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Lake Whatcom Monitoring Project 1993/1994 Report

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Lake Whatcom Monitoring Project

1994 Final Report

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1993–1994 Final Report

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Executive Summary and Water Quality Issues

This report describes the results from the 1993–1994 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 collect supplemental coliform and bacteria data from near-shore sites in basins 1 and 2 of Lake Whatcom; to collect baseline metals and hydrocarbons data from the microlayer in basins 1 and 2, and to estimate hydrologic inputs and outputs for Lake Whatcom using the HSPF model.

The hypolimnetic dissolved oxygen concentrations at Sites 1 and 2 were much lower during the summer of 1994 than 1993. During the preceding three years, the worst oxygen deficit occurred at Site 1 following an unusually warm winter; however, the lake temperatures in 1993–1994 were not unusually warm. In 1988, low oxygen concentrations in basin 1 were thought to have been caused by low flow rates through the basin; however, in 1993–1994, the flow rates at Whatcom Creek were not unusually low during the spring and early summer. A third factor that is probably affecting the hypolimnetic oxygen concentrations is nutrient enrichment from residential runoff. The enrichment effect is on-going, and difficult to separate from other climatic influences, so it is too early to tell whether the lake has passed a critical threshold in its nutrient loading. Nevertheless, this year's extremely low oxygen concentrations in basins 1 and 2 are cause for concern because of the relationship between low oxygen and other chemical and biological processes in the lake.

The lake chemistry data followed typical lake patterns, with only small differences between sites and depths, except during the summer when the influences of biological activity and low hypolimnetic oxygen concentrations were apparent in basins 1 and 2. The summer ammonia concentrations at Sites 1 and 2 were very high at 15–20 m. The highest soluble phosphate concentrations were measured during late summer at Site 1, 20 m. As in previous years, Site 1 continued to have the highest seasonal chlorophyll peaks and usually had the highest total plankton counts. The total and fecal coliforms, enterococcus, and total bacteria counts were usually low at all sites in the lake. The September, 1994 metals data were consistent with those from 1992 and 1993. Arsenic, cadmium, chromium, mercury, nickel, and lead were at or below detection limits. Copper and zinc concentrations were detectable, but low, throughout the lake.

Supplementary bacteria samples were collected in August, 1994 from 24 near-shore sites in basins 1 and 2 and from 5 tributary streams or storm drains flowing into basins 1 and 2. Except for the Bloedel-Donovan swimming area, the total coliform, fecal coliform, and enterococcus counts were low at the near-shore sites. The Bloedel-Donovan samples and most of the tributary samples contained high coliform and enterococcus counts, many of which exceeded EPA's criteria for swimming.

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) were sampled on February 16 and July 17, 1994. Most of the 1993–1994 creek data followed expected patterns for wet- and dry-season chemical concentrations and bacteria counts. The streams in residential areas typically had higher conductivities, higher ammonia, phosphorus, and total suspended solids concentrations, and much higher total and fecal coliform counts, compared to the streams in forested areas.

The microlayer in Lake Whatcom was sampled on September 26–27, 1993 and February 5, 1994 at 4 sites in basins 1 and 2. The microlayer samples often had higher concentrations of metals. Some of the metals such as aluminum, iron, and manganese, were higher in the microlayer at all of the sites, while other metals such as copper were higher in the microlayer samples from basin 1, but not basin 2. Nearly all of the metals concentrations in the February microlayer samples from Site 1 were higher than the other bulk-water or microlayer samples. This may have been caused by deposition of wood smoke or other atmospheric contaminants. None of the microlayer or bulk-water samples had consistently higher hydrocarbon concentrations.

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 Corp., the Bellingham water treatment plant, Water District #10, and lake evaporation) for Lake Whatcom. Whatcom Creek and Georgia Pacific Corp. were the major outputs; watershed runoff and the Nooksack River diversion were the major inputs. As of August, 1994 the HSPF data and model parameters have been updated by Steve Walker, and this report includes the updated HSPF results.

Issues Relating to Water Quality in the Lake Whatcom Watershed

Based on current water quality and HSPF data from the Lake Whatcom monitoring project, we would like to present two general areas of concern for the future water quality in Lake Whatcom: 1) the effects of increasing residential development in the watershed; 2) the influences of water withdrawal from the Middle Fork of the Nooksack River.

Residential development:

The major effect of residential development in a lake is to accelerate the rate "aging" of the lake. As lakes age, they become more biologically productive, which is usually represented by an increase in algal blooms and a decrease in the amount of oxygen present at the bottom of the lake during the summer. This process normally takes thousands of years; however, residential runoff may change this to a matter of decades. In the Lake Whatcom watershed the effects of residential development can be seen in Silver Beach Creek, the Park Place storm drain, and the lower reaches of Austin Creek. These sites usually have higher concentrations of suspended solids, nutrients, heavy metals, and coliform bacteria compared to streams in forested portions of the watershed. In Lake Whatcom, the effects of increasing residential development will most likely be as follows.

1. Nutrient concentrations (as well as suspended solids, metals, and coliform bacteria) in tributaries to the lake will increase as their watersheds are developed. These nutrient increases may not be directly measurable in the water column of the lake because of the rapid movement of nutrients from water into plants and animals.

2. Algal densities will increase, particularly during the summer in basins 1 and 2. Basin 1 already has higher algal densities than the rest of the lake. Basin 2, which is physically similar to basin 1, is likely to show higher algal densities sooner than basin 3. (Basin 3 is large, deep, currently unproductive, and has a mostly forested watershed.)

3. There will be an increase in the frequency of bluegreen algal blooms in late summer. This already occurs in basin 1; it will probably become more frequent in basin 2.

4. The dissolved oxygen levels at the bottom of basins 1 and 2 will decrease very rapidly after the lake stratifies in the spring, causing releases of phosphorus, ammonia, metals, and hydrogen sulfide from the sediments. The rate of oxygen depletion in basins 1–2 appears to be related to at least three factors:

   (a) nutrient concentrations (which are currently highest in basin 1);

   (b) weather conditions (warm winters cause early stratification, hence early deoxygenation); and

   (c) the rate of water movement through the basin (during low flow years, basin 1 rapidly becomes anoxic, while basin 2, because of City water withdrawals, does not become as anoxic as basin 1).

5. Higher algal densities and low oxygen concentrations in basin 2 are likely to increase drinking water treatment requirements to handle increased complaints about taste and odor problems, to treat (or remove) potentially carcenogenic disinfection by-products, and to handle reductions in production capacity due to plugged filters.

6. Higher algal densities and low oxygen concentrations in basins 1–2 are likely to result in noxious odors, and possibly fish kills, during overturn.

7. The very high concentrations of coliforms (which may indicate the presence of human pathogens) in residential runoff may cause problems along swimming beaches or in streams that are accessible to the public. The coliform counts were not high in the deep areas in basins 1–2, nor did the near-shore areas around basins 1 and 2 have elevated counts. However, the Bloedel-Donovan area in basin 1 had elevated coliform counts[1].

The effects of residential runoff on basins 1–2 will be increasingly apparent as their watersheds are developed. Basin 2 receives some relief because of municipal water withdrawal, which flushes basin 2 with low-nutrient water from basin 3. Both basins benefit from the flushing effects of the Nooksack River diversion, especially during the summer months (see next page).

[1]The Bloedel-Donovan coliforms may be from local sources such as ducks, geese, and human swimmers, rather than residential runoff. Other nearshore sites in basin 1 that were sampled during August, 1994, including the off-shore area near Silver Beach Creek, did not have particularly high coliform counts.

In basin 3 the influences of residential runoff may become apparent as the Austin Creek watershed becomes more residential and if the Nooksack River diversion is reduced or eliminated during the summer or early fall.

Nooksack River diversion:

The Nooksack River diversion is usually the major water source for Lake Whatcom during the summer. The water quality at the mouth of Anderson Creek (which carries the diversion flow into Lake Whatcom) is very good, especially compared to the residential tributaries that empty into basins 1–2 (see Walker, et al., 1992). Decreasing the diversion flow during the summer will probably increase the effects of residential runoff on basins 1–2 because there will be less water moving through both basins.

In basin 3 there are two other major water sources besides the diversion: Smith Creek and Austin Creek. Smith Creek has very good water quality (except immediately during a hill-slope failure along the creek banks). Austin Creek usually has good water quality, but is beginning to show some characteristics of residential runoff, including elevated nutrients, suspended solids, and coliforms (see Matthews and Matthews, 1993). During the summer, Austin Creek only contributes a small amount to the total volume of water in basin 3; therefore, the effects of increasing residential development along Austin Creek will not be measurable for many years. Unfortunately, this may give a false sense of security, because once the effects of residential runoff are measurable in basin 3, it may be impossible to restore the lake to its present condition.

If water moves more slowly through the lake as a result of decreasing the diversion flow, it may also cause problems along beaches and near-shore areas. Concentrations of coliform bacteria may increase, and there may be localized algal blooms or increased growth of near-shore aquatic plants.

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 the City of Bellingham and parts of Whatcom County (including 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 storm water 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.

The major objectives of the 1993–1994 Lake Whatcom 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 supplemental coliform and bacteria data from near-shore sites in basins 1 and 2 of Lake Whatcom; to collect baseline metals and hydrocarbons data from the microlayer in basins 1 and 2; and to maintain the HSPF[2] hydrologic data base in order to provide estimates of the hydrologic budget for Lake Whatcom.

[2]The Hydrologic Simulation Program–FORTRAN (HSPF) model was calibrated for the Lake Whatcom watershed during an earlier storm water monitoring project, and is described in detail by Walker, et al. (1992) and Walker (1995).

This report will be subdivided into the following six sections:

Section 1. Introdution
Section 2. Lake Whatcom Water Quality Monitoring
Section 3. Near-shore Lake Bacteria Sampling
Section 4. Creek Water Quality Monitoring
Section 5. Lake Whatcom Microlayer Study
Section 6. HSPF Hydrologic Modelling

All of the tables and figures can be found at the end of the report in Sections 9–10. Detailed site descriptions and raw data are included in Appendices A–D.

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 sub-basin of basin 3 (north of the Sunnyside Sill), and Site 4 is located at the deepest point in the southern sub-basin of basin 3 (south of the Sunnyside Sill). An orange marker buoy is anchored at each of the sampling sites. Detailed descriptions are included 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 5, November 2, and December 15–16, 1993, and on February 14 or 22[3], April 5, May 3, June 7, July 6, August 2, and September 6, 1994. (The lake sampling took 2 days in December and February due to adverse weather conditions and equipment problems.) The water quality parameters measured for the 1993–1994 lake monitoring program are shown in Table 1.

[3]Sampling could not be completed on February 14 due to poor weather conditions; the remainder of the samples were collected on February 22.

A Surveyor II Hydrolab was used to measure temperature, pH, dissolved oxygen, and conductivity in the lake as outlined in Table 1. All water samples (including bacteriological samples) collected in the field were stored on ice and in the dark until they reached the laboratory, and were analyzed following the procedures listed in Table 2 (APHA, 1992; EPA, 1983; Lind, 1985). The total metals analyses (arsenic, cadmium, chromium, copper, iron, mercury, nickel, lead, and zinc) were done by AmTest[4]. The plankton samples were 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. Both types of plankton samples were preserved with Lugol's solution and analyzed as soon as possible. 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 1993–1994 Lake Whatcom Hydrolab data (dissolved oxygen, temperature, pH, and conductivity) are shown in Figure 2 through Figure 21 (Section 10). 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[5] (October, 1992 through September, 1993). The lines on these figures connect data from a single sampling depth through time. Because of the large number of sampling depths, it is not practical to include a depth key, but the raw data are listed in Appendix B. The lines help identify seasonal patterns of convergence and divergence; however, they do not represent continuous sampling. Furthermore, missing values were not interpolated. As a result, some of the lines join values separated by more than one sampling period, and the minimum and maximum values represent only dates actually sampled, not the annual extremes.

The lake temperature patterns in 1993–1994 were similar to the temperatures in 1992–1993 (Figure 2). The winter of 1993–1994 appears to have been slightly warmer, and the spring and summer slightly cooler, but the differences were small. None of the sites showed variations comparable to the 2–3 °C differences that

[4]AmTest, 14603 N.E. 87th St., Redmond, WA, 98052.

[5]Data from October, 1990–September, 1993 can be found in the Lake Whatcom 1992 and 1993 final reports (Matthews and Matthews, 1993; Matthews and Matthews, 1994).

distinguished the winters of 1990–1991, 1991–1992, and 1992–1993 (Matthews and Matthews, 1993; Matthews and Matthews, 1994).

The hypolimnetic dissolved oxygen concentrations at Sites 1 and 2 were much lower during the summer of 1994 than 1993 (Figure 7 through Figure 11). During the preceding three years, the worst oxygen deficit occurred at Site 1 following the unusually warm winter of 1991–1992 (see Matthews and Matthews, 1994). The dissolved oxygen concentrations in basin 1 (and basin 2) are influenced, in part, by the timing of lake stratification: following warm winters, the basin stratifies early in the spring, resulting in an early depletion of hypolimnetic oxygen. A second factor that seems to influence oxygen depletion is the rate of water movement through the basin. Ehinger (1988) noted that during the summer of 1987 the lake outflow into Whatcom Creek was very low, and hypolimnetic oxygen levels dropped rapidly. In 1994, however, temperature and flow rates do not appear to be closely linked to low hypolimnetic oxygen concentrations. Table 3 shows the Whatcom Creek monthly flows for March through August, 1991–1994, along with the temperature and oxygen data for Site 1 at 20 m (bottom). These data show that temperatures were not unusually, warm and flow rates were not unusually low during the spring and summer of 1994.

Nutrients from residential runoff are almost certainly contributing to the low oxygen concentrations in the shallow, developed portions of the lake. Residential runoff is one of the major sources of external nutrient loading into lakes, and the residential streams around Lake Whatcom have been shown to contain relatively high concentrations of phosphorus and other nutrients (Walker, et al., 1992). While the nutrients in residential runoff are undoubtedly influencing the biological productivity in the lake, it is not clear yet whether the lake has passed some critical threshold in nutrient loading in basins 1 and 2, or whether the unusually low oxygen concentrations are the result of a complex pattern of environmental conditions than we have yet to identify.

Regardless of the causes, the anoxia in basins 1 and 2 is reason for concern. Anoxic conditions result in the release from the sediments of large quantities of ammonia, soluble phosphorus, hydrogen sulfide, Fe^{+2}, and other reduced compounds (see water quality discussion). Normally, soluble phosphorus will re-precipitate when it reaches oxygenated water, or when the lake mixes in the fall, so the actual amount that is available to biota is relatively small. However, under intensely anaerobic conditions (as occurred this year), the phosphorus remains available longer, thus increasing the likelihood of biological uptake. Since many algae are able to store more phosphorus than they need for immediate growth, this "luxury" consumption usually results in prolonged algal blooms and increasing pools of biologically-available phosphorus.

The pH and conductivity data (Figure 12 through Figure 21) followed typical lake patterns, with only small differences between sites and depths except during the summer. During the summer, the surface pH values increased due to photosynthetic activity, especially at Site 1. Hypolimnetic pH values decreased and conductivity values increased due to decomposition and the release of dissolved compounds from the sediments (Tables 4 through 8). The conductivities from April through December, 1993, increased gradually due to a problem with the Hydrolab probe (see Matthews and Matthews, 1994). The probe was repaired before sampling in February, 1994, and the Hydrolab conductivity data since that time have been in close agreement with the laboratory conductivity data.

2.3.2 Other ambient water quality data

The remaining water quality data that were collected monthly or bimonthly (nutrients, alkalinity, turbidity, Secchi depth, chlorophyll, coliforms, bacteria, and plankton) are summarized in Table 4 through Table 8 and graphed in Figure 22 through Figure 101 (see Sections 9–10). The raw data are listed 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[6] (October, 1992 through September, 1993). Because of the large amount of data presented in these graphs, only the important patterns will be discussed in the text. The metals data from 1992–1994 are listed in Table 9, but are not plotted because of the limited number of samples[7].

The alkalinity and lab conductivity values (Figure 22 through Figure 31) remained fairly low at all sites except for the typical summertime increase in alkalinity and conductivity at the lower depths at Site 1 (occasionally at Site 2). These are typical lake water quality patterns, and are most likely due to decomposition and the release of dissolved compounds in the lower waters. The turbidity values (Figure 32 through Figure 36) were mostly <1–2 NTU, with the highest values coming from late summer samples at the lower depths at Sites 1 and 2. The influences of winter storm-related turbidity can also be seen (e.g., December,

[6]Data from October, 1990–September, 1993 can be found in the Lake Whatcom 1992 and 1993 final reports (Matthews and Matthews, 1993; Matthews and Matthews, 1994).

[7]The AmTest results for 1994 are included in Appendix C.

1994). The high October 1992 value was thought to have been contaminated with sediment (Matthews and Matthews, 1994).

The nutrient data from Site 1 indicate that basin 1 is more productive than the rest of Lake Whatcom. Because of the low hypolimnetic oxygen concentrations at both Sites 1 and 2, the summer ammonia concentrations[8] were very high at 15–20 m (Figure 42 through Figure 46). The highest total nitrogen and nitrate/nitrite concentrations in Lake Whatcom were measured during the winter or at the deeper sampling depths in basin 3 (Figure 47 through Figure 51). These patterns reflect the uptake of nitrate/nitrite by biota, so concentrations in the epilimnion usually decrease throughout the summer, and the greatest decreases are seen in the most productive basins (basins 1 and 2).

The highest soluble phosphate concentrations were measured during late summer at Site 1, 20 m (Figure 62 through Figure 66). These phosphate peaks were accompanied by increased turbidity levels and higher total phosphorus concentrations (Figure 67 through Figure 71), so they probably are the result of the release of phosphorus from the sediments and increased turbulence in the hypolimnion just prior to fall overturn. It should be noted that the concentration of soluble phosphate in the water column is not a particularly reliable indicator of biological productivity. Soluble phosphate, and other biologically "available" forms of phosphorus, cycle very rapidly, so that at any point in time, the amount of phosphorus in the water column is likely to be low.

As in previous years, Site 1 again had the highest seasonal chlorophyll peaks and usually had the highest total plankton counts (Figure 72 through Figure 76 and Figure 87 through Figure 91). The plankton data were variable, which is to be expected for algal population counts. Diatoms (Chyrsophyta) dominated the phytoplankton counts from winter through early summer, and green algae (Chlorophyta) were most numerous from late summer until fall overturn. The bluegreen algae were also common in late summer, especially at Site 1, but because of their small size they are counted by colonies rather than by individual cells. This results in a small total count even during a late summer bluegreen bloom. Secchi depths (Figure 97 through Figure 101) continue to show no clear seasonal patterns, probably because transparency in Lake Whatcom is affected both by summer algal blooms and winter storm events.

[8]There are no ammonia data for September through December, 1993 and February, 1994. Beginning in the fall of 1993, we intended to use a selective ion electrode for the analyses. This method proved to be both slow, and inaccurate, so beginning in April, 1994, we switched to the phenate method (APHA, 1992).

The total and fecal coliform counts were usually low in the lake (Figure 77 through Figure 86). The total coliform counts increased during the late summer, which appears to be a typical pattern, but none of the counts exceeded the EPA criteria of 126/100 mL for freshwater swimming area (EPA, 1986). None of the counts were as high as the September, 1992 data from Site 1 and the Intake. The total bacteria counts (Figure 92 through Figure 96) did not show much variation between the sites or seasons, although there seemed to be a slight, consistent decrease in the total counts from 1993 through 1994.

The September, 1994 metals data (Table 9) were consistent with those from 1992 and 1993. Arsenic, cadmium, chromium, mercury, nickel, and lead were at or below detection limits. Copper and zinc concentrations were detectable, but low, throughout the lake. (The August 31, 1992 copper value of 59 μg/L appears to be an isolated contaminant or analytical error.) Iron concentrations were high near the sediments at Sites 1 and 2, which is consistent with previous years. This summer the iron concentration at Site 1, 20 m, was the highest yet recorded (910 μg/L), which probably resulted from the very low oxygen concentrations at this site.

Table 10 shows the trophic classifications for Lake Whatcom based on mean, high, and low values for October, 1992-September, 1993 and October, 1993-September, 1994. Category placement is based upon matching the Lake Whatcom data to the closest trophic classification range. Site 1 would be classified as mesotrophic (moderately productive) based upon its total phosphorus concentrations from 1993–1994 and its chlorophyll and Secchi depth values. Sites 2–4 had chlorophyll concentrations that were intermediate between the oligotrophic and mesotrophic ranges. All of the sites had Secchi depths fell within the mesotrophic range; however, this may be due, at least in part, to the large amounts of inorganic sediments that enter the lake during storm events (Walker, et al., 1992).

3 Near-Shore Lake Bacteria Sampling

3.1 Field Sampling and Analytical Methods

A total of 48 water samples were collected on August 23 and 26 from the surface and bottom at 24 nearshore areas around basins 1 and 2. An additional 5 water samples were collected from flowing tributaries or storm drains around basins 1 and 2. The locations for each sampling site are shown in Figure 102 and described in Appendix A. The samples were analyzed to determine total and fecal coliform counts, enterococcus counts, and total bacterial counts[9].

3.2 Results and Discussion

There were no consistent differences between surface and bottom bacteria counts, so the data presented in Figures 103 through 106 show average counts at each site. The raw data are included in Appendix B. Except for the Bloedel-Donovan swimming area, the total coliform counts from the near-shore areas in basins 1 and 2 were within the ranges that have been measured for the rest of Lake Whatcom (Figure 103 through Figure 106, and Appendix B). The total bacteria counts were approximately $1–3 \times 10^6$ cells/mL, which is consistent with the monthly bacteria counts from the lake. The fecal coliform and enterococcus counts from the lake were usually less than 10 colonies/100 mL except at the Bloedel-Donovan site, where there were 100 and 15 colonies/100 mL, respectively[10]. In general, the coliform and bacteria counts were similar to those reported from the 1993 nearshore survey around basin 1.

The tributaries all had high total coliform counts (>100 colonies/100 mL), and often had high fecal coliform and enterococcus counts (>10 colonies/100 mL). Four sites (see Appendix B) had fecal counts or enterococcus counts that were higher than recommended by EPA for freshwater swimming (EPA, 1986). Since most of the tributaries that had high fecal coliform or enterococcus counts are also accessible to the public, they should be identified as possible health risks to the Whatcom County Health Department.

4 Creek Water Quality Monitoring

4.1 Site Descriptions

Six creeks were sampled biannually during the 1993–1994 monitoring program, including Austin Creek, the Park Place storm drain, Silver Beach Creek, Smith Creek, the unnamed creek that flows through the Wildwood campground, and the northern unnamed creek on Blue Canyon Rd. (Blue Canyon #1). The exact

[9] The coliform and enterococcus counts were done by the City of Bellingham.

[10] Although the counts at Bloedel-Donovan were higher than other lake sites, they were still below the EPA criteria for freshwater swimming areas (EPA, 1986).

sampling locations for these sites are described by Walker, et al. (1992), and are summarized in Appendix A. These creeks 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[11] 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.

4.2 Field Sampling and Analytical Methods

The creeks were sampled on February 16 and July 17, 1994. The water quality parameters measured for the 1992–1993 creek monitoring program are shown in Table 11. 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 total metals analyses (arsenic, cadmium, chromium, copper, iron, mercury, nickel, lead, and zinc) were done by AmTest, Inc[12]. 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.

4.3 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 storm water runoff project (Walker, et al., 1992). Tables 12–13 show selected creek data from the 1993–1994 compared to the 1990 average water quality values for each of the six creeks.

[11] None of the creeks in this study are completely unaffected by development.
[12] The AmTest data for 1993–1994 are included in Appendix C.

Most of the 1993–1994 creek data fell within the 1990 ranges defined for that creek. The streams in residential areas typically had higher conductivities, higher ammonia, phosphorus, and total suspended solids concentrations, and much higher total and fecal coliform counts, compared to the streams in forested areas.

The ammonia concentrations were mostly lower in 1993 than in 1990, except for the Park Place drain, which had an unusually high ammonia concentration in February, 1993. The February, 1994 conductivity at Blue Canyon was unusually low, and the total nitrogen and nitrite-nitrate concentrations were unusually high. Relatively high total nitrogen and nitrite-nitrate concentrations were measured at the other sites in February, 1994, which may have been due to leaching of soluble nitrogen compounds during the wet season. The total suspended solids were also high in February at most of the sites, which is consistent with wet-season stream water quality in residential watersheds (Blue Canyon and Wildwood Creeks, which did not have higher total suspended solids concentrations in February, have mostly forested watersheds.)

The February metals concentrations were mostly lower in 1994 than in 1993; however, the sample size is very small, so these differences may not be significant. The metals concentrations at all sites were at or near their detection levels except for iron (770–2700 μg/L), lead (which was ≤ 3 μg/L), and zinc (17–26 μg/L). Measurable concentrations of cadmium (10 μg/L) and chromium (8 μg/L) were detected at the Park Place drain.

5 Lake Whatcom Microlayer Study

5.1 Field Sampling and Analytical Methods

The Lake Whatcom microlayer study was designed to provide information about the concentrations of metals, hydrocarbons, and other chemicals that are present, sometimes in high concentrations, in the thin film (< 1 mm) at the surface of the lake. Water samples were collected on September 26–27, 1993 and February 5, 1994 at 4 sites (Figure 107) in basins 1 and 2: the Bloedel-Donovan boat dock, mid-basin 1 (Site 1), the intake, and mid-basin 2 (Site 2). The microlayer and underlying surface water (bulk-water) were sampled in duplicate at each site. The metals and hydrocarbon analyses were performed by AmTest, Inc.; the data are summarized in Tables 14 and 15.

5.2 Results and Discussion

The Lake Whatcom microlayer study is part of an on-going M. S. thesis research project conducted by Karen Christner (Huxley College of Environmental Studies, Western Washington University). In addition to the metals and hydrocarbon data collected for the City, Ms. Christner is measuring the concentrations of total organic carbon and selected PAH's (which are common wood-smoke contaminants). Her thesis will include an analysis of all of the microlayer data, and a copy will be provided to the City. (The estimated completion date is the end of spring quarter, 1995.) Because a detailed microlayer analysis will be available within the next few months, we only present a preliminary review of the microlayer data here.

There were large variances between "replicate" microlayer samples; however, this is to be expected. The microlayer is very heterogeneous, in part because it accumulates hydrophobic compounds that form localized slicks, and also because material at the surface of the lake is subject to wind-related localized accumulations. Because of this, microlayer replicates may be as different from one-another as samples taken from the opposite ends of the lake. However, if there is a large-scale contamination of part of the lake (e.g., heavy wood smoke deposition or frequent petroleum spills), it will show up in both replicates.

The microlayer samples often had higher concentrations of metals. Some of the metals such as aluminum, iron, and manganese, were higher in the microlayer at all of the sites, while other metals such as copper were higher in the microlayer samples from basin 1, but not basin 2. There was also a noticeable difference between the September and February results at Site 1. The weather conditions just prior to sampling in February were cold and clear, with an apparent temperature inversion that caused visible haze, especially around basin 1. Both microlayer samples from Site 1 were opaque and very dark, while the samples from other sites were more-or-less clear. Nearly all of the metals concentrations in the February microlayer samples from Site 1 were higher than the other bulk-water or microlayer samples. This may have been caused by deposition of wood smoke or other atmospheric contaminants.

None of the microlayer or bulk-water samples had consistently higher hydrocarbon concentrations. This is at least partly due to the high detection limit for hydrocarbons (1 mg/L), as well as the patchy distribution of hydrocarbon slicks. Oily sheens have been observed in basins 1 and 2, especially around the Bloedel-Donovan boat dock (Mike Hilles, 1993; Karen Christner, 1993).

6 HSPF Hydrologic Modelling

The HSPF model calibrations were originally completed as part of an earlier project (Walker, et al., 1992). In August, 1994 the HSPF data and model parameters were updated by Steve Walker, as part of his M. S. thesis (Walker, 1995). In his thesis, Mr. Walker describes the Lake Whatcom HSPF model application in detail. He lists problems and discrepancies in the time series data, describes the structure of the Lake Whatcom HSPF model, and includes an error analysis to identify the most important changes that could be implemented to improve the accuracy of the model estimates.

Figure 108 through Figure 119 show the predicted hydrologic inputs (lake surface precipitation, watershed runoff, and diversion flow) and outputs (Whatcom Creek, fish hatchery, Georgia-Pacific, Bellingham and Water District #10 withdrawals, and lake evaporation) for Lake Whatcom for the period of July, 1990 through August, 1994. Whatcom Creek and Georgia Pacific continue to be the major outputs; watershed runoff and the Nooksack River diversion continue to be the major inputs.

6.1 Hydrologic Relationship between Lake Whatcom and the Cain Lake/Silver Creek Valley (by S. Walker)

As requested by the City, we have included a discussion of the hydraulic relationship between Lake Whatcom and the glacial outwash aquifer below the Cain Lake/Silver Creek valley. Specifically, this section examines the hypothesis that the lake serves as a major recharge source for the aquifer, resulting in unaccounted water losses from the lake into the aquifer. Our discussion includes a review of prepared evidence regarding this hypothesis, including information available from Whatcom County Water District #12 and the Washington State Department of Ecology. We also examined the implications of these potential water losses to the HSPF model, including uncertainty estimates for each component of the Lake Whatcom water balance. These uncertainty estimates were used to determine whether the model, in its current implementation, is able to provide quantitative estimates of water lost from Lake Whatcom to the aquifer.

Preliminary information about the aquifer in the valley between South Bay and the town of Alger was obtained from a report prepared by Golder Associates entitled "Whatcom County Water District No. 12 Groundwater Supply Feasibility

Study" (Golder Associated, 1992). The report describes a "*glacial outwash sand and gravel [aquifer] that appears to occur at depths of between 80 and 180 feet throughout most of the valley between Lake Whatcom and the town of Alger.*" Golder felt this aquifer "*to be glacial outwash sediments known as the Esperance Sand Member of the Vashon Drift. This deposit consists of crossbedded sand and gravel deposited from melt-waters from the advancing Vashon Glacier... The sand and gravel appears to be at least 10 feet thick (based on the well logs), but may be significantly thicker in places... The outwash material appears to pinch out between Alger and Samish Lake.*" On the groundwater regime within this aquifer, Golder Associates wrote, "*The potentiometric surface of the glacial outwash systems appears to vary from approximately 310 feet msl near Cain Lake to 260 feet msl just north of Alger.*" Groundwater flow in the aquifer is directed primarily to the south. This initial analysis led to the hypothesis that Lake Whatcom may act as a recharge source to the aquifer (ie., water flows out from Lake Whatcom into the sand and gravel, and then southward towards Alger).

Golder Associates prepared a follow-up report (Golder Associates, 1993) that was designed, in part, to re-examine the hydraulic interaction between the aquifer and Lake Whatcom. In order to do so, they examined sixteen wells in the area. Static water levels within the wells were recorded on July 8 and 9, 1993. Their data indicate that the potentiometric surface of the aquifer is at a maximum elevation of about 335 feet in the Reed-Cain Lakes area, and that it decreases steeply in a northerly direction to Lake Whatcom, while being essentially flat southward towards Alger. Thus, the 1993 Golder Associates report determined that, while "*earlier interpretations based on well log data suggested a possible groundwater divide in the Cain Lake area with flow to both the north and south, or possibly an overall hydraulic gradient from Lake Whatcom south toward Alger*, the newer evidence indicates a different conclusion: "*the steep hydraulic gradient to the north and to the south, suggests that these areas are composed of relatively less-permeable sediments, possibly representing glacial moraines or till-like deposits.*" In other words, the 1993 report indicates that Golder Associates does not believe that Lake Whatcom is serving to recharge the aquifer.

The Washington State Department of Ecology (1993) indicate some concern over the possibility of hydraulic continuity between the "*subject aquifer(s) and nearby regulated surface water bodies;*" however, their discussion appears to be referring to Friday Creek and its tributary Silver Creek, rather than Lake Whatcom. Therefore, it does not appear, at least from this information, that Ecology believes that Lake Whatcom recharges the aquifer. Based on these reports, we did not change the 1993–1994 HSPF results to reflect any assumptions of a hydraulic relationship between Lake Whatcom and the glacial outwash aquifer below the Cain Lake/Silver Creek valley for the purpose of HSPF modelling. However, the potential impacts of this possibility are discussed by Walker (1995) in a section describing uncertainties that could affect the Lake Whatcom HSPF model and water balance equations.

7 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, all personnel associated with this project were trained according to EREC standard operating procedures. Laboratory duplicates were analyzed for at least 10% of all water quality parameters except those collected using the Hydrolab, and field duplicates were collected and analyzed for at least 10% of all of the water quality parameters except those collected using the Hydrolab. Duplicate water samples were analyzed for at least 10% of the Hydrolab measurements using water samples collected from the same depth as the Hydrolab measurement. The duplicate data were used to create control charts for as many of the laboratory analyses as possible[13], using a minimum of 10 replicates for each chart. These results are presented in Figure 122 through Figure 127. Two sets of single-blind quality control tests were conducted to test the laboratory analysis accuracy (Table 16). All but two of the laboratory values fell within the APHA low-level range (for concentrations $\leq 20 \times$ the minimum detection limit), and most fell within the more conservative, high-level range ($>20 \times$ mdl). The only values that did not fall within the low-level range were the second turbidity value (7.6 NTU) and the second nitrate value (62 μg/L). In 1994 we began using a very sensitive turbidimeter (HACH Model 2100N) in order to measure the low ($<$ 1 NTU) turbidities that are common in Lake Whatcom. We will conduct additional single-blind tests during 1995 to determine whether the new meter is not accurate at higher turbidity values. The certified nitrate value was below our minimum detection limit (50 μg/L), so the difference was most due to lack of sensitivity near the detection limit. The Lake Whatcom water nitrate/nitrite samples are usually well above our

[13]Parameters that are sampled infrequently or that generated mostly below-detection values, may not have generated enough QC data to develop a control chart.

detection limit, and closer to the concentration that was accurately reported for the first single-blind test.

8 References

APHA (1992). Standard Methods for the Examination of Water and Wastewater. 18th Edition. American Public Health Association, Washington D. C.

Christner, K. (1993). Personal communication, Huxley College of Environmental Studies, Western Washington University, Bellingham, WA.

Ehinger, W. J. (1988). Phytoplankton Composition and Tamporal Variation Among the Three Basins fo Lake Whatcom, Washington. M. S. thesis, Huxley College of Environmental Studies, Western Washington University, Bellingham, WA.

EPA (1983). Methods for Chemical Analysis of Water and Wastes. EPA–600/4–79–020, U. S. Environmental Protection Agency, Cincinnati, OH.

EPA (1986). Quality Criteria for Water 1986. EPA–440/5–86–001., U. S. Environmental Protection Agency, Washington, DC.

Golder Associates (1992). Whatcom County Water District No. 12 Groundwater Supply Feasibility Study. Prepared for Whatcom County Water District No. 12., 4 February, 1992, Bellingham, WA.

Golder Associates (1993). Letter to CHS Engineers, Inc., 3 September, 1993. Bellingham, WA.

Hilles, M. (1993). Personal communication, Huxley College of Environmental Studies, Western Washington University, Bellingham, WA.

Lind, O. T. (1985). Handbook of Common Methods in Limnology, 2nd Edition. Kendall/Hunt Publishing Co., Dubuque, IA.

Matthews, R. A. and G. B. Matthews (1993). Lake Whatcom Monitoring Project 1991–1992 Final Report. Final Report prepared for the City of Bellingham Public Works Department, March 1993, Bellingham, WA.

Matthews, R. A. and G. B. Matthews (1994). Lake Whatcom Monitoring Project 1992–1993 Final Report. Final Report prepared for the City of Bellingham Public Works Department, March 1994, Bellingham, WA.

Walker, S. (1995). A Hydrologic Model for the Lake Whatcom Watershed: Development, Implementation, and Assessment. M. S. thesis, Huxley College of Environmental Studies, Western Washington University, Bellingham, WA.

Walker, S., R. Matthews, and G. Matthews (1992). Lake Whatcom Watershed Storm Water Runoff Monitoring Project. Final report prepared for the City of Bellingham, Public Works Department, January 1992, Bellingham, WA.

Washington State Department of Ecology (1993). Memorandum to file from Tom Culhane. 29 September, 1993, Olympia, WA.

Wetzel, R. G. (1983). Limnology, Second Edition. Saunders College Publishing, Philadelphia, PA.

9 Tables

Parameter	1993 Oct	Nov	Dec	1994 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	•	•	•		•		•	•	•	•	•	•	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 Nitrogen	•	•	•		•		•	•	•	•	•	•	Site 3 - 0.3, 5, 10, 20, 40, 60,
Soluble Phosphate	•	•	•		•		•	•	•	•	•	•	80 m;
Total Phosphorus	•	•	•		•		•	•	•	•	•	•	Site 4 - 0.3, 5, 10, 20, 40, 60,
Alkalinity	•	•	•		•		•	•	•	•	•	•	80, 90 m;
Conductivity (lab)	•	•	•		•		•	•	•	•	•	•	Gatehouse
Turbidity	•	•	•		•		•	•	•	•	•	•	
Total Arsenic												•	Sites 1, 2, 3, 4, Intake -
Total Cadmium												•	0.3 m and bottom only
Total Chromium												•	
Total Copper												•	
Total Iron												•	
Total Lead												•	
Total Mercury												•	
Total Nickel												•	
Total Zinc												•	
Total O. Carbon					•							•	Sites 1, 2, 3, 4, Intake - 0.3 m and bottom only
Chlorophyll	•	•	•		•		•	•	•	•	•	•	Sites 1, 2, 3, 4 - 0.3, 5, 10, 15, 20 m; Intake - 0.3, 5, 10 m
Plankton	•	•	•		•		•	•	•	•	•	•	Sites 1, 2, 3, 4, Intake; 5 m
Total bacteria	•	•	•		•		•	•	•	•	•	•	Sites 1, 2, 3, 4, Intake; 0.3 m and bottom
Coliforms ± Enterococcus (City)	•	•	•		•		•	•	•	•	•	•	Sites 1, 2, 3, 4, Intake; 0.3 m

Table 1: Lake Whatcom 1993–1994 lake monitoring schedule.

