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Lake Whatcom Monitoring Project 1991/1992 Report

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LAKE WHATCOM
WATERSHED

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1991 - 1992 Final Report

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Contents

Executive Summary

This report describes the results from the 1991–1992 Lake Whatcom monitoring program. The objectives of this program were to continue baseline water quality monitoring program in Lake Whatcom and representative creeks in the Lake Whatcom watershed; to provide supplemental water quality data for the Austin Creek watershed, and to estimate hydrologic inputs and outputs for Lake Whatcom using the HSPF model.

The water quality data from Lake Whatcom show that Site 1 (basin 1) is generally more productive than Sites 2–4 (basins 2-3), as indicated by greater concentrations of chlorophyll *a*, higher concentrations of total phosphorus, and lower Secchi depths at Site 1 than at Sites 2–4. The data also indicate that 1992 was considerably warmer than 1991. Winter water temperatures in 1992 were approximately 2 degrees (C) warmer than in 1991, and summer water temperatures were approximately 1.5 degrees warmer. The warmer winter and spring temperatures resulted in the lake stratifying earlier in 1992 than 1991. Similarly, the phytoplankton growth appeared to increase faster in the spring of 1992 than in 1991. Low hypolimnetic oxygen concentrations appeared earlier in 1992, which may have caused the the higher hypolimnetic concentrations of ammonia measured in 1992.

Supplemental water quality data were collected from 27 sites in Austin Creek. These sites were located in residential areas and in relatively undeveloped, forested, or recently logged areas. The water quality data from Austin Creek indicates that the creek is influenced by residential runoff in the areas adjacent to Sudden Valley. The residential areas of the creek typically have higher coliform counts (both total and fecal) and higher nutrient concentrations. Some of the residential sites also had higher concentrations for total suspended solids and turbidity; however, this may not be the result of residential runoff, but rather the result of unstable creek banks.

The HSPF hydrologic model was used to estimate inputs (precipitation and the diversion from the middle fork of the Nooksack River) and outputs (Whatcom Creek, the Whatcom Falls fish hatchery, Georgia Pacific, the Bellingham water treatment plant, Water District #10, and lake evaporation) for Lake Whatcom. Whatcom Creek and Georgia Pacific were the major outputs; watershed runoff and the Nooksack River diversion were the major inputs.

1 Introduction

The Lake Whatcom watershed has been the subject of considerable interest recently because of its many, diverse values to the residents of Bellingham and Whatcom County. Lake Whatcom is the primary drinking water source for most of Bellingham and Sudden Valley, and provides high quality water for the Georgia-Pacific Corporation mill. The lake and parts of the watershed provide recreational opportunities, as well as providing important habitats for fish and wildlife. The lake is used as a storage reservoir to buffer peak stormwater flows in Whatcom Creek. Much of the watershed is zoned for forestry and is managed by state or private timber companies. Finally, because of its aesthetic appeal, much of the Lake Whatcom watershed is highly valued for residential development.

The City of Bellingham and Western Washington University have collaborated on investigations of the water quality in Lake Whatcom since the early 1960's. Beginning in 1981, a monitoring program was initiated by the City and WWU that was designed to provide long-term data for Lake Whatcom for basic parameters such as temperature, pH, dissolved oxygen, conductivity, turbidity, nutrients (nitrogen and phosphorus), and other representative water quality measurements. The major goal of the long-term monitoring effort is to provide a record of Lake Whatcom's water quality over time. In addition, since the City and WWU review the scope of work for the monitoring program each year, short-term water quality questions can be addressed as needed.

This report describes the results from the 1991–1992 Lake Whatcom monitoring program. The major objectives of the 1991–1992 monitoring program were to continue the City's water quality monitoring program in Lake Whatcom, as part of a baseline study to monitor changes in the raw water quality of Lake Whatcom; to monitor selected parameters from representative tributary streams in the Lake Whatcom watershed in order to provide baseline stream quality and quantity data; to provide additional water quality data for the Austin Creek watershed; and to maintain the HSPF[1] hydrologic data base in order to provide estimates of the hydrologic budget for Lake Whatcom.

[1]The Hydrologic Simulation Program–FORTRAN (HSPF) model was calibrated for the Lake Whatcom watershed during an earlier stormwater monitoring project, and is described in detail in the final report for that project (Walker, et al., 1992).

This report will be subdivided into four major categories, each of which addresses one of the objectives listed above. These categories include:

- Lake Whatcom water quality monitoring,
- Creek water quality monitoring,
- Austin Creek investigative study, and
- HSPF hydrologic modelling.

2 Lake Whatcom Water Quality Monitoring

2.1 Site Descriptions

Water quality samples were collected at five sites in Lake Whatcom (Figure 1). Sites 1-2 are located at the deepest points in their respective basins. The Intake site is located adjacent to the underwater intake point where the City of Bellingham withdraws raw water from basin 2. Site 3 is located at the deepest point in the northern subbasin of basin 3 (north of the Sunnyside Sill), and Site 4 is located at the deepest point in the southern subbasin of basin 3 (south of the Sunnyside Sill). An orange marker buoy is anchored at each of the sampling sites. Because this report is the first comprehensive Lake Whatcom data report prepared for the City since 1987, we have included a detailed description of each site in Appendix A.

Water samples were also collected at the City of Bellingham Water Treatment Plant gatehouse, which is located onshore and west of the intake site.

2.2 Field Sampling and Analytical Methods

The lake was sampled on October 7, November 4, and December 2, 1991, and on February 3, May 7, June 2, July 6, August 3, and August 31, 1992. The water quality parameters measured for the 1991–1992 lake monitoring program are shown in Table 1.

A Surveyor II Hydrolab was used to measure temperature, pH, dissolved oxygen, and conductivity in the lake as outlined in Table 1. During the August 3, 1992 sampling period the pH probe for the Hydrolab was broken, so the pH data for that date are from water samples collected in the field

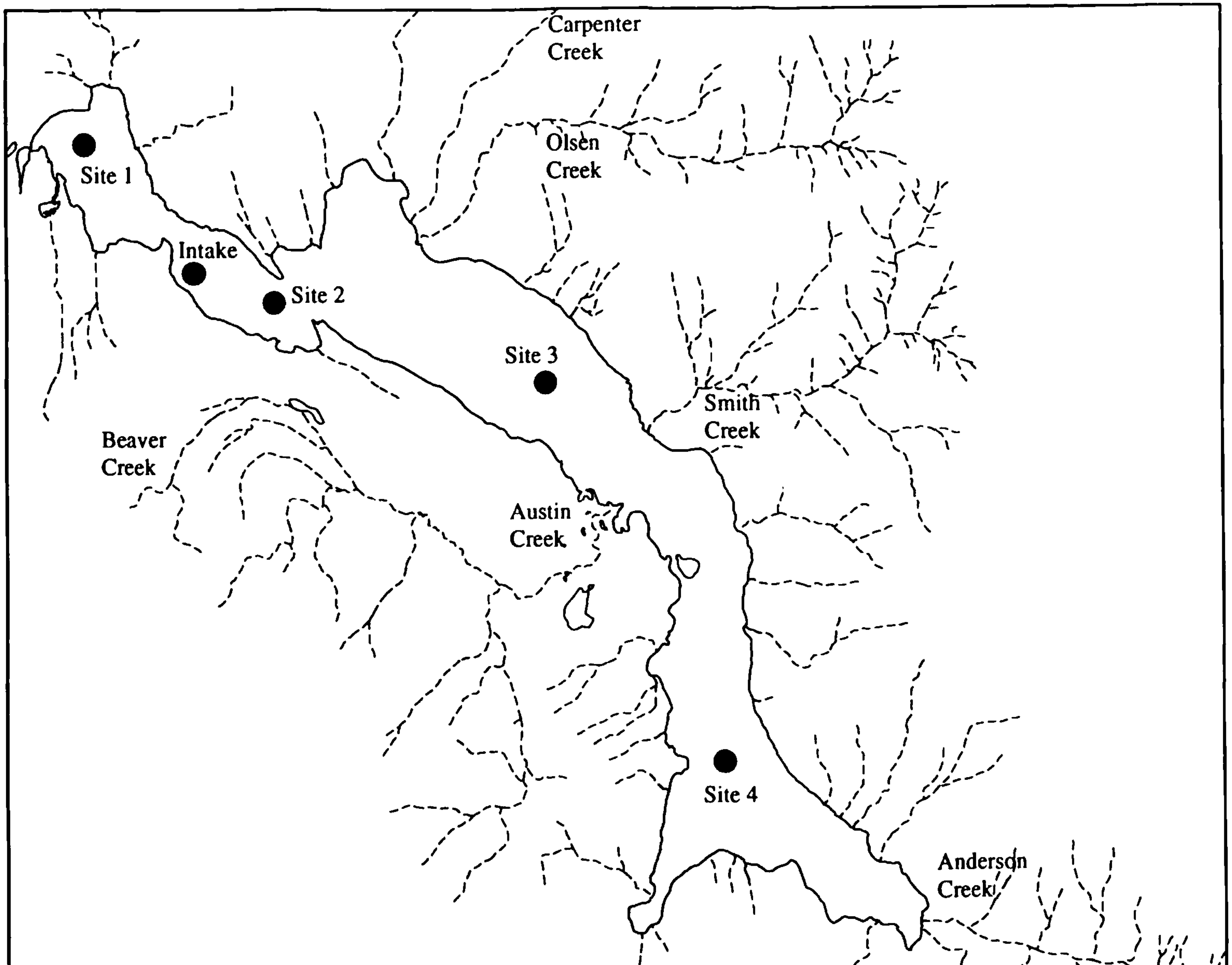


Figure 1: Lake Whatcom 1991 – 1992 sampling sites

Table 1: Lake Whatcom 1991-1992 lake monitoring schedule

PARAMETER	1991 Oct	Nov	Dec	1992 Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	LOCATION
DO - Hydrolab	•	•	•		•		•		•	•	•	•	Sites 1, 2, Intake - every 1 m;
pH - Hydrolab	•	•	•		•		•		•	•	•	•	Sites 3, 4 - every 1 m to 10 m
Temp - Hydrolab	•	•	•		•		•		•	•	•	•	then every 5 m;
Cond - Hydrolab[1]	•	•	•		•		•		•	•	•	•	Gatehouse
Secchi disc	•	•	•		•		•		•	•	•	•	Sites 1, 2, 3, 4, Intake
Ammonia	•	•	•		•		•		•	•	•	•	Sites 1, 2 - 0.3, 5, 10, 15, 20 m;
Nitrite/Nitrate	•	•	•		•		•		•	•	•	•	Intake - 0.3, 5, 10 m;
Total K. Nitrogen	•	•	•		•		•		•	•	•	•	Site 3 - 0.3, 5, 10, 20, 40, 60,
Soluble Phosphorus	•	•	•		•		•		•	•	•	•	80 m;
Total Phosphorus	•	•	•		•		•		•	•	•	•	Site 4 - 0.3, 5, 10, 20, 40, 60,
Alkalinity	•	•	•		•		•		•	•	•	•	80, 90 m;
Conductivity	•	•	•		•		•		•	•	•	•	Gatehouse
Silica	•	•	•		•		•		•	•	•	•	
Turbidity	•	•	•		•		•		•	•	•	•	
Total O. Carbon					•							•	Sites 1, 2, 3, 4, Intake -
Dissolved I. Carbon					•							•	0.3 m and bottom only
Bicarbonate					•							•	
Cadmium					•							•	
Calcium					•							•	
Chloride					•							•	
Chromium					•							•	
Copper					•							•	
Iron					•							•	
Lead					•							•	
Magnesium					•							•	
Nickel					•							•	
Potassium					•							•	
Zinc					•							•	
Chlorophyll	•	•	•		•		•		•	•	•	•	Sites 1, 2, 3, 4 - 0.3, 5, 10, 15, 20 m; Intake - 0.3, 5, 10 m
Taxonomy	•	•	•		•		•		•	•	•	•	Sites 1, 2, 3, 4, Intake - 0.3 m
Coliforms (City)	•	•	•		•		•		•	•	•	•	

[1]The Hydrolab conductivity data may not be as reliable as the lab conductivity data.

and analyzed in the laboratory. On August 31, 1992, the Hydrolab was being repaired and the dissolved oxygen, pH, and conductivity data were measured using water samples collected in the field and analyzed in the laboratory. The temperature data at Site 1 and the Intake were measured in the field using a remote-reading themistor. The thermistor broke part way through sampling, so the remaining temperature data were measured using an onboard temperature probe immediately after each water samples was brought to the surface.

The analytical procedures were as described by APHA (1989), EPA (1983a) and Lind (1985), and are summarized in Table 2. All water samples (including bacteriological samples) collected in the field were stored on ice and in the dark until they reached the laboratory. Once in the laboratory the handling procedures that were relevant for each analysis were followed (see Table 2). Plankton samples were collected at each site (5 m only), placed in a cooler, and returned to the laboratory unpreserved. In the laboratory the sample volumes were measured and each sample was split into a taxonomic sample and an archived sample. Taxonomic identifications and counts were made using living material whenever possible. Samples were held for no longer than 24 hours in the dark at 8–10 °C. If the taxonomic analyses could not be completed within this time period, the samples were preserved with Lugol's Solution and analyzed as soon as possible.

The silica, cation (calcium and potassium), anion (bicarbonate and chloride), total organic carbon, dissolved inorganic carbon, nutrients (total phosphorus, soluble reactive phosphate, ammonia, nitrite/nitrate, total Kjeldahl nitrogen), and metals (cadmium, chromium, copper, iron, lead, magnesium, nickel, and zinc) were performed by the Institute for Watershed Studies (IWS), Western Washington University. The coliform samples were analyzed by the City of Bellingham at their water treatment plant. All other analyses were done by the field and laboratory personnel hired by this grant.

2.3 Results and Discussion

2.3.1 Hydrolab data

The 1991–1992 Lake Whatcom Hydrolab data (dissolved oxygen, temperature, pH, and conductivity) are shown in Figures 2–21 (located at the end of this section). In order to provide a better analysis of the water quality

Table 2: Summary of analytical methods (APHA, 1989; EPA , 1983a; Lind, 1985).

Parameter	Method	Description	Detection Limits or Sensitivity
Alkalinity	APHA 2320 B	Low level method	na
Bicarbonate	APHA 4500	CO2-D.a	na
Conductivity - Lab	EPA 120.1	Orion 101 meter	2 µMHO/cm
Conductivity - Hydrolab	(Appendix I)	Surveyor II	~ 2 µMHO/cm
Discharge	Lind	Multiple point transect	na
DO - Winkler	EPA 360.2	Winkler titration	0.1 mg/L
DO - Hydrolab	(Appendix I)	Surveyor II	~ 0.1 mg/L
pH - Lab	EPA 150.1	Orion EA940 meter	~ 0.1 pH unit
pH - Hydrolab	(Appendix I)	Surveyor II	~ 0.1 pH unit
Secchi disk	Lind		na
Turbidity	EPA 180.1	Nephelometric	0.2 NTUs
T. Susp. Solids	EPA 160.2	Filter, Grav. 100° C	2 mg/L
Temperature	(Appendix I)	Surveyor II	na
Ammonia	EPA 350.1	Automated, phenate	5 µg/L
Chlorophyll *a*	APHA 10200 H	Acetone extract	na
Nitrite/Nitrate	EPA 353.2	Automated, Cd reduction	10 µg/L
Silica	TM 105-71W/B	Automated	200 µg/L
Soluble Phosphorus	EPA 365.1	Automated, ascorbic acid	5 µg/L
Total. K. Nitrogen	EPA 351.1	semiautomated, salicylate	100 µg/L
Dissolved I. Carbon	EPA 415.1	OIC carbon analyzer	na
Total O. Carbon	EPA 415.1	OIC carbon analyzer	na
Total Phosphorus	EPA 365.1	Automated, ascorbic acid	5 µg/L
Cadmium	EPA 213.*	Filtered, flame or graphite AA	0.5 µg/L[1]
Calcium	EPA 215.1	Filtered, flame AA	20 µg/L
Chloride		Dionex IC	na
Chromium	EPA 218.*	Filtered, flame or graphite AA	0.5 µg/L[3]
Copper	EPA 220.*	Filtered, flame or graphite AA	5 µg/L[3]
Iron	EPA 236.*	Filtered, flame or graphite AA	5 µg/L[3]
Lead	EPA 239.*	Filtered, flame or graphite AA	5 µg/L[3]
Magnesium	EPA 242.1	Filtered, flame AA	20 µg/L
Nickel	EPA 249.*	Filtered, flame or graphite AA	5 µg/L[3]
Potassium	EPA 258.1	Filtered, flame AA	100 µg/L
Zinc	EPA 289.2	Filtered, flame or graphite AA	0.2 µg/L[3]

[1]Detection limits are for graphite AA. When metals concentrations in the lake and stream samples were below the detection limit for the flame AA, the graphite AA was used.

patterns in the lake, the graphs also include data from the previous contract year (October 1990 through September 1991). In each figure the different lines represent different sampling depths, which each depth connected through time with a continuous line. Because of the large number of sampling depths, we did not include a key showing which depths corresponded to which lines. However, all of the raw data are listed in Appendix B. The main value of these figures is to show seasonal patterns of convergence and divergence for the four parameters and to facilitate visual comparisons between years and sites. One important caution when viewing these figures is that missing values are not interpolated. Because of this, some of the line patterns join values separated by more than one sampling period (for example, see Figure 4, December 1990 to April 1991). Questions concerning missing values can be resolved by referring to Appendix B.

The temperature data (Figures 2–6) indicate that the winter of 1991–1992 was much warmer than the previous year. The water temperatures in February 1992 were approximately 2 degrees (°C) warmer at all sites compared to February 1991. The summer water temperatures were also higher in 1992 than 1991, and the lake appeared to stratify about 4 to 8 weeks earlier than in 1991[2]. Peak summer temperatures at Sites 1–2 were approximately 1–1.5 degrees warmer in 1992 than in 1991, while the peak 1992 summer temperatures at Sites 3–4 were closer to 2 degrees warmer.

Water temperature and lake stratification strongly influence the water quality in Lake Whatcom and we would expect to see similar differences in the dissolved oxygen data between the two years (Figures 7–11). During both years, hypolimnetic oxygen concentrations of less than 2 mg/L were measured at Sites 1 and 2 beginning in August that persisted until the lake turned over, which occurred during mid- to late October. The major differences between 1991 and 1992 can be seen in the spring and early summer data. In 1991, the low oxygen concentrations developed rapidly following stratification in late May; the lowest hypolimnetic oxygen concentrations in June 1991 were 7.5 and 8.4 mg/L at Sites 1 and 2, respectively. But because the lake stratified earlier in 1992, the depletion of hypolimnetic oxygen began earlier. By June 1992, the lowest hypolimnetic oxygen concentration at Site 1 was 5.7 mg/L,

[2]The exact timing of stratification cannot be determined because temperature measurements were made every other month from February through May and monthly from June through January.

and at Site 2 it was 7.6 mg/L. These differences, while apparently small, mean that the very low hypolimnetic oxygen concentrations (less than 2 mg/L) probably occurred several weeks earlier in basins 1 and 2 during 1992 than 1991.

The pH data (Figures 12–16) were so variable within each sampling year that it is difficult to tell whether the climatic differences between 1991 and 1992 had any significant effect on pH. In general, the pH values at Sites 1 and 2 (Figure 12–13) were fairly similar when the lake was mixing (October through April/May in basins 1 and 2; December/January through April/May in basin 3). As the lake stratified, the hypolimnetic pH values at Sites 1 and 2 decreased, probably due to the release of slightly acidic compounds from the sediments, while the epilimnetic pH values increased due to photosynthetic activity (which causes a temporary build-up of slightly basic carbonates and hydroxides during the daylight hours). Similar pH trends were seen for most of 1990–1992. However, the pH data for August 3 and August 31, 1992 were often out of character for the lake. For example, the pH values from August 31 (plotted as "Sep 92") were unusually low for late summer. The data from both these dates were not measured in the field because the Hydrolab pH probe was broken. In poorly buffered waters (which would describe Lake Whatcom – see the alkalinity data in Table 3, below), pH values can change dramatically due to different handling and storage procedures (APHA, 1992). Therefore, the Hydrolab field pH data are probably more representative of conditions in the lake than pH measured in the laboratory.

Conductivity values typically ranged between 60 and 80 μMHO at all sites throughout 1990–1992 (Figures 17–21) . Conductivity usually increased slightly with depth and during the summer in both years. There were no differences that could be clearly related to the warmer water temperatures in 1992.

2.3.2 Other ambient water quality data

The remaining water quality data that were collected monthly or bimonthly (nutrients, alkalinity, laboratory conductivity, silica, turbidity, Secchi depth, chlorophyll, coliforms, and plankton) are summarized in Table 3 and graphed in Figures 22–106 (located at the end of this section). The raw data are listed, along with the Hydrolab data and the biannual data (cations, anions, metals, carbon) in Appendix B. In order to provide a better analysis of the water quality patterns in the lake, the graphs also include data from the previous contract year (October 1990 through September 1991). Because of the large amount of data presented in these graphs, only the important patterns will be discussed in the text.

The alkalinity and conductivity values were fairly low and relatively consistent over time (Figures 14–16 and 26–28). The turbidity values (Figures 59–61) ranged from less than 1 NTU to nearly 8 NTU at Site 1 following the November 1990 storm (see Walker, et al., 1992 for a description of the effects of this storm on the Lake Whatcom watershed). All of the turbidity peaks that were measured throughout the year could be attributed to one of three factors: sediment inclusion in water samples collected from the lowest depths at each site; storm-related turbidity increases, usually during winter and early spring; and phytoplankton population blooms, usually during mid- to late summer, especially at Site 1.

The nutrient and chlorophyll data from Site 1 indicate that basin 1 is more productive than the rest of Lake Whatcom. There have been other indications that this was the case: Site 1 typically has the highest seasonal chlorophyll peaks, the greatest dissolved oxygen deficit, and the highest concentrations of hypolimnetic ammonia accumulations. Basin 1 tends to become hydrologically isolated during the summer (Ehinger, 1988), which may be part of the reason why it is more productive. It has also been shown that basin 1 receives a disproportionately high concentration of soluble phosphorus and other nutrients in the residential runoff that drains into the basin (Walker, et al., 1992). It should be noted that the higher productivity in basin 1 does not mean that the rest of Lake Whatcom is immune from the influences of eutrophication. Basin 3, by virtue of its volume, will be slow to respond to the influences of eutrophication, but by the same argument, will be slow to recover. Basin 2 exhibits chemical and biological characteristics that are more similar to basin 3 than basin 1, despite the morphological similarity between basins 1 and 2. This is probably due to both the natural hydrological direction of flow in the lake, which carries water from basin 3 $\rightarrow$ basin 2 $\rightarrow$ basin 1 $\rightarrow$ Whatcom Creek, as well as the imposed hydrological flow, which is from basin 3 $\rightarrow$ basin 2 $\rightarrow$ City's drinking water intake. The City's withdrawal of water from basin 2 results in a considerable increase in the rate of flow through basin 2, which very likely has the effect of reducing summertime phytoplankton peaks in basin 2 (Ehinger, 1988; Cooke, et al., 1986).

Variable	Mean	Std Dev	Minimum	Maximum
Site 1				
Alkalinity (mg/L $CaCO_3$)	19.0	1.8	16.9	24.7
Chlorophyll a (mg/m^3)	6.0	3.5	1.3	15.3
Coliforms, fecal (colonies/100 mL)	7	10	< 2	30
Coliforms, total (colonies/100 mL)	260	258	30	900
Nitrogen, ammonia ($\mu g/L$)	32.7	36.4	5.5	137.3
Nitrogen, nitrite/nitrate ($\mu g/L$)	197.1	122.9	< 10	410.3
Nitrogen, total Kjeldahl ($\mu g/L$)	201.2	64.6	112.6	377.5
Phosphorus, soluble phosphate ($\mu g/L$)	< 5	2.1	< 5	6.9
Phosphorus, total ($\mu g/L$)	9.7	4.4	< 5	27.1
Silica (mg/L)	3.9	1.1	1.9	6.7
Turbidity (NTU)	1.3	1.1	0.6	6.0
Intake				
Alkalinity (mg/L $CaCO_3$)	17.6	0.6	16.5	18.6
Chlorophyll a (mg/m^3)	4.2	1.4	0.4	6.7
Coliforms, fecal (colonies/100 mL)	3	7	< 2	23
Coliforms, total (colonies/100 mL)	267	479	9	1600
Nitrogen, ammonia ($\mu g/L$)	16.4	8.9	8.9	49.0
Nitrogen, nitrite/nitrate ($\mu g/L$)	281.7	85.9	138.5	442.4
Nitrogen, total Kjeldahl($\mu g/L$)	122.5	67.1	< 100	189.9
Phosphorus, soluble phosphate ($\mu g/L$)	< 5	2.2	< 5	6.7
Phosphorus, total ($\mu g/L$)	5.5	1.7	< 5	8.5
Silica (mg/L)	3.8	0.8	1.7	4.9
Turbidity (NTU)	0.7	0.2	0.3	1.4
Site 2				
Alkalinity (mg/L $CaCO_3$)	17.8	1.2	16.5	23.6
Chlorophyll a (mg/m^3)	3.7	1.3	0.4	6.9
Coliforms, fecal (colonies/100 mL)	3	3	< 2	11
Coliforms, total (colonies/100 mL)	95	94	8	300
Nitrogen, ammonia ($\mu g/L$)	28.9	55.0	< 5	288.4
Nitrogen, nitrite/nitrate ($\mu g/L$)	297.6	83.6	156.1	451.8
Nitrogen, total Kjeldahl $\mu g/L$)	174.4	145.0	< 100	808.5
Phosphorus, soluble phosphate ($\mu g/L$)	< 5	5.4	< 5	34.8
Phosphorus, total ($\mu g/LL$)	6.8	6.2	< 5	42.2
Silica (mg/L)	4.0	0.7	2.2	5.3
Turbidity (NTU)	0.9	0.8	0.3	5.9
Site 3				
Alkalinity (mg/L $CaCO_3$)	17.3	2.3	15.7	34.4
Chlorophyll a (mg/m^3)	3.5	1.4	0.9	6.5
Coliforms, fecal (colonies/100 mL)	3	4	< 2	11
Coliforms, total (colonies/100 mL)	52	44	4	130
Nitrogen, ammonia ($\mu g/L$)	11.9	10.4	< 5	67.4
Nitrogen, nitrite/nitrate ($\mu g/L$)	378.4	94.0	176.3	502.3
Nitrogen, total Kjeldahl ($\mu g/L$)	112.3	46.1	< 100	232.6
Phosphorus, soluble phosphate ($\mu g/L$)	< 5	2.8	< 5	12.3
Phosphorus, total ($\mu g/L$)	5.3	2.8	< 5	17.0
Silica (mg/L)	4.2	0.9	1.8	5.3
Turbidity (NTU)	0.7	0.4	0.2	2.5
Site 4				
Alkalinity (mg/L $CaCO_3$)	17.0	0.7	16.0	21.0
Chlorophyll a (mg/m^3)	3.3	1.4	0.8	6.0
Coliforms, fecal (colonies/100 mL)	< 2	1	< 2	4
Coliforms, total (colonies/100 mL)	36	30	4	110
Nitrogen, ammonia ($\mu g/L$)	10.1	6.3	< 5	34.9
Nitrogen, nitrite/nitrate ($\mu g/L$)	395.4	89.6	175.0	494.6
Nitrogen, total Kjeldahl ($\mu g/L$)	114.5	57.8	< 100	279.2
Phosphorus, soluble phosphate ($\mu g/L$)	< 5	2.0	< 5	5.7
Phosphorus, total ($\mu g/L$)	4.1	2.2	< 5	12.3
Silica (mg/L)	4.2	0.8	1.9	5.2
Turbidity (NTU)	0.7	0.3	0.3	1.8

Table 3: Lake Whatcom ambient water quality data – mean, minimum, and maximum concentrations (October 1991–September 1992).

The highest total nitrogen[3] and nitrite/nitrate concentrations were usually measured during the winter, while the highest ammonia concentrations were measured during the late summer in the hypolimnion (Figures 29–43). Ammonia is frequently released from anaerobic sediments, but is rapidly converted to nitrite/nitrate and organic nitrogen once it enters the water column. The only significant concentrations of ammonia in Lake Whatcom were recorded from the lower hypolimnion during late summer at Sites 1 and 2, and occasionally at Site 3 (e.g., see ammonia data from Site 1 during August, 1992). Turnover resuspends fairly large amounts of nitrogen throughout the lake, as can be seen in the total nitrogen and nitrite/nitrate data. The relatively high concentrations persist throughout the winter, gradually decreasing during the summer as nitrate is taken up by biota.

The phosphorus concentrations were never very high in Lake Whatcom. Occasionally, water samples from the lowest depths would have high phosphorus concentrations (usually both total phosphorus and soluble phosphate would be high). When this pattern was observed during the winter or spring, it was most likely due to the inclusion of sediment in the sample, and would be accompanied by a high turbidity value for the sample. If the pattern was observed during the summer or fall, it could also have been caused by the release of phosphorus from the sediments.

The early stratification of the lake in 1992 appears to have influenced the nutrients and chlorophyll concentrations. The chlorophyll *a* concentrations at most sites seem to have peaked earlier in the spring of 1992 than in 1991 (Figures 17–19). As a result of the earlier algal growth, the epilimnion nitrite/nitrate concentrations began their decline earlier in 1992 than in 1991[4]. The ammonia concentrations in the hypolimnion were higher at most sites during the summer of 1992 than 1991 (Figures 32–34), as were the soluble phosphate concentrations (Figures 47–49).

Compared to other lakes in the United States and other countries, most of Lake Whatcom (Sites 2–4) would be classified as oligotrophic, or biologically unproductive based upon its nitrogen and phosphorus concentrations (Table 4). Site 1 could be classified as mesotrophic, or moderately productive, based upon its total phosphorus concentrations; however, the total nitrogen

[3]Total nitrogen values were calculated as the sum of the nitrite/nitrate and the total Kjeldahl nitrogen values.

[4]Nitrite/nitrate is taken up by biota, so the concentrations in the epilimnion usually decrease throughout the summer.

concentrations (calculated as the sum of nitrite/nitrate and total Kjeldahl nitrogen) at Site 1 were all at the low end of the oligotrophic range. Site 1 also had chlorophyll *a* concentrations that were closer to the mesotrophic range than the oligotrophic range. Sites 2–4 had chlorophyll concentrations that were intermediate between the oligotrophic and mesotrophic ranges. The phytoplankton and zooplankton data (Figures 62–64) follow the trophic classifications described above. Site 1 typically had the highest plankton counts throughout the year, especially during the summer. All of the sites had Secchi depths that overlapped more closely with the typical mesotrophic ranges for other lakes. This may be due to the large amounts of sediments that enter the lake during storm events. The lowest Secchi depths at all sites were measured shortly after the November 1990 storm event, which carried significant amounts of sediment into Lake Whatcom (Walker, et al., 1992).

The biannual data (cations, anions, dissolved metals, inorganic and organic carbon) are listed in Appendix B, but are not plotted because of the limited amount of information that is provided by these data.

Parameter		Oligotrophic	Mesotrophic	Eutrophic
Total phosphorus (μg/L)				
Typical mean (range)		*8.0 (3.0-17.0)*	*26.7 (10.9-95.6)*	*84.4 (16-386)*
Lake Whatcom	Site 1, 1991		9.1 (< 5–27.1)	
mean (range)	Site 1, 1992		9.5 (< 5–23.1)	
	Site 2, 1991	6.3 (< 5–19.7)		
	Site 2, 1992	7.4 (< 5–42.2)		
	Site 3, 1991	5.3 (< 5–15.6)		
	Site 3, 1992	5.7 (< 5–17.0)		
	Site 4, 1991	< 5 (< 5–12.5)		
	Site 4, 1992	< 5 (< 5–8.9)		
Total nitrogen (μg/L)				
Typical mean (range)		*661 (307-1630)*	*753 (361-1387)*	*1875 (393-6100)*
Lake Whatcom	Site 1, 1991	567 (303–431)		
	Site 1, 1992	442 (217–552)		
	Site 2, 1991	460 (303–575)		
	Site 2, 1992	500 (156–1050)		
	Site 3, 1991	488 (338–633)		
	Site 3, 1992	492 (198–617)		
	Site 4, 1991	511 (363–736)		
	Site 4, 1992	515 (175–636)		
Chlorophyll *a* (mg/m^3)				
Typical mean (range)		*1.7 (0.3-4.5)*	*4.7 (3-11)*	*14.3 (3-78)*
Lake Whatcom	Site 1, 1991		5.4 (1.6–14.8)	
	Site 1, 1992		5.4 (1.3–15.3)	
	Site 2, 1991	3.5 (0.6–6.9)		
	Site 2, 1992	3.6 (0.4–6.3)		
	Site 3, 1991	3.2 (0.6–6.2)		
	Site 3, 1992	3.5 (0.9–6.5)		
	Site 4, 1991	3.1 (0.7–5.4)		
	Site 4, 1992	3.2 (0.8–6.0)		
Secchi depth (m)				
Typical mean (range)		*9.9 (5.4-28.3)*	*4.2 (1.5-8.1)*	*2.45 (0.8-7.0)*
Lake Whatcom	Site 1, 1991		4.9 (3.0–5.9)	
	Site 1, 1992		4.7 (3.6–5.7)	
	Site 2, 1991		5.8 (3.3–7.9)	
	Site 2, 1992		5.2 (4.4–6.1)	
	Site 3, 1991		5.8 (2.8–7.2)	
	Site 3, 1992		5.4 (4.2–6.7)	
	Site 4, 1991		5.6 (3.5–6.8)	
	Site 4, 1992		5.2 (4.3–6.3)	

Table 4: Trophic classification of Lake Whatcom water quality data (trophic classification values are from Wetzel, 1983). Lake Whatcom data represent the mean, high, and low values for January-December, 1991 and February-September, 1992. Category placement is based upon matching the Lake Whatcom data to the closest trophic classification range.

Figure 2: Lake Whatcom temperature data for Site 1, October 1990 through September 1992.

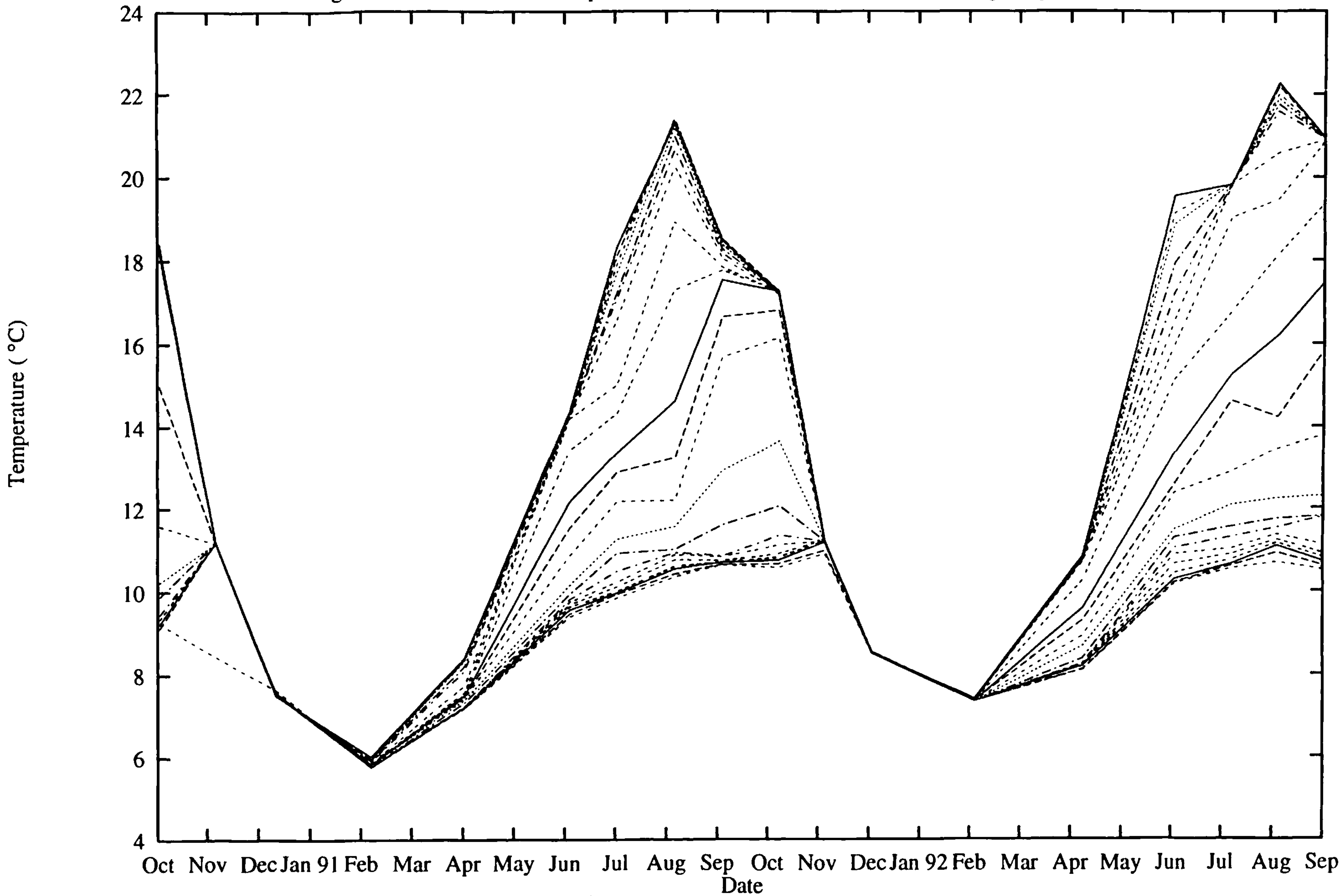


Figure 3: Lake Whatcom temperature data for Site 2, October 1990 through September 1992.

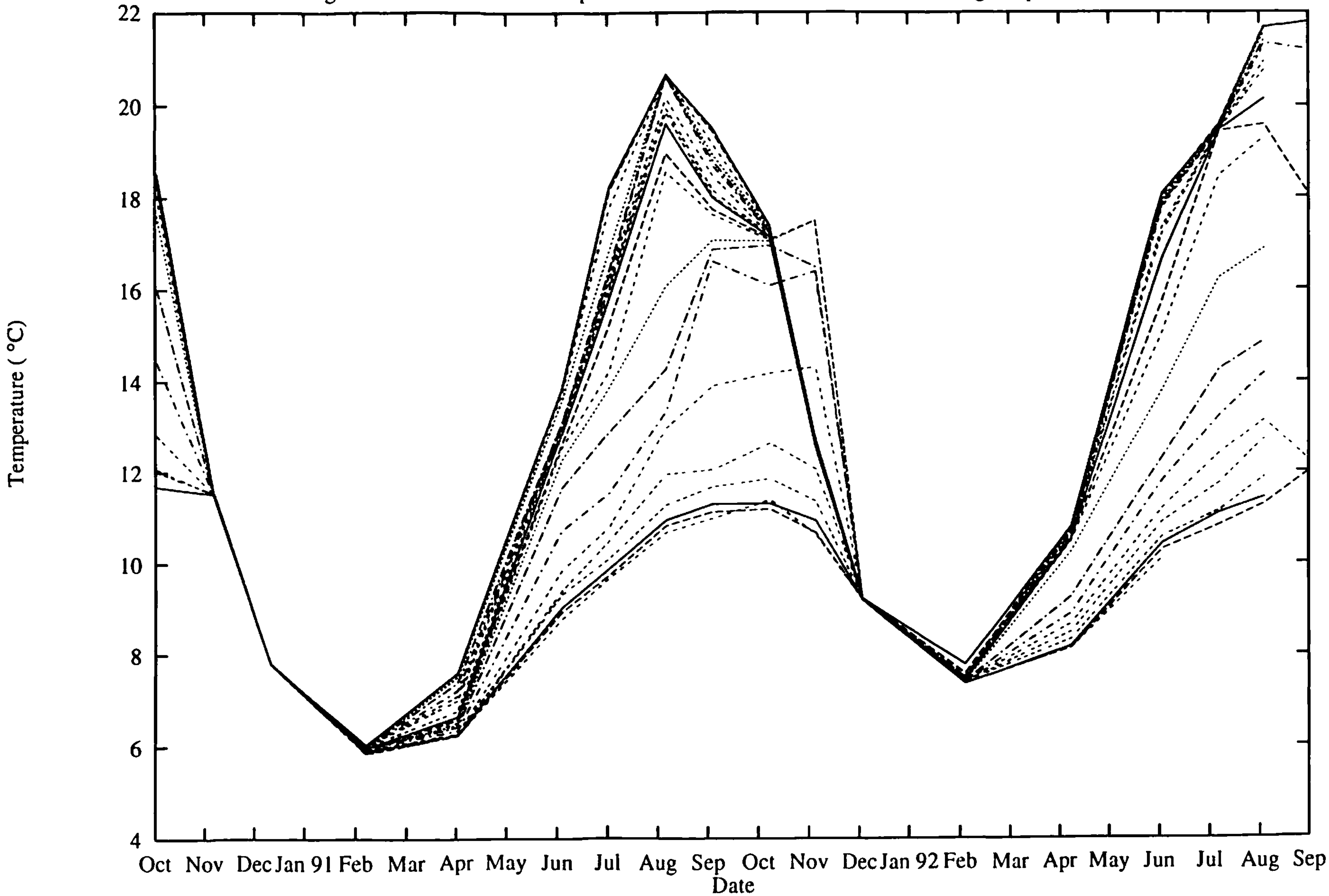


Figure 4: Lake Whatcom temperature data for the Intake site (basin 2), October 1990 through September 1992.

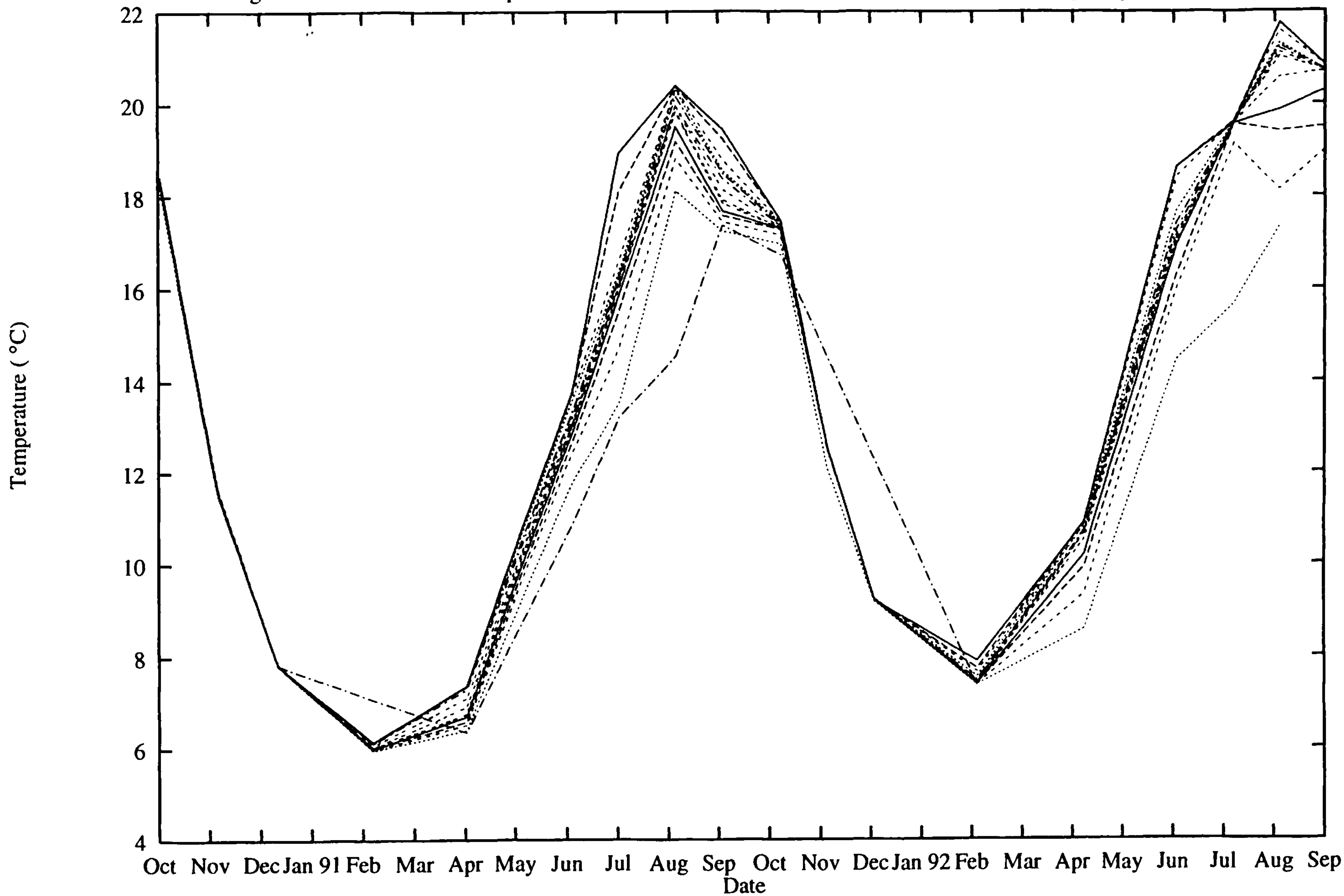


Figure 5: Lake Whatcom temperature data for Site 3, October 1990 through September 1992.

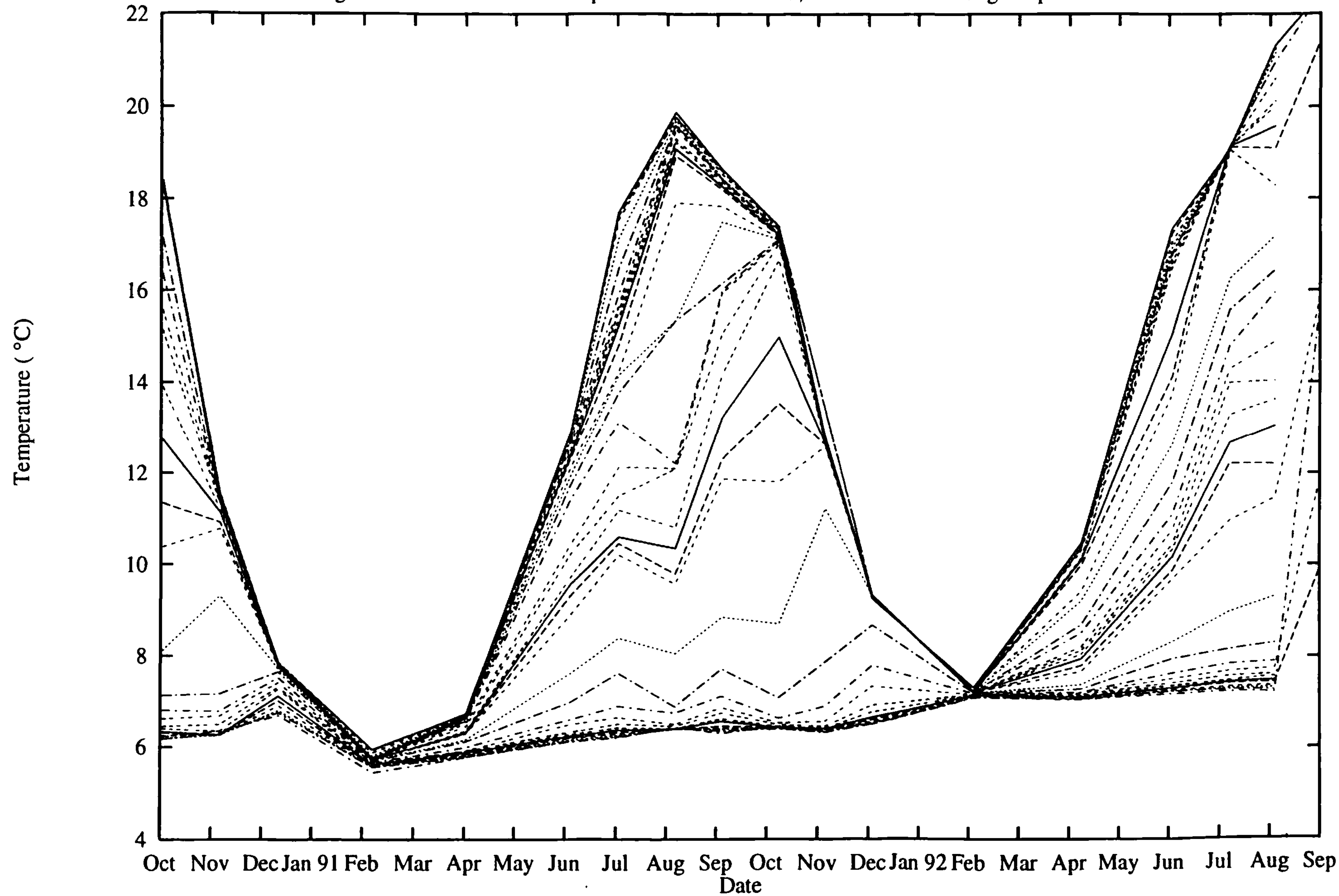


Figure 6: Lake Whatcom temperature data for Site 4, October 1990 through September 1992.

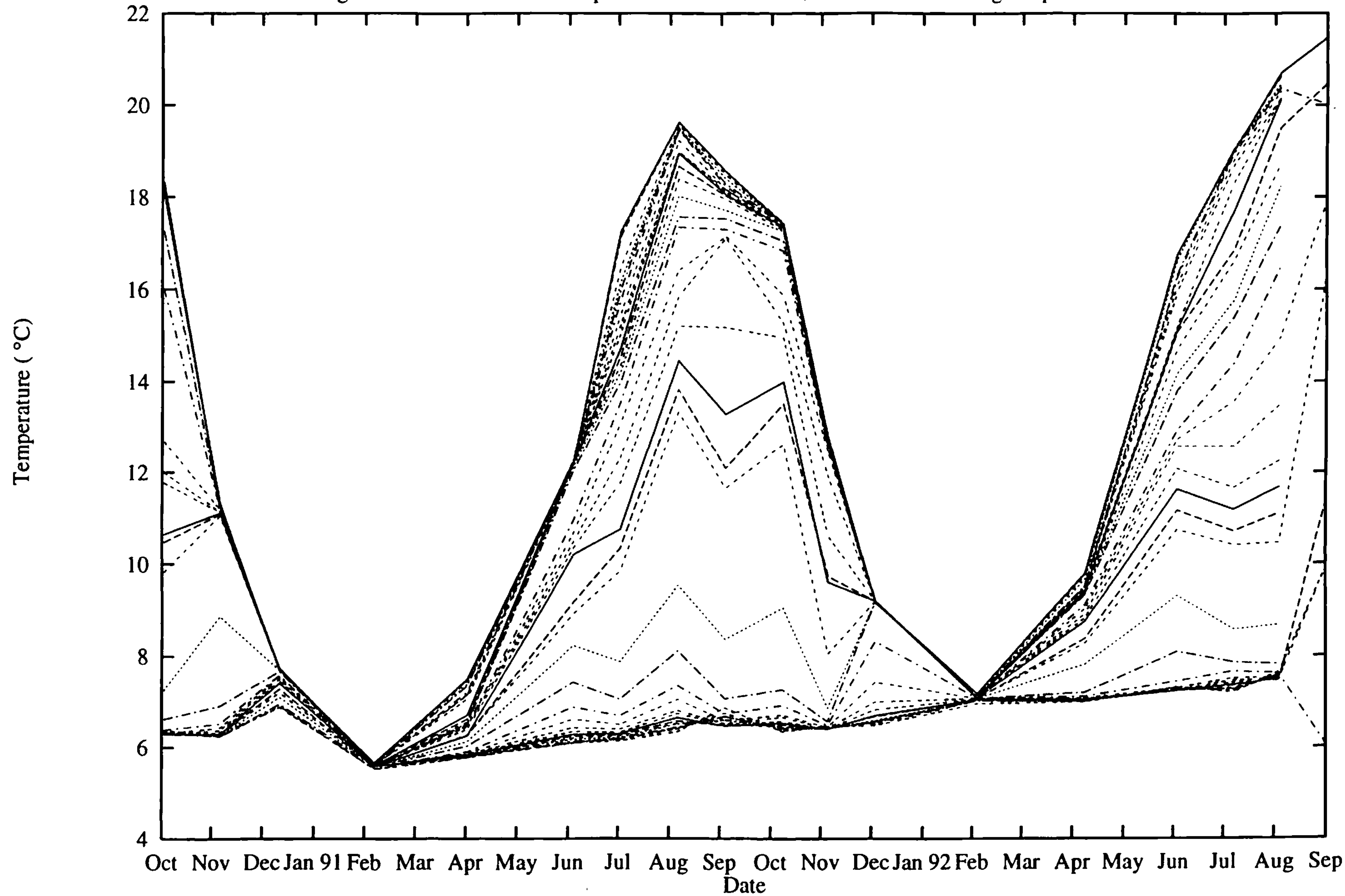


Figure 7: Lake Whatcom dissolved oxygen data for Site 1, October 1990 through September 1992.

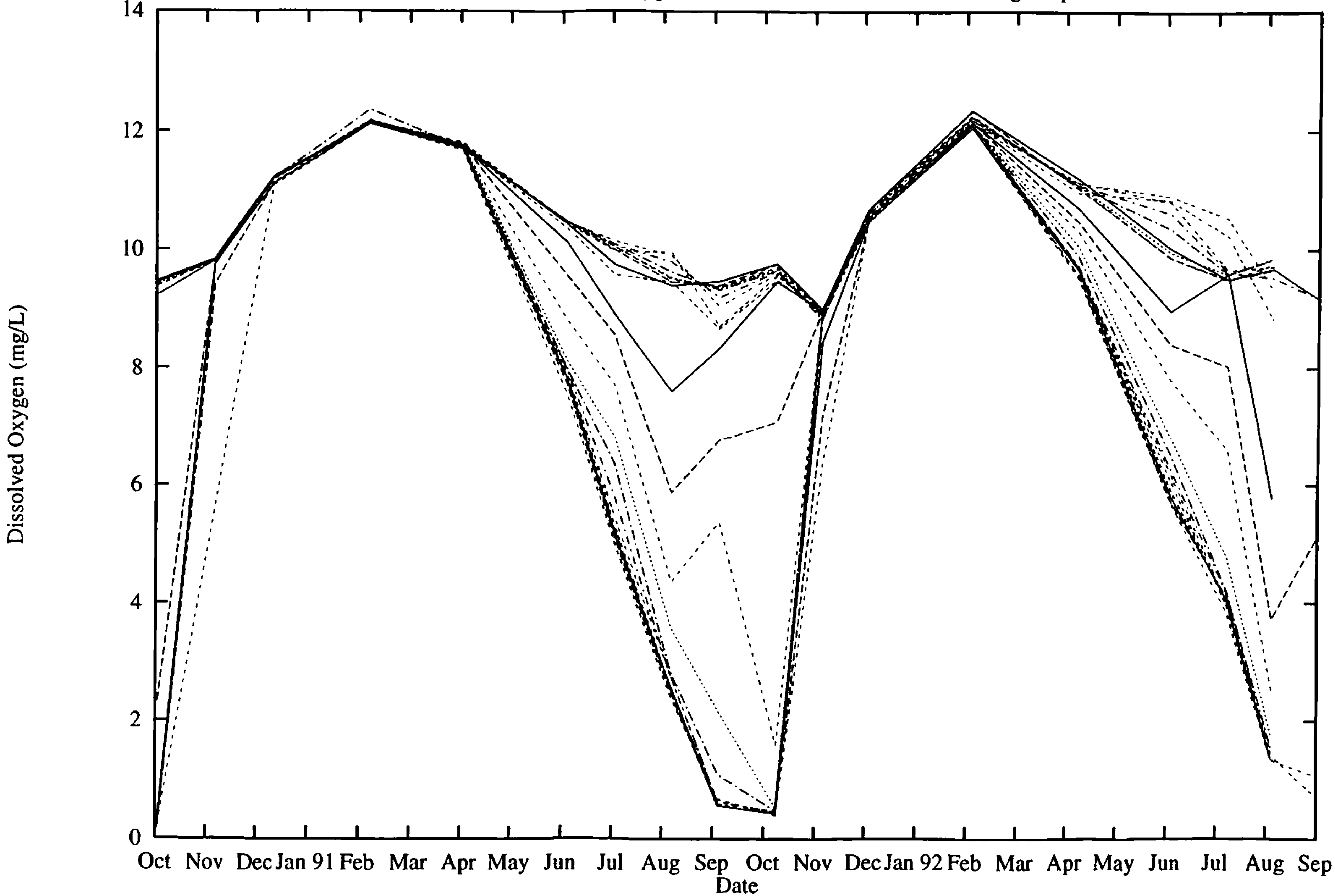


Figure 8: Lake Whatcom dissolved oxygen data for Site 2, October 1990 through September 1992.

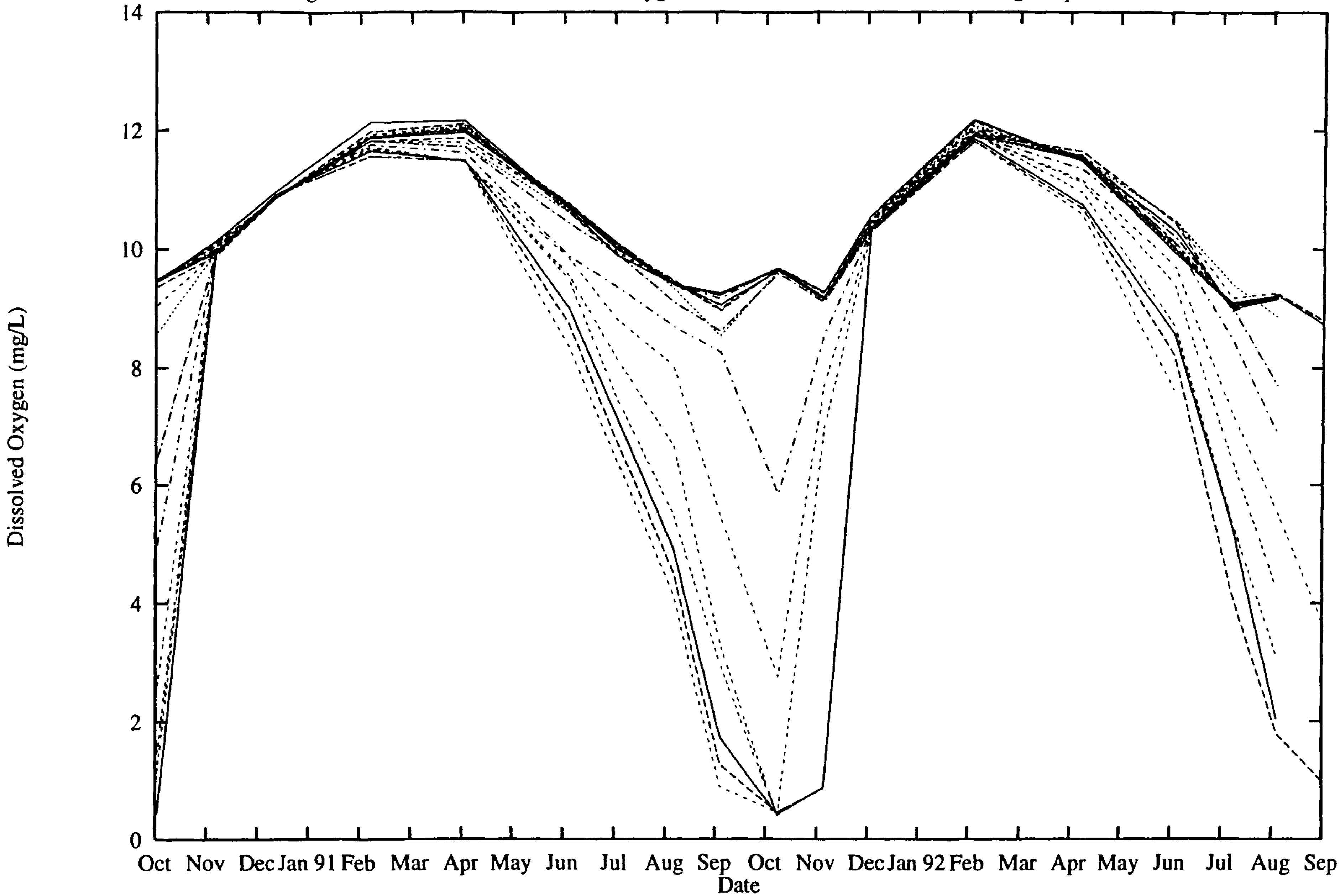


Figure 9: Lake Whatcom dissolved oxygen data for the Intake site (basin 2), October 1990 through September 1992.

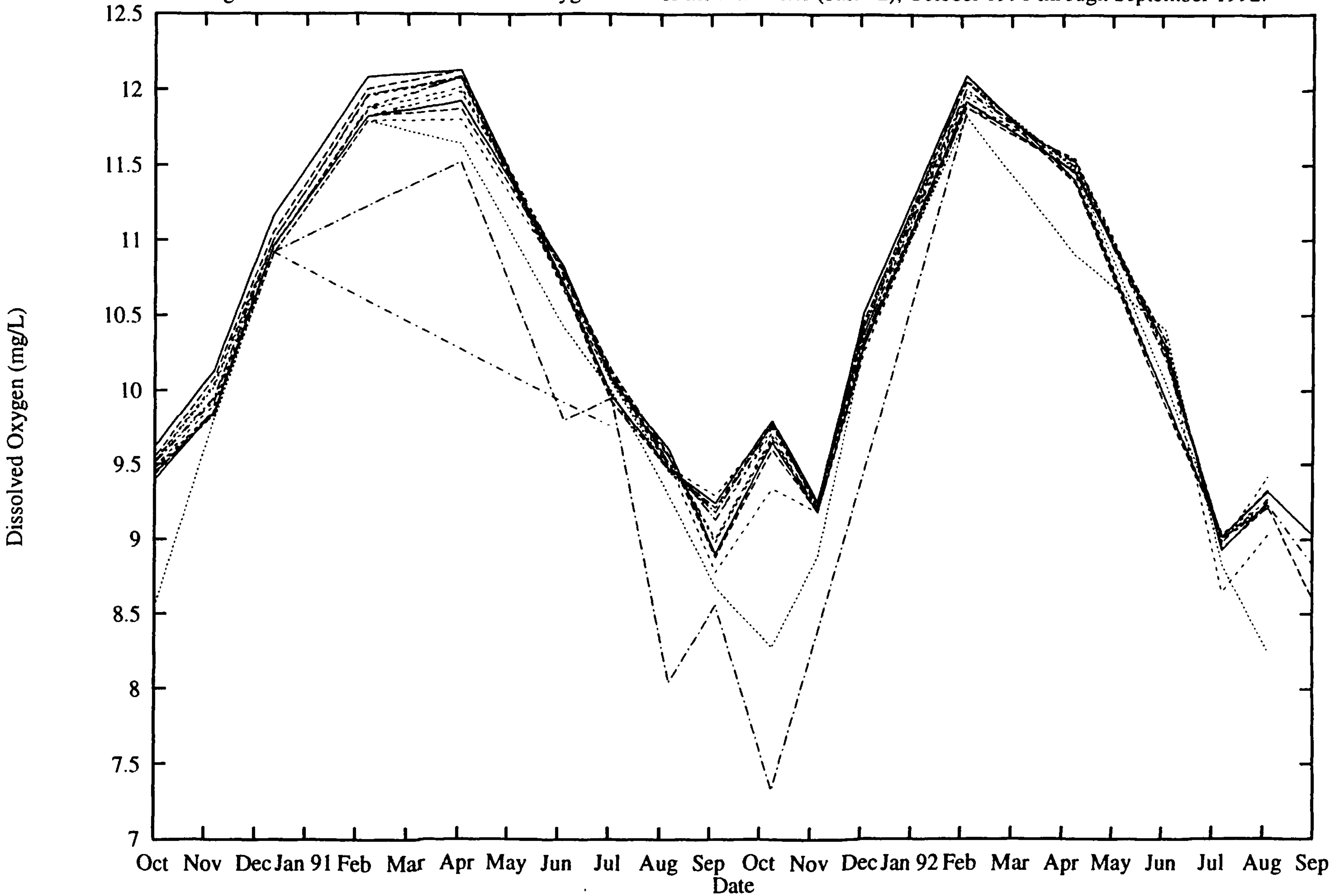


Figure 10: Lake Whatcom dissolved oxygen data for Site 3, October 1990 through September 1992.

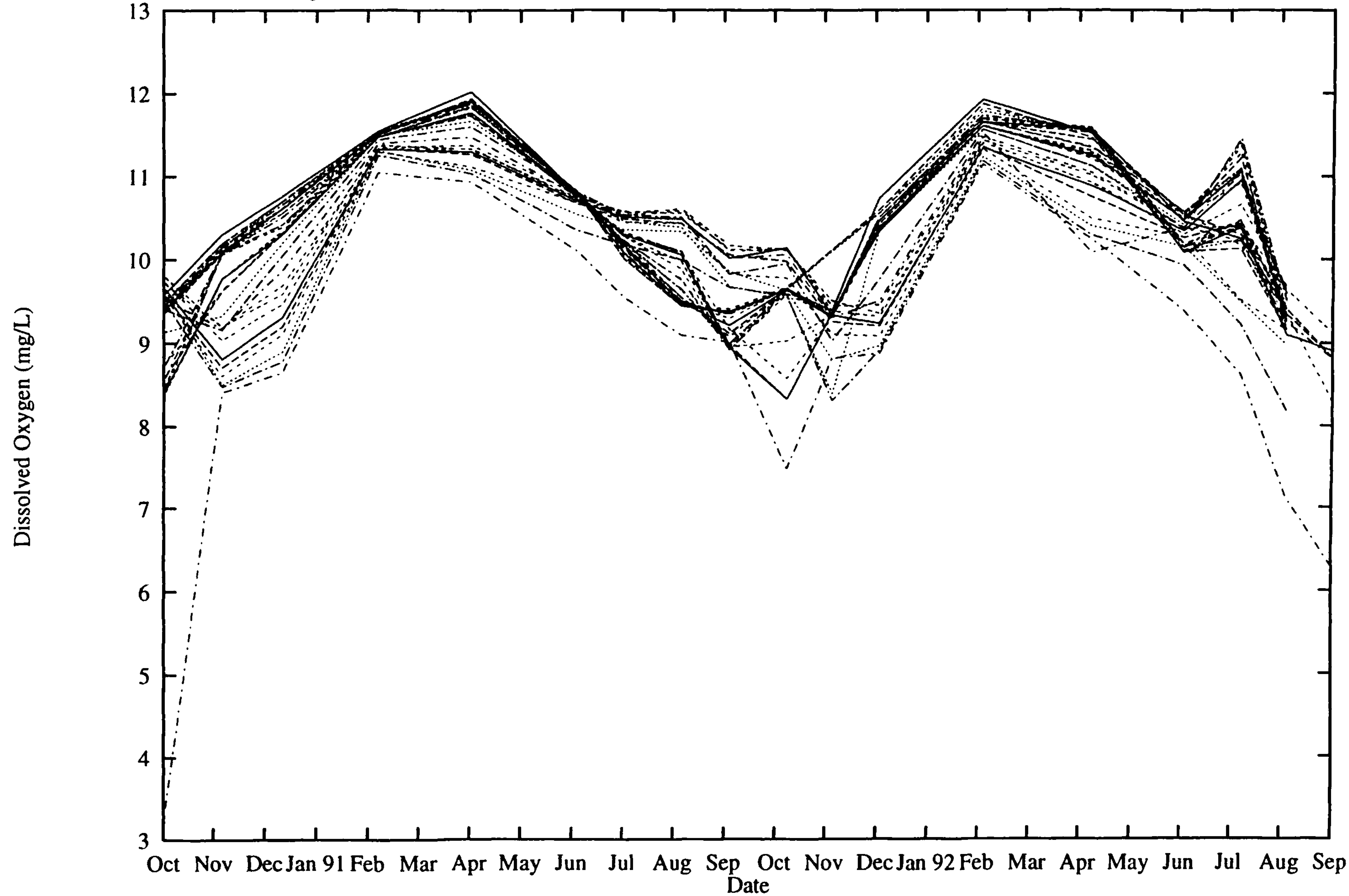


Figure 11: Lake Whatcom dissolved oxygen data for Site 4, October 1990 through September 1992.

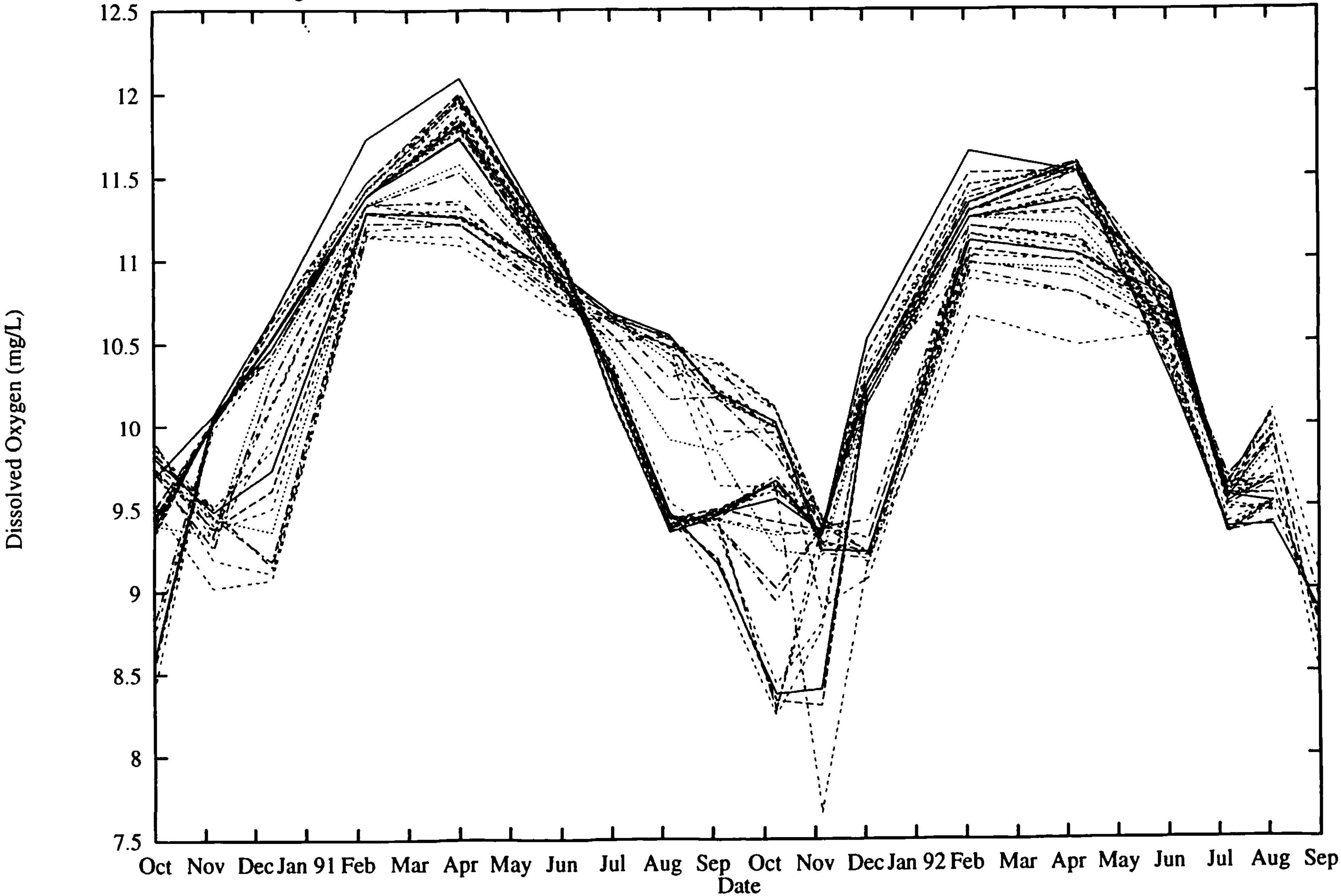


Figure 12: Lake Whatcom pH data for Site 1, October 1990 through September 1992.

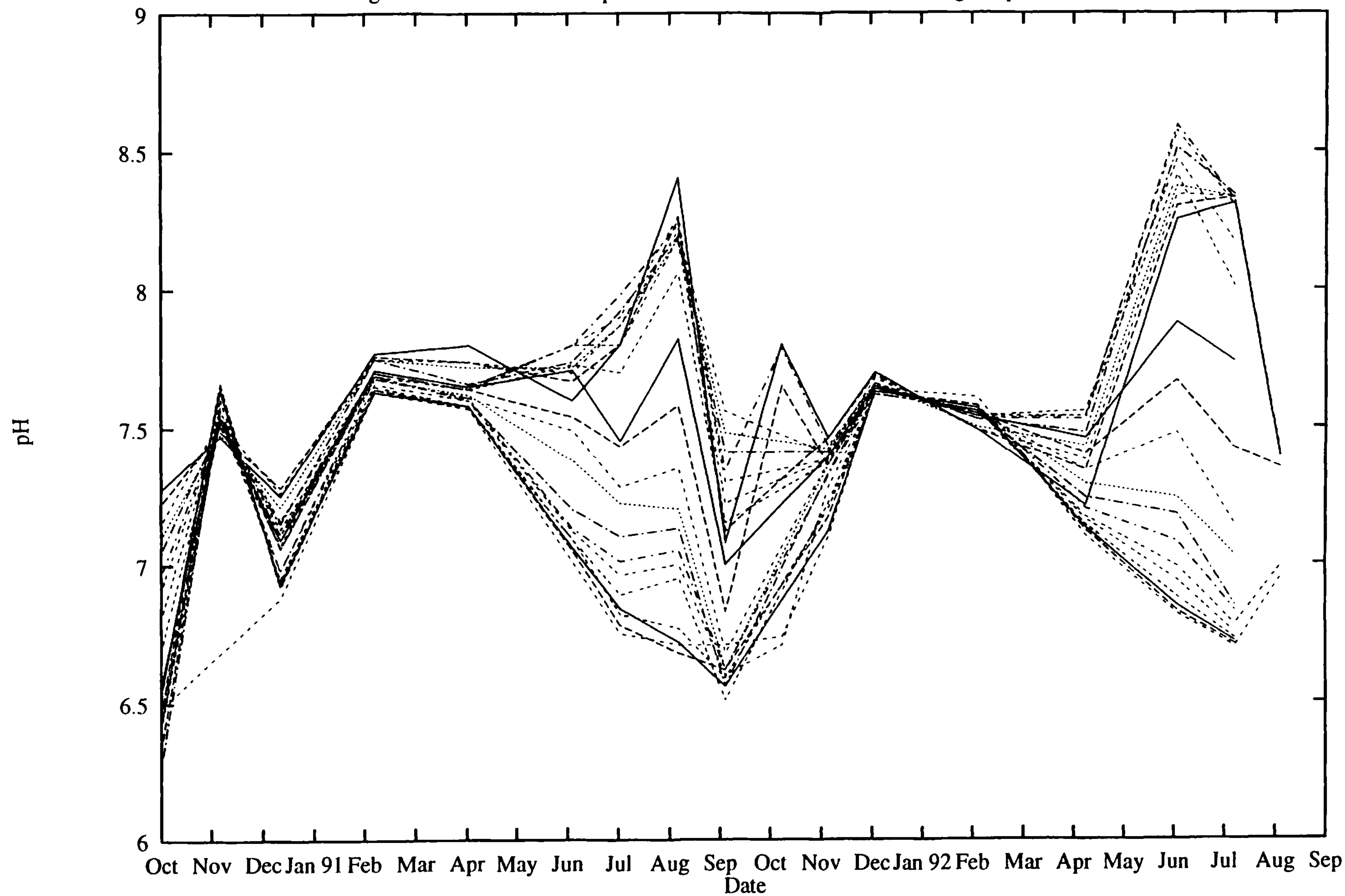


Figure 13: Lake Whatcom pH data for Site 2, October 1990 through September 1992.

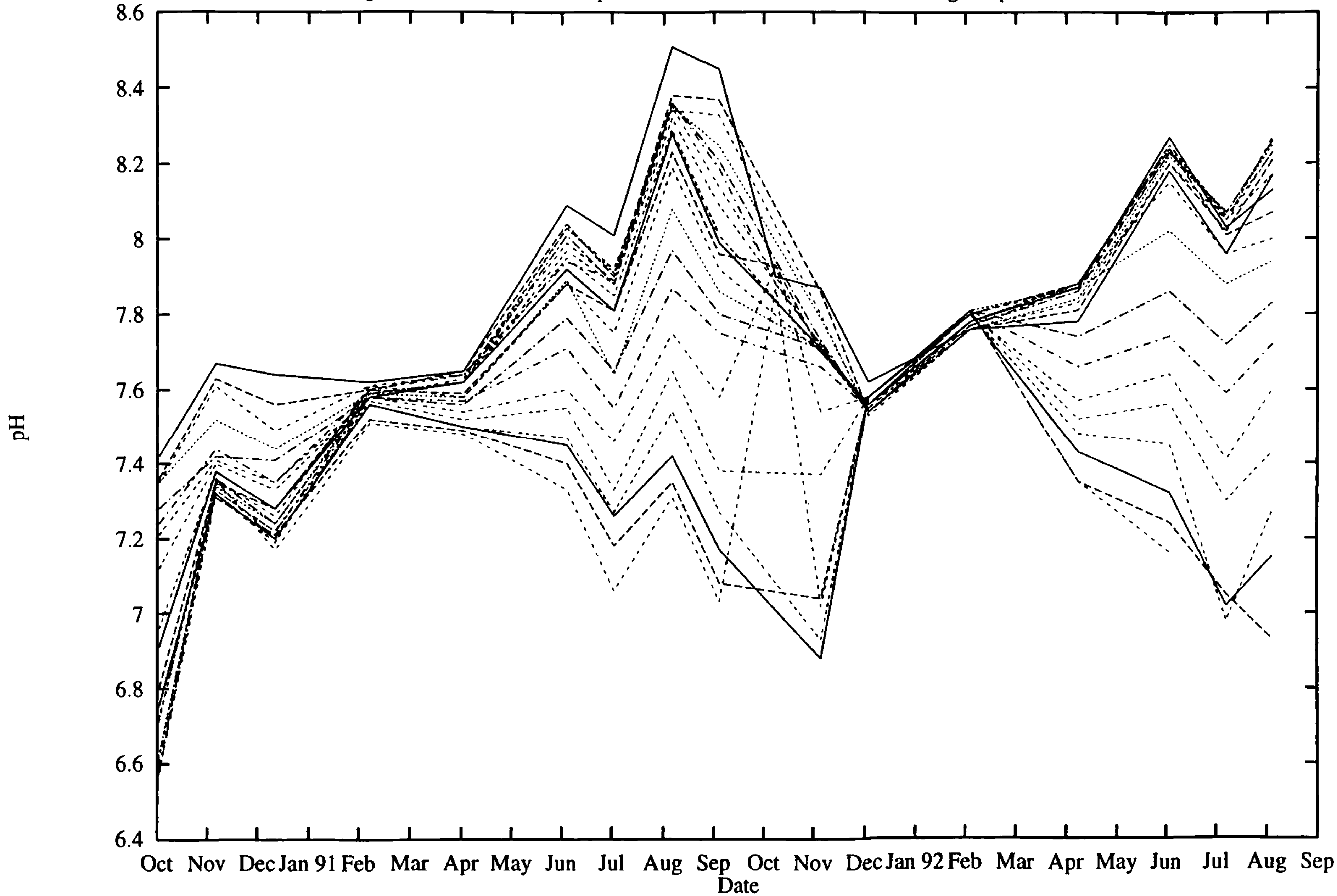


Figure 14: Lake Whatcom pH data for the Intake site (basin 2), October 1990 through September 1992.

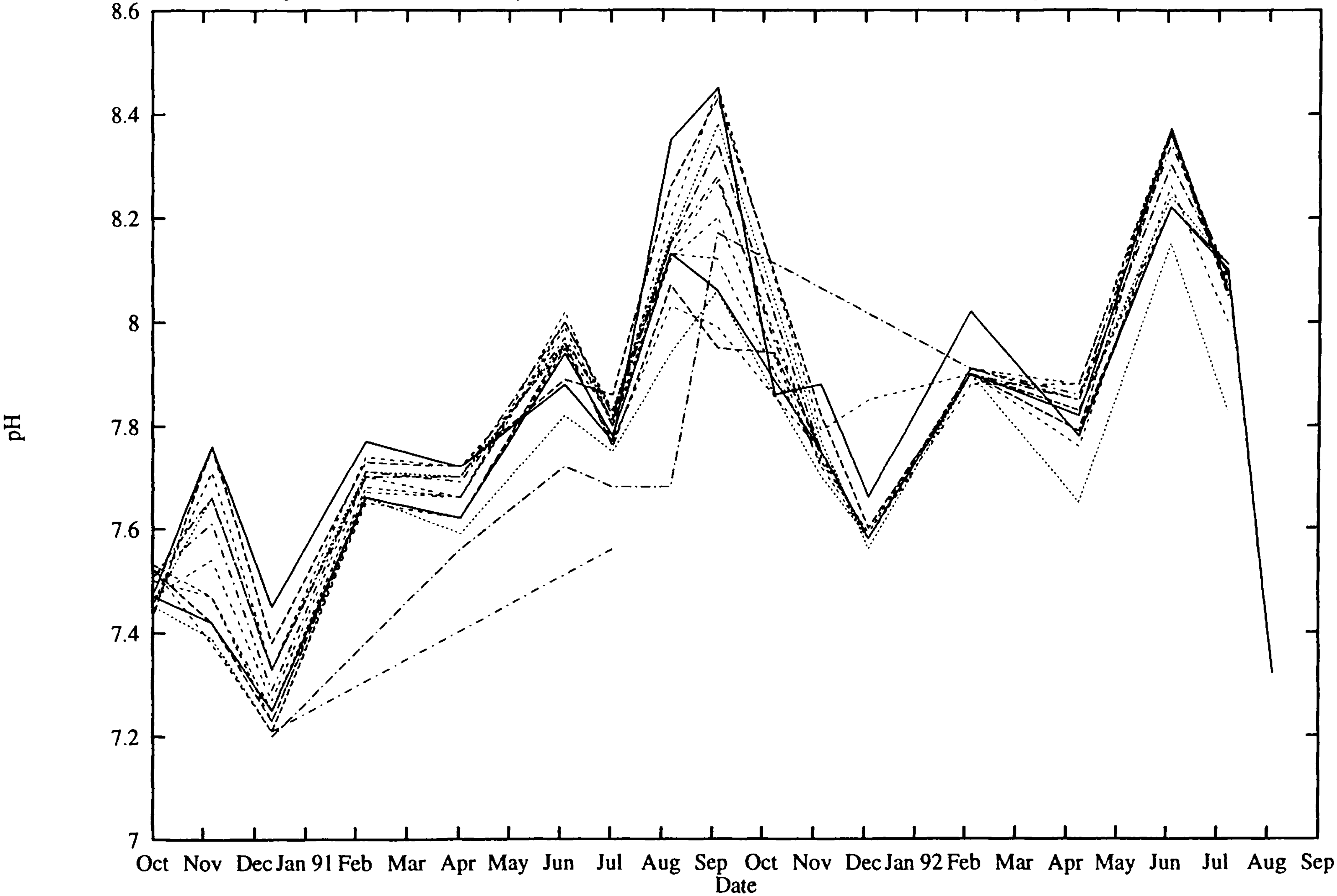


Figure 15: Lake Whatcom pH data for Site 3, October 1990 through September 1992.

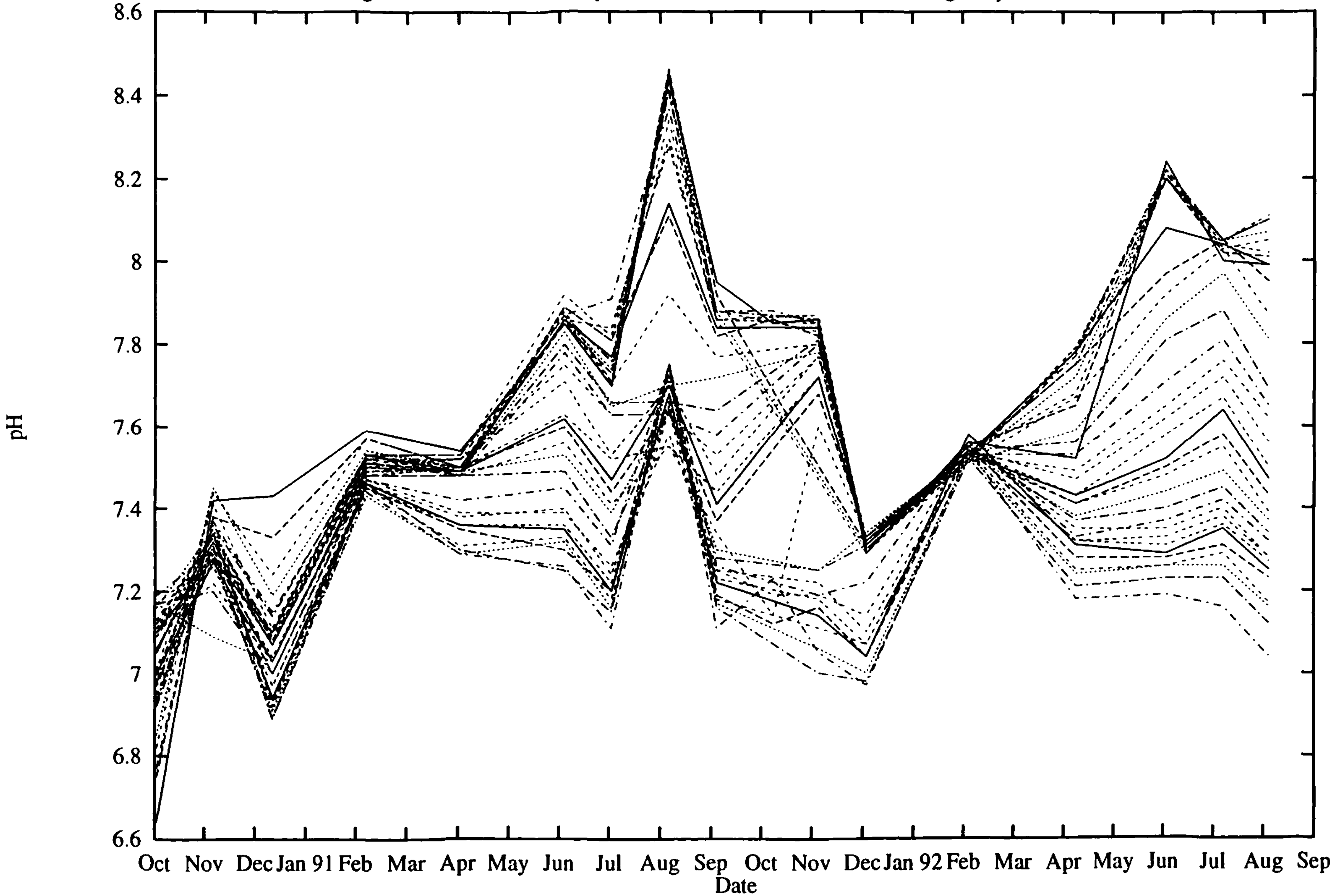


Figure 16: Lake Whatcom pH data for Site 4, October 1990 through September 1992.

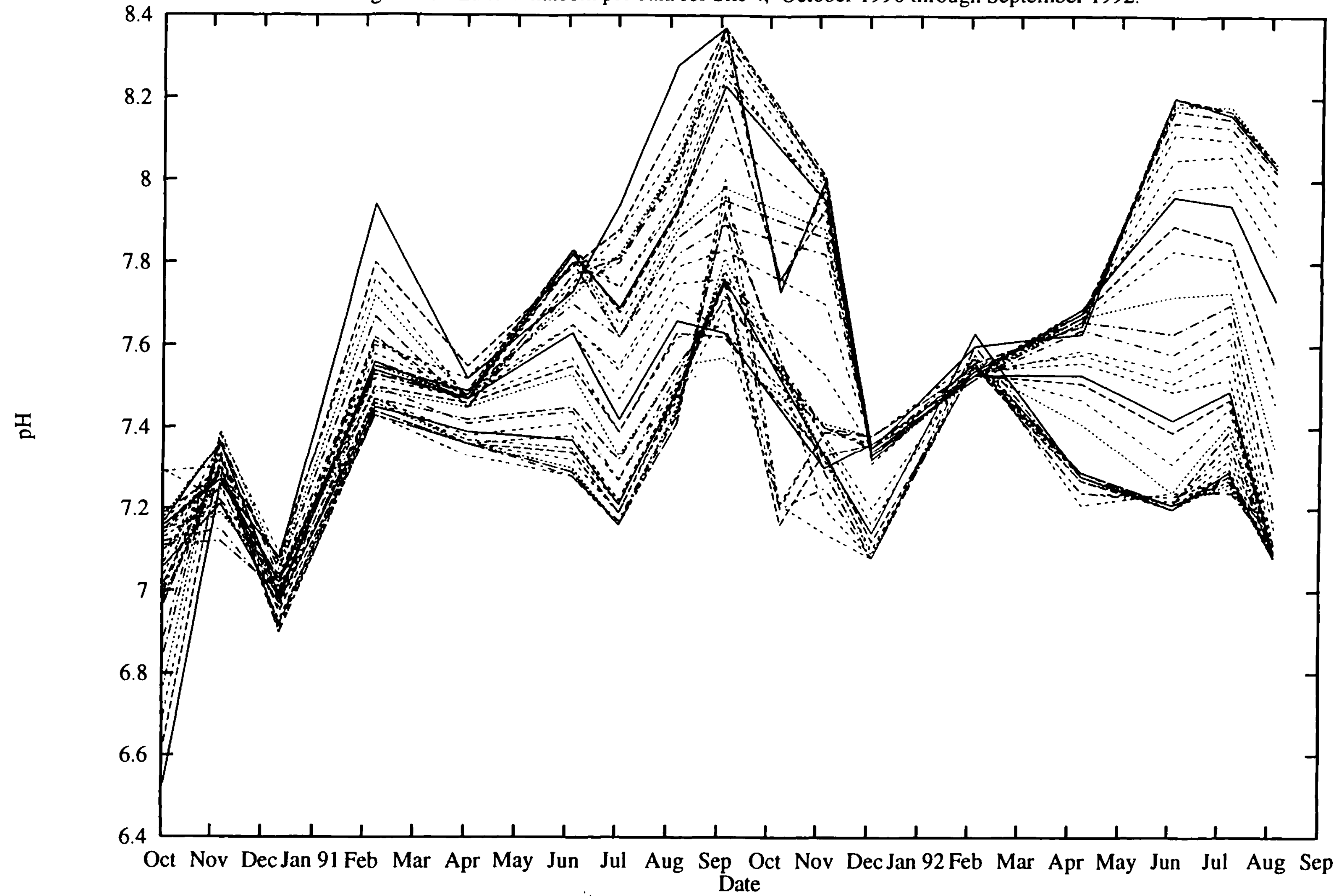


Figure 17: Lake Whatcom conductivity data (field) for Site 1, October 1990 through September 1992.

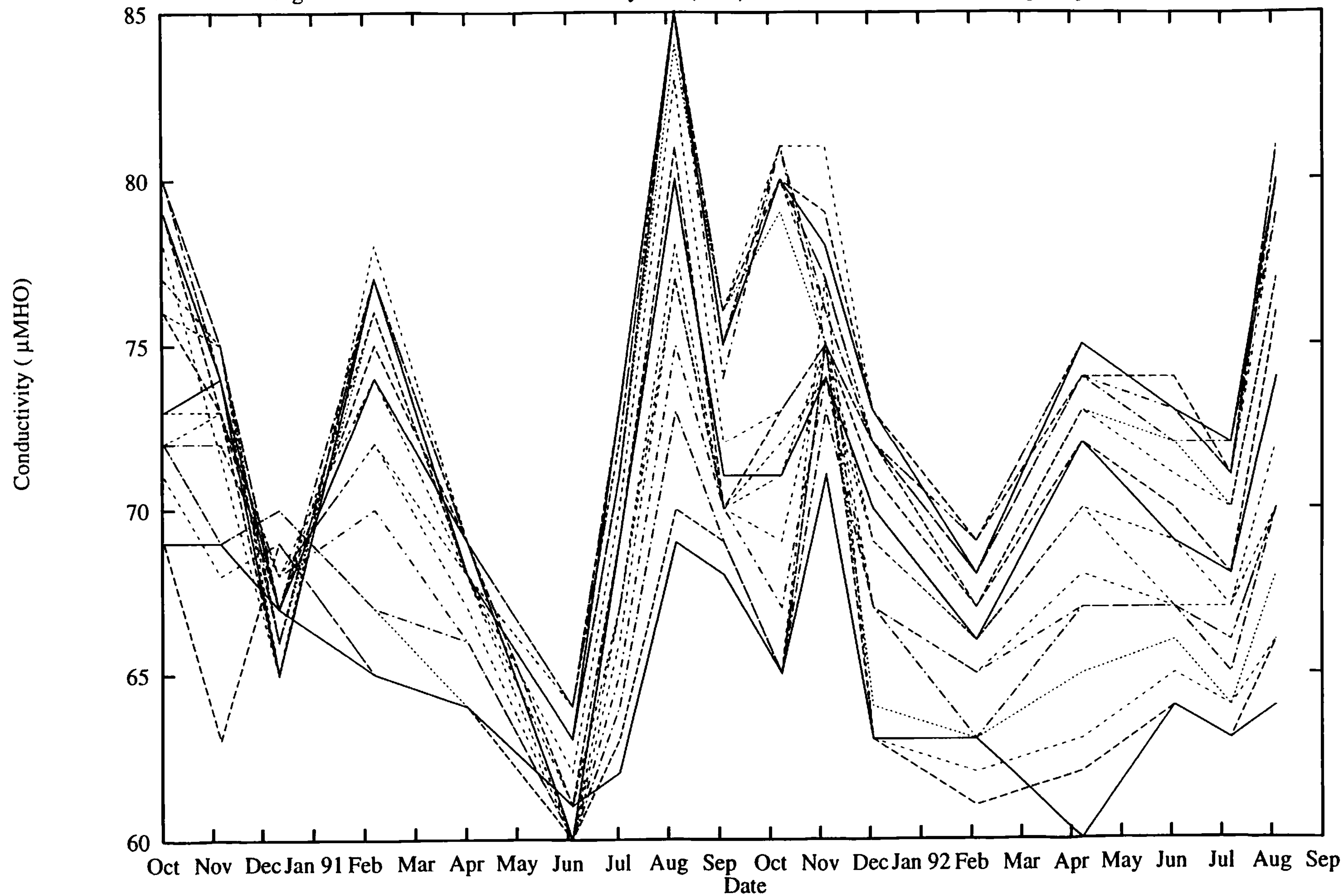


Figure 18: Lake Whatcom conductivity data (field) for Site 2, October 1990 through September 1992.

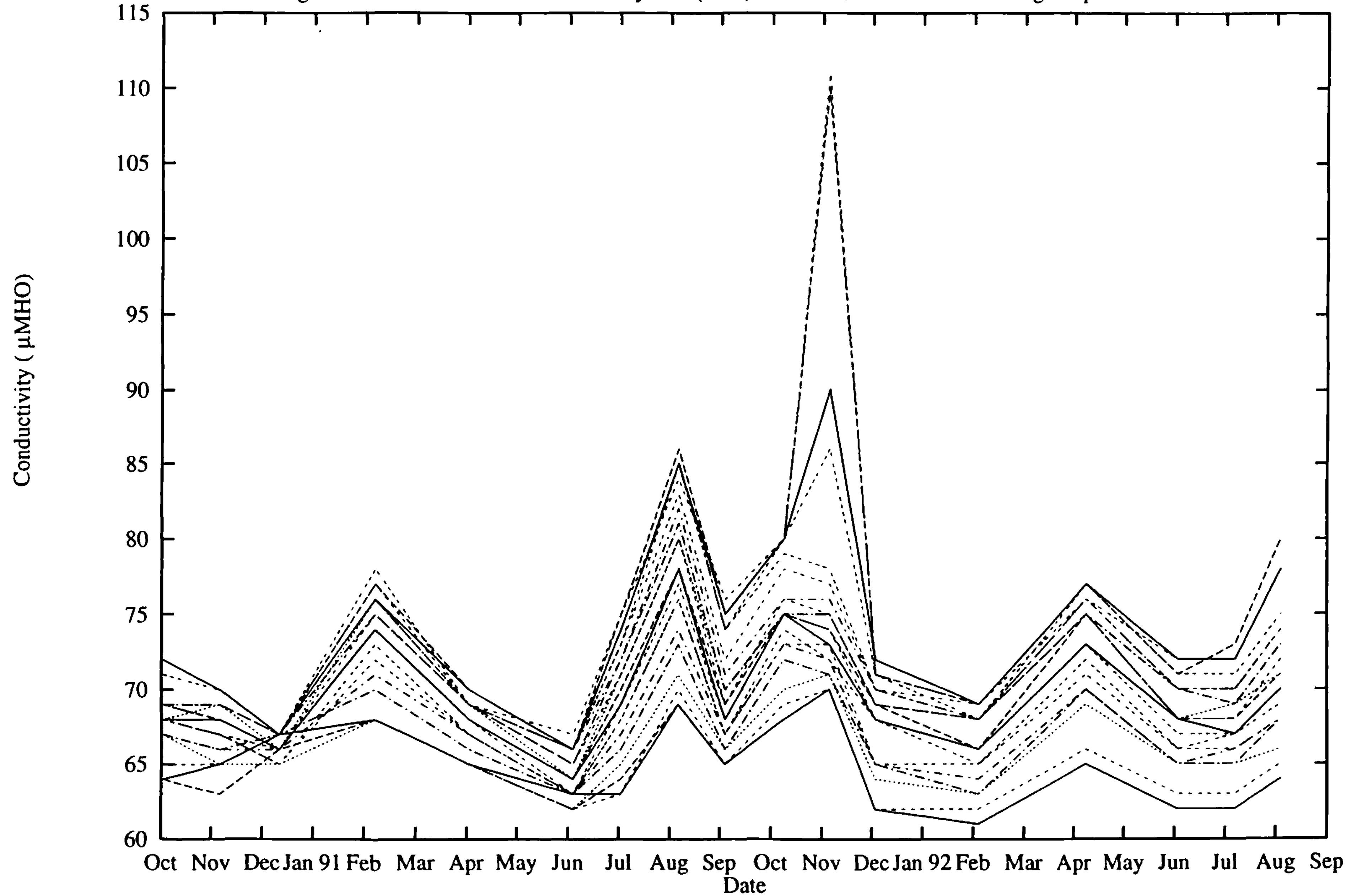


Figure 19: Lake Whatcom conductivity data (field) for the Intake site (basin 2), October 1990 through September 1992.

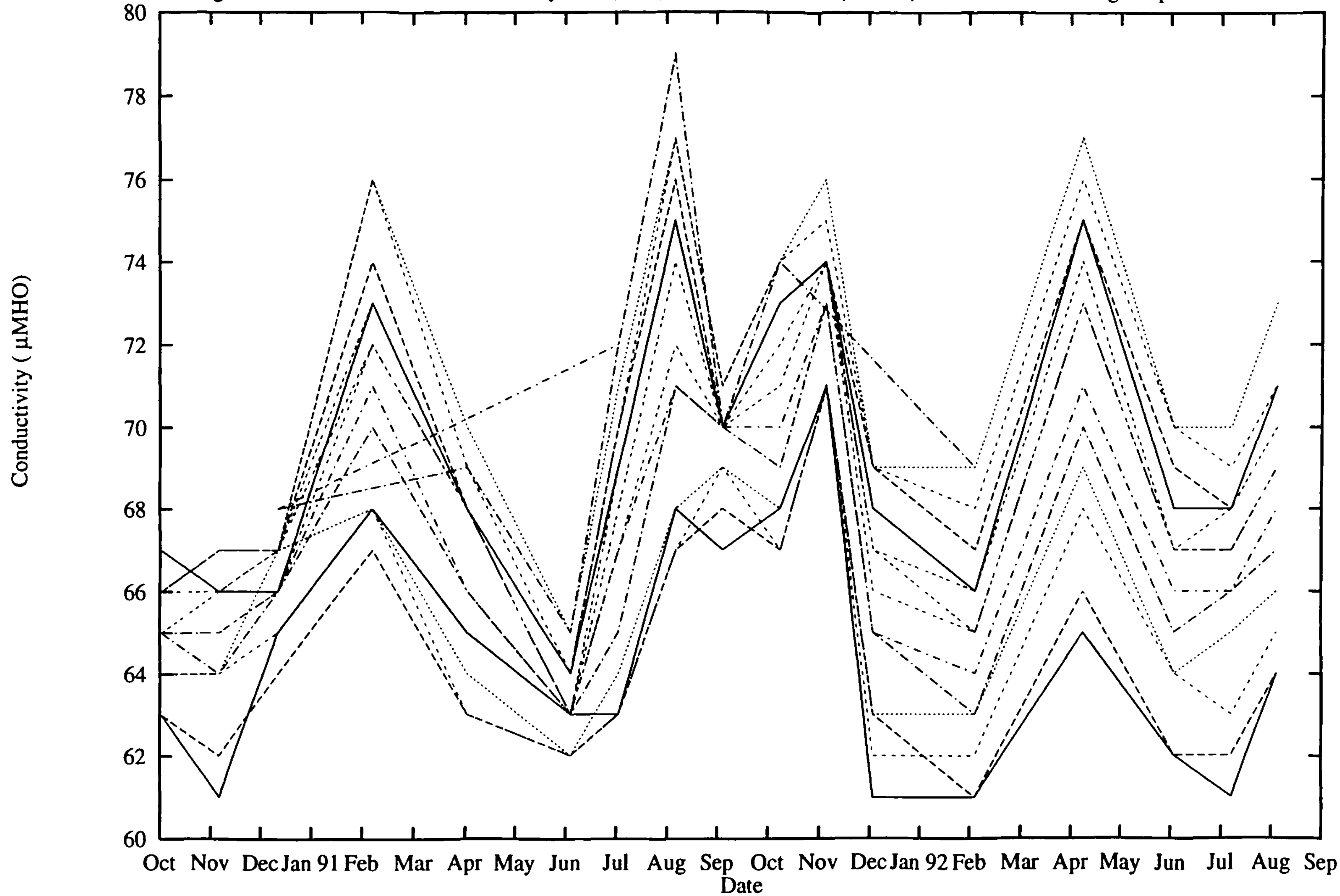


Figure 20: Lake Whatcom conductivity data (field) for Site 3, October 1990 through September 1992.

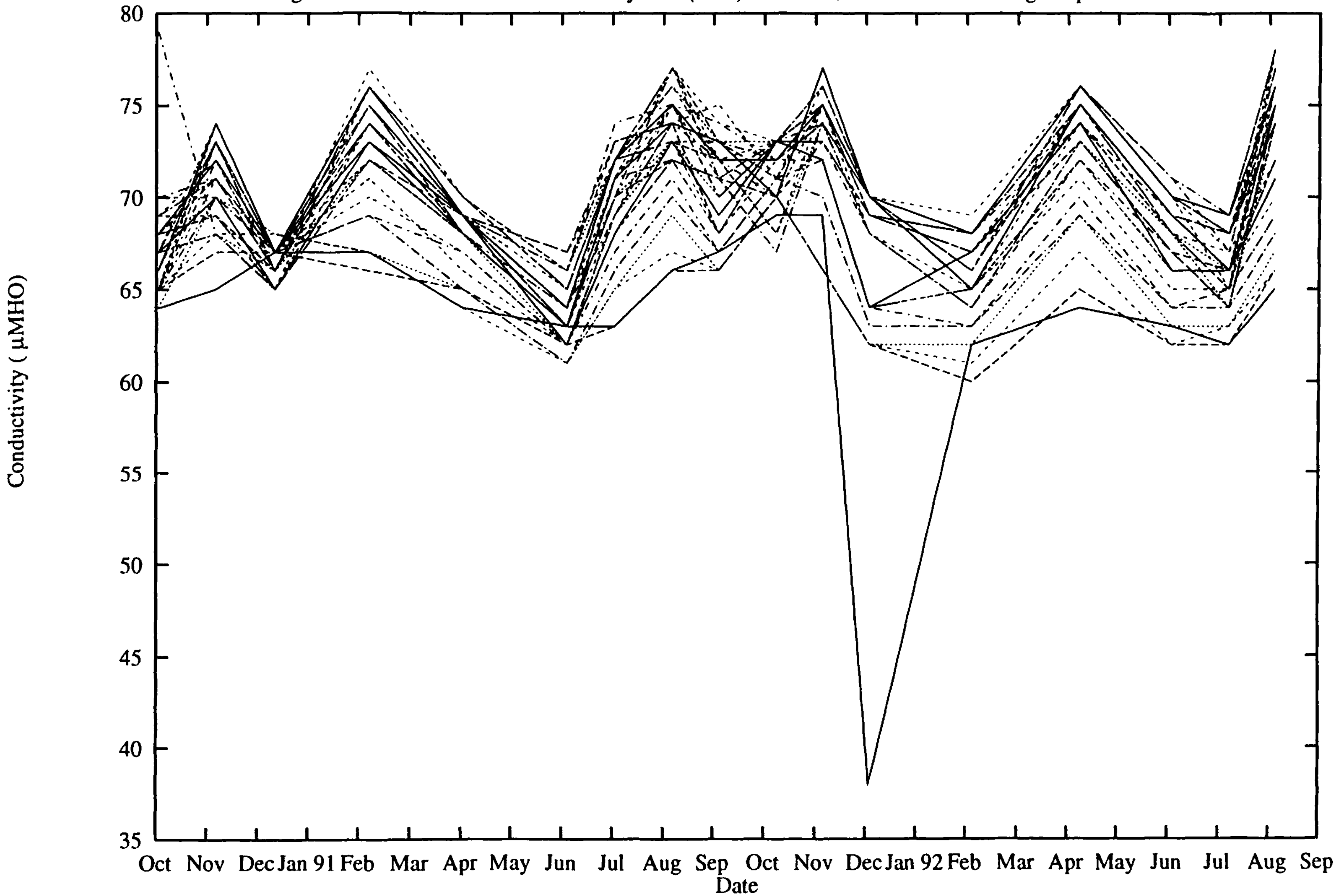


Figure 21: Lake Whatcom conductivity data (field) for Site 4, October 1990 through September 1992.

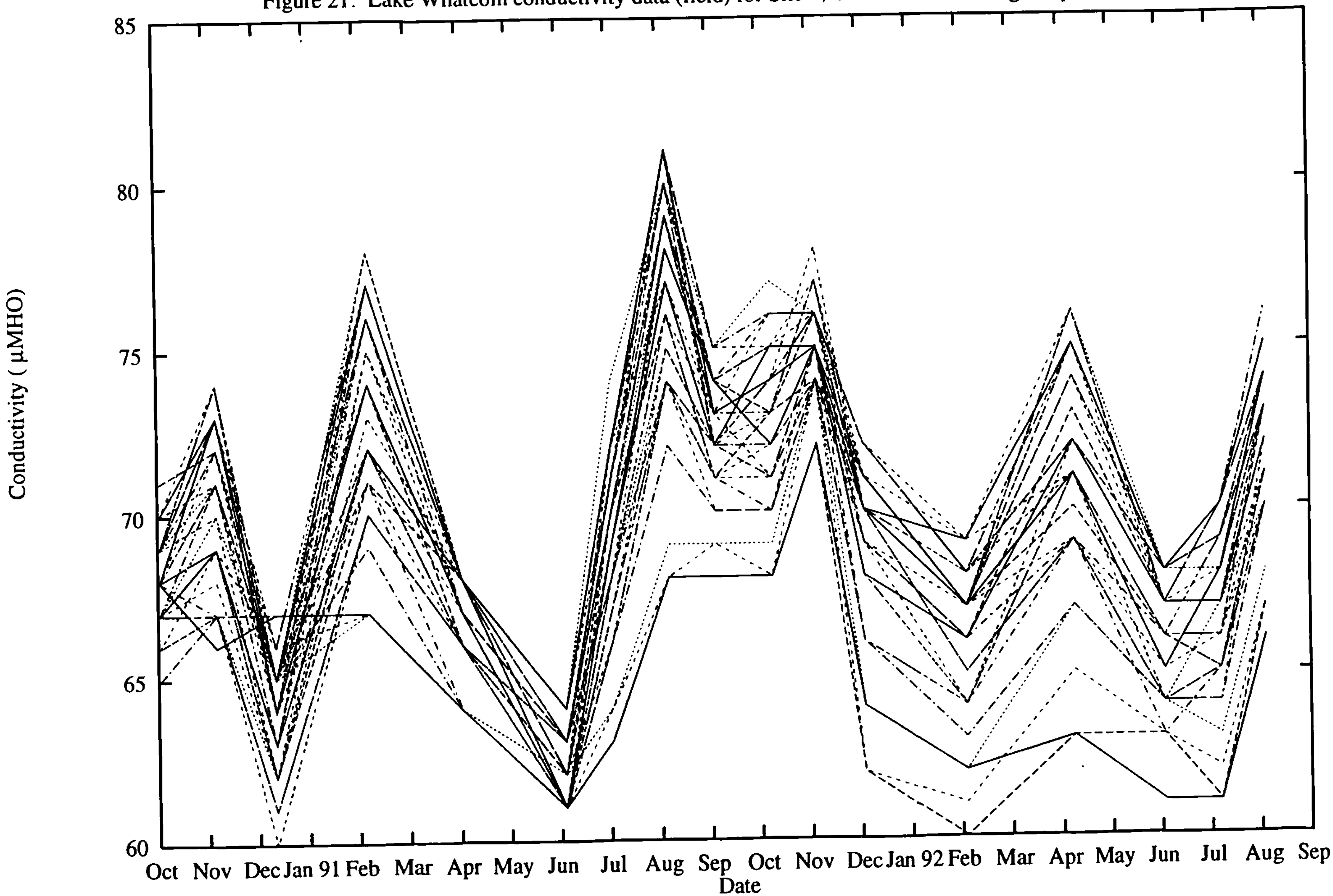
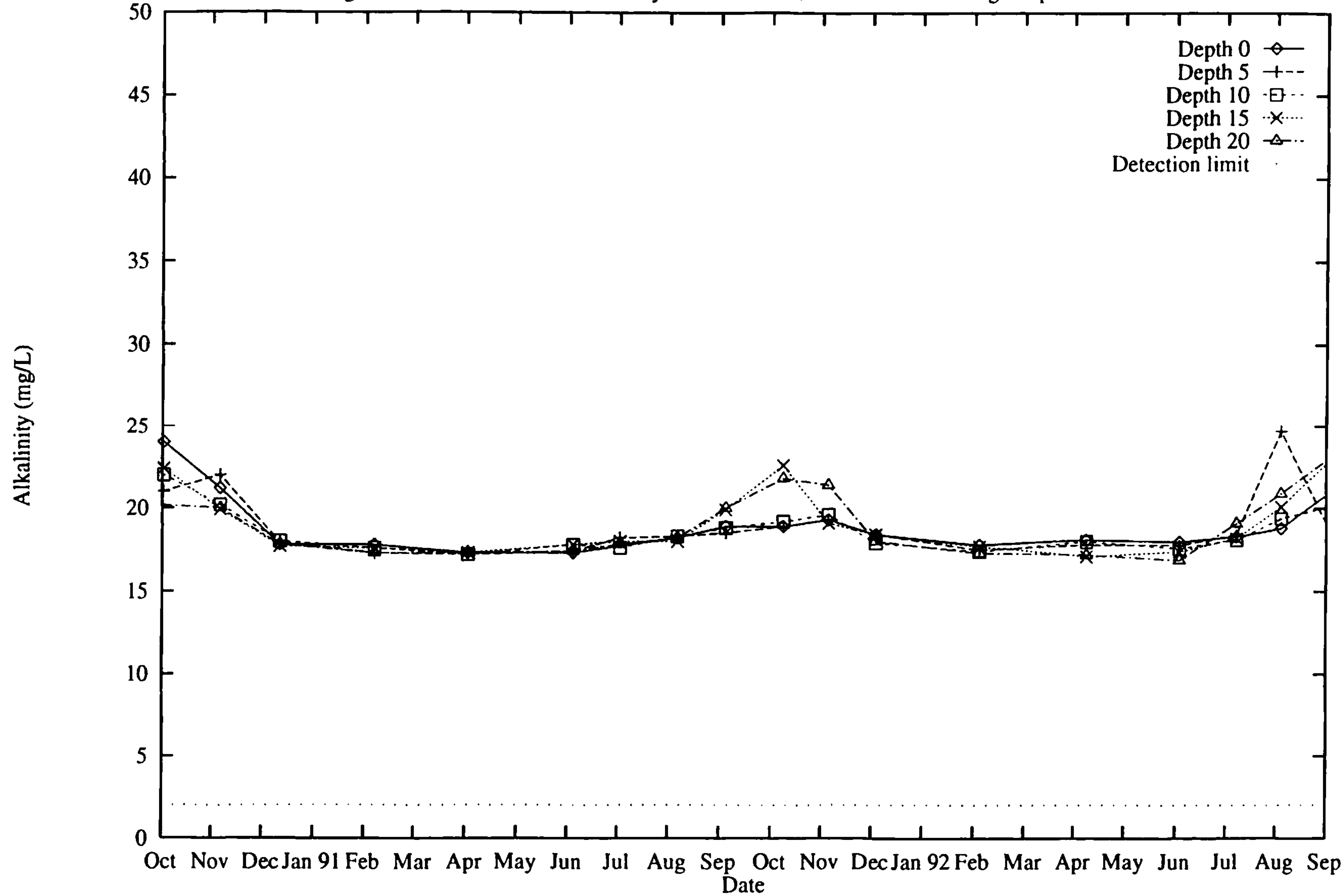
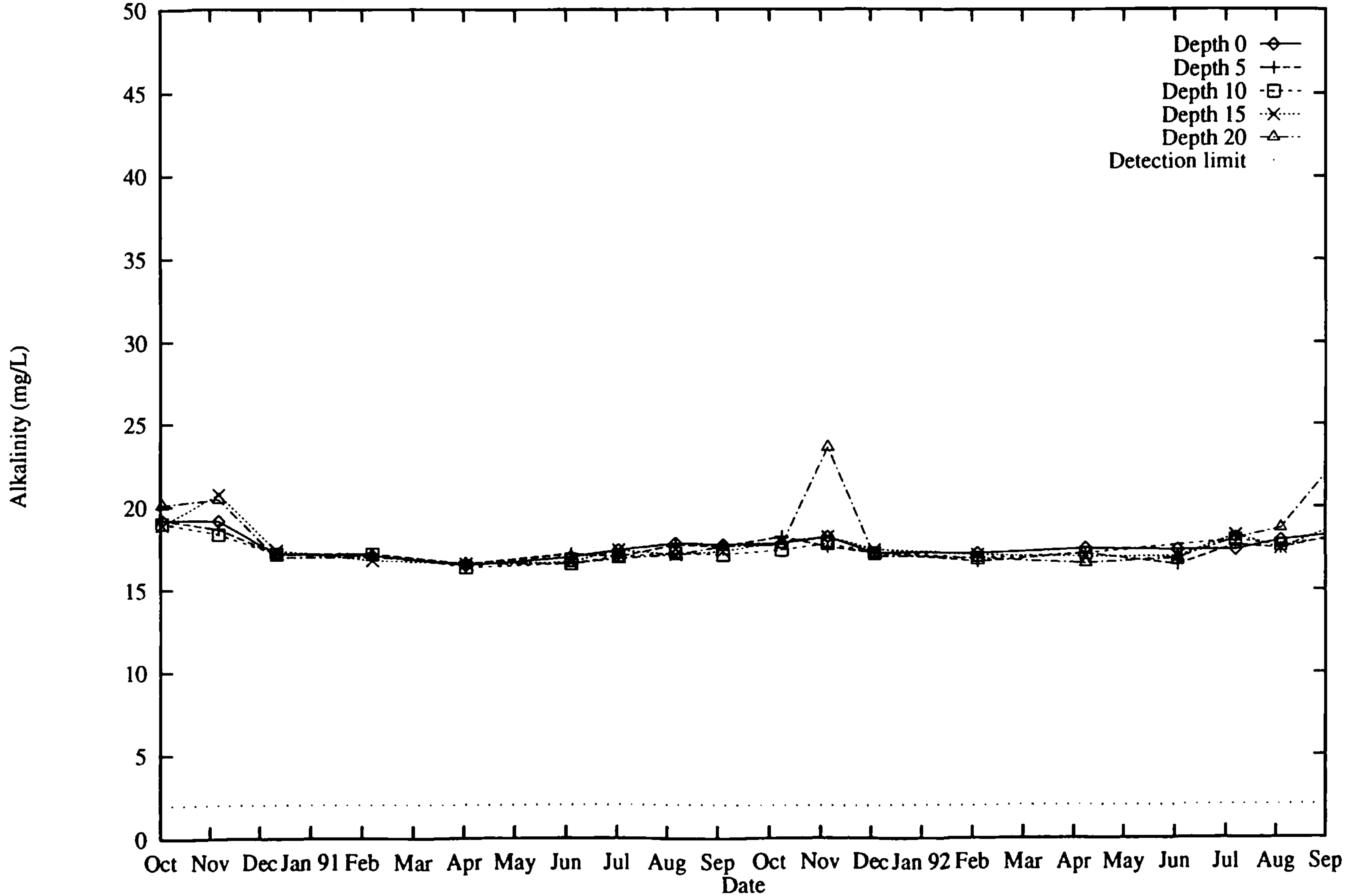


Figure 22: Lake Whatcom alkalinity data for Site 1, October 1990 through September 1992.



