****	*****	1.4	1.6	1.6
840328	*****	*****	*****	1.6	1.6	1.6
840329	*****	*****	*****	1.6	1.6	1.7
840330	*****	*****	*****	1.6	1.7	1.7
840331	*****	*****	*****	1.7	1.7	1.8
Monthly Value	*****	*****	*****	.9	1.2	1.8

----- Data not available.

***** Data available; site frozen.

Appendix Table A-40 (continued).

DRAFT

April 1984						
Date	Plume			Creek		
	Min	Mean	Max	Min	Mean	Max
840401	*****	*****	*****	1.6	1.7	1.8
840402	*****	*****	*****	1.6	1.7	1.7
840403	*****	*****	*****	1.6	1.6	1.8
840404	*****	*****	*****	1.6	1.7	1.8
840405	*****	*****	*****	1.8	1.8	2.0
840406	*****	*****	*****	1.8	1.9	2.0
840407	*****	*****	*****	1.7	1.9	2.0
840408	*****	*****	*****	1.7	1.8	1.9
840409	*****	*****	*****	1.8	2.0	2.2
840410	*****	*****	*****	1.8	2.0	2.2
840411	*****	*****	*****	1.7	1.9	2.2
840412	*****	*****	*****	1.8	2.0	2.2
840413	*****	*****	*****	1.9	2.0	2.2
840414	*****	*****	*****	1.9	2.1	2.3
840415	*****	*****	*****	2.1	2.2	2.3
840416	*****	*****	*****	2.0	2.1	2.3
840417	*****	*****	*****	1.9	2.1	2.3
840418	*****	*****	*****	1.8	2.0	2.3
840419	*****	*****	*****	1.8	2.0	2.3
840420	*****	*****	*****	2.2	2.3	2.5
840421	*****	*****	*****	2.2	2.3	2.5
840422	*****	*****	*****	2.0	2.1	2.3
840423	*****	*****	*****	2.0	2.1	2.3
840424	*****	*****	*****	2.0	2.2	2.6
840425	*****	*****	*****	2.3	2.5	2.9
840426	*****	*****	*****	2.2	2.5	2.9
840427	*****	*****	*****	2.2	2.5	2.8
840428	*****	*****	*****	2.0	2.2	2.6
840429	*****	*****	*****	2.0	2.1	2.1
840430	*****	*****	*****	2.0	2.1	2.2
Monthly Value	*****	*****	*****	1.6	2.1	2.9

***** Data available; site frozen.

Appendix Table A-40 (continued).

DRAFT

May 1984						
Date	Plume			Creek		
	Min	Mean	Max	Min	Mean	Max
840501	*****	*****	*****	2.1	2.1	2.2
840502	*****	*****	*****	2.1	2.1	2.2
840503	*****	*****	*****	2.1	2.2	2.2
840504	*****	*****	*****	2.1	2.4	2.7
840505	*****	*****	*****	2.4	2.9	3.6
840506	*****	*****	*****	2.5	3.1	3.8
840507	*****	*****	*****	2.4	3.1	4.2
840508	*****	*****	*****	2.6	3.2	4.1
840509	*****	*****	*****	2.6	3.3	4.3
840510	*****	*****	*****	3.0	3.2	4.0
840511	*****	*****	*****	3.3	3.4	3.5
840512	*****	*****	*****	3.2	3.3	3.5
840513	*****	*****	*****	3.4	3.5	3.8
840514	*****	*****	*****	3.8	3.9	4.0
840515	*****	*****	*****	3.8	4.0	4.1
840516	*****	*****	*****	3.5	3.6	3.9
840517	*****	*****	*****	3.5	3.7	3.9
840518	*****	*****	*****	3.9	4.3	5.0
840519	*****	*****	*****	4.7	5.0	5.5
840520	-.1	*****	0.0	4.9	5.3	6.1
840521	0.0	.1	.2	5.4	5.7	6.2
840522	.1	-----	.3	5.5	-----	6.1
Monthly Value	-.1	-----	.3	2.1	3.5	6.2

----- Data not available.

***** Data available; site frozen.

Appendix Table A-4/ Datapod temperature recorder data summary:
intragravel water temperatures (C)
recorded at Fourth of July Creek and
Plume - Site 1 when the site was frozen,
RM 131.1, TRM 0.0, GC S3NO3WO3DAC.

October 1983 (Site frozen)						
Date	Plume			Creek		
	Min	Mean	Max	Min	Mean	Max
831027	-.2	-.1	0.0	+++++	+++++	+++++
831028	-.2	-.2	-.2	+++++	+++++	+++++
831029	-.2	-.2	-.2	+++++	+++++	+++++
831030	-.2	-.2	-.2	+++++	+++++	+++++
831031	-.2	-.2	-.2	+++++	+++++	+++++
Monthly Value	-.2	-----	0.0	+++++	+++++	+++++

----- Data not available.

+++++ Data available; site not frozen.

Appendix Table A-41 (continued).

November 1983 (Site frozen)						
Date	Plume			Creek		
	Min	Mean	Max	Min	Mean	Max
831101	-.2	-.2	-.2	+++++	+++++	+++++
831102	-.3	-.2	-.2	+++++	+++++	+++++
831103	-.3	-.2	-.2	+++++	+++++	+++++
831104	-.3	-.2	-.1	+++++	+++++	+++++
831105	-.2	-.2	-.1	+++++	+++++	+++++
831106	-.2	-.2	-.1	+++++	+++++	+++++
831107	-.3	-.2	-.1	+++++	+++++	+++++
831108	-.3	-.2	-.2	+++++	+++++	+++++
831109	-.3	-.2	-.2	+++++	+++++	+++++
831110	-.3	-.2	-.2	+++++	+++++	+++++
831111	-.3	-.2	-.2	+++++	+++++	+++++
831112	-.3	-.2	-.2	+++++	+++++	+++++
831113	-.3	-.2	-.2	+++++	+++++	+++++
831114	-.2	-.2	-.2	+++++	+++++	+++++
831115	-.3	-.2	-.2	+++++	+++++	+++++
831116	-.3	-.2	-.2	+++++	+++++	+++++
831117	-.3	-.2	-.2	+++++	+++++	+++++
831118	-.3	-.2	-.2	+++++	+++++	+++++
831119	-.3	-.2	-.2	+++++	+++++	+++++
831120	-.3	-.2	-.2	+++++	+++++	+++++
831121	-.3	-.2	-.2	+++++	+++++	+++++
831122	-.2	-.2	-.2	+++++	+++++	+++++
831123	-.2	-.2	-.2	+++++	+++++	+++++
831124	-.2	-.2	-.2	+++++	+++++	+++++
831125	-.2	-.2	-.1	+++++	+++++	+++++
831126	-.3	-.2	-.1	+++++	+++++	+++++
831127	-.2	-.2	-.2	+++++	+++++	+++++
831128	-.3	-.2	-.2	+++++	+++++	+++++
831129	-.2	-.2	-.2	+++++	+++++	+++++
831130	-.3	-.2	-.2	+++++	+++++	+++++
Monthly Value	-.3	-.2	-.1	+++++	+++++	+++++

+++++ Data available; site not frozen.

Appendix Table A-4/ (continued).

December 1983 (Site frozen)						
Date	Plume			Creek		
	Min	Mean	Max	Min	Mean	Max
831201	-.3	-.2	-.2	+++++	+++++	+++++
831202	-.2	-.2	-.2	+++++	+++++	+++++
831203	-.2	-.2	-.2	+++++	+++++	+++++
831204	-.2	-.2	-.2	+++++	+++++	+++++
831205	-.2	-.2	-.2	+++++	+++++	+++++
831206	-.2	-.2	-.2	+++++	+++++	+++++
831207	-.2	-.2	-.1	+++++	+++++	+++++
831208	-.2	-.2	-.2	+++++	+++++	+++++
831209	-.2	-.2	-.2	+++++	+++++	+++++
831210	-.2	-.2	-.1	+++++	+++++	+++++
831211	-.3	-.2	-.1	+++++	+++++	+++++
831212	-.3	-.2	-.2	+++++	+++++	+++++
831213	-.3	-.2	-.2	+++++	+++++	+++++
831214	-.3	-.3	-.2	+++++	+++++	+++++
831215	-.4	-.3	-.3	+++++	+++++	+++++
831216	-.4	-.4	-.4	+++++	+++++	+++++
831217	-.5	-.4	-.4	+++++	+++++	+++++
831218	-.4	-.4	-.4	+++++	+++++	+++++
831219	-.4	-.4	-.3	+++++	+++++	+++++
831220	-.4	-.4	-.4	+++++	+++++	+++++
831221	-.4	-.4	-.3	+++++	+++++	+++++
831222	-.4	-.3	-.3	+++++	+++++	+++++
831223	-.4	-.4	-.3	+++++	+++++	+++++
831224	-.6	-.5	-.4	+++++	+++++	+++++
831225	-.6	-.5	-.5	+++++	+++++	+++++
831226	-.6	-.5	-.5	+++++	+++++	+++++
831227	-.6	-.6	-.5	+++++	+++++	+++++
831228	-.8	-.7	-.6	+++++	+++++	+++++
831229	-.9	-.8	-.7	+++++	+++++	+++++
831230	-.8	-.5	-.3	+++++	+++++	+++++
831231	-.4	-.3	-.3	+++++	+++++	+++++
Monthly Value	-.9	-.3	-.1	+++++	+++++	+++++

+++++ Data available; site not frozen.

Appendix Table A-4/ (continued).

January 1984 (Site frozen)						
Date	Plume			Creek		
	Min	Mean	Max	Min	Mean	Max
840101	-.3	-.3	-.2	+++++	+++++	+++++
840102	-.3	-.3	-.2	+++++	+++++	+++++
840103	-.3	-.2	-.2	+++++	+++++	+++++
840104	-.3	-.2	-.2	+++++	+++++	+++++
840105	-.3	-.2	-.2	+++++	+++++	+++++
840106	-.2	-.2	-.2	+++++	+++++	+++++
840107	-.2	-.2	-.1	+++++	+++++	+++++
840108	-.3	-.2	-.2	+++++	+++++	+++++
840109	-.3	-.2	-.2	+++++	+++++	+++++
840110	-.2	-.2	-.2	+++++	+++++	+++++
840111	-.2	-.2	-.2	+++++	+++++	+++++
840112	-.2	-.2	-.2	+++++	+++++	+++++
840113	-.2	-.2	-.2	+++++	+++++	+++++
840114	-.2	-.2	-.2	+++++	+++++	+++++
840115	-.2	-.2	-.1	+++++	+++++	+++++
840116	-.2	-.2	-.2	+++++	+++++	+++++
840117	-.3	-.2	-.2	+++++	+++++	+++++
840118	-.4	-.3	-.3	+++++	+++++	+++++
840119	-.5	-.4	-.4	+++++	+++++	+++++
840120	-.6	-.4	-.4	+++++	+++++	+++++
840121	-.7	-.6	-.5	+++++	+++++	+++++
840122	-.8	-.7	-.6	+++++	+++++	+++++
840123	-1.0	-.9	-.8	+++++	+++++	+++++
840124	-1.3	-1.1	-.9	+++++	+++++	+++++
840126	-1.9	-----	-1.8	+++++	+++++	+++++
840127	-1.9	-----	-1.8	+++++	+++++	+++++
Monthly Value	-1.9	-.4	-.1	+++++	+++++	+++++

_____ Data not available.

+++++ Data available; site not frozen.

Appendix Table A-41 (continued).

February 1984 (Site frozen)						
Date	Plume			Creek		
	Min	Mean	Max	Min	Mean	Max
840207	-.4	-----	-.3	+++++	-----	+++++
840208	-.4	-.3	-.3	+++++	+++++	+++++
840209	-.4	-.3	-.3	+++++	+++++	+++++
840210	-.3	-----	-.2	-----	-----	-----
Monthly Value	-.4	-----	-.2	+++++	-----	+++++

----- Data not available.

+++++ Data available; site not frozen.

Appendix Table A-4/ (continued).

March 1984 (Site frozen)						
Date	Plume			Creek		
	Min	Mean	Max	Min	Mean	Max
840301	-.2	-----	-.1	+++++	+++++	+++++
840302	-.2	-.1	-.1	+++++	+++++	+++++
840303	-.2	-.1	-.1	+++++	+++++	+++++
840304	-.2	-.1	-.1	+++++	+++++	+++++
840305	-.2	-.1	-.1	+++++	+++++	+++++
840306	-.2	-.1	-.1	+++++	+++++	+++++
840307	-.2	-.1	-.1	+++++	+++++	+++++
840308	-.2	-.2	-.1	+++++	+++++	+++++
840309	-.2	-.1	-.1	+++++	+++++	+++++
840310	-.2	-.1	-.1	+++++	+++++	+++++
840311	-.2	-.1	-.1	+++++	+++++	+++++
840312	-.2	-.1	-.1	+++++	+++++	+++++
840313	-.2	-.1	-.1	+++++	+++++	+++++
840314	-.2	-.1	-.1	+++++	+++++	+++++
840315	-.2	-.1	-.1	+++++	+++++	+++++
840316	-.2	-.1	-.1	+++++	+++++	+++++
840317	-.2	-.1	-.1	+++++	+++++	+++++
840318	-.2	-.1	-.1	+++++	+++++	+++++
840319	-.2	-.1	-.1	+++++	+++++	+++++
840320	-.2	-.1	-.1	+++++	+++++	+++++
840321	-.2	-.1	-.1	+++++	+++++	+++++
840322	-.3	-.2	-.1	+++++	+++++	+++++
840323	-.4	-.3	-.2	+++++	+++++	+++++
840324	-.4	-.4	-.3	+++++	+++++	+++++
840325	-.6	-.5	-.4	+++++	+++++	+++++
840326	-.6	-.5	-.5	+++++	+++++	+++++
840327	-.6	-.5	-.4	+++++	+++++	+++++
840328	-.5	-.4	-.4	+++++	+++++	+++++
840329	-.4	-.4	-.3	+++++	+++++	+++++
840330	-.4	-.3	-.2	+++++	+++++	+++++
840331	-.3	-.2	-.2	+++++	+++++	+++++
Monthly Value	-.6	-.2	-.1	+++++	+++++	+++++

----- Data not available.

+++++ Data available; site not frozen.

Appendix Table A-4/ (continued).

April 1984 (Site frozen)						
Date	Plume			Creek		
	Min	Mean	Max	Min	Mean	Max
840401	-.3	-.2	-.2	+++++	+++++	+++++
840402	-.2	-.2	-.1	+++++	+++++	+++++
840403	-.2	-.2	-.1	+++++	+++++	+++++
840404	-.2	-.2	-.1	+++++	+++++	+++++
840405	-.3	-.2	-.1	+++++	+++++	+++++
840406	-.3	-.2	-.1	+++++	+++++	+++++
840407	-.2	-.2	-.1	+++++	+++++	+++++
840408	-.2	-.2	-.1	+++++	+++++	+++++
840409	-.2	-.2	-.1	+++++	+++++	+++++
840410	-.2	-.2	-.1	+++++	+++++	+++++
840411	-.2	-.2	-.1	+++++	+++++	+++++
840412	-.2	-.2	-.1	+++++	+++++	+++++
840413	-.2	-.1	-.1	+++++	+++++	+++++
840414	-.2	-.1	-.1	+++++	+++++	+++++
840415	-.2	-.1	-.1	+++++	+++++	+++++
840416	-.2	-.1	-.1	+++++	+++++	+++++
840417	-.2	-.1	-.1	+++++	+++++	+++++
840418	-.2	-.1	-.1	+++++	+++++	+++++
840419	-.2	-.1	-.1	+++++	+++++	+++++
840420	-.2	-.1	-.1	+++++	+++++	+++++
840421	-.2	-.1	-.1	+++++	+++++	+++++
840422	-.2	-.1	-.1	+++++	+++++	+++++
840423	-.2	-.1	-.1	+++++	+++++	+++++
840424	-.2	-.1	-.1	+++++	+++++	+++++
840425	-.2	-.1	-.1	+++++	+++++	+++++
840426	-.2	-.1	-.1	+++++	+++++	+++++
840427	-.2	-.1	-.1	+++++	+++++	+++++
840428	-.2	-.1	-.1	+++++	+++++	+++++
840429	-.2	-.1	-.1	+++++	+++++	+++++
840430	-.2	-.1	-.1	+++++	+++++	+++++
Monthly Value	-.3	-.2	-.1	+++++	+++++	+++++

+++++ Data available; site not frozen.

Appendix Table A-4/ (continued).

May 1984 (Site frozen)						
Date	Plume			Creek		
	Min	Mean	Max	Min	Mean	Max
840501	-.2	-.1	-.1	+++++	+++++	+++++
840502	-.2	-.1	-.1	+++++	+++++	+++++
840503	-.2	-.1	-.1	+++++	+++++	+++++
840504	-.2	-.1	-.1	+++++	+++++	+++++
840505	-.2	-.1	-.1	+++++	+++++	+++++
840506	-.2	-.1	-.1	+++++	+++++	+++++
840507	-.2	-.1	-.1	+++++	+++++	+++++
840508	-.2	-.1	-.1	+++++	+++++	+++++
840510	-.2	-.2	-.1	+++++	+++++	+++++
840511	-.2	-.1	-.1	+++++	+++++	+++++
840512	-.2	-.1	-.1	+++++	+++++	+++++
840513	-.2	-.2	-.1	+++++	+++++	+++++
840514	-.2	-.1	-.1	+++++	+++++	+++++
840515	-.2	-.2	-.1	+++++	+++++	+++++
840516	-.2	-.2	-.1	+++++	+++++	+++++
840518	-.2	-.1	-.1	+++++	+++++	+++++
840519	-.2	-.2	-.1	+++++	+++++	+++++
840520	-.2	-.1	0.0	+++++	+++++	+++++
Monthly Value	-.2	-----	0.0	+++++	+++++	+++++

----- Data not available.

+++++ Data available; site not frozen.

Appendix Table A-42 Datapod temperature recorder data summary:
intragravel and surface water temperatures (C)
recorded at Fourth of July Creek - Site 2,
RM 131.1, TRM 0.0, GC S30N03W03DAC.

January 1984						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
840111	0.0	-----	.1	.2	-----	.2
840112	.1	.1	.2	.2	.2	.3
840113	.1	.2	.2	.2	.3	.3
840114	.1	.1	.2	.2	.2	.3
840115	.1	.2	.3	.2	.3	.4
840116	-.1	.0	.1	0.0	.1	.2
840117	0.0	.1	.2	.2	.2	.3
840118	0.0	.1	.2	.1	.2	.3
840119	-.1	0.0	.1	0.0	.1	.2
840120	-.2	-.1	0.0	0.0	.0	.2
840121	-.2	-.1	0.0	0.0	0.0	.1
840122	-.2	-.1	0.0	0.0	0.0	.1
840123	-.2	-.1	-.1	-.1	0.0	.1
840126	-.1	-----	0.0	.1	-----	.2
840127	-.1	0.0	0.0	.1	.1	.2
840128	-.1	0.0	0.0	.1	.1	.2
840129	-.1	0.0	0.0	.1	.1	.2
840130	0.0	0.0	0.0	.1	.1	.2
840131	-.1	0.0	0.0	.1	.1	.2
Monthly Value	-.2	-----	.3	-.1	-----	.4

----- Data not available.

Appendix Table A-42 (continued).

27.37

February 1984						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
840201	-.1	0.0	0.0	.1	.1	.2
840202	-.1	0.0	0.0	.1	.1	.2
840203	-.1	0.0	0.0	.1	.2	.2
840204	0.0	0.0	0.0	.1	.2	.2
840205	-.1	0.0	0.0	.1	.2	.2
840206	-.1	0.0	0.0	.1	.2	.2
840207	-.1	0.0	.1	.1	.2	.2
840208	-.1	0.0	0.0	.1	.2	.2
840209	0.0	0.0	0.0	.1	.2	.2
840210	-.1	0.0	0.0	.1	.2	.2
840211	-.1	-.0	.1	.1	.2	.3
840212	-.1	0.0	0.0	.2	.2	.3
840213	-.1	-.0	.1	.2	.2	.3
840214	-.1	.0	.1	.2	.2	.3
840215	-.1	.1	.1	.2	.2	.3
840216	0.0	.1	.1	.2	.3	.3
840217	.1	.2	.3	.3	.3	.4
840218	.1	.1	.2	.3	.3	.4
840219	.1	.1	.2	.3	.3	.4
840220	.1	.1	.2	.3	.3	.4
840221	0.0	.1	.2	.2	.3	.4
840222	.1	.2	.3	.3	.4	.4
840223	.2	.2	.3	.4	.4	.5
840224	.2	.3	.3	.4	.4	.4
840225	.2	.3	.4	.4	.4	.5
840226	.2	.3	.3	.4	.4	.5
840227	.1	.2	.4	.4	.4	.5
840228	.1	.3	.4	.4	.5	.5
840229	.2	.3	.4	.4	.5	.5
Monthly Value	-.1	.1	.4	.1	.3	.5

----- Data not available.

Appendix Table A-42 (continued).

DRAFT

March 1984						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
840301	.1	.2	.4	.4	.5	.5
840302	.2	.3	.5	.4	.5	.6
840303	.3	.4	.5	.5	.6	.6
840304	.3	.5	.7	.5	.6	.7
840305	.4	.5	.7	.5	.6	.7
840306	.4	.5	.7	.5	.5	.7
840307	.3	.5	.7	.5	.6	.7
840308	.3	.5	.7	.4	.5	.7
840309	.3	.5	.7	.4	.5	.6
840310	.3	.5	.7	.4	.5	.6
840311	.3	.5	.7	.4	.5	.7
840312	.3	.5	.8	.5	.6	.7
840313	.3	.5	.8	.5	.7	.8
840314	.4	.6	.9	.7	.7	.9
840315	.4	.6	.8	.6	.7	.9
840316	.4	.6	.7	.6	.7	.8
840317	.4	.5	.6	.5	.6	.7
840318	.3	.4	.6	.5	.6	.7
840319	.3	.4	.6	.4	.6	.7
840320	.3	.4	.6	.5	.6	.8
840321	.3	.4	.6	.5	.6	.8
840322	.3	.3	.6	.5	.6	.7
840323	.3	.3	.5	.5	.5	.6
840324	.2	.3	.4	.5	.5	.6
840325	.3	.4	.5	.5	.6	.7
840326	.4	.5	.6	.7	.7	.8
840327	.5	.5	.7	.7	.8	.9
840328	.5	.6	.7	.7	.8	.9
840329	.5	.6	.7	.7	.8	1.0
840330	.6	.7	.8	.8	.9	1.0
840331	.7	.7	.7	.8	.9	1.0
Monthly Value	.1	.5	.9	.4	.6	1.0

Appendix Table A-42 (continued).

200 FT

April 1984						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
840401	.6	.7	.8	.8	.8	1.0
840402	.6	.6	.7	.7	.8	.9
840403	.4	.6	.7	.6	.7	.9
840404	.5	.6	.8	.7	.8	1.0
840405	.6	.7	.9	.8	.9	1.1
840406	.6	.8	.9	.8	1.0	1.2
840407	.6	.7	.8	.8	.9	1.1
840408	.6	.7	.8	.8	.9	1.0
840409	.6	.8	1.0	.8	1.0	1.2
840410	.7	.8	1.0	.8	1.0	1.2
840411	.5	.7	1.0	.8	.9	1.1
840412	.6	.8	1.0	.8	1.0	1.2
840413	.7	.9	1.1	.8	1.0	1.2
840414	.7	.9	1.2	.9	1.1	1.3
840415	.9	1.0	1.2	1.1	1.2	1.3
840416	.7	.9	1.0	.9	1.1	1.2
840417	.7	.9	1.2	.9	1.0	1.3
840418	.6	.8	1.0	.8	.9	1.2
840419	.6	.8	1.1	.7	.9	1.2
840420	.9	1.1	1.4	1.1	1.2	1.5
840421	.8	1.1	1.4	.8	1.2	1.4
840422	.7	.9	1.2	.8	1.0	1.2
840423	.6	.8	1.3	.8	1.0	1.4
840424	.7	1.1	1.6	.8	1.1	1.6
840425	1.0	1.3	1.9	1.1	1.4	1.8
840426	.9	1.3	1.7	.9	1.4	1.8
840427	.9	1.2	1.7	.9	1.3	1.7
840428	.8	1.0	1.3	.8	1.0	1.3
840429	.7	.9	1.0	.8	.9	.9
840430	.7	.9	1.0	.8	.9	.9
Monthly Value	.4	.9	1.9	.6	1.0	1.8

Appendix Table A-42 (continued).

SECRET

May 1984						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
840501	.7	.9	1.0	.8	.9	.9
840502	.8	.9	1.0	.8	.9	.9
840503	.7	.9	1.1	.8	.9	1.0
840504	.9	1.1	1.7	.9	1.1	1.6
840505	1.1	1.7	2.8	1.1	1.7	2.7
840506	1.1	1.9	3.1	1.1	1.9	3.0
840507	1.0	1.9	3.5	.9	1.9	3.4
840508	1.3	2.0	3.6	1.2	2.0	3.7
840509	1.3	2.1	3.8	1.3	2.1	4.0
840510	1.3	2.4	4.2	1.3	2.3	4.2
840511	1.5	2.4	3.7	1.4	2.4	4.1
840512	1.5	2.5	4.2	1.1	2.6	4.9
840513	1.9	3.1	4.9	1.7	3.2	5.4
840514	1.8	3.1	5.1	1.5	3.2	5.5
840515	1.7	3.3	5.4	1.6	3.3	5.5
840516	2.0	3.7	6.1	1.8	3.6	6.2
840517	2.1	3.7	6.0	1.8	3.8	6.5
840518	2.8	4.1	6.1	2.6	4.1	6.1
840519	3.1	4.5	6.3	3.0	4.5	6.6
840520	3.1	4.8	6.7	2.8	4.6	6.7
840521	3.6	4.9	6.5	3.4	4.9	7.0
840522	4.1	-----	5.1	3.7	-----	4.8
Monthly Value	.7	2.7	6.7	.8	2.7	7.0

----- Data not available.

SECRET

Appendix Table A-43 Datapod temperature recorder data summary:
 intragravel and surface water temperatures (C)
 recorded at Indian River - Site 3, RM 138.6,
 TRM 0.2, GC S31N02W09CAB.

February 1984						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
840229	-.2	-----	0.0	-----	-----	-----
Monthly Value	-.2	-----	0.0	-----	-----	-----

----- Data not available.

Appendix Table A-43 (continued).

2217

March 1984						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
840301	-.2	-.1	0.0	.6	-----	.7
840302	-.2	-.1	-.1	.6	.7	2.8
840303	-.2	-.1	0.0	.6	-----	1.8
840304	-.2	-.1	.1	-----	-----	-----
840305	-.2	-.0	.1	-----	-----	-----
840306	-.2	-.1	0.0	-----	-----	-----
840307	-.2	-.1	0.0	-----	-----	-----
840308	-.2	-.1	0.0	-----	-----	-----
840309	-.2	-.0	.1	-----	-----	-----
840310	-.2	-.1	0.0	-----	-----	-----
840311	-.2	-.1	0.0	-----	-----	-----
840312	-.2	-.1	0.0	-----	-----	-----
840313	-.2	-.1	0.0	-----	-----	-----
840314	-.2	-.1	0.0	-----	-----	-----
840315	-.2	-.1	0.0	-----	-----	-----
840316	-.2	-.1	0.0	-----	-----	-----
840317	-.2	-.1	0.0	-----	-----	-----
840318	-.2	-.1	0.0	-----	-----	-----
840319	-.2	-.1	0.0	-----	-----	-----
840320	-.2	-.1	0.0	-----	-----	-----
840321	-.2	-.1	0.0	-----	-----	-----
840322	-.2	-.1	0.0	-----	-----	-----
840323	-.2	-----	.1	-.2	-----	-.1
840324	-.1	-.0	.1	-.3	-.2	-.1
840325	-.1	-.0	.1	-.2	-.2	-.1
840326	-.1	-.0	0.0	-.2	-.2	0.0
840327	-.1	0.0	0.0	-.2	-.1	-.1
840328	-.1	-.0	.1	-.2	-.1	0.0
840329	-.1	0.0	.2	-.2	-.1	0.0
840330	-.1	.1	.4	-.2	-.0	.3
840331	0.0	.1	.3	-.1	-.0	.2
Monthly Value	-.2	-.1	.4	-.3	-----	2.8

----- Data not available.

A-302

Appendix Table A-43 (continued).

0.1 FT

April 1984						
Date	Intragravel			Surface Water		
	Min	Mean	Max	Min	Mean	Max
840401	0.0	.2	.5	-.2	.1	.5
840402	-.1	.3	1.0	-.2	.2	1.0
840403	-.1	.2	1.2	-.3	.1	1.2
840404	-.1	.6	1.9	-.2	.5	1.9
840405	.4	.8	1.6	.2	.7	1.7
840406	.3	.9	2.0	.1	.7	1.9
840407	-.1	.8	2.5	-.2	.6	2.5
840408	-.1	.8	2.1	-.2	.6	2.1
840409	-.1	1.0	2.7	-.2	.9	2.7
840410	-.1	.9	2.2	-.2	.7	2.1
840411	-.1	.5	1.7	-.2	.3	1.7
840412	-.1	.7	2.2	-.2	.5	2.2
840413	-.1	.8	2.5	-.2	.7	2.5
840414	-.1	1.0	2.5	-.2	.9	2.5
840415	.5	1.3	2.5	.3	1.2	2.6
840416	.2	.8	1.2	.1	.6	1.1
840417	0.0	1.0	2.9	-.1	.9	2.9
840418	-.1	.7	2.6	-.3	.5	2.5
840419	-.1	.5	2.1	-.3	.4	2.1
840420	.2	1.4	2.8	.1	1.2	2.7
840421	.6	1.9	4.2	.5	1.8	4.3
840422	.2	1.5	3.6	0.0	1.4	3.5
840423	-.1	.9	3.1	-.3	.8	3.0
840424	-.1	1.2	3.3	-.3	1.0	3.4
840425	.5	1.9	3.8	.4	1.8	3.9
Monthly Value	-.1	.9	4.2	-.3	.8	4.3

01117

Appendix Table A-44. Weekly minimum, mean and maximum intragravel and surface water temperatures (C) recorded 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 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	-----	-----	-----	0	0	8.4	9.2	10.1	8	2
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

----- Data not available.

A-304

DRAFT

Appendix Table A-45. Weekly minimum, mean and maximum intragravel and surface water temperatures (C) recorded at Mainstem Susitna River at LRX 9 - Site 2 RM 103.2, GC 827N05W26DAA. 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	5.6	-----	7.8	16	4	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	-.1	.3	.5	26	7	-.1	-----	0.0	4	1
6	831105	-.1	.2	.9	28	7	-.2	-.1	0.0	28	7
7	831112	-.1	.1	.3	28	7	-.1	-.0	0.0	28	7
8	831119	0.0	.3	.9	28	7	-.1	0.0	.1	28	7
9	831126	0.0	.2	.3	28	7	0.0	.0	.1	28	7
10	831203	-.1	.1	.3	28	7	-.1	.0	.1	28	7
11	831210	-.1	.0	.7	28	7	-.1	.0	.2	28	7
12	831217	-.1	.0	.1	28	7	-.1	.0	.1	28	7
13	831224	-----	-----	-----	0	0	0.0	.0	.1	21	6

----- Data not available.

A-305

Appendix Table A-46 Weekly minimum, mean and maximum intragravel and surface water temperatures (C) recorded at Mainstem Susitna River at LRX 9 - Site 3, RM 103.5, GC S27N05W26ADD. 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
19	840204	.2	-----	.6	9	3	.1	-----	2.4	9	3
20	840211	-.1	.1	.5	28	7	-.1	.1	2.4	28	7
21	840218	-.1	.0	.2	28	7	-.1	.0	.4	28	7
22	840225	0.0	.1	.4	28	7	-.1	.2	1.5	27	7
23	840304	0.0	.2	.5	28	7	0.0	-----	.9	10	3
24	840311	.1	.4	.7	28	7	-----	-----	-----	0	0
25	840318	-.4	.4	.7	27	7	-.1	-----	.3	8	2
26	840325	.1	.2	.3	28	7	-.1	.2	.8	28	7
27	840401	.1	.2	.6	28	7	-.1	.5	2.2	28	7
28	840408	.2	.2	4.9	28	7	-.1	.6	2.4	28	7
29	840415	.2	.3	.5	24	7	0.0	1.0	4.9	28	7
30	840422	.2	.3	.4	21	7	-.1	1.2	4.3	28	7
31	840429	-.2	.1	.3	24	7	-.1	.0	1.3	28	7
32	840506	-.4	.8	1.5	23	7	-.2	.6	2.8	28	7
33	840513	1.4	1.7	2.1	28	7	.1	3.3	6.9	28	7
34	840520	1.6	2.5	2.9	24	7	2.4	5.7	7.4	28	7
35	840527	2.0	-----	2.7	19	6	5.9	8.2	12.2	28	7
36	840603	2.3	-----	3.7	6	4	8.4	10.0	11.9	22	6

----- Data not available.

Appendix Table A-47 Weekly minimum, mean and maximum intragravel and surface water temperatures (C) recorded at Mainstem Susitna River at LRX 29 - Site 1, RM 126.1, GC 830N03W19DA. 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	8.1	-----	9.1	8	2	7.5	-----	9.4	8	2
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	19	5	-----	-----	-----	0	0

----- Data not available.

A-307

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Appendix Table A-40. Weekly minimum, mean and maximum intragravel and surface water temperatures (C) recorded at Mainstem Susitna River at LRX 29 - Site 2, RM 126.1, GC S30N03W19DCA. 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
5	831029	1.6	-----	1.9	8	2	0.0	-----	.1	8	2
6	831105	1.7	1.9	2.0	28	7	0.0	-----	.2	14	4
7	831112	1.8	1.9	2.0	28	7	0.0	-----	.2	9	3
8	831119	0.0	1.6	1.9	28	7	0.0	.1	.3	28	7
9	831126	-.1	1.2	1.5	28	7	0.0	.1	.3	28	7
10	831203	1.0	1.2	1.3	28	7	0.0	.1	.4	28	7
11	831210	1.1	1.2	1.4	28	7	.1	.3	.6	28	7
12	831217	.1	-----	1.3	1	1	0.0	-----	.6	3	1
15	840107	-----	-----	-----	0	0	-.1	-----	0.0	5	2
16	840114	-----	-----	-----	0	0	-.1	-.1	0.0	28	7
17	840121	-----	-----	-----	0	0	-.1	-.0	.1	28	7
18	840128	-----	-----	-----	0	0	-.1	0.0	.1	28	7
19	840204	-----	-----	-----	0	0	-.1	.0	.1	28	7
20	840211	-----	-----	-----	0	0	0.0	.0	.1	28	7
21	840218	-----	-----	-----	0	0	0.0	.0	.1	28	7
22	840225	-----	-----	-----	0	0	0.0	.0	.1	28	7
23	840304	.1	.4	.6	23	6	0.0	.0	.1	28	7
24	840311	.2	-----	.4	1	1	0.0	-----	.1	1	1
25	840318	0.0	-----	.4	8	2	0.0	-----	.1	8	2
26	840325	0.0	.1	.3	28	7	0.0	.1	.1	28	7
27	840401	-.1	.0	.2	28	7	0.0	.1	.1	28	7
28	840408	-.1	0.0	.1	28	7	0.0	.1	.1	28	7
29	840415	-.1	.1	.2	27	7	0.0	.1	.2	28	7

----- Data not available.

A-308

Appendix Table A-49. Weekly minimum, mean, and maximum intra-gravel water temperatures (C) recorded at Mainstem Susitna River at RM 136.1 GC S31N02W19ADB. 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		
1	831001	0.0	1.1	3.0	78	7
2	831008	0.0	.1	.5	84	7
3	831015	0.0	0.0	0.0	84	7
4	831022	0.0	0.0	0.0	84	7
5	831029	0.0	0.0	0.0	84	7
6	831105	0.0	.1	.5	84	7
7	831112	0.0	.0	.5	84	7
8	831119	0.0	0.0	0.0	84	7
9	831126	0.0	.3	.5	84	7
10	831203	0.0	.1	.5	84	7
11	831210	0.0	0.0	0.0	84	7
12	831217	0.0	0.0	0.0	84	7
13	831224	0.0	0.0	0.0	84	7
14	831231	0.0	---	0.0	50	5

----- Data not available.

Appendix Table A-50 Weekly minimum, mean and maximum intragravel and surface water temperatures (C) recorded at Mainstem Susitna River at RM 136.1, GC S31N02W19ADB. 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
22	840225	0.0	-----	.1	6	2	-.1	-----	0.0	6	2
23	840304	0.0	.1	.1	28	7	-.1	-.1	0.0	28	7
24	840311	0.0	.1	.2	28	7	-----	-----	-----	0	0

----- Data not available.

Appendix Table A-51. Weekly minimum, mean and maximum intragravel and surface water temperatures (C) recorded at Mainstem Susitna River at LRX 57 - Site 1, RM 142.3, GC 832N02W36CRA. 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	7.9	-----	9.0	8	2	7.4	-----	8.8	8	2
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

----- Data not available.

Appendix Table A-52 Weekly minimum, mean and maximum intragravel and surface water temperatures (C) recorded at Mainstem Susitna River at LRX 57 - Site 2, RM 142.3, GC 832N02W36CBA. 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	5.4	-----	7.0	12	3	5.2	-----	6.8	12	3
51	830916	4.2	5.2	6.1	28	7	3.8	4.9	6.1	28	7
52	830923	.1	1.3	6.0	32	8	-.1	1.1	5.9	32	8
1	831001	.1	1.3	2.7	28	7	-.1	1.4	2.8	28	7
2	831008	-.2	.5	1.5	28	7	-.1	.3	1.2	28	7
3	831015	-.2	.0	.4	28	7	-.1	.0	.2	28	7
4	831022	-.7	.1	.6	28	7	0.0	-----	.4	9	3
5	831029	-.5	.1	1.0	27	7	-.1	-----	.1	9	3
6	831105	-.3	-.1	.1	28	7	0.0	.0	.2	28	7
7	831112	0.0	.2	.5	28	7	0.0	.1	.6	28	7
8	831119	.1	.2	.4	28	7	0.0	.1	.4	28	7
9	831126	.2	.3	.4	28	7	0.0	0.0	.1	28	7
10	831203	.3	.3	.4	28	7	0.0	0.0	.1	28	7
11	831210	-.2	.2	.4	28	7	0.0	.1	.1	28	7
12	831217	-.2	0.0	.2	28	7	0.0	0.0	.1	28	7
13	831224	.4	0.0	.3	28	7	0.0	0.0	.2	28	7
14	831231	.2	.3	.4	28	7	0.0	0.0	.1	28	7
15	840107	-.4	.3	.3	27	7	0.0	0.0	.1	27	7
16	840114	-.4	.2	.3	28	7	0.0	0.0	.1	28	7
17	840121	-.4	.3	.4	27	7	0.0	0.0	.1	27	7
18	840128	-.3	.3	.4	28	7	0.0	0.0	.1	28	7
19	840204	-.3	.3	.3	28	7	0.0	0.0	.1	28	7
20	840211	-.3	.2	.3	28	7	0.0	0.0	.1	28	7
21	840218	-.4	.1	.2	28	7	-.1	0.0	.1	28	7
22	840225	-.4	.1	.2	27	7	0.0	0.0	.1	27	7
23	840304	-.1	.1	.2	28	7	0.0	0.0	.1	28	7
24	840311	-.1	.1	.1	28	7	0.0	0.0	.1	28	7
25	840318	-.2	0.0	.1	28	7	0.0	0.0	.1	28	7
26	840325	-.1	0.0	.1	28	7	0.0	0.0	.1	28	7
27	840401	-.3	0.0	.1	28	7	-.1	0.0	.1	28	7
28	840408	-.2	0.0	.1	28	7	0.0	0.0	.1	28	7
29	840415	-.2	0.0	.1	28	7	-.1	0.0	.1	28	7
30	840422	-.2	.1	.3	28	7	0.0	0.0	.1	28	7
31	840429	0.0	.4	.6	28	7	-.1	0.0	.1	28	7
32	840506	.1	.6	1.0	28	7	-.1	0.0	.5	28	7
33	840513	.2	1.6	3.1	28	7	-.1	1.2	2.8	28	7
34	840520	1.3	-----	5.9	14	4	.9	-----	6.3	11	3

----- Data not available.

A-312

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Appendix Table A-53 Weekly minimum, mean and maximum intragravel and surface water temperatures (C) recorded at Side Channel 10 - Site 1, BM 134.0, GC 831N03W31BBB. Values were obtained from temperatures measured at six-hour intervals by a datapod temperature recorder.

Water Year Week	Starting Calendar Date	Intragravel Weekly Values				No. of days in record	Surface Water Weekly Values				
		Min (C)	Mean (C)	Max (C)	n		Min (C)	Mean (C)	Max (C)	n	No. of days in record
47	830819	4.7	4.8	5.0	8	2	8.0	8.6	9.3	8	2
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	5.2	8.2	12.8	28	7
50	830909	4.2	4.4	4.7	27	7	6.4	8.3	13.2	27	7
51	830916	4.1	4.4	4.7	28	7	4.7	7.3	11.5	28	7
52	830923	4.0	4.2	4.6	32	8	3.1	5.1	8.7	32	8
1	831001	3.9	4.2	4.4	28	7	3.2	5.6	8.8	28	7
2	831008	3.7	4.0	4.2	28	7	1.9	4.1	6.5	28	7
3	831015	3.6	3.8	4.0	28	7	.8	3.8	7.9	27	7
4	831022	3.1	3.4	3.7	28	7	.2	.9	3.6	28	7
5	831029	2.8	3.0	3.2	28	7	.3	.8	1.9	28	7
6	831105	2.7	2.8	2.8	4	1	.4	.7	1.0	4	1
7	831112	-.1	.2	.4	5	2	----	----	----	0	0
8	831119	*****	*****	*****	0	0	----	----	----	0	0
9	831126	*****	-----	*****	0	0	----	----	----	0	0

----- Data not available.

***** Data available; site frozen.

A-313

Appendix Table A-54 Weekly minimum, mean and maximum intragravel and surface water temperatures (C) recorded at Side Channel 10 - Site 1 when the site was frozen, RM 134.0, GC 831N03W31BBB. Values were obtained from temperatures measured at six-hour intervals by a datapod temperature recorder.

Water Year Week	Starting Calendar Date	Intragravel Weekly Values (Site frozen)					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
7	831112	-.2	----	0.0	4	1	----	----	----	0	0
8	831119	-3.0	-.9	-.1	28	7	----	----	----	0	0
9	831126	-3.0	----	-1.3	18	5	----	----	----	0	0

---- Data not available.

A-314

Appendix Table A-55 Weekly minimum, mean and maximum intragravel and surface water temperatures (C) recorded at Side Channel 10 - Site 2, RM 134.0, GC 831N03W31BBB. Values were obtained from temperatures measured at six-hour intervals by a dataspod 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
7	831112	-----	-----	-----	0	0	1.1	-----	1.7	9	3
8	831119	-----	-----	-----	0	0	1.3	1.7	2.1	28	7
9	831126	3.4	-----	3.5	9	3	1.7	2.1	2.3	27	7
10	831203	3.2	3.4	3.5	28	7	1.3	1.9	2.2	28	7
11	831210	2.6	3.1	3.3	28	7	.1	1.1	1.5	22	6
12	831217	2.5	2.8	3.1	28	7	0.0	1.4	1.9	21	6
13	831224	2.4	2.9	3.1	28	7	1.2	1.8	1.9	28	7
14	831231	1.8	2.0	2.4	28	7	1.0	1.4	1.7	28	7
15	840107	2.2	2.6	2.8	27	7	1.3	1.5	1.7	27	7
16	840114	2.2	2.4	2.5	28	7	.7	1.2	1.4	28	7
17	840121	2.1	2.2	2.3	28	7	.7	.9	1.0	28	7
18	840128	2.1	2.2	2.3	28	7	.6	.9	1.1	28	7
19	840204	2.2	2.8	3.2	28	7	.7	1.3	1.5	28	7
20	840211	3.2	3.4	3.5	28	7	.7	1.2	1.6	28	7
21	840218	3.4	3.5	3.5	28	7	.7	1.1	1.8	28	7
22	840225	3.4	3.5	3.5	28	7	.4	1.1	2.6	28	7
23	840304	3.4	3.5	3.5	28	7	.8	2.0	4.1	28	7
24	840311	3.3	3.4	3.5	28	7	.7	2.0	5.3	28	7
25	840318	3.2	3.4	3.5	27	7	.7	1.8	4.7	27	7
26	840325	3.2	3.3	3.5	28	7	1.2	3.0	7.4	28	7
27	840401	3.1	3.3	3.4	28	7	.9	3.2	8.3	28	7
28	840408	3.1	3.2	3.4	28	7	.9	3.7	8.4	28	7
29	840415	3.0	3.2	3.5	28	7	1.0	4.3	12.1	28	7
30	840422	3.0	3.3	3.6	28	7	.7	5.4	12.4	28	7
31	840429	3.0	3.2	3.5	28	7	1.8	5.9	13.1	28	7
32	840506	2.9	3.0	3.3	28	7	1.7	6.7	14.2	28	7
33	840513	2.9	3.1	3.4	28	7	2.1	6.7	14.7	28	7
34	840520	2.9	3.4	3.6	27	7	2.0	5.5	6.9	27	7
35	840527	3.1	3.2	3.4	28	7	3.8	5.5	12.4	28	7
36	840603	3.0	-----	3.3	10	3	4.8	-----	12.5	10	3

----- Data not available.

A-315

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Appendix Table *A-56* Weekly minimum, mean and maximum intragravel and surface water temperatures (C) recorded at Side Channel 10 - Site 2 when the site was frozen, RM 134.0, GC 831N03W31BBB. Values were obtained from temperatures measured at six-hour intervals by a datapod temperature recorder.