Parameter	Method	Description	Detection Limits or Sensitivity
Alkalinity	APHA 2320 B	Low level method	na
Conductivity - Lab	EPA 120.1	conductivity meter	2 μMHO/cm
Conductivity - Hydrolab	Appendix I	Surveyor II	~ 2 μMHO/cm
Discharge	Lind (1985)	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	pH meter	~ 0.1 pH unit
pH - Hydrolab	Appendix I	Surveyor II	~ 0.1 pH unit
Secchi disk	Lind (1985)	na	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	APHA 4500-NH3 D	Phenate	5 μg/L
Nitrite/Nitrate	APHA 4500-NO3 E	Cd reduction	50 μg/L
Soluble Phosphate	APHA 4500-P E	Ascorbic acid	5 μg/L
Total. Nitrogen	Ebina et al. (1983)	Modified, salicylate	100 μg/L
Total O. Carbon	EPA 415.1	OIC carbon analyzer	na
Total Phosphorus	Ebina et al. (1983)	Modified ascorbic acid	5 μg/L
Chlorophyll	APHA 10200 H	Acetone extract	na
Phytoplankton/ Zooplankton	Lind (1985)	Schindler trap/ counting chamber	na
Bacteria counts	Hobbie, et al. (1977)	Epifluor. microscopy	na

Table 2: Summary of analytical methods.

Month	Year	Temp (°C)	DO (mg/L)	Whatcom Cr. (mg/mo)
3	1991	na	na	1704
4	1991	7.2	11.7	1491
5	1991	na	na	1141
6	1991	9.4	7.5	180
7	1991	9.8	5.0	227
8	1991	10.4	2.4	0
3	1992	na	na	761
4	1992	8.1	9.5	189
5	1992	na	na	189
6	1992	10.2	5.7	169
7	1992	10.5	3.8	101
8	1992	10.7	1.3	53
3	1993	na	na	278
4	1993	7.6	11.2	693
5	1993	10.9	9.8	2070
6	1993	11.4	7.2	1161
7	1993	11.7	4.2	553
8	1993	11.7	1.8	467
3	1994	na	na	2842
4	1994	7.5	10.5	2119
5	1994	9.3	9.0	218
6	1994	10.0	5.6	814
7	1994	10.3	2.9	180
8	1994	10.7	0.2	6

All lake data were collected in the first week of the month.
Whatcom Creek flows are from HSPF data records (Section 6).

Table 3: Temperature, dissolved oxygen, and Whatcom Creek total flows for spring and early summer, 1991 through 1994.

Variable	Mean (9/93-10/94)	Std. Dev.	Min.	Max.
Site 1				
Alkalinity (mg/L $CaCO_3$)	19.9	1.7	18.0	26.2
Conductivity - lab (μMHO)	65.6	3.4	62.3	79.0
Conductivity - Hydrolab (μMHO)	69.5	10.1	58.0	99.0
Dissolved oxygen (mg/L)	7.8	3.8	0.0	12.6
pH	7.4	0.6	6.6	8.5
Temperature (°C)	12.2	4.6	4.6	22.2
Turbidity (NTU)	0.9	0.7	0.4	4.3
Nitrogen, ammonia (μg/L)	28*	51	< 5	188
Nitrogen, nitrate/nitrite (μg/L)	220	106	27	465
Nitrogen, total (μg/L)	336	121	96	598
Phosphorus, sol. phosphate (μg/L)	< 5*	2	< 5	15
Phosphorus, total (μg/L)	9*	11	< 5	62
Chlorophyll a (mg/m^3)	2.7	2.4	0.6	9.9
Secchi depth (m)	5.2	1.2	3.7	6.7
Coliforms, fecal (MPN/100 mL)	< 2**	1	< 2	4
Coliforms, total (MPN/100 mL)	78	76	6	240
Total bacteria (cells/mL)	1.3×10^6	0.6×10^6	0.5×10^6	3.1×10^6

* Means were calculated by replacing bdl values with 2.5 (detection limit = 5μg/L).
** Means were calculated by replacing bdl values with 0 (detection limit = 2/100 mL).

Table 4: Site 1 average ambient water quality data.

Variable	Mean (9/93-10/94)	Std. Dev.	Min.	Max.
Site 2				
Alkalinity (mg/L $CaCO_3$)	18.7	1.8	14.2	26.6
Conductivity - lab (μMHO)	63.3	2.4	61.5	76.3
Conductivity - Hydrolab (μMHO)	66.8	9.1	58.0	97.0
Dissolved oxygen (mg/L)	9.4	2.8	0.0	12.3
pH	7.6	0.4	6.5	8.3
Temperature (°C)	12.9	4.9	5.0	22.0
Turbidity (NTU)	0.6	0.5	0.3	3.5
Nitrogen, ammonia (μg/L)	12*	24	< 5	130
Nitrogen, nitrate/nitrite (μg/L)	289	91	166	471
Nitrogen, total (μg/L)	396	117	193	720
Phosphorus, sol. phosphate (μg/L)	< 5*	1	< 5	9
Phosphorus, total (μg/LL)	7*	13	< 5	81
Chlorophyll a (mg/m^3)	1.8	1.4	0.3	6.1
Secchi depth (m)	6.0	1.0	4.0	7.1
Coliforms, fecal (MPN/100 mL)	< 2**	1	< 2	4
Coliforms, total (MPN/100 mL)	49	42	7	130
Total bacteria (cells/mL)	1.2×10^6	0.4×10^6	0.6×10^6	2.0×10^6

* Means were calculated by replacing bdl values with 2.5 (detection limit = 5μg/L).
** Means were calculated by replacing bdl values with 0 (detection limit = 2/100 mL).

Table 5: Site 2 average ambient water quality data.

Variable	Mean (9/93-10/94)	Std. Dev.	Min.	Max.
Intake				
Alkalinity (mg/L $CaCO_3$)	18.5	1.0	16.7	21.0
Conductivity - lab (μMHO)	63.3	2.2	61.6	70.0
Conductivity - Hydrolab (μMHO)	66.0	7.8	57.0	83.0
Dissolved oxygen (mg/L)	10.4	0.9	9.1	12.3
pH	7.8	0.3	7.3	8.3
Temperature (°C)	14.5	4.9	6.0	22.5
Turbidity (NTU)	0.5	0.2	0.4	1.3
Nitrogen, ammonia (μg/L)	< 5*	0	< 5	< 5
Nitrogen, nitrate/nitrite (μg/L)	269	87	179	475
Nitrogen, total (μg/L)	378	124	159	643
Phosphorus, sol. phosphate (μg/L)	< 5*	0	< 5	< 5
Phosphorus, total (μg/L)	< 5*	5	< 5	25
Chlorophyll a (mg/m^3)	2.0	1.3	0.3	4.4
Secchi depth (m)	5.7	0.9	3.8	6.8
Coliforms, fecal (MPN/100 mL)	< 2**	1	< 2	4
Coliforms, total (MPN/100 mL)	74	83	4	300
Total bacteria (cells/mL)	1.2×10^6	0.3×10^6	0.8×10^6	2.2×10^6

* Means were calculated by replacing bdl values with 2.5 (detection limit = 5μg/L).
** Means were calculated by replacing bdl values with 0 (detection limit = 2/100 mL).

Table 6: Intake site average ambient water quality data.

Variable	Mean (9/93-10/94)	Std. Dev.	Min.	Max.
Site 3				
Alkalinity (mg/L $CaCO_3$)	18.0	0.6	16.2	19.2
Conductivity - lab (μMHO)	62.6	1.04	61.2	65.0
Conductivity - Hydrolab (μMHO)	63.7	7.0	56.0	80.0
Dissolved oxygen (mg/L)	10.1	1.0	5.7	12.1
pH	7.5	0.4	6.8	8.2
Temperature (°C)	10.4	5.0	6.0	21.5
Turbidity (NTU)	0.4	0.1	0.2	0.8
Nitrogen, ammonia (μg/L)	< 5*	2	< 5	14
Nitrogen, nitrate/nitrite (μg/L)	350	87	181	556
Nitrogen, total (μg/L)	435	98	206	782
Phosphorus, sol. phosphate (μg/L)	< 5*	0	< 5	5
Phosphorus, total (μg/L)	< 5*	2	< 5	15
Chlorophyll a (mg/m^3)	1.6	1.4	0.3	5.4
Secchi depth (m)	6.4	1.1	4.5	7.9
Coliforms, fecal (MPN/100 mL)	3**	7	< 2	23
Coliforms, total (MPNl/100 mL)	27**	29	< 2	80
Total bacteria (cells/mL)	0.9×10^6	0.2×10^6	0.6×10^6	1.3×10^6

* Means were calculated by replacing bdl values with 2.5 (detection limit = 5μg/L).
** Means were calculated by replacing bdl values with 0 (detection limit = 2/100 mL).

Table 7: Site 3 average ambient water quality data.

Variable	Mean (9/93-10/94)	Std. Dev.	Min.	Max.
Site 4				
Alkalinity (mg/L $CaCO_3$)	18.0	0.5	16.6	19.6
Conductivity - lab (μMHO)	63.1	3.4	61.3	89.5
Conductivity - Hydrolab (μMHO)	63.6	6.6	56.0	81.0
Dissolved oxygen (mg/L)	10.3	0.2	8.4	12.1
pH	7.5	0.4	7.0	8.3
Temperature (°C)	10.2	4.8	6.3	21.5
Turbidity (NTU)	0.4	0.1	0.2	0.7
Nitrogen, ammonia (μg/L)	< 5*	2	< 5	18
Nitrogen, nitrate/nitrite (μg/L)	366	97	177	576
Nitrogen, total (μg/L)	450	100	212	715
Phosphorus, sol. phosphate (μg/L)	< 5*	0	< 5	< 5
Phosphorus, total (μg/L)	< 5*	3	< 5	23
Chlorophyll a (mg/m^3)	1.3	1.2	0.1	6.1
Secchi depth (m)	7.0	1.2	4.3	8.5
Coliforms, fecal (MPN/100 mL)	< 2**	1	< 2	2
Coliforms, total (MPN/100 mL)	22**	22	< 2	80
Total bacteria (cells/mL)	0.9×10^6	0.2×10^6	0.4×10^6	1.3×10^6

* Means were calculated by replacing bdl values with 2.5 (detection limit = 5μg/L).
** Means were calculated by replacing bdl values with 0 (detection limit = 2/100 mL).

Table 8: Site 4 average ambient water quality data.

Site	Date	Depth	As (μg/L)	Cd (μg/L)	Cr (μg/L)	Cu (μg/L)	Fe (μg/L)	Hg (μg/L)	Ni (μg/L)	Pb (μg/L)	Zn (μg/L)
Intake	Aug 31 92	0	-99	< 0.5	< 0.5	< 5	< 5	-99	< 5	< 5	< 200
Intake	Sept 1 93	0	< 30	< 2	< 6	< 2	40	< 10	< 10	< 1	18
Intake	Sept 6 94	0	< 30	< 2	< 6	8	30	< 10	< 10	< 1	< 2
Intake	Aug 31 92	10	-99	< 0.5	< 0.5	< 5	< 5	-99	< 5	< 5	< 200
Intake	Sept 1 93	10	30	< 2	< 6	< 2	30	< 10	< 10	< 1	8
Intake	Sept 6 94	10	< 30	< 2	< 6	6	< 10	< 10	< 10	< 1	11
Site 1	Aug 31 92	0	-99	< 0.5	< 0.5	< 5	< 5	-99	< 5	< 5	< 200
Site 1	Sept 1 93	0	< 30	< 2	< 6	< 2	40	< 10	< 10	< 1	12
Site 1	Sept 6 94	0	< 30	< 2	< 6	6	30	< 10	< 10	< 1	3
Site 1	Aug 31 92	20	-99	< 0.5	< 0.5	< 5	436	-99	< 5	< 5	< 200
Site 1	Sept 1 93	20	< 30	< 2	< 6	3	550	< 10	< 10	6	21
Site 1	Sept 6 94	20	< 30	< 2	< 6	6	910	< 10	< 10	< 1	2
Site 2	Aug 31 92	0	-99	< 0.5	< 0.5	< 5	< 5	-99	< 5	< 5	< 200
Site 2	Sept 1 93	0	< 30	< 2	< 6	< 2	30	< 10	< 10	2	13
Site 2	Sept 6 94	0	< 30	< 2	< 6	4	< 10	< 10	< 10	< 1	< 2
Site 2	Aug 31 92	20	-99	< 0.5	< 0.5	59	230	-99	< 5	< 5	< 200
Site 2	Sept 1 93	20	< 30	< 2	< 6	< 2	220	< 10	20	< 1	15
Site 2	Sept 6 94	20	< 30	3	< 6	4	290	< 10	< 10	< 1	< 2
Site 3	Aug 31 92	0	-99	< 0.5	< 0.5	< 5	< 5	-99	< 5	< 5	< 200
Site 3	Sept 1 93	0	< 30	< 2	< 6	< 2	30	< 10	< 10	< 1	10
Site 3	Sept 6 94	0	< 30	< 2	< 6	12	10	< 10	< 10	< 1	12
Site 3	Aug 31 92	80	-99	< 0.5	< 0.5	6	< 5	-99	< 5	< 5	< 200
Site 3	Sept 1 93	80	< 30	< 2	< 6	< 2	40	< 10	< 10	< 1	14
Site 3	Sept 6 94	80	< 30	3	< 6	5	20	< 10	< 10	< 1	< 2
Site 4	Aug 31 92	0	-99	< 0.5	< 0.5	< 5	< 5	-99	< 5	< 5	< 200
Site 4	Sept 1 93	0	< 30	< 2	< 6	< 2	30	< 10	< 10	< 1	20
Site 4	Sept 6 94	0	< 30	< 2	< 6	3	< 10	< 10	< 10	< 1	< 2
Site 4	Aug 31 92	90	-99	< 0.5	< 0.5	6	< 5	-99	< 5	< 5	< 200
Site 4	Sept 1 93	90	< 30	< 2	< 6	< 2	40	< 10	< 10	1	14
Site 4	Sept 6 94	90	< 30	3	< 6	5	30	< 10	< 10	< 1	2

All 1993–1994 metals samples were analyzed by AmTest for total metals (unfiltered, digested).
All 1992 metals samples were analyzed by the Institute for Watershed Studies (WWU) for dissolved metals

Table 9: Lake Whatcom metals data, 1992–1993.

Parameter		Oligotrophic	Mesotrophic	Eutrophic
Total phosphorus (μg/L)				
Typical mean (range)		*8 (3–17)*	*27 (11–96)*	*84 (16–386)*
Lake Whatcom	Site 1, 1992–1993	6 (< 5–12)		
	Site 1, 1993–1994		9 (< 5–62)	
	Site 2, 1992–1993	< 5 (< 5–11)		
	Site 2, 1993–1994	7 (< 5–11)		
	Site 3, 1992–1993	6 (< 5–156)		
	Site 3, 1993–1994	< 5 (< 5–15)		
	Site 4, 1992–1993	< 5 (< 5–7)		
	Site 4, 1993–1994	< 5 (< 5–23)		
Total nitrogen (μg/L)				
Typical mean (range)		*661 (307–1630)*	*753 (361–1387)*	*1875 (393–6100)*
Lake Whatcom	Site 1, 1992–1993	370 (96–555)		
	Site 1, 1993–1994	336 (96–598)		
	Site 2, 1992–1993	405 (221–544)		
	Site 2, 1993–1994	396 (193–720)		
	Site 3, 1992–1993	452 (238–668)		
	Site 3, 1993–1994	435 (206–782)		
	Site 4, 1992–1993	468 (251–719)		
	Site 4, 1993–1994	450 (212–715)		
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, 1992–1993		2.8 (0.7–8.1)	
	Site 1, 1993–1994		2.7 (0.6–9.9)	
	Site 2, 1992–1993		2.7 (0.9–4.7)	
	Site 2, 1993–1994	1.8 (0.3–6.1)		
	Site 3, 1992–1993		2.7 (0.9–6.3)	
	Site 3, 1993–1994	1.6 (0.3–5.4)		
	Site 4, 1992–1993		2.4 (0.0–5.0)	
	Site 4, 1993–1994	1.3 (0.1–6.1)		
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, 1992–1993		4.6 (3.8–5.7)	
	Site 1, 1993–1994		5.2 (3.7–6.7)	
	Site 2, 1992–1993		5.2 (3.8–7.0)	
	Site 2, 1993–1994		6.0 (4.0–7.1)	
	Site 3, 1992–1993		5.6 (4.0–7.3)	
	Site 3, 1993–1994		6.4 (4.5–7.9)	
	Site 4, 1992–1993		5.6 (4.0–8.0)	
	Site 4, 1993–1994		7.0 (4.3–8.5)	

Trophic classification values are from Wetzel (1983).

Table 10: Trophic classification of Lake Whatcom water quality data.

Parameter	1993 Oct	Nov	Dec	1994 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 Nitrogen					•					•		
Soluble Phosphate					•					•		
Total Phosphorus					•					•		
Total Organic Carbon					•					•		
Total Arsenic					•							
Total Cadmium					•							
Total Chromium					•							
Total Copper					•							
Total Iron					•							
Total Lead					•							
Total Mercury					•							
Total Nickel					•							
Total Zinc					•							
Total bacteria					•					•		
Coliforms ± Enterococcus (City)					•					•		

Table 11: Lake Whatcom 1993–1994 creek monitoring schedule.

Site	Date	pH	Cond. (μMHO)	NH_3 (μg/L)	TN (μg/L)	NO_{2+3} (μg/L)	SRP (μg/L)	TP (μg/L)	DO (mg/L)	TSS (mg/L)	TC/ (100 mL)	FC/ (100 mL)
Blue Canyon	1990 min	8.1	250	10	-99	167	< 5	< 5	9.0	< 2	90	< 2
	1990 avg	8.4	344	20	-99	336	< 5	13	10.5	5	1163	7
	1990 max	8.6	409	34	-99	545	12	25	12.3	29	9000	27
	Feb 1993	8.3	391	< 5	689	452	5	8	10.5	4	500	< 2
	July 1993	8.4	368	< 5	304	274	< 5	18	11.0	7	-99	220
	Feb 1994	7.5	76	< 5	2234	2049	6	< 5	12.6	2	230	2
	July 1994	8.4	342	33	483	107	< 5	10	9.3	9	1100	300
Wildwd	1990 min	6.7	34	8	-99	755	< 5	< 5	6.9	< 2	23	< 2
	1990 avg	7.2	54	189	-99	1790	< 5	9	10.0	2	1164	74
	1990 max	7.6	126	32	-99	4857	9	33	12.3	11	> 16000	1300
	Feb 1993	7.2	54	< 5	2922	2397	< 5	< 5	11.4	< 2	300	< 2
	July 1993	7.5	56	6	2243	1860	6	7	10.5	< 2	-99	30
	Feb 1994	7.1	67	< 5	5039	5587	< 5	< 5	11.8	3	170	< 2
	July 1994	7.4	68	< 5	3994	2885	9	6	8.7	< 2	800	< 20
Austin	1990 min	7.1	50	6	-99	259	< 5	< 5	8.3	< 2	50	7
	1990 avg	7.4	81	20	-99	441	< 5	13	10.5	3	3366	950
	1990 max	7.6	121	40	-99	658	9	23	12.1	13	16000	5000
	Feb 1993	7.2	74	5	1118	779	9	12	11.2	4	220	11
	July 1993	7.5	95	6	603	437	6	15	10.3	< 2	-99	320
	Feb 1994	7.2	62	20	2207	1967	9	21	11.7	20	800	130
	July 1994	7.6	111	51	635	410	6	11	8.6	5	800	800
Park Place	1990 min	7.1	118	22	-99	145	6	41	6.4	3	230	8
	1990 avg	7.7	245	51	-99	357	22	66	9.1	13	8254	1353
	1990 max	8.1	410	111	-99	549	86	168	11.8	57	> 16000	16000
	Feb 1993	7.4	244	320	1279	548	19	146	10.4	129	> 16000	240
	July 1993	7.7	176	36	1384	250	36	148	8.8	18	-99	220
	Feb 1994	7.6	205	37	1480	1264	24	101	11.0	50	9000	90
	July 1994	8.1	273	29	3273	1250	194	205	7.8	11	> 16000	130
Silver Beach	1990 min	7.4	103	< 10	-99	173	< 5	27	6.9	< 2	170	8
	1990 avg	7.9	187	19	-99	583	16	41	9.8	6	7110	3307
	1990 max	8.1	290	43	-99	1118	42	61	12.1	12	> 16000	16000
	Feb 1993	7.7	150	5	1688	1235	12	36	11.4	< 2	900	300
	July 1993	7.8	271	40	1092	374	40	87	9.4	7	-99	42000
	Feb 1994	7.7	137	30	1840	1394	20	61	11.4	18	5000	500
	July 1994	8.1	279	29	939	372	29	39	8.5	5	3000	1700
Smith	1990 min	6.6	44	12	-99	396	< 5	< 5	8.7	< 2	17	< 2
	1990 avg	7.5	64	17	-99	687	< 5	6	10.5	3	1138	14
	1990 max	7.8	90	37	-99	1025	8	12	12.6	10	9000	170
	Feb 1993	7.4	52	< 5	1045	904	5	< 5	10.4	< 2	170	2
	July 1993	7.4	72	< 5	770	698	< 5	< 5	10.3	< 2	-99	250
	Feb 1994	7.4	60	12	2573	2386	6	31	12.2	16	80	2
	July 1994	7.8	80	17	848	701	< 5	< 5	9.0	2	130	130

The 1990 creek data do not include the November 1990 storm event.

Cond = conductivity
NH_3 = ammonia
TN = total nitrogen
NO_{2+3} = nitrate/nitrite
SRP = soluble phosphate
TP = total phosphorus
DO = dissolved oxygen
TSS = total susp. solids
TC = total coliforms
FC = fecal coliforms

Table 12: Creek water quality data compared to 1990 averages.

Site	Date	As (μg/L)	Cd (μg/L)	Cr (μg/L)	Cu (μg/L)	Fe (μg/L)	Hg (μg/L)	Ni (μg/L)	Pb (μg/L)	Zn (μg/L)
Blue Canyon	1990 avg	-99	< 0.5	< 0.5	< 5	-99	-99	< 5	< 5	2
	1990 min	-99	< 0.5	< 0.5	< 5	-99	-99	< 5	< 5	< 0.2
	1990 max	-99	< 0.5	4	9	-99	-99	4	6	33
	Feb 1993	< 30	< 2	8	< 2	150	< 10	< 10	8	17
	Feb 1994	< 30	< 2	< 6	< 2	70	< 10	< 10	2	17
Wildwd	1990 avg	-99	< 0.5	< 0.5	< 5	-99	-99	< 5	< 5	3
	1990 min	-99	< 0.5	< 0.5	< 5	-99	-99	< 5	< 5	0.5
	1990 max	-99	< 0.5	2	8	-99	-99	7	6	10
	Feb 1993	< 30	< 2	< 6	< 2	20	< 10	< 10	3	16
	Feb 1994	< 30	< 2	< 6	<2	60	< 10	< 10	1	23
Austin	1990 avg	-99	< 0.5	< 0.5	< 5	-99	-99	< 5	< 5	5
	1990 min	-99	< 0.5	< 0.5	< 5	-99	-99	< 5	< 5	0.4
	1990 max	-99	< 0.5	7	11	-99	-99	7	26	21
	Feb 1993	< 30	< 2	< 6	< 2	220	< 10	< 10	3	< 2
	Feb 1994	< 30	< 2	< 6	< 2	1000	< 10	< 10	2	18
Park Place	1990 avg	-99	< 0.5	< 0.5	7	-99	-99	< 5	6	16
	1990 min	-99	< 0.5	1	< 5	-99	-99	< 5	< 5	3
	1990 max	-99	< 0.5	10	16	-99	-99	7	20	148
	Feb 1993	< 30	< 2	22	20	8700	< 10	10	10	< 2
	Feb 1994	< 30	10	8	< 2	2700	< 10	< 10	2	26
Silver Beach	1990 avg	-99	< 0.5	< 0.5	<5	-99	-99	< 5	< 5	2
	1990 min	-99	< 0.5	< 0.5	< 5	-99	-99	< 5	< 5	0.2
	1990 max	-99	< 5	3	7	-99	-99	< 5	< 5	5
	Feb 1993	< 30	< 2	< 6	< 2	1100	< 10	< 10	4	< 2
	Feb 1994	<30	< 2	< 6	< 2	1700	< 10	< 10	2	22
Smith	1990 avg	-99	< 0.5	< 0.5	< 5	-99	-99	< 5	< 5	2
	1990 min	-99	< 0.5	< 0.5	< 5	-99	-99	< 5	< 5	0.3
	1990 max	-99	< 0.5	2	18	-99	-99	< 5	< 5	3
	Feb 1993	< 30	< 2	< 6	< 2	70	< 10	< 10	< 1	< 2
	Feb 1994	< 30	< 2	< 6	< 2	770	< 10	< 10	3	19

All 1993 metals samples were analyzed by AmTest for total metals.
All 1992 metals samples were analyzed by the Institute for Watershed Studies (WWU) for dissolved metals.
The 1990 creek data do not include the November 1990 storm event.

Table 13: Creek metals data compared to 1990 averages.

Table 14: Lake Whatcom microlayer data from September 27, 1993. All metals concentrations are in mg/L

	Al	Bo	Ba	Ca	Cd	Co	Cr	Cu	Fe	K	Mg	Mn	Na	Ni	P	Pb	S	Si	St	Ti	Va	Yt	Zn
B-D microlayer, rep #1	0.44	< 0.1	0.015	6.3	< 0.002	0.011	< 0.006	0.053	0.91	< 1.0	2.20	0.110	3.8	< 0.01	0.08	< 0.001	2.1	2.7	0.057	0.02	< 0.002	< 0.001	0.068
B-D microlayer, rep #2	0.13	< 0.1	0.009	5.9	< 0.002	0.006	< 0.006	0.038	0.21	< 1.0	2.00	0.020	3.5	< 0.01	< 0.025	< 0.001	1.8	2.0	0.061	< 0.01	< 0.002	< 0.001	0.062
B-D bulkwater, rep #1	0.10	< 0.1	0.007	5.3	< 0.002	< 0.003	< 0.006	0.005	0.14	< 1.0	1.80	0.010	3.1	< 0.01	< 0.025	< 0.001	1.6	2.9	0.053	< 0.01	< 0.002	< 0.001	0.044
B-D bulkwater, rep #2	0.17	< 0.1	0.008	5.5	< 0.002	0.005	< 0.006	0.021	0.11	< 1.0	1.80	0.013	3.2	< 0.01	< 0.025	< 0.001	1.6	1.1	0.056	< 0.01	< 0.002	< 0.001	0.042
Site 1 microlayer, rep #1	1.10	< 0.1	0.020	6.4	< 0.002	< 0.003	< 0.006	0.028	1.40	< 1.0	2.10	0.130	3.6	< 0.01	0.21	< 0.001	1.8	3.5	0.064	0.05	< 0.002	< 0.001	0.060
Site 1 microlayer, rep #2	0.47	< 0.1	0.013	6.3	< 0.002	0.006	< 0.006	0.011	0.59	< 1.0	2.00	0.054	3.7	< 0.01	0.08	< 0.001	1.8	2.2	0.062	0.02	< 0.002	< 0.001	0.068
Site 1 bulkwater, rep #1	0.11	< 0.1	0.008	5.2	< 0.002	< 0.003	< 0.006	< 0.002	0.08	< 1.0	1.80	0.011	3.1	< 0.01	< 0.025	< 0.001	1.6	1.2	0.053	< 0.01	< 0.002	< 0.001	0.032
Site 1 bulkwater, rep #2	0.13	< 0.1	0.007	5.1	< 0.002	< 0.003	< 0.006	< 0.002	0.07	< 1.0	1.70	0.008	3.1	< 0.01	< 0.025	< 0.001	1.5	1.6	0.053	< 0.01	< 0.002	< 0.001	0.028
Intake microlayer, rep #1	0.50	< 0.1	0.012	5.8	< 0.002	< 0.003	< 0.006	< 0.002	0.49	< 1.0	2.00	0.034	3.5	< 0.01	< 0.025	< 0.001	1.8	2.5	0.060	0.02	< 0.002	< 0.001	0.028
Intake microlayer, rep #2	0.39	< 0.1	0.011	5.4	< 0.002	< 0.003	< 0.006	< 0.002	0.45	< 1.0	1.90	0.036	3.1	< 0.01	< 0.025	< 0.001	1.6	1.5	0.055	0.01	< 0.002	< 0.001	0.032
Intake bulkwater, rep #1	0.14	< 0.1	0.010	5.7	< 0.002	< 0.003	< 0.006	< 0.002	0.05	< 1.0	1.90	0.004	3.5	< 0.01	< 0.025	< 0.001	1.8	1.7	0.058	< 0.01	< 0.002	< 0.001	0.035
Intake bulkwater, rep #2	0.09	< 0.1	0.007	5.4	< 0.002	0.004	< 0.006	< 0.002	0.03	< 1.0	1.80	0.004	3.2	< 0.01	< 0.025	< 0.001	1.7	0.9	0.056	< 0.01	< 0.002	< 0.001	0.024
Site 2 microlayer, rep #1	0.98	< 0.1	0.020	5.8	< 0.002	0.004	< 0.006	< 0.002	1.00	< 1.0	2.00	0.046	3.3	< 0.01	0.09	< 0.001	1.8	0.4	< 0.003	< 0.01	< 0.002	< 0.001	0.130
Site 2 microlayer, rep #2	0.15	< 0.1	0.008	5.6	< 0.002	0.004	< 0.006	< 0.002	0.11	< 1.0	1.90	0.008	3.4	< 0.01	0.06	< 0.001	1.8	1.0	0.056	< 0.01	< 0.002	< 0.001	0.026
Site 2 bulkwater, rep #1	0.10	< 0.1	0.007	5.2	< 0.002	0.004	< 0.006	< 0.002	0.03	< 1.0	1.70	< 0.002	3.0	< 0.01	< 0.025	< 0.001	1.6	0.6	0.052	< 0.01	< 0.002	< 0.001	0.028
Site 2 bulkwater, rep #2	0.20	< 0.1	0.007	5.4	0.003	< 0.003	< 0.006	< 0.002	0.03	< 1.0	1.80	0.004	3.3	< 0.01	< 0.025	< 0.001	1.7	1.3	0.054	< 0.01	< 0.002	< 0.001	0.022

Table 15: Lake Whatcom microlayer data from February 5, 1994. All metals concentrations are in mg/L.

	Al	Bo	Ba	Ca	Cd	Co	Cr	Cu	Fe	K	Mg	Mn	Na	Ni	P	Pb	S	Si	St	Ti	Va	Yt	Zn
B-D microlayer, rep #1	1.40	< 0.1	0.031	6.6	< 0.002	< 0.003	< 0.006	< 0.002	1.60	< 1.0	2.40	0.041	3.2	< 0.01	0.14	< 0.001	1.8	3.8	0.062	0.07	< 0.002	< 0.001	0.071
B-D microlayer, rep #2	1.30	0.13	0.027	6.3	0.002	< 0.003	< 0.006	< 0.002	1.30	< 1.0	2.30	0.035	3.5	< 0.01	0.14	< 0.001	1.6	4.2	0.060	0.06	< 0.002	< 0.001	0.070
B-D bulkwater, rep #1	0.03	< 0.1	0.008	5.8	< 0.002	< 0.003	< 0.006	< 0.002	0.05	< 1.0	1.90	0.004	3.0	< 0.01	< 0.025	< 0.001	1.7	2.3	0.056	< 0.01	< 0.002	< 0.001	0.020
B-D bulkwater, rep #2	0.08	< 0.1	0.008	6.0	< 0.002	< 0.003	< 0.006	< 0.002	0.04	< 1.0	2.00	0.005	3.2	< 0.01	< 0.025	< 0.001	1.7	2.4	0.058	< 0.01	< 0.002	< 0.001	0.027
Site 1 microlayer, rep #1	6.50	< 0.1	0.110	9.2	< 0.002	< 0.003	0.016	0.033	9.60	< 1.0	4.50	0.260	3.5	0.02	0.47	0.040	2.2	10.0	0.088	0.25	0.016	0.003	0.130
Site 1 microlayer, rep #2	6.30	< 0.1	0.084	8.7	< 0.002	< 0.003	0.012	0.012	7.80	1.30	4.20	0.180	3.6	0.02	0.34	< 0.001	2.0	11.0	0.082	0.29	0.014	0.002	0.110
Site 1 bulkwater, rep #1	0.05	< 0.1	0.009	6.2	< 0.002	< 0.003	< 0.006	< 0.002	0.03	< 1.0	2.00	< 0.002	3.1	< 0.01	< 0.025	< 0.001	1.7	2.2	0.058	< 0.01	< 0.002	< 0.001	0.024
Site 1 bulkwater, rep #2	0.05	< 0.1	0.008	5.9	< 0.002	< 0.003	< 0.006	< 0.002	0.03	< 1.0	2.00	< 0.002	3.2	< 0.01	< 0.025	< 0.001	1.7	2.1	0.058	< 0.01	< 0.002	< 0.001	0.014
Intake microlayer, rep #1	0.23	< 0.1	0.010	5.8	< 0.002	< 0.003	< 0.006	< 0.002	0.26	< 1.0	1.90	0.035	3.2	< 0.01	< 0.025	< 0.001	1.7	2.6	0.056	< 0.01	< 0.002	< 0.001	0.018
Intake microlayer, rep #2	0.25	0.16	0.009	5.4	< 0.002	< 0.003	< 0.006	< 0.002	0.26	< 1.0	1.80	0.028	3.4	< 0.01	< 0.025	< 0.001	1.5	3.2	0.053	< 0.01	< 0.002	< 0.001	0.018
Intake bulkwater, rep #1	0.09	< 0.1	0.008	5.3	< 0.002	< 0.003	< 0.006	< 0.002	0.04	< 1.0	1.80	< 0.002	3.1	< 0.01	< 0.025	< 0.001	1.5	2.4	0.053	< 0.01	< 0.002	< 0.001	0.021
Intake bulkwater, rep #2	0.05	< 0.1	0.008	5.6	0.006	< 0.003	< 0.006	< 0.002	0.04	< 1.0	1.80	0.003	3.0	< 0.01	< 0.025	< 0.001	1.7	2.2	0.054	< 0.01	< 0.002	< 0.001	0.025
Site 2 microlayer, rep #1	0.17	< 0.1	0.011	5.9	< 0.002	< 0.003	< 0.006	< 0.002	0.18	< 1.0	2.00	0.020	3.2	< 0.01	< 0.025	< 0.001	1.8	2.6	0.058	< 0.01	< 0.002	< 0.001	0.040
Site 2 microlayer, rep #2	0.56	< 0.1	0.016	6.5	< 0.002	< 0.003	< 0.006	< 0.002	0.89	< 1.0	2.20	0.140	3.2	< 0.01	< 0.025	< 0.001	1.9	4.0	0.065	0.02	< 0.002	< 0.001	0.021
Site 2 bulkwater, rep #1	0.12	0.15	0.007	5.3	< 0.002	< 0.003	< 0.006	< 0.002	0.05	< 1.0	1.70	0.002	3.0	< 0.01	< 0.025	< 0.001	1.5	2.9	0.050	< 0.01	< 0.002	< 0.001	0.035
Site 2 bulkwater, rep #2	0.09	< 0.1	0.009	5.4	< 0.002	< 0.003	< 0.006	< 0.002	0.03	< 1.0	1.80	< 0.002	3.1	< 0.01	< 0.025	< 0.001	1.6	2.5	0.053	< 0.01	< 0.002	< 0.001	0.024

First Single-Blind Quality Control Analysis

Parameter	Certified Value	APHA Low-Level Range	APHA High-Level Range	Laboratory Value
Turbidity	0.833 NTU	0.625–1.041	0.750–0.916	0.8
pH	8.92 pH units	6.69–11.15	8.03–9.81	9.1
Conductivity	103 μmhos	77–129	93–113	105
Total Phosphorus	14.3 μg-P/L	10.7–17.9	12.9–15.7	13
Soluble Phosphate	14.3 μg-P/L	10.7–17.9	12.9–15.7	15
Nitrate	353 μg-N/L	265–441	318–388	269
Alkalinity	14.8 mg/L	11.1–18.5	13.3–16.3	15.0
Ammonia	35.4 μg-N/L	26.6–44.3	31.9–38.9	36
Total Susp. Solids	107 mg/L	80–134	96–118	86
Total Org. Carbon	10.4 mg/L	7.8–13.0	9.4–11.4	*

Second Single-Blind Quality Control Analysis

Parameter	Certified Value	APHA Low-Level Range	APHA High-Level Range	Laboratory Value
Turbidity	4.33 NTU	3.25–5.41	3.90–4.76	7.6
pH	8.95 pH units	6.71–11.2	8.06–9.84	9.0
Conductivity	131 μmhos	98.2–164	118–144	131
Total Phosphorus	18.9 μg-P/L	14.2–23.6	17.0–20.8	13
Soluble Phosphate	18.8 μg-P/L	14.1–23.5	16.9–20.7	19
Nitrate	37.6 μg-N/L**	28.2–47.0	33.8–41.4	62
Alkalinity	10.5 mg/L	7.88–13.1	9.45–11.6	10.3
Ammonia	21.6 μg-N/L	16.2–27.0	19.4–23.8	24
Total Susp. Solids	75.8 mg/L	56.8–94.8	68.2–83.4	76
Total Org. Carbon	15.9 mg/L	11.9–19.9	14.3–17.5	*

*data are not yet available.

**concentration is below analytical detection limit.

Table 16: Summary of single-blind quality control results.