Note: Actual depth at 20 m for November 1990 data was 19.7 m.

Figure 23: Lake Whatcom alkalinity data for Site 2, October 1990 through September 1992.



Note: Actual depth at 20 m for November 1990 data was 18.5 m.

Figure 24: Lake Whatcom alkalinity data for Intake site, October 1990 through September 1992.

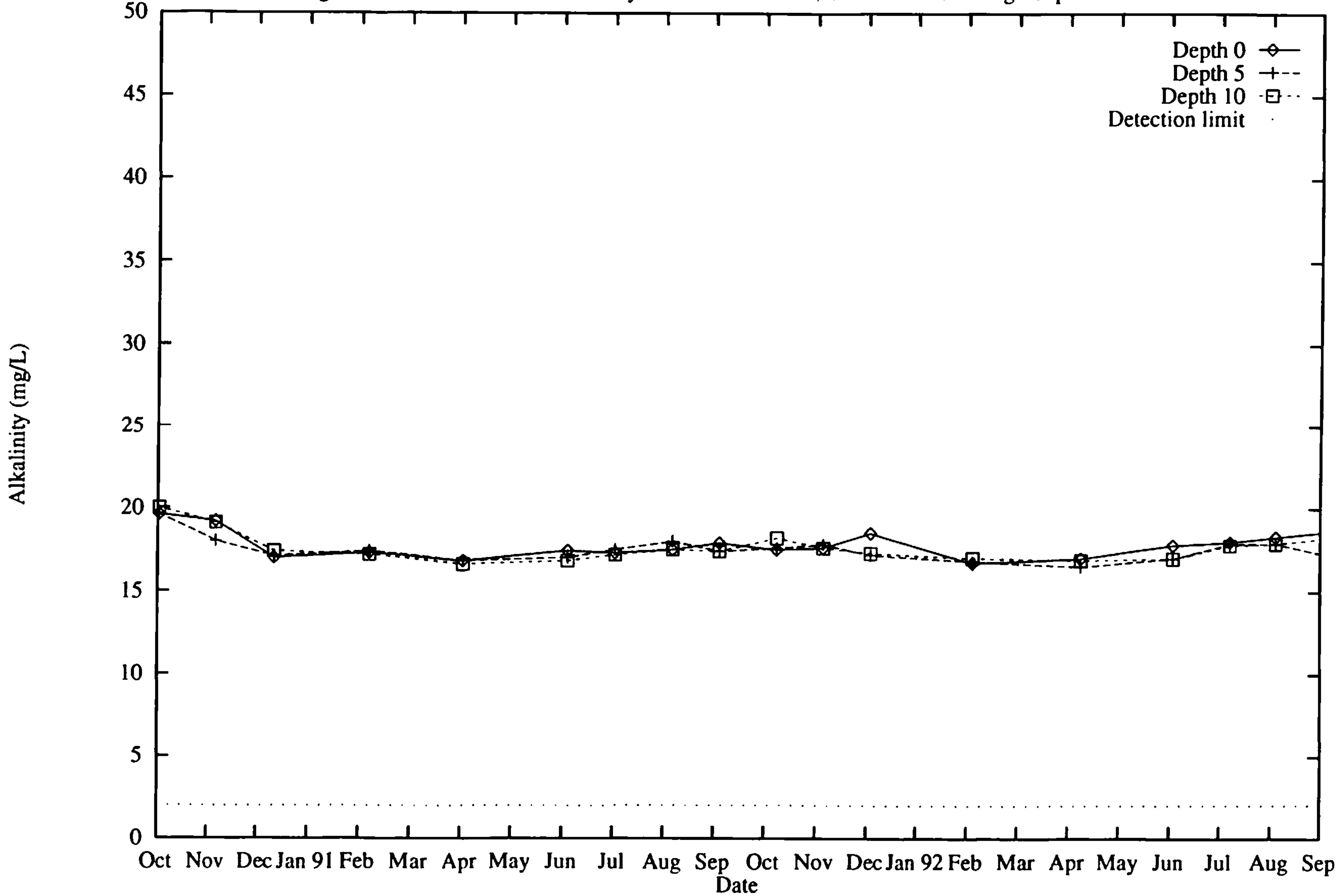


Figure 25: Lake Whatcom alkalinity data for Site 3, October 1990 through September 1992.

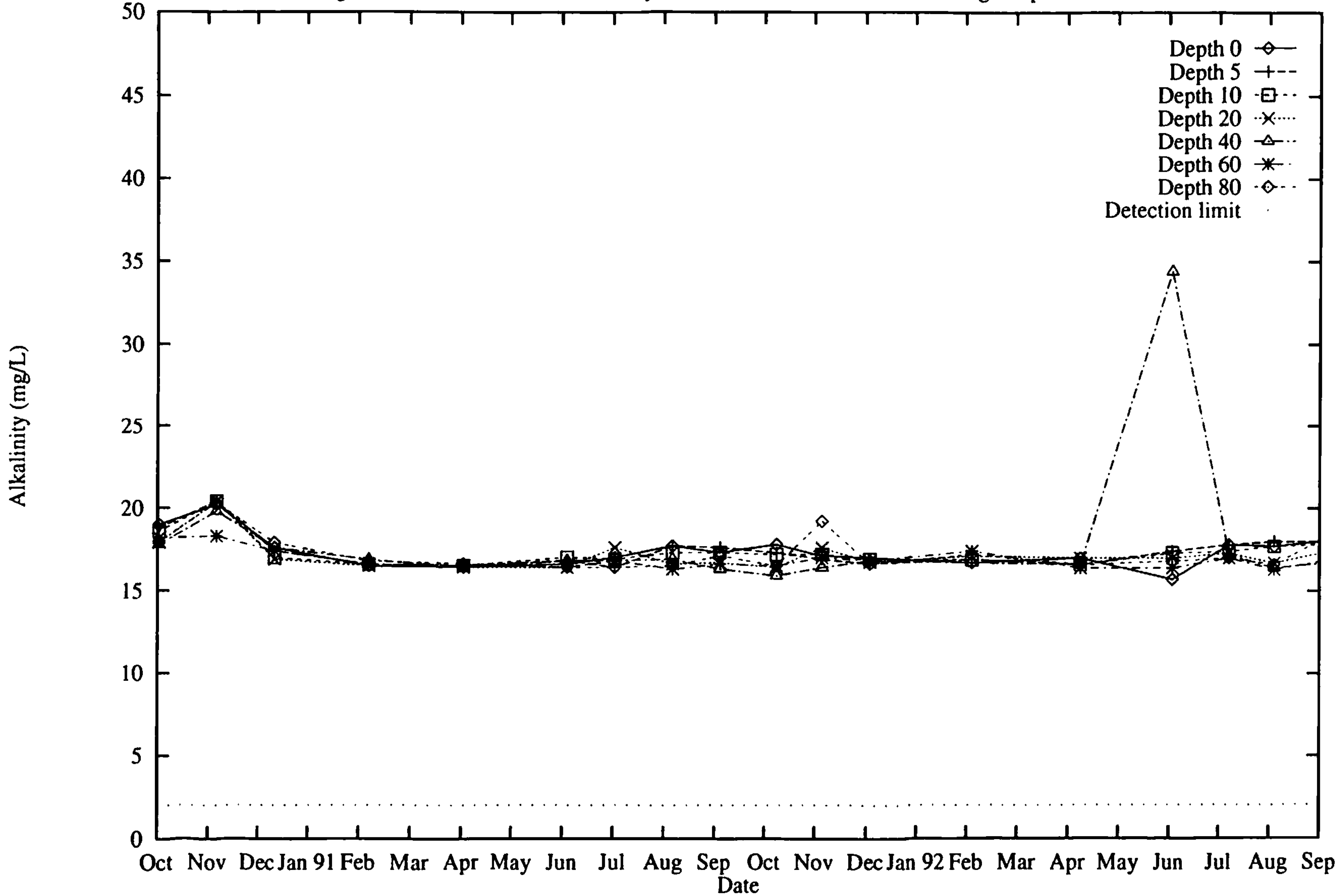


Figure 26: Lake Whatcom alkalinity data for Site 4, October 1990 through September 1992.

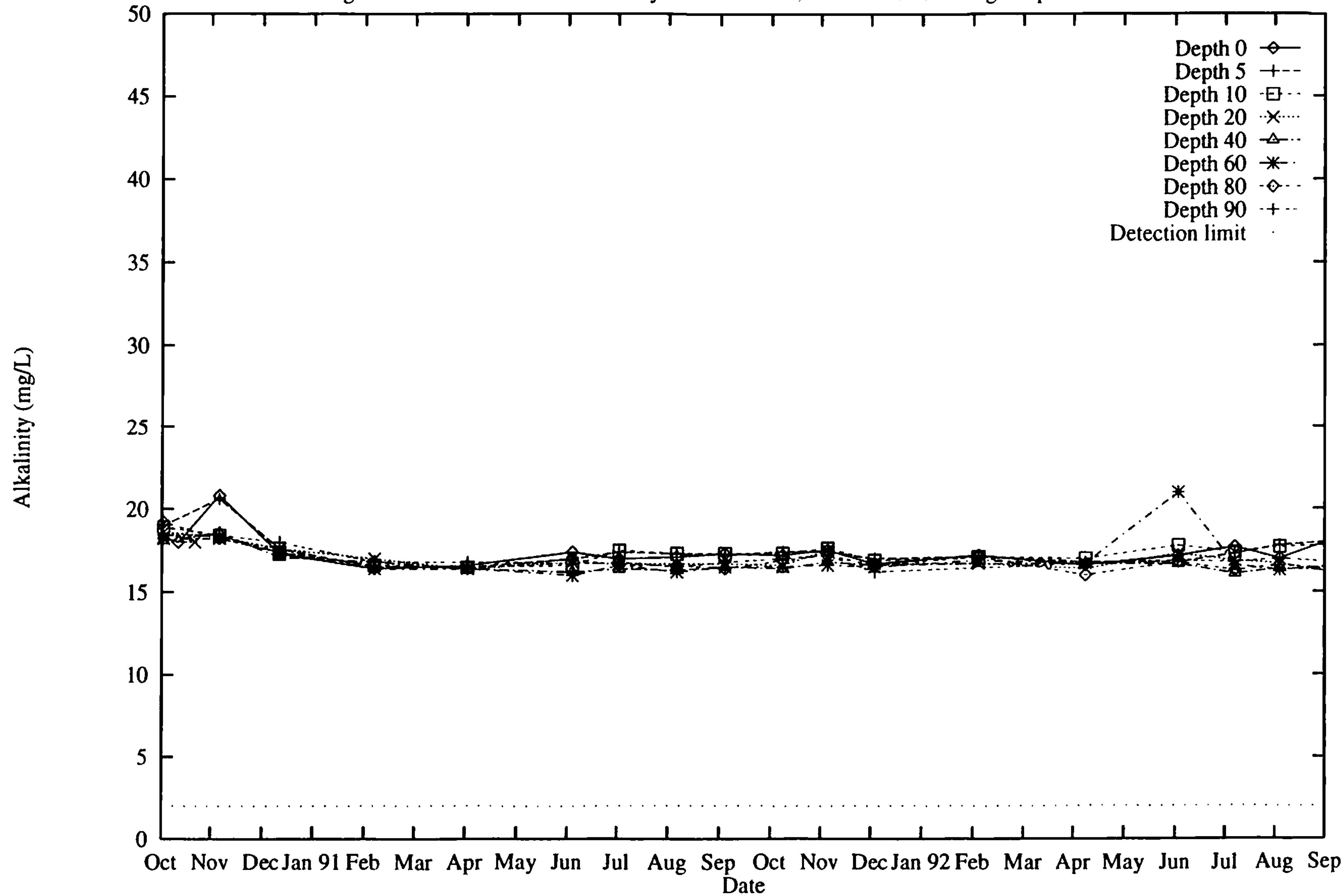
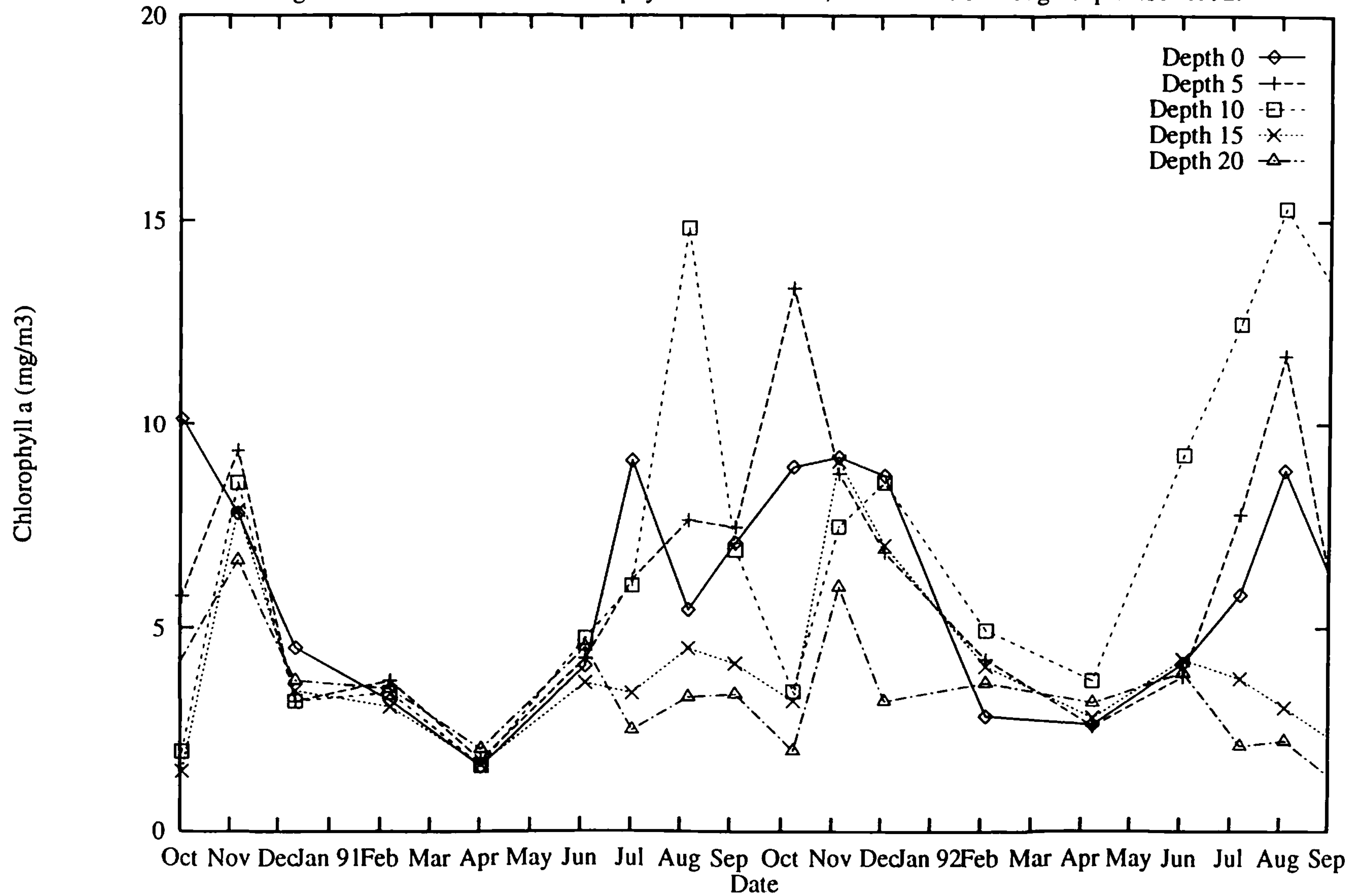
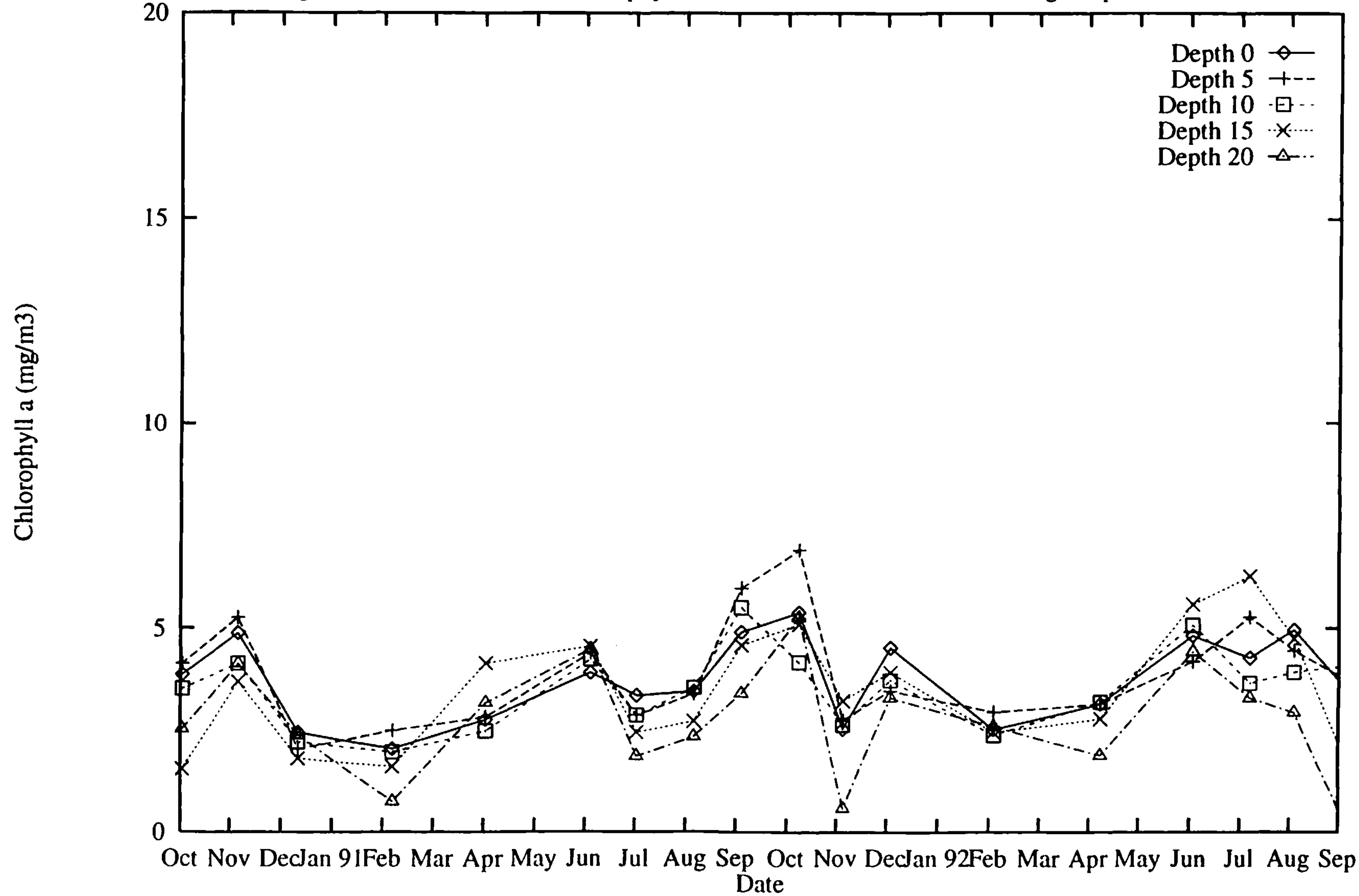


Figure 27: Lake Whatcom chlorophyll data for Site 1, October 1990 through September 1992.



Note: Actual depth at 20 m for November 1990 data was 19.7 m.

Figure 28: Lake Whatcom chlorophyll data for Site 2, October 1990 through September 1992.



Note: Actual depth at 20 m for November 1990 data was 18.5 m.

Figure 29: Lake Whatcom chlorophyll data for Intake site (basin 2), October 1990 through September 1992.

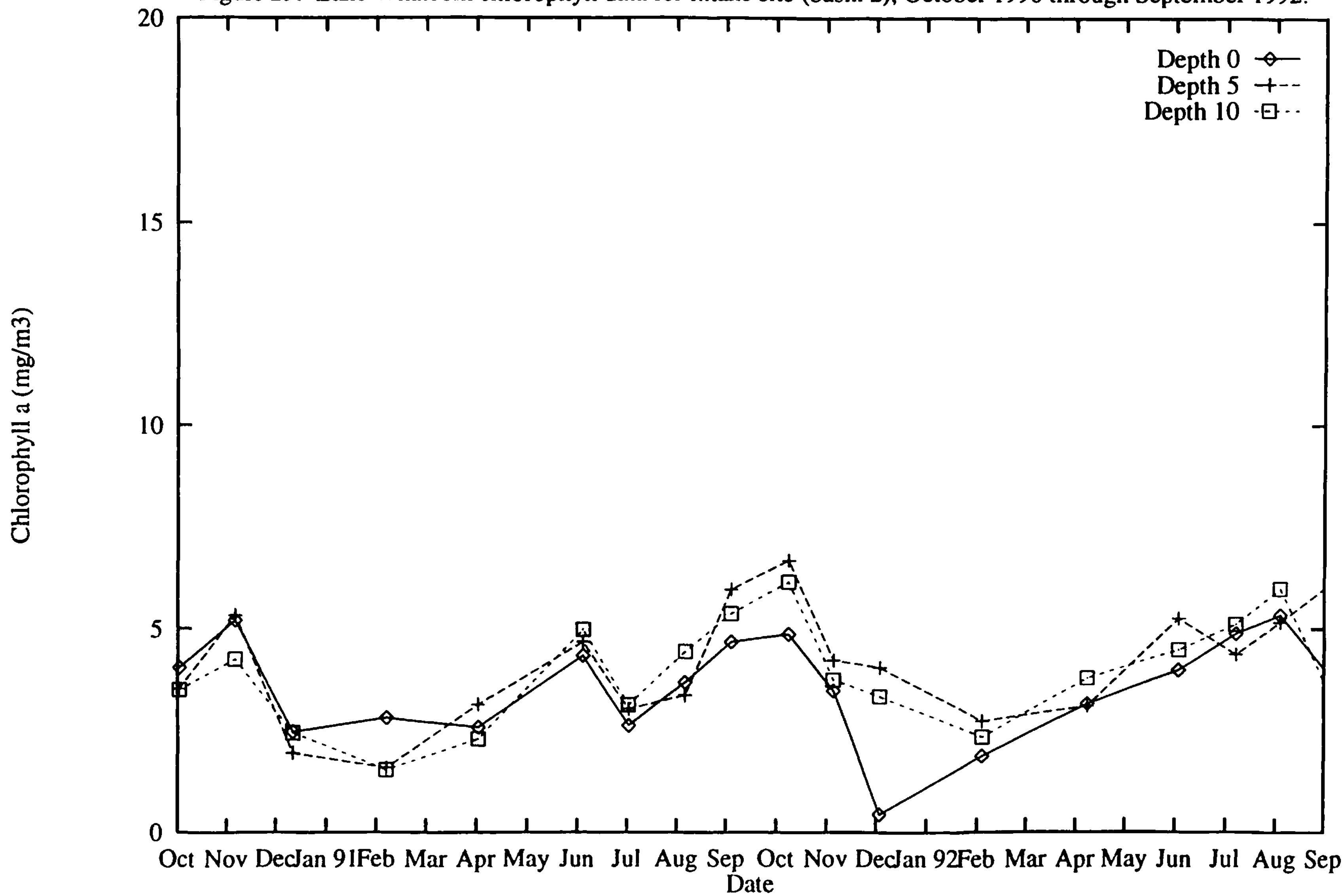


Figure 30: Lake Whatcom chlorophyll data for Site 3, October 1990 through September 1992.

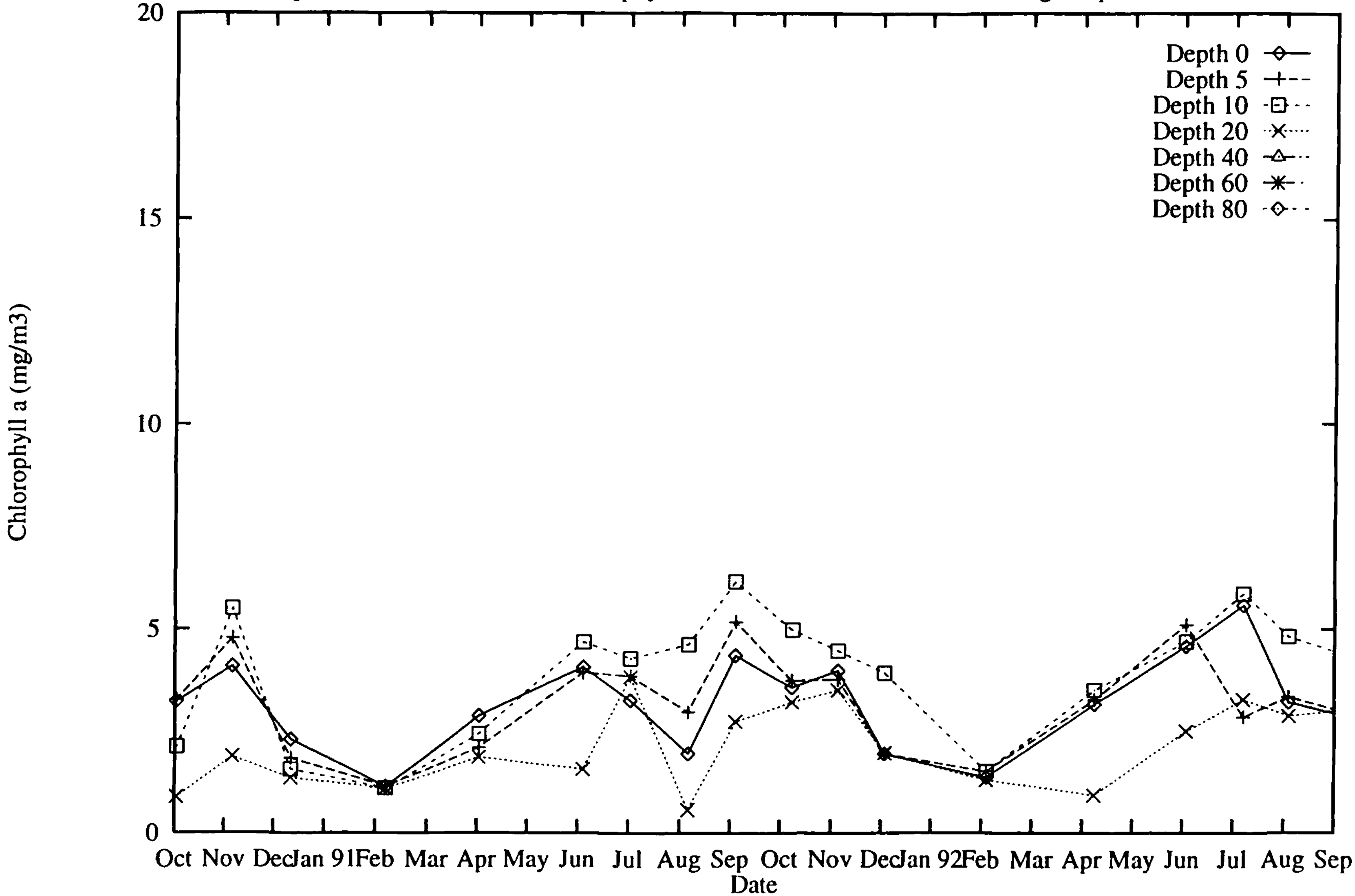


Figure 31: Lake Whatcom chlorophyll data for Site 4, October 1990 through September 1992.

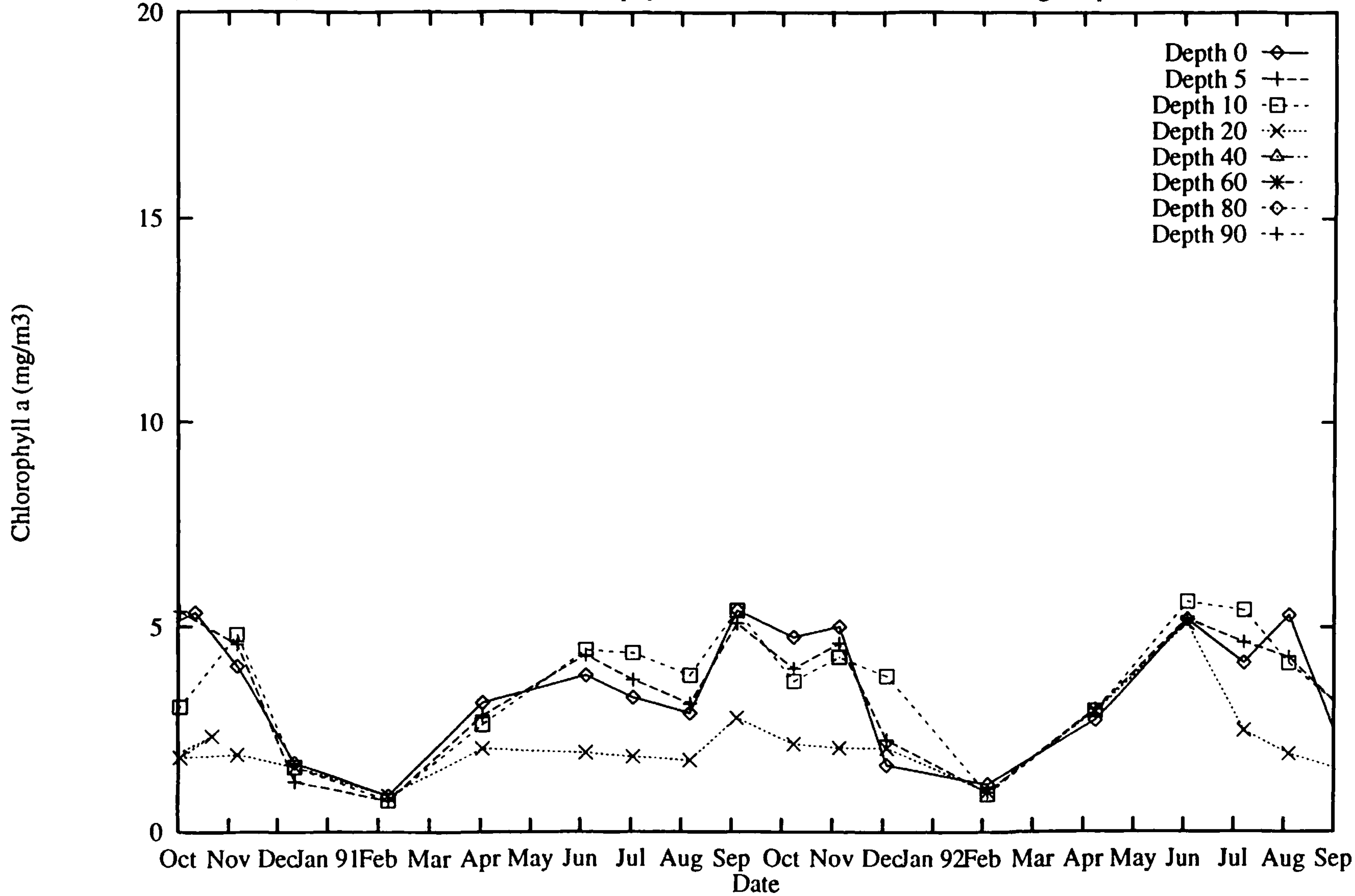


Figure 32: Lake Whatcom total fecal coliform data for Site 1, October 1990 through September 1992.

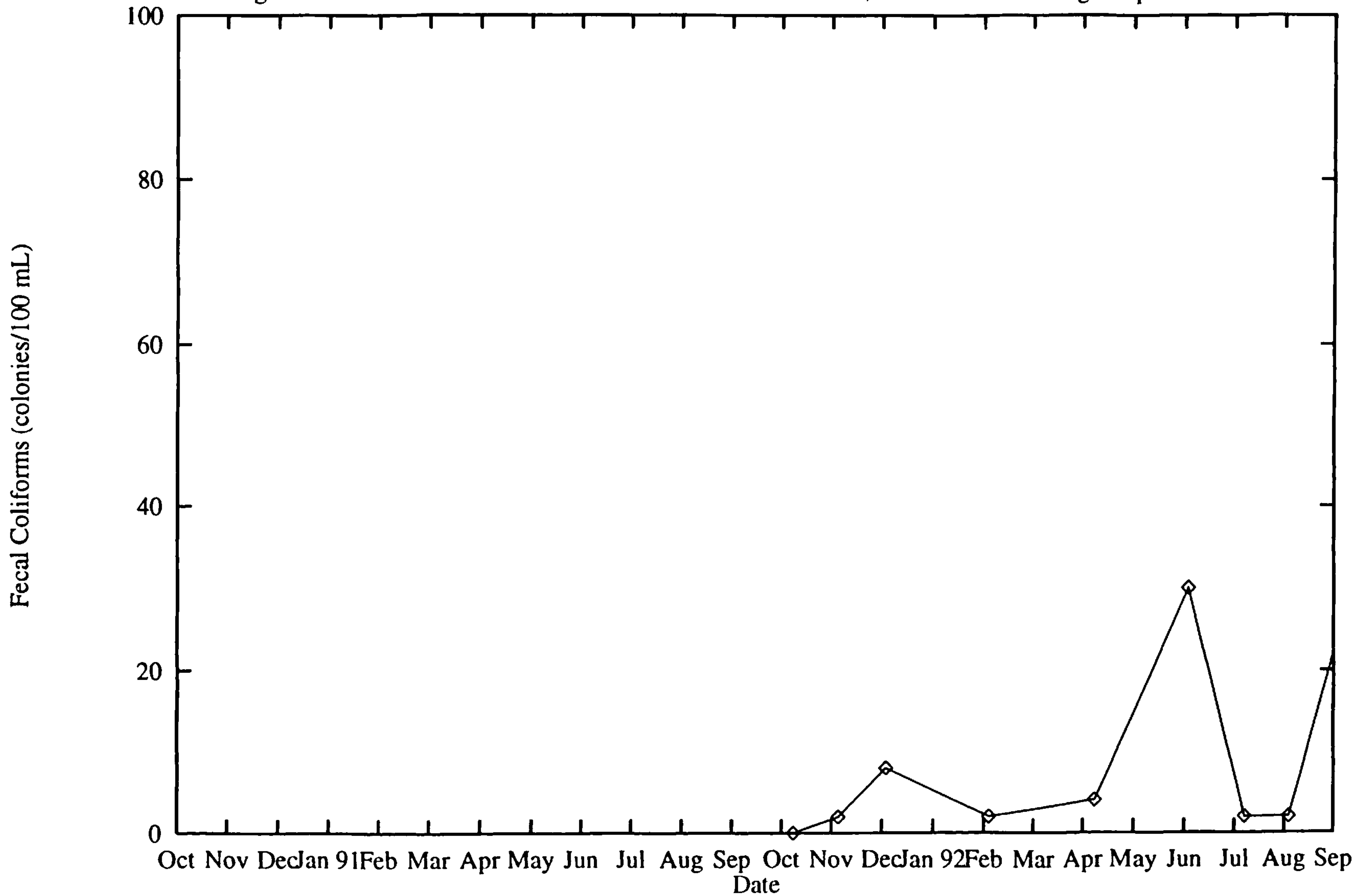


Figure 33: Lake Whatcom total fecal coliform data for Site 2, October 1990 through September 1992.

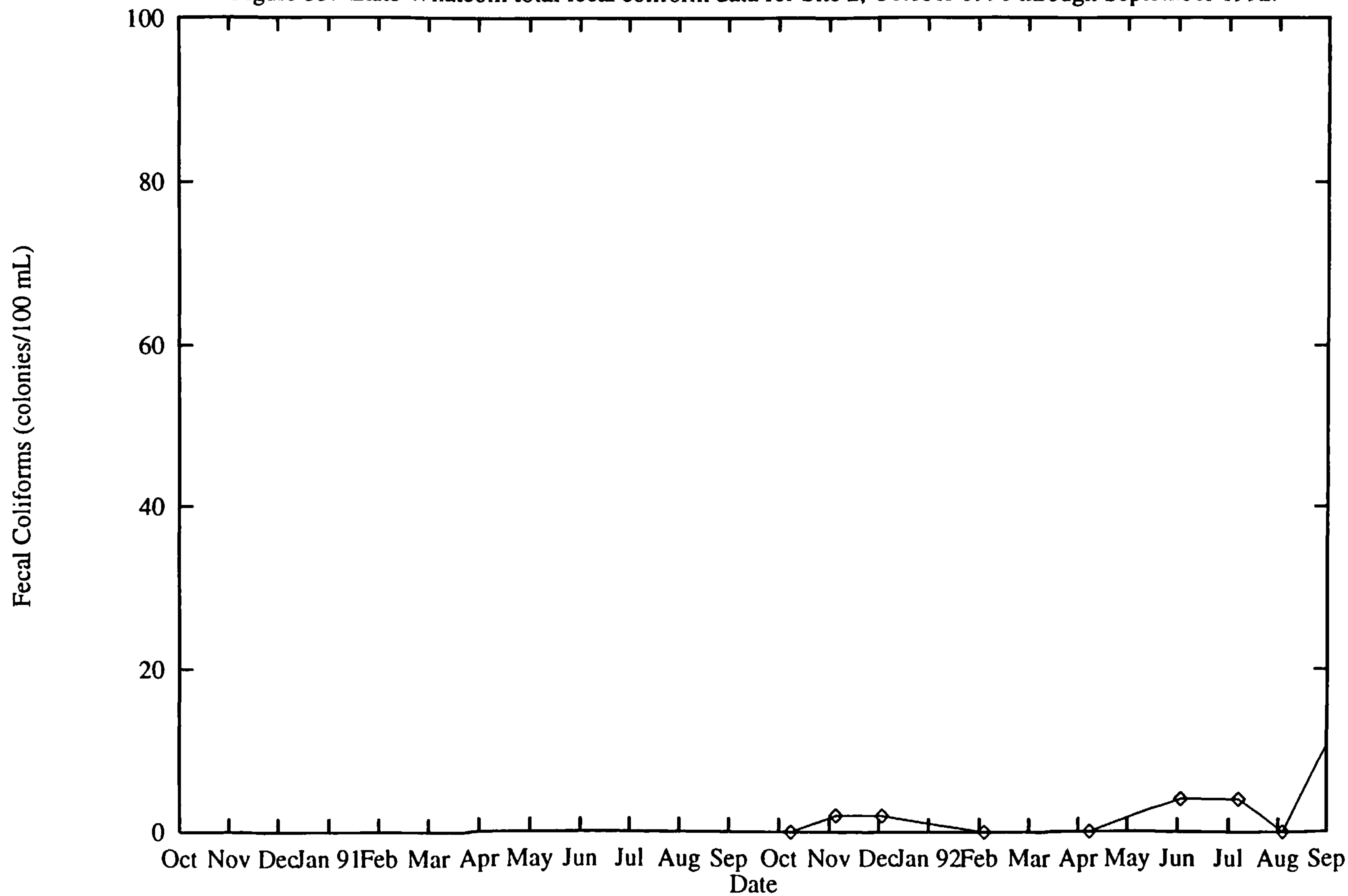


Figure 34: Lake Whatcom total fecal coliform data for Intake site (basin 2), October 1990 through September 1992.

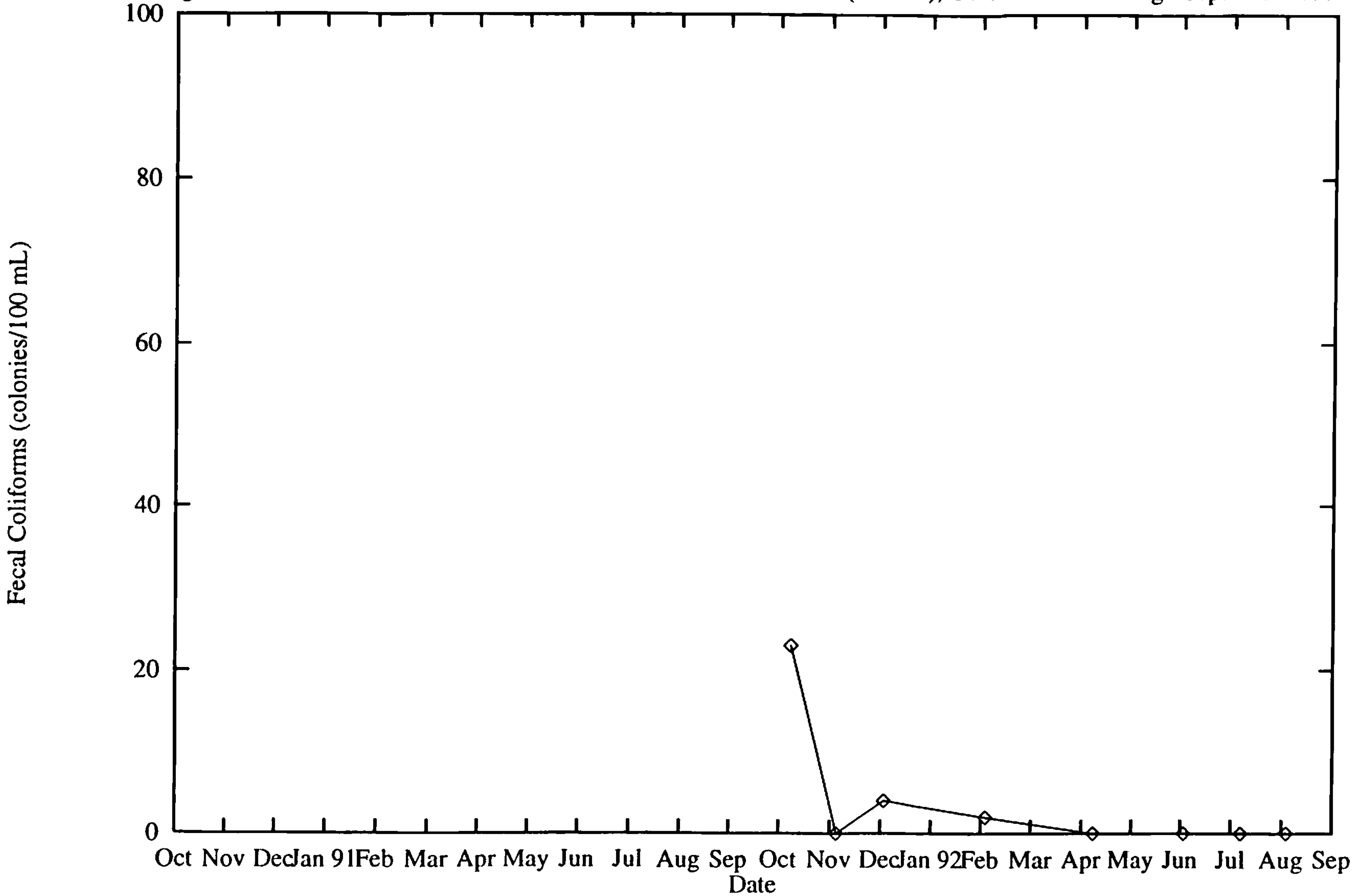


Figure 35: Lake Whatcom total fecal coliform data for Site 3, October 1990 through September 1992.

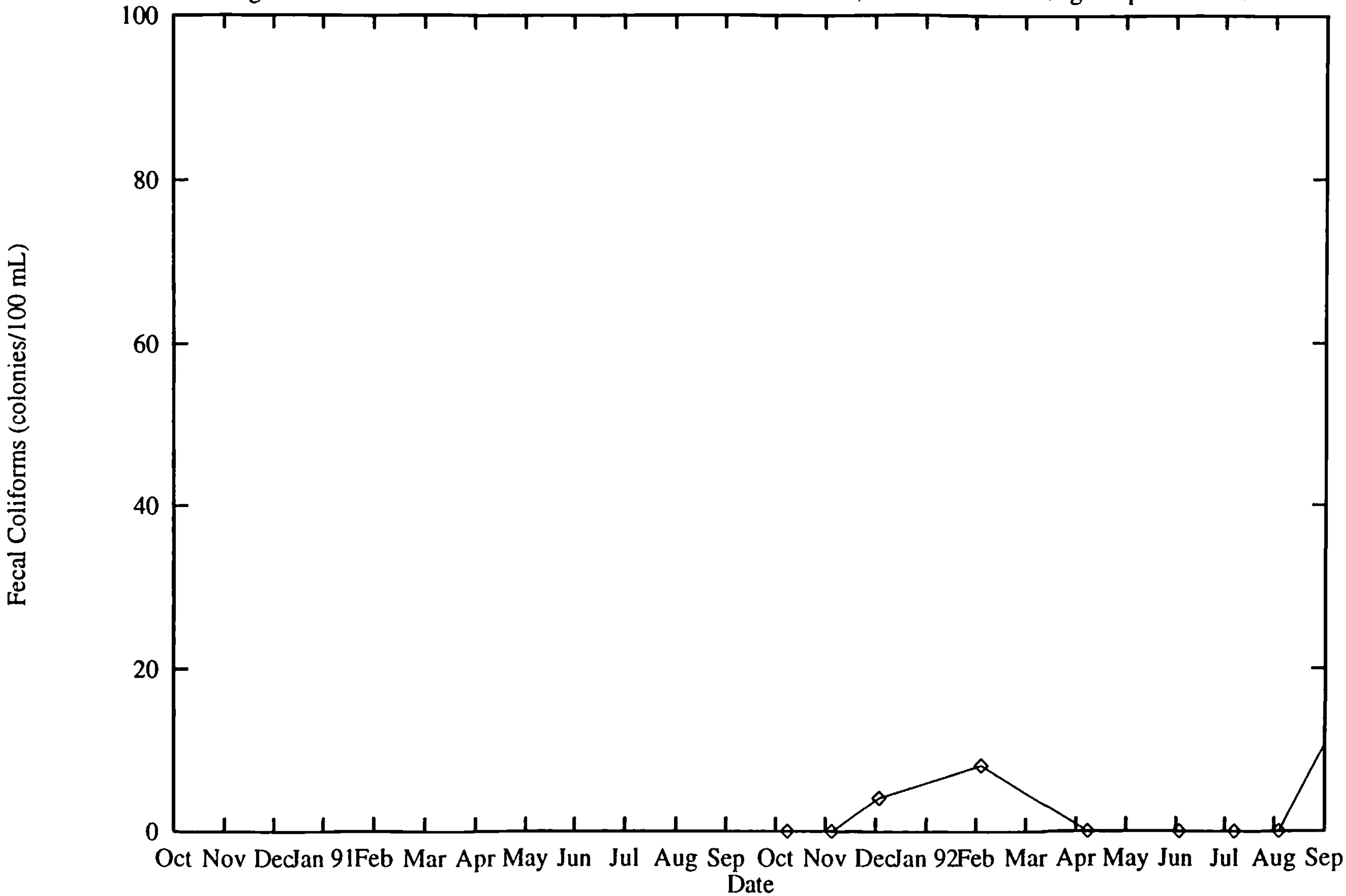


Figure 36: Lake Whatcom total fecal coliform data for Site 4, October 1990 through September 1992.

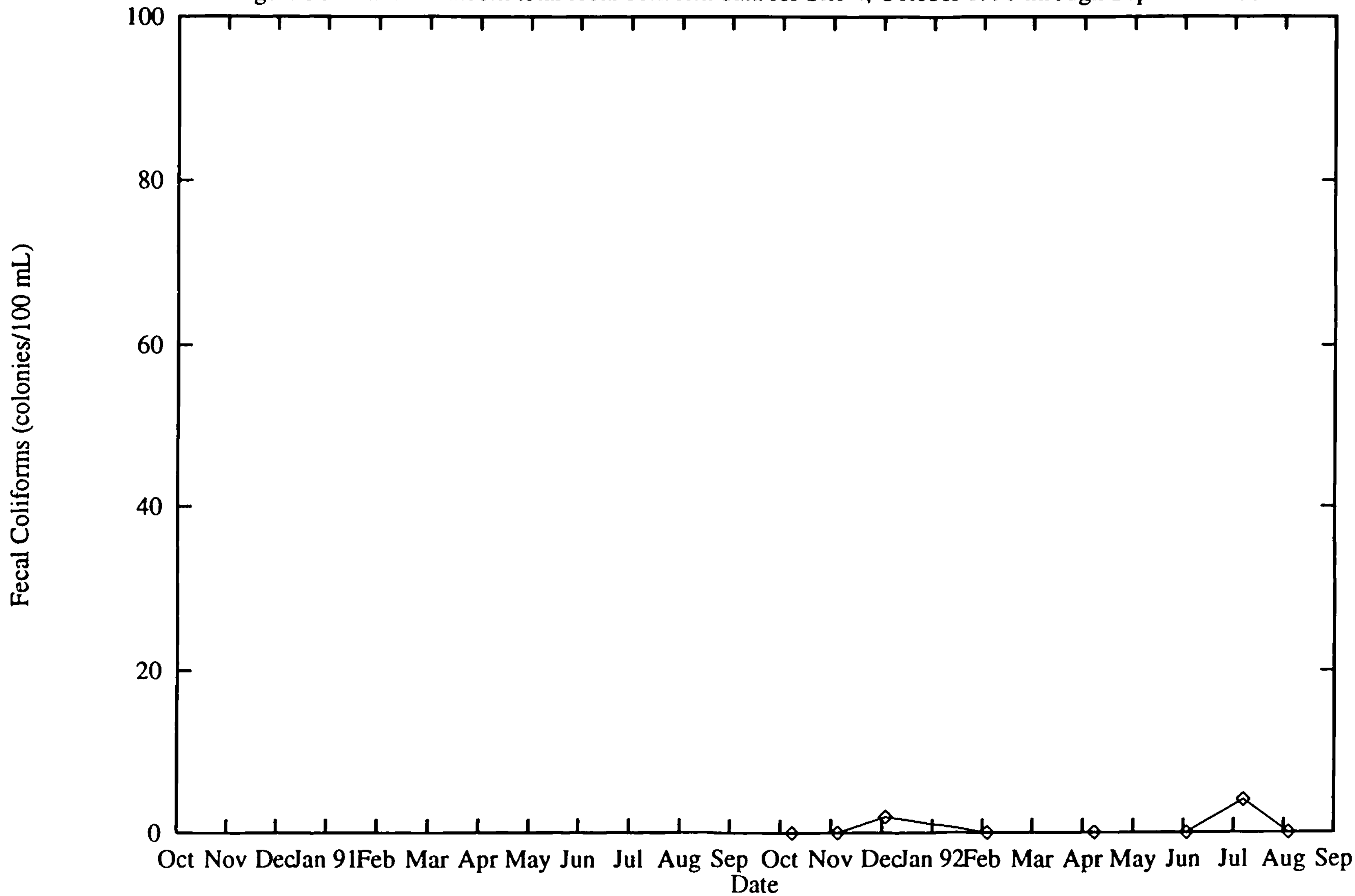


Figure 37: Lake Whatcom total coliform data for Site 1, October 1990 through September 1992.

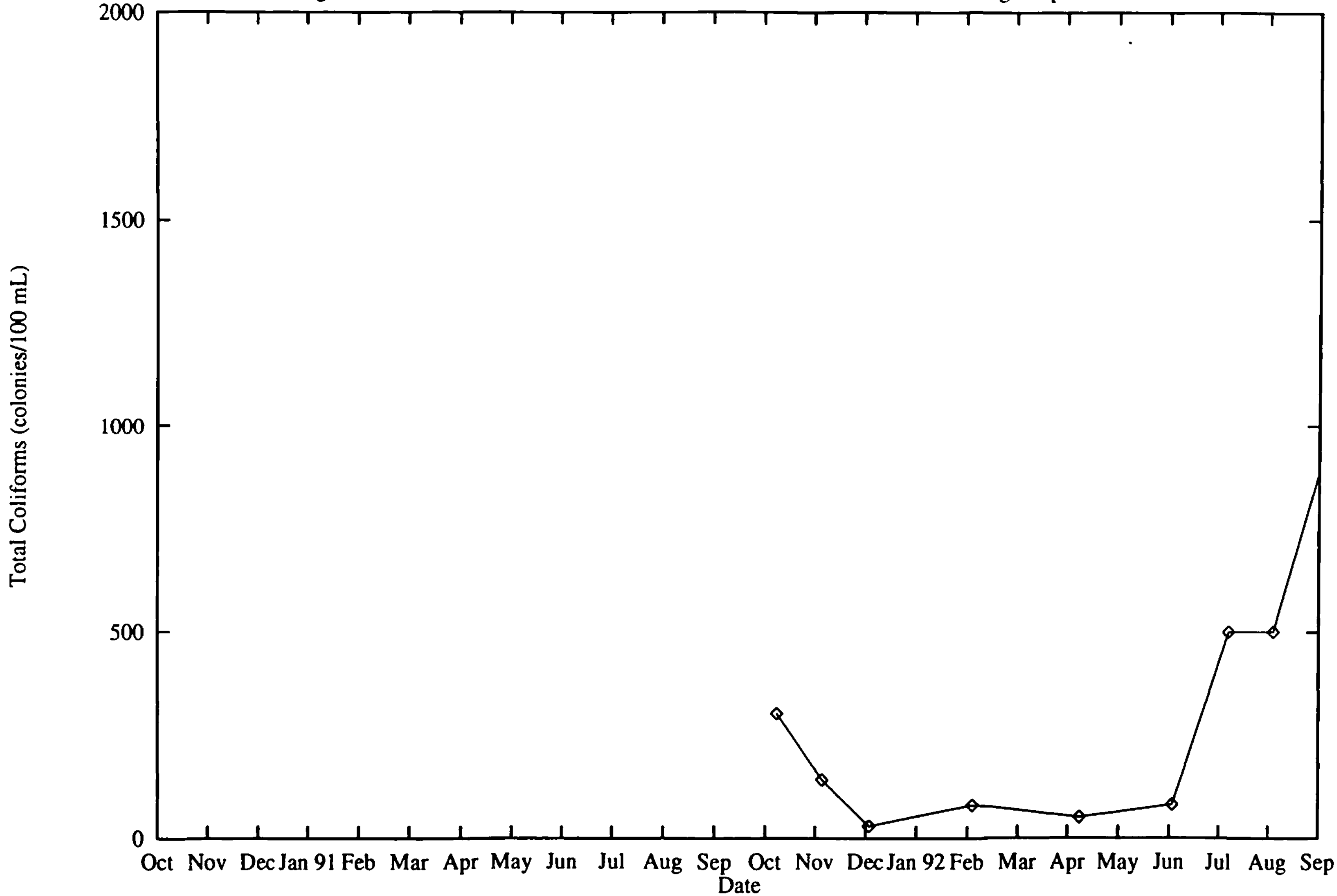


Figure 38: Lake Whatcom total coliform data for Site 2, October 1990 through September 1992.

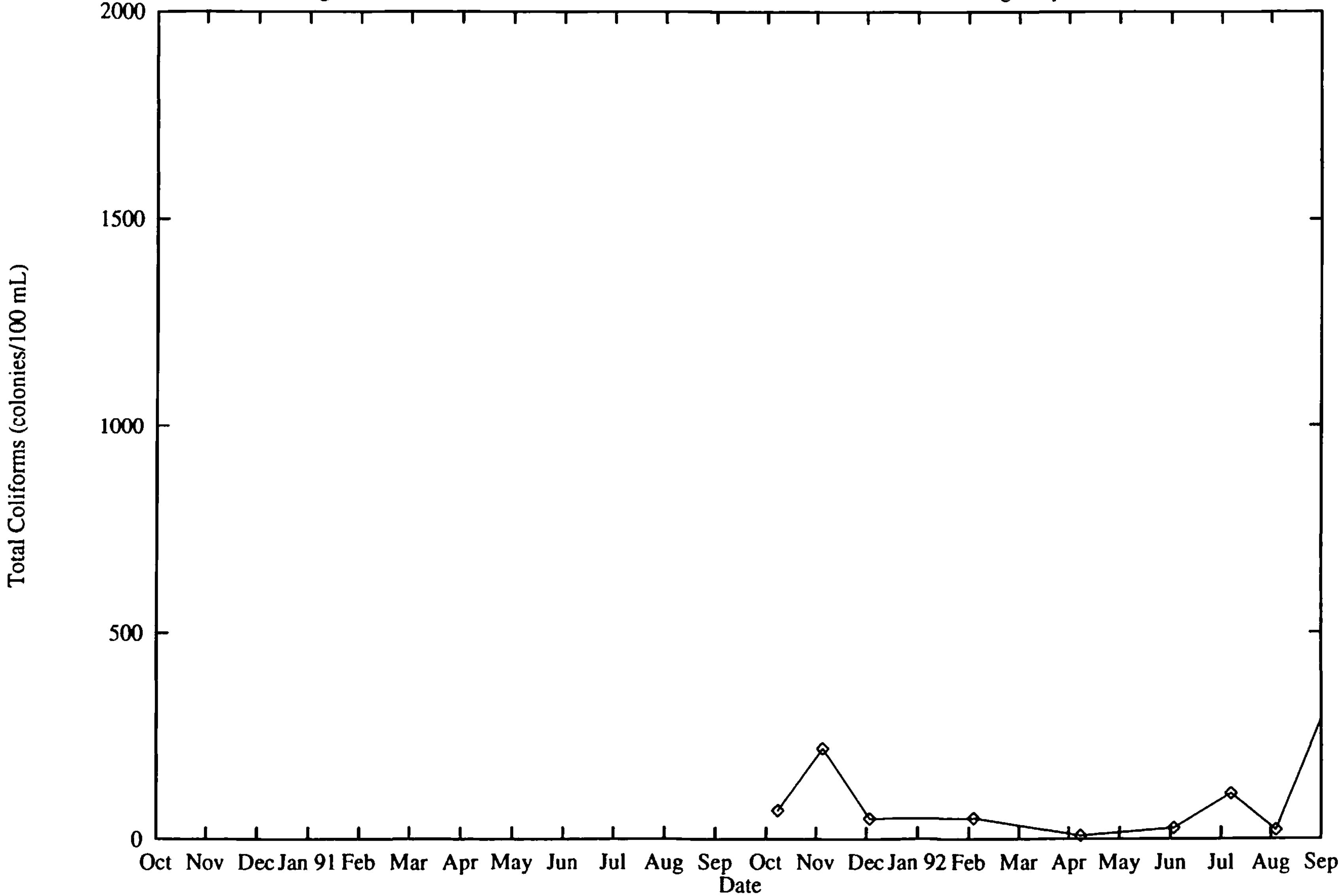


Figure 39: Lake Whatcom total coliform data for Intake site (basin 2), October 1990 through September 1992.

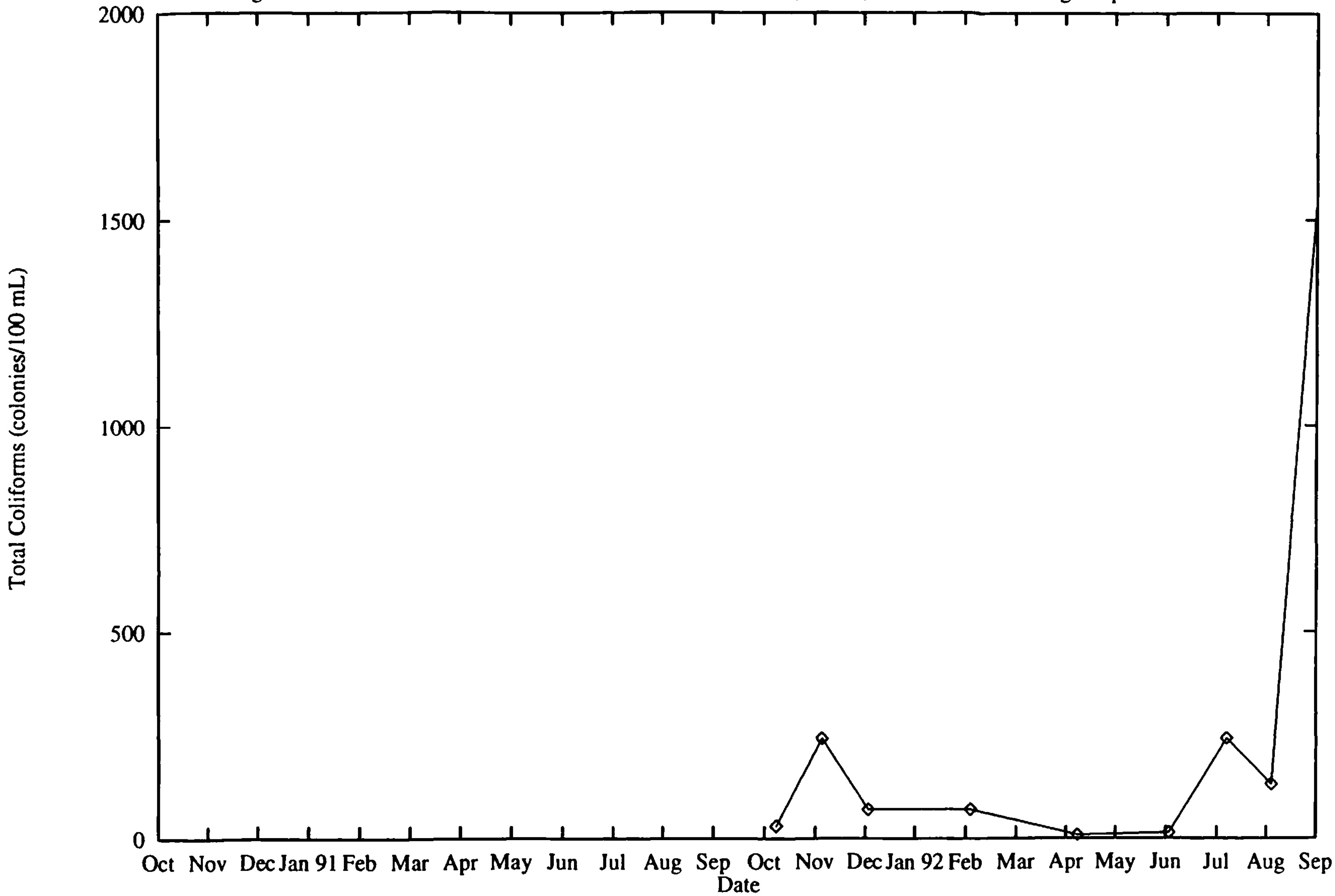


Figure 40: Lake Whatcom total coliform data for Site 3, October 1990 through September 1992.

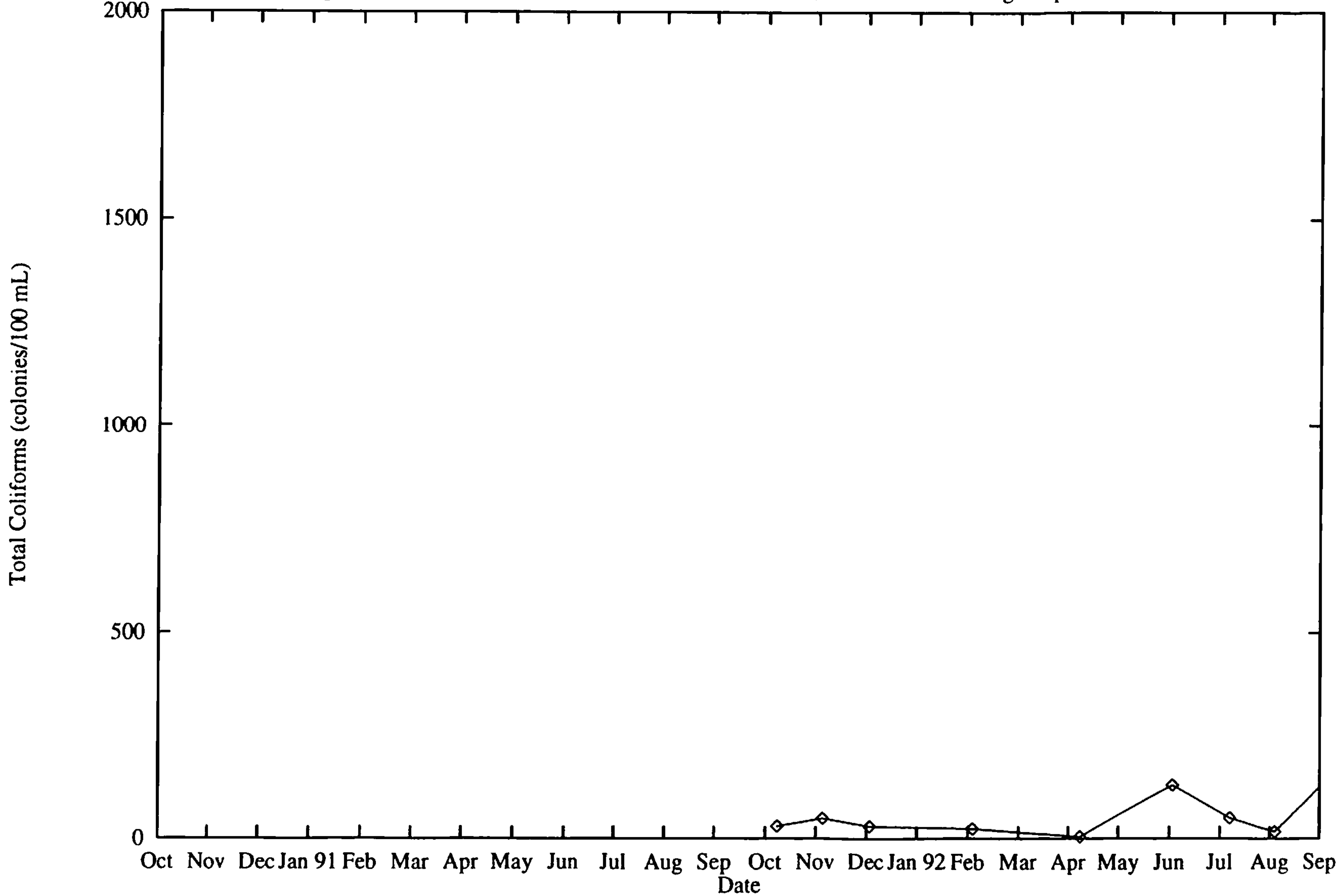


Figure 41: Lake Whatcom total coliform data for Site 4, October 1990 through September 1992.

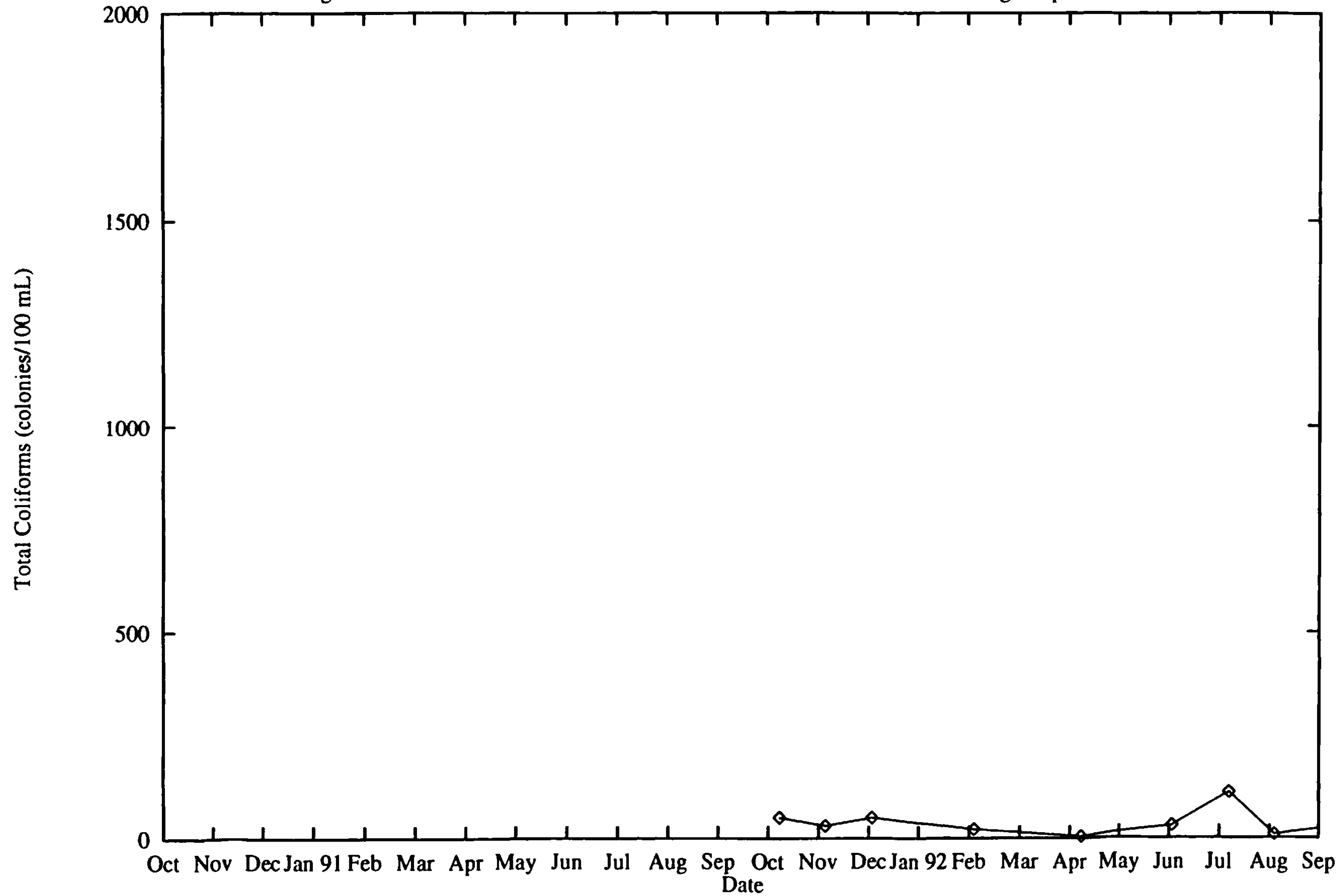
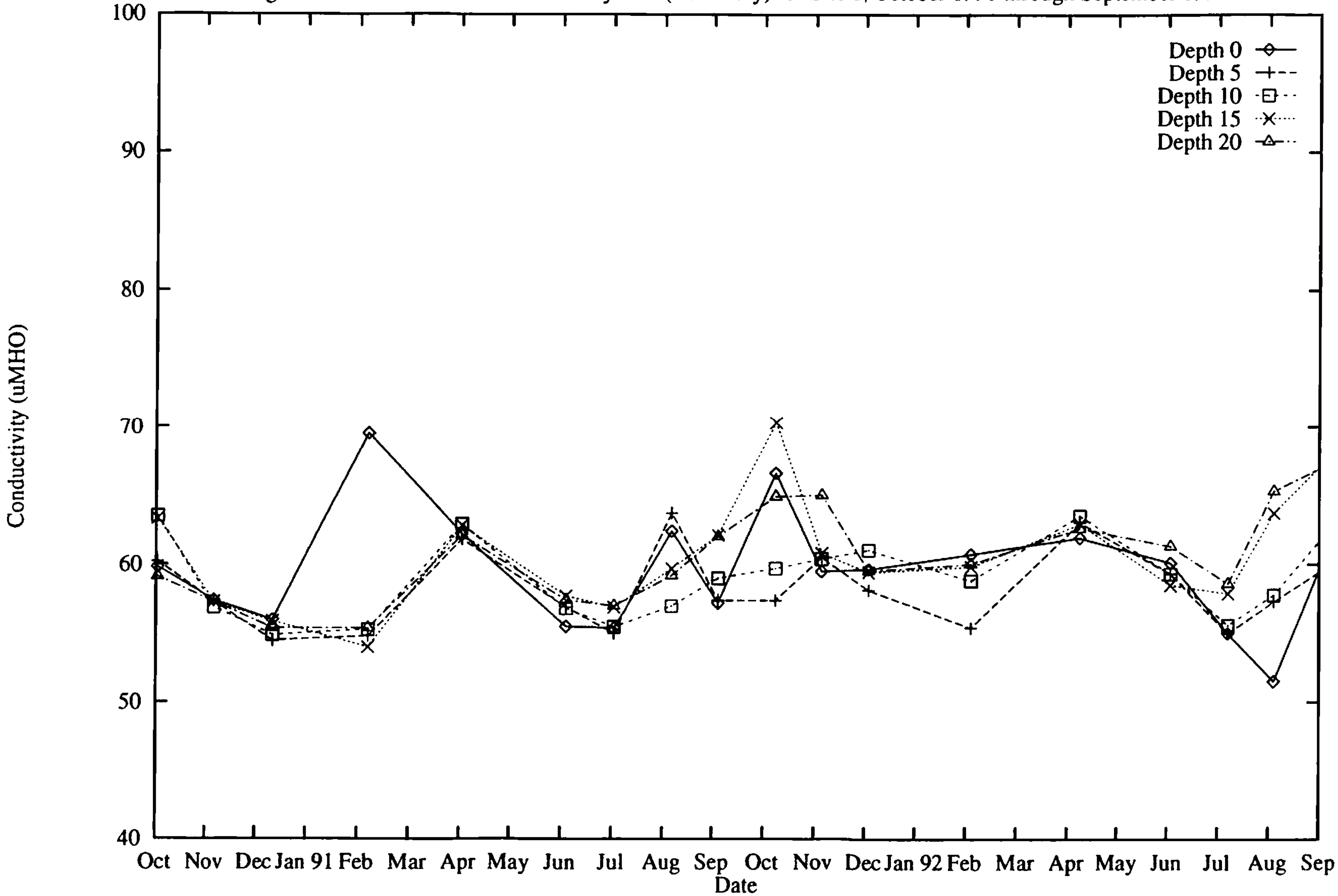
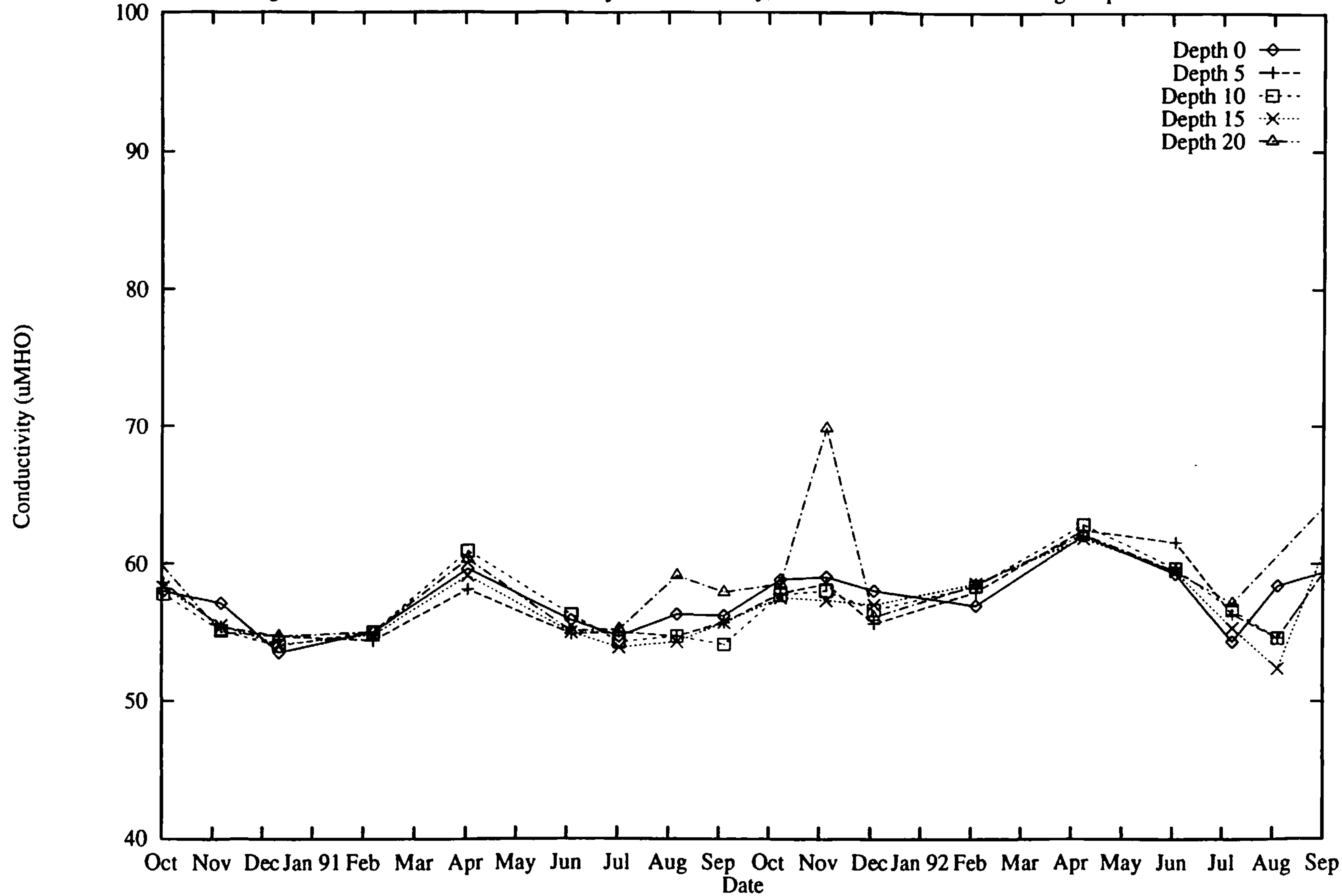


Figure 42: Lake Whatcom conductivity data (laboratory) for Site 1, October 1990 through September 1992.



Note: Actual depth at 20 m for November 1990 data was 19.7 m.

Figure 43: Lake Whatcom conductivity data (laboratory) for Site 2, October 1990 through September 1992.



Note: Actual depth at 20 m for November 1990 data was 18.5 m.

Figure 44: Lake Whatcom conductivity data (laboratory) for Intake site (basin 2), October 1990 through September 1992.

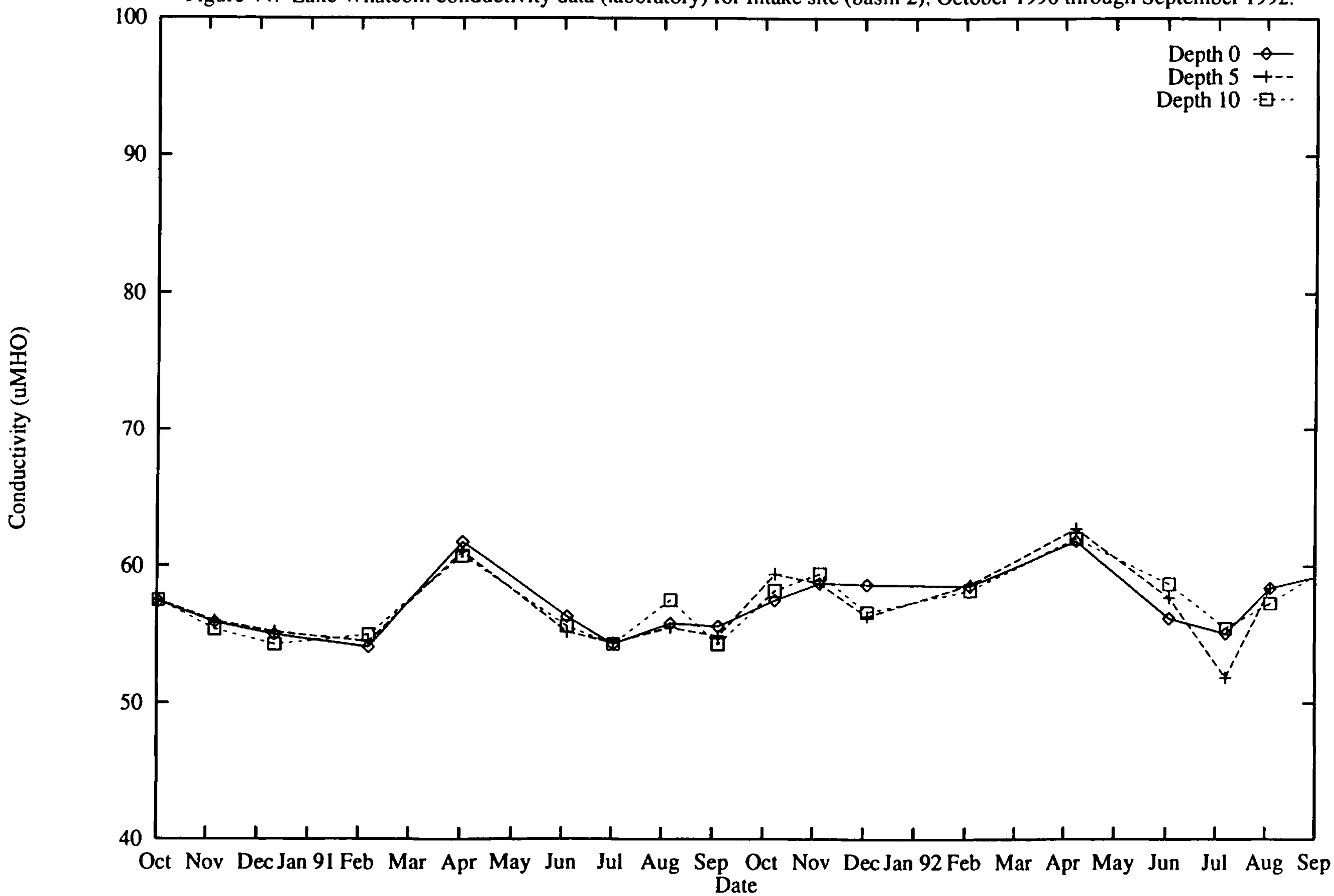


Figure 45: Lake Whatcom conductivity data (laboratory) for Site 3, October 1990 through September 1992.

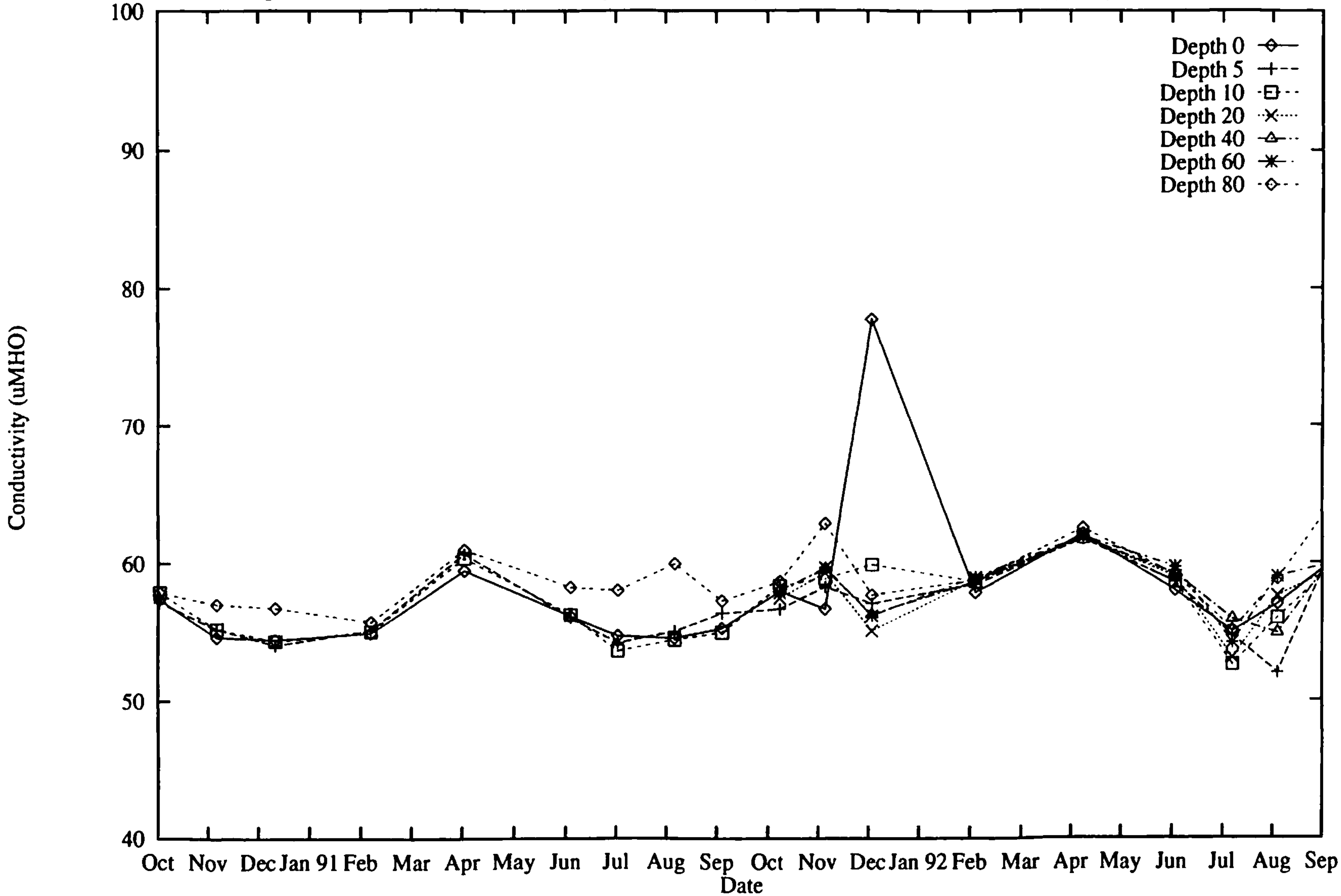


Figure 46: Lake Whatcom conductivity data (laboratory) for Site 4, October 1990 through September 1992.

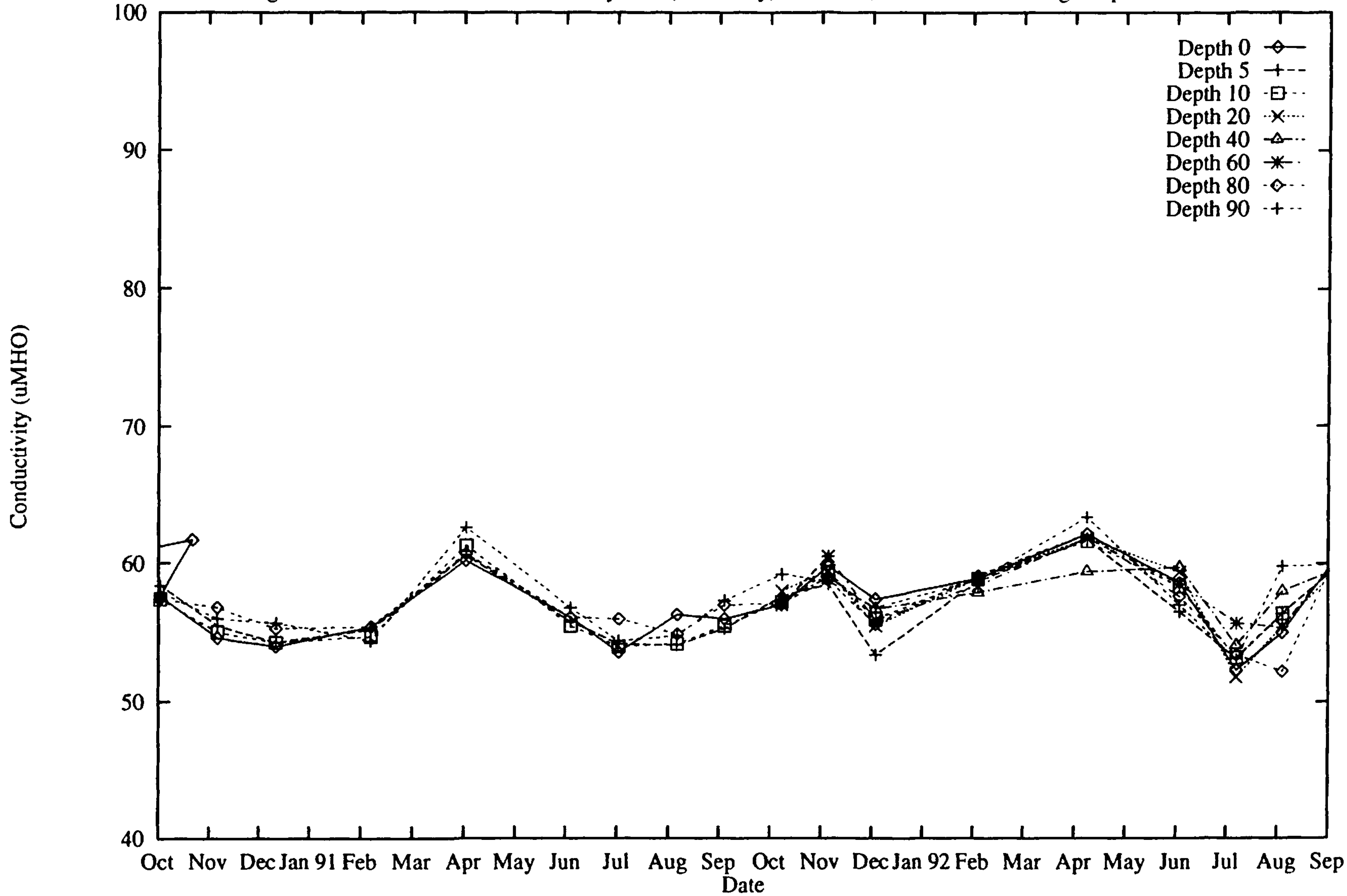
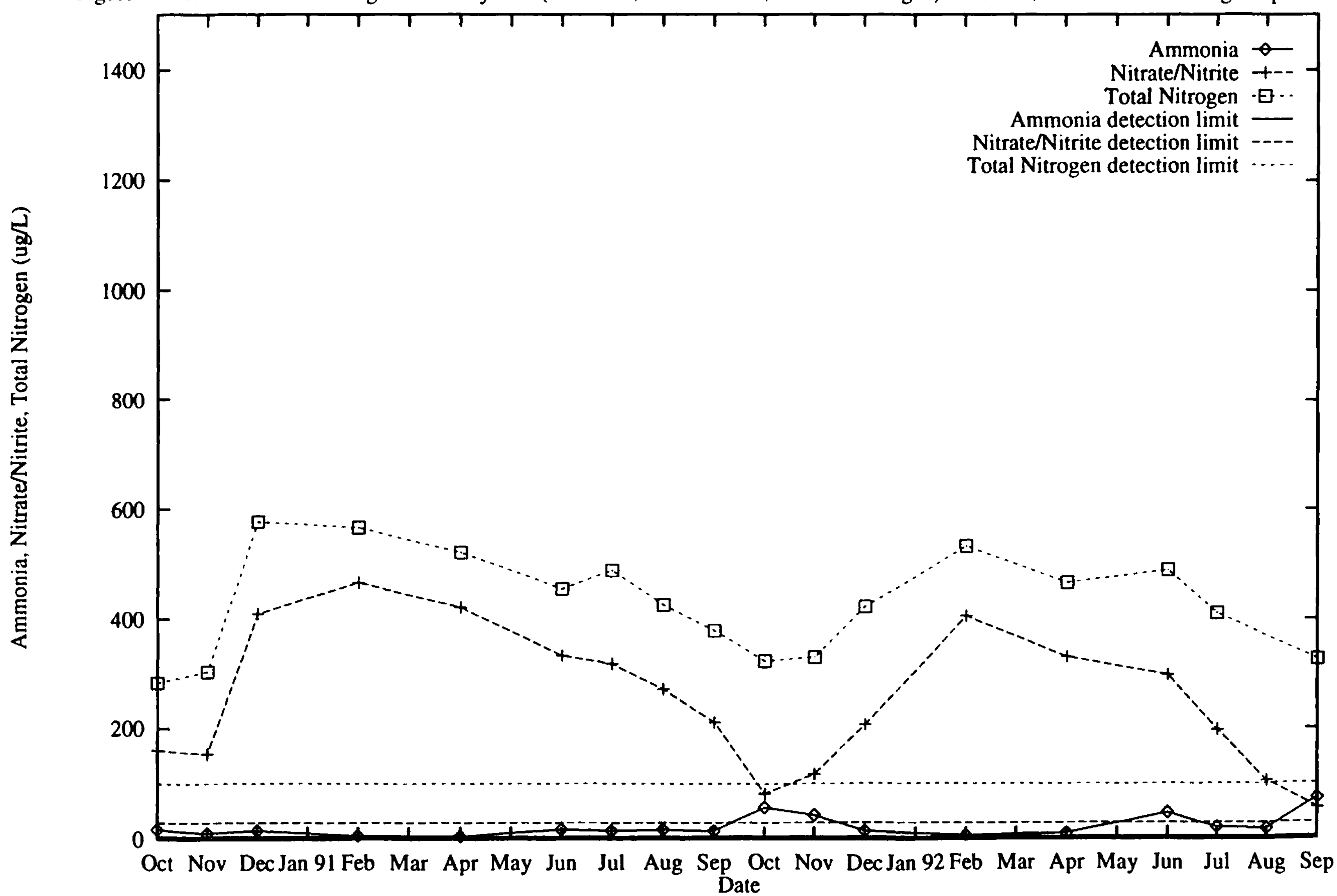
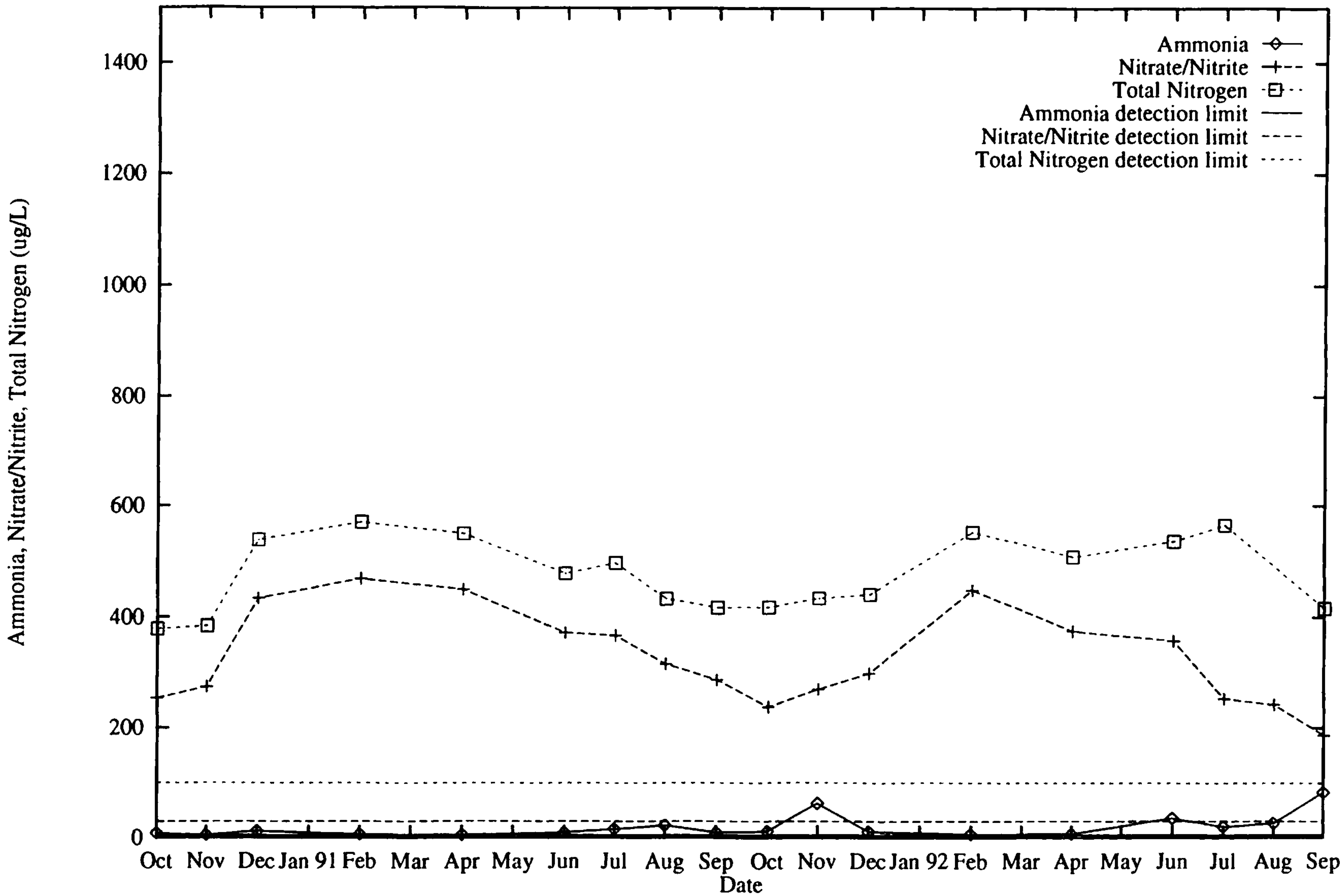


Figure 47: Lake Whatcom nitrogen summary data (ammonia, nitrate/nitrite, and total nitrogen) for Site 1, October 1990 through September 1992.



Note: Actual depth at 20 m for November 1990 data was 19.7 m.

Figure 48: Lake Whatcom nitrogen summary data (ammonia, nitrate/nitrite, and total nitrogen) for Site 2, October 1990 through September 1992.



Note: Actual depth at 20 m for November 1990 data was 18.5 m.

Figure 49: Lake Whatcom nitrogen summary data (ammonia, nitrate/nitrite, and total nitrogen) for Intake site (basin 2), October 1990 through September 1992.

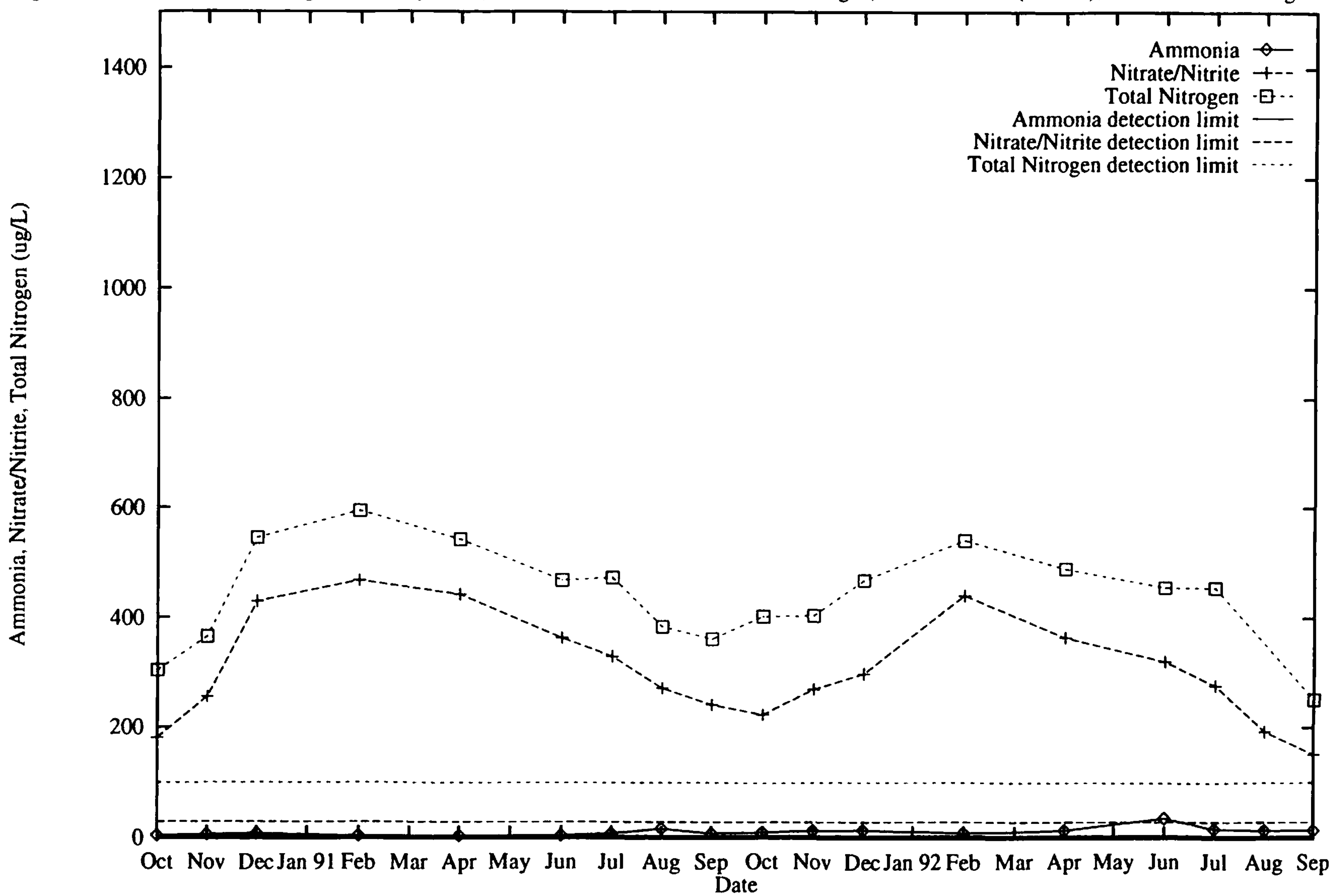


Figure 50: Lake Whatcom nitrogen summary data (ammonia, nitrate/nitrite, and total nitrogen) for Site 3, October 1990 through September 1992.

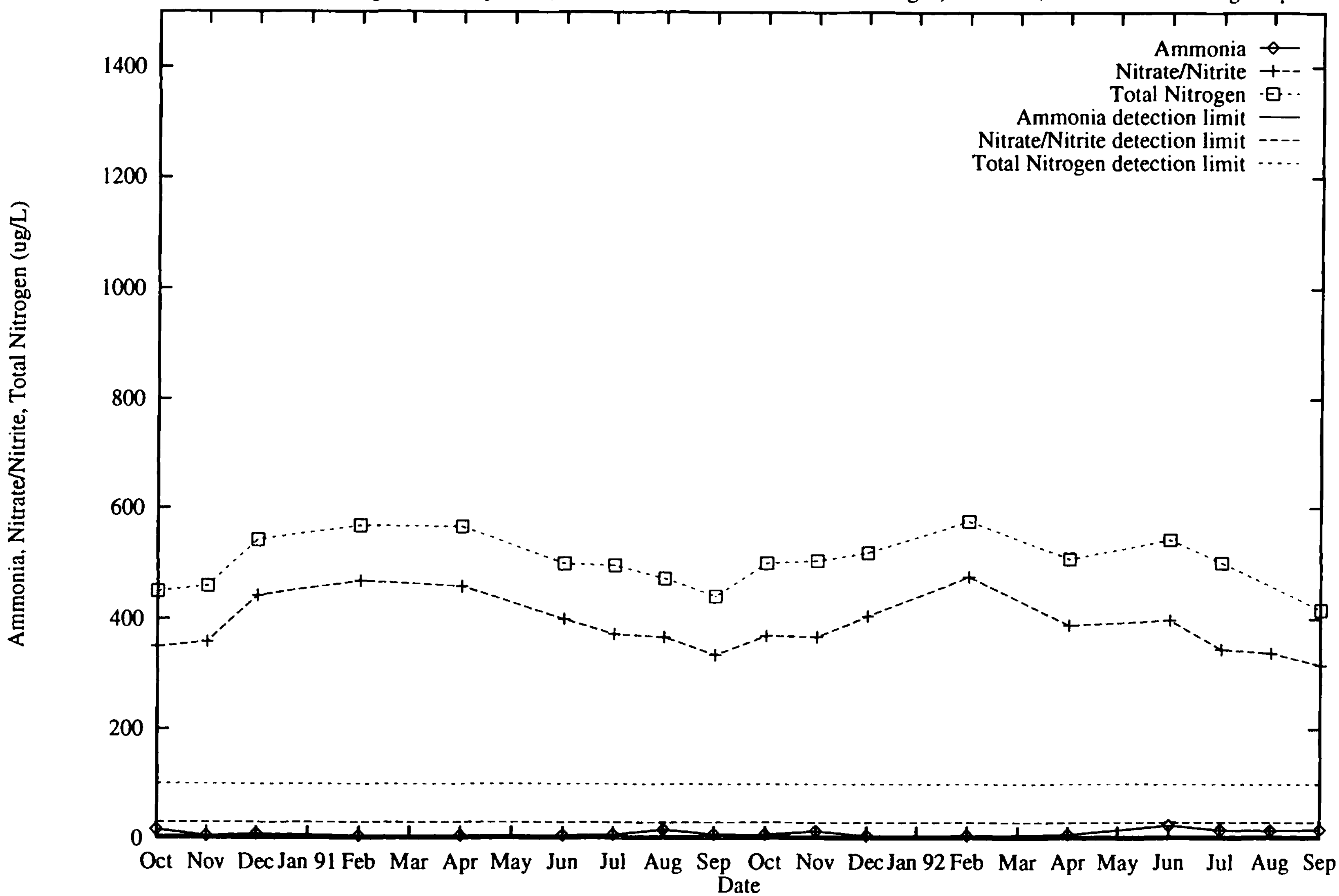


Figure 51: Lake Whatcom nitrogen summary data (ammonia, nitrate/nitrite, and total nitrogen) for Site 4, October 1990 through September 1992.