Water Year Week	Starting Calendar Date	Intragravel Weekly Values (Site frozen)					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
11	831210	++++	++++	++++	0	0	-1.2	----	.1	6	2
12	831217	++++	++++	++++	0	0	-1.1	----	0.0	7	2

----- Data not available.

+++++ Data available; site not frozen.

A-316

Appendix Table A-57 Weekly minimum, mean and maximum intragravel and surface water temperatures (C) recorded 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
47	830819	5.7	-----	6.0	8	2	7.2	-----	8.6	8	2
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

----- Data not available.

A-317

Appendix Table A-58 Weekly minimum, mean and maximum intragravel and surface water temperatures (C) recorded at Upper Side Channel 11 - Site 2, RM 136.3, GC 831N02W20BBD. 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	3.1	3.6	4.1	28	7	.8	1.8	3.5	28	7
6	831105	3.1	3.6	3.9	28	7	.8	1.4	2.2	28	7
7	831112	3.4	3.9	4.3	28	7	1.0	1.6	2.2	28	7
8	831119	3.6	4.3	4.6	28	7	1.2	2.0	2.6	28	7
9	831126	3.9	4.6	4.8	28	7	1.6	2.4	3.0	28	7
10	831203	3.6	4.3	4.6	28	7	1.7	2.4	3.1	28	7
11	831210	3.4	4.1	4.3	28	7	0.0	1.7	2.4	28	7
12	831217	3.5	4.1	4.3	27	7	.4	2.0	2.3	27	7
13	831224	3.1	3.9	4.1	28	7	-.8	1.3	1.9	22	7
14	831231	3.2	4.4	4.8	28	7	-.4	1.8	3.2	28	7
15	840107	2.7	3.7	4.4	28	7	.7	1.6	2.5	28	7
16	840114	2.1	2.9	3.5	28	7	-.2	.8	1.8	28	7
17	840121	1.9	2.7	2.9	28	7	-.3	.5	1.1	28	7
18	840128	2.2	2.9	3.2	28	7	-.1	1.1	1.9	28	7
19	840204	2.0	2.9	3.2	28	7	-.1	.9	1.8	28	7
20	840211	2.2	3.2	3.8	28	7	.3	1.5	3.2	28	7
21	840218	2.4	3.3	3.8	28	7	.2	1.5	3.1	28	7
22	840225	2.4	3.4	4.1	27	7	.3	1.7	4.1	27	7
23	840304	3.4	4.3	5.1	28	7	1.5	3.6	6.4	28	7
24	840311	3.5	4.3	5.2	28	7	1.1	3.3	7.0	28	7
25	840318	3.4	4.1	4.8	28	7	1.0	2.6	5.6	28	7
26	840325	3.6	4.7	5.7	28	7	1.4	3.9	8.2	28	7
27	840401	3.7	4.9	5.9	28	7	1.3	4.3	8.7	28	7
28	840408	3.5	4.8	8.9	28	7	1.4	4.7	10.9	28	7
29	840415	3.7	4.8	6.5	28	7	1.5	5.0	11.0	28	7
30	840422	4.0	5.3	6.6	28	7	1.6	5.8	11.3	28	7
31	840429	4.9	5.9	6.9	28	7	3.5	7.3	12.6	28	7
32	840506	4.7	6.2	7.7	28	7	2.9	7.9	14.3	28	7
33	840513	4.1	5.6	7.6	28	7	2.1	5.9	13.3	28	7
34	840520	4.0	5.6	6.4	27	7	2.1	5.8	7.2	27	7
35	840527	4.5	6.3	8.2	28	7	3.4	7.4	13.7	28	7
36	840603	5.1	-----	8.5	11	3	4.2	-----	14.1	11	3

----- Data not available.

A-318

Appendix Table A-59 Weekly minimum, mean and maximum intragravel and surface water temperatures (C) recorded at Upper Side Channel 11 - Site 3, RM 136.3, GC 831N02W20BBD. 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
15	840107	3.2	---	3.3	9	3	1.0	---	2.0	9	3
16	840114	3.0	3.1	3.3	28	7	.3	.8	1.8	28	7
17	840121	2.9	3.0	3.2	28	7	0.0	.4	.9	28	7
18	840128	3.0	3.1	3.3	28	7	.1	.9	1.7	28	7
19	840204	3.0	3.1	3.3	28	7	.1	.6	1.5	28	7
20	840211	3.0	3.2	3.4	28	7	.4	1.1	2.8	28	7
21	840218	3.0	3.2	3.4	28	7	.2	1.0	2.5	28	7
22	840225	3.0	3.2	3.5	28	7	.1	1.0	3.4	28	7
23	840304	3.2	3.6	3.9	28	7	.9	2.9	5.7	28	7
24	840311	3.3	3.6	3.9	28	7	.2	2.3	6.2	28	7
25	840318	3.3	3.5	3.7	27	7	0.0	---	4.7	19	5
26	840325	3.4	3.8	4.3	28	7	.2	2.8	7.3	28	7
27	840401	3.6	4.0	4.5	28	7	.1	3.2	7.8	28	7
28	840408	3.8	4.3	4.9	28	7	.3	3.5	8.9	28	7
29	840415	4.2	4.7	5.5	28	7	.3	4.0	10.9	28	7
30	840422	4.5	5.1	5.8	28	7	.3	4.9	11.4	28	7
31	840429	5.0	5.5	6.1	28	7	2.3	7.0	13.1	28	7
32	840506	5.0	5.7	6.3	28	7	1.9	7.4	14.4	28	7
33	840513	4.7	5.4	6.2	28	7	1.4	5.4	13.4	28	7
34	840520	4.7	5.5	5.9	27	7	1.6	5.5	7.0	27	7
35	840527	5.3	5.8	6.5	28	7	3.2	7.2	14.3	28	7
36	840603	5.6	---	6.6	11	3	3.9	---	14.6	11	3

----- Data not available.

A-319

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Appendix Table A-60 Weekly minimum, mean and maximum intragravel and surface water temperatures (C) recorded at Side Channel 21 - Site 1, RM 141.0, GC 831N02W02CAA. 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	15	4	-----	-----	-----	0	0

----- Data not available.

A-320

Appendix Table A-61 Weekly minimum, mean and maximum intragravel and surface water temperatures (C) recorded at Side Channel 21 - Site 2, RM 141.0, GC 831N02W02CAA. 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	2.2	3.4	27	7	1.6	2.1	3.1	27	7
6	831105	2.7	2.9	3.3	28	7	2.0	2.5	2.8	28	7
7	831112	2.2	2.7	3.2	28	7	1.3	2.1	2.7	28	7
8	831119	2.3	2.7	3.1	28	7	1.4	2.1	2.7	28	7
9	831126	2.5	2.8	3.0	28	7	1.8	2.2	2.6	28	7
10	831203	2.2	2.7	3.1	28	7	1.3	2.1	2.7	28	7
11	831210	2.0	2.3	2.6	28	7	1.3	1.6	2.0	28	7
12	831217	2.0	2.4	2.8	28	7	1.3	1.8	2.4	28	7
13	831224	2.0	2.2	2.5	28	7	1.3	1.6	2.0	28	7
14	831231	2.0	2.4	2.8	28	7	1.4	1.9	2.4	28	7
15	840107	1.9	---	2.6	14	4	1.2	1.6	2.1	27	7
16	840114	---	---	---	0	0	1.4	1.5	1.6	28	7
17	840121	---	---	---	0	0	.8	1.2	1.5	28	7
18	840128	---	---	---	0	0	.7	1.3	1.6	28	7
19	840204	---	---	---	0	0	1.5	1.6	1.7	28	7
20	840211	---	---	---	0	0	1.5	1.6	1.7	28	7
21	840218	---	---	---	0	0	1.5	1.6	1.6	28	7
22	840225	---	---	---	0	0	1.5	1.6	1.6	28	7
23	840304	---	---	---	0	0	1.5	1.6	2.3	28	7
24	840311	---	---	---	0	0	1.4	1.8	2.4	28	7
25	840318	---	---	---	0	0	1.5	1.5	1.7	27	7
26	840325	---	---	---	0	0	1.5	1.5	1.7	28	7
27	840401	---	---	---	0	0	1.5	1.7	2.3	28	7
28	840408	---	---	---	0	0	1.5	1.7	2.1	28	7
29	840415	---	---	---	0	0	1.5	1.7	4.2	28	7
30	840422	---	---	---	0	0	1.7	2.5	5.7	28	7
31	840429	---	---	---	0	0	3.0	6.1	11.2	28	7
32	840506	---	---	---	0	0	3.2	7.7	12.7	28	7
33	840513	---	---	---	0	0	2.1	5.3	13.1	28	7
34	840520	---	---	---	0	0	3.0	---	8.2	10	3

----- Data not available.

Appendix Table A-62 Weekly minimum, mean and maximum intragravel and surface water temperatures (C) recorded at Side Channel 21 - Site 3, RM 141.0, GC 831N02W02CAA. 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
9	831126	.1	-----	.2	9	3	-.1	-----	0.0	9	3
10	831203	.1	.2	.2	28	7	-.2	-.0	0.0	24	6
11	831210	0.0	-----	.2	17	5	*****	*****	*****	0	0
12	831217	-.1	0.0	0.0	9	3	-.1	-----	0.0	9	3
13	831224	-.1	-----	0.0	19	5	-.2	-----	0.0	18	5
15	840107	-.1	-----	0.0	13	4	.1	-----	.3	13	4
16	840114	-.2	-.0	0.0	28	7	.2	.4	.5	28	7
17	840121	-.2	-----	0.0	4	1	0.0	-----	.3	4	1
18	840128	*****	*****	*****	0	0	.2	-----	.6	8	2
19	840204	*****	*****	*****	0	0	.6	.9	1.1	28	7
20	840211	*****	*****	*****	0	0	1.0	1.3	1.5	28	7
21	840218	*****	*****	*****	0	0	1.4	1.5	1.6	28	7
22	840225	*****	*****	*****	0	0	1.6	1.7	1.8	28	7
23	840304	*****	*****	*****	0	0	1.7	1.9	2.4	28	7
24	840311	*****	*****	*****	0	0	2.0	2.3	2.7	28	7
25	840318	*****	*****	*****	0	0	2.1	2.3	3.0	27	7
26	840325	*****	*****	*****	0	0	2.3	2.6	3.1	28	7
27	840401	*****	*****	*****	0	0	2.6	2.8	3.4	28	7
28	840408	*****	*****	*****	0	0	2.7	2.9	3.4	28	7
29	840415	*****	*****	*****	0	0	2.9	3.1	3.8	28	7
30	840422	.1	-----	.2	1	1	3.1	3.7	6.9	28	7
31	840429	.1	2.8	5.8	28	7	4.4	7.8	11.8	28	7
32	840506	4.0	5.9	7.2	28	7	6.3	9.3	12.8	28	7
33	840513	.3	2.1	5.0	28	7	4.0	6.5	12.2	28	7
34	840520	.6	-----	.8	10	3	4.4	-----	6.1	10	3

----- Data not available.

***** Data available; site frozen.

A-322

Appendix Table A-63 Weekly minimum, mean and maximum intragravel and surface water temperatures (C) recorded at Side Channel 21 - Site 3 when the site was frozen, RM 141.0, GC 831N02W02CAA. Values were obtained from temperatures measured at six-hour intervals by a datapod temperatures recorder.

Water Year Week	Starting Calendar Date	Intragravel Weekly Values (Site frozen)					Surface Water Weekly Values (Site frozen)				
		Min (C)	Mean (C)	Max (C)	n	No. of Days in record	Min (C)	Mean (C)	Max (C)	n	No. of Days in record
10	831203	++++	++++	++++	4	1	-.4	-----	-.1	8	2
11	831210	++++	-----	++++	0	0	-.5	-.4	-.4	17	5
17	840121	-1.3	-.7	-.1	24	6	-1.8	-1.0	.1	24	6
18	840128	-1.5	-.9	-.3	28	7	-1.9	-1.1	.2	20	5
19	840204	-.3	-.2	-.1	28	7	++++	-----	++++	0	0
20	840211	-.2	-.1	0.0	28	7	++++	-----	++++	0	0
21	840218	-.2	-.1	0.0	28	7	++++	++++	++++	0	0
22	840225	-.2	-.1	0.0	28	7	++++	++++	++++	0	0
23	840304	-.1	-.1	0.0	28	7	++++	++++	++++	0	0
24	840311	-.1	-.0	0.0	28	7	++++	++++	++++	0	0
25	840318	-.1	-.0	0.0	28	7	++++	++++	++++	0	0
26	840325	-.1	0.0	0.0	28	7	++++	++++	++++	0	0
27	840401	-.1	0.0	0.0	28	7	++++	++++	++++	0	0
28	840408	-.1	0.0	.1	28	7	++++	++++	++++	0	0
29	840415	-.1	-.0	.1	28	7	++++	++++	++++	0	0
30	840422	-.1	0.0	.1	27	7	++++	++++	++++	0	0

----- Data not available.

++++ Data available; site not frozen.

DRAFT

Appendix Table A-64. Weekly minimum, mean and maximum intragravel and surface water temperatures (C) recorded at Lower Slough 8A - Site 2, RM 125.6, GC S30N03W30BCD. 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	4.5	-----	4.6	6	2	6.2	-----	9.6	6	2

----- Data not available.

A-324

Appendix Table A-65 Weekly minimum, mean and maximum intragravel and surface water temperatures (C) recorded at Lower Slough 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	.2	.5	.9	26	7	.3	.6	1.3	26	7
7	831112	.2	-----	.9	13	4	.2	-----	.6	5	2
8	831119	.2	-----	.9	12	3	-.1	-----	.6	8	2
9	831126	.8	2.0	2.2	23	7	.4	.5	.7	21	6
10	831203	1.9	2.1	2.2	27	7	.3	.6	.8	26	7
11	831210	2.1	2.1	2.2	28	7	.5	.6	.8	28	7
12	831217	.3	1.1	2.2	22	7	.3	.5	.7	22	7
13	831224	.3	.6	.8	27	7	.5	.5	.6	27	7
14	831231	.3	.5	1.1	28	7	.5	.5	.6	28	7
15	840107	.5	.6	.7	26	7	.5	.6	.9	26	7
16	840114	.4	.6	.8	28	7	.5	.7	.9	28	7
17	840121	.3	-----	.5	20	6	.5	-----	.6	20	6
18	840128	.3	.4	.5	28	7	.5	.5	.6	28	7
19	840204	.3	.4	.5	28	7	.4	.5	.6	28	7
20	840211	.3	.4	.5	28	7	.5	.5	.6	28	7
21	840218	.3	.4	.5	28	7	.4	.5	.6	28	7
22	840225	.3	.3	.4	28	7	.4	.5	.6	28	7
23	840304	.3	.6	1.2	28	7	.5	.8	1.6	28	7
24	840311	.6	1.1	1.6	28	7	.7	1.3	2.1	28	7
25	840318	.5	1.0	1.6	26	7	.5	1.2	2.3	26	7
26	840325	.8	1.5	2.4	28	7	.8	1.8	3.3	28	7
27	840401	.6	1.9	3.4	28	7	.5	2.2	4.7	28	7
28	840408	1.2	2.5	4.4	28	7	.4	2.9	5.9	28	7
29	840415	1.6	3.4	7.0	28	7	1.3	3.8	9.1	28	7
30	840422	1.9	4.5	7.0	28	7	.7	4.8	8.8	28	7
31	840429	4.1	6.3	7.8	28	7	3.7	6.8	10.1	28	7
32	840506	5.7	7.1	8.4	28	7	4.5	7.8	10.6	28	7
33	840513	3.2	5.6	6.9	28	7	4.0	7.8	11.2	28	7
34	840520	3.0	-----	3.3	11	3	3.5	-----	8.5	11	3

----- Data not available.

A-325

Appendix Table A-66 Weekly minimum, mean and maximum intragravel and surface water temperatures (C) recorded at Upper Slough 8A - Site 2, RM 126.6, GC 830N03W20CCA. 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	3.5	-----	3.7	6	2	3.6	-----	6.0	6	2
4	831022	2.7	-----	3.0	5	2	.7	-----	1.6	5	2
5	831029	.8	1.7	2.7	28	7	-.1	.4	1.2	24	6
6	831105	-.1	.3	.8	28	7	-----	-----	-----	0	0

----- Data not available.

A-326

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Appendix Table A-67 Weekly minimum, mean and maximum intragravel and surface water temperatures (C) recorded at Upper Slough 8A - Site 2 when the site was frozen, BM 126.6, GC 830N03W20CCA. Values were obtained from temperatures measured at six-hour intervals by a datapod temperature recorder.

Water Year Week	Starting Calendar Date	Intragravel Weekly Values (Site frozen)					Surface Water Weekly Values (Site frozen)				
		Min (C)	Mean (C)	Max (C)	n	No. of Days in Record	Min (C)	Mean (C)	Max (C)	n	No. of Days in record
5	831029	++++	++++	++++	0	0	-.8	----	-.1	4	1
6	831105	++++	++++	++++	0	0	-4.4	-2.3	-.3	28	7
7	831112	-2.8	-1.5	-.1	28	7	-4.9	-4.2	-1.9	28	7
8	831119	-3.2	-1.5	-.5	28	7	-4.9	-3.1	-1.0	28	7
9	831126	-1.7	-1.0	-.7	28	7	-3.8	-2.2	-1.2	28	7
10	831203	-1.1	-.7	-.4	28	7	-2.6	-1.3	-.5	28	7
11	831210	-1.2	-.9	-.6	28	7	-2.4	-1.7	-1.3	28	7
12	831217	-1.2	-----	-.1	18	5	-2.1	-----	0.0	18	5

----- Data not available.

++++ Data available; site not frozen.

A-327

Appendix Table A-68 Weekly minimum, mean and maximum intragravel and surface water temperatures (C) recorded at Upper Slough 8A - Site 3, RM 126.6, GC 830N03W20CCA. 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
12	831217	2.8	-----	3.1	9	3	1.8	-----	2.9	9	3
13	831224	1.5	2.2	2.8	28	7	1.2	2.1	2.6	28	7
14	831231	2.4	2.7	2.8	28	7	2.4	3.1	3.6	28	7
15	840107	2.7	2.8	2.9	28	7	1.5	2.3	3.6	28	7
16	840114	2.6	2.8	2.9	28	7	1.6	2.2	2.5	28	7
17	840121	2.7	2.8	2.9	28	7	1.3	2.0	2.5	28	7
18	840128	2.8	2.9	3.1	28	7	1.7	2.3	2.7	28	7
19	840204	2.9	3.0	3.1	28	7	1.2	2.1	4.0	28	7
20	840211	2.7	2.8	3.0	28	7	1.6	2.1	2.6	28	7
21	840218	2.7	2.8	2.9	28	7	1.4	1.9	2.6	28	7
22	840225	2.7	2.8	2.9	27	7	1.5	2.0	2.8	26	7
23	840304	2.7	2.8	2.9	28	7	1.8	-----	3.1	17	7
24	840311	2.8	2.8	6.3	28	7	1.4	-----	2.2	4	2
25	840318	2.8	2.9	3.3	28	7	1.5	-----	2.1	4	2
26	840325	2.8	3.1	4.8	28	7	1.8	-----	3.2	17	7
27	840401	2.8	3.0	4.1	28	7	2.0	-----	2.7	14	7
28	840408	2.8	2.9	3.0	28	7	2.1	-----	2.9	14	7
29	840415	2.8	2.9	3.1	28	7	2.6	-----	3.1	16	7
30	840422	2.9	3.0	3.1	28	7	2.7	-----	2.9	13	7
31	840429	2.7	2.9	3.2	28	7	2.3	-----	2.9	13	7
32	840506	2.6	2.7	2.8	28	7	1.9	-----	2.8	9	7
33	840513	2.1	2.7	3.3	28	7	2.0	-----	2.8	3	3
34	840520	1.7	-----	3.5	10	3	-----	-----	-----	0	0

----- Data not available.

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3727

Appendix Table A-69 Weekly minimum, mean, and maximum surface water temperatures (C) recorded at Slough 9 Incubation Site, RM 128.5, GC S30N03W09DCB. 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

----- Data not available.

Appendix Table A-70 Weekly minimum, mean and maximum intragravel and surface water temperatures (C) recorded at Slough 9 - Site 3, RM 128.6, GC 830N03W16BDC. 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	3.5	-----	3.6	7	2	7.9	-----	10.9	7	2
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	2.1	3.6	28	7
3	831015	3.4	3.5	3.5	28	7	1.1	3.3	3.6	28	7
4	831022	3.4	3.4	3.5	28	7	.4	1.5	3.4	28	7
5	831029	3.4	3.4	3.5	28	7	.5	1.5	3.1	28	7
6	831105	3.3	3.4	3.5	28	7	.3	.0	1.8	28	7
7	831112	3.1	3.2	3.4	27	7	.3	.7	1.9	27	7
8	831119	3.1	3.2	3.3	28	7	.4	.8	1.7	28	7
9	831126	3.2	3.3	3.4	28	7	.6	1.1	1.7	28	7
10	831203	3.2	3.3	3.4	28	7	.4	1.1	1.9	28	7
11	831210	3.0	3.2	3.3	28	7	.6	.7	.8	28	7
12	831217	3.0	3.1	3.2	28	7	.6	.7	1.0	28	7
13	831224	3.2	3.3	3.5	28	7	.6	.7	1.0	28	7
14	831231	3.4	3.5	3.5	28	7	.7	1.3	2.1	28	7
15	840107	3.4	-----	3.5	14	4	.7	-----	1.6	14	4
25	840318	3.3	-----	3.4	8	2	.5	-----	4.7	8	2
26	840325	3.3	3.4	3.5	28	7	.7	3.1	6.6	28	7
27	840401	3.3	3.4	3.4	28	7	.7	3.3	7.7	28	7
28	840408	3.3	3.4	3.4	28	7	.6	4.0	8.8	28	7
29	840415	3.3	3.4	3.4	28	7	.7	4.1	10.4	28	7
30	840422	3.3	3.4	3.4	28	7	.7	4.8	9.7	28	7
31	840429	3.3	3.4	3.4	28	7	2.2	5.5	10.8	28	7
32	840506	3.3	3.4	3.4	28	7	1.4	5.0	10.7	28	7
33	840513	3.3	3.4	3.5	28	7	2.1	5.6	11.3	28	7
34	840520	3.3	3.4	3.5	26	7	2.1	6.0	8.9	26	7
35	840527	3.3	3.4	3.5	28	7	2.8	6.5	11.4	28	7
36	840603	3.3	-----	3.5	18	5	4.5	-----	14.9	18	5

----- Data not available.

A-330

Appendix Table A-71 Weekly minimum, mean and maximum intragravel and surface water temperatures (C) recorded at Slough 10 Northeast, BM 134.0, GC 831N03W36AAA. Values were obtained from temperatures measured at six-hour intervals by a datapod temperature recorder.

Water Year Week	Starting Calendar Date	Intragravel Weekly Values				No. of days in record	Surface Water Weekly Values				No. of days in record
		Min (C)	Mean (C)	Max (C)	n		Min (C)	Mean (C)	Max (C)	n	
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	3.1	3.3	3.5	28	7	1.1	2.2	3.3	28	7
6	831105	2.8	3.0	3.3	28	7	.6	1.5	2.2	28	7
7	831112	2.5	2.7	2.9	27	7	.6	1.1	2.2	27	7
8	831119	2.4	2.6	2.7	28	7	.5	1.2	2.0	28	7
9	831126	2.5	2.7	2.8	28	7	.9	1.6	2.1	28	7
10	831203	2.5	2.7	2.8	28	7	.6	1.4	2.3	28	7
11	831210	2.4	2.5	2.6	28	7	.3	.9	1.5	28	7
12	831217	2.4	2.6	2.7	28	7	.6	1.2	2.0	28	7
13	831224	2.5	2.6	2.7	28	7	.6	.9	1.4	28	7
14	831231	2.7	2.8	2.9	28	7	.6	1.6	2.2	28	7
15	840107	2.7	2.9	3.1	27	7	.8	1.8	2.5	27	7
16	840114	2.9	3.0	3.1	28	7	.7	1.6	2.5	28	7
17	840121	2.9	3.0	3.2	28	7	.6	1.0	1.6	28	7
18	840128	3.1	3.2	3.4	28	7	.8	1.9	2.7	28	7
19	840204	3.1	3.3	3.4	28	7	.9	1.8	2.4	28	7
20	840211	3.2	3.3	3.5	28	7	1.6	2.2	3.1	28	7
21	840218	3.2	3.3	3.4	28	7	1.6	2.2	2.9	28	7
22	840225	3.1	3.3	3.4	28	7	1.3	2.2	3.1	28	7
23	840304	3.2	3.3	3.4	28	7	2.1	2.8	3.9	28	7
24	840311	3.0	3.2	3.3	28	7	1.4	2.4	4.0	28	7
25	840318	2.8	3.0	3.2	27	7	.9	1.9	3.8	27	7
26	840325	2.9	3.0	3.2	28	7	1.3	2.7	4.9	28	7
27	840401	2.7	3.0	3.2	28	7	.7	2.7	5.1	28	7
28	840408	2.7	3.0	3.2	28	7	.9	2.8	5.8	28	7
29	840415	2.5	3.0	3.5	28	7	.5	3.1	8.6	28	7
30	840422	2.5	3.1	3.6	28	7	.6	3.7	8.2	28	7
31	840429	3.1	3.5	3.8	28	7	1.7	4.3	8.6	28	7
32	840506	3.2	3.5	3.9	28	7	1.5	3.8	8.3	28	7
33	840513	3.2	3.6	4.2	28	7	1.9	3.8	8.0	28	7
34	840520	3.6	---	4.2	10	3	2.4	---	6.5	10	3

----- Data not available.

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01111

Appendix Table A-7a Weekly minimum, mean and maximum intragravel and surface water temperatures (C) recorded 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 Calender 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	-----	-----	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	3.6	3.7	28	7	1.8	2.3	2.8	28	7
6	831105	3.5	3.6	3.7	28	7	1.7	2.1	2.6	28	7
7	831112	3.5	3.6	3.7	27	7	1.6	1.9	2.5	27	7
8	831119	3.5	3.6	3.8	28	7	1.6	1.9	2.4	28	7
9	831126	3.6	3.7	3.8	28	7	1.8	2.1	2.4	28	7
10	831203	3.6	3.7	3.8	27	7	1.5	1.9	2.4	27	7
11	831210	3.6	3.7	3.8	28	7	1.4	1.6	1.8	28	7
12	831217	3.7	3.8	3.9	28	7	1.5	1.8	2.2	28	7
13	831224	3.8	3.9	4.0	28	7	1.4	1.6	1.9	28	7
14	831231	3.9	4.0	4.2	28	7	1.4	1.8	2.2	28	7
15	840107	4.0	4.2	4.4	27	7	1.5	1.9	2.4	27	7
16	840114	4.2	4.3	4.5	28	7	1.4	1.8	2.4	28	7
17	840121	4.2	-----	4.5	17	5	1.2	-----	1.7	17	5
18	840128	4.1	4.5	4.7	28	7	1.2	1.6	2.0	28	7
19	840204	.6	4.6	4.8	22	6	1.1	-----	2.0	19	5
22	840225	5.3	-----	5.6	5	2	1.8	-----	2.7	5	2
23	840304	5.4	5.6	5.9	28	7	1.9	2.6	3.7	28	7
24	840311	5.5	5.7	5.9	28	7	1.3	2.5	3.9	28	7
25	840318	5.6	5.8	5.9	28	7	1.6	2.3	3.8	28	7
26	840325	5.5	5.7	6.1	28	7	1.8	2.7	4.5	28	7
27	840401	5.5	5.7	5.9	28	7	1.7	2.8	5.0	28	7
28	840408	5.6	5.8	6.1	28	7	1.6	3.1	5.6	28	7
29	840415	5.7	6.0	6.4	28	7	1.8	3.3	7.6	28	7
30	840422	5.8	6.2	6.5	28	7	1.8	3.7	6.5	28	7
31	840429	5.9	6.2	6.6	28	7	1.7	3.9	7.6	28	7
32	840506	5.9	6.2	6.4	28	7	1.7	3.8	7.5	28	7
33	840513	5.9	6.2	6.8	28	7	2.2	4.4	7.8	28	7
34	840520	6.4	-----	6.8	10	3	3.4	-----	6.9	10	3

----- Data not available.

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Appendix Table A-73

Weekly minimum, mean, and maximum intra-gravel water temperatures (C) recorded at Slough 11 - Incubation Site, RM 135.5, GC S31N02W19DDD. 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		
13	831224	0.0	-----	.5	7	1
14	831231	.5	.5	1.0	84	7
15	840107	.5	.5	.5	84	7
16	840114	.5	.5	.5	84	7
17	840121	.5	.5	.5	84	7
18	840128	.5	.5	.5	84	7
19	840204	.5	.5	.5	84	7
20	840211	.5	.5	1.0	84	7
21	840218	.5	.5	1.0	84	7
22	840225	.5	-----	.5	10	1

----- Data not available.

Appendix Table A-74 Weekly minimum, mean and maximum intragravel and surface water temperatures (C) recorded at Slough 11 - Site 2, RM 135.7, GC S30N03W19DAD. 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	3.5	-----	3.6	8	2	4.3	-----	7.5	8	2
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	3.2	3.3	28	7	1.8	2.2	3.1	28	7
6	831105	3.1	3.2	3.3	28	7	1.6	2.0	3.0	28	7
7	831112	3.1	3.1	3.2	27	7	1.3	1.6	2.2	27	7
8	831119	3.0	3.1	3.2	28	7	1.1	1.6	2.0	28	7
9	831126	3.1	3.2	3.2	28	7	1.3	1.8	2.1	28	7
10	831203	3.1	3.2	3.3	28	7	1.6	1.9	2.4	28	7
11	831210	3.0	3.1	3.2	28	7	1.1	1.4	1.7	28	7
12	831217	3.0	3.1	3.2	28	7	1.3	1.5	2.0	28	7
13	831224	3.0	3.1	3.2	28	7	1.1	1.3	1.6	28	7
14	831231	3.1	3.2	3.3	28	7	1.1	1.5	1.9	28	7
15	840107	3.1	3.2	3.3	27	7	1.1	1.6	2.1	27	7
16	840114	3.0	3.1	3.3	28	7	1.2	1.6	2.1	28	7
17	840121	3.0	3.1	3.2	22	7	1.0	1.2	1.7	22	7
18	840128	3.0	3.1	3.2	28	7	.9	1.4	1.7	28	7
19	840204	3.0	3.1	3.2	28	7	1.0	1.2	1.4	28	7
20	840211	3.1	3.1	3.2	28	7	1.2	1.4	2.0	28	7
21	840218	3.1	3.1	3.2	28	7	1.3	1.5	1.9	28	7
22	840225	3.0	3.1	3.2	28	7	1.1	1.6	2.3	28	7
23	840304	3.1	3.2	3.3	28	7	1.6	2.3	3.6	28	7
24	840311	3.2	3.4	3.5	28	7	2.2	3.1	4.2	28	7
25	840318	3.3	3.4	3.5	27	7	2.6	3.2	4.5	27	7
26	840325	3.3	3.5	3.5	28	7	2.4	3.2	4.9	28	7
27	840401	3.4	3.5	3.6	28	7	2.4	3.7	5.2	28	7
28	840408	3.5	3.6	3.8	28	7	2.5	4.0	5.6	28	7
29	840415	3.5	3.7	3.8	28	7	2.6	4.2	7.6	28	7
30	840422	3.6	3.8	4.0	28	7	1.8	4.7	7.6	28	7
31	840429	3.8	4.0	4.2	28	7	3.7	5.6	9.2	28	7
32	840506	4.0	4.2	4.4	28	7	4.1	6.7	10.4	28	7
33	840513	4.0	4.1	4.3	28	7	4.5	7.3	10.9	28	7
34	840520	3.9	-----	4.2	10	3	4.5	-----	11.6	10	3

----- Data not available.

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Appendix Table A-75

Weekly minimum, mean and maximum intragravel and surface water temperatures (C) recorded at Lower Slough 21 - Site 2, RM 141.8, GC 831N02W02AAB. Values were obtained from temperatures measured at six-hour intervals by a datapod temperature recorder.

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Water Year	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	3.7	-----	3.9	8	2	4.4	-----	8.3	8	2
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	3.9	4.1	27	7	1.1	2.0	2.9	27	7
6	831105	3.7	3.9	4.1	28	7	.9	1.6	2.3	28	7
7	831112	3.7	3.9	4.1	28	7	.3	1.2	2.1	28	7
8	831119	3.7	3.9	4.3	28	7	.3	1.2	2.3	28	7
9	831126	3.6	3.8	4.0	28	7	.6	1.4	2.0	28	7
10	831203	3.7	3.8	4.1	28	7	.1	1.1	2.2	28	7
11	831210	3.8	4.0	4.2	28	7	.1	.5	1.1	28	7
12	831217	3.7	3.8	4.1	28	7	.1	.9	1.8	28	7
13	831224	3.7	3.9	4.2	28	7	.1	.4	.7	28	7
14	831231	3.6	3.9	4.2	28	7	.1	.8	1.7	28	7
15	840107	3.6	3.8	4.0	27	7	0.0	1.0	2.1	27	7
16	840114	3.6	3.8	4.1	28	7	0.0	.9	2.1	28	7
17	840121	3.7	4.0	4.2	28	7	0.0	.3	.8	28	7
18	840128	3.7	3.9	4.3	28	7	.4	1.2	1.9	27	7
19	840204	3.7	4.0	4.3	28	7	.2	1.0	1.7	28	7
20	840211	3.6	3.9	4.1	28	7	.8	1.3	2.3	28	7
21	840218	3.6	3.9	4.1	28	7	.7	1.4	2.2	28	7
22	840225	3.6	3.9	4.2	28	7	.4	1.4	2.7	28	7
23	840304	3.5	3.7	3.9	28	7	1.3	2.5	4.6	27	7
24	840311	3.5	3.8	4.0	28	7	.5	2.0	4.2	27	7
25	840318	3.5	3.8	4.0	27	7	.2	1.4	3.9	27	7
26	840325	3.5	3.7	4.0	28	7	.6	2.4	5.5	28	7
27	840401	3.5	3.7	3.9	28	7	.5	2.8	6.6	28	7
28	840408	3.5	3.7	3.9	28	7	.5	2.7	7.3	28	7
29	840415	3.5	3.6	4.0	28	7	.2	3.2	9.7	28	7
30	840422	3.4	3.6	3.9	28	7	.1	3.6	9.4	28	7
31	840429	3.4	3.5	3.7	28	7	1.6	4.5	9.9	28	7
32	840506	3.4	3.5	3.7	28	7	1.2	5.0	11.4	28	7
33	840513	3.4	3.5	3.7	28	7	1.9	5.6	11.6	28	7
34	840520	3.5	3.6	3.8	26	7	2.1	5.1	10.0	26	7
35	840527	3.6	3.7	3.9	28	7	2.3	4.8	10.2	28	7
36	8406C	3.6	-----	3.8	15	4	2.7	-----	9.9	15	4

----- Data not available.

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Appendix Table A-76

Weekly minimum, mean and maximum intragravel and surface water temperatures (C) recorded at Upper Slough 21 - Site 1, RM 142.0, GC 832H02W36CGC. 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	4.0	-----	8.6	8	2	4.0	-----	9.6	8	2
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	2.9	3.3	27	7	2.1	2.6	3.1	27	7
6	831105	2.6	2.8	3.2	28	7	2.0	2.5	2.8	28	7
7	831112	2.1	2.6	3.1	28	7	1.3	2.1	2.7	28	7
8	831119	2.2	2.6	3.0	28	7	1.4	2.1	2.7	28	7
9	831126	2.4	2.7	2.9	28	7	1.8	2.2	2.6	28	7
10	831203	2.1	2.6	3.0	28	7	1.3	2.1	2.7	28	7
11	831210	1.9	2.2	2.5	28	7	1.3	1.6	2.0	28	7
12	831217	1.9	2.3	2.7	28	7	1.3	1.8	2.4	28	7
13	831224	1.9	2.1	2.4	28	7	1.3	1.6	2.0	28	7
14	831231	1.9	2.3	2.7	28	7	1.4	1.9	2.4	28	7
15	840107	1.8	-----	2.5	14	4	1.2	2.1	2.6	27	7
16	840114	-----	-----	-----	0	0	1.3	2.0	2.6	28	7
17	840121	-----	-----	-----	0	0	1.0	1.3	1.9	28	7
18	840128	-----	-----	-----	0	0	1.3	1.9	2.5	28	7
19	840204	-----	-----	-----	0	0	1.5	2.1	2.6	28	7
20	840211	-----	-----	-----	0	0	1.3	1.8	2.3	28	7
21	840218	-----	-----	-----	0	0	1.2	1.9	2.6	28	7
22	840225	-----	-----	-----	0	0	1.4	2.2	2.9	28	7
23	840304	-----	-----	-----	0	0	2.2	3.0	3.9	28	7
24	840311	-----	-----	-----	0	0	1.8	2.8	3.8	28	7
25	840318	-----	-----	-----	0	0	1.5	2.3	3.6	27	7
26	840325	-----	-----	-----	0	0	1.9	2.9	4.3	28	7
27	840401	-----	-----	-----	0	0	1.7	3.1	4.8	27	7
28	840408	-----	-----	-----	0	0	1.7	3.1	5.1	28	7
29	840415	-----	-----	-----	0	0	2.0	3.4	6.1	28	7
30	840422	-----	-----	-----	0	0	1.9	3.8	7.1	28	7
31	840429	-----	-----	-----	0	0	3.4	4.9	7.6	28	7
32	840506	-----	-----	-----	0	0	3.5	5.4	8.7	28	7
33	840513	-----	-----	-----	0	0	4.5	6.0	9.9	28	7
34	840520	-----	-----	-----	0	0	4.1	-----	8.5	9	3

----- Data not available.

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Appendix Table A-77

Weekly minimum, mean, and maximum surface water temperatures (C) recorded at Deadhorse Creek, RM 120.9, TRM 1.0, GC S29N04W14BCB. 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		
12	831217	.2	—	.2	19	2
13	831224	.2	.2	.2	84	7
14	831231	.2	.2	.2	84	7
15	840107	.2	.2	.2	84	7
16	840114	.2	.2	.2	84	7
17	840121	0.0	.2	.2	84	7
18	840128	0.0	0.0	0.0	84	7
19	840204	0.0	0.0	0.0	84	7
20	840211	0.0	0.0	0.0	84	7
21	840218	0.0	0.0	0.0	84	7
22	840225	0.0	0.0	0.0	84	7
23	840304	0.0	0.0	0.0	84	7
24	840311	0.0	0.0	0.0	84	7
25	840318	0.0	0.0	0.0	84	7
26	840325	0.0	.3	.5	84	7
27	840401	.5	.5	.5	84	7
28	840408	.5	.5	1.0	84	7
29	840415	.5	.6	1.0	84	7
30	840422	.5	.8	1.5	84	7
31	840429	.5	1.0	1.5	84	7
32	840506	.5	1.4	2.5	84	7
33	840513	1.5	2.7	4.5	84	7
34	840520	2.0	3.1	5.0	82	7
35	840527	2.0	3.7	6.0	84	7
36	840603	3.0	5.1	7.0	84	7
37	840610	5.5	7.0	8.5	84	7
38	840617	6.0	8.3	10.5	84	7
39	840624	7.5	—	9.5	43	4

----- Data not available.

Appendix Table A-78 Weekly minimum, mean and maximum intragravel temperatures (C) recorded at Fourth of July Creek and Plume - Site 1, BM 131.1, TRM 0.0, GC 830N03W03DAC. 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	1	1	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	-.1	-----	.9	20	5	-.3	-.0	1.4	28	7
5	831029	*****	*****	*****	0	0	-.3	-.2	.4	27	7
6	831105	*****	*****	*****	0	0	-.2	-.2	-.1	28	7
7	831112	*****	*****	*****	0	0	-.2	-.1	-.1	28	7
8	831119	*****	*****	*****	0	0	-.2	-.1	-.1	28	7
9	831126	*****	*****	*****	0	0	-.2	-.0	.3	28	7
10	831203	*****	*****	*****	0	0	-.1	.2	.4	28	7
11	831210	*****	*****	*****	0	0	-.1	-.1	.1	28	7
12	831217	*****	*****	*****	0	0	-.1	.0	.3	28	7
13	831224	*****	*****	*****	0	0	-.1	.0	.1	28	7
14	831231	*****	*****	*****	0	0	0.0	.1	.1	28	7
15	840107	*****	*****	*****	0	0	0.0	.2	.4	27	7
16	840114	*****	*****	*****	0	0	.2	.3	.5	27	7
17	840121	*****	-----	*****	0	0	.2	-----	.4	18	6
19	840204	*****	-----	*****	0	0	.3	-----	.5	9	3
22	840225	*****	-----	*****	0	0	.9	-----	1.0	8	2
23	840304	*****	*****	*****	0	0	.9	1.0	1.1	28	7
24	840311	*****	*****	*****	0	0	1.0	1.2	1.4	28	7
25	840318	*****	*****	*****	0	0	1.2	1.3	1.4	28	7
26	840325	*****	*****	*****	0	0	1.3	1.6	1.8	28	7
27	840401	*****	*****	*****	0	0	1.6	1.8	2.0	28	7
28	840408	*****	*****	*****	0	0	1.7	2.0	2.3	28	7
29	840415	*****	*****	*****	0	0	1.8	2.2	2.5	28	7
30	840422	*****	*****	*****	0	0	2.0	2.3	2.9	28	7
31	840429	*****	*****	*****	0	0	2.0	2.3	3.6	28	7
32	840506	*****	*****	*****	0	0	2.4	3.2	4.3	28	7
33	840513	*****	*****	*****	0	0	3.4	4.0	5.5	28	7
34	840520	-.1	.1	.3	7	3	4.9	-----	6.2	10	3

----- Data not available.

***** Data available; site frozen.

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Appendix Table A-79 Weekly minimum, mean and maximum intragravel temperatures (C) recorded at Fourth of July Creek and Plume - Site 1 when the site was frozen, RM 131.1, TRM 0.0, GC 830N03W03DAC. Values were obtained from temperatures measured at six-hour intervals by a datapod temperature recorder.

Water Year Week	Starting Calendar Date	Plume Weekly Values (Site frozen)					Creek 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
4	831022	-.2	-----	0.0	8	2	+++++	-----	+++++	0	0
5	831029	-.3	-.2	-.1	27	7	+++++	+++++	+++++	0	0
6	831105	-.3	-.2	-.1	28	7	+++++	+++++	+++++	0	0
7	831112	-.3	-.2	-.2	28	7	+++++	+++++	+++++	0	0
8	831119	-.3	-.2	-.1	28	7	+++++	+++++	+++++	0	0
9	831126	-.3	-.2	-.1	28	7	+++++	+++++	+++++	0	0
10	831203	-.2	-.2	-.1	28	7	+++++	+++++	+++++	0	0
11	831210	-.4	-.3	-.1	28	7	+++++	+++++	+++++	0	0
12	831217	-.5	-.4	-.3	28	7	+++++	+++++	+++++	0	0
13	831224	-.9	-.6	-.3	28	7	+++++	+++++	+++++	0	0
14	831231	-.4	-.3	-.2	27	7	+++++	+++++	+++++	0	0
15	840107	-.3	-.2	-.1	27	7	+++++	+++++	+++++	0	0
16	840114	-.6	-.3	-.1	28	7	+++++	+++++	+++++	0	0
17	840121	-1.9	-----	-.5	19	6	+++++	-----	+++++	0	0
19	840204	-.4	-----	-.2	10	4	+++++	-----	+++++	0	0
22	840225	-.2	-----	-.1	9	3	+++++	-----	+++++	0	0
23	840304	-.2	-.1	-.1	28	7	+++++	+++++	+++++	0	0
24	840311	-.2	-.1	-.1	28	7	+++++	+++++	+++++	0	0
25	840318	-.4	-.2	-.1	28	7	+++++	+++++	+++++	0	0
26	840325	-.6	-.4	-.2	28	7	+++++	+++++	+++++	0	0
27	840401	-.3	-.2	-.1	28	7	+++++	+++++	+++++	0	0
28	840408	-.2	-.2	-.1	27	7	+++++	+++++	+++++	0	0
29	840415	-.2	-.1	-.1	28	7	+++++	+++++	+++++	0	0
30	840422	-.2	-.1	-.1	28	7	+++++	+++++	+++++	0	0
31	840429	-.2	-.1	-.1	28	7	+++++	+++++	+++++	0	0
32	840506	-.2	-.1	-.1	28	7	+++++	+++++	+++++	0	0
33	840513	-.2	-.2	-.1	28	7	+++++	+++++	+++++	0	0
34	840520	-.2	-----	0.0	3	1	+++++	-----	+++++	0	0

----- Data not available.

+++++ Data available; site not frozen.