10 Figures

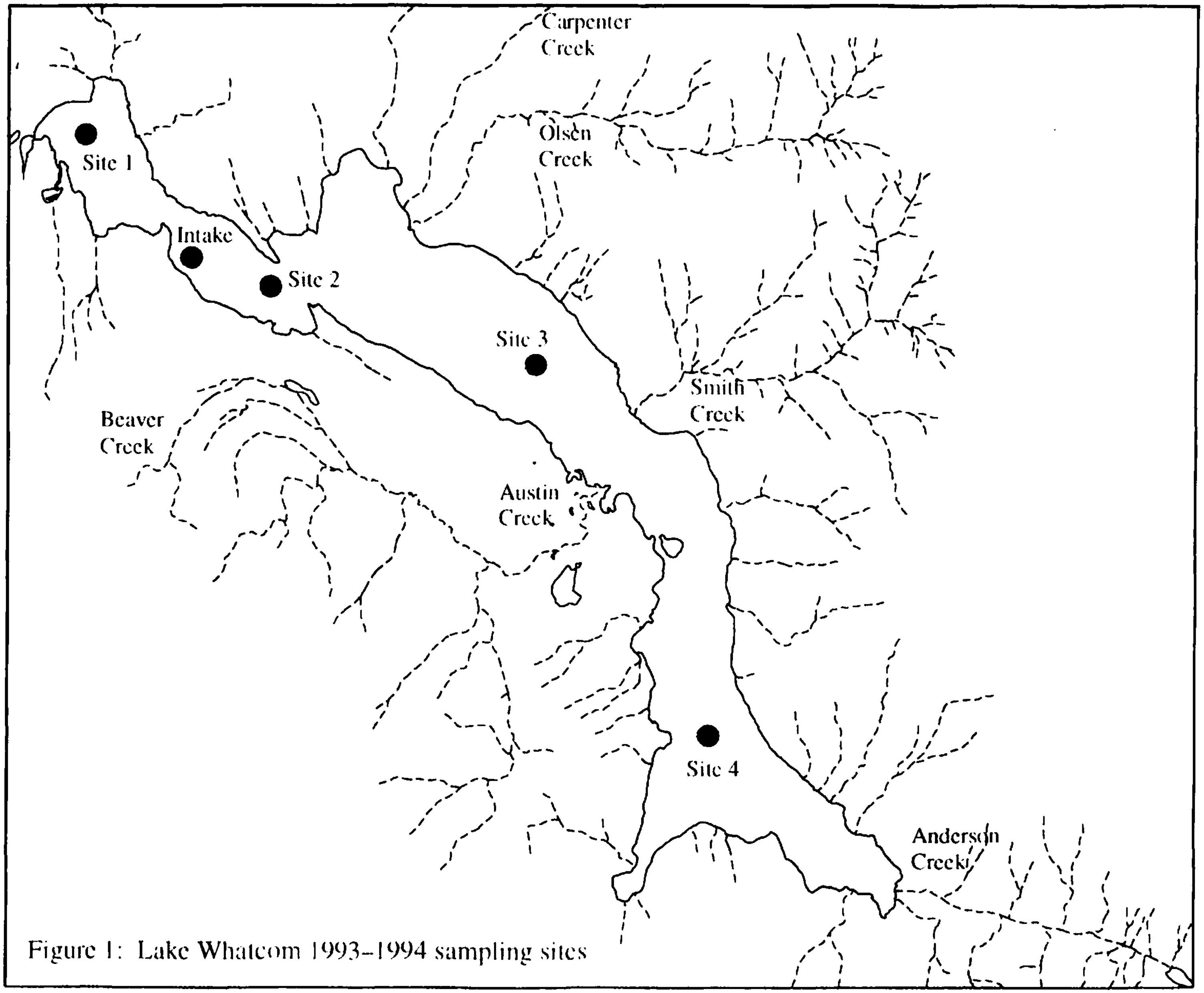


Figure 1: Lake Whatcom 1993–1994 sampling sites

Figure 2: Lake Whatcom temperature data for Site 1, September 1992 through September 1994.

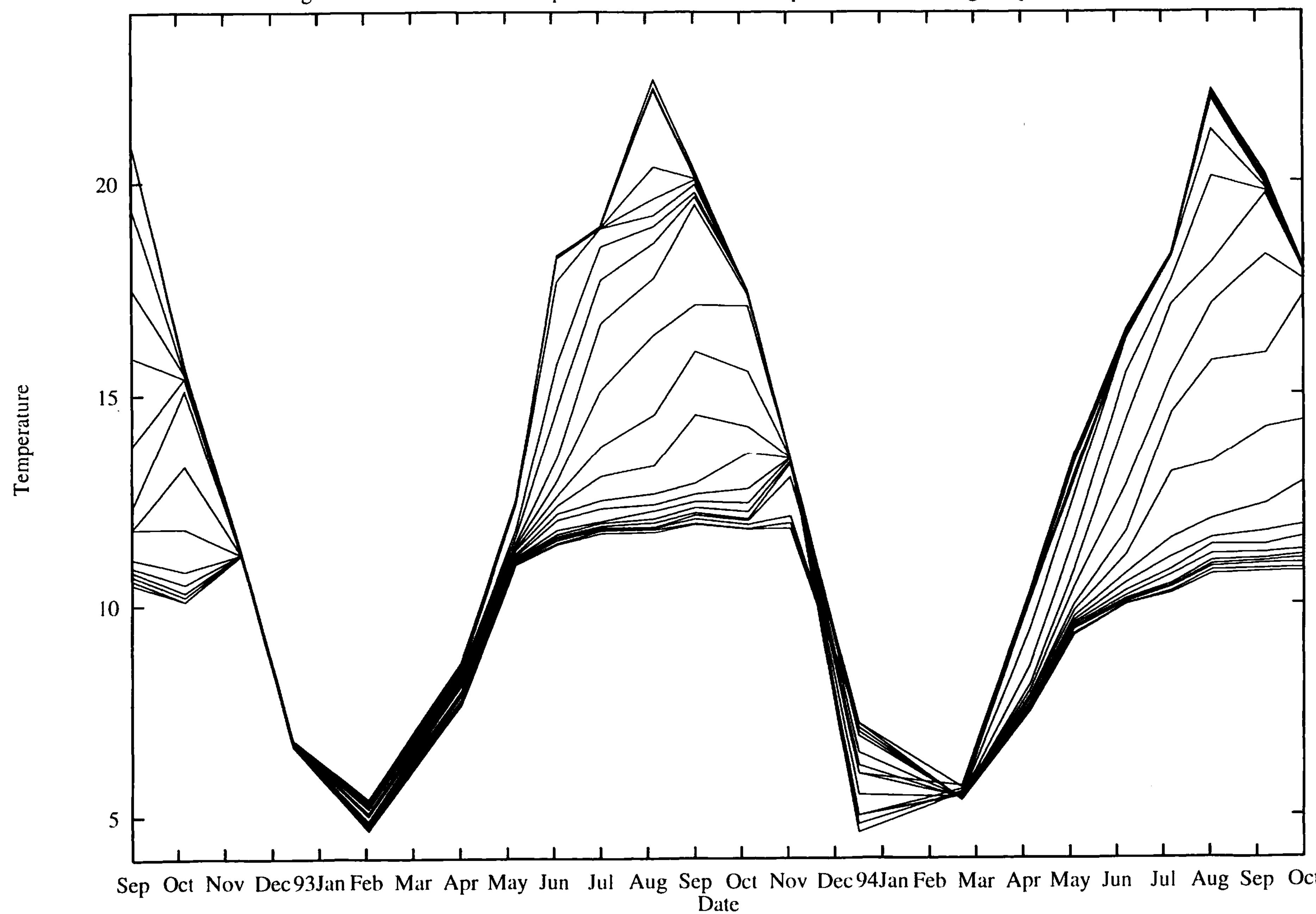


Figure 3: Lake Whatcom temperature data for Site 2, September 1992 through September 1994.

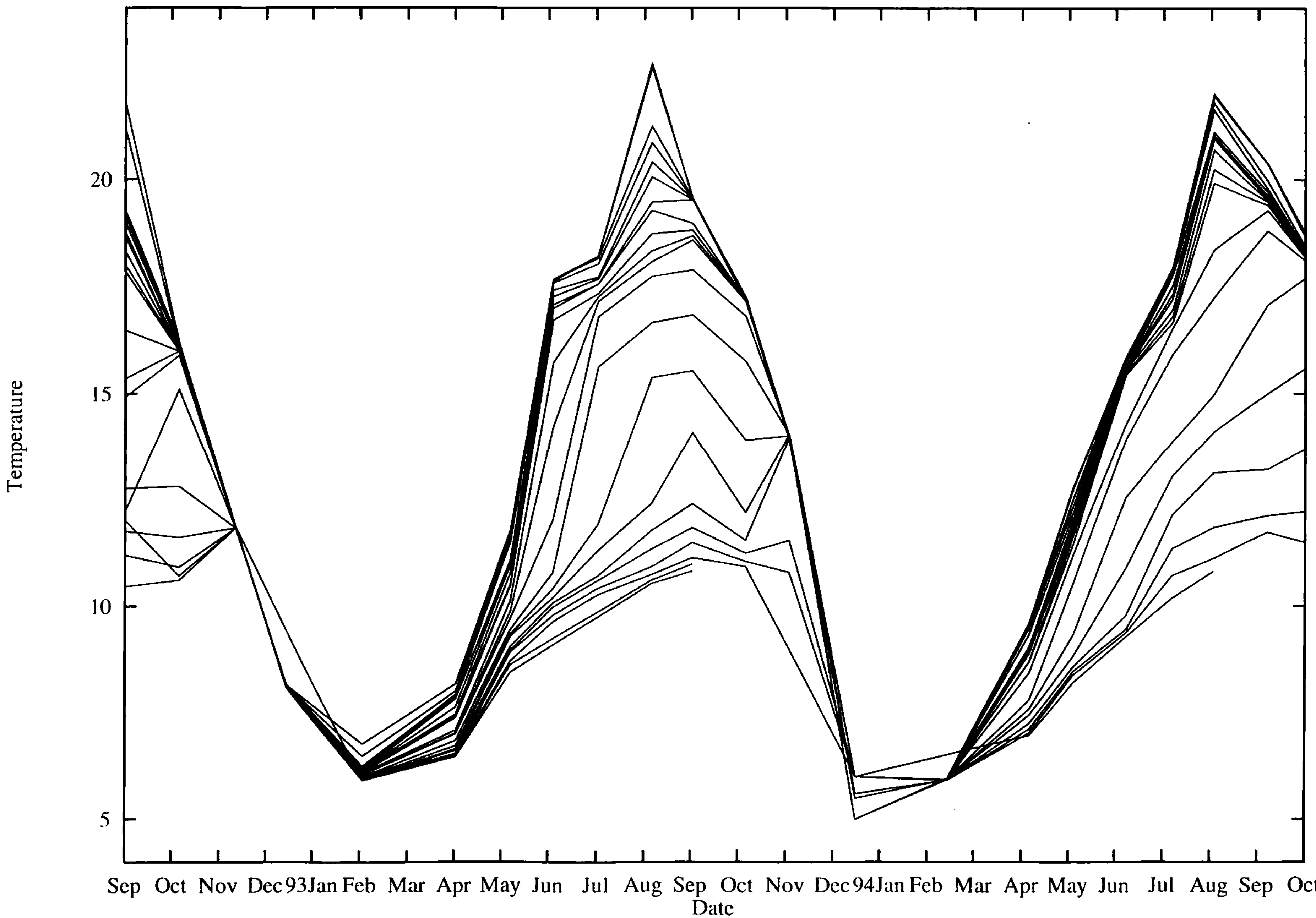


Figure 4: Lake Whatcom temperature data for Intake site (Basin 2), September 1992 through September 1994.

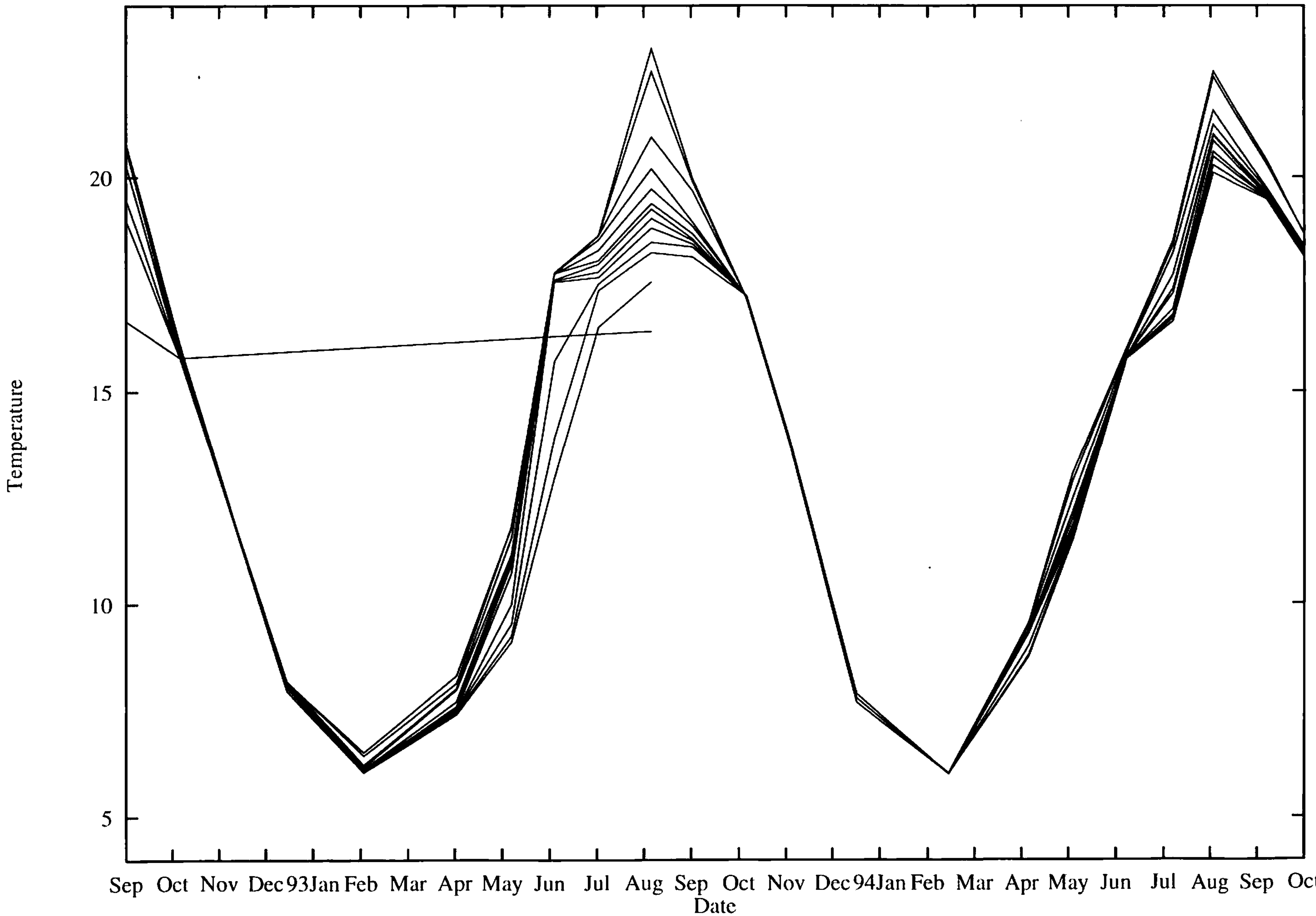


Figure 5: Lake Whatcom temperature data for Site 3, September 1992 through September 1994.

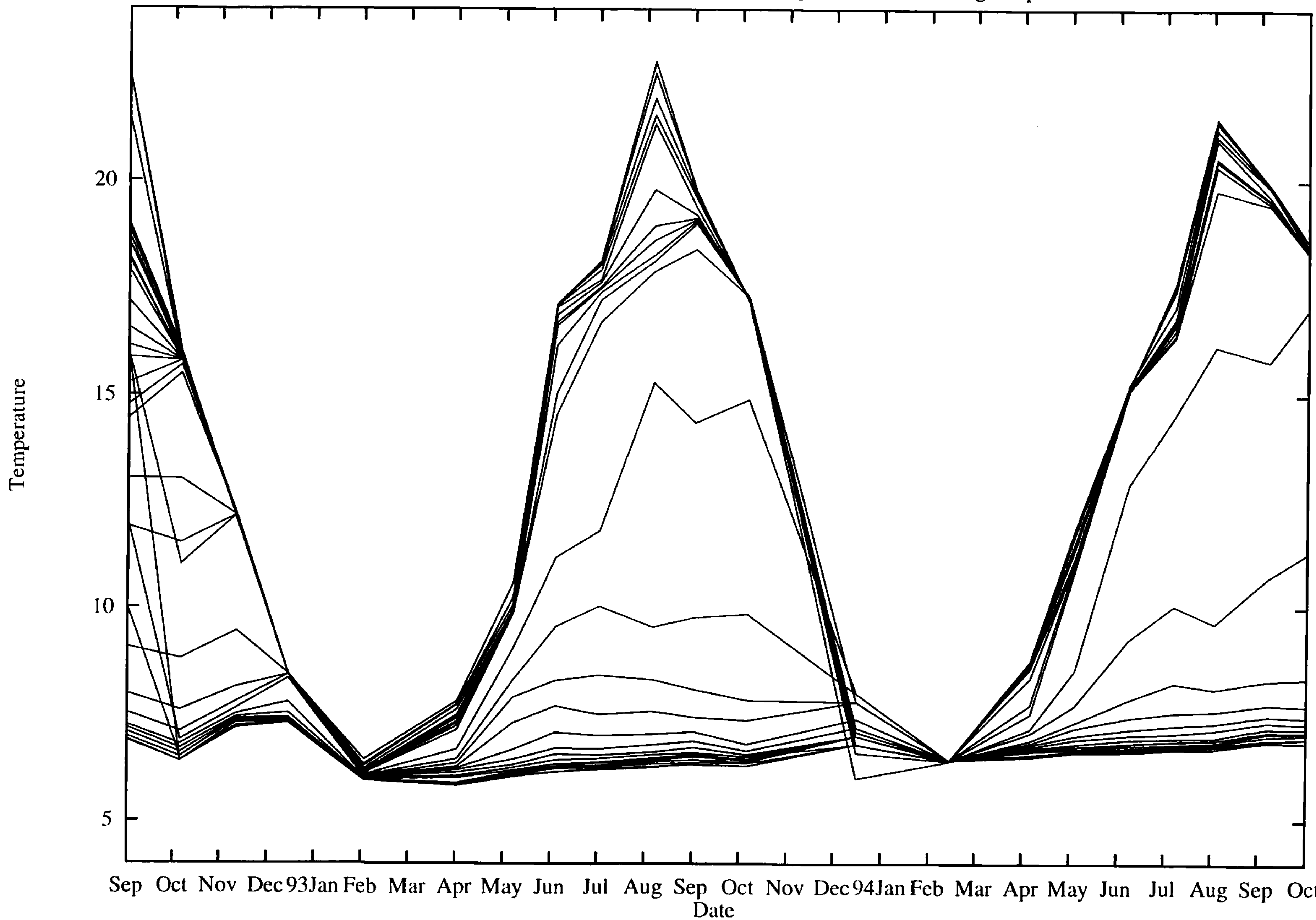


Figure 6: Lake Whatcom temperature data for Site 4, September 1992 through September 1994.

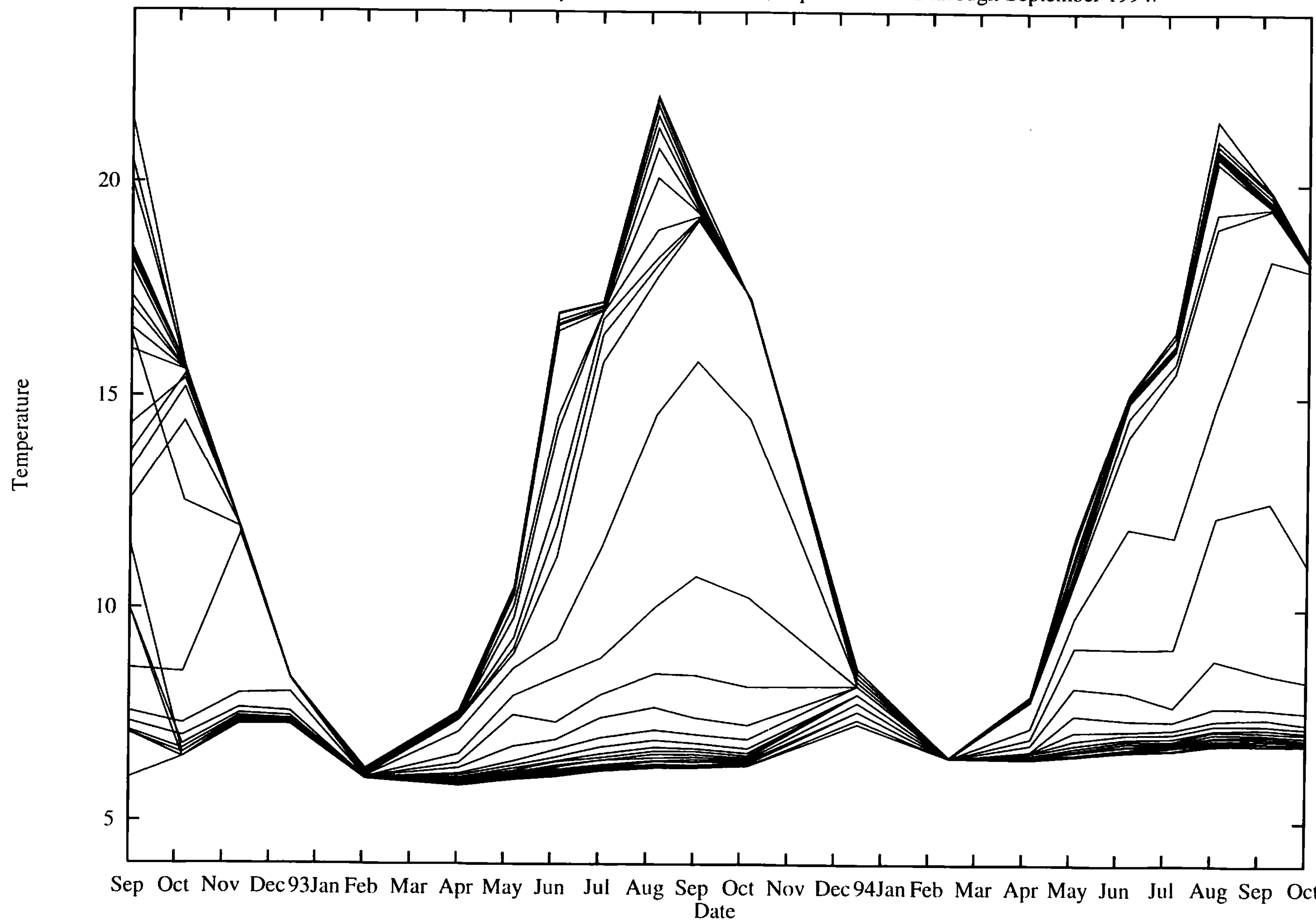


Figure 7: Lake Whatcom dissolved oxygen data for Site 1, September 1992 through September 1994.

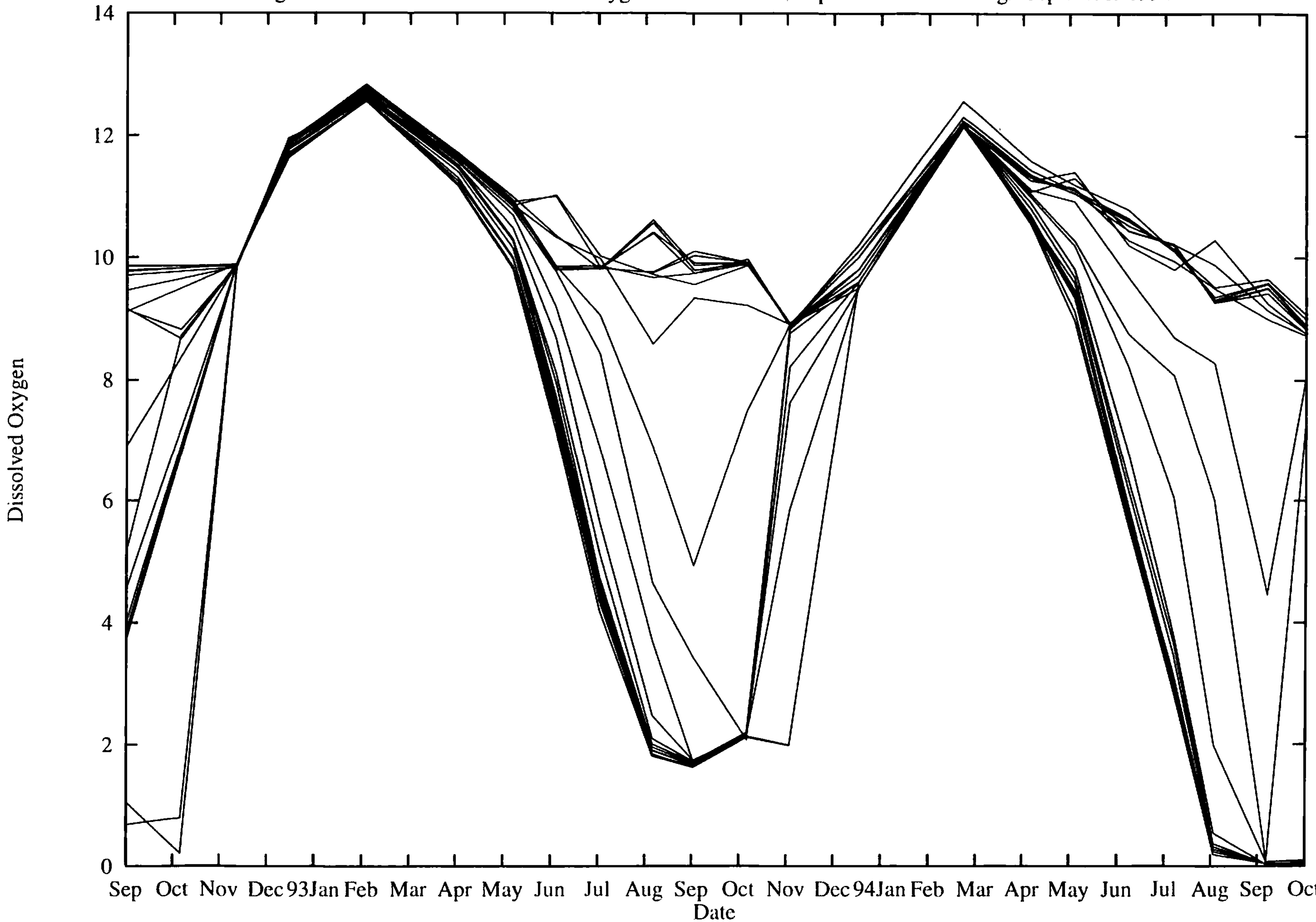


Figure 8: Lake Whatcom dissolved oxygen data for Site 2, September 1992 through September 1994.

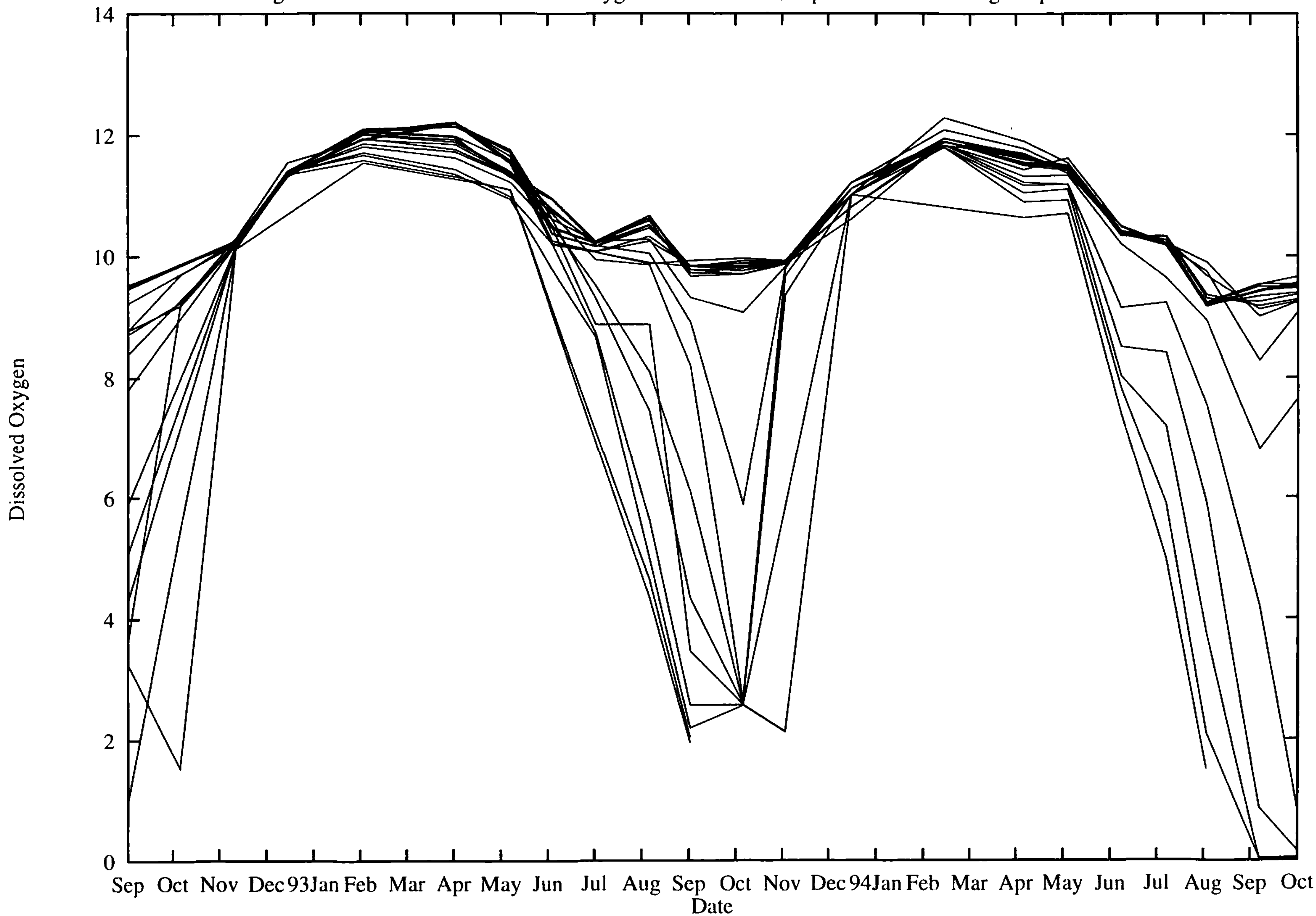


Figure 9: Lake Whatcom dissolved oxygen data for Intake site (Basin 2), September 1992 through September 1994.

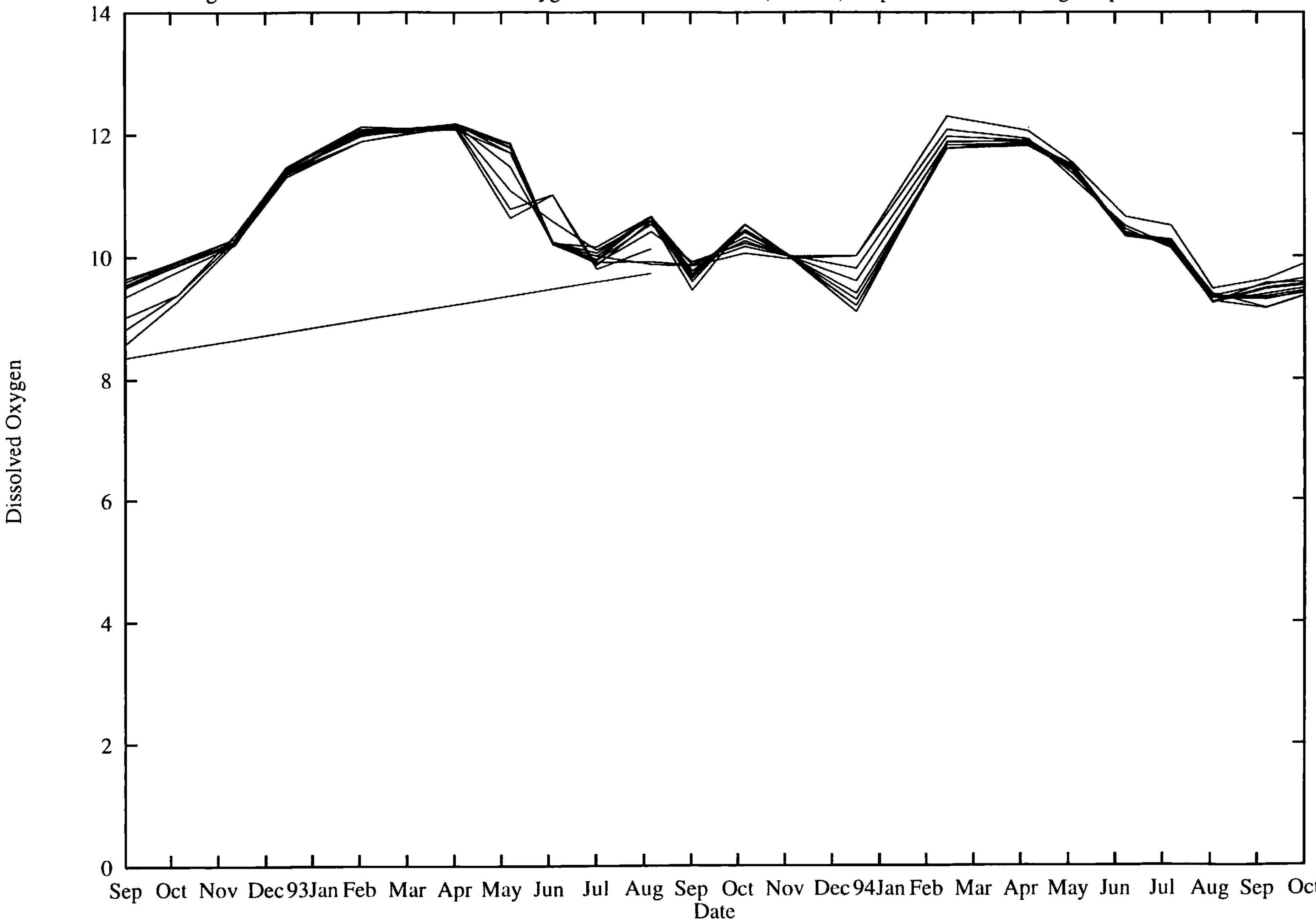


Figure 10: Lake Whatcom dissolved oxygen data for Site 3, September 1992 through September 1994.

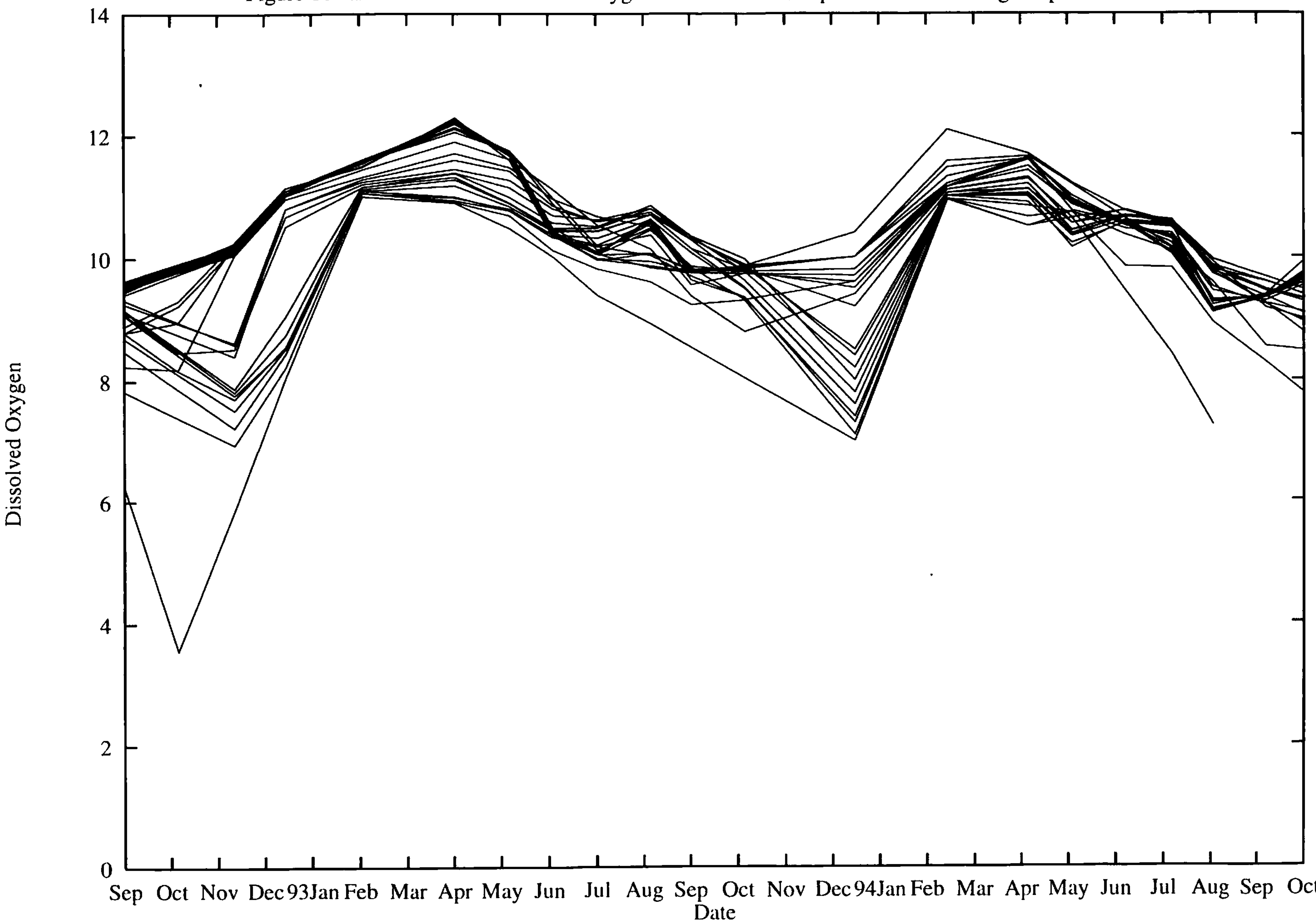


Figure 11: Lake Whatcom dissolved oxygen data for Site 4, September 1992 through September 1994.