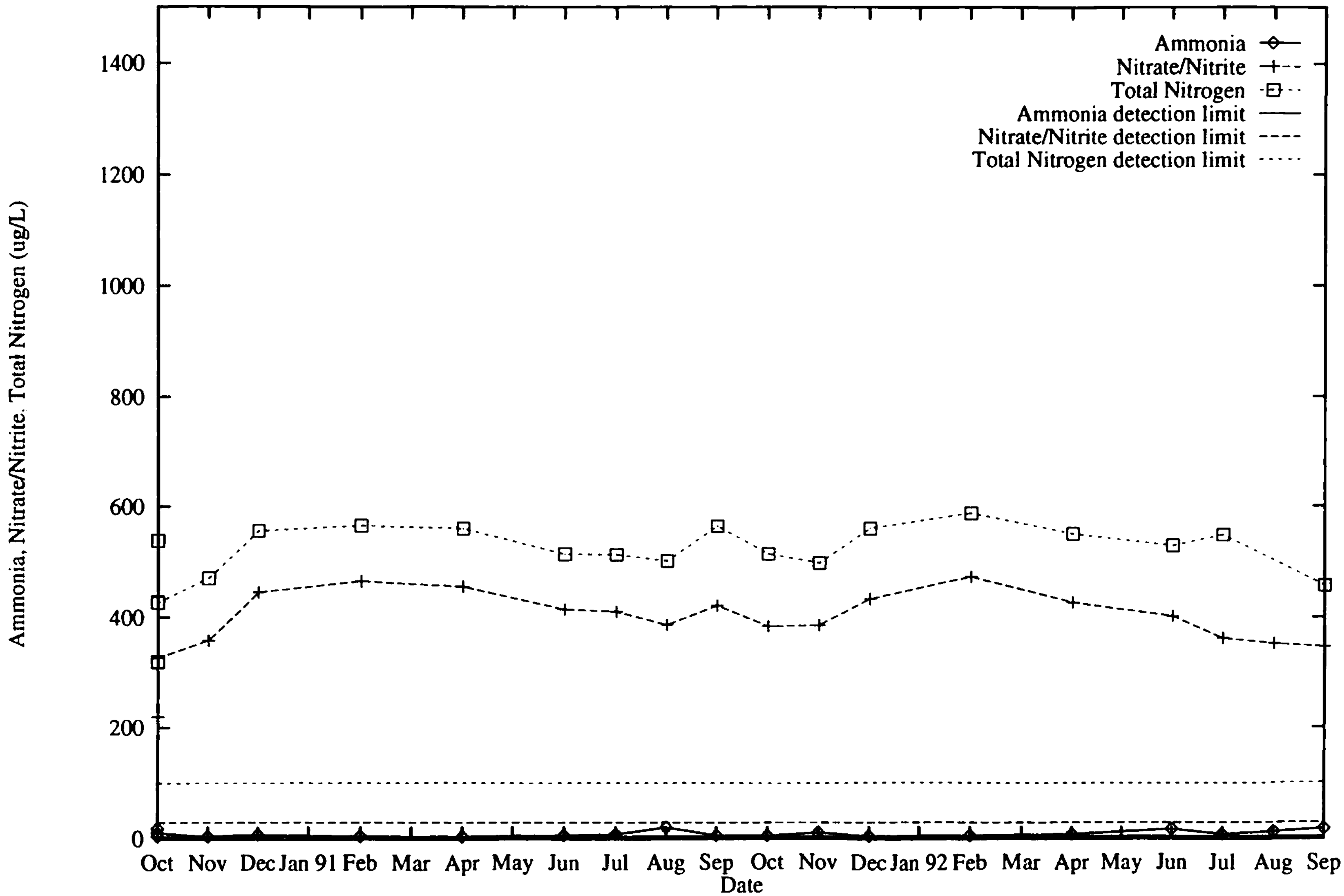
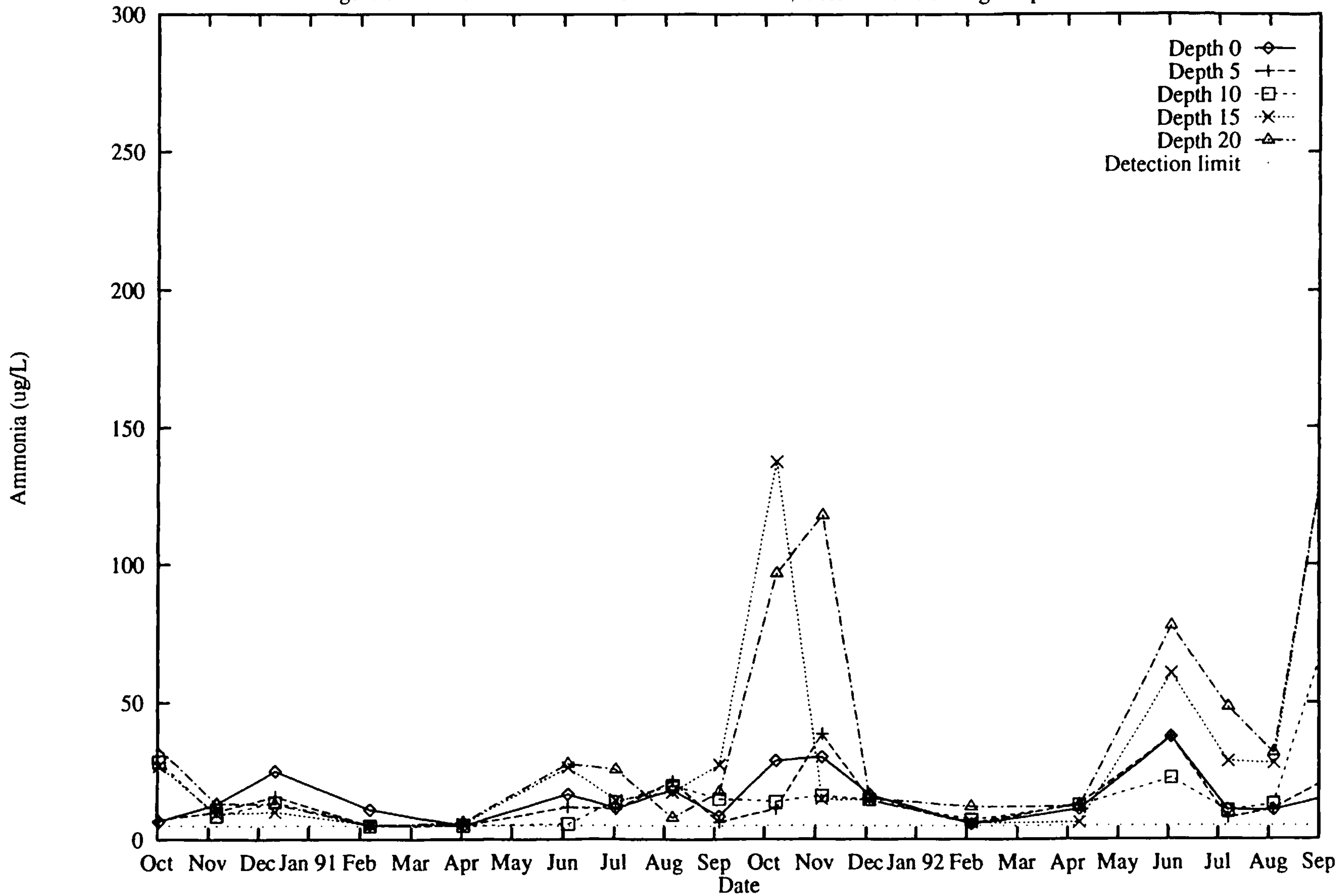
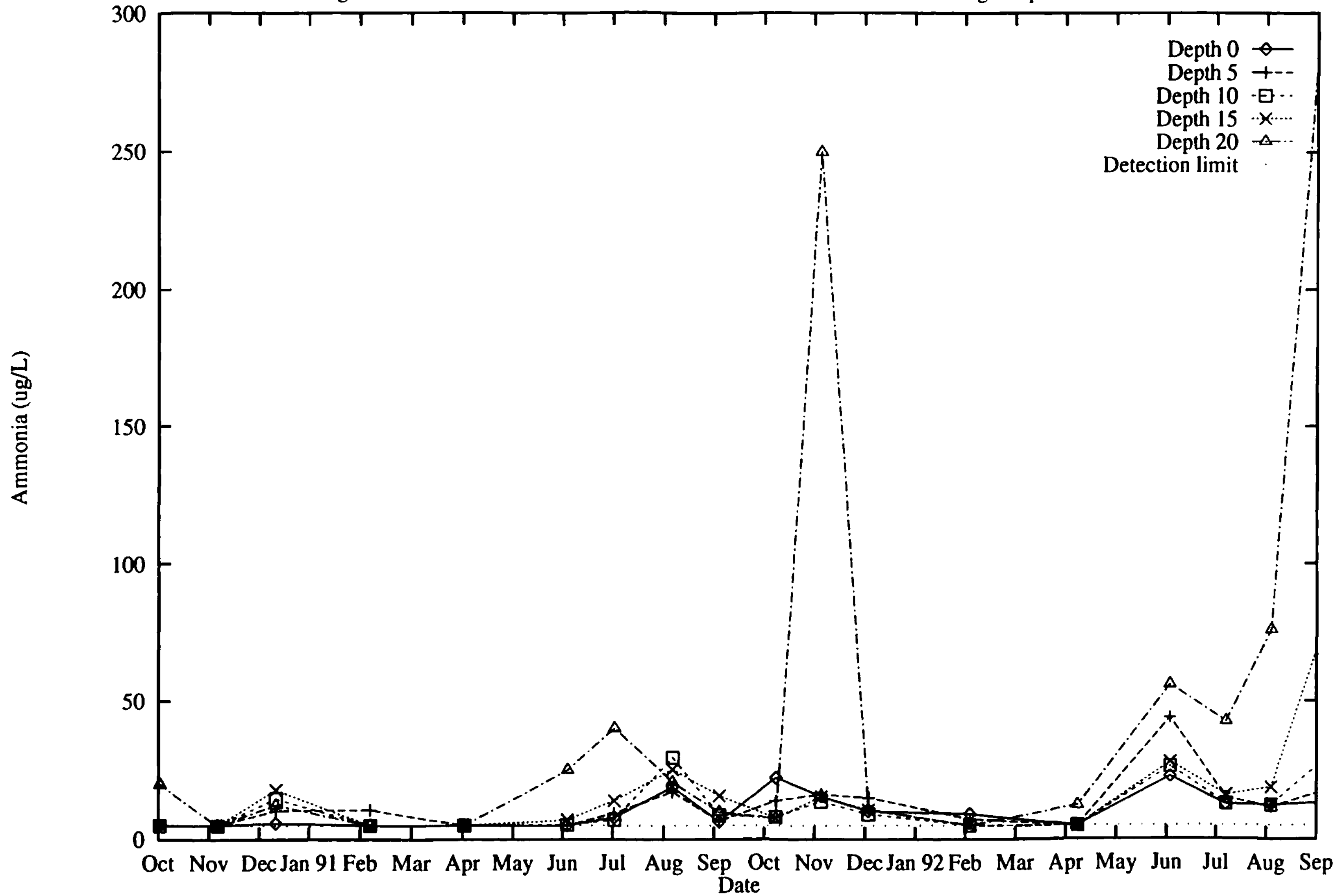


Figure 52: Lake Whatcom ammonia data for Site 1, October 1990 through September 1992.



Note: Actual depth at 20 m for November 1990 data was 19.7 m.

Figure 53: Lake Whatcom ammonia data for Site 2, October 1990 through September 1992.



Note: Actual depth at 20 m for November 1990 data was 18.5 m.

Figure 54: Lake Whatcom ammonia data for Intake site (basin 2), October 1990 through September 1992.

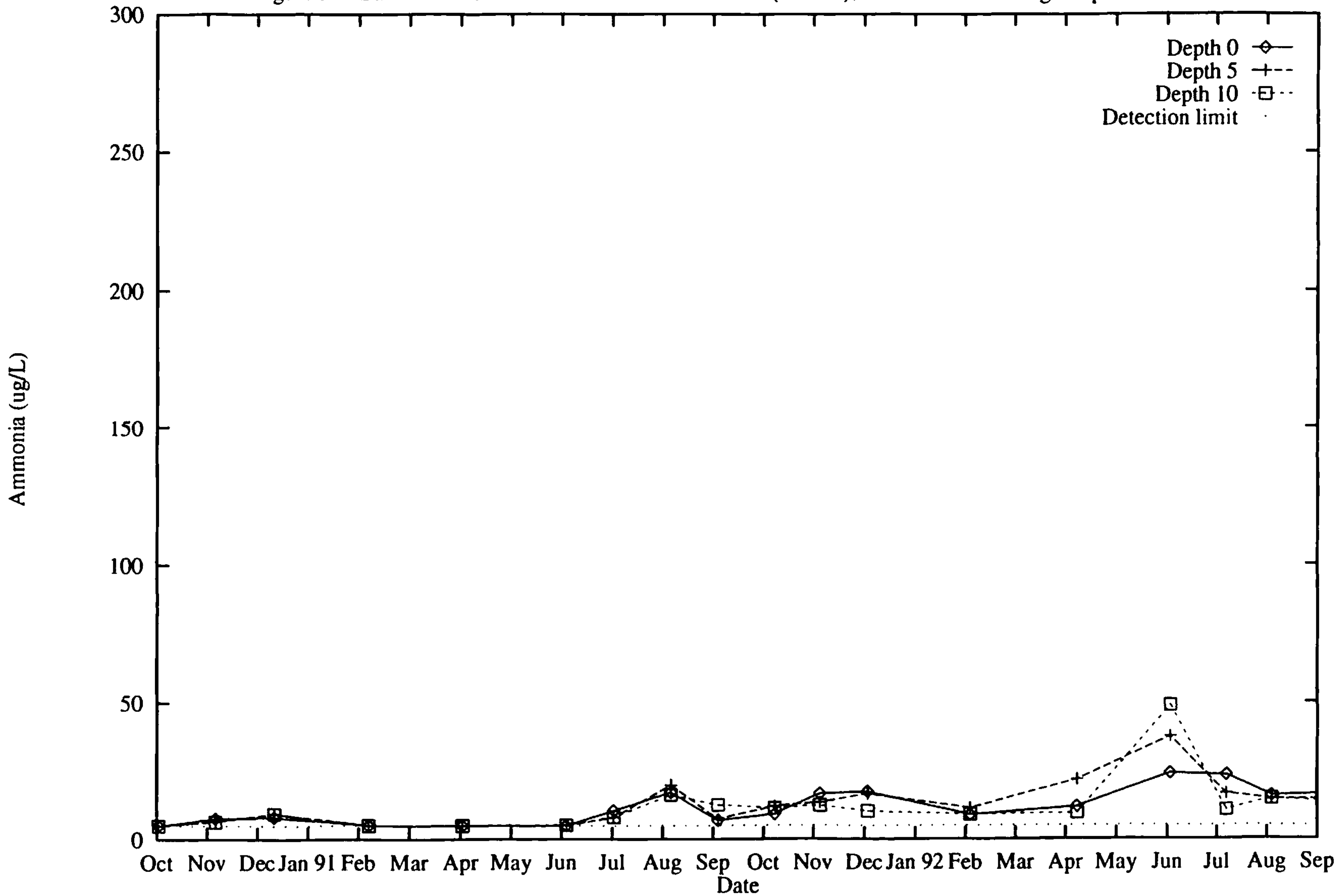


Figure 55: Lake Whatcom ammonia data for Site 3, October 1990 through September 1992.

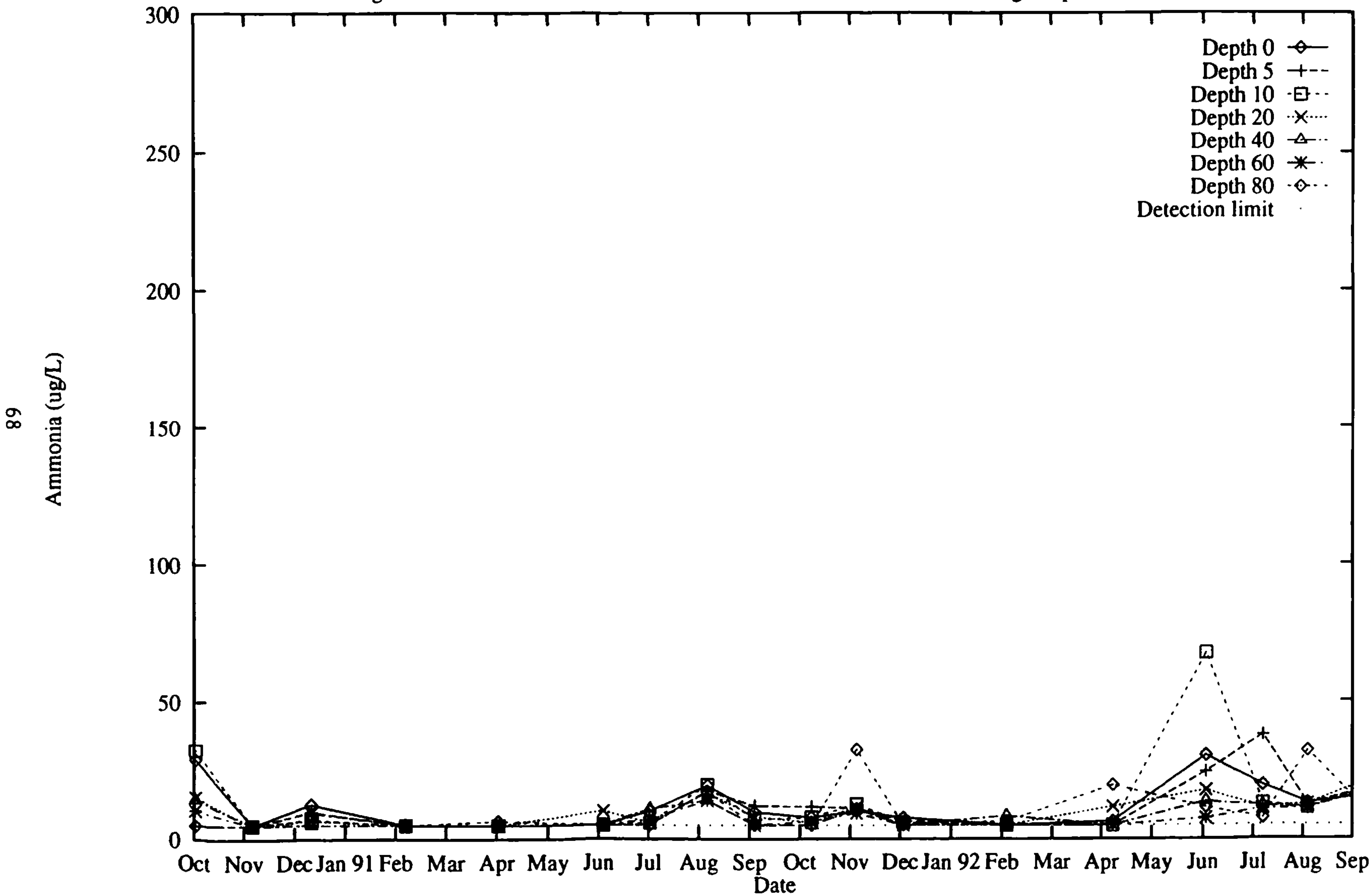


Figure 56: Lake Whatcom ammonia data for Site 4, October 1990 through September 1992.

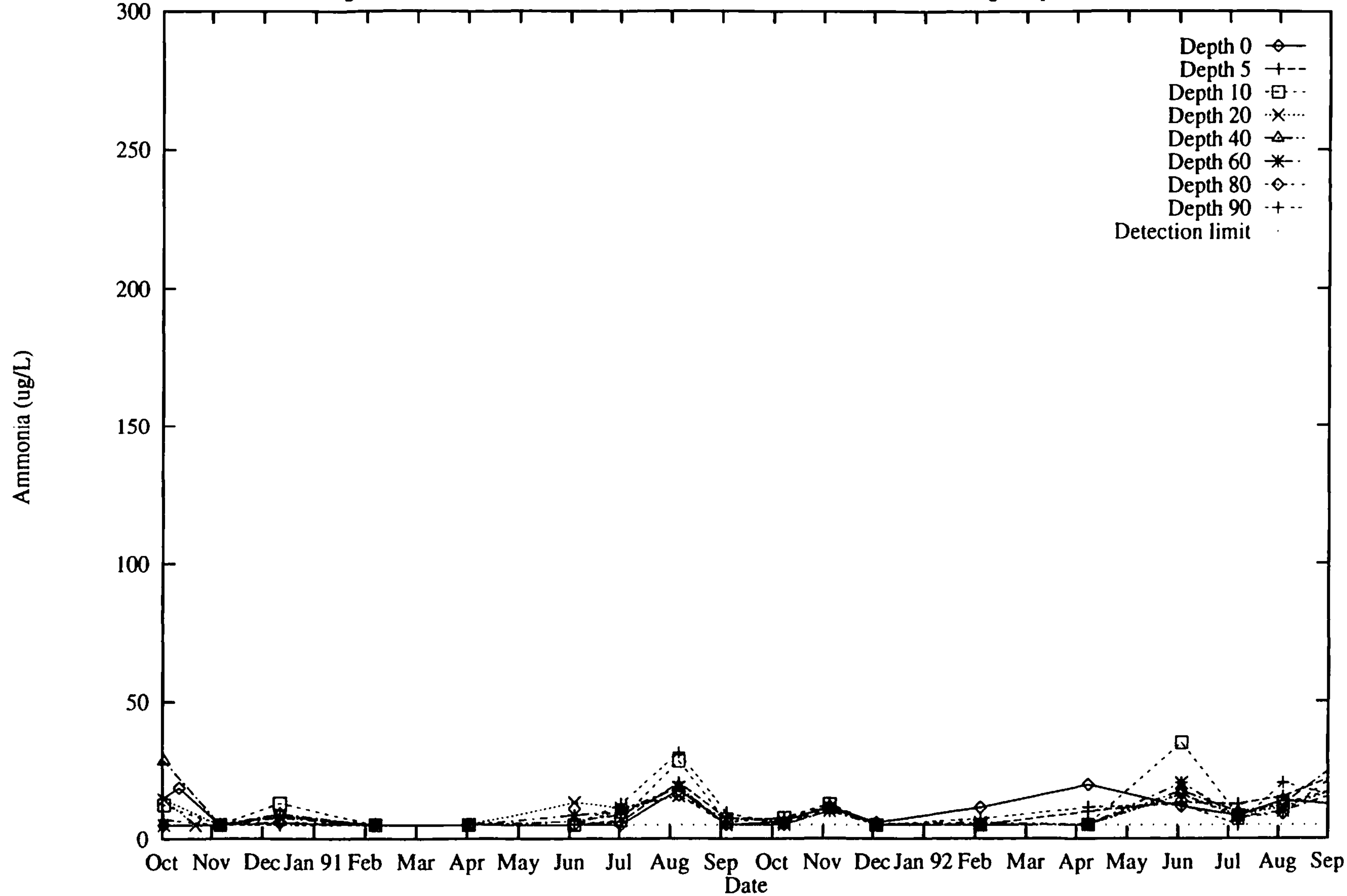
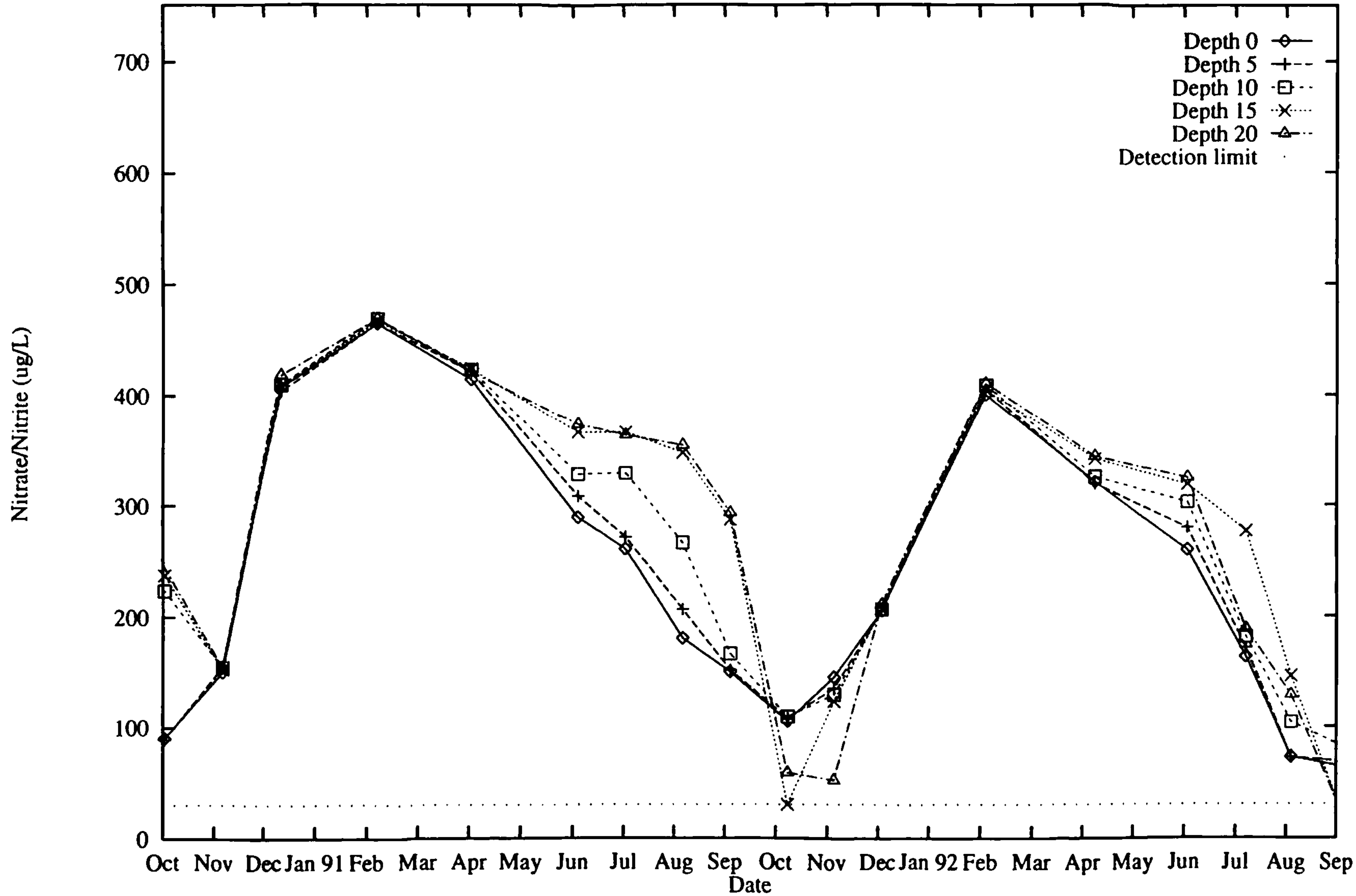
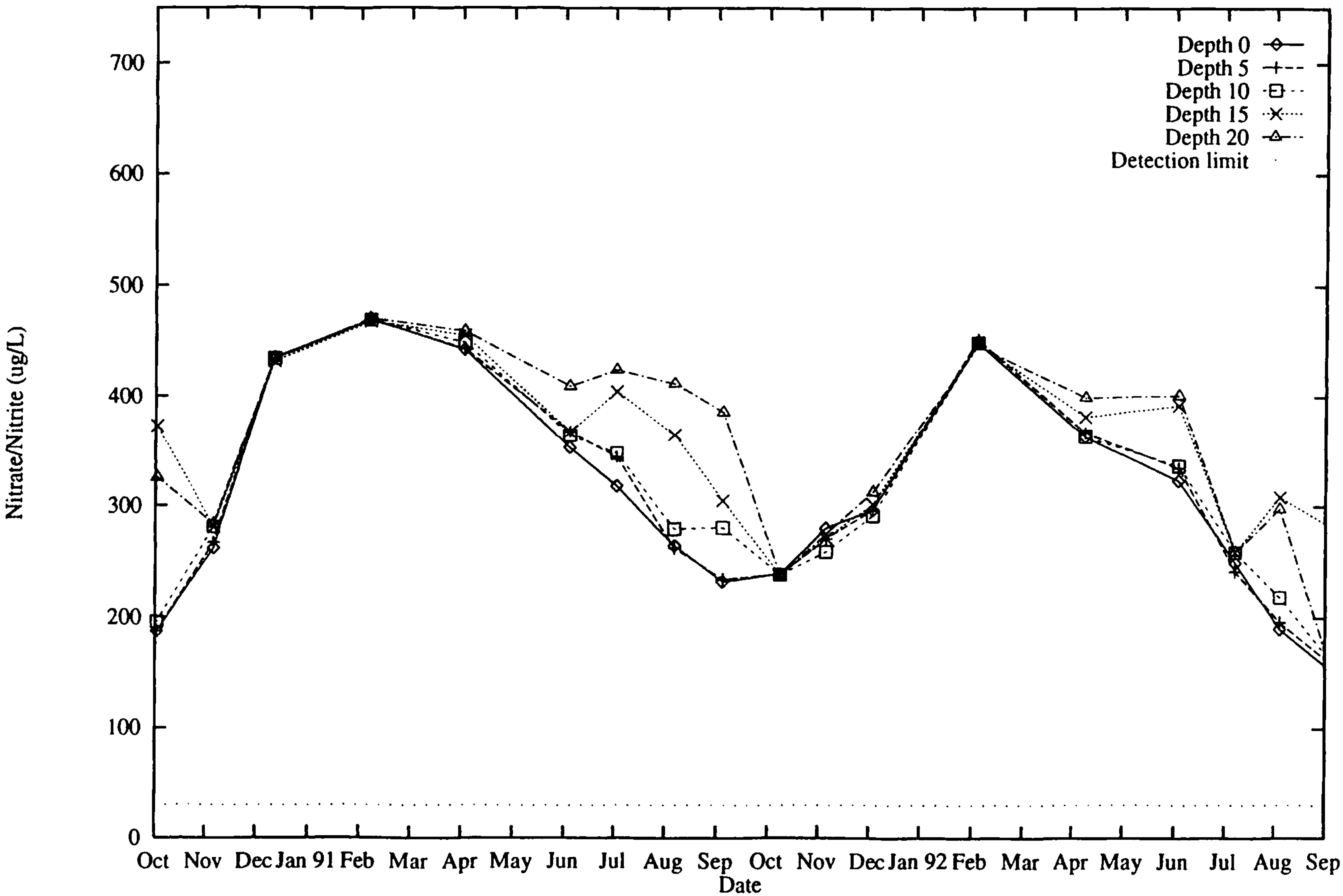


Figure 57: Lake Whatcom nitrate/nitrite data for Site 1, October 1990 through September 1992.



Note: Actual depth at 20 m for November 1990 data was 19.7 m.

Figure 58: Lake Whatcom nitrate/nitrite data for Site 2, October 1990 through September 1992.



Note: Actual depth at 20 m for November 1990 data was 18.5 m.

Figure 59: Lake Whatcom nitrate/nitrite data for Intake site (basin 2), October 1990 through September 1992.

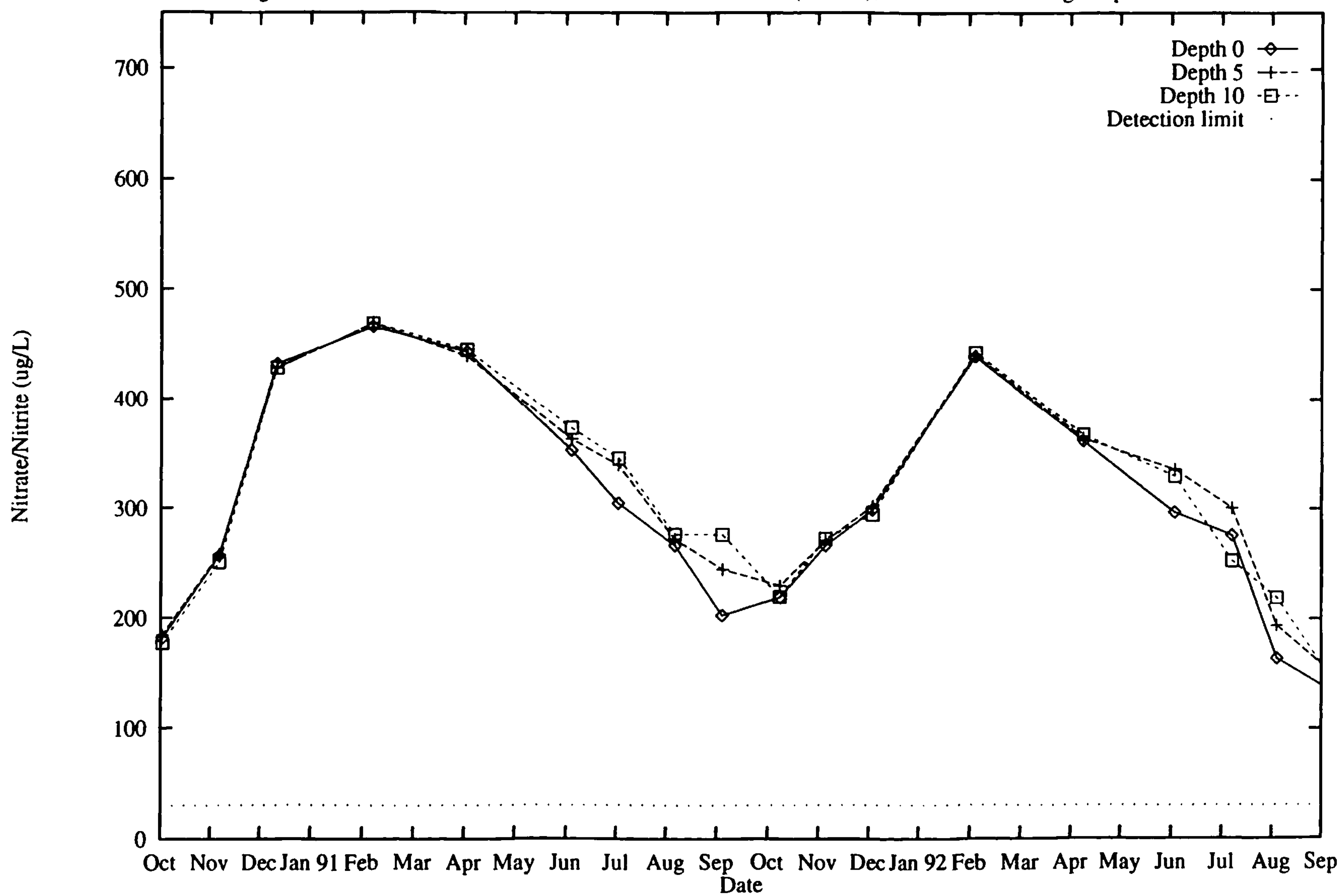


Figure 60: Lake Whatcom nitrate/nitrite data for Site 3, October 1990 through September 1992.

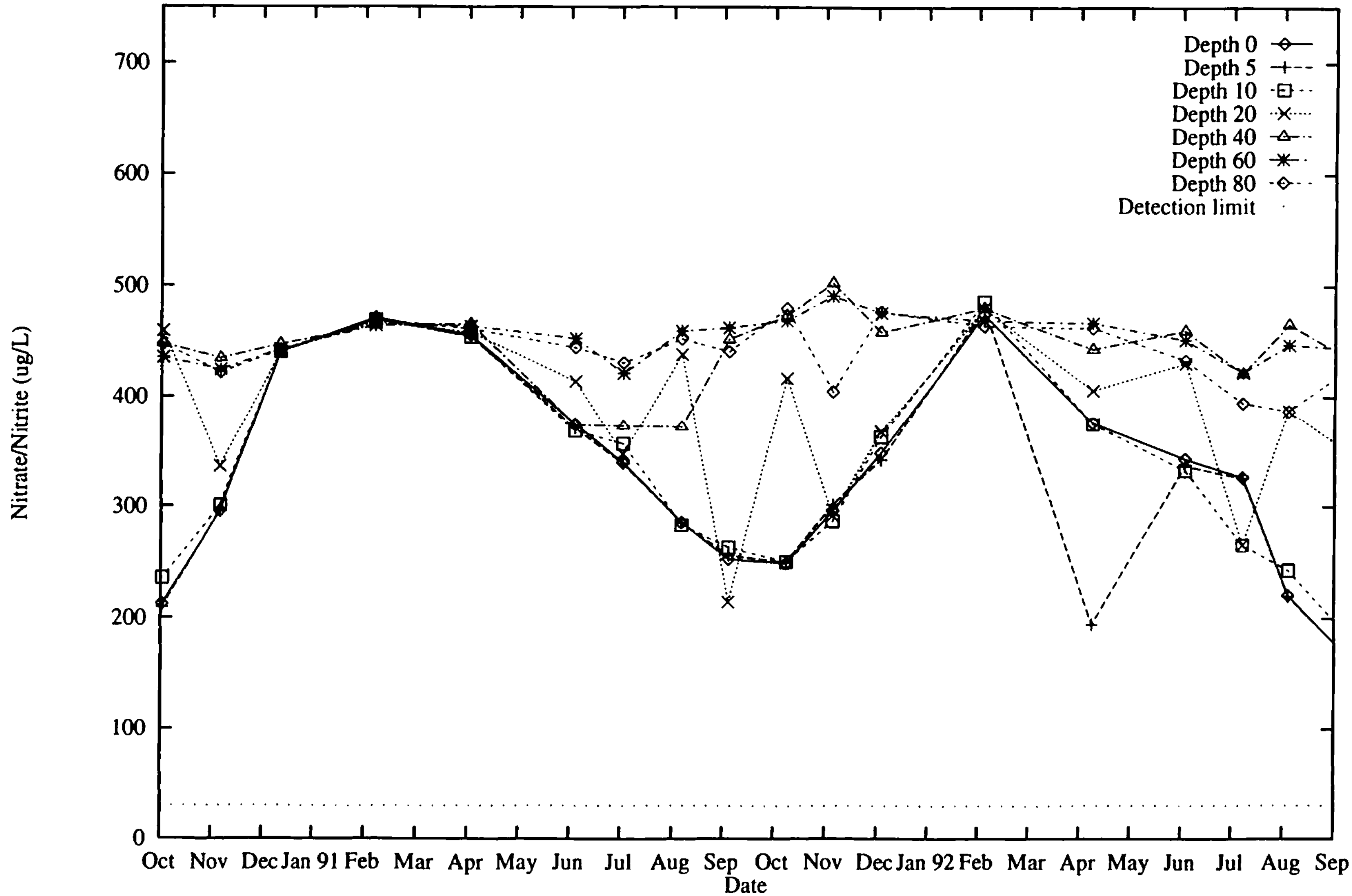


Figure 61: Lake Whatcom nitrate/nitrite data for Site 4, October 1990 through September 1992.

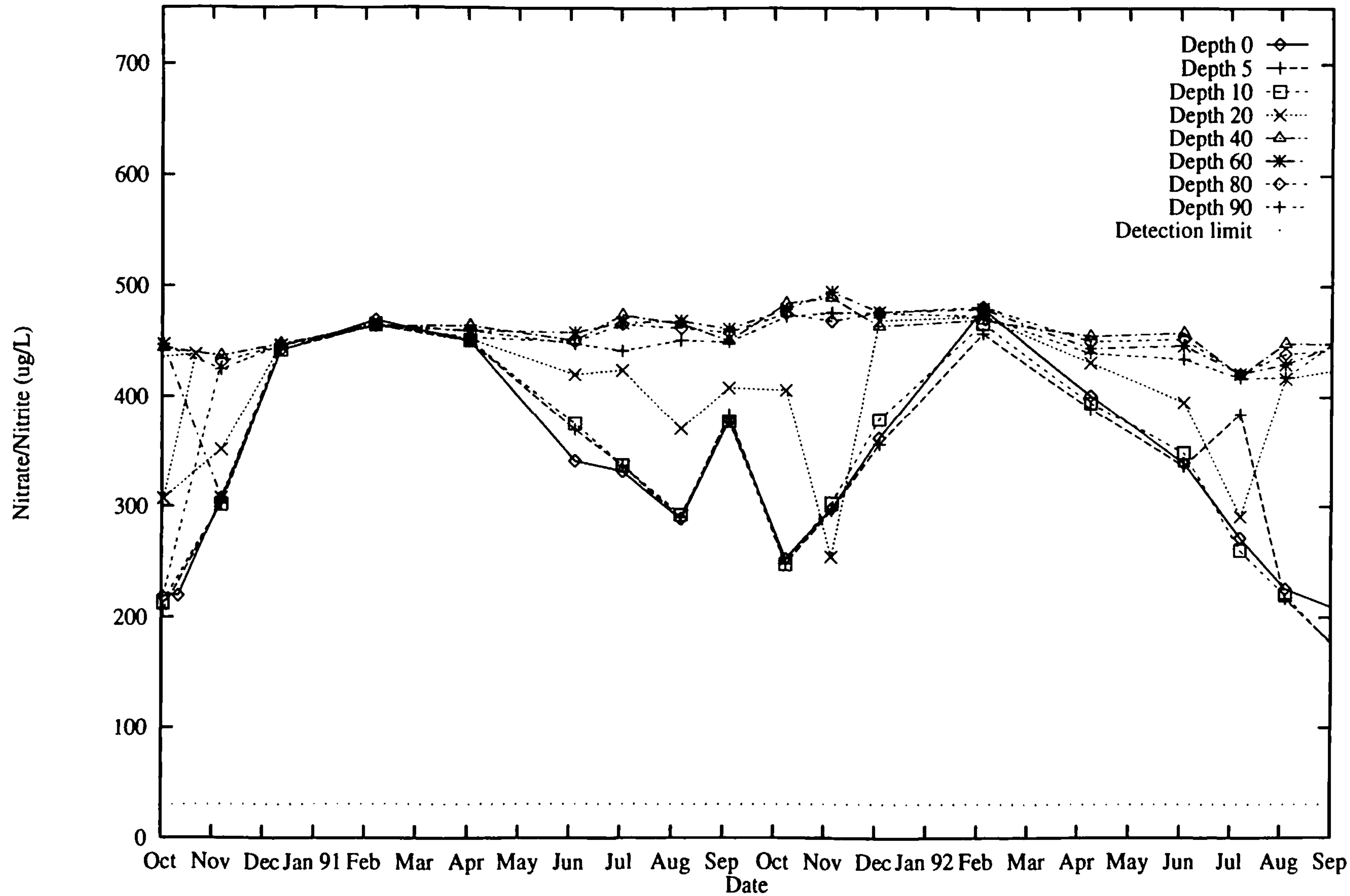
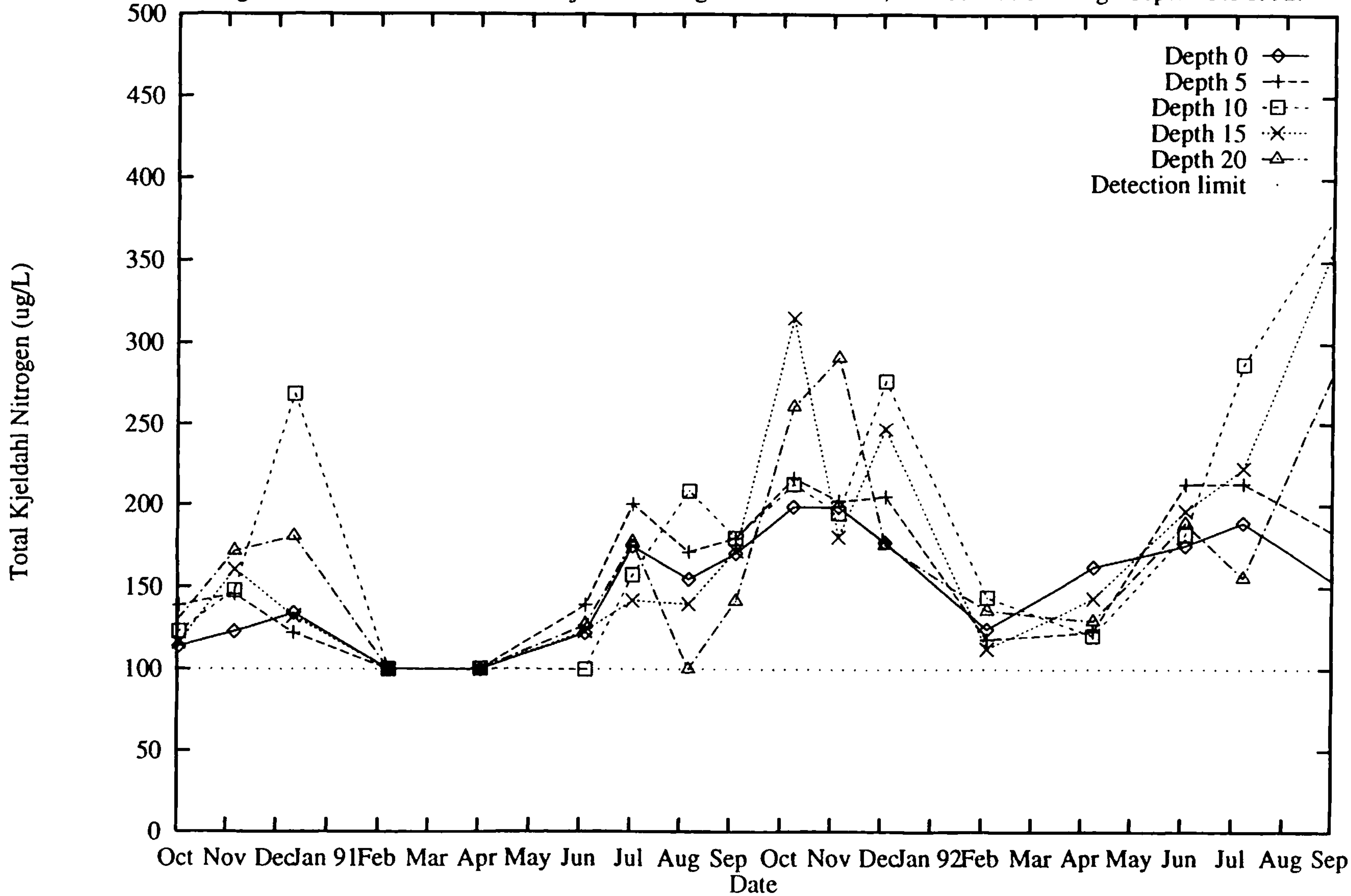
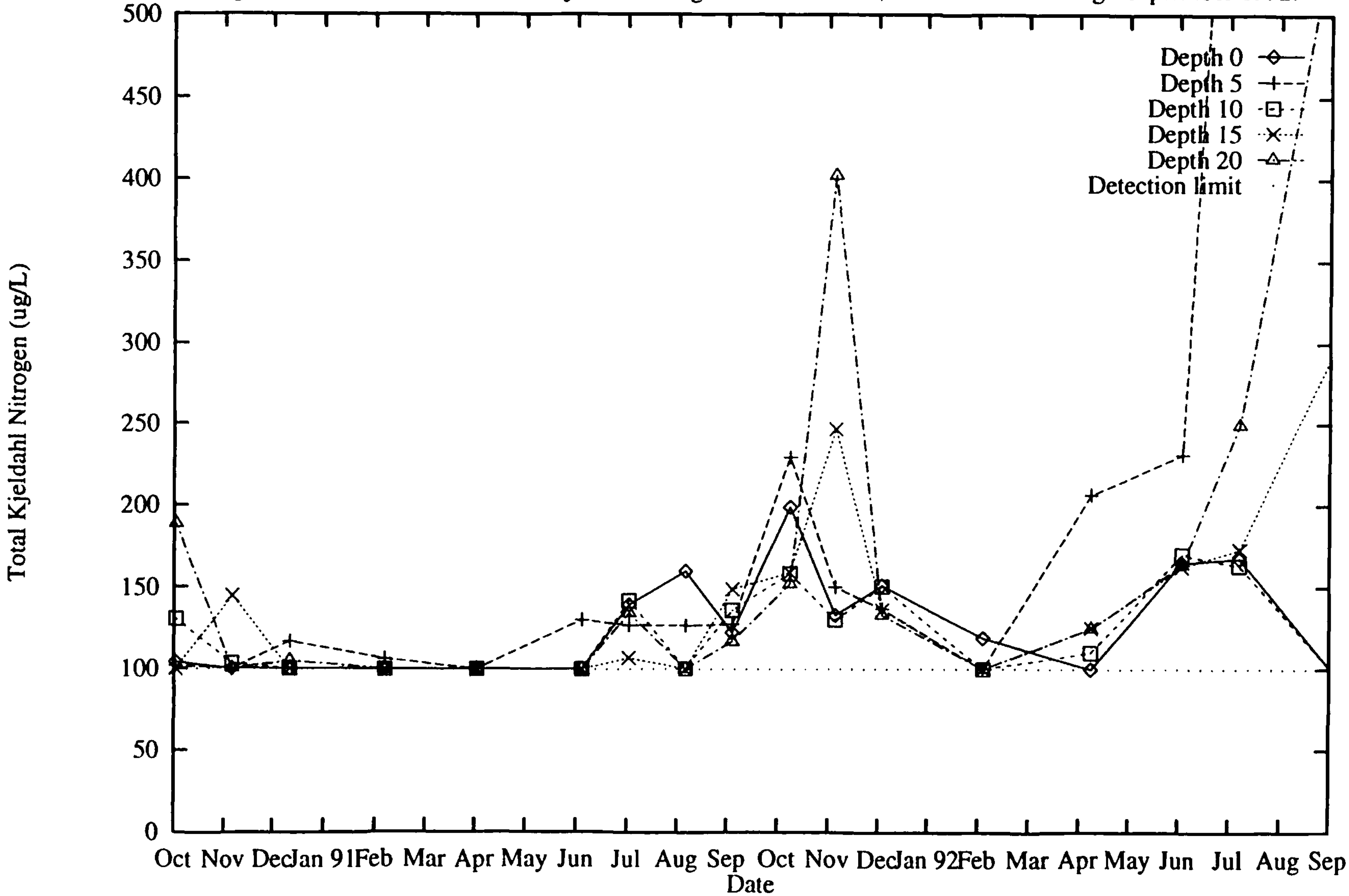


Figure 62: Lake Whatcom total Kjeldahl nitrogen data for Site 1, October 1990 through September 1992.



Note: Actual depth at 20 m for November 1990 data was 19.7 m.

Figure 63: Lake Whatcom total Kjeldahl nitrogen data for Site 2, October 1990 through September 1992.



Note: Actual depth at 20 m for November 1990 data was 18.5 m.

Figure 64: Lake Whatcom total Kjeldahl nitrogen data for Intake site (basin 2), October 1990 through September 1992.

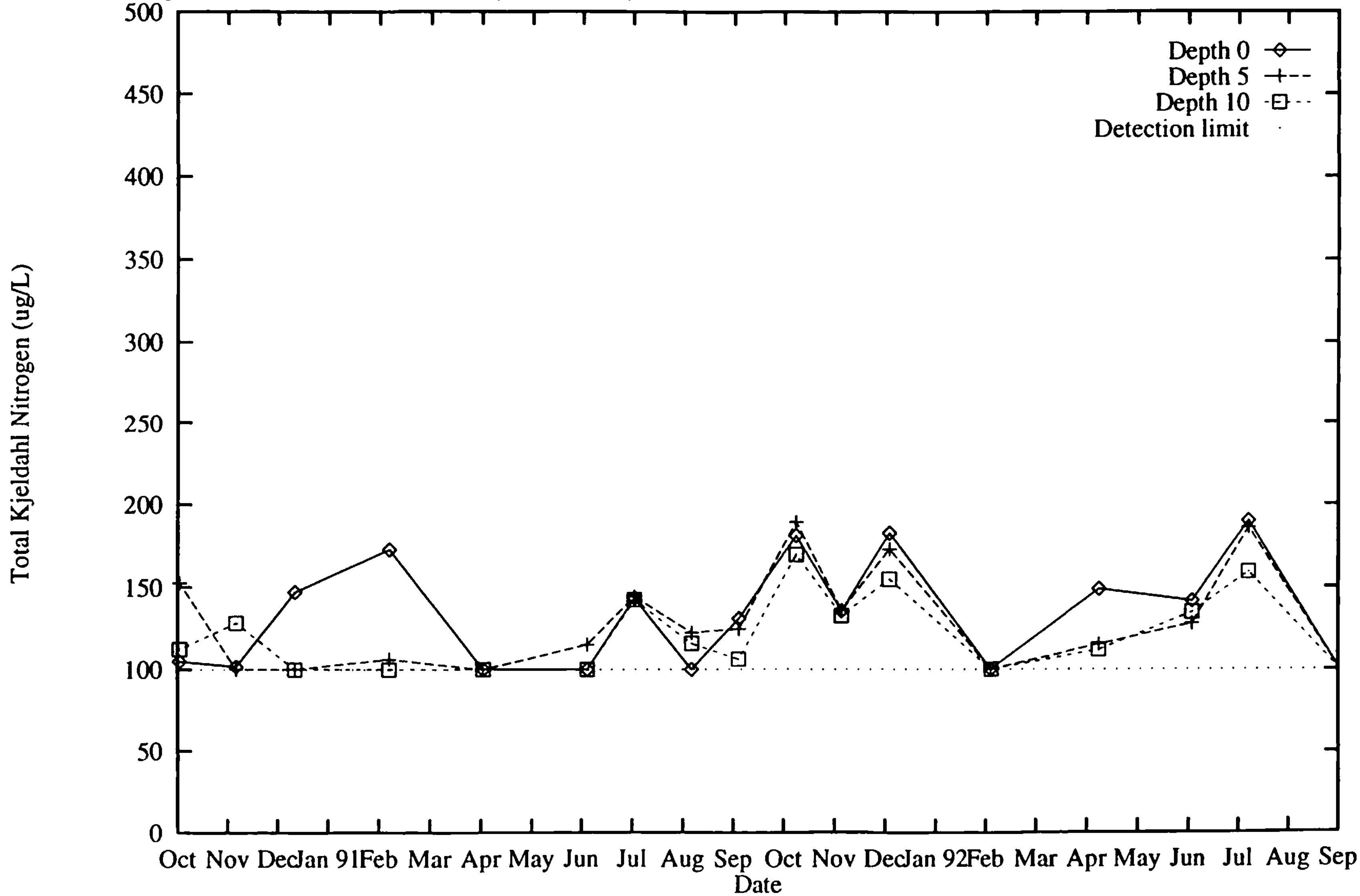


Figure 65: Lake Whatcom total Kjeldahl nitrogen data for Site 3, October 1990 through September 1992.

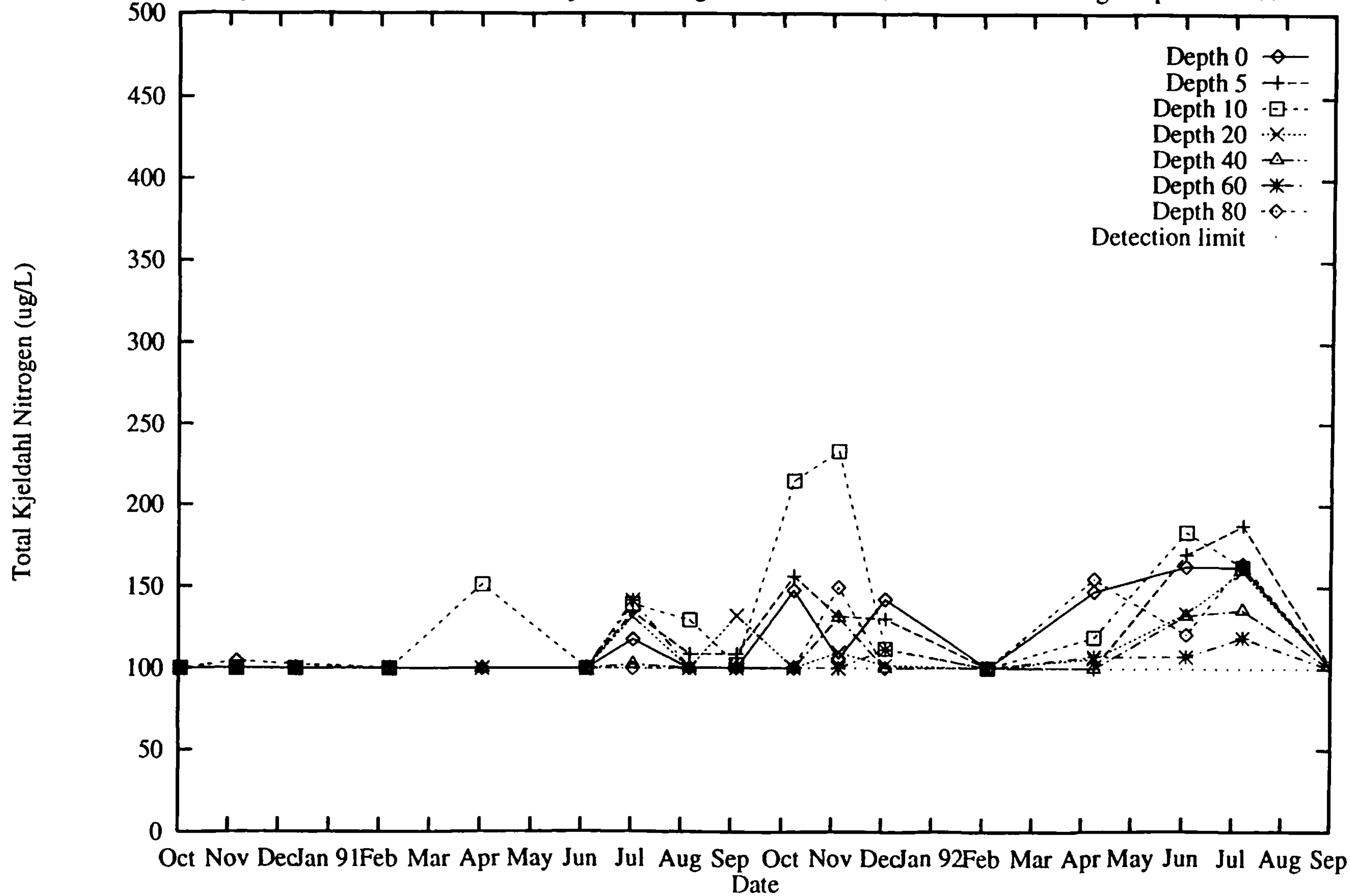


Figure 66: Lake Whatcom total Kjeldahl nitrogen data for Site 4, October 1990 through September 1992.

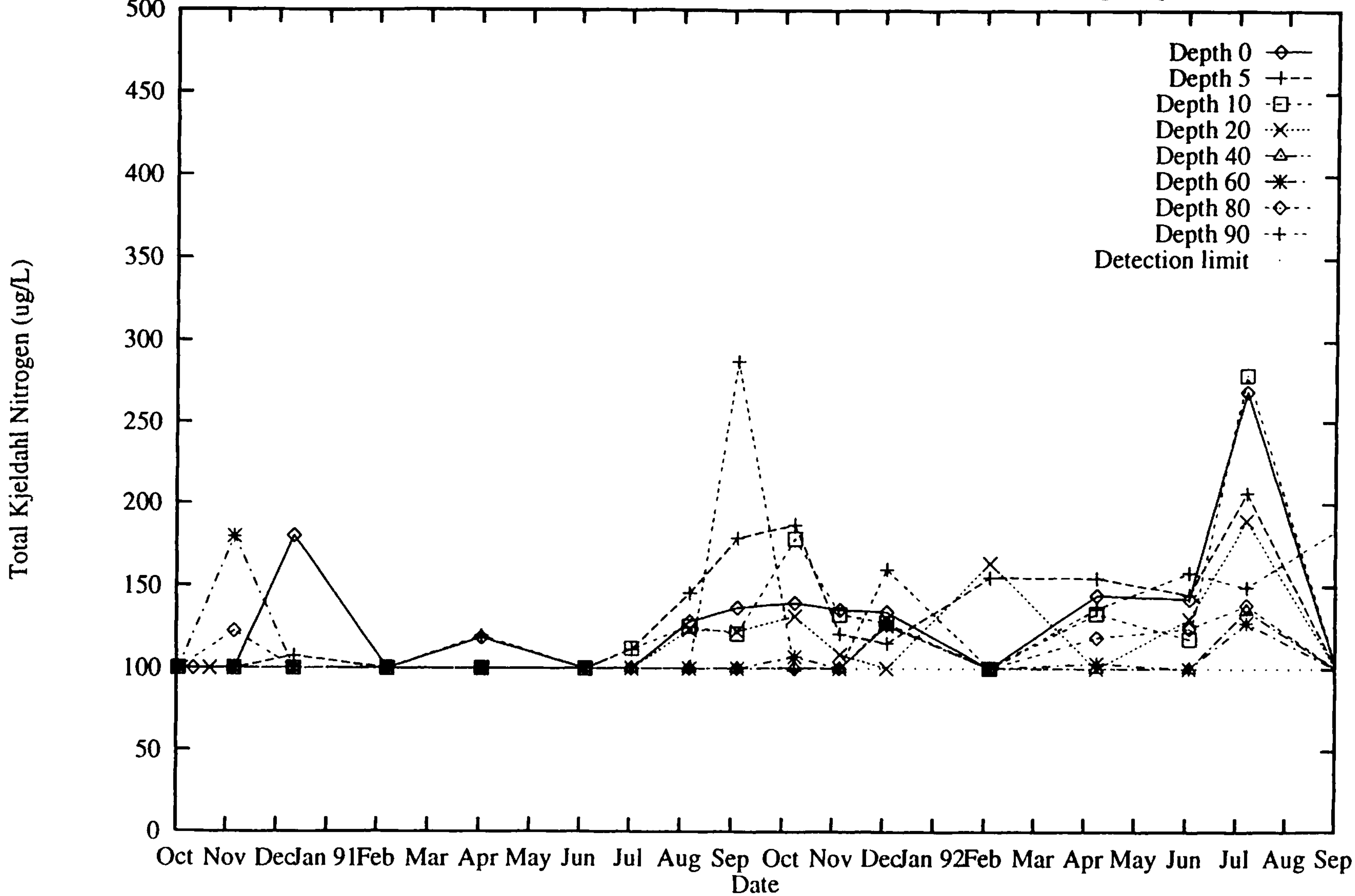
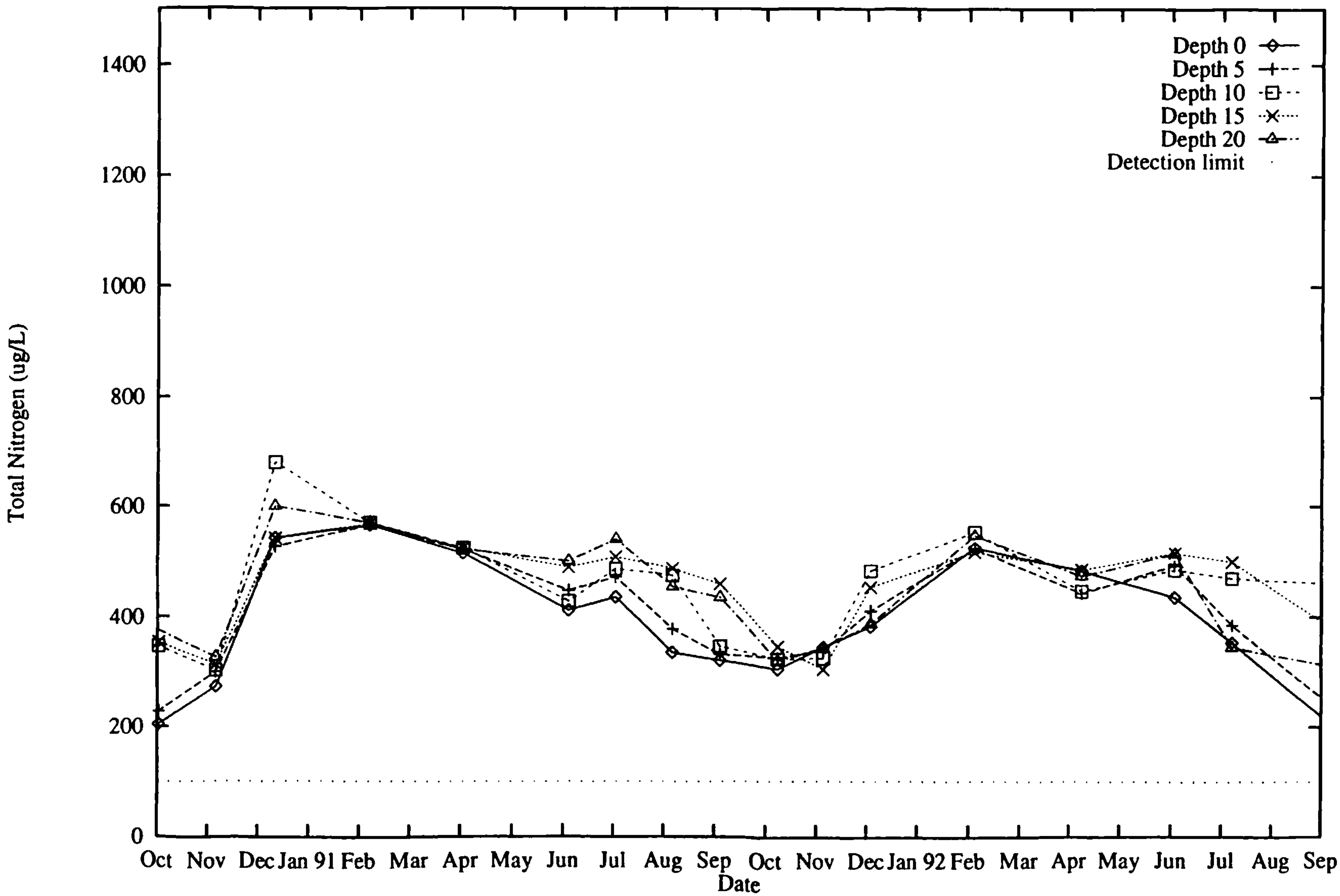
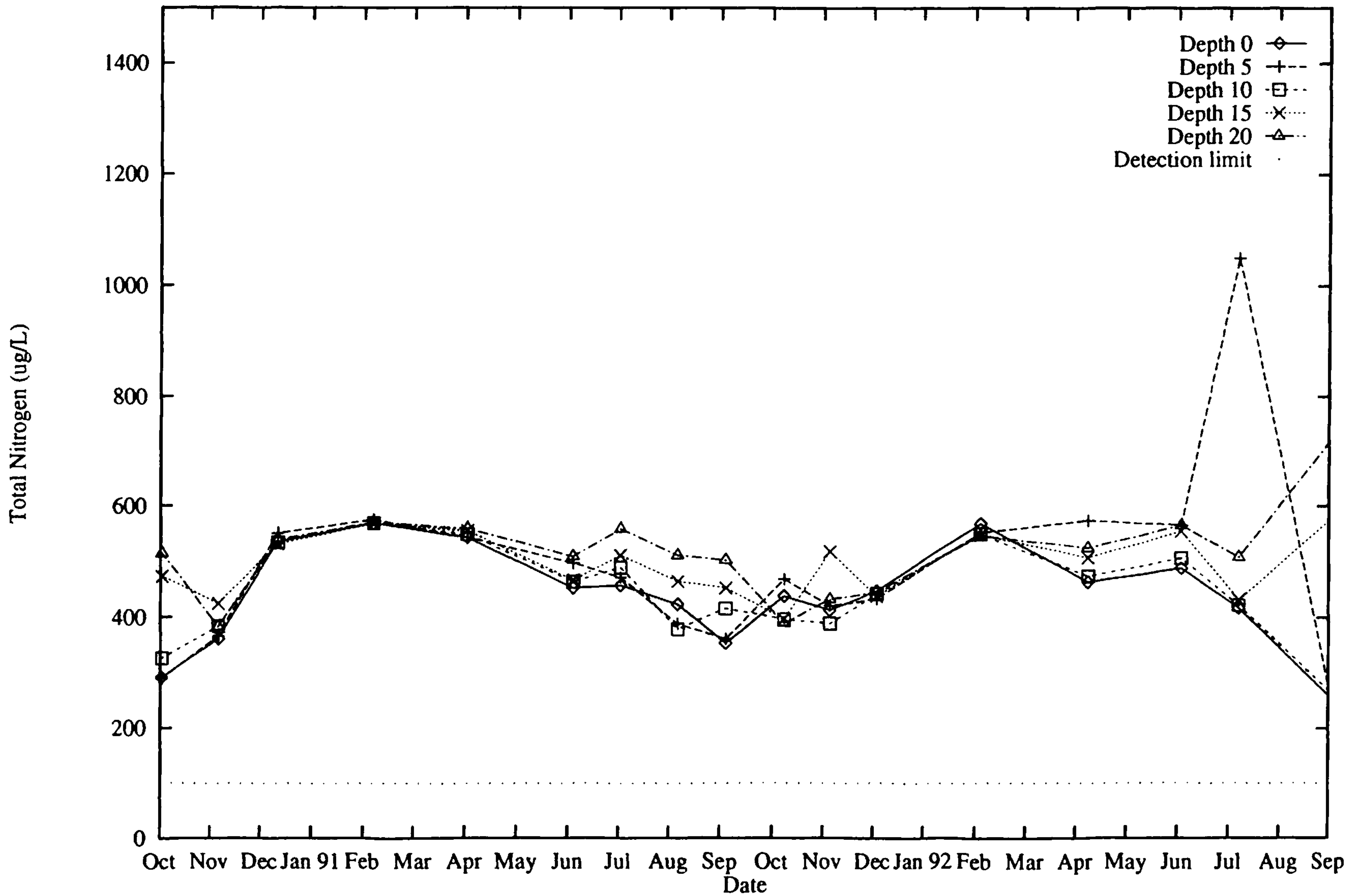


Figure 67: Lake Whatcom total nitrogen data for Site 1, October 1990 through September 1992.



Note: Actual depth at 20 m for November 1990 data was 19.7 m.

Figure 68: Lake Whatcom total nitrogen data for Site 2, October 1990 through September 1992.



Note: Actual depth at 20 m for November 1990 data was 18.5 m.

Figure 69: Lake Whatcom total nitrogen data for Intake site (basin 2), October 1990 through September 1992.

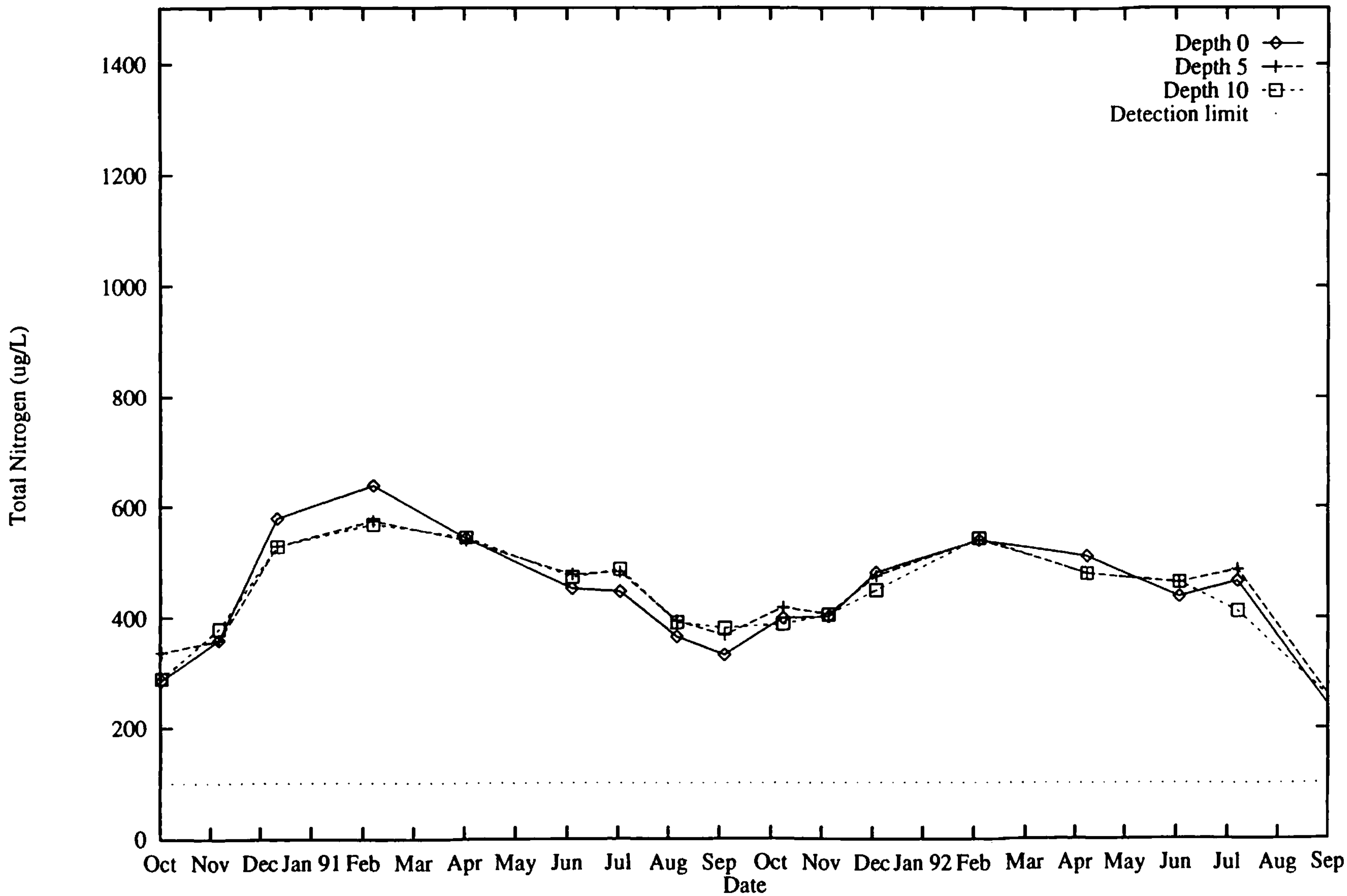


Figure 70: Lake Whatcom total nitrogen data for Site 3, October 1990 through September 1992.

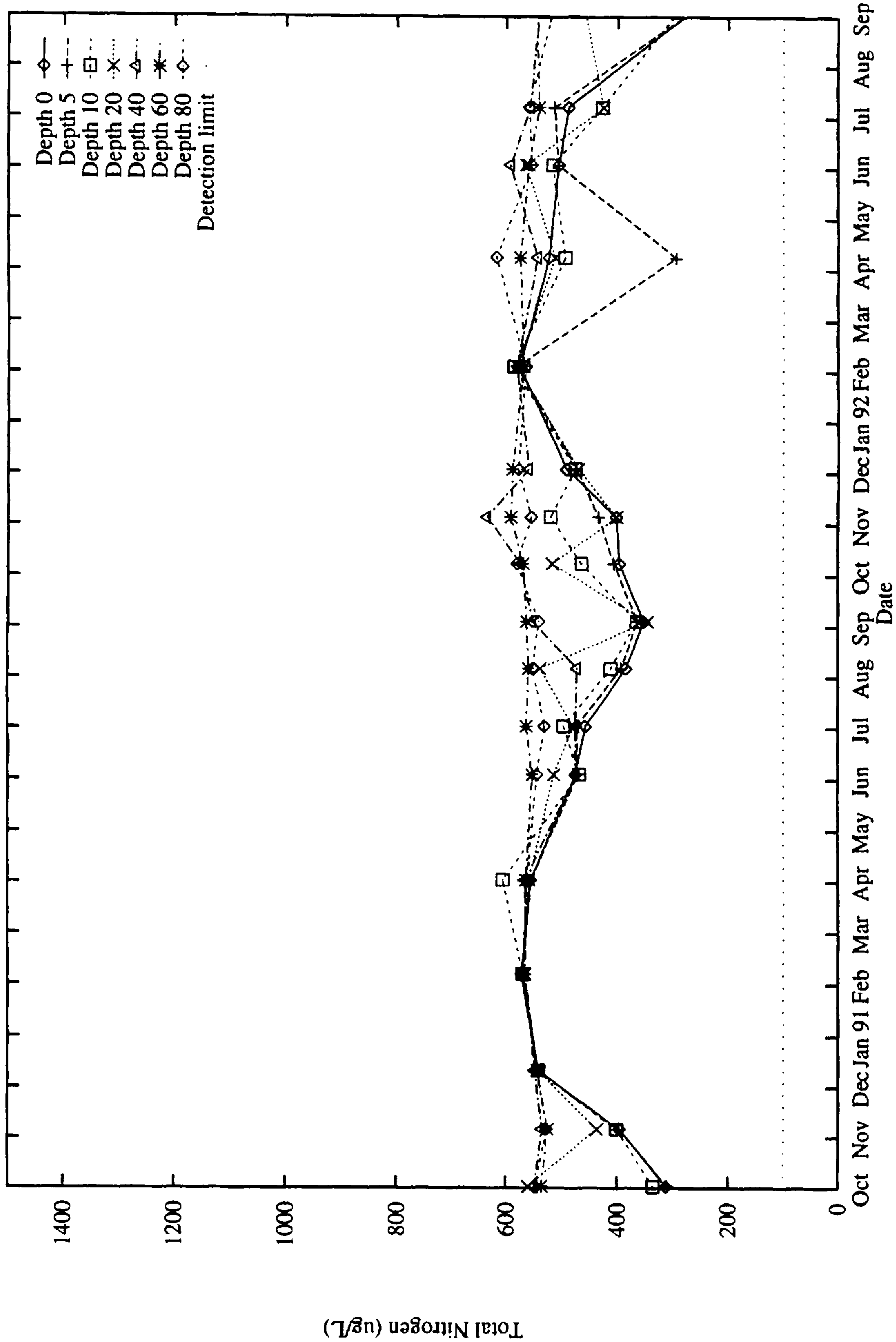


Figure 71: Lake Whatcom total nitrogen data for Site 4, October 1990 through September 1992.

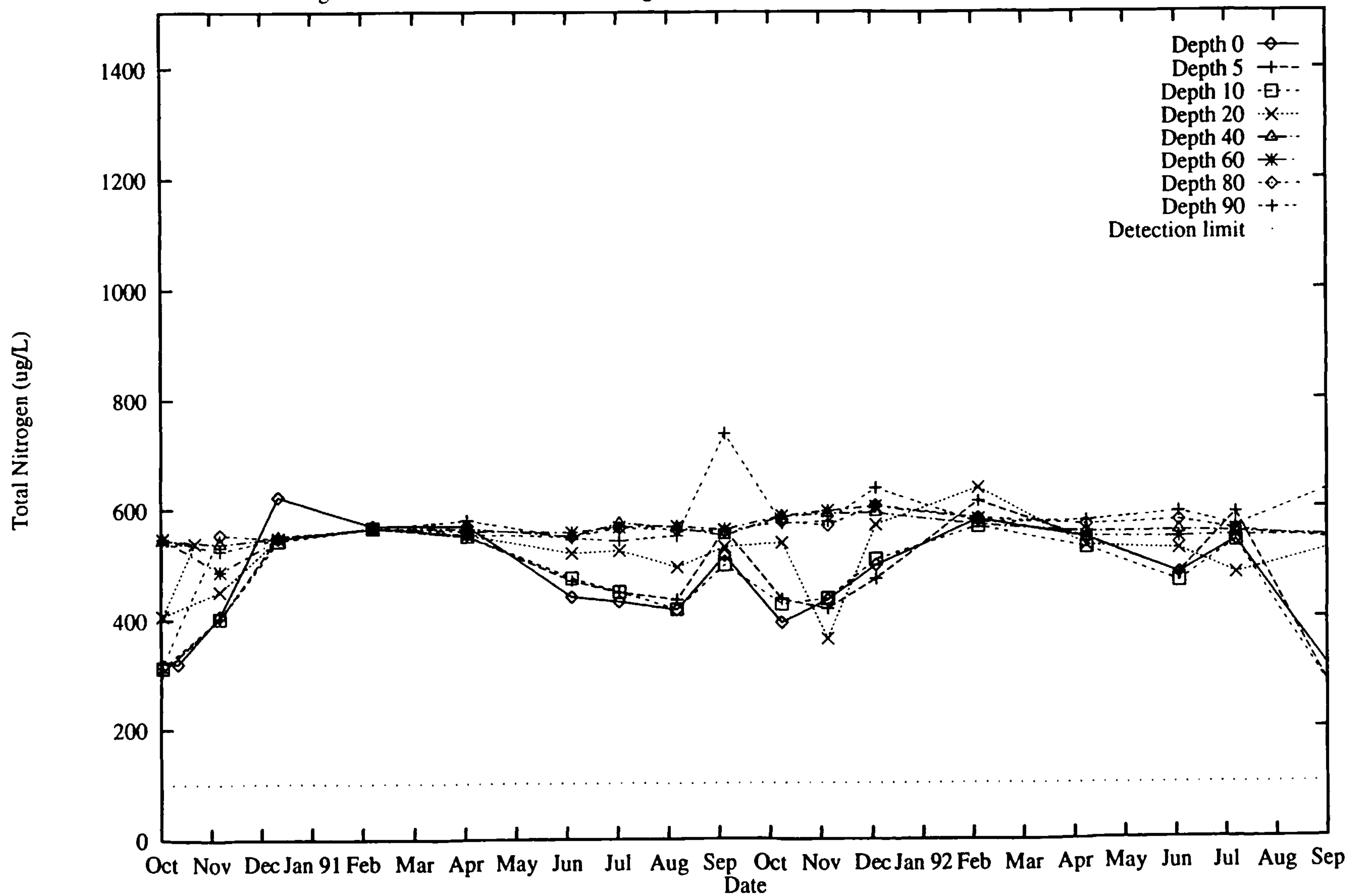
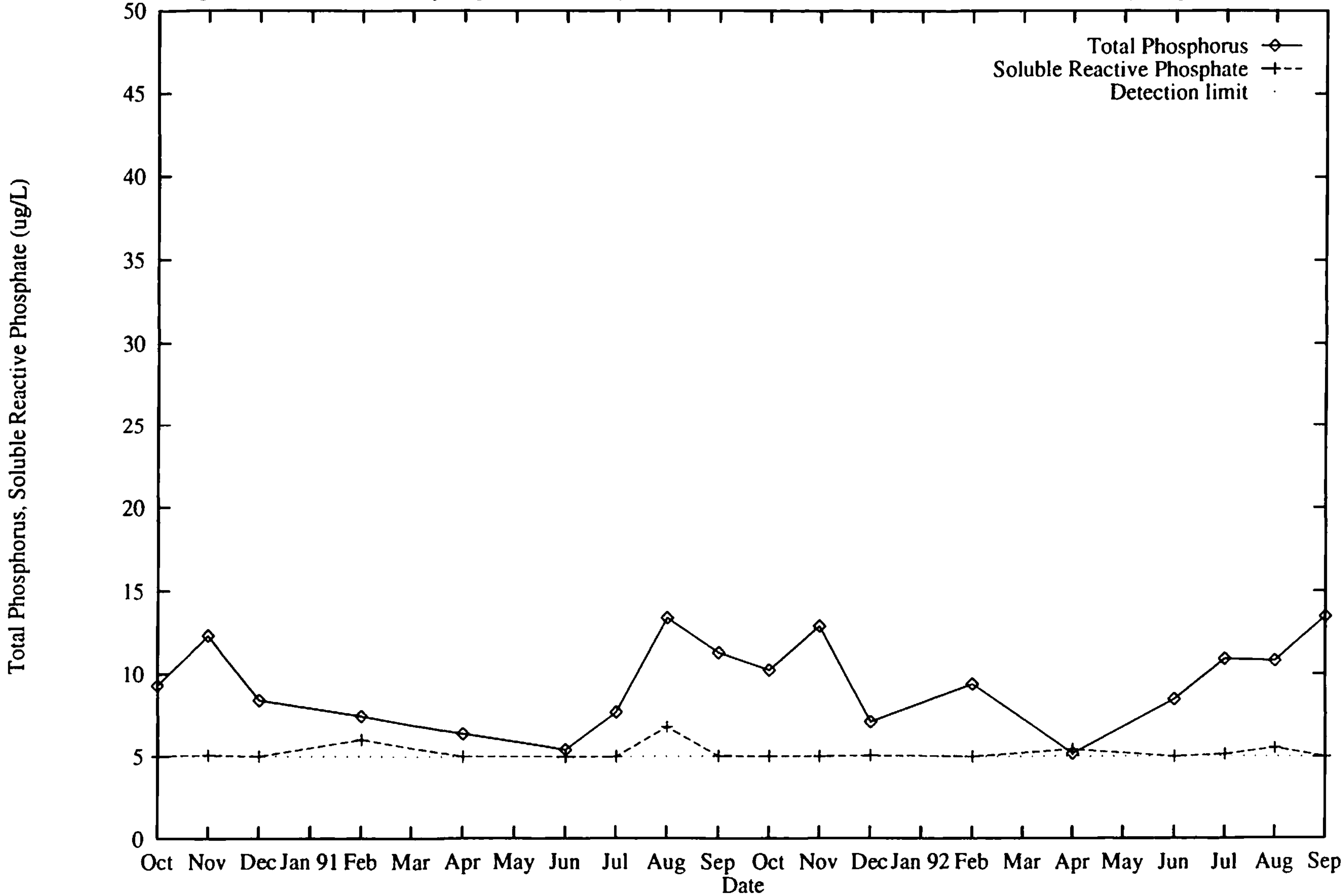
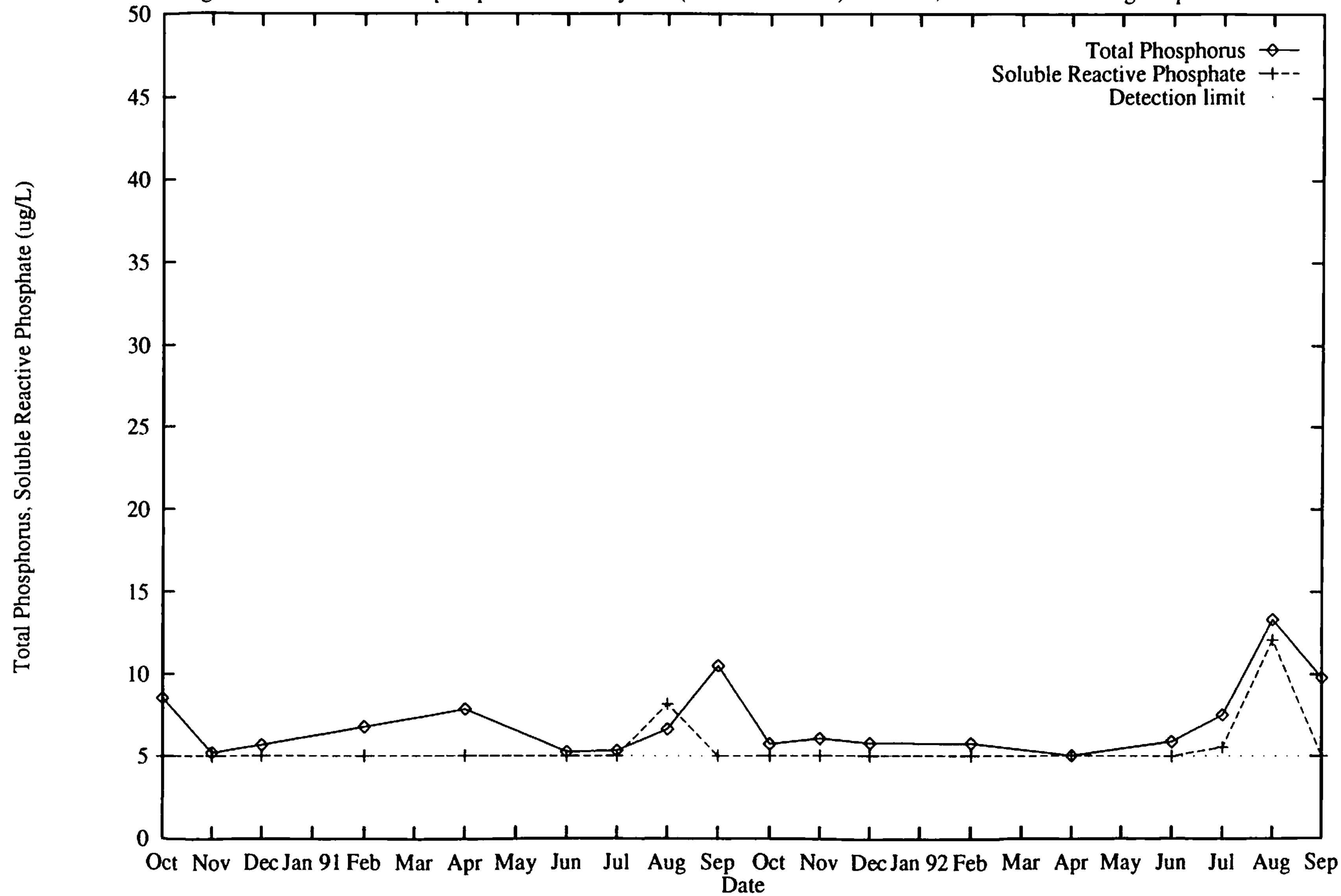


Figure 72: Lake Whatcom phosphorus summary data (total and soluble) for Site 1, October 1990 through September 1992.



Note: Actual depth at 20 m for November 1990 data was 19.7 m.

Figure 73: Lake Whatcom phosphorus summary data (total and soluble) for Site 2, October 1990 through September 1992.



Note: Actual depth at 20 m for November 1990 data was 18.5 m.

Figure 74: Lake Whatcom phosphorus summary data (total and soluble) for Intake site (basin 2), October 1990 through September 1992.

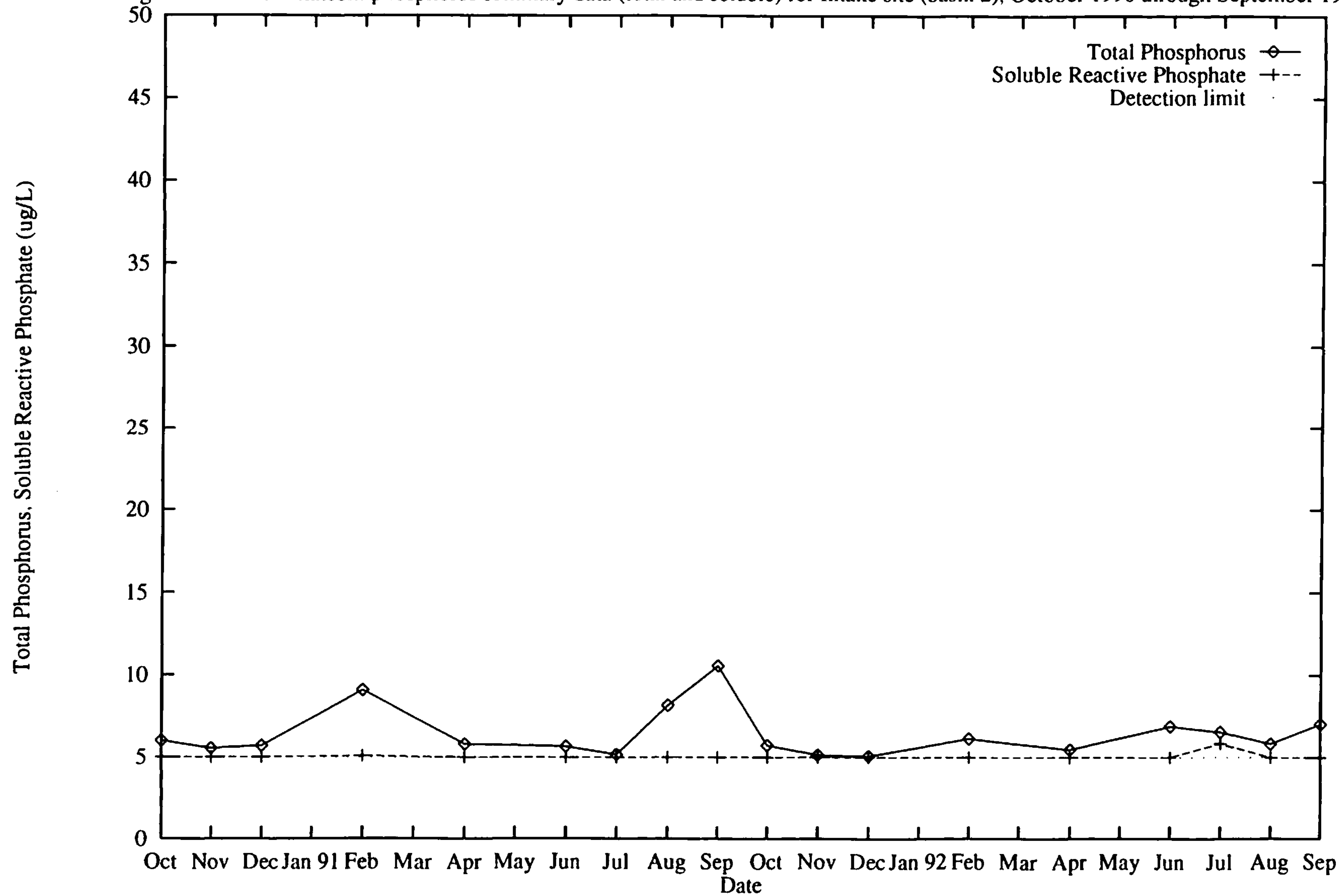


Figure 75: Lake Whatcom phosphorus summary data (total and soluble) for Site 3, October 1990 through September 1992.

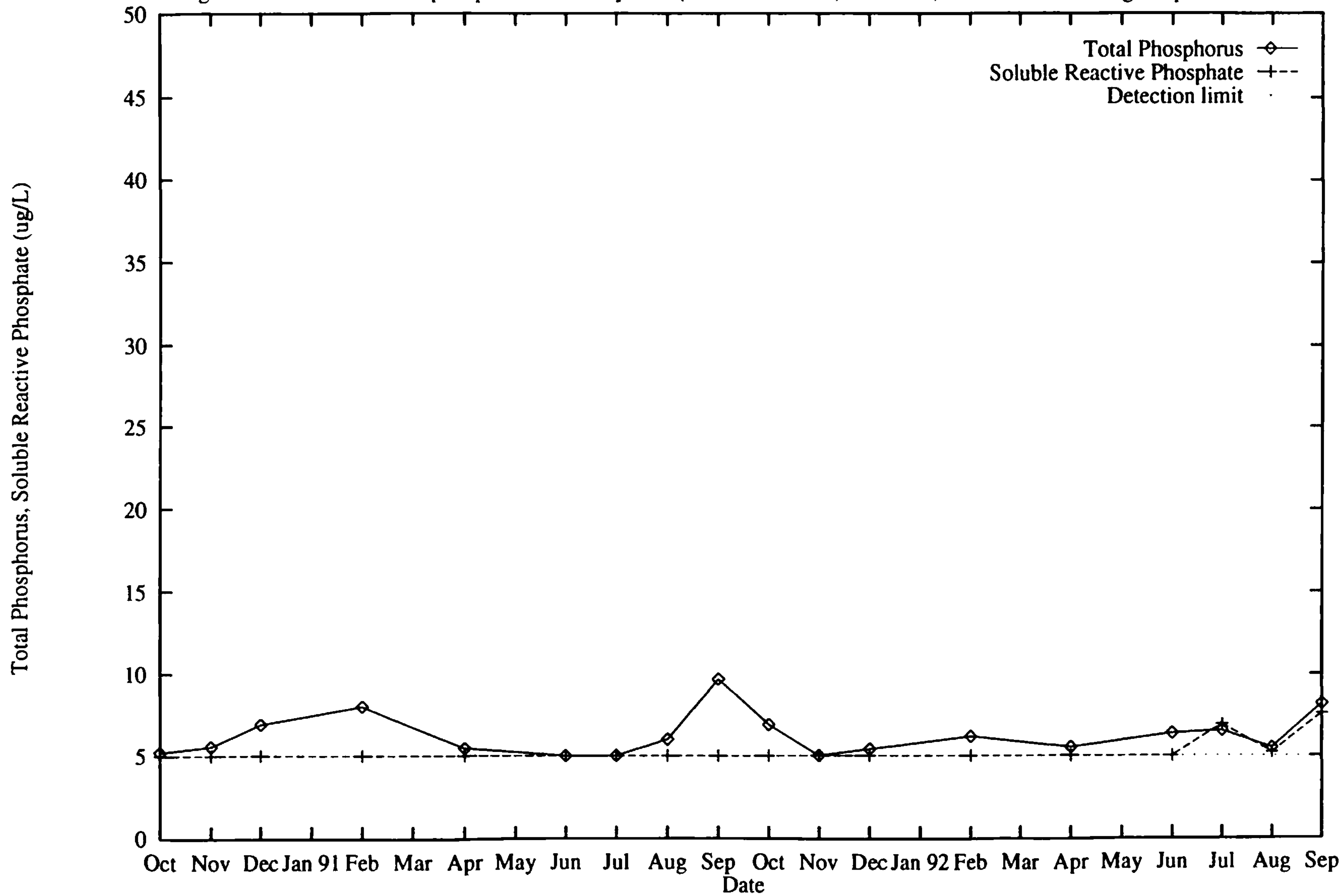


Figure 76: Lake Whatcom phosphorus summary data (total and soluble) for Site 4, October 1990 through September 1992.

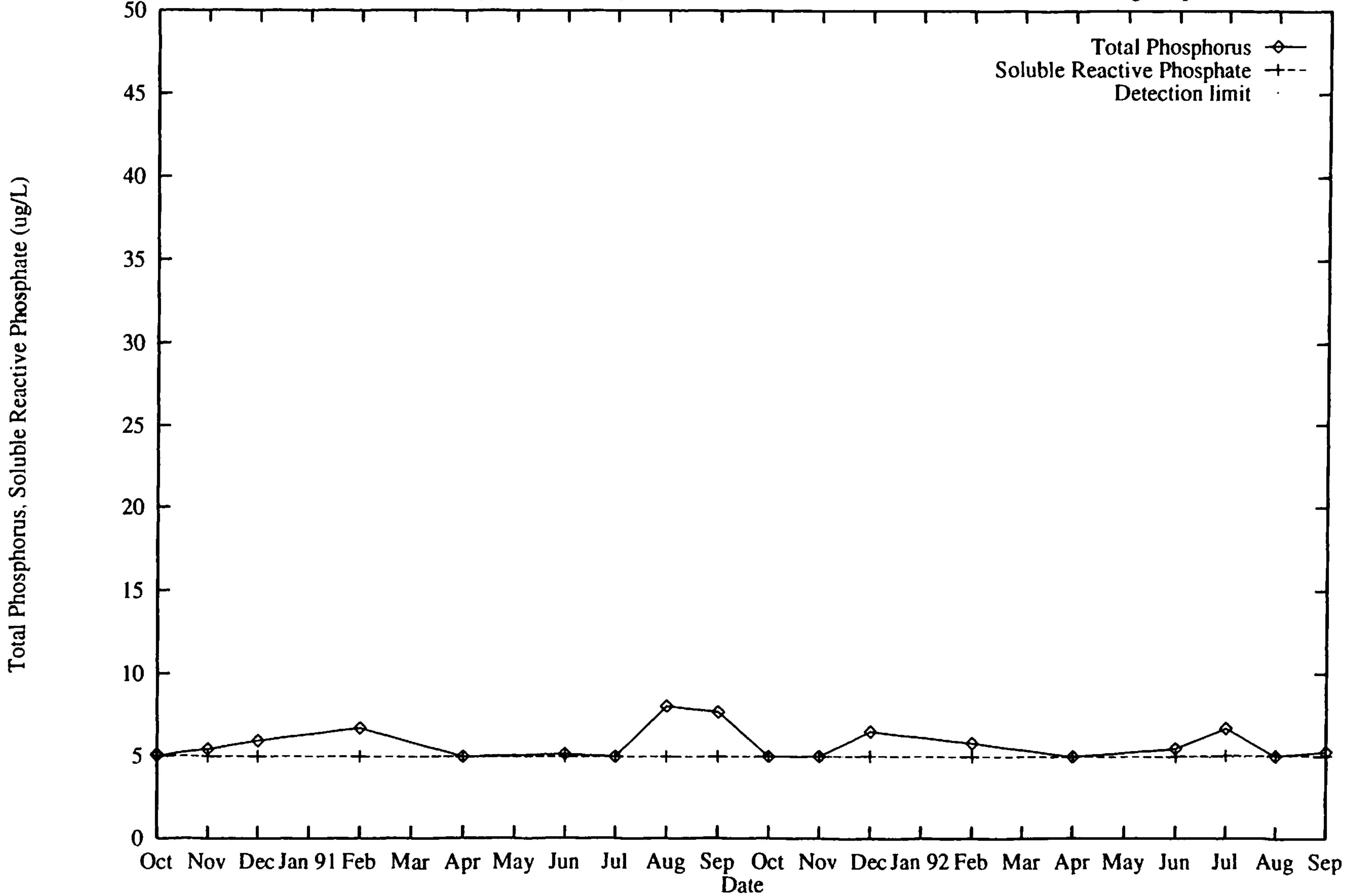
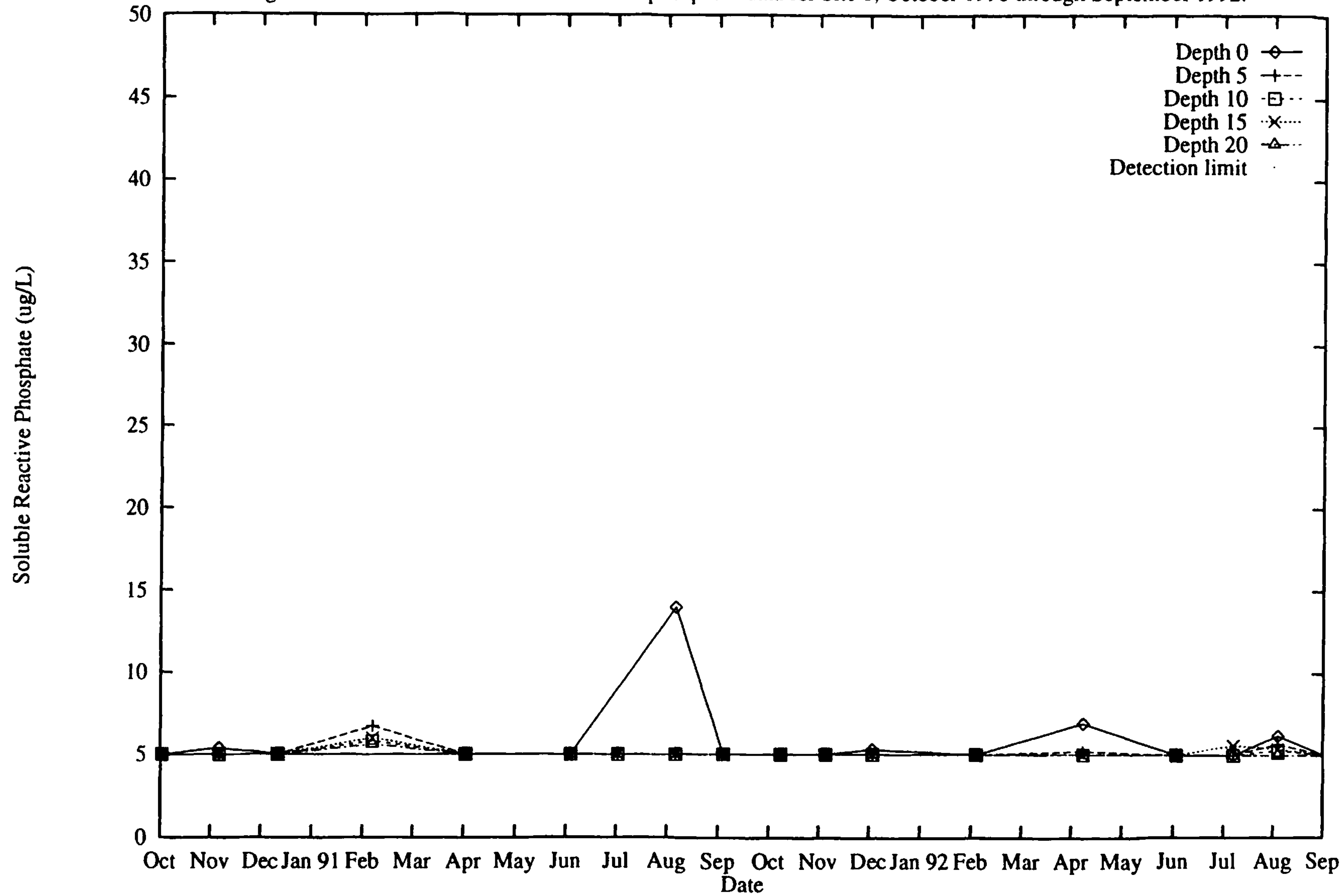
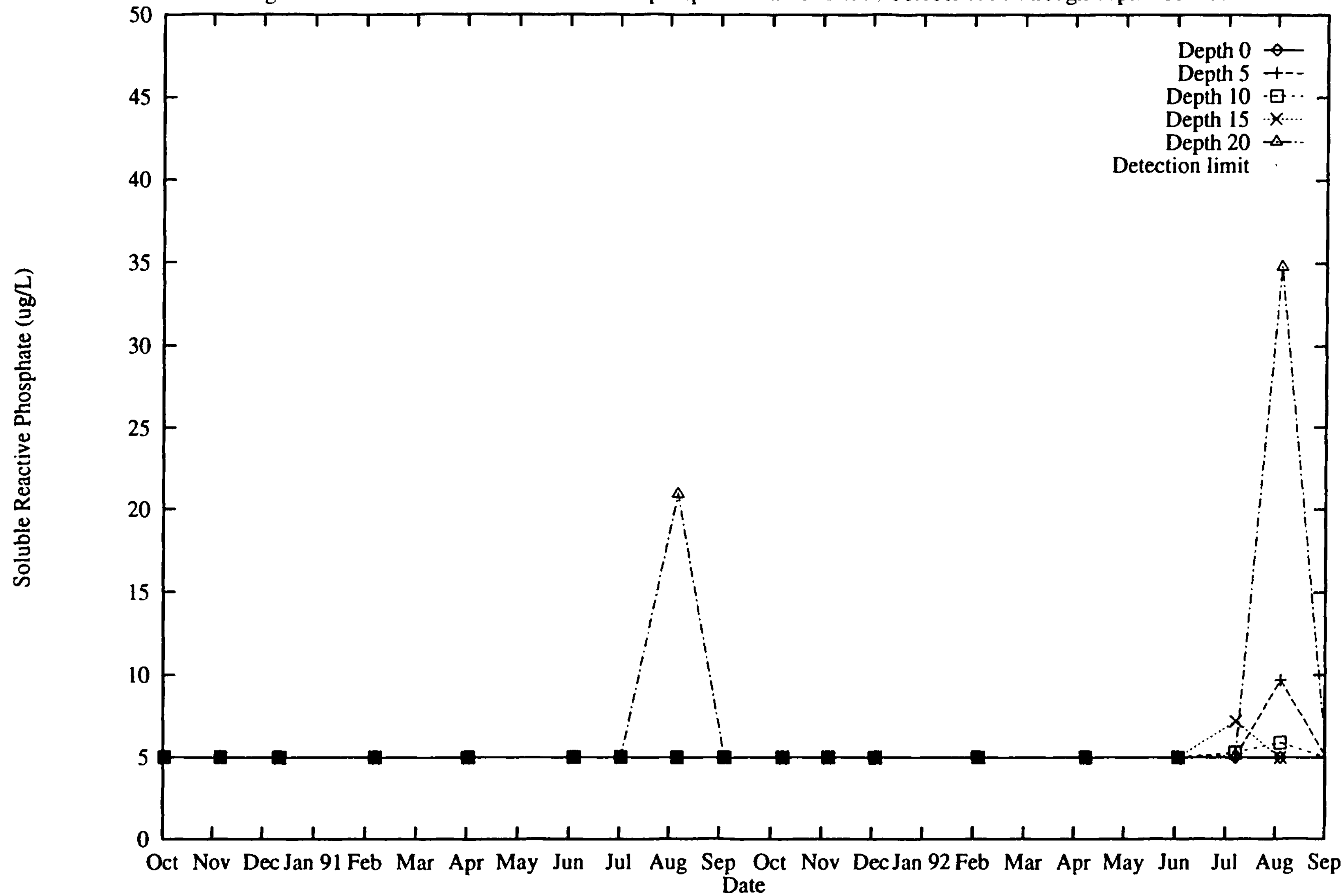


Figure 77: Lake Whatcom soluble reactive phosphate data for Site 1, October 1990 through September 1992.



Note: Actual depth at 20 m for November 1990 data was 19.7 m.

Figure 78: Lake Whatcom soluble reactive phosphate data for Site 2, October 1990 through September 1992.



Note: Actual depth at 20 m for November 1990 data was 18.5 m.

Figure 79: Lake Whatcom soluble reactive phosphate data for Intake site (basin 2), October 1990 through September 1992.

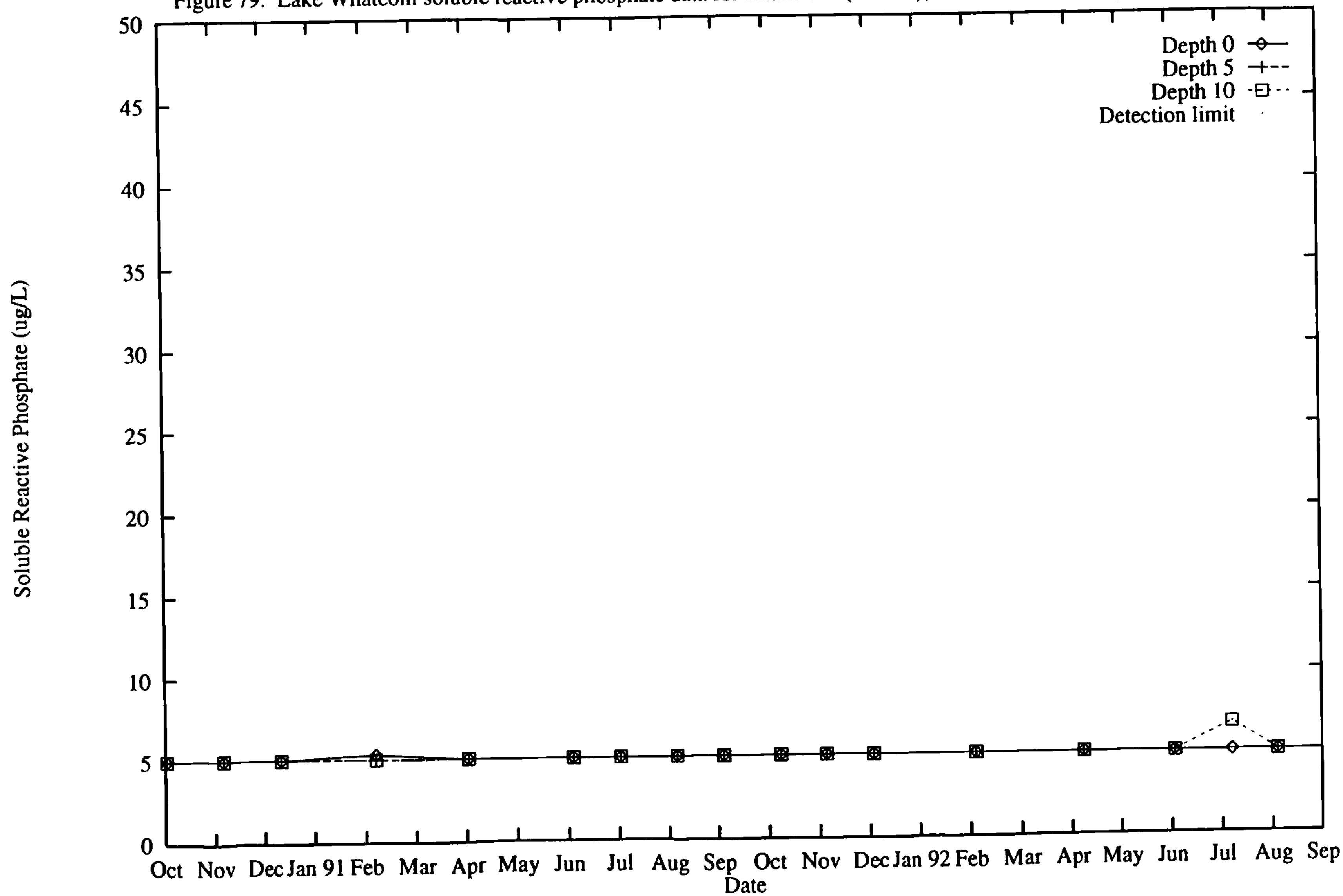


Figure 80: Lake Whatcom soluble reactive phosphate data for Site 3, October 1990 through September 1992.

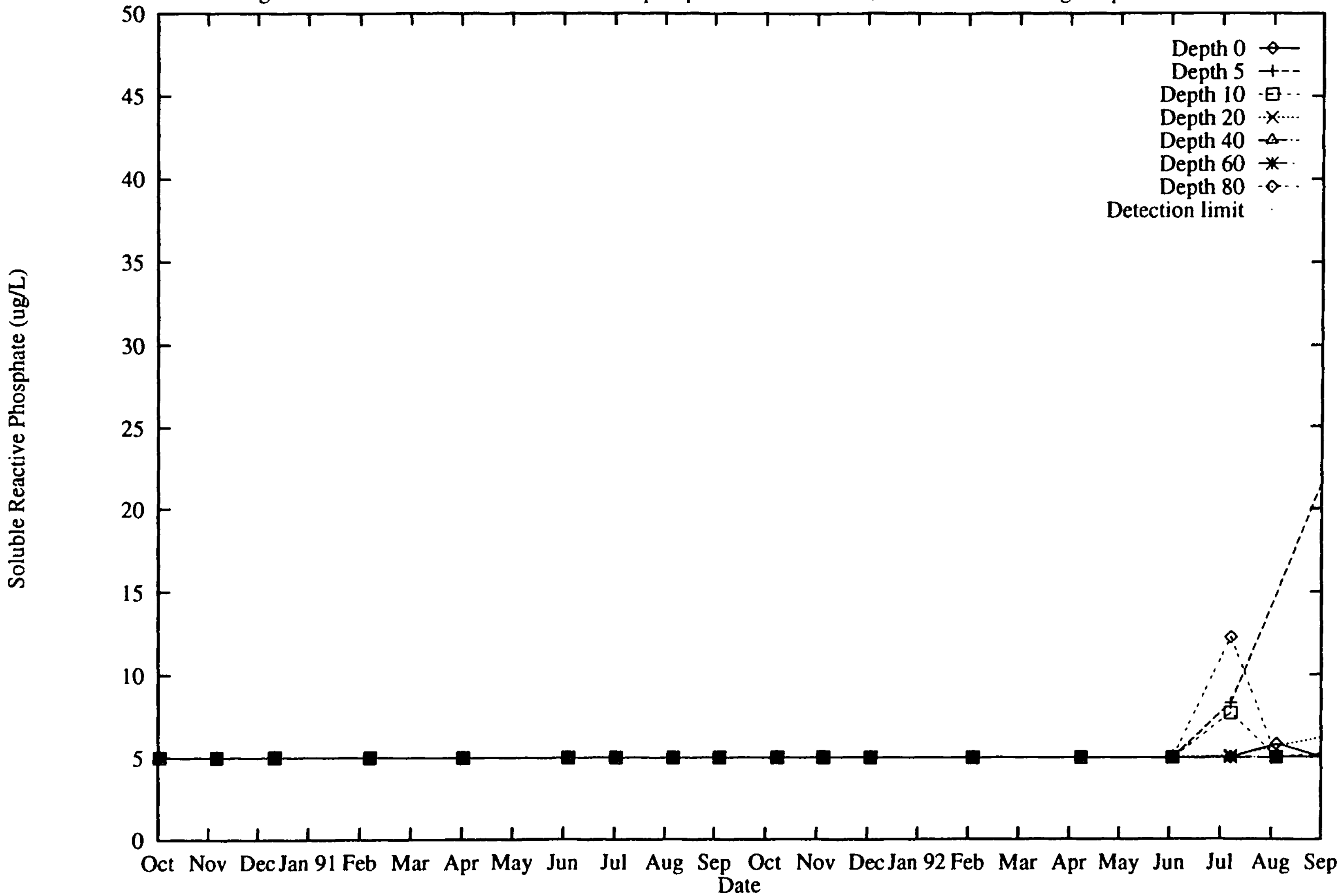


Figure 81: Lake Whatcom soluble reactive phosphate data for Site 4, October 1990 through September 1992.