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Appendix Table A-80 Weekly minimum, mean and maximum intragravel and surface water temperatures (C) recorded at Fourth of July Creek - Site 2, TRM 0.0, RM 131.1, GC S30N03W03DAC. 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
15	840107	0.0	-----	.2	9	3	.2	-----	.3	9	3
16	840114	-.2	.1	.3	28	7	0.0	.2	.4	28	7
17	840121	-.2	-----	0.0	17	5	-.1	-----	.2	17	5
18	840128	-.1	0.0	0.0	28	7	.1	.1	.2	28	7
19	840204	-.1	0.0	.1	26	7	.1	.2	.2	26	7
20	840211	-.1	.0	.3	28	7	.1	.2	.4	28	7
21	840218	0.0	.2	.3	28	7	.2	.4	.5	28	7
22	840225	.1	.3	.5	28	7	.4	.5	.6	28	7
23	840304	.3	.5	.7	28	7	.4	.6	.7	28	7
24	840311	.3	.5	.9	28	7	.4	.7	.9	28	7
25	840318	.2	.4	.6	27	7	.4	.6	.8	27	7
26	840325	.3	.6	.8	28	7	.5	.8	1.0	28	7
27	840401	.4	.7	.9	28	7	.6	.9	1.2	28	7
28	840408	.5	.8	1.2	28	7	.8	1.0	1.3	28	7
29	840415	.6	.9	1.4	28	7	.7	1.1	1.5	28	7
30	840422	.6	1.1	1.9	28	7	.8	1.2	1.8	28	7
31	840429	.7	1.0	2.8	28	7	.8	1.0	2.7	28	7
32	840506	1.0	2.2	4.2	28	7	.9	2.2	4.9	28	7
33	840513	1.7	3.7	6.3	28	7	1.5	3.7	6.6	28	7
34	840520	3.1	-----	6.7	10	3	2.8	-----	7.0	10	3

----- Data not available.

Appendix Table A-34 Weekly minimum, mean and maximum intragravel and surface water temperatures (C) recorded at Indian River - Site 3, RM 138.6, TRM 0.2, GC 831N02W09CAB. 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
22	840225	-.2	-----	0.0	12	3	.6	-----	2.8	8	3
23	840304	-.2	-.1	.1	28	7	-----	-----	-----	0	0
24	840311	-.2	-.1	0.0	28	7	-----	-----	-----	0	0
25	840318	-.2	-.1	.1	26	7	-.3	-----	-.1	5	2
26	840325	-.1	.0	.4	28	7	-.2	-.1	.3	28	7
27	840401	-.1	.5	2.5	28	7	-.3	.4	2.5	28	7
28	840408	-.1	.8	2.7	28	7	-.2	.7	2.7	28	7
29	840415	-.1	1.1	4.2	28	7	-.3	1.0	4.3	28	7
30	840422	-.6	-----	3.8	17	5	-.9	-----	3.9	17	5

----- Data not available.

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A P P E N D I X B

STUDY SITE MAPS

APPENDIX B**STUDY SITE MAPS**

The site maps within this appendix include all study sites presented in this report. Appendix Table B-1 provides a list of all study sites, arranged by incrementing river mile location and includes the primary purpose for which each site was used. Detailed maps of each study site are presented in Figures B-1 to B-12. Where possible, more than one study site is included on a single map.

Appendix Table B-1. List of study sites used to evaluate the incubation life-phase of chum salmon in the middle Susitna River.

Site	River Mile	Primary Purpose	Appendix Figure Number
Mainstem LRX 9	103.2	Winter Temperature Study	B-1
Deadhorse Creek	120.9	Preliminary Mitigation Study	B-2
Slough 8A (lower)	125.9	Incubation and Winter Temperature Studies	B-3
Mainstem LRX 29	126.1	Winter Temperature Study	B-3
Slough 9	128.3	Incubation and Winter Temperature Studies	B-4
Fourth of July Creek	131.1	Incubation and Winter Temperature Studies	B-5
Slough 9A	133.6	Incubation Study	B-6
Slough 10	133.8	Incubation and Winter Temperature Studies	B-7
Side Channel 10	133.8	Incubation and Winter Temperature Studies	B-7
Slough 11	135.3	Incubation and Winter Temperature Studies	B-8
Upper Side Channel 11	136.1	Incubation and Winter Temperature Studies	B-8
Mainstem (RM 136.1)	136.1	Incubation and Winter Temperature Studies	B-8
Mainstem (RM 136.8)	136.8	Incubation Study	B-9
Indian River	138.6	Incubation and Winter Temperature Studies	B-10
Mainstem (RM 138.7)	138.7	Incubation Study	B-11
Slough 17	138.9	Incubation Study	B-11
Mainstem (RM 138.9)	138.9	Incubation Study	B-11
Side Channel 21	141.0	Incubation and Winter Temperature Studies	B-12
Slough 21 (lower)	141.8	Incubation and Winter Temperature Studies	B-12
Mainstem LRX 57	142.2	Winter Temperature Study	B-12

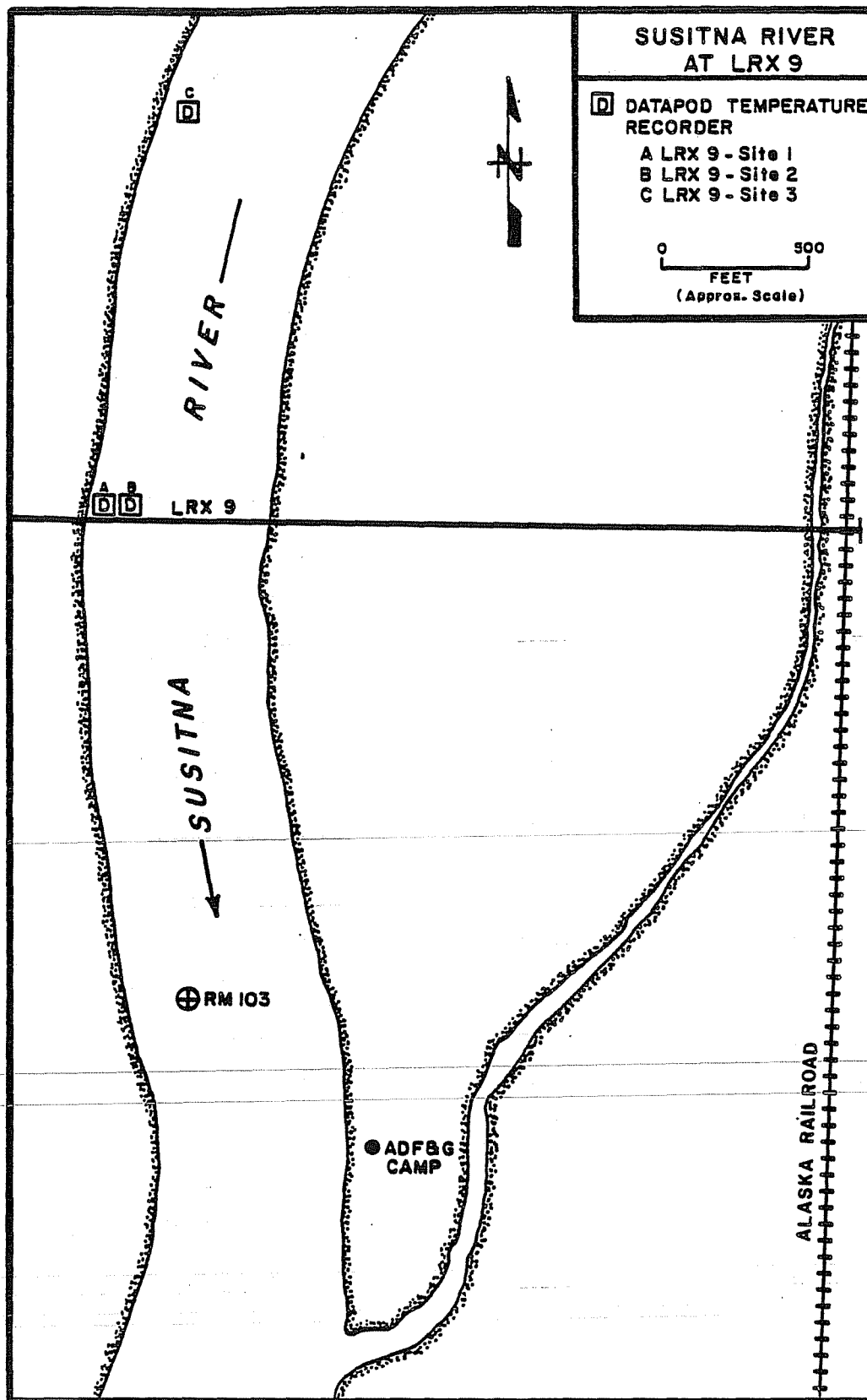


Figure B-1. Study site location at Mainstem LRX 9 (RM 103.2).

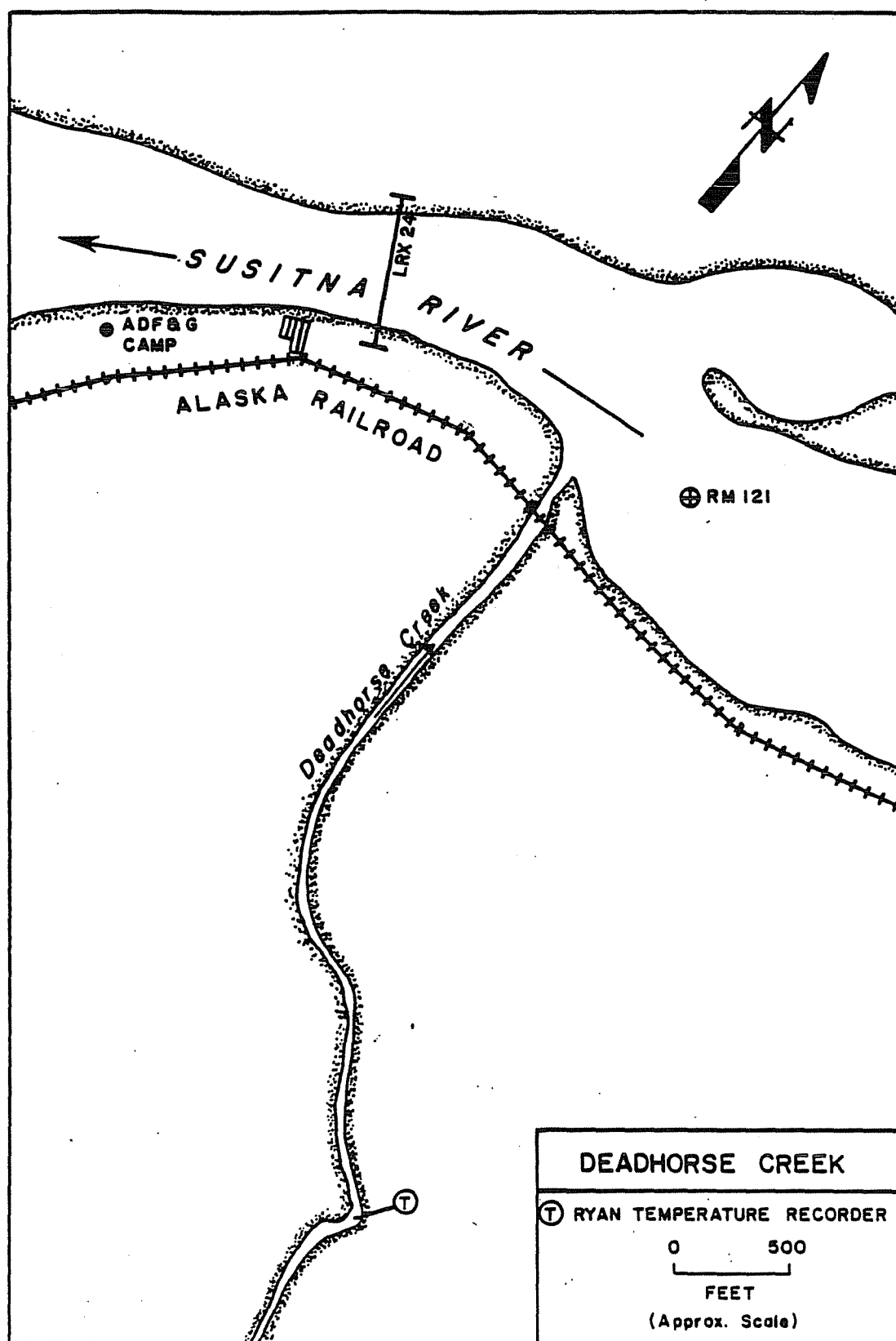


Figure B-2. Study site location at Deadhorse Creek (RM 120.9).

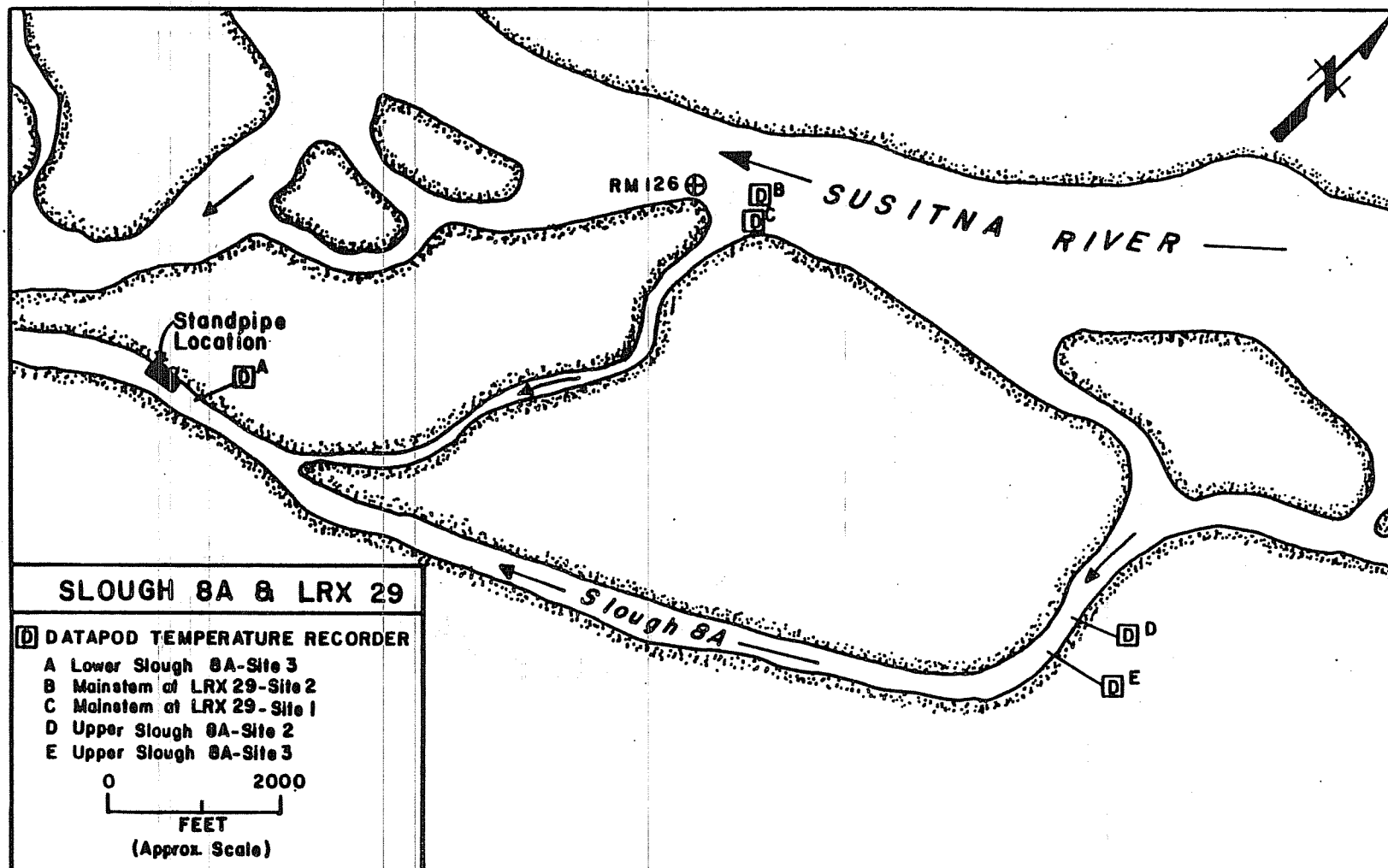


Figure B-3. Study site location at Slough 8A (RM 125.9) and Mainstem LRX 29 (RM 126.1).

B-6

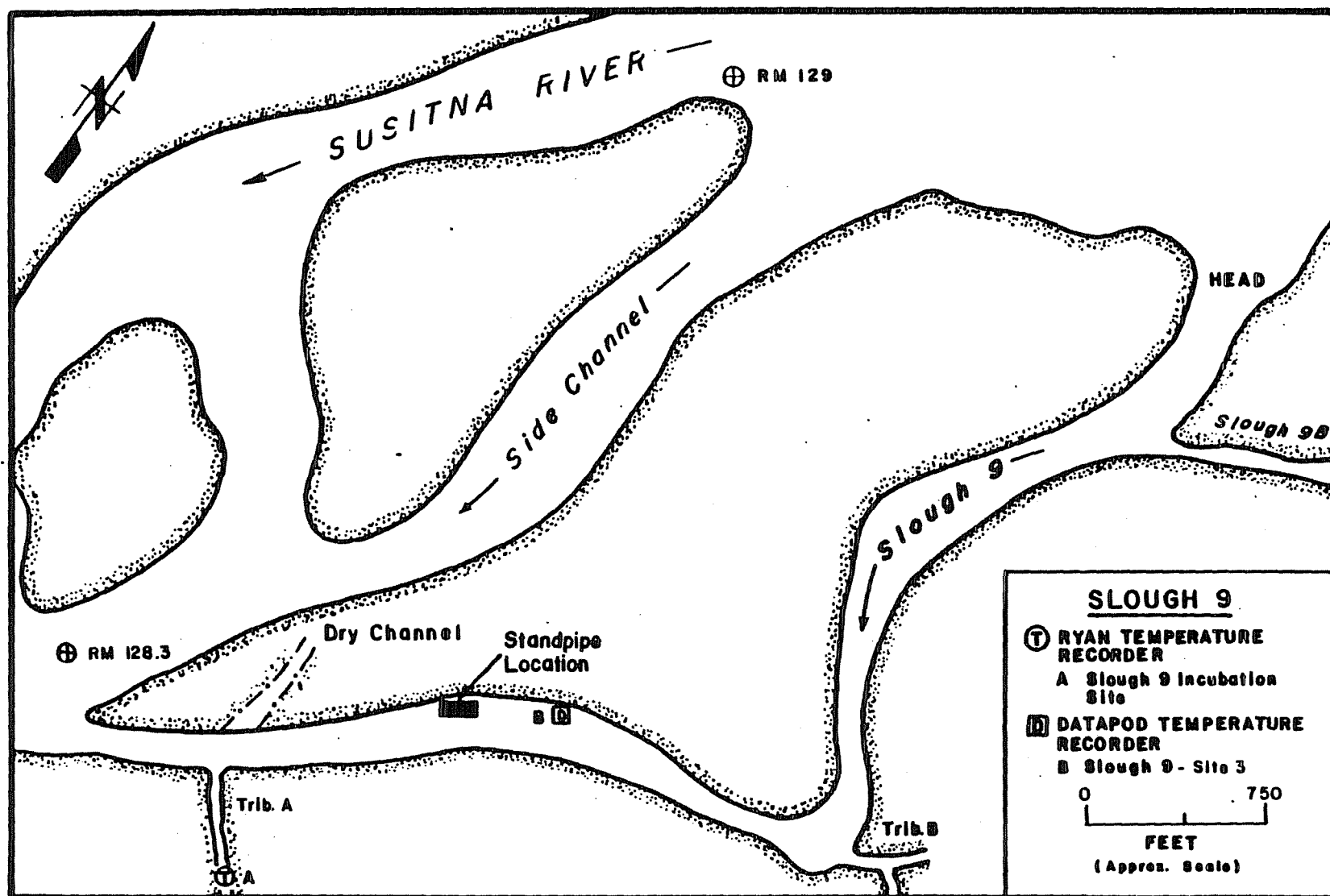


Figure B-4.. Study site location at Slough 9 (RM 128.3).

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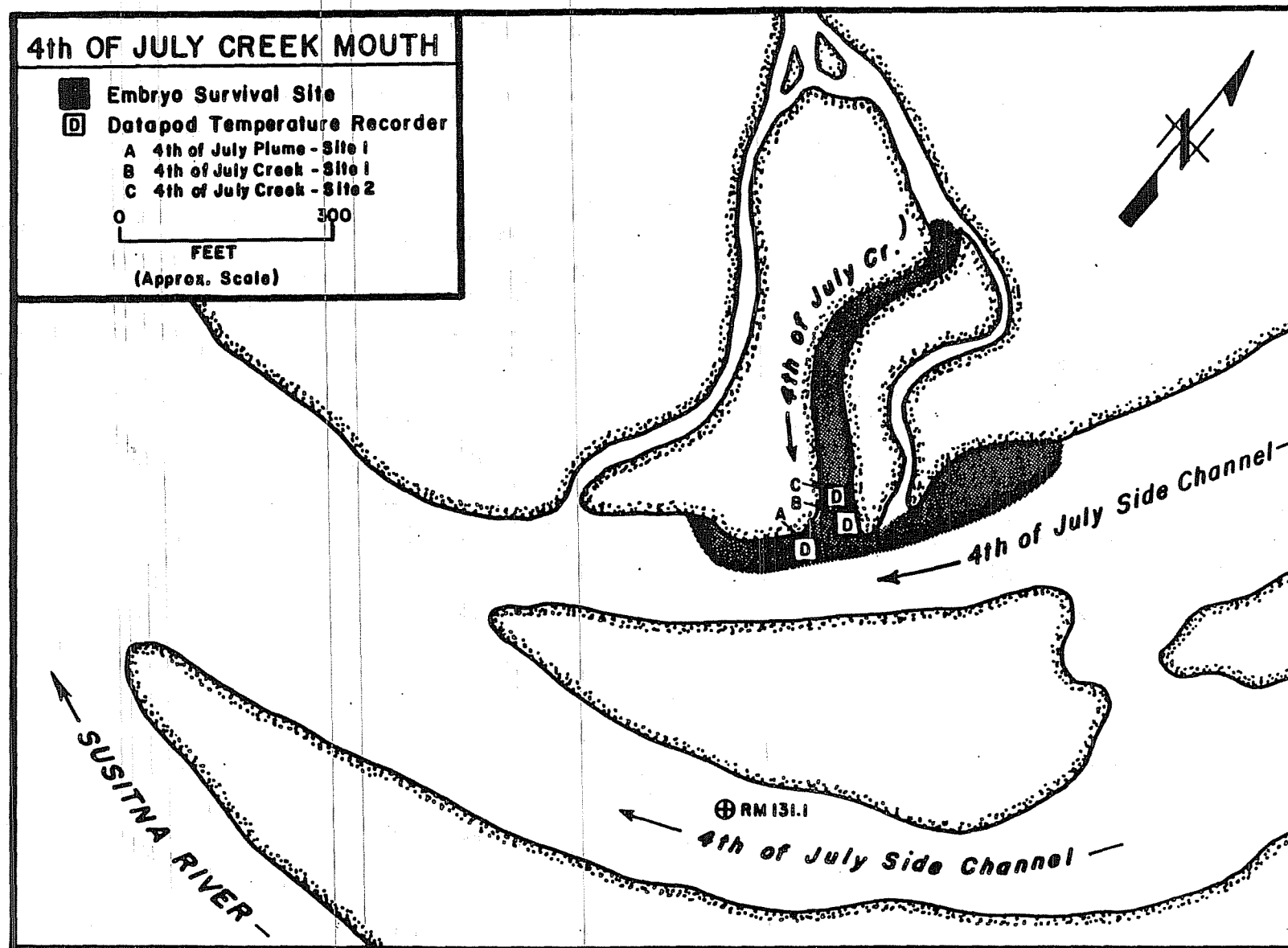


Figure B-5. Study site location at Fourth of July Creek (RM 131.1).

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B-8

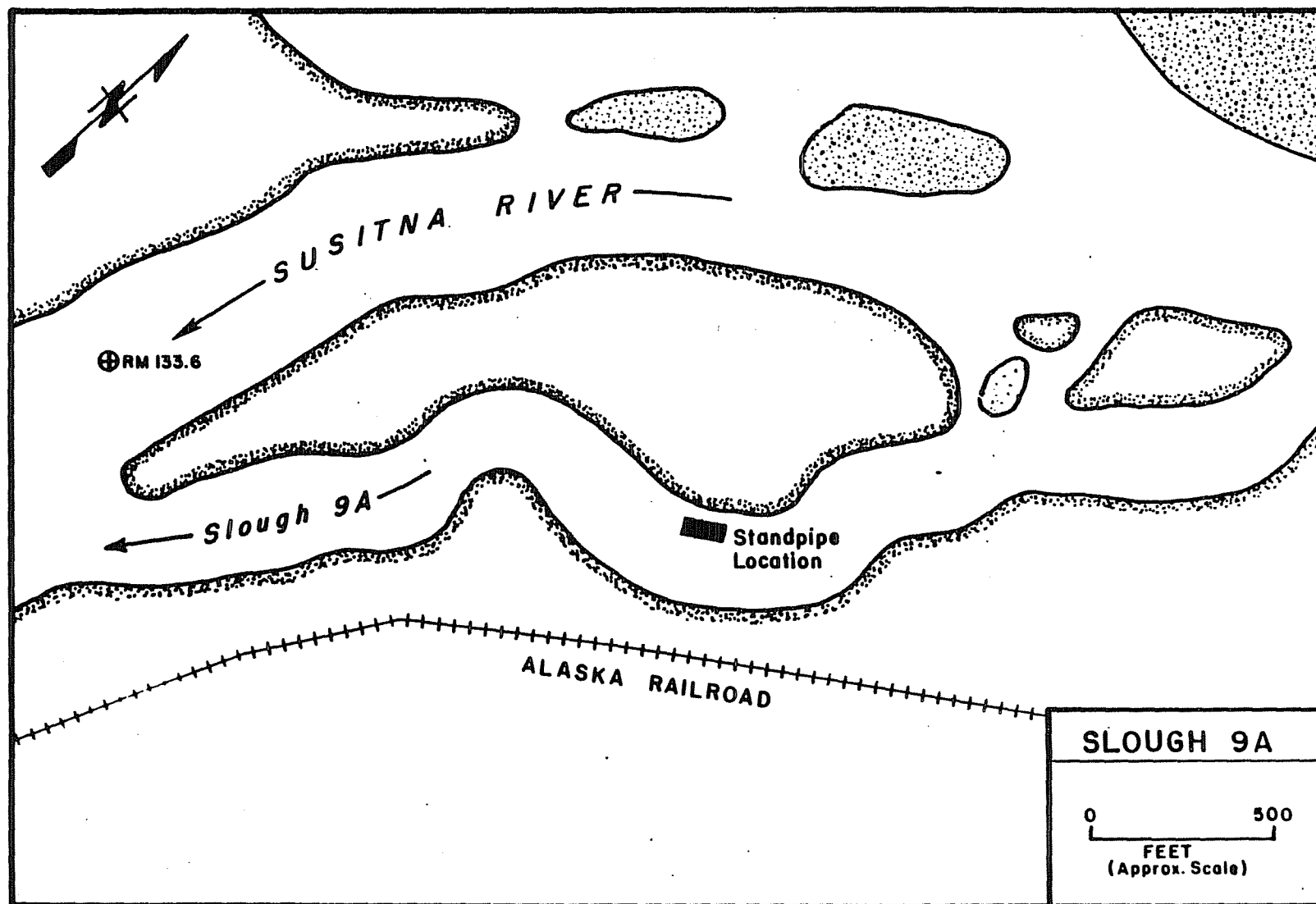


Figure B-6. Study site location at Slough 9A (RM 133.6).

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B-9

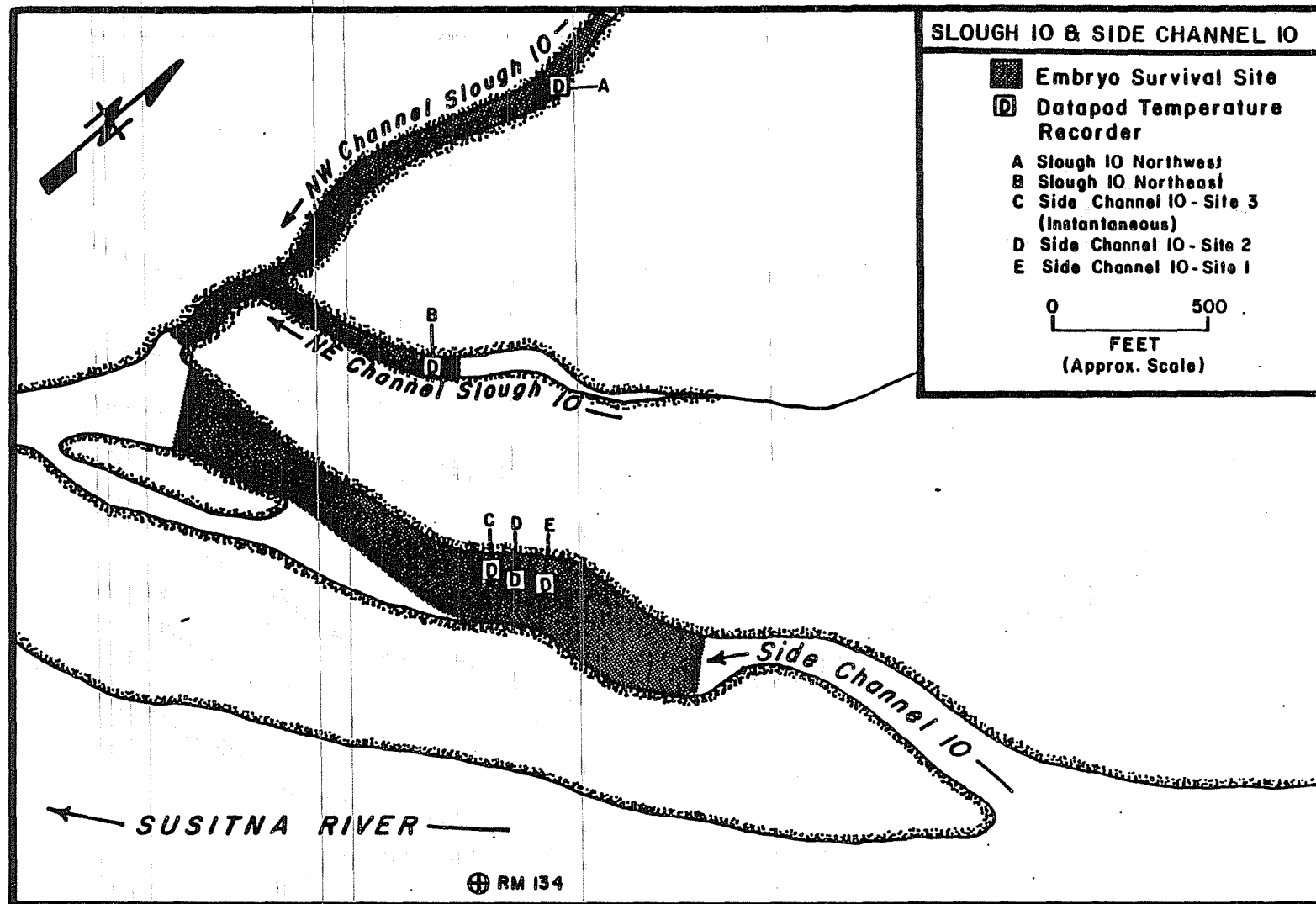


Figure B-7. Study site location at Slough 10 and Side Channel 10 (RM 133.8).

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B-10

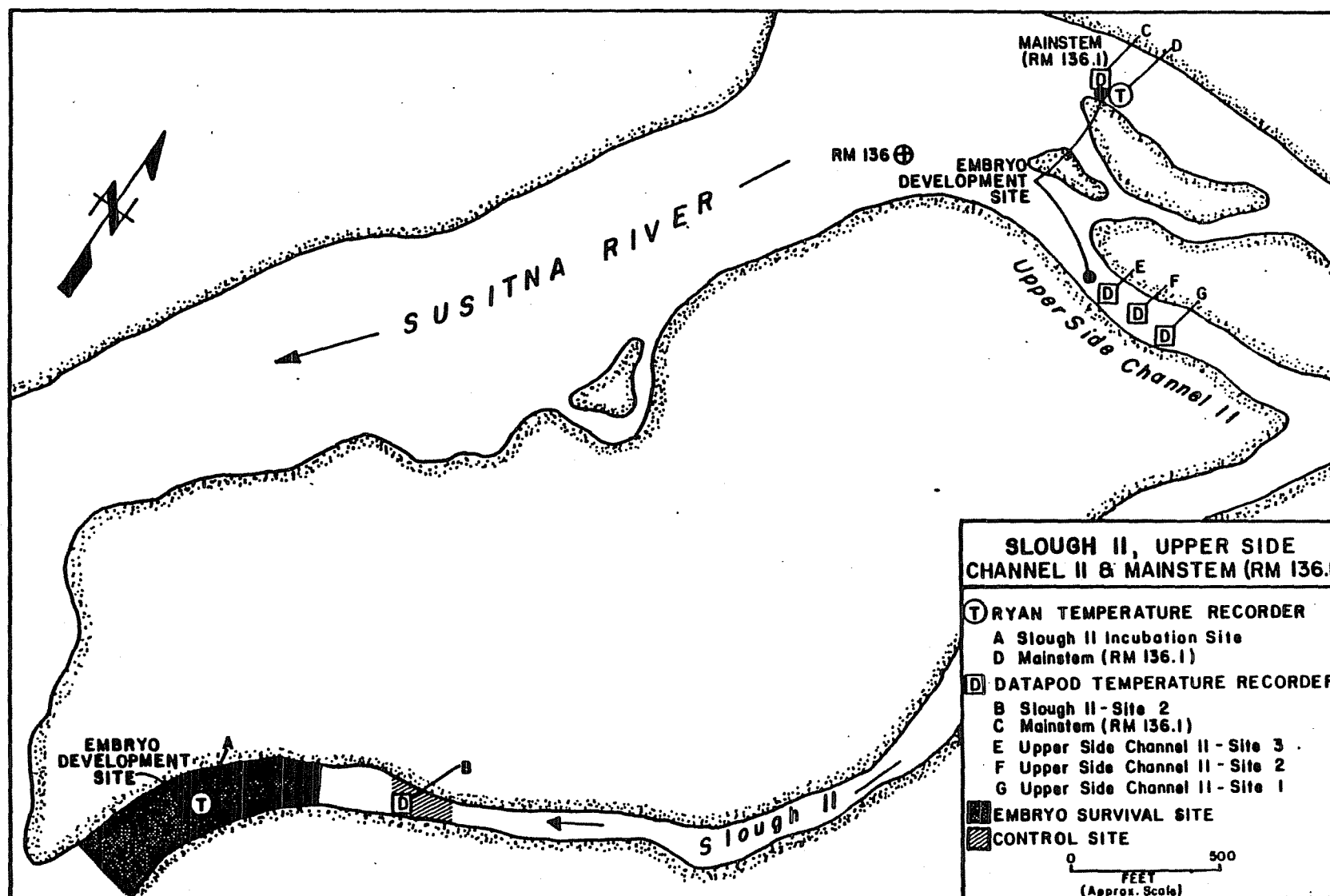


Figure B-8. Study site at Slough II (RM 135.3), Upper Side Channel II (RM 136.1) and Mainstem (RM 136.1).

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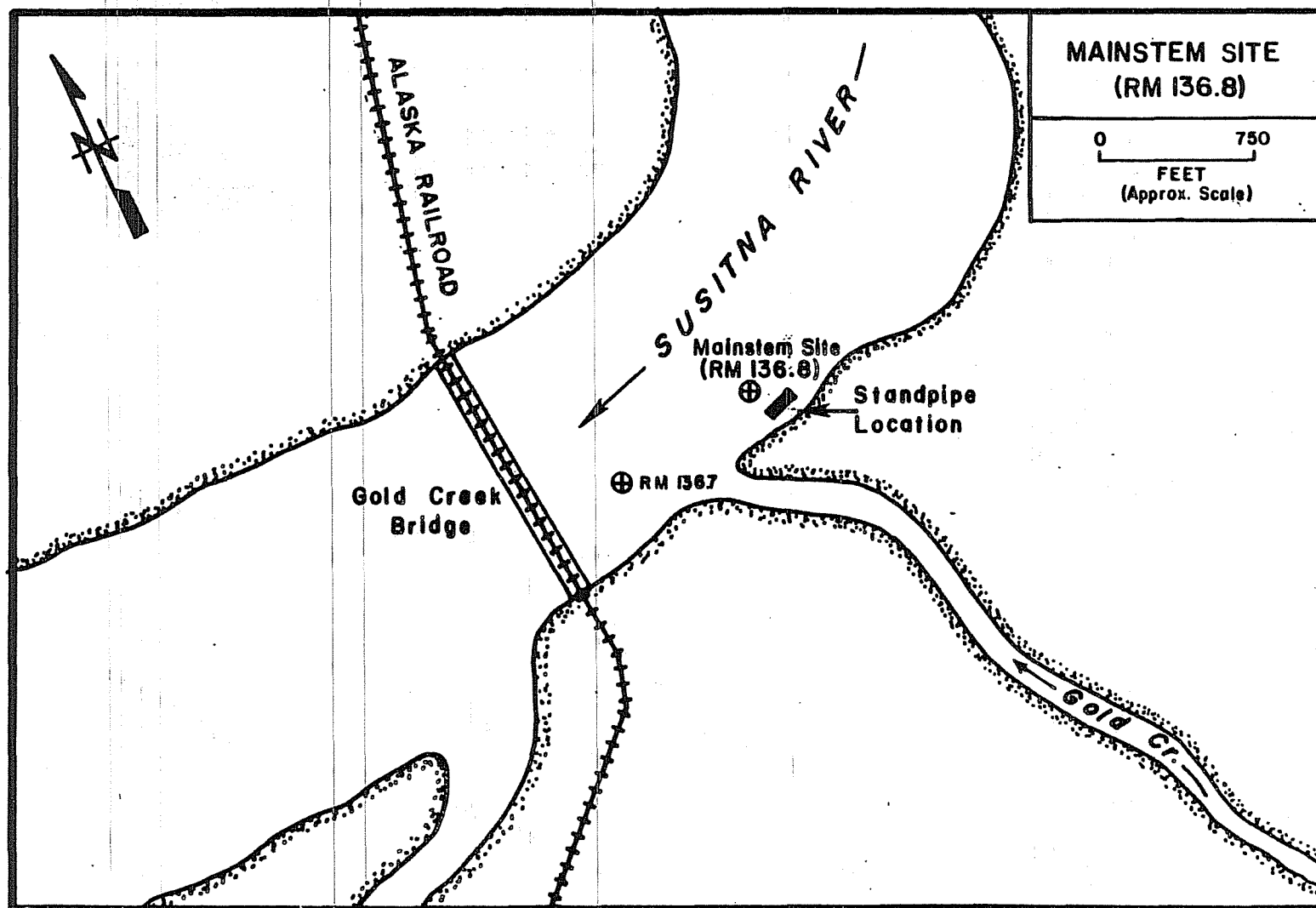


Figure B-9. Study site location at Mainstem (RM 136.8).

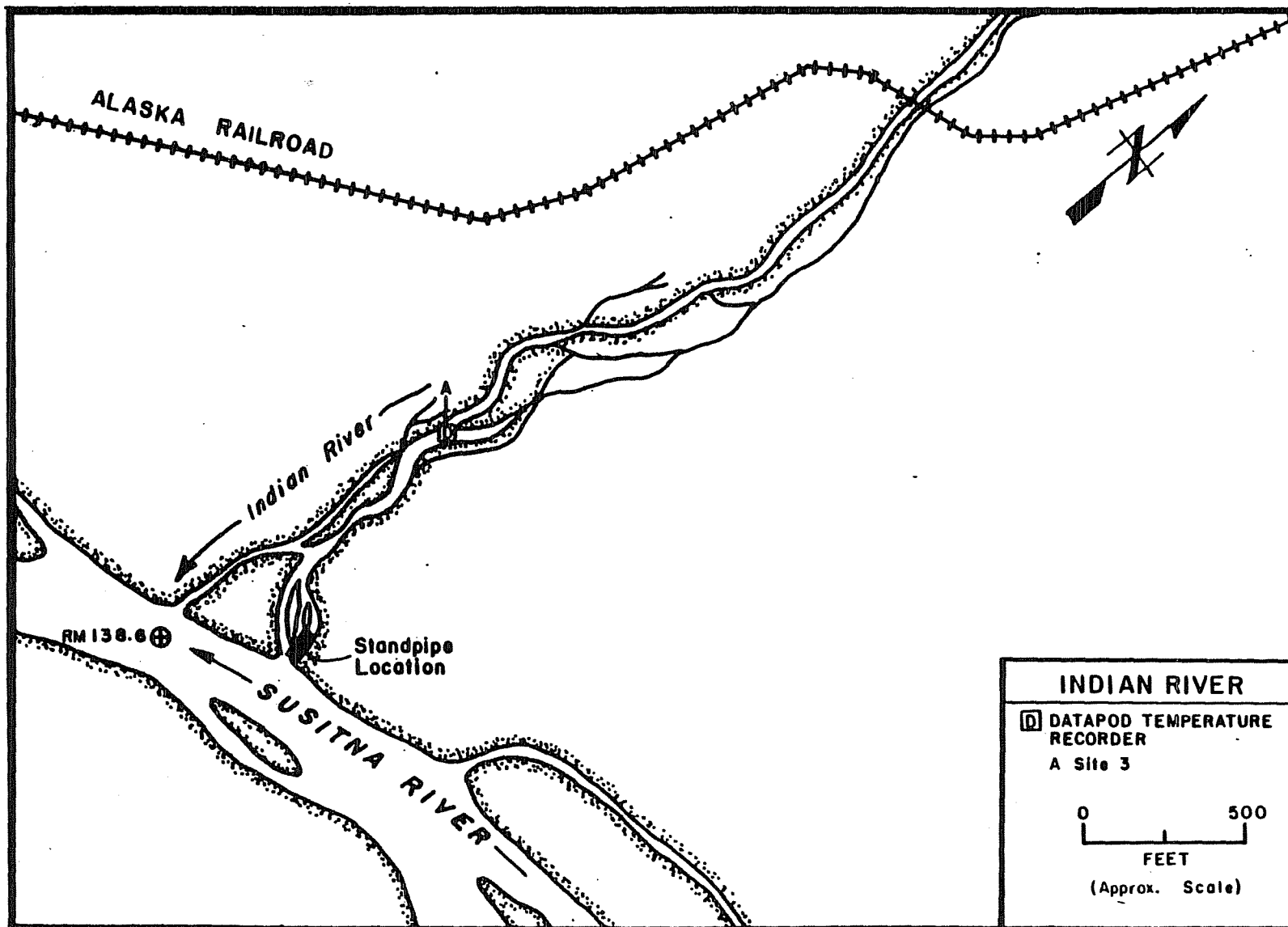


Figure B-10. Study site location at Indian River (RM 138.6).

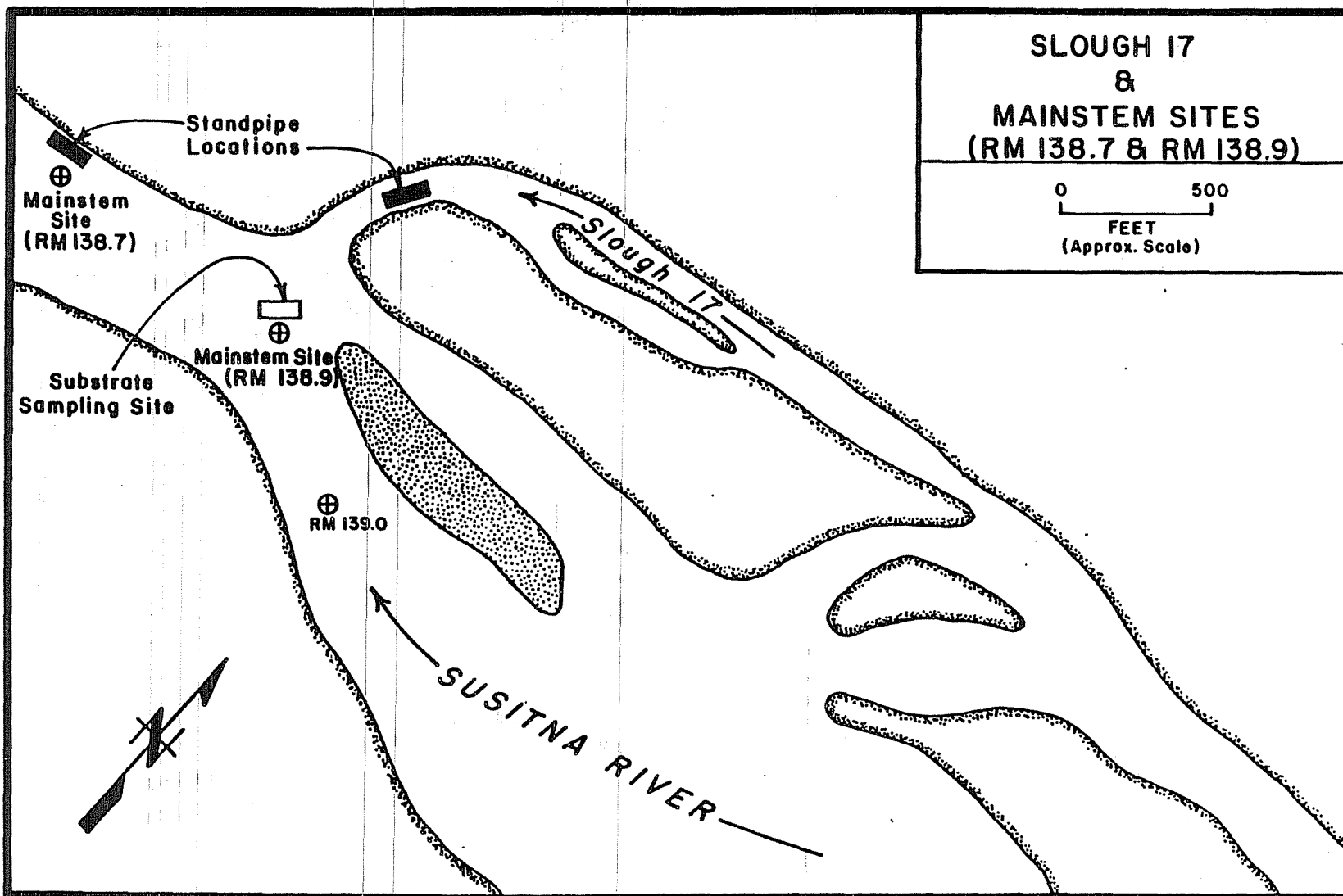


Figure B-11. Study site location at Slough 17 (RM 138.9) and Mainstem sites (RM 138.7 and RM 138.9).