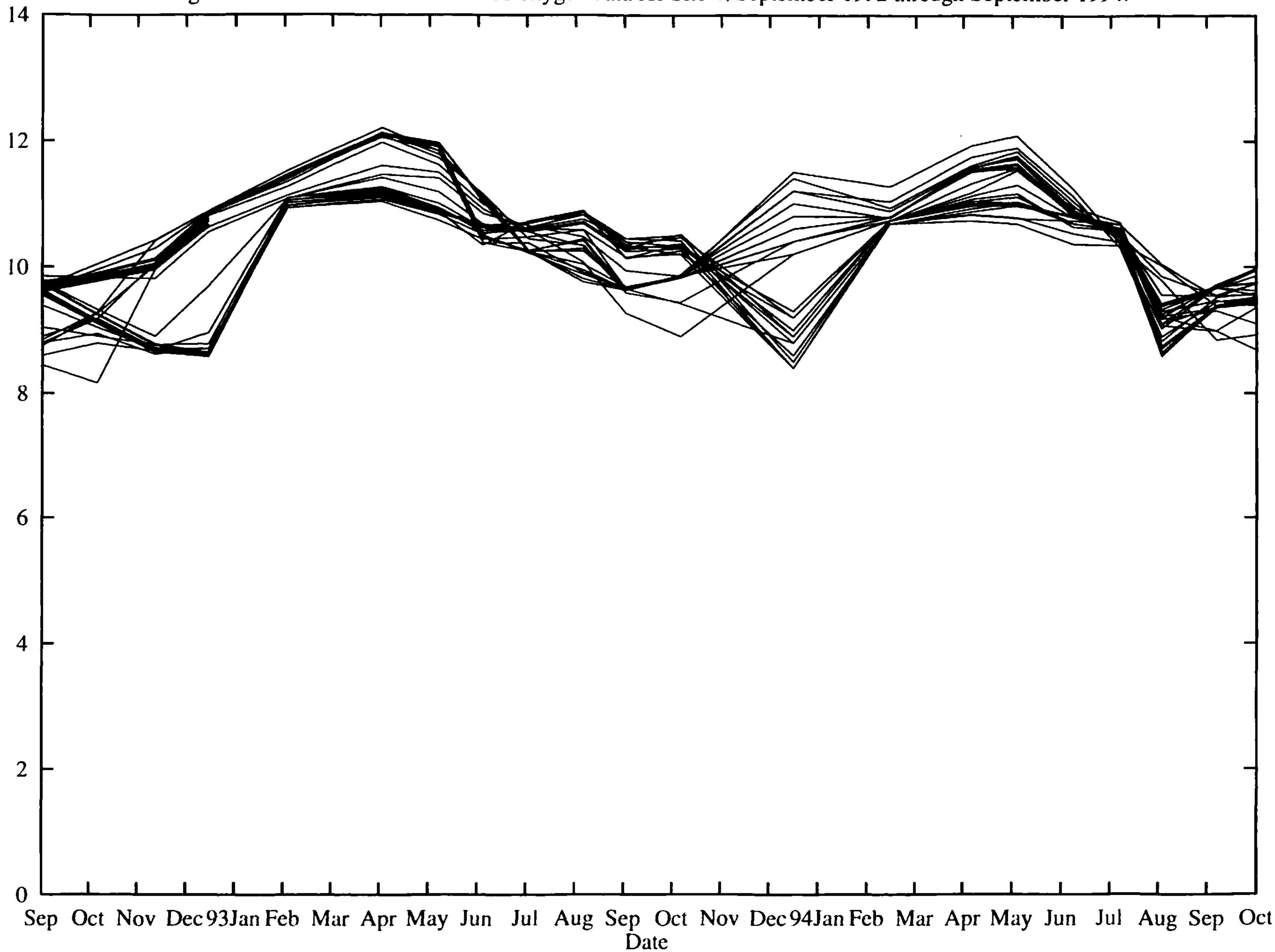


Figure 12: Lake Whatcom pH data for Site 1, September 1992 through September 1994.

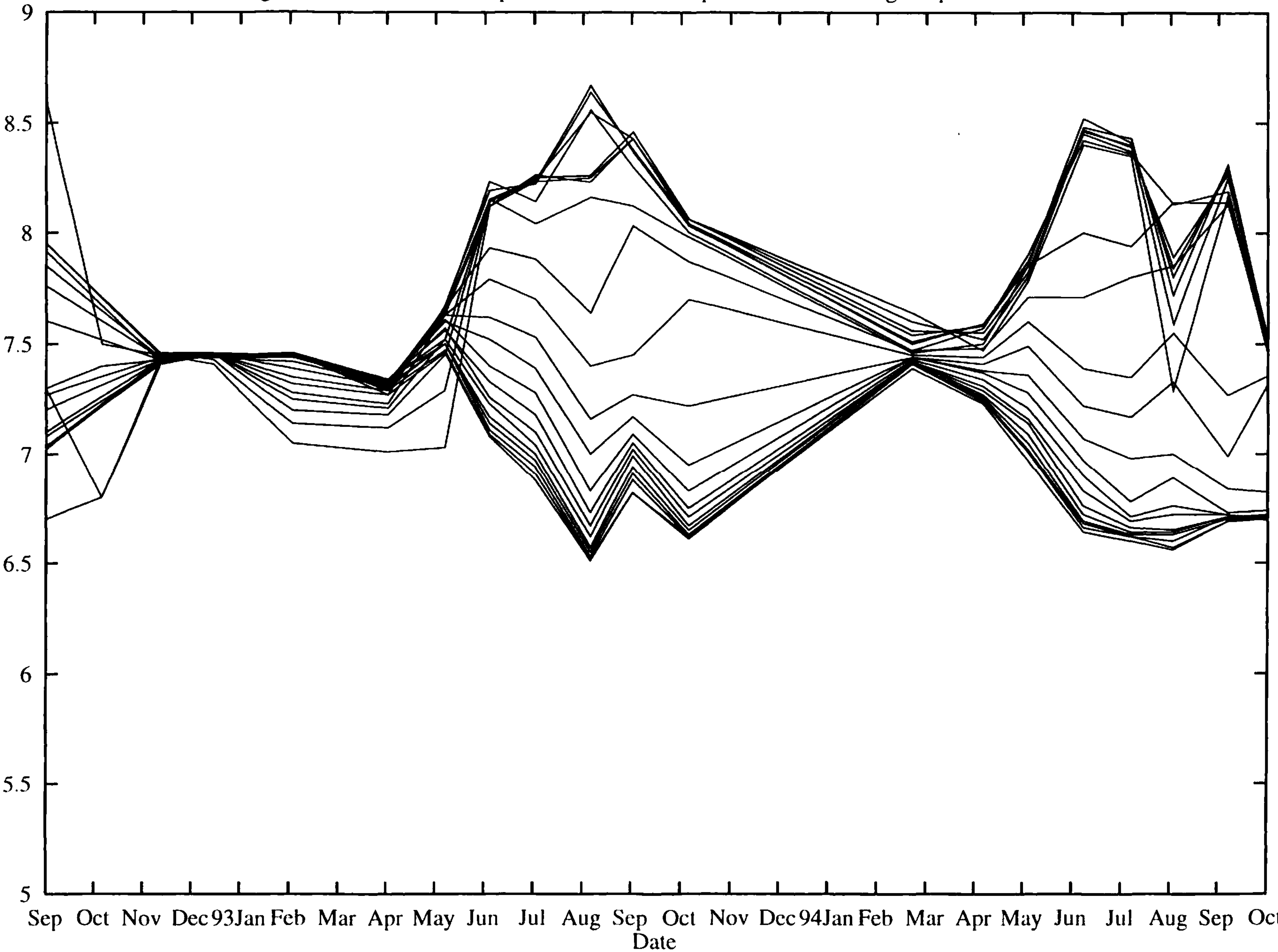


Figure 13: Lake Whatcom pH data for Site 2, September 1992 through September 1994.

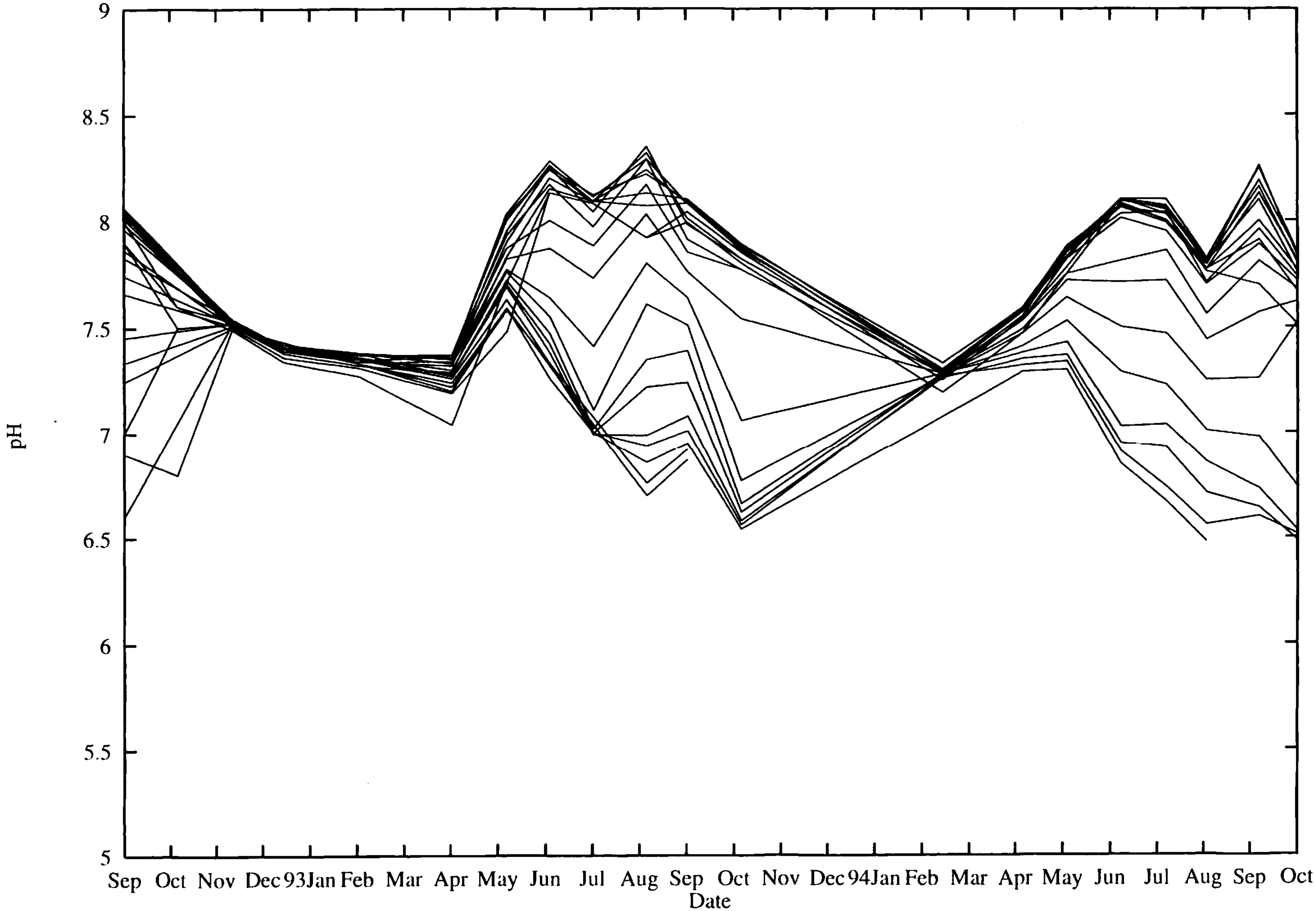


Figure 14: Lake Whatcom pH data for Intake site (Basin 2), September 1992 through September 1994.

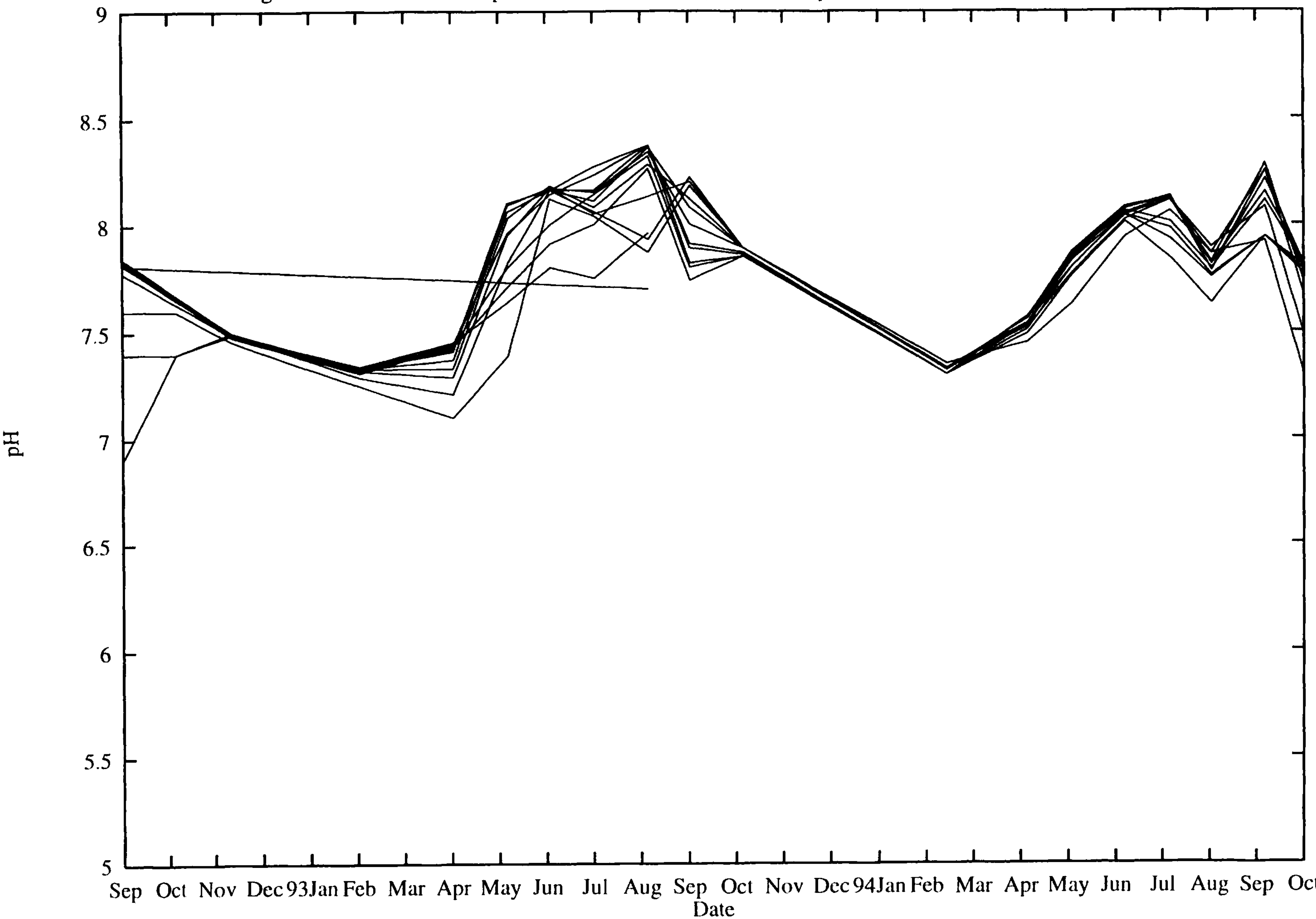


Figure 15: Lake Whatcom pH data for Site 3, September 1992 through September 1994.

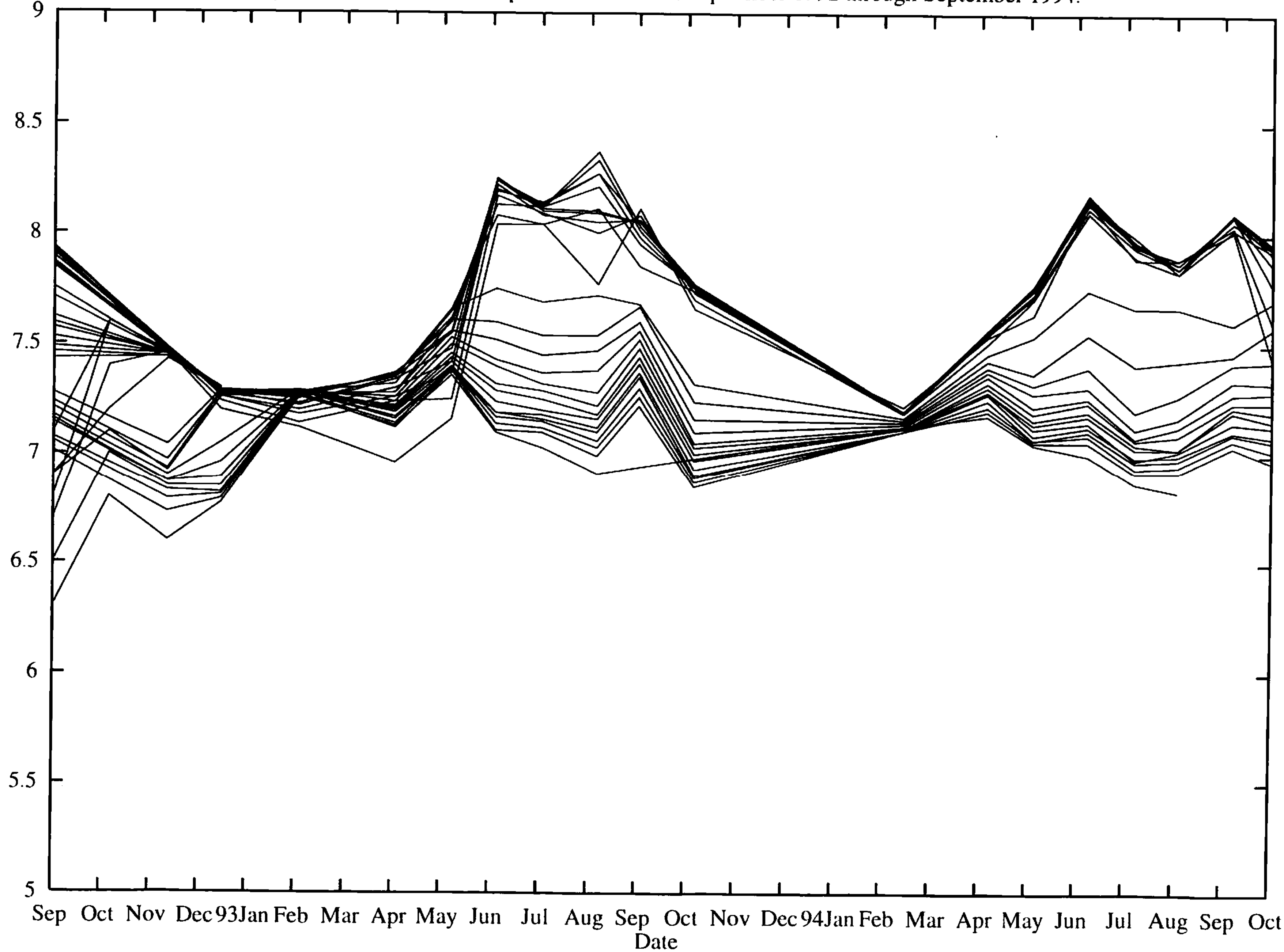


Figure 16: Lake Whatcom pH data for Site 4, September 1992 through September 1994.

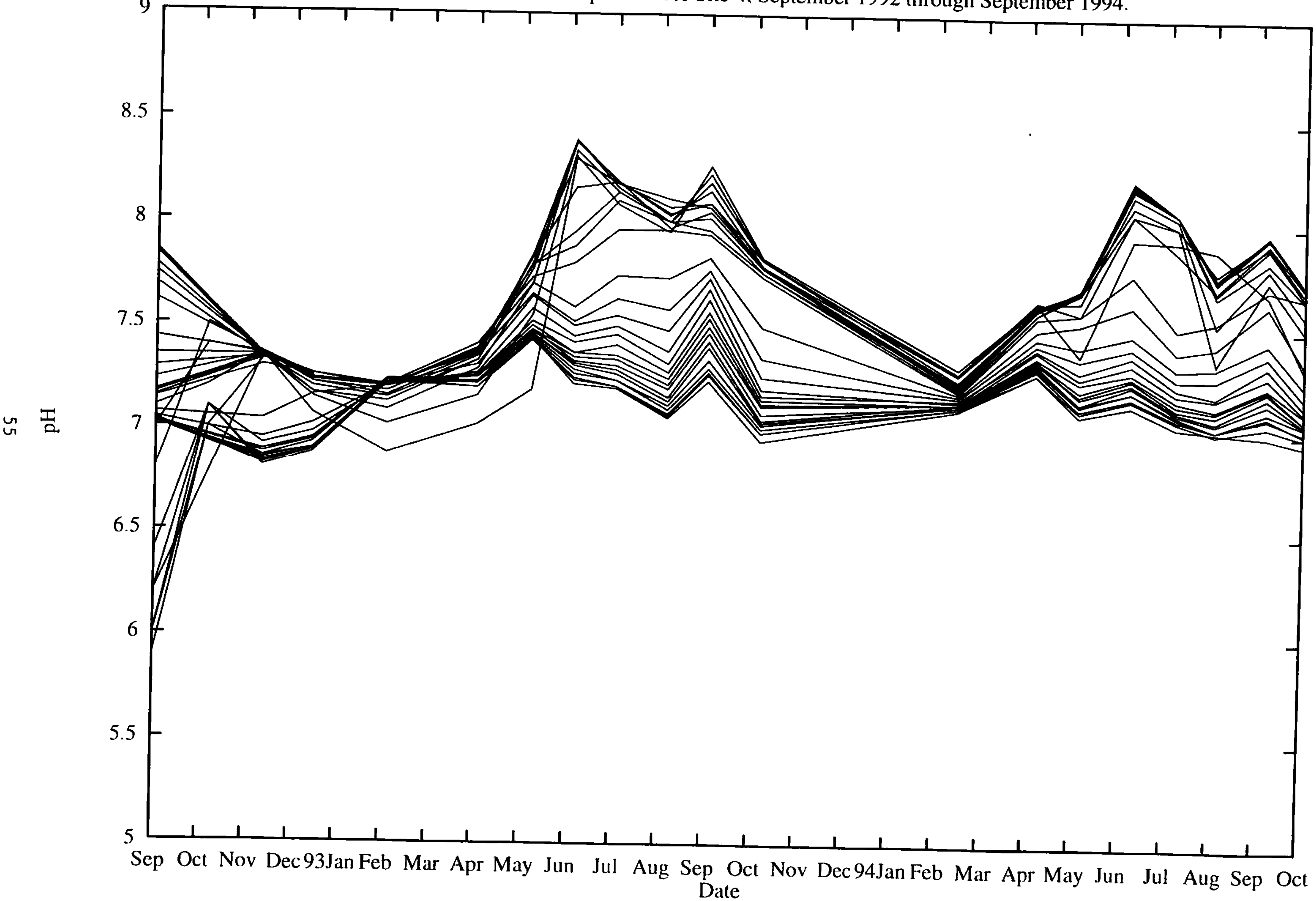


Figure 17: Lake Whatcom conductivity data for Site 1, September 1992 through September 1994.

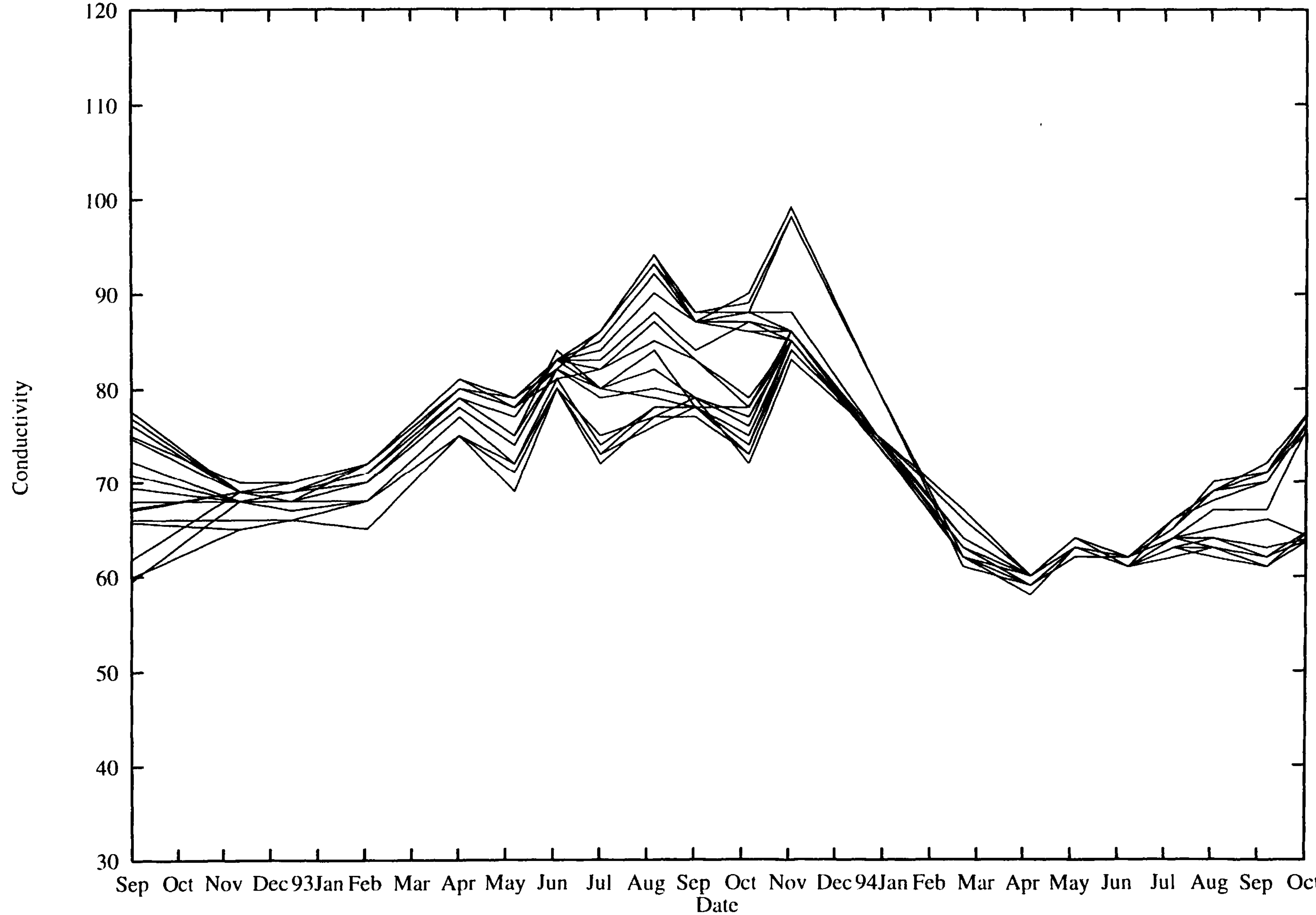


Figure 18: Lake Whatcom conductivity data for Site 2, September 1992 through September 1994.

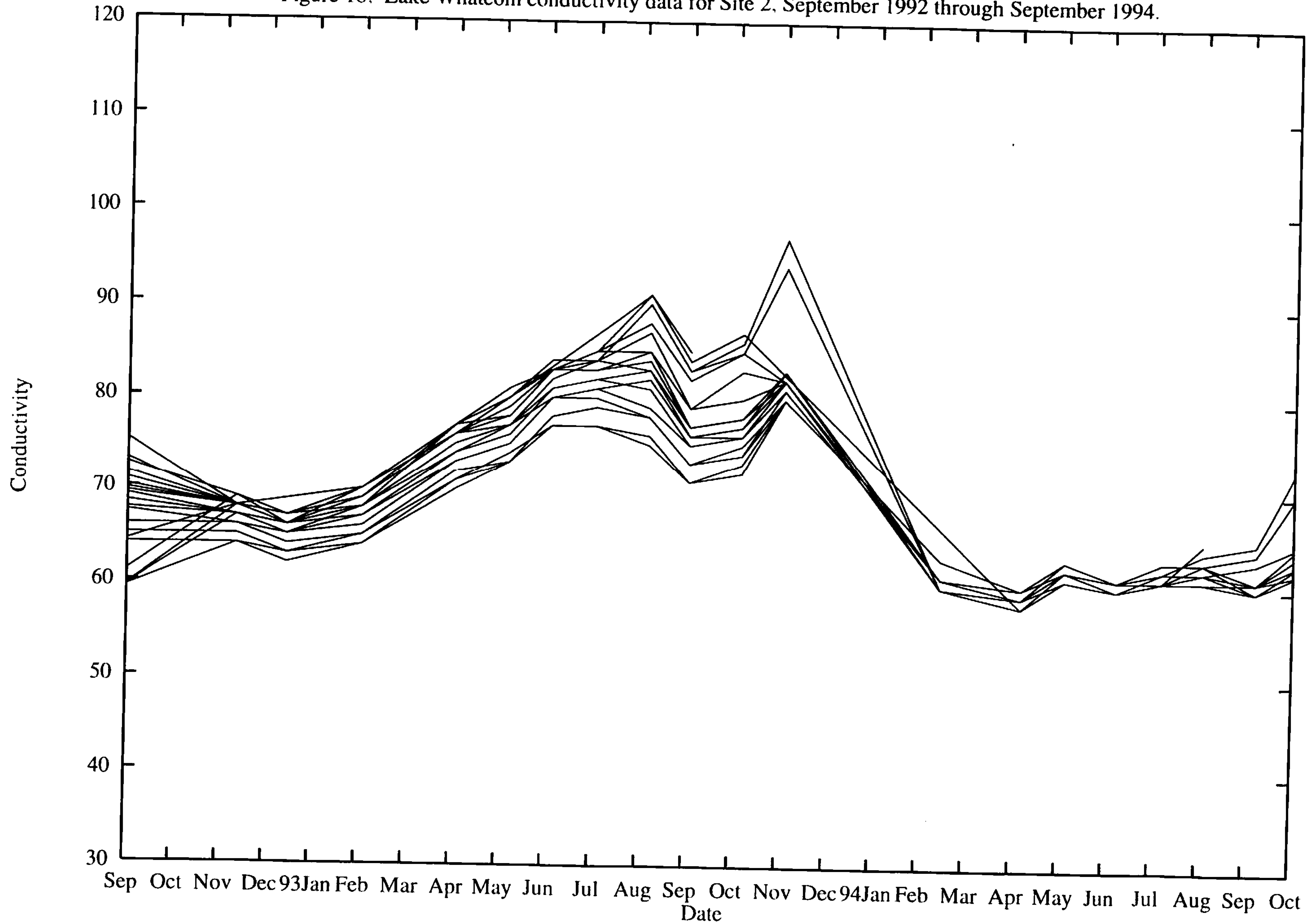


Figure 19: Lake Whatcom conductivity data for Intake site (Basin 2), September 1992 through September 1994.

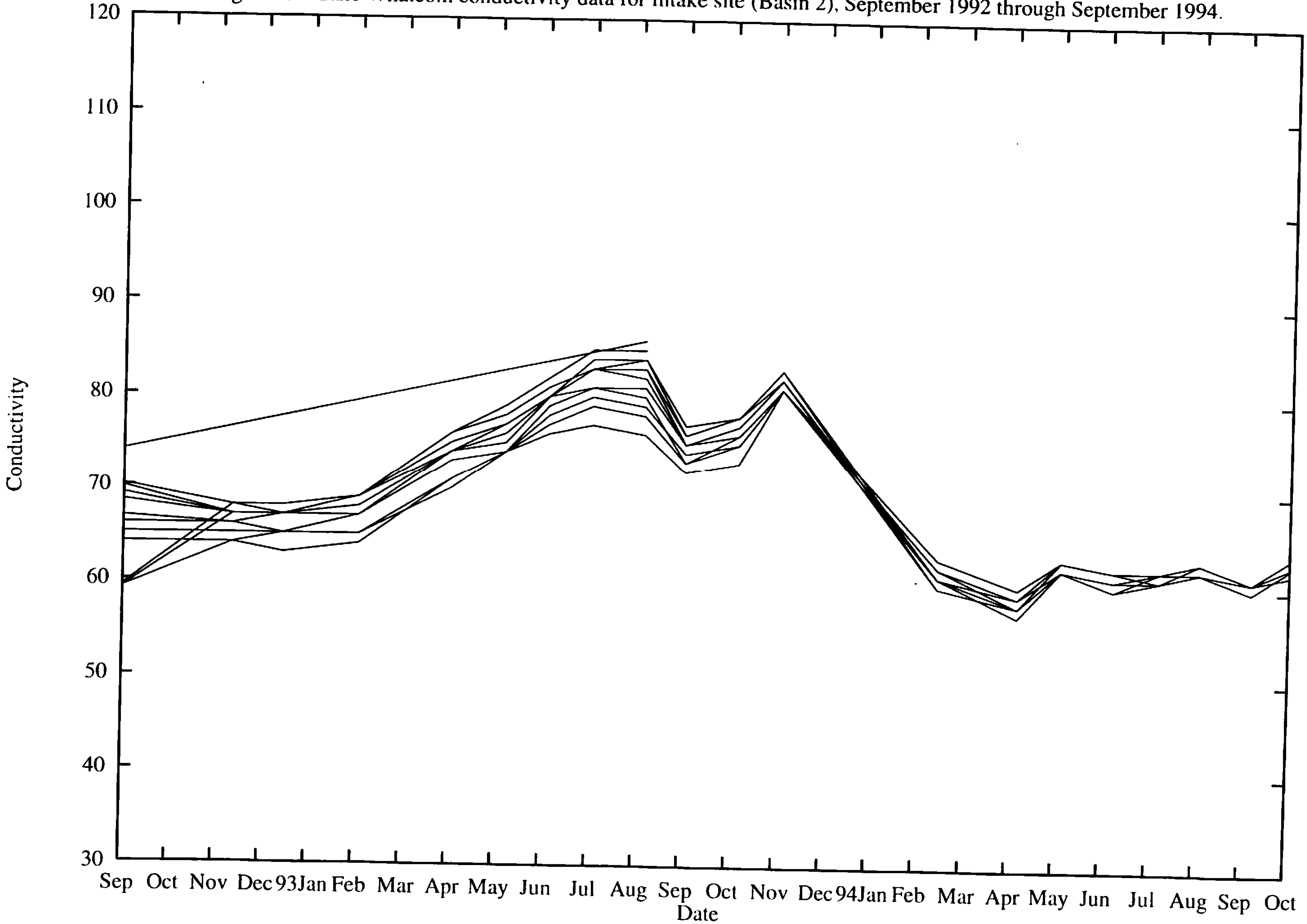


Figure 20: Lake Whatcom conductivity data for Site 3, September 1992 through September 1994.

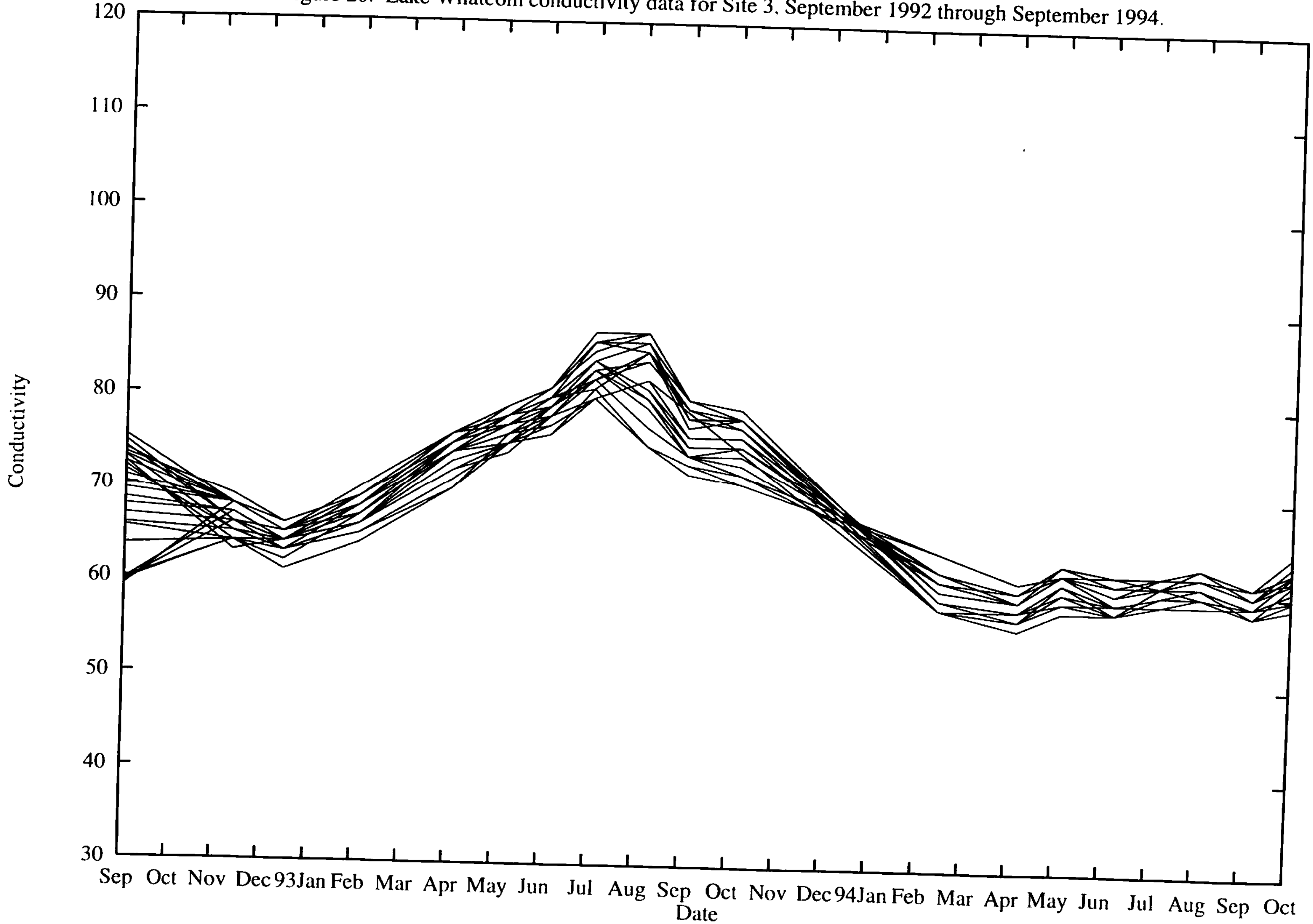


Figure 21: Lake Whatcom conductivity data for Site 4, September 1992 through September 1994.