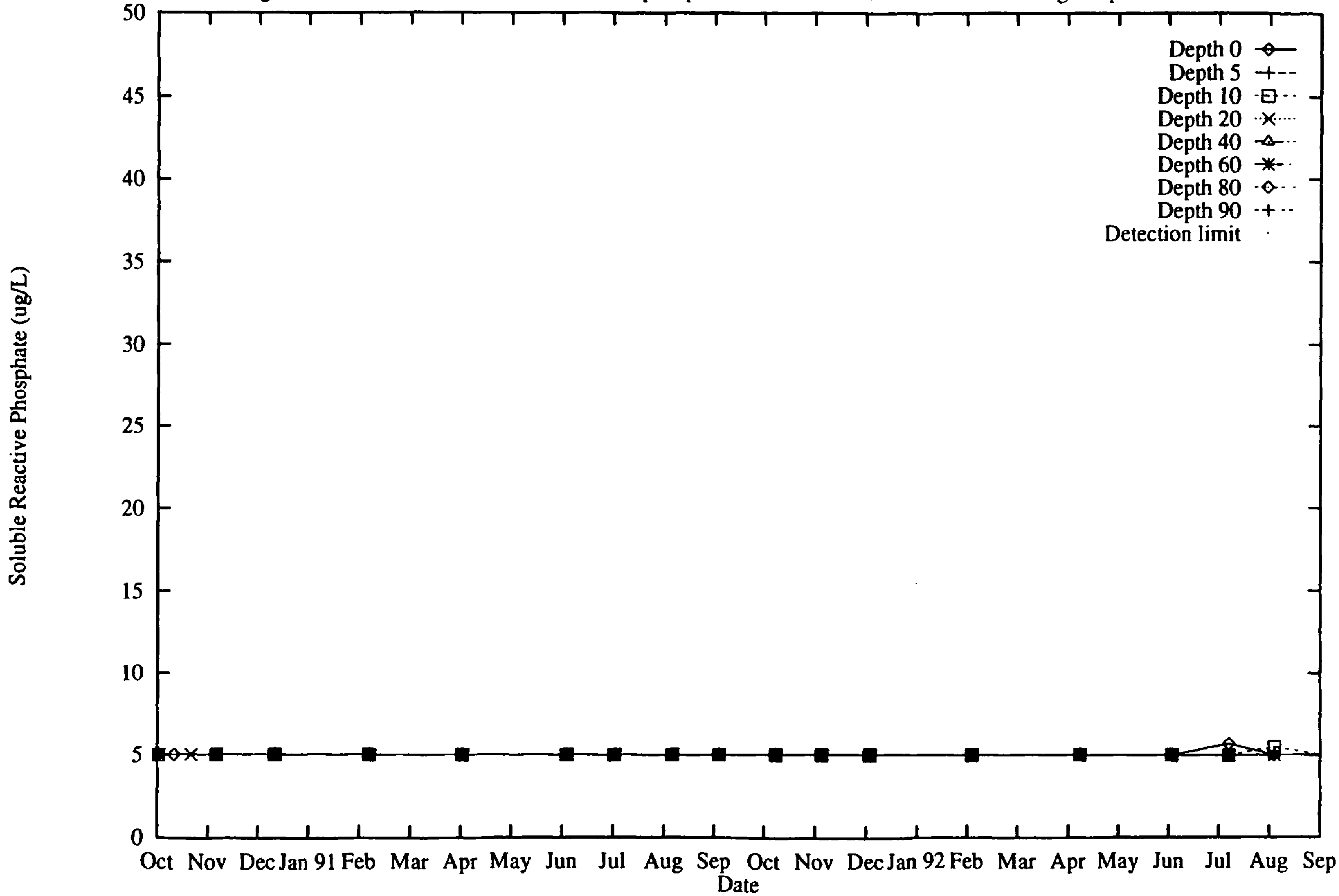
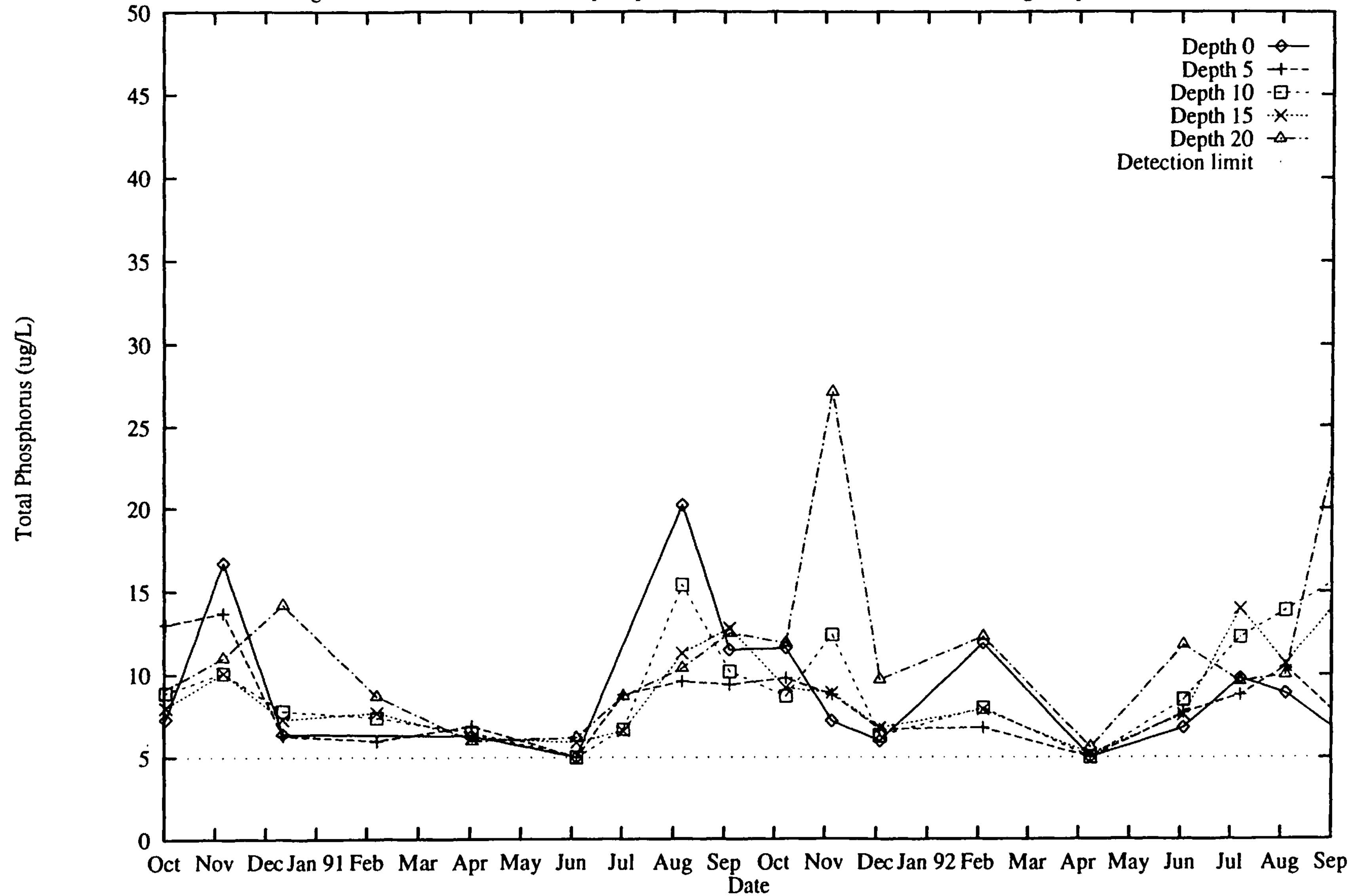
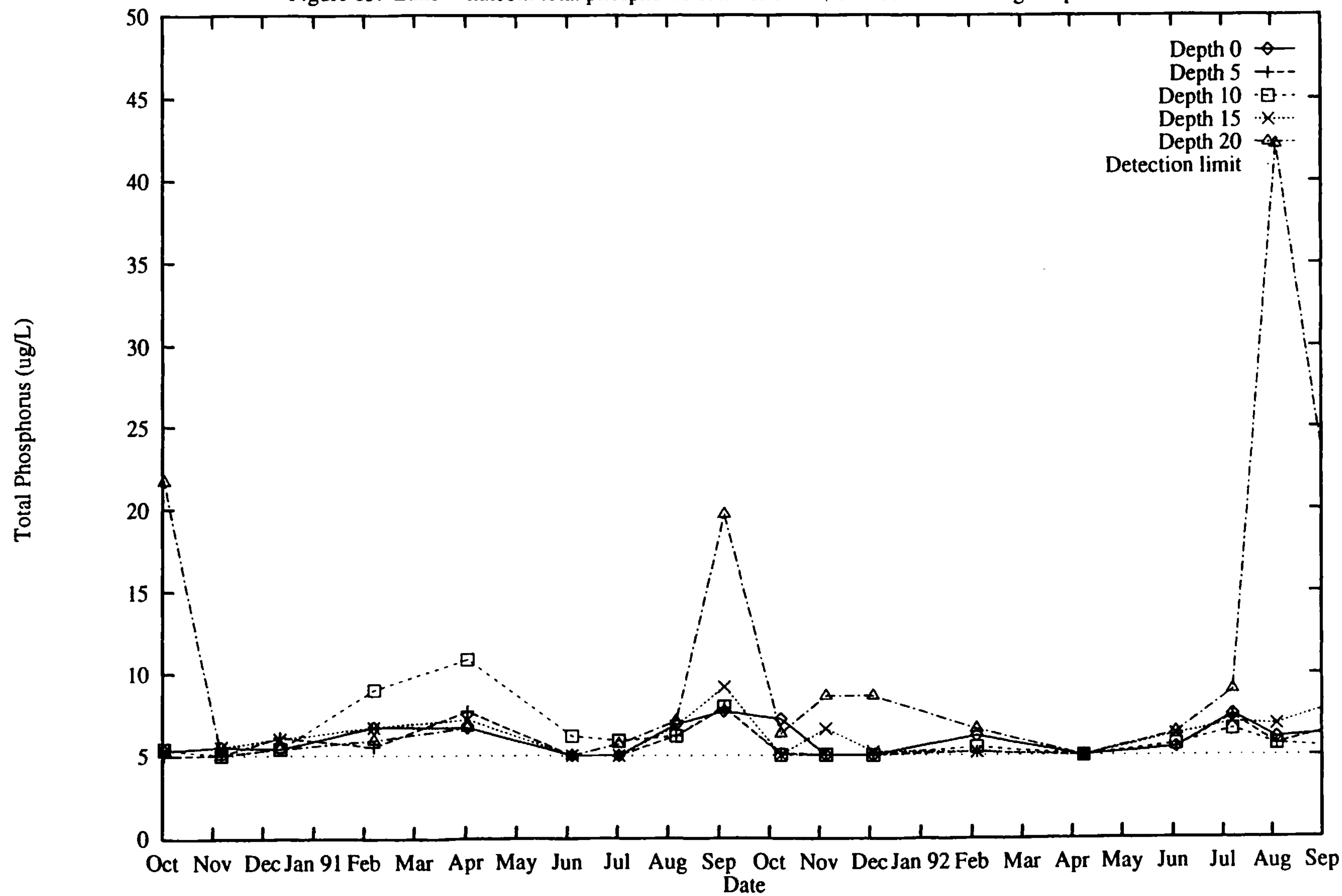


Figure 82: Lake Whatcom total phosphorus data for Site 1, October 1990 through September 1992.



Note: Actual depth at 20 m for November 1990 data was 19.7 m.

Figure 83: Lake Whatcom total phosphorus data for Site 2, October 1990 through September 1992.



Note: Actual depth at 20 m for November 1990 data was 18.5 m.

Figure 84: Lake Whatcom total phosphorus data for Intake site (basin 2), October 1990 through September 1992.

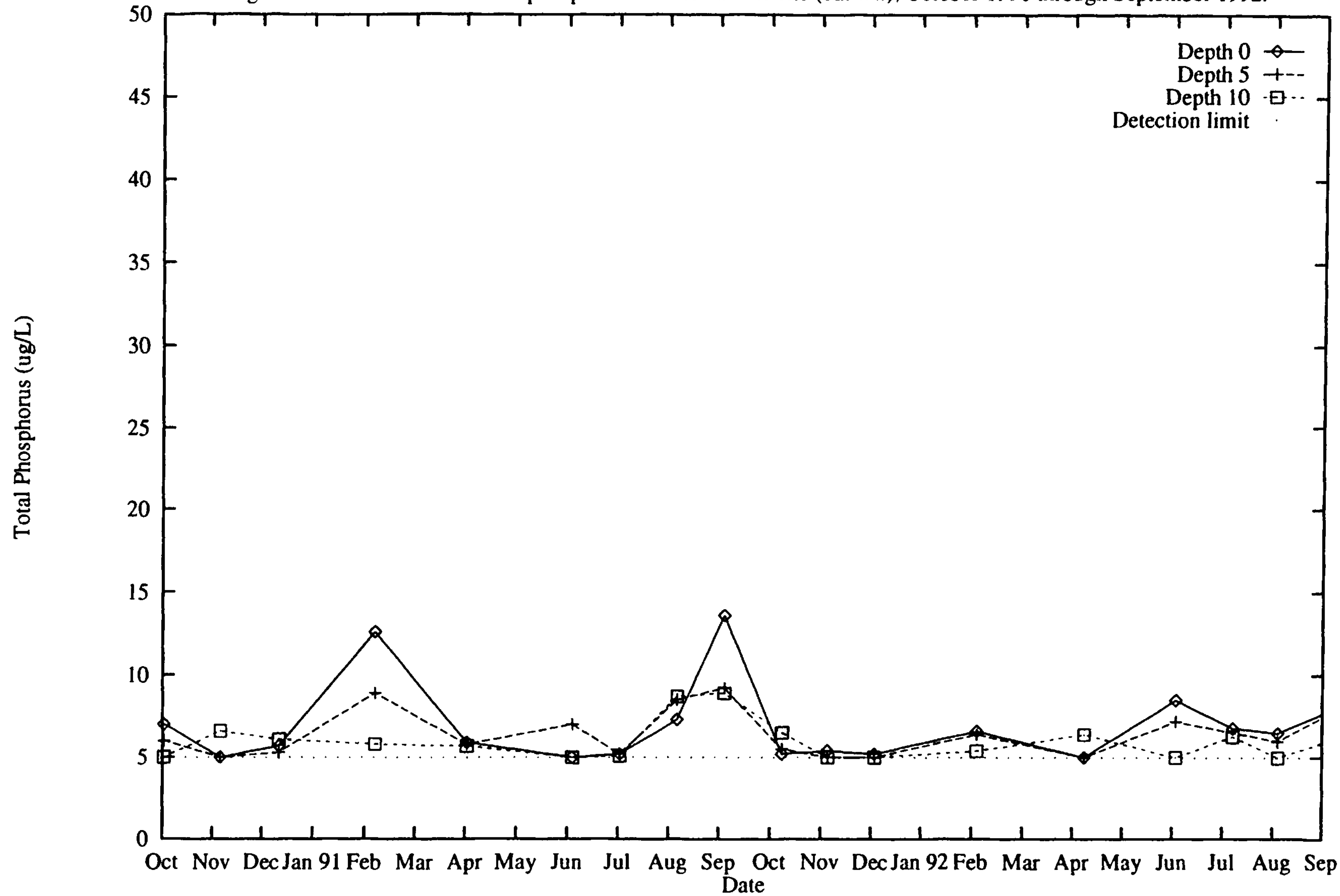


Figure 85: Lake Whatcom total phosphorus data for Site 3, October 1990 through September 1992.

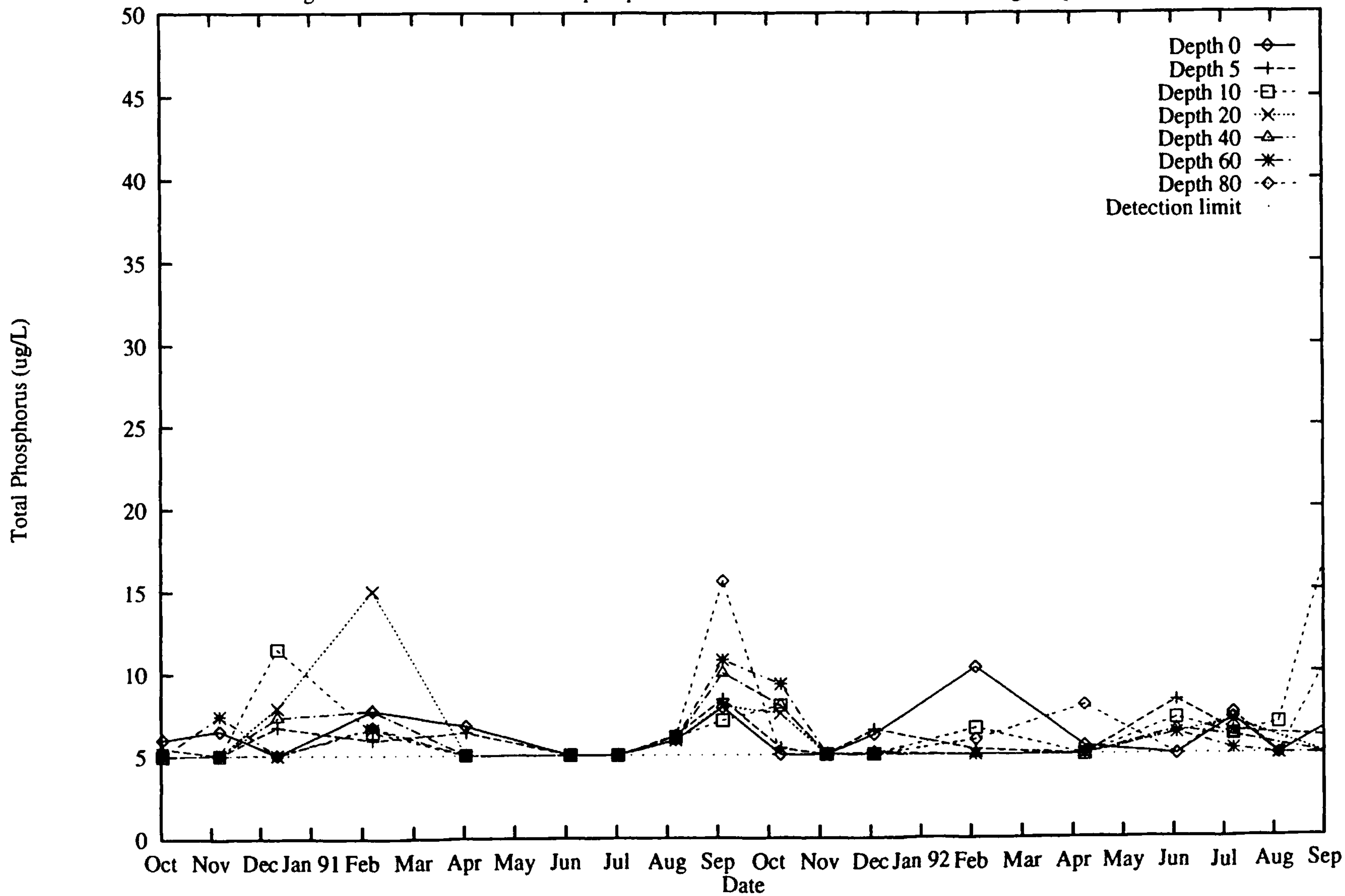


Figure 86: Lake Whatcom total phosphorus data for Site 4, October 1990 through September 1992.

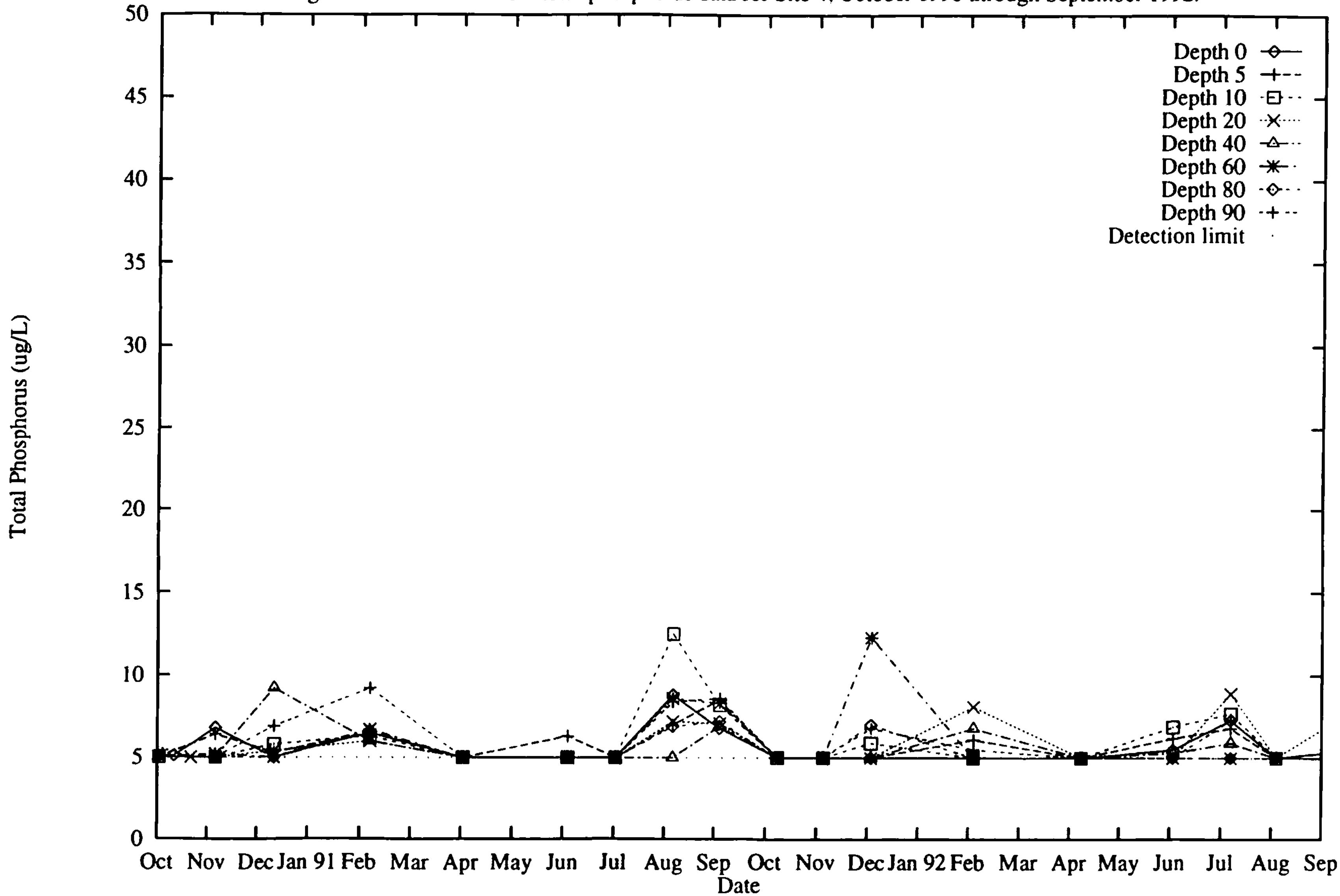


Figure 87: Lake Whatcom Secchi depths for Site 1, October 1990 through September 1992.

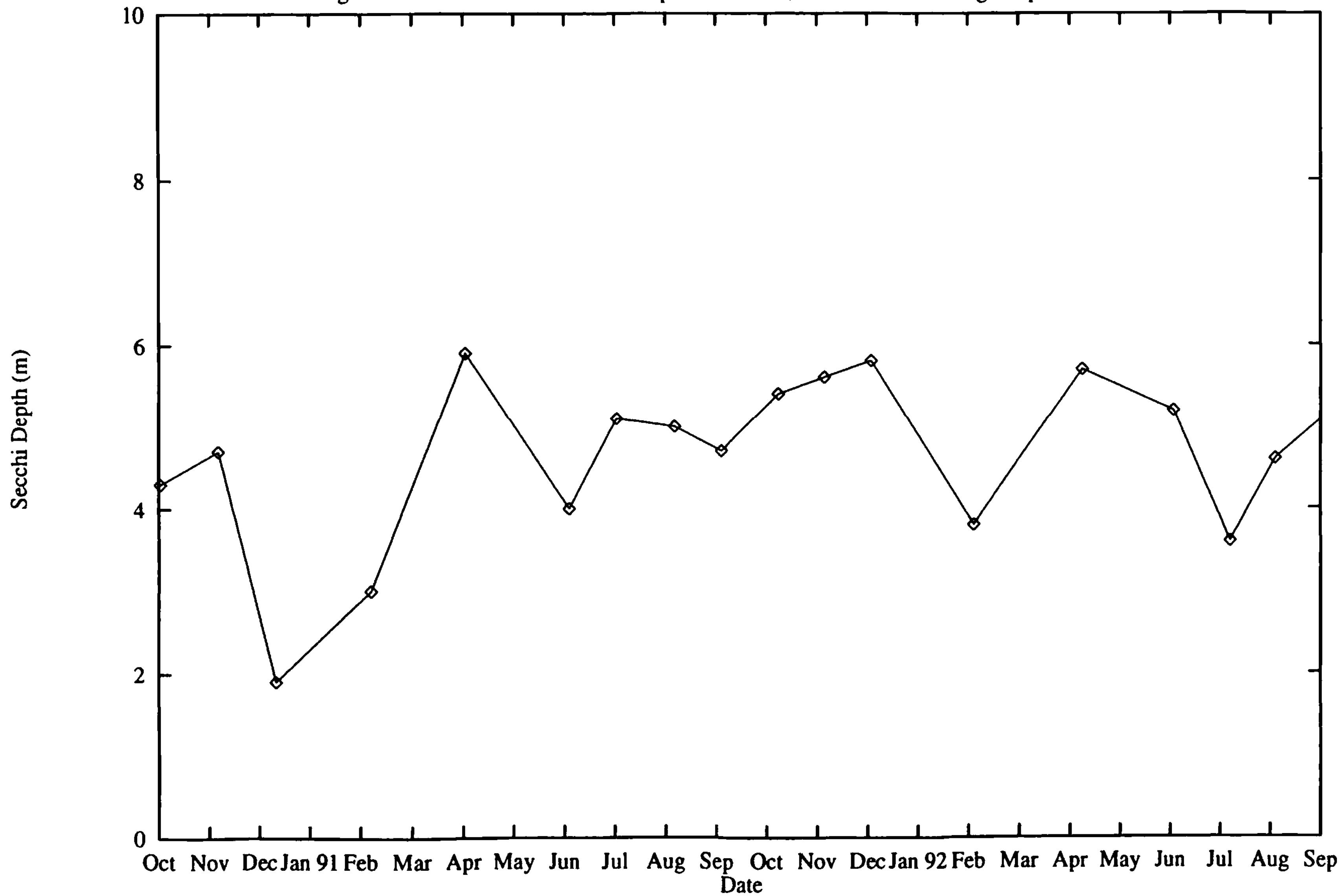


Figure 88: Lake Whatcom Secchi depths for Site 2, October 1990 through September 1992.

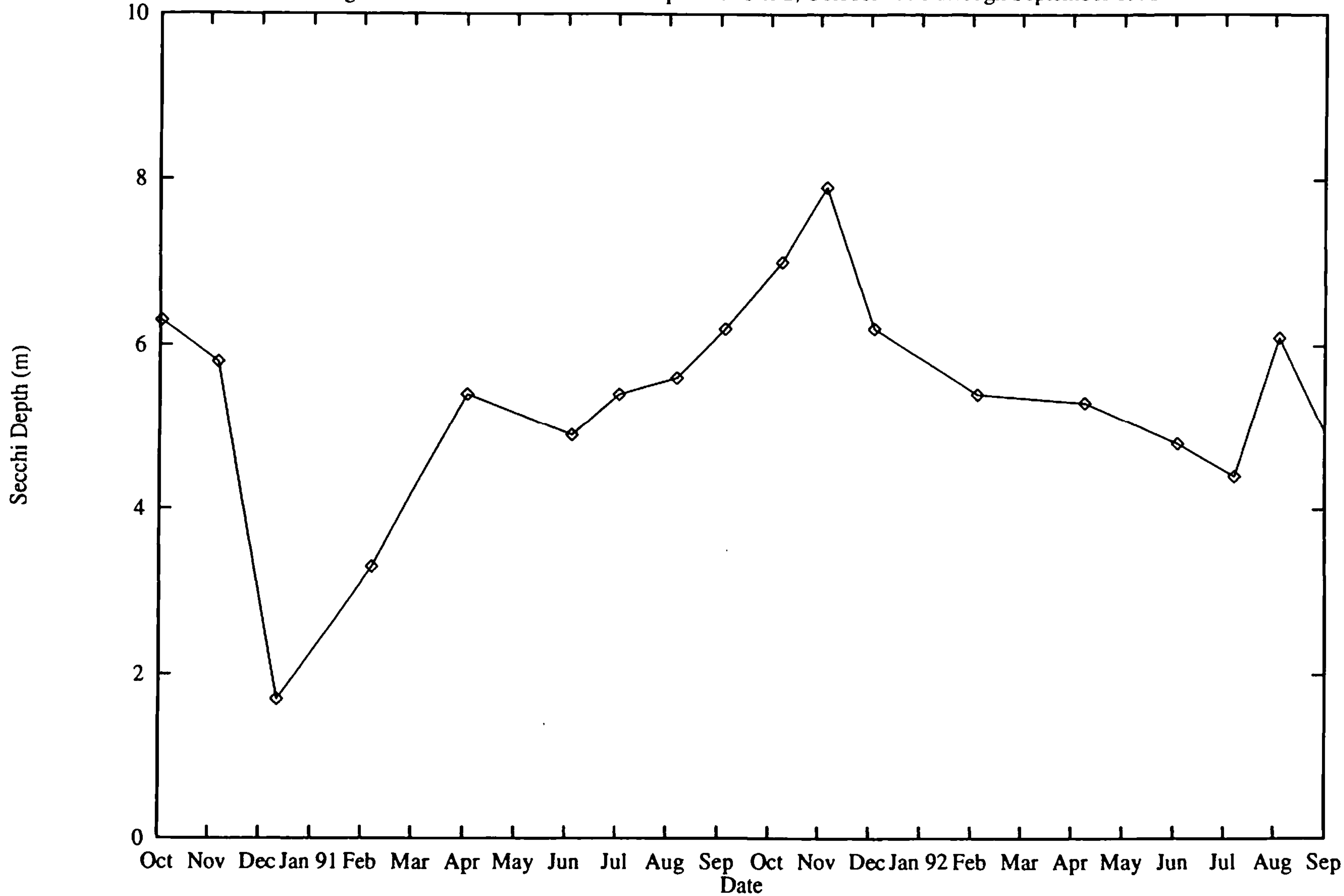


Figure 89: Lake Whatcom Secchi depths for Intake site (basin 2), October 1990 through September 1992.

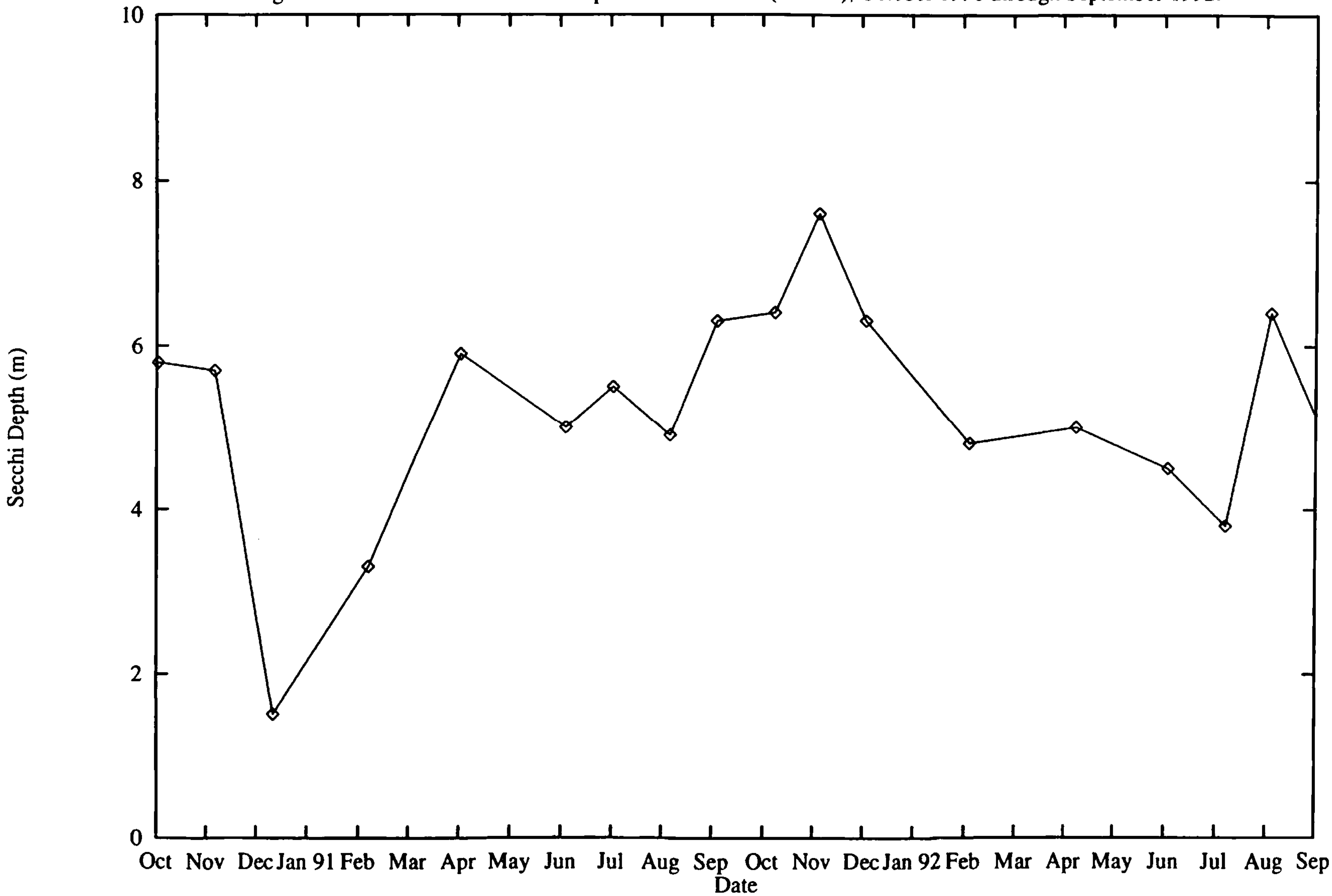


Figure 90: Lake Whatcom Secchi depths for Site 3, October 1990 through September 1992.

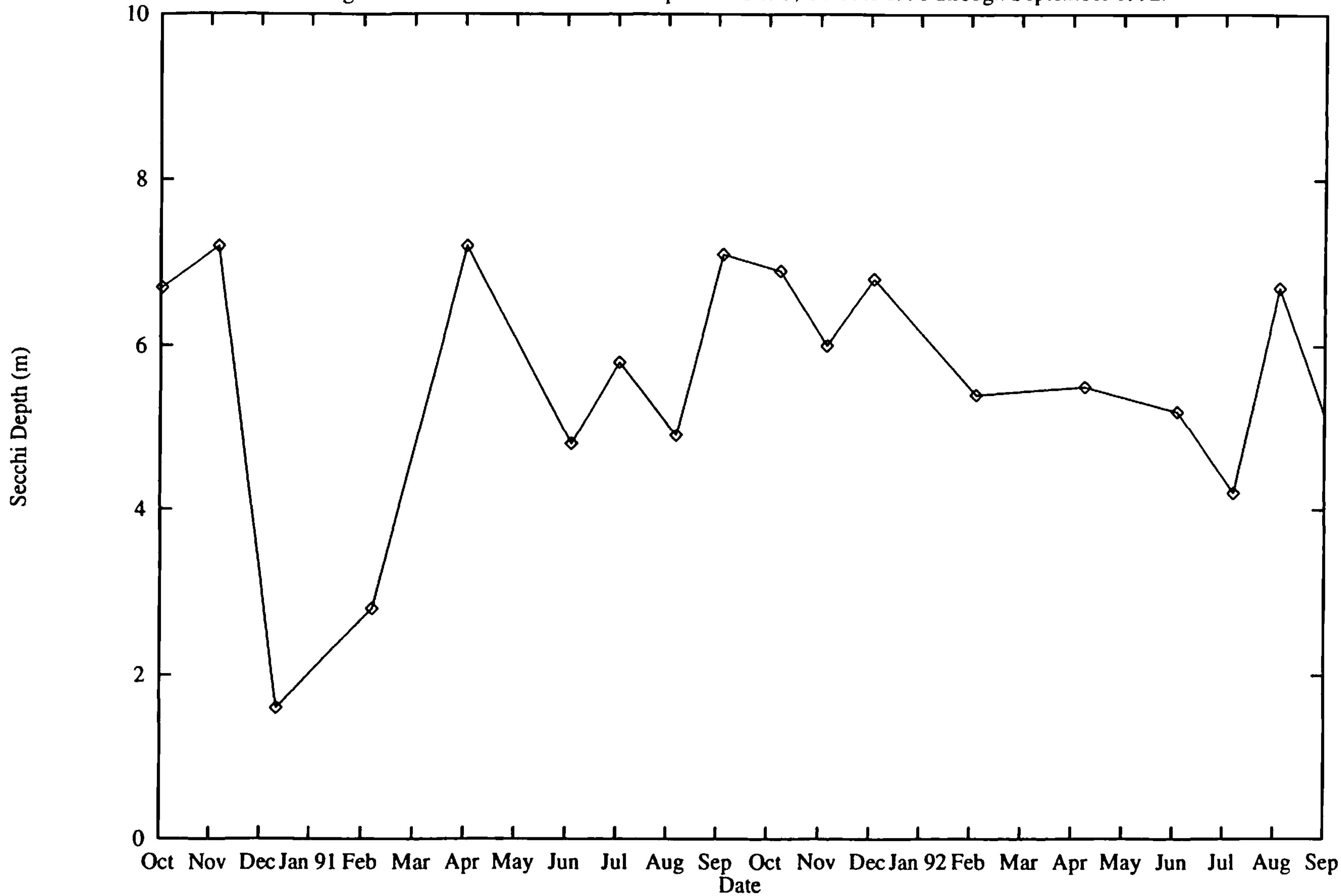


Figure 91: Lake Whatcom Secchi depths for Site 4, October 1990 through September 1992.

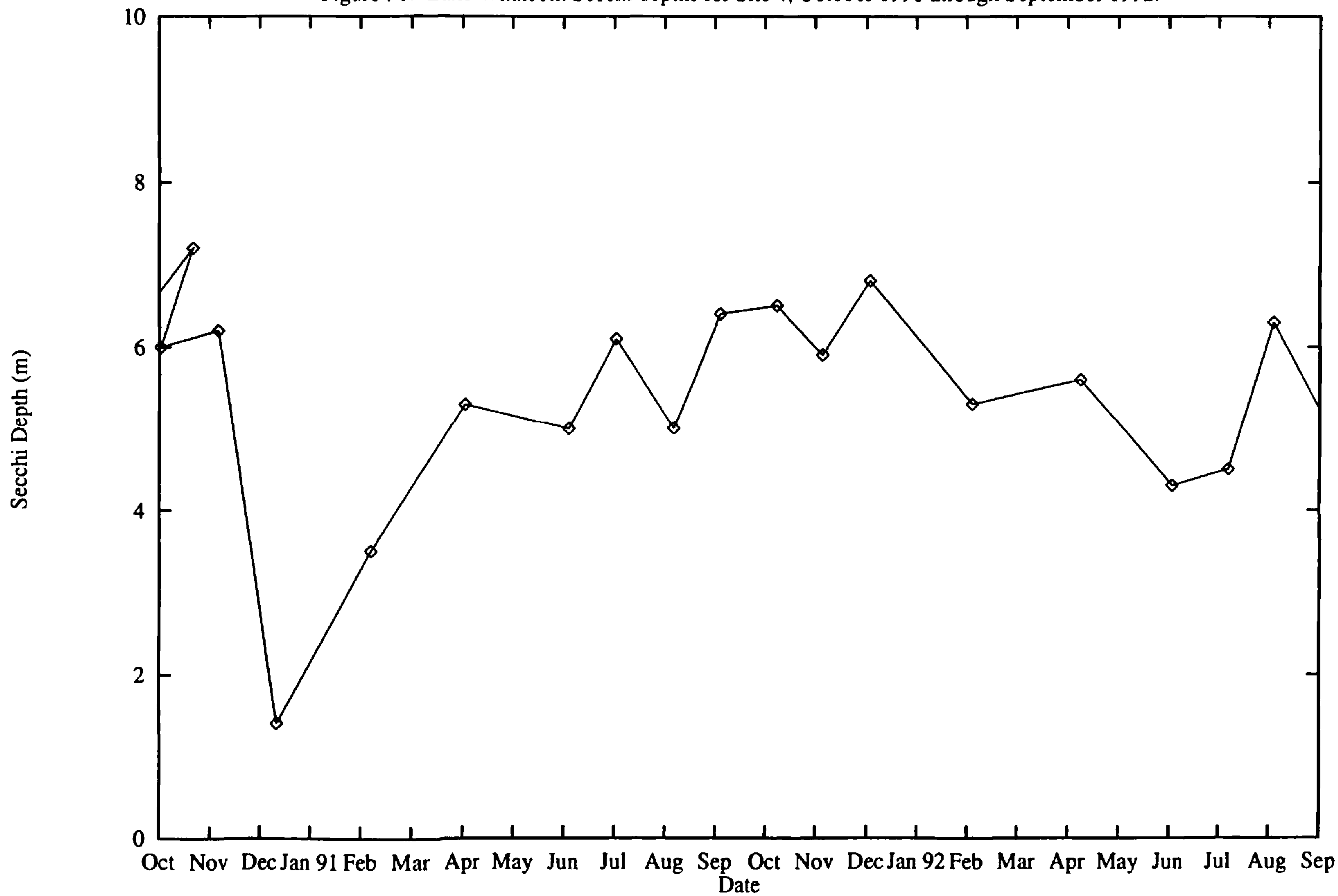
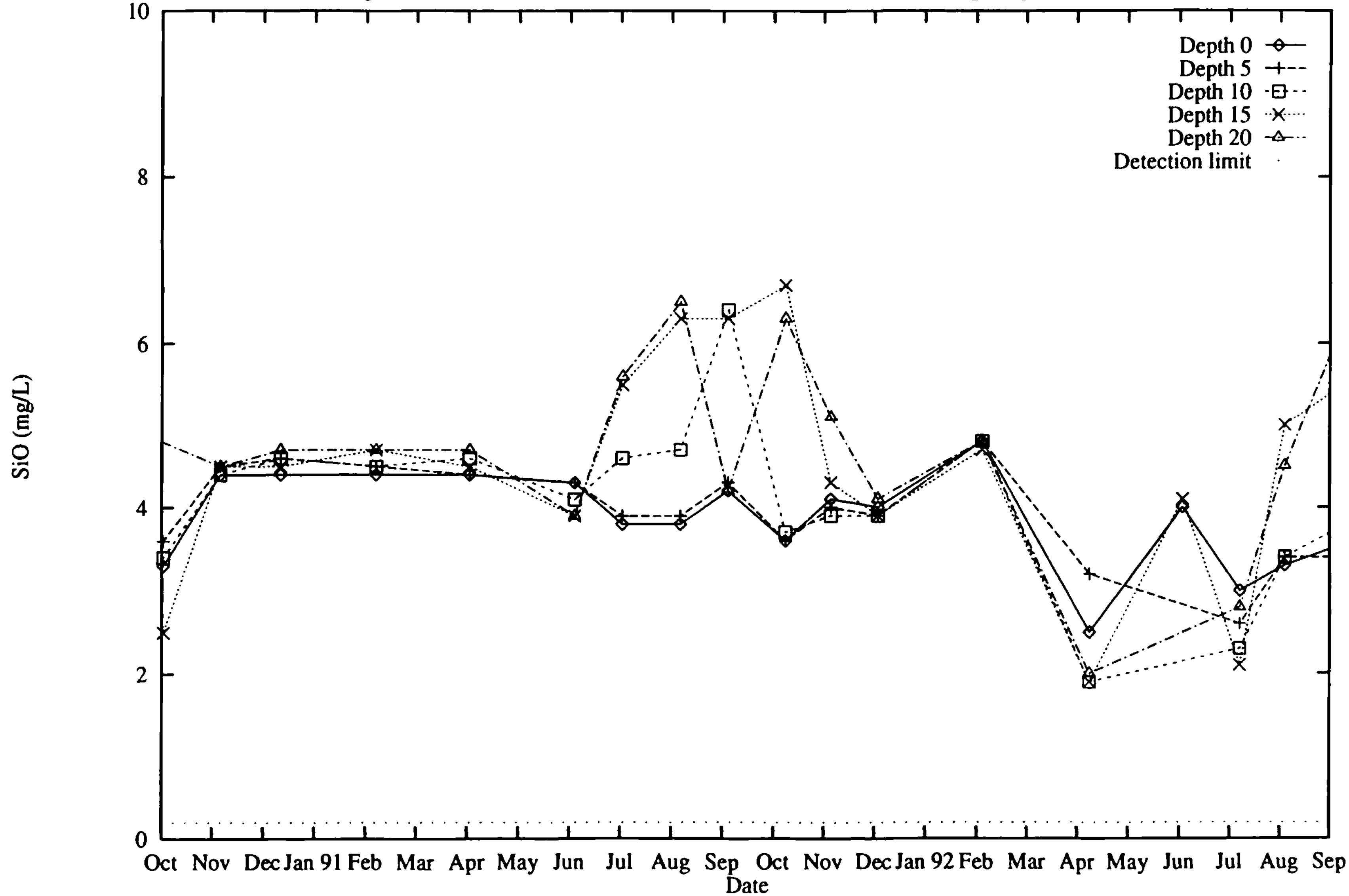
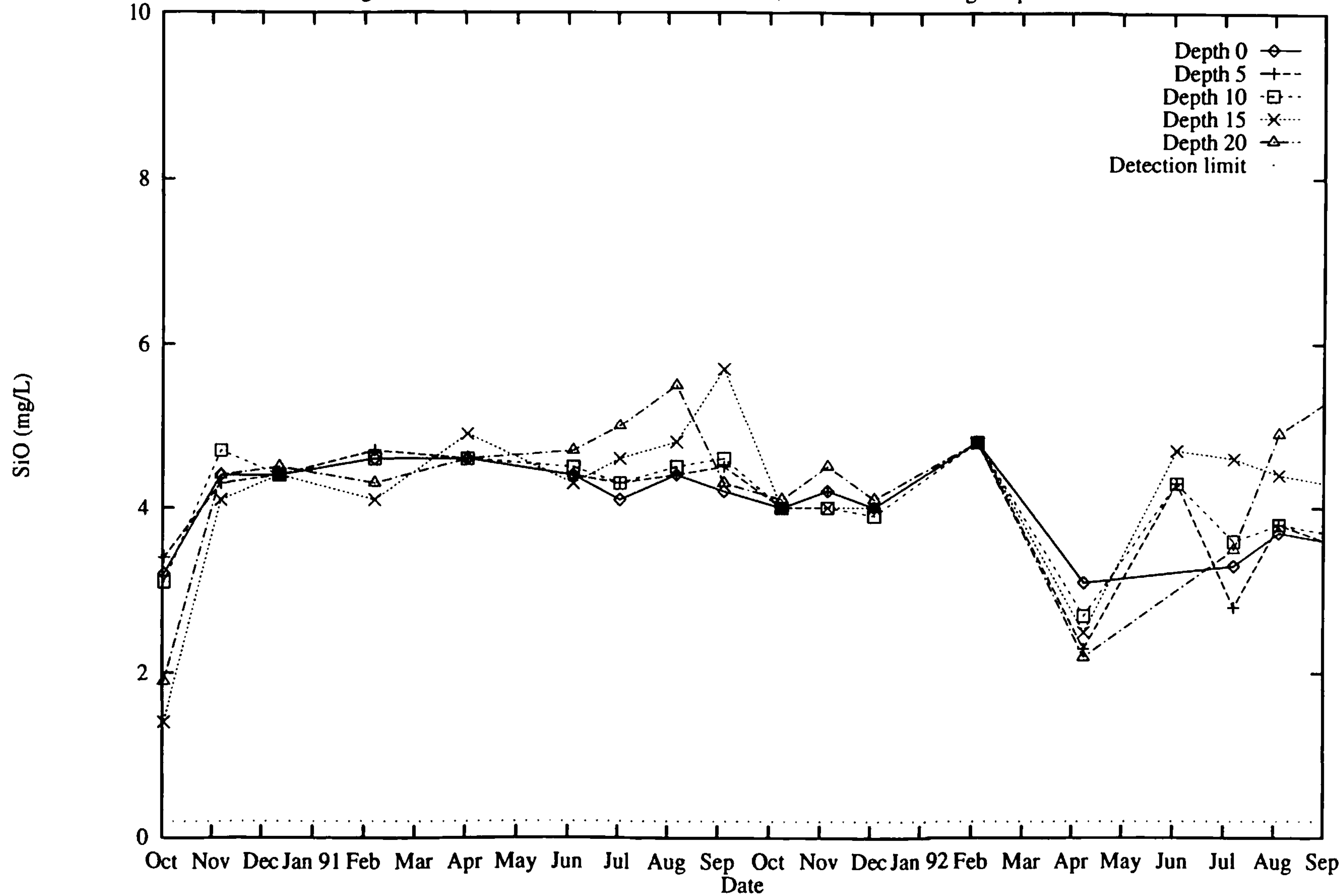


Figure 92: Lake Whatcom silica data for Site 1, October 1990 through September 1992.



Note: Actual depth at 20 m for November 1990 data was 19.7 m.

Figure 93: Lake Whatcom silica data for Site 2, October 1990 through September 1992.



Note: Actual depth at 20 m for November 1990 data was 18.5 m.

Figure 94: Lake Whatcom silica data for Intake site (basin 2), October 1990 through September 1992.

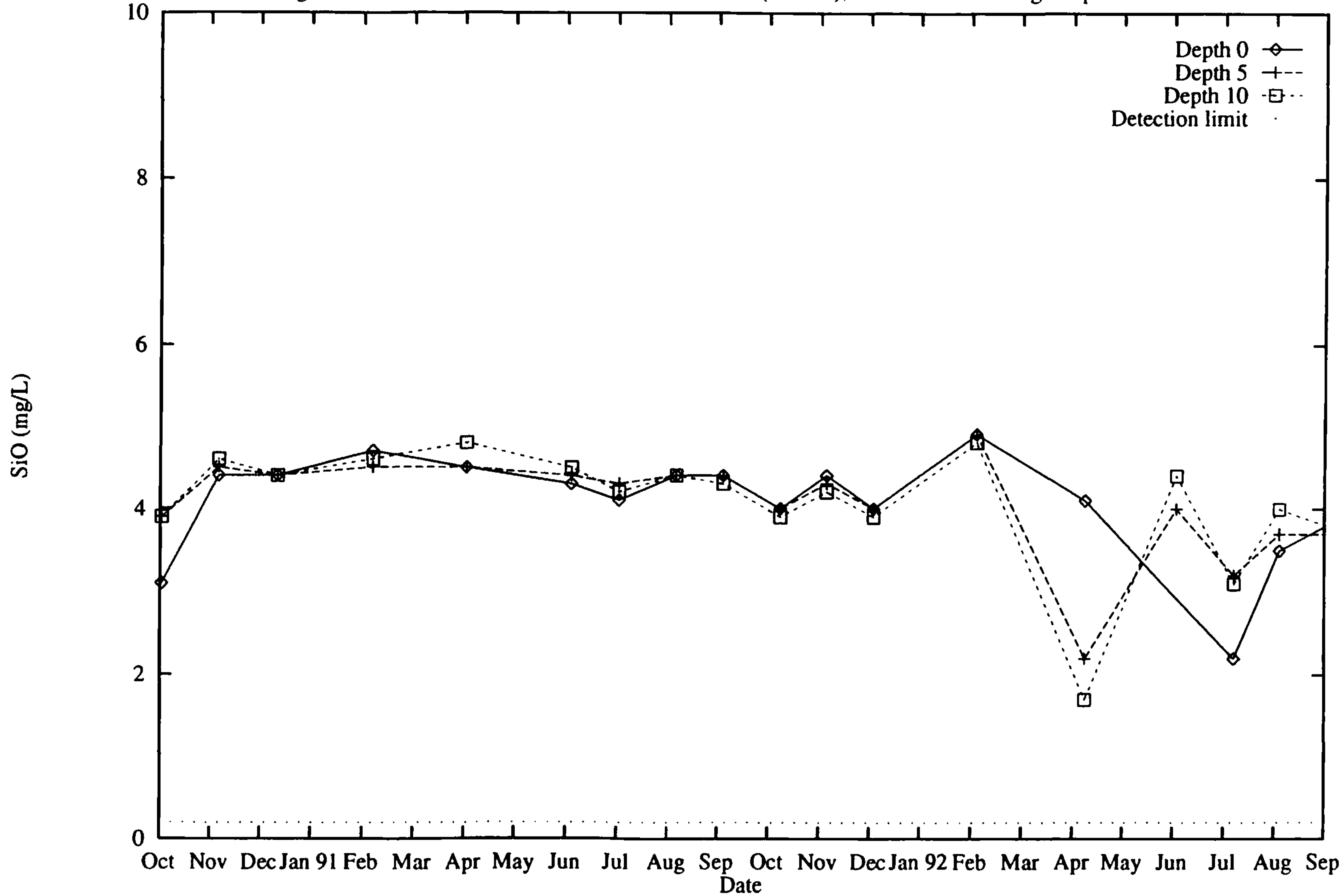


Figure 95: Lake Whatcom silica data for Site 3, October 1990 through September 1992.

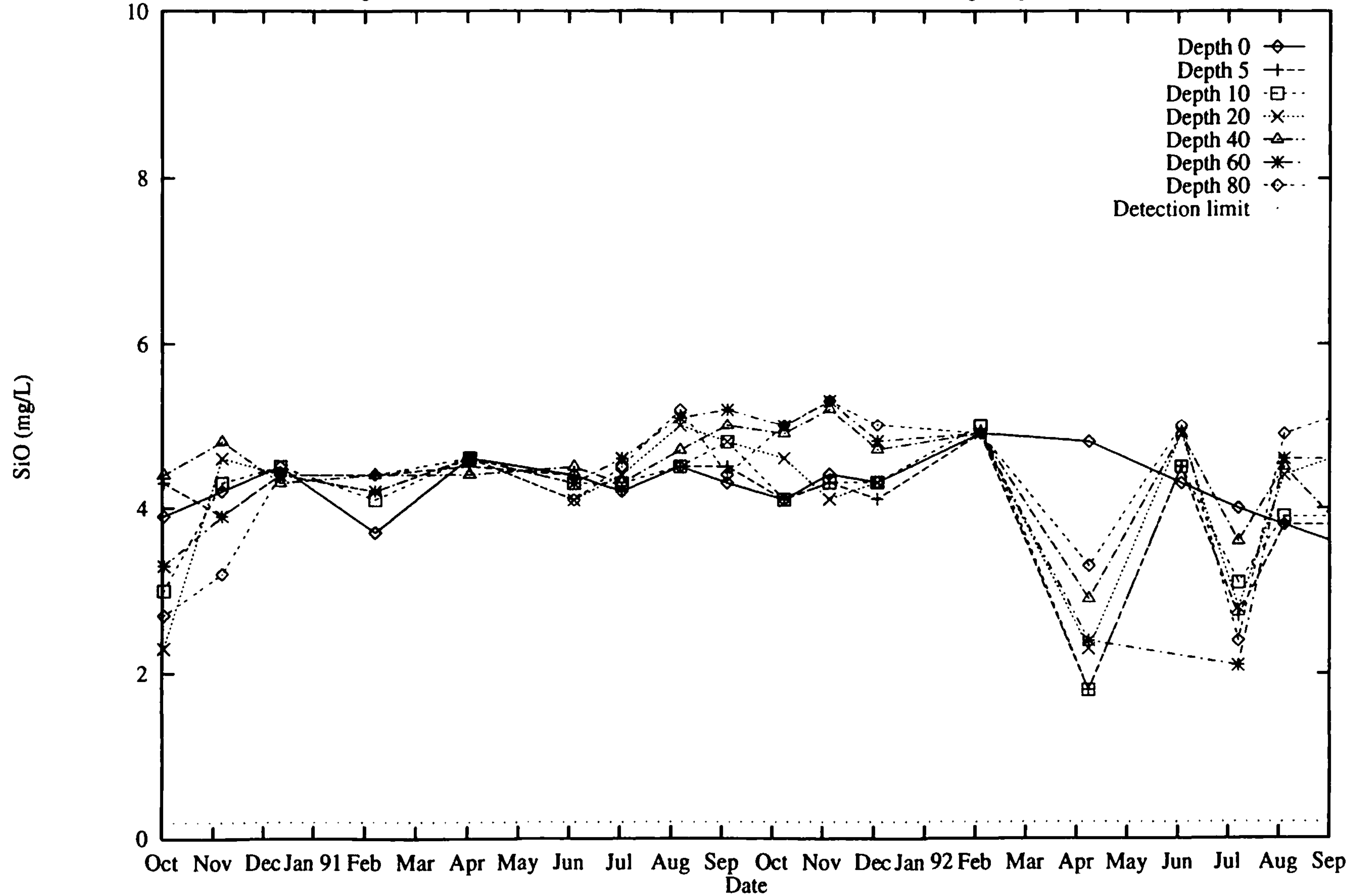


Figure 96: Lake Whatcom silica data for Site 4, October 1990 through September 1992.

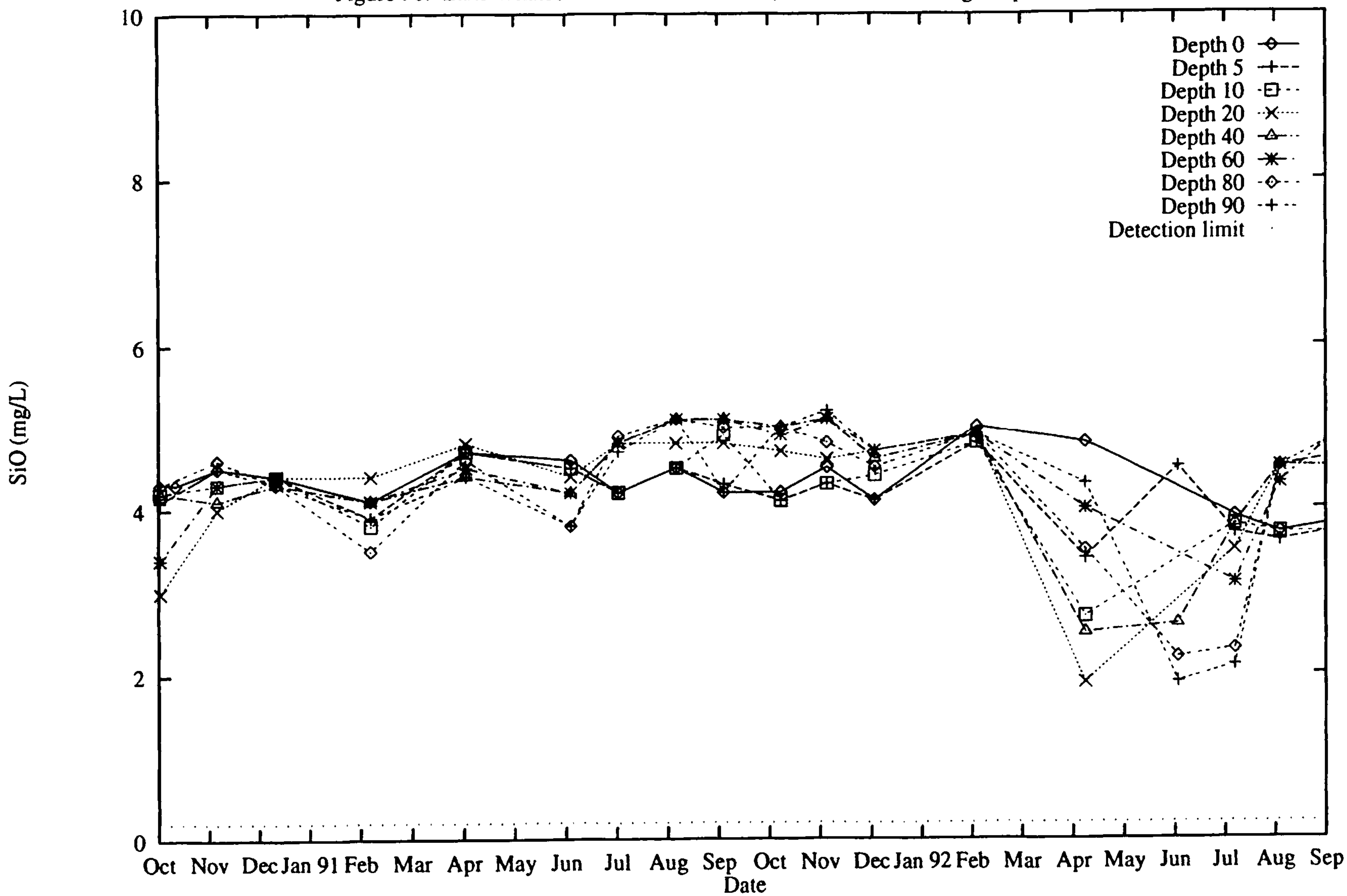


Figure 97: Lake Whatcom turbidity data for Site 1, October 1990 through September 1992.

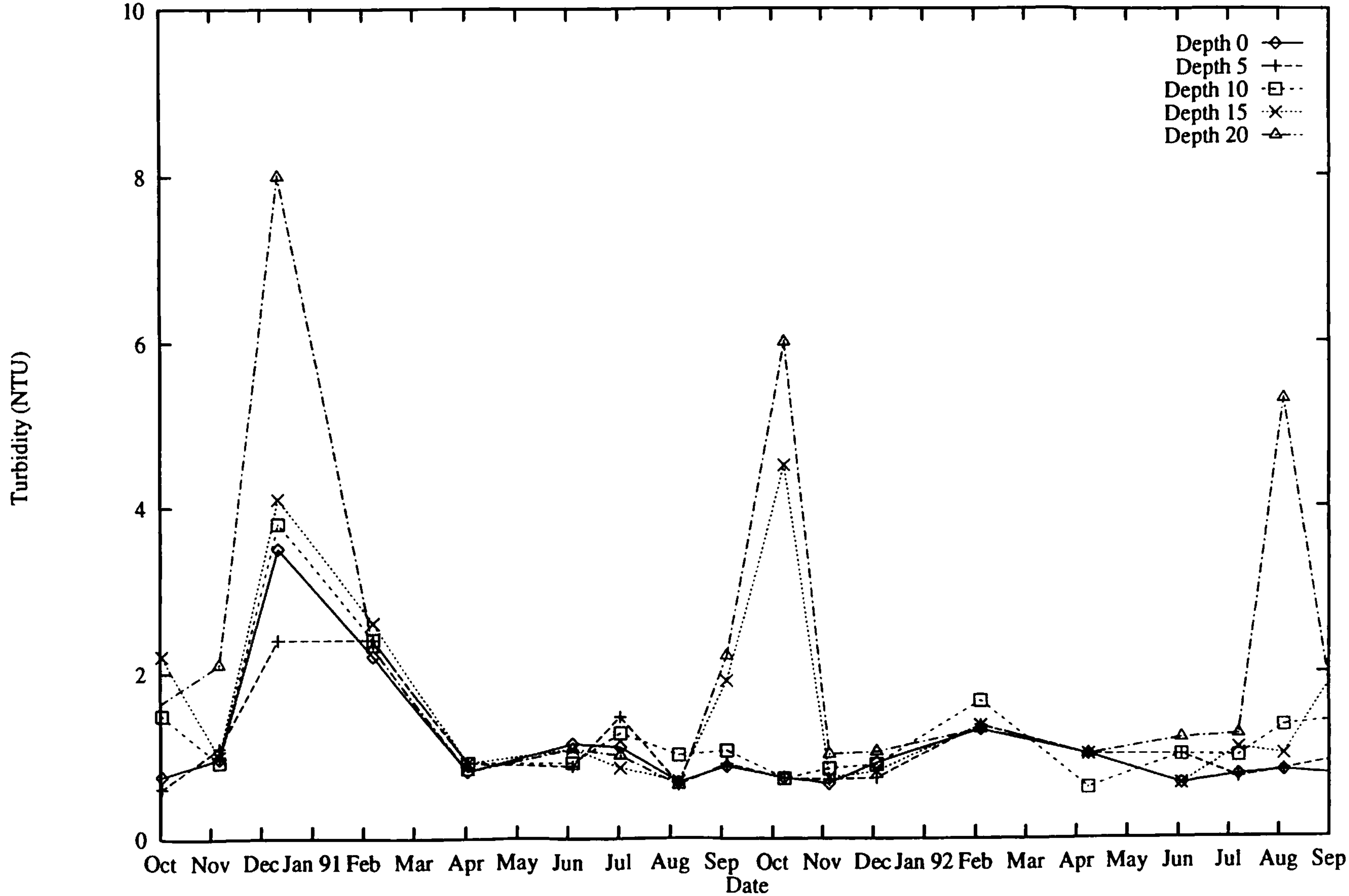


Figure 98: Lake Whatcom turbidity data for Site 2, October 1990 through September 1992.

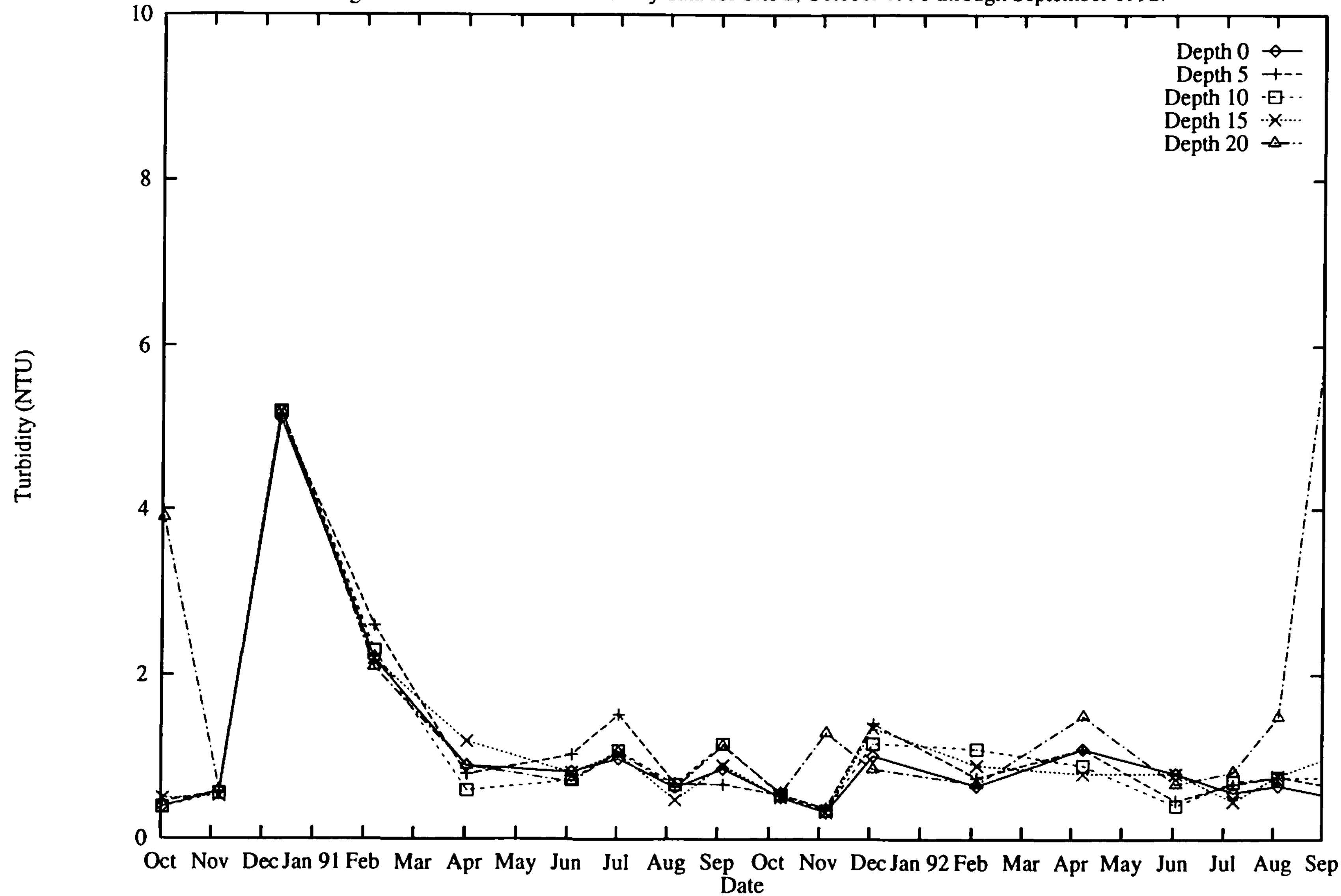


Figure 99: Lake Whatcom turbidity data for Intake site (basin 2), October 1990 through September 1992.

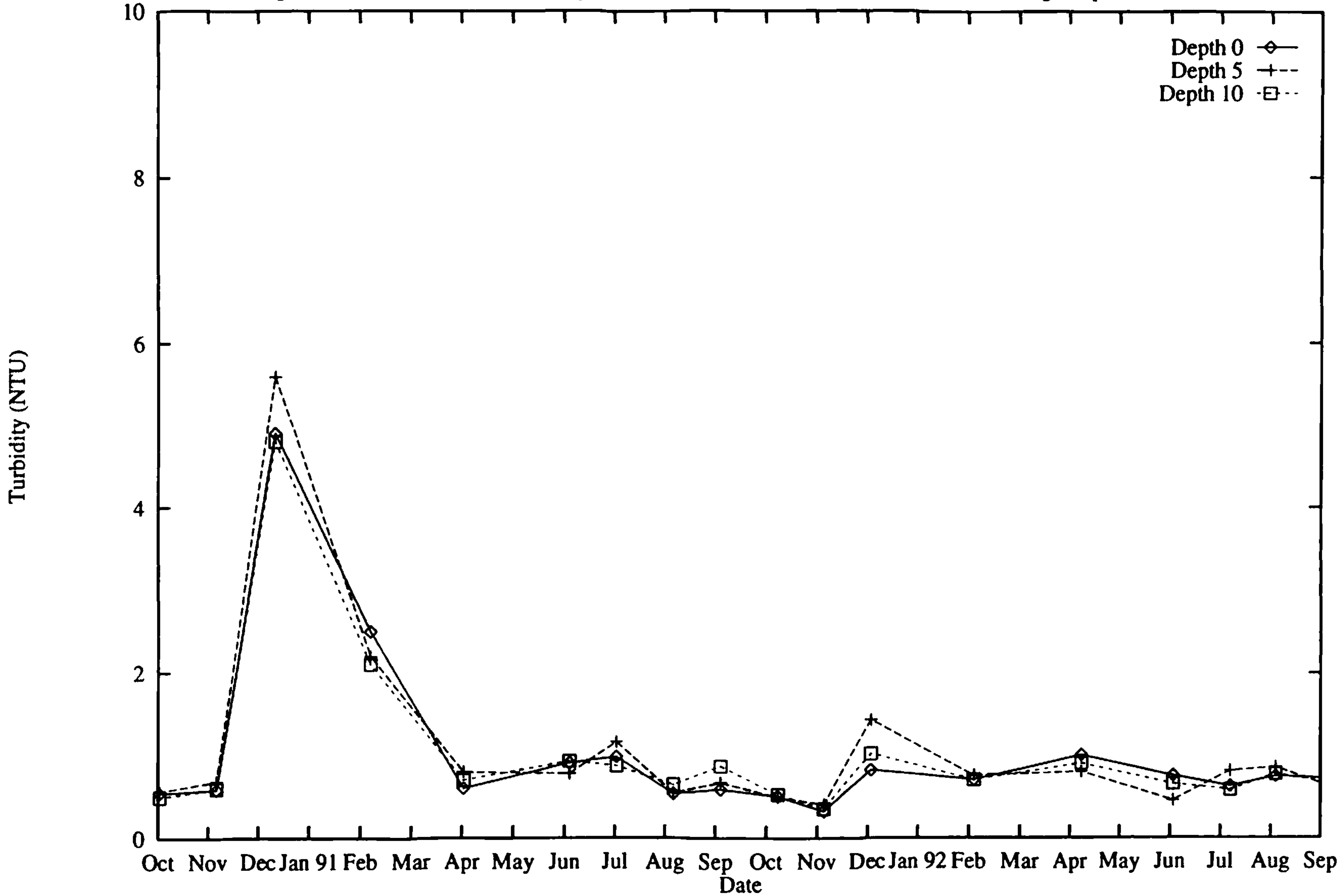


Figure 100: Lake Whatcom turbidity data for Site 3, October 1990 through September 1992.

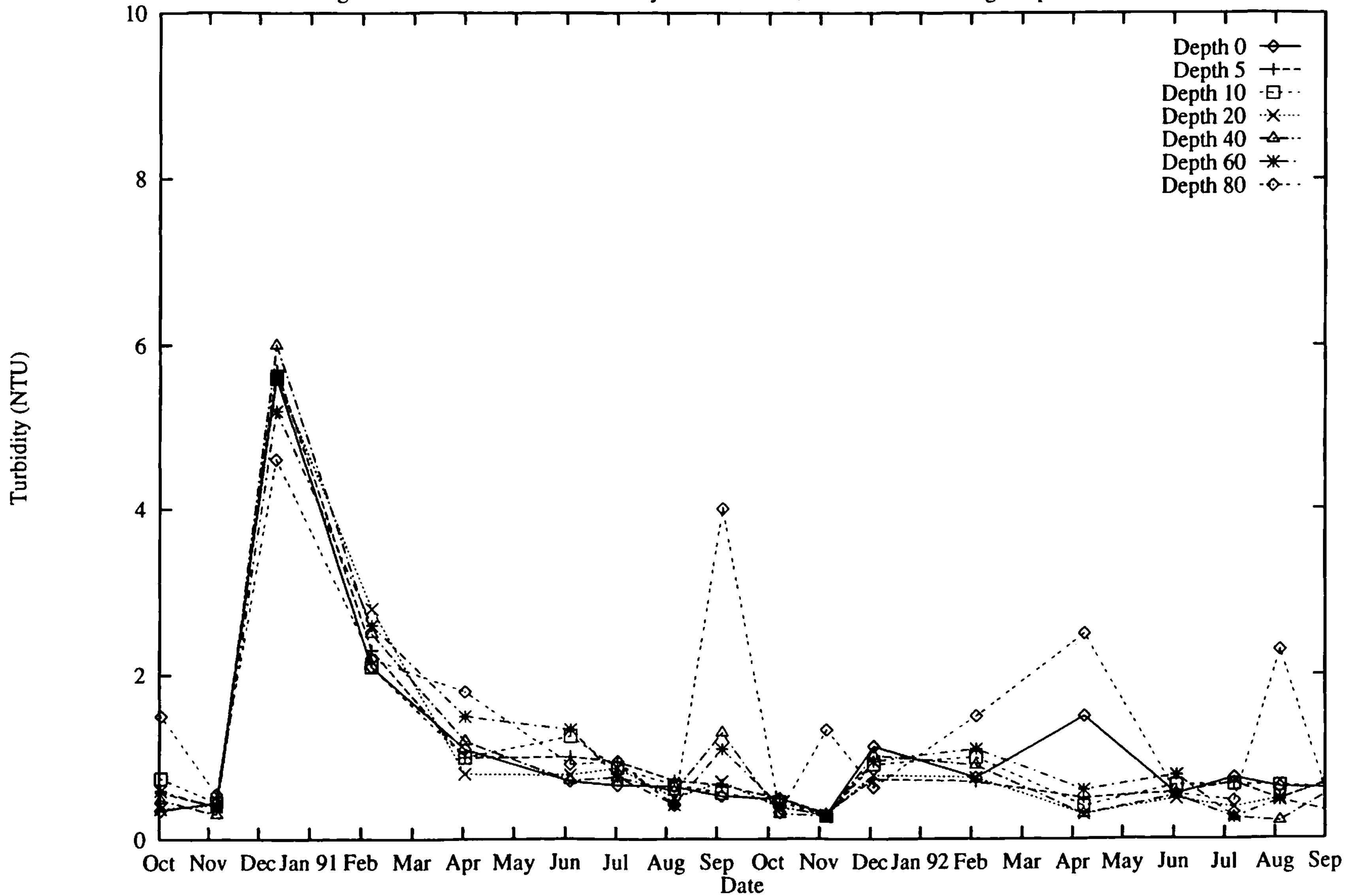


Figure 101: Lake Whatcom turbidity data for Site 4, October 1990 through September 1992.

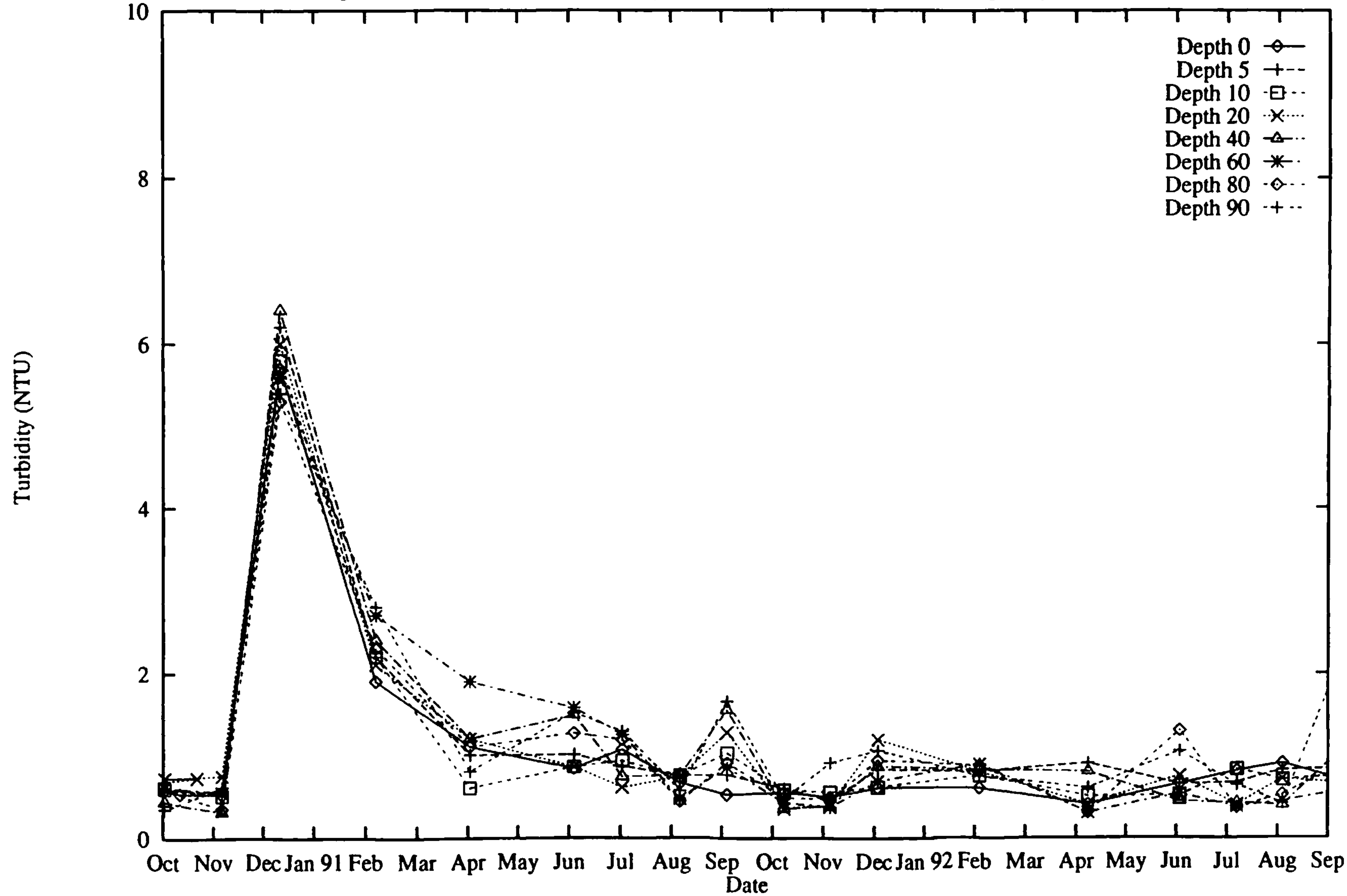


Figure 102: Lake Whatcom phytoplankton data (Chlorophyta), October 1991 through September 1992.

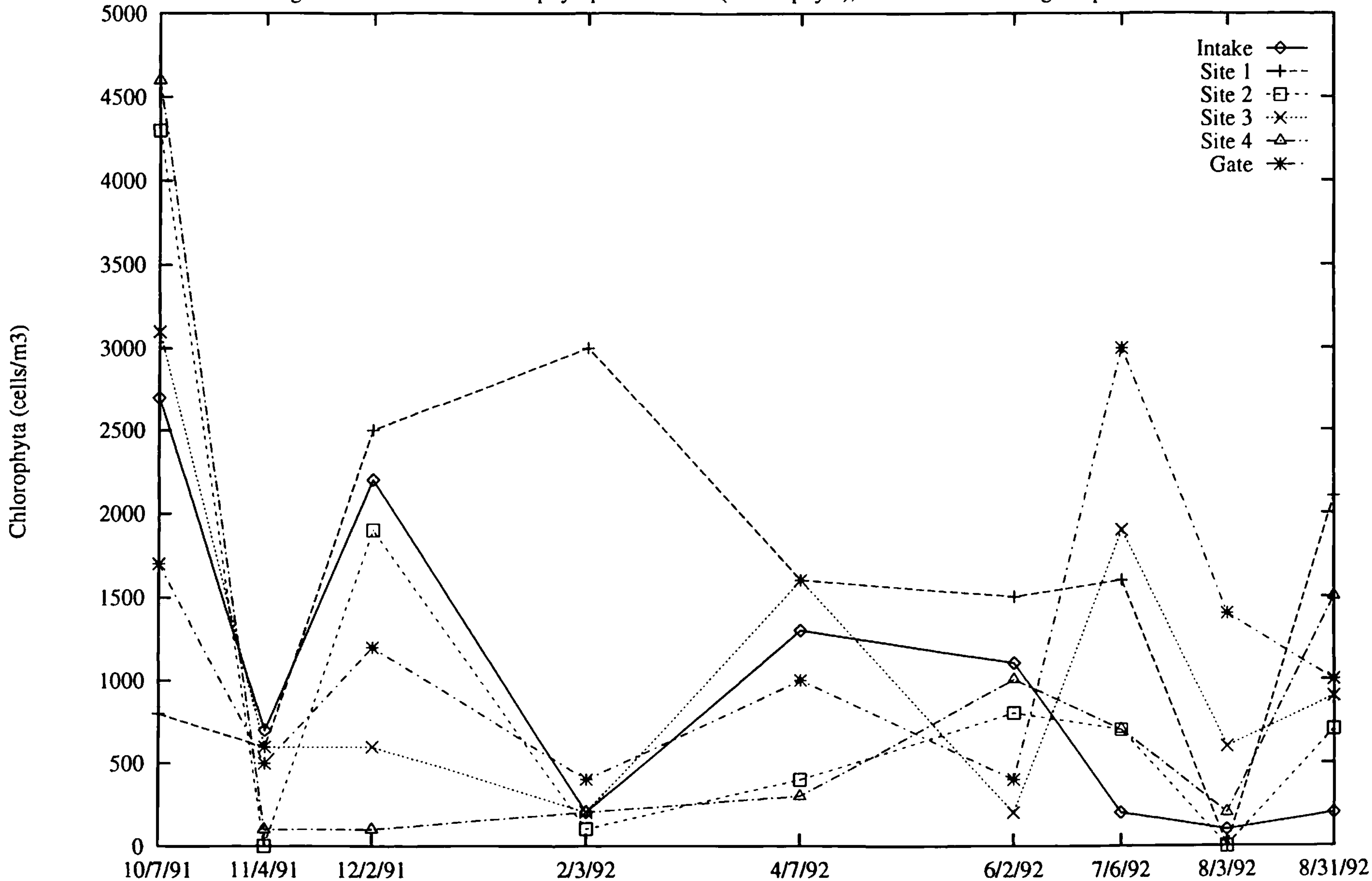


Figure 103: Lake Whatcom phytoplankton data (Chrysophyta), October 1991 through September 1992.

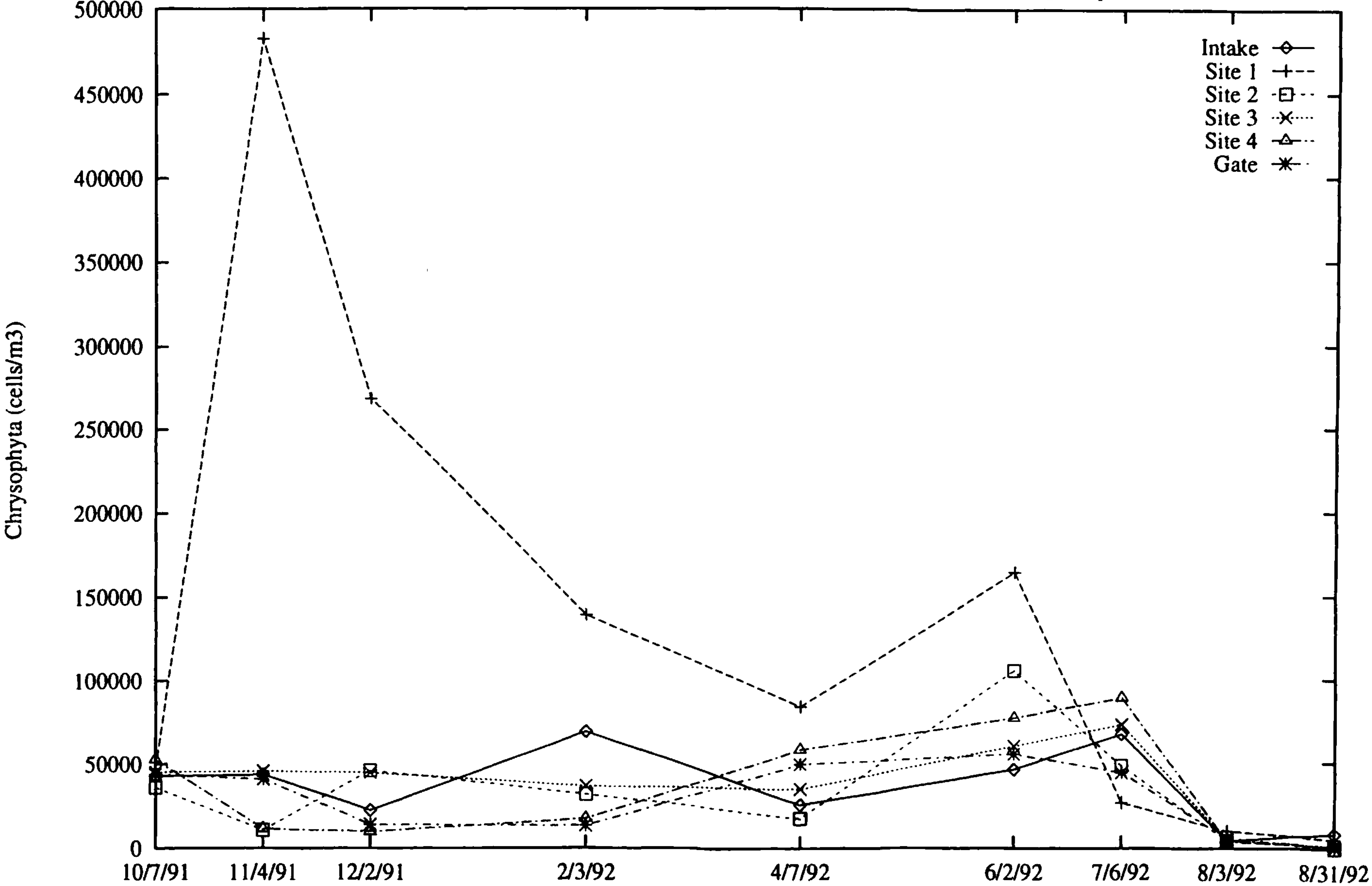


Figure 104: Lake Whatcom phytoplankton data (Cyanophyta), October 1991 through September 1992

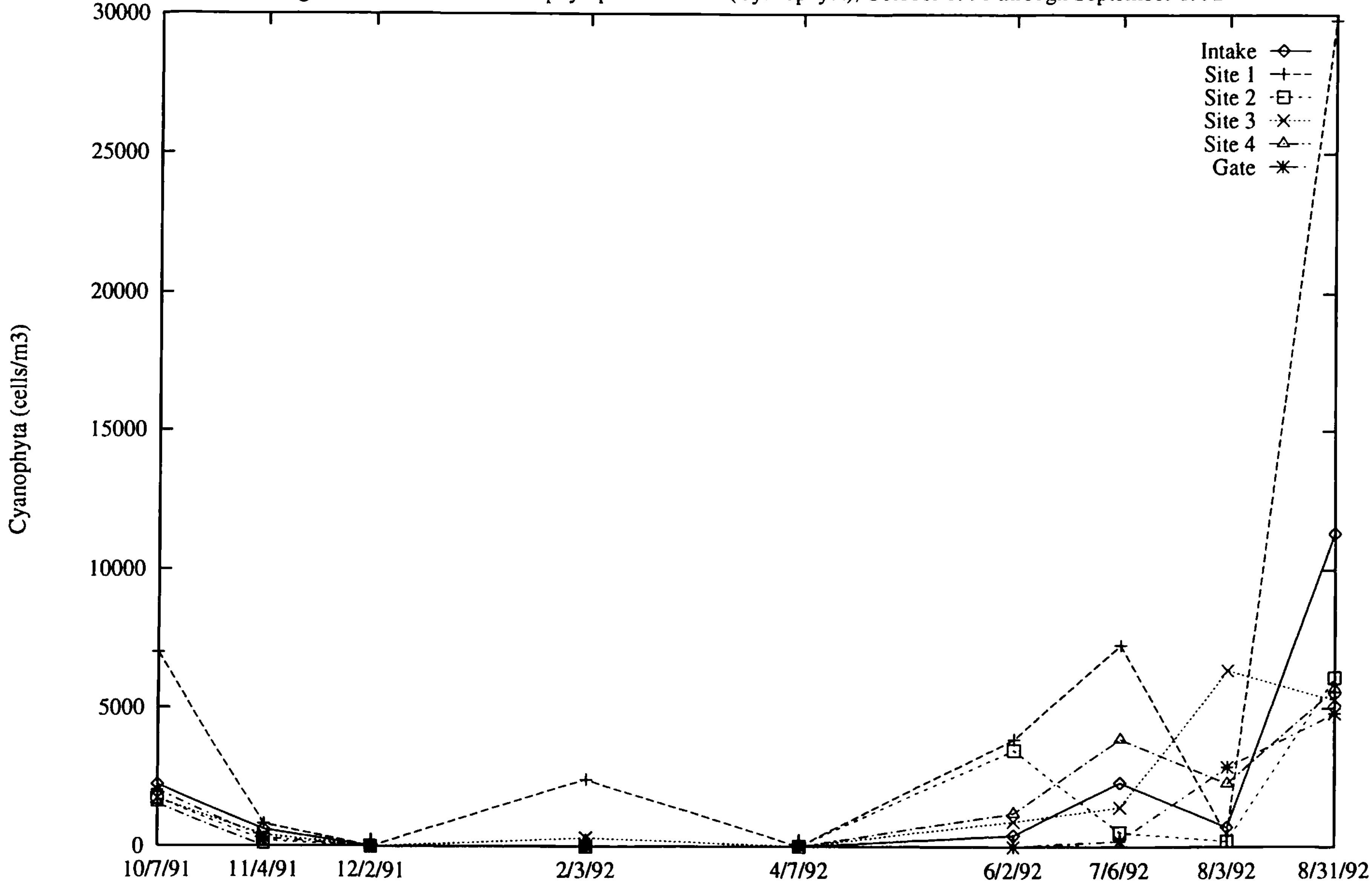


Figure 105: Lake Whatcom phytoplankton data (Pyrrophyta), October 1991 through September 1992.

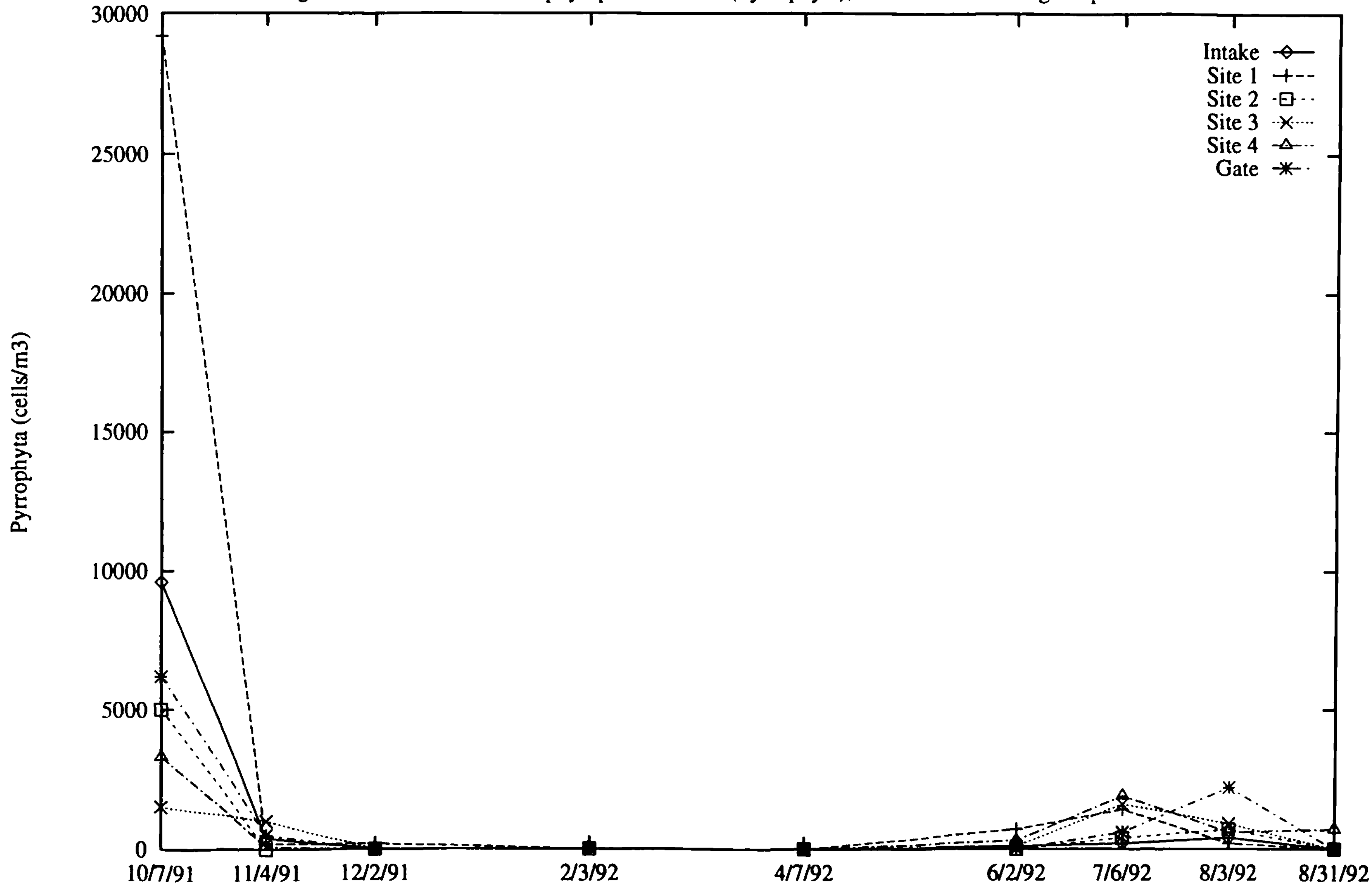
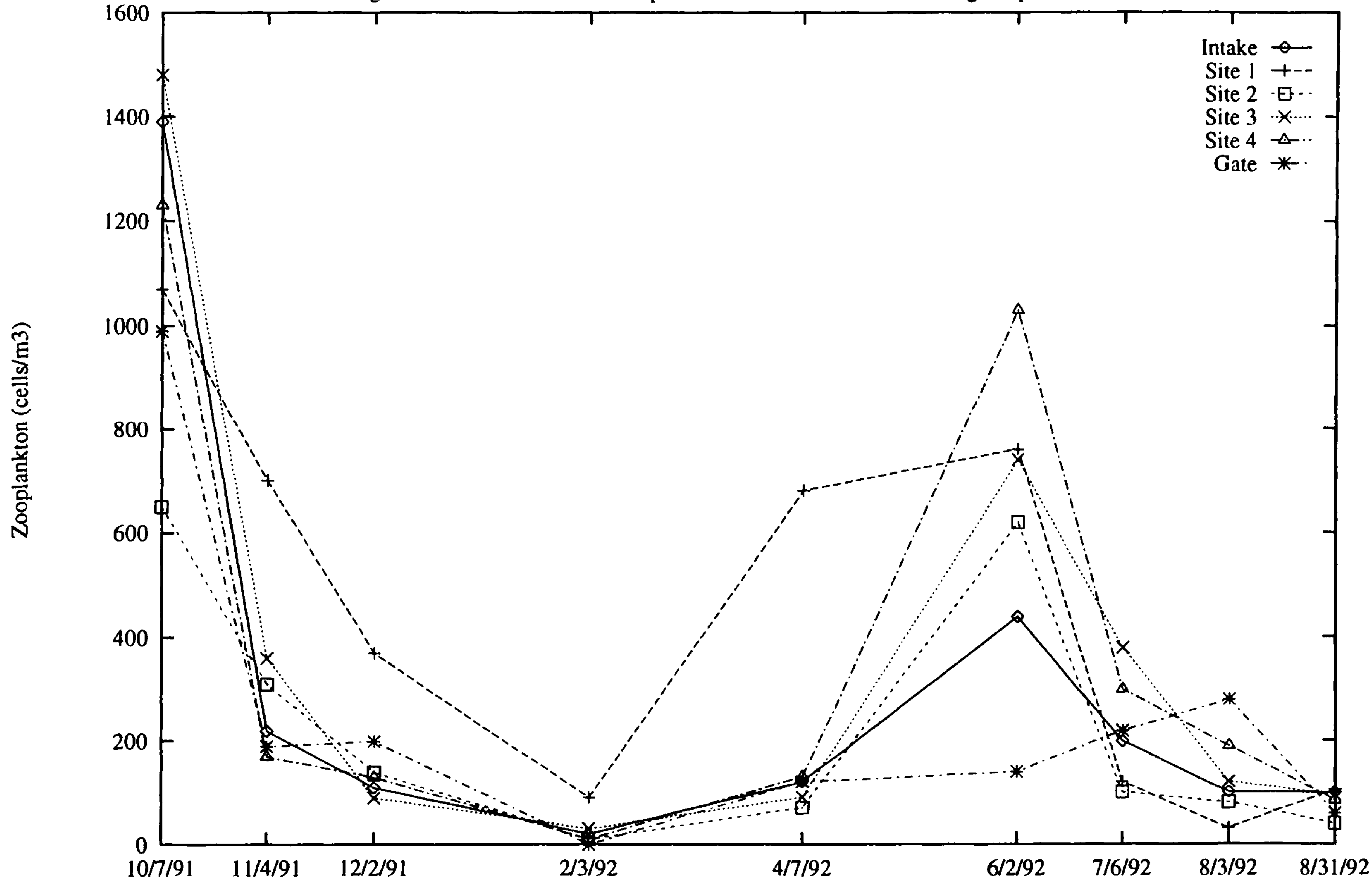


Figure 106: Lake Whatcom zooplankton data, October 1992 through September 1992.



3 Creek Water Quality Monitoring

3.1 Site Descriptions

Six creeks were sampled biannually during the 1991–1992 monitoring program, including Austin Creek, the Park Place storm drain, Silver Beach Creek, Smith Creek, the unnamed creek the flows through the Wildwood campground, and the northern unnamed creek on Blue Canyon Rd. (Blue Canyon #1). The exact sampling locations for these sites are described by Walker, et al. (1992).

The creeks that were selected for continued monitoring in 1992 included two small, mostly forested creeks located in the southern portion of the watershed (Wildwood Creek and Blue Canyon Creek); two large, perennial creeks (Austin Creek and Smith Creek); a small residential creek located in the northeastern portion of the watershed (Silver Beach Creek); and one underground storm drain (Park Place drain). These six creeks represent water quality conditions ranging from heavily impacted by residential runoff (Park Place drain) to relatively unaffected[5] by residential development (e.g., Blue Canyon Creek). Of the two large creeks, Austin Creek, which was sampled near its mouth, receives residential runoff from Sudden Valley. Smith Creek, which was also sampled near its mouth, receives relatively little residential runoff.

3.2 Field Sampling and Analytical Methods

The creeks were sampled on February 10 and July 13, 1992. The water quality parameters measured for the 1991–1992 creek monitoring program are shown in Table 5. The analytical procedures were summarized earlier in Table 2. All water samples (including bacteriological samples) collected in the field were stored on ice and in the dark until they reached the laboratory. Once in the laboratory the handling procedures that were relevant for each analysis were followed (see Table 2). The silica, cation (calcium and potassium), anion (bicarbonate and chloride), total organic carbon, dissolved inorganic carbon, nutrient analyses (total phosphorus, soluble reactive phosphate, ammonia, nitrite/nitrate, total Kjeldahl nitrogen), and metals (cadmium, chromium,

[5]None of the creeks in this study are completely unaffected by development.

copper, iron, lead, magnesium, nickel, and zinc) were performed by the Institute for Watershed Studies (IWS), Western Washington University. The coliform samples were analyzed by the City of Bellingham at their water treatment plant. All other analyses were done by the field and laboratory personnel hired by this grant.

3.3 Results and Discussion

The primary purpose for the biannual creek monitoring was to provide data that can be compared to the more complete data set generated in 1990 during the stormwater runoff project (Walker, et al., 1992). Tables 6–7 shows selected data from the 1991–1992 Lake Whatcom monitoring project compared to the 1990 average water quality values for each of the six creeks. All of the 1991–1992 data are listed in Appendix C.

Most of the 1992 creek data fell within the ranges defined by the 1990 data for a particular creek. Ammonia and nitrite/nitrate concentrations, however, were often higher 1992 than in 1990. This may have been due to the warmer weather in 1992, which may have sustained a higher level of biological activity (e.g., decomposition) in the creeks and in their adjacent watersheds. Nitrogen in surface water includes both inorganic (nitrite, nitrate, ammonia) and organic nitrogen, and can come from natural as well as anthropogenic sources. Furthermore, the various forms of nitrogen can be converted to other forms. For example, ammonia can be converted to nitrite and nitrate in the presence of oxygen, and vice versa. Because of this, high concentrations of any particular form of nitrogen does not always indicate a pollution source. Nitrite. nitrate, and ammonia are very soluble and will leach from soils and decomposing vegetation into surface water. During periods of heavy precipitation this leaching may result in measurable increases in the nitrogen concentrations in surface water. Furthermore, in the winter the nitrogen in surface water will usually be in the form of nitrate because streams tend to be more turbulent and well-oxygenated, so most of the ammonia that leaches into a stream will be rapidly converted to nitrate. All of the creeks sampled, with the exception of Blue Canyon Creek, had higher nitrite/nitrate concentrations in February than in July. During the summer elevated ammonia concentrations sometimes persist in surface water because of lower flow rates (i.e., less turbulence) and lower dissolved oxygen concentrations. This seemes to have been the case in Blue Canyon, Wildwood, and

Table 5: Lake Whatcom 1991-1992 Creek Monitoring Schedule

Parameter	1991 Oct	Nov	Dec	1992 Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Temperature					•					•		
Discharge					•					•		
Alkalinity					•					•		
Conductivity					•					•		
DO - Winkler					•					•		
pH					•					•		
Suspended Solids					•					•		
Total Solids					•					•		
Turbidity					•					•		
Ammonia					•					•		
Nitrite/Nitrate					•					•		
Total Kjeldahl Nitrogen					•					•		
Soluble Phosphorus					•					•		
Total Phosphorus					•					•		
Bicarbonate					•					•		
Cadmium					•					•		
Calcium					•					•		
Chloride					•					•		
Chromium					•					•		
Copper					•					•		
Iron					•					•		
Lead					•					•		
Magnesium					•					•		
Nickel					•					•		
Potassium					•					•		
Zinc					•					•		
Coliforms (City)					•					•		

Smith Creeks, as well as the Park Place drain, all of which had relatively high ammonia concentrations in July 1992. Austin Creek and Silver Beach Creek did not have higher ammonia concentrations in July 1992, nor were their 1992 ammonia concentrations very different from 1990.

Two additional values stand out as unusual: the conductivity value for the Park Place drain in July 1992 is very low (29.5 μMHO) and the total phosphorus value for Silver Beach Creek in July 1992 is very high (196 μg/L). Both of these values are considerably outside the range for their respective parameters at those sites. Since the values are unsupported by any obvious seasonal or site-specific trend, we cannot determine whether they reflect analytical errors or an accurate identification of a short-term, localized event.

Site	Date	pH	Cond. (μMHO)	Ammonia (μg/L)	T. K. N. (μg/L)	Nitrate (μg/L)	S. Phos (μg/L)	T. Phos (μg/L)	D. Oxygen (mg/L)	T. S. S. (mg/L)
Blue Canyon	1990 min	8.1	250	10	< 100	167	< 5	< 5	9.0	< 2
	1990 avg	8.4	344	20	< 100	336	< 5	13	10.5	5.4
	1990 max	8.6	409	34	187	545	12	25	12.3	29
	Feb 1992	8.4	350	6	< 100	735	10	< 5	10.9	3
	July 1992	8.6	373	112	141	299	6	11	9.7	3
Wildwd	1990 min	6.7	34	8	< 100	755	< 5	< 5	6.9	< 2
	1990 avg	7.2	54	189	< 100	1790	< 5	9	10.0	2
	1990 max	7.6	126	32	185	4857	9	33	12.3	11
	Feb 1992	7.7	53	20	< 100	3330	< 5	< 5	11.0	< 2
	July 1992	7.4	50	141	164	2708	7	< 5	9.6	< 2
Austin	1990 min	7.1	50	6	< 100	259	< 5	< 5	8.3	< 2
	1990 avg	7.4	81	20	< 100	441	< 5	13	10.5	3
	1990 max	7.6	121	40	179	658	9	23	12.1	13.
	Feb 1992	7.5	67	13	176	1014	< 5	< 5	11.2	3
	July 1992	7.6	74	9	147	490	6	9	9.1	< 2
Park Place	1990 min	7.1	118	22	218	145	6	41	6.4	3
	1990 avg	7.7	245	51	402	357	22	66	9.1	13
	1990 max	8.1	410	111	1525	549	86	168	11.8	57
	Feb 1992	7.8	180	30	264	692	9	29	10.7	4
	July 1992	8.0	30	73	1238	648	23	88	9.1	< 2
Silver Beach	1990 min	7.4	103	< 10	210	173	< 5	27	6.9	< 2
	1990 avg	7.9	187	19	292.	583	16	41	9.8	6
	1990 max	8.1	290	43	414	1118	42	61	12.1	12
	Feb 1992	7.7	124	24	333	2426	9	30	10.9	4
	July 1992	8.1	252	27	353	236	m	196	8.4	< 2
Smith	1990 min	6.6	44	12	< 100	396	< 5	< 5	8.7	< 2
	1990 avg	7.5	64	17	< 100	687	< 5	6	10.5	3
	1990 max	7.8	90	37	118	1025	8	12	12.6	10
	Feb 1992	7.5	60	< 5	< 100	1806	< 5	< 5	11.1	< 2
	July 1992	7.8	60	48	135	739	m	7	9.4	< 2

Table 6: Creek water quality data (February 10 and July 13, 1992) compared to the average, minimum, and maximum values from the 1990 stormwater runoff project (Walker, et al., 1992). The 1990 creek data do not include the November 1990 storm event.

		Cd (μg/L)	Cr (μg/L)	Cu (μg/L)	Pb (μg/L)	Ni (μg/L)	Zn (μg/L)	T. Colif. (/100 mL)	F. Colif. (/100 mL)
Blue Canyon	1990 avg	< 0.5	< 0.5	< 5	< 5	< 5	2.2	1163	7
	1990 min	< 0.5	< 0.5	< 5	< 5	< 5	< 0.2	90	< 2
	1990 max	< 0.5	3.6	9.4	3.9	6.26	32.8	9000	27
	Feb 1992	< 0.5	< 0.5	< 5	< 5	< 5	< 0.2	130	8
	July 1992	< 0.5	< 0.5	< 5	< 5	< 5	< 0.2	900	22
Wildwd	1990 avg	< 0.5	< 0.5	< 5	< 5	< 5	2.6	1164	74
	1990 min	< 0.5	< 0.5	< 5	< 5	< 5	0.5	23	< 2
	1990 max	< 0.5	1.9	7.5	7.1	5.8	10.5	> 16000	1300
	Feb 1992	< 0.5	< 0.5	< 5	< 5	< 5	< 0.2	30	< 2
	July 1992	< 0.5	< 0.5	< 5	< 5	< 5	< 0.2	> 1600	17
Austin	1990 avg	< 0.5	< 0.5	< 5	< 5	< 5	4.7	3366	950
	1990 min	< 0.5	< 0.5	< 5	< 5	< 5	0.4	50	7
	1990 max	< 0.5	7.3	11.3	7.2	26.2	21.0	16000	5000
	Feb 1992	< 0.5	< 0.5	11.0	< 5	< 5	< 0.2	130	13
	July 1992	< 0.5	< 0.5	< 5	< 5	< 5	< 0.2	> 1600	80
Park Place	1990 avg	< 0.5	< 0.5	7.0	< 5	6.0	15.9	8254	1353
	1990 min	< 0.5	1.0	< 5	< 5	< 5	2.6	230	8
	1990 max	< 0.5	10.3	15.9	7.1	20.4	148.2	> 16000	16000
	Feb 1992	< 0.5	1.9	< 5	< 5	< 5	< 0.2	> 1600	70
	July 1992	< 0.5	0.6	< 5	< 5	< 5	< 0.2	1600	1600
Silver Beach	1990 avg	< 0.5	< 0.5	<5	< 5	< 5	1.9	7110	3307
	1990 min	< 0.5	< 0.5	< 5	< 5	< 5	0.2	170	8
	1990 max	< 5	2.8	7.4	< 5	< 5	4.9	> 16000	16000
	Feb 1992	< 0.5	1.0	7.0	< 5	< 5	< 0.2	220	80
	July 1992	< 0.5	< 0.5	< 5	< 5	< 5	< 0.2	>1600	900
Smith	1990 avg	< 0.5	< 0.5	< 5	< 5	< 5	2.0	1138	14
	1990 min	< 0.5	< 0.5	< 5	< 5	< 5	0.3	17	< 2
	1990 max	< 0.5	1.4	17.8	< 5	< 5	2.9	9000	170
	Feb 1992	< 0.5	< 0.5	6.5	< 5	< 5	< 0.2	170	2
	July 1992	< 0.5	< 0.5	< 5	< 5	< 5	< 0.2	900	30

Table 7: Creek metals data (February 10 and July 13, 1992) compared to the average, minimum, and maximum values from the 1990 stormwater runoff project (Walker, et al., 1992). The 1990 creek data do not include the November 1990 storm event.

4 Austin Creek Investigative Study

Preliminary studies of Austin Creek showed unusually high fecal and total coliform counts near the mouth of the creek (Walker et al., 1992). High fecal coliform counts are often associated with residential and urban runoff, and were thought to be coming from the developed areas of Sudden Valley. The purpose of the Austin Creek investigative study was to provide additional water quality data from throughout the Austin Creek watershed, including sites in developed and undeveloped areas. The study was not intended to identify *specific* sources of contamination, but rather to determine whether the developed portion of the watershed displayed any noticeable water quality differences compared to the undeveloped portion of the watershed.

4.1 Site Descriptions

The sites that were sampled for the Austin Creek investigative study are shown in Figure 107. The specific locations of each site are described in Appendix D. All of the numbered sites were located within the developed portion of the Austin Creek watershed that lie downstream from Lake Louise Rd. and Lake Whatcom Blvd. The lettered sites were located in the relatively lightly developed, forested or recently logged portions of the watershed that lie upstream from Lake Louise Rd. (see Figure 107).

4.2 Field Sampling and Analytical Methods

All of the analyses were conducted as described in Table 2. The water samples for the alkalinity, coliform, dissolved oxygen, total organic carbon, total suspended solids, and turbidity analyses were collected on October 14, 1992. Originally, we intended to complete a series of nutrient analyses (ammonia, nitrite/nitrate, total nitrogen, soluble reactive phosphate, and total phosphorus) using these same samples. However, we encountered analytical problems with some of the initial samples and there was not enough of the original water samples left to run a complete set of nutrient analyses. Therefore, we collected additional water from each site on November 22, 1992 and completed all nutrient analyses using the November samples.

4.3 Results and Discussion

The data from the Austin Creek study are listed in Appendix D and plotted in Figures 108–120. In each plot the concentration that was measured at a site is plotted at the location of the site using circles of increasing diameter to show concentration ranges.

The coliform data (Figures 110–111) were strongly influenced by location, with the highest coliform counts consistently coming from the numbered sites in the Sudden Valley drainage area. The highest fecal coliform counts (> 1000 colonies/100 mL) were collected downstream from where Lake Whatcom Blvd. crosses Austin Creek (Sites 1–5), in the vicinity of the Sudden Valley golf course. Coliforms, especially fecal coliforms, are common pollutants in residential runoff (EPA, 1983b; 1983c; 1983d). Their presence in the lower sections of the Austin Creek drainage is consistent with the amount of development in that area. The major source of the coliforms in the Sudden Valley area is probably wildlife (deer, waterfowl, etc.), domestic outdoor pets, and possibly leakage from sewer lines.

Most of the highest nutrient concentrations were also found at the numbered sites, especially Sites 1–5 (Figures 113–115 and 117–118). Phosphorus and nitrogen are commonly found in elevated concentrations in residential runoff (EPA, 1983b; 1983c; 1983d). The major sources of these nutrients in residential areas are from fertilizer runoff and animal wastes. The nutrients act as fertilizers and help increase the rate of eutrophication[6] in the lake. Eutrophication occurs naturally in all lakes; however, the natural rate of eutrophication can increase dramatically when untreated residential or urban runoff flows into a lake (Wetzel, 1983).

The nitrite/nitrate concentrations in Austin Creek were relatively high on November 22, 1992 compared to the 1990 and 1992 concentrations (Table 6). This seems to be consistent with the seasonal and annual differences described earlier: the nitrite/nitrate concentrations seem to be higher in 1992 than in 1990, and the highest concentrations were measured in the winter.

The values for total organic carbon (Figure 109, total suspended solids (Figure 119), and turbidity (Figure 120) were also higher at the numbered sites, but decreased slightly near the mouth of the creek. The high concen-

[6]Eutrophication is the process of becoming more biologically productive. Slow eutrophication is normal in lakes; rapid eutrophication is often associated with anthropogenic causes and has undesirable features such as nuisance algal blooms.

trations for these three parameters suggests that there is disturbed soil in the vicinity of Sites 2–11. This was confirmed by Rob Felix, General Manager of Sudden Valley: the stream banks near Sites 2–11 are relatively unstable, having been recently disturbed during the 1983 and 1990 storm events (R. Felix, personal communications, January 7, 1993).

Alkalinity, conductivity, dissolved oxygen, and soluble phosphate data were the least influenced by location (Figures 108, 112, 116, and 117). Soluble phosphate was rarely measured in concentrations above 5 μg/L in the southern portion of the Lake Whatcom watershed, and dissolved oxygen was almost always near saturation in natural streams in the watershed (Walker, et al., 1992). Alkalinity and conductivity measurements were included in the study design because they sometimes increase due to the presence of dissolved solids in residential runoff. In Austin Creek there was a general increase in both alkalinity and conductivity downstream from Site C. However, the pattern was not consistent at all of the downstream sites.