B-14

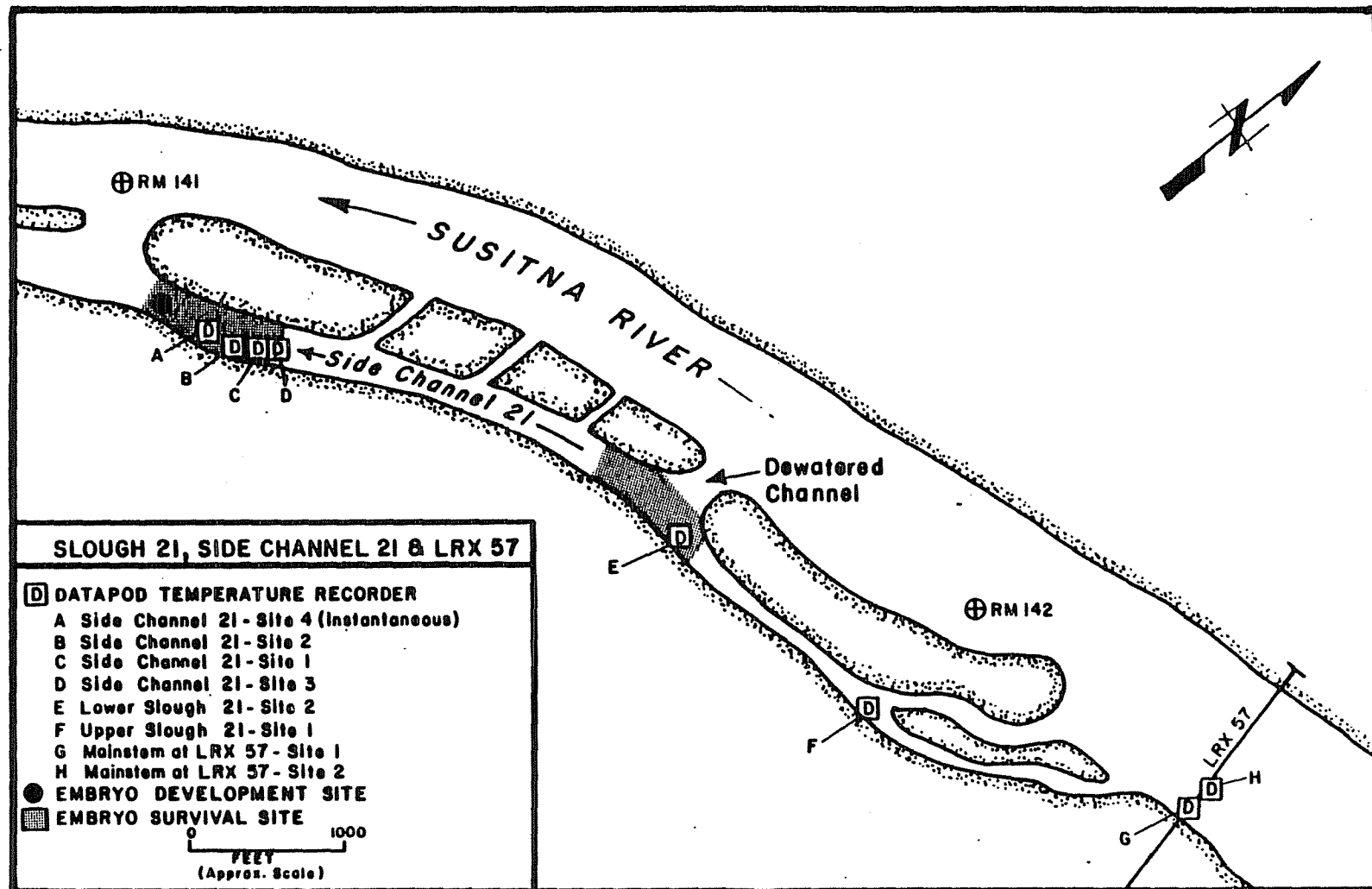


Figure B-12. Study site location at Side Channel 21 (RM 141.0), Slough 21 and Mainstem LRX 57 (RM 142.2).

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APPENDIX C

WATER QUALITY DATA

APPENDIX C

WATER QUALITY DATA

The water quality data presented in this appendix consist of surface and intragravel measurements of water temperature, dissolved oxygen concentrations, pH, and conductivity. All the data presented in Appendix Table C-1 were collected with a Hydrolab (model 4042), whereas data presented in Appendix Table C-2 were collected with various measuring devices capable of being lowered inside polyvinyl standpipes to obtain measurements (for details refer to Methods Section 2.2). Summary comparisons of these water quality data by study site and habitat type are presented in Figures C-1 to C-16.

Appendix Table C-1. Surface water quality data collected from August 1983 to May 1984, Susitna River, Alaska.

Site (River mile)	Sampling		Temperature		Dissolved Oxygen		pH	Conductivity (umhos/cm)	Turbidity (NTU)
	Date (y/m/d)	Time	Air (C)	Water (C)	(mg/l)	% Sat.			
SLOUGH 8A (125.9)	830815	1226	11.6	8.8	—	—	—	152.0	—
	830902	1530	13.5	9.4	9.5	085	—	139.0	—
	831025	1600	1.0	0.8	11.4	081	7.0	147.0	0.8
	831109	1614	2.0	0.8	8.7	062	7.2	177.0	0.2
	831214	1205	-20.6	0.3	8.4	058	7.1	221.0	0.3
	840427	1605	9.8	7.2	11.3	095	7.1	177.0	0.6
	840511	1635	10.0	8.7	—	—	6.8	117.0	0.6
SLOUGH 9 (128.3)	830906	1412	—	8.8	9.9	087	—	141.0	—
	831025	1530	-1.0	0.9	10.6	075	7.0	119.0	0.7
	831109		2.0	0.6	10.5	074	7.3	127.0	0.3
	831214	1310	-20.6	-0.3	9.1	063	7.3	135.0	0.4
	840427	1550	10.9	9.4	10.4	093	6.9	131.0	0.4
	840511	1625	10.0	6.3	—	—	6.7	78.0	0.4
FOURTH OF JULY CREEK (131.1)	830804	1200	13.6	13.2	9.2	089	6.9	35.0	—
	830822	1215	14.0	10.7	—	—	7.6	19.0	—
	830823	1730	11.2	8.7	10.8	094	7.3	122.0	—
	830828	1600	—	10.7	9.6	087	6.8	22.0	—
	830828	1640	—	11.1	9.6	089	6.8	22.0	—
	830914	1840	—	5.8	12.3	100	7.5	162.0	—
	830923	1435	2.7	5.1	13.4	108	7.5	145.0	21.0
	830923	1500	3.4	4.2	13.2	104	6.7	25.0	0.4
	831009	1115	0.7	0.1	14.8	102	6.9	23.0	0.4
	831009	1135	0.7	0.7	11.3	081	6.9	139.0	0.9
	831102	1045	2.8	-0.2	11.1	078	7.0	32.0	0.7
	831102	1325	1.4	-0.2	13.8	097	7.0	30.0	0.7
	831109		0.8	-0.3	13.7	095	7.2	34.0	1.3
	831109		—	—	—	—	—	—	0.5
	831203	1410	-3.0	0.0	13.3	092	7.0	40.0	1.0
	831203	1440	-3.0	0.0	9.3	065	7.0	136.0	0.7
	840330	0920	5.2	0.2	13.7	096	7.3	40.0	0.5
	840426	1315	8.1	0.0	13.8	094	7.0	47.0	0.4
	840427	1535	5.0	0.0	11.7	080	7.1	161.0	0.3
	840502	1515	7.4	1.8	9.6	072	7.4	68.0	—
	840502	1525	7.4	0.1	14.3	100	6.3	38.0	—
	840511	1205	7.0	1.5	13.0	095	6.7	31.0	0.8
	840511	1220	8.0	1.6	12.2	090	7.0	102.0	5.1
SLOUGH 9A (133.6)	831025	1430	-0.8	3.0	7.5	056	6.8	197.0	0.4
	831109		2.0	2.2	10.0	074	7.1	171.0	0.2
	831214	1340	-20.6	0.8	9.3	065	7.3	193.0	0.2
	840427	1525	10.0	8.0	9.6	083	6.8	197.0	0.5
	840511	1535	9.2	8.0	—	—	6.9	207.0	0.8

Appendix Table C-1. Continued.

Site (River mile)	Sampling		Temperature		Dissolved Oxygen		pH	Conductivity (umhos/cm)	Turbidity (NTU)
	Date (y/m/d)	Time	Air (C)	Water (C)	(mg/l)	% Sat.			
SIDE CHANNEL 10 (133.8)	830915		—	8.6	9.8	085	7.4	217.0	—
	830923	1108	2.2	4.1	10.4	083	7.2	255.0	0.3
	831009	1215	0.2	0.8	9.4	067	7.1	256.0	0.6
	831028	1300	0.4	0.7	10.0	072	7.5	268.0	0.3
	831207	1130	-14.0	0.1	4.0	028	6.9	218.0	0.8
	840228	1255	0.1	0.7	9.4	068	7.3	265.0	—
	840228	1315	1.0	0.2	13.4	095	7.8	269.0	—
	840330	1245	8.3	3.8	9.9	078	7.3	251.0	—
	840411	1630	10.6	9.7	10.1	091	7.4	260.0	—
	840425	1220	5.4	11.6	9.5	088	6.6	251.0	0.6
	840502	0940	4.2	4.7	11.0	089	7.2	251.0	—
	840511	1545	8.2	12.7	—	—	7.2	253.0	0.3
SLOUGH 10 (133.8)	830909	1227	—	9.1	10.5	093	—	178.0	—
	830909	1240	—	5.2	10.4	084	—	209.0	—
	830909	1250	—	5.7	8.9	072	—	172.0	—
	830915		—	5.4	8.4	068	6.7	172.0	—
	830915		—	5.0	9.7	077	7.0	223.0	—
	830923	1047	1.0	2.6	10.9	083	6.7	187.0	0.3
	831009	1230	0.2	0.8	9.1	065	—	226.0	—
	831028	1330	—	0.9	—	—	7.3	220.0	0.3
	831028	1345	—	0.5	—	—	7.3	167.0	0.4
	831110		—	—	—	—	—	—	0.3
	831110		—	—	—	—	—	—	0.2
	831110		1.8	1.8	9.3	068	7.4	170.0	—
	831206	1130	0.4	1.9	9.0	065	7.1	178.0	—
	831206	1555	0.0	1.8	9.5	069	7.3	219.0	0.3
	831206	1610	0.0	2.2	8.5	063	7.1	169.0	0.3
	840120	1125	—	0.2	10.7	075	7.2	187.0	—
	840208	1530	-16.0	0.9	9.9	072	7.1	177.0	—
	840228	1230	-4.5	1.6	9.5	071	7.4	221.0	—
	840228	1245	-2.4	2.0	8.4	063	7.2	171.0	—
	840330	1135	8.8	3.8	9.0	070	7.2	172.0	0.2
	840330	1140	7.8	3.4	9.9	077	7.4	221.0	0.3
	840330	1150	7.2	4.0	9.9	078	7.3	183.0	0.3
	840411		5.0	3.7	9.1	070	6.7	176.0	—
	840411		5.1	2.4	9.6	072	7.2	217.0	—
	840411	0950	1.8	2.8	9.8	074	7.1	180.0	—
	840412	0915	0.3	1.3	8.1	059	6.6	106.0	—
	840425	1310	—	7.2	10.0	083	6.9	181.0	0.4
	840425	1415	—	6.0	8.8	072	6.9	223.0	0.5
	840425	1420	6.1	7.0	9.1	075	6.7	172.0	0.4
	840511	1550	8.0	6.7	—	—	6.9	148.0	0.4
	840511	1555	1.0	0.1	—	—	6.9	219.0	0.5
	840511	1600	8.1	6.9	—	—	6.7	152.0	0.3

Appendix Table C-1. Continued.

Site (River mile)	Sampling		Temperature		Dissolved Oxygen		pH	Conductivity (umhos/cm)	Turbidity (NTU)
	Date (y/m/d)	Time	Air (C)	Water (C)	(mg/l)	% Sat.			
SLOUGH 11 (135.3)	830811	1115	14.8	6.1	6.0	050	7.0	232.0	-----
	830816	1430	17.6	8.6	14.6	126	7.0	238.0	-----
	830827		16.6	8.6	10.7	095	7.3	230.0	0.3
	830915	0840	4.8	4.3	10.8	085	7.2	244.0	-----
	830922	1035	7.3	4.7	11.6	094	6.9	242.0	0.7
	831009	1250	1.1	0.5	12.8	091	-----	231.0	0.3
	831101	1105	-2.1	1.2	11.2	081	7.3	241.0	0.8
	831109		2.2	1.2	11.4	080	7.6	233.0	0.4
	831205	1200	-5.0	1.3	10.5	075	7.6	241.0	0.3
	831230		-18.0	0.4	10.6	077	7.4	243.0	-----
	840201	1310	-7.0	0.7	10.9	079	7.5	239.0	-----
	840209	1550	-26.0	0.1	11.4	082	7.5	240.0	-----
	840328	1440	10.9	4.1	12.5	098	7.5	232.0	0.2
	840410	1520	7.8	4.7	12.5	100	7.5	227.0	-----
	840412	1425	9.7	4.9	11.7	094	7.2	226.0	-----
	840427	1510	10.0	6.3	10.9	090	7.2	232.0	0.3
	840503	1035	7.2	4.9	11.4	092	7.3	229.0	-----
	840511	1530	8.7	8.5	-----	-----	7.1	238.0	0.2
MAINSTEM (136.1)	831027		1.0	-0.3	14.1	098	8.0	190.0	-----
	831109	1300	-----	-0.2	14.0	098	8.4	235.0	0.7
	831207	1620	-8.0	-0.2	13.5	093	7.7	242.0	-----
	831208	1400	-12.0	-0.3	13.5	095	8.1	251.0	0.8
	840331	1015	11.4	0.1	14.0	098	8.0	268.0	-----
	840410		3.0	0.2	13.6	095	7.9	260.0	-----
	840417	1415	8.2	0.1	-----	-----	7.8	267.0	-----
	840425	1605	5.2	0.2	13.5	093	7.9	257.0	0.5
UPPER SIDE CHANNEL 11 (136.1)	840511	1520	7.3	0.8	-----	-----	7.2	138.0	17.0
	830823	1530	14.2	8.9	11.1	098	7.8	138.0	-----
	831109		-----	0.7	11.3	081	7.8	182.0	0.7
	841208	1315	-13.0	0.2	8.5	060	7.3	235.0	0.4
	840328	1630	6.4	4.7	10.6	085	7.7	179.0	-----
	840427	1500	11.0	8.3	9.4	081	7.3	194.0	0.3
	840503	1400	10.0	9.9	9.7	089	7.3	197.0	-----
MAINSTEM (136.8)	840511	1522	9.3	12.0	-----	-----	7.3	203.0	0.4
	831025	1300	-2.0	1.2	10.8	077	7.0	198.0	0.5
	831025	1330	-2.0	2.1	5.7	042	6.7	209.0	0.8
	831108		-1.2	2.5	8.5	063	7.0	197.0	0.2
	831214	1415	-20.6	0.2	10.8	074	7.3	200.0	0.4
	840427	1440	0.8	6.1	8.8	072	6.7	159.0	0.3
	840427	1445	0.8	2.3	12.2	090	7.4	216.0	-----

Appendix Table C-1. Continued.

Site (River mile)	Sampling		Temperature		Dissolved Oxygen		pH	Conductivity (umhos/cm)	Turbidity (NTU)
	Date (y/m/d)	Time	Air (C)	Water (C)	(mg/l)	% Sat.			
	840511	1515	7.0	7.0	—	—	6.7	150.0	3.2
INDIAN RIVER (138.6)	830727	1200	23.6	9.6	11.4	103	6.8	44.7	—
	830727	1340	21.8	9.9	11.3	103	6.8	45.7	—
	830727	1449	23.8	10.5	11.3	104	6.9	46.6	—
	830727	1540	24.0	11.0	11.1	105	6.6	45.7	—
	830728	1035	20.9	11.1	11.0	103	7.1	47.6	—
	830728	1225	24.5	10.1	11.3	—	6.8	64.0	—
	830728	1445	26.2	11.3	10.6	—	6.8	63.0	—
	830728	1645	22.4	12.0	10.9	—	6.9	63.0	—
	830728	2000	—	14.1	10.5	105	7.0	48.6	—
	830729	1945	17.0	10.0	10.5	096	7.2	54.4	—
	831025	1130	-2.8	0.1	14.2	098	7.1	57.0	0.8
	831108	—	—	0.3	11.9	083	6.8	59.0	0.3
	831213	1420	-5.2	-0.3	14.3	097	7.1	69.0	0.3
	840427	1420	8.4	3.0	12.1	091	7.1	72.0	0.4
	840511	1415	8.2	4.3	12.1	095	6.9	54.0	0.9
MAINSTEM (138.7)	831025	1100	-3.8	0.1	14.3	099	7.5	176.0	1.3
	831108	—	-5.0	0.5	11.9	083	7.4	164.0	0.3
	831213	1300	-6.8	1.6	12.1	088	6.7	80.0	0.8
	840427	1405	7.2	3.8	10.9	085	6.8	125.0	0.6
	840511	1505	6.9	1.9	—	—	6.8	123.0	16.0
SLOUGH 17 (138.9)	830820	1440	10.2	4.5	—	—	5.7	77.0	—
	830901	0920	9.1	4.7	—	—	—	75.0	—
	831025	1030	-3.8	1.8	11.0	080	6.6	84.0	1.2
	831108	—	-2.4	1.9	11.8	086	6.8	79.0	0.3
	831213	1450	-6.0	1.3	11.1	080	6.8	86.0	0.6
	840427	1355	9.2	7.8	10.7	092	6.8	86.0	0.4
	840511	1455	8.0	6.0	—	—	6.4	86.0	0.3
SIDE CHANNEL 21 (141.0)	830825	1400	12.0	8.1	10.8	094	7.5	119.0	75.0
	830911	1600	—	8.3	13.3	113	7.5	164.0	—
	830914	1525	—	6.9	11.6	094	—	150.0	—
	830923	1200	2.8	5.1	13.2	106	7.3	152.0	23.0
	831009	1405	0.2	0.4	14.4	101	—	149.0	1.7
	831027	1350	1.0	0.2	14.9	103	7.7	161.0	0.2
	831108	1330	0.2	-0.3	—	—	—	154.0	0.2
	831204	1305	-3.4	0.0	12.8	088	7.6	156.0	0.4
	840329	1105	5.2	0.7	13.0	093	7.9	—	0.4
	840417	1535	9.2	6.7	—	—	7.4	172.0	—
	840427	1340	9.6	6.5	11.9	098	7.4	172.0	0.5
	840502	1335	7.6	2.6	12.4	095	7.6	194.0	—
	840511	1445	7.4	11.0	11.1	103	7.5	169.0	1.0

Appendix Table C-1. Continued.

Site (River mile)	Sampling		Temperature		Dissolved Oxygen		pH	Conductivity (umhos/cm)	Turbidity (NTU)
	Date (y/m/d)	Time	Air (C)	Water (C)	(mg/l)	% Sat.			
SLOUGH 21 (141.8)	830819	1500	18.0	9.6	9.9	087	6.8	201.0	—
	830825	1200	7.7	11.9	10.9	103	7.8	122.0	85.0
	830831	1315	12.0	5.1	6.2	050	—	196.0	—
	830831	1546	12.0	5.0	8.2	066	—	196.0	—
	830913	1345	—	6.0	9.8	081	6.9	194.0	—
	830913	1345	—	6.1	9.3	077	—	184.0	—
	830913	1500	—	6.1	9.8	080	—	184.0	—
	830921	1130	8.7	4.7	11.6	094	6.6	199.0	0.4
	831009	1340	0.2	1.8	8.9	066	—	190.0	0.3
	831026	1300	-0.4	2.3	10.7	078	7.2	201.0	0.3
	831108	1230	-0.6	2.0	10.5	077	7.6	193.0	0.3
	831202	1115	-5.0	1.4	9.4	067	7.3	200.0	0.4
	831229	1320	-16.0	0.8	9.9	071	7.8	204.0	—
	840117	1210	-3.0	1.4	10.9	079	7.2	199.0	—
	840413	0945	2.4	1.9	10.5	078	7.2	201.0	—
	840426	0915	3.6	3.2	10.5	079	7.3	206.0	0.2
	840511	1435	10.0	9.6	9.0	082	6.9	213.0	0.3

Appendix Table C-2. Intragravel and surface water quality data collected at standpipes from September to December 1983, Susitna River, Alaska.

Site (River mile)	Sub Site	Standpipe No.	Sampling		Intragravel Water					Surface Water				
					Temp. (C)	DO		pH	Conductivity (umhos/cm)	Temp. (C)	DO		pH	Conductivity (umhos/cm)
			Date (y/m/d)	Time		(mg/l)	%Sat.				(mg/l)	%Sat.		
SLOUGH 8A (125.9)	A	001	831109	1610	2.0	3.8	28	7.2	214	---	---	---	---	---
	A	002	831109	1610	3.0	5.1	39	7.4	159	1.5	8.8	65	7.2	203
	A	003	831109	1610	4.0	4.1	32	7.3	154	2.0	8.2	61	7.2	223
	A	001	831214	1205	0.8	6.2	44	7.5	283	---	---	---	---	---
	A	003	831214	1205	1.9	4.3	31	7.3	274	0.9	6.8	48	7.1	265
SLOUGH 9 (128.3)	A	001	831109	1535	3.0	6.5	50	7.1	147	1.5	10.4	76	7.3	100
	A	002	831109	1535	3.0	6.2	47	7.2	171	1.5	10.4	76	7.3	118
	A	003	831109	1535	3.0	6.4	49	7.0	171	1.5	9.6	70	7.3	127
	A	003	831214	1310	2.2	6.3	46	---	181	0.1	9.3	64	7.3	193
FOURTH OF JULY CREEK (131.1)	A	001	830914	1840	8.0	9.8	85	---	37	7.8	11.3	97	---	33
	A	002	830914	1840	8.2	10.4	90	---	37	7.8	11.4	98	---	33
	A	003	830914	1840	7.8	10.9	94	---	33	---	---	---	---	---
	A	004	830914	1840	7.0	12.0	100	---	134	---	---	---	---	---
	A	005	830914	1840	6.8	12.9	108	---	150	6.8	13.0	108	7.5	150
	A	006	830914	1840	7.2	12.0	100	---	33	7.2	11.8	99	7.5	33
	A	007	830914	1840	7.2	11.6	97	---	33	7.2	11.7	98	---	33
	A	008	830914	1840	7.2	11.4	96	---	33	7.2	12.3	104	---	33
	A	009	830914	1840	7.2	11.7	98	---	33	7.2	11.7	98	---	33
	A	010	830914	1840	7.2	11.5	97	---	33	7.2	11.8	99	---	33
	A	011	830914	1840	7.2	11.4	96	---	33	7.2	12.0	100	---	33
	A	012	830914	1840	7.2	11.3	95	---	33	7.2	12.2	102	---	33
	A	013	830914	1840	7.2	10.8	91	---	33	7.2	12.3	104	---	33
	A	014	830914	1840	7.2	12.2	102	---	33	7.2	12.0	100	---	33
	A	015	830914	1840	7.2	9.6	81	---	33	7.2	12.2	102	---	33
	A	002	831102	1100	0.5	13.3	96	6.6	26	0.2	13.0	92	7.0	25
	A	004	831102	1100	0.5	13.7	99	6.3	24	---	---	---	---	---
	A	005	831102	1100	0.5	13.1	95	---	34	---	---	---	---	---
	A	007	831102	1100	0.8	13.7	99	---	24	0.2	13.7	98	7.0	25
	A	008	831102	1100	0.2	13.7	98	6.5	29	0.2	13.8	99	7.0	27
	A	009	831102	1100	0.8	13.8	100	---	26	0.2	13.7	98	7.0	23
	A	012	831102	1100	0.8	13.8	100	---	28	0.8	13.8	100	7.0	28
	A	014	831102	1100	0.8	13.8	100	---	28	0.6	13.9	100	7.0	28
	A	002	831109	1500	0.0	13.4	93	7.2	29	---	---	---	---	---
	A	007	831109	1500	0.0	13.6	95	7.2	29	---	---	---	---	---
	A	012	831109	1500	0.0	13.5	94	7.0	29	0.0	13.5	94	7.2	29
	A	012	831203	1415	0.1	13.3	93	7.2	32	0.0	13.3	93	7.0	34
	A	014	831203	1415	0.0	13.2	92	7.2	34	0.0	13.3	93	7.0	34
	A	015	831203	1415	0.0	13.3	93	---	34	0.2	13.3	93	7.0	34

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Appendix Table C-2. (Continued).

Site (River mile)	Sub Site	Standpipe No.	Sampling		Intragravel Water					Surface Water				
					Temp. (C)	DO		pH	Conductivity (umhos/cm)	Temp. (C)	DO		pH	Conductivity (umhos/cm)
			Date (y/m/d)	Time		(mg/l)	%Sat.				(mg/l)	%Sat.		
SLOUGH 9A (133.6)	A	001	831109	----	4.0	6.3	49	7.1	259	3.0	10.0	76	6.8	155
	A	002	831109	----	3.5	9.9	76	7.0	255	2.5	6.4	48	6.8	193
	A	003	831109	----	3.5	10.0	77	7.0	127	2.5	10.0	75	6.8	184
	A	001	831214	1345	2.9	9.4	70	----	317	1.2	9.4	67	7.3	261
	A	002	831214	1345	3.0	7.6	57	----	316	1.3	11.2	80	7.3	260
	A	003	831214	1345	----	----	----	----	----	----	----	----	----	----
SIDE CHANNEL 10 (133.8)	A	001	830915	----	7.2	9.1	76	7.3	235	----	----	----	----	----
	A	002	830915	----	8.0	7.7	66	----	264	10.2	9.9	89	7.4	216
	A	003	830915	----	8.2	5.9	51	----	287	11.0	9.7	89	7.4	246
	A	004	830915	----	5.2	7.4	59	----	266	10.0	10.0	89	7.4	238
	A	005	830915	----	6.0	6.0	49	----	264	10.5	9.9	90	7.4	234
	A	006	830915	----	7.0	6.7	56	----	244	10.8	9.8	89	7.4	223
	A	007	830915	----	7.0	5.1	43	----	290	11.8	9.4	88	7.4	228
	A	008	830915	----	5.8	5.5	45	6.9	269	10.0	8.4	75	7.4	234
	A	009	830915	----	6.5	6.3	52	----	248	10.0	9.4	84	7.4	210
	A	010	830915	----	5.5	6.5	52	----	231	9.5	10.1	90	7.4	196
	A	011	830915	----	6.5	7.7	64	----	232	8.8	7.8	68	7.4	204
	A	012	830915	----	9.5	9.3	82	----	186	9.5	10.1	90	7.4	192
	A	013	830915	----	12.5	10.9	103	----	163	12.0	11.1	104	7.4	161
	A	014	830915	----	9.2	7.9	70	----	172	11.2	10.1	93	7.4	149
	A	015	830915	----	11.2	10.9	100	----	160	11.5	11.0	102	7.4	155
	A	016	830915	----	11.0	10.7	98	----	161	11.5	11.0	102	7.4	159
	A	017	830915	----	10.5	10.6	96	----	163	11.0	11.0	100	7.4	161
	A	018	830915	----	11.8	10.8	100	----	161	12.0	11.0	103	7.4	153
	A	019	830915	----	8.2	4.2	36	7.1	191	10.0	10.3	92	7.4	156
	A	001	831028	1330	0.5	6.6	47	----	----	----	----	----	----	----
	A	002	831028	1330	0.5	3.3	24	----	----	----	----	----	----	----
	A	003	831028	1330	0.5	3.3	24	7.4	----	----	----	----	----	----
	A	005	831028	1330	2.2	4.8	36	----	----	1.5	8.2	60	7.5	250
	A	006	831028	1330	2.5	5.3	40	----	228	2.0	8.0	60	7.5	246
	A	007	831028	1330	1.8	7.9	59	----	261	0.5	6.2	44	7.5	273
	A	008	831028	1330	3.1	5.8	45	7.3	241	3.0	7.3	56	7.5	233
	A	009	831028	1330	3.8	6.0	47	----	202	2.4	8.0	61	7.5	194
	A	010	831028	1330	3.0	6.2	48	----	216	1.2	10.2	75	7.5	220
	A	011	831028	1330	2.2	6.5	49	----	222	1.2	11.2	82	7.5	239
	A	013	831028	1330	1.0	6.3	46	----	203	----	----	----	----	----
	A	014	831028	1330	0.3	6.5	46	----	199	----	----	----	----	----
	A	016	831028	1330	0.3	9.6	68	----	193	0.3	8.8	63	7.5	----

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Appendix Table C-2. (Continued).

Site (River mile)	Sub Site	Standpipe No.	Sampling		Intragravel Water				Surface Water					
					Temp. (C)	DO		Conductivity (umhos/cm)	Temp. (C)	DO		Conductivity (umhos/cm)		
			Date (y/m/d)	Time		(mg/l)	%Sat.			pH	(mg/l)		%Sat.	pH
SIDE CHANNEL 10 (continued)	A	017	831028	1330	0.5	8.8	63	----	169	0.8	8.2	59	7.5	---
	A	019	831028	1330	1.5	3.7	27	7.5	227	0.8	7.6	55	7.5	186
	A	004	831110	1340	0.5	8.2	58	7.9	263	----	----	----	----	----
	A	005	831110	1340	1.0	6.0	43	7.9	259	1.0	6.3	46	----	233
	A	006	831110	1340	1.0	5.7	41	7.7	255	----	----	----	----	----
	A	013	831206	1315	0.6	13.4	94	----	210	----	----	----	----	----
A	016	831206	1315	0.0	10.8	74	----	215	----	----	----	----	----	
SLOUGH 10 (133.8)	A	001	830915	----	5.5	1.3	11	----	242	8.2	9.5	82	----	203
	A	002	830915	----	6.2	4.8	39	----	233	----	----	----	----	----
	A	003	830915	----	7.0	6.8	57	----	206	7.5	8.8	74	----	211
	A	004	830915	----	6.0	3.4	28	----	243	----	----	----	----	----
	A	005	830915	----	5.0	1.8	14	6.2	202	5.5	9.2	74	----	191
	A	006	830915	----	5.5	0.7	6	6.3	231	7.0	9.2	77	----	152
	A	007	830915	----	5.0	2.3	18	----	202	6.5	9.0	74	----	155
	A	008	830915	----	5.2	2.7	22	----	217	6.5	9.0	74	----	155
	A	009	830915	----	5.0	1.7	14	----	186	6.2	8.6	70	----	156
	A	010	830915	----	4.8	6.1	48	----	195	6.2	8.6	70	----	156
	A	011	830915	----	5.0	4.5	36	----	178	6.0	8.5	69	----	157
	A	012	830915	----	4.8	7.2	52	----	179	4.0	7.2	55	----	176
	A	013	830915	----	4.8	4.6	36	----	182	6.2	8.4	69	----	155
	A	014	830915	----	4.8	4.4	35	----	161	6.0	8.6	70	----	130
	A	015	830915	----	4.2	5.8	45	6.3	166	6.0	8.6	70	----	130
	A	016	830915	----	4.5	8.3	65	7.1	211	5.8	9.6	78	----	197
	A	017	830915	----	4.5	4.6	36	----	214	5.5	9.8	79	----	191
	A	018	830915	----	5.0	5.4	43	----	218	5.5	9.6	77	----	199
	A	019	830915	----	4.5	5.8	45	----	222	5.5	9.9	80	----	191
	A	020	830915	----	4.5	5.4	42	----	214	5.5	9.9	80	----	199
	A	004	831029	1150	1.1	1.6	12	----	501	----	----	----	----	----
	A	005	831029	1150	2.5	0.8	6	7.5	156	3.0	10.1	77	7.3	195
	A	006	831029	1150	2.8	0.7	5	----	195	2.8	9.5	72	7.3	150
	A	007	831029	1150	2.8	0.8	6	----	217	3.0	9.6	73	7.3	149
	A	008	831029	1150	2.8	1.1	8	7.3	174	3.0	9.5	72	7.3	150
	A	009	831029	1150	2.9	0.4	3	----	194	3.1	8.9	68	7.3	148
	A	010	831029	1150	3.1	6.3	48	----	198	3.1	8.9	68	7.3	151
	A	011	831029	1150	3.0	0.5	4	----	207	3.1	8.6	66	7.3	151
	A	012	831029	1150	3.0	7.1	54	----	181	3.2	7.4	57	7.3	180
	A	013	831029	1150	3.0	3.7	28	----	154	2.9	8.8	67	7.3	140
	A	014	831029	1150	3.2	6.3	48	----	146	2.8	8.7	66	7.3	132
	A	015	831029	1150	3.5	6.5	50	7.4	146	2.8	8.7	66	7.3	127

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Appendix Table C-2. (Continued).

Site (River mile)	Sub Site	Standpipe No.	Sampling		Intragravel Water					Surface Water				
					DO					DO				
			Date (y/m/d)	Time	Temp. (C)	(mg/l)	%Sat.	pH	Conductivity (umhos/cm)	Temp. (C)	(mg/l)	%Sat.	pH	Conductivity (umhos/cm)
SLOUGH 10 (continued)	A	016	831029	1150	3.0	6.8	52	---	211	2.9	10.3	78	7.3	194
	A	017	831029	1150	3.0	5.9	45	---	207	3.0	10.3	78	7.3	197
	A	018	831029	1150	3.4	6.2	48	7.2	208	3.0	10.4	79	7.3	195
	A	019	831029	1150	3.2	6.5	50	---	209	3.0	10.8	82	7.3	195
	A	020	831029	1150	3.2	6.7	51	7.2	204	3.0	10.8	82	7.3	193
	A	007	831110	---	2.0	1.3	10	7.5	225	2.0	9.4	70	7.4	159
	A	008	831110	---	2.0	1.6	12	7.5	229	2.5	9.3	70	7.4	151
	A	018	831110	---	3.0	6.1	47	7.4	214	2.5	9.7	73	7.4	204
	A	019	831110	---	2.5	6.3	48	7.4	218	2.0	10.0	75	7.4	204
	A	004	831206	1305	0.2	3.5	24	---	660	---	---	---	---	---
	A	008	831206	1305	1.5	2.7	20	---	211	2.5	10.1	75	7.1	163
	A	009	831206	1305	2.4	1.7	13	---	261	2.8	8.4	63	7.1	209
	A	010	831206	1305	2.3	5.9	43	7.0	235	2.8	8.4	63	7.1	195
	A	011	831206	1305	2.6	1.2	9	---	206	2.8	8.3	62	7.1	179
	A	012	831206	1305	2.8	6.9	52	7.0	184	---	---	---	---	---
	A	013	831206	1305	2.4	6.4	47	---	173	2.5	8.1	60	7.1	151
	A	014	831206	1305	2.9	4.7	35	---	153	2.5	7.8	58	7.1	144
	A	015	831206	1305	2.8	6.1	46	---	150	2.5	7.7	57	7.1	137
	A	017	831206	1305	1.2	6.5	47	---	218	1.9	9.2	65	7.3	211
	A	018	831206	1305	2.2	6.6	49	7.3	232	1.9	9.8	70	7.3	211
	A	019	831206	1305	1.8	6.6	48	---	218	1.9	10.0	71	7.3	206
	A	020	831206	1305	1.9	6.8	48	7.2	217	1.9	10.1	72	7.3	203
	A	001	831206	1305	2.2	5.8	43	---	135	1.8	6.5	48	7.1	128
SLOUGH 11 (135.3)	A	001	830915	---	5.0	11.7	93	7.2	222	5.0	11.6	92	---	223
	A	002	830915	---	5.0	5.3	42	---	230	---	---	---	---	---
	A	003	830915	---	4.8	10.2	80	---	212	---	---	---	---	---
	A	004	830915	---	5.0	8.5	67	---	212	---	---	---	---	---
	A	005	830915	---	5.0	10.9	86	---	231	---	---	---	---	---
	A	006	830915	---	5.0	6.8	54	---	199	---	---	---	---	---
	A	007	830915	---	4.8	9.2	73	---	212	---	---	---	---	---
	A	008	830915	---	4.5	10.2	80	---	214	5.2	12.0	95	---	224
	A	009	830915	---	5.0	8.9	70	---	218	---	---	---	---	---
	A	010	830915	---	4.8	6.3	50	---	252	5.0	10.5	83	---	223
	A	011	830915	---	5.8	8.2	66	---	204	5.8	10.7	87	---	215
	A	012	830915	---	4.8	5.3	42	---	195	---	---	---	---	---
	A	013	830915	---	7.0	11.1	92	---	213	5.8	10.6	86	---	213
	A	014	830915	---	5.8	5.6	46	7.0	213	5.5	11.5	95	---	212
	A	015	830915	---	5.8	3.8	31	---	213	5.2	11.5	91	---	217
	A	016	830915	---	5.5	3.8	31	---	217	5.2	11.7	93	---	217

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Appendix Table C-2. (Continued).

Site (River mile)	Sub Site	Standpipe No.	Sampling		Intragravel Water				Surface Water					
					Temp. (C)	DO		Conductivity (umhos/cm)	Temp. (C)	DO		Conductivity (umhos/cm)		
			Date (y/m/d)	Time		(mg/l)	XSat. pH			(mg/l)	XSat. pH			
SLOUGH 11 (continued)	A	017	830915	----	5.2	5.1	41	----	222	5.2	11.5	91	----	222
	A	018	830915	----	5.0	9.4	75	----	223	5.2	12.7	100	----	225
	A	019	830915	----	5.2	12.2	97	----	222	5.2	12.2	97	----	222
	A	020	830915	----	5.8	5.7	46	6.8	212	5.2	11.2	89	----	219
	A	001	831101	1225	1.2	12.4	90	----	220	1.2	12.4	90	7.3	220
	A	003	831101	1225	0.2	12.3	87	----	224	----	----	----	----	----
	A	004	831101	1225	0.3	8.8	63	----	218	----	----	----	----	----
	A	007	831101	1225	0.9	11.0	81	7.4	224	----	----	----	----	----
	A	008	831101	1225	1.9	9.9	74	----	226	1.2	11.8	86	7.3	226
	A	009	831101	1225	1.4	10.7	79	----	226	0.9	11.3	82	7.3	226
	A	010	831101	1225	1.9	9.8	73	----	219	1.6	10.8	80	7.3	228
	A	011	831101	1225	2.4	6.5	49	----	217	1.5	12.0	88	7.3	229
	A	012	831101	1225	1.2	10.0	73	----	224	----	----	----	----	----
	A	013	831101	1225	3.4	6.5	50	----	213	1.6	11.2	83	7.3	224
	A	014	831101	1225	1.2	12.5	91	----	222	1.4	12.5	92	7.3	222
	A	015	831101	1225	2.9	6.3	48	----	211	1.4	12.3	90	7.3	226
	A	016	831101	1225	2.3	4.7	36	7.1	223	1.3	12.5	91	7.3	227
	A	017	831101	1225	2.9	7.2	55	----	222	1.4	12.2	89	7.3	222
	A	018	831101	1225	1.3	11.0	80	----	230	1.2	13.4	97	7.3	226
	A	019	831101	1225	1.2	13.5	98	----	228	1.3	13.3	97	7.3	223
	A	020	831101	1225	2.4	8.4	64	----	208	1.5	12.0	88	7.3	223
	A	001	831205	1400	1.0	11.0	78	7.5	237	1.0	10.8	77	7.6	238
	A	003	831205	1400	0.9	10.8	77	----	226	----	----	----	----	----
	A	008	831205	1400	1.3	8.8	63	----	241	1.0	10.0	71	7.6	368
	A	009	831205	1400	1.1	9.8	70	----	239	0.9	10.0	71	7.6	232
	A	010	831205	1400	1.1	8.9	64	----	241	1.0	9.0	64	7.6	240
	A	011	831205	1400	2.0	6.6	48	----	230	1.0	10.3	74	7.6	238
	A	012	831205	1400	0.6	9.4	66	----	238	----	----	----	----	----
	A	013	831205	1400	2.0	7.9	58	----	225	1.5	10.3	74	7.6	232
	A	014	831205	1400	1.2	9.3	67	----	233	1.0	10.7	76	7.6	237
	A	015	831205	1400	2.5	7.3	54	----	225	1.0	10.8	77	7.6	238
	A	016	831205	1400	1.2	8.5	61	----	239	0.9	10.8	77	7.6	241
	A	017	831205	1400	2.2	8.4	62	----	234	1.2	10.6	76	7.6	239
	A	018	831205	1400	0.3	10.4	73	----	233	1.0	11.3	80	7.6	240
	A	020	831205	1400	1.9	7.5	54	7.2	228	1.1	10.3	74	7.6	239
	B	04A	830915	----	4.2	10.2	79	----	229	5.5	8.0	64	7.2	223
	B	04B	830915	----	4.2	8.0	62	----	226	5.5	10.8	87	7.2	223
	B	04C	830915	----	4.2	8.5	66	----	224	5.5	10.4	83	7.2	222
	B	10A	830915	----	4.2	9.7	75	----	228	5.5	11.3	91	7.2	215
	B	10B	830915	----	4.0	9.0	70	----	226	5.5	10.4	83	7.2	215

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Appendix Table C-2. (Continued).

Site (River mile)	Sub Site	Standpipe No.	Sampling		Intragravel Water				Surface Water					
			Date (y/m/d)	Time	Temp. (C)	DO		Conductivity (umhos/cm)	Temp. (C)	DO		Conductivity (umhos/cm)		
						(mg/l)	XSat. pH			(mg/l)	XSat. pH			
SLOUGH 11 (continued)	B	10C	830915	----	5.0	8.8	70	----	218	5.5	10.6	85	7.2	220
	B	11A	830915	----	4.2	8.0	62	----	226	5.5	11.4	91	7.2	223
	B	11B	830915	----	4.2	8.0	62	----	224	5.5	11.2	90	7.2	223
	B	11C	830915	----	4.5	7.8	61	----	227	5.5	11.3	91	7.2	223
	B	21A	830915	----	4.5	5.6	44	----	227	5.5	11.0	88	7.2	223
	B	21B	830915	----	4.5	8.2	64	----	227	5.5	11.3	91	7.2	223
	B	21C	830915	----	4.5	8.3	65	----	227	5.5	11.3	91	7.2	223
	B	21D	830915	----	4.8	10.0	79	----	220	5.5	11.1	89	7.2	215
	B	21E	830915	----	4.8	10.1	80	----	220	5.2	11.2	89	7.2	217
	B	21F	830915	----	4.0	9.8	76	----	226	5.5	11.2	90	7.2	215
	B	04A	831101	1400	2.6	9.3	71	----	238	1.6	11.5	85	7.3	235
	B	04B	831101	1400	2.9	9.2	71	7.2	231	1.6	11.4	84	7.3	235
	B	04C	831101	1400	2.9	8.8	67	----	229	1.6	11.4	84	7.3	235
	B	10A	831101	1400	2.6	10.5	80	----	231	1.7	11.4	85	7.3	231
	B	10B	831101	1400	2.9	10.0	77	----	234	1.6	11.4	84	7.3	233
	B	10C	831101	1400	2.5	10.0	76	----	237	1.6	11.3	84	7.3	233
	B	11A	831101	1400	2.4	8.6	65	----	231	1.6	12.0	89	7.3	235
	B	11B	831101	1400	2.9	8.9	68	7.3	229	1.6	11.9	88	7.3	235
	B	11C	831101	1400	3.0	8.8	68	----	225	1.6	11.9	88	7.3	235
	B	21A	831101	1400	2.5	8.7	66	----	237	1.6	11.8	87	7.3	235
	B	21B	831101	1400	2.6	8.7	66	----	233	1.6	11.8	87	7.3	235
	B	21C	831101	1400	2.6	9.2	70	----	234	1.6	11.6	85	7.3	235
	B	21D	831101	1400	2.6	9.6	73	7.2	227	1.4	11.7	86	7.3	228
	B	21E	831101	1400	2.6	9.6	73	----	234	1.6	11.6	85	7.3	231
	B	21F	831101	1400	2.6	10.5	80	----	229	1.6	11.4	84	7.3	231
	B	04A	831205	1610	2.0	8.6	63	----	243	1.0	9.6	69	----	246
	B	04B	831205	1610	2.1	8.5	62	----	246	1.2	9.6	69	----	242
	B	04C	831205	1610	2.5	8.7	64	----	240	1.2	9.8	70	----	240
	B	10A	831205	1610	2.0	9.4	69	----	243	0.9	9.8	70	----	245
	B	10B	831205	1610	1.9	9.0	65	----	246	1.0	9.7	69	----	242
	B	10C	831205	1610	2.5	9.2	68	----	244	1.0	9.7	69	----	244
	B	11A	831205	1610	2.0	8.4	62	----	246	1.4	10.1	73	----	240
	B	11B	831205	1610	2.0	8.2	60	----	246	1.3	10.1	73	----	241
	B	11C	831205	1610	2.2	8.0	59	----	236	1.2	10.1	73	----	242
	B	21A	831205	1610	2.0	8.1	59	----	241	1.1	10.2	73	----	245
	B	21B	831205	1610	2.0	8.2	60	----	246	1.1	9.6	69	----	243
	B	21C	831205	1610	2.0	8.3	61	----	241	1.4	9.3	67	----	242
	B	21D	831205	1610	2.1	9.0	66	----	242	1.2	10.0	72	----	240
	B	21E	831205	1610	1.8	8.6	62	----	241	1.0	10.0	71	----	246
	B	21F	831205	1610	1.9	9.2	67	----	242	1.1	9.7	69	----	245

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Appendix Table C-2. (Continued).