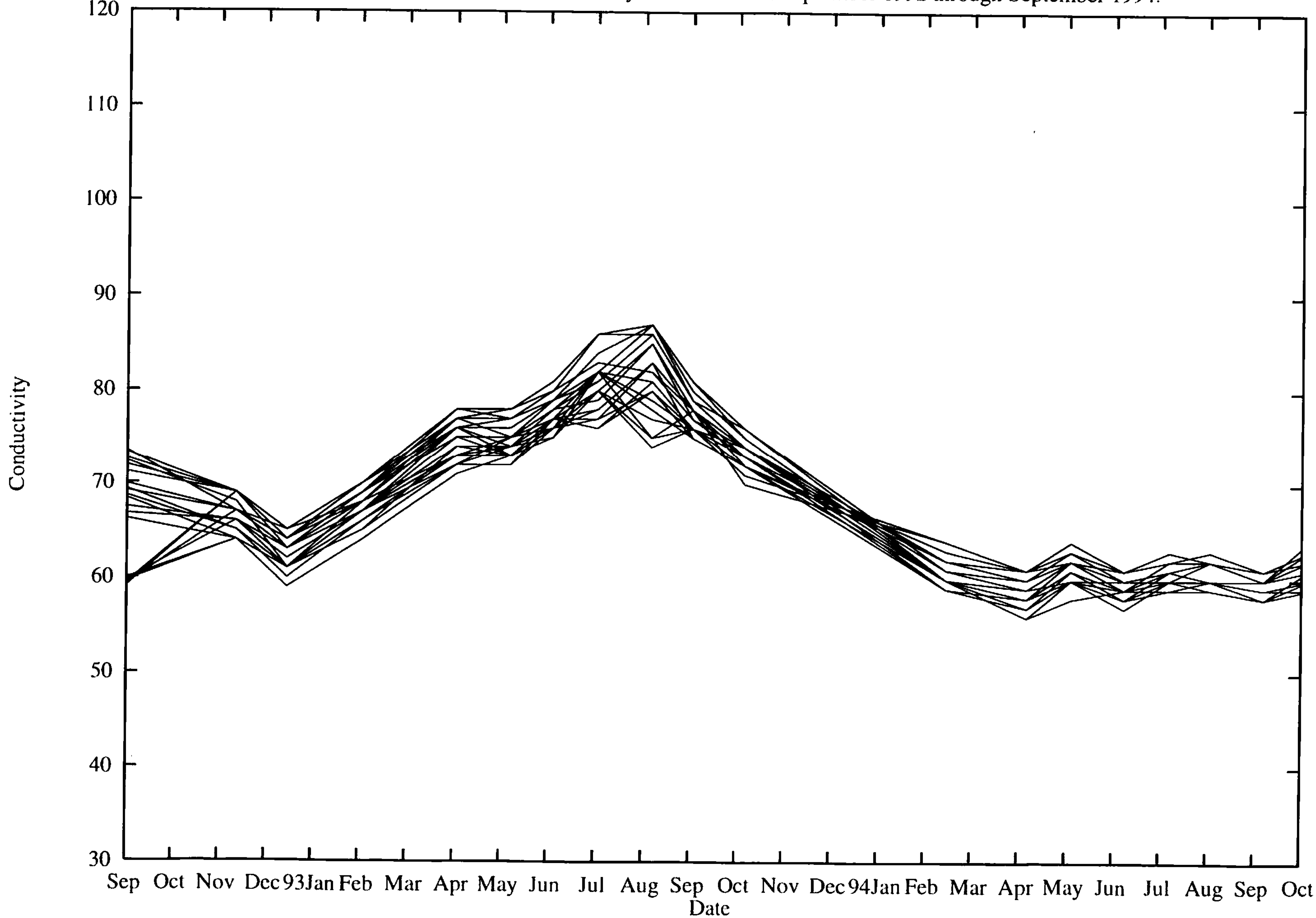


Figure 22: Lake Whatcom alkalinity data for Site 1, September 1992 through September 1994.

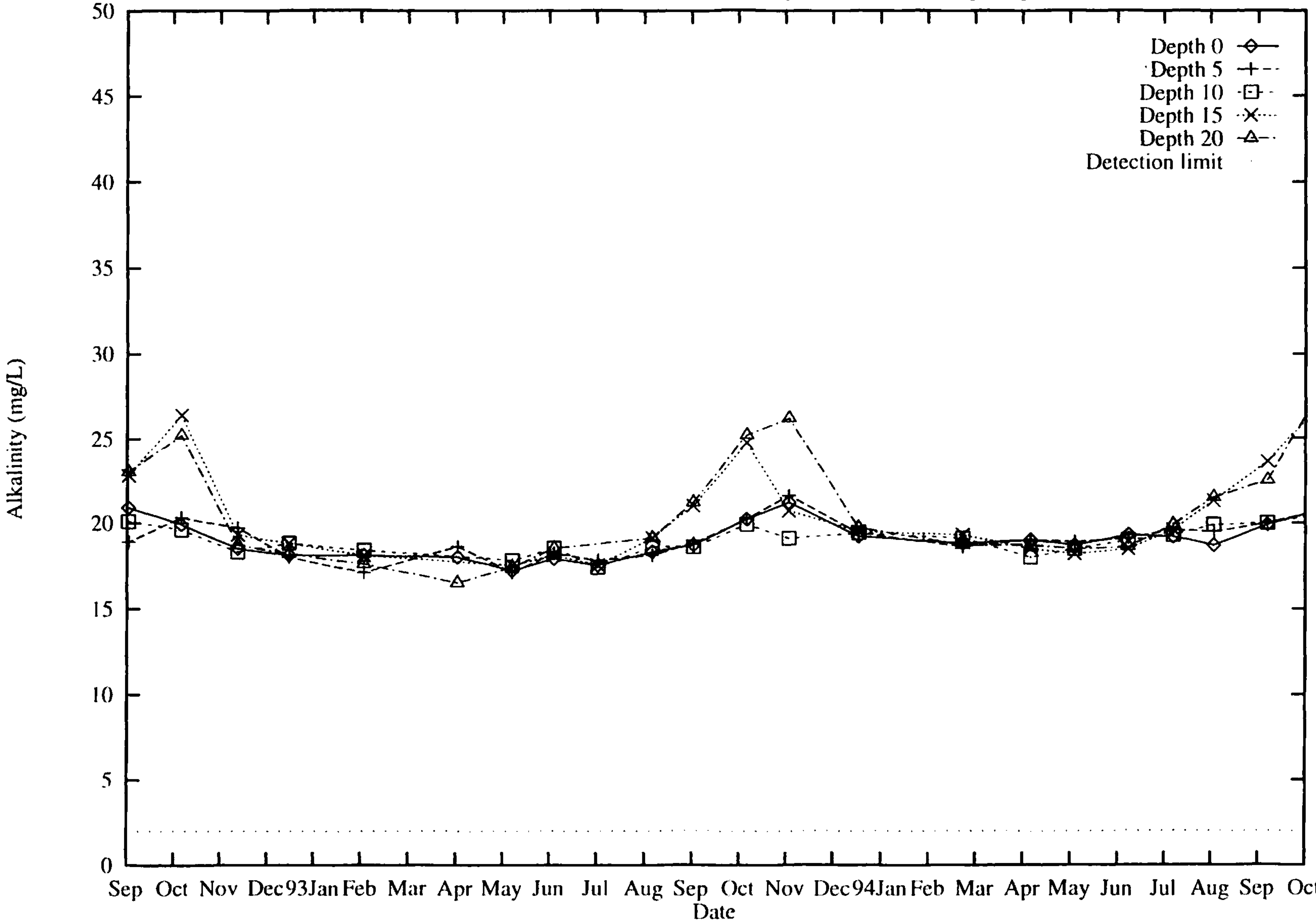


Figure 23: Lake Whatcom alkalinity data for Site 2, September 1992 through September 1994.

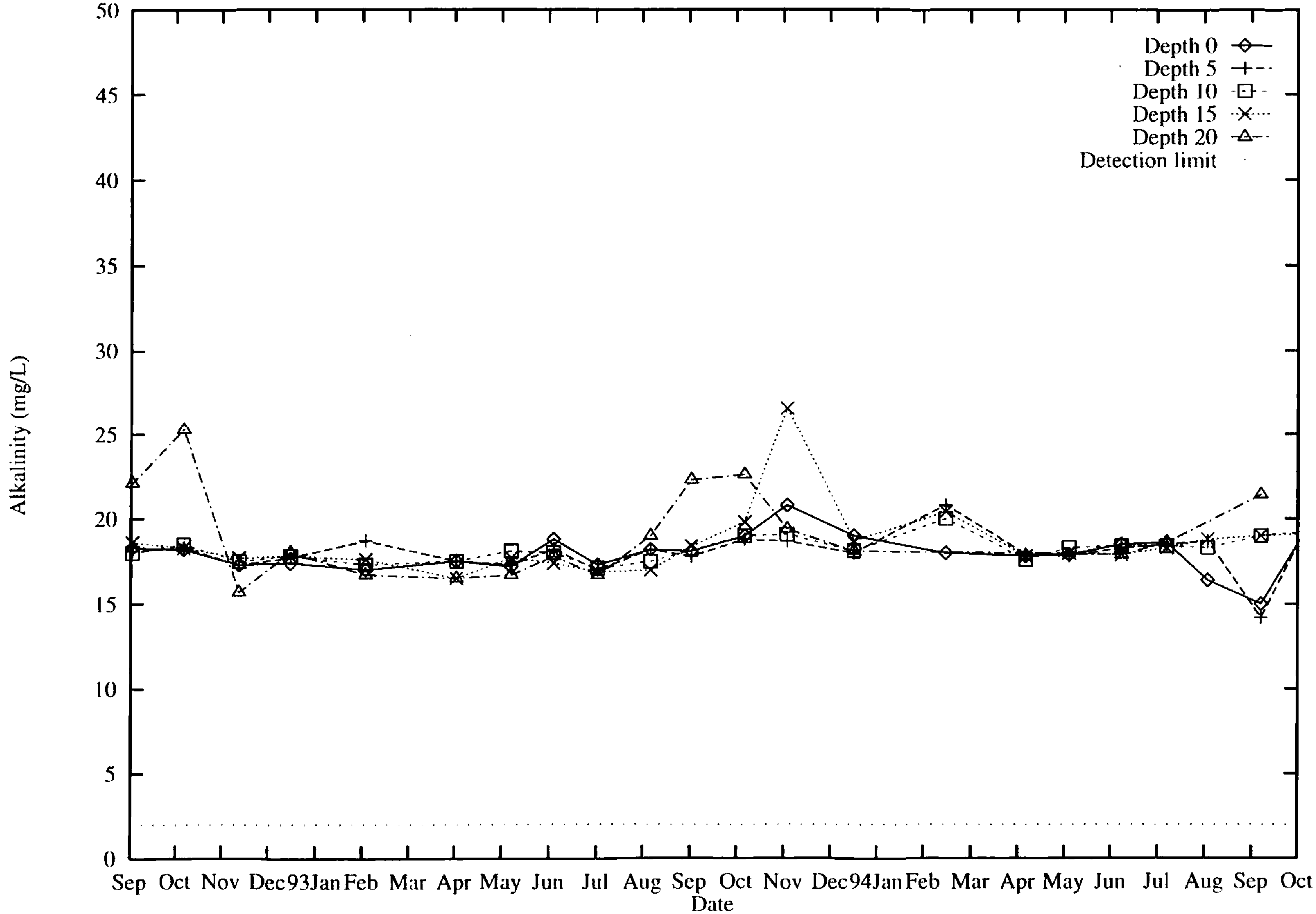


Figure 24: Lake Whatcom alkalinity data for Intake site (basin 2), September 1992 through September 1994.

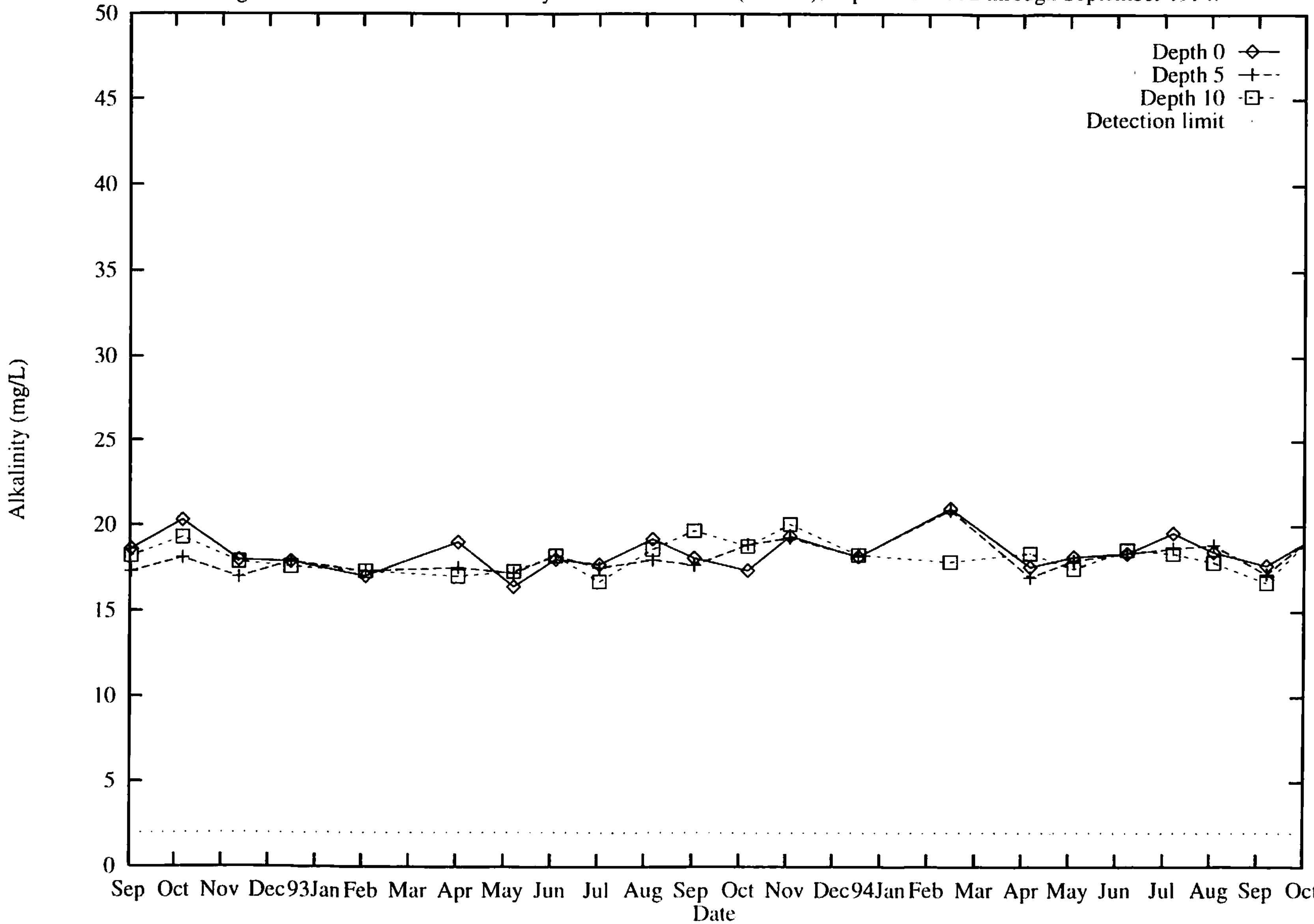


Figure 25: Lake Whatcom alkalinity data for Site 3, September 1992 through September 1994.

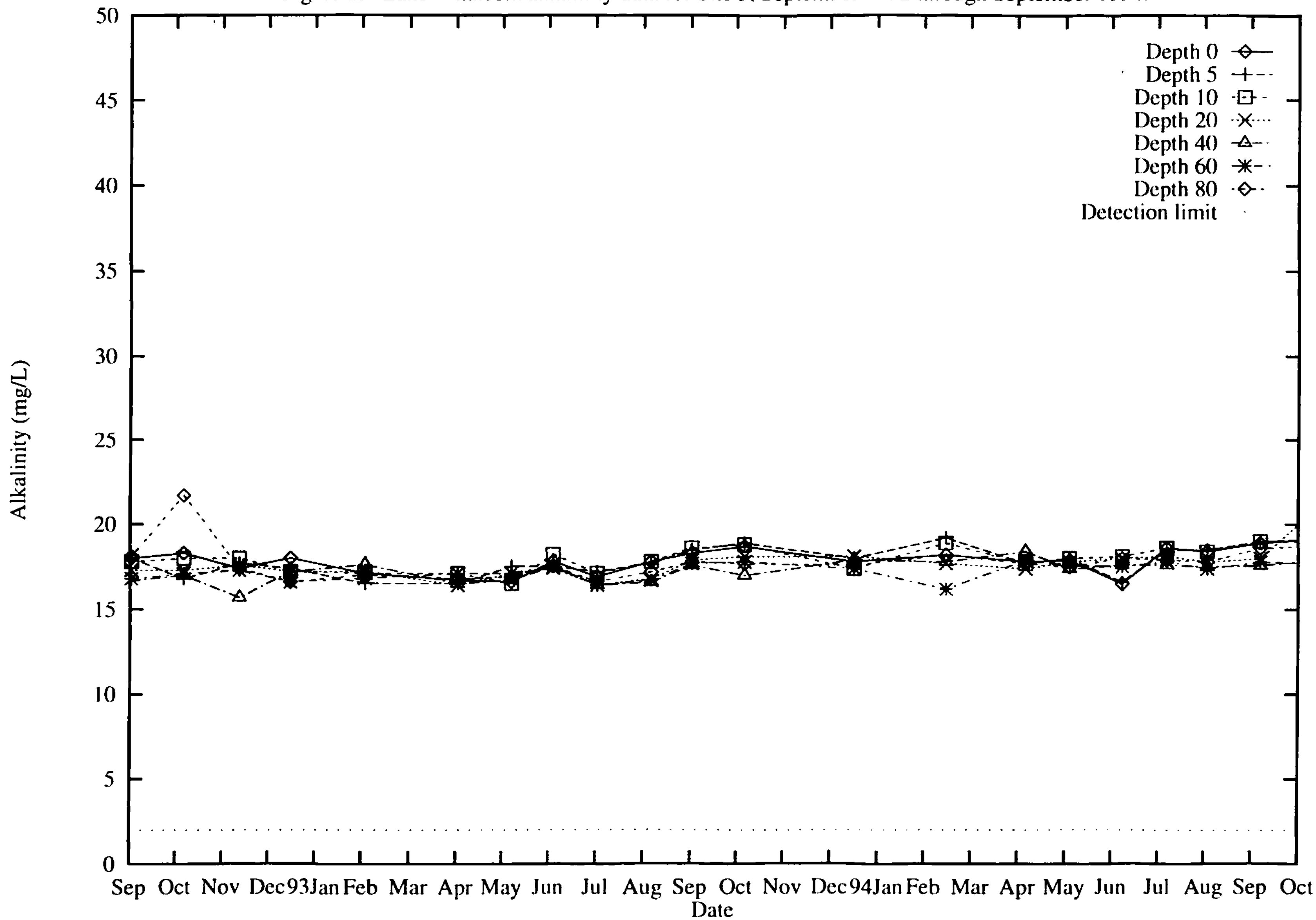


Figure 26: Lake Whatcom alkalinity data for Site 4, September 1992 through September 1994.

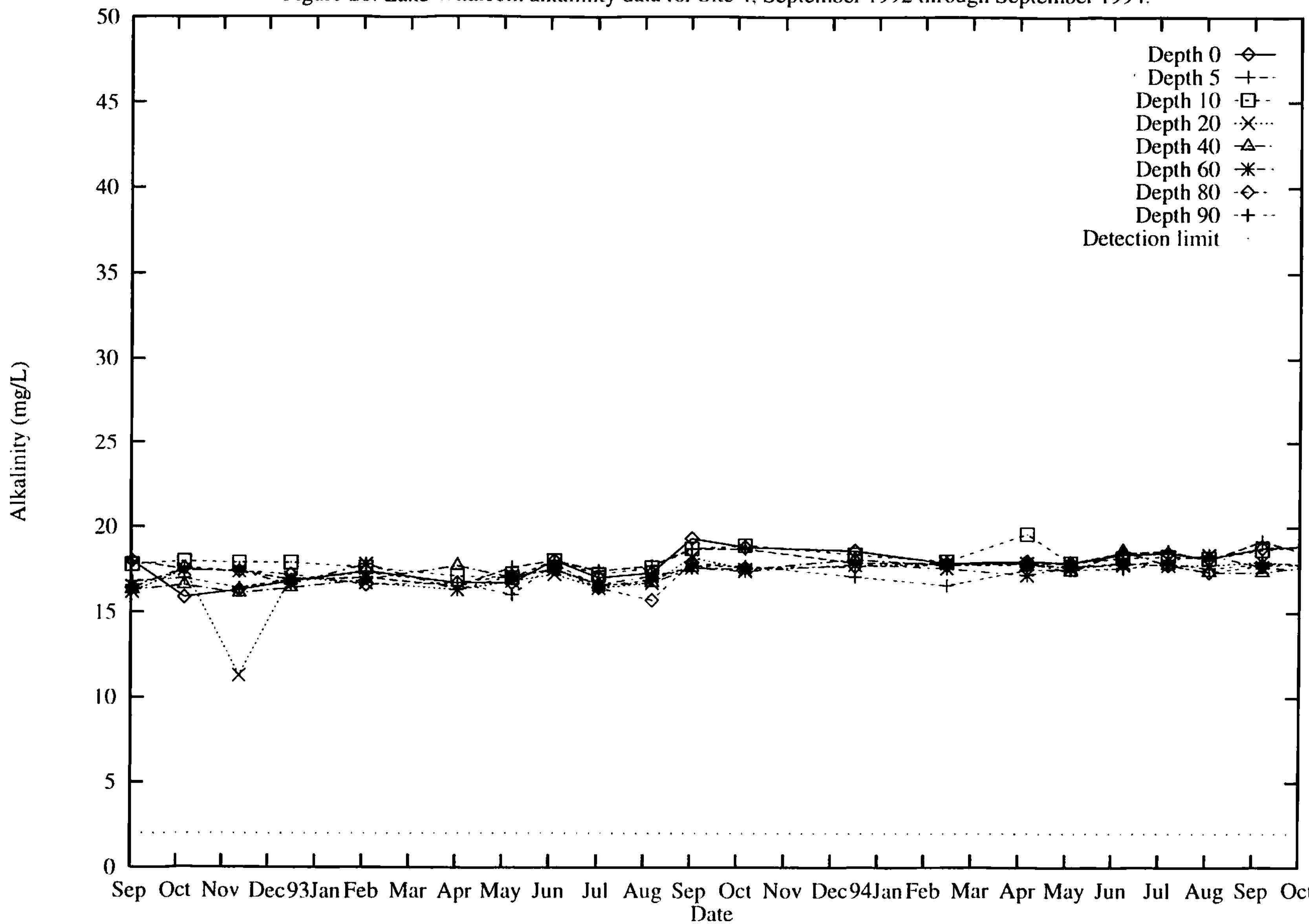


Figure 27: Lake Whatcom conductivity data (laboratory) for Site 1, September 1992 through September 1994.

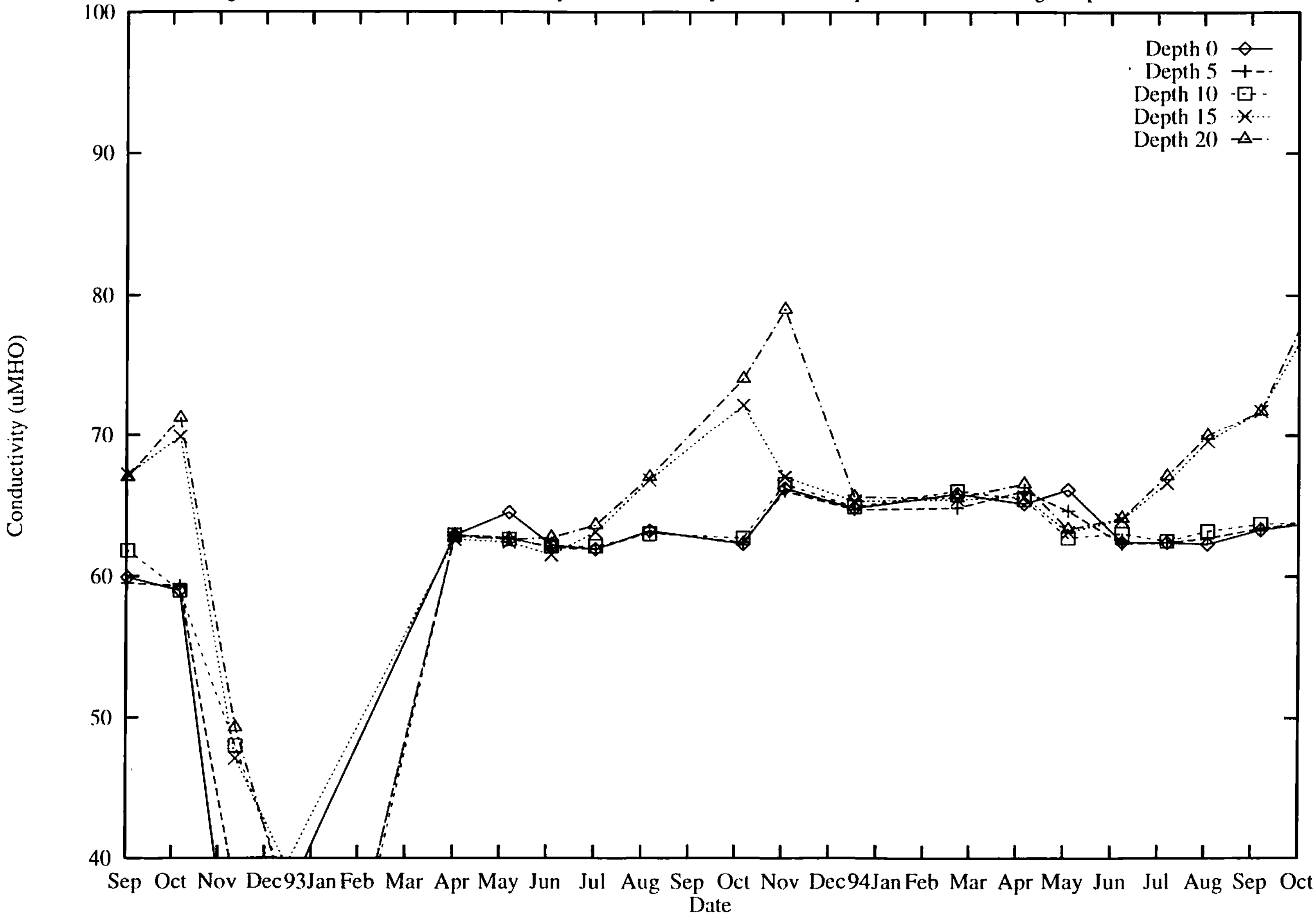


Figure 28: Lake Whatcom conductivity data (laboratory) for Site 2, September 1992 through September 1994.

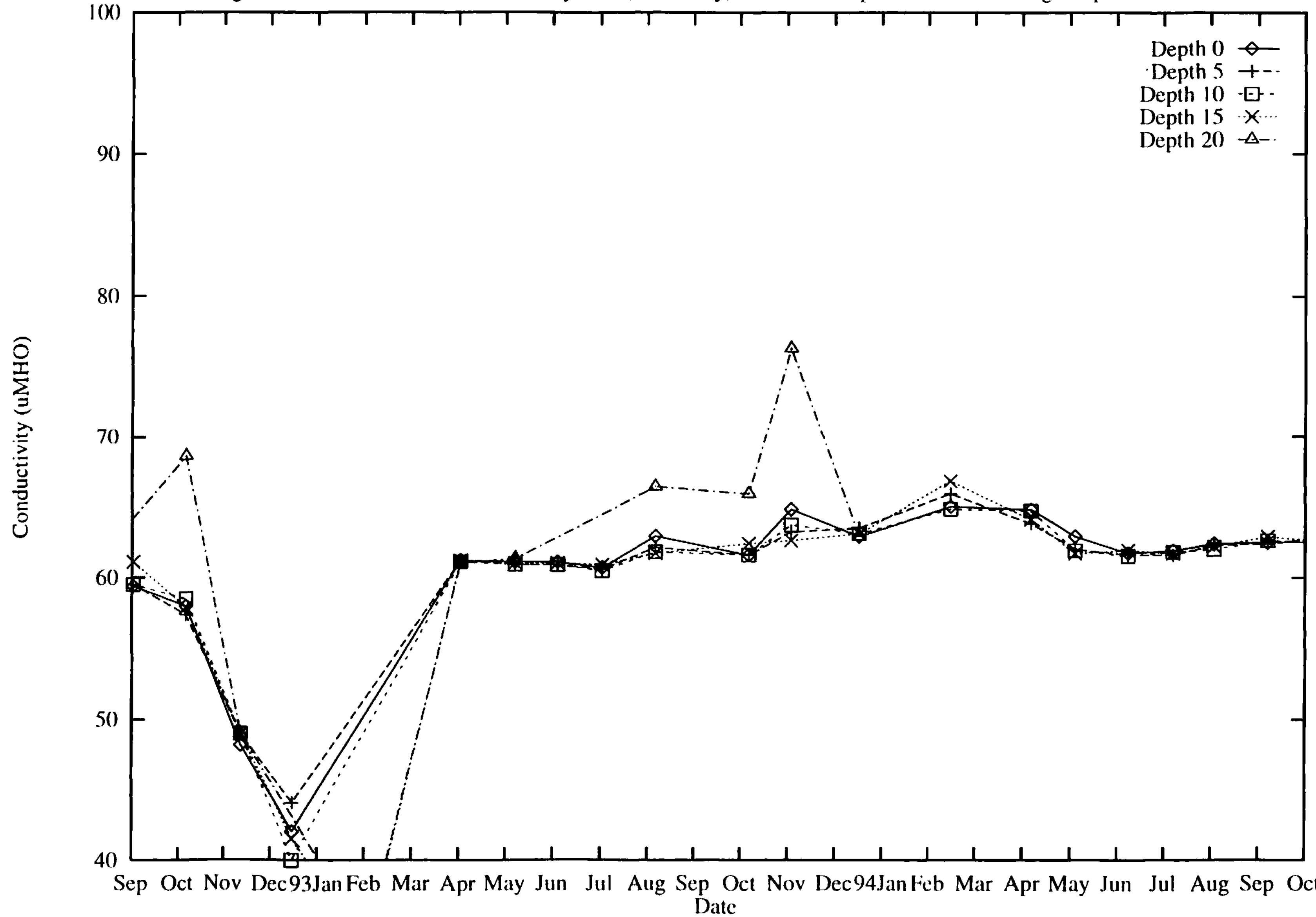


Figure 29: Lake Whatcom conductivity data (laboratory) for Intake site (basin 2), September 1992 through September 1994.

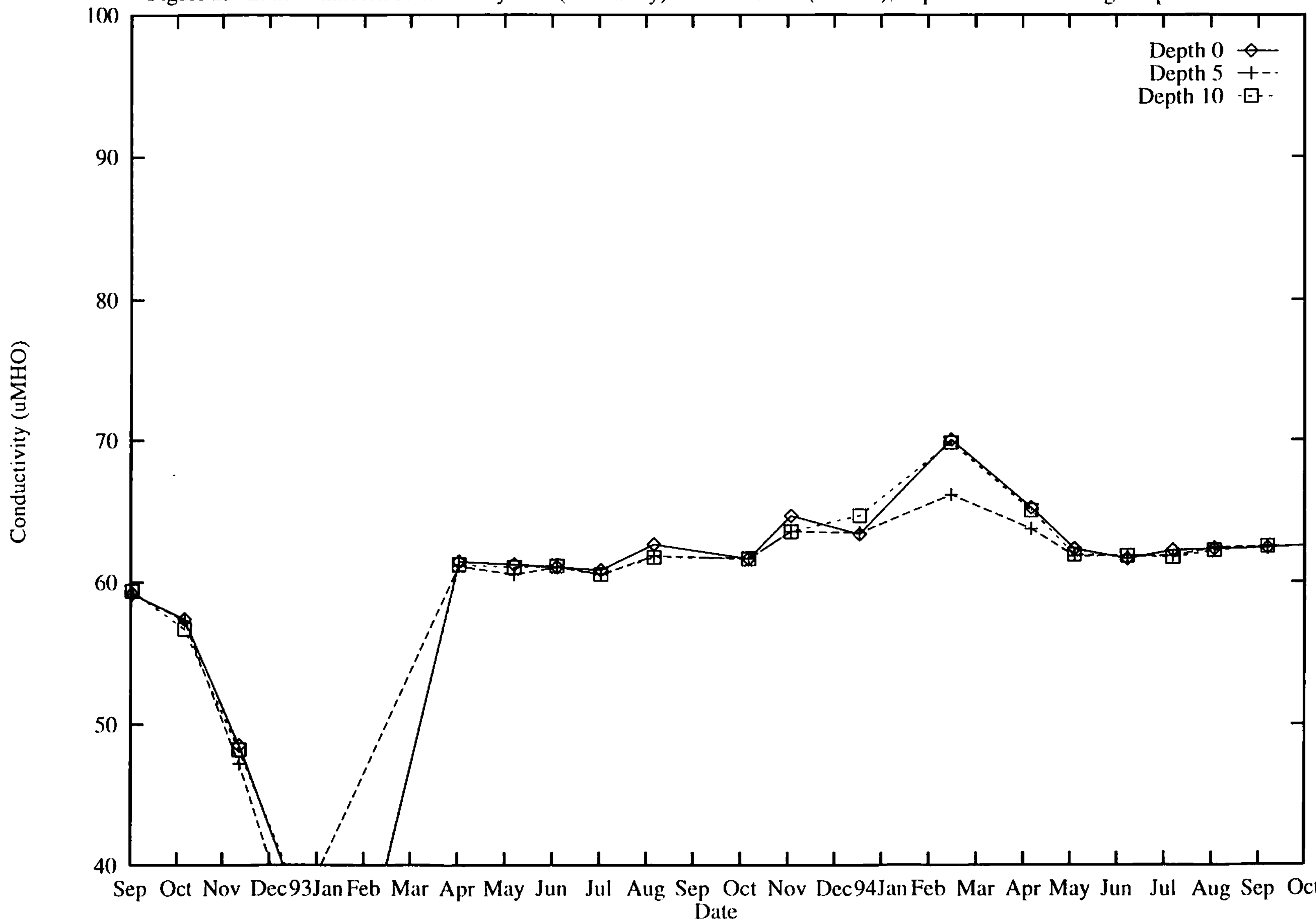


Figure 30: Lake Whatcom conductivity data (laboratory) for Site 3, September 1992 through September 1994.

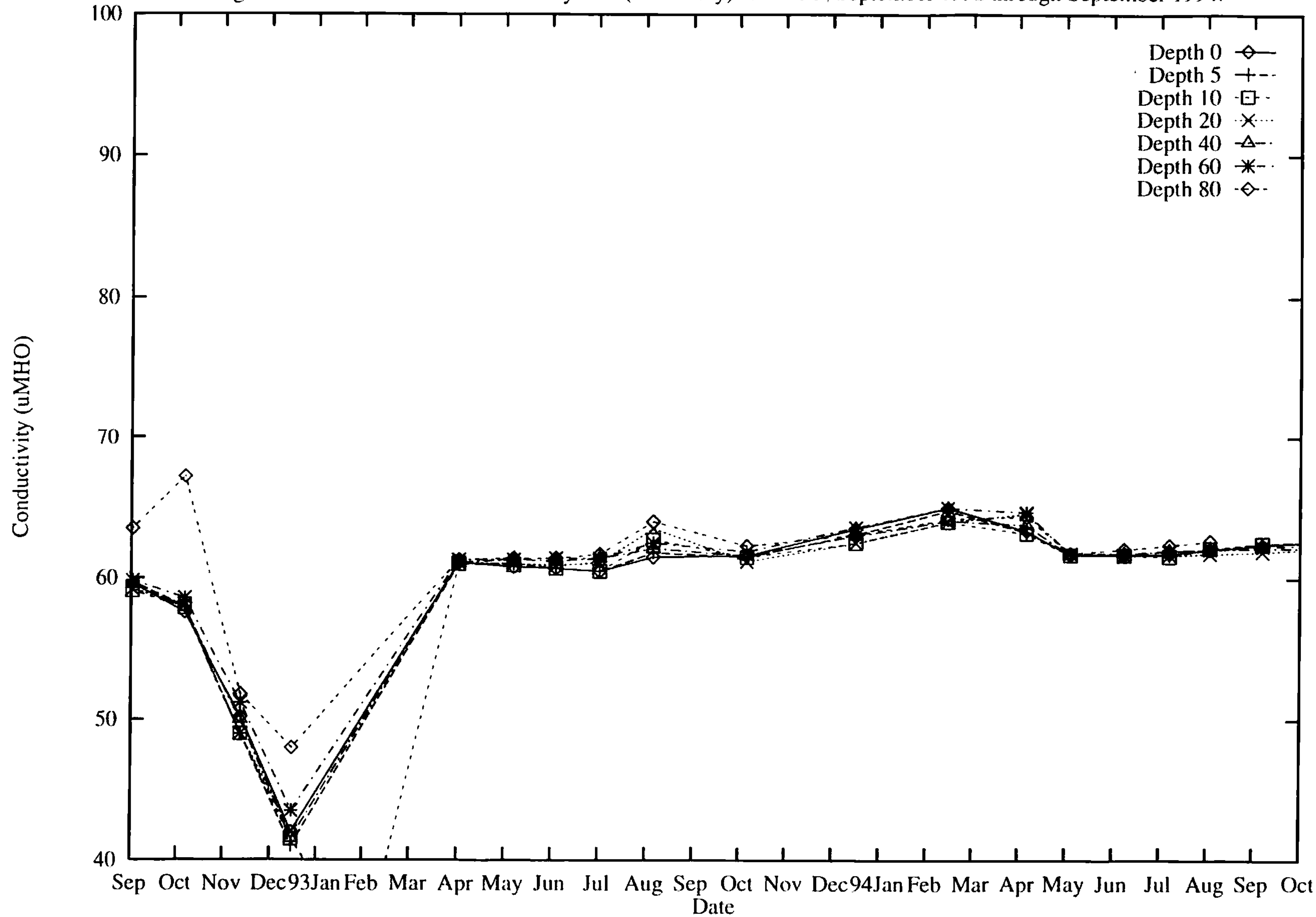


Figure 31: Lake Whatcom conductivity data (laboratory) for Site 4, September 1992 through September 1994.