Table 8 summarizes the results from the Austin Creek investigative study by showing those sites that had high values (i.e., were in the highest concentration class in Figures 108–120) for total organic carbon, coliforms, nitrogen, total phosphorus, total suspended solids, and turbidity, which were the parameters that showed the most consistent correlation between location and concentration. The Austin Creek data from October-November, 1992 support the observations made in 1990 for Austin Creek: the lower portion of the creek appears to be affected by nonpoint source residential runoff. This is indicated by the relatively high coliform counts, higher turbidities and total suspended solids, and higher nutrient concentrations at most of the numbered sites. It should be noted that this study provides information from a single sampling period and for a limited number of parameters. Any management decisions concerning the treatment of stormwater runoff should include follow-up monitoring to determine the effectiveness of the management plan.

	T. O.	Coliforms		Nitrogen			T.	T. S.	
Site	Carbon	Fecal	Total	Ammonia	Nitrate	Total	Phos.	Solids	Turb
1			•	•	•	•	•		
2	•	•	•					•	
3					•	•	•		
4	•	•	•						
5		•	•		•	•	•		
6			•						
7									
8					•		•		
9			•					•	•
10			•						
11			•			•		•	
12			•		•	•	•		
13			•		•		•		
A									
B					•	•			
C									
D							•		
E									
F									
G									
H									
I									
J									
K									
L									
M					•	•			
N					•				

Table 8: Summary of Austin Creek investigative study results. Sites indicates with a "•" had relatively high values for the water quality parameters listed.

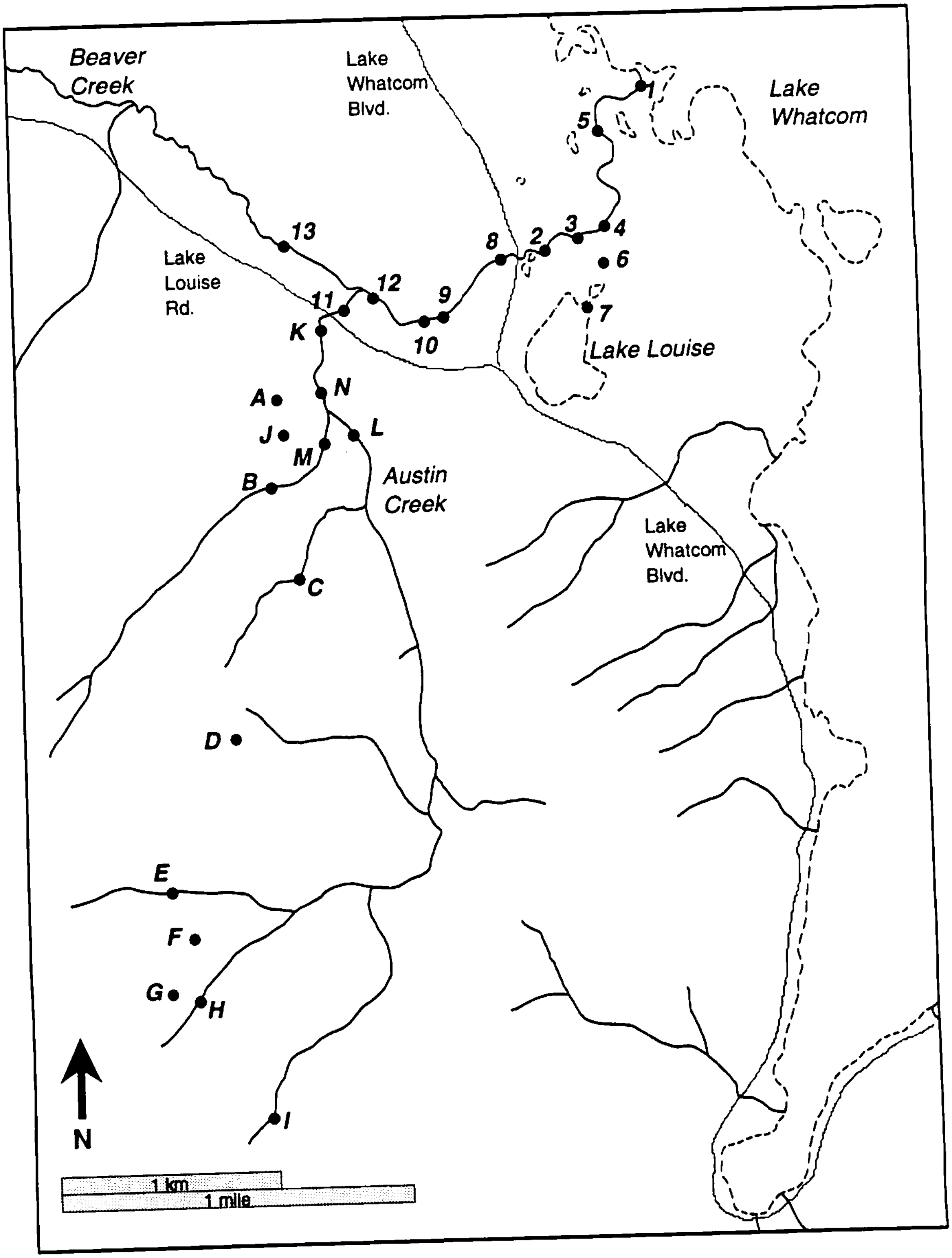


Figure 107: Austin Creek supplemental sampling sites. Location of major roads and sampling sites are approximate.

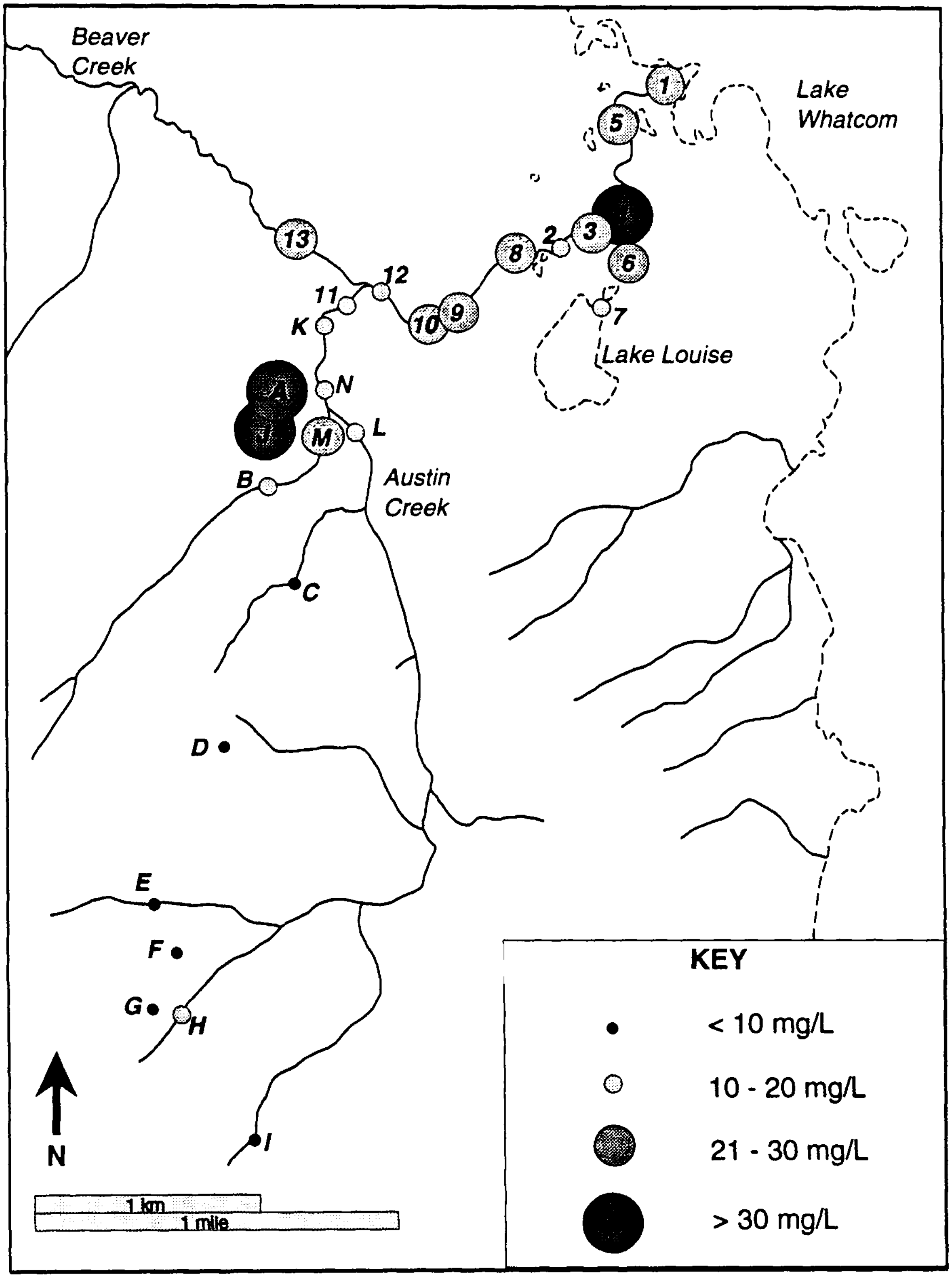


Figure 108: Austin Creek alkalinity concentrations - October 14, 1992.

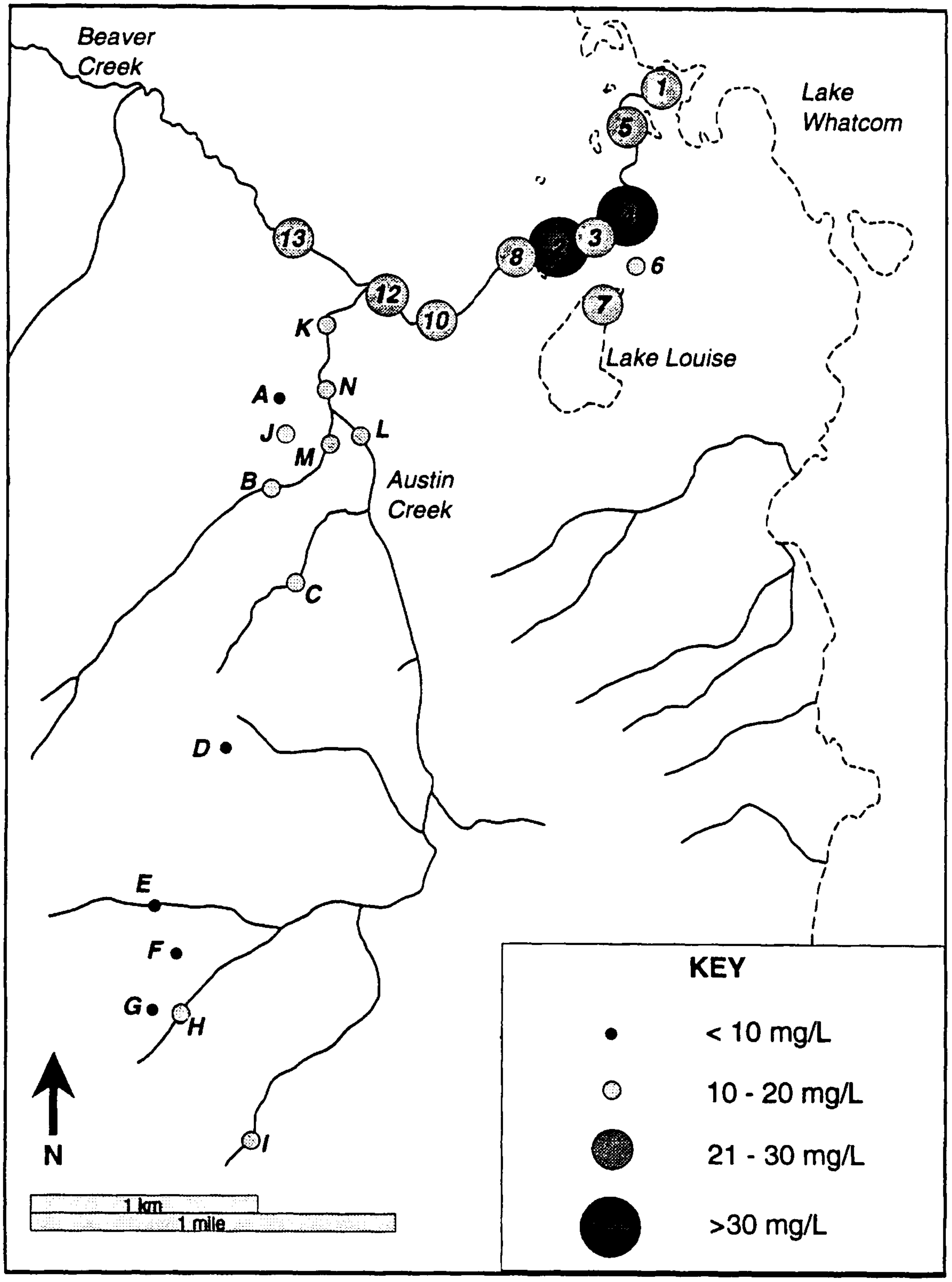


Figure 109: Austin Creek total organic carbon concentrations - October 14, 1992.

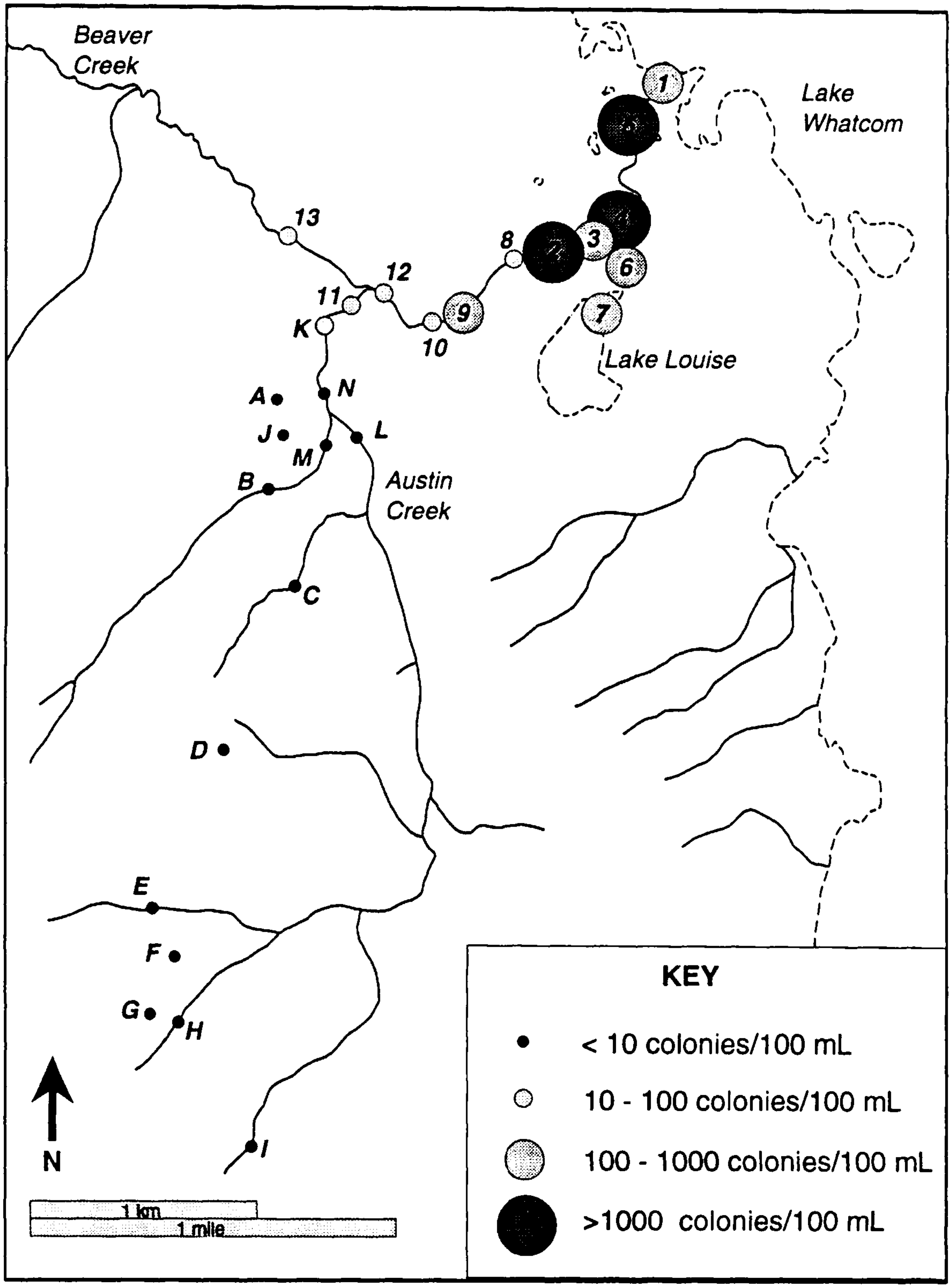


Figure 110: Austin Creek coliform (fecal) counts - October 14, 1992.

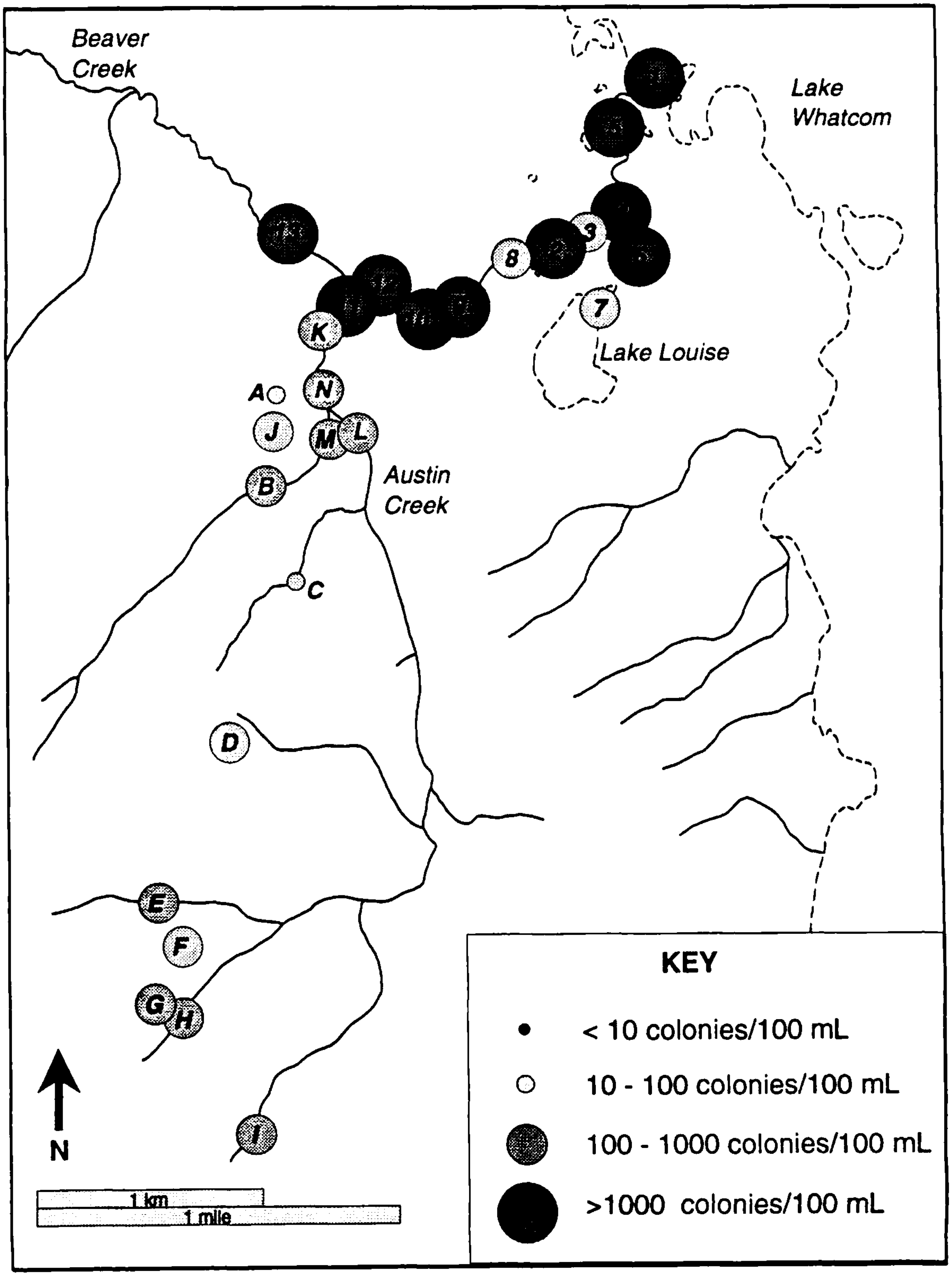


Figure 111: Austin Creek coliform (total) counts - October 14, 1992.

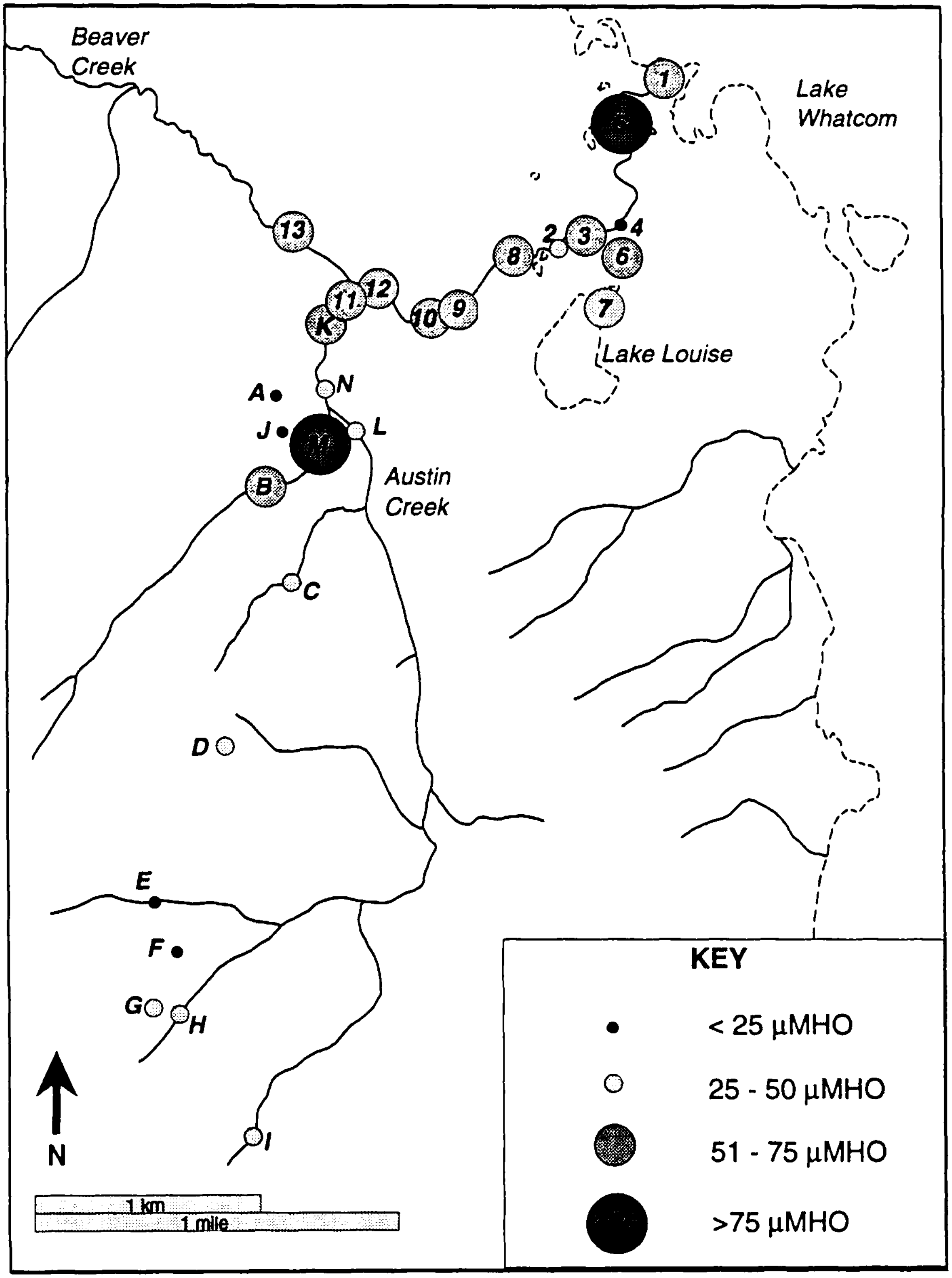


Figure 112: Austin Creek conductivity values - October 14, 1992.

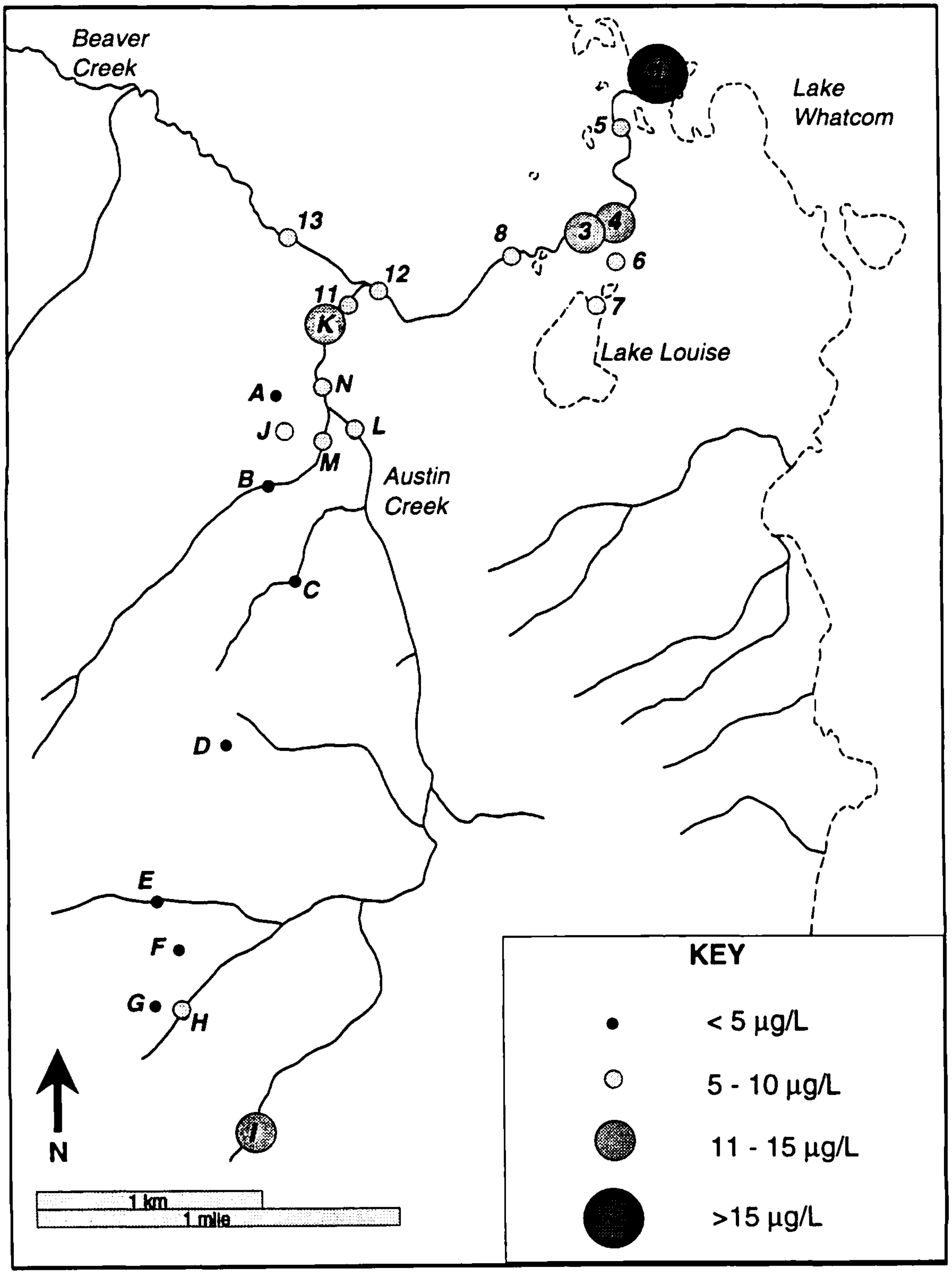


Figure 113: Austin Creek nitrogen (ammonia) concentrations - November 22, 1992.

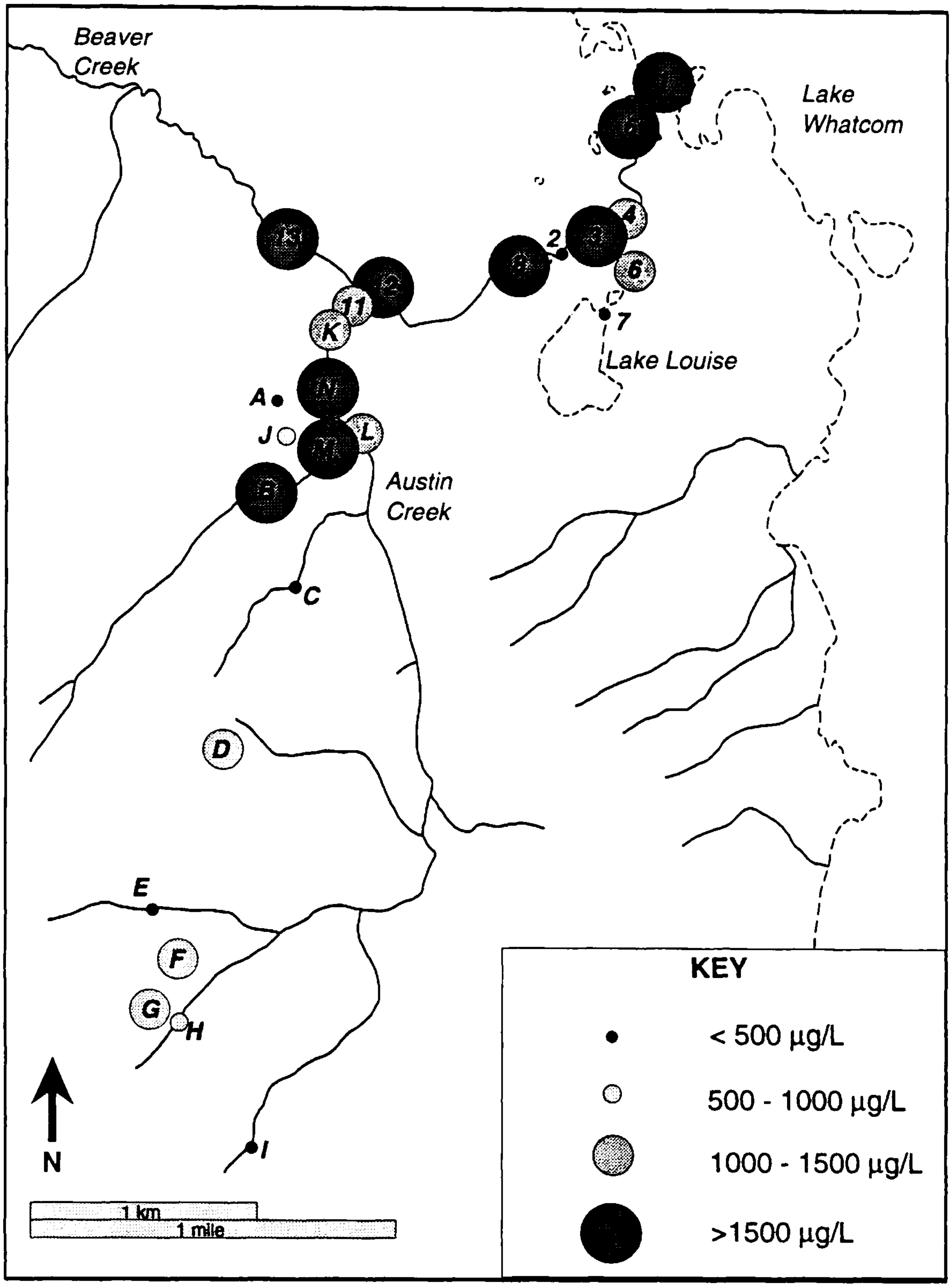


Figure 114: Austin Creek nitrogen (nitrite/nitrate) concentrations - November 22, 1992.

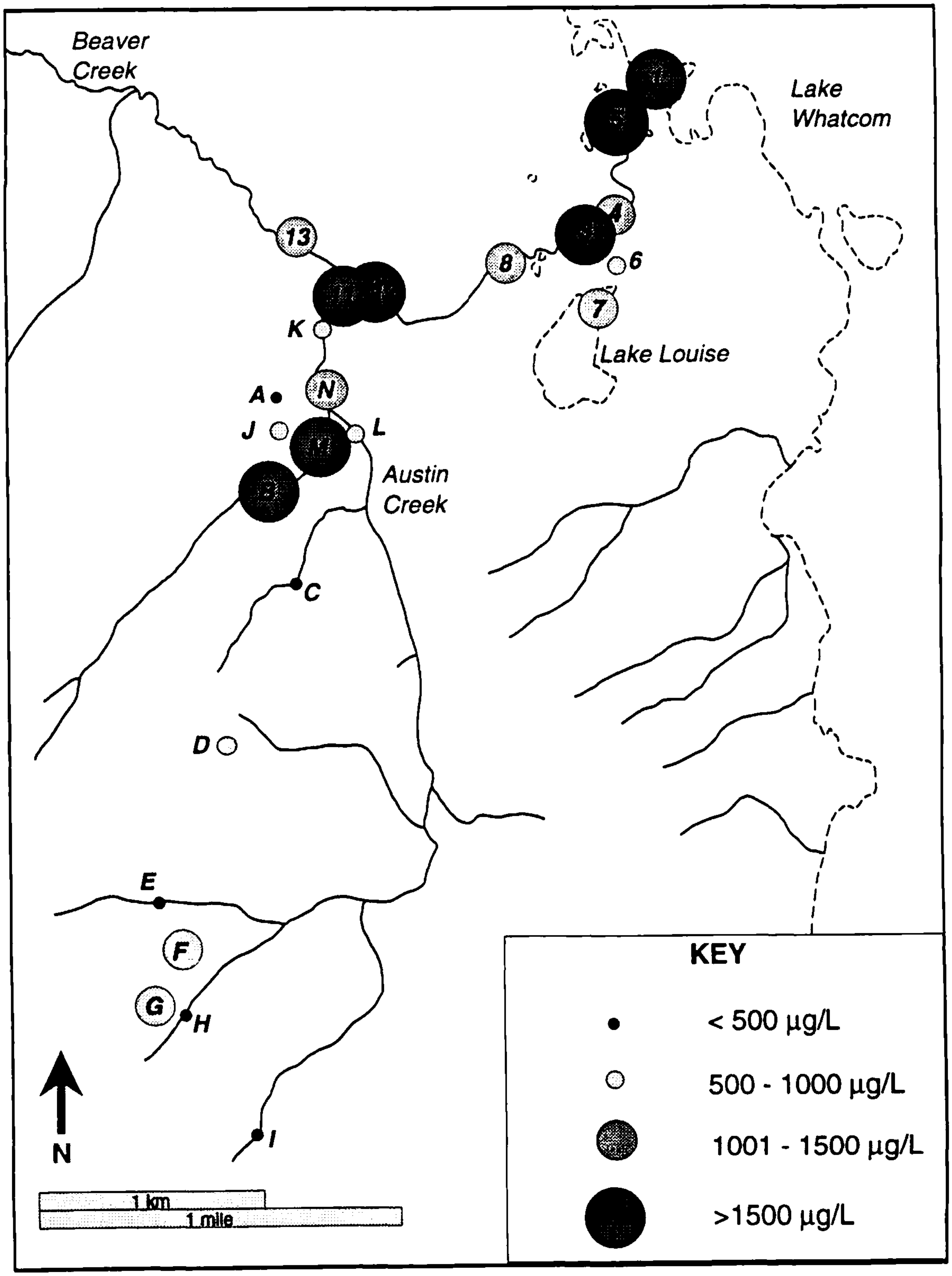


Figure 115: Austin Creek nitrogen (total) concentrations - November 22, 1992.

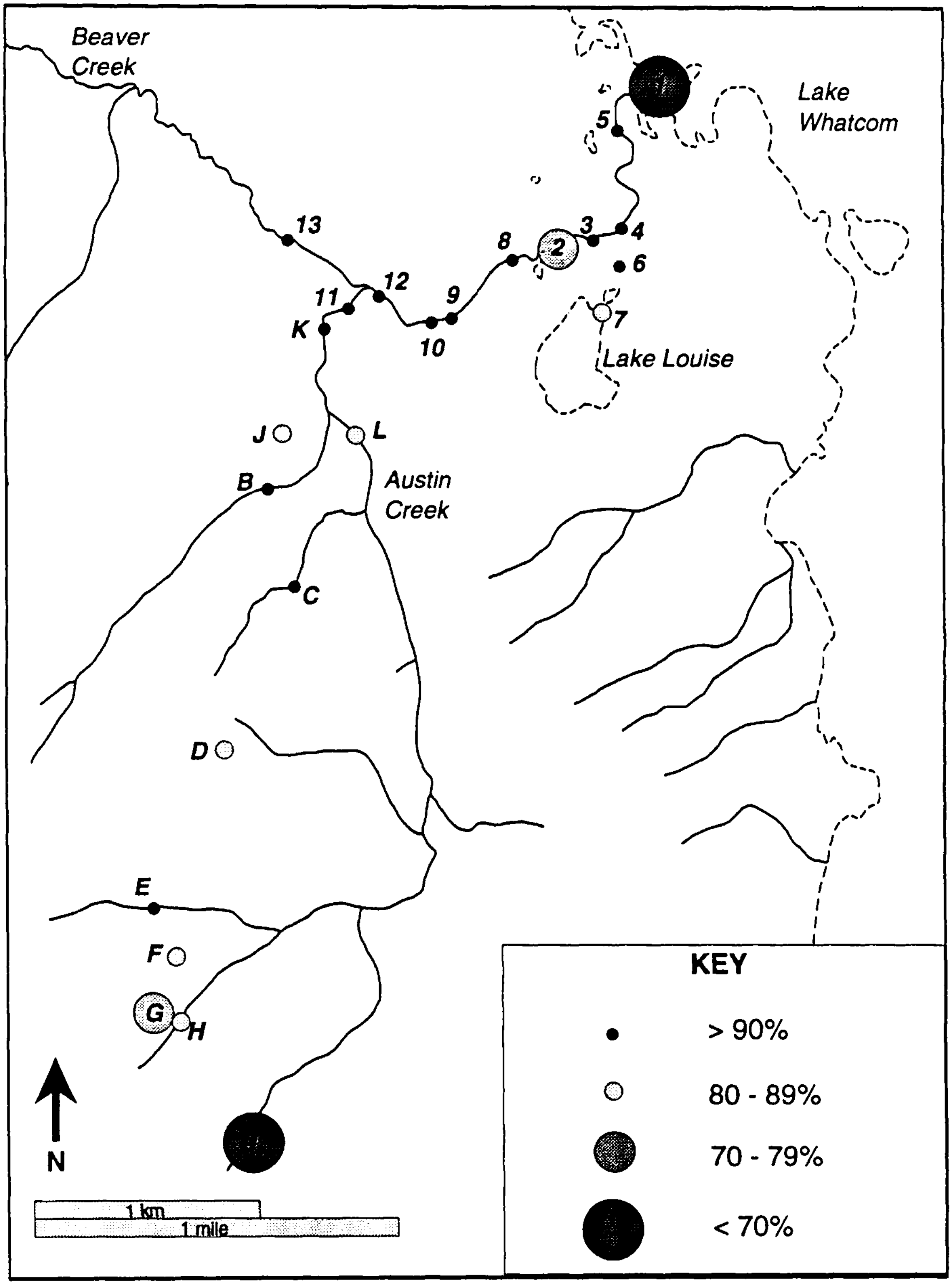


Figure 116: Austin Creek dissolved oxygen percent saturation - October 14, 1992.

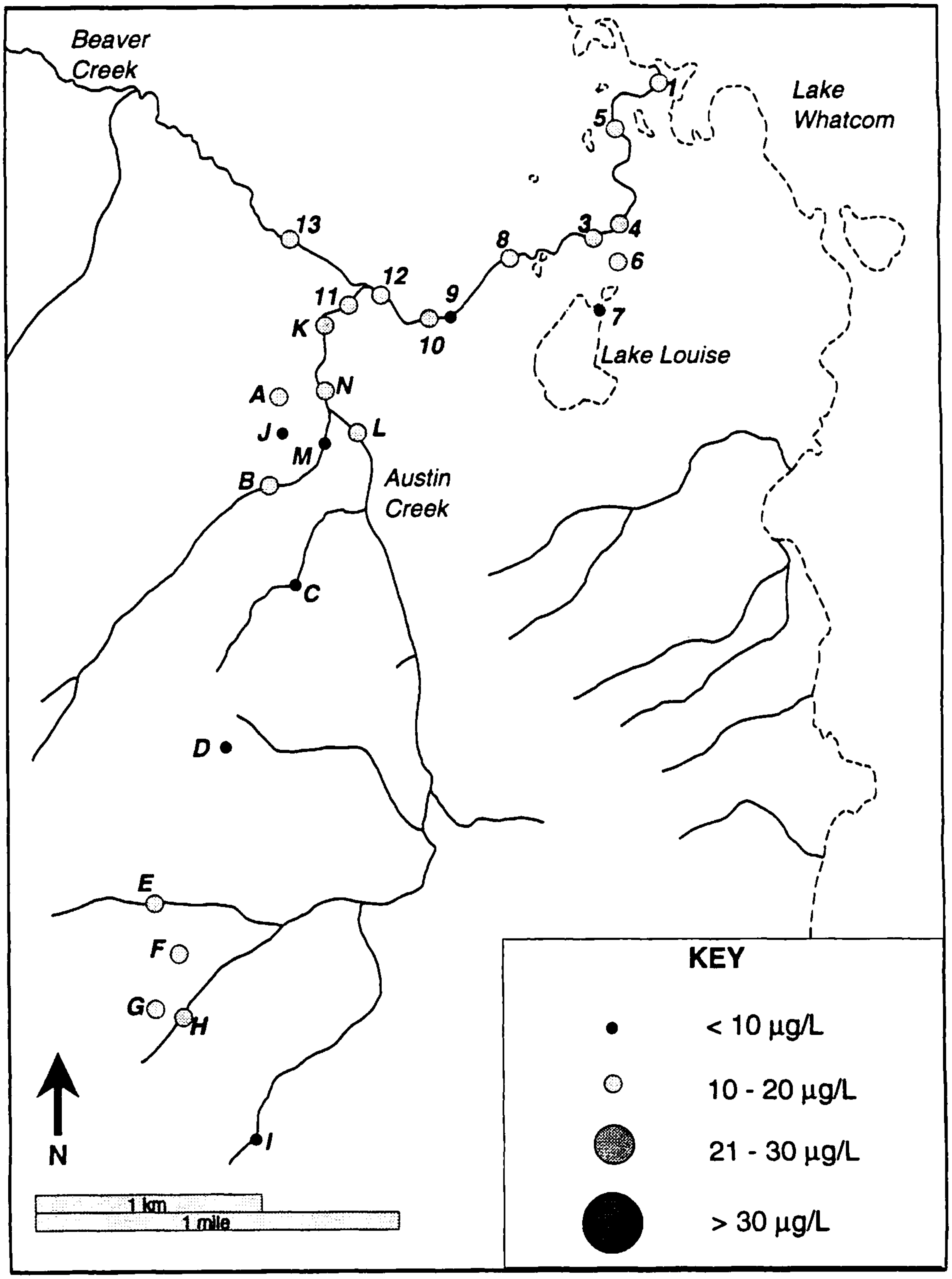


Figure 117: Austin Creek phosphorus (soluble phosphate) concentrations - November 22, 1992.

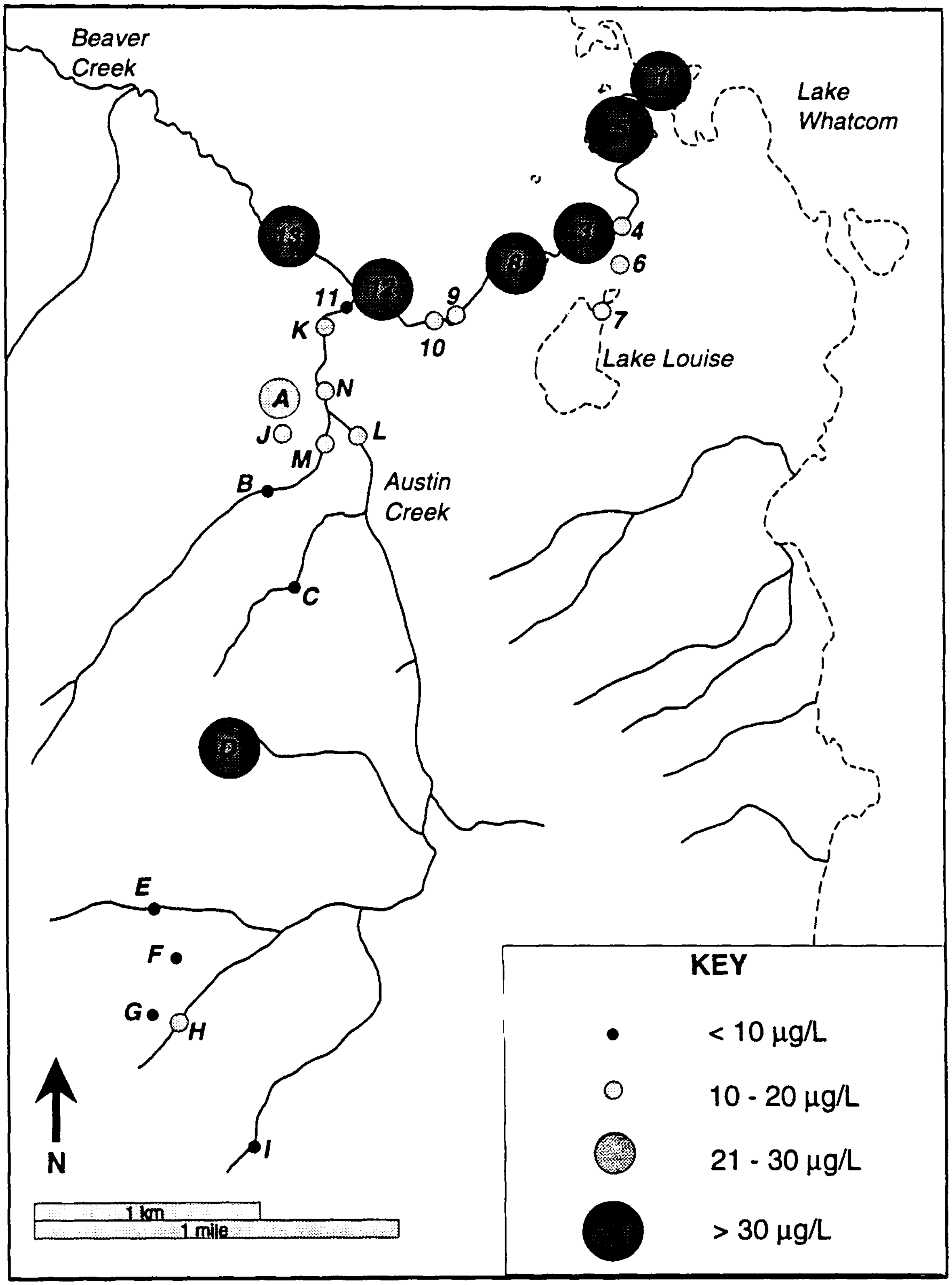


Figure 118: Austin Creek total phosphorus concentrations - November 22, 1992.

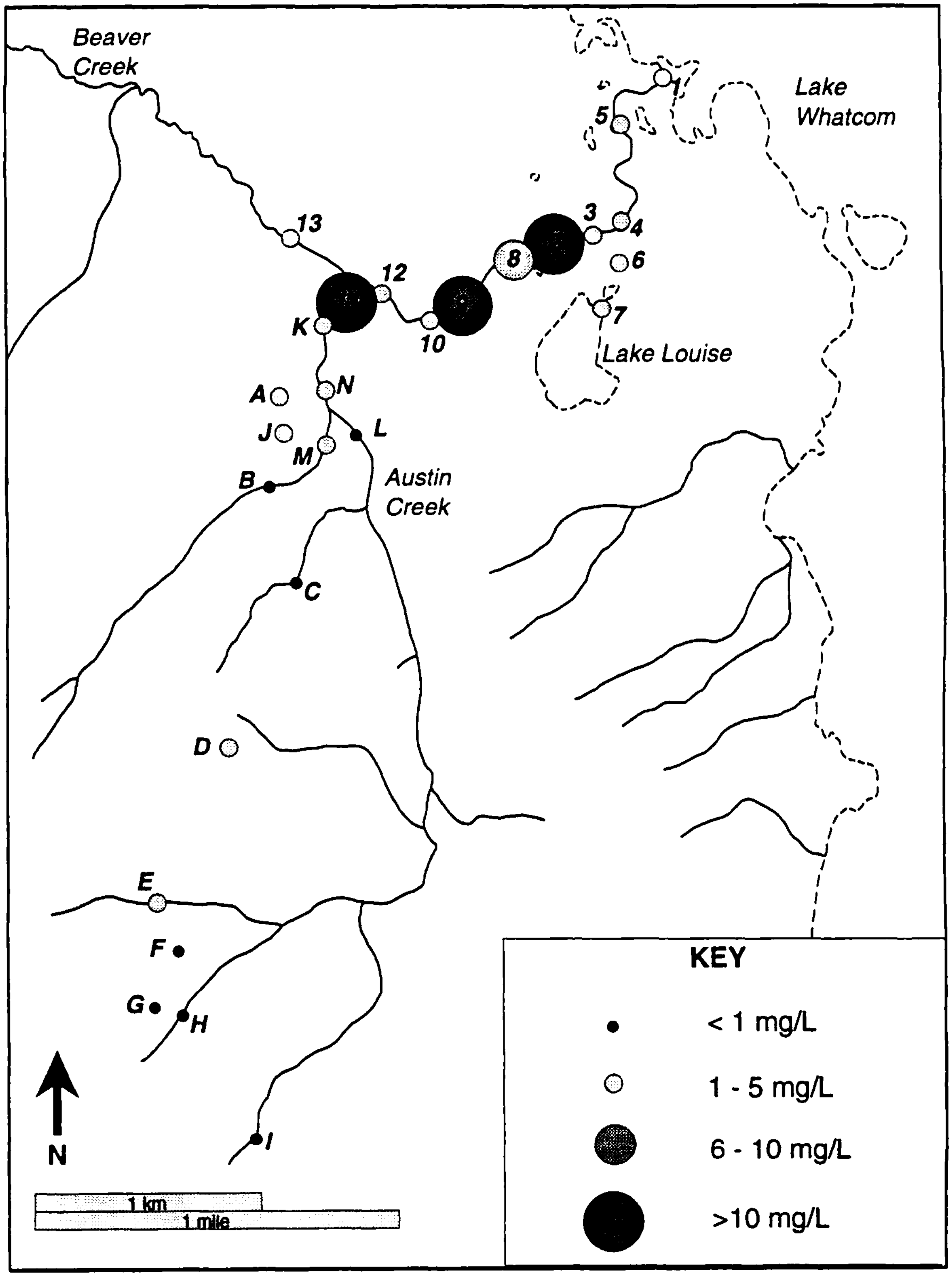


Figure 119: Austin Creek total suspended solids concentrations - October 14, 1992.

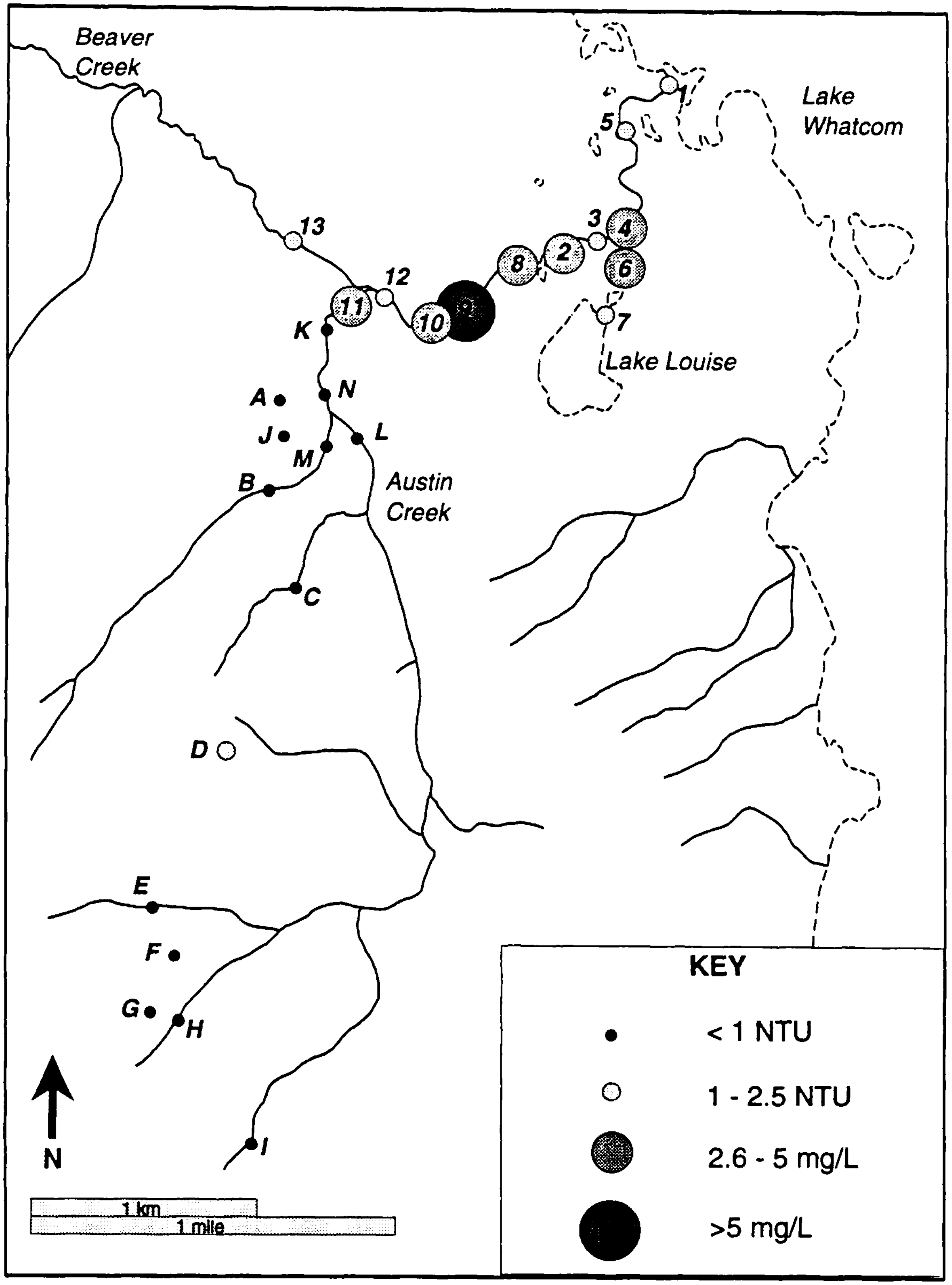


Figure 120: Austin Creek turbidity values - October 14, 1992.

5 HSPF Hydrologic Modelling

The HSPF model calibrations were originally completed as part of an earlier project (Walker, et al., 1992). The following information described the updates that have been added to the model. The time series data for September 1991 through August 1992 are included on a floppy disk in Appendix E.

In March of 1992 the City reported that previous Georgia Pacific withdrawal data had been over-reported by 15 percent. All data received prior to the December, 1991 were inaccurate. Consequently, data published in the January, 1992 Lake Whatcom Watershed Storm Runoff Monitoring Project report (Walker, et al., 1992) were incorrect by this factor. Additionally, the discrepancy may have had an effect on the accuracy of the original model calibration. Data received subsequently have been corrected by the City.

Partially as a result of the above errors, and partially due to a refined understanding of the HSPF model structure, the HSPF simulation was recalibrated in the spring of 1992. Data for the entire period of simulation (June, 1990 – present) were run through the new calibration, and the HSPF User Control Input (UCI) files and time series data were given to the City.

A discussion of aquifer leakage in the South Bay vicinity was provided to the City by Bruce Harris in August of 1992, and forwarded to WWU. As described by Walker, et al., (1992), the current model structure does not account for groundwater movement across the topographical watershed divide. An examination of groundwater seepage would be appropriate for any future refinement of the HSPF model.

In August of 1992, we were informed by the City of an error in their reporting of the diversion data for the middle fork of the Nooksack River. Corrected values reflected an order of magnitude increase (i.e., exactly a factor of 10) over the previously reported values. However, we had already made this correction so it does not affect our HSPF results.

There is another problem with using the diversion data reported by the City for HSPF modelling. Currently, diversion system readings are taken approximately weekly. The diversion data files provided by the City lack explicit data for the first and last dates of the month, and cannot provide the monthly totals and daily averages that are needed for the HSPF model. Our method for generating the monthly totals and averages is to use the individual meter readings, and the interval of elapsed time between them. By subtracting the former from the latter value, and dividing the result by the number of days between readings, we arrive at an average daily value for the interval. These are the daily data that we use in the model and that we report in our time series data sets.

All time series data utilized in, and produced by, the HSPF model for the September, 1991–August 1992 period are provided on diskette (Appendix E). These data are presented in a single spreadsheet file (in both Quattro Pro and Lotus 123 format). The files are titled LW-HSPF.WQ1 and LW-HSPF.WKS, respectively. Each record (row in the spreadsheet) represents a single day's data, while each field (column) contains data for a single element of the water balance analysis. Monthly totals for all fields except lake stage are presented in the files LW-HSPF.WQ1 and LW-HSPF.WKS. The fields are describe below:

Date	
Lake PPT	Precipitation on surface of Lake Whatcom (Million Gallons, or MG)
Wshed RO	Watershed runoff into Lake Whatcom, including surface, subsurface, and groundwater flow into the lake (MG)
Diver	Diversion of water from the middle fork of the Nooksack River (MG)
Tot In	Total Inputs into Lake Whatcom (sum of lake surface precipitation, watershed runoff, and middle fork diversion;) (MG)
Lake Stage	Elevation above mean sea level of the surface of Lake Whatcom (ft)
What Cr	Outflow from Lake Whatcom via Whatcom Creek (MG)
Hatchery	Withdrawal from Lake Whatcom for the hatchery at Whatcom Falls Park (MG)
GP	Withdrawal from Lake Whatcom for the Georgia Pacific mill (MG)
WTP	Withdrawal from Lake Whatcom for the Bellingham municipal water treatment plant (MG)
WD10	Withdrawal from Lake Whatcom for Whatcom County Water District 10 (MG)
Total Hydr	Total Hydraulic withdrawals from Lake Whatcom; includes outflow through Whatcom Creek, and the four artificial withdrawals from the Lake (Hatchery, GP, WTP, and WD10); (MG)
Lake Evap	Evaporation from the surface of Lake Whatcom (MG)
Total Outputs	Total Outputs from Lake Whatcom (sum of Whatcom Creek, Hatchery, GP, WTP, WD10, and lake surface evaporation); (MG)
Brannian	
Geneva	
Smith Cr.	
WD10	
Precip	Precipitation, in inches, from each of the four rain gauges located within the watershed. Where data were missing or aggregated they were corrected
Pot. Evap	Potential Evapotranspiration in inches. Data were from Post Point, when available, or were simulated.

Figures 121–124 show the predicted hydrologic inputs (lake surface precipitation, watershed runoff, and diversion flow) and outputs (Whatcom Creek, fish hatchery, Georgia-Pacific, Bellingham and Water Distric #10 withdrawals, and lake evaporation), for Lake Whatcom. Whatcom Creek and Georgia Pacific continue to be the major outputs; watershed runoff and the Nooksack River diversion continue to be the major inputs.

Figure 121

Lake Whatcom Inputs

September 1991 - August 1992

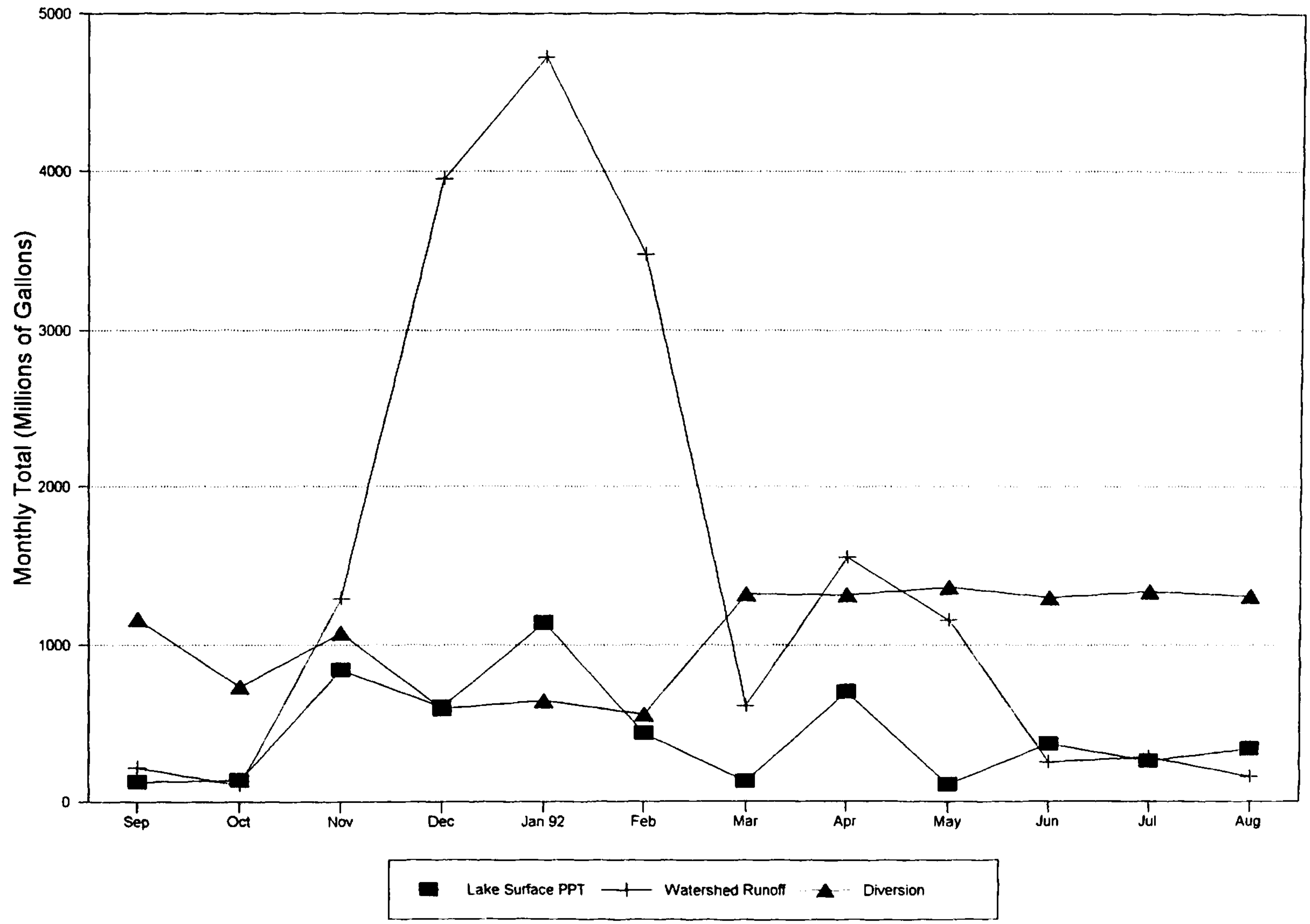


Figure 122

Lake Whatcom Outputs

September 1991 - August 1992

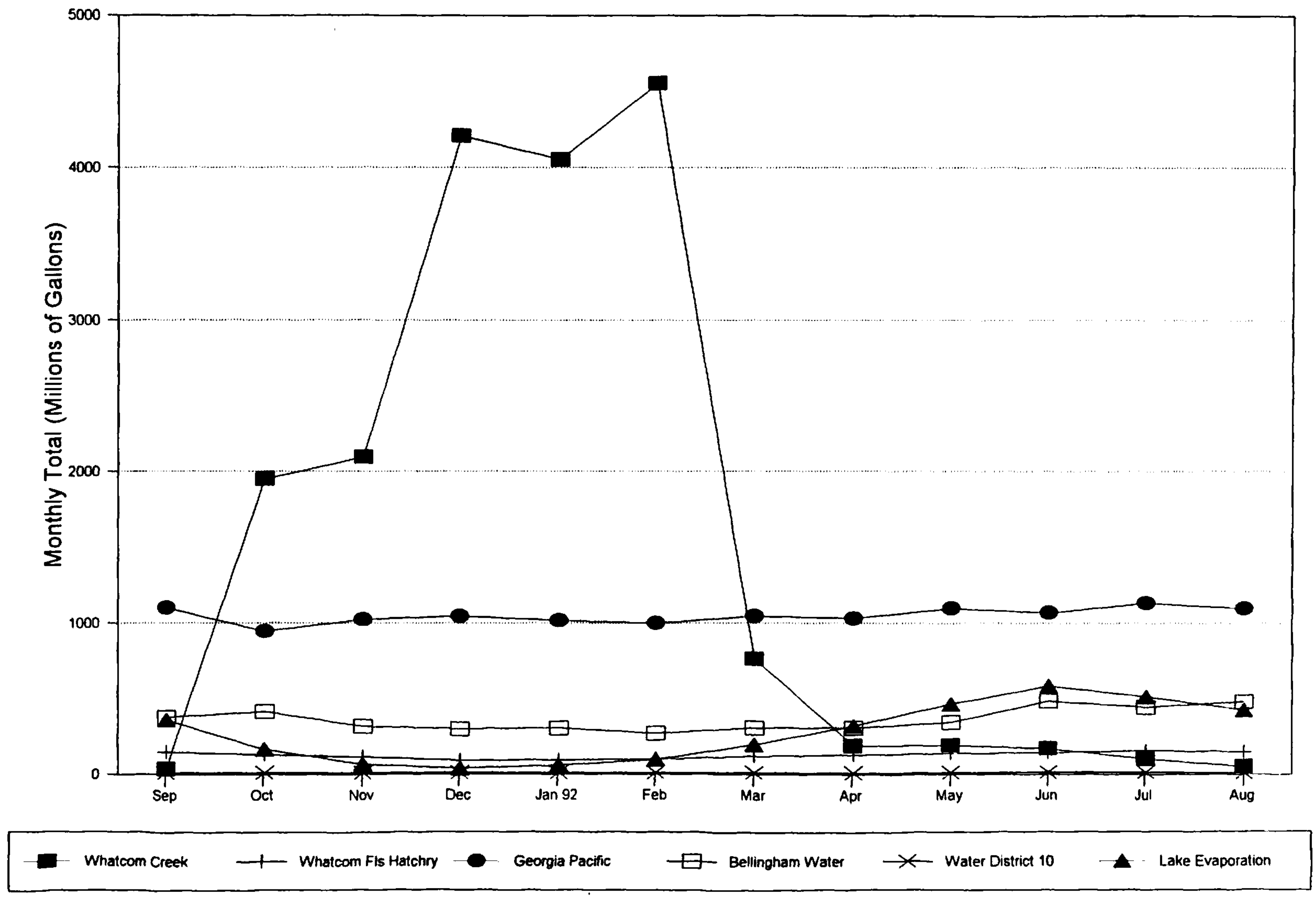


Figure 123

Lake Whatcom Inputs

September 91 - August 92: Percentages

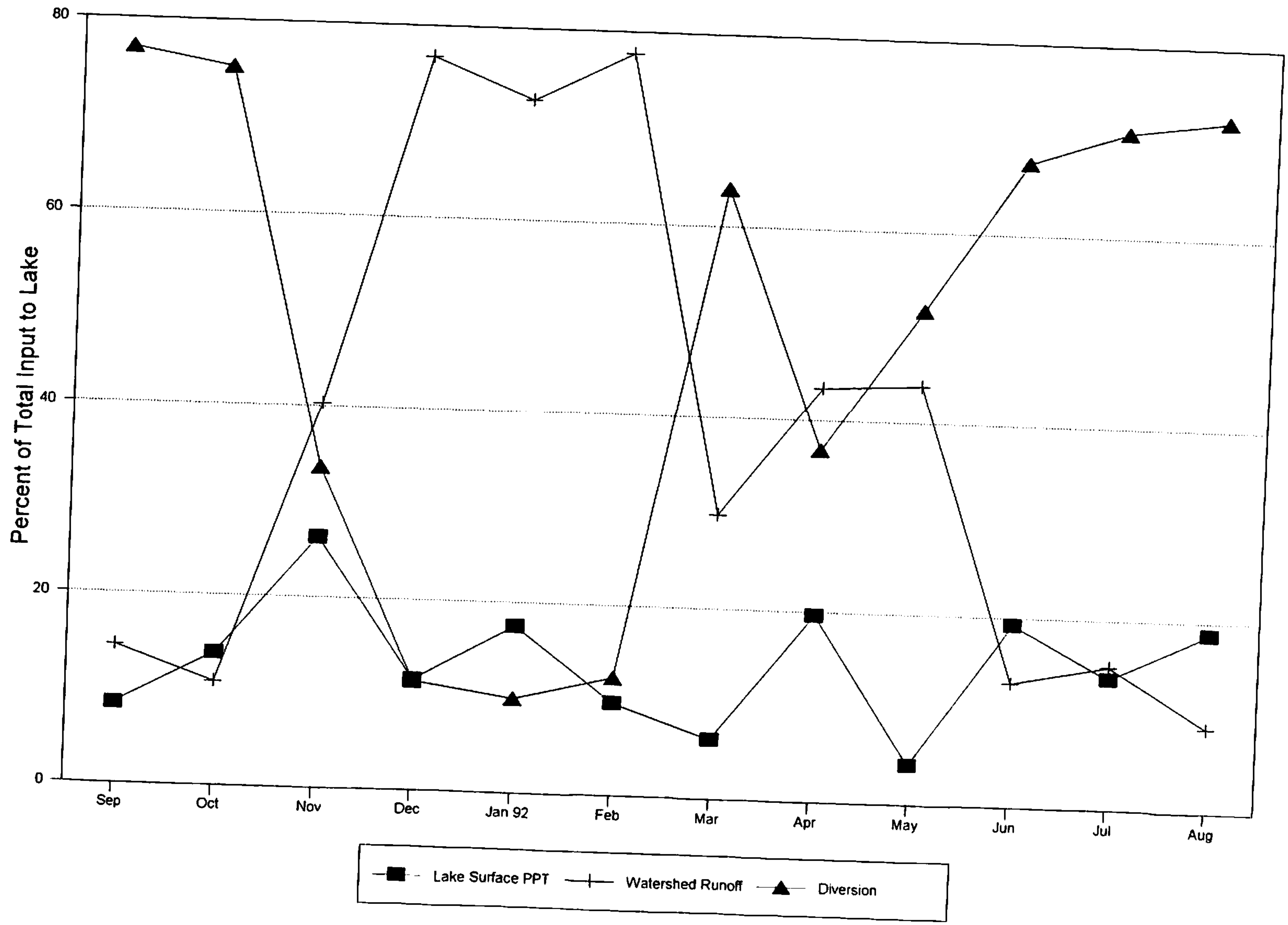
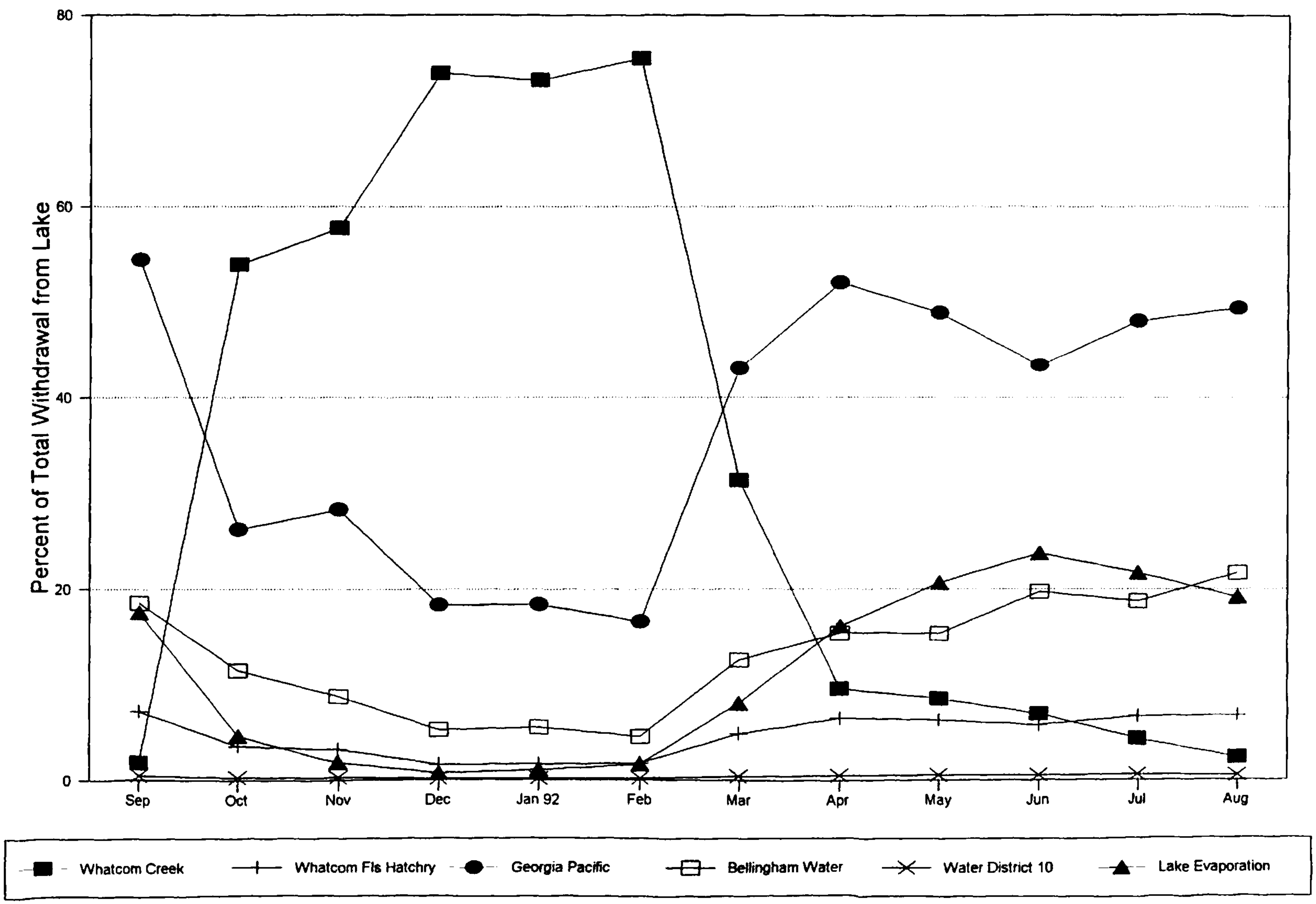


Figure 124

Lake Whatcom Outputs

September 91 - August 92: Percentages



6 Quality Control

In order to maintain a high degree of accuracy and confidence in the water quality data, the following quality controls were included in the project design:

1. All personnel associated with this project were trained according to standard operating procedures.

2. Laboratory duplicates were analyzed for approximately 10% of all water quality except those collected using the Hydrolab. These duplicates were taken from the same water sample and were used to check laboratory precision. These data were not coded into the data set, but are available for inspection in the laboratory log-books.

3. All chlorophyll *a* samples were run in duplicate; the coded data represent the average of the duplicates.

4. Blind field triplicates were collected and analyzed for approximately 5% of all of the water quality parameters except those collected using the Hydrolab. These triplicates were taken from separate water samples and provide an estimate of field variability. These data are included in Table 8. The field triplicates show the level of variation that can be expected due to differences in sample handling, changes in field or laboratory personnel, and analytical variance. Usually there was good agreement between the triplicates. When there was not, the City was informed of the difference, and the history of the sample was evaluated to determine whether the difference could be explained.

5. Triplicate water samples were analyzed for approximately 5% of the Hydrolab measurements using water samples collected from the same depth as the Hydrolab measurement. These samples were analyzed in the laboratory, and were used to compare the similarity between Hydrolab and field-collected water samples (Table 8).

6. The blind field triplicates, Hydrolab triplicates, and lab duplicates were compared with control charts for each parameter that were calculated using the 1998-1991 quality control data (minimum sample size = 10).

These results are available on a Lotus 123 spreadsheet upon request to the authors.

7. A taxonomic reference collection has been maintained that is comprized of labeled, photographic slides of representative taxa as well as detailed taxonomic notes and correspondence with the Academy of Natural Sciences of Philadelphia. New personnel working with plankton taxonomy were trained in the identification of the major taxa by individuals familiar with the Lake Whatcom plankton. Taxonomic identifications made by new personnel were recounted by experienced personnel and checked to insure that taxonomic identities were consistent for both sets of counts.

Site	Depth	Mo	Day	Year	Rep	pH	Cond	DO	Amm-N	Nitrite/ Nitrate	T. Nitrogen	T. Phosph	Alkalinity	Turbidity	Silica	Chl a
1	20	10	7	91	1	-99	81	0.4	-99	-99	-99	-99	-99	-99	-99	-99
1	20	10	7	91	2	-99	65	1.1	-99	-99	-99	-99	-99	-99	-99	-99
1	20	10	7	91	3	-99	64	1.2	-99	-99	-99	-99	-99	-99	-99	-99
1	20	10	7	91	4	-99	64	1.7	-99	-99	-99	-99	-99	-99	-99	-99
Intake	0	10	7	91	1	-99	68	9.8	9.1	218.9	180.4	5.2	17.5	0.50	4.0	4.86
Intake	0	10	7	91	2	-99	57	9.0	5.0	246.2	169.2	5.7	17.4	0.56	4.3	2.26
Intake	0	10	7	91	3	-99	60	9.1	-99	247.1	166.7	-99	17.1	0.51	4.2	-99
Intake	0	10	7	91	4	-99	58	9.1	-99	-99	-99	-99	-99	-99	-99	-99
2	15	10	7	91	1	-99	78	2.8	-99	-99	-99	-99	-99	-99	-99	-99
2	15	10	7	91	2	-99	57	9.2	-99	-99	-99	-99	-99	-99	-99	-99
2	15	10	7	91	3	-99	57	9.2	-99	-99	-99	-99	-99	-99	-99	-99
2	15	10	7	91	4	-99	58	-99	-99	-99	-99	-99	-99	-99	-99	-99
3	5	10	7	91	1	-99	71	9.6	11.6	249.8	156.2	5.4	17.3	0.49	4.1	3.18
3	5	10	7	91	2	-99	57	9.1	-99	227.5	151.3	5.5	17.5	0.45	4.1	1.52
3	5	10	7	91	3	-99	57	9.2	5.3	222.9	164.2	5.3	17.5	0.54	4.1	-99
3	5	10	7	91	4	-99	58	9.1	-99	-99	-99	-99	-99	-99	-99	-99
4	5	10	7	91	1	-99	70	9.6	-99	-99	-99	-99	-99	-99	-99	-99
4	5	10	7	91	2	-99	57	9.2	-99	-99	-99	-99	-99	-99	-99	-99
4	5	10	7	91	3	-99	57	9.2	-99	-99	-99	-99	-99	-99	-99	-99
4	5	10	7	91	4	-99	58	9.1	-99	-99	-99	-99	-99	-99	-99	-99
4	20	10	7	91	1	-99	75	8.4	-99	-99	-99	-99	-99	-99	-99	-99
4	20	10	7	91	2	-99	57	7.8	-99	-99	-99	-99	-99	-99	-99	-99
4	20	10	7	91	3	-99	58	7.8	-99	-99	-99	-99	-99	-99	-99	-99
4	20	10	7	91	4	-99	77	7.9	-99	-99	-99	-99	-99	-99	-99	-99

Table 9: Quality control field data for the 1991 – 1992 Lake Whatcom project. Hydrolab triplicates for pH, conductivity, and dissolved oxygen include the original field value (rep 1) and three laboratory values (reps 2 – 4). The blind field triplicates include the data from the regular water sample (rep 1) and values from two additional water samples (reps 2 – 3). Chlorophyll data are for blind field duplicates.

Site	Depth	Mo	Day	Year	Rep	pH	Cond	DO	Amm-N	Nitrite/ Nitrate	T. Nitrogen	T. Phosph	Alkalinity	Turbidity	Silica	Chl a
1	15	11	4	91	1	7.3	76	9.0	-99	-99	-99	-99	-99	-99	-99	-99
1	15	11	4	91	2	6.8	61	9.2	-99	-99	-99	-99	-99	-99	-99	-99
1	15	11	4	91	3	6.8	61	9.2	-99	-99	-99	-99	-99	-99	-99	-99
1	15	11	4	91	4	6.8	61	6.8	-99	-99	-99	-99	-99	-99	-99	-99
1	20	11	4	91	1	7.1	81	6.3	-99	-99	-99	-99	-99	-99	-99	-99
1	20	11	4	91	2	6.1	65	8.0	-99	-99	-99	-99	-99	-99	-99	-99
1	20	11	4	91	3	6.6	64	7.9	-99	-99	-99	-99	-99	-99	-99	-99
1	20	11	4	91	4	7.0	67	8.1	-99	-99	-99	-99	-99	-99	-99	-99
Intake	0	11	4	91	1	7.9	71	9.3	-99	-99	-99	-99	-99	-99	-99	-99
Intake	0	11	4	91	2	6.9	59	9.5	-99	-99	-99	-99	-99	-99	-99	-99
Intake	0	11	4	91	3	6.7	59	9.6	-99	-99	-99	-99	-99	-99	-99	-99
Intake	0	11	4	91	4	6.7	59	9.6	-99	-99	-99	-99	-99	-99	-99	-99
2	15	11	4	91	1	7.5	77	7.7	15.3	271.1	246.9	-99	18.2	0.33	4.0	3.22
2	15	11	4	91	2	7.1	57	9.7	13.5	270.5	139.9	-99	18.2	0.33	4.1	4.55
2	15	11	4	91	3	7.1	59	9.6	14.6	270.5	135.5	-99	18.0	0.43	4.3	4.34
2	15	11	4	91	4	7.0	60	9.7	-99	-99	-99	-99	-99	-99	-99	-99
3	60	11	4	91	1	7.2	77	9.3	-99	-99	-99	-99	-99	-99	-99	-99
3	60	11	4	91	2	6.9	60	9.1	-99	-99	-99	-99	-99	-99	-99	-99
3	60	11	4	91	3	6.8	60	9.6	-99	-99	-99	-99	-99	-99	-99	-99
3	60	11	4	91	4	6.8	61	9.7	-99	-99	-99	-99	-99	-99	-99	-99
4	5	11	4	91	1	8.0	75	9.3	10.9	296.2	121.0	-99	17.4	0.45	4.3	4.58
4	5	11	4	91	2	7.0	59	9.8	11.9	303.3	104.7	-99	17.9	0.42	4.3	4.69
4	5	11	4	91	3	7.0	59	9.8	10.6	302.0	171.1	-99	17.5	0.46	4.3	4.82
4	5	11	4	91	4	7.0	59	9.7	-99.0	-99	-99	-99	-99	-99	-99	-99

Table 9: Quality control field data for the 1991 – 1992 Lake Whatcom project. Hydrolab triplicates for pH, conductivity, and dissolved oxygen include the original field value (rep 1) and three laboratory values (reps 2 – 4). The blind field triplicates include the data from the regular water sample (rep 1) and values from two additional water samples (reps 2 – 3). Chlorophyll data are for blind field duplicates.

Site	Depth	Mo	Day	Year	Rep	pH	Cond	DO	Amm-N	Nitrite/ Nitrate	T. Nitrogen	T. Phosph	Alkalinity	Turbidity	Silica	Chl a
1	10	12	2	91	1	7.6	71	10.5	-99	-99	-99	-99	-99	-99	-99	-99
1	10	12	2	91	2	7.5	61	10.8	-99	-99	-99	-99	-99	-99	-99	-99
1	10	12	2	91	3	7.5	60	10.7	-99	-99	-99	-99	-99	-99	-99	-99
1	10	12	2	91	4	7.4	67	10.8	-99	-99	-99	-99	-99	-99	-99	-99
Intake	0	12	2	91	1	7.7	61	10.5	17.4	298.2	182.3	5.2	18.5	0.82	4.0	0.86
Intake	0	12	2	91	2	7.5	58	10.6	7.0	322.6	149.9	4.7	17.1	0.79	4.1	0.68
Intake	0	12	2	91	3	-99	57	10.5	5.8	317.6	176.9	3.0	16.7	0.73	4.2	0.77
Intake	0	12	2	91	4	-99	55	10.5	-99	-99	-99	-99	-99	-99	-99	-99
3	0	12	2	91	1	7.3	(38.0)	10.7	-99	-99	-99	-99	-99	-99	-99	-99
3	0	12	2	91	2	7.1	85	10.5	-99	-99	-99	-99	-99	-99	-99	-99
3	0	12	2	91	3	6.6	63	10.4	-99	-99	-99	-99	-99	-99	-99	-99
3	0	12	2	91	4	6.7	78	10.5	-99	-99	-99	-99	-99	-99	-99	-99
3	10	12	2	91	1	7.3	69	10.5	5.9	363.0	112.1	3.9	16.9	0.91	4.3	3.73
3	10	12	2	91	2	7.4	60	10.3	5.2	364.7	133.8	7.7	17.1	0.94	4.7	3.23
3	10	12	2	91	3	-99	57	10.4	7.2	364.5	145.3	2.7	16.8	0.56	4.3	3.68
3	10	12	2	91	4	-99	57	10.3	-99	-99	-99	-99	-99	-99	-99	-99
3	80	12	2	91	1	7.0	68	8.9	-99	-99	-99	-99	-99	-99	-99	-99
3	80	12	2	91	2	7.1	58	10.5	-99	-99	-99	-99	-99	-99	-99	-99
3	80	12	2	91	3	7.3	60	10.5	-99	-99	-99	-99	-99	-99	-99	-99
3	80	12	2	91	4	7.4	60	10.4	-99	-99	-99	-99	-99	-99	-99	-99
4	10	12	2	91	1	7.3	69	10.3	-99	-99	-99	-99	-99	-99	-99	-99
4	10	12	2	91	2	7.4	56	9.1	-99	-99	-99	-99	-99	-99	-99	-99
4	10	12	2	91	3	7.2	62	9.0	-99	-99	-99	-99	-99	-99	-99	-99
4	10	12	2	91	4	7.1	64	9.0	-99	-99	-99	-99	-99	-99	-99	-99

Table 9: Quality control field data for the 1991 – 1992 Lake Whatcom project. Hydrolab triplicates for pH, conductivity, and dissolved oxygen include the original field value (rep 1) and three laboratory values (reps 2 – 4). The blind field triplicates include the data from the regular water sample (rep 1) and values from two additional water samples (reps 2 – 3). Chlorophyll data are for blind field duplicates.

Site	Depth	Mo	Day	Year	Rep	pH	Cond	DO	Amm-N	Nitrite/ Nitrate	T. Nitrogen	T. Phosph	Alkalinity	Turbidity	Silica	Chl a
1	5	2	3	92	1	7.5	65	12.2	-99	-99	-99	-99	-99	-99	-99	-99
1	5	2	3	92	2	7.2	53	11.2	-99	-99	-99	-99	-99	-99	-99	-99
1	5	2	3	92	3	7.2	55	11.1	-99	-99	-99	-99	-99	-99	-99	-99
1	5	2	3	92	4	7.3	54	11.0	-99	-99	-99	-99	-99	-99	-99	-99
Intake	10	2	3	92	1	7.9	67	11.9	9.0	442.4	74.6	5.4	17.0	0.70	4.8	0.96
Intake	10	2	3	92	2	6.3	56	10.9	-99	437.6	85.5	6.7	17.2	-99	4.6	1.06
Intake	10	2	3	92	3	7.1	55	11.0	-99	433.5	90.6	5.1	17.2	-99	4.6	0.79
Intake	10	2	3	92	4	7.1	53	11.0	-99	-99	-99	-99	-99	-99	-99	-99
2	10	2	3	92	1	7.8	66	11.9	-99	-99	-99	-99	-99	-99	-99	-99
2	10	2	3	92	2	7.1	52	11.1	-99	-99	-99	-99	-99	-99	-99	-99
2	10	2	3	92	3	7.1	54	10.7	-99	-99	-99	-99	-99	-99	-99	-99
2	10	2	3	92	4	7.2	54	11.1	-99	-99	-99	-99	-99	-99	-99	-99
3	60	2	3	92	1	7.6	66	11.4	-99	-99	-99	-99	-99	-99	-99	-99
3	60	2	3	92	2	7.2	53	10.4	-99	-99	-99	-99	-99	-99	-99	-99
3	60	2	3	92	3	7.2	54	10.5	-99	-99	-99	-99	-99	-99	-99	-99
3	60	2	3	92	4	7.2	55	10.0	-99	-99	-99	-99	-99	-99	-99	-99
4	10	2	3	92	1	7.5	66	11.3	-99	-99	-99	-99	-99	-99	-99	-99
4	10	2	3	92	2	7.0	52	9.9	-99	-99	-99	-99	-99	-99	-99	-99
4	10	2	3	92	3	7.1	54	10.3	-99	-99	-99	-99	-99	-99	-99	-99
4	10	2	3	92	4	7.2	54	10.3	-99	-99	-99	-99	-99	-99	-99	-99
4	20	2	3	92	1	7.5	69	11.3	-99	472.0	163.8	8.1	16.7	0.80	4.9	0.84
4	20	2	3	92	2	7.0	53	10.2	-99	460.7	74.5	-99	17.2	-99	4.8	0.80
4	20	2	3	92	3	7.1	54	11.4	-99	472.6	83.4	6.7	17.3	-99	4.8	0.80
4	20	2	3	92	4	7.1	54	10.4	-99	-99	-99	-99	-99	-99	-99	-99

Table 9: Quality control field data for the 1991 – 1992 Lake Whatcom project. Hydrolab triplicates for pH, conductivity, and dissolved oxygen include the original field value (rep 1) and three laboratory values (reps 2 – 4). The blind field triplicates include the data from the regular water sample (rep 1) and values from two additional water samples (reps 2 – 3). Chlorophyll data are for blind field duplicates.

Site	Depth	Mo	Day	Year	Rep	pH	Cond	DO	Amm-N	Nitrite/ Nitrate	T. Nitrogen	T. Phosph	Alkalinity	Turbidity	Silica	Chl a
1	0	4	7	92	1	7.2	60	11.2	-99	-99	-99	-99	-99	-99	-99	-99
1	0	4	7	92	2	6.7	62	10.7	-99	-99	-99	-99	-99	-99	-99	-99
1	0	4	7	92	3	6.8	61	10.8	-99	-99	-99	-99	-99	-99	-99	-99
1	0	4	7	92	4	6.9	62	10.7	-99	-99	-99	-99	-99	-99	-99	-99
Intake	5	4	7	92	1	7.9	71	11.5	21.9	364.1	115.2	-99	16.5	0.80	2.2	1.88
Intake	5	4	7	92	2	6.7	60	11.1	-99	366.6	176.9	-99	-99	0.90	2.7	1.71
Intake	5	4	7	92	3	6.7	62	11.1	-99	366.8	277.7	-99	-99	0.70	2.8	1.80
Intake	5	4	7	92	4	6.7	62	11.1	-99	-99	-99	-99	-99	-99	-99	-99
2	0	4	7	92	1	7.8	65	11.5	-99	363.3	98.1	-99	17.5	1.1	3.1	3.16
2	0	4	7	92	2	6.5	58	11.1	5.5	396.3	190.3	-99	17.4	0.5	3.2	2.94
2	0	4	7	92	3	6.2	59	11.1	6.3	392.3	181.6	-99	17.1	0.6	2.9	2.99
2	0	4	7	92	4	6.6	60	11.1	-99	-99	-99	-99	-99	-99	-99	-99
3	80	4	7	92	1	7.2	72	10.2	-99	-99	-99	-99	-99	-99	-99	-99
3	80	4	7	92	2	6.7	62	10.4	-99	-99	-99	-99	-99	-99	-99	-99
3	80	4	7	92	3	6.7	61	10.3	-99	-99	-99	-99	-99	-99	-99	-99
3	80	4	7	92	4	6.7	61	10.3	-99	-99	-99	-99	-99	-99	-99	-99
4	15	4	7	92	1	7.6	75	11.4	-99	-99	-99	-99	-99	-99	-99	-99
4	15	4	7	92	2	6.8	62	10.6	-99	-99	-99	-99	-99	-99	-99	-99
4	15	4	7	92	3	6.7	61	10.8	-99	-99	-99	-99	-99	-99	-99	-99
4	15	4	7	92	4	6.6	91	10.8	-99	-99	-99	-99	-99	-99	-99	-99
4	60	4	7	92	1	7.3	70	11.0	-99	-99	-99	-99	-99	-99	-99	-99
4	60	4	7	92	2	6.8	62	10.6	-99	-99	-99	-99	-99	-99	-99	-99
4	60	4	7	92	3	6.8	61	10.6	-99	-99	-99	-99	-99	-99	-99	-99
4	60	4	7	92	4	6.8	61	10.6	-99	-99	-99	-99	-99	-99	-99	-99

Table 9: Quality control field data for the 1991 – 1992 Lake Whatcom project. Hydrolab triplicates for pH, conductivity, and dissolved oxygen include the original field value (rep 1) and three laboratory values (reps 2 – 4). The blind field triplicates include the data from the regular water sample (rep 1) and values from two additional water samples (reps 2 – 3). Chlorophyll data are for blind field duplicates.

Site	Depth	Mo	Day	Year	Rep	pH	Cond	DO	Amm-N	Nitrite/ Nitrate	T. Nitrogen	T. Phosph	Alkalinity	Turbidity	Silica	Chl a
Intake	5	6	2	92	1	8.3	66	10.3	37.6	-99	127.9	7.2	17.0	0.81	4.0	5.22
Intake	5	6	2	92	2	7.3	66	10.2	15.4	330.9	-99	5.5	17.0	0.58	4.7	6.05
Intake	5	6	2	92	3	-99	63	10.1	12.1	325.2	-99	5.1	17.4	0.65	4.1	5.30
Intake	5	6	2	92	4	-99	58	10.1	-99	-99	-99	-99	-99	-99	-99	-99
2	0	6	2	92	1	8.2	62	9.9	-99	-99	-99	-99	-99	-99	-99	-99
2	0	6	2	92	2	7.6	60	9.7	-99	-99	-99	-99	-99	-99	-99	-99
2	0	6	2	92	3	-99	58	9.8	-99	-99	-99	-99	-99	-99	-99	-99
2	0	6	2	92	4	-99	59	9.8	-99	-99	-99	-99	-99	-99	-99	-99
3	10	6	2	92	1	7.8	67	10.5	67.4	332.8	183.6	5.2	17.3	0.67	4.5	9.24
3	10	6	2	92	2	7.5	59	10.1	15.3	350.0	-99	5.7	17.4	0.60	4.4	9.20
3	10	6	2	92	3	-99	61	10.2	10.7	350.6	-99	5.1	15.4	0.57	4.6	10.31
3	10	6	2	92	4	-99	61	10.1	-99	-99	-99	-99	-99	-99	-99	-99
3	20	6	2	92	1	7.5	70	10.5	-99	-99	-99	-99	-99	-99	-99	-99
3	20	6	2	92	2	7.3	58	10.1	-99	-99	-99	-99	-99	-99	-99	-99
3	20	6	2	92	3	-99	58	10.1	-99	-99	-99	-99	-99	-99	-99	-99
3	20	6	2	92	4	-99	60	10.0	-99	-99	-99	-99	-99	-99	-99	-99
4	0	6	2	92	1	8.2	61	10.3	-99	-99	-99	-99	-99	-99	-99	-99
4	0	6	2	92	2	7.7	59	10.0	-99	-99	-99	-99	-99	-99	-99	-99
4	0	6	2	92	3	-99	57	10.0	-99	-99	-99	-99	-99	-99	-99	-99
4	0	6	2	92	4	-99	57	10.2	-99	-99	-99	-99	-99	-99	-99	-99
4	5	6	2	92	1	8.1	66	10.5	-99	-99	-99	-99	-99	-99	-99	-99
4	5	6	2	92	2	7.8	56	10.1	-99	-99	-99	-99	-99	-99	-99	-99
4	5	6	2	92	3	-99	60	10.1	-99	-99	-99	-99	-99	-99	-99	-99
4	5	6	2	92	4	-99	62	10.0	-99	-99	-99	-99	-99	-99	-99	-99

Table 9: Quality control field data for the 1991 – 1992 Lake Whatcom project. Hydrolab triplicates for pH, conductivity, and dissolved oxygen include the original field value (rep 1) and three laboratory values (reps 2 – 4). The blind field triplicates include the data from the regular water sample (rep 1) and values from two additional water samples (reps 2 – 3). Chlorophyll data are for blind field duplicates.

Site	Depth	Mo	Day	Year	Rep	pH	Cond	DO	Amm-N	Nitrite/ Nitrate	T. Nitrogen	T. Phosph	Alkalinity	Turbidity	Silica	Chl a
1	15	7	6	92	1	6.8	71	4.0	-99	-99	-99	-99	-99	-99	-99	-99
1	15	7	6	92	2	6.5	56	3.2	-99	-99	-99	-99	-99	-99	-99	-99
1	15	7	6	92	3	-99	56	3.3	-99	-99	-99	-99	-99	-99	-99	-99
1	15	7	6	92	4	-99	59	3.3	-99	-99	-99	-99	-99	-99	-99	-99
Intake	0	7	6	92	1	8.1	61	9.0	23.5	276.0	189.9	6.8	18.0	0.6	2.2	4.89
Intake	0	7	6	92	2	-99	53	9.0	7.9	252.8	181.3	6.0	17.0	0.6	2.7	4.47
Intake	0	7	6	92	3	-99	54	9.0	14.1	238.2	191.3	5.9	17.6	0.7	3.0	4.74
Intake	0	7	6	92	4	-99	55	9.0	-99	-99	-99	-99	-99	-99	-99	-99
Intake	5	7	6	92	1	8.1	66	9.0	-99	-99	-99	-99	-99	-99	-99	-99
Intake	5	7	6	92	2	-99	54	9.0	-99	-99	-99	-99	-99	-99	-99	-99
Intake	5	7	6	92	3	-99	51	9.0	-99	-99	-99	-99	-99	-99	-99	-99
Intake	5	7	6	92	4	-99	52	9.0	-99	-99	-99	-99	-99	-99	-99	-99
3	5	7	6	92	1	8.1	65	10.4	37.5	325.7	187.7	6.4	17.8	0.7	2.7	5.06
3	5	7	6	92	2	-99	53	9.2	8.6	255.1	159.0	-99	17.6	0.6	4.2	3.97
3	5	7	6	92	3	-99	54	9.1	10.0	258.1	153.5	-99	17.6	0.6	2.9	4.57
3	5	7	6	92	4	-99	55	9.1	-99	-99	-99	-99	-99	-99	-99	-99
3	80	7	6	92	1	7.2	64	8.6	-99	-99	-99	-99	-99	-99	-99	-99
3	80	7	6	92	2	6.2	56	8.2	-99	-99	-99	-99	-99	-99	-99	-99
3	80	7	6	92	3	-99	54	8.3	-99	-99	-99	-99	-99	-99	-99	-99
3	80	7	6	92	4	-99	54	8.3	-99	-99	-99	-99	-99	-99	-99	-99
4	20	7	6	92	1	7.5	70	9.5	-99	-99	-99	-99	-99	-99	-99	-99
4	20	7	6	92	2	-99	54	9.7	-99	-99	-99	-99	-99	-99	-99	-99
4	20	7	6	92	3	-99	51	9.7	-99	-99	-99	-99	-99	-99	-99	-99
4	20	7	6	92	4	-99	51	9.6	-99	-99	-99	-99	-99	-99	-99	-99

Table 9: Quality control field data for the 1991 – 1992 Lake Whatcom project. Hydrolab triplicates for pH, conductivity, and dissolved oxygen include the original field value (rep 1) and three laboratory values (reps 2 – 4). The blind field triplicates include the data from the regular water sample (rep 1) and values from two additional water samples (reps 2 – 3). Chlorophyll data are for blind field duplicates.

Site	Depth	Mo	Day	Year	Rep	pH	Cond	DO	Amm-N	Nitrite/ Nitrate	T. Nitrogen	T. Phosph	Alkalinity	Turbidity	Silica	Chl a
Intake	0	8	3	92	1	-99	-99	-99	15.8	164.1	-99	6.5	18.3	0.74	3.5	11.71
Intake	0	8	3	92	2	-99	-99	-99	9.8	167.0	-99	5.6	18.2	0.50	3.6	13.23
Intake	0	8	3	92	3	-99	-99	-99	12.0	167.1	-99	4.5	19.0	0.60	3.6	12.14
Intake	0	8	3	92	4	-99	-99	-99	-99	-99	-99	-99	-99	-99	-99	-99
3	5	8	3	92	1	-99	-99	-99	12.2	219.7	-99	-99	18.0	0.48	3.8	3.35
3	5	8	3	92	2	-99	-99	-99	10.4	217.5	-99	4.0	17.8	0.64	3.7	4.14
3	5	8	3	92	3	-99	-99	-99	11.5	223.6	-99	3.3	17.9	0.42	3.7	4.04
3	5	8	3	92	4	-99	-99	-99	-99	-99	-99	-99	-99	-99	-99	-99
1	20	8	31	92	1	-99	-99	-99	-99	-99	283.8	23.1	23.0	1.72	5.9	2.09
1	20	8	31	92	2	-99	-99	-99	-99	-99	94.9	18.2	22.9	1.90	6.2	2.29
1	20	8	31	92	3	-99	-99	-99	-99	-99	134.2	20.8	22.7	1.80	6.5	2.19
1	20	8	31	92	4	-99	-99	-99	-99	-99	-99	-99	-99	-99	-99	-99
3	5	8	31	92	1	-99	-99	-99	-99	176.9	66.5	606.3	18.0	0.69	3.8	3.83
3	5	8	31	92	2	-99	-99	-99	-99	164.3	98.6	6.5	17.9	0.59	3.7	4.00
3	5	8	31	92	3	-99	-99	-99	-99	170.6	79.5	4.6	17.9	0.62	3.9	4.28
3	5	8	31	92	4	-99	-99	-99	-99	-99	-99	-99	-99	-99	-99	-99

Table 9: Quality control field data for the 1991 – 1992 Lake Whatcom project. Hydrolab triplicates for pH, conductivity, and dissolved oxygen include the original field value (rep 1) and three laboratory values (reps 2 – 4). The blind field triplicates include the data from the regular water sample (rep 1) and values from two additional water samples (reps 2 – 3). Chlorophyll data are for blind field duplicates.

7 References

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A Lake Whatcom Site Descriptions

Please refer to Figures A1–A2 for assistance with locating each site. In the field, each site should be marked with an orange buoy; however, stormy weather or vandalism may have resulted in the movement or loss of a marker buoy. The five major lake sampling sites have been used since the early 1960's. Table A1 shows a summary of the identification codes that have been used for these five sites over time.

Site 1 Site 1 is located in basin 1 along a straight line from the Blodel Donovan boat launch to a square, white house with a dark grey roof that is located about half way up the hillside (171 E. North Shore Rd.) The sampling site is at a point perpendicular to the second group of condominiums in a cluster of four. The depth at Site 1 should be at least 20 m.

Site 2 Site 2 is located in basin 2 just west of the intersection of a line between a boat house with a rust-colored roof (73 Strawberry Point) and the point of Geneva Sill, and a line between three aspen trees on Lake Whatcom Blvd. and a red house on the west side of Strawberry Sill (2170 Delestra Rd.). The depth at Site 2 should be at least 20 m.

Intake Site The Intake site is located offshore from the City of Bellingham's raw water gatehouse. This site is one of the more difficult sites to locate because the marker buoy is frequently missing. The depth at the Intake site should be at least 13 m deep.

Site 3 Site 3 is located mid-basin just north of a line between the old railroad bridge and Lakewood. The depth at Site 3 should be at least 80 m deep.

Site 4 Site 4 is located at the intersection of a line between two points of land and a line parallel to the north edge of an inlet (see Figure A2). The depth at Site 4 should be at least 90 m deep.

Site Code	Years Used	Site Description
1	1985–present	Located at approximately the deepest
11	1987–present	point in basin 1
A	1982–1984	
14	1982	(14 is near Site 1)
7	1960's–1981	
2	1985–present	Located at approximately the deepest
22	1987–present	point in basin 2
B	1982–1984	
13	1982	
6	1960's–1981	
Intake	1980–present	Located at the intake in basin 2
21	1987–present	
3	1985–present	Located at approximately the deepest
31	1987–present	point in N. subbasin of basin 3
C	1982–1984	
5	1960's–1981	
4	1985–present	Located at approximately the deepest
32	1987–present	point in S. subbasin of basin 3
E	1982–1984	
10	1960's–1981	

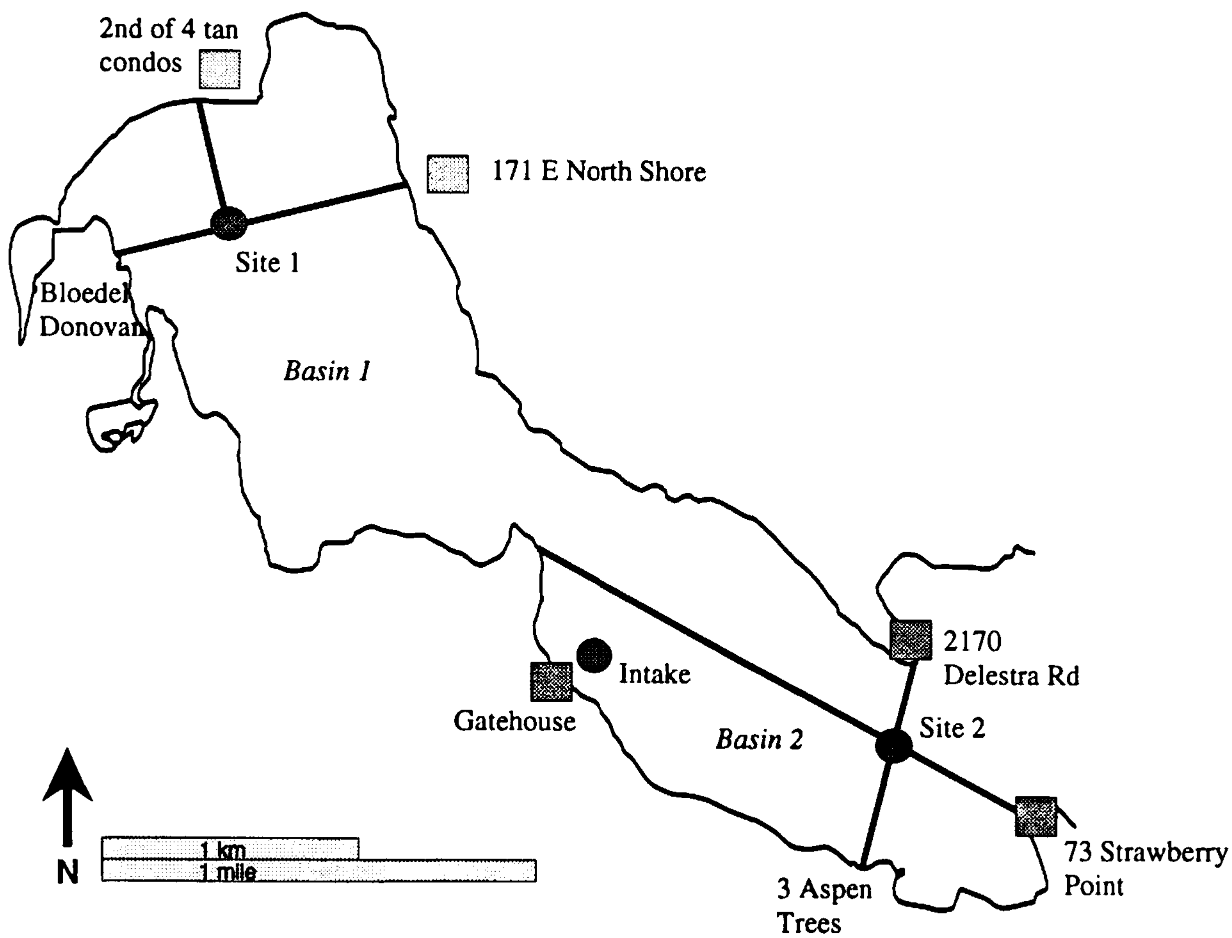

Figure A1. Basin 1 and 2 site locations. See text for descriptions of local landmarks. All distances and locations are approximate.

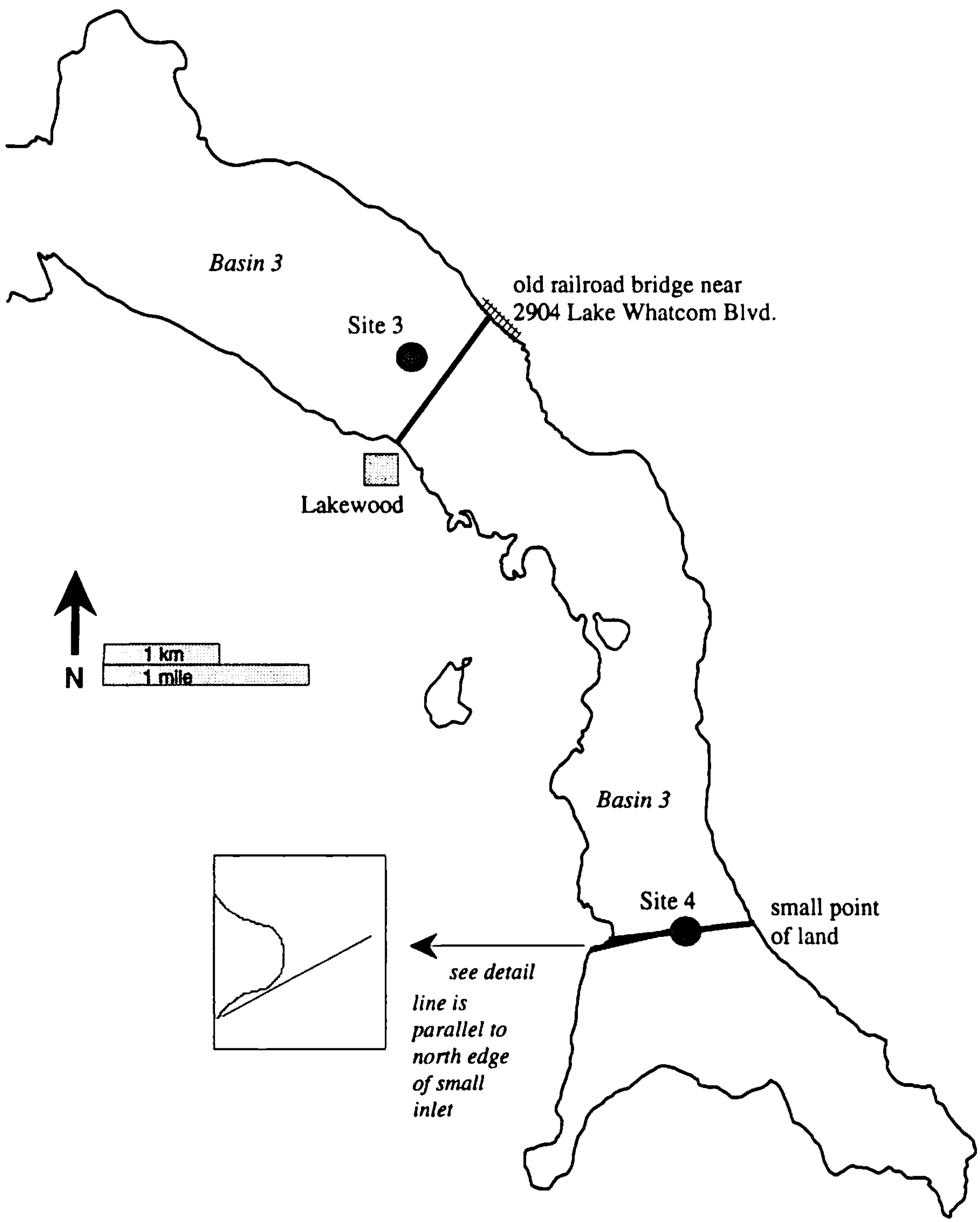

Figure A2. Basin 3 site locations. See text for descriptions of local landmarks. All distances and locations are approximate.

B Ambient Lake Whatcom Water Quality Monitoring Data

The ambient Lake Whatcom water quality data for 1991–1992 are included on the following pages. The detection limits for each parameter are shown below. The detection limits for each parameter were estimated based on recommended lower detection ranges (APHA, 1989; EPA 1983a), instrument limitations, and analyst judgement on the lowest repeatable concentration for each test. Accordingly, the detection limits used in this report are a conservative estimate of the lowest concentration that we can measure with reasonable certainty.