Site (River mile)	Sub Site	Standpipe No.	Sampling		Intragravel Water					Surface Water				
					DO					DO				
			Date (y/m/d)	Time	Temp. (C)	(mg/l)	%Sat.	pH	Conductivity (umhos/cm)	Temp. (C)	(mg/l)	%Sat.	pH	Conductivity (umhos/cm)
SLOUGH 11 (continued)	C	DVA	831101	1225	2.3	8.4	63	----	230	1.4	12.4	91	7.3	230
	C	DVB	831101	1225	2.4	8.5	64	7.2	232	1.4	12.5	92	7.3	228
	C	DVC	831101	1225	2.6	5.3	40	----	259	1.4	12.5	92	7.3	226
	C	DVA	831109	----	3.0	8.6	66	7.6	225	2.0	11.5	85	7.6	223
	C	DVB	831109	----	2.5	8.6	65	7.5	228	2.0	11.5	85	7.6	223
	C	DVC	831109	----	3.5	6.4	50	7.5	221	2.0	11.5	85	7.6	223
	C	DVA	831205	1400	2.0	7.7	56	----	241	1.0	10.8	77	7.6	237
	C	DVB	831205	1400	2.0	7.6	55	7.4	241	1.0	11.0	78	7.6	235
	C	DVC	831205	1400	2.2	6.4	47	----	234	1.1	10.9	78	7.6	239
MAINSTEM (136.1)	A	DVA	831109	----	1.0	7.9	57	8.3	185	0.5	12.6	90	8.4	226
	A	DVB	831109	----	0.5	11.2	80	8.2	226	0.5	12.6	90	8.4	226
	A	DVC	831109	----	0.5	12.0	85	8.1	197	0.5	12.6	90	8.4	226
	A	DVA	831208	1400	0.3	12.8	90	----	208	0.0	13.5	94	8.1	272
SIDE CHANNEL 11 (136.1)	A	DVA	831109	----	2.0	5.5	41	7.5	116	----	----	----	----	----
	A	DVB	831109	----	2.0	5.6	42	7.5	116	----	----	----	----	----
	A	DVC	831109	----	2.0	5.5	41	7.6	125	1.0	11.0	80	7.8	129
	A	DVA	831208	1315	2.3	5.7	43	----	143	0.1	7.5	53	7.3	170
	A	DVB	831208	1315	2.0	5.5	41	7.2	143	0.1	7.6	53	7.3	185
	A	DVC	831208	1315	3.0	5.6	43	----	142	0.2	9.6	68	7.3	202
MAINSTEM (136.8)	A	M1A	831108	1555	3.0	7.1	54	7.1	233	3.0	7.0	53	7.0	173
	A	M1B	831108	1555	4.0	7.4	58	7.2	251	3.0	7.6	57	7.0	190
	A	M1C	831108	1555	4.0	7.5	59	7.1	251	3.0	8.4	64	7.0	173
	A	M1C	831214	1415	----	----	----	----	----	0.9	10.8	76	7.3	221
INDIAN RIVER (138.6)	A	001	831108	1515	4.0	9.9	77	6.6	50	4.5	9.9	78	6.8	49
	A	002	831108	1515	1.0	13.0	93	6.9	55	0.5	13.2	93	6.8	56
	A	003	831108	1515	1.0	12.2	88	7.0	55	0.5	12.4	88	6.8	56
	A	001	831213	1305	0.3	13.8	96	7.0	57	0.2	13.8	95	7.1	53
	A	002	831213	1305	0.0	14.2	97	7.0	48	----	----	----	----	----
	A	003	831213	1305	0.2	14.0	97	----	57	----	----	----	----	----
MAINSTEM (138.7)	A	001	831108	----	3.0	8.9	68	6.5	119	----	----	----	----	----
	A	002	831108	----	1.0	9.3	67	6.9	129	----	----	----	----	----
	A	003	831108	----	2.0	8.5	63	6.9	116	----	----	----	----	----
	A	002	831213	1340	2.8	10.8	81	6.6	64	----	----	----	----	----

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Appendix Table C-2. (Continued).

Site (River mile)	Sub Site	Standpipe No.	Sampling		Intragravel Water					Surface Water				
					Temp. (C)	DO		pH	Conductivity (umhos/cm)	Temp. (C)	DO		pH	Conductivity (umhos/cm)
			Date (y/m/d)	Time		(mg/l)	%Sat.				(mg/l)	%Sat.		
SLOUGH 17 (138.9)	A	001	831108	----	2.0	2.3	17	6.8	375	2.5	11.7	87	6.8	246
	A	002	831108	----	1.0	8.9	64	6.8	166	----	----	----	----	----
	A	003	831108	----	2.0	9.0	66	6.7	170	3.0	11.5	87	6.8	155
	A	001	831213	1350	1.3	1.6	12	7.2	210	1.5	11.8	85	6.8	78
	A	003	831213	1350	1.9	3.4	25	6.9	81	1.5	11.2	81	6.8	78
SIDE CHANNEL 21 (141.0)	A	001	830914	1525	5.8	6.5	63	----	158	7.0	11.6	98	----	152
	A	004	830914	1525	6.5	9.7	81	----	155	6.8	9.4	79	----	146
	A	005	830914	1525	6.0	12.3	101	----	144	6.0	12.4	101	----	149
	A	006	830914	1525	7.2	12.6	106	----	132	7.5	12.7	108	----	131
	A	007	830914	1525	7.0	9.8	83	----	76	----	----	----	----	----
	A	008	830914	1525	6.0	12.1	100	----	144	6.0	12.3	100	----	149
	A	009	830914	1525	7.0	12.0	100	----	122	----	----	----	----	----
	A	010	830914	1525	6.5	6.9	58	----	170	7.2	11.0	93	----	139
	A	011	830914	1525	6.8	6.5	55	----	184	7.0	6.2	52	----	191
	A	012	830914	1525	6.0	10.1	83	----	96	----	----	----	----	----
	A	013	830914	1525	6.0	10.1	83	----	71	6.0	13.0	106	----	127
	A	014	830914	1525	7.0	8.8	74	----	133	----	----	----	----	----
	A	015	830914	1525	5.8	11.6	95	----	100	5.8	13.0	106	----	128
	A	081	830914	1525	6.5	10.0	84	6.6	77	6.8	10.5	88	----	77
	A	082	830914	1525	6.0	8.0	60	----	113	----	----	----	----	----
	A	083	830914	1525	5.0	10.3	83	----	121	----	----	----	----	----
	A	084	830914	1525	5.2	7.6	61	----	113	----	----	----	----	----
	A	085	830914	1525	6.0	10.3	85	----	86	----	----	----	----	----
	A	001	831027	1345	2.8	8.3	106	----	139	0.8	14.4	101	7.7	145
	A	005	831027	1345	0.2	14.3	99	----	124	0.9	14.8	104	7.7	121
	A	013	831027	1345	2.2	11.2	82	----	71	1.4	12.0	86	7.7	73
	A	015	831027	1345	0.4	----	----	----	94	1.5	14.6	104	7.7	91
	B	00A	830914	1525	5.2	7.5	61	6.7	129	6.5	12.1	101	----	155
	B	00B	830914	1525	6.0	11.2	92	----	149	6.0	12.4	102	----	149
	B	00C	830914	1525	5.8	10.7	88	----	118	5.8	12.4	101	----	142
	B	00D	830914	1525	6.0	10.7	88	----	144	6.0	12.2	100	----	152
	B	00E	830914	1525	6.5	10.9	91	----	155	6.5	12.4	103	----	155
	B	00F	830914	1525	6.0	11.2	92	----	149	6.0	12.1	100	----	157
	B	00G	830914	1525	6.5	9.7	81	----	113	6.5	12.0	100	----	155
	B	00H	830914	1525	6.5	10.6	88	7.5	139	6.5	12.0	100	----	139
	B	00A	830914	1525	7.0	10.0	84	----	76	7.0	10.8	91	----	76
	B	00B	830914	1525	7.0	8.8	74	----	79	7.0	12.2	102	----	76
	B	00A	831027	1345	3.2	10.4	79	6.9	89	0.5	14.9	104	7.7	147
	B	00C	831027	1345	1.2	13.6	97	----	114	1.8	14.8	107	7.7	126
	B	00D	831027	1345	1.4	14.3	102	----	118	1.5	14.8	106	7.7	136

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Appendix Table C-2. (Continued).

Site (River mile)	Sub Site	Standpipe No.	Sampling		Intragravel Water					Surface Water				
					Temp. (C)	DO		pH	Conductivity (umhos/cm)	Temp. (C)	DO		pH	Conductivity (umhos/cm)
			Date (y/m/d)	Time		(mg/l)	%Sat.				(mg/l)	%Sat.		
SIDE CHANNEL 21 (continued)	B	00E	831027	1345	0.5	14.6	102	----	150	0.8	15.0	106	7.7	149
	B	00F	831027	1345	1.3	14.5	104	----	133	1.8	14.8	107	7.7	144
	B	00G	831027	1345	0.5	14.4	100	----	132	0.8	15.0	106	7.7	149
	B	00H	831027	1345	0.9	14.3	100	7.1	148	1.0	14.8	104	7.7	148
	B	00A	831027	1345	1.0	12.1	86	6.6	70	1.2	12.5	90	7.7	55
	B	00B	831027	1345	0.2	14.7	101	----	80	0.2	14.5	100	7.7	57
	B	00F	831203	1305	0.0	13.2	92	----	130	0.0	13.2	92	7.6	169
	C	D1A	830914	1525	6.0	8.4	69	----	78	6.0	12.4	101	----	141
	C	D2A	830914	1525	6.0	8.3	69	----	78	6.0	12.4	101	----	141
	C	D2B	830914	1525	6.0	8.0	66	----	82	6.0	12.1	100	----	141
	C	DV1	831027	1345	1.5	12.2	88	----	54	1.2	14.1	100	7.7	92
	C	DV2	831027	1345	2.6	12.6	94	----	87	0.8	14.6	102	7.7	121
	C	DV3	831027	1345	2.2	12.6	93	----	89	0.9	14.8	104	7.7	130
	C	DV1	831108	----	2.5	----	----	----	----	0.5	----	----	----	----
	C	DV2	831108	----	2.0	----	----	----	----	0.5	----	----	----	----
	C	DV3	831108	----	1.5	----	----	----	----	0.5	----	----	----	----
	C	DV2	831203	1305	0.2	12.2	85	----	158	0.0	13.2	92	7.6	149
	C	DV3	831203	1305	0.0	12.2	85	----	157	0.1	13.2	92	7.6	149
SLOUGH 21 (141.8)	A	001	830913	1500	5.0	8.8	70	----	100	7.0	10.6	90	----	184
	A	002	830913	1500	4.7	8.7	69	----	113	7.0	10.7	90	----	178
	A	003	830913	1500	5.2	8.0	64	----	111	6.7	11.0	92	----	180
	A	004	830913	1500	5.2	8.9	72	----	122	6.8	10.6	89	----	184
	A	005	830913	1500	7.0	9.4	79	----	146	7.6	10.3	88	----	180
	A	006	830913	1500	5.2	9.1	73	----	101	6.7	10.8	90	----	175
	A	007	830913	1500	6.8	8.7	73	----	141	7.0	10.3	87	----	183
	A	008	830913	1500	5.5	8.9	72	----	153	7.2	10.3	87	----	182
	A	009	830913	1500	5.0	9.1	73	----	146	7.0	10.0	84	----	180
	A	00A	830913	1500	5.2	8.3	67	----	121	6.8	10.8	90	----	175
	A	00B	830913	1500	4.5	8.3	65	----	122	6.5	11.0	92	----	181
	A	00C	830913	1500	4.8	8.5	68	----	127	6.5	11.1	92	----	178
	A	00D	830913	1500	5.8	6.4	52	----	175	6.8	8.5	71	----	183
	A	00E	830913	1500	5.0	6.6	53	----	181	7.5	8.3	71	----	183
	A	00F	830913	1500	5.5	6.0	49	----	177	7.5	6.3	54	----	179
	A	010	830913	1500	5.0	6.3	50	----	152	6.8	10.0	84	----	183
	A	011	830913	1500	6.0	8.6	71	----	160	6.5	11.0	92	----	181
	A	012	830913	1500	5.8	8.9	73	----	125	6.8	11.0	92	----	164
	A	013	830913	1500	5.0	9.3	74	----	167	6.5	10.0	83	----	181
	A	014	830913	1500	6.0	8.8	73	----	162	6.5	8.7	73	----	181
	A	015	830913	1500	5.0	7.8	63	----	155	6.5	10.0	80	----	186

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Appendix Table C-2. (Continued).

Site (River mile)	Sub Site	Standpipe No.	Sampling		Intragravel Water					Surface Water				
					Temp. (C)	DO		pH	Conductivity (umhos/cm)	Temp. (C)	DO		pH	Conductivity (umhos/cm)
			Date (y/m/d)	Time		(mg/l)	ISat.				(mg/l)	ISat.		
SLOUGH 21 (continued)	A	016	830913	1500	5.0	9.0	72	---	163	6.2	11.0	91	---	189
	A	001	831026	1230	2.5	9.7	73	7.1	105	2.3	11.1	83	7.2	186
	A	002	831026	1230	2.6	9.9	74	---	105	2.4	11.1	84	7.2	185
	A	003	831026	1230	2.5	9.8	74	---	105	2.4	11.1	84	7.2	181
	A	004	831026	1230	2.6	9.9	74	---	114	2.4	11.1	84	7.2	190
	A	005	831026	1230	2.2	8.4	62	---	142	2.2	10.8	80	7.2	181
	A	006	831026	1230	2.5	9.7	73	---	105	2.5	11.2	84	7.2	179
	A	007	831026	1230	2.0	6.8	50	---	182	2.4	10.8	80	7.2	190
	A	008	831026	1230	2.2	8.7	64	---	174	2.4	10.9	81	7.2	185
	A	009	831026	1230	2.4	6.7	50	---	185	2.0	10.3	76	7.2	182
	A	00A	831026	1230	2.9	9.1	69	---	130	2.4	11.3	85	7.2	180
	A	00B	831026	1230	2.3	9.3	70	---	133	2.4	11.6	87	7.2	185
	A	00C	831026	1230	2.5	9.6	72	7.0	132	2.4	11.9	89	7.2	185
	A	00D	831026	1230	3.1	7.4	56	6.9	188	2.4	10.2	77	7.2	185
	A	00E	831026	1230	3.2	7.4	56	---	187	2.4	10.1	76	7.2	194
	A	010	831026	1230	2.4	4.8	36	---	173	2.5	10.9	82	7.2	175
	A	011	831026	1230	2.3	7.9	59	---	182	2.4	11.6	87	7.2	185
	A	012	831026	1230	2.0	10.7	79	---	139	2.3	11.6	86	7.2	173
	A	013	831026	1230	2.1	9.6	71	---	151	2.5	10.4	78	7.2	184
	A	014	831026	1230	2.4	9.1	68	---	158	2.4	10.1	76	7.2	192
	A	015	831026	1230	2.8	8.5	64	---	157	2.4	10.6	79	7.2	194
	A	016	831026	1230	3.1	8.6	66	---	146	2.3	11.1	83	7.2	194
	A	00C	831108	1230	3.0	9.8	74	---	---	2.5	13.0	96	7.6	---
	A	014	831108	1230	3.0	10.0	75	7.5	164	2.5	12.7	94	7.6	193
	A	015	831108	1230	3.0	10.3	77	7.4	159	2.5	13.0	96	7.6	193
	A	016	831108	1230	3.0	10.4	78	7.5	155	3.0	13.0	98	7.6	188
	A	001	831202	1200	1.6	9.0	65	---	114	1.0	10.8	77	7.3	185
	A	002	831202	1200	2.4	9.2	68	---	118	1.2	11.1	79	7.3	187
	A	003	831202	1200	2.2	8.8	64	---	117	1.2	11.1	79	7.3	189
	A	004	831202	1200	2.3	8.6	63	---	140	1.2	11.0	79	7.3	196
	A	005	831202	1200	0.9	8.2	58	7.4	148	0.8	10.4	74	7.3	190
	A	006	831202	1200	2.6	8.8	65	---	124	1.2	10.9	78	7.3	187
	A	007	831202	1200	2.4	7.7	57	---	157	0.9	10.5	75	7.3	200
	A	008	831202	1200	1.7	7.6	55	---	166	0.8	10.0	71	7.3	192
	A	009	831202	1200	2.4	8.4	62	---	148	---	---	---	---	---
	A	00A	831202	1200	2.4	8.8	65	---	137	1.2	11.0	79	7.3	187
	A	00B	831202	1200	2.4	8.9	66	---	137	1.2	11.0	79	7.3	189
	A	00C	831202	1200	2.6	8.7	64	---	140	1.2	11.1	79	7.3	189
	A	00D	831202	1200	2.6	5.9	44	---	196	2.3	9.4	69	7.3	194
	A	00E	831202	1200	2.4	6.9	51	---	195	1.2	10.0	72	7.3	202

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Appendix Table C-2. (Continued).

Site (River mile)	Sub Site	Standpipe No.	Sampling		Intragravel Water					Surface Water				
					Temp. (C)	DO		pH	Conductivity (umhos/cm)	Temp. (C)	DO		pH	Conductivity (umhos/cm)
			Date (y/m/d)	Time		(mg/l)	%Sat.				(mg/l)	%Sat.		
SLOUGH 21 (continued)	A	00F	831202	1200	2.6	5.7	42	----	191	1.4	8.0	57	7.3	209
	A	010	831202	1200	1.4	1.4	10	----	237	1.2	10.6	76	7.3	198
	A	011	831202	1200	2.2	8.7	64	7.4	158	1.2	10.9	78	7.3	185
	A	012	831202	1200	2.4	8.8	65	----	129	1.2	11.0	79	7.3	183
	A	013	831202	1200	1.9	8.1	59	----	167	1.2	10.5	75	7.3	196
	A	014	831202	1200	2.5	8.1	60	7.3	165	1.3	9.8	70	7.3	199
	A	015	831202	1200	2.4	8.2	60	----	165	1.2	10.5	75	7.3	202

TEMPERATURE (°C)

.00
MINIMUM

12.00
MAXIMUM

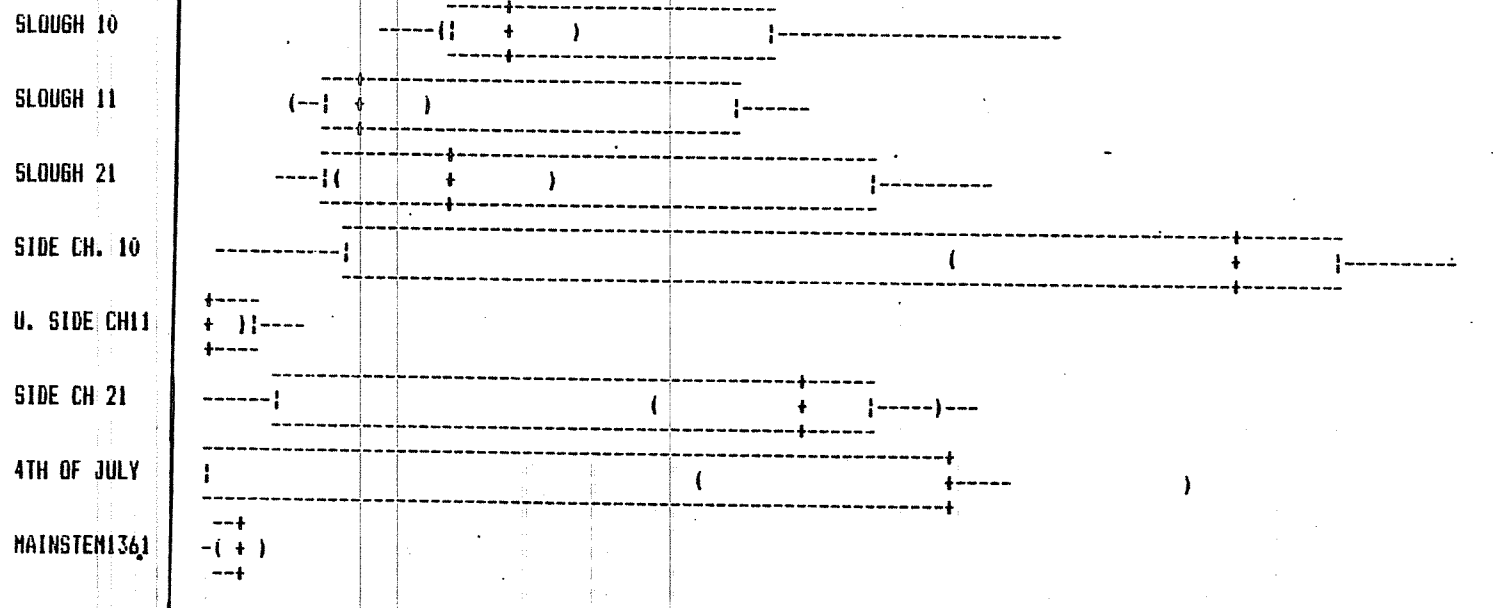


Figure C-1.

Summary, by study site, of the surface water temperature data (°C) periodically measured at standpipe locations during the 1983-84 winter period in the middle Susitna River, Alaska

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TEMPERATURE (°C)

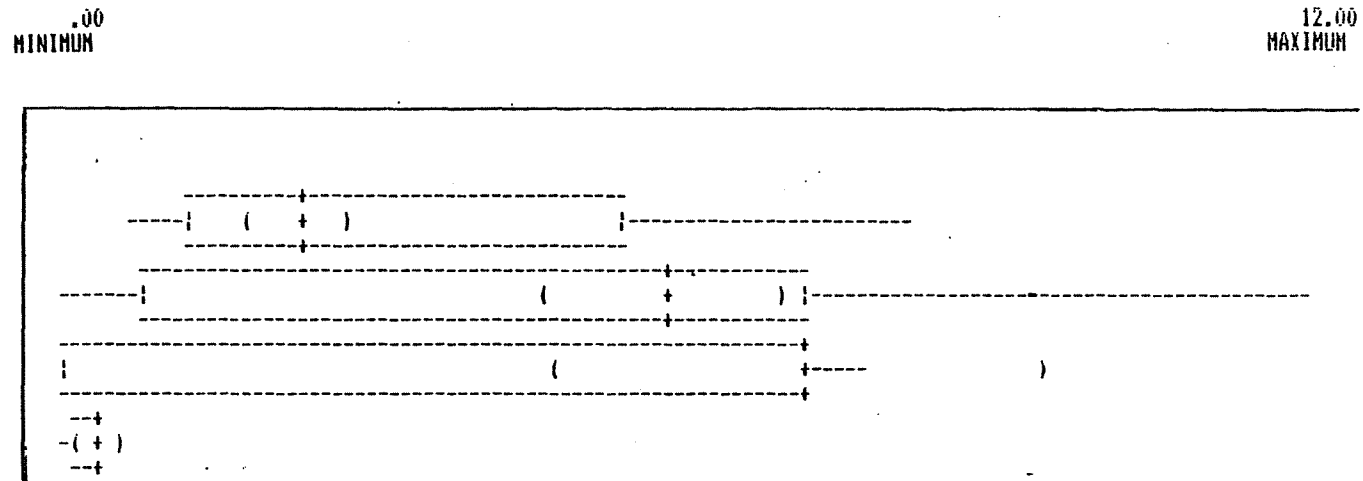


Figure C-2. Summary, by habitat type, of the surface water temperature data (°C) periodically measured at standpipe locations during the 1983-84 winter period in the middle Susitna River, Alaska

DISSOLVED OXYGEN (mg/l)

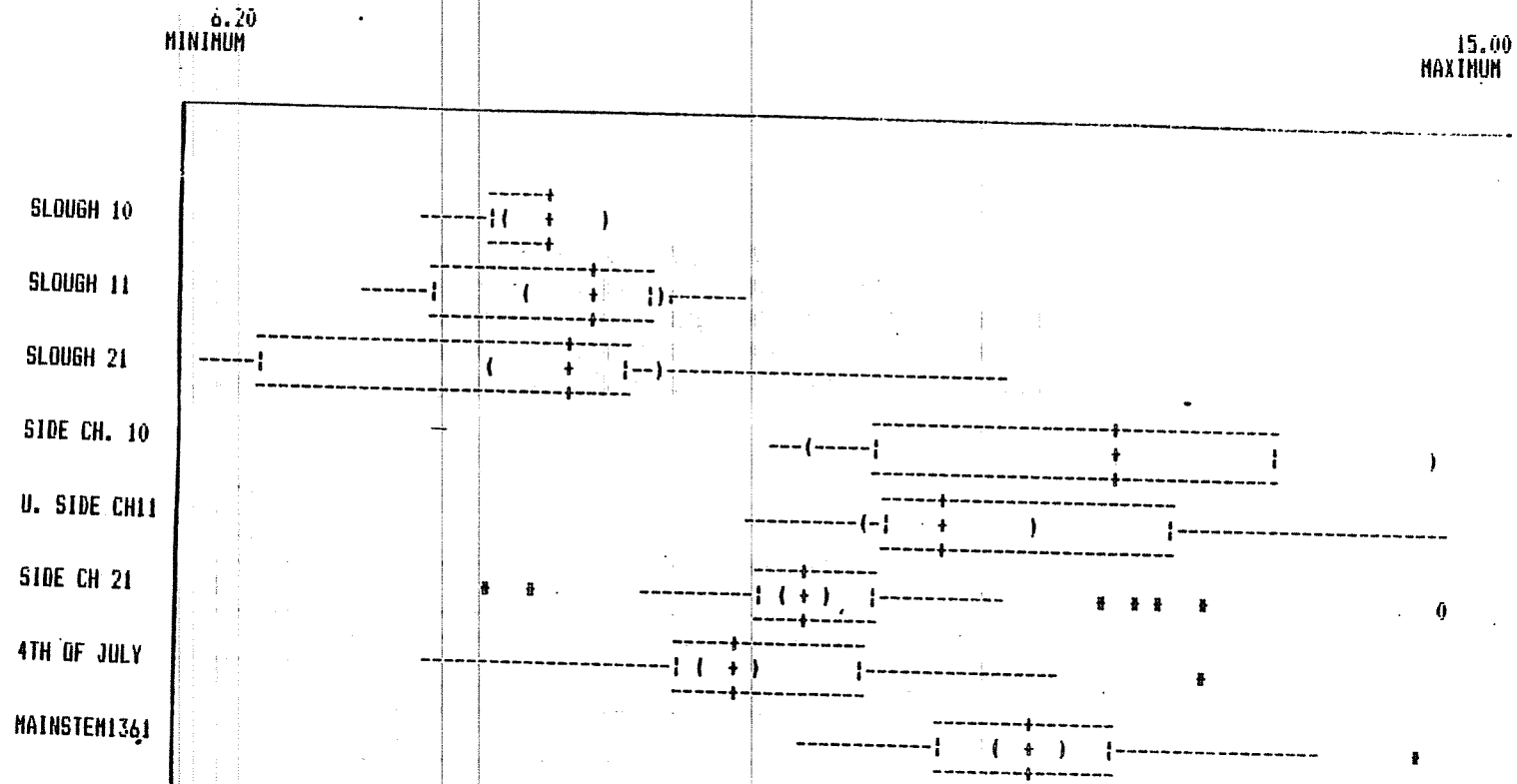


Figure C-3. Summary, by study site, of the surface water dissolved oxygen data (mg/l) periodically measured at standpipe locations during the 1983-84 winter period in the middle Susitna River, Alaska

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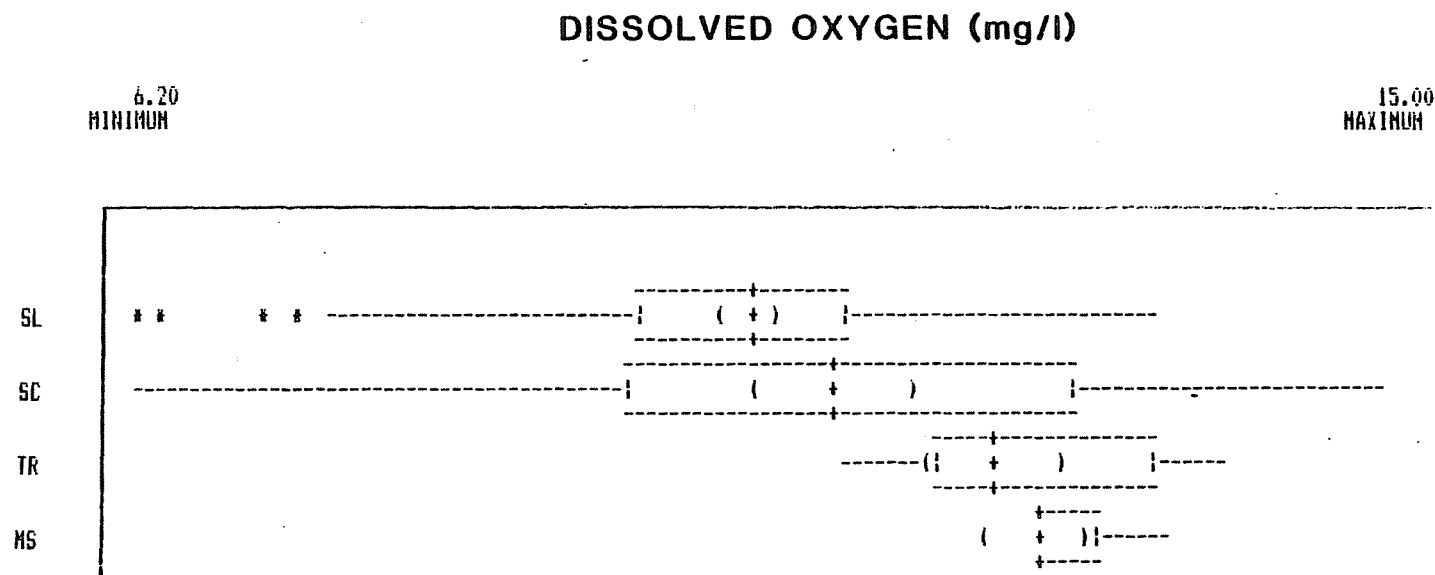


Figure C-4. Summary, by habitat type, of the surface water dissolved oxygen data (mg/l) periodically measured at standpipe locations during the 1983-84 winter period in the middle Susitna River, Alaska

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DISSOLVED OXYGEN (PERCENT SATURATION)

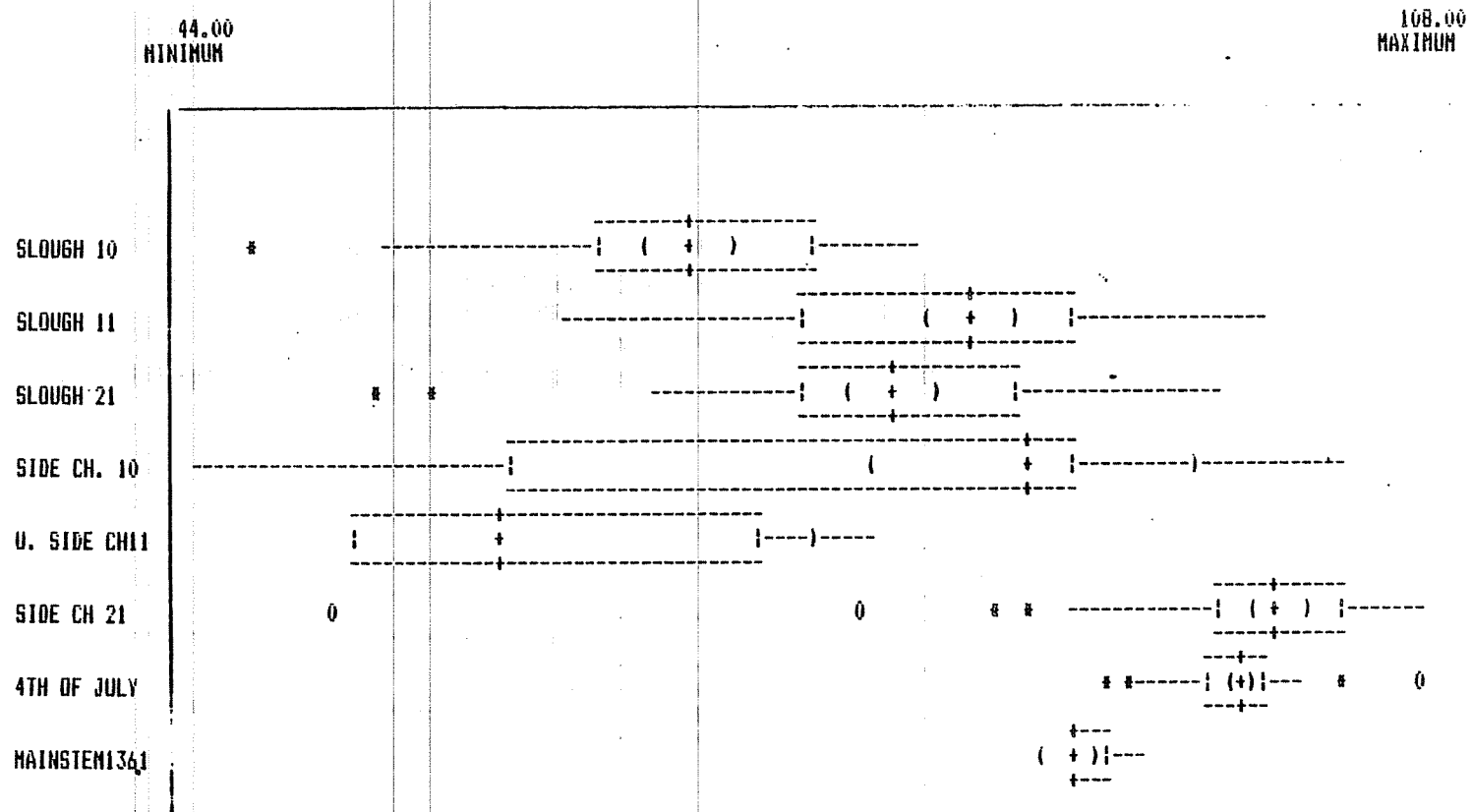


Figure C-5.

Summary, by study site, of the surface water dissolved oxygen data (% saturation) periodically measured at standpipe locations during the 1983-84 winter period in the middle Susitna River, Alaska

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DISSOLVED OXYGEN (PERCENT SATURATION)

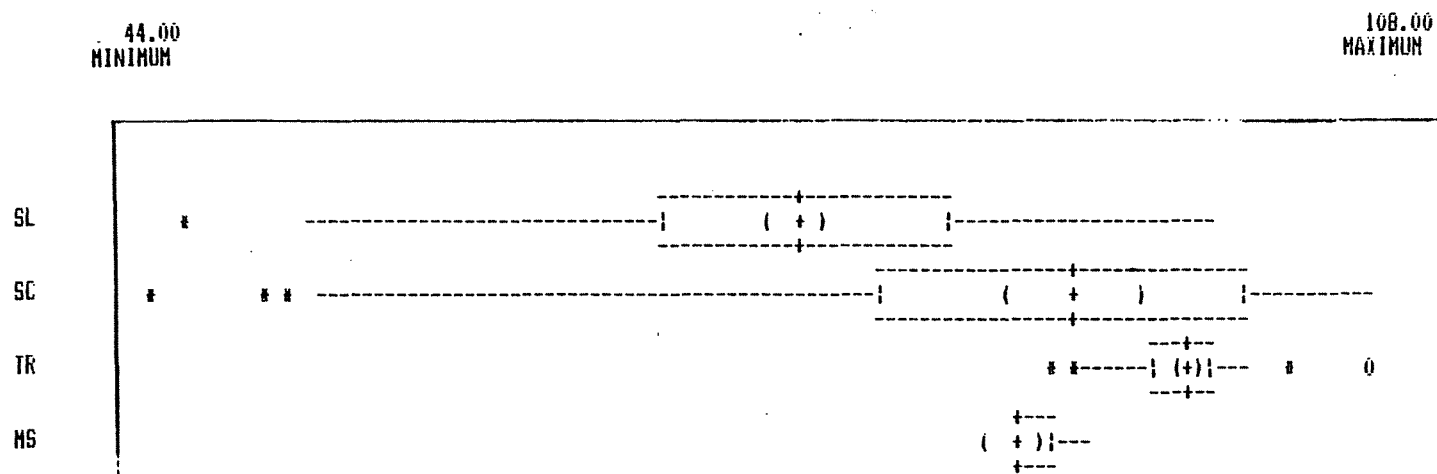


Figure C-6. Summary, by habitat type, of the surface water dissolved oxygen data (% saturation) periodically measured at standpipe locations during the 1983-84 winter period in the middle Susitna River, Alaska

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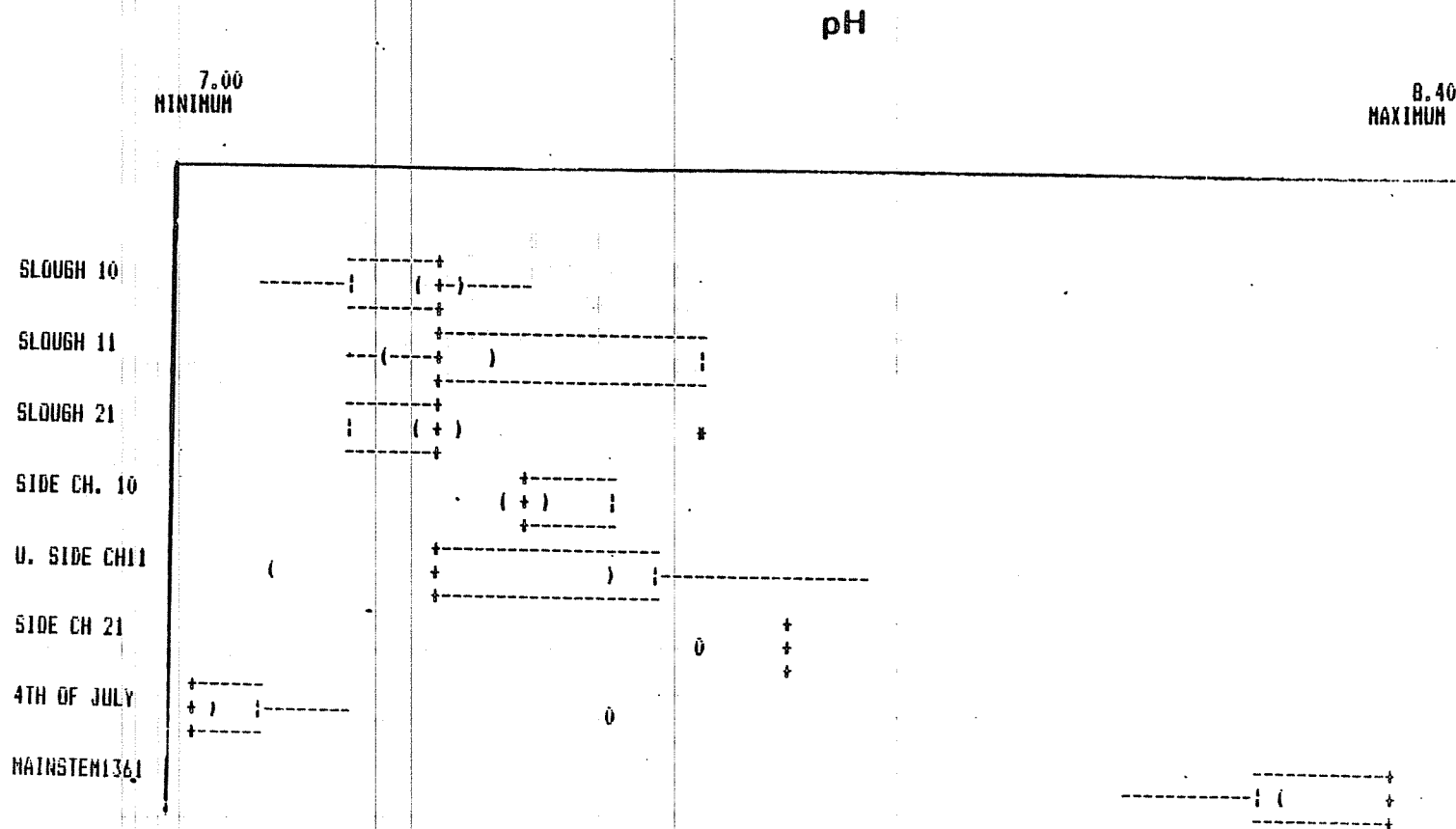


Figure C-7.

Summary, by study site, of the surface water pH data periodically measured at standpipe locations during the 1983-84 winter period in the middle Susitna River, Alaska

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C-25

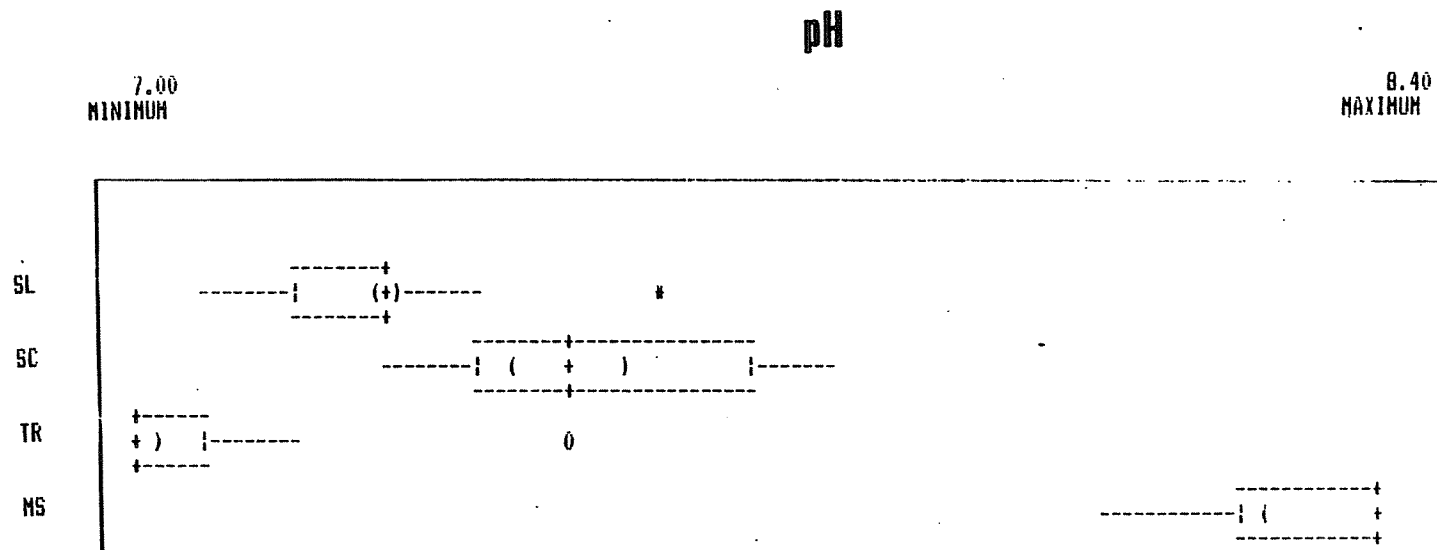


Figure C-8. Summary, by habitat type, of the surface water pH data periodically measured at standpipe locations during the 1983-84 winter period in the middle Susitna River, Alaska

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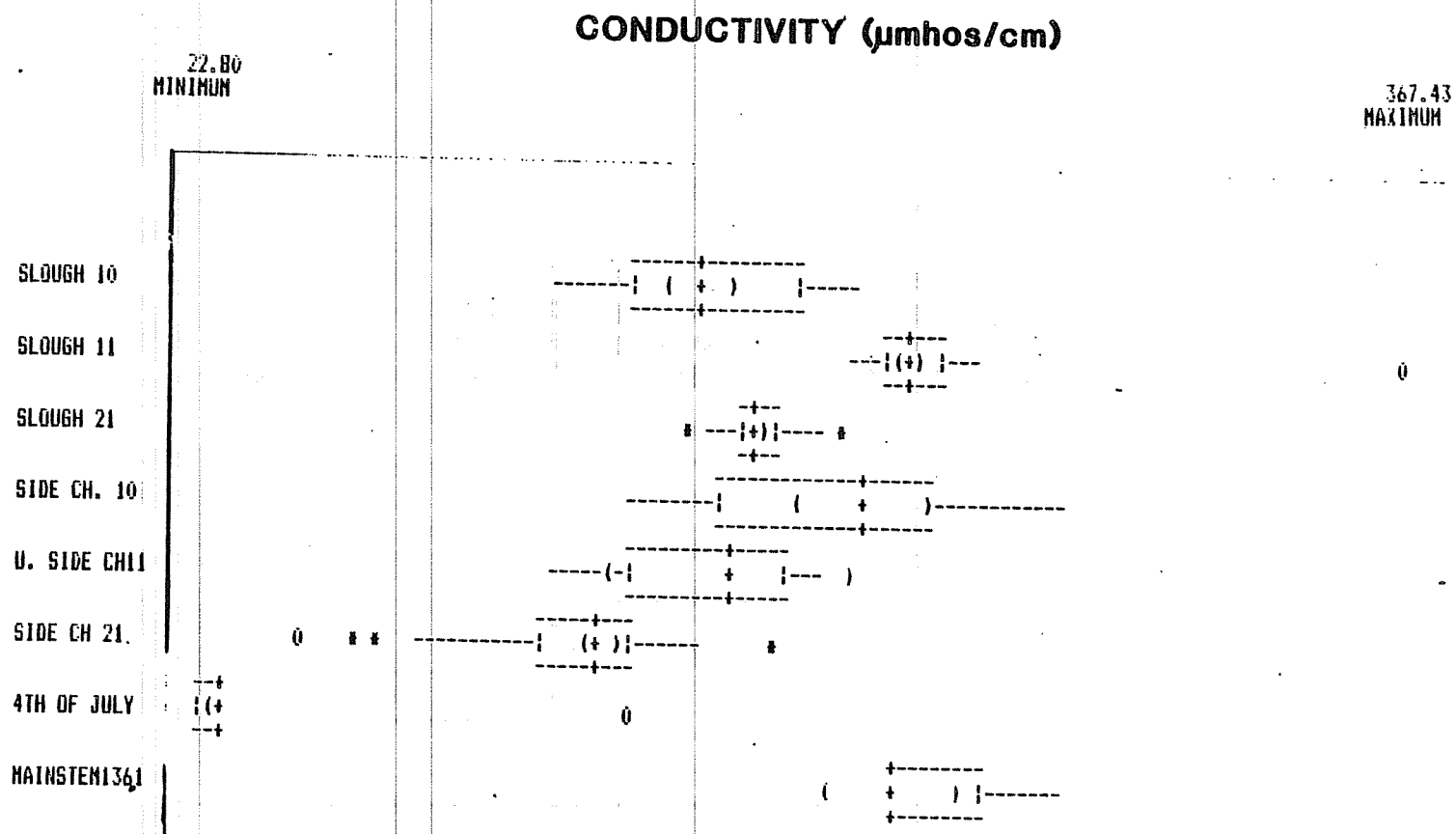


Figure C-9.