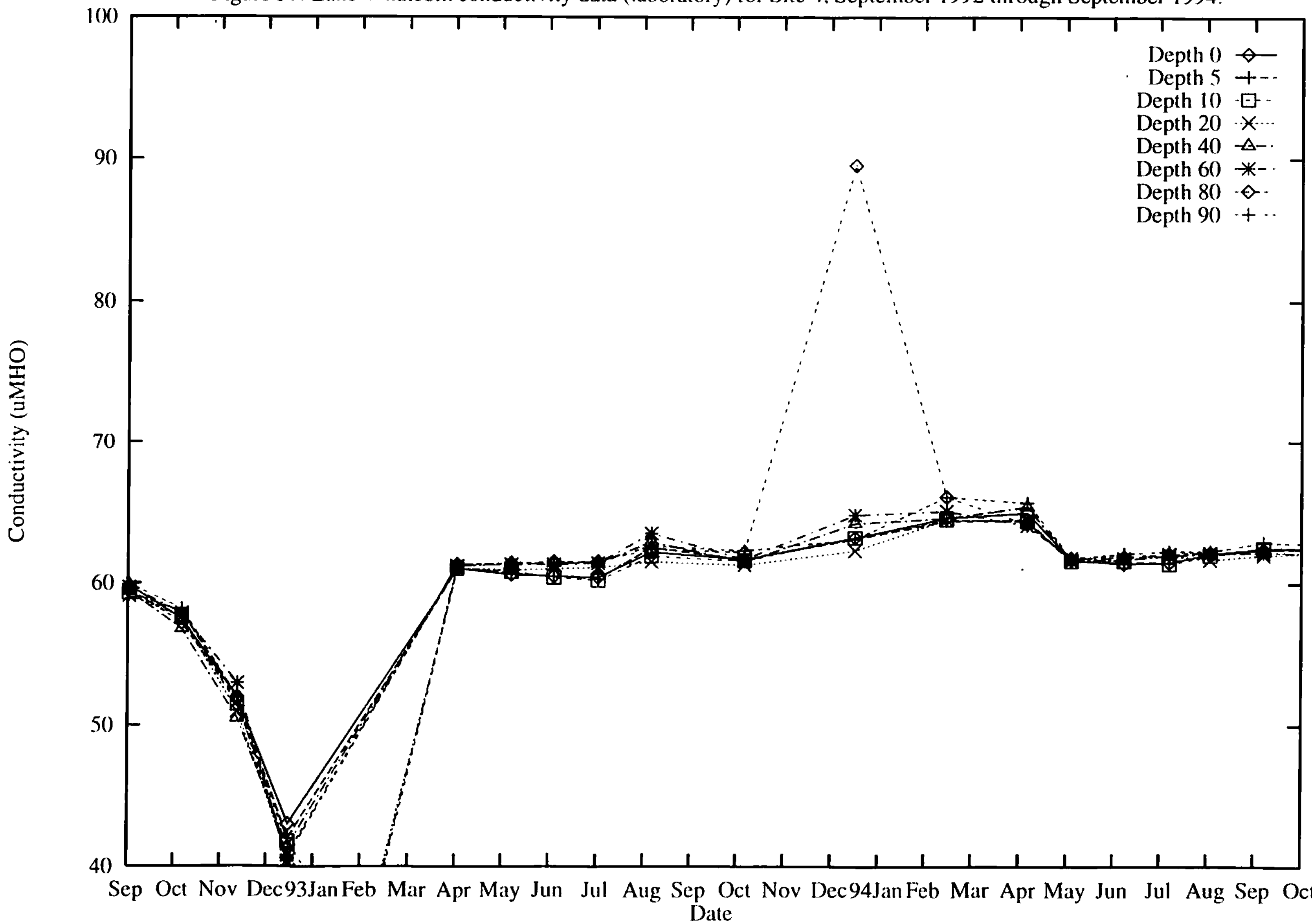


Figure 32: Lake Whatcom turbidity data for Site 1, September 1992 through September 1994.

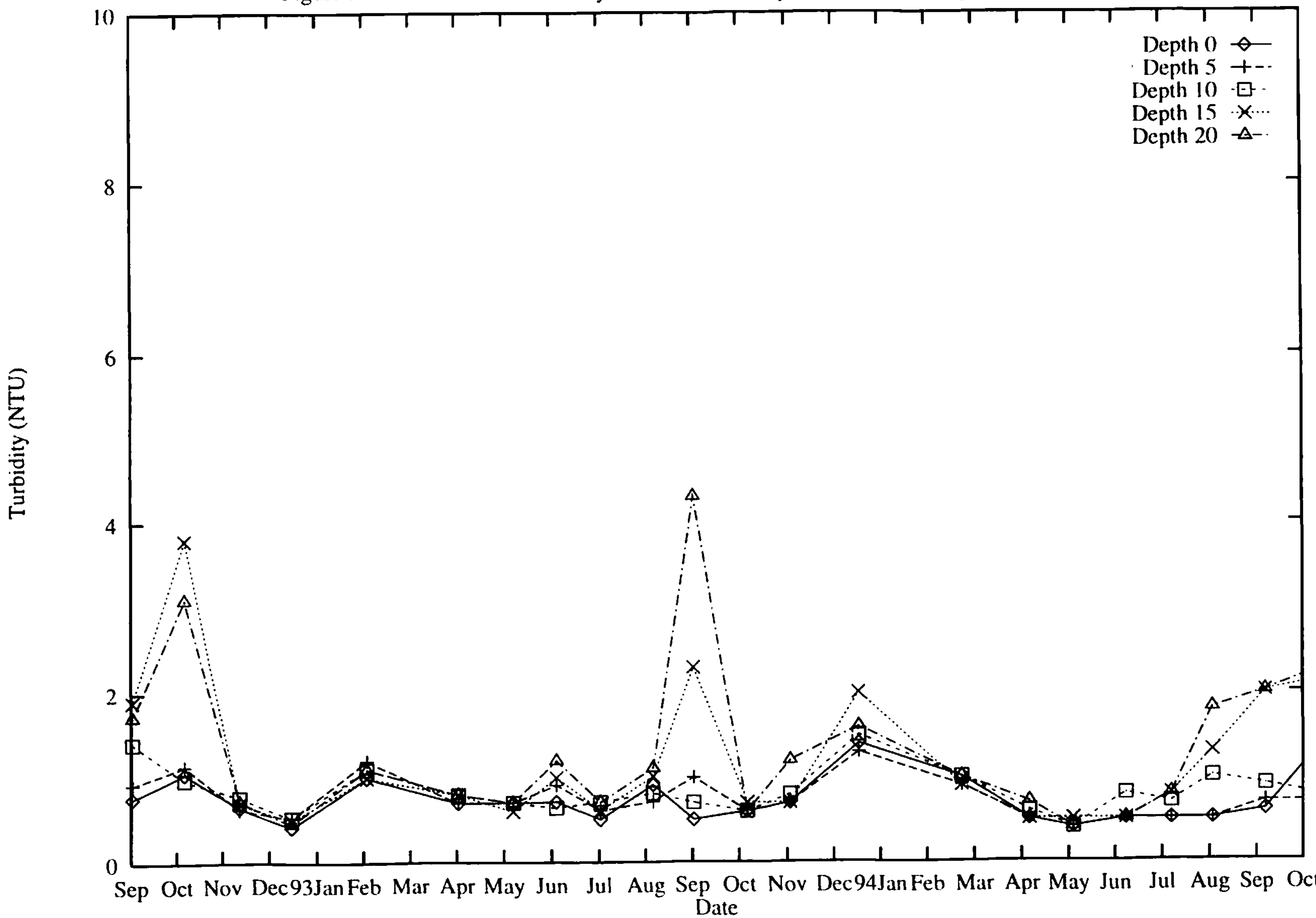


Figure 33: Lake Whatcom turbidity data for Site 2, September 1992 through September 1994.

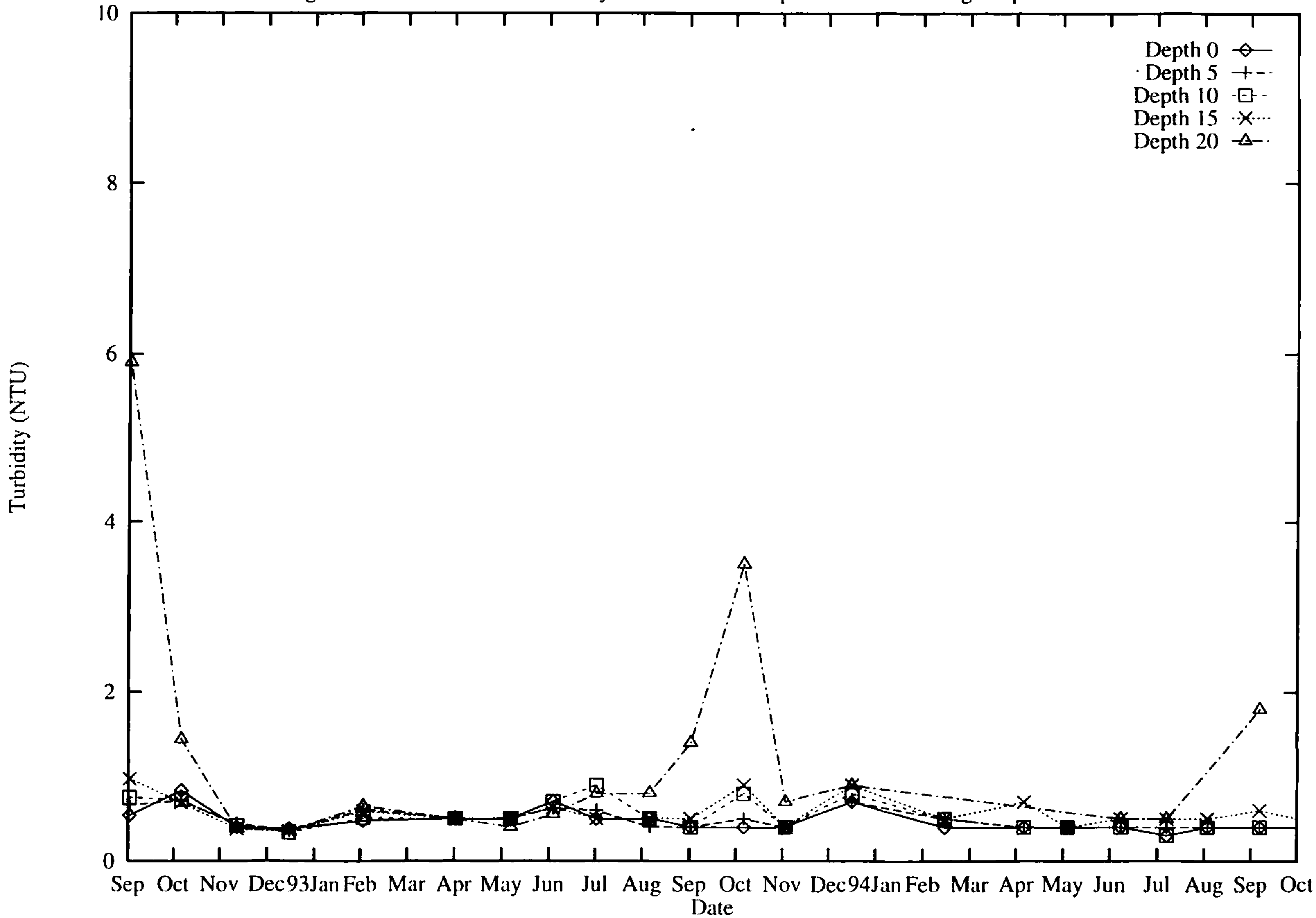


Figure 34: Lake Whatcom turbidity data for Intake site (basin 2), September 1992 through September 1994.

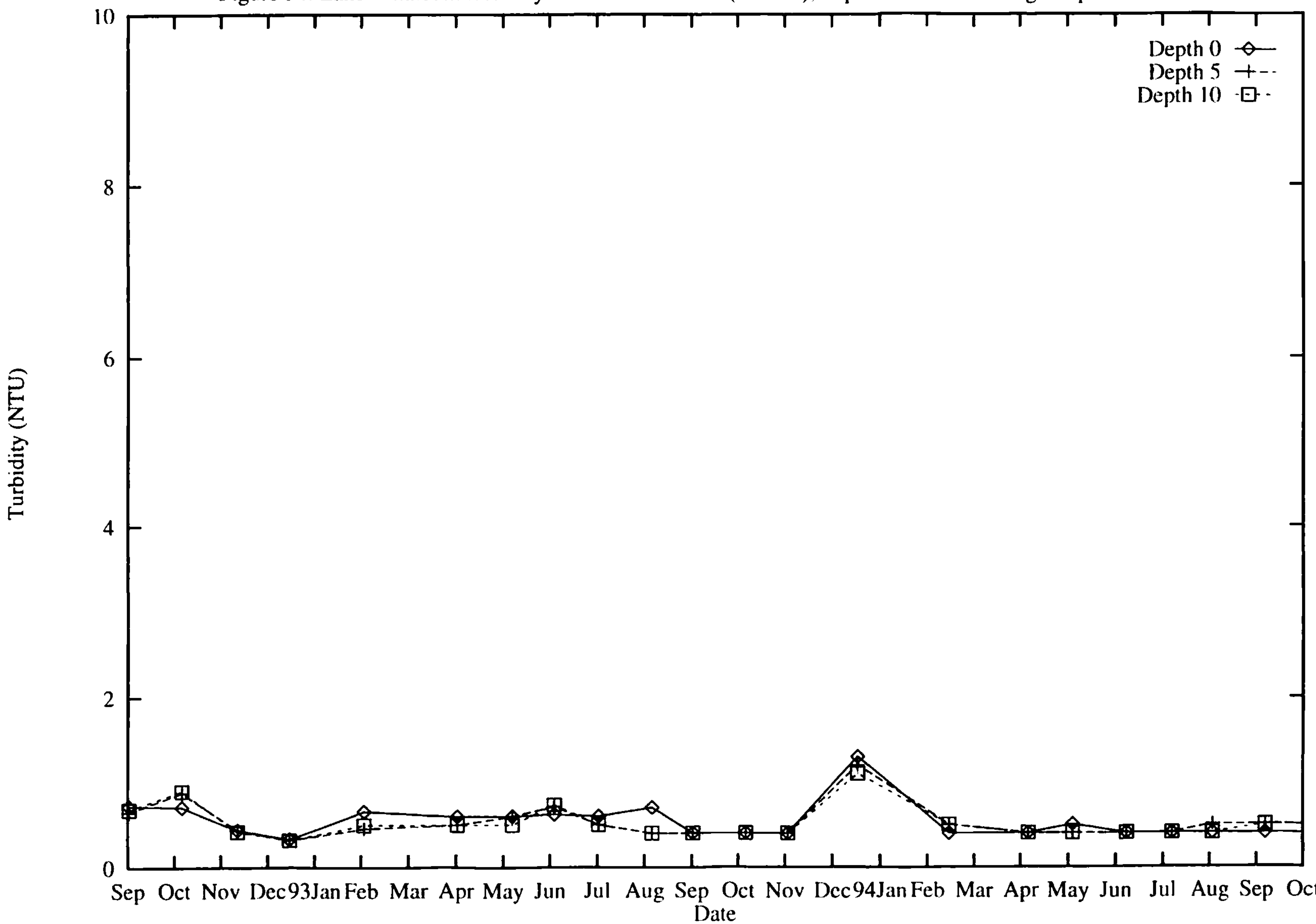


Figure 35: Lake Whatcom turbidity data for Site 3, September 1992 through September 1994.

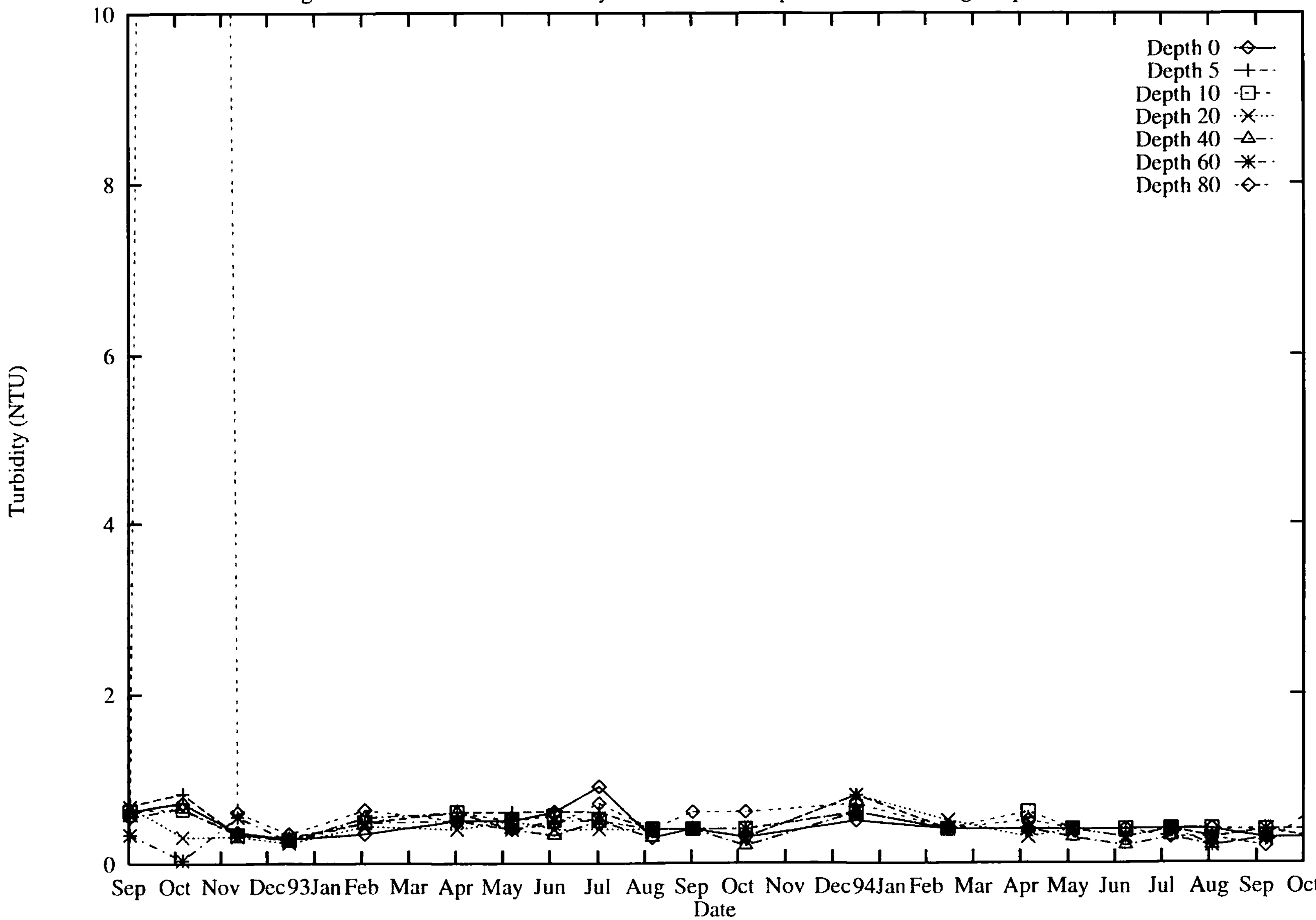


Figure 36: Lake Whatcom turbidity data for Site 4, September 1992 through September 1994.

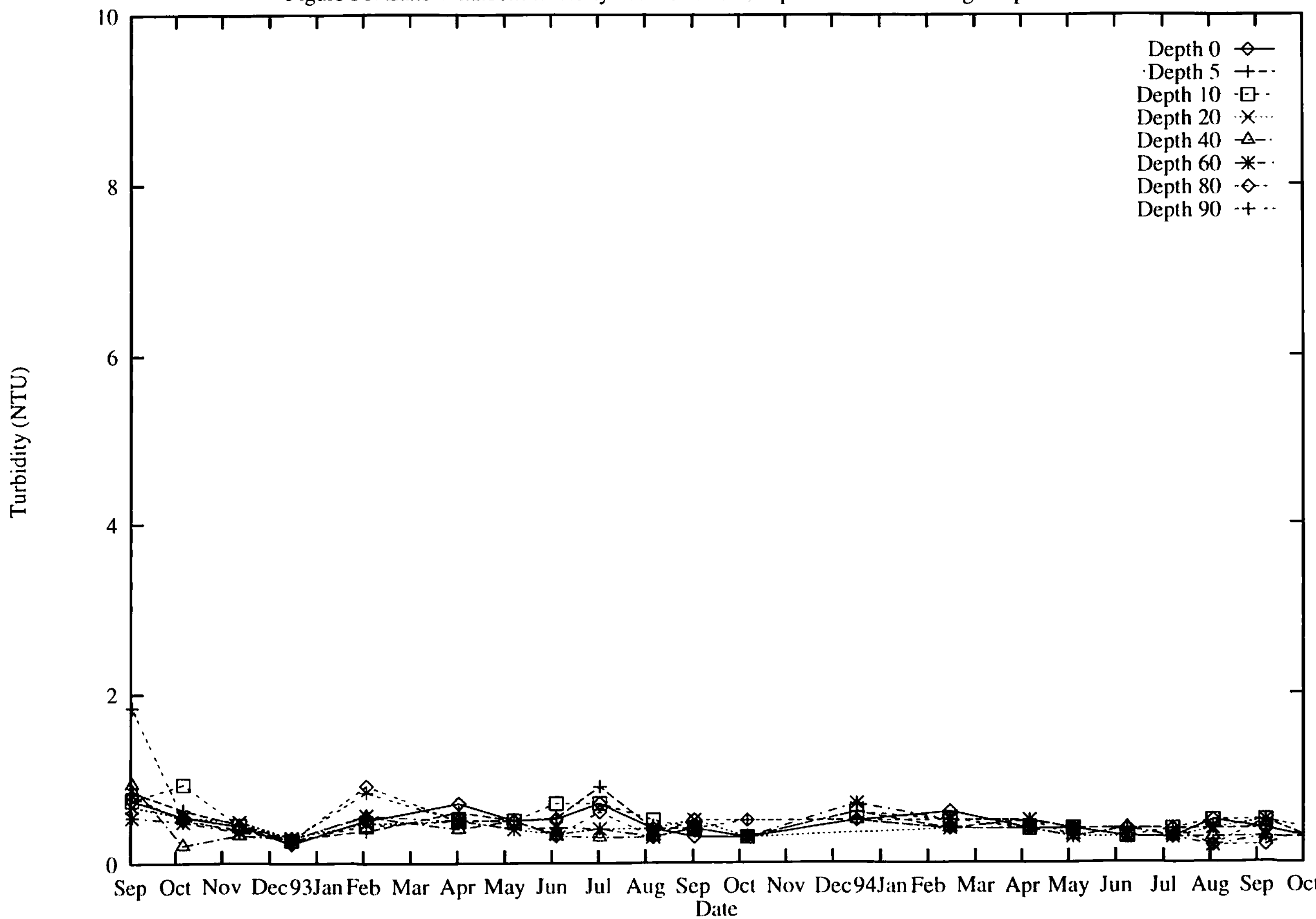


Figure 37: Lake Whatcom nitrogen summary data (ammonia, nitrate/nitrite, and total nitrogen) for Site 1, September 1992 through September 1994.

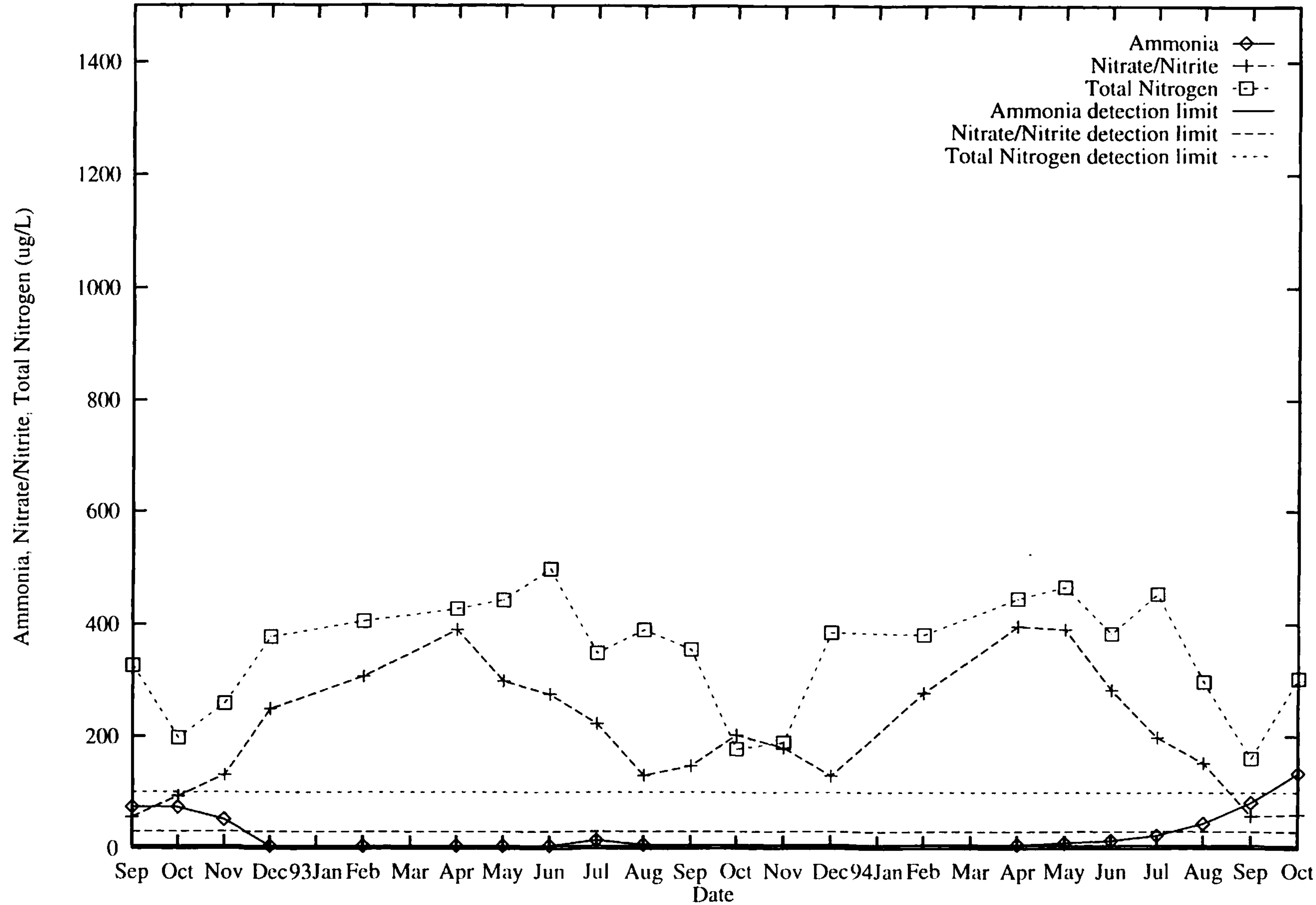


Figure 38: Lake Whatcom nitrogen summary data (ammonia, nitrate/nitrite, and total nitrogen) for Site 2, September 1992 through September 1994.

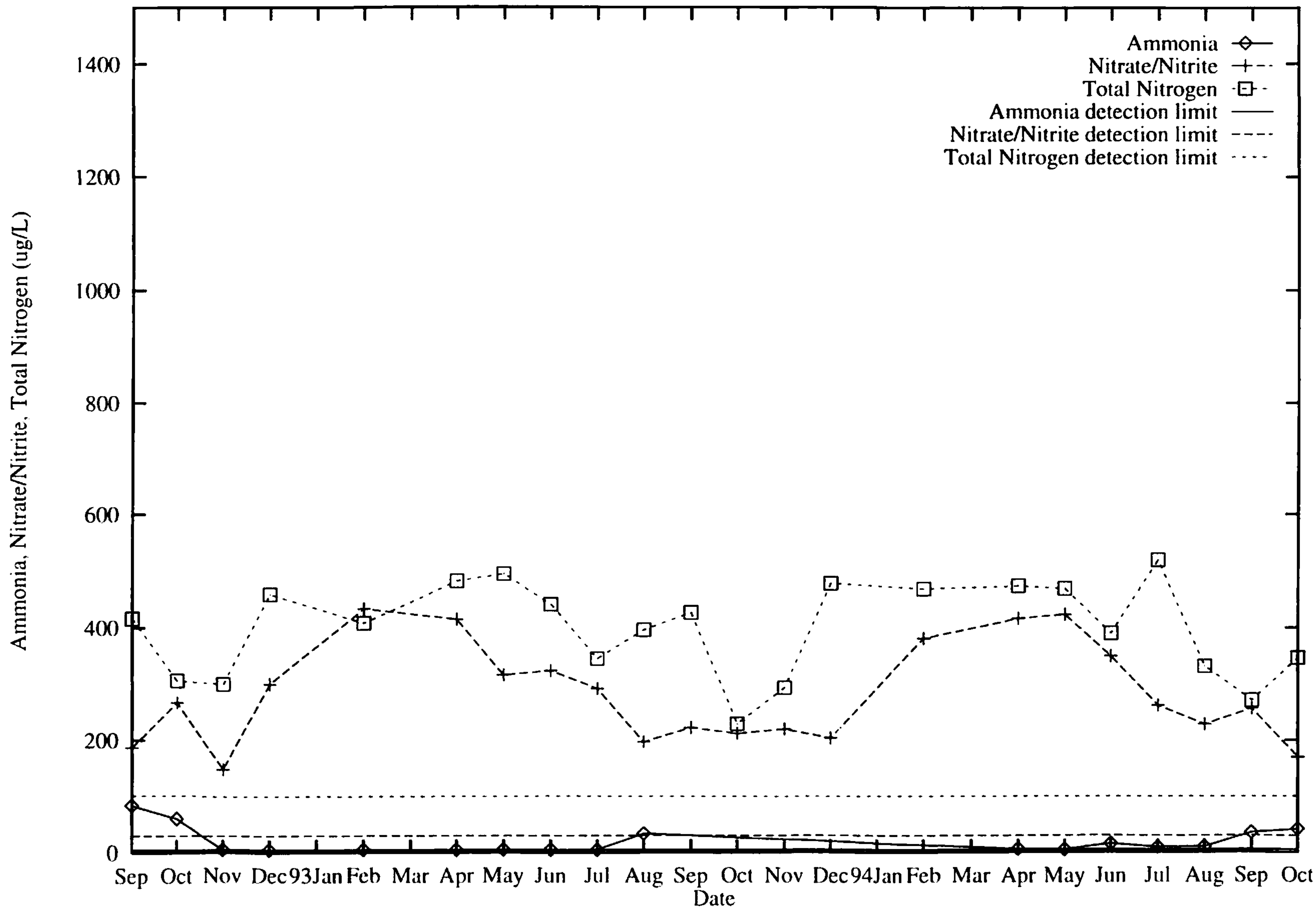


Figure 39: Lake Whatcom nitrogen summary data (ammonia, nitrate/nitrite, and total nitrogen) for Intake site (basin 2), September 1992 through September 1994.

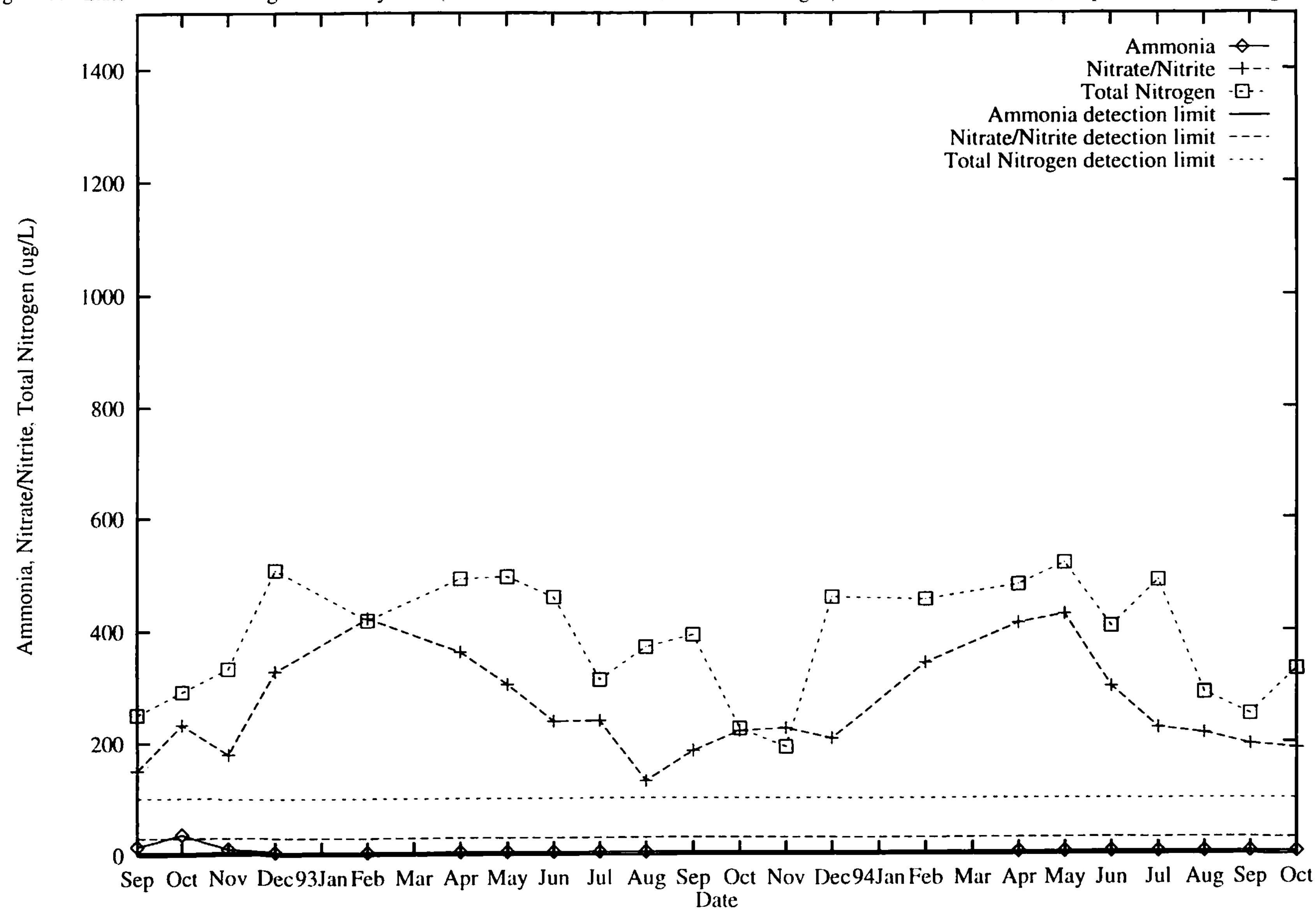


Figure 40: Lake Whatcom nitrogen summary data (ammonia, nitrate/nitrite, and total nitrogen) for Site 3, September 1992 through September 1994.

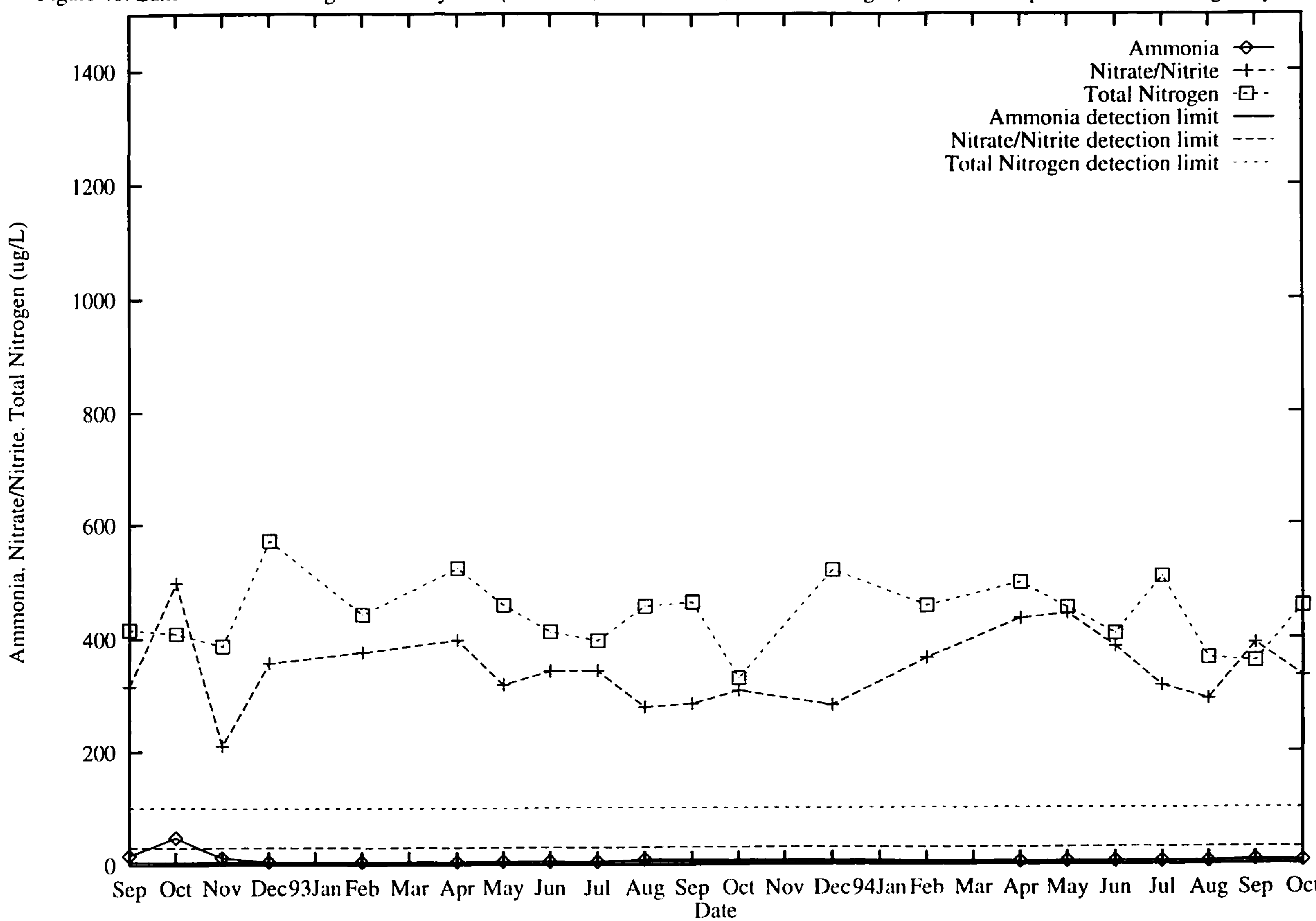


Figure 41: Lake Whatcom nitrogen summary data (ammonia, nitrate/nitrite, and total nitrogen) for Site 4, September 1992 through September 1994.