Variable	Units	Detection Limit
Alkalinity	mg/L as $CaCO_3$	na
Bicarbonate	mg/L as $CaCO_3$	na
Calcium	mg/L	0.02 mg/L
Carbon, total organic	mg-C/L	na
Carbon, dissolved inorganic	mg-C/L	na
Chloride	mg/L	na
Chlorophyll *a*	mg/m^3	na
Coliforms, fecal	colonies/100 mL	< 2 col./100 mL
Coliforms, total	colonies/100 mL	< 2 col./100 mL
Conductivity, Hydrolab	μMHO/cm	~ 2 μMHO/cm
Conductivity, lab	μMHO/cm	2 μMHO/cm
Metals, dissolved cadmium	μg/L	0.5 μg/L
Metals, dissolved chromium	μg/L	0.5 μg/L
Metals, dissolved copper	μg/L	5 μg/L
Metals, dissolved iron	μg/L	5 μg/L
Metals, dissolved lead	μg/L	5 μg/L
Metals, dissolved nickel	μg/L	5 μg/L
Metals, dissolved zinc	μg/L	0.2 μg/L
Nitrogen, ammonia	μg-N/L	5 μg/L
Nitrogen, nitrate/nitrite	μg-N/L	10 μg/L
Nitrogen, total Kjeldahl nitrogen	μg-N/L	100 μg/L
Oxygen, Hydrolab	mg/L	~ 0.1 mg/L
Oxygen, winkler	mg/L	0.1 μg/L
pH, Hydrolab	pH units	~ 0.1 pH unit
pH, lab	pH units	~ 0.1 pH unit
Phosphorus, soluble reactive	μg-P/L	5 μg/L
Phorphorus, total	μg-P/L	5 μg/L
Potassium	mg/L	0.1 mg/L
Secchi depth	meters	na
Silica	mg/L	0.2 mg/L
Temperature	°C	na
Total Suspended Solids	mg/L	2 mg/L
Turbidity	NTU	0.2 NTU

Lake Whatcom Monitoring Program

Prepared January 9, 1993 by the Environmental Research and Education Center, Western Washington University, for the City of Bellingham, Department of Public Works.

*: missing. BDL: below detection limit.

Hydrolab and quality control data:

Site	Depth	Month	Day	Year	Temp	pH	Cond	DO	Secchi
Site 1	00	08	31	92	20.9	8.6	59.9	9.15	5.1
Site 1	01	08	31	92	20.9	*	*	*	
Site 1	02	08	31	92	20.9	*	*	*	
Site 1	03	08	31	92	20.9	*	*	*	
Site 1	04	08	31	92	20.9	*	*	*	
Site 1	05	08	31	92	20.9	8.6	59.5	9.17	*
Site 1	06	08	31	92	20.9	*	*	*	
Site 1	07	08	31	92	20.9	*	*	*	
Site 1	08	08	31	92	19.4	*	*	*	
Site 1	09	08	31	92	17.5	*	*	*	
Site 1	10	08	31	92	15.9	7.3	61.8	5.17	*
Site 1	11	08	31	92	13.8	*	*	*	
Site 1	12	08	31	92	12.3	*	*	*	
Site 1	13	08	31	92	11.8	*	*	*	
Site 1	14	08	31	92	11.8	*	*	*	
Site 1	15	08	31	92	11.1	7.3	67.2	0.68	*
Site 1	16	08	31	92	10.9	*	*	*	
Site 1	17	08	31	92	10.8	*	*	*	
Site 1	18	08	31	92	10.7	*	*	*	
Site 1	19	08	31	92	10.6	*	*	*	
Site 1	20	08	31	92	10.5	6.7	67.0	1.05	*

Hydrolab and quality control data (continued):

Site	Depth	Month	Day	Year	Temp	pH	Cond	DO	Secchi
Intake	00	08	31	92	20.8	7.6	59.2	9.02	5.1
Intake	01	08	31	92	20.8	*	*	*	
Intake	02	08	31	92	20.8	*	*	*	
Intake	03	08	31	92	20.7	*	*	*	
Intake	04	08	31	92	20.7	*	*	*	
Intake	05	08	31	92	20.7	7.4	59.2	8.82	*
Intake	06	08	31	92	20.7	*	*	*	
Intake	07	08	31	92	20.7	*	*	*	
Intake	08	08	31	92	20.7	*	*	*	
Intake	09	08	31	92	20.3	*	*	*	
Intake	10	08	31	92	19.5	6.9	59.4	8.58	*
Intake	11	08	31	92	19.0	*	*	*	
Site 2	00	08	31	92	21.8	8.0	59.4	8.72	4.9
Site 2	01	08	31	92	*	*	*	*	
Site 2	02	08	31	92	*	*	*	*	
Site 2	03	08	31	92	*	*	*	*	
Site 2	04	08	31	92	*	*	*	*	
Site 2	05	08	31	92	21.2	7.9	59.5	8.78	*
Site 2	06	08	31	92	*	*	*	*	
Site 2	07	08	31	92	*	*	*	*	
Site 2	08	08	31	92	*	*	*	*	
Site 2	09	08	31	92	*	*	*	*	
Site 2	10	08	31	92	18.0	7.9	59.5	8.78	*
Site 2	11	08	31	92	*	*	*	*	
Site 2	12	08	31	92	*	*	*	*	
Site 2	13	08	31	92	*	*	*	*	
Site 2	14	08	31	92	*	*	*	*	
Site 2	15	08	31	92	12.2	7.0	61.1	3.61	*
Site 2	16	08	31	92	*	*	*	*	
Site 2	17	08	31	92	*	*	*	*	
Site 2	18	08	31	92	*	*	*	*	
Site 2	19	08	31	92	12.0	6.6	64.3	0.95	*

Hydrolab and quality control data (continued):

Site	Depth	Month	Day	Year	Temp	pH	Cond	DO	Secchi
Site 3	00	08	31	92	22.5	6.8	59.6	8.90	5.1
Site 3	01	08	31	92	*	*	*	*	
Site 3	02	08	31	92	*	*	*	*	
Site 3	03	08	31	92	*	*	*	*	
Site 3	04	08	31	92	*	*	*	*	
Site 3	05	08	31	92	22.5	6.7	59.7	8.80	*
Site 3	06	08	31	92	*	*	*	*	
Site 3	07	08	31	92	*	*	*	*	
Site 3	08	08	31	92	*	*	*	*	
Site 3	09	08	31	92	*	*	*	*	
Site 3	10	08	31	92	21.5	7.1	59.1	8.80	*
Site 3	11	08	31	92	*	*	*	*	
Site 3	12	08	31	92	*	*	*	*	
Site 3	13	08	31	92	*	*	*	*	
Site 3	14	08	31	92	*	*	*	*	
Site 3	15	08	31	92	*	*	*	*	
Site 3	16	08	31	92	*	*	*	*	
Site 3	17	08	31	92	*	*	*	*	
Site 3	18	08	31	92	*	*	*	*	
Site 3	19	08	31	92	*	*	*	*	
Site 3	20	08	31	92	16.0	6.9	59.2	8.25	*
Site 3	25	08	31	92	*	*	*	*	
Site 3	30	08	31	92	*	*	*	*	
Site 3	35	08	31	92	*	*	*	*	
Site 3	40	08	31	92	12.0	6.9	59.5	9.10	*
Site 3	45	08	31	92	*	*	*	*	
Site 3	50	08	31	92	*	*	*	*	
Site 3	55	08	31	92	*	*	*	*	
Site 3	60	08	31	92	10.	6.5	59.8	8.80	*
Site 3	65	08	31	92	*	*	*	*	
Site 3	70	08	31	92	*	*	*	*	
Site 3	75	08	31	92	*	*	*	*	
Site 3	80	08	31	92	16.0	6.3	63.5	6.25	*

Hydrolab and quality control data (continued):

Site	Depth	Month	Day	Year	Temp	pH	Cond	DO	Secchi
Site 4	00	08	31	92	21.5	6.8	59.8	8.85	5.2
Site 4	01	08	31	92	*	*	*	*	
Site 4	02	08	31	92	*	*	*	*	
Site 4	03	08	31	92	*	*	*	*	
Site 4	04	08	31	92	*	*	*	*	
Site 4	05	08	31	92	20.0	7.0	59.3	8.80	*
Site 4	06	08	31	92	*	*	*	*	
Site 4	07	08	31	92	*	*	*	*	
Site 4	08	08	31	92	*	*	*	*	
Site 4	09	08	31	92	*	*	*	*	
Site 4	10	08	31	92	20.5	7.1	59.3	8.75	*
Site 4	11	08	31	92	*	*	*	*	
Site 4	12	08	31	92	*	*	*	*	
Site 4	13	08	31	92	*	*	*	*	
Site 4	14	08	31	92	*	*	*	*	
Site 4	15	08	31	92	18.0	6.2	*	*	
Site 4	16	08	31	92	*	*	*	*	
Site 4	17	08	31	92	*	*	*	*	
Site 4	18	08	31	92	*	*	*	*	
Site 4	19	08	31	92	*	*	*	*	
Site 4	20	08	31	92	16.5	5.9	59.1	8.45	*
Site 4	25	08	31	92	*	*	*	*	
Site 4	30	08	31	92	*	*	*	*	
Site 4	35	08	31	92	*	*	*	*	
Site 4	40	08	31	92	10.0	6.0	59.4	9.05	*
Site 4	45	08	31	92	*	*	*	*	
Site 4	50	08	31	92	*	*	*	*	
Site 4	55	08	31	92	*	*	*	*	
Site 4	60	08	31	92	11.5	6.0	59.7	8.60	*
Site 4	65	08	31	92	*	*	*	*	
Site 4	70	08	31	92	*	*	*	*	
Site 4	75	08	31	92	*	*	*	*	
Site 4	80	08	31	92	6.0	6.4	59.6	8.90	*
Site 4	85	08	31	92	*	*	*	*	
Site 4	90	08	31	92	10.0	6.2	59.9	8.80	*
Gate	00	08	31	92	19.9	6.5	57.5	8.14	*

Laboratory data:

Site	Depth	Month	Day	Year	Alk	Turb	NH3	TKN	NO3	SRP	TP	ChlA	Silica
Site 1	00	08	31	92	20.9	0.76	14.8	153.4	64.2	BDL	6.8	6.26	3.5
Site 1	05	08	31	92	18.9	0.92	20.5	183.3	68.6	BDL	7.8	6.12	3.4
Site 1	10	08	31	92	20.1	1.41	67.7	377.5	83.7	BDL	15.6	13.44	3.7
Site 1	15	08	31	92	22.8	1.90	131.5	360.2	BDL	BDL	14.1	2.29	5.4
Site 1	20	08	31	92	23.0	1.72	131.2	283.8	BDL	BDL	23.1	1.33	5.9
Intake	00	08	31	92	18.6	0.72	16.4	BDL	138.5	BDL	7.7	3.97	3.8
Intake	05	08	31	92	17.3	0.65	14.6	BDL	157.4	BDL	7.5	6.02	3.7
Intake	10	08	31	92	18.2	0.68	13.9	BDL	156.1	BDL	5.9	3.63	3.8
Site 2	00	08	31	92	18.3	0.54	12.9	BDL	156.1	BDL	6.3	3.69	3.6
Site 2	05	08	31	92	18.1	0.66	16.6	BDL	162.4	BDL	6.4	3.83	3.6
Site 2	10	08	31	92	18.0	0.75	26.7	BDL	166.2	BDL	5.5	4.07	3.7
Site 2	15	08	31	92	18.6	0.97	70.5	292.6	283.9	BDL	7.8	2.09	4.3
Site 2	20	08	31	92	22.1	5.90	288.4	553.0	166.2	BDL	22.9	0.44	5.3
Site 3	00	08	31	92	18.0	0.62	14.6	BDL	176.3	BDL	6.6	2.94	3.6
Site 3	05	08	31	92	18.0	0.69	16.4	BDL	176.9	21.8	606.3	3.04	3.8
Site 3	10	08	31	92	17.8	0.62	16.2	BDL	196.4	BDL	17.0	4.45	3.9
Site 3	15	08	31	92	*	*	*	*	*	*	*	6.50	*
Site 3	20	08	31	92	17.3	0.67	18.7	BDL	357.6	6.2	BDL	3.01	4.6
Site 3	40	08	31	92	*	0.55	15.4	BDL	441.3	BDL	BDL	*	3.9
Site 3	60	08	31	92	16.8	0.34	16.4	BDL	445.1	BDL	BDL	*	4.6
Site 3	80	08	31	92	18.1	0.55	14.4	BDL	418.6	5.2	10.5	*	5.1
Site 4	00	08	31	92	18.0	0.74	12.5	BDL	209.0	BDL	5.3	2.39	3.8
Site 4	05	08	31	92	18.0	0.84	21.9	BDL	176.3	BDL	BDL	3.15	3.7
Site 4	10	08	31	92	17.8	0.74	17.2	BDL	175.0	BDL	BDL	3.15	3.7
Site 4	15	08	31	92	*	*	*	*	*	*	*	2.77	*
Site 4	20	08	31	92	16.2	0.67	16.8	BDL	424.3	BDL	6.8	1.54	4.5
Site 4	40	08	31	92	16.3	0.93	25.0	BDL	448.2	BDL	BDL	*	4.6
Site 4	60	08	31	92	16.5	0.54	15.5	BDL	447.0	BDL	BDL	*	4.8
Site 4	80	08	31	92	16.4	0.80	21.4	BDL	442.5	BDL	BDL	*	4.5
Site 4	90	08	31	92	16.8	1.84	15.8	184.0	448.8	BDL	BDL	*	4.8
Gate	00	08	31	92	17.8	0.86	30.6	BDL	193.9	BDL	BDL	*	3.9

Lake Whatcom Monitoring Program

Prepared January 9, 1993 by the Environmental Research and Education Center, Western Washington University, for the City of Bellingham, Department of Public Works.

*: missing. BDL: below detection limit.

Hydrolab and quality control data:

Site	Depth	Month	Day	Year	Temp	pH	Cond	DO	Secchi
Site 1	00	08	03	92	22.26	7.39	64	9.68	4.6
Site 1	01	08	03	92	22.19	*	66	9.66	
Site 1	02	08	03	92	22.01	*	66	9.76	
Site 1	03	08	03	92	21.89	*	68	9.86	
Site 1	04	08	03	92	21.75	*	70	9.84	
Site 1	05	08	03	92	21.58	7.40	70	9.53	*
Site 1	06	08	03	92	20.58	*	70	9.72	
Site 1	07	08	03	92	19.46	*	70	9.32	
Site 1	08	08	03	92	18.13	*	72	8.83	
Site 1	09	08	03	92	16.20	*	74	5.77	
Site 1	10	08	03	92	14.23	7.35	76	3.73	*
Site 1	11	08	03	92	13.45	*	77	2.51	
Site 1	12	08	03	92	12.23	*	77	1.75	
Site 1	13	08	03	92	11.74	*	79	1.55	
Site 1	14	08	03	92	11.52	*	80	1.47	
Site 1	15	08	03	92	11.36	6.99	79	1.42	*
Site 1	16	08	03	92	11.23	*	80	1.40	
Site 1	17	08	03	92	11.15	*	80	1.37	
Site 1	18	08	03	92	11.08	*	80	1.35	
Site 1	19	08	03	92	10.92	*	81	1.36	
Site 1	20	08	03	92	10.69	6.95	81	1.34	*

Hydrolab and quality control data (continued):

Site	Depth	Month	Day	Year	Temp	pH	Cond	DO	Secchi
Intake	00	08	03	92	21.74	7.32	64	9.32	6.4
Intake	01	08	03	92	21.74	*	64	9.33	
Intake	02	08	03	92	21.58	*	65	9.26	
Intake	03	08	03	92	21.30	*	66	9.23	
Intake	04	08	03	92	21.25	*	67	9.21	
Intake	05	08	03	92	21.18	7.32	68	9.23	*
Intake	06	08	03	92	21.10	*	69	9.23	
Intake	07	08	03	92	21.01	*	69	9.27	
Intake	08	08	03	92	20.56	*	70	9.42	
Intake	09	08	03	92	19.85	*	71	9.25	
Intake	10	08	03	92	19.40	*	71	9.22	*
Intake	11	08	03	92	18.14	*	71	9.03	
Intake	12	08	03	92	17.32	*	73	8.25	
Site 2	00	08	03	92	21.66	8.17	64	9.22	6.1
Site 2	01	08	03	92	21.67	8.21	64	9.22	
Site 2	02	08	03	92	21.65	8.23	65	9.21	
Site 2	03	08	03	92	21.56	8.25	66	9.18	
Site 2	04	08	03	92	21.40	8.26	68	9.21	
Site 2	05	08	03	92	21.31	8.26	68	9.21	*
Site 2	06	08	03	92	21.24	8.27	68	9.19	
Site 2	07	08	03	92	20.91	8.23	69	9.18	
Site 2	08	08	03	92	20.73	8.17	70	9.18	
Site 2	09	08	03	92	20.11	8.13	70	9.17	
Site 2	10	08	03	92	19.57	8.07	71	9.25	*
Site 2	11	08	03	92	19.29	8.00	72	9.27	
Site 2	12	08	03	92	16.87	7.94	71	8.86	
Site 2	13	08	03	92	14.86	7.83	73	7.70	
Site 2	14	08	03	92	14.16	7.72	74	6.89	
Site 2	15	08	03	92	13.13	7.60	74	5.54	*
Site 2	16	08	03	92	12.71	7.43	75	4.24	
Site 2	17	08	03	92	11.86	7.27	78	3.11	
Site 2	18	08	03	92	11.42	7.15	78	2.04	
Site 2	19	08	03	92	11.27	6.93	80	1.79	*

Hydrolab and quality control data (continued):

Site	Depth	Month	Day	Year	Temp	pH	Cond	DO	Secchi
Site 3	00	08	03	92	21.32	7.99	65	9.10	6.7
Site 3	01	08	03	92	21.33	8.01	66	9.15	
Site 3	02	08	03	92	21.26	8.05	66	9.16	
Site 3	03	08	03	92	21.16	8.07	67	9.16	
Site 3	04	08	03	92	20.97	8.10	68	9.23	
Site 3	05	08	03	92	20.96	8.10	69	9.25	*
Site 3	06	08	03	92	20.60	8.11	69	9.42	
Site 3	07	08	03	92	20.11	8.10	70	9.42	
Site 3	08	08	03	92	20.00	8.02	71	9.39	
Site 3	09	08	03	92	19.57	7.99	71	9.40	
Site 3	10	08	03	92	19.10	7.95	72	9.35	*
Site 3	11	08	03	92	18.28	7.87	72	9.37	
Site 3	12	08	03	92	17.18	7.81	72	9.32	
Site 3	13	08	03	92	16.44	7.69	74	9.28	
Site 3	14	08	03	92	15.95	7.65	74	9.25	
Site 3	15	08	03	92	14.88	7.62	75	9.16	
Site 3	16	08	03	92	14.04	7.56	75	9.31	
Site 3	17	08	03	92	13.63	7.50	75	9.26	
Site 3	18	08	03	92	13.04	7.47	76	9.26	
Site 3	19	08	03	92	12.20	7.43	76	9.31	
Site 3	20	08	03	92	11.45	7.39	77	9.36	*
Site 3	25	08	03	92	9.30	7.37	78	9.39	
Site 3	30	08	03	92	8.29	7.34	78	9.51	
Site 3	35	08	03	92	7.89	7.32	77	9.61	
Site 3	40	08	03	92	7.74	7.28	78	9.64	*
Site 3	45	08	03	92	7.61	7.28	78	9.67	
Site 3	50	08	03	92	7.57	7.27	76	9.67	
Site 3	55	08	03	92	7.48	7.25	75	9.59	
Site 3	60	08	03	92	7.44	7.23	74	9.41	*
Site 3	65	08	03	92	7.36	7.17	76	9.16	
Site 3	70	08	03	92	7.32	7.16	74	8.98	
Site 3	75	08	03	92	7.27	7.12	75	8.18	
Site 3	80	08	03	92	7.22	7.04	75	7.12	*

Hydrolab and quality control data (continued):

Site	Depth	Month	Day	Year	Temp	pH	Cond	DO	Secchi
Site 4	00	08	03	92	20.69	8.03	66	9.38	6.3
Site 4	01	08	03	92	20.64	8.03	67	9.40	
Site 4	02	08	03	92	20.62	8.04	67	9.38	
Site 4	03	08	03	92	20.46	8.04	68	9.52	
Site 4	04	08	03	92	20.39	8.02	70	9.53	
Site 4	05	08	03	92	20.36	7.99	70	9.49	*
Site 4	06	08	03	92	20.30	7.94	71	9.50	
Site 4	07	08	03	92	20.15	7.89	71	9.53	
Site 4	08	08	03	92	20.15	7.82	71	9.52	
Site 4	09	08	03	92	20.12	7.71	72	9.52	
Site 4	10	08	03	92	19.50	7.55	73	9.63	*
Site 4	11	08	03	92	18.71	7.46	73	9.68	
Site 4	12	08	03	92	18.23	7.35	73	9.66	
Site 4	13	08	03	92	17.36	7.27	73	9.57	
Site 4	14	08	03	92	16.45	7.19	74	9.66	
Site 4	15	08	03	92	14.94	7.15	74	9.50	
Site 4	16	08	03	92	13.49	7.11	74	9.46	
Site 4	17	08	03	92	12.25	7.10	75	9.47	
Site 4	18	08	03	92	11.67	7.09	75	9.66	
Site 4	19	08	03	92	11.09	7.08	74	9.64	
Site 4	20	08	03	92	10.45	7.08	75	9.80	*
Site 4	25	08	03	92	8.67	7.08	75	9.87	
Site 4	30	08	03	92	7.81	7.08	76	10.08	
Site 4	35	08	03	92	7.61	7.08	75	10.00	
Site 4	40	08	03	92	7.51	7.09	73	10.06	*
Site 4	45	08	03	92	7.48	7.08	74	10.09	
Site 4	50	08	03	92	7.45	7.08	73	10.10	
Site 4	55	08	03	92	7.47	7.08	74	9.92	
Site 4	60	08	03	92	7.48	7.08	73	9.93	*
Site 4	65	08	03	92	7.54	7.08	70	9.90	
Site 4	70	08	03	92	7.52	7.09	70	9.98	
Site 4	75	08	03	92	7.55	7.09	70	9.96	
Site 4	80	08	03	92	7.58	7.10	71	9.87	*
Site 4	85	08	03	92	7.58	7.12	71	9.66	
Site 4	90	08	03	92	7.64	7.17	72	9.57	*
Gate	00	08	03	92	18.31	7.27	70	9.02	*

Laboratory data:

Site	Depth	Month	Day	Year	Alk	Turb	NH3	TKN	NO3	SRP	TP	ChlA	Silica
Site 1	00	08	03	92	18.8	0.80	10.6	*	72.6	6.2	8.9	8.86	3.3
Site 1	05	08	03	92	24.7	0.81	11.1	*	72.1	5.7	10.5	11.71	3.4
Site 1	10	08	03	92	19.4	1.35	12.9	*	104.0	5.3	13.9	15.31	3.4
Site 1	15	08	03	92	20.1	1.00	27.9	*	146.0	5.4	10.7	3.04	5.0
Site 1	20	08	03	92	20.9	5.30	31.6	*	128.7	BDL	10.0	2.22	4.5
Intake	00	08	03	92	18.3	0.74	15.8	*	164.1	BDL	6.5	5.35	3.5
Intake	05	08	03	92	17.9	0.85	14.5	*	194.2	BDL	6.0	5.17	3.7
Intake	10	08	03	92	17.9	0.77	14.7	*	219.4	BDL	BDL	5.99	4.0
Site 2	00	08	03	92	18.0	0.65	12.1	*	190.2	BDL	6.1	4.96	3.7
Site 2	05	08	03	92	17.5	0.76	11.3	*	196.3	9.7	5.7	4.45	3.8
Site 2	10	08	03	92	17.7	0.75	12.1	*	218.6	5.9	5.7	3.93	3.8
Site 2	15	08	03	92	17.5	0.77	18.5	*	308.4	BDL	6.9	4.75	4.4
Site 2	20	08	03	92	18.7	1.49	76.0	*	297.8	34.8	42.2	2.94	4.9
Site 3	00	08	03	92	17.7	0.63	12.7	*	220.7	5.8	BDL	3.22	3.8
Site 3	05	08	03	92	18.0	0.48	12.2	*	219.7	*	*	3.35	3.8
Site 3	10	08	03	92	17.7	0.65	11.0	*	243.1	BDL	6.9	4.82	3.9
Site 3	15	08	03	92	*	*	*	*	*	*	*	4.17	*
Site 3	20	08	03	92	16.7	0.49	12.3	*	387.4	*	*	2.89	4.4
Site 3	40	08	03	92	16.4	0.21	10.8	*	465.9	*	*	*	4.5
Site 3	60	08	03	92	16.3	0.47	10.7	*	447.5	BDL	BDL	*	4.6
Site 3	80	08	03	92	16.6	2.30	31.7	*	387.2	BDL	BDL	*	4.9
Site 4	00	08	03	92	17.0	0.90	13.8	*	225.8	BDL	BDL	5.30	3.7
Site 4	05	08	03	92	17.8	0.82	15.2	*	216.9	BDL	BDL	4.28	3.6
Site 4	10	08	03	92	17.7	0.70	12.5	*	220.0	5.5	BDL	4.14	3.7
Site 4	15	08	03	92	*	*	*	*	*	*	*	3.32	*
Site 4	20	08	03	92	16.7	0.71	11.4	*	417.0	BDL	BDL	1.90	4.5
Site 4	40	08	03	92	16.4	0.39	12.4	*	448.8	BDL	BDL	*	4.5
Site 4	60	08	03	92	16.3	0.44	9.9	*	429.8	BDL	BDL	*	4.3
Site 4	80	08	03	92	16.6	0.52	9.0	*	439.4	BDL	BDL	*	4.5
Site 4	90	08	03	92	17.0	0.41	20.3	*	418.0	BDL	BDL	*	4.5
Gate	00	08	03	92	17.3	1.60	18.8	*	251.2	BDL	6.6	*	3.6

Lake Whatcom Monitoring Program

Prepared January 9, 1993 by the Environmental Research and Education Center, Western Washington University, for the City of Bellingham, Department of Public Works.

*: missing. BDL: below detection limit.

Hydrolab and quality control data:

Site	Depth	Month	Day	Year	Temp	pH	Cond	DO	Secchi
Site 1	00	07	06	92	19.81	8.31	63	9.50	3.6
Site 1	01	07	06	92	19.81	8.33	63	9.50	
Site 1	02	07	06	92	19.84	8.33	64	9.48	
Site 1	03	07	06	92	19.84	8.33	64	9.58	
Site 1	04	07	06	92	19.84	8.34	65	9.59	
Site 1	05	07	06	92	19.83	8.32	66	9.62	*
Site 1	06	07	06	92	19.81	8.30	66	9.65	
Site 1	07	07	06	92	19.01	8.17	67	10.53	
Site 1	08	07	06	92	16.75	8.01	67	10.23	
Site 1	09	07	06	92	15.25	7.74	68	9.59	
Site 1	10	07	06	92	14.62	7.42	68	8.03	*
Site 1	11	07	06	92	12.87	7.14	70	6.60	
Site 1	12	07	06	92	12.07	7.03	70	4.77	
Site 1	13	07	06	92	11.54	6.85	72	4.20	
Site 1	14	07	06	92	11.29	6.83	71	4.17	
Site 1	15	07	06	92	11.01	6.78	71	4.01	*
Site 1	16	07	06	92	10.88	6.75	71	3.96	
Site 1	17	07	06	92	10.75	6.73	72	4.03	
Site 1	18	07	06	92	10.64	6.72	72	4.05	
Site 1	19	07	06	92	10.60	6.71	71	4.10	
Site 1	20	07	06	92	10.53	6.70	71	3.84	*

Hydrolab and quality control data (continued):

Site	Depth	Month	Day	Year	Temp	pH	Cond	DO	Secchi
Intake	00	07	06	92	19.57	8.10	61	9.02	3.8
Intake	01	07	06	92	19.61	8.11	62	9.02	
Intake	02	07	06	92	19.60	8.11	63	9.04	
Intake	03	07	06	92	19.60	8.11	65	9.03	
Intake	04	07	06	92	19.57	8.09	66	9.01	
Intake	05	07	06	92	19.58	8.09	66	9.01	*
Intake	06	07	06	92	19.58	8.08	67	8.99	
Intake	07	07	06	92	19.58	8.07	67	9.00	
Intake	08	07	06	92	19.58	8.06	68	8.97	
Intake	09	07	06	92	19.56	8.06	68	8.93	
Intake	10	07	06	92	19.56	8.05	68	8.94	*
Intake	11	07	06	92	19.14	8.00	69	8.65	
Intake	12	07	06	92	15.65	7.83	70	8.83	
Site 2	00	07	06	92	19.52	7.96	62	9.10	4.4
Site 2	01	07	06	92	19.58	8.02	62	9.05	
Site 2	02	07	06	92	19.56	8.05	63	9.06	
Site 2	03	07	06	92	19.54	8.07	65	9.08	
Site 2	04	07	06	92	19.48	8.07	65	9.06	
Site 2	05	07	06	92	19.47	8.07	66	9.04	*
Site 2	06	07	06	92	19.46	8.05	66	9.03	
Site 2	07	07	06	92	19.46	8.06	67	9.00	
Site 2	08	07	06	92	19.45	8.05	67	9.02	
Site 2	09	07	06	92	19.44	8.03	67	9.00	
Site 2	10	07	06	92	19.42	8.01	68	8.96	*
Site 2	11	07	06	92	18.46	7.96	68	9.18	
Site 2	12	07	06	92	16.23	7.88	69	9.41	
Site 2	13	07	06	92	14.24	7.72	69	9.02	
Site 2	14	07	06	92	13.22	7.59	70	8.49	
Site 2	15	07	06	92	12.38	7.41	70	7.25	*
Site 2	16	07	06	92	11.73	7.30	71	6.44	
Site 2	17	07	06	22	11.13	6.98	72	5.39	
Site 2	18	07	06	92	11.08	7.02	72	5.35	
Site 2	19	07	06	92	10.81	7.05	73	4.18	
Site 2	20	07	06	92	*	*	*	*	*

Hydrolab and quality control data (continued):

Site	Depth	Month	Day	Year	Temp	pH	Cond	DO	Secchi
Site 3	00	07	06	92	19.08	8.00	62	10.38	4.2
Site 3	01	07	06	92	19.10	8.02	62	10.13	
Site 3	02	07	06	92	19.11	8.03	63	10.42	
Site 3	03	07	06	92	19.14	8.05	63	10.23	
Site 3	04	07	06	92	19.14	8.05	64	10.23	
Site 3	05	07	06	92	19.14	8.05	65	10.40	*
Site 3	06	07	06	92	19.14	8.05	65	10.46	
Site 3	07	07	06	92	19.14	8.05	66	10.47	
Site 3	08	07	06	92	19.15	8.04	66	10.40	
Site 3	09	07	06	92	19.15	8.04	66	10.25	
Site 3	10	07	06	92	19.13	8.05	66	10.30	*
Site 3	11	07	06	92	19.07	8.03	67	10.17	
Site 3	12	07	06	92	16.25	7.97	66	11.09	
Site 3	13	07	06	92	15.57	7.88	68	11.09	
Site 3	14	07	06	92	14.79	7.81	68	11.02	
Site 3	15	07	06	92	14.29	7.76	68	11.28	
Site 3	16	07	06	92	13.99	7.72	68	10.92	
Site 3	17	07	06	92	13.28	7.67	68	11.05	
Site 3	18	07	06	92	12.66	7.64	69	11.06	
Site 3	19	07	06	92	12.21	7.58	68	11.22	
Site 3	20	07	06	92	10.95	7.55	68	11.36	*
Site 3	25	07	06	92	8.96	7.49	69	11.41	
Site 3	30	07	06	92	8.14	7.45	69	11.45	
Site 3	35	07	06	92	7.82	7.42	67	11.03	
Site 3	40	07	06	92	7.66	7.40	67	10.22	*
Site 3	45	07	06	92	7.55	7.38	65	10.40	
Site 3	50	07	06	92	7.45	7.36	66	10.66	
Site 3	55	07	06	92	7.42	7.35	66	10.95	
Site 3	60	07	06	92	7.39	7.31	65	10.43	*
Site 3	65	07	06	92	7.32	7.29	65	9.52	
Site 3	70	07	06	92	7.28	7.26	64	9.50	
Site 3	75	07	06	92	7.25	7.23	64	9.23	
Site 3	80	07	06	92	7.21	7.16	64	8.63	*

Hydrolab and quality control data (continued):

Site	Depth	Month	Day	Year	Temp	pH	Cond	DO	Secchi
Site 4	00	07	06	92	19.03	8.16	61	9.37	4.5
Site 4	01	07	06	92	19.05	8.17	61	9.34	
Site 4	02	07	06	92	19.07	8.17	62	9.37	
Site 4	03	07	06	92	19.06	8.18	63	9.34	
Site 4	04	07	06	92	19.04	8.15	64	9.33	
Site 4	05	07	06	92	18.97	8.13	65	9.33	*
Site 4	06	07	06	92	18.85	8.10	65	9.35	
Site 4	07	07	06	92	18.71	8.06	66	9.36	
Site 4	08	07	06	92	18.33	7.99	67	9.40	
Site 4	09	07	06	92	17.71	7.94	67	9.56	
Site 4	10	07	06	92	16.85	7.85	67	9.60	*
Site 4	11	07	06	92	16.62	7.81	68	9.60	
Site 4	12	07	06	92	15.77	7.73	68	9.54	
Site 4	13	07	06	92	15.40	7.70	69	9.57	
Site 4	14	07	06	92	14.40	7.66	69	9.57	
Site 4	15	07	06	92	13.57	7.62	69	9.47	
Site 4	16	07	06	92	12.57	7.58	70	9.49	
Site 4	17	07	06	92	11.65	7.52	70	9.51	
Site 4	18	07	06	92	11.17	7.49	70	9.52	
Site 4	19	07	06	92	10.70	7.47	70	9.50	
Site 4	20	07	06	92	10.40	7.45	70	9.50	*
Site 4	25	07	06	92	8.57	7.41	70	9.54	
Site 4	30	07	06	92	7.85	7.39	70	9.63	
Site 4	35	07	06	92	7.65	7.36	70	9.59	
Site 4	40	07	06	92	7.50	7.34	69	9.62	*
Site 4	45	07	06	92	7.45	7.32	69	9.62	
Site 4	50	07	06	92	7.41	7.30	68	9.55	
Site 4	55	07	06	92	7.36	7.29	68	9.54	
Site 4	60	07	06	92	7.34	7.28	66	9.59	*
Site 4	65	07	06	92	7.29	7.27	66	9.57	
Site 4	70	07	06	92	7.26	7.26	67	9.67	
Site 4	75	07	06	92	7.26	7.27	65	9.68	
Site 4	80	07	06	92	7.23	7.25	65	9.65	*
Site 4	85	07	06	92	7.21	7.28	65	9.63	
Site 4	90	07	06	92	7.19	7.24	64	9.56	*
Gate	00	07	06	92	17.57	7.43	61	8.99	*

Laboratory data:

Site	Depth	Month	Day	Year	Alk	Turb	NH3	TKN	NO3	SRP	TP	ChlA	Silica
Site 1	00	07	06	92	18.3	0.75	10.8	189.3	163.7	BDL	9.8	5.82	3.0
Site 1	05	07	06	92	18.4	0.72	7.7	213.3	171.4	BDL	8.8	7.78	2.6
Site 1	10	07	06	92	18.1	0.98	10.5	287.5	181.7	BDL	12.3	12.49	2.3
Site 1	15	07	06	92	18.2	1.08	28.6	222.7	276.9	5.6	14.0	3.76	2.1
Site 1	20	07	06	92	19.1	1.24	48.3	155.9	188.6	BDL	9.6	2.09	2.8
Intake	00	07	06	92	18.0	0.62	23.5	189.9	276.0	BDL	6.8	4.89	2.2
Intake	05	07	06	92	17.9	0.81	16.6	185.9	300.9	*	*	4.38	3.2
Intake	10	07	06	92	17.8	0.58	10.6	159.0	252.9	6.7	6.3	5.13	3.1
Site 2	00	07	06	92	17.4	0.57	12.5	167.7	249.4	BDL	7.5	4.28	3.3
Site 2	05	07	06	92	17.7	0.67	15.0	808.5	241.7	BDL	7.4	5.27	2.8
Site 2	10	07	06	92	18.0	0.70	12.8	163.2	258.9	5.3	6.6	3.66	3.6
Site 2	15	07	06	92	18.3	0.46	16.0	173.2	258.9	7.2	7.0	6.26	4.6
Site 2	20	07	06	92	18.1	0.82	42.8	249.4	258.9	5.1	9.0	3.30	3.5
Site 3	00	07	06	92	17.8	0.75	19.2	162.2	326.6	BDL	7.2	5.58	4.0
Site 3	05	07	06	92	17.8	0.69	37.5	187.7	325.7	8.3	6.4	2.86	2.7
Site 3	10	07	06	92	17.4	0.67	12.6	162.4	265.7	7.7	6.2	5.86	3.1
Site 3	15	07	06	92	*	*	*	*	*	*	*	6.50	*
Site 3	20	07	06	92	17.3	0.39	11.1	159.7	265.7	5.1	7.0	3.28	2.8
Site 3	40	07	06	92	17.2	0.26	11.8	135.9	421.3	BDL	6.1	*	3.6
Site 3	60	07	06	92	17.0	0.26	10.7	119.1	422.0	BDL	5.3	*	2.1
Site 3	80	07	06	92	17.0	0.47	7.4	164.4	394.5	12.3	7.5	*	2.4
Site 4	00	07	06	92	17.7	0.81	8.3	269.0	271.9	5.7	7.3	4.14	3.9
Site 4	05	07	06	92	17.3	0.67	12.5	206.5	384.5	BDL	6.8	4.64	3.7
Site 4	10	07	06	92	17.4	0.83	8.3	279.2	260.4	BDL	7.7	5.42	3.8
Site 4	15	07	06	92	*	*	*	*	*	*	*	2.71	*
Site 4	20	07	06	92	16.9	0.40	8.4	189.8	291.1	BDL	8.9	2.47	3.5
Site 4	40	07	06	92	16.1	0.42	9.6	135.6	419.7	BDL	5.9	*	3.8
Site 4	60	07	06	92	16.6	0.37	7.7	128.0	421.3	BDL	BDL	*	3.1
Site 4	80	07	06	92	16.3	0.36	7.5	138.7	421.3	BDL	BDL	*	2.3
Site 4	90	07	06	92	16.8	0.64	BDL	149.5	417.4	BDL	7.3	*	2.1
Gate	00	07	06	92	17.8	0.62	7.6	199.4	264.2	BDL	6.6	*	2.6

Lake Whatcom Monitoring Program

Prepared January 9, 1993 by the Environmental Research and Education Center, Western Washington University, for the City of Bellingham, Department of Public Works.

*: missing. BDL: below detection limit.

Hydrolab and quality control data:

Site	Depth	Month	Day	Year	Temp	pH	Cond	DO	Secchi
Site 1	00	06	02	92	19.54	8.25	64	10.02	5.2
Site 1	01	06	02	92	19.54	8.30	64	9.86	
Site 1	02	06	02	92	19.13	8.34	65	9.86	
Site 1	03	06	02	92	18.86	8.37	66	9.95	
Site 1	04	06	02	92	17.93	8.51	67	10.35	
Site 1	05	06	02	92	17.21	8.59	67	10.61	*
Site 1	06	06	02	92	16.56	8.57	67	10.80	
Site 1	07	06	02	92	15.97	8.47	67	10.90	
Site 1	08	06	02	92	15.13	8.41	69	10.83	
Site 1	09	06	02	92	13.33	7.88	69	8.96	
Site 1	10	06	02	92	12.58	7.67	70	8.40	*
Site 1	11	06	02	92	12.37	7.48	71	7.80	
Site 1	12	06	02	92	11.48	7.24	72	6.82	
Site 1	13	06	02	92	11.29	7.18	72	6.52	
Site 1	14	06	02	92	11.04	7.08	73	6.28	
Site 1	15	06	02	92	10.89	6.99	73	6.20	*
Site 1	16	06	02	92	10.66	6.94	73	6.08	
Site 1	17	06	02	92	10.44	6.88	73	5.92	
Site 1	18	06	02	92	10.29	6.85	73	5.82	
Site 1	19	06	02	92	10.21	6.83	74	5.73	
Site 1	20	06	02	92	10.19	6.82	73	5.71	*

Hydrolab and quality control data (continued):

Site	Depth	Month	Day	Year	Temp	pH	Cond	DO	Secchi
Intake	00	06	02	92	18.62	8.22	62	9.95	4.5
Intake	01	06	02	92	18.61	8.22	62	9.90	
Intake	02	06	02	92	18.41	8.22	64	9.95	
Intake	03	06	02	92	17.68	8.24	64	10.06	
Intake	04	06	02	92	17.41	8.30	65	10.22	
Intake	05	06	02	92	17.25	8.34	66	10.25	*
Intake	06	06	02	92	17.14	8.36	67	10.27	
Intake	07	06	02	92	17.05	8.37	67	10.26	
Intake	08	06	02	92	17.00	8.37	67	10.30	
Intake	09	06	02	92	16.92	8.37	68	10.30	
Intake	10	06	02	92	16.29	8.36	69	10.34	*
Intake	11	06	02	92	15.98	8.26	70	10.29	
Intake	12	06	02	92	14.45	8.15	70	10.41	
Site 2	00	06	02	92	18.07	8.18	62	9.94	4.8
Site 2	01	06	02	92	18.03	8.20	62	9.94	
Site 2	02	06	02	92	17.99	8.20	63	9.94	
Site 2	03	06	02	92	17.91	8.22	65	9.99	
Site 2	04	06	02	92	17.85	8.23	65	10.00	
Site 2	05	06	02	92	17.82	8.23	65	10.02	*
Site 2	06	06	02	92	17.76	8.24	66	10.03	
Site 2	07	06	02	92	17.33	8.25	66	10.10	
Site 2	08	06	02	92	17.20	8.25	67	10.11	
Site 2	09	06	02	92	16.65	8.27	68	10.31	
Site 2	10	06	02	92	15.73	8.24	68	10.44	*
Site 2	11	06	02	92	15.05	8.15	68	10.48	
Site 2	12	06	02	92	13.80	8.02	68	10.48	
Site 2	13	06	02	92	12.30	7.86	70	10.21	
Site 2	14	06	02	92	11.79	7.74	70	10.09	
Site 2	15	06	02	92	11.19	7.64	70	9.72	*
Site 2	16	06	02	92	10.89	7.56	71	9.41	
Site 2	17	06	02	92	10.57	7.45	72	8.72	
Site 2	18	06	02	92	10.42	7.32	72	8.58	
Site 2	19	06	02	92	10.29	7.24	71	8.22	
Site 2	20	06	02	92	10.10	7.16	72	7.63	*

Hydrolab and quality control data (continued):

Site	Depth	Month	Day	Year	Temp	pH	Cond	DO	Secchi
Site 3	00	06	02	92	17.34	8.24	63	10.08	5.2
Site 3	01	06	02	92	17.24	8.20	62	10.09	
Site 3	02	06	02	92	17.06	8.20	62	10.10	
Site 3	03	06	02	92	16.93	8.20	63	10.10	
Site 3	04	06	02	92	16.81	8.20	64	10.17	
Site 3	05	06	02	92	16.77	8.21	64	10.14	*
Site 3	06	06	02	92	16.71	8.22	65	10.14	
Site 3	07	06	02	92	16.61	8.22	66	10.18	
Site 3	08	06	02	92	16.50	8.20	66	10.18	
Site 3	09	06	02	92	15.04	8.08	66	10.45	
Site 3	10	06	02	92	14.11	7.97	67	10.53	*
Site 3	11	06	02	92	13.72	7.92	68	10.55	
Site 3	12	06	02	92	12.62	7.86	68	10.54	
Site 3	13	06	02	92	11.78	7.81	69	10.57	
Site 3	14	06	02	92	11.08	7.71	69	10.57	
Site 3	15	06	02	92	10.74	7.65	69	10.54	
Site 3	16	06	02	92	10.42	7.62	70	10.52	
Site 3	17	06	02	92	10.31	7.58	70	10.49	
Site 3	18	06	02	92	10.15	7.52	70	10.47	
Site 3	19	06	02	92	9.85	7.50	70	10.47	
Site 3	20	06	02	92	9.66	7.48	70	10.47	*
Site 3	25	06	02	92	8.29	7.44	70	10.41	
Site 3	30	06	02	92	7.92	7.40	71	10.36	
Site 3	35	06	02	92	7.60	7.37	71	10.38	
Site 3	40	06	02	92	7.48	7.35	70	10.38	*
Site 3	45	06	02	92	7.39	7.33	70	10.37	
Site 3	50	06	02	92	7.33	7.31	69	10.30	
Site 3	55	06	02	92	7.28	7.29	69	10.34	
Site 3	60	06	02	92	7.26	7.28	68	10.26	*
Site 3	65	06	02	92	7.23	7.26	68	10.26	
Site 3	70	06	02	92	7.21	7.26	68	10.15	
Site 3	75	06	02	92	7.20	7.23	67	9.93	
Site 3	80	06	02	92	7.15	7.19	67	9.39	*

Hydrolab and quality control data (continued):

Site	Depth	Month	Day	Year	Temp	pH	Cond	DO	Secchi
Site 4	00	06	02	92	16.75	8.20	61	10.27	4.3
Site 4	01	06	02	92	16.75	8.20	63	10.31	
Site 4	02	06	02	92	16.72	8.19	63	10.33	
Site 4	03	06	02	92	16.64	8.18	64	10.37	
Site 4	04	06	02	92	16.32	8.17	64	10.43	
Site 4	05	06	02	92	16.26	8.14	66	10.45	*
Site 4	06	06	02	92	16.09	8.11	66	10.47	
Site 4	07	06	02	92	15.94	8.05	66	10.40	
Site 4	08	06	02	92	15.19	7.98	67	10.59	
Site 4	09	06	02	92	15.13	7.96	67	10.61	
Site 4	10	06	02	92	15.08	7.89	67	10.62	*
Site 4	11	06	02	92	14.70	7.83	67	10.64	
Site 4	12	06	02	92	14.17	7.72	68	10.69	
Site 4	13	06	02	92	13.79	7.63	68	10.78	
Site 4	14	06	02	92	12.93	7.58	68	10.75	
Site 4	15	06	02	92	12.72	7.54	68	10.75	
Site 4	16	06	02	92	12.57	7.51	68	10.73	
Site 4	17	06	02	92	12.06	7.49	67	10.71	
Site 4	18	06	02	92	11.61	7.42	68	10.81	
Site 4	19	06	02	92	11.15	7.39	67	10.75	
Site 4	20	06	02	92	10.73	7.31	67	10.69	*
Site 4	25	06	02	92	9.30	7.24	68	10.58	
Site 4	30	06	02	92	8.08	7.21	68	10.58	
Site 4	35	06	02	92	7.43	7.21	68	10.67	
Site 4	40	06	02	92	7.28	7.21	66	10.62	*
Site 4	45	06	02	92	7.23	7.20	66	10.60	
Site 4	50	06	02	92	7.22	7.20	65	10.74	
Site 4	55	06	02	92	7.22	7.20	65	10.76	
Site 4	60	06	02	92	7.22	7.20	66	10.66	*
Site 4	65	06	02	92	7.22	7.20	65	10.61	
Site 4	70	06	02	92	7.23	7.21	64	10.60	
Site 4	75	06	02	92	7.25	7.21	64	10.58	
Site 4	80	06	02	92	7.29	7.22	63	10.53	*
Site 4	85	06	02	92	7.29	7.23	64	10.47	
Site 4	90	06	02	92	7.30	7.24	64	10.55	*
Gate	00	06	02	92	15.16	7.52	63	10.31	*

Laboratory data:

Site	Depth	Month	Day	Year	Alk	Turb	NH3	TKN	NO3	SRP	TP	ChlA	Silica
Site 1	00	06	02	92	18.0	0.65	37.6	175.4	259.9	BDL	6.8	4.12	4.0
Site 1	05	06	02	92	17.8	1.00	37.7	212.8	279.8	BDL	7.7	3.80	*
Site 1	10	06	02	92	17.6	1.00	22.6	182.2	302.8	BDL	8.5	9.24	*
Site 1	15	06	02	92	17.4	.65	60.8	196.5	318.8	BDL	7.6	4.22	4.1
Site 1	20	06	02	92	16.9	1.20	77.9	189.0	324.7	BDL	11.8	3.90	*
Intake	00	06	02	92	17.8	0.75	24.1	141.5	296.9	BDL	8.5	4.00	*
Intake	05	06	02	92	17.0	0.45	37.6	127.9	335.8	BDL	7.2	5.27	4.0
Intake	10	06	02	92	17.0	0.65	49.0	134.7	329.6	BDL	BDL	4.50	4.4
Site 2	00	06	02	92	17.4	0.80	22.7	165.2	323.4	BDL	5.5	4.82	*
Site 2	05	06	02	92	16.5	0.47	44.1	231.1	335.0	BDL	5.5	4.19	4.3
Site 2	10	06	02	92	*	0.41	26.3	170.0	337.0	BDL	5.7	5.08	4.3
Site 2	15	06	02	92	17.0	0.80	27.9	162.5	392.4	BDL	6.3	5.58	4.7
Site 2	20	06	02	92	16.9	0.67	56.3	163.9	401.5	BDL	6.4	4.43	*
Site 3	00	06	02	92	15.7	0.55	30.1	162.5	343.2	BDL	BDL	4.58	4.3
Site 3	05	06	02	92	17.4	0.57	24.2	170.0	337.0	BDL	8.3	5.10	4.5
Site 3	10	06	02	92	17.3	0.66	67.4	183.6	332.8	BDL	7.2	4.69	4.5
Site 3	15	06	02	92	*	*	*	*	*	*	*	4.07	*
Site 3	20	06	02	92	17.0	0.49	17.5	134.0	430.8	BDL	6.3	2.50	4.9
Site 3	40	06	02	92	34.4	0.53	13.5	132.7	460.1	BDL	6.5	*	4.9
Site 3	60	06	02	92	16.4	0.78	7.4	107.5	451.8	BDL	6.3	*	*
Site 3	80	06	02	92	16.8	0.55	11.3	121.1	433.3	BDL	BDL	*	5.0
Site 4	00	06	02	92	17.2	0.65	11.7	142.4	339.2	BDL	5.5	5.20	*
Site 4	05	06	02	92	16.8	0.65	13.2	145.0	336.6	BDL	6.2	5.22	4.5
Site 4	10	06	02	92	17.8	0.51	34.9	118.1	348.7	BDL	6.9	5.63	*
Site 4	15	06	02	92	*	*	*	*	*	*	*	5.95	*
Site 4	20	06	02	92	17.3	0.75	15.9	130.3	395.2	BDL	BDL	5.11	*
Site 4	40	06	02	92	16.7	0.44	17.4	BDL	458.2	BDL	5.3	*	2.6
Site 4	60	06	02	92	21.0	0.53	20.2	BDL	446.7	BDL	BDL	*	*
Site 4	80	06	02	92	16.8	1.30	16.2	124.6	452.4	BDL	BDL	*	2.2
Site 4	90	06	02	92	16.9	1.05	12.3	158.1	434.6	BDL	BDL	*	1.9
Gate	00	06	02	92	17.2	0.77	15.2	173.6	360.8	BDL	6.3	*	2.2

Lake Whatcom Monitoring Program

Prepared January 9, 1993 by the Environmental Research and Education Center,
Western Washington University, for the City of Bellingham, Department of Public Works.

*: missing. BDL: below detection limit.

Hydrolab and quality control data:

Site	Depth	Month	Day	Year	Temp	pH	Cond	DO	Secchi
Site 1	00	04	07	92	10.83	7.21	60	11.20	5.7
Site 1	01	04	07	92	10.83	7.34	62	11.03	*
Site 1	02	04	07	92	10.81	7.38	63	11.05	*
Site 1	03	04	07	92	10.77	7.43	65	11.08	*
Site 1	04	04	07	92	10.76	7.48	67	11.08	*
Site 1	05	04	07	92	10.75	7.53	67	11.09	*
Site 1	06	04	07	92	10.74	7.54	68	11.13	*
Site 1	07	04	07	92	10.70	7.56	70	11.12	*
Site 1	08	04	07	92	10.26	7.54	70	10.96	*
Site 1	09	04	07	92	9.59	7.46	72	10.70	*
Site 1	10	04	07	92	9.30	7.40	72	10.47	*
Site 1	11	04	07	92	8.93	7.34	73	10.30	*
Site 1	12	04	07	92	8.68	7.29	73	10.06	*
Site 1	13	04	07	92	8.38	7.24	74	9.89	*
Site 1	14	04	07	92	8.26	7.20	74	9.72	*
Site 1	15	04	07	92	8.25	7.17	75	9.68	*
Site 1	16	04	07	92	8.23	7.16	75	9.69	*
Site 1	17	04	07	92	8.23	7.14	75	9.70	*
Site 1	18	04	07	92	8.20	7.13	75	9.66	*
Site 1	19	04	07	92	8.12	7.12	74	9.57	*
Site 1	20	04	07	92	8.11	7.10	75	9.52	*

Hydrolab and quality control data (continued):

Site	Depth	Month	Day	Year	Temp	pH	Cond	DO	Secchi
Intake	00	04	07	92	10.89	7.78	65	11.41	5.0
Intake	01	04	07	92	10.90	7.79	66	11.39	*
Intake	02	04	07	92	10.84	7.83	68	11.45	*
Intake	03	04	07	92	10.82	7.83	69	11.48	*
Intake	04	04	07	92	10.72	7.85	70	11.50	*
Intake	05	04	07	92	10.67	7.86	71	11.52	*
Intake	06	04	07	92	10.66	7.88	73	11.53	*
Intake	07	04	07	92	10.64	7.88	73	11.54	*
Intake	08	04	07	92	10.53	7.85	74	11.47	*
Intake	09	04	07	92	10.20	7.82	75	11.46	*
Intake	10	04	07	92	9.93	7.79	75	11.47	*
Intake	11	04	07	92	9.35	7.76	76	11.55	*
Intake	12	04	07	92	8.59	7.65	77	10.91	*
Site 2	00	04	07	92	10.79	7.78	65	11.47	5.3
Site 2	01	04	07	92	10.79	7.81	65	11.49	*
Site 2	02	04	07	92	10.76	7.83	66	11.51	*
Site 2	03	04	07	92	10.71	7.84	69	11.51	*
Site 2	04	04	07	92	10.66	7.86	70	11.53	*
Site 2	05	04	07	92	10.60	7.87	70	11.57	*
Site 2	06	04	07	92	10.57	7.88	71	11.56	*
Site 2	07	04	07	92	10.55	7.88	72	11.56	*
Site 2	08	04	07	92	10.54	7.88	73	11.49	*
Site 2	09	04	07	92	10.51	7.87	73	11.50	*
Site 2	10	04	07	92	10.50	7.88	75	11.64	*
Site 2	11	04	07	92	10.48	7.87	75	11.56	*
Site 2	12	04	07	92	10.24	7.87	75	11.51	*
Site 2	13	04	07	92	9.26	7.74	75	11.56	*
Site 2	14	04	07	92	8.90	7.66	76	11.34	*
Site 2	15	04	07	92	8.67	7.57	76	11.15	*
Site 2	16	04	07	92	8.49	7.52	77	11.11	*
Site 2	17	04	07	92	8.33	7.48	76	10.95	*
Site 2	18	04	07	92	8.18	7.43	77	10.74	*
Site 2	19	04	07	92	8.14	7.35	77	10.68	*
Site 2	20	04	07	92	8.14	7.35	77	10.58	*

Hydrolab and quality control data (continued):

Site	Depth	Month	Day	Year	Temp	pH	Cond	DO	Secchi
Site 3	00	04	07	92	10.45	7.52	64	11.51	5.5
Site 3	01	04	07	92	10.45	7.65	65	11.46	*
Site 3	02	04	07	92	10.44	7.68	67	11.52	*
Site 3	03	04	07	92	10.38	7.72	69	11.53	*
Site 3	04	04	07	92	10.34	7.75	69	11.54	*
Site 3	05	04	07	92	10.35	7.77	70	11.55	*
Site 3	06	04	07	92	10.29	7.78	71	11.57	*
Site 3	07	04	07	92	10.11	7.78	72	11.56	*
Site 3	08	04	07	92	10.09	7.79	72	11.58	*
Site 3	09	04	07	92	10.07	7.78	74	11.55	*
Site 3	10	04	07	92	9.97	7.75	73	11.52	*
Site 3	11	04	07	92	9.40	7.67	75	11.44	*
Site 3	12	04	07	92	9.19	7.59	74	11.44	*
Site 3	13	04	07	92	8.67	7.56	75	11.34	*
Site 3	14	04	07	92	8.49	7.53	74	11.35	*
Site 3	15	04	07	92	8.18	7.49	75	11.28	*
Site 3	16	04	07	92	8.10	7.47	76	11.30	*
Site 3	17	04	07	92	8.02	7.43	76	11.26	*
Site 3	18	04	07	92	7.92	7.43	76	11.25	*
Site 3	19	04	07	92	7.77	7.41	76	11.23	*
Site 3	20	04	07	92	7.64	7.41	76	11.21	*
Site 3	25	04	07	92	7.35	7.38	76	11.12	*
Site 3	30	04	07	92	7.25	7.37	76	11.12	*
Site 3	35	04	07	92	7.18	7.33	76	10.08	*
Site 3	40	04	07	92	7.16	7.35	76	11.04	*
Site 3	45	04	07	92	7.13	7.32	76	11.01	*
Site 3	50	04	07	92	7.11	7.32	75	10.92	*
Site 3	55	04	07	92	7.08	7.31	75	10.88	*
Site 3	60	04	07	92	7.06	7.28	75	10.75	*
Site 3	65	04	07	92	7.04	7.25	74	10.49	*
Site 3	70	04	07	92	7.03	7.24	73	10.40	*
Site 3	75	04	07	92	7.03	7.21	73	10.29	*
Site 3	80	04	07	92	7.02	7.18	72	10.24	*

Hydrolab and quality control data (continued):

Site	Depth	Month	Day	Year	Temp	pH	Cond	DO	Secchi
Site 4	00	04	07	92	9.77	7.63	63	11.53	5.6
Site 4	01	04	07	92	9.78	7.65	63	11.53	*
Site 4	02	04	07	92	9.72	7.65	65	11.52	*
Site 4	03	04	07	92	9.65	7.66	67	11.54	*
Site 4	04	04	07	92	9.51	7.67	67	11.59	*
Site 4	05	04	07	92	9.49	7.68	69	11.55	*
Site 4	06	04	07	92	9.48	7.68	71	11.55	*
Site 4	07	04	07	92	9.47	7.68	71	11.57	*
Site 4	08	04	07	92	9.43	7.69	72	11.59	*
Site 4	09	04	07	92	9.40	7.69	72	11.58	*
Site 4	10	04	07	92	9.36	7.68	73	11.56	*
Site 4	11	04	07	92	9.34	7.67	74	11.56	*
Site 4	12	04	07	92	9.33	7.67	74	11.53	*
Site 4	13	04	07	92	9.31	7.66	74	11.53	*
Site 4	14	04	07	92	9.10	7.64	75	11.42	*
Site 4	15	04	07	92	9.01	7.59	75	11.43	*
Site 4	16	04	07	92	8.90	7.58	75	11.37	*
Site 4	17	04	07	92	8.81	7.56	75	11.39	*
Site 4	18	04	07	92	8.74	7.53	75	11.36	*
Site 4	19	04	07	92	8.36	7.51	76	11.30	*
Site 4	20	04	07	92	8.26	7.47	76	11.28	*
Site 4	25	04	07	92	7.80	7.41	76	11.21	*
Site 4	30	04	07	92	7.19	7.29	72	11.12	*
Site 4	35	04	07	92	7.10	7.29	72	11.13	*
Site 4	40	04	07	92	7.07	7.29	71	11.10	*
Site 4	45	04	07	92	7.05	7.29	71	11.07	*
Site 4	50	04	07	92	7.04	7.28	71	11.02	*
Site 4	55	04	07	92	7.03	7.28	71	11.03	*
Site 4	60	04	07	92	7.02	7.27	70	10.98	*
Site 4	65	04	07	92	7.01	7.28	69	10.99	*
Site 4	70	04	07	92	7.01	7.27	69	10.94	*
Site 4	75	04	07	92	7.00	7.28	69	10.89	*
Site 4	80	04	07	92	7.00	7.24	69	10.79	*
Site 4	85	04	07	92	6.99	7.24	69	10.79	*
Site 4	90	04	07	92	6.98	7.21	71	10.48	*
Gate	00	04	07	92	10.48	7.02	59	11.02	*

Laboratory data:

Site	Depth	Month	Day	Year	Alk	Turb	NH3	TKN	NO3	SRP	TP	ChlA	Silica
Site 1	00	04	07	92	18.1	1.0	10.9	162.3	320.8	6.9	BDL	2.62	2.5
Site 1	05	04	07	92	17.8	1.0	12.8	123.0	319.2	5.2	BDL	2.58	3.2
Site 1	10	04	07	92	18.0	0.6	12.4	120.5	325.5	BDL	BDL	3.71	1.9
Site 1	15	04	07	92	17.1	1.0	6.1	143.3	341.9	BDL	5.2	2.79	1.9
Site 1	20	04	07	92	17.2	1.0	12.0	129.5	343.9	BDL	5.6	3.16	2.0
Intake	00	04	07	92	17.0	1.0	11.9	148.8	361.5	BDL	BDL	3.16	4.1
Intake	05	04	07	92	16.5	0.8	21.9	115.2	364.1	BDL	BDL	3.11	2.2
Intake	10	04	07	92	16.9	0.9	9.5	111.9	367.3	BDL	6.4	3.8	1.7
Site 2	00	04	07	92	17.5	1.1	BDL	BDL	363.3	BDL	BDL	3.15	3.1
Site 2	05	04	07	92	17.2	1.1	BDL	206.6	367.1	BDL	BDL	3.15	2.3
Site 2	10	04	07	92	17.2	0.9	BDL	110.2	363.7	BDL	BDL	3.2	2.7
Site 2	15	04	07	92	17.0	0.8	BDL	125.2	382.0	BDL	BDL	2.79	2.5
Site 2	20	04	07	92	16.6	1.5	12.2	124.8	399.6	BDL	BDL	1.88	2.2
Site 3	00	04	07	92	17.0	1.5	6.4	147.1	375.8	BDL	5.5	3.16	4.8
Site 3	05	04	07	92	16.6	0.5	BDL	BDL	194.5	BDL	BDL	3.27	1.8
Site 3	10	04	07	92	16.6	0.4	BDL	119.0	375.0	BDL	BDL	3.51	1.8
Site 3	15	04	07	92	*	*	BDL	*	*	*	*	*	*
Site 3	20	04	07	92	17.0	0.3	11.7	106.1	405.8	BDL	BDL	0.92	2.3
Site 3	40	04	07	92	16.6	0.3	BDL	BDL	443.3	BDL	BDL	*	2.9
Site 3	60	04	07	92	16.4	0.6	BDL	107.4	466.9	BDL	BDL	*	2.4
Site 3	70	04	07	92	*	*	*	*	*	*	*	*	*
Site 3	80	04	07	92	16.6	2.5	19.4	154.8	462.3	BDL	8.0	*	3.3
Site 4	00	04	07	92	16.6	0.4	19.5	144.5	401.2	BDL	BDL	2.72	4.8
Site 4	05	04	07	92	16.8	0.9	9.9	154.8	389.4	BDL	BDL	2.99	3.4
Site 4	10	04	07	92	17.0	0.5	5.1	133.4	394.4	BDL	BDL	2.96	2.7
Site 4	15	04	07	92	*	*	*	*	*	*	*	2.43	*
Site 4	20	04	07	92	16.4	0.4	BDL	BDL	431.3	BDL	BDL	2.94	1.9
Site 4	40	04	07	92	16.7	0.8	5.2	BDL	455.5	BDL	BDL	*	2.5
Site 4	60	04	07	92	16.7	0.3	BDL	103.3	444.3	BDL	BDL	*	4.0
Site 4	80	04	07	92	16.0	0.3	BDL	119.0	450.5	BDL	BDL	*	3.5
Site 4	90	04	07	92	16.7	0.6	11.4	136.3	439.9	BDL	BDL	*	4.3

Lake Whatcom Monitoring Program

Prepared January 9, 1993 by the Environmental Research and Education Center, Western Washington University, for the City of Bellingham, Department of Public Works.

*: missing. BDL: below detection limit.

Hydrolab and quality control data:

Site	Depth	Month	Day	Year	Temp	pH	Cond	DO	Secchi
Site 1	00	02	03	92	7.42	7.49	63	12.35	3.8
Site 1	01	02	03	92	7.40	7.49	61	12.36	*
Site 1	02	02	03	92	7.40	7.49	62	12.27	*
Site 1	03	02	03	92	7.39	7.50	63	12.24	*
Site 1	04	02	03	92	7.37	7.53	63	12.24	*
Site 1	05	02	03	92	7.38	7.53	65	12.19	*
Site 1	06	02	03	92	7.38	7.53	65	12.19	*
Site 1	07	02	03	92	7.37	7.54	66	12.15	*
Site 1	08	02	03	92	7.36	7.54	66	12.15	*
Site 1	09	02	03	92	7.36	7.54	66	12.15	*
Site 1	10	02	03	92	7.37	7.55	67	12.15	*
Site 1	11	02	03	92	7.36	7.55	67	12.10	*
Site 1	12	02	03	92	7.35	7.56	67	12.11	*
Site 1	13	02	03	92	7.35	7.55	68	12.11	*
Site 1	14	02	03	92	7.35	7.57	68	12.11	*
Site 1	15	02	03	92	7.35	7.56	69	12.11	*
Site 1	16	02	03	92	7.35	7.56	68	12.11	*
Site 1	17	02	03	92	7.35	7.56	69	12.11	*
Site 1	18	02	03	92	7.35	7.57	68	12.06	*
Site 1	19	02	03	92	7.35	7.58	69	12.06	*
Site 1	20	02	03	92	7.35	7.61	68	12.06	*

Hydrolab and quality control data (continued):

Site	Depth	Month	Day	Year	Temp	pH	Cond	DO	Secchi
Intake	00	02	03	92	7.89	8.02	61	12.10	4.8
Intake	01	02	03	92	7.73	7.90	61	12.06	*
Intake	02	02	03	92	7.66	7.90	62	12.07	*
Intake	03	02	03	92	7.55	7.90	63	12.06	*
Intake	04	02	03	92	7.48	7.90	63	12.01	*
Intake	05	02	03	92	7.45	7.91	64	11.99	*
Intake	06	02	03	92	7.42	7.88	65	11.96	*
Intake	07	02	03	92	7.41	7.91	65	11.92	*
Intake	08	02	03	92	7.41	7.91	66	11.92	*
Intake	09	02	03	92	7.40	7.90	66	11.93	*
Intake	10	02	03	92	7.40	7.90	67	11.89	*
Intake	11	02	03	92	7.39	7.90	68	11.89	*
Intake	12	02	03	92	7.38	7.90	69	11.83	*
Intake	13	02	03	92	7.37	7.91	69	11.85	*
Site 2	00	02	03	92	7.78	7.76	61	12.18	5.4
Site 2	01	02	03	92	7.58	7.76	61	12.16	*
Site 2	02	02	03	92	7.51	7.76	62	12.14	*
Site 2	03	02	03	92	7.50	7.76	63	12.09	*
Site 2	04	02	03	92	7.49	7.77	63	12.05	*
Site 2	05	02	03	92	7.48	7.77	64	12.01	*
Site 2	06	02	03	92	7.47	7.78	65	11.97	*
Site 2	07	02	03	92	7.45	7.78	65	11.99	*
Site 2	08	02	03	92	7.44	7.78	66	11.94	*
Site 2	09	02	03	92	7.44	7.78	66	11.94	*
Site 2	10	02	03	92	7.44	7.80	66	11.94	*
Site 2	11	02	03	92	7.44	7.80	68	11.90	*
Site 2	12	02	03	92	7.42	7.81	68	11.90	*
Site 2	13	02	03	92	7.42	7.81	68	11.91	*
Site 2	14	02	03	92	7.42	7.81	68	11.91	*
Site 2	15	02	03	92	7.42	7.80	69	11.91	*
Site 2	16	02	03	92	7.41	7.81	68	11.92	*
Site 2	17	02	03	92	7.41	7.80	68	11.92	*
Site 2	18	02	03	92	7.36	7.80	69	11.86	*
Site 2	19	02	03	92	7.37	7.81	69	11.81	*
Site 2	20	02	03	92	7.37	7.81	69	11.81	*

Hydrolab and quality control data (continued):

Site	Depth	Month	Day	Year	Temp	pH	Cond	DO	Secchi
Site 3	00	02	03	92	7.29	7.56	62	11.92	5.4
Site 3	01	02	03	92	7.23	7.55	60	11.87	*
Site 3	02	02	03	92	7.22	7.53	61	11.82	*
Site 3	03	02	03	92	7.20	7.52	62	11.78	*
Site 3	04	02	03	92	7.20	7.53	63	11.73	*
Site 3	05	02	03	92	7.20	7.52	63	11.73	*
Site 3	06	02	03	92	7.20	7.53	65	11.69	*
Site 3	07	02	03	92	7.19	7.51	65	11.68	*
Site 3	08	02	03	92	7.19	7.52	65	11.70	*
Site 3	09	02	03	92	7.19	7.53	67	11.65	*
Site 3	10	02	03	92	7.19	7.53	67	11.64	*
Site 3	11	02	03	92	7.19	7.51	67	11.64	*
Site 3	12	02	03	92	7.19	7.51	67	11.65	*
Site 3	13	02	03	92	7.19	7.54	68	11.65	*
Site 3	14	02	03	92	7.19	7.53	68	11.65	*
Site 3	15	02	03	92	7.19	7.53	68	11.60	*
Site 3	16	02	03	92	7.19	7.54	68	11.60	*
Site 3	17	02	03	92	7.19	7.54	68	11.60	*
Site 3	18	02	03	92	7.18	7.53	68	11.60	*
Site 3	19	02	03	92	7.17	7.53	68	11.60	*
Site 3	20	02	03	92	7.18	7.54	69	11.61	*
Site 3	25	02	03	92	7.17	7.53	68	11.56	*
Site 3	30	02	03	92	7.17	7.55	68	11.56	*
Site 3	35	02	03	92	7.16	7.56	68	11.52	*
Site 3	40	02	03	92	7.14	7.56	66	11.47	*
Site 3	45	02	03	92	7.14	7.54	66	11.43	*
Site 3	50	02	03	92	7.13	7.54	66	11.40	*
Site 3	55	02	03	92	7.12	7.58	65	11.34	*
Site 3	60	02	03	92	7.11	7.55	66	11.35	*
Site 3	65	02	03	92	7.10	7.54	65	11.32	*
Site 3	70	02	03	92	7.08	7.53	64	11.23	*
Site 3	75	02	03	92	7.07	7.52	64	11.18	*
Site 3	80	02	03	92	7.06	7.54	64	11.14	*

Hydrolab and quality control data (continued):

Site	Depth	Month	Day	Year	Temp	pH	Cond	DO	Secchi
Site 4	00	02	03	92	7.17	7.60	62	11.65	5.3
Site 4	01	02	03	92	7.17	7.56	60	11.52	*
Site 4	02	02	03	92	7.14	7.55	61	11.45	*
Site 4	03	02	03	92	7.11	7.53	62	11.45	*
Site 4	04	02	03	92	7.11	7.54	63	11.40	*
Site 4	05	02	03	92	7.08	7.54	64	11.37	*
Site 4	06	02	03	92	7.08	7.53	64	11.37	*
Site 4	07	02	03	92	7.08	7.54	64	11	*
Site 4	08	02	03	92	7.07	7.54	64	11.33	*
Site 4	09	02	03	92	7.07	7.53	66	11.34	*
Site 4	10	02	03	92	7.07	7.53	66	11.29	*
Site 4	11	02	03	92	7.07	7.53	67	11.29	*
Site 4	12	02	03	92	7.07	7.52	67	11.29	*
Site 4	13	02	03	92	7.07	7.52	67	11.29	*
Site 4	14	02	03	92	7.06	7.52	67	11.30	*
Site 4	15	02	03	92	7.06	7.53	68	11.29	*
Site 4	16	02	03	92	7.06	7.54	68	11.25	*
Site 4	17	02	03	92	7.06	7.54	67	11.25	*
Site 4	18	02	03	92	7.06	7.53	69	11.25	*
Site 4	19	02	03	92	7.06	7.53	67	11.25	*
Site 4	20	02	03	92	7.06	7.54	69	11.25	*
Site 4	25	02	03	92	7.06	7.55	67	11.25	*
Site 4	30	02	03	92	7.06	7.55	68	11.20	*
Site 4	35	02	03	92	7.06	7.56	68	11.20	*
Site 4	40	02	03	92	7.06	7.57	69	11.20	*
Site 4	45	02	03	92	7.06	7.57	68	11.15	*
Site 4	50	02	03	92	7.05	7.58	67	11.15	*
Site 4	55	02	03	92	7.04	7.63	67	11.11	*
Site 4	60	02	03	92	7.03	7.55	67	11.06	*
Site 4	65	02	03	92	7.03	7.56	67	11.02	*
Site 4	70	02	03	92	7.03	7.56	65	10.97	*
Site 4	75	02	03	92	7.01	7.60	65	10.98	*
Site 4	80	02	03	92	7.01	7.56	66	10.93	*
Site 4	85	02	03	92	7.01	7.56	65	10.88	*
Site 4	90	02	03	92	6.95	7.58	64	10.66	*
Gate	00	02	03	92	7.90	6.60	61	12.17	*

Laboratory data:

Site	Depth	Month	Day	Year	Alk	Turb	NH3	TKN	NO3	SRP	TP	ChlA	Silica
Site 1	00	02	03	92	17.8	1.30	5.5	124.5	399.7	BDL	11.9	2.81	4.8
Site 1	05	02	03	92	17.5	1.35	5.8	118.3	404.4	BDL	6.8	4.21	4.8
Site 1	10	02	03	92	17.4	1.65	7.0	143.8	408.6	BDL	8.0	4.93	4.8
Site 1	15	02	03	92	17.7	1.35	6.1	112.6	403.8	BDL	7.9	4.04	4.7
Site 1	20	02	03	92	17.3	1.30	11.8	135.8	410.3	BDL	12.3	3.63	4.8
Intake	00	02	03	92	16.7	0.70	8.9	BDL	438.8	BDL	6.6	1.86	4.9
Intake	05	02	03	92	16.8	0.75	11.3	BDL	440.0	BDL	6.4	2.72	4.9
Intake	10	02	03	92	17.0	0.70	9.0	BDL	442.4	BDL	5.4	2.33	4.8
Site 2	00	02	03	92	17.2	0.65	9.0	119.1	448.9	BDL	6.2	2.53	4.8
Site 2	05	02	03	92	16.7	0.75	7.2	BDL	451.8	BDL	5.2	2.96	4.8
Site 2	10	02	03	92	16.9	1.10	BDL	BDL	448.9	BDL	5.5	2.39	4.8
Site 2	15	02	03	92	17.1	0.90	BDL	BDL	448.3	BDL	5.2	2.46	4.8
Site 2	20	02	03	92	16.9	0.67	BDL	BDL	445.9	BDL	6.6	2.60	4.8
Site 3	00	02	03	92	16.7	0.75	BDL	BDL	474.4	BDL	10.3	1.37	4.9
Site 3	05	02	03	92	16.9	0.70	BDL	BDL	479.7	BDL	5.3	1.52	4.9
Site 3	10	02	03	92	16.9	1.00	BDL	BDL	485.6	BDL	6.6	1.52	5.0
Site 3	15	02	03	92	*	*	*	*	*	*	*	0.92	*
Site 3	20	02	03	92	17.1	0.75	BDL	BDL	479.7	BDL	BDL	1.30	4.9
Site 3	40	02	03	92	16.7	0.90	8.3	BDL	479.7	BDL	BDL	*	4.9
Site 3	60	02	03	92	17.4	1.10	BDL	BDL	468.4	BDL	BDL	*	4.9
Site 3	80	02	03	92	17.2	1.50	6.3	BDL	463.7	BDL	5.9	*	4.9
Site 4	00	02	03	92	17.2	0.60	11.3	BDL	479.1	BDL	BDL	1.15	5.0
Site 4	05	02	03	92	17.1	0.80	BDL	155.1	456.6	BDL	6.1	0.96	4.8
Site 4	10	02	03	92	17.1	0.75	BDL	BDL	466.1	BDL	BDL	0.91	4.8
Site 4	15	02	03	92	*	*	*	*	*	*	*	0.84	*
Site 4	20	02	03	92	16.7	0.80	BDL	163.8	472.0	BDL	8.1	0.97	4.9
Site 4	40	02	03	92	16.7	0.82	BDL	BDL	469.0	BDL	6.8	*	4.9
Site 4	60	02	03	92	16.9	0.89	5.9	BDL	479.1	BDL	BDL	*	4.9
Site 4	80	02	03	92	17.1	0.87	BDL	BDL	480.9	BDL	BDL	*	4.9
Site 4	90	02	03	92	*	0.74	7.2	BDL	472.6	BDL	5.5	*	4.9
Gate	00	02	03	92	16.8	*	BDL	BDL	439.4	BDL	22.3	*	4.6

Lake Whatcom Monitoring Program

Prepared January 9, 1993 by the Environmental Research and Education Center, Western Washington University, for the City of Bellingham, Department of Public Works.

*: missing. BDL: below detection limit.

Hydrolab and quality control data:

Site	Depth	Month	Day	Year	Temp	pH	Cond	DO	Secchi
Site 1	00	12	02	91	8.53	7.70	63	10.67	5.8
Site 1	01	12	02	91	8.53	7.69	63	10.66	*
Site 1	02	12	02	91	8.55	7.68	63	10.66	*
Site 1	03	12	02	91	8.54	7.66	64	10.66	*
Site 1	04	12	02	91	8.54	7.65	67	10.61	*
Site 1	05	12	02	91	8.54	7.66	67	10.61	*
Site 1	06	12	02	91	8.55	7.66	67	10.57	*
Site 1	07	12	02	91	8.54	7.65	69	10.54	*
Site 1	08	12	02	91	8.53	7.65	69	10.53	*
Site 1	09	12	02	91	8.53	7.65	70	10.53	*
Site 1	10	12	02	91	8.52	7.64	71	10.50	*
Site 1	11	12	02	91	8.52	7.64	72	10.46	*
Site 1	12	12	02	91	8.51	7.63	72	10.46	*
Site 1	13	12	02	91	8.52	7.64	72	10.46	*
Site 1	14	12	02	91	8.52	7.63	72	10.46	*
Site 1	15	12	02	91	8.52	7.62	72	10.46	*
Site 1	16	12	02	91	8.52	7.63	72	10.46	*
Site 1	17	12	02	91	8.52	7.62	72	10.46	*
Site 1	18	12	02	91	8.50	7.63	73	10.47	*
Site 1	19	12	02	91	8.50	7.63	73	10.47	*
Site 1	20	12	02	91	8.50	7.64	73	10.47	*

Hydrolab and quality control data (continued):

Site	Depth	Month	Day	Year	Temp	pH	Cond	DO	Secchi
Intake	00	12	02	91	9.21	7.66	61	10.53	6.3
Intake	01	12	02	91	9.23	7.60	63	10.47	*
Intake	02	12	02	91	9.24	7.85	62	10.47	*
Intake	03	12	02	91	9.23	7.56	63	10.43	*
Intake	04	12	02	91	9.23	7.58	65	10.43	*
Intake	05	12	02	91	9.23	7.58	65	10.39	*
Intake	06	12	02	91	9.22	7.58	66	10.39	*
Intake	07	12	02	91	9.22	7.58	67	10.35	*
Intake	08	12	02	91	9.22	7.59	67	10.35	*
Intake	09	12	02	91	9.22	7.58	68	10.31	*
Intake	10	12	02	91	9.21	7.58	69	10.31	*
Intake	11	12	02	91	9.22	7.58	69	10.27	*
Intake	12	12	02	91	9.19	7.58	69	10.33	*
Site 2	00	12	02	91	9.23	7.62	62	10.56	6.2
Site 2	01	12	02	91	9.24	7.54	62	10.50	*
Site 2	02	12	02	91	9.24	7.53	62	10.47	*
Site 2	03	12	02	91	9.23	7.54	64	10.47	*
Site 2	04	12	02	91	9.22	7.54	65	10.44	*
Site 2	05	12	02	91	9.21	7.54	65	10.44	*
Site 2	06	12	02	91	9.21	7.54	65	10.40	*
Site 2	07	12	02	91	9.20	7.54	68	10.40	*
Site 2	08	12	02	91	9.20	7.55	68	10.36	*
Site 2	09	12	02	91	9.20	7.56	68	10.37	*
Site 2	10	12	02	91	9.19	7.56	69	10.37	*
Site 2	11	12	02	91	9.19	7.56	69	10.37	*
Site 2	12	12	02	91	9.20	7.56	69	10.32	*
Site 2	13	12	02	91	9.21	7.56	69	10.32	*
Site 2	14	12	02	91	9.21	7.55	70	10.32	*
Site 2	15	12	02	91	9.21	7.58	70	10.32	*
Site 2	16	12	02	91	9.21	7.58	70	10.32	*
Site 2	17	12	02	91	9.21	7.58	71	10.32	*
Site 2	18	12	02	91	9.21	7.58	72	10.32	*
Site 2	19	12	02	91	9.19	7.58	71	10.29	*
Site 2	20	12	02	91	9.19	7.58	71	10.29	*

Hydrolab and quality control data (continued):

Site	Depth	Month	Day	Year	Temp	pH	Cond	DO	Secchi
Site 3	00	12	02	91	9.25	7.29	38	10.73	6.8
Site 3	01	12	02	91	9.29	7.31	62	10.59	*
Site 3	02	12	02	91	9.31	7.29	62	10.55	*
Site 3	03	12	02	91	9.31	7.30	62	10.55	*
Site 3	04	12	02	91	9.31	7.30	63	10.50	*
Site 3	05	12	02	91	9.30	7.30	64	10.50	*
Site 3	06	12	02	91	9.31	7.31	64	10.50	*
Site 3	07	12	02	91	9.31	7.30	64	10.50	*
Site 3	08	12	02	91	9.31	7.31	64	10.46	*
Site 3	09	12	02	91	9.31	7.31	64	10.46	*
Site 3	10	12	02	91	9.32	7.32	69	10.46	*
Site 3	11	12	02	91	9.32	7.33	69	10.42	*
Site 3	12	12	02	91	9.33	7.32	69	10.42	*
Site 3	13	12	02	91	9.33	7.31	70	10.37	*
Site 3	14	12	02	91	9.33	7.32	70	10.37	*
Site 3	15	12	02	91	9.33	7.32	70	10.37	*
Site 3	16	12	02	91	9.33	7.32	70	10.37	*
Site 3	17	12	02	91	9.33	7.33	69	10.37	*
Site 3	18	12	02	91	9.33	7.32	70	10.33	*
Site 3	19	12	02	91	9.31	7.33	69	10.38	*
Site 3	20	12	02	91	9.31	7.33	70	10.34	*
Site 3	25	12	02	91	9.31	7.34	69	10.34	*
Site 3	30	12	02	91	8.67	7.31	70	9.76	*
Site 3	35	12	02	91	7.79	7.22	70	9.50	*
Site 3	40	12	02	91	7.33	7.14	70	9.45	*
Site 3	45	12	02	91	6.92	7.10	70	9.35	*
Site 3	50	12	02	91	6.77	7.07	70	9.31	*
Site 3	55	12	02	91	6.65	7.04	70	9.23	*
Site 3	60	12	02	91	6.60	7.04	70	9.20	*
Site 3	65	12	02	91	6.56	7.07	68	9.08	*
Site 3	70	12	02	91	6.53	7.00	68	8.96	*
Site 3	75	12	02	91	6.51	6.98	68	8.91	*
Site 3	80	12	02	91	6.50	6.97	68	8.87	*

Hydrolab and quality control data (continued):

Site	Depth	Month	Day	Year	Temp	pH	Cond	DO	Secchi
Site 4	00	12	02	91	9.15	7.35	64	10.52	6.8
Site 4	01	12	02	91	9.15	7.33	62	10.43	*
Site 4	02	12	02	91	9.16	7.31	62	10.35	*
Site 4	03	12	02	91	9.16	7.32	64	10.31	*
Site 4	04	12	02	91	9.16	7.32	66	10.31	*
Site 4	05	12	02	91	9.16	7.32	66	10.26	*
Site 4	06	12	02	91	9.16	7.32	66	10.26	*
Site 4	07	12	02	91	9.17	7.32	68	10.26	*
Site 4	08	12	02	91	9.18	7.33	68	10.26	*
Site 4	09	12	02	91	9.18	7.33	68	10.25	*
Site 4	10	12	02	91	9.19	7.34	69	10.25	*
Site 4	11	12	02	91	9.19	7.34	69	10.21	*
Site 4	12	12	02	91	9.18	7.34	70	10.21	*
Site 4	13	12	02	91	9.18	7.35	70	10.21	*
Site 4	14	12	02	91	9.18	7.35	70	10.21	*
Site 4	15	12	02	91	9.18	7.36	70	10.17	*
Site 4	16	12	02	91	9.18	7.35	70	10.17	*
Site 4	17	12	02	91	9.18	7.36	70	10.17	*
Site 4	18	12	02	91	9.18	7.36	70	10.17	*
Site 4	19	12	02	91	9.18	7.36	70	10.17	*
Site 4	20	12	02	91	9.18	7.36	71	10.17	*
Site 4	25	12	02	91	9.17	7.38	71	10.13	*
Site 4	30	12	02	91	9.17	7.38	72	10.13	*
Site 4	35	12	02	91	8.31	7.35	72	9.42	*
Site 4	40	12	02	91	7.42	7.38	72	9.31	*
Site 4	45	12	02	91	6.99	7.20	72	9.31	*
Site 4	50	12	02	91	6.82	7.16	71	9.22	*
Site 4	55	12	02	91	6.69	7.14	71	9.23	*
Site 4	60	12	02	91	6.67	7.12	71	9.23	*
Site 4	65	12	02	91	6.56	7.10	70	9.21	*
Site 4	70	12	02	91	6.58	7.09	70	9.16	*
Site 4	75	12	02	91	6.55	7.08	70	9.23	*
Site 4	80	12	02	91	6.54	7.08	69	9.19	*
Site 4	85	12	02	91	6.50	7.08	70	9.07	*
Site 4	90	12	02	91	6.47	7.08	69	9.18	*
Gate	00	12	02	91	9.67	6.52	61	10.55	*

Laboratory data:

Site	Depth	Month	Day	Year	Alk	Turb	NH3	TKN	NO3	SRP	TP	ChlA	Silica
Site 1	00	12	02	91	18.4	0.90	16.4	177.1	204.6	5.3	6.0	8.72	4.0
Site 1	05	12	02	91	18.4	0.72	14.5	205.0	205.0	BDL	6.7	6.84	3.9
Site 1	10	12	02	91	17.9	0.88	14.5	276.5	206.0	BDL	6.3	8.55	3.9
Site 1	15	12	02	91	18.4	0.80	14.4	246.6	206.5	BDL	6.8	7.01	3.9
Site 1	20	12	02	91	18.0	1.03	15.0	175.5	210.5	BDL	9.7	3.18	4.1
Intake	00	12	02	91	18.5	0.82	17.4	182.3	298.2	BDL	5.2	0.44	4.0
Intake	05	12	02	91	17.2	1.43	16.6	172.7	301.6	BDL	BDL	4.04	4.0
Intake	10	12	02	91	17.3	1.02	10.3	154.6	294.2	BDL	BDL	3.32	3.9
Site 2	00	12	02	91	17.2	1.02	10.0	151.2	296.4	BDL	BDL	4.52	4.0
Site 2	05	12	02	91	17.2	1.41	14.9	137.0	296.3	BDL	BDL	3.47	4.0
Site 2	10	12	02	91	17.2	1.17	9.0	150.6	291.2	BDL	BDL	3.73	3.9
Site 2	15	12	02	91	17.4	1.36	10.5	136.4	301.4	BDL	5.2	3.92	4.0
Site 2	20	12	02	91	17.0	0.86	10.6	133.0	312.7	BDL	8.6	3.30	4.1
Site 3	00	12	02	91	*	1.13	7.7	142.2	348.2	BDL	6.2	1.95	4.3
Site 3	05	12	02	91	16.6	0.73	6.5	130.3	342.0	BDL	6.5	1.95	4.1
Site 3	10	12	02	91	16.9	0.91	5.9	112.1	363.0	BDL	BDL	3.93	4.3
Site 3	15	12	02	91	*	*	*	*	*	*	*	2.45	*
Site 3	20	12	02	91	16.7	0.78	BDL	101.8	367.7	BDL	BDL	1.97	4.3
Site 3	40	12	02	91	16.8	1.02	BDL	BDL	458.4	BDL	5.1	*	4.7
Site 3	60	12	02	91	16.8	0.95	BDL	111.5	475.8	BDL	BDL	*	4.8
Site 3	80	12	02	91	16.6	0.63	BDL	BDL	476.8	BDL	BDL	*	5.0
Site 4	00	12	02	91	16.7	0.60	5.9	134.2	361.6	BDL	BDL	1.61	4.1
Site 4	05	12	02	91	17.0	0.82	5.6	115.3	355.9	BDL	BDL	2.22	4.1
Site 4	10	12	02	91	16.9	0.61	BDL	127.5	378.8	BDL	5.9	3.78	4.4
Site 4	15	12	02	91	*	*	*	*	*	*	*	2.94	*
Site 4	20	12	02	91	16.7	1.18	BDL	100.1	468.8	BDL	BDL	2.02	4.7
Site 4	40	12	02	91	16.6	0.86	BDL	126.3	463.8	BDL	BDL	*	4.6
Site 4	60	12	02	91	16.5	0.68	BDL	126.1	476.4	BDL	12.3	*	4.7
Site 4	80	12	02	91	16.6	0.93	BDL	127.5	476.2	BDL	7.0	*	4.5
Site 4	90	12	02	91	16.2	1.05	BDL	159.9	475.4	BDL	6.8	*	4.7
Gate	00	12	02	91	17.4	0.76	7.2	127.7	317.7	BDL	5.3	*	4.3

Lake Whatcom Monitoring Program

Prepared January 9, 1993 by the Environmental Research and Education Center, Western Washington University, for the City of Bellingham, Department of Public Works.

*: missing. BDL: below detection limit.

Hydrolab and quality control data:

Site	Depth	Month	Day	Year	Temp	pH	Cond	DO	Secchi
Site 1	00	11	04	91	11.22	7.46	71	8.97	5.6
Site 1	01	11	04	91	11.22	7.46	75	8.93	*
Site 1	02	11	04	91	11.18	7.40	77	8.90	*
Site 1	03	11	04	91	11.17	7.42	75	8.84	*
Site 1	04	11	04	91	11.16	7.41	73	8.80	*
Site 1	05	11	04	91	11.18	7.43	74	8.87	*
Site 1	06	11	04	91	11.19	7.38	75	8.87	*
Site 1	07	11	04	91	11.19	7.38	75	8.91	*
Site 1	08	11	04	91	11.17	7.37	74	8.91	*
Site 1	09	11	04	91	11.17	7.39	74	8.95	*
Site 1	10	11	04	91	11.19	7.36	75	8.94	*
Site 1	11	11	04	91	11.20	7.37	75	8.94	*
Site 1	12	11	04	91	11.19	7.36	75	8.99	*
Site 1	13	11	04	91	11.20	7.33	76	8.98	*
Site 1	14	11	04	91	11.20	7.32	75	8.98	*
Site 1	15	11	04	91	11.20	7.28	76	8.97	*
Site 1	16	11	04	91	11.21	7.22	77	8.93	*
Site 1	17	11	04	91	11.20	7.20	77	8.83	*
Site 1	18	11	04	91	11.17	7.12	78	8.42	*
Site 1	19	11	04	91	10.97	7.17	79	7.16	*
Site 1	20	11	04	91	10.89	7.10	81	6.34	*

Hydrolab and quality control data (continued):

Site	Depth	Month	Day	Year	Temp	pH	Cond	DO	Secchi
Intake	00	11	04	91	12.53	7.88	71	9.25	7.6
Intake	01	11	04	91	12.55	7.82	71	9.21	*
Intake	02	11	04	91	12.55	7.79	71	9.21	*
Intake	03	11	04	91	12.55	7.77	71	9.25	*
Intake	04	11	04	91	12.55	7.75	73	9.25	*
Intake	05	11	04	91	12.55	7.75	73	9.24	*
Intake	06	11	04	91	12.56	7.74	74	9.24	*
Intake	07	11	04	91	12.56	7.72	74	9.20	*
Intake	08	11	04	91	12.56	7.73	74	9.20	*
Intake	09	11	04	91	12.55	7.75	74	9.18	*
Intake	10	11	04	91	12.55	7.75	74	9.18	*
Intake	11	11	04	91	12.54	7.75	75	9.18	*
Intake	12	11	04	91	12.07	7.70	76	8.89	*
Site 2	00	11	04	91	12.70	7.87	70	9.27	7.9
Site 2	01	11	04	91	12.67	7.86	70	9.28	*
Site 2	02	11	04	91	12.65	7.80	70	9.25	*
Site 2	03	11	04	91	12.57	7.79	71	9.18	*
Site 2	04	11	04	91	12.52	7.73	71	9.19	*
Site 2	05	11	04	91	12.52	7.72	72	9.19	*
Site 2	06	11	04	91	12.52	7.71	73	9.19	*
Site 2	07	11	04	91	12.52	7.72	72	9.16	*
Site 2	08	11	04	91	12.52	7.70	74	9.16	*
Site 2	09	11	04	91	12.53	7.71	73	9.16	*
Site 2	10	11	04	91	12.51	7.70	74	9.16	*
Site 2	11	11	04	91	17.50	7.70	75	9.16	*
Site 2	12	11	04	91	17.50	7.71	75	9.13	*
Site 2	13	11	04	91	16.49	7.71	75	9.10	*
Site 2	14	11	04	91	16.39	7.66	76	8.56	*
Site 2	15	11	04	91	14.31	7.54	77	7.73	*
Site 2	16	11	04	91	12.05	7.37	78	6.98	*
Site 2	17	11	04	91	11.35	6.93	86	0.88	*
Site 2	18	11	04	91	10.93	6.88	90	0.88	*
Site 2	19	11	04	91	10.66	7.04	110	0.86	*
Site 2	20	11	04	91	10.63	7.02	111	0.86	*

Hydrolab and quality control data (continued):

Site	Depth	Month	Day	Year	Temp	pH	Cond	DO	Secchi
Site 3	00	11	04	91	12.81	7.86	69	9.38	6.0
Site 3	01	11	04	91	*	*	*	*	*
Site 3	02	11	04	91	*	*	*	*	*
Site 3	03	11	04	91	*	*	*	*	*
Site 3	04	11	04	91	12.80	7.86	70	9.32	*
Site 3	05	11	04	91	12.80	7.85	72	9.32	*
Site 3	06	11	04	91	12.80	7.83	72	9.32	*
Site 3	07	11	04	91	12.80	7.87	72	9.32	*
Site 3	08	11	04	91	12.80	7.85	72	9.32	*
Site 3	09	11	04	91	12.78	7.84	72	9.30	*
Site 3	10	11	04	91	12.78	7.82	73	9.30	*
Site 3	11	11	04	91	12.77	7.80	73	9.30	*
Site 3	12	11	04	91	12.75	7.78	73	9.35	*
Site 3	13	11	04	91	12.74	7.81	74	9.32	*
Site 3	14	11	04	91	12.72	7.80	75	9.33	*
Site 3	15	11	04	91	12.69	7.77	76	9.31	*
Site 3	16	11	04	91	12.68	7.77	75	9.32	*
Site 3	17	11	04	91	12.67	7.72	75	9.33	*
Site 3	18	11	04	91	12.64	7.72	75	9.35	*
Site 3	19	11	04	91	12.62	7.68	75	9.35	*
Site 3	20	11	04	91	12.58	7.60	76	9.30	*
Site 3	25	11	04	91	11.21	7.25	75	8.39	*
Site 3	30	11	04	91	7.86	7.25	74	9.02	*
Site 3	35	11	04	91	6.89	7.19	74	9.30	*
Site 3	40	11	04	91	6.56	7.19	76	9.44	*
Site 3	45	11	04	91	6.45	7.22	75	9.50	*
Site 3	50	11	04	91	6.41	7.18	77	9.38	*
Site 3	55	11	04	91	6.40	7.14	77	9.33	*
Site 3	60	11	04	91	6.37	7.16	77	9.25	*
Site 3	65	11	04	91	6.35	7.11	75	9.10	*
Site 3	70	11	04	91	6.34	7.06	74	8.80	*
Site 3	75	11	04	91	6.32	7.00	74	8.30	*
Site 3	80	11	04	91	6.40	7.05	73	8.81	*

Hydrolab and quality control data (continued):

Site	Depth	Month	Day	Year	Temp	pH	Cond	DO	Secchi
Site 4	00	11	04	91	12.77	8.00	72	9.34	5.9
Site 4	01	11	04	91	12.77	8.01	72	9.34	*
Site 4	02	11	04	91	12.76	8.00	74	9.35	*
Site 4	03	11	04	91	12.75	7.99	74	9.32	*
Site 4	04	11	04	91	12.74	8.00	74	9.35	*
Site 4	05	11	04	91	12.74	7.98	75	9.32	*
Site 4	06	11	04	91	12.72	7.98	74	9.33	*
Site 4	07	11	04	91	12.71	7.94	75	9.34	*
Site 4	08	11	04	91	12.69	7.96	75	9.35	*
Site 4	09	11	04	91	12.68	7.95	75	9.35	*
Site 4	10	11	04	91	12.66	7.93	75	9.36	*
Site 4	11	11	04	91	12.64	7.91	76	9.33	*
Site 4	12	11	04	91	12.61	7.88	76	9.36	*
Site 4	13	11	04	91	12.53	7.86	77	9.37	*
Site 4	14	11	04	91	12.49	7.82	76	9.38	*
Site 4	15	11	04	91	12.43	7.70	76	9.39	*
Site 4	16	11	04	91	11.89	7.53	78	9.25	*
Site 4	17	11	04	91	10.59	7.40	77	8.76	*
Site 4	18	11	04	91	9.59	7.30	75	8.40	*
Site 4	19	11	04	91	9.72	7.33	75	8.30	*
Site 4	20	11	04	91	8.03	7.39	77	8.80	*
Site 4	25	11	04	91	6.85	7.41	76	9.20	*
Site 4	30	11	04	91	6.56	7.40	76	9.38	*
Site 4	35	11	04	91	6.47	7.40	76	9.38	*
Site 4	40	11	04	91	6.43	7.39	76	9.42	*
Site 4	45	11	04	91	6.40	7.38	76	9.38	*
Site 4	50	11	04	91	6.39	7.37	75	9.44	*
Site 4	55	11	04	91	6.39	7.33	75	9.24	*
Site 4	60	11	04	91	6.40	7.34	74	9.29	*
Site 4	65	11	04	91	6.40	7.32	75	9.28	*
Site 4	70	11	04	91	6.40	7.33	75	9.43	*
Site 4	75	11	04	91	6.41	7.29	74	9.38	*
Site 4	80	11	04	91	6.41	7.25	74	9.22	*
Site 4	85	11	04	91	6.44	7.20	74	8.89	*
Site 4	90	11	04	91	6.45	7.14	75	7.66	*
Gate	00	11	04	91	12.74	7.91	65	9.89	*

Laboratory data:

Site	Depth	Month	Day	Year	Alk	Turb	NH3	TKN	NO3	SRP	TP	ChlA	Silica
Site 1	00	11	04	91	19.3	0.65	30.2	198.7	144.9	BDL	7.2	9.17	4.1
Site 1	05	11	04	91	19.3	0.70	38.6	202.6	134.6	BDL	8.8	8.76	4.0
Site 1	10	11	04	91	19.6	0.83	16.0	195.1	128.8	BDL	12.4	7.46	3.9
Site 1	15	11	04	91	19.1	0.72	14.7	180.5	123.0	BDL	8.9	9.07	4.3
Site 1	20	11	04	91	21.4	1.00	117.7	291.0	51.5	BDL	27.1	5.99	5.1
Intake	00	11	04	91	17.6	0.32	16.6	135.4	266.0	BDL	5.4	3.46	4.4
Intake	05	11	04	91	17.8	0.40	13.4	135.8	270.5	BDL	BDL	4.21	4.3
Intake	10	11	04	91	17.6	0.35	12.4	132.7	272.4	BDL	BDL	3.73	4.2
Site 2	00	11	04	91	18.2	0.33	15.4	133.1	280.1	BDL	BDL	2.53	4.2
Site 2	05	11	04	91	17.6	0.38	16.2	150.2	270.5	BDL	BDL	2.74	4.2
Site 2	10	11	04	91	17.8	0.35	13.6	130.2	258.9	BDL	BDL	2.63	4.0
Site 2	15	11	04	91	18.2	0.33	15.3	246.9	271.1	BDL	6.6	3.22	4.0
Site 2	20	11	04	91	23.6	1.30	250.0	402.4	*	BDL	8.6	0.58	4.5
Site 3	00	11	04	91	17.1	0.29	10.0	105.8	295.6	BDL	BDL	3.97	4.4
Site 3	05	11	04	91	16.9	0.31	11.1	131.7	301.4	BDL	BDL	3.76	4.3
Site 3	10	11	04	91	17.2	0.28	12.5	232.6	286.6	BDL	BDL	4.45	4.3
Site 3	15	11	04	91	*	*	*	*	*	*	*	3.63	*
Site 3	20	11	04	91	17.6	0.29	11.5	109.6	291.7	BDL	BDL	3.49	4.1
Site 3	40	11	04	91	16.4	0.28	10.7	131.1	502.3	BDL	BDL	*	5.2
Site 3	60	11	04	91	17.0	0.27	9.3	BDL	490.7	BDL	BDL	*	5.3
Site 3	80	11	04	91	19.2	1.33	32.2	149.5	404.4	BDL	BDL	*	5.3
Site 4	00	11	04	91	17.5	0.49	11.6	135.6	297.5	BDL	BDL	4.99	4.5
Site 4	05	11	04	91	17.4	0.45	10.9	121.0	296.2	BDL	BDL	4.58	4.3
Site 4	10	11	04	91	17.6	0.55	12.6	132.9	302.7	BDL	BDL	4.24	4.3
Site 4	15	11	04	91	*	*	*	*	*	*	*	4.14	*
Site 4	20	11	04	91	17.5	0.39	11.3	108.6	254.2	BDL	BDL	2.02	4.6
Site 4	40	11	04	91	16.8	0.38	10.1	BDL	489.4	BDL	BDL	*	5.1
Site 4	60	11	04	91	16.6	0.37	10.0	BDL	494.6	BDL	BDL	*	5.1
Site 4	80	11	04	91	17.2	0.46	11.1	BDL	468.2	BDL	BDL	*	4.8
Site 4	90	11	04	91	17.2	0.90	12.8	BDL	475.9	BDL	BDL	*	5.2
Gate	00	11	04	91	17.9	0.43	14.5	BDL	276.3	BDL	BDL	*	4.0

Lake Whatcom Monitoring Program

Prepared January 9, 1993 by the Environmental Research and Education Center, Western Washington University, for the City of Bellingham, Department of Public Works.

*: missing. BDL: below detection limit.

Hydrolab and quality control data:

Site	Depth	Month	Day	Year	Temp	pH	Cond	DO	Secchi
Site 1	00	10	07	91	17.17	7.80	65	9.75	5.4
Site 1	01	10	07	91	17.25	*	65	9.74	*
Site 1	02	10	07	91	17.25	*	65	9.69	*
Site 1	03	10	07	91	17.25	*	65	9.66	*
Site 1	04	10	07	91	17.26	*	65	9.63	*
Site 1	05	10	07	91	17.26	7.79	67	9.62	*
Site 1	06	10	07	91	17.25	*	69	9.58	*
Site 1	07	10	07	91	17.25	*	71	9.55	*
Site 1	08	10	07	91	17.25	*	72	9.47	*
Site 1	09	10	07	91	17.25	*	71	9.44	*
Site 1	10	10	07	91	16.80	7.65	73	7.07	*
Site 1	11	10	07	91	16.14	*	73	1.58	*
Site 1	12	10	07	91	13.64	*	79	0.53	*
Site 1	13	10	07	91	12.05	*	81	0.48	*
Site 1	14	10	07	91	11.34	*	81	0.46	*
Site 1	15	10	07	91	11.11	6.71	80	0.46	*
Site 1	16	10	07	91	10.90	*	80	0.43	*
Site 1	17	10	07	91	10.82	*	80	0.43	*
Site 1	18	10	07	91	10.75	*	80	0.43	*
Site 1	19	10	07	91	10.66	*	80	0.44	*
Site 1	20	10	07	91	10.57	6.74	81	0.40	*

Hydrolab and quality control data (continued):

Site	Depth	Month	Day	Year	Temp	pH	Cond	DO	Secchi
Intake	00	10	07	91	17.46	7.86	68	9.80	6.4
Intake	01	10	07	91	17.47	*	67	9.77	*
Intake	02	10	07	91	17.43	*	67	9.76	*
Intake	03	10	07	91	17.40	*	68	9.78	*
Intake	04	10	07	91	17.36	*	69	9.77	*
Intake	05	10	07	91	17.33	7.96	70	9.75	*
Intake	06	10	07	91	17.30	*	72	9.72	*
Intake	07	10	07	91	17.29	*	71	9.69	*
Intake	08	10	07	91	17.28	*	73	9.67	*
Intake	09	10	07	91	17.28	*	73	9.65	*
Intake	10	10	07	91	17.26	7.94	73	9.60	*
Intake	11	10	07	91	17.14	*	74	9.34	*
Intake	12	10	07	91	16.95	*	74	8.28	*
Intake	13	10	07	91	16.71	*	74	7.33	*
Site 2	00	10	07	91	17.40	7.90	68	9.66	7.0
Site 2	01	10	07	91	17.39	*	68	9.67	*
Site 2	02	10	07	91	17.37	*	69	9.67	*
Site 2	03	10	07	91	17.31	*	70	9.68	*
Site 2	04	10	07	91	17.26	*	72	9.65	*
Site 2	05	10	07	91	17.24	7.88	73	9.67	*
Site 2	06	10	07	91	17.19	*	73	9.66	*
Site 2	07	10	07	91	17.16	*	74	9.62	*
Site 2	08	10	07	91	17.15	*	75	9.63	*
Site 2	09	10	07	91	17.15	*	75	9.63	*
Site 2	10	10	07	91	17.12	7.93	75	9.65	*
Site 2	11	10	07	91	17.08	*	76	9.66	*
Site 2	12	10	07	91	17.05	*	75	9.63	*
Site 2	13	10	07	91	16.95	*	75	9.58	*
Site 2	14	10	07	91	16.08	*	76	5.84	*
Site 2	15	10	07	91	14.17	7.93	78	2.77	*
Site 2	16	10	07	91	12.62	*	79	0.39	*
Site 2	17	10	07	91	11.84	*	80	0.41	*
Site 2	18	10	07	91	11.30	*	80	0.42	*
Site 2	19	10	07	91	11.18	*	80	0.46	*
Site 2	20	10	07	91	11.38	7.87	80	0.46	*

Hydrolab and quality control data (continued):

Site	Depth	Month	Day	Year	Temp	pH	Cond	DO	Secchi
Site 3	00	10	07	91	17.40	7.85	69	9.64	6.9
Site 3	01	10	07	91	17.39	*	70	9.64	*
Site 3	02	10	07	91	17.37	*	70	9.66	*
Site 3	03	10	07	91	17.33	*	70	9.64	*
Site 3	04	10	07	91	17.32	*	71	9.65	*
Site 3	05	10	07	91	17.29	7.88	71	9.64	*
Site 3	06	10	07	91	17.26	*	72	9.62	*
Site 3	07	10	07	91	17.24	*	73	9.64	*
Site 3	08	10	07	91	17.22	*	73	9.65	*
Site 3	09	10	07	91	17.21	*	73	9.63	*
Site 3	10	10	07	91	17.18	7.86	73	9.64	*
Site 3	11	10	07	91	17.14	*	73	9.63	*
Site 3	12	10	07	91	17.11	*	73	9.65	*
Site 3	13	10	07	91	17.11	*	73	9.63	*
Site 3	14	10	07	91	17.09	*	73	9.63	*
Site 3	15	10	07	91	17.05	*	73	9.61	*
Site 3	16	10	07	91	17.02	*	73	9.58	*
Site 3	17	10	07	91	16.66	*	72	9.02	*
Site 3	18	10	07	91	14.98	*	72	8.32	*
Site 3	19	10	07	91	13.53	*	71	8.32	*
Site 3	20	10	07	91	11.80	7.14	73	8.57	*
Site 3	25	10	07	91	8.70	*	73	9.55	*
Site 3	30	10	07	91	7.08	*	72	9.94	*
Site 3	35	10	07	91	6.64	*	72	10.05	*
Site 3	40	10	07	91	6.54	7.19	71	10.11	*
Site 3	45	10	07	91	6.50	*	70	10.10	*
Site 3	50	10	07	91	6.46	*	70	10.11	*
Site 3	55	10	07	91	6.44	*	70	10.13	*
Site 3	60	10	07	91	6.44	7.12	70	9.97	*
Site 3	65	10	07	91	6.41	*	68	9.77	*
Site 3	70	10	07	91	6.43	*	68	9.62	*
Site 3	75	10	07	91	6.41	*	67	9.57	*
Site 3	80	10	07	91	6.47	7.23	70	7.47	*

Hydrolab and quality control data (continued):

Site	Depth	Month	Day	Year	Temp	pH	Cond	DO	Secchi
Site 4	00	10	07	91	17.39	7.73	68	9.66	6.5
Site 4	01	10	07	91	17.42	*	68	9.66	*
Site 4	02	10	07	91	17.41	*	68	9.69	*
Site 4	03	10	07	91	17.41	*	69	9.66	*
Site 4	04	10	07	91	17.41	*	70	9.64	*
Site 4	05	10	07	91	17.40	7.75	70	9.64	*
Site 4	06	10	07	91	17.40	*	71	9.64	*
Site 4	07	10	07	91	17.41	*	71	9.61	*
Site 4	08	10	07	91	17.36	*	72	9.60	*
Site 4	09	10	07	91	17.34	*	72	9.55	*
Site 4	10	10	07	91	17.30	7.76	72	9.41	*
Site 4	11	10	07	91	17.26	*	73	9.35	*
Site 4	12	10	07	91	17.24	*	73	9.33	*
Site 4	13	10	07	91	17.03	*	73	9.01	*
Site 4	14	10	07	91	16.82	*	74	8.93	*
Site 4	15	10	07	91	15.86	*	74	8.27	*
Site 4	16	10	07	91	15.26	*	74	8.28	*
Site 4	17	10	07	91	14.94	*	73	8.24	*
Site 4	18	10	07	91	13.98	*	74	8.37	*
Site 4	19	10	07	91	13.50	*	75	8.33	*
Site 4	20	10	07	91	12.61	7.21	75	8.43	*
Site 4	25	10	07	91	9.04	*	77	9.24	*
Site 4	30	10	07	91	7.25	*	76	9.82	*
Site 4	35	10	07	91	6.91	*	76	9.88	*
Site 4	40	10	07	91	6.70	7.20	75	10.11	*
Site 4	45	10	07	91	6.65	*	76	10.10	*
Site 4	50	10	07	91	6.56	*	74	10.09	*
Site 4	55	10	07	91	6.52	*	75	10.02	*
Site 4	60	10	07	91	6.49	7.16	73	9.99	*
Site 4	65	10	07	91	6.45	*	72	10.02	*
Site 4	70	10	07	91	6.43	*	72	9.98	*
Site 4	75	10	07	91	6.40	*	72	9.99	*
Site 4	80	10	07	91	6.40	7.20	71	9.95	*
Site 4	85	10	07	91	6.36	*	70	10.02	*
Site 4	90	10	07	91	6.34	7.21	71	9.62	*
Gate	00	10	07	91	17.30	7.67	65	9.52	

Laboratory data:

Site	Depth	Month	Day	Year	Alk	Turb	NH3	TKN	NO3	SRP	TP	ChlA	Silica
Site 1	00	10	07	91	18.9	0.72	28.9	198.7	105.3	BDL	11.6	8.93	3.6
Site 1	05	10	07	91	18.9	0.71	10.9	216.5	108.0	BDL	9.8	13.34	3.6
Site 1	10	10	07	91	19.2	0.71	13.7	212.5	109.5	BDL	8.7	3.42	3.7
Site 1	15	10	07	91	22.6	4.50	137.3	315.0	BDL	BDL	9.2	3.18	6.7
Site 1	20	10	07	91	21.8	6.00	96.8	260.8	58.5	BDL	11.9	1.95	6.3
Intake	00	10	07	91	17.5	0.50	9.1	180.8	218.9	BDL	5.2	4.86	4.0
Intake	05	10	07	91	17.6	0.49	12.0	189.1	229.5	BDL	5.5	6.67	4.0
Intake	10	10	07	91	18.2	0.52	11.3	169.4	219.4	BDL	6.5	6.14	3.9
Site 2	00	10	07	91	17.8	0.51	22.1	199.2	239.1	BDL	7.2	5.37	4.0
Site 2	05	10	07	91	18.2	0.54	13.8	229.7	238.8	BDL	5.1	6.88	4.0
Site 2	10	10	07	91	17.4	0.54	8.1	158.6	238.4	BDL	BDL	4.16	4.0
Site 2	15	10	07	91	17.9	0.51	7.7	159.1	238.1	BDL	BDL	5.08	4.0
Site 2	20	10	07	91	17.7	0.56	7.5	152.2	237.7	BDL	6.3	5.25	4.1
Site 3	00	10	07	91	17.8	0.49	7.8	147.5	248.9	BDL	BDL	3.56	4.1
Site 3	05	10	07	91	17.3	0.49	11.6	156.2	249.8	BDL	5.4	3.73	4.1
Site 3	10	10	07	91	17.2	0.45	7.8	214.5	250.1	BDL	8.0	4.96	4.1
Site 3	15	10	07	91	*	*	*	*	*	*	*	6.21	*
Site 3	20	10	07	91	16.4	0.38	6.0	BDL	416.5	BDL	7.5	3.20	4.6
Site 3	40	10	07	91	15.9	0.30	BDL	BDL	473.2	BDL	8.0	*	4.9
Site 3	60	10	07	91	16.5	0.40	6.3	BDL	468.6	BDL	9.3	*	5.0
Site 3	80	10	07	91	16.5	0.32	BDL	BDL	479.8	BDL	BDL	*	5.0
Site 4	00	10	07	91	17.2	0.54	6.2	139.8	252.6	BDL	BDL	4.74	4.2
Site 4	05	10	07	91	17.4	0.59	7.2	186.8	248.0	BDL	BDL	3.97	4.1
Site 4	10	10	07	91	17.3	0.57	7.6	178.4	247.7	BDL	BDL	3.66	4.1
Site 4	15	10	07	91	*	*	*	*	*	*	*	3.90	*
Site 4	20	10	07	91	16.6	0.35	6.3	131.7	405.7	BDL	BDL	2.12	4.7
Site 4	40	10	07	91	16.4	0.35	BDL	100.7	484.2	BDL	BDL	*	5.0
Site 4	60	10	07	91	16.5	0.42	5.1	107.2	479.0	BDL	BDL	*	4.9
Site 4	80	10	07	91	16.9	0.48	BDL	BDL	475.0	BDL	BDL	*	5.0
Site 4	90	10	07	91	17.0	0.46	BDL	BDL	472.2	BDL	BDL	*	5.0
Gate	00	10	07	91	17.7	0.64	10.0	150.8	221.2	BDL	BDL	*	4.0

Lake Whatcom Monitoring Program

Prepared January 9, 1993 by the Environmental Research and Education Center, Western Washington University, for the City of Bellingham, Department of Public Works.