Summary, by study site, of the surface water conductivity data (μ mhos/cm) periodically measured at standpipe locations during the 1983-84 winter period in the middle Susitna River, Alaska

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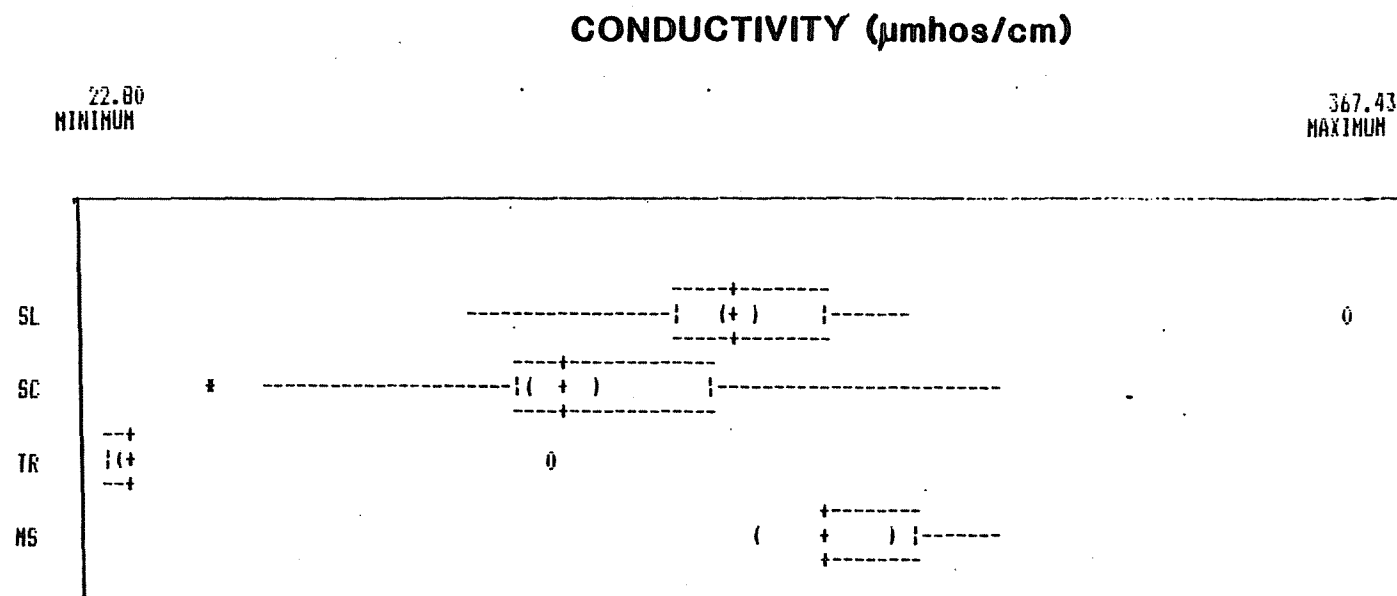


Figure C-10. Summary, by habitat type, of the surface water conductivity data ($\mu\text{mhos/cm}$) periodically measured at standpipe locations during the 1983-84 winter period in the middle Susitna River, Alaska

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DISSOLVED OXYGEN (SLOUGH)

INTRAGRAVEL VS SURFACE

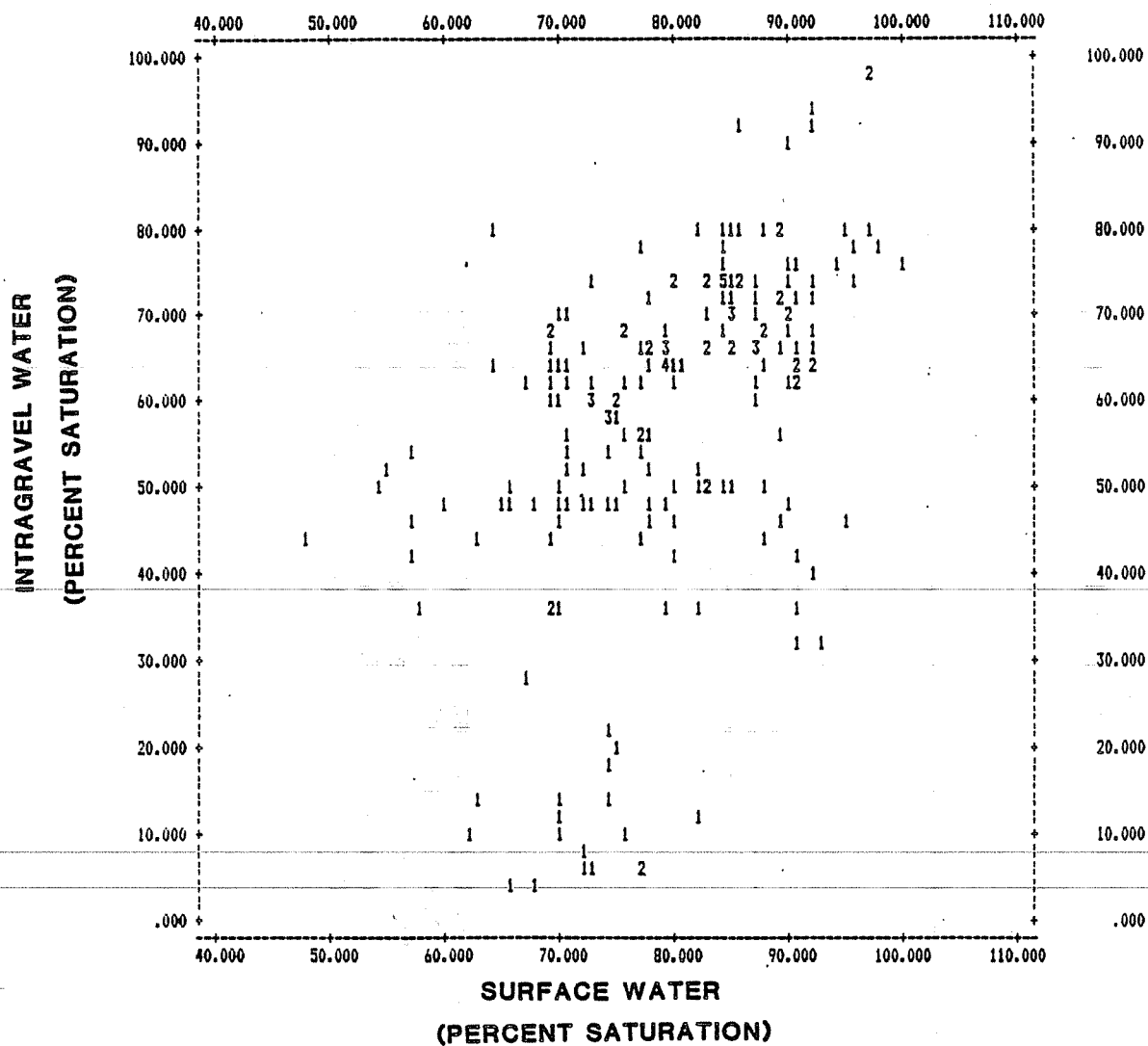


Figure C-11. Relationship between percent saturation of intragravel and surface water dissolved oxygen measured within slough habitat of the middle Susitna River, Alaska.

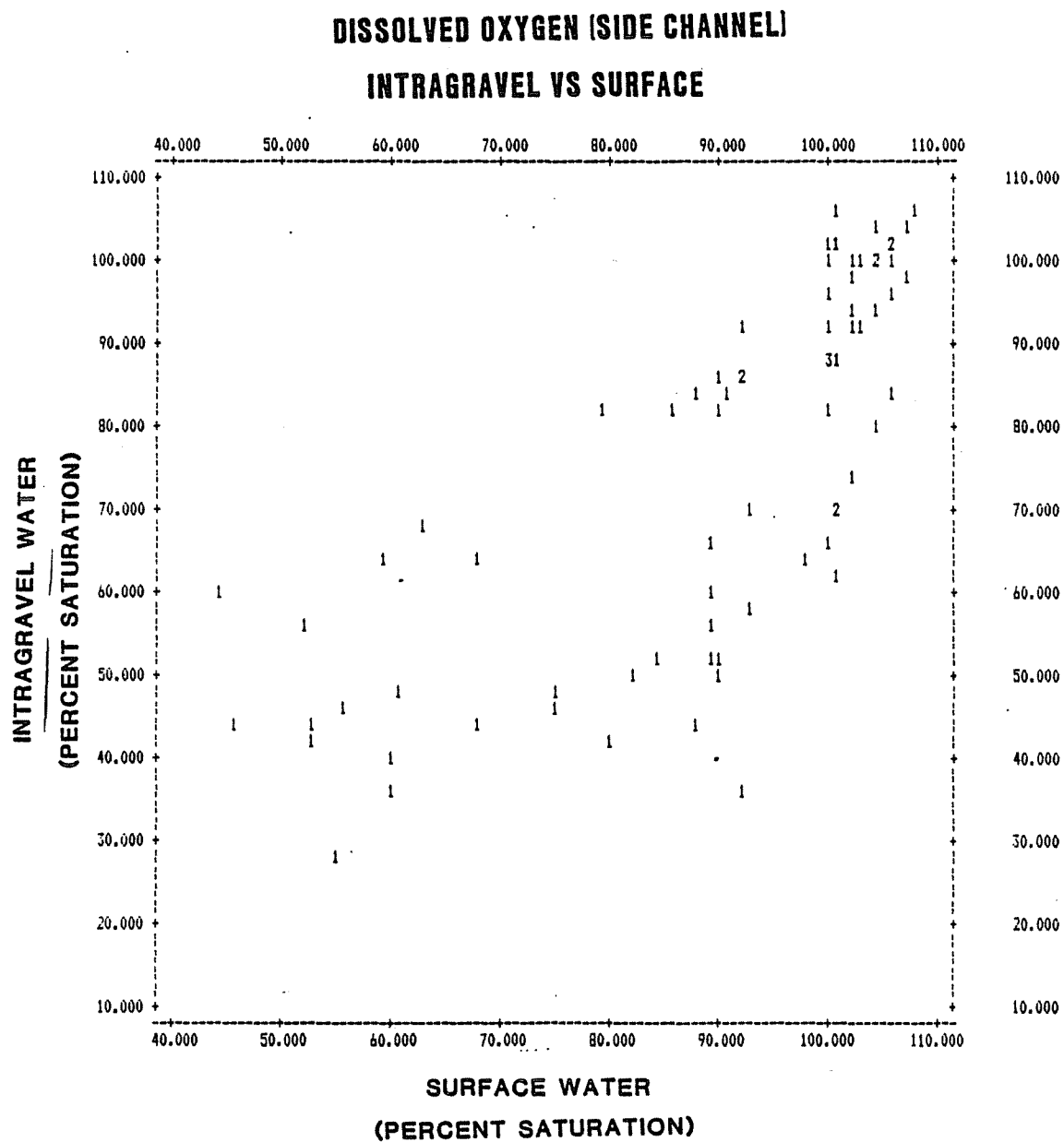


Figure C-12. Relationship between percent saturation of intragravel and surface water dissolved oxygen measured within side channel habitat of the middle Susitna River, Alaska.

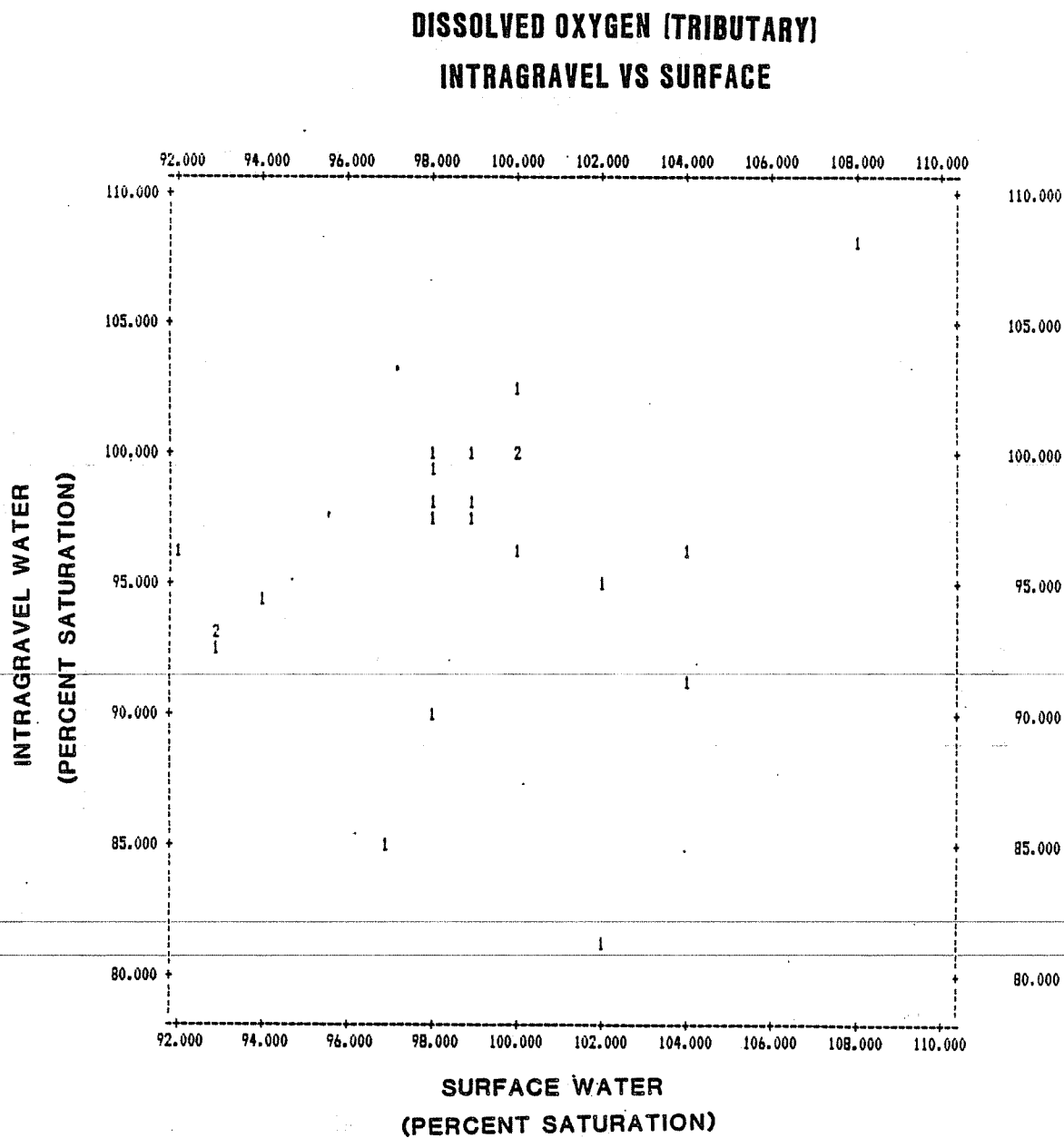


Figure C-13. Relationship between percent saturation of intragravel and surface water dissolved oxygen measured within tributary habitat of the middle Susitna River, Alaska.

DISSOLVED OXYGEN (COMBINED HABITATS)

INTRAGRAVEL VS SURFACE

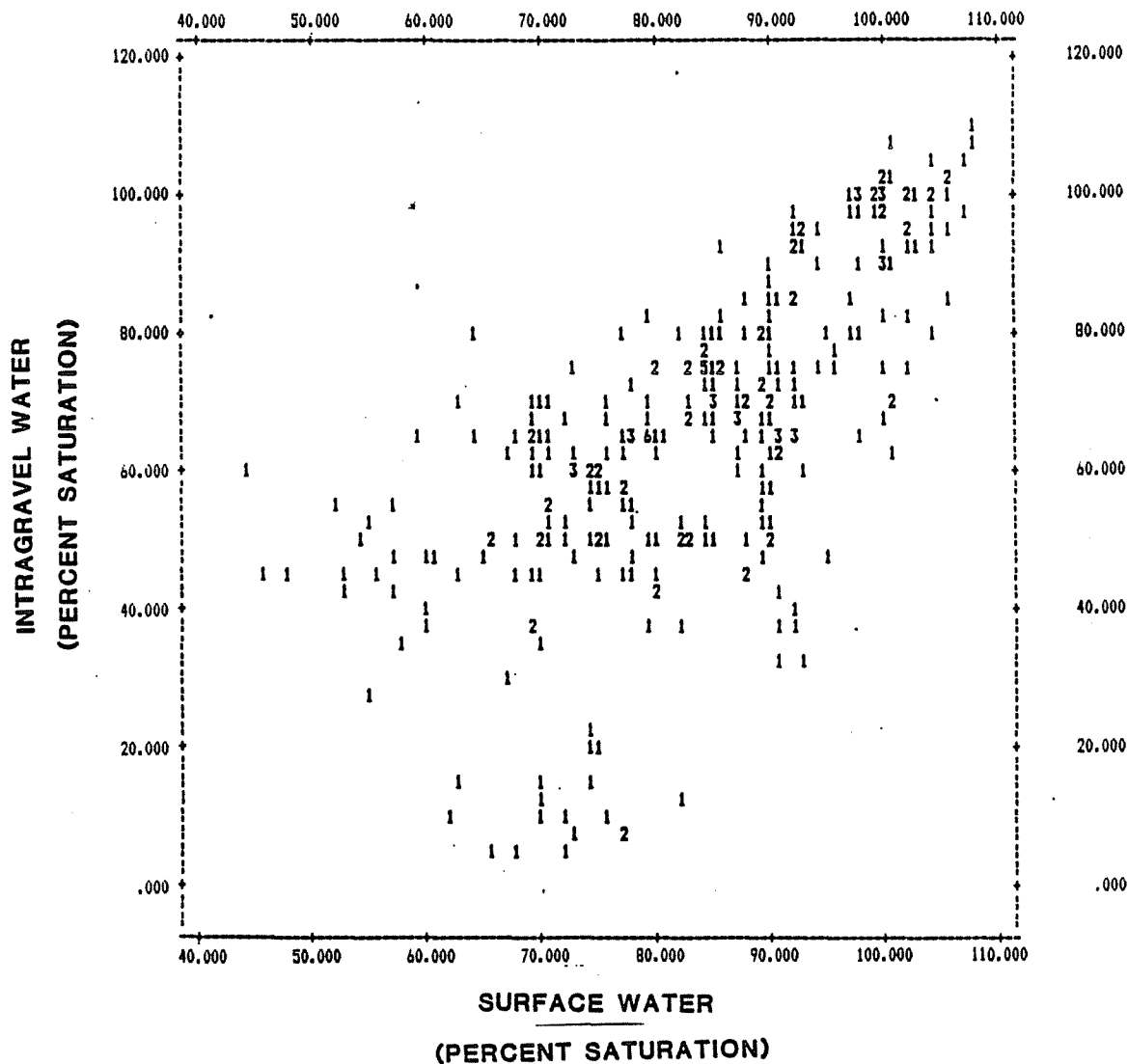


Figure C-14. Relationship between percent saturation of intragravel and surface water dissolved oxygen measured within slough, side channel, and tributary of habitats of the middle Susitna River, Alaska.

DISSOLVED OXYGEN (PERCENT SATURATION)

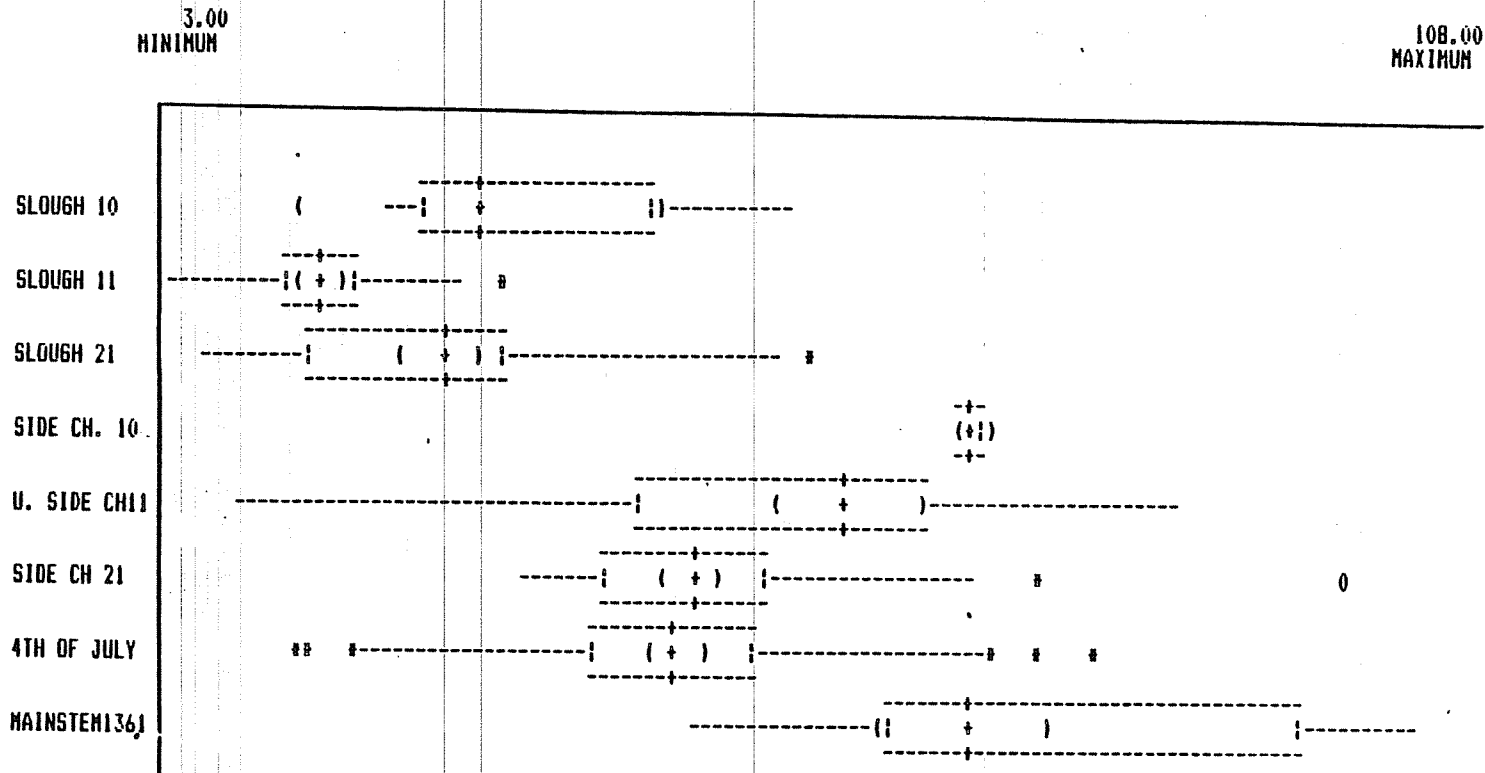


Figure C-15. Summary, by study site, of the intragravel dissolved oxygen (% saturation) data periodically measured within standpipes during the 1983-84 winter period in the middle Susitna River, Alaska.

DISSOLVED OXYGEN (PERCENT SATURATION)

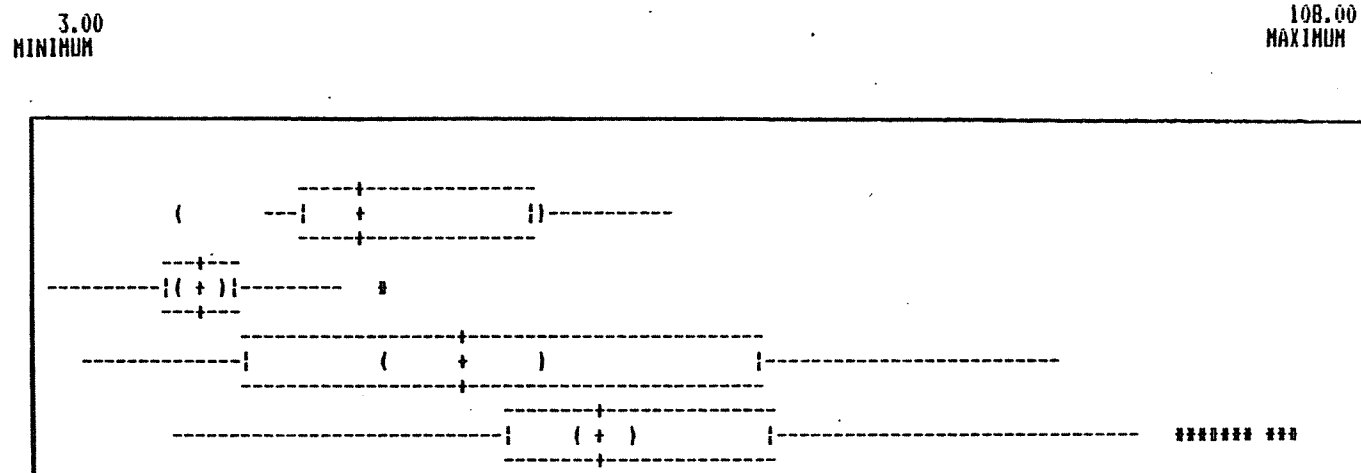


Figure C-16. Summary, by habitat type, of the intragravel dissolved oxygen (% saturation) data periodically measured within standpipes during the 1983-84 winter period in the middle Susitna River, Alaska.

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APPENDIX D

SUBSTRATE DATA

APPENDIX D

SUBSTRATE DATA

The substrate data presented in this appendix consist of two types which provide information on the size composition of substrate in various middle Susitna River habitats. Substrate data in Appendix Table D-1 were collected with a modified McNeil Sampler. Data in this table partition the substrate sample into seven size categories. Substrate data in Appendix Table D-2 were collected with Whitlock-Vibert Boxes and only includes data for four size classes, the largest of which was initially stocked as part of the experimental test procedure. A summary comparison of the data collected via these two methods is presented in the results section of this report (Section 3.1.1.2.1). Figures D-1 to D-7 present comparisons of the two sampling devices for individual substrate size classes.

Appendix Table D-1. Substrate composition of samples collected with a modified McNeil substrate sampler in spring 1984, Susitna River, Alaska.

Site (River mile)	Sub- Site	Standpipe No.	Sampling Date y/m/d	Substrate Size Classes (cm)															
				Total(Tot.)	>12.7	112.7 - 7.6	7.6 - 2.5	2.5 - 0.2	0.2 - 0.05	0.05 - 0.006	< 0.006								
				Dry Wt. (g)	Dry Wt. (g)	X Tot. (g)	Dry Wt. (g)	X Tot. (g)	Dry Wt. (g)	X Tot. (g)	Dry Wt. (g)	X Tot. (g)	Dry Wt. (g)	X Tot. (g)	Dry Wt. (g)	X Tot. (g)	Dry Wt. (g)	X Tot. (g)	Dry Wt. (g)
FOURTH OF JULY CREEK (131.1)	A	001	840511	24157	00000	0.0	00000	0.0	04557	18.9	13569	56.2	04471	18.5	01322	5.5	00238	1.0	
	A	004	840511	27783	00000	0.0	00000	0.0	09001	32.4	14680	52.8	03496	12.6	00555	2.0	00051	0.2	
	A	009	840511	33514	08968	26.8	00929	2.8	11998	35.8	09662	28.8	01472	4.4	00171	0.5	00314	0.9	
	A	013	840511	24122	00000	0.0	06959	28.8	09718	40.3	05688	23.6	01421	5.9	00265	1.1	00071	0.3	
SLOUGH 10 (133.8)	A	001	840411	29466	00000	0.0	00000	0.0	00085	0.3	00115	0.4	00428	1.5	23702	80.4	05136	17.4	
	A	003	840411	23849	00000	0.0	00000	0.0	00000	0.0	00000	0.0	00239	1.0	19556	82.0	04054	17.0	
	A	019	840411	36137	05096	14.1	07199	19.9	06097	16.9	01907	5.3	01411	3.9	11073	30.6	03354	9.3	
	A	020	840411	36973	14120	38.2	05743	15.5	04537	12.3	02191	5.9	00529	1.4	06167	16.7	03686	10.0	
SIDE CHANNEL 10 (133.8)	A	001	840412	41507	00000	0.0	01607	3.9	14321	34.5	19650	47.3	01846	4.4	03281	7.9	00802	1.9	
	A	002	840411	35458	00000	0.0	01026	2.9	09644	27.2	12582	35.5	06441	18.2	05521	15.6	00244	0.7	
	A	005	840411	35866	00000	0.0	01247	3.5	12536	35.0	09092	25.3	03202	8.9	09251	25.8	00538	1.5	
	A	013	840502	38642	00000	0.0	03755	9.7	14121	36.5	14458	37.4	03667	9.5	02470	6.4	00171	0.4	
SLOUGH 11 (135.3)	A	003	840405	33545	00000	0.0	04011	12.0	07811	23.3	17893	53.3	02438	7.3	01035	3.1	00357	1.1	
	A	004	840405	34712	00000	0.0	00000	0.0	10589	30.5	21341	61.3	01414	4.1	00862	2.5	00506	1.5	
	A	016	840405	32963	00000	0.0	03112	9.4	10343	31.4	14384	43.6	01279	3.9	02110	6.4	01735	5.3	
	A	020	840405	29600	00000	0.0	00000	0.0	04420	14.9	15950	33.9	03005	10.2	05426	18.3	00799	2.7	
UPPER SIDE CHANNEL 11 (136.1)	B	100	840412	31130	02488	8.0	07074	22.7	09528	30.6	10677	34.3	00830	2.7	00429	1.4	00104	0.3	
	B	110	840412	36740	08988	24.5	01044	2.8	12801	34.8	08360	22.8	03251	8.8	01956	5.3	00340	0.9	
	A	DV1	840503	33678	00000	0.0	00000	0.0	10495	31.2	14819	44.0	04905	14.6	02936	8.7	00523	1.6	
	A	000	840503	40199	19098	47.5	01252	3.1	08702	21.6	07553	18.8	01638	4.1	01697	4.2	00259	0.6	
MAINSTEM (138.9)	A	000	840503	37636	07711	20.5	01879	5.0	12227	32.5	09969	26.5	03337	8.9	02294	6.1	00219	0.6	
	A	082	840419	34883	06226	17.8	04708	13.5	07536	21.6	10505	30.1	02301	6.6	03069	8.8	00538	1.5	
	B	00A	840419	31896	00000	0.0	07836	24.6	10415	32.7	08786	27.5	01898	6.0	02436	7.6	00525	1.6	
	B	00D	840419	37726	05872	15.6	05172	13.7	10425	27.6	10983	29.1	02629	7.0	02281	6.0	00364	1.0	
SIDE CHANNEL 21 (141.0)	B	00D	840419	38317	00000	0.0	09605	25.1	11910	31.8	13120	34.2	01743	4.5	01288	3.4	00651	1.7	
	C	DV1	840419	35275	00000	0.0	14730	41.8	05129	14.5	10121	28.7	02217	6.3	02815	8.0	00263	0.7	
	A	001	840413	35208	01792	5.1	12004	34.1	07284	20.7	09532	27.1	02499	7.1	01866	5.3	00231	0.7	
	A	004	840413	38223	09162	24.0	01437	3.8	10859	28.4	12519	32.8	02031	5.3	02002	5.2	00213	0.6	
SLOUGH 21 (141.8)	A	009	840413	27479	00000	0.0	00000	0.0	00000	0.0	00000	0.0	00967	3.5	23818	86.7	02694	9.8	
	A	010	840413	28551	00000	0.0	00000	0.0	00000	0.0	00000	0.0	03375	11.8	22779	79.8	02397	8.4	
	A	015	840413	39761	05803	14.6	05620	14.1	16455	41.4	06085	15.3	00793	2.0	02114	5.3	02891	7.3	
	A	015	840413	39761	05803	14.6	05620	14.1	16455	41.4	06085	15.3	00793	2.0	02114	5.3	02891	7.3	

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Appendix Table D-2. Substrate composition inside Whitlock-Vibert Box placed in, and retrieved from artificial redds; August 1983 to May 1984, Susitna River, Alaska.

Site (River mile)	Sub Site	Standpipe No.	Box No.	Sampling Date (y/m/d)	Substrate size classes (cm)									
					Total									
					2.5 - 0.2		0.2 - 0.05		0.05 - 0.006		< 0.006			
					Dry wt. (g)	Dry wt. (g)	% Tot.	Dry wt. (g)	% Tot.	Dry wt. (g)	% Tot.	Dry wt. (g)	% Tot.	
FOURTH OF JULY CREEK (131.1)	A	001	1	840510	1169.2	1071.1	92	70.9	6	25.7	2	1.5	0	
	A	001	2	840510	1175.1	1061.4	90	78.8	7	32.8	3	2.1	0	
	A	004	1	840510	1282.6	1073.3	84	137.5	11	59.8	5	12.0	1	
	A	004	2	840510	1156.3	1030.0	89	63.5	5	33.3	3	29.5	3	
	A	008	1	840426	1024.4	917.8	90	66.2	6	37.2	4	3.2	0	
	A	009	1	840326	1120.2	991.0	88	88.2	8	36.7	3	4.3	0	
	A	009	2	840326	1280.3	1140.6	89	93.5	7	40.9	3	5.3	0	
	A	013	1	840420	1156.2	981.0	85	90.5	8	75.6	7	9.1	1	
SIDE CHANNEL 10 (133.8)	A	013	2	840420	1181.2	1027.4	87	83.9	7	61.9	5	8.0	1	
	A	002	1	840411	1207.2	982.6	81	19.4	2	203.9	17	1.3	0	
	A	002	2	840411	1280.9	975.6	76	28.2	2	274.2	21	2.9	0	
	A	005	1	840411	1331.5	975.0	73	91.7	7	262.3	20	2.5	0	
	A	005	2	840411	1382.5	1037.6	75	88.2	6	254.3	18	2.4	0	
	A	013	1	840502	1095.3	1012.7	92	40.1	4	41.3	4	1.2	0	
	A	013	2	840502	1106.3	978.3	88	50.0	5	77.0	7	1.0	0	
	A	014	1	840502	1031.3	1013.2	98	7.2	1	10.4	1	0.5	0	
SLOUGH 10 (133.8)	A	014	2	840502	1190.9	1006.8	85	59.9	5	118.4	10	5.8	0	
	A	001	1	840411	1353.0	946.1	70	3.7	0	299.0	22	104.2	8	
	A	001	2	840411	1352.3	943.0	70	5.9	0	325.4	24	78.0	6	
	A	003	1	840411	1384.9	947.9	68	1.5	0	379.2	27	56.3	4	
	A	003	2	840411	1392.0	962.1	69	1.3	0	366.5	26	62.1	4	
	A	019	1	840411	1319.3	973.6	74	8.7	1	255.7	19	81.3	6	
	A	019	2	840411	1300.4	974.1	75	5.1	0	261.4	20	59.8	5	
	A	020	1	840411	1286.8	954.9	74	10.1	1	293.0	23	28.8	2	
SLOUGH 11 (135.3)	A	020	2	840411	1377.8	940.8	68	7.2	1	365.5	27	64.3	5	
	A	003	1	840405	1055.9	960.5	91	61.3	6	29.5	3	4.6	0	
	A	003	2	840405	1057.1	964.8	91	54.1	5	32.8	3	5.4	1	
	A	004	1	840405	1007.2	971.4	96	19.3	2	14.6	1	1.9	0	
	A	004	2	840405	1019.4	984.9	97	16.9	2	14.2	1	3.4	0	
	A	016	1	840405	1151.8	950.4	83	63.7	6	116.6	10	21.1	2	
	A	020	1	840405	1295.6	1035.6	80	42.9	3	197.9	15	19.2	1	
	A	020	2	840405	1168.0	853.2	73	50.8	4	246.4	21	17.6	2	

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Appendix Table D-2. (Continued).

Site (River mile)	Sub Site	Standpipe No.	Box No.	Sampling Date (y/m/d)	Substrate size classes (cm)									
					Total									
					2.5 - 0.2		0.2 - 0.05		0.05 - 0.006		< 0.006			
					Dry wt. (g)	Dry wt. (g)	Z Tot.	Dry wt. (g)	Z Tot.	Dry wt. (g)	Z Tot.	Dry wt. (g)	Z Tot.	
SLOUGH 11 (continued)	B	10B	1	840412	1017.4	950.0	93	34.0	3	30.8	3	2.6	0	
	B	10B	2	840412	1042.2	990.1	95	20.6	2	28.6	3	2.9	0	
	B	11B	1	840412	1119.7	913.0	82	90.0	8	113.2	10	3.5	0	
	B	11B	2	840412	1094.0	920.4	84	66.4	6	103.2	9	4.0	0	
UPPER SIDE CHANNEL 11 (136.1)	A	DV1	1	840118	1053.1	925.0	88	74.4	7	52.0	5	1.7	0	
	A	DV1	2	831204	1094.5	933.0	85	85.7	8	71.9	7	3.9	0	
	A	DV1	3	831230	996.7	906.6	91	47.5	5	38.1	4	4.5	0	
SIDE CHANNEL 21 (141.0)	B	00A	1	840419	1009.3	917.7	91	42.6	4	47.1	5	1.9	0	
	B	00A	2	840419	1130.5	975.5	86	70.1	6	83.3	7	1.6	0	
	B	00B	1	840419	1041.1	939.7	90	72.8	7	26.2	3	2.4	0	
	B	00B	2	840419	985.2	940.6	95	34.5	4	8.8	1	1.3	0	
	B	00D	1	840419	1076.0	988.2	92	71.7	7	14.7	1	1.4	0	
	B	00D	2	840419	1016.2	951.4	94	54.6	5	8.5	1	1.7	0	
SLOUGH 21 (141.8)	B	00F	2	840329	1063.4	969.0	91	67.0	6	20.2	2	7.2	1	
	A	001	1	840413	1125.7	987.0	88	39.2	3	77.8	7	21.7	2	
	A	001	2	840413	1067.4	928.0	87	52.3	5	57.0	5	30.1	3	
	A	004	1	840413	1295.7	1032.1	80	83.2	6	143.8	11	36.6	3	
	A	004	2	840413	1212.7	957.5	79	54.6	5	150.1	12	50.5	4	
	A	009	1	840413	1300.6	914.3	70	2.8	0	367.3	28	16.2	1	
	A	009	2	840413	1401.0	933.5	67	6.2	0	445.6	32	15.7	1	
	A	010	1	840413	1289.0	960.5	75	30.7	2	282.5	22	15.3	1	
	A	010	2	840413	1258.7	947.0	75	18.0	1	279.0	22	14.7	1	

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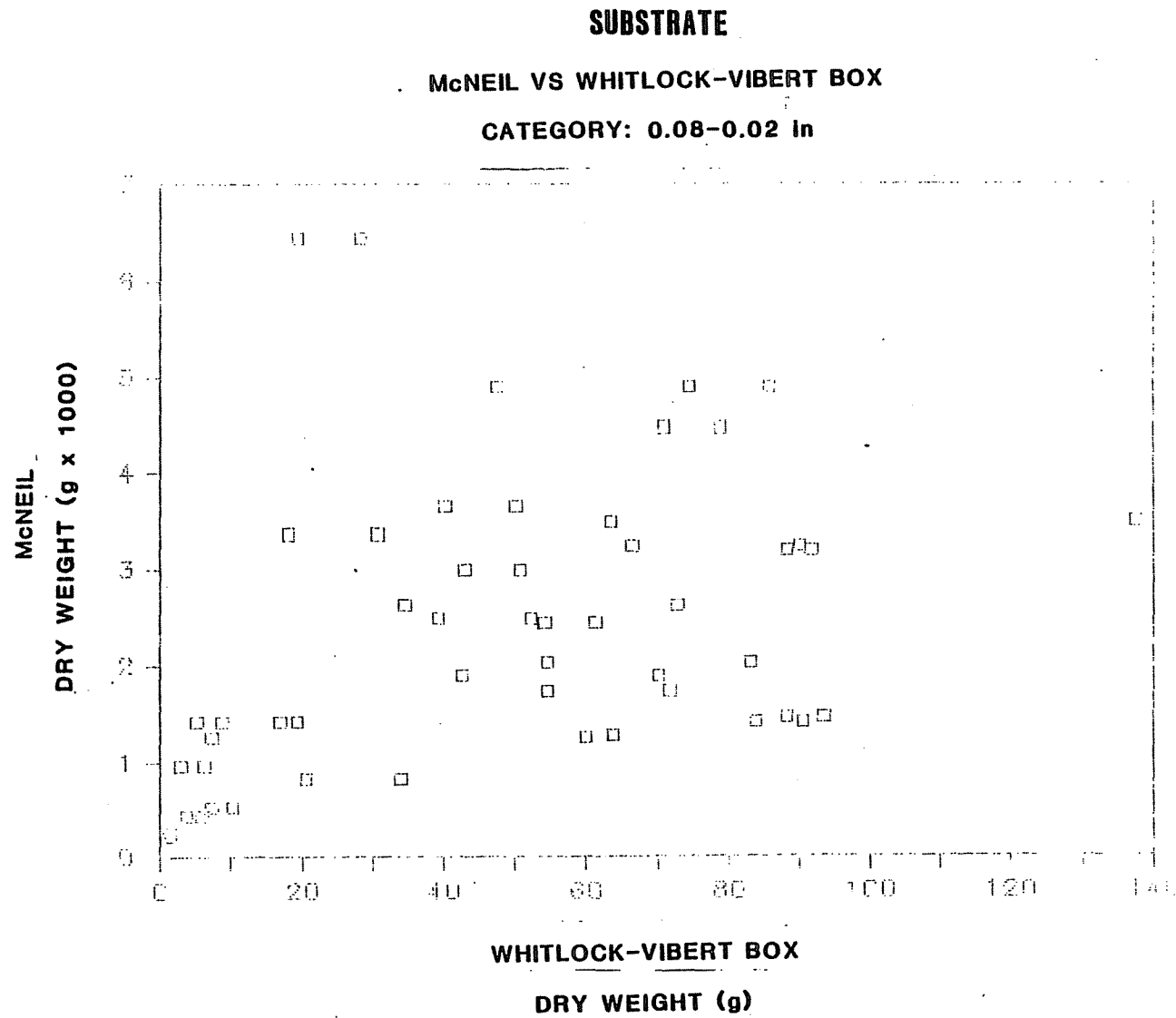


Figure D-1. Comparison of dry weights (g) of fine substrate (0.08-0.02 in. diameter) obtained from paired samples collected with McNeil and Whitlock-Vibert Box samplers.