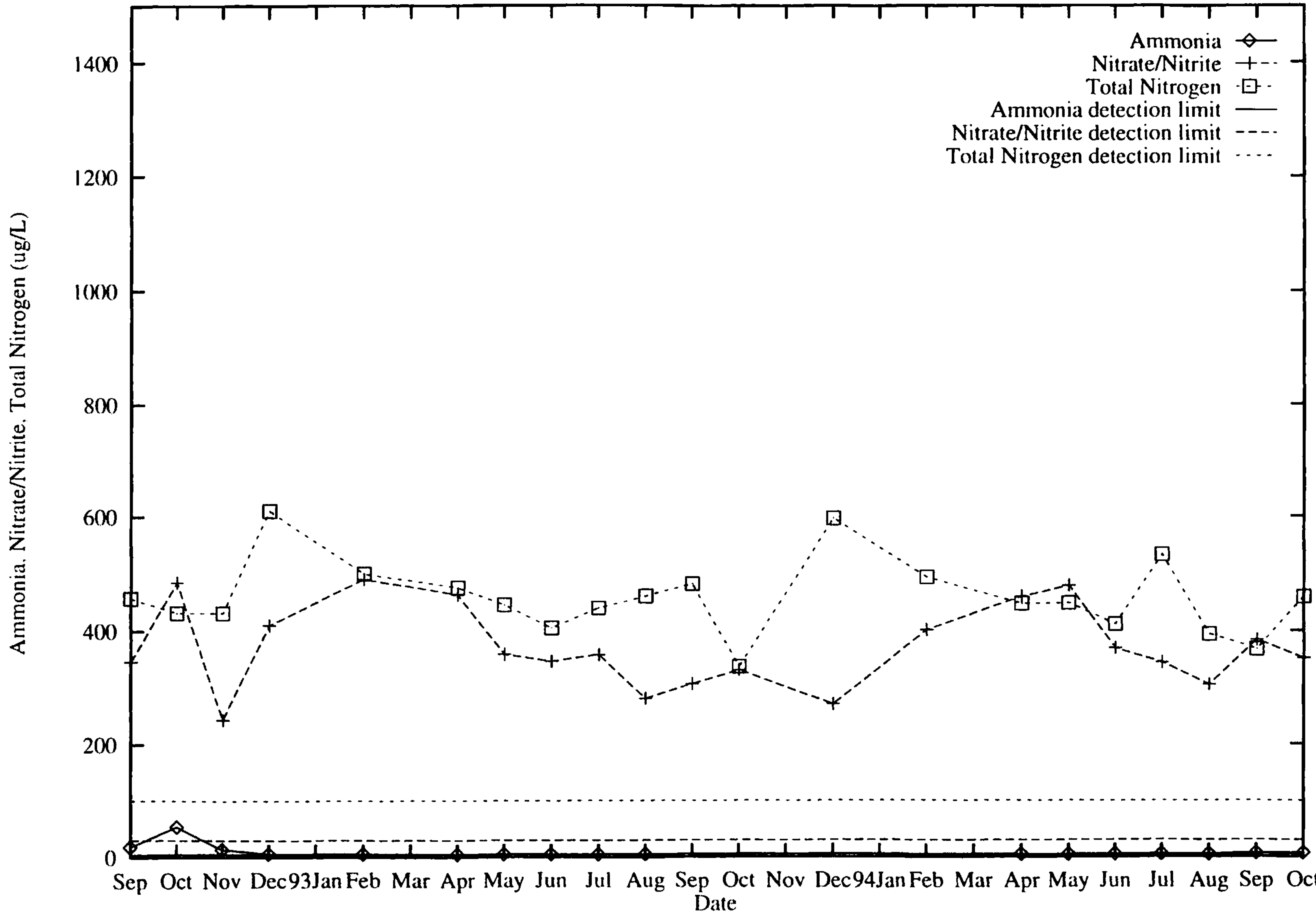


Figure 42: Lake Whatcom ammonia data for Site 1, September 1992 through September 1994.

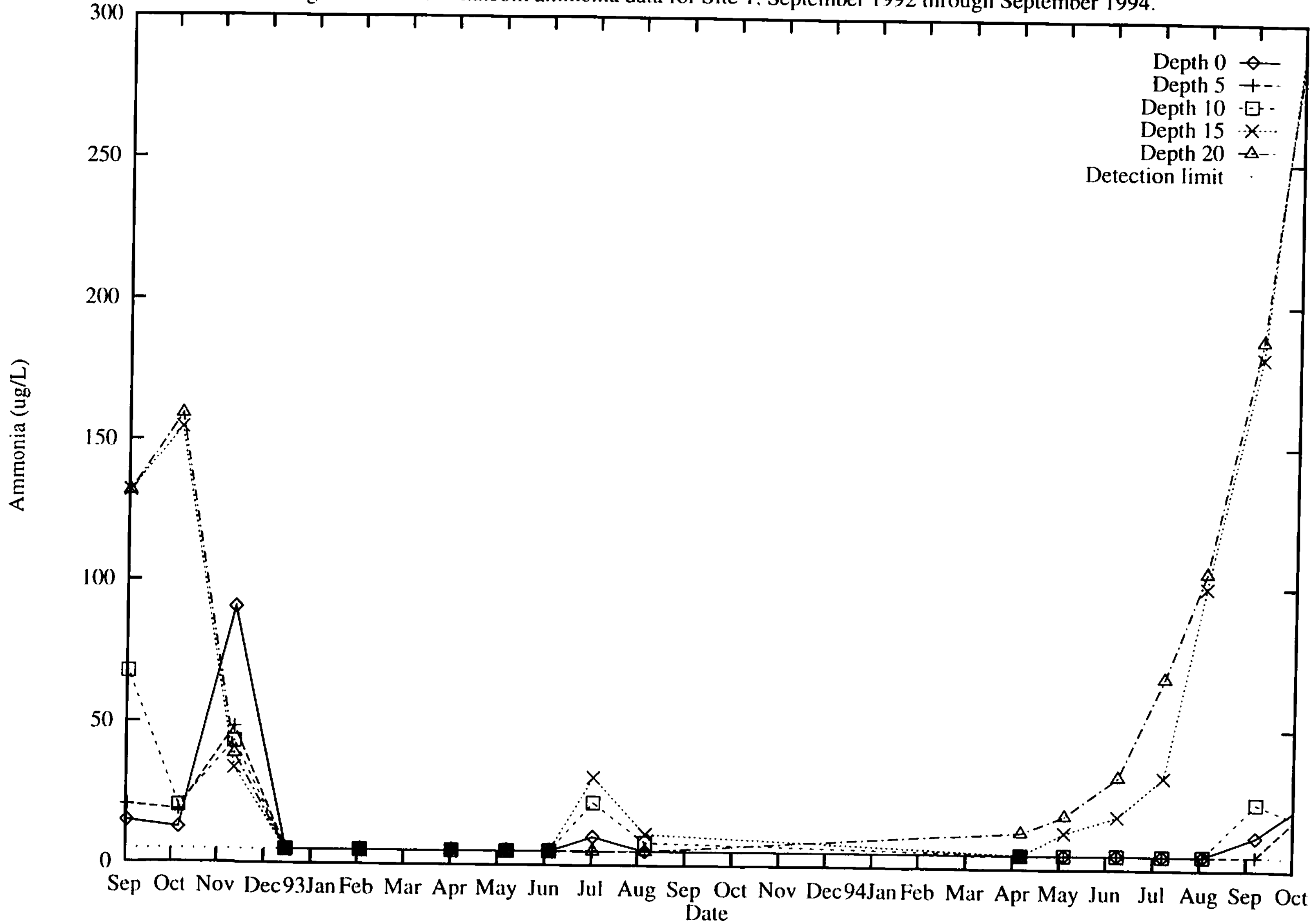


Figure 43: Lake Whatcom ammonia data for Site 2, September 1992 through September 1994.

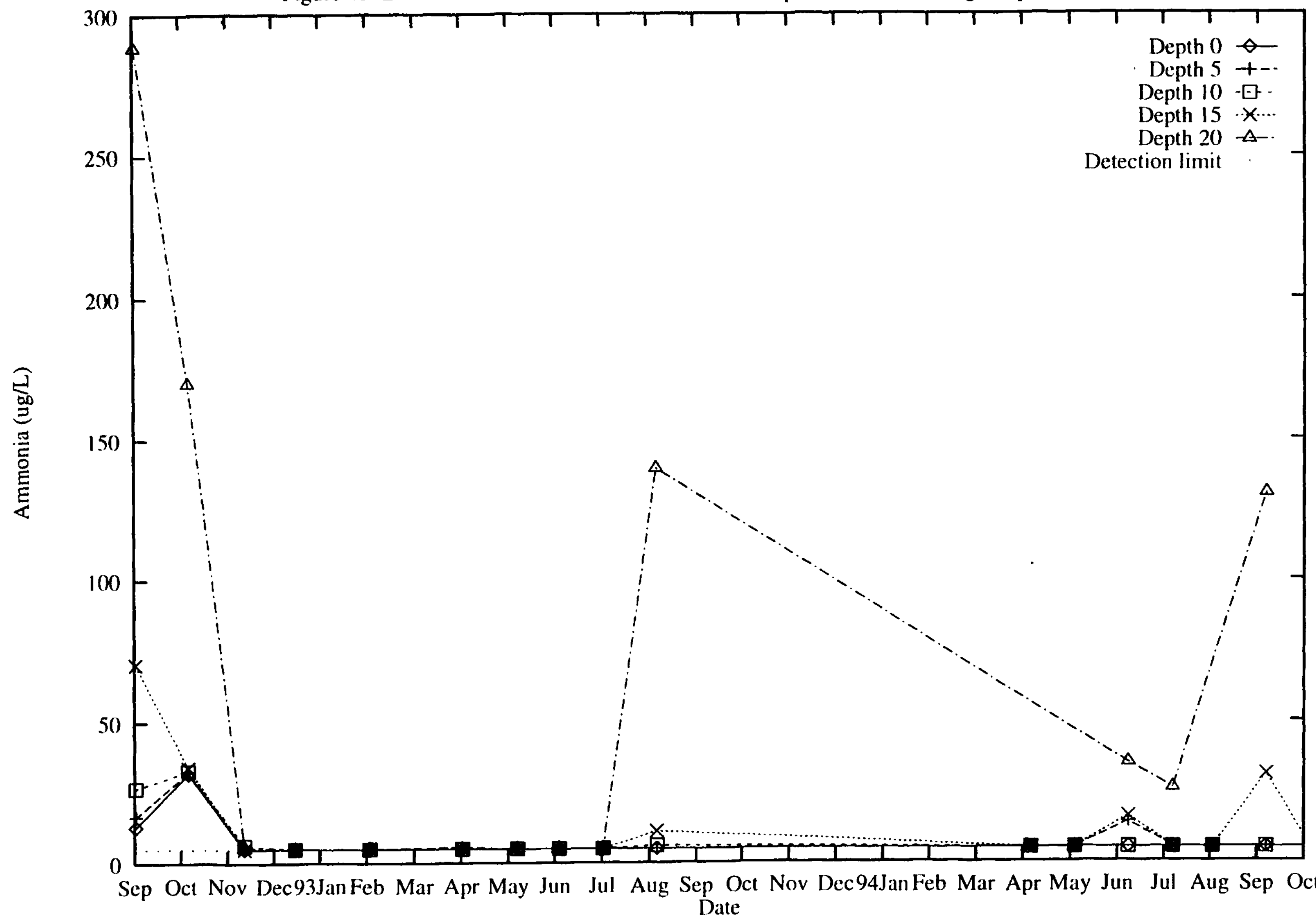


Figure 44: Lake Whatcom ammonia data for Intake site (basin 2), September 1992 through September 1994.

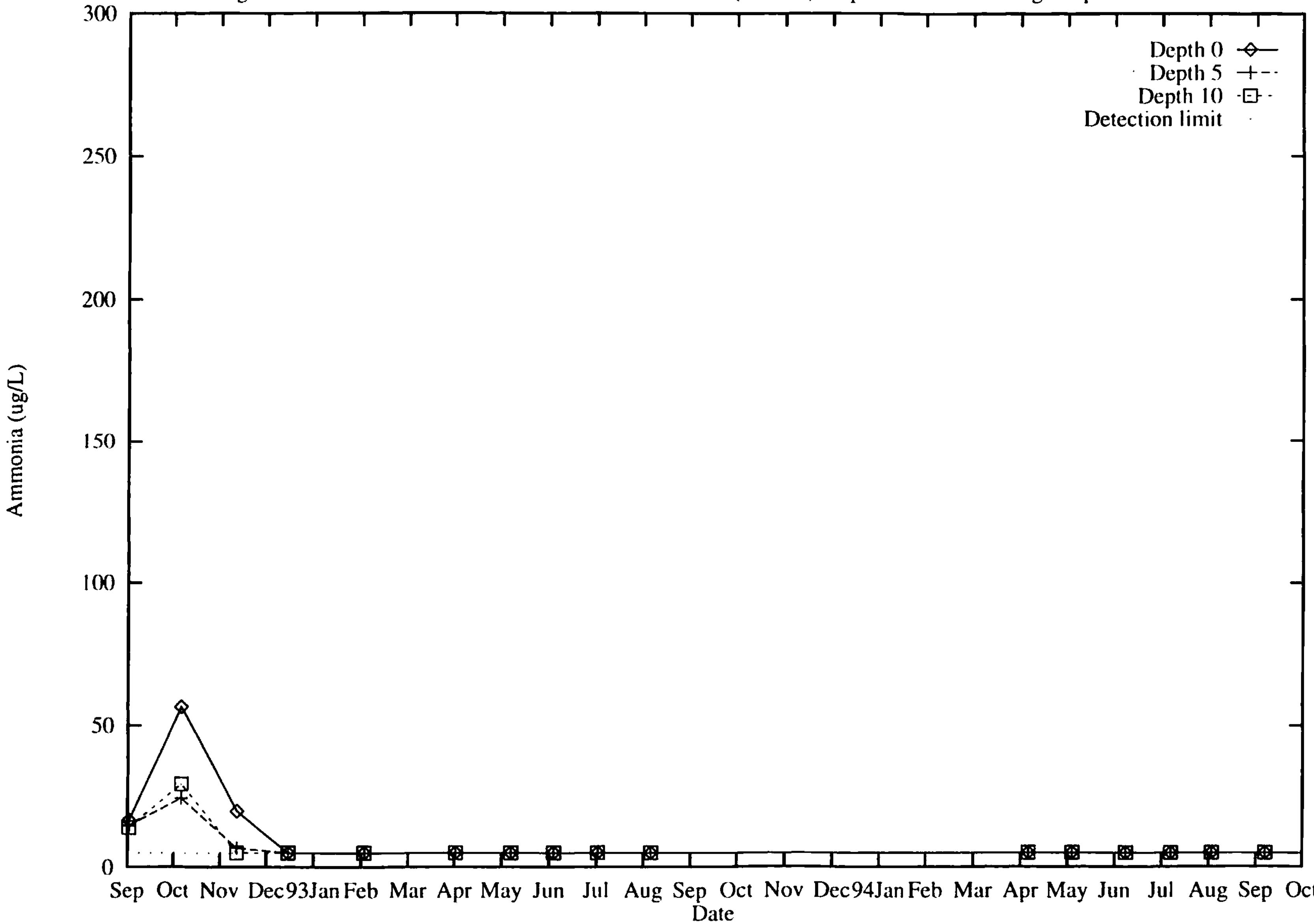


Figure 45: Lake Whatcom ammonia data for Site 3, September 1992 through September 1994.

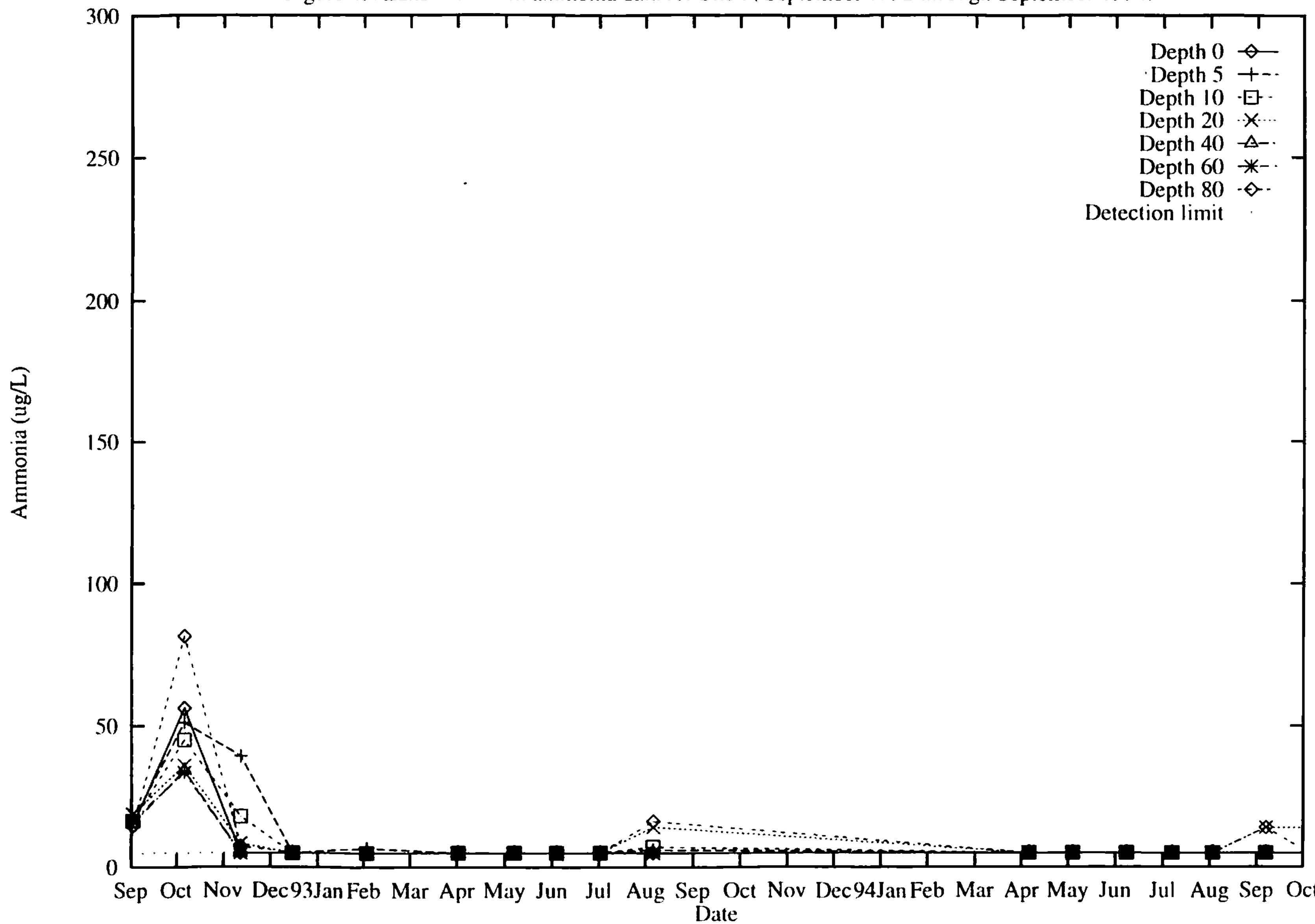


Figure 46: Lake Whatcom ammonia data for Site 4, September 1992 through September 1994.

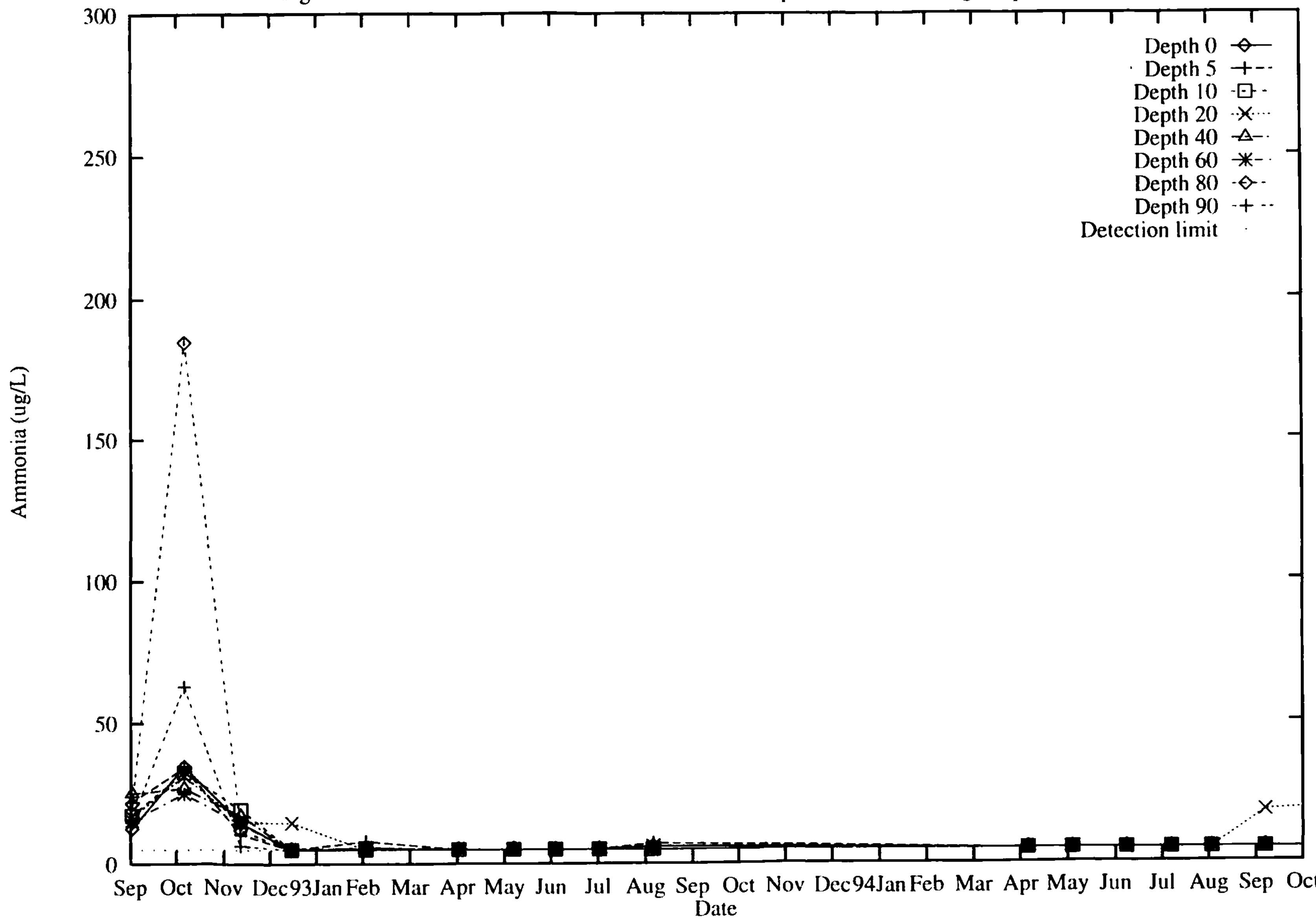


Figure 47: Lake Whatcom nitrate/nitrite data for Site 1, September 1992 through September 1994.

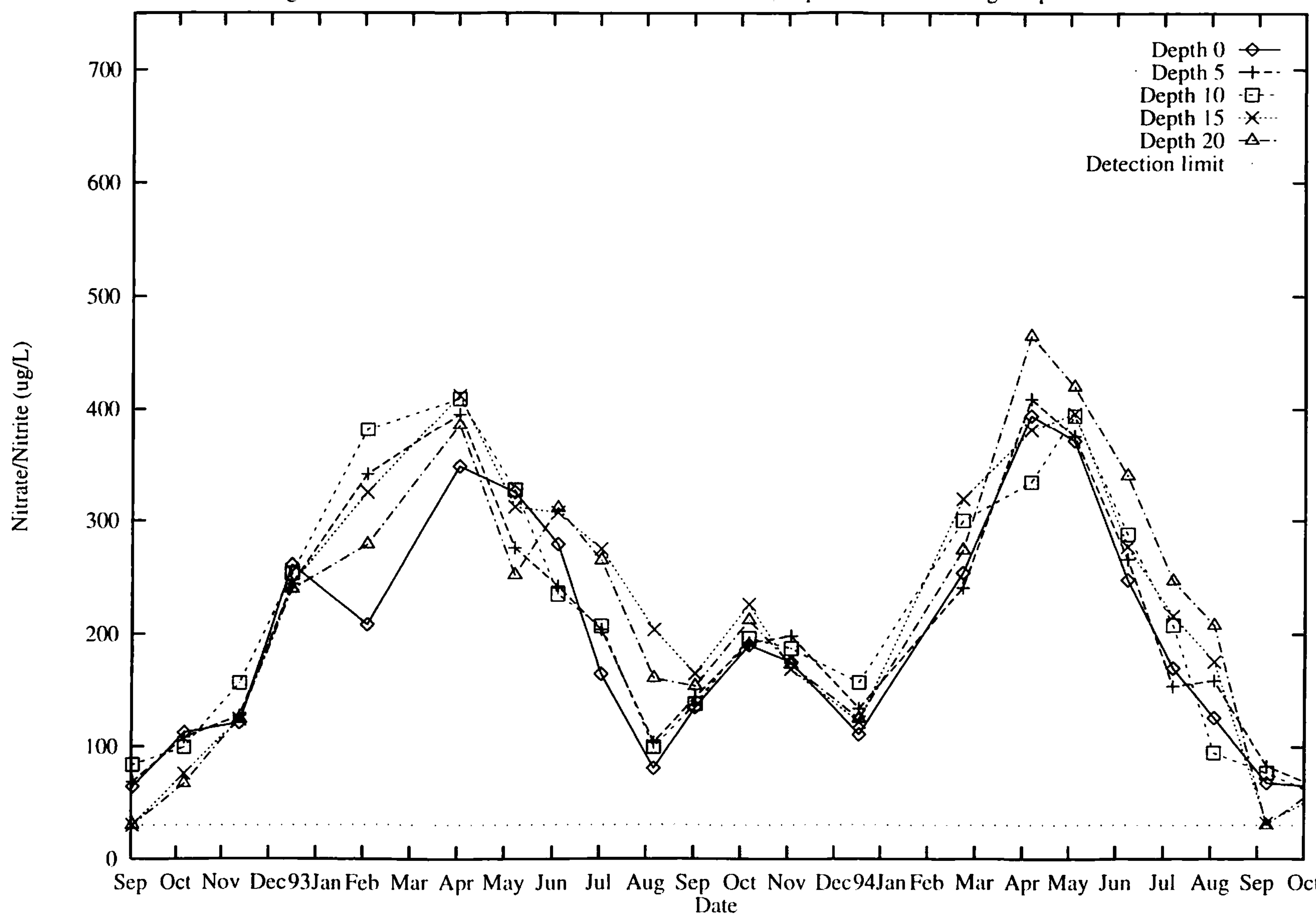


Figure 48: Lake Whatcom nitrate/nitrite data for Site 2, September 1992 through September 1994.

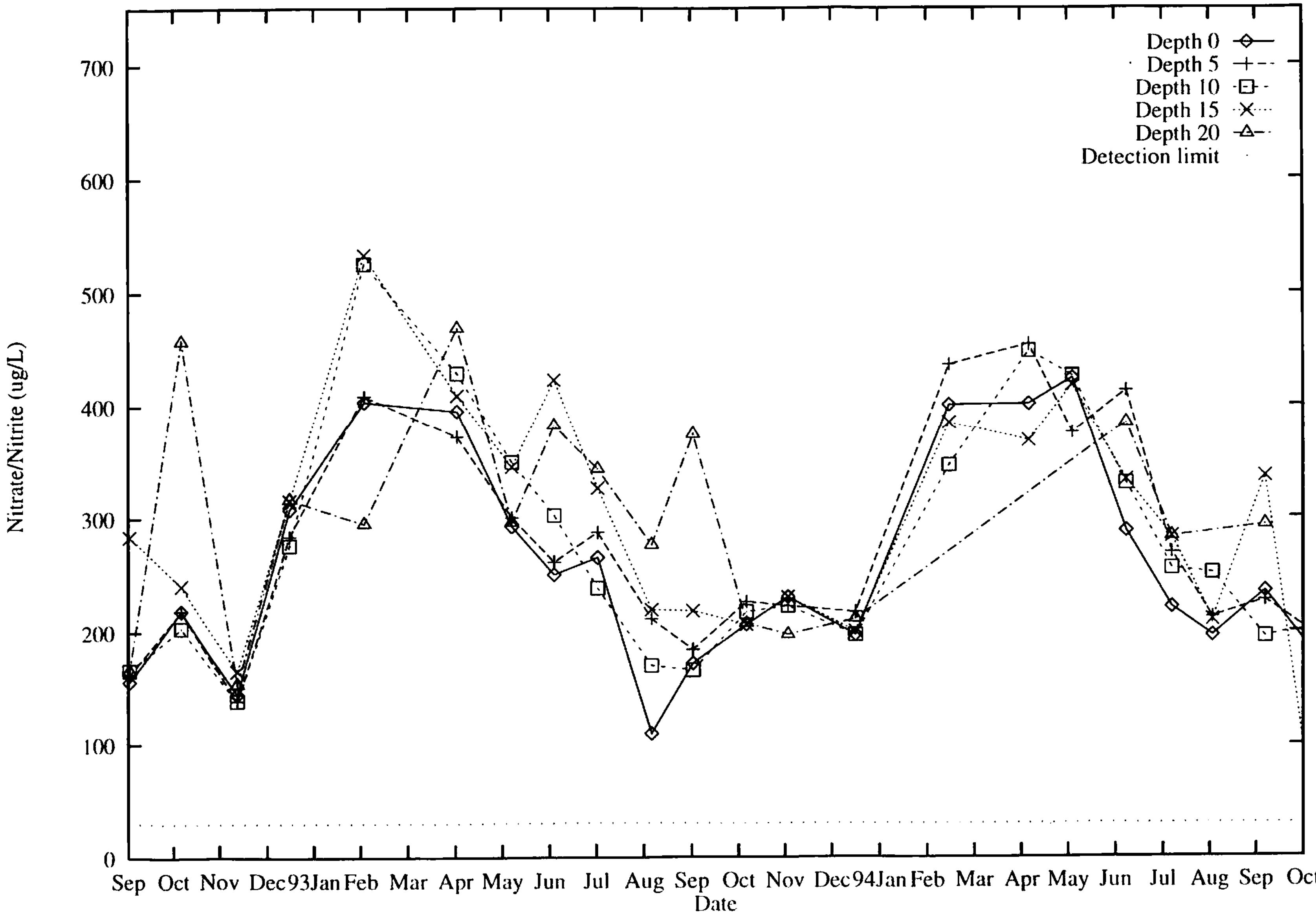


Figure 49: Lake Whatcom nitrate/nitrite data for Intake site (basin 2), September 1992 through September 1994.

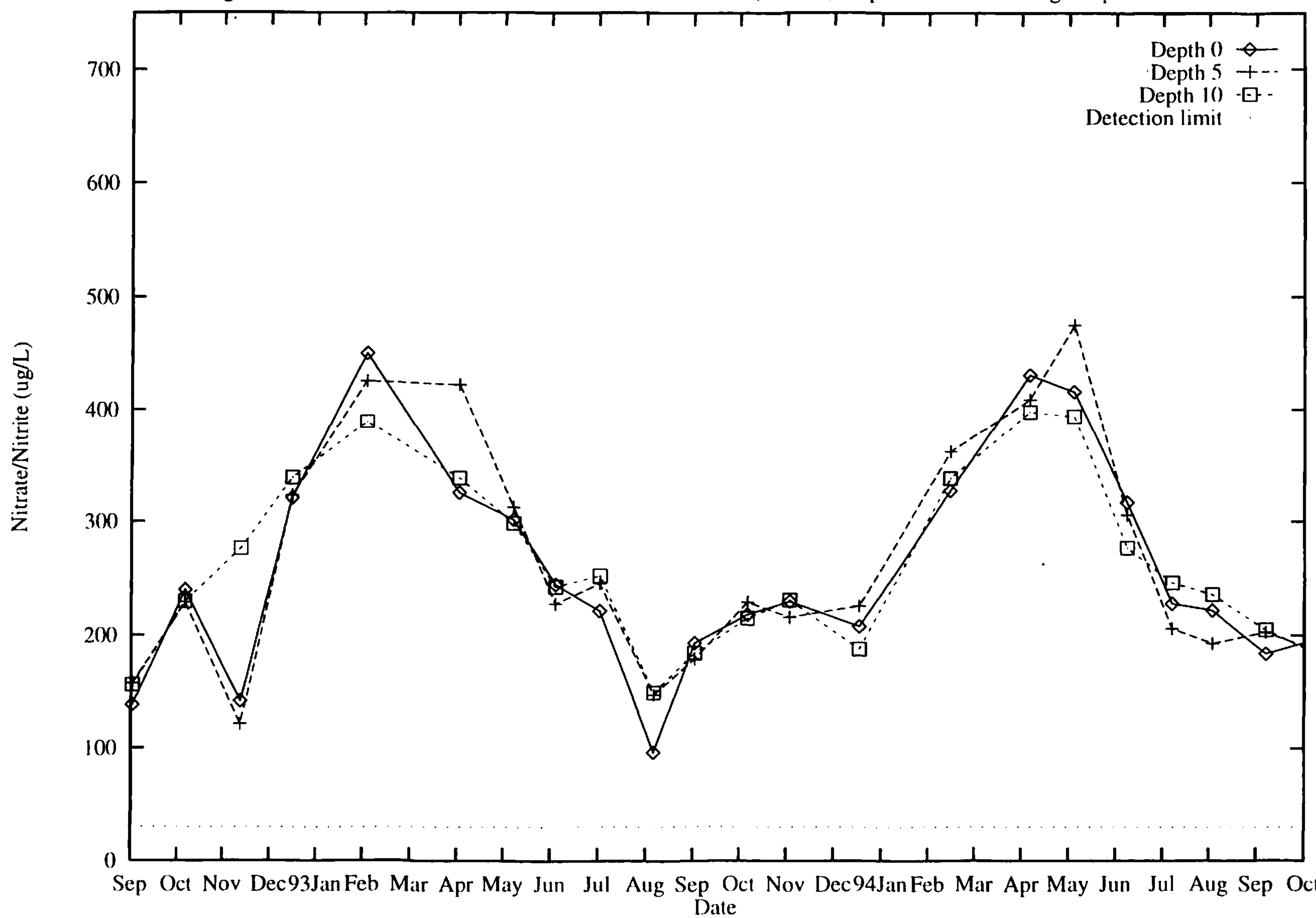


Figure 50: Lake Whatcom nitrate/nitrite data for Site 3. September 1992 through September 1994.

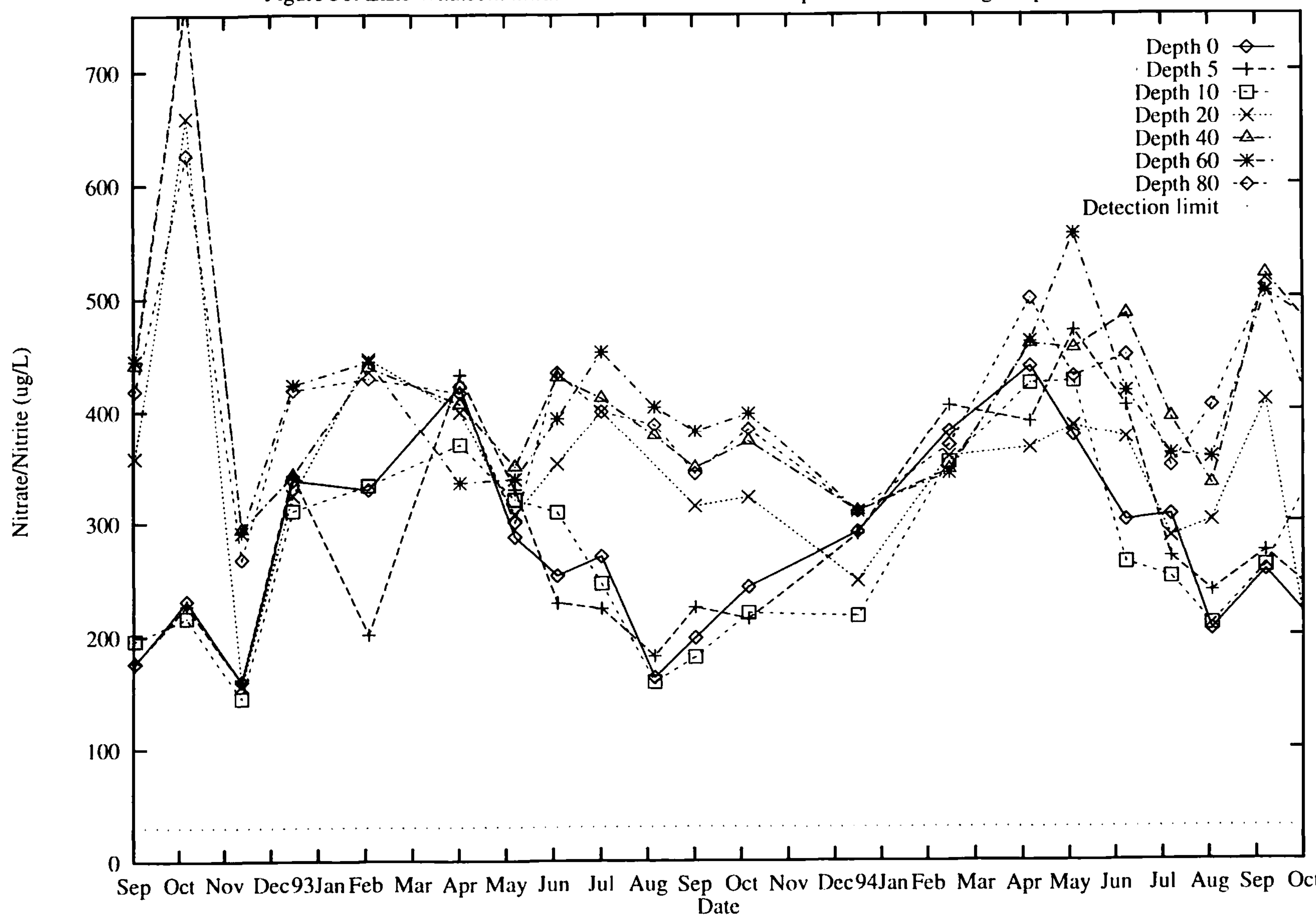


Figure 51: Lake Whatcom nitrate/nitrite data for Site 4, September 1992 through September 1994.