*: missing. BDL: below detection limit.

Hydrolab and quality control data:

Site	Depth	Month	Day	Year	Temp	pH	Cond	DO	Secchi
Site 1	00	09	03	91	18.48	7.08	68	9.45	4.7
Site 1	01	09	03	91	18.50	7.12	68	9.38	*
Site 1	02	09	03	91	18.39	7.56	69	9.35	*
Site 1	03	09	03	91	18.37	7.48	69	9.34	*
Site 1	04	09	03	91	18.26	7.41	69	9.31	*
Site 1	05	09	03	91	18.16	7.34	70	9.18	*
Site 1	06	09	03	91	18.04	7.30	70	9.03	*
Site 1	07	09	03	91	17.83	7.22	70	8.69	*
Site 1	08	09	03	91	17.76	7.15	70	8.65	*
Site 1	09	09	03	91	17.53	7.00	71	8.32	*
Site 1	10	09	03	91	16.65	6.83	70	6.75	*
Site 1	11	09	03	91	15.68	6.68	72	5.36	*
Site 1	12	09	03	91	12.91	6.62	76	2.14	*
Site 1	13	09	03	91	11.60	6.56	75	1.08	*
Site 1	14	09	03	91	10.85	6.62	74	0.63	*
Site 1	15	09	03	91	10.83	6.60	75	0.63	*
Site 1	16	09	03	91	10.74	6.51	75	0.59	*
Site 1	17	09	03	91	10.70	6.59	75	0.56	*
Site 1	18	09	03	91	10.70	6.56	75	0.56	*
Site 1	19	09	03	91	10.65	6.62	76	0.56	*
Site 1	20	09	03	91	10.64	6.71	76	0.67	*

Hydrolab and quality control data (continued):

Site	Depth	Month	Day	Year	Temp	pH	Cond	DO	Secchi
Intake	00	09	03	91	19.46	8.45	67	9.24	6.3
Intake	01	09	03	91	19.25	8.43	68	9.21	*
Intake	02	09	03	91	18.79	8.45	69	9.29	*
Intake	03	09	03	91	18.56	8.38	69	9.18	*
Intake	04	09	03	91	18.50	8.34	70	9.18	*
Intake	05	09	03	91	18.38	8.28	70	9.13	*
Intake	06	09	03	91	18.14	8.27	70	9.13	*
Intake	07	09	03	91	17.91	8.20	70	9.00	*
Intake	08	09	03	91	17.84	8.12	70	8.98	*
Intake	09	09	03	91	17.67	8.06	70	8.90	*
Intake	10	09	03	91	17.57	7.95	70	8.88	*
Intake	11	09	03	91	17.43	7.99	71	8.78	*
Intake	12	09	03	91	17.23	8.06	71	8.68	*
Intake	13	09	03	91	17.36	8.17	70	8.56	*
Site 2	00	09	03	91	19.52	8.45	65	9.26	6.2
Site 2	01	09	03	91	19.45	8.37	65	9.23	*
Site 2	02	09	03	91	19.18	8.33	65	9.23	*
Site 2	03	09	03	91	18.95	8.25	66	9.22	*
Site 2	04	09	03	91	18.82	8.21	66	9.22	*
Site 2	05	09	03	91	18.71	8.19	67	9.17	*
Site 2	06	09	03	91	18.48	8.14	67	9.00	*
Site 2	07	09	03	91	18.17	8.09	67	9.07	*
Site 2	08	09	03	91	18.03	8.01	68	9.06	*
Site 2	09	09	03	91	18.00	7.99	68	9.06	*
Site 2	10	09	03	91	17.75	7.96	69	8.98	*
Site 2	11	09	03	91	17.63	7.92	69	8.96	*
Site 2	12	09	03	91	17.07	7.86	70	8.54	*
Site 2	13	09	03	91	16.87	7.80	70	8.62	*
Site 2	14	09	03	91	16.61	7.75	71	8.27	*
Site 2	15	09	03	91	13.90	7.58	72	5.47	*
Site 2	16	09	03	91	12.04	7.38	74	3.32	*
Site 2	17	09	03	91	11.67	7.27	74	2.98	*
Site 2	18	09	03	91	11.29	7.17	75	1.74	*
Site 2	19	09	03	91	11.12	7.08	75	1.28	*
Site 2	20	09	03	91	10.98	7.03	76	0.90	*

Hydrolab and quality control data (continued):

Site	Depth	Month	Day	Year	Temp	pH	Cond	DO	Secchi
Site 3	00	09	03	91	18.64	7.95	67	9.37	7.1
Site 3	01	09	03	91	18.60	7.92	66	9.37	*
Site 3	02	09	03	91	18.53	7.86	66	9.40	*
Site 3	03	09	03	91	18.43	7.88	66	9.36	*
Site 3	04	09	03	91	18.42	7.88	67	9.35	*
Site 3	05	09	03	91	18.42	7.88	67	9.36	*
Site 3	06	09	03	91	18.39	7.88	68	9.35	*
Site 3	07	09	03	91	18.36	7.86	68	9.34	*
Site 3	08	09	03	91	18.30	7.86	68	9.29	*
Site 3	09	09	03	91	18.26	7.84	69	9.21	*
Site 3	10	09	03	91	18.20	7.82	68	9.11	*
Site 3	11	09	03	91	17.83	7.77	70	9.07	*
Site 3	12	09	03	91	17.49	7.72	70	8.96	*
Site 3	13	09	03	91	16.15	7.64	71	8.99	*
Site 3	14	09	03	91	16.01	7.58	70	8.91	*
Site 3	15	09	03	91	15.94	7.53	71	8.94	*
Site 3	16	09	03	91	15.05	7.48	72	8.92	*
Site 3	17	09	03	91	14.16	7.44	72	8.95	*
Site 3	18	09	03	91	13.22	7.41	72	8.94	*
Site 3	19	09	03	91	12.30	7.37	73	8.97	*
Site 3	20	09	03	91	11.86	7.34	74	9.16	*
Site 3	25	09	03	91	8.84	7.30	73	9.67	*
Site 3	30	09	03	91	7.70	7.28	73	9.82	*
Site 3	35	09	03	91	7.10	7.26	74	10.01	*
Site 3	40	09	03	91	6.85	7.25	75	10.16	*
Site 3	45	09	03	91	6.73	7.25	73	10.12	*
Site 3	50	09	03	91	6.60	7.23	73	10.10	*
Site 3	55	09	03	91	6.55	7.22	73	10.01	*
Site 3	60	09	03	91	6.44	7.19	71	10.05	*
Site 3	65	09	03	91	6.40	7.18	72	9.82	*
Site 3	70	09	03	91	6.38	7.17	72	9.85	*
Site 3	75	09	03	91	6.34	7.16	71	9.66	*
Site 3	80	09	03	91	6.29	7.11	72	9.01	*

Hydrolab and quality control data (continued):

Site	Depth	Month	Day	Year	Temp	pH	Cond	DO	Secchi
Site 4	00	09	03	91	18.54	8.37	68	9.45	6.4
Site 4	01	09	03	91	18.54	8.37	68	9.43	*
Site 4	02	09	03	91	18.47	8.36	69	9.46	*
Site 4	03	09	03	91	18.38	8.37	69	9.48	*
Site 4	04	09	03	91	18.27	8.34	70	9.48	*
Site 4	05	09	03	91	18.21	8.33	71	9.48	*
Site 4	06	09	03	91	18.15	8.31	72	9.49	*
Site 4	07	09	03	91	18.14	8.27	73	9.48	*
Site 4	08	09	03	91	18.09	8.25	74	9.47	*
Site 4	09	09	03	91	18.04	8.23	74	9.46	*
Site 4	10	09	03	91	18.01	8.20	74	9.49	*
Site 4	11	09	03	91	17.94	8.10	74	9.43	*
Site 4	12	09	03	91	17.70	7.98	74	9.42	*
Site 4	13	09	03	91	17.52	7.95	73	9.39	*
Site 4	14	09	03	91	17.29	7.89	73	9.39	*
Site 4	15	09	03	91	17.14	7.83	72	9.43	*
Site 4	16	09	03	91	17.10	7.76	72	9.41	*
Site 4	17	09	03	91	15.17	7.63	72	9.06	*
Site 4	18	09	03	91	13.28	7.63	73	9.16	*
Site 4	19	09	03	91	12.08	7.62	74	9.19	*
Site 4	20	09	03	91	11.64	7.65	75	9.35	*
Site 4	25	09	03	91	8.36	7.57	75	9.84	*
Site 4	30	09	03	91	7.07	7.71	75	10.17	*
Site 4	35	09	03	91	6.74	7.75	74	10.38	*
Site 4	40	09	03	91	6.59	7.76	74	10.40	*
Site 4	45	09	03	91	6.52	7.72	73	10.39	*
Site 4	50	09	03	91	6.50	7.78	73	10.31	*
Site 4	55	09	03	91	6.47	7.76	72	10.20	*
Site 4	60	09	03	91	6.48	7.75	71	10.19	*
Site 4	65	09	03	91	6.51	7.69	71	10.22	*
Site 4	70	09	03	91	6.60	7.81	72	10.18	*
Site 4	75	09	03	91	6.68	7.92	72	10.16	*
Site 4	80	09	03	91	6.68	7.92	72	9.96	*
Site 4	85	09	03	91	6.75	7.96	70	9.87	*
Site 4	90	09	03	91	6.87	8.00	71	9.63	*
Gate	00	09	03	91	17.36	6.17	62	8.87	*

Laboratory data:

Site	Depth	Month	Day	Year	Alk	Turb	NH3	TKN	NO3	SRP	TP	ChlA	Silica
Site 1	00	09	03	91	18.9	0.86	8.5	170.4	150.5	BDL	11.5	7.07	4.2
Site 1	05	09	03	91	18.5	0.89	6.3	179.7	152.2	BDL	9.4	7.45	4.3
Site 1	10	09	03	91	18.8	1.05	14.8	179.8	166.7	BDL	10.2	6.90	6.4
Site 1	15	09	03	91	19.9	1.90	27.3	172.0	287.3	BDL	12.8	4.11	6.3
Site 1	20	09	03	91	20.0	2.20	17.3	141.5	293.3	BDL	12.5	3.35	4.2
Intake	00	09	03	91	17.9	0.58	6.9	130.8	202.3	BDL	13.6	4.67	4.4
Intake	05	09	03	91	17.4	0.66	7.4	124.5	244.2	BDL	9.2	5.96	4.4
Intake	10	09	03	91	17.4	0.86	12.6	106.0	275.8	BDL	8.9	5.37	4.3
Site 2	00	09	03	91	17.7	0.86	6.4	122.4	231.8	BDL	7.7	4.90	4.2
Site 2	05	09	03	91	17.6	0.67	6.5	127.4	234.1	BDL	7.9	5.96	4.5
Site 2	10	09	03	91	17.1	1.16	8.6	136.1	280.3	BDL	8.0	5.49	4.6
Site 2	15	09	03	91	17.3	0.90	15.6	148.9	304.6	BDL	9.2	4.58	5.7
Site 2	20	09	03	91	17.6	1.14	9.8	117.0	385.6	BDL	19.7	3.40	4.3
Site 3	00	09	03	91	17.3	0.52	9.6	BDL	252.5	BDL	7.9	4.34	4.3
Site 3	05	09	03	91	17.6	0.66	11.8	108.5	256.0	BDL	8.4	5.16	4.5
Site 3	10	09	03	91	17.3	0.56	6.9	102.2	263.2	BDL	7.1	6.13	4.8
Site 3	15	09	03	91	*	*	*	*	*	*	*	4.05	*
Site 3	20	09	03	91	16.7	0.70	8.0	132.1	214.3	BDL	8.0	2.73	4.8
Site 3	40	09	03	91	16.3	1.30	BDL	BDL	452.0	BDL	10.0	*	5.0
Site 3	60	09	03	91	16.6	1.10	BDL	BDL	462.3	BDL	10.8	*	5.2
Site 3	80	09	03	91	17.1	4.00	BDL	BDL	440.8	BDL	15.6	*	4.4
Site 4	00	09	03	91	17.3	0.52	BDL	136.7	377.9	BDL	6.8	5.40	4.2
Site 4	05	09	03	91	17.2	0.76	7.3	178.7	383.2	BDL	8.5	5.08	4.3
Site 4	10	09	03	91	17.3	1.02	6.0	121.1	377.0	BDL	8.2	5.40	4.9
Site 4	15	09	03	91	*	*	*	*	*	*	*	4.20	*
Site 4	20	09	03	91	16.7	1.27	7.3	122.6	408.0	BDL	7.1	2.76	4.8
Site 4	40	09	03	91	16.5	1.54	BDL	BDL	450.5	BDL	6.9	*	5.1
Site 4	60	09	03	91	16.5	0.85	BDL	BDL	461.4	BDL	8.3	*	5.1
Site 4	80	09	03	91	16.4	0.90	BDL	BDL	458.2	BDL	7.2	*	5.0
Site 4	90	09	03	91	16.8	1.65	9.3	287.0	449.5	BDL	8.6	*	4.2
Gate	00	09	03	91	17.2	*	15.7	281.4	285.6	BDL	6.4	*	4.3

Lake Whatcom Monitoring Program

Prepared January 9, 1993 by the Environmental Research and Education Center,
Western Washington University, for the City of Bellingham, Department of Public Works.

*: missing. BDL: below detection limit.

Hydrolab and quality control data:

Site	Depth	Month	Day	Year	Temp	pH	Cond	DO	Secchi
Site 1	00	08	05	91	21.29	8.40	69	9.38	5.0
Site 1	01	08	05	91	21.38	8.25	69	9.44	*
Site 1	02	08	05	91	21.41	8.21	70	9.49	*
Site 1	03	08	05	91	21.20	8.18	70	9.51	*
Site 1	04	08	05	91	20.97	8.19	73	9.61	*
Site 1	05	08	05	91	20.66	8.23	75	9.78	*
Site 1	06	08	05	91	20.25	8.26	77	9.89	*
Site 1	07	08	05	91	18.92	8.18	77	9.94	*
Site 1	08	08	05	91	17.29	8.06	78	9.44	*
Site 1	09	08	05	91	14.62	7.82	80	7.59	*
Site 1	10	08	05	91	13.23	7.58	81	5.86	*
Site 1	11	08	05	91	12.19	7.35	83	4.34	*
Site 1	12	08	05	91	11.56	7.20	84	3.57	*
Site 1	13	08	05	91	11.01	7.13	85	2.81	*
Site 1	14	08	05	91	10.93	7.05	85	2.75	*
Site 1	15	08	05	91	10.88	7.00	85	2.75	*
Site 1	16	08	05	91	10.76	6.95	85	2.57	*
Site 1	17	08	05	91	10.60	6.77	85	2.52	*
Site 1	18	08	05	91	10.54	6.72	85	2.57	*
Site 1	19	08	05	91	10.42	6.68	85	2.47	*
Site 1	20	08	05	91	10.35	6.71	85	2.39	*

Hydrolab and quality control data (continued):

Site	Depth	Month	Day	Year	Temp	pH	Cond	DO	Secchi
Intake	00	08	05	91	20.40	8.35	68	9.47	4.9
Intake	01	08	05	91	20.38	8.26	67	9.46	*
Intake	02	08	05	91	20.34	8.20	67	9.48	*
Intake	03	08	05	91	20.30	8.16	68	9.45	*
Intake	04	08	05	91	20.16	8.15	71	9.49	*
Intake	05	08	05	91	19.95	8.15	71	9.51	*
Intake	06	08	05	91	19.95	8.13	72	9.51	*
Intake	07	08	05	91	19.85	8.12	74	9.55	*
Intake	08	08	05	91	19.82	8.13	75	9.55	*
Intake	09	08	05	91	19.49	8.13	75	9.60	*
Intake	10	08	05	91	19.17	8.07	76	9.56	*
Intake	11	08	05	91	18.80	8.03	77	9.51	*
Intake	12	08	05	91	18.10	7.94	77	9.29	*
Intake	13	08	05	91	14.54	7.68	79	8.04	*
Site 2	00	08	05	91	20.68	8.51	69	9.40	5.6
Site 2	01	08	05	91	20.69	8.38	69	9.40	*
Site 2	02	08	05	91	20.68	8.34	70	9.41	*
Site 2	03	08	05	91	20.66	8.35	71	9.41	*
Site 2	04	08	05	91	20.66	8.36	73	9.40	*
Site 2	05	08	05	91	20.64	8.36	74	9.40	*
Site 2	06	08	05	91	20.18	8.35	76	9.40	*
Site 2	07	08	05	91	19.96	8.32	76	9.41	*
Site 2	08	08	05	91	19.86	8.29	77	9.41	*
Site 2	09	08	05	91	19.61	8.28	78	9.43	*
Site 2	10	08	05	91	18.97	8.23	78	9.47	*
Site 2	11	08	05	91	18.56	8.19	80	9.44	*
Site 2	12	08	05	91	16.07	8.08	80	9.34	*
Site 2	13	08	05	91	14.27	7.97	81	9.11	*
Site 2	14	08	05	91	13.34	7.87	82	8.70	*
Site 2	15	08	05	91	12.97	7.75	83	8.03	*
Site 2	16	08	05	91	11.94	7.65	85	6.67	*
Site 2	17	08	05	91	11.27	7.54	85	5.48	*
Site 2	18	08	05	91	10.94	7.42	85	4.90	*
Site 2	19	08	05	91	10.82	7.35	86	4.50	*
Site 2	20	08	05	91	10.67	7.31	84	4.13	*

Hydrolab and quality control data (continued):

Site	Depth	Month	Day	Year	Temp	pH	Cond	DO	Secchi
Site 3	00	08	05	91	19.86	8.44	66	9.44	4.9
Site 3	01	08	05	91	19.76	8.46	66	9.44	*
Site 3	02	08	05	91	19.76	8.42	67	9.45	*
Site 3	03	08	05	91	19.70	8.45	69	9.44	*
Site 3	04	08	05	91	19.61	8.41	70	9.46	*
Site 3	05	08	05	91	19.58	8.37	71	9.48	*
Site 3	06	08	05	91	19.51	8.34	72	9.47	*
Site 3	07	08	05	91	19.30	8.30	72	9.50	*
Site 3	08	08	05	91	19.23	8.28	73	9.50	*
Site 3	09	08	05	91	19.08	8.14	73	9.48	*
Site 3	10	08	05	91	18.93	8.11	74	9.54	*
Site 3	11	08	05	91	17.91	7.92	75	9.54	*
Site 3	12	08	05	91	15.33	7.70	73	9.63	*
Site 3	13	08	05	91	15.33	7.66	77	9.64	*
Site 3	14	08	05	91	12.20	7.63	75	9.75	*
Site 3	15	08	05	91	12.09	7.63	75	9.76	*
Site 3	16	08	05	91	12.08	7.70	77	9.88	*
Site 3	17	08	05	91	10.80	7.55	76	9.97	*
Site 3	18	08	05	91	10.34	7.70	75	10.05	*
Site 3	19	08	05	91	9.78	7.64	77	10.09	*
Site 3	20	08	05	91	9.56	7.55	77	10.08	*
Site 3	25	08	05	91	8.04	7.64	76	10.38	*
Site 3	30	08	05	91	6.87	7.64	74	10.50	*
Site 3	35	08	05	91	6.73	7.75	75	10.48	*
Site 3	40	08	05	91	6.48	7.58	74	10.60	*
Site 3	45	08	05	91	6.44	7.66	74	10.55	*
Site 3	50	08	05	91	6.39	7.65	73	10.58	*
Site 3	55	08	05	91	6.38	7.68	74	10.48	*
Site 3	60	08	05	91	6.38	7.75	72	10.43	*
Site 3	65	08	05	91	6.37	7.64	73	10.43	*
Site 3	70	08	05	91	6.37	7.72	73	10.33	*
Site 3	75	08	05	91	6.39	7.74	72	9.99	*
Site 3	80	08	05	91	6.41	7.75	74	9.09	*

Hydrolab and quality control data (continued):

Site	Depth	Month	Day	Year	Temp	pH	Cond	DO	Secchi
Site 4	00	08	05	91	19.62	8.28	68	9.35	5.0
Site 4	01	08	05	91	19.62	8.15	68	9.36	*
Site 4	02	08	05	91	19.56	8.08	68	9.37	*
Site 4	03	08	05	91	19.49	8.05	69	9.35	*
Site 4	04	08	05	91	19.47	8.04	72	9.38	*
Site 4	05	08	05	91	19.44	8.03	74	9.38	*
Site 4	06	08	05	91	19.22	8.01	75	9.37	*
Site 4	07	08	05	91	18.97	7.97	76	9.37	*
Site 4	08	08	05	91	18.95	7.95	78	9.39	*
Site 4	09	08	05	91	18.94	7.93	78	9.40	*
Site 4	10	08	05	91	18.66	7.92	78	9.43	*
Site 4	11	08	05	91	18.38	7.90	79	9.45	*
Site 4	12	08	05	91	18.01	7.88	78	9.44	*
Site 4	13	08	05	91	17.56	7.86	79	9.43	*
Site 4	14	08	05	91	17.34	7.82	79	9.44	*
Site 4	15	08	05	91	16.40	7.79	80	9.45	*
Site 4	16	08	05	91	15.84	7.75	80	9.44	*
Site 4	17	08	05	91	15.21	7.71	81	9.44	*
Site 4	18	08	05	91	14.45	7.66	81	9.47	*
Site 4	19	08	05	91	13.83	7.63	80	9.43	*
Site 4	20	08	05	91	13.33	7.62	81	9.53	*
Site 4	25	08	05	91	9.54	7.55	80	9.91	*
Site 4	30	08	05	91	8.12	7.55	81	10.16	*
Site 4	35	08	05	91	7.36	7.53	80	10.29	*
Site 4	40	08	05	91	7.06	7.51	79	10.43	*
Site 4	45	08	05	91	6.82	7.50	79	10.48	*
Site 4	50	08	05	91	6.75	7.49	77	10.53	*
Site 4	55	08	05	91	6.66	7.49	77	10.55	*
Site 4	60	08	05	91	6.59	7.48	76	10.54	*
Site 4	65	08	05	91	6.54	7.47	76	10.52	*
Site 4	70	08	05	91	6.52	7.45	75	10.39	*
Site 4	75	08	05	91	6.45	7.43	74	10.48	*
Site 4	80	08	05	91	6.43	7.44	74	10.54	*
Site 4	85	08	05	91	6.41	7.41	74	10.47	*
Site 4	90	08	05	91	6.35	7.41	74	10.44	*
Gate	00	08	05	91	17.91	6.61	66	9.35	*

Laboratory data:

Site	Depth	Month	Day	Year	Alk	Turb	NH3	TKN	NO3	SRP	TP	ChlA	Silica
Site 1	00	08	05	91	18.2	.67	18.1	154.7	180.6	14.0	20.2	5.44	3.8
Site 1	05	08	05	91	18.3	.64	21.3	171.2	206.6	BDL	9.6	7.63	3.9
Site 1	10	08	05	91	18.3	1.0	19.8	208.4	266.5	BDL	15.4	14.82	4.7
Site 1	15	08	05	91	18.0	.68	17.4	139.7	347.6	BDL	11.3	4.49	6.3
Site 1	20	08	05	91	18.2	.63	8.0	BDL	354.3	BDL	10.4	3.29	6.5
Intake	00	08	05	91	17.5	.53	17.1	BDL	265.9	BDL	7.3	3.67	4.4
Intake	05	08	05	91	18.0	.54	19.7	122.3	271.9	BDL	8.5	3.35	4.4
Intake	10	08	05	91	17.5	.64	16.2	115.7	276.1	BDL	8.7	4.43	4.4
Site 2	00	08	05	91	17.8	.63	18.8	159.8	264.0	BDL	6.9	3.46	4.4
Site 2	05	08	05	91	17.7	.68	17.1	126.8	261.9	BDL	6.2	3.40	4.4
Site 2	10	08	05	91	17.2	.67	29.4	100.2	279.2	BDL	6.2	3.55	4.5
Site 2	15	08	05	91	17.1	.48	25.1	BDL	364.7	BDL	6.8	2.73	4.8
Site 2	20	08	05	91	17.1	.63	20.5	BDL	411.4	20.9	7.1	2.35	5.5
Site 3	00	08	05	91	17.7	.64	19.2	BDL	284.9	BDL	5.9	1.94	4.5
Site 3	05	08	05	91	17.7	.71	17.3	108.5	284.7	BDL	6.2	2.96	4.5
Site 3	10	08	05	91	17.3	.66	19.4	129.5	282.6	BDL	6.1	4.61	4.5
Site 3	15	08	05	91	*	*	*	*	*	*	*	3.20	*
Site 3	20	08	05	91	16.6	.50	16.7	BDL	438.1	BDL	5.9	0.56	5.0
Site 3	40	08	05	91	16.9	.58	13.8	BDL	371.6	BDL	5.9	*	4.7
Site 3	60	08	05	91	16.3	.42	13.8	BDL	459.0	BDL	5.9	*	5.1
Site 3	80	08	05	91	16.5	.41	16.9	BDL	451.9	BDL	6.1	*	5.2
Site 4	00	08	05	91	17.1	.66	17.7	128.3	288.5	BDL	8.8	2.88	4.5
Site 4	05	08	05	91	17.3	.75	20.5	145.7	289.5	BDL	7.0	3.11	4.5
Site 4	10	08	05	91	17.3	.75	28.5	125.5	292.4	BDL	12.5	3.81	4.5
Site 4	15	08	05	91	*	*	*	*	*	*	*	3.02	*
Site 4	20	08	05	91	16.7	.74	15.5	123.5	370.4	BDL	7.2	1.73	4.8
Site 4	40	08	05	91	16.3	.76	18.8	BDL	465.9	BDL	BDL	*	5.1
Site 4	60	08	05	91	16.2	.47	18.9	BDL	468.2	BDL	8.6	*	5.1
Site 4	80	08	05	91	16.6	.44	15.8	BDL	461.8	BDL	6.9	*	5.1
Site 4	90	08	05	91	16.5	.57	31.5	BDL	450.9	BDL	8.4	*	5.1
Gate	00	08	05	91	17.1	.69	21.4	128.5	304.4	BDL	8.4	*	4.5

Lake Whatcom Monitoring Program

Prepared January 9, 1993 by the Environmental Research and Education Center, Western Washington University, for the City of Bellingham, Department of Public Works.

*: missing. BDL: below detection limit.

Hydrolab and quality control data:

Site	Depth	Month	Day	Year	Temp	pH	Cond	DO	Secchi
Site 1	00	07	01	91	18.31	7.80	62	9.74	5.1
Site 1	01	07	01	91	18.10	7.80	62	9.99	*
Site 1	02	07	01	91	17.89	7.87	63	10.04	*
Site 1	03	07	01	91	17.69	7.87	63	10.04	*
Site 1	04	07	01	91	17.20	7.92	64	10.08	*
Site 1	05	07	01	91	17.06	7.98	65	10.08	*
Site 1	06	07	01	91	16.56	7.90	66	10.14	*
Site 1	07	07	01	91	15.00	7.80	67	9.97	*
Site 1	08	07	01	91	14.32	7.70	67	9.57	*
Site 1	09	07	01	91	13.35	7.45	69	8.90	*
Site 1	10	07	01	91	12.87	7.43	69	8.55	*
Site 1	11	07	01	91	12.16	7.28	70	7.71	*
Site 1	12	07	01	91	11.25	7.22	71	6.82	*
Site 1	13	07	01	91	10.91	7.10	71	6.35	*
Site 1	14	07	01	91	10.48	7.01	71	5.79	*
Site 1	15	07	01	91	10.22	6.96	71	5.46	*
Site 1	16	07	01	91	10.11	6.89	72	5.31	*
Site 1	17	07	01	91	10.00	6.82	72	5.25	*
Site 1	18	07	01	91	9.96	6.84	73	5.19	*
Site 1	19	07	01	91	9.93	6.78	73	5.12	*
Site 1	20	07	01	91	9.84	6.75	73	5.01	*

Hydrolab and quality control data (continued):

Site	Depth	Month	Day	Year	Temp	pH	Cond	DO	Secchi
Intake	00	07	01	91	18.92	7.77	63	9.97	5.5
Intake	01	07	01	91	18.08	7.86	63	9.93	*
Intake	02	07	01	91	16.59	7.81	63	10.08	*
Intake	03	07	01	91	16.33	7.83	64	10.06	*
Intake	04	07	01	91	16.23	7.82	65	10.11	*
Intake	05	07	01	91	16.19	7.81	67	10.11	*
Intake	06	07	01	91	16.09	7.83	67	10.11	*
Intake	07	07	01	91	16.04	7.80	68	10.07	*
Intake	08	07	01	91	15.99	7.80	69	10.08	*
Intake	09	07	01	91	15.84	7.78	69	10.08	*
Intake	10	07	01	91	15.51	7.76	70	10.14	*
Intake	11	07	01	91	14.70	7.77	70	10.13	*
Intake	12	07	01	91	13.52	7.75	71	10.00	*
Intake	13	07	01	91	13.21	7.68	72	9.95	*
Intake	14	07	01	91	12.65	7.56	72	9.76	*
Site 2	00	07	01	91	18.23	8.01	63	9.89	5.4
Site 2	01	07	01	91	18.14	7.90	64	9.89	*
Site 2	02	07	01	91	17.76	7.89	63	9.94	*
Site 2	03	07	01	91	16.84	7.91	65	10.06	*
Site 2	04	07	01	91	16.41	7.88	66	10.10	*
Site 2	05	07	01	91	16.30	7.89	67	10.10	*
Site 2	06	07	01	91	16.21	7.92	68	10.07	*
Site 2	07	07	01	91	16.08	7.88	68	10.05	*
Site 2	08	07	01	91	15.98	7.85	69	10.02	*
Site 2	09	07	01	91	15.80	7.81	69	9.99	*
Site 2	10	07	01	91	15.23	7.81	70	10.01	*
Site 2	11	07	01	91	14.23	7.75	71	10.09	*
Site 2	12	07	01	91	13.87	7.64	71	10.08	*
Site 2	13	07	01	91	12.89	7.65	72	9.91	*
Site 2	14	07	01	91	11.54	7.55	72	9.36	*
Site 2	15	07	01	91	10.80	7.46	73	8.82	*
Site 2	16	07	01	91	10.50	7.33	73	8.15	*
Site 2	17	07	01	91	10.11	7.27	74	7.49	*
Site 2	18	07	01	91	9.89	7.26	74	7.16	*
Site 2	19	07	01	91	9.75	7.18	75	6.75	*
Site 2	20	07	01	91	9.68	7.06	75	6.42	*

Hydrolab and quality control data (continued):

Site	Depth	Month	Day	Year	Temp	pH	Cond	DO	Secchi
Site 3	00	07	01	91	17.72	7.70	63	10.07	5.8
Site 3	01	07	01	91	17.63	7.73	63	10.00	*
Site 3	02	07	01	91	17.55	7.71	65	10.03	*
Site 3	03	07	01	91	17.14	7.74	65	10.00	*
Site 3	04	07	01	91	16.49	7.76	66	10.08	*
Site 3	05	07	01	91	15.93	7.91	67	10.15	*
Site 3	06	07	01	91	15.67	7.82	68	10.13	*
Site 3	07	07	01	91	15.55	7.81	68	10.11	*
Site 3	08	07	01	91	15.38	7.84	68	10.13	*
Site 3	09	07	01	91	15.24	7.77	68	10.16	*
Site 3	10	07	01	91	14.81	7.81	69	10.16	*
Site 3	11	07	01	91	14.24	7.71	69	10.20	*
Site 3	12	07	01	91	14.16	7.65	70	10.21	*
Site 3	13	07	01	91	13.77	7.66	70	10.19	*
Site 3	14	07	01	91	13.12	7.63	70	10.22	*
Site 3	15	07	01	91	12.12	7.63	71	10.21	*
Site 3	16	07	01	91	11.49	7.53	71	10.27	*
Site 3	17	07	01	91	11.18	7.52	72	10.27	*
Site 3	18	07	01	91	10.59	7.47	72	10.29	*
Site 3	19	07	01	91	10.45	7.44	72	10.30	*
Site 3	20	07	01	91	10.20	7.41	72	10.32	*
Site 3	25	07	01	91	8.38	7.39	72	10.45	*
Site 3	30	07	01	91	7.61	7.33	73	10.53	*
Site 3	35	07	01	91	6.88	7.31	74	10.52	*
Site 3	40	07	01	91	6.63	7.26	73	10.55	*
Site 3	45	07	01	91	6.49	7.24	73	10.57	*
Site 3	50	07	01	91	6.40	7.22	72	10.52	*
Site 3	55	07	01	91	6.35	7.20	71	10.50	*
Site 3	60	07	01	91	6.30	7.20	70	10.48	*
Site 3	65	07	01	91	6.27	7.18	72	10.44	*
Site 3	70	07	01	91	6.24	7.16	69	10.35	*
Site 3	75	07	01	91	6.21	7.15	71	10.17	*
Site 3	80	07	01	91	6.19	7.11	69	9.54	*

Hydrolab and quality control data (continued):

Site	Depth	Month	Day	Year	Temp	pH	Cond	DO	Secchi
Site 4	00	07	01	91	17.24	7.94	63	10.15	6.1
Site 4	01	07	01	91	17.14	7.88	63	10.14	*
Site 4	02	07	01	91	16.47	7.87	64	10.17	*
Site 4	03	07	01	91	16.16	7.82	64	10.24	*
Site 4	04	07	01	91	15.98	7.81	66	10.24	*
Site 4	05	07	01	91	15.77	7.80	66	10.25	*
Site 4	06	07	01	91	15.46	7.81	67	10.30	*
Site 4	07	07	01	91	15.23	7.74	68	10.29	*
Site 4	08	07	01	91	15.06	7.74	68	10.25	*
Site 4	09	07	01	91	14.74	7.69	69	10.24	*
Site 4	10	07	01	91	14.56	7.68	69	10.25	*
Site 4	11	07	01	91	14.38	7.65	70	10.28	*
Site 4	12	07	01	91	14.23	7.62	70	10.34	*
Site 4	13	07	01	91	14.00	7.62	70	10.35	*
Site 4	14	07	01	91	13.56	7.62	71	10.35	*
Site 4	15	07	01	91	13.09	7.55	71	10.35	*
Site 4	16	07	01	91	12.33	7.54	71	10.30	*
Site 4	17	07	01	91	11.77	7.47	71	10.30	*
Site 4	18	07	01	91	10.75	7.42	72	10.32	*
Site 4	19	07	01	91	10.34	7.39	72	10.32	*
Site 4	20	07	01	91	9.85	7.39	72	10.38	*
Site 4	25	07	01	91	7.88	7.33	74	10.46	*
Site 4	30	07	01	91	7.06	7.32	72	10.55	*
Site 4	35	07	01	91	6.70	7.27	72	10.64	*
Site 4	40	07	01	91	6.51	7.27	71	10.66	*
Site 4	45	07	01	91	6.41	7.22	70	10.62	*
Site 4	50	07	01	91	6.34	7.21	72	10.66	*
Site 4	55	07	01	91	6.31	7.21	69	10.68	*
Site 4	60	07	01	91	6.28	7.19	70	10.65	*
Site 4	65	07	01	91	6.26	7.19	68	10.67	*
Site 4	70	07	01	91	6.22	7.16	68	10.64	*
Site 4	75	07	01	91	6.21	7.16	68	10.65	*
Site 4	80	07	01	91	6.18	7.17	67	10.51	*
Site 4	85	07	01	91	6.18	7.16	67	10.63	*
Site 4	90	07	01	91	6.15	7.16	66	10.63	*
Gate	00	07	01	91	13.71	7.19	61	9.82	*

Laboratory data:

Site	Depth	Month	Day	Year	Alk	Turb	NH3	TKN	NO3	SRP	TP	ChlA	Silica
Site 1	00	07	01	91	*	1.09	11.3	174.8	260.8	*	*	9.10	3.8
Site 1	05	07	01	91	18.2	1.46	11.0	200.3	271.6	BDL	8.8	6.18	3.9
Site 1	10	07	01	91	17.6	1.26	13.6	157.5	329.2	BDL	6.7	6.04	4.6
Site 1	15	07	01	91	18.0	0.84	14.3	141.9	366.2	BDL	6.6	3.40	5.5
Site 1	20	07	01	91	17.8	0.99	25.6	177.2	363.5	BDL	8.7	2.48	5.6
Intake	00	07	01	91	17.3	0.98	10.5	143.1	304.3	BDL	5.2	2.60	4.1
Intake	05	07	01	91	17.5	1.16	8.0	144.2	338.8	BDL	5.2	3.01	4.3
Intake	10	07	01	91	17.2	0.87	8.2	142.3	345.3	BDL	5.1	3.11	4.2
Site 2	00	07	01	91	17.4	0.97	7.8	139.5	317.8	BDL	BDL	3.36	4.1
Site 2	05	07	01	91	17.0	1.52	9.3	126.9	344.4	BDL	BDL	2.88	4.3
Site 2	10	07	01	91	17.0	1.07	7.0	141.9	347.7	BDL	5.9	2.88	4.3
Site 2	15	07	01	91	17.4	1.03	13.8	106.8	404.1	BDL	BDL	2.46	4.6
Site 2	20	07	01	91	16.9	1.05	39.9	134.3	424.0	BDL	5.7	1.86	5.0
Site 3	00	07	01	91	17.0	0.66	10.0	117.8	339.2	BDL	BDL	3.24	4.2
Site 3	05	07	01	91	16.4	0.95	5.1	134.5	338.4	BDL	BDL	3.84	4.2
Site 3	10	07	01	91	16.9	0.87	5.9	139.5	356.5	BDL	BDL	4.27	4.3
Site 3	15	07	01	91	*	*	*	*	*	*	*	1.85	*
Site 3	20	07	01	91	17.6	0.87	5.8	131.8	347.2	BDL	BDL	3.81	4.4
Site 3	40	07	01	91	16.8	0.76	10.8	102.6	372.5	BDL	BDL	*	4.3
Site 3	60	07	01	91	16.8	0.76	7.1	141.7	421.0	BDL	BDL	*	4.6
Site 3	80	07	01	91	16.4	0.95	BDL	BDL	430.6	BDL	BDL	*	4.5
Site 4	00	07	01	91	17.0	1.07	BDL	BDL	331.3	BDL	BDL	3.26	4.2
Site 4	05	07	01	91	17.4	0.87	6.1	111.6	336.6	BDL	BDL	3.70	4.2
Site 4	10	07	01	91	17.5	0.93	6.7	112.0	337.0	BDL	BDL	4.36	4.2
Site 4	15	07	01	91	*	*	*	*	*	*	*	2.80	*
Site 4	20	07	01	91	16.7	0.61	11.2	BDL	423.8	BDL	BDL	1.82	4.8
Site 4	40	07	01	91	16.4	0.74	8.7	BDL	473.6	BDL	BDL	*	4.8
Site 4	60	07	01	91	16.6	1.25	9.7	BDL	466.7	BDL	BDL	*	4.8
Site 4	80	07	01	91	16.6	1.19	10.5	BDL	465.3	BDL	BDL	*	4.9
Site 4	90	07	01	91	16.8	1.29	12.5	BDL	441.4	BDL	BDL	*	4.7
Gate	00	07	01	91	17.5	1.64	18.3	115.4	378.5	BDL	BDL	*	4.5

Lake Whatcom Monitoring Program

Prepared January 9, 1993 by the Environmental Research and Education Center, Western Washington University, for the City of Bellingham, Department of Public Works.

*: missing. BDL: below detection limit.

Hydrolab and quality control data:

Site	Depth	Month	Day	Year	Temp	pH	Cond	DO	Secchi
Site 1	00	06	03	91	14.36	7.60	61	10.42	4.0
Site 1	01	06	03	91	14.37	7.67	61	10.46	*
Site 1	02	06	03	91	14.32	7.70	60	10.45	*
Site 1	03	06	03	91	14.29	7.72	60	10.47	*
Site 1	04	06	03	91	14.29	7.74	60	10.47	*
Site 1	05	06	03	91	14.27	7.80	60	10.45	*
Site 1	06	06	03	91	14.25	7.80	60	10.45	*
Site 1	07	06	03	91	14.20	7.80	60	10.43	*
Site 1	08	06	03	91	13.42	7.73	61	10.35	*
Site 1	09	06	03	91	12.16	7.71	60	10.11	*
Site 1	10	06	03	91	11.52	7.54	61	9.55	*
Site 1	11	06	03	91	10.85	7.49	62	8.80	*
Site 1	12	06	03	91	10.15	7.38	63	8.11	*
Site 1	13	06	03	91	9.94	7.20	63	7.97	*
Site 1	14	06	03	91	9.81	7.13	63	7.95	*
Site 1	15	06	03	91	9.75	7.12	63	7.88	*
Site 1	16	06	03	91	9.69	7.09	64	7.83	*
Site 1	17	06	03	91	9.63	7.09	64	7.82	*
Site 1	18	06	03	91	9.56	7.06	63	7.80	*
Site 1	19	06	03	91	9.46	7.05	64	7.71	*
Site 1	20	06	03	91	9.39	7.01	64	7.54	*

Hydrolab and quality control data (continued):

Site	Depth	Month	Day	Year	Temp	pH	Cond	DO	Secchi
Intake	00	06	03	91	13.71	7.88	63	10.71	5.0
Intake	01	06	03	91	13.72	7.89	62	10.69	*
Intake	02	06	03	91	13.68	7.95	62	10.66	*
Intake	03	06	03	91	13.54	7.96	62	10.68	*
Intake	04	06	03	91	13.27	8.00	63	10.70	*
Intake	05	06	03	91	13.15	7.97	63	10.76	*
Intake	06	06	03	91	13.03	8.00	63	10.79	*
Intake	07	06	03	91	13.01	7.99	63	10.78	*
Intake	08	06	03	91	12.94	8.02	63	10.81	*
Intake	09	06	03	91	12.83	7.94	64	10.82	*
Intake	10	06	03	91	12.64	7.96	64	10.79	*
Intake	11	06	03	91	12.40	7.95	64	10.74	*
Intake	12	06	03	91	11.74	7.82	65	10.42	*
Intake	13	06	03	91	10.82	7.72	65	9.80	*
Site 2	00	06	03	91	13.83	8.09	63	10.68	4.9
Site 2	01	06	03	91	13.83	8.04	62	10.61	*
Site 2	02	06	03	91	13.75	7.99	62	10.62	*
Site 2	03	06	03	91	13.58	8.03	62	10.64	*
Site 2	04	06	03	91	13.08	8.01	63	10.74	*
Site 2	05	06	03	91	13.05	7.94	63	10.75	*
Site 2	06	06	03	91	13.02	8.03	63	10.77	*
Site 2	07	06	03	91	12.97	7.97	63	10.76	*
Site 2	08	06	03	91	12.90	7.95	63	10.73	*
Site 2	09	06	03	91	12.83	7.92	64	10.72	*
Site 2	10	06	03	91	12.60	7.88	64	10.72	*
Site 2	11	06	03	91	12.52	7.88	65	10.72	*
Site 2	12	06	03	91	12.25	7.89	64	10.62	*
Site 2	13	06	03	91	11.64	7.79	65	10.43	*
Site 2	14	06	03	91	10.71	7.71	66	9.88	*
Site 2	15	06	03	91	9.84	7.60	66	9.84	*
Site 2	16	06	03	91	9.40	7.55	66	9.55	*
Site 2	17	06	03	91	9.32	7.47	66	9.48	*
Site 2	18	06	03	91	9.03	7.45	66	9.01	*
Site 2	19	06	03	91	8.94	7.40	66	8.74	*
Site 2	20	06	03	91	8.78	7.33	67	8.36	*

Hydrolab and quality control data (continued):

Site	Depth	Month	Day	Year	Temp	pH	Cond	DO	Secchi
Site 3	00	06	03	91	12.90	7.85	63	10.79	4.8
Site 3	01	06	03	91	12.90	7.85	62	10.80	*
Site 3	02	06	03	91	12.87	7.88	61	10.79	*
Site 3	03	06	03	91	12.84	7.86	61	10.80	*
Site 3	04	06	03	91	12.75	7.87	61	10.77	*
Site 3	05	06	03	91	12.71	7.87	62	10.80	*
Site 3	06	06	03	91	12.61	7.92	62	10.81	*
Site 3	07	06	03	91	12.51	7.89	62	10.81	*
Site 3	08	06	03	91	12.42	7.86	62	10.82	*
Site 3	09	06	03	91	12.39	7.86	62	10.81	*
Site 3	10	06	03	91	12.33	7.89	62	10.81	*
Site 3	11	06	03	91	12.12	7.86	63	10.79	*
Site 3	12	06	03	91	11.94	7.83	63	10.81	*
Site 3	13	06	03	91	11.74	7.80	63	10.79	*
Site 3	14	06	03	91	11.42	7.78	64	10.79	*
Site 3	15	06	03	91	10.43	7.75	63	10.72	*
Site 3	16	06	03	91	10.22	7.71	64	10.80	*
Site 3	17	06	03	91	9.71	7.63	65	10.78	*
Site 3	18	06	03	91	9.56	7.62	64	10.78	*
Site 3	19	06	03	91	9.31	7.60	65	10.75	*
Site 3	20	06	03	91	8.89	7.56	65	10.77	*
Site 3	25	06	03	91	7.60	7.53	66	10.81	*
Site 3	30	06	03	91	6.97	7.49	67	10.81	*
Site 3	35	06	03	91	6.59	7.45	66	10.76	*
Site 3	40	06	03	91	6.48	7.39	66	10.78	*
Site 3	45	06	03	91	6.31	7.40	66	10.74	*
Site 3	50	06	03	91	6.26	7.36	64	10.72	*
Site 3	55	06	03	91	6.22	7.35	63	10.70	*
Site 3	60	06	03	91	6.19	7.30	63	10.67	*
Site 3	65	06	03	91	6.18	7.33	67	10.68	*
Site 3	70	06	03	91	6.14	7.32	62	10.54	*
Site 3	75	06	03	91	6.11	7.25	63	10.35	*
Site 3	80	06	03	91	6.10	7.26	64	10.10	*

Hydrolab and quality control data (continued):

Site	Depth	Month	Day	Year	Temp	pH	Cond	DO	Secchi
Site 4	00	06	03	91	12.24	7.73	61	10.97	5.0
Site 4	01	06	03	91	12.25	7.79	61	10.96	*
Site 4	02	06	03	91	12.26	7.75	61	11.00	*
Site 4	03	06	03	91	12.24	7.72	62	10.96	*
Site 4	04	06	03	91	12.24	7.77	61	10.96	*
Site 4	05	06	03	91	12.24	7.74	61	10.97	*
Site 4	06	06	03	91	12.24	7.80	61	10.97	*
Site 4	07	06	03	91	12.24	7.83	61	10.97	*
Site 4	08	06	03	91	12.23	7.80	61	10.97	*
Site 4	09	06	03	91	12.23	7.82	61	10.94	*
Site 4	10	06	03	91	12.20	7.83	62	10.95	*
Site 4	11	06	03	91	12.20	7.83	63	10.96	*
Site 4	12	06	03	91	12.14	7.83	63	10.93	*
Site 4	13	06	03	91	12.05	7.80	63	10.89	*
Site 4	14	06	03	91	10.95	7.70	63	10.85	*
Site 4	15	06	03	91	10.67	7.65	63	10.85	*
Site 4	16	06	03	91	10.48	7.65	63	10.83	*
Site 4	17	06	03	91	10.34	7.63	64	10.82	*
Site 4	18	06	03	91	10.20	7.63	64	10.84	*
Site 4	19	06	03	91	9.17	7.55	64	10.83	*
Site 4	20	06	03	91	8.92	7.57	64	10.79	*
Site 4	25	06	03	91	8.23	7.53	64	10.83	*
Site 4	30	06	03	91	7.43	7.45	64	10.82	*
Site 4	35	06	03	91	6.89	7.44	64	10.81	*
Site 4	40	06	03	91	6.62	7.41	63	10.83	*
Site 4	45	06	03	91	6.44	7.38	61	10.81	*
Site 4	50	06	03	91	6.35	7.35	62	10.87	*
Site 4	55	06	03	91	6.29	7.37	61	10.90	*
Site 4	60	06	03	91	6.25	7.34	62	10.89	*
Site 4	65	06	03	91	6.21	7.32	61	10.81	*
Site 4	70	06	03	91	6.18	7.30	63	10.77	*
Site 4	75	06	03	91	6.10	7.29	63	10.73	*
Site 4	80	06	03	91	6.14	7.28	61	10.76	*
Site 4	85	06	03	91	6.12	7.29	61	10.72	*
Site 4	90	06	03	91	6.10	7.28	62	10.67	*
Gate	00	06	03	91	12.31	7.08	58	10.52	*

Laboratory data:

Site	Depth	Month	Day	Year	Alk	Turb	NH3	TKN	NO3	SRP	TP	ChlA	Silica
Site 1	00	06	03	91	17.3	1.13	16.6	122.2	289.3	BDL	BDL	4.07	4.3
Site 1	05	06	03	91	17.4	0.86	11.9	139.2	308.3	BDL	BDL	4.25	4.3
Site 1	10	06	03	91	17.8	0.90	5.7	BDL	328.3	BDL	BDL	4.75	4.1
Site 1	15	06	03	91	17.8	1.07	26.4	123.2	366.2	BDL	5.9	3.65	3.9
Site 1	20	06	03	91	17.4	1.07	27.8	127.2	373.4	BDL	6.2	4.52	3.9
Intake	00	06	03	91	17.4	0.91	BDL	BDL	352.9	BDL	BDL	4.33	4.3
Intake	05	06	03	91	17.0	0.78	BDL	115.1	363.2	BDL	7.0	4.67	4.4
Intake	10	06	03	91	16.8	0.93	5.2	BDL	373.4	BDL	BDL	4.97	4.5
Site 2	00	06	03	91	17.0	0.82	BDL	BDL	352.9	BDL	BDL	3.92	4.4
Site 2	05	06	03	91	17.2	1.03	BDL	130.2	367.3	BDL	BDL	4.40	4.4
Site 2	10	06	03	91	16.6	0.72	5.2	BDL	364.2	BDL	6.2	4.25	4.5
Site 2	15	06	03	91	16.7	0.81	7.0	BDL	367.3	BDL	BDL	4.56	4.3
Site 2	20	06	03	91	16.6	0.70	24.8	BDL	409.3	BDL	BDL	4.49	4.7
Site 3	00	06	03	91	16.6	0.71	BDL	BDL	374.5	BDL	BDL	4.06	4.4
Site 3	05	06	03	91	16.8	1.01	BDL	BDL	370.4	BDL	BDL	3.93	4.4
Site 3	10	06	03	91	17.0	1.26	BDL	BDL	368.3	BDL	BDL	4.67	4.3
Site 3	15	06	03	91	*	*	*	*	*	*	*	4.80	*
Site 3	20	06	03	91	16.4	0.79	10.1	BDL	413.4	BDL	BDL	1.57	4.1
Site 3	40	06	03	91	16.8	0.72	BDL	100.1	373.4	BDL	BDL	*	4.5
Site 3	60	06	03	91	16.4	1.34	BDL	BDL	452.4	BDL	BDL	*	4.3
Site 3	80	06	03	91	16.4	0.92	BDL	BDL	444.2	BDL	BDL	*	4.1
Site 4	00	06	03	91	17.4	0.84	BDL	BDL	340.6	BDL	BDL	3.81	4.6
Site 4	05	06	03	91	17.0	1.01	BDL	BDL	369.3	BDL	6.3	4.31	4.5
Site 4	10	06	03	91	16.6	0.86	BDL	BDL	374.5	BDL	BDL	4.43	4.5
Site 4	15	06	03	91	*	*	*	*	*	*	*	3.20	*
Site 4	20	06	03	91	16.8	0.86	13.2	BDL	419.6	BDL	BDL	1.92	4.4
Site 4	40	06	03	91	16.2	1.49	6.3	BDL	450.4	BDL	BDL	*	4.2
Site 4	60	06	03	91	16.0	1.58	8.6	BDL	457.6	BDL	BDL	*	4.2
Site 4	80	06	03	91	17.0	1.27	BDL	BDL	449.3	BDL	BDL	*	3.8
Site 4	90	06	03	91	16.7	1.52	BDL	BDL	447.3	BDL	BDL	*	3.8
Gate	00	06	03	91	17.8	1.23	7.9	BDL	392.9	BDL	BDL	*	3.9

Lake Whatcom Monitoring Program

Prepared January 9, 1993 by the Environmental Research and Education Center, Western Washington University, for the City of Bellingham, Department of Public Works.

*: missing. BDL: below detection limit.

Hydrolab and quality control data:

Site	Depth	Month	Day	Year	Temp	pH	Cond	DO	Secchi
Site 1	00	04	01	91	8.40	7.80	64	11.76	5.9
Site 1	01	04	01	91	8.36	7.74	64	11.72	*
Site 1	02	04	01	91	8.36	7.74	64	11.73	*
Site 1	03	04	01	91	8.33	7.72	64	11.71	*
Site 1	04	04	01	91	8.20	7.66	66	11.71	*
Site 1	05	04	01	91	8.10	7.65	66	11.76	*
Site 1	06	04	01	91	7.74	7.65	67	11.80	*
Site 1	07	04	01	91	7.56	7.64	68	11.78	*
Site 1	08	04	01	91	7.52	7.64	68	11.73	*
Site 1	09	04	01	91	7.50	7.65	69	11.74	*
Site 1	10	04	01	91	7.46	7.64	69	11.76	*
Site 1	11	04	01	91	7.44	7.61	68	11.72	*
Site 1	12	04	01	91	7.39	7.62	68	11.78	*
Site 1	13	04	01	91	7.32	7.60	68	11.73	*
Site 1	14	04	01	91	7.23	7.61	68	11.74	*
Site 1	15	04	01	91	7.22	7.60	68	11.74	*
Site 1	16	04	01	91	7.21	7.58	68	11.69	*
Site 1	17	04	01	91	7.21	7.57	69	11.70	*
Site 1	18	04	01	91	7.21	7.58	68	11.71	*
Site 1	19	04	01	91	7.19	7.58	69	11.70	*
Site 1	20	04	01	91	7.18	7.57	69	11.67	*

Hydrolab and quality control data (continued):

Site	Depth	Month	Day	Year	Temp	pH	Cond	DO	Secchi
Intake	00	04	01	91	7.37	7.72	65	12.13	5.9
Intake	01	04	01	91	7.36	7.72	63	12.13	*
Intake	02	04	01	91	7.36	7.72	63	12.08	*
Intake	03	04	01	91	7.36	7.70	64	12.08	*
Intake	04	04	01	91	7.35	7.70	66	12.09	*
Intake	05	04	01	91	7.29	7.69	66	12.09	*
Intake	06	04	01	91	7.10	7.66	68	12.09	*
Intake	07	04	01	91	6.91	7.66	68	12.02	*
Intake	08	04	01	91	6.75	7.66	68	11.99	*
Intake	09	04	01	91	6.70	7.62	68	11.93	*
Intake	10	04	01	91	6.59	7.62	68	11.88	*
Intake	11	04	01	91	6.52	7.62	69	11.81	*
Intake	12	04	01	91	6.40	7.59	70	11.65	*
Intake	13	04	01	91	6.35	7.56	69	11.53	*
Site 2	00	04	01	91	7.62	7.65	65	12.17	5.4
Site 2	01	04	01	91	7.62	7.65	65	12.12	*
Site 2	02	04	01	91	7.60	7.64	65	12.09	*
Site 2	03	04	01	91	7.53	7.62	65	12.09	*
Site 2	04	04	01	91	7.40	7.62	66	12.05	*
Site 2	05	04	01	91	7.23	7.64	67	12.02	*
Site 2	06	04	01	91	7.11	7.63	67	12.02	*
Site 2	07	04	01	91	7.01	7.62	67	12.01	*
Site 2	08	04	01	91	6.78	7.62	68	11.98	*
Site 2	09	04	01	91	6.65	7.62	68	11.97	*
Site 2	10	04	01	91	6.59	7.59	68	11.87	*
Site 2	11	04	01	91	6.52	7.58	69	11.80	*
Site 2	12	04	01	91	6.48	7.58	69	11.73	*
Site 2	13	04	01	91	6.43	7.56	69	11.72	*
Site 2	14	04	01	91	6.35	7.57	70	11.63	*
Site 2	15	04	01	91	6.28	7.54	69	11.47	*
Site 2	16	04	01	91	6.26	7.52	69	11.48	*
Site 2	17	04	01	91	6.26	7.50	69	11.48	*
Site 2	18	04	01	91	6.25	7.50	70	11.49	*
Site 2	19	04	01	91	6.24	7.49	70	11.49	*
Site 2	20	04	01	91	6.24	7.48	69	11.49	*

Hydrolab and quality control data (continued):

Site	Depth	Month	Day	Year	Temp	pH	Cond	DO	Secchi
Site 3	00	04	01	91	6.72	7.54	64	12.01	7.2
Site 3	01	04	01	91	6.69	7.50	65	11.93	*
Site 3	02	04	01	91	6.67	7.50	64	11.90	*
Site 3	03	04	01	91	6.67	7.50	65	11.90	*
Site 3	04	04	01	91	6.66	7.53	65	11.91	*
Site 3	05	04	01	91	6.66	7.52	67	11.91	*
Site 3	06	04	01	91	6.65	7.53	67	11.92	*
Site 3	07	04	01	91	6.63	7.50	66	11.87	*
Site 3	08	04	01	91	6.63	7.50	69	11.87	*
Site 3	09	04	01	91	6.62	7.49	69	11.89	*
Site 3	10	04	01	91	6.62	7.48	69	11.89	*
Site 3	11	04	01	91	6.60	7.49	68	11.89	*
Site 3	12	04	01	91	6.60	7.49	68	11.85	*
Site 3	13	04	01	91	6.56	7.49	69	11.83	*
Site 3	14	04	01	91	6.55	7.48	68	11.83	*
Site 3	15	04	01	91	6.50	7.52	69	11.84	*
Site 3	16	04	01	91	6.44	7.52	69	11.82	*
Site 3	17	04	01	91	6.34	7.50	69	11.74	*
Site 3	18	04	01	91	6.31	7.49	69	11.76	*
Site 3	19	04	01	91	6.29	7.50	70	11.72	*
Site 3	20	04	01	91	6.28	7.48	70	11.73	*
Site 3	25	04	01	91	6.15	7.49	70	11.66	*
Site 3	30	04	01	91	6.11	7.48	69	11.59	*
Site 3	35	04	01	91	5.99	7.42	69	11.47	*
Site 3	40	04	01	91	5.91	7.39	70	11.37	*
Site 3	45	04	01	91	5.90	7.38	69	11.32	*
Site 3	50	04	01	91	5.88	7.36	68	11.33	*
Site 3	55	04	01	91	5.87	7.36	68	11.29	*
Site 3	60	04	01	91	5.84	7.35	68	11.26	*
Site 3	65	04	01	91	5.81	7.31	69	11.11	*
Site 3	70	04	01	91	5.80	7.29	68	11.07	*
Site 3	75	04	01	91	5.78	7.30	68	11.03	*
Site 3	80	04	01	91	5.77	7.29	69	10.93	*

Hydrolab and quality control data (continued):

Site	Depth	Month	Day	Year	Temp	pH	Cond	DO	Secchi
Site 4	00	04	01	91	7.50	7.52	64	12.09	5.3
Site 4	01	04	01	91	7.48	7.55	64	12.00	*
Site 4	02	04	01	91	7.45	7.47	64	11.97	*
Site 4	03	04	01	91	7.39	7.47	64	11.96	*
Site 4	04	04	01	91	7.35	7.45	64	11.95	*
Site 4	05	04	01	91	7.22	7.45	64	11.98	*
Site 4	06	04	01	91	7.15	7.47	66	11.96	*
Site 4	07	04	01	91	7.16	7.48	66	11.93	*
Site 4	08	04	01	91	7.07	7.52	66	11.87	*
Site 4	09	04	01	91	6.71	7.47	67	11.82	*
Site 4	10	04	01	91	6.62	7.49	66	11.85	*
Site 4	11	04	01	91	6.56	7.48	67	11.83	*
Site 4	12	04	01	91	6.53	7.47	68	11.79	*
Site 4	13	04	01	91	6.51	7.48	67	11.81	*
Site 4	14	04	01	91	6.48	7.49	68	11.82	*
Site 4	15	04	01	91	6.47	7.49	68	11.78	*
Site 4	16	04	01	91	6.45	7.47	68	11.81	*
Site 4	17	04	01	91	6.40	7.47	68	11.80	*
Site 4	18	04	01	91	6.26	7.47	68	11.73	*
Site 4	19	04	01	91	6.26	7.46	68	11.74	*
Site 4	20	04	01	91	6.27	7.47	68	11.74	*
Site 4	25	04	01	91	6.13	7.45	68	11.58	*
Site 4	30	04	01	91	6.03	7.42	68	11.53	*
Site 4	35	04	01	91	5.90	7.41	68	11.36	*
Site 4	40	04	01	91	5.87	7.38	68	11.34	*
Site 4	45	04	01	91	5.85	7.36	67	11.30	*
Site 4	50	04	01	91	5.84	7.37	68	11.25	*
Site 4	55	04	01	91	5.83	7.39	68	11.26	*
Site 4	60	04	01	91	5.83	7.36	68	11.27	*
Site 4	65	04	01	91	5.82	7.36	67	11.21	*
Site 4	70	04	01	91	5.83	7.36	66	11.21	*
Site 4	75	04	01	91	5.81	7.36	66	11.22	*
Site 4	80	04	01	91	5.80	7.36	66	11.22	*
Site 4	85	04	01	91	5.78	7.36	66	11.14	*
Site 4	90	04	01	91	5.77	7.33	66	11.09	*
Gate	00	04	01	91	7.43	7.52	60	11.84	*

Laboratory data:

Site	Depth	Month	Day	Year	Alk	Turb	NH3	TKN	NO3	SRP	TP	ChlA	Silica
Site 1	00	04	01	91	17.3	0.8	BDL	BDL	414.8	BDL	6.3	1.58	4.4
Site 1	05	04	01	91	17.2	0.9	BDL	BDL	421.7	BDL	6.9	1.73	4.4
Site 1	10	04	01	91	17.2	0.9	BDL	100.6	423.6	BDL	6.5	1.60	4.6
Site 1	15	04	01	91	17.3	0.9	5.6	BDL	424.3	BDL	6.2	1.63	4.5
Site 1	20	04	01	91	17.3	0.8	6.2	BDL	421.7	BDL	6.0	2.00	4.7
Intake	00	04	01	91	16.8	0.6	BDL	BDL	443.2	BDL	5.9	2.55	4.5
Intake	05	04	01	91	16.8	0.8	BDL	BDL	439.4	BDL	5.8	3.11	4.5
Intake	10	04	01	91	16.6	0.7	BDL	BDL	445.1	BDL	5.7	2.26	4.8
Site 2	00	04	01	91	16.5	0.9	BDL	BDL	442.6	BDL	6.7	2.77	4.6
Site 2	05	04	01	91	16.6	0.8	BDL	BDL	443.2	BDL	7.7	2.83	4.6
Site 2	10	04	01	91	16.4	0.6	BDL	BDL	448.9	BDL	10.9	2.49	4.6
Site 2	15	04	01	91	16.6	1.2	BDL	BDL	455.2	BDL	7.2	4.15	4.9
Site 2	20	04	01	91	16.6	0.9	BDL	BDL	459.0	BDL	6.7	3.18	4.6
Site 3	00	04	01	91	16.4	1.1	BDL	BDL	455.2	BDL	6.8	2.88	4.6
Site 3	05	04	01	91	16.5	1.0	BDL	BDL	454.0	BDL	6.4	2.10	4.5
Site 3	10	04	01	91	16.5	1.0	BDL	151.3	454.0	BDL	BDL	2.44	4.6
Site 3	15	04	01	91	*	*	*	*	*	*	*	2.54	*
Site 3	20	04	01	91	16.4	0.8	BDL	BDL	457.7	BDL	BDL	1.86	4.6
Site 3	40	04	01	91	16.4	1.2	BDL	BDL	465.3	BDL	BDL	*	4.4
Site 3	60	04	01	91	16.5	1.5	BDL	BDL	463.4	BDL	BDL	*	4.6
Site 3	80	04	01	91	16.6	1.8	6.5	BDL	460.9	BDL	BDL	*	4.6
Site 4	00	04	01	91	16.6	1.1	BDL	118.7	450.2	BDL	BDL	3.14	4.7
Site 4	05	04	01	91	16.5	1.0	BDL	BDL	450.2	BDL	BDL	2.82	4.7
Site 4	10	04	01	91	16.5	0.6	BDL	BDL	450.8	BDL	BDL	2.60	4.7
Site 4	15	04	01	91	*	*	*	*	*	*	*	2.63	*
Site 4	20	04	01	91	16.4	1.2	BDL	100.2	452.1	BDL	BDL	2.02	4.8
Site 4	40	04	01	91	16.4	1.2	BDL	BDL	464.1	BDL	BDL	*	4.4
Site 4	60	04	01	91	16.4	1.9	BDL	BDL	459.6	BDL	BDL	*	4.5
Site 4	80	04	01	91	16.4	1.1	BDL	BDL	453.3	BDL	BDL	*	4.6
Site 4	90	04	01	91	16.8	0.8	BDL	119.7	459.6	BDL	BDL	*	4.4
Gate	00	04	01	91	16.8	1.4	BDL	107.4	443.8	BDL	BDL	*	4.7

Lake Whatcom Monitoring Program

Prepared January 9, 1993 by the Environmental Research and Education Center, Western Washington University, for the City of Bellingham, Department of Public Works.

*: missing. BDL: below detection limit.

Hydrolab and quality control data:

Site	Depth	Month	Day	Year	Temp	pH	Cond	DO	Secchi
Site 1	00	02	06	91	6.03	7.77	65	12.12	3.0
Site 1	01	02	06	91	5.98	7.76	65	12.14	*
Site 1	02	02	06	91	5.96	7.75	65	12.11	*
Site 1	03	02	06	91	5.94	7.75	67	12.14	*
Site 1	04	02	06	91	5.92	7.75	67	12.35	*
Site 1	05	02	06	91	5.90	7.71	70	12.12	*
Site 1	06	02	06	91	5.86	7.71	72	12.16	*
Site 1	07	02	06	91	5.85	7.69	72	12.16	*
Site 1	08	02	06	91	5.84	7.70	74	12.17	*
Site 1	09	02	06	91	5.84	7.71	74	12.11	*
Site 1	10	02	06	91	5.83	7.70	75	12.13	*
Site 1	11	02	06	91	5.81	7.69	76	12.14	*
Site 1	12	02	06	91	5.83	7.68	76	12.14	*
Site 1	13	02	06	91	5.78	7.69	77	12.15	*
Site 1	14	02	06	91	5.78	7.68	77	12.16	*
Site 1	15	02	06	91	5.80	7.66	77	12.15	*
Site 1	16	02	06	91	5.78	7.65	77	12.11	*
Site 1	17	02	06	91	5.77	7.64	78	12.11	*
Site 1	18	02	06	91	5.78	7.63	77	12.11	*
Site 1	19	02	06	91	5.77	7.64	77	12.11	*
Site 1	20	02	06	91	5.77	7.63	77	12.11	*

Hydrolab and quality control data (continued):

Site	Depth	Month	Day	Year	Temp	pH	Cond	DO	Secchi
Intake	00	02	06	91	6.16	7.77	68	12.08	3.3
Intake	01	02	06	91	6.15	7.73	67	12.00	*
Intake	02	02	06	91	6.13	7.74	68	11.95	*
Intake	03	02	06	91	6.12	7.71	68	11.96	*
Intake	04	02	06	91	6.12	7.70	70	11.96	*
Intake	05	02	06	91	6.12	7.71	71	11.87	*
Intake	06	02	06	91	6.08	7.70	72	11.88	*
Intake	07	02	06	91	6.04	7.67	72	11.86	*
Intake	08	02	06	91	6.03	7.68	73	11.82	*
Intake	09	02	06	91	6.00	7.66	73	11.82	*
Intake	10	02	06	91	6.01	7.66	74	11.82	*
Intake	11	02	06	91	5.98	7.65	76	11.79	*
Intake	12	02	06	91	5.97	7.66	76	11.79	*
Site 2	00	02	06	91	6.03	7.62	68	12.13	3.3
Site 2	01	02	06	91	6.03	7.60	68	11.97	*
Site 2	02	02	06	91	6.02	7.61	68	11.92	*
Site 2	03	02	06	91	6.00	7.59	68	11.88	*
Site 2	04	02	06	91	6.00	7.58	70	11.88	*
Site 2	05	02	06	91	6.00	7.60	71	11.88	*
Site 2	06	02	06	91	6.00	7.58	72	11.88	*
Site 2	07	02	06	91	6.00	7.58	73	11.89	*
Site 2	08	02	06	91	5.99	7.59	74	11.89	*
Site 2	09	02	06	91	5.96	7.58	74	11.86	*
Site 2	10	02	06	91	5.95	7.60	74	11.81	*
Site 2	11	02	06	91	5.94	7.61	75	11.81	*
Site 2	12	02	06	91	5.95	7.59	76	11.81	*
Site 2	13	02	06	91	5.95	7.58	75	11.81	*
Site 2	14	02	06	91	5.95	7.58	76	11.75	*
Site 2	15	02	06	91	5.92	7.58	76	11.71	*
Site 2	16	02	06	91	5.91	7.57	76	11.67	*
Site 2	17	02	06	91	5.90	7.56	78	11.67	*
Site 2	18	02	06	91	5.87	7.56	76	11.64	*
Site 2	19	02	06	91	5.84	7.52	77	11.55	*
Site 2	20	02	06	91	5.83	7.51	77	11.56	*

Hydrolab and quality control data (continued):

Site	Depth	Month	Day	Year	Temp	pH	Cond	DO	Secchi
Site 3	00	02	06	91	5.94	7.59	67	11.54	2.8
Site 3	01	02	06	91	5.93	7.57	66	11.49	*
Site 3	02	02	06	91	5.87	7.57	67	11.53	*
Site 3	03	02	06	91	5.80	7.54	67	11.54	*
Site 3	04	02	06	91	5.76	7.53	69	11.50	*
Site 3	05	02	06	91	5.75	7.52	69	11.50	*
Site 3	06	02	06	91	5.74	7.53	70	11.51	*
Site 3	07	02	06	91	5.74	7.52	71	11.52	*
Site 3	08	02	06	91	5.75	7.53	72	11.50	*
Site 3	09	02	06	91	5.72	7.53	73	11.52	*
Site 3	10	02	06	91	5.72	7.53	74	11.52	*
Site 3	11	02	06	91	5.73	7.52	74	11.52	*
Site 3	12	02	06	91	5.73	7.51	74	11.47	*
Site 3	13	02	06	91	5.72	7.51	74	11.47	*
Site 3	14	02	06	91	5.72	7.51	75	11.52	*
Site 3	15	02	06	91	5.72	7.51	75	11.47	*
Site 3	16	02	06	91	5.72	7.50	74	11.47	*
Site 3	17	02	06	91	5.71	7.48	75	11.47	*
Site 3	18	02	06	91	5.72	7.50	76	11.47	*
Site 3	19	02	06	91	5.72	7.49	76	11.47	*
Site 3	20	02	06	91	5.71	7.48	77	11.48	*
Site 3	25	02	06	91	5.71	7.49	76	11.48	*
Site 3	30	02	06	91	5.69	7.48	75	11.44	*
Site 3	35	02	06	91	5.66	7.47	76	11.39	*
Site 3	40	02	06	91	5.65	7.47	76	11.34	*
Site 3	45	02	06	91	5.63	7.46	76	11.37	*
Site 3	50	02	06	91	5.62	7.45	74	11.32	*
Site 3	55	02	06	91	5.61	7.46	73	11.32	*
Site 3	60	02	06	91	5.59	7.45	75	11.33	*
Site 3	65	02	06	91	5.58	7.45	73	11.29	*
Site 3	70	02	06	91	5.56	7.43	72	11.30	*
Site 3	75	02	06	91	5.55	7.46	72	11.25	*
Site 3	80	02	06	91	5.44	7.44	72	11.04	*

Hydrolab and quality control data (continued):

Site	Depth	Month	Day	Year	Temp	pH	Cond	DO	Secchi
Site 4	00	02	06	91	5.67	7.94	67	11.73	3.5
Site 4	01	02	06	91	5.65	7.80	67	11.47	*
Site 4	02	02	06	91	5.63	7.76	67	11.47	*
Site 4	03	02	06	91	5.62	7.72	67	11.42	*
Site 4	04	02	06	91	5.63	7.67	69	11.43	*
Site 4	05	02	06	91	5.62	7.62	71	11.43	*
Site 4	06	02	06	91	5.61	7.62	71	11.38	*
Site 4	07	02	06	91	5.61	7.61	72	11.38	*
Site 4	08	02	06	91	5.61	7.60	72	11.38	*
Site 4	09	02	06	91	5.61	7.56	74	11.38	*
Site 4	10	02	06	91	5.61	7.55	74	11.38	*
Site 4	11	02	06	91	5.60	7.58	74	11.39	*
Site 4	12	02	06	91	5.59	7.55	76	11.39	*
Site 4	13	02	06	91	5.59	7.56	76	11.39	*
Site 4	14	02	06	91	5.59	7.55	76	11.39	*
Site 4	15	02	06	91	5.59	7.53	77	11.39	*
Site 4	16	02	06	91	5.59	7.53	77	11.39	*
Site 4	17	02	06	91	5.59	7.53	77	11.39	*
Site 4	18	02	06	91	5.59	7.54	77	11.39	*
Site 4	19	02	06	91	5.59	7.50	77	11.39	*
Site 4	20	02	06	91	5.58	7.52	78	11.39	*
Site 4	25	02	06	91	5.59	7.49	78	11.34	*
Site 4	30	02	06	91	5.59	7.47	77	11.33	*
Site 4	35	02	06	91	5.59	7.50	76	11.33	*
Site 4	40	02	06	91	5.59	7.47	75	11.34	*
Site 4	45	02	06	91	5.59	7.47	75	11.28	*
Site 4	50	02	06	91	5.59	7.46	73	11.34	*
Site 4	55	02	06	91	5.59	7.45	72	11.29	*
Site 4	60	02	06	91	5.59	7.44	71	11.28	*
Site 4	65	02	06	91	5.59	7.43	72	11.28	*
Site 4	70	02	06	91	5.59	7.46	72	11.28	*
Site 4	75	02	06	91	5.59	7.44	70	11.22	*
Site 4	80	02	06	91	5.55	7.43	70	11.18	*
Site 4	85	02	06	91	5.54	7.43	70	11.15	*
Site 4	90	02	06	91	5.53	7.43	70	11.14	*
Gate	00	02	06	91	6.80	8.01	63	11.74	*

Laboratory data:

Site	Depth	Month	Day	Year	Alk	Turb	NH3	TKN	NO3	SRP	TP	ChlA	Silica
Site 1	00	02	06	91	17.8	2.2	10.9	BDL	464.7	*	*	3.20	4.4
Site 1	05	02	06	91	17.3	2.4	BDL	BDL	464.7	6.7	6.0	3.69	4.5
Site 1	10	02	06	91	17.6	2.4	BDL	BDL	469.1	5.8	7.4	3.40	4.5
Site 1	15	02	06	91	17.6	2.6	5.3	BDL	467.2	6.0	7.7	3.04	4.7
Site 1	20	02	06	91	17.3	2.3	BDL	BDL	469.1	5.6	8.7	3.49	4.7
Intake	00	02	06	91	17.3	2.5	BDL	172.8	466.0	5.3	12.6	2.79	4.7
Intake	05	02	06	91	17.4	2.2	BDL	106.3	469.1	BDL	8.9	1.57	4.5
Intake	10	02	06	91	17.2	2.1	BDL	BDL	469.1	BDL	5.8	1.52	4.6
Site 2	00	02	06	91	17.1	2.2	BDL	BDL	469.1	BDL	6.7	2.05	4.6
Site 2	05	02	06	91	17.2	2.6	10.6	106.3	469.1	BDL	5.5	2.50	4.7
Site 2	10	02	06	91	17.2	2.3	BDL	BDL	469.1	BDL	9.0	1.97	4.6
Site 2	15	02	06	91	16.8	2.2	BDL	BDL	467.8	BDL	6.7	1.61	4.1
Site 2	20	02	06	91	17.0	2.1	BDL	BDL	470.4	BDL	5.9	0.74	4.3
Site 3	00	02	06	91	16.5	2.1	BDL	BDL	471.0	BDL	7.7	1.14	3.7
Site 3	05	02	06	91	16.6	2.3	BDL	BDL	469.7	BDL	5.9	1.15	4.4
Site 3	10	02	06	91	16.6	2.1	BDL	BDL	469.1	BDL	6.4	1.10	4.1
Site 3	15	02	06	91	*	*	*	*	*	*	*	1.01	*
Site 3	20	02	06	91	16.5	2.8	BDL	BDL	467.2	BDL	15.0	1.09	4.2
Site 3	40	02	06	91	16.9	2.5	BDL	BDL	464.1	BDL	7.7	*	4.4
Site 3	60	02	06	91	16.6	2.6	BDL	BDL	464.1	BDL	6.6	*	4.2
Site 3	80	02	06	91	16.8	2.2	BDL	BDL	469.1	BDL	6.7	*	4.4
Site 4	00	02	06	91	16.4	1.9	BDL	BDL	469.1	BDL	6.5	0.87	4.1
Site 4	05	02	06	91	16.5	2.2	BDL	BDL	464.1	BDL	6.5	0.75	3.9
Site 4	10	02	06	91	16.6	2.2	BDL	BDL	464.7	BDL	6.3	0.76	3.8
Site 4	15	02	06	91	*	*	*	*	*	*	*	0.73	*
Site 4	20	02	06	91	17.0	2.1	BDL	BDL	466.0	BDL	6.0	0.87	4.4
Site 4	40	02	06	91	16.8	2.4	BDL	BDL	463.5	BDL	6.0	*	4.1
Site 4	60	02	06	91	16.4	2.7	BDL	BDL	464.1	BDL	6.7	*	4.1
Site 4	80	02	06	91	16.6	2.3	BDL	BDL	464.7	BDL	6.6	*	3.5
Site 4	90	02	06	91	16.8	2.8	BDL	BDL	463.5	BDL	9.2	*	3.9
Gate	00	02	06	91	16.6	3.2	BDL	126.8	463.5	6.8	6.8	*	3.9

Lake Whatcom Monitoring Program

Prepared January 9, 1993 by the Environmental Research and Education Center, Western Washington University, for the City of Bellingham, Department of Public Works.

*: missing. BDL: below detection limit.

Hydrolab and quality control data:

Site	Depth	Month	Day	Year	Temp	pH	Cond	DO	Secchi
Site 1	00	12	10	90	7.50	7.25	67	11.23	1.9
Site 1	01	12	10	90	7.51	7.28	69	11.22	*
Site 1	02	12	10	90	7.51	7.26	69	11.22	*
Site 1	03	12	10	90	7.51	7.21	70	11.22	*
Site 1	04	12	10	90	7.51	7.15	70	11.21	*
Site 1	05	12	10	90	7.51	7.11	68	11.22	*
Site 1	06	12	10	90	7.52	7.07	68	11.21	*
Site 1	07	12	10	90	7.52	7.11	68	11.21	*
Site 1	08	12	10	90	7.53	7.16	68	11.20	*
Site 1	09	12	10	90	7.53	7.09	67	11.20	*
Site 1	10	12	10	90	7.54	7.06	67	11.20	*
Site 1	11	12	10	90	7.54	7.13	67	11.20	*
Site 1	12	12	10	90	7.54	7.09	66	11.20	*
Site 1	13	12	10	90	7.54	7.06	67	11.20	*
Site 1	14	12	10	90	7.55	6.98	66	11.19	*
Site 1	15	12	10	90	7.55	6.98	66	11.18	*
Site 1	16	12	10	90	7.57	6.95	66	11.18	*
Site 1	17	12	10	90	7.57	6.94	65	11.13	*
Site 1	18	12	10	90	7.58	6.93	65	11.11	*
Site 1	19	12	10	90	7.58	6.92	65	11.11	*
Site 1	20	12	10	90	7.64	6.88	65	11.08	*

Hydrolab and quality control data (continued):

Site	Depth	Month	Day	Year	Temp	pH	Cond	DO	Secchi
Intake	00	12	10	90	7.82	7.45	65	11.16	1.5
Intake	01	12	10	90	7.83	7.38	64	11.05	*
Intake	02	12	10	90	7.83	7.33	65	11.00	*
Intake	03	12	10	90	7.83	7.33	67	11.00	*
Intake	04	12	10	90	7.83	7.33	66	11.00	*
Intake	05	12	10	90	7.84	7.29	66	10.95	*
Intake	06	12	10	90	7.83	7.27	66	10.95	*
Intake	07	12	10	90	7.82	7.23	67	10.96	*
Intake	08	12	10	90	7.82	7.25	67	10.96	*
Intake	09	12	10	90	7.83	7.25	66	10.96	*
Intake	10	12	10	90	7.83	7.23	67	10.96	*
Intake	11	12	10	90	7.81	7.21	67	10.91	*
Intake	12	12	10	90	7.82	7.21	67	10.91	*
Intake	13	12	10	90	7.82	7.20	68	10.92	*
Intake	14	12	10	90	7.81	7.21	68	10.92	*
Site 2	00	12	10	90	7.82	7.64	67	10.96	1.7
Site 2	01	12	10	90	7.82	7.56	66	10.86	*
Site 2	02	12	10	90	7.84	7.49	67	10.85	*
Site 2	03	12	10	90	7.84	7.44	65	10.85	*
Site 2	04	12	10	90	7.83	7.41	67	10.85	*
Site 2	05	12	10	90	7.82	7.35	66	10.86	*
Site 2	06	12	10	90	7.82	7.35	65	10.86	*
Site 2	07	12	10	90	7.83	7.33	65	10.85	*
Site 2	08	12	10	90	7.83	7.28	66	10.85	*
Site 2	09	12	10	90	7.83	7.28	66	10.85	*
Site 2	10	12	10	90	7.83	7.28	66	10.85	*
Site 2	11	12	10	90	7.83	7.26	66	10.85	*
Site 2	12	12	10	90	7.83	7.24	66	10.85	*
Site 2	13	12	10	90	7.83	7.24	67	10.90	*
Site 2	14	12	10	90	7.82	7.22	67	10.91	*
Site 2	15	12	10	90	7.82	7.19	67	10.91	*
Site 2	16	12	10	90	7.82	7.20	67	10.91	*
Site 2	17	12	10	90	7.82	7.22	67	10.91	*
Site 2	18	12	10	90	7.82	7.20	67	10.91	*
Site 2	19	12	10	90	7.82	7.21	67	10.91	*
Site 2	20	12	10	90	7.83	7.17	67	10.90	*

Hydrolab and quality control data (continued):

Site	Depth	Month	Day	Year	Temp	pH	Cond	DO	Secchi
Site 3	00	12	10	90	7.82	7.43	67	10.76	1.6
Site 3	01	12	10	90	7.85	7.33	67	10.70	*
Site 3	02	12	10	90	7.85	7.24	68	10.70	*
Site 3	03	12	10	90	7.84	7.19	68	10.70	*
Site 3	04	12	10	90	7.82	7.14	67	10.66	*
Site 3	05	12	10	90	7.83	7.15	67	10.61	*
Site 3	06	12	10	90	7.82	7.11	67	10.62	*
Site 3	07	12	10	90	7.82	7.09	67	10.62	*
Site 3	08	12	10	90	7.82	7.10	67	10.56	*
Site 3	09	12	10	90	7.82	7.10	67	10.61	*
Site 3	10	12	10	90	7.83	7.10	67	10.61	*
Site 3	11	12	10	90	7.83	7.08	67	10.61	*
Site 3	12	12	10	90	7.83	7.08	67	10.56	*
Site 3	13	12	10	90	7.83	7.07	66	10.51	*
Site 3	14	12	10	90	7.82	7.07	66	10.42	*
Site 3	15	12	10	90	7.81	7.07	66	10.42	*
Site 3	16	12	10	90	7.80	7.07	66	10.39	*
Site 3	17	12	10	90	7.79	7.04	67	10.34	*
Site 3	18	12	10	90	7.77	7.03	67	10.30	*
Site 3	19	12	10	90	7.76	7.03	66	10.31	*
Site 3	20	12	10	90	7.74	7.03	66	10.32	*
Site 3	25	12	10	90	7.70	7.03	67	10.20	*
Site 3	30	12	10	90	7.64	7.00	67	10.05	*
Site 3	35	12	10	90	7.51	7.00	66	9.87	*
Site 3	40	12	10	90	7.40	7.00	66	9.69	*
Site 3	45	12	10	90	7.30	6.97	65	9.59	*
Site 3	50	12	10	90	7.25	6.97	65	9.47	*
Site 3	55	12	10	90	7.10	6.94	65	9.31	*
Site 3	60	12	10	90	7.00	6.93	66	9.20	*
Site 3	65	12	10	90	6.89	6.92	65	9.11	*
Site 3	70	12	10	90	6.79	6.91	66	8.90	*
Site 3	75	12	10	90	6.74	6.89	65	8.78	*
Site 3	80	12	10	90	6.68	6.89	65	8.65	*

Hydrolab and quality control data (continued):

Site	Depth	Month	Day	Year	Temp	pH	Cond	DO	Secchi
Site 4	00	12	10	90	7.70	7.08	67	10.65	1.4
Site 4	01	12	10	90	7.71	7.07	67	10.63	*
Site 4	02	12	10	90	7.72	7.09	66	10.59	*
Site 4	03	12	10	90	7.71	7.06	65	10.59	*
Site 4	04	12	10	90	7.72	7.05	65	10.53	*
Site 4	05	12	10	90	7.73	7.03	65	10.53	*
Site 4	06	12	10	90	7.73	7.00	64	10.53	*
Site 4	07	12	10	90	7.73	7.01	65	10.53	*
Site 4	08	12	10	90	7.73	6.99	65	10.53	*
Site 4	09	12	10	90	7.73	6.99	64	10.52	*
Site 4	10	12	10	90	7.74	6.98	65	10.52	*
Site 4	11	12	10	90	7.74	6.98	65	10.52	*
Site 4	12	12	10	90	7.74	6.98	64	10.52	*
Site 4	13	12	10	90	7.74	6.98	65	10.52	*
Site 4	14	12	10	90	7.74	6.99	65	10.52	*
Site 4	15	12	10	90	7.74	6.99	64	10.47	*
Site 4	16	12	10	90	7.74	7.03	66	10.47	*
Site 4	17	12	10	90	7.74	7.03	66	10.47	*
Site 4	18	12	10	90	7.73	7.02	65	10.47	*
Site 4	19	12	10	90	7.73	7.03	65	10.43	*
Site 4	20	12	10	90	7.73	7.04	64	10.43	*
Site 4	25	12	10	90	7.70	7.02	65	10.39	*
Site 4	30	12	10	90	7.67	7.00	63	10.27	*
Site 4	35	12	10	90	7.58	6.98	63	10.12	*
Site 4	40	12	10	90	7.55	6.97	62	10.14	*
Site 4	45	12	10	90	7.50	6.96	63	9.93	*
Site 4	50	12	10	90	7.46	6.98	62	9.85	*
Site 4	55	12	10	90	7.41	6.97	63	9.73	*
Site 4	60	12	10	90	7.28	6.95	62	9.61	*
Site 4	65	12	10	90	7.20	6.93	62	9.50	*
Site 4	70	12	10	90	7.10	6.92	62	9.36	*
Site 4	75	12	10	90	6.95	6.92	61	9.18	*
Site 4	80	12	10	90	6.91	6.90	61	9.15	*
Site 4	85	12	10	90	6.89	6.90	61	9.11	*
Site 4	90	12	10	90	6.88	6.91	60	9.07	*
Gate	00	12	10	90	8.46	6.62	56	11.01	*

Laboratory data:

Site	Depth	Month	Day	Year	Alk	Turb	NH3	TKN	NO3	SRP	TP	ChlA	Silica
Site 1	00	12	10	90	17.8	3.5	25.0	134.1	407.7	BDL	6.4	4.50	4.4
Site 1	05	12	10	90	17.9	2.4	15.8	122.2	404.0	BDL	6.3	3.18	4.6
Site 1	10	12	10	90	18.0	3.8	13.7	268.6	410.1	BDL	7.8	3.18	4.6
Site 1	15	12	10	90	17.7	4.1	10.1	132.2	409.5	BDL	7.3	3.44	4.5
Site 1	20	12	10	90	17.8	8.0	13.0	180.7	418.8	BDL	14.2	3.69	4.7
Intake	00	12	10	90	17.0	4.9	8.1	146.9	432.4	BDL	5.7	2.45	4.4
Intake	05	12	10	90	17.1	5.6	9.4	100.2	428.7	BDL	5.3	1.93	4.4
Intake	10	12	10	90	17.4	4.8	9.4	BDL	428.7	BDL	6.1	2.43	4.4
Site 2	00	12	10	90	17.2	5.1	5.8	BDL	435.5	BDL	5.4	2.45	4.4
Site 2	05	12	10	90	17.2	5.1	10.3	116.7	434.2	BDL	6.1	2.04	4.4
Site 2	10	12	10	90	17.2	5.2	14.6	BDL	434.2	BDL	5.4	2.22	4.4
Site 2	15	12	10	90	17.4	5.2	17.8	BDL	431.8	BDL	6.0	1.81	4.4
Site 2	20	12	10	90	17.0	5.2	12.3	104.8	434.2	BDL	5.4	2.38	4.5
Site 3	00	12	10	90	17.6	5.6	12.5	BDL	440.4	BDL	BDL	2.29	4.5
Site 3	05	12	10	90	17.4	5.7	9.8	100.2	440.4	BDL	6.7	1.83	4.4
Site 3	10	12	10	90	17.0	5.6	7.1	BDL	440.4	BDL	11.5	1.56	4.5
Site 3	15	12	10	90	*	*	*	*	*	*	*	1.56	*
Site 3	20	12	10	90	16.9	5.6	6.7	BDL	440.4	BDL	7.9	1.35	4.4
Site 3	40	12	10	90	17.6	6.0	5.1	BDL	447.2	BDL	7.3	*	4.3
Site 3	60	12	10	90	17.4	5.2	9.5	BDL	442.9	BDL	BDL	*	4.4
Site 3	70	12	10	90	*	*	*	*	*	*	*	*	*
Site 3	80	12	10	90	17.9	4.6	7.1	*	441.7	BDL	BDL	*	4.4
Site 4	00	12	10	90	17.3	5.7	5.7	179.8	441.7	BDL	BDL	1.66	4.4
Site 4	05	12	10	90	17.6	6.2	8.4	107.5	442.3	BDL	5.3	1.21	4.4
Site 4	10	12	10	90	17.4	5.8	12.9	BDL	442.3	BDL	5.8	1.56	4.4
Site 4	15	12	10	90	*	*	*	*	*	*	*	1.52	*
Site 4	20	12	10	90	17.6	6.0	8.0	BDL	446.6	BDL	5.4	1.57	4.4
Site 4	40	12	10	90	17.1	6.4	9.0	BDL	447.8	BDL	9.2	*	4.3
Site 4	60	12	10	90	17.4	5.6	7.6	BDL	446.0	BDL	BDL	*	4.4
Site 4	80	12	10	90	17.4	5.3	6.2	BDL	446.6	BDL	BDL	*	4.3
Site 4	90	12	10	90	18.0	5.4	BDL	BDL	446.6	BDL	6.9	*	4.3
Gate	00	12	10	90	17.0	5.4	5.7	109.7	489.3	BDL	5.1	*	4.5

Lake Whatcom Monitoring Program

Prepared January 9, 1993 by the Environmental Research and Education Center,
Western Washington University, for the City of Bellingham, Department of Public Works.

*: missing. BDL: below detection limit.

Hydrolab and quality control data:

Site	Depth	Month	Day	Year	Temp	pH	Cond	DO	Secchi
Site 1	00	11	05	90	11.17	7.47	69	9.83	4.7
Site 1	01	11	05	90	11.17	7.49	63	9.83	*
Site 1	02	11	05	90	11.16	7.53	68	9.83	*
Site 1	03	11	05	90	11.16	7.48	69	9.80	*
Site 1	04	11	05	90	11.16	7.51	69	9.80	*
Site 1	05	11	05	90	11.16	7.51	72	9.80	*
Site 1	06	11	05	90	11.16	7.51	72	9.80	*
Site 1	07	11	05	90	11.16	7.52	73	9.80	*
Site 1	08	11	05	90	11.16	7.53	73	9.80	*
Site 1	09	11	05	90	11.16	7.53	74	9.80	*
Site 1	10	11	05	90	11.16	7.55	73	9.75	*
Site 1	11	11	05	90	11.16	7.53	75	9.79	*
Site 1	12	11	05	90	11.16	7.53	75	9.79	*
Site 1	13	11	05	90	11.17	7.57	75	9.79	*
Site 1	14	11	05	90	11.17	7.57	74	9.79	*
Site 1	15	11	05	90	11.17	7.54	74	9.75	*
Site 1	16	11	05	90	11.19	7.58	75	9.75	*
Site 1	17	11	05	90	11.19	7.61	75	9.74	*
Site 1	18	11	05	90	11.20	7.64	74	9.73	*
Site 1	19	11	05	90	11.20	7.66	73	9.40	*

Hydrolab and quality control data (continued):

Site	Depth	Month	Day	Year	Temp	pH	Cond	DO	Secchi
Intake	00	11	05	90	11.50	7.76	61	10.13	5.7
Intake	01	11	05	90	11.54	7.76	62	10.08	*
Intake	02	11	05	90	11.60	7.71	64	10.04	*
Intake	03	11	05	90	11.58	7.66	64	10.02	*
Intake	04	11	05	90	11.55	7.66	64	9.95	*
Intake	05	11	05	90	11.54	7.61	65	9.93	*
Intake	06	11	05	90	11.53	7.54	65	9.90	*
Intake	07	11	05	90	11.52	7.47	66	9.85	*
Intake	08	11	05	90	11.52	7.47	66	9.86	*
Intake	09	11	05	90	11.53	7.42	66	9.85	*
Intake	10	11	05	90	11.51	7.42	67	9.83	*
Intake	11	11	05	90	11.49	7.38	67	9.84	*
Intake	12	11	05	90	11.49	7.39	67	9.80	*
Site 2	00	11	05	90	11.58	7.67	65	10.13	5.8
Site 2	01	11	05	90	11.58	7.63	63	10.09	*
Site 2	02	11	05	90	11.60	7.61	65	10.04	*
Site 2	03	11	05	90	11.61	7.52	65	10.04	*
Site 2	04	11	05	90	11.61	7.42	66	10.00	*
Site 2	05	11	05	90	11.56	7.44	66	9.95	*
Site 2	06	11	05	90	11.55	7.41	67	9.96	*
Site 2	07	11	05	90	11.55	7.40	67	9.96	*
Site 2	08	11	05	90	11.55	7.38	67	9.96	*
Site 2	09	11	05	90	11.55	7.38	68	9.92	*
Site 2	10	11	05	90	11.54	7.35	68	9.88	*
Site 2	11	11	05	90	11.54	7.36	68	9.92	*
Site 2	12	11	05	90	11.54	7.34	69	9.93	*
Site 2	13	11	05	90	11.54	7.36	69	9.93	*
Site 2	14	11	05	90	11.54	7.33	69	9.93	*
Site 2	15	11	05	90	11.54	7.32	69	9.92	*
Site 2	16	11	05	90	11.53	7.35	70	9.93	*
Site 2	17	11	05	90	11.54	7.33	70	9.93	*
Site 2	18	11	05	90	11.52	7.32	70	9.93	*
Site 2	19	11	05	90	11.52	7.31	70	9.94	*
Site 2	20	11	05	90	11.52	7.36	70	9.94	*

Hydrolab and quality control data (continued):

Site	Depth	Month	Day	Year	Temp	pH	Cond	DO	Secchi
Site 3	00	11	05	90	11.52	7.42	65	10.30	7.2
Site 3	01	11	05	90	11.56	7.38	67	10.19	*
Site 3	02	11	05	90	11.53	7.44	68	10.19	*
Site 3	03	11	05	90	11.55	7.45	70	10.14	*
Site 3	04	11	05	90	11.54	7.36	70	10.15	*
Site 3	05	11	05	90	11.51	7.37	72	10.17	*
Site 3	06	11	05	90	11.46	7.41	71	10.13	*
Site 3	07	11	05	90	11.44	7.32	73	10.10	*
Site 3	08	11	05	90	11.42	7.33	74	10.11	*
Site 3	09	11	05	90	11.41	7.28	74	10.08	*
Site 3	10	11	05	90	11.39	7.34	73	10.09	*
Site 3	11	11	05	90	11.38	7.34	74	10.06	*
Site 3	12	11	05	90	11.37	7.35	73	10.07	*
Site 3	13	11	05	90	11.36	7.32	73	10.07	*
Site 3	14	11	05	90	11.35	7.31	73	10.07	*
Site 3	15	11	05	90	11.35	7.32	73	10.08	*
Site 3	16	11	05	90	11.31	7.30	72	10.06	*
Site 3	17	11	05	90	11.20	7.29	72	9.77	*
Site 3	18	11	05	90	11.14	7.27	72	9.77	*
Site 3	19	11	05	90	10.92	7.30	71	9.62	*
Site 3	20	11	05	90	10.78	7.22	72	9.63	*
Site 3	25	11	05	90	9.31	7.09	71	9.33	*
Site 3	30	11	05	90	7.16	7.20	71	9.16	*
Site 3	35	11	05	90	6.78	7.30	71	9.18	*
Site 3	40	11	05	90	6.67	7.28	71	9.20	*
Site 3	45	11	05	90	6.49	7.26	70	9.20	*
Site 3	50	11	05	90	6.34	7.29	69	9.04	*
Site 3	55	11	05	90	6.26	7.34	70	8.81	*
Site 3	60	11	05	90	6.25	7.34	69	8.71	*
Site 3	65	11	05	90	6.25	7.28	69	8.61	*
Site 3	70	11	05	90	6.25	7.28	68	8.50	*
Site 3	75	11	05	90	6.29	7.31	68	8.48	*
Site 3	80	11	05	90	6.34	7.38	68	8.41	*

Hydrolab and quality control data (continued):

Site	Depth	Month	Day	Year	Temp	pH	Cond	DO	Secchi
Site 4	00	11	05	90	11.33	7.26	66	10.07	6.2
Site 4	01	11	05	90	11.32	7.32	67	10.01	*
Site 4	02	11	05	90	11.31	7.38	69	10.02	*
Site 4	03	11	05	90	11.29	7.39	70	10.03	*
Site 4	04	11	05	90	11.29	7.36	71	10.03	*
Site 4	05	11	05	90	11.28	7.37	71	10.04	*
Site 4	06	11	05	90	11.26	7.32	72	10.01	*
Site 4	07	11	05	90	11.26	7.33	73	10.01	*
Site 4	08	11	05	90	11.25	7.36	74	10.02	*
Site 4	09	11	05	90	11.25	7.36	73	10.02	*
Site 4	10	11	05	90	11.25	7.28	73	10.03	*
Site 4	11	11	05	90	11.22	7.30	74	10.04	*
Site 4	12	11	05	90	11.23	7.36	74	10.04	*
Site 4	13	11	05	90	11.21	7.28	73	10.04	*
Site 4	14	11	05	90	11.20	7.28	72	10.05	*
Site 4	15	11	05	90	11.18	7.30	74	10.07	*
Site 4	16	11	05	90	11.14	7.22	73	10.02	*
Site 4	17	11	05	90	11.12	7.27	72	10.06	*
Site 4	18	11	05	90	11.10	7.27	73	10.07	*
Site 4	19	11	05	90	11.07	7.27	72	10.07	*
Site 4	20	11	05	90	11.04	7.19	71	9.98	*
Site 4	25	11	05	90	8.86	7.19	71	9.34	*
Site 4	30	11	05	90	6.91	7.12	71	9.26	*
Site 4	35	11	05	90	6.52	7.15	69	9.35	*
Site 4	40	11	05	90	6.43	7.21	70	9.40	*
Site 4	45	11	05	90	6.37	7.22	69	9.32	*
Site 4	50	11	05	90	6.32	7.25	69	9.51	*
Site 4	55	11	05	90	6.29	7.21	69	9.48	*
Site 4	60	11	05	90	6.28	7.30	69	9.38	*
Site 4	65	11	05	90	6.28	7.26	68	9.37	*
Site 4	70	11	05	90	6.25	7.30	67	9.44	*
Site 4	75	11	05	90	6.25	7.29	67	9.45	*
Site 4	80	11	05	90	6.24	7.33	67	9.50	*
Site 4	85	11	05	90	6.24	7.31	67	9.19	*
Site 4	90	11	05	90	6.26	7.34	67	9.02	*
Gate	00	11	05	90	12.21	7.51	59	9.62	*

Laboratory data:

Site	Depth	Month	Day	Year	Alk	Turb	NH3	TKN	NO3	SRP	TP	ChlA	Silica
Site 1	00	11	05	90	21.2	0.96	12.9	122.9	150.2	5.4	16.7	7.80	4.4
Site 1	05	11	05	90	22.0	1.09	10.1	145.5	154.8	BDL	13.7	9.34	4.5
Site 1	10	11	05	90	20.2	0.92	8.6	147.7	154.8	BDL	10.1	8.55	4.4
Site 1	15	11	05	90	19.9	0.99	9.4	160.5	153.1	BDL	10.1	7.87	4.5
Site 1	20	11	05	90	20.0	2.1	13.0	171.6	154.8	BDL	11.0	6.65	4.5
Intake	00	11	05	90	19.2	0.58	7.6	101.8	257.1	BDL	BDL	5.20	4.4
Intake	05	11	05	90	18.0	0.68	6.7	BDL	258.2	BDL	BDL	5.32	4.5
Intake	10	11	05	90	19.1	0.59	6.4	128.4	250.9	BDL	6.6	4.24	4.6
Site 2	00	11	05	90	19.2	0.59	BDL	BDL	261.6	BDL	5.5	4.87	4.4
Site 2	05	11	05	90	18.7	0.58	BDL	BDL	266.7	BDL	BDL	5.25	4.3
Site 2	10	11	05	90	18.4	0.56	BDL	103.3	280.8	BDL	BDL	4.14	4.7
Site 2	15	11	05	90	20.8	0.53	BDL	144.6	280.3	BDL	5.5	3.69	4.1
Site 2	20	11	05	90	20.5	0.60	BDL	BDL	283.1	BDL	BDL	4.12	4.4
Site 3	00	11	05	90	20.2	0.45	BDL	BDL	295.3	BDL	6.5	4.09	4.2
Site 3	05	11	05	90	20.4	0.40	BDL	BDL	296.6	BDL	BDL	4.77	3.9
Site 3	10	11	05	90	20.4	0.45	BDL	BDL	300.5	BDL	BDL	5.49	4.3
Site 3	15	11	05	90	*	*	*	*	*	*	*	3.46	*
Site 3	20	11	05	90	20.4	0.42	BDL	BDL	335.9	BDL	BDL	1.88	4.6
Site 3	40	11	05	90	19.8	0.30	BDL	BDL	434.4	BDL	BDL	*	4.8
Site 3	60	11	05	90	18.3	0.40	BDL	BDL	424.1	BDL	7.4	*	3.9
Site 3	80	11	05	90	20.3	0.55	BDL	104.3	421.5	BDL	BDL	*	3.2
Site 4	00	11	05	90	20.8	0.52	BDL	BDL	306.3	BDL	6.8	4.04	4.5
Site 4	05	11	05	90	20.6	0.53	BDL	BDL	302.4	BDL	6.4	4.57	4.5
Site 4	10	11	05	90	18.4	0.51	BDL	BDL	301.8	BDL	BDL	4.81	4.3
Site 4	15	11	05	90	*	*	*	*	*	*	*	4.34	*
Site 4	20	11	05	90	18.3	0.75	BDL	BDL	351.3	BDL	BDL	1.86	4.0
Site 4	40	11	05	90	18.5	0.31	BDL	BDL	437.0	BDL	BDL	*	4.1
Site 4	60	11	05	90	18.2	0.55	BDL	179.5	307.6	BDL	5.2	*	4.3
Site 4	80	11	05	90	18.2	0.35	BDL	122.4	431.2	BDL	BDL	*	4.6
Site 4	90	11	05	90	18.4	0.61	BDL	BDL	424.7	BDL	BDL	*	4.5
Gate	00	11	05	90	19.4	0.66	BDL	141.6	256.7	BDL	6.7	*	4.6

Lake Whatcom Monitoring Program

Prepared January 9, 1993 by the Environmental Research and Education Center, Western Washington University, for the City of Bellingham, Department of Public Works.

*: missing. BDL: below detection limit.

Hydrolab and quality control data:

Site	Depth	Month	Day	Year	Temp	pH	Cond	DO	Secchi
Site 1	00	10	01	90	18.41	7.28	69	9.47	4.3
Site 1	01	10	01	90	18.41	7.23	69	9.44	*
Site 1	02	10	01	90	18.40	7.16	71	9.44	*
Site 1	03	10	01	90	18.39	7.11	72	9.42	*
Site 1	04	10	01	90	18.38	7.06	72	9.46	*
Site 1	05	10	01	90	18.37	6.98	72	9.46	*
Site 1	06	10	01	90	18.35	6.93	72	9.44	*
Site 1	07	10	01	90	18.33	6.83	73	9.39	*
Site 1	08	10	01	90	18.30	6.72	72	9.38	*
Site 1	09	10	01	90	18.22	6.59	73	9.23	*
Site 1	10	10	01	90	15.00	6.37	76	2.33	*
Site 1	11	10	01	90	11.58	6.44	80	0.20	*
Site 1	12	10	01	90	10.22	6.47	80	0.17	*
Site 1	13	10	01	90	9.88	6.31	80	0.18	*
Site 1	14	10	01	90	9.45	6.49	80	0.18	*
Site 1	15	10	01	90	9.34	6.45	80	0.23	*
Site 1	16	10	01	90	9.23	6.46	76	0.23	*
Site 1	17	10	01	90	9.21	6.45	77	0.23	*
Site 1	18	10	01	90	9.22	6.56	79	0.32	*
Site 1	19	10	01	90	9.12	6.50	79	0.18	*
Site 1	20	10	01	90	9.25	6.49	78	0.23	*

Hydrolab and quality control data (continued):

Site	Depth	Month	Day	Year	Temp	pH	Cond	DO	Secchi
Intake	00	10	01	90	18.35	7.48	63	9.63	5.8
Intake	01	10	01	90	18.39	7.44	63	9.56	*
Intake	02	10	01	90	18.41	7.46	64	9.53	*
Intake	03	10	01	90	18.42	7.46	64	9.53	*
Intake	04	10	01	90	18.42	7.51	65	9.52	*
Intake	05	10	01	90	18.44	7.51	65	9.52	*
Intake	06	10	01	90	18.44	7.47	65	9.49	*
Intake	07	10	01	90	18.44	7.50	66	9.48	*
Intake	08	10	01	90	18.41	7.53	65	9.44	*
Intake	09	10	01	90	18.36	7.47	67	9.41	*
Intake	10	10	01	90	18.34	7.52	66	9.45	*
Intake	11	10	01	90	18.32	7.52	66	9.46	*
Intake	12	10	01	90	18.20	7.45	66	8.58	*
Site 2	00	10	01	90	18.54	7.42	64	9.46	6.3
Site 2	01	10	01	90	18.54	7.36	64	9.46	*
Site 2	02	10	01	90	18.52	7.35	65	9.50	*
Site 2	03	10	01	90	18.51	7.35	67	9.50	*
Site 2	04	10	01	90	18.51	7.28	67	9.47	*
Site 2	05	10	01	90	18.50	7.24	67	9.49	*
Site 2	06	10	01	90	18.50	7.21	68	9.49	*
Site 2	07	10	01	90	18.47	7.12	68	9.50	*
Site 2	08	10	01	90	18.41	6.96	68	9.45	*
Site 2	09	10	01	90	18.40	6.91	68	9.46	*
Site 2	10	10	01	90	18.35	6.80	69	9.37	*
Site 2	11	10	01	90	18.06	6.71	69	9.06	*
Site 2	12	10	01	90	17.62	6.62	68	8.60	*
Site 2	13	10	01	90	16.03	6.57	69	6.48	*
Site 2	14	10	01	90	14.42	6.59	69	4.99	*
Site 2	15	10	01	90	12.80	6.57	69	2.61	*
Site 2	16	10	01	90	12.06	6.61	71	1.46	*
Site 2	17	10	01	90	12.01	6.72	72	1.15	*
Site 2	18	10	01	90	11.68	6.75	72	0.44	*

Hydrolab and quality control data (continued):

Site	Depth	Month	Day	Year	Temp	pH	Cond	DO	Secchi
Site 3	00	10	01	90	18.29	6.64	64	9.60	6.7
Site 3	01	10	01	90	18.38	6.75	65	9.51	*
Site 3	02	10	01	90	18.39	6.82	65	9.50	*
Site 3	03	10	01	90	18.39	6.85	64	9.47	*
Site 3	04	10	01	90	18.40	6.93	65	9.47	*
Site 3	05	10	01	90	18.41	6.98	65	9.41	*
Site 3	06	10	01	90	18.40	7.01	65	9.44	*
Site 3	07	10	01	90	18.38	7.06	66	9.43	*
Site 3	08	10	01	90	18.38	7.11	65	9.43	*
Site 3	09	10	01	90	18.36	7.10	66	9.41	*
Site 3	10	10	01	90	18.37	7.12	65	9.41	*
Site 3	11	10	01	90	18.36	7.13	67	9.38	*
Site 3	12	10	01	90	18.32	7.16	66	9.37	*
Site 3	13	10	01	90	17.14	7.10	67	8.75	*
Site 3	14	10	01	90	16.37	7.00	67	8.59	*
Site 3	15	10	01	90	15.58	6.97	67	8.45	*
Site 3	16	10	01	90	15.14	6.97	68	8.49	*
Site 3	17	10	01	90	13.91	6.98	68	8.42	*
Site 3	18	10	01	90	12.74	7.00	68	8.44	*
Site 3	19	10	01	90	11.34	7.06	68	8.61	*
Site 3	20	10	01	90	10.38	7.10	69	8.76	*
Site 3	25	10	01	90	8.11	7.17	69	9.14	*
Site 3	30	10	01	90	7.13	7.17	69	9.40	*
Site 3	35	10	01	90	6.80	7.19	70	9.52	*
Site 3	40	10	01	90	6.62	7.17	69	9.71	*
Site 3	45	10	01	90	6.45	7.11	70	9.79	*
Site 3	50	10	01	90	6.40	7.09	69	9.73	*
Site 3	55	10	01	90	6.34	7.05	67	9.65	*
Site 3	60	10	01	90	6.31	7.00	68	9.57	*
Site 3	65	10	01	90	6.25	6.95	68	9.55	*
Site 3	70	10	01	90	6.19	6.94	67	9.63	*
Site 3	75	10	01	90	6.17	6.92	67	9.48	*
Site 3	80	10	01	90	6.22	6.77	79	3.39	*

Hydrolab and quality control data (continued):

Site	Depth	Month	Day	Year	Temp	pH	Cond	DO	Secchi
Site 4	00	10	01	90	18.08	6.53	68	9.70	6.0
Site 4	01	10	01	90	18.20	6.63	67	9.52	*
Site 4	02	10	01	90	18.21	6.70	67	9.47	*
Site 4	03	10	01	90	18.25	6.77	67	9.46	*
Site 4	04	10	01	90	18.26	6.85	67	9.45	*
Site 4	05	10	01	90	18.26	6.89	68	9.51	*
Site 4	06	10	01	90	18.31	7.07	68	9.47	*
Site 4	07	10	01	90	18.30	7.04	69	9.44	*
Site 4	08	10	01	90	18.30	7.07	69	9.43	*
Site 4	09	10	01	90	18.32	7.17	68	9.41	*
Site 4	10	10	01	90	18.30	7.15	69	9.38	*
Site 4	11	10	01	90	18.30	7.17	69	9.36	*
Site 4	12	10	01	90	18.28	7.18	69	9.37	*
Site 4	13	10	01	90	17.26	7.19	69	8.84	*
Site 4	14	10	01	90	16.00	7.16	69	8.58	*
Site 4	15	10	01	90	12.69	7.29	70	8.46	*
Site 4	16	10	01	90	11.99	7.29	69	8.62	*
Site 4	17	10	01	90	11.77	7.14	69	8.61	*
Site 4	18	10	01	90	10.64	7.16	70	8.63	*
Site 4	19	10	01	90	10.47	7.15	71	8.62	*
Site 4	20	10	01	90	9.82	7.15	70	8.78	*
Site 4	25	10	01	90	7.25	7.10	69	9.40	*
Site 4	30	10	01	90	6.62	7.11	68	9.71	*
Site 4	35	10	01	90	6.39	7.12	68	9.89	*
Site 4	40	10	01	90	6.31	7.13	69	9.89	*
Site 4	45	10	01	90	6.29	7.13	68	9.80	*
Site 4	50	10	01	90	6.28	7.10	66	9.86	*
Site 4	55	10	01	90	6.29	7.06	67	9.80	*
Site 4	60	10	01	90	6.29	7.02	68	9.74	*
Site 4	65	10	01	90	6.30	6.99	67	9.80	*
Site 4	70	10	01	90	6.34	6.97	66	9.72	*
Site 4	75	10	01	90	6.34	6.97	65	9.83	*
Site 4	80	10	01	90	6.34	7.00	68	9.82	*
Site 4	85	10	01	90	6.37	6.98	67	9.74	*
Site 4	90	10	01	90	6.39	7.01	66	9.50	*
Gate	00	10	01	90	18.41	6.30	66	9.36	*

Laboratory data:

Site	Depth	Month	Day	Year	Alk	Turb	NH3	TKN	NO3	SRP	TP	ChlA	Silica
Site 1	00	10	01	90	24.0	0.75	6.5	113.9	90.4	BDL	7.3	10.13	3.3
Site 1	05	10	01	90	21.0	0.60	7.1	138.8	89.2	BDL	13.0	5.78	3.6
Site 1	10	10	01	90	22.0	1.49	28.5	123.0	223.8	BDL	8.9	1.95	3.4
Site 1	15	10	01	90	22.4	2.21	26.9	116.2	237.6	BDL	8.0	1.47	2.5
Intake	00	10	01	90	19.6	0.54	BDL	104.9	181.3	BDL	7.0	4.04	3.1
Intake	05	10	01	90	19.6	0.56	BDL	152.4	184.3	BDL	6.0	3.52	3.9
Intake	10	10	01	90	20.0	0.49	BDL	112.4	177.1	BDL	BDL	3.49	3.9
Site 2	00	10	01	90	19.2	0.39	BDL	104.1	187.3	BDL	5.3	3.87	3.2
Site 2	05	10	01	90	19.2	0.45	BDL	101.9	187.3	BDL	BDL	4.14	3.4
Site 2	10	10	01	90	19.0	0.39	BDL	130.5	195.7	BDL	5.4	3.52	3.1
Site 2	15	10	01	90	18.9	0.49	5.3	BDL	372.8	BDL	5.3	1.54	1.4
Site 2	20	10	01	90	20.1	3.9	19.9	188.5	325.5	BDL	21.7	2.53	1.9
Site 3	00	10	01	90	19.0	0.35	29.0	BDL	212.4	BDL	6.0	3.23	3.9
Site 3	05	10	01	90	18.8	0.57	BDL	BDL	209.4	BDL	5.5	3.27	4.3
Site 3	10	10	01	90	18.6	0.74	32.3	BDL	235.8	BDL	BDL	2.12	3.0
Site 3	15	10	01	90	*	*	*	*	*	*	*	1.86	*
Site 3	20	10	01	90	17.9	0.37	15.3	BDL	459.6	BDL	BDL	0.88	2.3
Site 3	40	10	01	90	17.8	0.48	14.4	BDL	448.2	BDL	BDL	*	4.4
Site 3	60	10	01	90	18.2	0.59	10.5	BDL	435.6	BDL	BDL	*	3.3
Site 3	80	10	01	90	18.0	1.5	BDL	BDL	447.6	BDL	BDL	*	2.7
Site 4	00	10	10	90	18.0	0.54	18.6	BDL	219.6	BDL	5.1	5.35	4.3
Site 4	05	10	01	90	19.0	0.61	BDL	BDL	206.7	BDL	BDL	5.37	4.1
Site 4	10	10	01	90	18.9	0.60	12.4	BDL	213.4	BDL	BDL	3.03	4.2
Site 4	15	10	01	90	*	*	*	*	*	*	*	1.86	*
Site 4	20	10	01	90	18.6	0.73	14.4	BDL	307.1	BDL	BDL	1.80	3.0
Site 4	40	10	01	90	18.1	0.44	28.5	BDL	444.2	BDL	BDL	*	4.2
Site 4	60	10	01	90	18.2	0.62	BDL	BDL	447.3	BDL	BDL	*	3.4
Site 4	80	10	01	90	19.2	0.59	BDL	BDL	218.3	BDL	BDL	*	4.3
Site 4	90	10	01	90	18.4	0.35	7.0	BDL	446.7	BDL	BDL	*	4.1
Gate	00	10	01	90	19.4	0.54	11.8	BDL	204.2	BDL	6.7	*	4.1

Lake Whatcom Monitoring Program

Prepared January 9, 1993 by the Environmental Research and Education Center, Western Washington University, for the City of Bellingham, Department of Public Works.