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D-6

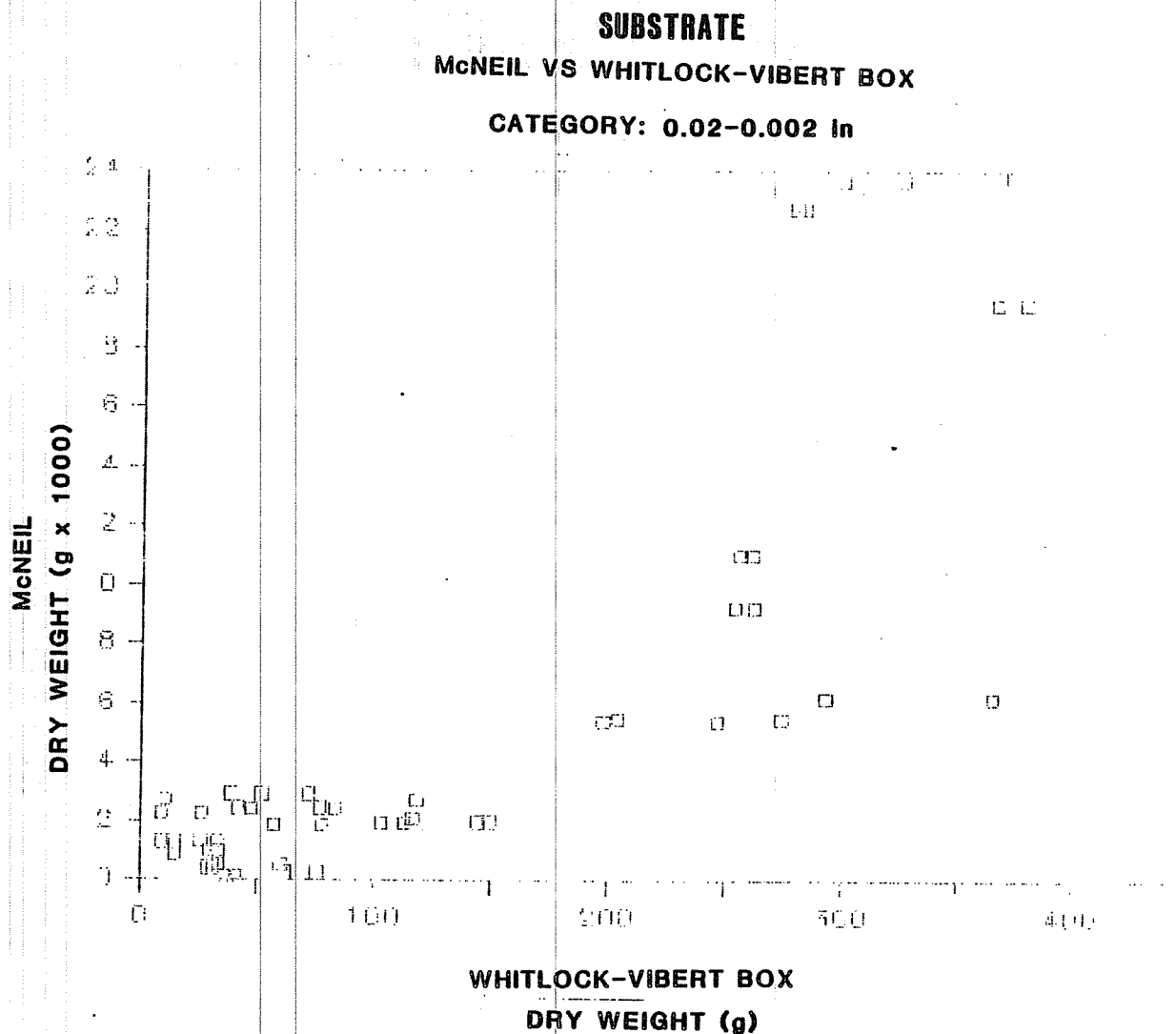
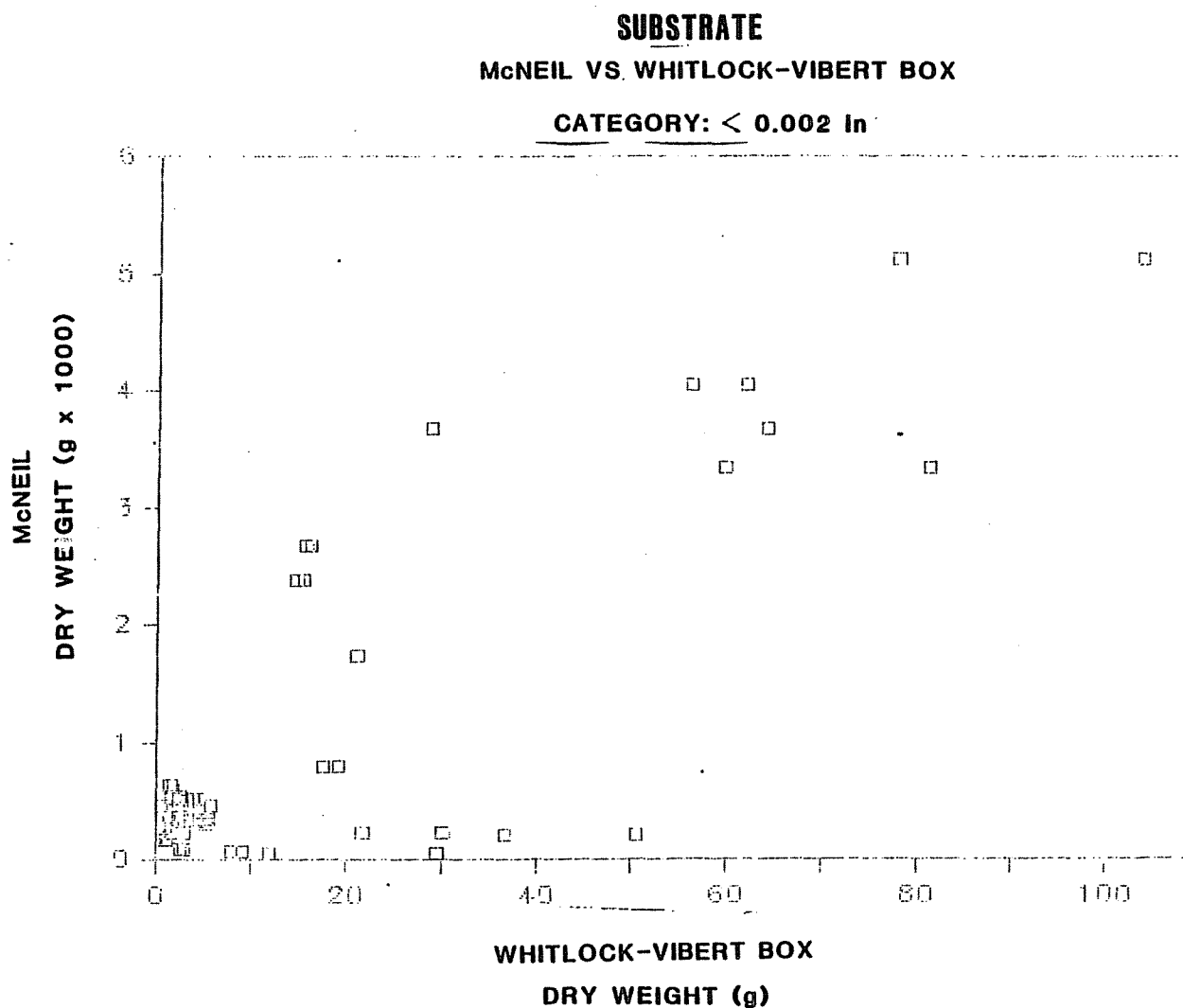


Figure D-2.

Comparison of dry weights (g) of fine substrate (0.02-0.002 in. diameter) obtained from paired samples collected with McNeil and Whitlock-Vibert Box samplers.

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D-7



D-8

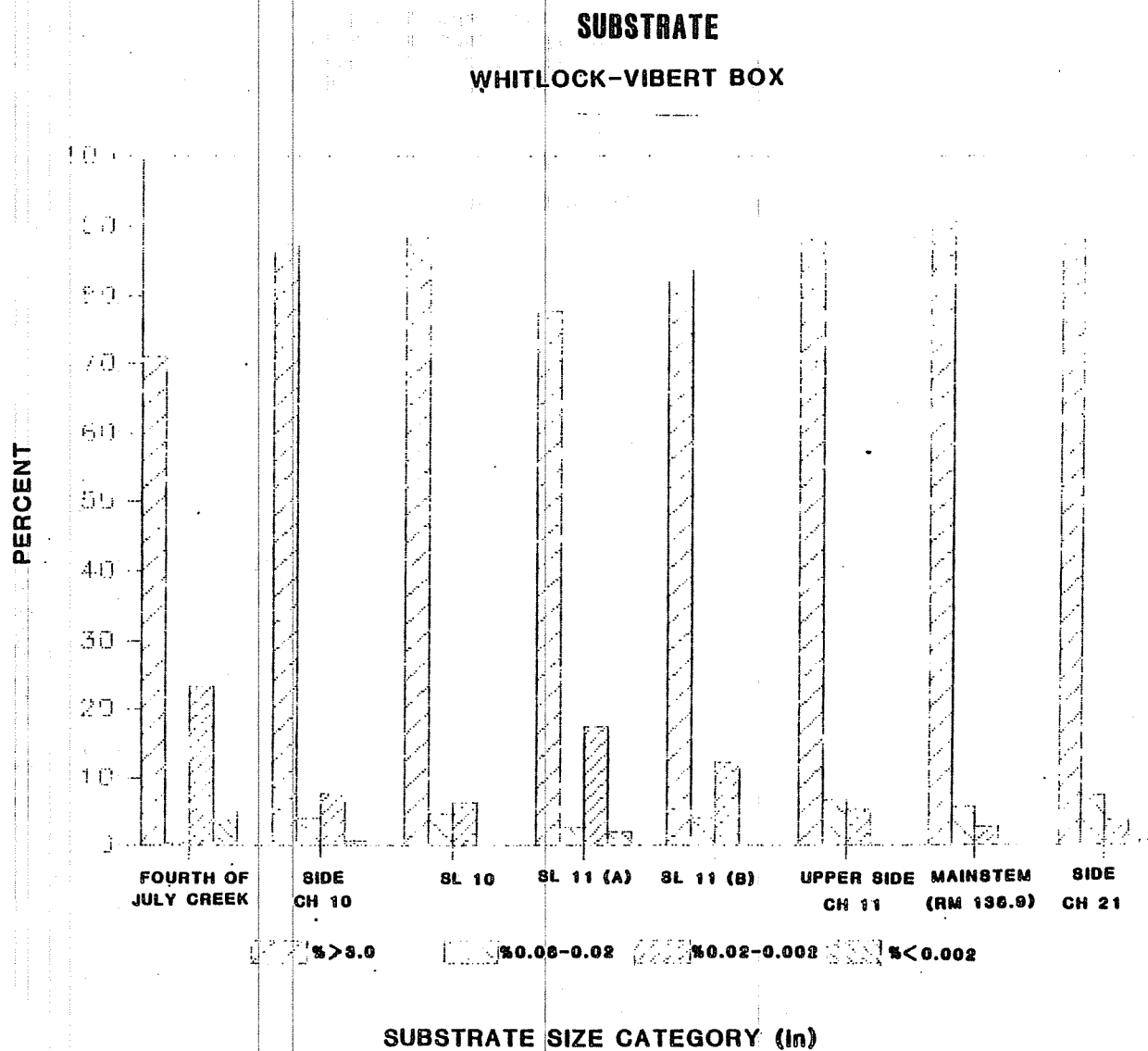


Figure D-4. Percent composition, by size class, of Whitlock-Vibert Box samples collected at study sites in the middle Susitna River, Alaska

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D-9

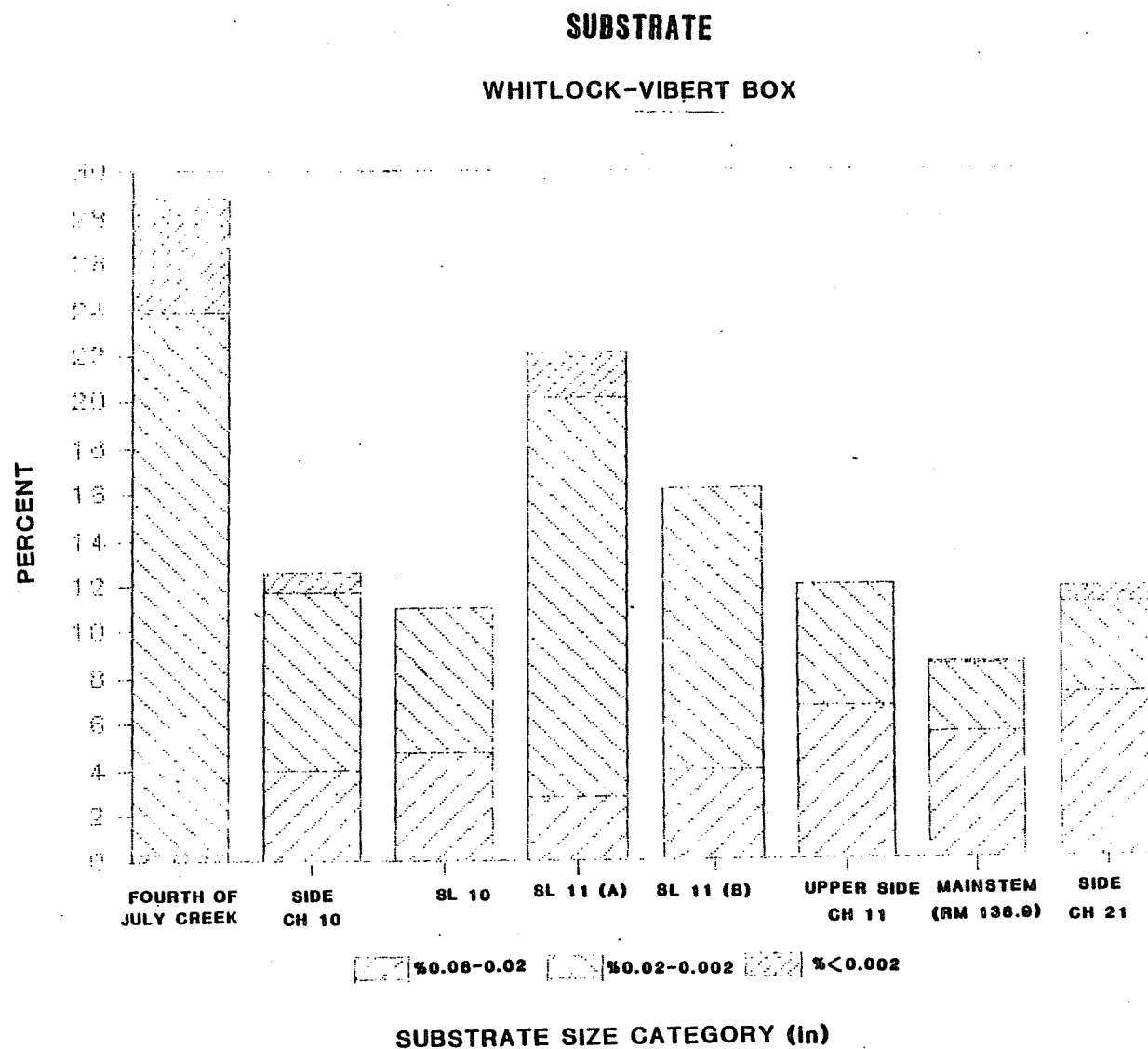


Figure D-5. Percent composition, by size class, of fine substrate (<0.08 in. diameter) in Whitlock-Vibert Box samples collected at study sites in the middle Susitna River, Alaska.

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D-10

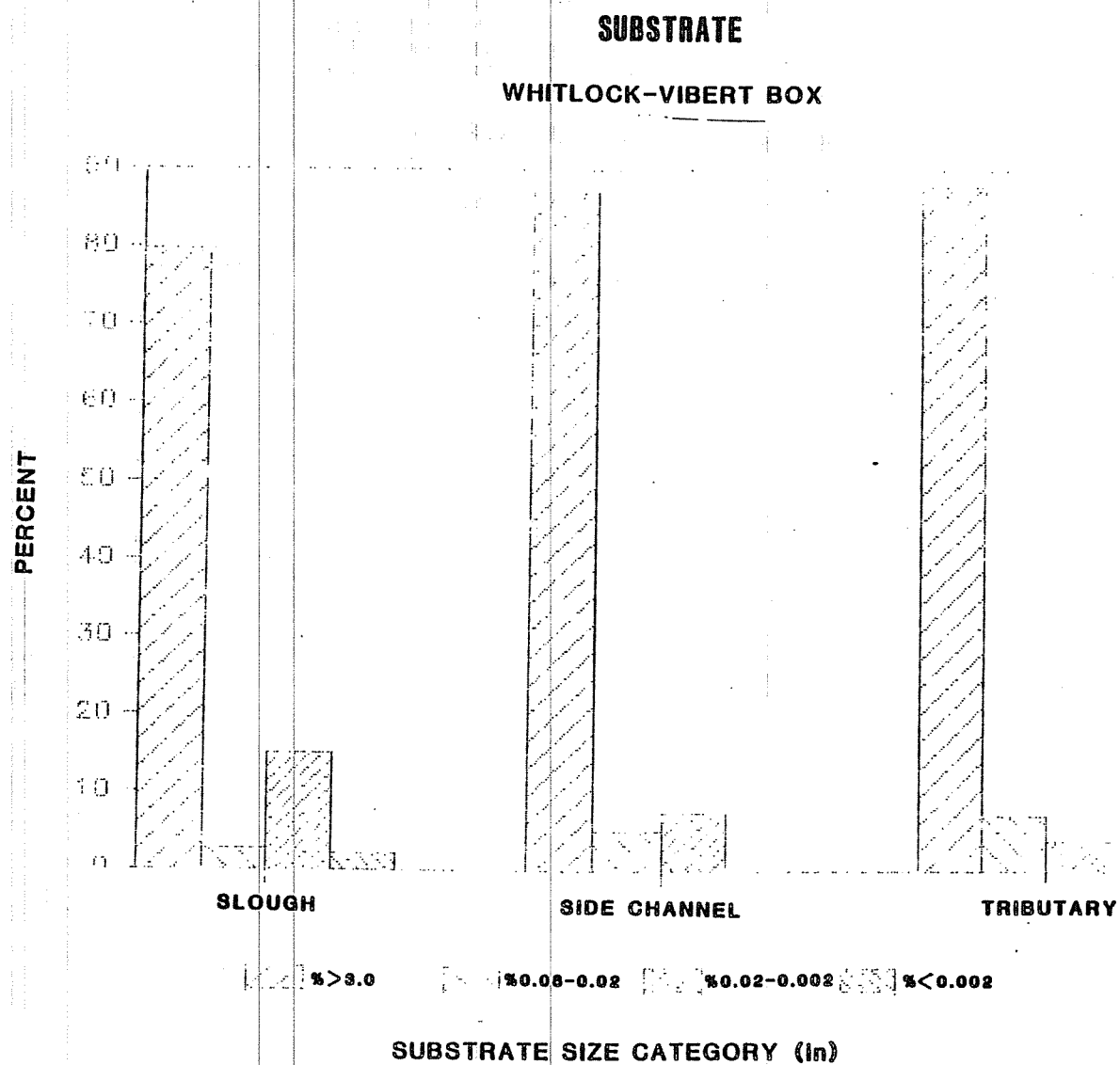


Figure D-6. Percent composition, by size class, of Whitlock-Vibert Box samples collected in various habitat types in the middle Susitna River, Alaska.

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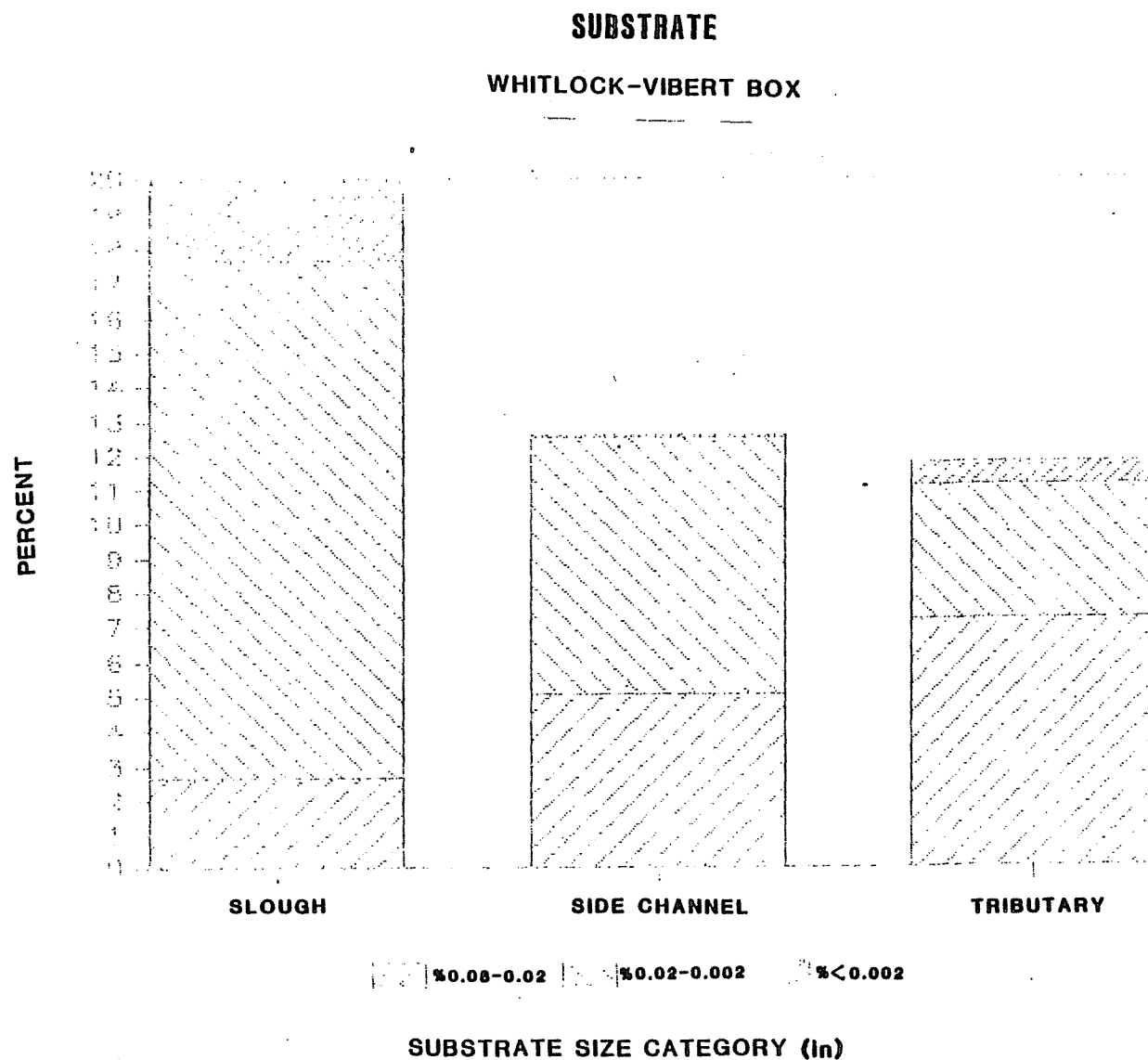


Figure D-7.

Percent composition, by size class, of fine substrate (<0.08 in. diameter) in Whitlock-Vibert Box samples collected in various habitat types in the middle Susitna River, Alaska.

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APPENDIX E

ADDITIONAL HABITAT DATA

APPENDIX E

ADDITIONAL HABITAT DATA

The habitat data presented in this appendix include three basic types, 1) data relating to the physical placement of standpipes, 2) depth and velocity of water at standpipe locations and 3) two visual assessments of substrate conditions at standpipe locations. Appendix Table E-1 provides a list of symbols used for substrate categories and corresponding size classes. Appendix Table E-2 provides a description of the criteria used to rank the degree of embeddedness of substrate. A summary of the additional habitat data collected during this study is presented in Appendix Table E-3.

Appendix Table E-1. Substrate classification code used previously to assess substrate conditions in chum and sockeye salmon spawning habitats (Vincent-Lang et al. 1984).

Substrate Type	Symbol	Size Class
silt	SI	small fines
sand	SA	large fines
small gravel	SM	1/4-1"
large gravel	LG	1-3"
rubble	RU	3-5"
cobble	CO	5-10"
boulder	BO	10"

Appendix Table E-2. Criteria used to assign a rank for the relative degree of embeddedness of substrate.

Embeddedness Rank	Criteria
5	Gravel, rubble, and boulder particles have less than 5 percent of their surface covered by fine sediment.
4	Gravel, rubble, and boulder particles have between 5 to 25 percent of their surface covered by fine sediment.
3	Gravel, rubble, and boulder particles have between 25 and 50 percent of their surface covered by fine sediment.
2	Gravel, rubble, and boulder particles have between 50 and 75 percent of their surface covered by fine sediment.
1	Gravel, rubble, and boulder particles have over 75 percent of their surface covered by fine sediment.

Appendix Table E-3. Physical data collected at primary and secondary study sites in the middle Susitna River, Alaska.

Site (River mile)	Sub site	Sampling Date y/m/d	Stand pipe No.	Habitat Zone	Location within Zone	Water Depth (ft)	Velocity (ft/sec)	Sub- strate	Embeddedness rank
SLOUGH 8A (125.9)	A	831109	002			0.10	0.00		
	A	831109	003			0.20	0.05		
	A	831214	003	Riffle	Head	Left	0.25	0.00	
SLOUGH 9 (128.3)	A	831109	001	Riffle	Head	Left	0.40	0.05	
	A	831109	002	Riffle	Head	Left	0.90	0.20	
	A	831109	003	Riffle	Head	Left	0.10	0.00	
	A	831214	003	Riffle	Middle	Left	0.35	0.00	
FOURTH OF JULY CREEK (131.1)	A	830828	001	Riffle	Middle	Left	2.10	0.15	
	A	830914	001	Riffle	Middle	Left	0.70	0.00	
	A	840511	001	Pool	Middle	Left			SG LG 3
	A	830828	002	Pool	Middle	Left	1.80	0.15	
	A	830914	002	Pool	Middle	Left	0.40	0.10	
	A	840511	002	Pool	Middle	Left			SG LG 3
	A	830828	003	Pool	Middle	Left	1.40	1.20	
	A	830914	003	Pool	Middle	Left	0.00	0.00	
	A	840511	003	Pool	Middle	Left			LG SG 4
	A	830828	004	Pool	Middle	Left	1.20	1.70	
	A	830914	004	Pool	Middle	Left	0.00	0.00	
	A	840511	004	Riffle	Base	Right			LG RU 5
	A	830828	005	Riffle	Base	Right	1.50	0.85	
	A	830914	005	Riffle	Base	Right	0.10	0.00	
	A	840511	005	Pool	Middle	Left			LG SG 2
	A	830828	006	Pool	Middle	Left	1.60	0.50	
	A	830914	006	Pool	Middle	Left	0.60	2.00	
	A	840511	006	Riffle	Middle	Left			RU LG 5
	A	830828	007	Riffle	Middle	Left	1.90	0.20	
	A	830914	007	Riffle	Middle	Left	0.50	0.95	
	A	840511	007	Riffle	Middle	Left			LG RU 5
	A	830828	008	Riffle	Middle	Left	1.10	1.40	
	A	830914	008	Riffle	Middle	Left	0.80	3.10	
	A	831102	008	Riffle	Middle	Left	1.20	0.00	
	A	840511	008	Riffle	Middle	Right			RU LG 5
	A	830828	009	Riffle	Middle	Right	0.90	0.10	

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Appendix Table E-3.

(Continued).

Site (River mile)	Sub site	Sampling Date y/m/d	Stand pipe No.	Habitat Zone	Location within Zone Bank	Water Depth (ft)	Velocity (ft/sec)	Sub- strate	Embeddedness rank
FOURTH OF JULY CREEK (continued)	A	830914	009	Riffle	Middle Right	0.40	1.20		
	A	831102	009	Riffle	Middle Right	0.90	0.05		
	A	840511	009	Riffle	Middle Right			RU CO	5
	A	830828	010	Riffle	Middle Right	0.40	2.50		
	A	830914	010	Riffle	Middle Right	0.40	2.30		
	A	840511	010	Riffle	Middle Right			RU CO	5
	A	830828	011	Riffle	Middle Right	1.50	2.40		
	A	830914	011	Riffle	Middle Right	1.40	2.20		
	A	840511	011	Riffle	Middle Right			RU CO	5
	A	830828	012	Riffle	Middle Right	0.80	1.50		
	A	830914	012	Riffle	Middle Right	0.90	2.10		
	A	831102	012	Riffle	Middle Left	0.70	2.70		
	A	831203	012	Riffle	Middle Left	0.50	0.10		
	A	840511	012	Riffle	Middle Left			CO RU	5
	A	830828	013	Riffle	Middle Left	0.80	1.70		
	A	830914	013	Riffle	Middle Left	1.00	1.30		
	A	840511	013	Riffle	Middle Right			RU CO	5
	A	830828	014	Riffle	Middle Right	1.10	0.80		
	A	830914	014	Riffle	Middle Right	1.10	0.95		
	A	831102	014	Riffle	Middle Right	0.90	1.40		
	A	831203	014	Riffle	Base Right	0.50	0.60		
	A	840511	014	Riffle	Middle Right			CO RU	5
	A	830828	015	Riffle	Middle Right	1.40	1.60		
	A	830914	015	Riffle	Middle Right	1.60	1.30		
	A	831203	015	Riffle	Base Right	0.80	0.30		
	A	840511	015	Riffle	Middle Right			CO RU	5
SLOUGH 9A (133.6)	A	831109	001	Riffle	Middle Right	0.60	0.50		
	A	831214	001	Pool	Middle Left	1.10	0.00		
	A	831109	002	Pool	Middle Left	1.00	0.00		
	A	831214	002	Pool	Middle Left	0.90	0.00		
	A	831109	003	Pool	Middle Left	1.50	0.00		
	A	831214	003	Pool	Middle Left	0.60	0.00		

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Appendix Table E-3. (Continued).

Site (River mile)	!Sampling!		Stand !	!Location!		! Water !		Sub- strate !	!Embeddedness! rank	
	!Sub !	Date !	pipe !	Habitat !	within !	Depth !	!Velocity!			
	!site!	y/m/d !	No. !	Zone !	Zone !	Bank !	(ft) !	(ft/sec)!		
SIDE CHANNEL 10 (133.8)	A	830910	001	Pool	Base	Left			SA	1
	A	830910	002	Pool	Base	Left	0.30	0.00	SA	1
	A	830910	003	Pool	Middle	Left	0.10	0.00	SA LG	2
	A	830910	004	Pool	Middle	Right	0.70	0.00	SA	1
	A	830910	005	Pool	Middle	Right	0.80	0.00	SA LG	1
	A	831028	005	Pool	Middle	Right	0.40	0.00		
	A	830910	006	Pool	Middle	Right	0.80	0.00	LG SA	4
	A	831028	006	Pool	Middle	Right	0.60	0.00		
	A	830910	007	Pool	Middle	Right	0.55	0.00	SA	1
	A	831028	007	Pool	Middle	Right	0.30	0.00		
	A	830910	008	Pool	Middle	Right	0.50	0.00	LG SA	3
	A	831028	008	Pool	Middle	Right	0.20	0.00		
	A	830910	009	Pool	Head	Left	0.65	0.00	SA	1
	A	831028	009	Pool	Head	Left	0.20	0.00		
	A	830910	010	Pool	Head	Left	0.40	0.10	LG RU	4
	A	831028	010	Pool	Head	Left	0.10	0.00		
	A	830910	011	Riffle	Base	Right	0.10	0.00	LG SG	4
	A	830910	012	Riffle	Middle	Left	0.20	0.20	LG SG	4
	A	830910	013	Pool	Middle	Right	0.25	0.00	LG SG	4
	A	830910	014	Riffle	Base	Right	0.30	0.05	RU LG	4
A	830910	015	Riffle	Head	Left	0.30	0.00	RU LG	3	
A	830910	016	Pool	Middle	Right	0.40	0.00	SA RU	2	
A	830910	017	Pool	Middle	Right	0.50	0.00	SA RU	2	
A	830910	018	Pool	Middle	Left	0.20	0.00	RU LG	3	
A	830910	019	Pool	Middle	Left	1.00	0.00	CO RU	4	
SLOUGH 10 (133.8)	A	830910	001	Backwater	Middle	Right	0.60	0.00	SI	1
	A	830915	001	Backwater	Middle	Right	0.30	0.00		
	A	830910	002	Backwater	Middle	Right			SI	1
	A	830915	002	Backwater	Middle	Right	0.00	0.00		
	A	830910	003	Backwater	Middle	Right	0.50	0.00	SI	1
	A	830915	003	Backwater	Middle	Right	0.20	0.00		
	A	830910	004	Backwater	Middle	Right	0.20	0.00	SI	1
	A	830915	004	Backwater	Middle	Right	0.00	0.00		
	A	830910	005	Backwater	Middle	Right	0.80	0.00	SI	1
A	830915	005	Backwater	Middle	Right	0.50	0.00			

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Appendix Table E-3.

(Continued).

Site (River mile)	Sub site	Sampling Date y/m/d	Stand pipe No.	Habitat Zone	Location within Zone	Water Bank	Depth (ft)	Velocity (ft/sec)	Sub- strate	Embeddedness rank
SLOUGH 10 (continued)	A	831028	005	Backwater	Middle	Right	0.10	0.00		
	A	830910	006	Backwater	Middle	Left	1.10	0.00	SI	1
	A	830915	006	Backwater	Middle	Left	0.75	0.00		
	A	831028	006	Backwater	Middle	Left	0.40	0.10		
	A	830910	007	Backwater	Middle	Left	1.10	0.00	SI	1
	A	830915	007	Backwater	Middle	Left	0.60	0.10		
	A	831028	007	Backwater	Middle	Left	0.40	0.10		
	A	831110	007	Backwater	Middle	Left	0.20	0.00		
	A	830910	008	Backwater	Middle	Left	1.10	0.00	SI	1
	A	830915	008	Backwater	Middle	Left	0.70	0.10		
	A	831028	008	Backwater	Middle	Left	0.50	0.20		
	A	831110	008	Backwater	Middle	Left	0.20	0.15		
	A	830910	009	Backwater	Middle	Left	1.40	0.00	BO SI	3
	A	830915	009	Backwater	Middle	Left	1.00	0.30		
	A	831028	009	Backwater	Middle	Left	0.50	0.70		
	A	831206	009	Riffle	Middle	Right	0.50	0.00		
	A	830910	010	Backwater	Middle	Right	1.30	0.00	CO SI	3
	A	830915	010	Backwater	Middle	Right	1.00	0.15		
	A	831028	010	Backwater	Middle	Right	0.60	0.25		
	A	831206	010	Pool	Base	Right	0.40	0.20		
	A	830910	011	Backwater	Middle	Right	1.00	0.00	BO SI	3
	A	830915	011	Backwater	Middle	Right	0.90	0.10		
	A	831028	011	Backwater	Middle	Right	0.70	0.15		
	A	831206	011	Pool	Middle	Right	0.40	0.00		
	A	830910	012	Backwater	Head	Right	0.50	0.00	SI CO	3
	A	830915	012	Backwater	Head	Right	0.20	0.00		
	A	830910	013	Pool	Base	Right	1.65	0.00	SI RU	4
	A	830915	013	Pool	Base	Right	1.10	0.05		
	A	831028	013	Pool	Base	Right	1.10	0.00		
	A	831206	013	Pool	Middle	Right	1.00	0.00		
	A	830910	014	Pool	Head	Left	0.90	0.00	CO SI	4
	A	830915	014	Pool	Head	Left	0.80	0.01		
	A	831028	014	Pool	Head	Left	0.70	0.05		
	A	831206	014	Pool	Head	Left	0.60	0.00		
	A	830910	015	Riffle	Base	Left	0.90	0.60	CO SI	4

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Appendix Table E-3. (Continued).

Site (River mile)	Sub site	Sampling Date y/m/d	Stand pipe No.	Habitat Zone	Location within Zone	Water Bank	Depth (ft)	Velocity (ft/sec)	Substrate	Embeddedness rank
SLOUGH 10 (continued)	A	830915	015	Riffle	Base	Left	1.00	0.20		
	A	831028	015	Riffle	Base	Left	0.90	0.05		
	A	831206	015	Riffle	Base	Left	0.60	0.30		
	A	830910	016	Backwater	Middle	Left	0.80	0.05	SI CO	1
	A	830915	016	Backwater	Middle	Left	0.35	0.10		
	A	831028	016	Backwater	Middle	Left	0.05	0.00		
	A	830910	017	Backwater	Middle	Left	0.60	0.15	SI	1
	A	830915	017	Backwater	Middle	Left	0.40	0.60		
	A	831028	017	Backwater	Middle	Left	0.30	0.55		
	A	831206	017	Riffle	Middle	Left	0.30	0.10		
	A	830910	018	Backwater	Head	Right	0.70	0.32	SI CO	3
	A	830915	018	Backwater	Head	Right	0.60	0.50		
	A	831028	018	Backwater	Head	Right	0.30	0.20		
	A	831110	018	Backwater	Head	Right	0.40	0.35		
	A	831206	018	Riffle	Middle	Right	0.30	0.00		
	A	830910	019	Riffle	Middle	Right	0.50	0.75	SI BO	3
	A	830915	019	Riffle	Middle	Right	0.70	0.40		
	A	831028	019	Riffle	Middle	Right	0.60	0.05		
	A	831110	019	Riffle	Middle	Right	0.50	0.40		
	A	831206	019	Riffle	Middle	Right	0.50	0.30		
	A	830910	020	Riffle	Middle	Left	0.55	0.45	SI BO	3
	A	830915	020	Riffle	Middle	Left	0.50	0.55		
	A	831028	020	Riffle	Middle	Left	0.40	0.45		
	A	831206	020	Riffle	Middle	Left	0.50	0.10		
	A	831206	021	Pool	Head	Right	0.80	0.00		
SLOUGH 11 (135.3)	A	830827	001	Pool	Head	Right	1.85	0.00		
	A	830915	001	Pool	Head	Right	0.30	0.40		
	A	831024	001	Riffle	Head	Right			LG SG	5
	A	831101	001	Riffle	Head	Right	0.20	0.35		
	A	831207	001	Riffle	Head	Right	0.20	0.10		
	A	830827	002	Riffle	Head	Right	1.80	0.00		
	A	830915	002	Riffle	Head	Right				
	A	831024	002	Riffle	Head	Right			RU SG	5
	A	830827	003	Riffle	Head	Right	1.40	0.00		

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Appendix Table E-3.

(Continued).

Site (River mile)	Sub site	Sampling Date y/m/d	Stand pipe No.	Habitat Zone	Location within Zone	Bank	Water Depth (ft)	Velocity (ft/sec)	Sub- strate	Embeddedness rank
SLOUGH 11 (continued)	A	830915	003	Riffle	Head	Right				
	A	831024	003	Riffle	Head	Right			RU SG	5
	A	830827	004	Riffle	Head	Right	1.30	0.00		
	A	830915	004	Riffle	Head	Right				
	A	831024	004	Riffle	Head	Right			LG SG	4
	A	830827	005	Riffle	Head	Right	1.25	0.00		
	A	830915	005	Riffle	Head	Right				
	A	831024	005	Riffle	Head	Right			CO LG	3
	A	830827	006	Riffle	Head	Right	1.25	0.00		
	A	830915	006	Riffle	Head	Right				
	A	831024	006	Riffle	Head	Right			LG SG	3
	A	830827	007	Riffle	Head	Right	1.30	0.00		
	A	830915	007	Riffle	Head	Right				
	A	831024	007	Riffle	Middle	Right			LG SG	5
	A	831101	007	Riffle	Middle	Right	0.05			
	A	830827	008	Riffle	Middle	Right	1.60	0.00		
	A	830915	008	Riffle	Middle	Right	0.30	0.00		
	A	831024	008	Pool	Middle	Right			LG RU	4
	A	831101	008	Pool	Middle	Right	0.25	0.00		
	A	831207	008	Pool	Base	Right	0.05			
	A	830827	009	Pool	Base	Right	1.25	0.00		
	A	830915	009	Pool	Base	Right				
	A	831024	009	Pool	Middle	Right			RU LG	4
	A	831101	009	Pool	Middle	Right	0.05			
	A	831207	009	Pool	Middle	Right				
	A	830827	010	Pool	Middle	Right	1.30	0.00		
	A	830915	010	Pool	Middle	Right	0.20	0.00		
	A	831024	010	Riffle	Middle	Left			RU CO	4
	A	831101	010	Riffle	Middle	Left	0.15	0.20		
	A	831207	010	Riffle	Base	Right	0.05			
	A	830827	011	Riffle	Base	Right	1.40	0.00		
	A	830915	011	Riffle	Base	Right	0.20	0.00		
	A	831024	011	Riffle	Middle	Right			CO RU	2
	A	831207	011	Riffle	Middle	Left	0.25	0.00		
	A	830827	012	Riffle	Middle	Left	1.00	0.00		

Appendix Table E-3. (Continued).

Site (River mile)	Sub site	Sampling Date y/m/d	Stand pipe No.	Habitat Zone	Location within Zone	Bank	Water Depth (ft)	Velocity (ft/sec)	Sub- strate	Embeddedness rank
SLOUGH 11 (continued)	A	830915	012	Riffle	Middle	Left				
	A	831024	012	Riffle	Middle	Left			LG RU	4
	A	831101	012	Riffle	Middle	Left	0.25	0.00		
	A	830827	013	Riffle	Middle	Left	1.10	0.00		
	A	830915	013	Riffle	Middle	Left	0.20	0.10		
	A	831024	013	Riffle	Base	Left			RU LG	4
	A	831101	013	Riffle	Base	Left	0.05			
	A	831207	013	Riffle	Middle	Left	0.05			
	A	830827	014	Riffle	Middle	Left	0.70	0.35		
	A	830915	014	Riffle	Middle	Left	0.20	0.20		
	A	831024	014	Pool	Middle	Left			RU LG	4
	A	831101	014	Pool	Middle	Left	0.05			
	A	831207	014	Riffle	Middle	Right	0.05			
	A	830827	015	Riffle	Middle	Right	1.00	0.40		
	A	830915	015	Riffle	Middle	Right	0.50	0.30		
	A	831024	015	Pool	Middle	Left			RU LG	2
	A	831101	015	Pool	Middle	Left	0.40	0.25		
	A	831207	015	Pool	Middle	Left	0.40	0.15		
	A	830827	016	Pool	Middle	Left	0.90	0.45		
	A	830915	016	Pool	Middle	Left	0.50	0.25		
	A	831024	016	Pool	Middle	Left			RU LG	1
	A	831101	016	Pool	Middle	Left	0.40	0.30		
	A	831207	016	Pool	Middle	Left	0.40	0.15		
	A	830827	017	Pool	Middle	Left	0.90	0.45		
	A	830915	017	Pool	Middle	Left	0.50	0.30		
	A	831024	017	Pool	Head	Left			LG RU	2
	A	831101	017	Pool	Head	Left	0.30	0.50		
	A	831207	017	Pool	Middle	Left	0.35	0.35		
	A	830827	018	Pool	Middle	Left	0.50	0.50		
	A	830915	018	Pool	Middle	Left	0.30	0.10		
	A	831024	018	Riffle	Base	Right			LG RU	4
	A	831101	018	Riffle	Base	Right	0.30	0.15		
	A	831207	018	Riffle	Base	Right	0.30	0.10		
	A	830827	019	Riffle	Base	Right	0.30	0.55		
	A	830915	019	Riffle	Base	Right	0.10	0.35		

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Appendix Table E-3.

(Continued).

Site (River mile)	Sub site	Sampling Date y/m/d	Stand pipe No.	Habitat Zone	Location within Zone	Water Depth (ft)	Velocity (ft/sec)	Sub- strate	Embeddedness rank
SLOUGH 11 (continued)	A	831024	019	Riffle	Head			RU LG	4
	A	831101	019	Riffle	Head				
	A	830827	020	Riffle	Head	0.70	0.60		
	A	830915	020	Riffle	Head	0.35	0.40		
	A	831024	020	Pool	Middle			SG SA	1
	A	831101	020	Pool	Middle	0.30	0.50		
	A	831207	020	Pool	Head	0.30	0.30		
	B	830915	04A	Pool	Head	1.25	0.05		
	B	831024	04A	Pool	Middle			RU LG	3
	B	831101	04A	Pool	Middle	1.05	0.05		
	B	830915	04B	Pool	Middle	1.10	0.00		
	B	831024	04B	Pool	Middle			LG RU	4
	B	831101	04B	Pool	Middle	1.10	0.05		
	B	830915	04C	Pool	Middle	1.30	0.00		
	B	831024	04C	Pool	Middle			RU LG	4
	B	831101	04C	Pool	Middle	1.15	0.05		
	B	830915	10A	Pool	Middle	1.50	0.10		
	B	831024	10A	Pool	Middle			CO RU	5
	B	831101	10A	Pool	Middle	1.35	0.05		
	B	830915	10B	Pool	Middle	1.20	0.00		
	B	831024	10B	Pool	Middle			RU LG	5
	B	831101	10B	Pool	Middle	1.20	0.05		
	B	830915	10C	Pool	Middle	1.50	0.05		
	B	831024	10C	Pool	Middle			RU LG	4
	B	831101	10C	Pool	Middle	1.40	0.05		
	B	830827	11A	Pool	Middle	1.00	0.05		
	B	830915	11A	Pool	Middle	0.80	0.05		
	B	831024	11A	Pool	Middle			RU LG	2
	B	831101	11A	Pool	Middle	0.75	0.15		
	B	831207	11A	Pool	Middle	1.30	0.00		
	B	830827	11B	Pool	Middle	0.85	0.05		
	B	830915	11B	Pool	Middle	0.70	0.10		
	B	831024	11B	Pool	Middle			CO RU	4
	B	831101	11B	Pool	Middle	0.70	0.05		
	B	831207	11B	Pool	Middle	1.10	0.00		

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Appendix Table E-3. (Continued).

Site (River mile)	Sub site	Sampling Date y/m/d	Stand pipe No.	Habitat Zone	Location within Zone	Water Bank	Depth (ft)	Velocity (ft/sec)	Sub- strate	Embeddedness rank
SLOUGH 11 (continued)	B	830827	11C	Pool	Middle	Right	1.00	0.05		
	B	830915	11C	Pool	Middle	Right	0.80	0.10		
	B	831024	11C	Pool	Middle	Left			RU LG	4
	B	831101	11C	Pool	Middle	Left	0.85	0.10		
	B	831207	11C	Pool	Middle	Right	1.30	0.00		
	B	830827	21A	Pool	Middle	Right	0.85	0.05		
	B	830915	21A	Pool	Middle	Right	0.80	0.00		
	B	831024	21A	Pool	Middle	Left			RU LG	4
	B	831101	21A	Pool	Middle	Left	0.90	0.05		
	B	830827	21B	Pool	Middle	Left	1.20	0.05		
	B	830915	21B	Pool	Middle	Left	1.00	0.00		
	B	831024	21B	Pool	Middle	Left			RU LG	3
	B	831101	21B	Pool	Middle	Left	1.00	0.05		
	B	831207	21B	Pool	Middle	Right	1.50	0.00		
	B	830827	21C	Pool	Middle	Right	1.20	0.05		
	B	830915	21C	Pool	Middle	Right	1.00	0.00		
	B	831024	21C	Pool	Middle	Left			RU LG	4
	B	831101	21C	Pool	Middle	Left	1.10	0.05		
	B	830915	21D	Pool	Middle	Left	1.40	0.00		
	B	831024	21D	Pool	Middle	Left			CO RU	5
	B	831101	21D	Pool	Middle	Left	1.25	0.05		
	B	830915	21E	Pool	Middle	Left	1.35	0.00		
	B	831024	21E	Pool	Middle	Left			CO RU	5
	B	831101	21E	Pool	Middle	Left	1.05	0.05		
	B	830915	21F	Pool	Middle	Left	1.30	0.05		
	B	831024	21F	Pool	Middle	Left			RU LG	5
	B	831101	21F	Pool	Middle	Left	1.25	0.05		
	C	831024	DVA	Pool	Head	Left			RU CO	4
	C	831101	DVA	Pool	Head	Left	0.65	0.20		
	C	831109	DVA	Pool	Head	Left	0.70	0.10		
	C	831207	DVA	Pool	Head	Right	0.70	0.15	RU CO	4
	C	831024	DVB	Pool	Head	Left			CO RU	4
	C	831101	DVB	Pool	Head	Left	0.70	0.20		
	C	831109	DVB	Pool	Head	Left	0.90	0.15		
	C	831207	DVB	Pool	Head	Left	0.80	0.15	CO RU	4

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Appendix Table E-3.