*: missing. BDL: below detection limit.

Hydrolab and quality control data:

Site	Depth	Month	Day	Year	Temp	pH	Cond	DO	Secchi
Site 1	00	09	05	90	20.21	7.39	71	9.62	5.1
Site 1	01	09	05	90	20.11	7.38	70	9.63	*
Site 1	02	09	05	90	20.05	7.27	72	9.67	*
Site 1	03	09	05	90	20.02	7.18	72	9.64	*
Site 1	04	09	05	90	19.95	7.05	72	9.63	*
Site 1	05	09	05	90	19.80	6.93	72	9.59	*
Site 1	06	09	05	90	19.67	6.83	72	9.47	*
Site 1	07	09	05	90	19.33	6.70	72	9.18	*
Site 1	08	09	05	90	18.35	6.60	72	8.18	*
Site 1	09	09	05	90	16.05	6.51	73	6.18	*
Site 1	10	09	05	90	13.62	6.53	73	4.71	*
Site 1	11	09	05	90	11.16	6.55	75	2.21	*
Site 1	12	09	05	90	10.25	6.54	75	1.71	*
Site 1	13	09	05	90	9.85	6.54	76	1.11	*
Site 1	14	09	05	90	9.49	6.55	76	0.83	*
Site 1	15	09	05	90	9.27	6.56	76	0.84	*
Site 1	16	09	05	90	9.24	6.56	75	0.84	*
Site 1	17	09	05	90	9.24	6.58	75	0.84	*
Site 1	18	09	05	90	9.21	6.58	74	0.88	*
Site 1	19	09	05	90	9.29	6.61	74	0.92	*
Site 1	20	09	05	90	9.28	6.62	74	0.88	*
Site 1	21	09	05	90	9.38	6.66	74	0.78	*

Hydrolab and quality control data (continued):

Site	Depth	Month	Day	Year	Temp	pH	Cond	DO	Secchi
Intake	00	09	05	90	20.35	7.66	68	9.52	5.2
Intake	01	09	05	90	20.33	7.66	67	9.51	*
Intake	02	09	05	90	20.21	7.71	67	9.45	*
Intake	03	09	05	90	19.90	7.73	68	9.49	*
Intake	04	09	05	90	19.78	7.72	69	9.44	*
Intake	05	09	05	90	19.73	7.72	70	9.41	*
Intake	06	09	05	90	19.67	7.72	69	9.32	*
Intake	07	09	05	90	19.60	7.68	70	9.25	*
Intake	08	09	05	90	19.40	7.65	71	9.17	*
Intake	09	09	05	90	19.26	7.61	70	9.03	*
Intake	10	09	05	90	19.08	7.61	71	9.01	*
Intake	11	09	05	90	18.66	7.52	72	8.85	*
Intake	12	09	05	90	17.83	7.52	72	8.67	*
Site 2	00	09	05	90	20.18	7.37	67	9.55	6.0
Site 2	01	09	05	90	20.14	7.47	67	9.47	*
Site 2	02	09	05	90	20.12	7.52	68	9.48	*
Site 2	03	09	05	90	20.12	7.56	69	9.47	*
Site 2	04	09	05	90	20.14	7.60	69	9.44	*
Site 2	05	09	05	90	19.89	7.62	70	9.42	*
Site 2	06	09	05	90	19.73	7.67	70	9.38	*
Site 2	07	09	05	90	19.63	7.65	70	9.31	*
Site 2	08	09	05	90	19.59	7.64	71	9.28	*
Site 2	09	09	05	90	19.57	7.60	71	9.24	*
Site 2	10	09	05	90	19.48	7.58	71	9.14	*
Site 2	11	09	05	90	18.75	7.64	72	8.86	*
Site 2	12	09	05	90	16.69	7.59	72	8.54	*
Site 2	13	09	05	90	15.40	7.56	73	8.09	*
Site 2	14	09	05	90	14.06	7.48	74	6.87	*
Site 2	15	09	05	90	13.08	7.37	74	5.57	*
Site 2	16	09	05	90	12.22	7.30	75	3.48	*
Site 2	17	09	05	90	11.75	7.21	76	2.76	*
Site 2	18	09	05	90	11.38	7.14	75	1.91	*
Site 2	19	09	05	90	11.23	7.07	76	1.42	*
Site 2	20	09	05	90	11.07	7.00	77	0.83	*

Hydrolab and quality control data (continued):

Site	Depth	Month	Day	Year	Temp	pH	Cond	DO	Secchi
Site 3	00	09	05	90	20.75	7.11	69	9.43	6.4
Site 3	01	09	05	90	20.64	7.24	68	9.27	*
Site 3	02	09	05	90	20.26	7.39	68	9.42	*
Site 3	03	09	05	90	20.13	7.45	69	9.35	*
Site 3	04	09	05	90	20.08	7.49	69	9.33	*
Site 3	05	09	05	90	20.05	7.53	70	9.35	*
Site 3	06	09	05	90	20.00	7.54	71	9.32	*
Site 3	07	09	05	90	19.99	7.56	71	9.33	*
Site 3	08	09	05	90	19.95	7.57	70	9.28	*
Site 3	09	09	05	90	19.92	7.56	71	9.27	*
Site 3	10	09	05	90	19.87	7.57	71	9.18	*
Site 3	11	09	05	90	19.27	7.50	71	8.92	*
Site 3	12	09	05	90	17.98	7.47	72	8.91	*
Site 3	13	09	05	90	17.01	7.65	72	8.86	*
Site 3	14	09	05	90	15.48	7.62	73	8.89	*
Site 3	15	09	05	90	14.04	7.58	73	8.93	*
Site 3	16	09	05	90	12.97	7.54	73	8.99	*
Site 3	17	09	05	90	11.84	7.50	75	9.04	*
Site 3	18	09	05	90	11.01	7.43	73	9.10	*
Site 3	19	09	05	90	10.15	7.46	75	9.20	*
Site 3	20	09	05	90	9.10	7.41	75	9.23	*
Site 3	25	09	05	90	7.63	7.39	74	9.55	*
Site 3	30	09	05	90	7.01	7.37	74	9.72	*
Site 3	35	09	05	90	6.69	7.36	74	9.99	*
Site 3	40	09	05	90	6.53	7.34	74	10.09	*
Site 3	45	09	05	90	6.43	7.33	74	9.93	*
Site 3	50	09	05	90	6.37	7.30	73	9.96	*
Site 3	55	09	05	90	6.33	7.31	72	9.88	*
Site 3	60	09	05	90	6.28	7.27	71	9.86	*
Site 3	65	09	05	90	6.24	7.25	72	9.84	*
Site 3	70	09	05	90	6.21	7.20	71	9.75	*
Site 3	75	09	05	90	6.18	7.20	71	9.22	*
Site 3	80	09	05	90	6.19	7.11	73	7.41	*

Hydrolab and quality control data (continued):

Site	Depth	Month	Day	Year	Temp	pH	Cond	DO	Secchi
Site 4	00	09	50	90	20.41	7.07	69	9.34	7.2
Site 4	01	09	05	90	20.28	7.14	68	9.28	*
Site 4	02	09	05	90	20.18	7.21	67	9.27	*
Site 4	03	09	05	90	20.12	7.24	68	9.26	*
Site 4	04	09	05	90	20.09	7.26	68	9.23	*
Site 4	05	09	05	90	20.07	7.26	69	9.22	*
Site 4	06	09	05	90	20.04	7.25	68	9.23	*
Site 4	07	09	05	90	19.96	7.28	70	9.22	*
Site 4	08	09	05	90	19.91	7.30	69	9.19	*
Site 4	09	09	05	90	19.89	7.29	69	9.19	*
Site 4	10	09	05	90	19.87	7.34	70	9.19	*
Site 4	11	09	05	90	19.77	7.33	69	9.18	*
Site 4	12	09	05	90	19.54	7.35	70	9.13	*
Site 4	13	09	05	90	18.99	7.33	70	8.94	*
Site 4	14	09	05	90	16.88	7.49	70	8.64	*
Site 4	15	09	05	90	15.24	7.51	70	8.89	*
Site 4	16	09	05	90	14.32	7.46	70	8.64	*
Site 4	17	09	05	90	12.89	7.43	70	8.79	*
Site 4	18	09	05	90	11.92	7.42	71	8.95	*
Site 4	19	09	05	90	11.15	7.38	71	8.94	*
Site 4	20	09	05	90	10.26	7.38	71	9.04	*
Site 4	25	09	05	90	7.82	7.35	72	9.51	*
Site 4	30	09	05	90	6.99	7.36	71	9.82	*
Site 4	35	09	05	90	6.79	7.34	71	10.02	*
Site 4	40	09	05	90	6.63	7.31	70	9.90	*
Site 4	45	09	05	90	6.51	7.29	71	10.12	*
Site 4	50	09	05	90	6.46	7.28	69	10.27	*
Site 4	55	09	05	90	6.37	7.28	70	10.39	*
Site 4	60	09	05	90	6.35	7.25	69	10.46	*
Site 4	65	09	05	90	6.26	7.25	69	10.10	*
Site 4	70	09	05	90	6.24	7.24	67	10.10	*
Site 4	75	09	05	90	6.20	7.19	68	10.10	*
Site 4	80	09	05	90	6.18	7.16	69	9.71	*
Site 4	85	09	05	90	6.15	7.12	68	9.66	*
Site 4	90	09	05	90	6.12	7.09	67	9.74	*
Gate	00	09	05	90	18.34	6.69	64	8.63	*

Laboratory data:

Site	Depth	Month	Day	Year	Alk	Turb	NH3	TKN	NO3	SRP	TP	ChlA	Silica
Site 1	00	09	05	90	20.2	0.72	11.7	130.0	128.2	5.7	BDL	4.84	*
Site 1	05	09	05	90	20.1	0.80	11.4	149.9	126.4	BDL	6.8	8.42	*
Site 1	10	09	05	90	20.4	1.05	42.9	BDL	252.3	BDL	7.3	9.51	*
Site 1	15	09	05	90	20.3	1.28	55.8	BDL	299.9	BDL	7.5	3.73	*
Site 1	20	09	05	90	20.3	1.30	48.7	BDL	313.1	BDL	7.7	2.41	*
Intake	00	09	05	90	19.3	0.65	6.6	BDL	194.0	BDL	5.9	3.06	*
Intake	05	09	05	90	19.6	0.69	8.2	BDL	211.6	BDL	5.3	4.07	*
Intake	10	09	05	90	19.0	0.65	5.8	178.2	240.7	BDL	5.1	2.81	*
Site 2	00	09	05	90	18.9	0.60	BDL	BDL	210.1	BDL	5.8	2.94	*
Site 2	05	09	05	90	19.1	0.58	6.2	BDL	211.6	BDL	BDL	2.67	*
Site 2	10	09	05	90	19.2	0.74	7.5	BDL	231.2	BDL	BDL	3.20	*
Site 2	15	09	05	90	18.8	0.77	18.2	BDL	321.9	BDL	5.6	2.16	*
Site 2	20	09	05	90	19.6	1.12	38.0	BDL	293.4	BDL	7.1	1.45	*
Site 3	00	09	05	90	18.9	0.58	6.7	BDL	168.1	BDL	BDL	3.97	*
Site 3	05	09	05	90	19.2	0.67	BDL	BDL	162.5	BDL	BDL	4.45	*
Site 3	10	09	05	90	19.1	0.64	5.9	BDL	164.9	BDL	BDL	3.78	*
Site 3	15	09	05	90	*	*	*	*	*	*	*	2.31	*
Site 3	20	09	05	90	18.2	0.60	5.5	BDL	449.0	BDL	5.3	1.25	*
Site 3	40	09	05	90	17.8	0.55	BDL	BDL	449.9	BDL	BDL	*	*
Site 3	60	09	05	90	18.2	0.32	6.2	BDL	442.2	BDL	BDL	*	*
Site 3	80	09	05	90	19.2	0.65	8.7	BDL	415.5	BDL	BDL	*	*
Site 4	00	09	05	90	19.2	0.70	BDL	BDL	228.3	BDL	BDL	4.62	*
Site 4	05	09	05	90	18.8	0.75	BDL	BDL	228.0	BDL	BDL	4.62	*
Site 4	10	09	05	90	18.7	0.78	BDL	BDL	231.2	BDL	BDL	4.58	*
Site 4	15	09	05	90	*	*	*	*	*	*	*	4.22	*
Site 4	20	09	50	90	18.0	0.73	BDL	BDL	438.6	BDL	BDL	2.31	*
Site 4	40	09	05	90	18.0	0.70	BDL	BDL	454.3	BDL	BDL	*	*
Site 4	60	09	05	90	18.2	1.30	BDL	BDL	441.3	BDL	BDL	*	*
Site 4	80	09	05	90	18.2	0.67	BDL	BDL	433.9	BDL	BDL	*	*
Site 4	90	09	05	90	18.4	0.71	5.9	BDL	432.4	BDL	BDL	*	*
Gate	00	09	05	90	19.0	0.90	10.3	BDL	254.2	BDL	BDL	*	*

Lake Whatcom Monitoring Program

Prepared January 9, 1993 by the Environmental Research and Education Center,
Western Washington University, for the City of Bellingham, Department of Public Works.
*: missing. BDL: below detection limit.

Hydrolab and quality control data:

Site	Depth	Month	Day	Year	Temp	pH	Cond	DO	Secchi
Site 1	00	08	06	90	22.36	7.07	62	9.29	4.7
Site 1	01	08	06	90	22.39	7.25	64	9.21	*
Site 1	02	08	06	90	22.39	7.31	64	9.21	*
Site 1	03	08	06	90	22.36	7.39	64	9.21	*
Site 1	04	08	06	90	22.31	7.47	65	9.22	*
Site 1	05	08	06	90	22.29	7.49	65	9.21	*
Site 1	06	08	06	90	21.84	7.50	67	9.11	*
Site 1	07	08	06	90	19.04	7.64	67	9.94	*
Site 1	08	08	06	90	16.37	7.61	69	9.37	*
Site 1	09	08	06	90	14.37	7.50	71	7.87	*
Site 1	10	08	06	90	12.85	7.40	72	6.21	*
Site 1	11	08	06	90	11.24	7.30	72	5.00	*
Site 1	12	08	06	90	10.76	7.19	74	4.47	*
Site 1	13	08	06	90	10.07	7.13	75	3.95	*
Site 1	14	08	06	90	9.65	7.10	74	3.35	*
Site 1	15	08	06	90	9.36	7.06	75	3.18	*
Site 1	16	08	06	90	9.27	7.01	75	3.05	*
Site 1	17	08	06	90	9.16	6.97	75	2.98	*
Site 1	18	08	06	90	9.08	6.94	76	2.90	*
Site 1	19	08	06	90	8.97	6.91	76	2.73	*
Site 1	20	08	06	90	8.90	6.88	75	2.69	*

Hydrolab and quality control data (continued):

Site	Depth	Month	Day	Year	Temp	pH	Cond	DO	Secchi
Intake	00	08	06	90	22.50	7.80	63	9.20	6.0
Intake	01	08	06	90	22.47	7.65	63	9.10	*
Intake	02	08	06	90	22.35	7.59	65	9.12	*
Intake	03	08	06	90	22.11	7.61	65	9.12	*
Intake	04	08	06	90	21.88	7.57	67	9.16	*
Intake	05	08	06	90	21.79	7.60	68	9.15	*
Intake	06	08	06	90	21.68	7.58	70	9.18	*
Intake	07	08	06	90	21.57	7.60	70	9.16	*
Intake	08	08	06	90	21.10	7.60	71	9.30	*
Intake	09	08	06	90	19.74	7.59	72	9.25	*
Intake	10	08	06	90	19.67	7.55	73	9.25	*
Intake	11	08	06	90	18.47	7.51	74	9.33	*
Intake	12	08	06	90	17.12	7.47	75	9.41	*
Site 2	00	08	06	90	22.38	7.44	64	9.21	6.2
Site 2	01	08	06	90	22.39	7.43	65	9.10	*
Site 2	02	08	06	90	22.35	7.44	65	9.08	*
Site 2	03	08	06	90	22.10	7.46	66	9.09	*
Site 2	04	08	06	90	21.75	7.45	67	9.12	*
Site 2	05	08	06	90	21.64	7.47	69	9.10	*
Site 2	06	08	06	90	21.55	7.50	70	9.15	*
Site 2	07	08	06	90	21.51	7.50	70	9.14	*
Site 2	08	08	06	90	21.44	7.51	72	9.12	*
Site 2	09	08	06	90	21.30	7.53	73	9.14	*
Site 2	10	08	06	90	20.80	7.50	73	9.21	*
Site 2	11	08	06	90	20.26	7.53	74	9.25	*
Site 2	12	08	06	90	15.48	7.48	74	9.27	*
Site 2	13	08	06	90	13.67	7.46	76	8.80	*
Site 2	14	08	06	90	13.10	7.44	76	8.46	*
Site 2	15	08	06	90	12.51	7.41	76	7.85	*
Site 2	16	08	06	90	12.11	7.44	77	7.04	*
Site 2	17	08	06	90	11.54	7.43	79	5.78	*
Site 2	18	08	06	90	11.17	7.31	79	5.03	*
Site 2	19	08	06	90	11.00	7.18	79	4.45	*
Site 2	20	08	06	90	10.59	7.15	80	2.85	*

Hydrolab and quality control data (continued):

Site	Depth	Month	Day	Year	Temp	pH	Cond	DO	Secchi
Site 3	00	08	06	90	21.18	7.68	63	9.21	5.9
Site 3	01	08	06	90	21.15	7.58	63	9.19	*
Site 3	02	08	06	90	21.09	7.53	63	9.18	*
Site 3	03	08	06	90	21.03	7.52	65	9.16	*
Site 3	04	08	06	90	20.87	7.53	66	9.21	*
Site 3	05	08	06	90	20.62	7.54	67	9.22	*
Site 3	06	08	06	90	20.55	7.53	68	9.24	*
Site 3	07	08	06	90	20.33	7.54	69	9.23	*
Site 3	08	08	06	90	20.19	7.56	70	9.26	*
Site 3	09	08	06	90	20.06	7.53	70	9.32	*
Site 3	10	08	06	90	20.00	7.54	71	9.30	*
Site 3	11	08	06	90	18.99	7.52	72	9.35	*
Site 3	12	08	06	90	18.75	7.49	73	9.36	*
Site 3	13	08	06	90	18.10	7.52	74	9.45	*
Site 3	14	08	06	90	14.95	7.72	74	9.53	*
Site 3	15	08	06	90	14.10	7.69	74	9.58	*
Site 3	16	08	06	90	12.90	7.60	75	9.59	*
Site 3	17	08	06	90	12.04	7.57	76	9.55	*
Site 3	18	08	06	90	11.05	7.56	75	9.63	*
Site 3	19	08	06	90	10.34	7.54	77	9.66	*
Site 3	20	08	06	90	9.71	7.51	78	9.72	*
Site 3	25	08	06	90	7.92	7.42	78	10.00	*
Site 3	30	08	06	90	7.01	7.46	77	10.09	*
Site 3	35	08	06	90	6.65	7.42	77	10.22	*
Site 3	40	08	06	90	6.50	7.40	75	10.32	*
Site 3	45	08	06	90	6.38	7.40	76	10.17	*
Site 3	50	08	06	90	6.34	7.37	76	10.21	*
Site 3	55	08	06	90	6.28	7.37	75	10.18	*
Site 3	60	08	06	90	6.24	7.34	73	10.16	*
Site 3	65	08	06	90	6.18	7.33	74	10.13	*
Site 3	70	08	06	90	6.14	7.32	73	10.04	*
Site 3	75	08	06	90	6.13	7.29	73	9.64	*
Site 3	80	08	06	90	6.12	7.28	74	8.63	*

Hydrolab and quality control data (continued):

Site	Depth	Month	Day	Year	Temp	pH	Cond	DO	Secchi
Site 4	00	08	06	90	21.13	7.35	63	9.25	5.2
Site 4	01	08	06	90	21.11	7.39	63	9.20	*
Site 4	02	08	06	90	21.03	7.40	63	9.22	*
Site 4	03	08	06	90	20.99	7.43	64	9.22	*
Site 4	04	08	06	90	20.49	7.42	65	9.23	*
Site 4	05	08	06	90	20.44	7.43	66	9.23	*
Site 4	06	08	06	90	20.39	7.43	67	9.26	*
Site 4	07	08	06	90	19.33	7.42	68	9.41	*
Site 4	08	08	06	90	18.95	7.40	68	9.40	*
Site 4	09	08	06	90	18.40	7.40	69	9.47	*
Site 4	10	08	06	90	16.98	7.41	70	9.50	*
Site 4	11	08	06	90	15.90	7.53	70	9.60	*
Site 4	12	08	06	90	15.04	7.58	70	9.60	*
Site 4	13	08	06	90	13.65	7.57	71	9.60	*
Site 4	14	08	06	90	13.29	7.52	73	9.62	*
Site 4	15	08	06	90	12.68	7.52	73	9.50	*
Site 4	16	08	06	90	12.31	7.49	72	9.55	*
Site 4	17	08	06	90	12.02	7.46	73	9.57	*
Site 4	18	08	06	90	11.08	7.43	73	9.53	*
Site 4	19	08	06	90	10.01	7.40	75	9.65	*
Site 4	20	08	06	90	9.59	7.39	74	9.69	*
Site 4	25	08	06	90	7.42	7.33	75	10.02	*
Site 4	30	08	06	90	6.78	7.31	74	10.20	*
Site 4	35	08	06	90	6.61	7.31	72	10.25	*
Site 4	40	08	06	90	6.44	7.30	72	10.36	*
Site 4	45	08	06	90	6.37	7.28	73	10.41	*
Site 4	50	08	06	90	6.29	7.26	71	10.39	*
Site 4	55	08	06	90	6.24	7.25	70	10.43	*
Site 4	60	08	06	90	6.20	7.23	71	10.43	*
Site 4	65	08	06	90	6.19	7.18	71	10.36	*
Site 4	70	08	06	90	6.16	7.17	69	10.31	*
Site 4	75	08	06	90	6.13	7.13	69	10.27	*
Site 4	80	08	06	90	6.12	7.11	68	10.34	*
Site 4	85	08	06	90	6.10	7.09	68	10.30	*
Site 4	90	08	06	90	6.07	7.07	67	10.32	*
Gate	00	08	06	90	17.80	6.80	62	9.24	*

Laboratory data:

Site	Depth	Month	Day	Year	Alk	Turb	NH3	TKN	NO3	SRP	TP	ChlA	Silica
Site 1	00	08	06	90	20.0	0.74	BDL	121.3	171.4	694.5	712.8	3.37	*
Site 1	05	08	06	90	19.7	0.72	BDL	107.8	178.4	BDL	8.6	3.22	*
Site 1	10	08	06	90	19.9	0.82	14.4	164.2	237.2	BDL	8.6	5.54	*
Site 1	15	08	06	90	19.8	0.63	7.1	100.4	319.6	BDL	BDL	1.56	*
Site 1	20	08	06	90	19.9	0.75	8.1	BDL	323.3	BDL	BDL	0.82	*
Intake	00	08	06	90	19.2	0.54	BDL	BDL	240.2	BDL	BDL	2.75	*
Intake	05	08	06	90	19.2	0.58	BDL	BDL	246.5	BDL	7.5	2.74	*
Intake	10	08	06	90	19.3	0.67	BDL	BDL	266.9	BDL	7.5	3.40	*
Site 2	00	08	06	90	19.0	0.54	BDL	BDL	244.9	BDL	7.4	1.71	*
Site 2	05	08	06	90	19.1	0.64	BDL	BDL	250.5	BDL	7.5	3.20	*
Site 2	10	08	06	90	18.7	0.77	BDL	110.2	254.2	BDL	7.0	4.19	*
Site 2	15	08	06	90	18.1	0.56	9.5	BDL	374.0	BDL	7.8	3.99	*
Site 2	20	08	06	90	18.4	0.78	15.0	BDL	368.7	BDL	BDL	2.38	*
Site 3	00	08	06	90	19.0	0.72	BDL	BDL	266.6	BDL	BDL	1.69	*
Site 3	05	08	06	90	19.1	0.75	BDL	BDL	262.6	BDL	BDL	3.28	*
Site 3	10	08	06	90	18.8	0.88	BDL	103.5	264.6	BDL	BDL	3.63	*
Site 3	15	08	06	90	*	*	*	*	*	*	*	3.42	*
Site 3	20	08	06	90	18.2	0.60	BDL	109.1	423.4	BDL	7.6	1.49	*
Site 3	40	08	06	90	18.2	0.49	BDL	BDL	457.1	BDL	6.3	*	*
Site 3	60	08	06	90	18.0	0.55	BDL	BDL	449.5	BDL	5.6	*	*
Site 3	80	08	06	90	18.1	0.51	BDL	BDL	437.1	BDL	7.4	*	*
Site 4	00	08	06	90	18.6	0.87	BDL	129.7	253.5	BDL	6.9	1.92	*
Site 4	05	08	06	90	18.7	0.95	BDL	BDL	262.2	BDL	7.4	2.60	*
Site 4	10	08	06	90	18.4	1.94	BDL	BDL	287.6	BDL	8.2	2.12	*
Site 4	15	08	06	90	*	*	*	*	*	*	*	1.80	*
Site 4	20	08	06	90	18.1	0.59	BDL	BDL	428.1	BDL	7.2	0.80	*
Site 4	40	08	06	90	17.9	0.50	BDL	128.0	438.1	BDL	6.3	*	*
Site 4	60	08	06	90	18.0	0.44	BDL	110.2	444.1	BDL	5.3	*	*
Site 4	80	08	06	90	18.0	0.48	BDL	111.3	441.7	BDL	6.9	*	*
Site 4	90	08	06	90	18.2	0.44	BDL	151.4	449.4	BDL	6.4	*	*
Gate	00	08	06	90	18.6	0.73	5.9	BDL	299.5	BDL	9.2	*	*

Lake Whatcom Monitoring Program

Prepared January 9, 1993 by the Environmental Research and Education Center,
Western Washington University, for the City of Bellingham, Department of Public Works.
*: missing. BDL: below detection limit.

Hydrolab and quality control data:

Site	Depth	Month	Day	Year	Temp	pH	Cond	DO	Secchi
Site 1	00	07	09	90	19.96	7.82	62	9.56	4.6
Site 1	01	07	09	90	19.98	7.77	61	9.49	*
Site 1	02	07	09	90	19.89	7.77	61	9.50	*
Site 1	03	07	09	90	19.82	7.77	62	9.54	*
Site 1	04	07	09	90	19.69	7.82	62	9.66	*
Site 1	05	07	09	90	18.84	7.88	62	10.00	*
Site 1	06	07	09	90	17.57	7.90	63	10.19	*
Site 1	07	07	09	90	16.66	7.89	64	10.00	*
Site 1	08	07	09	90	15.55	7.87	64	9.69	*
Site 1	09	07	09	90	13.99	7.84	66	8.71	*
Site 1	10	07	09	90	12.86	7.80	66	8.01	*
Site 1	11	07	09	90	10.52	7.70	67	6.22	*
Site 1	12	07	09	90	9.82	7.64	67	5.69	*
Site 1	13	07	09	90	9.51	7.55	69	5.33	*
Site 1	14	07	09	90	9.17	7.52	68	5.12	*
Site 1	15	07	09	90	8.96	7.45	69	5.00	*
Site 1	16	07	09	90	8.83	7.41	69	4.99	*
Site 1	17	07	09	90	8.77	7.38	69	4.92	*
Site 1	18	07	09	90	8.74	7.34	69	4.89	*
Site 1	19	07	09	90	8.70	7.31	70	4.90	*
Site 1	20	07	09	90	8.67	7.27	70	4.82	*

Hydrolab and quality control data (continued):

Site	Depth	Month	Day	Year	Temp	pH	Cond	DO	Secchi
Intake	00	07	09	90	20.00	7.69	62	9.76	5.1
Intake	01	07	09	90	19.86	7.66	61	9.72	*
Intake	02	07	09	90	19.65	7.70	62	9.75	*
Intake	03	07	09	90	18.42	7.77	62	10.12	*
Intake	04	07	09	90	18.07	7.81	62	10.12	*
Intake	05	07	09	90	17.82	7.83	63	10.09	*
Intake	06	07	09	90	17.69	7.83	63	10.11	*
Intake	07	07	09	90	17.39	7.75	64	10.05	*
Intake	08	07	09	90	16.58	7.73	65	10.05	*
Intake	09	07	09	90	16.44	7.71	65	10.04	*
Intake	10	07	09	90	15.89	7.66	65	10.04	*
Intake	11	07	09	90	14.92	7.64	66	9.97	*
Intake	12	07	09	90	14.35	7.62	66	9.81	*
Intake	13	07	09	90	13.01	7.69	67	8.69	*
Site 2	00	07	09	90	19.60	7.95	62	9.78	4.9
Site 2	01	07	09	90	19.60	7.86	61	9.71	*
Site 2	02	07	09	90	19.57	7.85	61	9.74	*
Site 2	03	07	09	90	19.39	7.83	61	9.74	*
Site 2	04	07	09	90	19.33	7.81	61	9.84	*
Site 2	05	07	09	90	18.42	7.82	63	9.97	*
Site 2	06	07	09	90	17.95	7.82	63	10.01	*
Site 2	07	07	09	90	17.80	7.83	63	10.01	*
Site 2	08	07	09	90	17.47	7.79	63	9.99	*
Site 2	09	07	09	90	15.96	7.78	65	9.87	*
Site 2	10	07	09	90	15.25	7.78	65	9.86	*
Site 2	11	07	09	90	14.17	7.83	65	9.75	*
Site 2	12	07	09	90	13.40	7.79	66	9.52	*
Site 2	13	07	09	90	12.62	7.76	67	8.93	*
Site 2	14	07	09	90	11.91	7.69	68	8.91	*
Site 2	15	07	09	90	11.54	7.65	68	8.36	*
Site 2	16	07	09	90	10.60	7.57	68	7.04	*
Site 2	17	07	09	90	10.07	7.50	69	6.10	*
Site 2	18	07	09	90	9.84	7.45	70	5.42	*
Site 2	19	07	09	90	9.75	7.39	70	5.28	*
Site 2	20	07	09	90	9.67	7.32	69	5.21	*

Hydrolab and quality control data (continued):

Site	Depth	Month	Day	Year	Temp	pH	Cond	DO	Secchi
Site 3	00	07	09	90	19.52	7.44	61	9.82	4.9
Site 3	01	07	09	90	19.52	7.51	61	9.74	*
Site 3	02	07	09	90	19.39	7.57	61	9.74	*
Site 3	03	07	09	90	18.99	7.64	62	9.88	*
Site 3	04	07	09	90	18.69	7.66	63	9.92	*
Site 3	05	07	09	90	18.63	7.67	63	9.90	*
Site 3	06	07	09	90	18.35	7.72	64	9.91	*
Site 3	07	07	09	90	18.08	7.74	64	9.90	*
Site 3	08	07	09	90	17.16	7.93	65	9.98	*
Site 3	09	07	09	90	16.68	7.88	66	10.04	*
Site 3	10	07	09	90	16.30	7.83	66	10.02	*
Site 3	11	07	09	90	15.87	7.82	66	10.04	*
Site 3	12	07	09	90	15.32	7.80	66	10.03	*
Site 3	13	07	09	90	14.66	7.76	67	9.96	*
Site 3	14	07	09	90	14.29	7.72	67	9.98	*
Site 3	15	07	09	90	14.01	7.64	68	9.87	*
Site 3	16	07	09	90	12.97	7.65	68	9.77	*
Site 3	17	07	09	90	11.70	7.62	69	9.77	*
Site 3	18	07	09	90	10.49	7.56	70	9.88	*
Site 3	19	07	09	90	9.84	7.55	69	9.90	*
Site 3	20	07	09	90	8.83	7.55	70	10.04	*
Site 3	25	07	09	90	7.53	7.53	71	10.17	*
Site 3	30	07	09	90	6.90	7.49	70	10.23	*
Site 3	35	07	09	90	6.62	7.39	70	10.23	*
Site 3	40	07	09	90	6.47	7.32	69	10.23	*
Site 3	45	07	09	90	6.37	7.30	69	10.23	*
Site 3	50	07	09	90	6.30	7.28	70	10.17	*
Site 3	55	07	09	90	6.27	7.27	69	10.14	*
Site 3	60	07	09	90	6.24	7.25	69	10.10	*
Site 3	65	07	09	90	6.22	7.21	67	9.96	*
Site 3	70	07	09	90	6.18	7.21	67	9.83	*
Site 3	75	07	09	90	6.15	7.19	67	9.48	*
Site 3	80	07	09	90	6.14	7.17	67	9.00	*

Hydrolab and quality control data (continued):

Site	Depth	Month	Day	Year	Temp	pH	Cond	DO	Secchi
Site 4	00	07	09	90	19.05	7.35	59	9.95	5.3
Site 4	01	07	09	90	18.92	7.45	60	9.93	*
Site 4	02	07	09	90	18.76	7.52	60	9.94	*
Site 4	03	07	09	90	18.69	7.59	60	9.92	*
Site 4	04	07	09	90	18.64	7.61	60	9.93	*
Site 4	05	07	09	90	18.59	7.62	61	9.91	*
Site 4	06	07	09	90	18.49	7.63	61	9.90	*
Site 4	07	07	09	90	18.05	7.66	62	10.01	*
Site 4	08	07	09	90	17.41	7.65	62	10.06	*
Site 4	09	07	09	90	16.52	7.82	62	10.09	*
Site 4	10	07	09	90	15.55	7.83	63	10.04	*
Site 4	11	07	09	90	14.20	7.80	64	9.97	*
Site 4	12	07	09	90	13.51	7.68	64	9.91	*
Site 4	13	07	09	90	13.12	7.59	65	9.92	*
Site 4	14	07	09	90	12.61	7.59	65	9.89	*
Site 4	15	07	09	90	11.87	7.62	66	9.92	*
Site 4	16	07	09	90	11.25	7.58	66	9.92	*
Site 4	17	07	09	90	10.66	7.56	66	9.93	*
Site 4	18	07	09	90	9.78	7.56	67	9.96	*
Site 4	19	07	09	90	9.40	7.51	68	10.03	*
Site 4	20	07	09	90	8.99	7.47	67	10.05	*
Site 4	25	07	09	90	7.48	7.49	68	10.19	*
Site 4	30	07	09	90	6.92	7.39	68	10.23	*
Site 4	35	07	09	90	6.66	7.36	67	10.28	*
Site 4	40	07	09	90	6.47	7.33	66	10.34	*
Site 4	45	07	09	90	6.40	7.30	65	10.27	*
Site 4	50	07	09	90	6.28	7.28	65	10.56	*
Site 4	55	07	09	90	6.23	7.29	64	10.57	*
Site 4	60	07	09	90	6.18	7.31	65	10.30	*
Site 4	65	07	09	90	6.15	7.30	65	10.32	*
Site 4	70	07	09	90	6.12	7.25	65	10.33	*
Site 4	75	07	09	90	6.10	7.25	63	10.30	*
Site 4	80	07	09	90	6.08	7.25	64	10.10	*
Site 4	85	07	09	90	6.07	7.22	64	10.16	*
Site 4	90	07	09	90	6.03	7.22	63	10.24	*
Gate	00	07	09	90	14.69	7.95	59	9.76	*

Laboratory data:

Site	Depth	Month	Day	Year	Alk	Turb	NH3	TKN	NO3	SRP	TP	ChlA	Silica
Site 1	00	07	09	90	18.5	0.67	BDL	110.9	241.9	BDL	6.4	2.60	4.3
Site 1	05	07	09	90	18.0	0.61	6.5	129.7	262.1	BDL	6.0	3.10	4.4
Site 1	10	07	09	90	18.4	0.61	6.3	114.1	280.6	BDL	5.4	3.46	4.6
Site 1	15	07	09	90	18.1	0.53	23.7	124.9	335.5	BDL	5.4	2.21	5.5
Site 1	20	07	09	90	18.2	0.60	24.4	141.8	337.9	BDL	BDL	1.92	5.5
Intake	00	07	09	90	18.2	0.55	BDL	121.9	272.5	BDL	BDL	3.35	4.5
Intake	05	07	09	90	17.6	0.64	BDL	BDL	311.3	BDL	BDL	5.17	3.8
Intake	10	07	09	90	17.6	0.53	BDL	102.6	333.2	BDL	BDL	3.90	4.5
Site 2	00	07	09	90	18.4	0.54	BDL	104.4	290.1	BDL	BDL	2.21	4.4
Site 2	05	07	09	90	18.2	0.50	BDL	125.5	297.1	BDL	BDL	4.46	4.5
Site 2	10	07	09	90	17.8	0.51	BDL	118.9	336.9	BDL	BDL	4.55	4.5
Site 2	15	07	09	90	17.4	0.45	11.5	117.1	382.4	BDL	BDL	2.65	4.7
Site 2	20	07	09	90	17.6	0.82	30.8	127.9	387.8	BDL	BDL	2.92	5.1
Site 3	00	07	09	90	17.6	0.45	BDL	BDL	304.9	BDL	BDL	4.00	4.4
Site 3	05	07	09	90	17.6	0.64	BDL	BDL	306.2	BDL	BDL	4.62	4.5
Site 3	10	07	09	90	17.6	0.52	BDL	BDL	313.6	BDL	BDL	5.99	4.6
Site 3	15	07	09	90	*	*	*	*	*	*	*	4.40	*
Site 3	20	07	09	90	17.3	0.66	BDL	BDL	420.5	BDL	BDL	1.18	4.6
Site 3	40	07	09	90	16.9	0.70	BDL	BDL	447.1	BDL	BDL	*	4.6
Site 3	60	07	09	90	17.3	0.49	BDL	BDL	442.0	BDL	BDL	*	4.6
Site 3	80	07	09	90	17.6	0.62	BDL	BDL	425.9	BDL	BDL	*	4.2
Site 4	00	07	09	90	17.7	0.72	BDL	BDL	314.8	BDL	BDL	3.51	4.6
Site 4	05	07	09	90	17.6	0.63	BDL	BDL	319.7	BDL	BDL	3.47	4.5
Site 4	10	07	09	90	13.0	0.72	BDL	BDL	327.0	BDL	BDL	4.64	4.7
Site 4	15	07	09	90	*	*	*	*	*	*	*	2.29	*
Site 4	20	07	09	90	17.2	0.51	BDL	BDL	432.8	BDL	BDL	0.80	4.7
Site 4	40	07	09	90	17.4	0.56	BDL	BDL	455.3	BDL	BDL	*	4.6
Site 4	60	07	09	90	17.5	0.69	BDL	BDL	449.7	BDL	BDL	*	4.7
Site 4	80	07	09	90	17.3	0.55	BDL	BDL	444.4	BDL	BDL	*	4.7
Site 4	90	07	09	90	17.4	0.57	BDL	BDL	445.4	BDL	BDL	*	4.7
Gate	00	07	09	90	17.6	0.86	BDL	535.4	357.8	BDL	BDL	*	4.7

Lake Whatcom Monitoring Program

Prepared January 9, 1993 by the Environmental Research and Education Center.
Western Washington University, for the City of Bellingham, Department of Public Works.
*: missing. BDL: below detection limit.

Hydrolab and quality control data:

Site	Depth	Month	Day	Year	Temp	pH	Cond	DO	Secchi
Site 1	00	06	04	90	15.25	6.65	66	10.28	5.6
Site 1	01	06	04	90	15.26	6.76	66	10.25	*
Site 1	02	06	04	90	15.24	6.87	67	10.22	*
Site 1	03	06	04	90	15.23	6.91	67	10.20	*
Site 1	04	06	04	90	15.20	7.22	68	10.21	*
Site 1	05	06	04	90	15.18	7.25	70	10.18	*
Site 1	06	06	04	90	15.18	7.26	71	10.19	*
Site 1	07	06	04	90	15.16	7.27	72	10.17	*
Site 1	08	06	04	90	15.14	7.30	73	10.18	*
Site 1	09	06	04	90	11.94	7.46	74	9.65	*
Site 1	10	06	04	90	9.67	7.40	74	8.77	*
Site 1	11	06	04	90	9.12	7.33	75	8.38	*
Site 1	12	06	04	90	8.78	7.27	75	8.11	*
Site 1	13	06	04	90	8.34	7.22	75	7.65	*
Site 1	14	06	04	90	8.18	7.21	76	7.61	*
Site 1	15	06	04	90	8.11	7.16	76	7.59	*
Site 1	16	06	04	90	8.03	7.12	75	7.43	*
Site 1	17	06	04	90	7.83	7.11	76	7.33	*
Site 1	18	06	04	90	7.81	7.09	76	7.29	*
Site 1	19	06	04	90	7.77	7.06	76	7.26	*
Site 1	20	06	04	90	7.75	7.05	76	7.22	*

Hydrolab and quality control data (continued):

Site	Depth	Month	Day	Year	Temp	pH	Cond	DO	Secchi
Intake	00	06	04	90	14.95	7.11	66	10.52	5.1
Intake	01	06	04	90	14.95	7.12	65	10.39	*
Intake	02	06	04	90	14.91	7.17	66	10.33	*
Intake	03	06	04	90	14.91	7.20	67	10.34	*
Intake	04	06	04	90	14.88	7.23	68	10.34	*
Intake	05	06	04	90	14.81	7.26	69	10.35	*
Intake	06	06	04	90	14.72	7.29	71	10.36	*
Intake	07	06	04	90	14.69	7.30	71	10.38	*
Intake	08	06	04	90	14.33	7.35	72	10.32	*
Intake	09	06	04	90	13.88	7.48	72	10.36	*
Intake	10	06	04	90	13.51	7.55	72	10.40	*
Intake	11	06	04	90	12.95	7.54	73	10.31	*
Intake	12	06	04	90	12.08	7.56	74	10.18	*
Intake	13	06	04	90	11.10	7.51	74	10.09	*
Site 2	00	06	04	90	14.85	7.11	65	10.52	6.1
Site 2	01	06	04	90	14.78	7.10	65	10.43	*
Site 2	02	06	04	90	14.71	7.12	66	10.45	*
Site 2	03	06	04	90	14.39	7.23	67	10.46	*
Site 2	04	06	04	90	14.32	7.23	69	10.44	*
Site 2	05	06	04	90	14.28	7.27	69	10.42	*
Site 2	06	06	04	90	14.26	7.27	71	10.43	*
Site 2	07	06	04	90	14.17	7.29	71	10.46	*
Site 2	08	06	04	90	14.10	7.29	71	10.49	*
Site 2	09	06	04	90	13.81	7.34	72	10.44	*
Site 2	10	06	04	90	13.58	7.39	72	10.43	*
Site 2	11	06	04	90	13.30	7.41	74	10.45	*
Site 2	12	06	04	90	13.02	7.41	73	10.37	*
Site 2	13	06	04	90	9.64	7.54	75	9.54	*
Site 2	14	06	04	90	9.55	7.30	76	9.41	*
Site 2	15	06	04	90	9.21	7.27	77	9.20	*
Site 2	16	06	04	90	9.10	7.27	76	9.00	*
Site 2	17	06	04	90	8.97	7.28	77	8.65	*
Site 2	18	06	04	90	8.87	7.24	77	8.49	*
Site 2	19	06	04	90	8.75	7.20	76	8.26	*
Site 2	20	06	04	90	8.63	7.20	76	8.00	*

Hydrolab and quality control data (continued):

Site	Depth	Month	Day	Year	Temp	pH	Cond	DO	Secchi
Site 3	00	06	04	90	14.20	7.07	64	10.47	5.4
Site 3	01	06	04	90	14.16	7.02	64	10.42	*
Site 3	02	06	04	90	14.16	7.07	66	10.44	*
Site 3	03	06	04	90	14.07	7.08	66	10.41	*
Site 3	04	06	04	90	13.97	7.12	67	10.41	*
Site 3	05	06	04	90	13.85	7.15	68	10.44	*
Site 3	06	06	04	90	13.80	7.19	69	10.46	*
Site 3	07	06	04	90	13.78	7.22	70	10.44	*
Site 3	08	06	04	90	13.72	7.25	71	10.46	*
Site 3	09	06	04	90	13.56	7.30	71	10.47	*
Site 3	10	06	04	90	13.35	7.35	71	10.47	*
Site 3	11	06	04	90	13.18	7.35	72	10.46	*
Site 3	12	06	04	90	12.96	7.37	72	10.48	*
Site 3	13	06	04	90	12.39	7.43	73	10.51	*
Site 3	14	06	04	90	11.89	7.44	74	10.55	*
Site 3	15	06	04	90	10.87	7.43	74	10.60	*
Site 3	16	06	04	90	10.37	7.40	74	10.66	*
Site 3	17	06	04	90	9.81	7.40	74	10.66	*
Site 3	18	06	04	90	9.35	7.37	74	10.70	*
Site 3	19	06	04	90	9.01	7.36	75	10.67	*
Site 3	20	06	04	90	8.73	7.36	76	10.68	*
Site 3	25	06	04	90	7.51	7.33	76	10.65	*
Site 3	30	06	04	90	6.84	7.34	76	10.67	*
Site 3	35	06	04	90	6.53	7.30	75	10.60	*
Site 3	40	06	04	90	6.35	7.27	75	10.56	*
Site 3	45	06	04	90	6.25	7.20	73	10.52	*
Site 3	50	06	04	90	6.21	7.14	73	10.50	*
Site 3	55	06	04	90	6.16	7.14	72	10.42	*
Site 3	60	06	04	90	6.12	7.11	72	10.40	*
Site 3	65	06	04	90	6.10	7.08	70	10.35	*
Site 3	70	06	04	90	6.08	7.08	70	10.36	*
Site 3	75	06	04	90	6.06	7.07	69	10.22	*
Site 3	80	06	04	90	6.05	7.05	69	9.85	*

Hydrolab and quality control data (continued):

Site	Depth	Month	Day	Year	Temp	pH	Cond	DO	Secchi
Site 4	00	06	04	90	13.49	6.79	62	10.67	5.5
Site 4	01	06	04	90	13.50	6.85	63	10.65	*
Site 4	02	06	04	90	13.44	6.89	63	10.65	*
Site 4	03	06	04	90	13.40	6.97	64	10.63	*
Site 4	04	06	04	90	13.37	7.01	65	10.63	*
Site 4	05	06	04	90	13.30	7.02	67	10.63	*
Site 4	06	06	04	90	13.27	7.06	68	10.65	*
Site 4	07	06	04	90	13.24	7.08	69	10.63	*
Site 4	08	06	04	90	13.05	7.11	70	10.60	*
Site 4	09	06	04	90	12.74	7.09	71	10.63	*
Site 4	10	06	04	90	12.25	7.21	70	10.63	*
Site 4	11	06	04	90	11.93	7.23	71	10.63	*
Site 4	12	06	04	90	11.37	7.33	71	10.66	*
Site 4	13	06	04	90	11.11	7.30	72	10.67	*
Site 4	14	06	04	90	10.67	7.31	72	10.69	*
Site 4	15	06	04	90	9.77	7.36	73	10.69	*
Site 4	16	06	04	90	9.34	7.33	73	10.67	*
Site 4	17	06	04	90	8.95	7.34	73	10.64	*
Site 4	18	06	04	90	8.49	7.34	74	10.65	*
Site 4	19	06	04	90	8.20	7.31	74	10.65	*
Site 4	20	06	04	90	7.85	7.32	73	10.64	*
Site 4	25	06	04	90	7.00	7.31	73	10.66	*
Site 4	30	06	04	90	6.55	7.30	73	10.65	*
Site 4	35	06	04	90	6.36	7.25	71	10.71	*
Site 4	40	06	04	90	6.26	7.20	71	10.68	*
Site 4	45	06	04	90	6.21	7.17	71	10.67	*
Site 4	50	06	04	90	6.13	7.15	68	10.72	*
Site 4	55	06	04	90	6.10	7.15	68	10.50	*
Site 4	60	06	04	90	6.09	7.16	68	10.58	*
Site 4	65	06	04	90	6.06	7.12	69	10.65	*
Site 4	70	06	04	90	6.04	7.13	67	10.55	*
Site 4	75	06	04	90	6.02	7.11	65	10.56	*
Site 4	80	06	04	90	6.00	7.11	66	10.58	*
Site 4	85	06	04	90	5.99	7.11	66	10.53	*
Site 4	90	06	04	90	5.99	7.08	64	10.10	*
Gate	00	06	04	90	12.84	6.75	63	10.05	*

Laboratory data:

Site	Depth	Month	Day	Year	Alk	Turb	NH3	TKN	NO3	SRP	TP	ChlA	Silica
Site 1	00	06	04	90	18.5	0.65	BDL	BDL	295.4	BDL	5.5	3.90	*
Site 1	05	06	04	90	18.4	0.63	BDL	BDL	300.1	BDL	6.5	3.59	*
Site 1	10	06	04	90	17.6	0.43	20.0	BDL	334.0	BDL	7.1	2.98	*
Site 1	15	06	04	90	17.7	0.47	25.3	BDL	353.9	BDL	6.4	2.57	*
Site 1	20	06	04	90	17.8	0.91	28.1	BDL	357.9	BDL	6.9	2.04	*
Intake	00	06	04	90	17.0	0.48	BDL	BDL	344.5	BDL	5.9	2.50	*
Intake	05	06	04	90	17.4	0.62	BDL	BDL	345.5	BDL	6.4	2.24	*
Intake	10	06	04	90	17.4	0.51	BDL	BDL	355.9	BDL	6.0	1.44	*
Site 2	00	06	04	90	17.9	0.45	BDL	BDL	349.2	BDL	6.7	1.86	*
Site 2	05	06	04	90	17.3	0.47	BDL	BDL	349.5	BDL	11.5	2.12	*
Site 2	10	06	04	90	17.4	0.71	BDL	BDL	353.9	BDL	6.9	1.97	*
Site 2	15	06	04	90	17.3	0.50	BDL	BDL	349.2	BDL	6.4	2.96	*
Site 2	20	06	04	90	17.6	0.52	21.6	BDL	402.3	BDL	5.8	1.45	*
Site 3	00	06	04	90	17.5	0.39	BDL	BDL	358.2	BDL	5.4	3.13	*
Site 3	05	06	04	90	17.4	0.44	BDL	BDL	356.9	BDL	5.9	3.13	*
Site 3	10	06	04	90	17.5	0.42	BDL	BDL	355.6	BDL	5.9	2.14	*
Site 3	15	06	04	90	*	*	*	*	*	*	*	1.32	*
Site 3	20	06	04	90	17.0	0.52	BDL	BDL	414.7	BDL	5.7	1.06	*
Site 3	40	06	04	90	16.8	0.39	BDL	BDL	444.3	BDL	5.2	*	*
Site 3	60	06	04	90	16.9	0.57	BDL	BDL	441.6	BDL	5.1	*	*
Site 3	80	06	04	90	16.9	0.64	BDL	BDL	432.9	BDL	5.8	*	*
Site 4	00	06	04	90	17.1	0.45	BDL	BDL	333.6	BDL	6.1	3.51	*
Site 4	05	06	04	90	17.2	0.45	BDL	BDL	335.3	BDL	6.7	3.08	*
Site 4	10	06	04	90	17.4	0.43	BDL	BDL	338.2	BDL	BDL	2.48	*
Site 4	15	06	04	90	*	*	*	*	*	*	*	1.95	*
Site 4	20	06	04	90	16.9	0.37	BDL	BDL	384.1	BDL	BDL	1.30	*
Site 4	40	06	04	90	16.9	0.36	BDL	BDL	381.2	BDL	BDL	*	*
Site 4	60	06	04	90	17.0	0.55	BDL	102.7	372.2	BDL	BDL	*	*
Site 4	80	06	04	90	16.8	0.54	BDL	BDL	370.5	BDL	BDL	*	*
Site 4	90	06	04	90	16.9	0.73	BDL	BDL	363.9	BDL	6.6	*	*
Gate	00	06	04	90	17.6	0.63	7.2	BDL	310.6	BDL	6.3	*	*

Lake Whatcom Monitoring Program

Prepared January 9, 1993 by the Environmental Research and Education Center,
Western Washington University, for the City of Bellingham, Department of Public Works.

*: missing. BDL: below detection limit.

Hydrolab and quality control data:

Site	Depth	Month	Day	Year	Temp	pH	Cond	DO	Secchi
Site 1	00	04	03	90	10.20	7.92	77	12.05	6.0
Site 1	01	04	03	90	10.12	7.72	74	11.81	*
Site 1	02	04	03	90	10.08	7.64	75	11.76	*
Site 1	03	04	03	90	10.02	7.59	74	11.74	*
Site 1	04	04	03	90	9.99	7.57	74	11.73	*
Site 1	05	04	03	90	8.82	7.72	74	11.78	*
Site 1	06	04	03	90	8.09	7.71	74	11.80	*
Site 1	07	04	03	90	7.55	7.69	74	11.81	*
Site 1	08	04	03	90	7.32	7.63	74	11.71	*
Site 1	09	04	03	90	7.12	7.63	75	11.59	*
Site 1	10	04	03	90	6.74	7.65	75	11.46	*
Site 1	11	04	03	90	6.69	7.58	75	11.37	*
Site 1	12	04	03	90	6.69	7.55	74	11.37	*
Site 1	13	04	03	90	6.69	7.56	75	11.36	*
Site 1	14	04	03	90	6.69	7.57	75	11.35	*
Site 1	15	04	03	90	6.62	7.57	75	11.37	*
Site 1	16	04	03	90	6.60	7.55	75	11.30	*
Site 1	17	04	03	90	6.56	7.51	75	11.27	*
Site 1	18	04	03	90	6.53	7.51	76	11.08	*
Site 1	19	04	03	90	6.47	7.48	75	10.97	*
Site 1	20	04	03	90	6.45	7.48	75	10.97	*

Hydrolab and quality control data (continued):

Site	Depth	Month	Day	Year	Temp	pH	Cond	DO	Secchi
Intake	00	04	03	90	9.47	7.82	69	12.27	*
Intake	01	04	03	90	9.44	7.60	68	12.01	*
Intake	02	04	03	90	9.38	7.59	68	11.98	*
Intake	03	04	03	90	8.68	7.58	69	11.95	*
Intake	04	04	03	90	8.48	7.55	69	11.97	*
Intake	05	04	03	90	8.25	7.53	70	11.98	*
Intake	06	04	03	90	8.11	7.52	71	11.97	*
Intake	07	04	03	90	7.90	7.50	70	11.94	*
Intake	08	04	03	90	7.76	7.50	71	11.94	*
Intake	09	04	03	90	7.44	7.49	71	11.79	*
Intake	10	04	03	90	7.06	7.49	72	11.77	*
Intake	11	04	03	90	7.04	7.44	72	11.69	*
Intake	12	04	03	90	6.82	7.44	73	11.43	*
Intake	13	04	03	90	6.72	7.44	73	11.25	*
Site 2	00	04	03	90	9.35	7.82	76	12.36	5.1
Site 2	01	04	03	90	9.29	7.69	68	11.95	*
Site 2	02	04	03	90	9.12	7.63	68	11.93	*
Site 2	03	04	03	90	9.01	7.59	70	11.89	*
Site 2	04	04	03	90	8.86	7.61	72	11.92	*
Site 2	05	04	03	90	8.67	7.58	71	11.89	*
Site 2	06	04	03	90	8.52	7.57	71	11.91	*
Site 2	07	04	03	90	8.45	7.55	71	11.91	*
Site 2	08	04	03	90	8.33	7.54	71	11.86	*
Site 2	09	04	03	90	8.30	7.54	73	11.87	*
Site 2	10	04	03	90	8.21	7.55	73	11.85	*
Site 2	11	04	03	90	8.11	7.52	74	11.82	*
Site 2	12	04	03	90	7.71	7.52	74	11.84	*
Site 2	13	04	03	90	7.64	7.51	74	11.84	*
Site 2	14	04	03	90	6.95	7.61	75	11.71	*
Site 2	15	04	03	90	6.73	7.61	75	11.62	*
Site 2	16	04	03	90	6.62	7.54	75	11.53	*
Site 2	17	04	03	90	6.57	7.48	75	11.46	*
Site 2	18	04	03	90	6.50	7.48	75	11.30	*
Site 2	19	04	03	90	6.49	7.45	76	11.16	*
Site 2	20	04	03	90	6.46	7.44	76	10.96	*

Hydrolab and quality control data (continued):

Site	Depth	Month	Day	Year	Temp	pH	Cond	DO	Secchi
Site 3	00	04	03	90	8.81	8.04	69	12.22	5.2
Site 3	01	04	03	90	8.78	7.76	69	12.01	*
Site 3	02	04	03	90	8.73	7.68	69	11.94	*
Site 3	03	04	03	90	8.68	7.63	68	11.94	*
Site 3	04	04	03	90	8.49	7.61	69	11.92	*
Site 3	05	04	03	90	8.38	7.58	70	11.91	*
Site 3	06	04	03	90	8.30	7.58	70	11.88	*
Site 3	07	04	03	90	8.18	7.54	70	11.82	*
Site 3	08	04	03	90	7.89	7.51	71	11.80	*
Site 3	09	04	03	90	7.83	7.50	71	11.79	*
Site 3	10	04	03	90	7.67	7.50	71	11.77	*
Site 3	11	04	03	90	7.61	7.47	71	11.76	*
Site 3	12	04	03	90	7.49	7.47	71	11.74	*
Site 3	13	04	03	90	7.40	7.46	73	11.71	*
Site 3	14	04	03	90	7.36	7.44	73	11.70	*
Site 3	15	04	03	90	7.32	7.44	73	11.68	*
Site 3	16	04	03	90	7.12	7.43	74	11.63	*
Site 3	17	04	03	90	7.04	7.41	74	11.63	*
Site 3	18	04	03	90	6.95	7.42	73	11.61	*
Site 3	19	04	03	90	6.82	7.43	74	11.60	*
Site 3	20	04	03	90	6.70	7.43	73	11.58	*
Site 3	25	04	03	90	6.38	7.40	74	11.44	*
Site 3	30	04	03	90	6.23	7.36	74	11.39	*
Site 3	35	04	03	90	6.10	7.35	73	11.32	*
Site 3	40	04	03	90	6.04	7.33	74	11.26	*
Site 3	45	04	03	90	6.01	7.32	73	11.23	*
Site 3	50	04	03	90	5.99	7.30	73	11.18	*
Site 3	55	04	03	90	5.97	7.28	72	11.15	*
Site 3	60	04	03	90	5.93	7.28	72	11.07	*
Site 3	65	04	03	90	5.91	7.29	72	11.02	*
Site 3	70	04	03	90	5.89	7.27	70	10.88	*
Site 3	75	04	03	90	5.88	7.25	70	10.83	*
Site 3	80	04	03	90	5.88	7.25	69	10.73	*

Hydrolab and quality control data (continued):

Site	Depth	Month	Day	Year	Temp	pH	Cond	DO	Secchi
Site 4	00	04	03	90	8.58	7.78	76	12.22	4.4
Site 4	01	04	03	90	8.41	7.64	75	12.05	*
Site 4	02	04	03	90	8.07	7.57	74	11.94	*
Site 4	03	04	03	90	7.79	7.54	74	11.88	*
Site 4	04	04	03	90	7.71	7.53	74	11.84	*
Site 4	05	04	03	90	7.54	7.50	74	11.77	*
Site 4	06	04	03	90	7.41	7.48	74	11.77	*
Site 4	07	04	03	90	7.26	7.45	75	11.72	*
Site 4	08	04	03	90	7.18	7.45	75	11.74	*
Site 4	09	04	03	90	7.07	7.45	75	11.69	*
Site 4	10	04	03	90	7.02	7.42	75	11.65	*
Site 4	11	04	03	90	6.96	7.42	75	11.63	*
Site 4	12	04	03	90	6.87	7.41	75	11.61	*
Site 4	13	04	03	90	6.75	7.40	75	11.60	*
Site 4	14	04	03	90	6.63	7.40	75	11.54	*
Site 4	15	04	03	90	6.57	7.40	75	11.56	*
Site 4	16	04	03	90	6.54	7.40	75	11.49	*
Site 4	17	04	03	90	6.47	7.38	74	11.49	*
Site 4	18	04	03	90	6.40	7.36	73	11.47	*
Site 4	19	04	03	90	6.35	7.35	74	11.47	*
Site 4	20	04	03	90	6.33	7.35	73	11.44	*
Site 4	25	04	03	90	6.13	7.34	74	11.41	*
Site 4	30	04	03	90	6.07	7.33	76	11.34	*
Site 4	35	04	03	90	6.03	7.34	75	11.32	*
Site 4	40	04	03	90	6.02	7.32	73	11.33	*
Site 4	45	04	03	90	5.99	7.30	73	11.30	*
Site 4	50	04	03	90	5.95	7.32	73	11.22	*
Site 4	55	04	03	90	5.92	7.30	71	11.18	*
Site 4	60	04	03	90	5.90	7.29	69	11.20	*
Site 4	65	04	03	90	5.89	7.29	69	11.15	*
Site 4	70	04	03	90	5.88	7.27	69	11.11	*
Site 4	75	04	03	90	5.85	7.27	69	11.07	*
Site 4	80	04	03	90	5.84	7.26	67	11.02	*
Site 4	85	04	03	90	5.83	7.27	67	10.98	*
Site 4	90	04	03	90	5.83	7.24	67	10.87	*
Gate	00	04	03	90	7.88	7.60	64	11.43	*

Laboratory data:

Site	Depth	Month	Day	Year	Alk	Turb	NH3	TKN	NO3	SRP	TP	ChlA	Silica
Site 1	00	04	03	90	18.1	0.74	9.8	101.3	391.2	BDL	BDL	1.63	4.5
Site 1	05	04	03	90	17.8	0.73	8.4	108.5	404.2	BDL	6.0	3.22	4.7
Site 1	10	04	03	90	17.4	0.80	7.3	127.7	411.8	BDL	5.9	4.22	4.7
Site 1	15	04	03	90	17.6	0.72	10.2	BDL	410.9	BDL	5.5	3.57	4.7
Site 1	20	04	03	90	17.6	0.71	10.9	BDL	415.7	BDL	6.4	4.65	4.7
Intake	00	04	03	90	17.3	0.65	6.1	BDL	420.1	BDL	5.3	2.57	4.8
Intake	05	04	03	90	17.2	0.71	BDL	BDL	425.2	BDL	7.5	2.46	4.7
Intake	10	04	03	90	17.1	0.86	5.6	BDL	430.9	BDL	BDL	2.58	4.7
Site 2	00	04	03	90	17.6	0.68	5.1	BDL	424.9	BDL	BDL	2.99	4.8
Site 2	05	04	03	90	17.3	0.66	BDL	BDL	423.3	BDL	BDL	2.53	4.7
Site 2	10	04	03	90	17.4	0.71	7.4	BDL	429.3	BDL	BDL	2.96	4.7
Site 2	15	04	03	90	17.0	0.70	5.3	BDL	432.0	BDL	BDL	2.16	4.6
Site 2	20	04	03	90	17.0	0.80	6.8	BDL	431.8	BDL	BDL	4.48	5.0
Site 3	00	04	03	90	17.3	0.69	5.2	BDL	444.2	BDL	BDL	3.44	4.8
Site 3	05	04	03	90	17.1	0.78	BDL	BDL	444.5	BDL	BDL	4.04	4.8
Site 3	10	04	03	90	17.2	0.80	BDL	BDL	449.0	BDL	BDL	2.45	4.7
Site 3	15	04	03	90	*	*	*	*	*	*	*	1.86	*
Site 3	20	04	03	90	17.3	0.80	BDL	BDL	428.7	BDL	BDL	1.18	4.8
Site 3	40	04	03	90	17.1	0.72	5.4	BDL	457.5	BDL	BDL	*	4.8
Site 3	60	04	03	90	17.6	0.81	BDL	BDL	456.9	BDL	BDL	*	4.8
Site 3	80	04	03	90	17.5	1.25	5.9	BDL	455.0	BDL	7.8	*	4.9
Site 4	00	04	03	90	17.2	0.90	5.3	BDL	420.9	BDL	BDL	3.87	5.0
Site 4	05	04	03	90	17.5	0.70	5.2	BDL	452.4	BDL	BDL	2.55	4.8
Site 4	10	04	03	90	17.4	0.86	5.3	BDL	454.1	BDL	BDL	2.79	4.7
Site 4	15	04	03	90	*	*	*	*	*	*	*	1.66	*
Site 4	20	04	03	90	17.0	0.72	BDL	BDL	466.3	BDL	BDL	1.35	4.7
Site 4	40	04	03	90	17.2	0.70	BDL	BDL	465.3	BDL	BDL	*	4.8
Site 4	60	04	03	90	17.1	0.69	BDL	BDL	464.3	BDL	BDL	*	4.7
Site 4	80	04	03	90	17.0	0.80	7.4	BDL	459.4	BDL	6.7	*	4.7
Site 4	90	04	03	90	17.0	0.97	5.1	BDL	449.5	BDL	6.8	*	4.8
Gate	00	04	03	90	19.3	0.88	7.7	BDL	439.3	BDL	6.4	*	4.8

Lake Whatcom Monitoring Program

Prepared January 9, 1993 by the Environmental Research and Education Center,
Western Washington University, for the City of Bellingham, Department of Public Works.

*: missing. BDL: below detection limit.

Hydrolab and quality control data:

Site	Depth	Month	Day	Year	Temp	pH	Cond	DO	Secchi
Site 1	00	02	06	90	5.17	7.32	72	11.98	2.6
Site 1	01	02	06	90	5.18	7.30	72	11.92	*
Site 1	02	02	06	90	5.18	7.30	73	11.93	*
Site 1	03	02	06	90	5.17	7.29	74	11.87	*
Site 1	04	02	06	90	5.17	7.26	73	11.87	*
Site 1	05	02	06	90	5.17	7.29	75	11.87	*
Site 1	06	02	06	90	5.17	7.30	74	11.87	*
Site 1	07	02	06	90	5.17	7.27	76	11.87	*
Site 1	08	02	06	90	5.18	7.30	74	11.86	*
Site 1	09	02	06	90	5.18	7.31	75	11.86	*
Site 1	10	02	06	90	5.18	7.30	75	11.86	*
Site 1	11	02	06	90	5.18	7.29	75	11.87	*
Site 1	12	02	06	90	5.17	7.30	75	11.81	*
Site 1	13	02	06	90	5.17	7.29	75	11.81	*
Site 1	14	02	06	90	5.17	7.31	75	11.81	*
Site 1	15	02	06	90	5.17	7.30	75	11.81	*
Site 1	16	02	06	90	5.17	7.30	74	11.81	*
Site 1	17	02	06	90	5.17	7.30	75	11.81	*
Site 1	18	02	06	90	5.17	7.30	75	11.82	*
Site 1	19	02	06	90	5.16	7.31	76	11.82	*
Site 1	20	02	06	90	5.17	7.31	75	11.82	*

Hydrolab and quality control data (continued):

Site	Depth	Month	Day	Year	Temp	pH	Cond	DO	Secchi
Intake	00	02	06	90	5.84	7.26	70	11.53	4.9
Intake	01	02	06	90	5.84	7.24	69	11.42	*
Intake	02	02	06	90	5.84	7.21	69	11.42	*
Intake	03	02	06	90	5.84	7.20	69	11.42	*
Intake	04	02	06	90	5.84	7.33	73	11.36	*
Intake	05	02	06	90	5.84	7.29	72	11.41	*
Intake	06	02	06	90	5.84	7.27	73	11.36	*
Intake	07	02	06	90	5.85	7.27	73	11.35	*
Intake	08	02	06	90	5.86	7.27	73	11.36	*
Intake	09	02	06	90	5.86	7.26	73	11.35	*
Intake	10	02	06	90	5.85	7.27	73	11.36	*
Intake	11	02	06	90	5.85	7.27	74	11.36	*
Intake	12	02	06	90	5.85	7.26	73	11.36	*
Site 2	00	02	06	90	5.77	7.34	71	11.62	4.9
Site 2	01	02	06	90	5.80	7.24	71	11.51	*
Site 2	02	02	06	90	5.81	7.24	71	11.44	*
Site 2	03	02	06	90	5.81	7.24	70	11.45	*
Site 2	04	02	06	90	5.83	7.26	71	11.44	*
Site 2	05	02	06	90	5.81	7.20	73	11.43	*
Site 2	06	02	06	90	5.81	7.22	73	11.44	*
Site 2	07	02	06	90	5.81	7.24	73	11.39	*
Site 2	08	02	06	90	5.81	7.24	73	11.44	*
Site 2	09	02	06	90	5.81	7.24	73	11.44	*
Site 2	10	02	06	90	5.83	7.25	73	11.44	*
Site 2	11	02	06	90	5.82	7.23	73	11.38	*
Site 2	12	02	06	90	5.83	7.23	74	11.38	*
Site 2	13	02	06	90	5.83	7.26	74	11.38	*
Site 2	14	02	06	90	5.83	7.24	73	11.38	*
Site 2	15	02	06	90	5.83	7.23	74	11.38	*
Site 2	16	02	06	90	5.83	7.25	74	11.38	*
Site 2	17	02	06	90	5.83	7.25	75	11.38	*
Site 2	18	02	06	90	5.83	7.25	73	11.38	*
Site 2	19	02	06	90	5.83	7.25	73	11.38	*
Site 2	20	02	06	90	5.83	7.27	74	11.37	*

Hydrolab and quality control data (continued):

Site	Depth	Month	Day	Year	Temp	pH	Cond	DO	Secchi
Site 3	00	02	06	90	6.22	7.50	70	11.24	5.4
Site 3	01	02	06	90	6.25	7.41	68	11.01	*
Site 3	02	02	06	90	6.28	7.30	68	10.95	*
Site 3	03	02	06	90	6.29	7.30	68	10.88	*
Site 3	04	02	06	90	6.29	7.25	68	10.88	*
Site 3	05	02	06	90	6.29	7.26	67	10.88	*
Site 3	06	02	06	90	6.30	7.23	68	10.88	*
Site 3	07	02	06	90	6.30	7.24	70	10.87	*
Site 3	08	02	06	90	6.31	7.25	70	10.87	*
Site 3	09	02	06	90	6.31	7.25	70	10.86	*
Site 3	10	02	06	90	6.31	7.25	70	10.87	*
Site 3	11	02	06	90	6.31	7.25	71	10.87	*
Site 3	12	02	06	90	6.31	7.21	69	10.87	*
Site 3	13	02	06	90	6.31	7.22	70	10.87	*
Site 3	14	02	06	90	6.32	7.23	70	10.86	*
Site 3	15	02	06	90	6.32	7.22	71	10.86	*
Site 3	16	02	06	90	6.33	7.22	70	10.85	*
Site 3	17	02	06	90	6.33	7.23	71	10.86	*
Site 3	18	02	06	90	6.33	7.23	70	10.85	*
Site 3	19	02	06	90	6.33	7.25	71	10.85	*
Site 3	20	02	06	90	6.34	7.23	71	10.85	*
Site 3	25	02	06	90	6.34	7.22	70	10.85	*
Site 3	30	02	06	90	6.34	7.21	71	10.80	*
Site 3	35	02	06	90	6.34	7.20	70	10.79	*
Site 3	40	02	06	90	6.35	7.19	71	10.73	*
Site 3	45	02	06	90	6.35	7.20	70	10.73	*
Site 3	50	02	06	90	6.36	7.20	71	10.78	*
Site 3	55	02	06	90	6.37	7.19	70	10.72	*
Site 3	60	02	06	90	6.37	7.19	71	10.72	*
Site 3	65	02	06	90	6.37	7.18	71	10.67	*
Site 3	70	02	06	90	6.36	7.17	69	10.67	*
Site 3	75	02	06	90	6.37	7.17	68	10.67	*
Site 3	80	02	06	90	6.37	7.17	69	10.67	*

Hydrolab and quality control data (continued):

Site	Depth	Month	Day	Year	Temp	pH	Cond	DO	Secchi
Site 4	00	02	06	90	6.28	7.66	64	10.46	6.1
Site 4	01	02	06	90	6.28	7.62	64	10.41	*
Site 4	02	02	06	90	6.29	7.50	65	10.35	*
Site 4	03	02	06	90	6.30	7.42	65	10.34	*
Site 4	04	02	06	90	6.29	7.41	65	10.35	*
Site 4	05	02	06	90	6.30	7.38	67	10.35	*
Site 4	06	02	06	90	6.30	7.34	69	10.29	*
Site 4	07	02	06	90	6.32	7.34	69	10.33	*
Site 4	08	02	06	90	6.32	7.31	70	10.28	*
Site 4	09	02	06	90	6.32	7.29	70	10.27	*
Site 4	10	02	06	90	6.32	7.33	71	10.27	*
Site 4	11	02	06	90	6.32	7.30	70	10.33	*
Site 4	12	02	06	90	6.33	7.31	70	10.27	*
Site 4	13	02	06	90	6.33	7.29	71	10.37	*
Site 4	14	02	06	90	6.33	7.29	71	10.27	*
Site 4	15	02	06	90	6.34	7.29	71	10.27	*
Site 4	16	02	06	90	6.34	7.29	70	10.26	*
Site 4	17	02	06	90	6.34	7.28	71	10.27	*
Site 4	18	02	06	90	6.34	7.27	71	10.27	*
Site 4	19	02	06	90	6.34	7.26	71	10.27	*
Site 4	20	02	06	90	6.34	7.26	71	10.27	*
Site 4	25	02	06	90	6.34	7.25	70	10.26	*
Site 4	30	02	06	90	6.34	7.25	69	10.27	*
Site 4	35	02	06	90	6.34	7.25	69	10.26	*
Site 4	40	02	06	90	6.34	7.24	70	10.26	*
Site 4	45	02	06	90	6.35	7.23	69	10.21	*
Site 4	50	02	06	90	6.35	7.21	69	10.20	*
Site 4	55	02	06	90	6.35	7.21	69	10.20	*
Site 4	60	02	06	90	6.35	7.20	67	10.20	*
Site 4	65	02	06	90	6.35	7.19	68	10.15	*
Site 4	70	02	06	90	6.35	7.20	66	10.20	*
Site 4	75	02	06	90	6.35	7.21	66	10.15	*
Site 4	80	02	06	90	6.35	7.18	66	10.15	*
Site 4	85	02	06	90	6.35	7.16	68	10.10	*
Site 4	90	02	06	90	6.36	7.20	66	10.15	*
Gate	00	02	06	90	6.63	7.69	60	11.36	*

Laboratory data:

Site	Depth	Month	Day	Year	Alk	Turb	NH3	TKN	NO3	SRP	TP	ChlA	Silica
Site 1	00	02	06	90	17.9	1.55	BDL	125.5	366.7	BDL	10.5	4.21	4.3
Site 1	05	02	06	90	17.6	1.47	BDL	126.9	378.6	BDL	5.8	4.40	4.2
Site 1	10	02	06	90	17.6	1.57	BDL	134.0	380.6	BDL	BDL	4.48	4.1
Site 1	15	02	06	90	17.7	1.50	BDL	BDL	409.4	BDL	BDL	4.55	4.3
Site 1	20	02	06	90	14.9	1.55	11.0	BDL	381.9	1359.9	1369.4	4.50	4.1
Intake	00	02	06	90	17.3	0.69	BDL	BDL	412.8	BDL	BDL	2.62	4.4
Intake	05	02	06	90	17.5	0.69	BDL	BDL	414.4	BDL	BDL	2.38	4.6
Intake	10	02	06	90	17.4	0.76	BDL	BDL	441.6	BDL	BDL	2.31	4.9
Site 2	00	02	06	90	17.6	0.77	BDL	BDL	487.6	BDL	BDL	1.68	4.5
Site 2	05	02	06	90	17.3	0.69	BDL	BDL	473.1	BDL	BDL	1.84	4.8
Site 2	10	02	06	90	17.3	0.82	BDL	BDL	455.5	BDL	BDL	2.90	4.0
Site 2	15	02	06	90	17.5	0.73	BDL	BDL	411.4	BDL	BDL	2.69	4.4
Site 2	20	02	06	90	16.9	0.75	BDL	BDL	412.1	BDL	BDL	2.72	4.4
Site 3	00	02	06	90	17.2	0.52	BDL	BDL	420.7	BDL	BDL	1.06	4.4
Site 3	05	02	06	90	17.2	0.54	BDL	BDL	419.7	BDL	BDL	1.06	4.5
Site 3	10	02	06	90	17.4	0.53	BDL	BDL	415.7	BDL	7.1	0.93	4.4
Site 3	15	02	06	90	*	*	*	*	*	*	*	1.11	*
Site 3	20	02	06	90	17.3	0.58	BDL	BDL	417.7	BDL	5.9	0.92	4.3
Site 3	40	02	06	90	17.3	0.56	BDL	BDL	417.1	BDL	BDL	*	4.2
Site 3	60	02	06	90	17.4	0.65	BDL	BDL	416.1	BDL	BDL	*	4.5
Site 3	80	02	06	90	17.2	0.56	BDL	BDL	416.1	BDL	6.5	*	4.4
Site 4	00	02	06	90	17.2	0.51	BDL	BDL	406.5	BDL	BDL	0.62	4.3
Site 4	05	02	06	90	17.3	0.58	BDL	BDL	407.1	BDL	BDL	0.62	4.1
Site 4	10	02	06	90	17.4	0.50	BDL	BDL	408.4	BDL	BDL	0.57	4.2
Site 4	15	02	06	90	*	*	*	*	*	*	*	0.70	*
Site 4	20	02	06	90	17.2	0.57	BDL	BDL	406.1	BDL	BDL	0.57	4.2
Site 4	40	02	06	90	17.1	0.59	BDL	BDL	405.1	BDL	5.1	*	4.2
Site 4	60	02	06	90	17.3	0.58	BDL	BDL	402.2	BDL	BDL	*	4.0
Site 4	80	02	06	90	17.5	0.52	BDL	BDL	404.5	BDL	BDL	*	4.1
Site 4	90	02	06	90	17.2	0.50	BDL	BDL	402.5	BDL	BDL	*	4.3
Gate	00	02	06	90	17.4	0.90	BDL	BDL	388.6	BDL	7.5	*	4.2

Lake Whatcom 1991–1992 coliform data

Site	Depth	Month	Day	Year	Total Coliforms (col/100 mL)	Fecal Coliforms (col/100 mgL)
1	0.3	10	7	91	300	<2
Intake	0.3	10	7	91	30	23
2	0.3	10	7	91	70	<2
3	0.3	10	7	91	30	<2
4	0.3	10	7	91	50	<2
1	0.3	11	4	91	140	2
Intake	0.3	11	4	91	240	<2
2	0.3	11	4	91	220	2
3	0.3	11	4	91	50	<2
4	0.3	11	4	91	30	<2
1	0.3	12	2	91	30	8
Intake	0.3	12	2	91	70	4
2	0.3	12	2	91	50	2
3	0.3	12	2	91	30	4
4	0.3	12	2	91	50	2
1	0.3	2	3	92	80	2
Intake	0.3	2	3	92	70	2
2	0.3	2	3	92	50	<2
3	0.3	2	3	92	23	8
4	0.3	2	3	92	22	<2
1	0.3	4	7	92	50	4
Intake	0.3	4	7	92	9	<2
2	0.3	4	7	92	8	<2
3	0.3	4	7	92	4	<2
4	0.3	4	7	92	4	<2
1	0.3	6	2	92	80	30
Intake	0.3	6	2	92	14	<2
2	0.3	6	2	92	26	4
3	0.3	6	2	92	130	<2
4	0.3	6	2	92	30	<2
1	0.3	7	6	92	500	2
Intake	0.3	7	6	92	240	<2
2	0.3	7	6	92	110	4
3	0.3	7	6	92	50	<2
4	0.3	7	6	92	110	4
1	0.3	8	3	92	500	2
Intake	0.3	8	3	92	130	<2
2	0.3	8	3	92	22	<2
3	0.3	8	3	92	17	<2
4	0.3	8	3	92	8	<2
1	0.3	8	31	92	900	23
Intake	0.3	8	31	92	1600	<2
2	0.3	8	31	92	300	11
3	0.3	8	31	92	130	11
4	0.3	8	31	92	23	<2

1991–1992 biannual water quality data for Lake Whatcom

Site	Date	Depth	DIC	TOC	Bicarb	Ca	Cl	Mg	K
Site 1	08/31/92	0.30	1.0	3.9	18.1	7.9	1.8	1.8	0.4
Site 1	08/31/92	20.00	2.1	3.6	23.0	9.0	1.9	2.0	0.5
Intake	08/31/92	0.30	1.0	3.6	18.5	7.6	1.8	1.8	0.4
Intake	08/31/92	10.00	1.0	3.5	18.2	7.7	1.6	1.8	0.4
Site 2	08/31/92	0.30	1.0	3.4	18.1	7.9	1.7	1.8	0.4
Site 2	08/31/92	20.00	2.1	3.6	22.3	8.6	1.8	1.9	0.5
Site 3	08/31/92	0.30	1.0	3.6	18.0	7.9	1.7	1.8	0.4
Site 3	08/31/92	80.00	1.5	3.3	18.1	8.2	1.9	1.8	0.5
Site 4	08/31/92	0.30	1.0	3.4	18.0	7.9	1.7	1.8	0.5
Site 4	08/31/92	90.00	1.2	3.2	16.8	8.0	1.9	1.7	0.5

Abreviations and units:

Inorganic carbon (DIC), mg/L
Total organic carbon (TOC), mg/L
Bicarbonate (Bicarb), mg/L
Calcium (Ca), mg/L
Magnesium (Mg), mg/L
Potassium (K), mg/L
Chloride (Cl), mg/L

Cadmium (Cd), µg/L
Chromium (Cr), µg/L
Copper (Cu), µg/L
Iron (Fe), mg/L
Lead (Pb), µg/L
Nickel (Ni), µg/L
Zinc (Zn), mg/L

1991–1992 biannual water quality data for Lake Whatcom

Site	Date	Depth	Cd	Cr	Cu	Fe	Pb	Ni	Zn
Site 1	02/03/92	0.30	< 0.5	< 0.5	6.3	67.0	< 5	< 5	< 0.2
Site 1	02/03/92	20.00	< 0.5	< 0.5	< 5	67.0	< 5	< 5	< 0.2
Intake	02/03/92	0.30	< 0.5	< 0.5	< 5	37.0	< 5	< 5	< 0.2
Intake	02/03/92	10.00	< 0.5	< 0.5	< 5	40.0	< 5	< 5	< 0.2
Site 2	02/03/92	0.30	< 0.5	< 0.5	< 5	41.0	< 5	< 5	< 0.2
Site 2	02/03/92	20.00	< 0.5	< 0.5	< 5	47.0	< 5	< 5	< 0.2
Site 3	02/03/92	0.30	< 0.5	< 0.5	< 5	35.0	< 5	< 5	< 0.2
Site 3	02/03/92	80.00	< 0.5	< 0.5	< 5	47.0	< 5	< 5	< 0.2
Site 4	02/03/92	0.30	< 0.5	< 0.5	< 5	44.0	< 5	< 5	< 0.2
Site 4	02/03/92	90.00	< 0.5	< 0.5	< 5	47.0	< 5	< 5	< 0.2

Abreviations and units:

Inorganic carbon (DIC), mg/L
Total organic carbon (TOC), mg/L
Bicarbonate (Bicarb), mg/L
Calcium (Ca), mg/L
Magnesium (Mg), mg/L
Potassium (K), mg/L
Chloride (Cl), mg/L

Cadmium (Cd), µg/L
Chromium (Cr), µg/L
Copper (Cu), µg/L
Iron (Fe), mg/L
Lead (Pb), µg/L
Nickel (Ni), µg/L
Zinc (Zn), mg/L

1991–1992 biannual water quality data for Lake Whatcom

Site	Date	Depth	Cd	Cr	Cu	Fe	Pb	Ni	Zn
Site 1	08/31/92	0.30	< 0.5	< 0.5	< 5	< 5	< 5	< 5	< 0.2
Site 1	08/31/92	20.00	< 0.5	< 0.5	< 5	436.0	< 5	< 5	< 0.2
Intake	08/31/92	0.30	< 0.5	< 0.5	< 5	< 5	< 5	< 5	< 0.2
Intake	08/31/92	10.00	< 0.5	< 0.5	< 5	< 5	< 5	< 5	< 0.2
Site 2	08/31/92	0.30	< 0.5	< 0.5	< 5	< 5	< 5	< 5	< 0.2
Site 2	08/31/92	20.00	< 0.5	< 0.5	59.3	230.0	< 5	< 5	< 0.2
Site 3	08/31/92	0.30	< 0.5	< 0.5	< 5	< 5	< 5	< 5	< 0.2
Site 3	08/31/92	80.00	< 0.5	< 0.5	6.4	< 5	< 5	< 5	< 0.2
Site 4	08/31/92	0.30	< 0.5	< 0.5	< 5	< 5	< 5	< 5	< 0.2
Site 4	08/31/92	90.00	< 0.5	< 0.5	5.7	< 5	< 5	< 5	< 0.2

Abreviations and units:

Inorganic carbon (DIC), mg/L
Total organic carbon (TOC), mg/L
Bicarbonate (Bicarb), mg/L
Calcium (Ca), mg/L
Magnesium (Mg), mg/L
Potassium (K), mg/L
Chloride (Cl), mg/L

Cadmium (Cd), µg/L
Chromium (Cr), µg/L
Copper (Cu), µg/L
Iron (Fe), mg/L
Lead (Pb), µg/L
Nickel (Ni), µg/L
Zinc (Zn), mg/L

Lake Whatcom Phytoplankton and Zooplankton Counts (cells/liter) for 1991-1992 contract.

		SAMPLE DATE						
Site	Depth	10/07/91	11/04/91	12/02/91	02/03/92	04/07/92	06/02/92	08/31/92
		ZOOPLANKTON						
21	05	1390	220	110	20	120	440	100
11	05	1070	700	370	90	680	760	105
22	05	650	310	140	10	70	620	40
31	05	1480	360	90	30	90	740	95
32	05	1230	170	130	10	130	1030	85
00	01	990	190	200	0	120	140	60
		CHRYSOPHYTA						
21	05	42800	43700	22600	69200	25700	46600	8400
11	05	47200	482700	268900	139200	83800	164400	5200
22	05	36100	10600	46100	31800	17600	105700	200
31	05	45300	45700	44800	36700	35000	60500	1400
32	05	52900	11500	10000	17500	58100	77200	1100
00	01	44000	40900	14100	13300	49600	55700	400
		CYANOPHYTA						
21	05	2200	600	0	0	0	400	11300
11	05	7000	800	0	2400	0	3900	29800
22	05	1700	200	0	0	0	3500	6100
31	05	1700	400	0	300	0	900	5300
32	05	1500	0	0	0	0	1200	5700
00	01	2000	300	0	0	0	0	4800
		CHLOROPHYTA						
21	05	2700	700	2200	200	1300	1100	200
11	05	800	600	2500	3000	1600	1500	2100
22	05	4300	0	1900	100	400	800	700
31	05	3100	600	600	200	1600	200	900
32	05	4600	100	100	200	300	1000	1500
00	01	1700	500	1200	400	1000	400	1000
		PYRROPHYTA						
21	05	9600	400	0	0	0	100	0
11	05	29200	200	200	0	0	700	0
22	05	5000	0	0	0	0	0	0
31	05	1500	1000	0	0	0	100	0
32	05	3300	100	0	0	0	300	700
00	01	6200	500	0	0	0	0	0

C Water Quality Data for Selected Creeks in the Lake Whatcom Watershed

1991–1992 water quality data for selected creeks in the Lake Whatcom watershed

Site	Date	pH	Alk	Cond	Turb	NH	TKN	NO	SRP	TP
Blue Canyon	02/10/92	8.4	141.4	350.0	2.7	6.1	< 100	735.4	9.7	< 5
Wildwood	02/10/92	7.7	6.6	52.7	2.9	20.4	< 100	3329.5	< 5	< 5
Austin	02/10/92	7.5	16.8	67.0	2.2	13.4	176.1	1014.1	< 5	4.9
Park Place	02/10/92	7.8	72.6	180.0	10.3	30.2	264.5	692.3	8.7	29.0
Silver Beach	02/10/92	7.7	40.4	124.0	11.5	23.7	333.2	2425.8	8.7	30.1
Smith	02/10/92	7.5	14.2	60.0	1.2	< 5	< 100	1805.7	< 5	< 5
Blue Canyon	07/31/92	8.6	170.4	373.2	1.4	112.2	140.9	299.4	6.2	10.6
Wildwood	07/31/92	7.4	9.0	49.5	0.4	140.8	164.3	2708.1	7.1	4.6
Austin	07/31/92	7.6	21.0	74.0	0.6	9.1	146.9	490.5	5.9	8.6
Park Place	07/31/92	8.0	128.4	29.5	7.8	72.6	1237.6	648.1	22.7	87.7
Silver Beach	07/31/92	8.1	105.2	252.0	4.5	27.0	352.9	236.4	-99	196.3
Smith	07/31/92	7.8	18.8	59.8	0.5	47.8	134.8	738.7	-99	7.4

Abreviations and units:
pH, pH units
Alkalinity (Alk), mg/L as CaCO3
Conductivity (Cond), µMHO
Turbidity (Turb), NTU
Ammonia (NH), µg/L
Total Kjeldahl nitrogen (TKN), µg/L
Nitrite.nitrate (NO), µg/L
Soluble phosphate (SRP), µg/L
Total phosphorus (TP), µg/L
Dissolved oxygen (DO), mg/L
Suspended solids (TSS), mg/L
Total solids (TS), mg/L

Bicarbonate (Bicarb), mg/L
Calcium (Ca), mg/L
Magnesium (Mg), mg/L
Potassium (K), mg/L
Chloride (Cl), mg/L
Cadmium (Cd), µg/L
Chromium (Cr), µg/L
Copper (Cu), µg/L
Iron (Fe), mg/L
Lead (Pb), µg/L
Nickel (Ni), µg/L
Zinc (Zn), mg/L

1991–1992 water quality data for selected creeks in the Lake Whatcom watershed

Site	Date	DO	TSS	TS	Bicarb	Ca	Mg	K	Cl	
Blue Canyon	02/10/92	10.9	2.9	120.0	138.0	36.7	10.4	2.1	-99	
Wildwood	02/10/92	11.1	0.3	121.0	6.6	6.3	1.4	0.2	-99	
Austin	02/10/92	11.2	3.4	63.3	16.7	7.7	1.6	0.4	-99	
Park Place	02/10/92	10.7	4.5	135.7	72.2	19.4	8.3	1.1	-99	
Silver Beach	02/10/92	10.9	4.1	95.7	40.2	13.9	4.9	1.0	-99	
Smith	02/10/92	11.1	0.9	74.3	14.1	6.4	1.7	0.3	-99	
Blue Canyon	07/31/92	9.7	3.1	229.2	163.9	40.4	12.0	2.4	1.7	
Wildwood	07/31/92	9.6	-0.1	45.7	9.0	6.2	1.4	0.3	1.4	
Austin	07/31/92	9.1	0.4	57.1	20.9	47.5	1.6	0.5	5.2	
Park Place	07/31/92	9.1	0.5	194.2	127.2	5.1	12.8	1.9	5.1	
Silver Beach	07/31/92	8.4	1.1	165.2	104.0	4.1	10.4	1.7	6.3	
Smith	07/31/92	9.4	1.0	53.3	18.7	46.9	1.7	0.3	1.6	

Abreviations and units:
pH, pH units
Alkalinity (Alk), mg/L as CaCO3
Conductivity (Cond), µMHO
Turbidity (Turb), NTU
Ammonia (NH), µg/L
Total Kjeldahl nitrogen (TKN), µg/L
Nitrite.nitrate (NO), µg/L
Soluble phosphate (SRP), µg/L
Total phosphorus (TP), µg/L
Dissolved oxygen (DO), mg/L
Suspended solids (TSS), mg/L
Total solids (TS), mg/L

Bicarbonate (Bicarb), mg/L
Calcium (Ca), mg/L
Magnesium (Mg), mg/L
Potassium (K), mg/L
Chloride (Cl), mg/L
Cadmium (Cd), µg/L
Chromium (Cr), µg/L
Copper (Cu), µg/L
Iron (Fe), mg/L
Lead (Pb), µg/L
Nickel (Ni), µg/L
Zinc (Zn), mg/L

1991–1992 water quality data for selected creeks in the Lake Whatcom watershed

Site	Date	Cd	Cr	Cu	Fe	Pb	Ni	Zn		
Blue Canyon	02/10/92	< 0.5	< 0.5	< 5	1.9	1.9	1.9	< 0.2		
Wildwood	02/10/92	< 0.5	< 0.5	1.9	1.9	1.9	1.9	< 0.2		
Austin	02/10/92	< 0.5	< 0.5	11.0	1.9	1.9	1.9	< 0.2		
Park Place	02/10/92	< 0.5	1.9	1.9	1.9	1.9	1.9	< 0.2		
Silver Beach	02/10/92	< 0.5	1.0	7.0	1.9	1.9	1.9	< 0.2		
Smith	02/10/92	< 0.5	< 0.5	6.5	1.9	1.9	1.9	< 0.2		
Blue Canyon	07/31/92	< 0.5	< 0.5	1.9	1.9	1.9	1.9	< 0.2		
Wildwood	07/31/92	< 0.5	< 0.5	1.9	1.9	1.9	1.9	< 0.2		
Austin	07/31/92	< 0.5	< 0.5	1.9	1.9	1.9	1.9	< 0.2		
Park Place	07/31/92	< 0.5	0.6	1.9	1.9	1.9	1.9	< 0.2		
Silver Beach	07/31/92	< 0.5	< 0.5	1.9	1.9	1.9	1.9	< 0.2		
Smith	07/31/92	< 0.5	< 0.5	1.9	1.9	1.9	1.9	< 0.2		

Abreviations and units:
pH, pH units
Alkalinity (Alk), mg/L as CaCO3
Conductivity (Cond), µMHO
Turbidity (Turb), NTU
Ammonia (NH), µg/L
Total Kjeldahl nitrogen (TKN), µg/L
Nitrite.nitrate (NO), µg/L
Soluble phosphate (SRP), µg/L
Total phosphorus (TP), µg/L
Dissolved oxygen (DO), mg/L
Suspended solids (TSS), mg/L
Total solids (TS), mg/L

Bicarbonate (Bicarb), mg/L
Calcium (Ca), mg/L
Magnesium (Mg), mg/L
Potassium (K), mg/L
Chloride (Cl), mg/L
Cadmium (Cd), µg/L
Chromium (Cr), µg/L
Copper (Cu), µg/L
Iron (Fe), mg/L
Lead (Pb), µg/L
Nickel (Ni), µg/L
Zinc (Zn), mg/L

1991–1992 Coliform data from selected creeks in the Lake Whatcom watershed

Site	Month	Day	Year	Total Coliforms (col/100 mL)	Fecal Coliforms (col/100 mgL)
Austin Creek	2	10	92	130	13
Blue Canyon #1	2	10	92	130	8
Park Place	2	10	92	>1600	70
Silver Beach	2	10	92	220	80
Smith Creek	2	10	92	170	2
Wildwood	2	10	92	30	<2
Austin Creek	7	13	92	>1600	80
Blue Canyon #1	7	13	92	900	22
Park Place	7	13	92	1600	1600
Silver Beach	7	13	92	>1600	900
Smith Creek	7	13	92	900	30
Wildwood	7	13	92	>1600	17

D Water Quality Data from the Austin Creek Investigative Study

Austin Creek investigative study water quality data

Site	M	D	Y	Alk	Cond	Flow	DO	Temp	Sat DO	% Sat	pH	Turb	TSS	TOC	TC	FC
1	10	14	92	22.6	67	4.80	6.5	10.0	11.3	57	7.1	2.1	2.9	24.1	1600	170
2	10	14	92	17.4	50	0.01	9.0	8.5	11.7	77	6.9	4.3	17.3	58.9	1600	1600
3	10	14	92	21.0	73	5.30	11.2	8.5	11.7	96	7.4	2.0	2.7	22.6	900	300
4	10	14	92	41.7	12	0.05	11.6	11.0	11.0	105	7.1	2.9	2.7	31.0	1600	1600
5	10	14	92	22.6	76	5.60	11.3	9.0	11.6	97	7.2	1.6	< 2.0	21.8	>1600	>1600
6	10	14	92	27.8	73	0.00	9.6	13.0	10.5	91	7.3	2.7	3.0	20.2	>1600	110
7	10	14	92	20.9	57	0.00	9.1	13.0	10.5	86	7.1	1.1	2.8	23.0	500	170
8	10	14	92	21.0	71	6.20	11.1	8.5	11.7	95	7.5	2.6	7.3	21.0	220	70
9	10	14	92	27.6	71	0.01	11.5	11.0	11.0	105	6.2	6.1	31.8	-99.0	1600	300
10	10	14	92	21.6	70	3.90	11.5	8.0	11.8	97	7.2	2.6	5.0	22.1	1600	50
11	10	14	92	19.5	62	1.70	11.4	8.0	11.8	97	7.3	4.4	15.0	-99.0	>1600	17
12	10	14	92	18.7	62	6.10	11.3	8.0	11.8	95	7.2	1.6	5.9	21.9	>1600	80
13	10	14	92	21.4	71	4.80	10.8	8.0	11.8	91	7.1	2.0	2.6	29.4	1600	80
A	10	14	92	57.0	13	0.09	10.9	-99	-99	-99	7.9	0.7	2.3	7.9	80	8
B	10	14	92	19.7	64	0.61	10.5	8.5	11.7	90	6.7	0.3	< 2.0	13.1	240	4
C	10	14	92	9.2	31	<0.3*	10.7	7.8	11.8	90	7.0	0.2	< 2.0	12.4	50	4
D	10	14	92	9.0	33	0.30*	10.0	8.0	11.8	84	7.0	1.0	4.4	9.2	300	2
E	10	14	92	8.8	8	0.50*	11.5	6.5	12.3	93	7.1	0.6	3.2	8.4	130	2
F	10	14	92	7.0	7	0.04	10.4	7.5	12.0	87	6.4	0.2	< 2.0	6.7	170	2
G	10	14	92	9.8	33	0.03	9.6	6.2	12.4	78	6.9	0.2	< 2.0	9.9	240	<2
H	10	14	92	11.7	35	0.01	10.7	7.0	12.1	88	7.0	0.1	< 2.0	10.8	500	<2
I	10	14	92	7.4	30	0.06	8.0	7.5	12.0	67	6.7	0.2	< 2.0	12.0	300	<2
J	10	14	92	48.0	11	0.01	10.6	-99**	12.0	88	7.4	0.6	< 2.0	19.4	900	<2
K	10	14	92	15.4	53	3.03	11.6	-99**	12.0	96	7.2	0.3	< 2.0	14.0	500	17
L	10	14	92	10.0	41	3.34	10.5	-99**	12.0	87	6.7	0.3	< 2.0	14.6	500	8
M	10	14	92	22.2	86	0.36	-99	-99**	12.0	-99	7.6	0.6	3.9	14.5	500	4
N	10	14	92	12.5	41	0.75*	-99	-99**	12.0	-99	7.2	0.5	< 2.0	14.4	240	8

Abreviations and units:

Month (M)
Day (D)
Year (Y)
Alkalinity (Alk), mg/L as $CaCO_3$
Conductivity (Cond), µMHO
Flow , m3/sec
Dissolved oxygen (DO), mg/L
Temperature (Temp), °C

pH, pH units

Turbidity (Turb), NTU
Total susp. solids (TSS), mg/L
Total organic carbon (TOC), mg/L
Total coliforms (TC), colonies/100 mL
Fecal coliforms (FC), colonies/100 mL

Austin Creek investigative study water quality data

Site	M	D	Y	NH	NO	TN	SRP	TP
1	11	22	92	16.5	1971.2	2488.4	17.6	44.9
2	11	22	92	-99	285.5	-99	-99	-99
3	11	22	92	11.5	2141.9	1862.4	15.5	31.2
4	11	22	92	14.7	1307.5	1498.2	10.0	17.7
5	11	22	92	7.4	1783.7	1794.7	13.5	35.8
6	11	22	92	8.4	1185.3	888.8	10.4	14.3
7	11	22	92	7.0	241.2	251.8	5.7	10.7
8	11	22	92	8.8	2015.5	1445.1	14.2	36.4
9	11	22	92	-99	-99	-99	5.6	12.8
10	11	22	92	-99	-99	-99	20.4	13.4
11	11	22	92	5.2	1421.3	1556.8	10.7	7.0
2	11	22	92	9.7	2181.9	1968.6	19.0	58.1
13	11	22	92	5.2	2154.5	1472.6	17.3	48.3
A	11	22	92	-88	359.2	312.2	19.3	26.6
B	11	22	92	0.1	2885.7	2731.8	11.8	9.8
C	11	22	92	-88	72.7	57.8	4.9	3.6
D	11	22	92	-88	1103.1	821.0	4.2	67.3
E	11	22	92	-88	161.2	189.6	12.1	4.6
F	11	22	92	-88	1082.0	1229.2	13.1	4.6
G	11	22	92	-88	1246.4	1415.9	10.4	4.6
H	11	22	92	7.4	504.6	341.5	12.1	11.6
I	11	22	92	11.9	260.2	202.4	5.6	7.3
J	11	22	92	7.0	776.5	570.3	7.0	11.6
K	11	22	92	12.0	1391.8	974.8	13.5	11.9
L	11	22	92	7.6	1446.5	863.1	12.8	11.3
M	11	22	92	9.9	2634.9	1598.9	9.7	13.4
N	11	22	92	6.0	1716.3	1097.4	10.0	12.8

Abreviations and units:

Month (M)
Day (D)
Year (Y)

Ammonia (NH)	µg-N/L
Nitrite/Nitrate (NO)	µg-N/L
Total Nitrogen (TN)	µg-N/L
Soluble Phosphate (SRP)	µg-P/L
Total Phosphorus (TP)	µg-P/L

Austin Creek Sampling Sites

All directions (e.g., left, right, up road) assume that you are facing or driving upstream.

Site	Location
1	Austin Creek mainstem near outflow to Lake Whatcom.
2	Pipe from water trap on Sudden Valley golf course
3	Austin Creek mainstem in Sudden Valley golf course
4	Culvert draining Lake Louise
5	Austin Creek mainstem in Sudden Valley golf course
6	Outflow from Lake Louise
7	Lake Louise near outflow
8	Austin Creek mainstem upstream from Lake Whatcom Blvd.
9	Small drainage ditch from new construction (near Sudden Valley Dr.)
10	Austin Creek mainstem upstream from Site 9
11	Austin Creek mainstem upstream from confluence with Beaver Creek and downstream from Lake Louise Rd.
12	Austin Creek mainstem downstream from confluence with Beaver Creek.
13	Beaver Creek mainstem approximately 1/3 mile upstream from confluence with Austin Creek.
A	Culvert 0.6 miles from last house (trailer) on Austin Creek Rd. (also called Entwhistle Rd.)
B	Culvertt 1.1 miles from last house on Austin Creek Rd. Stay left at 0.65 mile fork and 0.80 mile fork (Entwhistle Rd leaves Austin Creek Rd.)
C	Culvert 1.75 miles from last house on Austin Creek Rd.
D	2.45 miles from last house on Austin Creek Rd. Site was in a ravine 20 yards from the left side of the road.
E	Culvert 3.10 miles from last house on Austin Creek Rd. Site was characterized by a large cedar stump on left side of road
F	Culvert 3.22 miles from last house on Austin Creek Rd.
G	Culvert 3.55 miles from last house on Austin Creek Rd.
H	Culvert 3.65 miles from last house on Austin Creek Rd.
I	Culvert 3.85 miles from last house on Austin Creek Rd.
J	Culvert 0.85 miles from last house on Austin Creek Rd. Site was 30 yards up Entwhistle Rd. (second fork past house).
K	Austin Creek mainstem upstream from Lake Louise Rd.
L	Austin Creek mainstem upstream from confluence with major unnamed tributary. Access site by hiking from culdesac at end of Tumbling Water Ln.
M	Major unnamed tributary, upstream from confluence with Austin Creek. Access site by hiking from culdesac at end of Tumbling Water Ln.
N	Austin Creek mainstem downstream from tributary confluence. Access site by hiking from culdesac at end of Tumbling Water Ln.

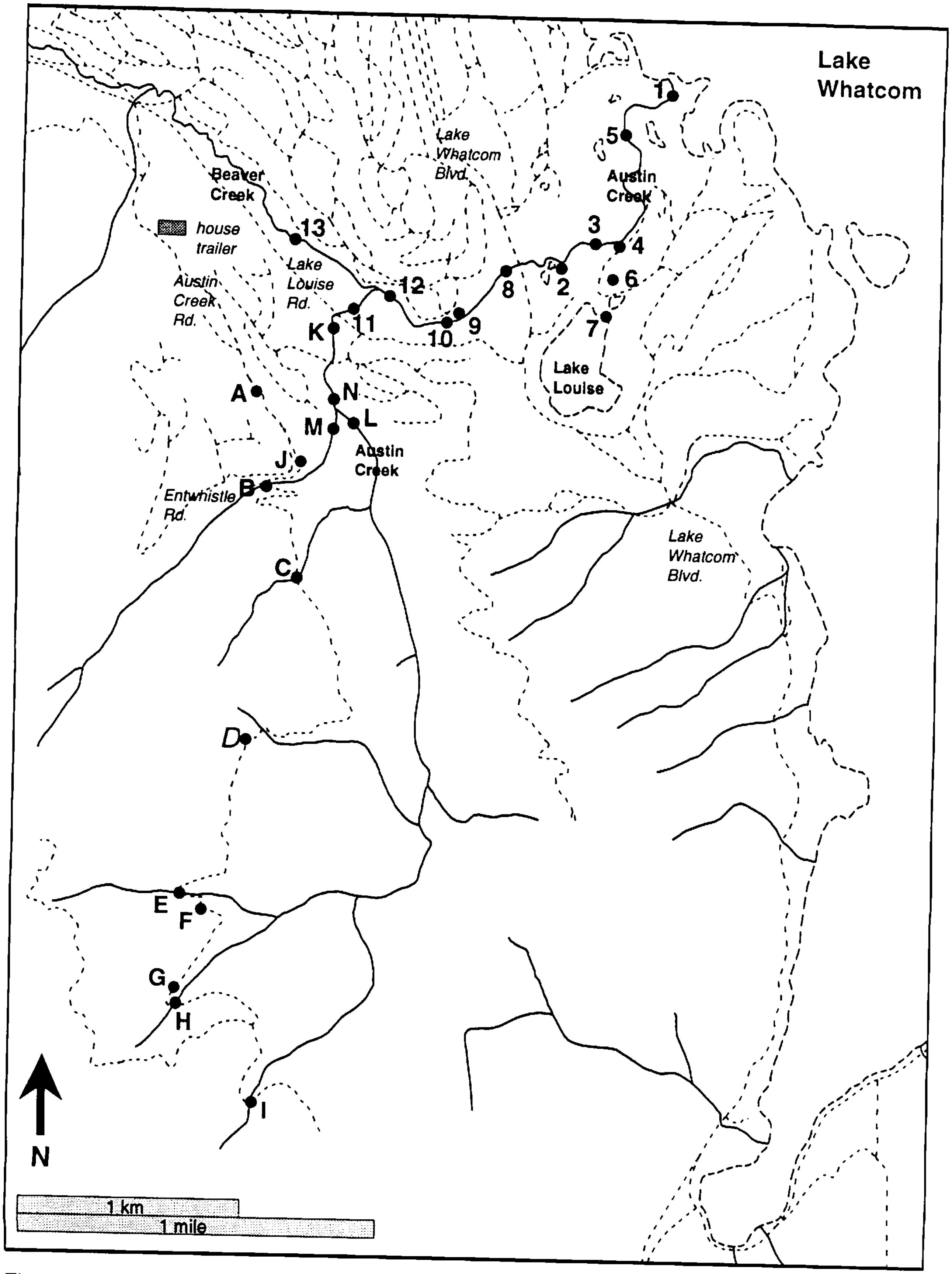

Figure D1: Austin Creek Sampling Sites, October 14 and November 22, 1992.

E HSPF Data

Data available on disk by contacting Dr. R. A. Matthews at (206) 650-3507