(Continued).

Site (River mile)	Sub site	Sampling Date y/m/d	Stand pipe No.	Habitat Zone	Location within Zone	Water Bank	Depth (ft)	Velocity (ft/sec)	Sub- strate	Embeddedness rank
SLOUGH 11 (continued)	C	831024	DVC	Pool	Head	Right			CO RU	4
	C	831101	DVC	Pool	Head	Right	0.50	0.25		
	C	831109	DVC	Pool	Head	Right	0.70	0.15	CO RU	4
	C	831207	DVC	Pool	Head	Left	0.60	0.20		
MAINSTEM (136.8)	A	831108	M1A	Pool	Head	Left	0.10	0.00		
	A	831108	M1B	Pool	Head	Left	0.40	0.00		
	A	831108	M1C	Pool	Head	Left	0.20	0.20		
INDIAN RIVER (138.6)	A	831108	001	Pool	Head	Right	0.20	0.00		
	A	831213	001	Pool	Head	Right	0.65	0.00		
	A	831108	003	Pool	Head	Left	1.00	0.50		
SLOUGH 17 (138.9)	A	831108	001	Pool	Head	Left	0.20	0.45		
	A	831213	001	Pool	Head	Left	0.25	0.40		
	A	831108	003	Pool	Head	Left	0.30	0.65		
	A	831213	003	Pool	Head	Left	0.35	0.40		
SIDE CHANNEL 21 (141.0)	A	830825	001	Riffle	Middle	Left	2.30	2.10	BO CO	1
	A	830911	001	Pool	Head	Left				
	A	830914	001	Pool	Head	Left	0.60	0.05	CO RU	3
	A	831027	001	Pool	Head	Left	0.40	0.20		
	A	830825	002	Riffle	Middle	Right	1.90	1.90	CO RU	4
	A	830911	002	Riffle	Middle	Right				
	A	830825	003	Riffle	Middle	Right	2.10	5.80	CO RU	2
	A	830911	003	Riffle	Middle	Right				
	A	830825	004	Riffle	Middle	Left	1.80	3.20	CO RU	2
	A	830911	004	Riffle	Middle	Left				
	A	830825	005	Riffle	Middle	Right	1.60	3.10	CO RU	4
	A	830911	005	Riffle	Base	Right				
	A	830914	005	Riffle	Base	Right	0.20	0.10	CO RU	4
	A	830825	006	Riffle	Middle	Left	1.60	2.75		
	A	830911	006	Riffle	Middle	Left			CO RU	4
	A	830914	006	Riffle	Middle	Left	0.20	0.00		
	A	830825	007	Riffle	Middle	Right	1.50	2.25		

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Appendix Table E-3. (Continued).

Site (River mile)	Sub site	Sampling Date y/m/d	Stand pipe No.	Habitat Zone	Location within Zone	Water Depth (ft)	Velocity (ft/sec)	Sub- strate	Embeddedness rank
SIDE CHANNEL 21 (continued)	A	830911	007	Riffle	Middle	Right		CO RU	5
	A	830825	008	Riffle	Middle	Right	1.10 2.80		
	A	830911	008	Riffle	Base	Right		CO RU	5
	A	830914	008	Riffle	Base	Right	0.20 0.15		
	A	830825	009	Riffle	Middle	Left	1.40 2.70		
	A	830911	009	Riffle	Middle	Left		CO RU	5
	A	830825	010	Riffle	Middle	Left	1.50 3.35		
	A	830911	010	Riffle	Middle	Left		BO RU	3
	A	830914	010	Riffle	Middle	Left	0.20 0.00		
	A	830825	011	Riffle	Middle	Left	1.70 2.25		
	A	830911	011	Riffle	Middle	Left		CO RU	3
	A	830914	011	Riffle	Middle	Left	0.20 0.00		
	A	830825	012	Riffle	Middle	Right	1.30 3.00		
	A	830911	012	Riffle	Middle	Right		CO RU	4
	A	830825	013	Riffle	Middle	Right	1.80 3.10		
	A	830911	013	Riffle	Middle	Right		CO BO	5
	A	830914	013	Riffle	Middle	Right	0.30 0.10		
	A	830825	014	Riffle	Middle	Left	1.40 2.25		
	A	830911	014	Riffle	Middle	Left		CO RU	1
	A	830825	015	Riffle	Middle	Right	1.80 3.10		
	A	830911	015	Riffle	Middle	Right		CO RU	5
	A	830914	015	Riffle	Middle	Right	0.50 0.30		
	A	831027	015	Riffle	Middle	Right	0.10 0.00		
	A	830825	081	Riffle	Middle	Right	1.40 1.75		
	A	830911	081	Pool	Base	Right		RU LG	1
	A	830825	082	Riffle	Middle	Right	1.00 2.10		
	A	830911	082	Pool	Head	Right		CO RU	1
	A	830914	082	Pool	Head	Right	0.10 0.00		
	A	830825	083	Riffle	Middle	Right	1.20 3.10		
	A	830911	083	Riffle	Middle	Right		CO RU	4
	A	830825	084	Riffle	Middle	Right	1.00 4.30		
	A	830911	084	Riffle	Middle	Right		RU CO	4
	A	830825	085	Riffle	Middle	Right	0.80 3.50		
	A	830911	085	Riffle	Middle	Right		RU CO	4
	B	830914	00A	Pool	Head	Left	1.10 0.50	CO SG	4

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Appendix Table E-3.

(Continued).

Site (River mile)	Sub [site]	Sampling Date y/m/d	Stand pipe No.	Habitat Zone	Location within Zone	Water Bank	Depth (ft)	Velocity (ft/sec)	Sub- strate	Embeddedness rank
SIDE CHANNEL 21 (continued)	B	830914	00B	Riffle	Middle	Right	1.00	0.75	CO RU	5
	B	831027	00B	Riffle	Middle	Right	0.70	0.30		
	B	830914	00C	Riffle	Middle	Right	0.90	0.35	CO RU	5
	B	831027	00C	Riffle	Middle	Right	0.70	0.20		
	B	830914	00D	Riffle	Middle	Right	0.85	0.60	CO RU	5
	B	831027	00D	Riffle	Middle	Right	0.80	0.20		
	B	830914	00E	Riffle	Middle	Right	0.55	0.50	CO RU	4
	B	831027	00E	Riffle	Middle	Right	0.20	0.00		
	B	830914	00F	Riffle	Middle	Right	0.70	0.60	CO BO	5
	B	831027	00F	Riffle	Middle	Right	0.50	0.70		
	B	830914	00G	Riffle	Middle	Right	0.50	1.25	CO RU	5
	B	831027	00G	Riffle	Middle	Right	0.20	0.20		
	B	830914	00H	Riffle	Middle	Right	0.70	0.70	CO RU	5
	B	831027	00H	Riffle	Middle	Right	0.50	0.40		
	B	830914	08A	Pool	Base	Right	0.70	0.05	RU LG	1
	B	831027	08A	Pool	Base	Right	0.30	0.00		
	B	830914	08B	Pool	Middle	Right	0.50	0.00	RU LG	2
	C	830914	DV1	Pool	Head	Right	0.80	0.40	CO RU	5
	C	830914	DV2	Pool	Head	Right	0.70	0.50	CO RU	5
	C	831027	DV2	Pool	Head	Right	0.50	0.15		
	C	830914	DV3	Pool	Head	Right	1.00	0.60	CO RU	5
	C	831027	DV3	Pool	Head	Right	0.50	0.30		
SLOUGH 21 (141.8)	A	830825	001	Riffle	Middle	Left	1.60	2.60		
	A	830910	001	Riffle	Middle	Left			CO RU	2
	A	830913	001	Riffle	Middle	Left	0.70	0.60		
	A	831026	001	Riffle	Middle	Left	0.60	0.70		
	A	830825	002	Riffle	Middle	Left	1.50	2.10		
	A	830910	002	Riffle	Middle	Right			CO RU	2
	A	830913	002	Riffle	Middle	Right	0.60	0.00		
	A	831026	002	Riffle	Middle	Right	0.50	0.00		
	A	830825	003	Riffle	Middle	Right	1.60	1.90		
	A	830910	003	Riffle	Head	Right			CO RU	2
	A	830913	003	Riffle	Head	Right	0.60	0.35		
	A	831026	003	Riffle	Head	Right	0.70	0.40		

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Appendix Table E-3. (Continued).

Site (River mile)	Sampling		Stand pipe No.	Location			Water		Sub- strate	Embeddedness rank
	Sub site	Date y/m/d		Habitat Zone	within Zone	Bank	Depth (ft)	Velocity (ft/sec)		
SLOUGH 21 (continued)	A	830825	004	Riffle	Middle	Left	1.80	2.00	CO RU	2
	A	830910	004	Riffle	Head	Left				
	A	830913	004	Riffle	Head	Left	0.80	0.15		
	A	831026	004	Riffle	Head	Left	0.90	0.20	CO RU	2
	A	830825	005	Riffle	Middle	Left	1.50	2.35		
	A	830910	005	Riffle	Head	Left				
	A	830913	005	Riffle	Head	Left	0.60	0.05	SI	1
	A	831026	005	Riffle	Head	Left	0.80	0.10		
	A	830825	006	Riffle	Middle	Right	1.80	2.20		
	A	830910	006	Pool	Base	Right			SI	1
	A	830913	006	Pool	Base	Right	0.70	0.05		
	A	831026	006	Pool	Base	Right	0.60	0.10		
	A	830825	007	Riffle	Middle	Left	1.70	2.25	SI	1
	A	830910	007	Pool	Base	Left				
	A	830913	007	Pool	Base	Left	0.60	0.05		
	A	831026	007	Pool	Base	Left	0.60	0.35	SI	1
	A	830825	008	Riffle	Middle	Left	1.50	2.30		
	A	830910	008	Pool	Base	Left				
	A	830913	008	Pool	Base	Left	0.30	0.00	BO CO	1
	A	831026	008	Pool	Base	Left	0.30	0.00		
	A	830825	009	Riffle	Middle	Left	1.10	2.55		
	A	830910	009	Pool	Head	Left			BO CO	2
	A	830913	009	Pool	Head	Left	0.20	0.00		
	A	831026	009	Pool	Head	Left	0.10	0.00		
	A	830913	00A	Pool	Middle	Right	1.10	0.00	BO CO	3
	A	831026	00A	Pool	Middle	Right	1.00	0.00		
	A	830913	00B	Pool	Head	Right	0.70	0.05		
	A	831026	00B	Pool	Head	Right	0.70	0.10	BO CO	2
	A	830913	00C	Pool	Head	Right	0.80	0.00		
	A	831026	00C	Pool	Head	Right	0.70	0.00		
	A	830913	00D	Pool	Middle	Left	0.50	0.00	LG RU	1
	A	831026	00D	Pool	Middle	Left	0.40	0.20		
	A	830913	00E	Pool	Middle	Left	1.80	0.00		
	A	831026	00E	Pool	Middle	Left	1.60	0.00	RU LG	1
	A	830913	00F	Pool	Head	Left	0.70	0.00		

Appendix Table E-3.

(Continued).

Site (River mile)	Sub site	Sampling Date y/m/d	Stand pipe No.	Habitat Zone	Location within Zone	Water Bank	Depth (ft)	Velocity (ft/sec)	Sub- strate	Embeddedness rank
SLOUGH 21 (continued)	A	830825	010	Riffle	Middle	Left	1.90	2.25	SI	1
	A	830910	010	Pool	Head	Left				
	A	830913	010	Pool	Head	Left	0.40	0.10		
	A	831026	010	Pool	Head	Left	0.40	0.05	BO CO	1
	A	830825	011	Riffle	Middle	Right	1.60	2.15		
	A	830910	011	Pool	Head	Right				
	A	830913	011	Pool	Head	Right	0.80	0.00	BO CO	2
	A	831026	011	Pool	Head	Right	1.10	1.50		
	A	830825	012	Riffle	Middle	Right	1.40	2.00		
	A	830910	012	Pool	Head	Right			BO CO	2
	A	830913	012	Pool	Head	Right	0.80	0.00		
	A	831026	012	Pool	Head	Right	0.90	0.00		
	A	830825	013	Riffle	Middle	Left	1.50	2.59	SI	1
	A	830910	013	Riffle	Base	Left				
	A	830913	013	Riffle	Base	Left	0.40	0.30		
	A	831026	013	Riffle	Base	Left	0.40	0.30	LG RU	2
	A	830825	014	Riffle	Middle	Right	1.30	2.80		
	A	830910	014	Pool	Base	Left				
	A	830913	014	Pool	Base	Left	0.50	0.15	LG RU	2
	A	831026	014	Pool	Base	Left	0.50	0.20		
	A	831108	014	Pool	Base	Left	0.50	0.10		
	A	830825	015	Riffle	Middle	Right	1.60	2.80	LG RU	2
	A	830910	015	Pool	Base	Left				
	A	830913	015	Pool	Base	Left	1.00	0.15		
	A	831026	015	Pool	Base	Left	1.00	0.20	SI	1
	A	831108	015	Pool	Base	Left	0.95	0.10		
	A	830825	016	Riffle	Middle	Right	1.10	2.45		
	A	830910	016	Riffle	Base	Right			SI	1
	A	830913	016	Riffle	Base	Right	0.30	0.40		
	A	831026	016	Riffle	Base	Right	0.10	0.00		
	A	831108	016	Riffle	Base	Right	0.10	0.00		

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A P P E N D I X F

EMBRYO DEVELOPMENT AND SURVIVAL DATA

APPENDIX F

EMBRYO DEVELOPMENT AND SURVIVAL DATA

This appendix presents information on embryo development and survival obtained from selected Susitna River habitats. In Appendix Table F-1, the developmental period from fertilization to total yolk absorption is partitioned into twelve stages. Data is reported for eight study sites [Fourth of July Creek, Sloughs 10, 11, and 21, Side Channels 10, 21, Upper Side Channel 11, and Mainstem (RM 136.1)]. A limited amount of data obtained from natural redds are included.

Percent survival of embryos is presented in Appendix Table F-2. These data were collected from the same sites included in Appendix Table F-1. There are, however, differences in the way embryos were handled and placed within sites which must be considered when making comparisons between the site/subsites included in this table.

Appendix Table F-1. Stages of development of live chum salmon embryos and alevins removed from middle Susitna River habitats, Alaska.

Site (River mile)	Sampling Sub site	Date y/m/d	Stand pipe No.	Box No.	Number of Embryos Evaluated	Stages of Development												
						Cleavage				Gastrulation				Organogenesis				Alevin
						1	2	3	4	5	6	7	8	9	10	11	12	
FOURTH OF JULY CREEK (131.1)	A	831009	003	1	12													12
	A	831009	003	2	14													14
	A	831102	007	1	40									07			33	
	A	831102	007	2	42									15			27	
	A	831102	012	1	39									21			18	
	A	831102	012	2	38									38				
	A	840330	015	1	0													
	A	840330	015	2	1						01							
	A	840510	001	1	0													
A	840510	001	2	0														
SIDE CHANNEL 10 (133.8)	A	831009	001	1	42					07	03		32					
	A	831009	001	2	44								44					
	A	831031	011	1	40								40					
	A	831031	011	2	39								39					
	A	840301	002	1	40										01	31	08	
	A	840301	002	2	41											10	31	
	A	840301	005	1	8											01	07	
	A	840301	005	2	44											02	42	
	A	840301	007	1	0													
	A	840301	009	1	9													
	A	840302	013	1	1													
	A	840302	014	1	0											01		
	A	840302	014	2	0												09	
	A	840302	018	2	0													
	A	840510	016	1	0													
	A	840510	016	2	0													
SLOUGH 10 (133.8)	A	831029	002	1	1					01								
	A	831029	002	2	0													
	A	831029	007	1	0													
	A	831029	007	2	0													
	A	831031	017	1	26					03		04	19					
	A	831031	017	2	43					10		11	22					
	A	840208	015	1	4													
A	840229	011	1	0											04			

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Appendix Table F-1. (Continued).

Site (River mile)	Sub site	Sampling Date y/m/d	Stand pipe No.	Box No.	Number of Embryos Evaluated	Stages of Development												
						Cleavage				Gastrulation				Organogenesis				Alevin
						1	2	3	4	5	6	7	8	9	10	11	12	
SLOUGH 10 (continued)	A	840229	013	1	7									02	05			
	A	840229	013	2	17									06	07		04	
	A	840229	016	1	0													
	A	840229	016	2	0													
	A	840330	005	1	0													
	A	840330	005	2	0													
SLOUGH 11 (135.3)	A	831009	005	1	49					49								
	A	831009	005	2	53					53								
	A	831031	002	1	35					07	28							
	A	831031	002	2	8					03	05							
	A	831031	015	1	46									10	36			
	A	831031	015	2	48									06	42			
	A	840209	001	1	46												46	
	A	840209	001	2	44												44	
	A	840210	009	1	0													
	A	840210	012	1	3												02	01
	A	840210	012	2	0													
	B	830828	811	1	25	25												
	B	830828	811	2	25	25												
	B	830828	821	1	25	25												
	B	830828	821	2	25	25												
	B	830901	4TH	1	25	25												
	B	830901	4TH	2	25	25												
	B	830915	810	1	25	25												
	B	830915	810	2	23	23												
	B	830922	C21	1	21	21												
	B	830922	C21	2	23	23												
	B	831031	4TH	1	37									37				
	B	831031	4TH	2	37									37				
	B	831031	C21	1	21					02	19							
	B	831031	C21	2	20					03	17							

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Appendix Table F-1. (Continued).

Site (River mile)	Sub site	Sampling Date y/m/d	Stand pipe No.	Box No.	Number of Embryos Evaluated	Stages of Development															
						Cleavage				Gastrulation				Organogenesis						Alevin	
						1	2	3	4	5	6	7	8	9	10	11	12	1	2		
SLOUGH 11 (continued)	B	831031	810	1	45					02	27	16									
	B	831031	810	2	37					03	22	12									
	B	831031	811	1	47							16	31								
	B	831031	811	1	47							16	31								
	B	831031	821	1	42								42								
	B	831031	821	2	41							01	40								
	B	840201	4TH	1	0																
	B	840201	4TH	2	0																
	B	840201	C21	1	3													01		02	
	B	840201	C21	1	1													01			
	B	840201	C21	2	2		01														01
	B	840201	C21	2	4													02		02	
	B	840201	810	1	28							02	02			03				21	
	B	840201	810	2	18								01		01					16	
	B	840201	811	2	1																01
	C	831009	DEV	1	44							10	34								
	C	831009	DEV	2	47							23	24								
	C	831024	DEV	1	52								44	08							
	C	831024	DEV	2	39								30	09							
	C	831110	DEV	1	44								01	17	26						
	C	831122	DEV	1	38								04	01		33					
	C	831204	DEV	1	36											26	10				
	C	831230	DEV	1	34												34				
MAINSTEM (136.1)	A	831009	DEV	1	32						19	13									
	A	831009	DEV	2	44						22	22									
	A	831025	DEV	1	6							06									
	A	831025	DEV	2	29						01	28									
	A	831025	DEV	3	21						04	17									
	A	831110	DEV	1	26								26								
	A	831122	DEV	1	17						01	13	03								
	A	831204	DEV	1	34							12	22								
	A	831229	DEV	1	26								02		21	03					

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Appendix Table F-1. (Continued).

Site (River mile)	Sub site	Sampling Date y/m/d	Stand pipe No.	Box No.	Number of Embryos Evaluated	Stages of Development											
						Cleavage	Gastrulation				Organogenesis						Alevin
							1	2	3	4	5	6	7	8	9	10	
						1	2	3	4	5	6	7	8	9	10	11	12
MAINSTEM (continued)	A	840330	DEV	1	17											13	04
	A	840330	DEV	2	15											09	06
	A	840330	DEV	3	14											09	05
	A	840410	DEV	1	1												01
	A	840410	DEV	2	16											04	12
	A	840417	DEV	1	10												10
	A	840417	DEV	2	2												02
	A	840417	DEV	3	4												04
	A	840425	DEV	1	5												05
A	840425	DEV	2	6												06	
UPPER SIDE CHANNEL 11 (136.1)	A	831024	DEV	1	47							33	14				
	A	831024	DEV	2	49							25	24				
	A	831110	DEV	1	41									02	39		
	A	831122	DEV	1	42											42	
	A	831204	DEV	1	43											16	27
	A	831230	DEV	1	48							02					46
	A	840118	DEV	1	1												01
	A	840119	DEV	1	1												01
SIDE CHANNEL 21 (141.0)	A	831009	002	1	11												
	A	831009	002	2	24												
	A	831027	014	1	42					01		10	13				
	A	831027	014	2	38							01	38	03			
	A	840329	012	1	0								20	18			
	A	840329	012	2	0												
	A	840329	085	1	0												
	A	840329	085	2	0												
	A	840417	082	2	0												
	A	840417	083	2	0												
	A	840502	008	1	0												

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Appendix Table F-1. (Continued).

Site (River mile)	Sub site	Sampling Date y/m/d	Stand pipe No.	Box No.	Number of Embryos Evaluated	Stages of Development											
						Cleavage				Gastrulation				Organogenesis			
						1	2	3	4	5	6	7	8	9	10	11	12
SIDE CHANNEL 21 (continued)	B	840328	00C	1	28										02	26	
	B	840328	00C	2	19											19	
	B	840329	00D	1	10											10	
	B	840329	00D	2	11											11	
	B	840419	00A	1	12												12
	B	840419	00A	2	2												02
	B	840502	00G	1	0												
	B	840502	00G	2	0												
	C	831025	DEV	2	19		04	08	07								
	C	831110	DEV	1	14					07	07						
	C	831122	DEV	1	12					01	11						
	C	831204	DEV	2	20						20						
	C	840119	DEV	1	3												
	C	840329	DEV	2	17									03		14	03
	C	840329	DEV	2	10											10	
	C	840411	DEV	1	8											08	
	C	840417	DEV	1	12											09	03
	C	840426	DEV	1	11												11
	C	840502	DEV	1	14												14
	C	840510	DEV	1	14												14
SLOUGH 21 (141.8)	A	831026	001	1	38				03		35						
	A	831026	001	2	39						39						
	A	831229	014	1	41										41		
	A	840113	014	2	13							01			01		11
	A	840117	003	1	40											11	29
	A	840117	005	1	42											30	12
	A	840117	005	2	43											38	05
	A	840117	008	1	5							01			01	02	01
	A	840117	008	2	26							05				14	07
	A	840117	010	1	1												01

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Appendix Table F-1. (Continued).

Site (River mile)	Sampling Sub Date Site y/m/d	Stand pipe No.	Box No.	Number of Embryos Evaluated	Stages of Development											
					Cleavage		Gastrulation				Organogenesis				Alevin	
					1	2	3	4	5	6	7	8	9	10	11	12
NATURAL REDDS	831002	821	1	4	04											
	831025	821	2	6						06						
	831026	821	3	10						03 07						
	831202	821	3	10								02 08				
	840413	821	4	8												08
	831024	811	1	7							02	05				
	831024	811	2	8							07	01				
	831025	821	1	11						11						
	831102	4TH	1	4									03			01
	830921	809	1	21			11	10								
	831001	809	1	10						02 08						

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Appendix Table F-2.

Percent survival of hatched and unhatched embryos recovered from Whitlock-Vibert Boxes placed in selected habitats of the middle Susitna River, Alaska.

Site (River mile)	Sub Site	Sampling Date y/m/d	Stand pipe No.	Box No.	Hatched				Unhatched				Missing		Total	
					Live		Dead		Live		Dead		No.		Survival	
					No.	%	No.	%	No.	%	No.	%	No.	%	%	%
FOURTH OF JULY CREEK (131.1)	A	840330	015	1	24	48	13	26	0	0	13	26	0	0	48	52
	A	840330	015	2	22	44	13	26	1	2	13	26	1	2	46	54
	A	840419	010	1	0	0	33	66	0	0	11	22	6	12	0	100
	A	840419	010	2	8	16	10	20	0	0	15	30	17	34	16	84
	A	840419	013	1	16	32	2	4	0	0	10	20	22	44	32	68
	A	840419	013	2	15	30	5	10	0	0	10	20	20	40	30	70
	A	840419	014	1	12	24	2	4	0	0	26	52	10	20	24	76
	A	840419	014	2	0	0	0	0	0	0	50	100	0	0	0	100
	A	840426	006	1	0	0	0	0	0	0	61	100	0	0	0	100
	A	840426	006	2	0	0	0	0	0	0	50	100	0	0	0	100
	A	840426	008	1	0	0	0	0	0	0	10	20	40	80	0	100
	A	840426	008	2	1	2	0	0	0	0	25	50	24	48	2	98
	A	840426	009	1	0	0	0	0	0	0	10	20	40	80	0	100
	A	840426	009	2	0	0	0	0	0	0	21	42	29	58	0	100
	A	840502	005	1	0	0	0	0	0	0	50	100	0	0	0	100
	A	840502	005	2	0	0	0	0	0	0	49	98	1	2	0	100
	A	840510	001	1	0	0	0	0	0	0	49	98	1	2	0	100
	A	840510	001	2	0	0	0	0	0	0	50	100	0	0	0	100
	A	840510	004	1	0	0	0	0	0	0	51	100	0	0	0	100
	A	840510	004	2	0	0	0	0	0	0	50	100	0	0	0	100
SIDE CHANNEL 10 (133.8)	A	840510	011	1	12	24	7	14	0	0	21	42	10	20	24	76
	A	840510	011	2	11	22	5	10	0	0	18	36	16	32	22	78
	A	840301	002	1	0	0	0	0	40	80	10	20	0	0	80	20
	A	840301	002	2	0	0	0	0	41	82	9	18	0	0	82	18
	A	840301	003	1	0	0	0	0	0	0	50	100	0	0	0	100
	A	840301	003	2	0	0	0	0	0	0	52	100	0	0	0	100
	A	840301	005	1	0	0	0	0	8	16	42	84	0	0	16	84
	A	840301	005	2	0	0	0	0	45	88	6	12	0	0	88	12
	A	840301	006	1	0	0	0	0	0	0	50	100	0	0	0	100
	A	840301	006	2	0	0	0	0	0	0	50	100	0	0	0	100
	A	840301	007	1	0	0	0	0	0	0	50	100	0	0	0	100
	A	840301	007	2	0	0	0	0	0	0	50	100	0	0	0	100
	A	840301	008	1	0	0	0	0	0	0	49	98	1	2	0	100
	A	840301	008	2	0	0	0	0	0	0	50	100	0	0	0	100

Appendix Table F-2. (Continued).

Site (River mile)	Sub Site	Date y/m/d	Stand pipe No.	Box No.	Hatched				Unhatched				Total					
					Live		Dead		Live		Dead		Missing		Survival		Mortality	
					No.	%	No.	%	No.	%	No.	%	No.	%	%	%	%	%
SIDE CHANNEL 10 (continued)	A	840301	009	1	9	18	16	32	0	0	14	28	11	22	18		82	
	A	840301	009	2	8	16	26	52	0	0	8	16	8	16	16		84	
	A	840301	010	1	0	0	0	0	0	0	50	100	0	0	0		100	
	A	840301	010	2	0	0	0	0	0	0	50	100	0	0	0		100	
	A	840301	012	1	0	0	0	0	0	0	50	100	0	0	0		100	
	A	840301	012	2	0	0	0	0	0	0	50	100	0	0	0		100	
	A	840302	013	1	0	0	0	0	1	2	49	98	0	0	2		98	
	A	840302	013	2	0	0	0	0	39	78	11	22	0	0	78		22	
	A	840302	014	1	0	0	0	0	0	0	50	100	0	0	0		100	
	A	840302	014	2	0	0	0	0	0	0	50	100	0	0	0		100	
	A	840302	018	1	0	0	0	0	0	0	50	100	0	0	0		100	
	A	840302	018	2	0	0	0	0	0	0	49	98	1	2	0		100	
	A	840330	004	1	0	0	0	0	0	0	50	100	0	0	0		100	
	A	840330	004	2	0	0	0	0	0	0	50	100	0	0	0		100	
	A	840502	015	1	0	0	0	0	0	0	50	100	0	0	0		100	
	A	840502	015	2	0	0	0	0	0	0	50	100	0	0	0		100	
	A	840502	019	1	0	0	0	0	0	0	51	100	0	0	0		100	
	A	840502	019	2	0	0	0	0	0	0	50	100	0	0	0		100	
	A	840510	016	1	0	0	0	0	0	0	50	100	0	0	0		100	
	A	840510	016	2	0	0	0	0	0	0	52	100	0	0	0		100	
	A	840510	017	1	0	0	0	0	0	0	51	100	0	0	0		100	
	A	840510	017	2	0	0	0	0	0	0	51	100	0	0	0		100	
SLOUGH 10 (133.8)	A	840208	015	1	0	0	0	0	3	6	4	8	43	86	6		94	
	A	840228	014	1	0	0	0	0	0	0	5	10	45	90	0		100	
	A	840228	015	2	0	0	0	0	0	0	2	4	48	96	0		100	
	A	840228	018	1	0	0	0	0	0	0	3	6	47	94	0		100	
	A	840229	006	1	0	0	0	0	0	0	50	100	0	0	0		100	
	A	840229	006	2	0	0	0	0	0	0	51	100	0	0	0		100	
	A	840229	008	1	0	0	0	0	0	0	50	100	0	0	0		100	
	A	840229	008	2	0	0	0	0	0	0	50	100	0	0	0		100	
	A	840229	009	1	0	0	0	0	0	0	50	100	0	0	0		100	
	A	840229	009	2	0	0	0	0	0	0	50	100	0	0	0		100	
	A	840229	010	1	0	0	0	0	0	0	6	12	44	88	0		100	
	A	840229	010	2	0	0	2	4	0	0	7	14	41	82	0		100	

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Appendix Table F-2. (Continued).

					Hatched				Unhatched				Total					
					Live		Dead		Live		Dead		Missing		Survival		Mortality	
Site (River mile)	Sub Site	Date y/m/d	Stand pipe No.	Box No.	No.	%	No.	%	No.	%	No.	%	No.	%	%	%	%	%
SLOUGH 10 (continued)	A	840229	011	1	0	0	0	0	0	0	50	100	0	0	0		100	
	A	840229	011	2	0	0	0	0	0	0	50	100	0	0	0		100	
	A	840229	012	1	0	0	0	0	0	0	10	20	40	80	0		100	
	A	840229	012	2	0	0	0	0	0	0	9	18	41	82	0		100	
	A	840229	013	1	0	0	0	0	6	12	41	82	3	6	12		88	
	A	840229	013	2	4	8	0	0	13	26	25	50	8	16	34		66	
	A	840229	014	2	0	0	0	0	0	0	28	56	22	44	0		100	
	A	840229	016	1	0	0	32	64	0	0	11	22	7	14	0		100	
	A	840229	016	2	0	0	36	72	0	0	10	20	4	8	0		100	
	A	840229	018	2	0	0	0	0	0	0	5	10	45	90	0		100	
	A	840229	019	1	0	0	0	0	0	0	3	6	47	94	0		100	
	A	840229	019	2	0	0	0	0	0	0	13	26	37	74	0		100	
	A	840229	020	1	0	0	0	0	0	0	14	28	36	72	0		100	
	A	840229	020	2	0	0	0	0	0	0	13	26	37	74	0		100	
	A	840301	003	1	0	0	0	0	0	0	50	100	0	0	0		100	
	A	840301	003	2	0	0	0	0	0	0	50	100	0	0	0		100	
	A	840330	005	1	0	0	0	0	0	0	52	100	0	0	0		100	
	A	840330	005	2	0	0	0	0	0	0	50	100	0	0	0		100	
	A	840410	001	1	0	0	0	0	0	0	61	100	0	0	0		100	
	A	840410	001	2	0	0	0	0	0	0	50	100	0	0	0		100	
A	840425	004	1	0	0	0	0	0	0	50	100	0	0	0		100		
A	840425	004	2	0	0	0	0	0	0	50	100	0	0	0		100		
SLOUGH 11 (135.3)	A	840118	010	1	0	0	0	0	45	90	2	4	3	6	90		10	
	A	840201	010	2	2	4	1	2	25	50	3	6	19	38	54		46	
	A	840209	001	1	0	0	0	0	46	92	3	6	1	2	92		8	
	A	840209	001	2	0	0	0	0	44	88	3	6	3	6	88		12	
	A	840209	003	1	0	0	0	0	0	0	50	100	0	0	0		100	
	A	840209	003	2	0	0	0	0	0	0	49	98	1	2	0		100	
	A	840209	004	1	0	0	0	0	0	0	50	100	0	0	0		100	
	A	840209	004	2	0	0	0	0	0	0	48	96	2	4	0		100	
	A	840209	006	1	0	0	0	0	0	0	50	100	0	0	0		100	
	A	840209	006	2	0	0	0	0	0	0	49	98	1	2	0		100	
	A	840209	007	1	0	0	0	0	0	0	47	94	3	6	0		100	
	A	840209	007	2	0	0	0	0	0	0	50	100	0	0	0		100	

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Appendix Table F-2. (Continued).

Site (River mile)	Sampling Sub Site	Date y/m/d	Stand pipe No.	Box No.	Hatched				Unhatched				Total			
					Live		Dead		Live		Dead		Missing		Survival	
					No.	%	No.	%	No.	%	No.	%	No.	%	%	%
SLOUGH 11 (continued)	A	840209	008	1	0	0	0	0	0	0	41	82	9	18	0	100
	A	840209	008	2	0	0	0	0	0	0	49	98	1	2	0	100
	A	840210	009	1	0	0	0	0	0	0	47	94	3	6	0	100
	A	840210	009	2	0	0	0	0	0	0	50	100	0	0	0	100
	A	840210	011	1	0	0	0	0	2	4	1	2	47	94	4	96
	A	840210	011	2	0	0	0	0	1	2	7	14	42	84	2	98
	A	840210	012	1	0	0	0	0	3	6	41	82	6	12	6	94
	A	840210	012	2	0	0	0	0	0	0	47	94	3	6	0	100
	A	840210	013	1	0	0	0	0	0	0	0	0	50	100	0	100
	A	840210	013	2	0	0	0	0	0	0	3	6	47	94	0	100
	A	840210	014	1	0	0	0	0	1	2	0	0	49	98	2	98
	A	840210	014	2	0	0	0	0	1	2	1	2	48	96	2	98
	A	840210	016	1	0	0	0	0	1	2	15	30	34	68	2	98
	A	840210	016	2	0	0	0	0	2	4	0	0	48	96	4	96
	A	840210	017	1	0	0	0	0	0	0	1	2	49	98	0	100
	A	840210	017	2	0	0	0	0	0	0	5	10	45	90	0	100
	A	840210	020	1	0	0	0	0	0	0	45	90	5	10	0	100
	A	840210	020	2	0	0	0	0	0	0	44	88	6	12	0	100
	A	840301	018	1	0	0	0	0	0	0	37	74	13	26	0	100
	A	840328	018	2	0	0	0	0	0	0	43	86	7	14	0	100
	A	840328	019	1	0	0	0	0	0	0	47	94	3	6	0	100
	A	840328	019	2	0	0	0	0	0	0	49	98	1	2	0	100
	B	840201	04A	1	0	0	0	0	0	0	2	4	48	96	0	100
	B	840201	04A	2	0	0	0	0	0	0	4	8	46	92	0	100
	B	840201	10B	1	21	42	0	0	8	16	3	6	18	36	58	42
	B	840201	10B	2	16	32	2	4	3	6	6	12	23	46	38	62
	B	840201	11B	1	0	0	0	0	0	0	5	10	45	90	0	100
	B	840201	11B	2	1	2	0	0	0	0	1	2	48	96	2	98
	B	840201	21C	1	0	0	0	0	1	2	5	10	44	88	2	98
	B	840201	21C	2	1	2	0	0	0	0	13	26	36	72	2	98
	B	840201	21E	1	2	4	0	0	1	2	25	50	22	44	6	94
	B	840201	21E	2	2	4	0	0	2	4	11	22	35	70	8	92
	C	840118	DVB	1	0	0	0	0	0	0	0	0	50	100	0	100
	C	840118	DVB	2	0	0	0	0	0	0	0	0	50	100	0	100

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Appendix Table F-2. (Continued).

Site (River mile)	Sub Site	Date y/m/d	Stand pipe	Box No.	Hatched				Unhatched				Total			
					Live		Dead		Live		Dead		Missing	Survival	Mortality	
					No.	%	No.	%	No.	%	No.	%				
MAINSTEM (136.1)	A	840330	DVA	1	4	8	0	0	13	26	33	66	0	0	34	66
	A	840330	DVA	2	6	12	1	2	9	18	22	44	12	24	30	70
	A	840330	DVA	3	5	10	0	0	9	18	28	56	8	16	28	72
	A	840410	DV1	1	1	2	0	0	0	0	44	88	5	10	2	98
	A	840410	DV1	2	12	24	2	4	4	8	34	68	0	0	31	69
	A	840417	DV1	1	10	20	1	2	0	0	33	66	6	12	20	80
	A	840417	DV1	2	2	4	1	2	0	0	51	100	0	0	4	96
	A	840417	DV1	3	4	8	14	28	0	0	27	54	5	10	8	92
UPPER SIDE CHANNEL 11 (136.1)	A	840118	DVC	1	0	0	0	0	1	2	8	16	41	82	2	98
	A	840118	DVC	2	0	0	0	0	1	2	10	20	39	78	2	98
SIDE CHANNEL 21 (141.0)	A	840329	012	1	0	0	0	0	0	0	52	100	0	0	0	100
	A	840329	012	2	0	0	0	0	0	0	50	100	0	0	0	100
	A	840329	013	1	0	0	0	0	0	0	50	100	0	0	0	100
	A	840329	013	2	0	0	0	0	0	0	48	96	2	4	0	100
	A	840329	015	1	0	0	0	0	0	0	50	100	0	0	0	100
	A	840329	015	2	0	0	0	0	0	0	50	100	0	0	0	100
	A	840329	084	1	0	0	0	0	0	0	50	100	0	0	0	100
	A	840329	084	2	0	0	0	0	0	0	50	100	0	0	0	100
	A	840329	085	1	0	0	0	0	0	0	50	100	0	0	0	100
	A	840329	085	2	0	0	0	0	0	0	50	100	0	0	0	100
	A	840417	003	1	0	0	0	0	0	0	49	98	1	2	0	100
	A	840417	003	2	0	0	0	0	0	0	50	100	0	0	0	100
	A	840417	082	1	0	0	0	0	0	0	50	100	0	0	0	100
	A	840417	082	2	0	0	0	0	0	0	50	100	0	0	0	100
	A	840417	083	1	0	0	0	0	0	0	49	98	1	2	0	100
	A	840417	083	2	0	0	0	0	0	0	50	100	0	0	0	100
	A	840502	007	1	0	0	0	0	0	0	50	100	0	0	0	100
	A	840502	007	2	0	0	0	0	0	0	49	98	1	2	0	100
	A	840502	008	1	0	0	0	0	0	0	50	100	0	0	0	100
	A	840502	008	2	0	0	0	0	0	0	50	100	0	0	0	100
	A	840502	081	1	0	0	0	0	0	0	49	98	1	2	0	100
	A	840502	081	2	0	0	0	0	0	0	49	98	1	2	0	100
	A	840510	005	1	0	0	0	0	0	0	50	100	0	0	0	100

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Appendix Table F-2. (Continued).

Site (River mile)	Sampling Sub Site	Date y/m/d	Stand pipe No.	Box No.	Hatched				Unhatched				Total			
					Live		Dead		Live		Dead		Missing		Survival	
					No.	%	No.	%	No.	%	No.	%	No.	%	%	%
SIDE CHANNEL 21 (continued)	A	840510	005	2	0	0	0	0	0	0	50	100	0	0	0	100
	A	840601	004	1	0	0	0	0	0	0	50	100	0	0	0	100
	A	840601	004	2	0	0	0	0	0	0	50	100	0	0	0	100
	A	840601	006	1	0	0	0	0	0	0	46	92	4	8	0	100
	A	840601	006	2	0	0	0	0	0	0	47	94	3	6	0	100
	A	840601	009	1	0	0	0	0	0	0	49	98	1	2	0	100
	A	840601	009	2	0	0	0	0	0	0	49	98	1	2	0	100
	A	840601	010	1	0	0	0	0	0	0	50	100	0	0	0	100
	A	840601	010	2	0	0	0	0	0	0	50	100	0	0	0	100
	A	840601	011	1	0	0	0	0	0	0	50	100	0	0	0	100
	A	840601	011	2	0	0	0	0	0	0	50	100	0	0	0	100
	B	840329	00B	1	0	0	0	0	5	10	41	82	4	8	10	90
	B	840329	00B	2	0	0	0	0	32	64	16	32	2	4	64	36
	B	840329	00C	1	0	0	0	0	27	54	21	42	2	4	54	46
	B	840329	00C	2	0	0	0	0	19	38	25	50	6	12	38	62
	B	840329	00D	1	0	0	0	0	10	20	40	80	0	0	20	80
	B	840329	00D	2	0	0	0	0	17	34	33	66	0	0	34	66
	B	840329	00F	1	0	0	0	0	26	35	48	65	0	0	35	65
	B	840329	00F	2	0	0	0	0	15	30	35	70	0	0	30	70
	B	840419	00A	1	12	24	0	0	0	0	11	22	27	54	24	76
	B	840419	00A	2	2	4	0	0	0	0	15	30	33	66	4	96
	B	840419	00H	1	0	0	0	0	0	0	51	100	0	0	0	100
	B	840419	00H	2	0	0	0	0	2	4	48	96	0	0	4	96
	B	840502	00G	1	0	0	0	0	0	0	49	98	1	2	0	100
	B	840502	00G	2	0	0	0	0	0	0	49	98	1	2	0	100
	B	840510	00E	1	0	0	0	0	0	0	50	100	0	0	0	100
	B	840510	00E	2	0	0	0	0	0	0	50	100	0	0	0	100
	B	840510	0SA	1	0	0	0	0	0	0	50	100	0	0	0	100
	B	840510	0SA	2	0	0	0	0	0	0	50	100	0	0	0	100
	B	840601	0SB	1	0	0	0	0	0	0	49	98	1	2	0	100
	B	840601	0SB	2	0	0	0	0	0	0	49	98	1	2	0	100
SLOUGH 21 (142.0)	A	840117	002	1	27	54	0	0	0	0	11	22	12	24	54	46
	A	840117	002	2	6	12	1	2	11	22	14	28	18	36	34	66
	A	840117	003	1	29	58	0	0	11	22	5	10	5	10	80	20

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Appendix Table F-2. (Continued).

Site (River mile)	Sub Site	Date y/m/d	Stand pipe No.	Box No.	Hatched				Unhatched				Total					
					Live		Dead		Live		Dead		Missing		Survival		Mortality	
					No.	%	No.	%	No.	%	No.	%	No.	%	%		%	
SLOUGH 21 (continued)	A	840117	003	2	21	42	2	4	12	24	9	18	6	12	66		34	
	A	840117	004	1	17	34	1	2	19	38	11	22	2	4	72		28	
	A	840117	004	2	13	26	1	2	12	24	16	32	8	16	50		50	
	A	840117	005	1	12	24	0	0	31	62	8	16	0	0	84		16	
	A	840117	005	2	5	10	1	2	38	76	6	12	0	0	86		14	
	A	840117	006	1	32	64	5	10	2	4	11	22	0	0	68		32	
	A	840117	006	2	22	44	3	6	7	14	17	34	1	2	58		42	
	A	840117	007	1	16	32	3	6	2	4	3	6	26	52	36		64	
	A	840117	007	2	35	70	1	2	8	16	4	8	2	4	86		14	
	A	840117	008	1	1	2	0	0	4	8	45	90	0	0	10		90	
	A	840117	008	2	7	14	0	0	18	36	25	50	0	0	50		50	
	A	840117	009	1	0	0	28	56	0	0	9	18	13	26	0		100	
	A	840117	009	2	14	28	23	46	2	4	9	18	2	4	32		68	
	A	840117	010	1	1	2	0	0	0	0	49	98	0	0	2		98	
	A	840117	010	2	0	0	0	0	0	0	50	100	0	0	0		100	
	A	840117	011	1	5	10	13	26	2	4	28	56	2	4	14		86	
	A	840117	011	2	33	66	5	10	1	2	8	16	3	6	68		32	
	A	840117	012	1	1	2	26	52	0	0	20	40	3	6	2		98	
	A	840117	012	2	0	0	33	66	0	0	16	32	1	2	0		100	
	A	840117	013	1	20	40	10	20	0	0	18	36	2	4	40		60	
	A	840117	013	2	24	48	9	18	0	0	17	34	0	0	48		52	

1. Percentages are calculated based on an initial total of 50 embryos placed in each WVB.
2. Missing embryos are assumed to be dead.