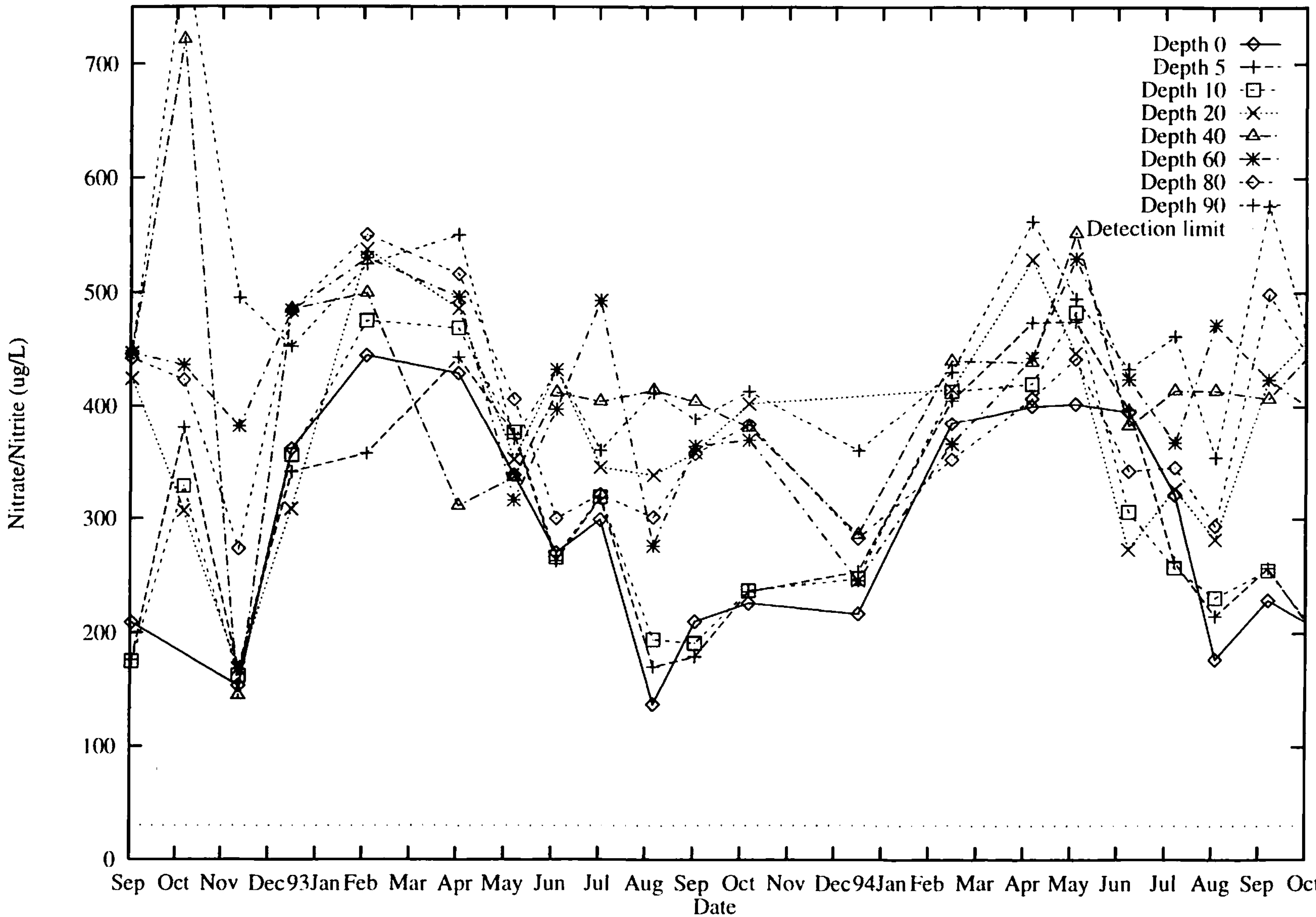


Figure 52: Lake Whatcom total nitrogen data for Site 1, September 1992 through September 1994.

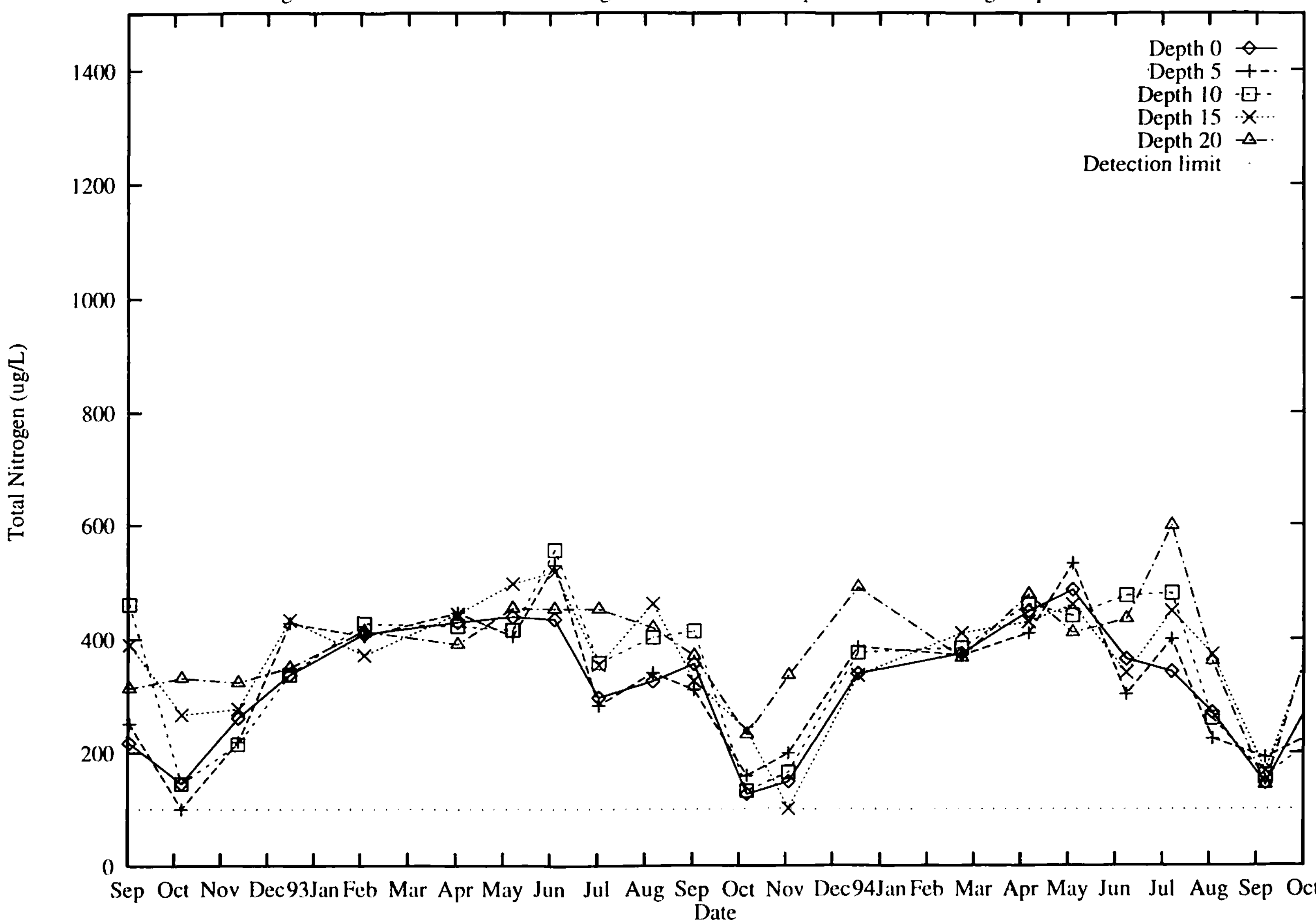


Figure 53: Lake Whatcom total nitrogen data for Site 2, September 1992 through September 1994.

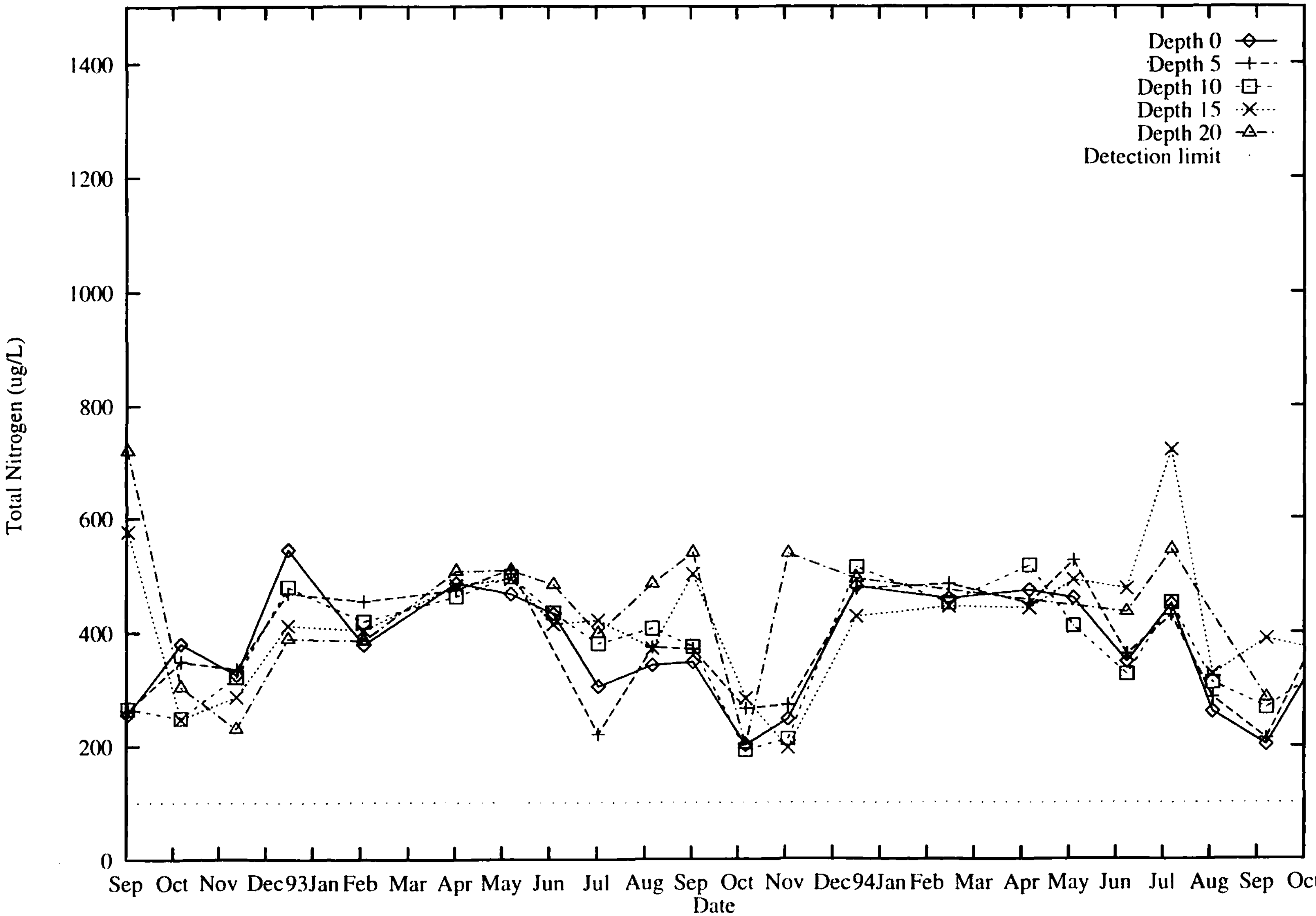


Figure 54: Lake Whatcom total nitrogen data for Intake site (basin 2), September 1992 through September 1994.

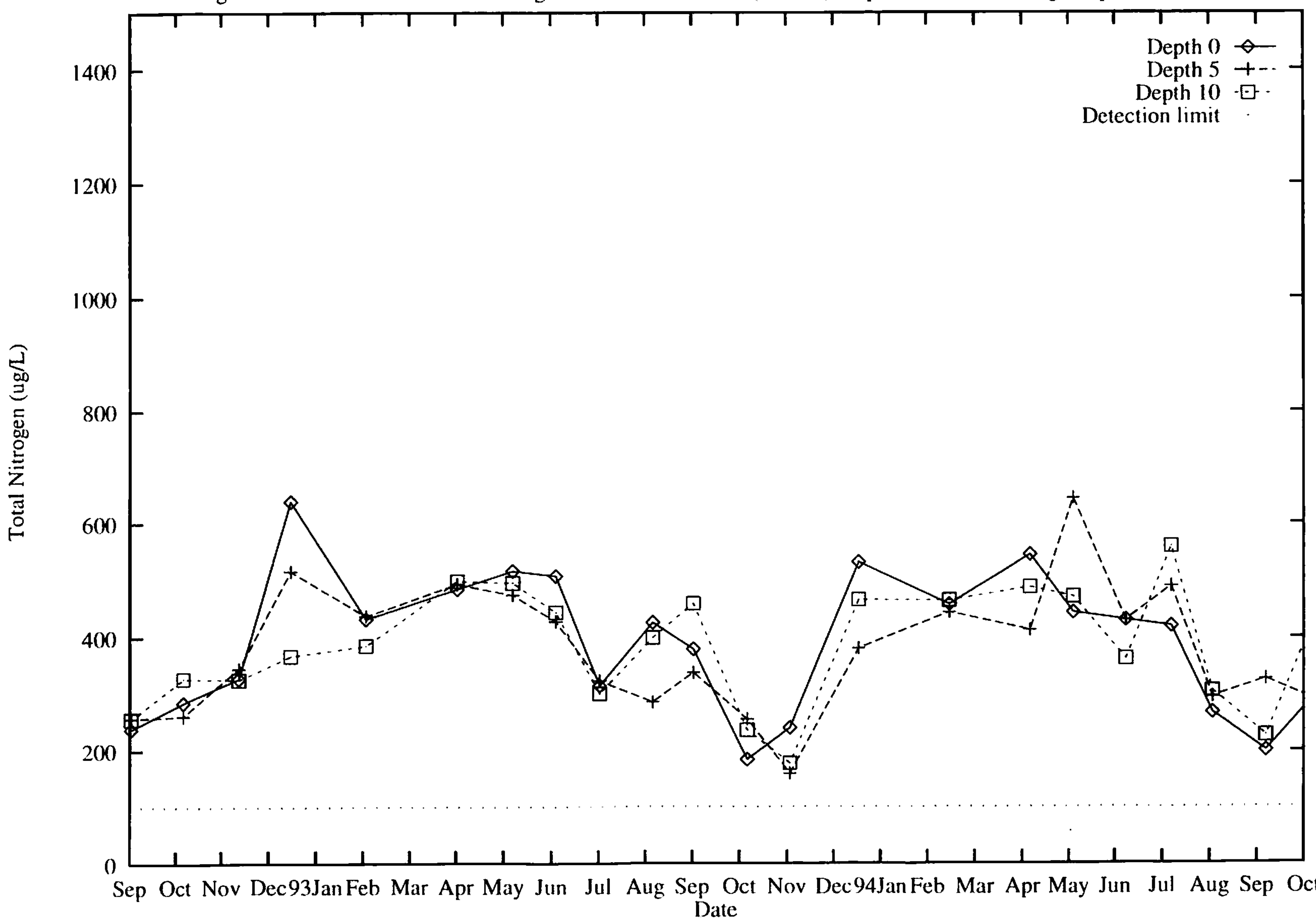


Figure 55: Lake Whatcom total nitrogen data for Site 3, September 1992 through September 1994.

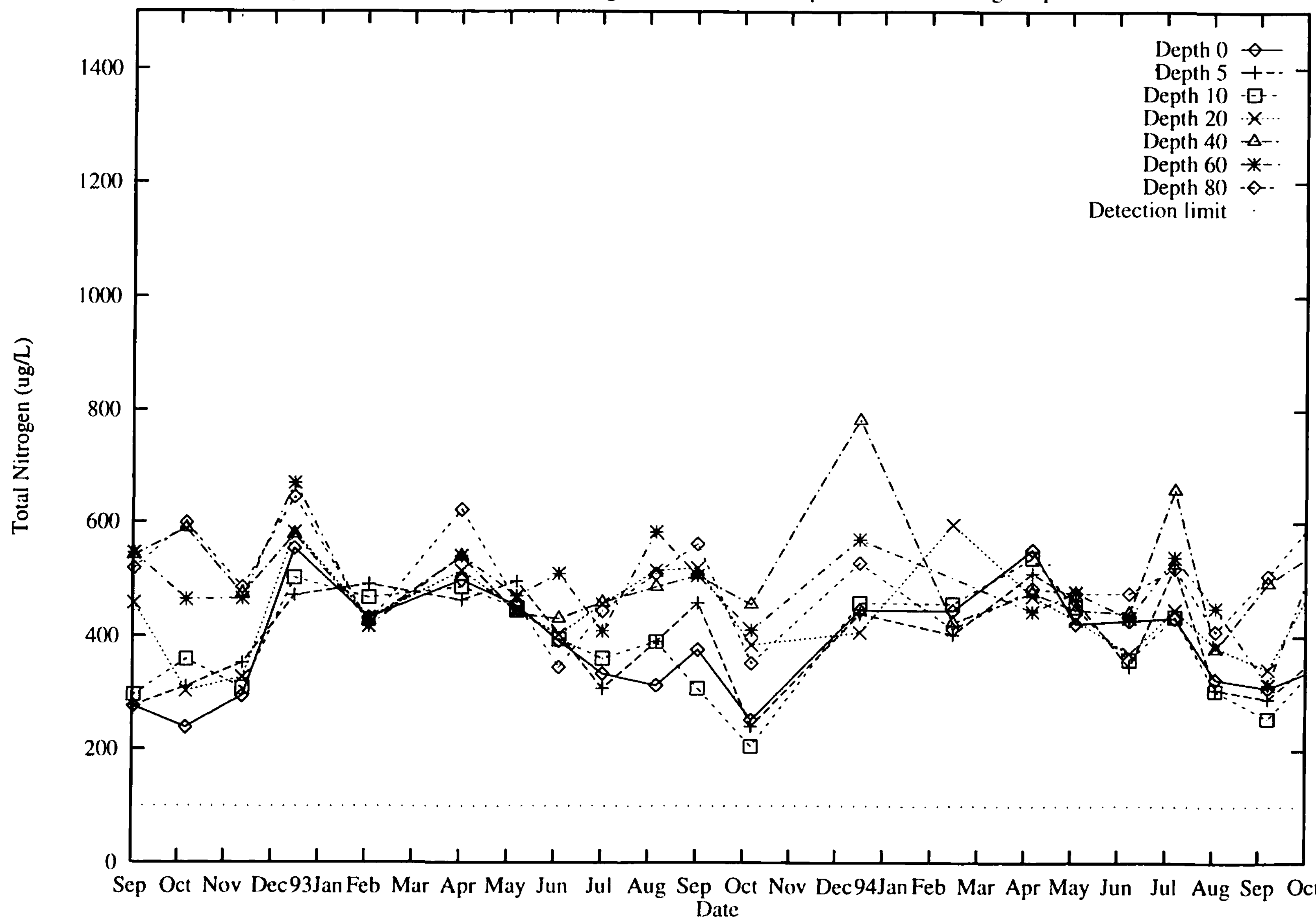


Figure 56: Lake Whatcom total nitrogen data for Site 4, September 1992 through September 1994.

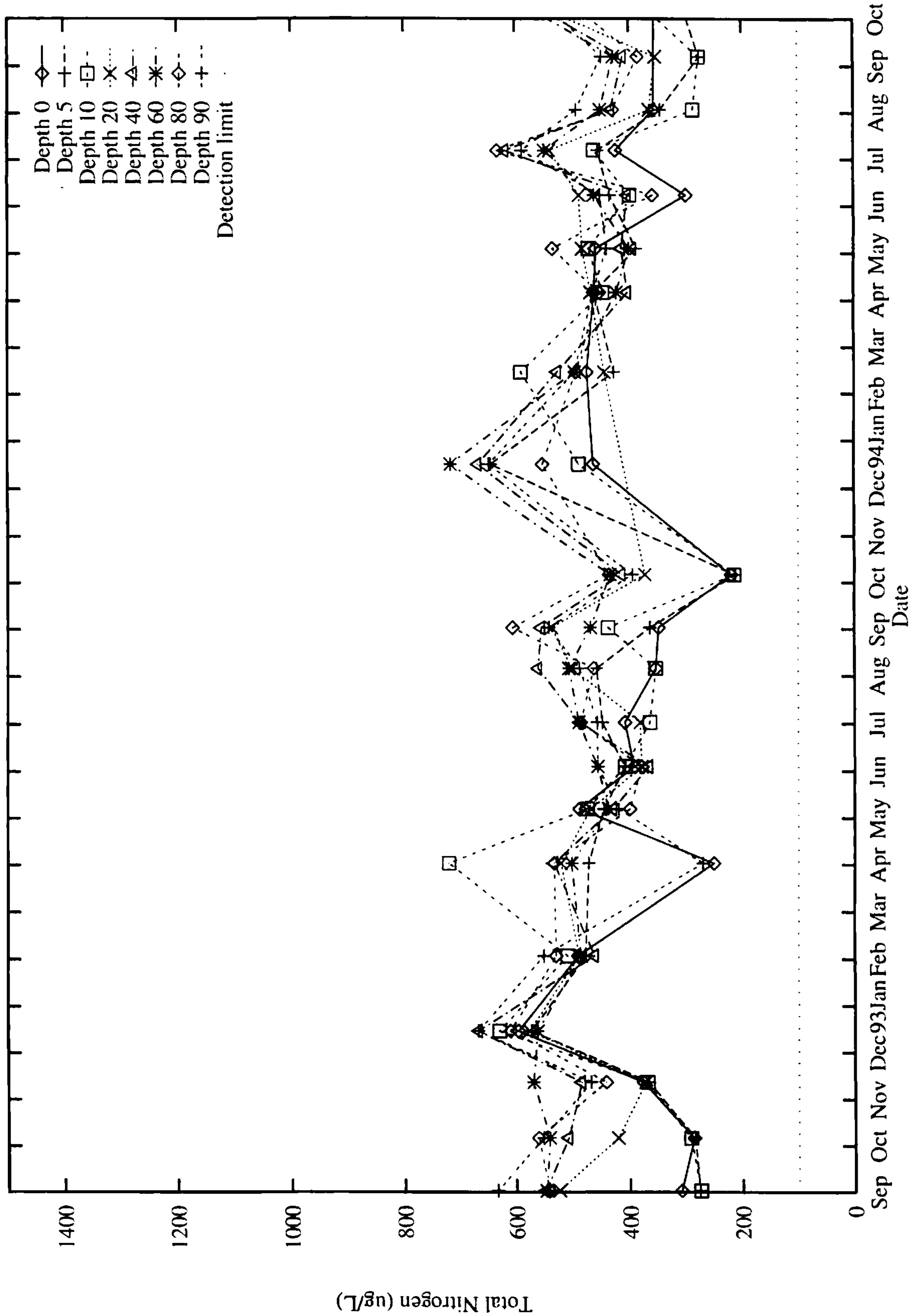


Figure 57: Lake Whatcom phosphorus summary data (total and soluble) for Site 1, September 1992 through September 1994.

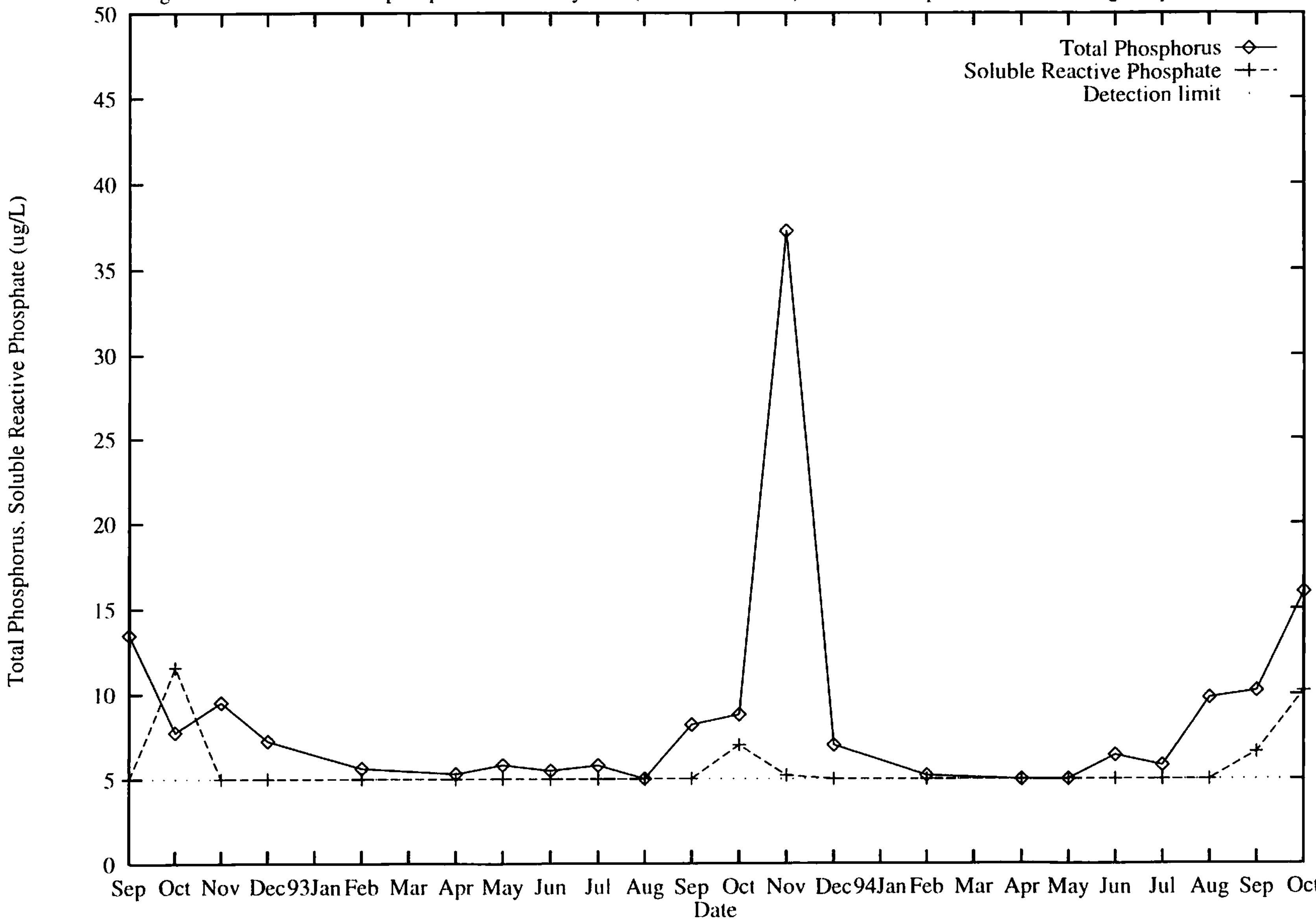


Figure 58: Lake Whatcom phosphorus summary data (total and soluble) for Site 2, September 1992 through September 1994.

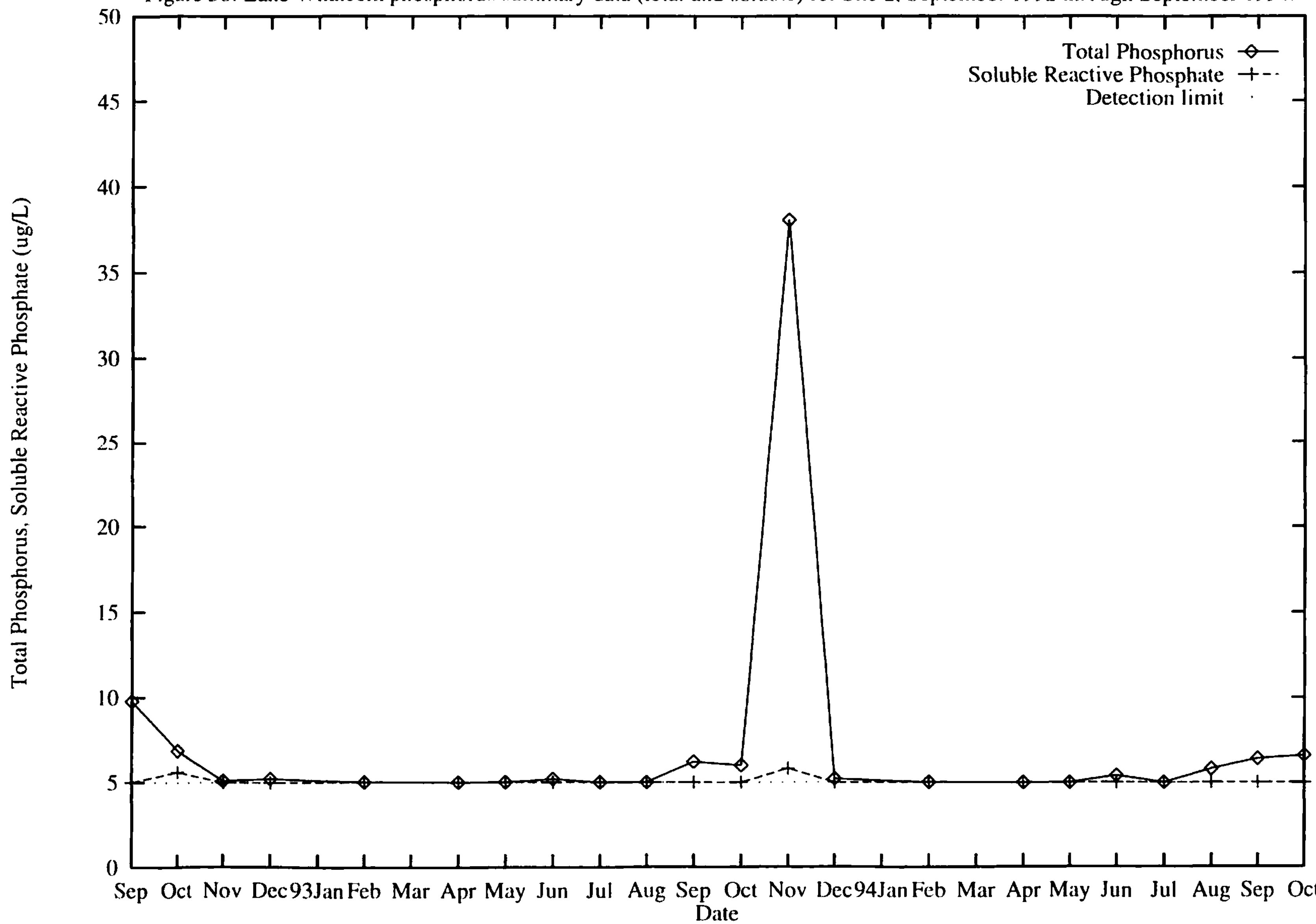


Figure 59: Lake Whatcom phosphorus summary data (total and soluble) for Intake site (basin 2), September 1992 through September 1994.

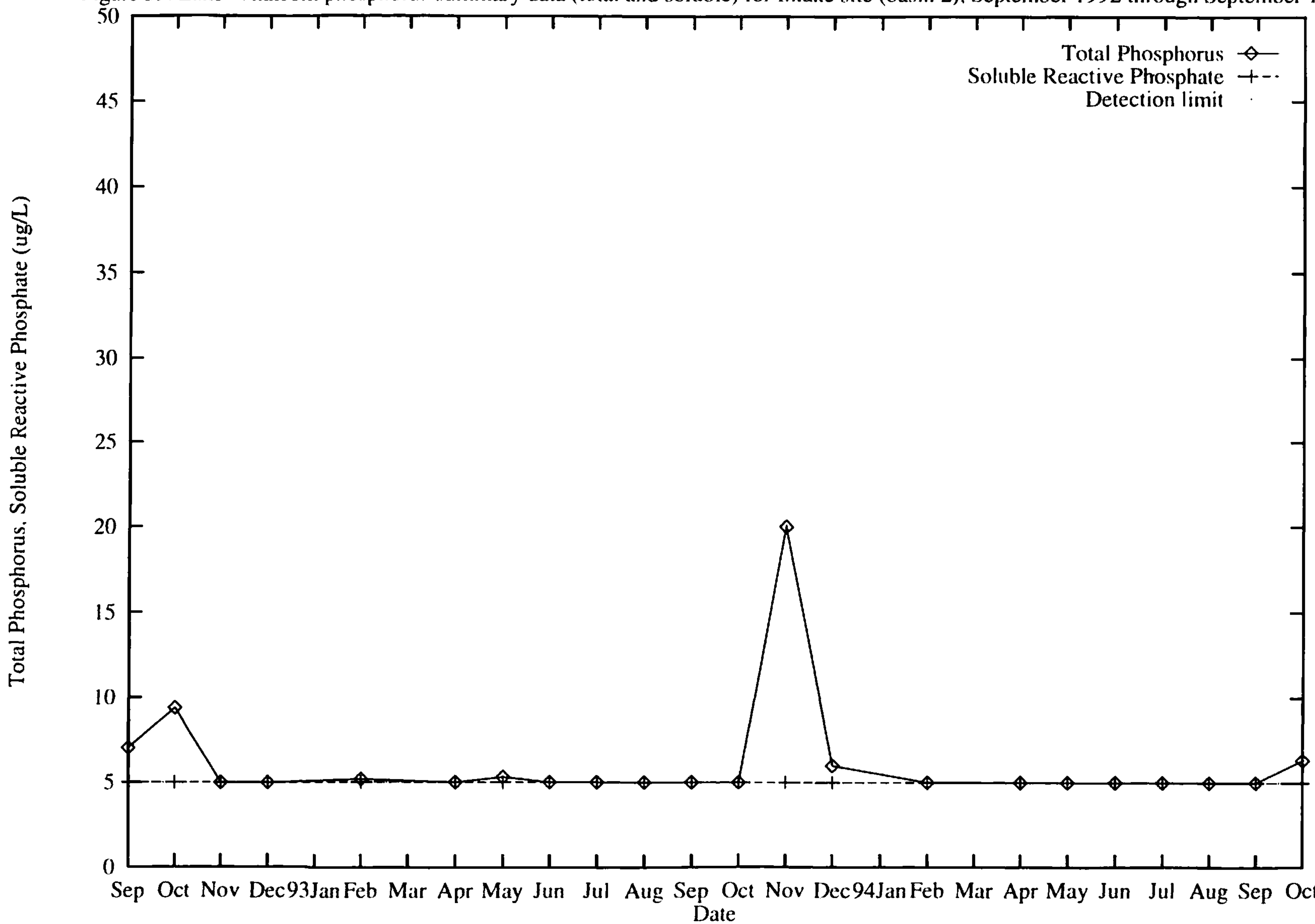


Figure 60: Lake Whatcom phosphorus summary data (total and soluble) for Site 3, September 1992 through September 1994.

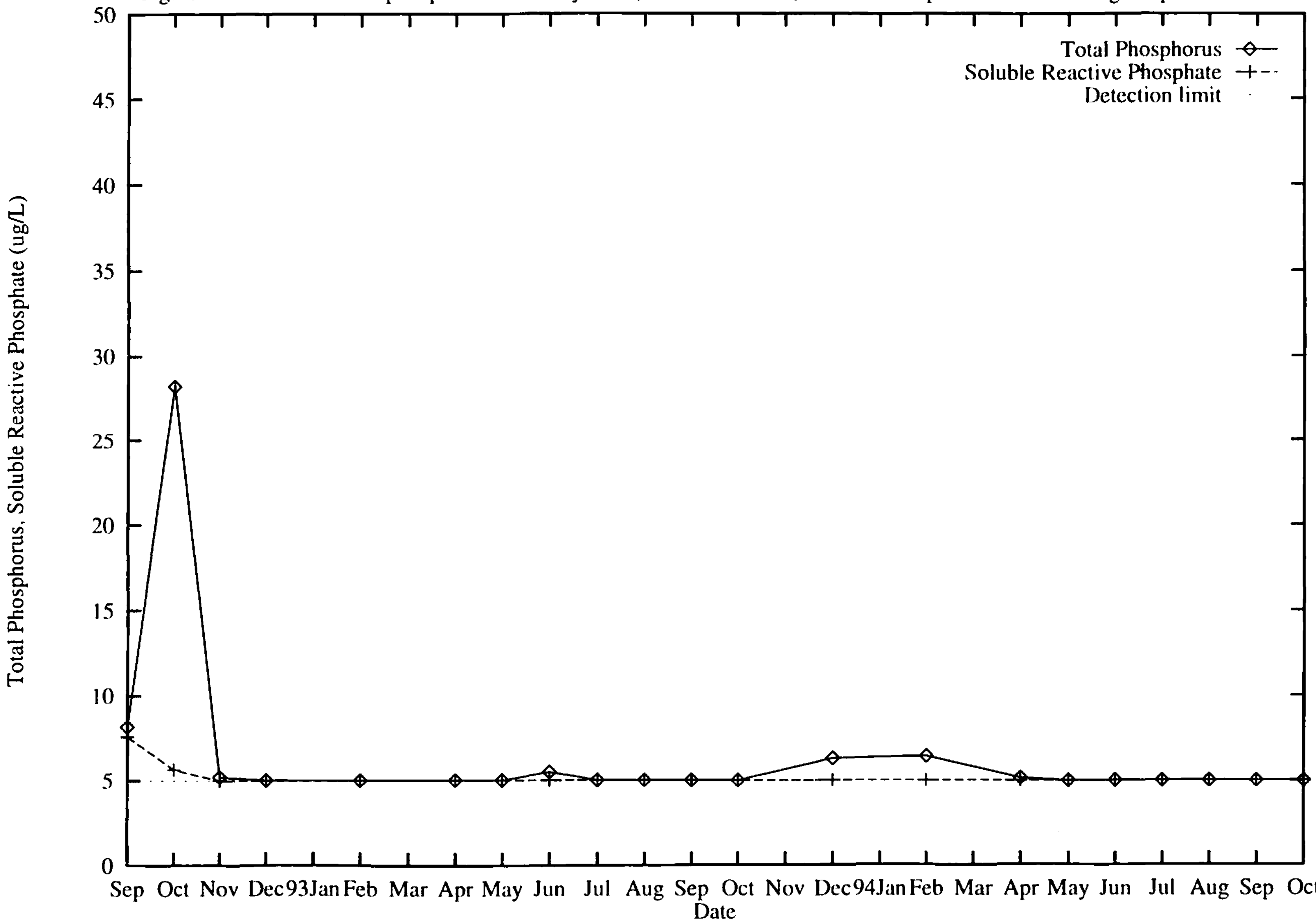


Figure 61: Lake Whatcom phosphorus summary data (total and soluble) for Site 4, September 1992 through September 1994.

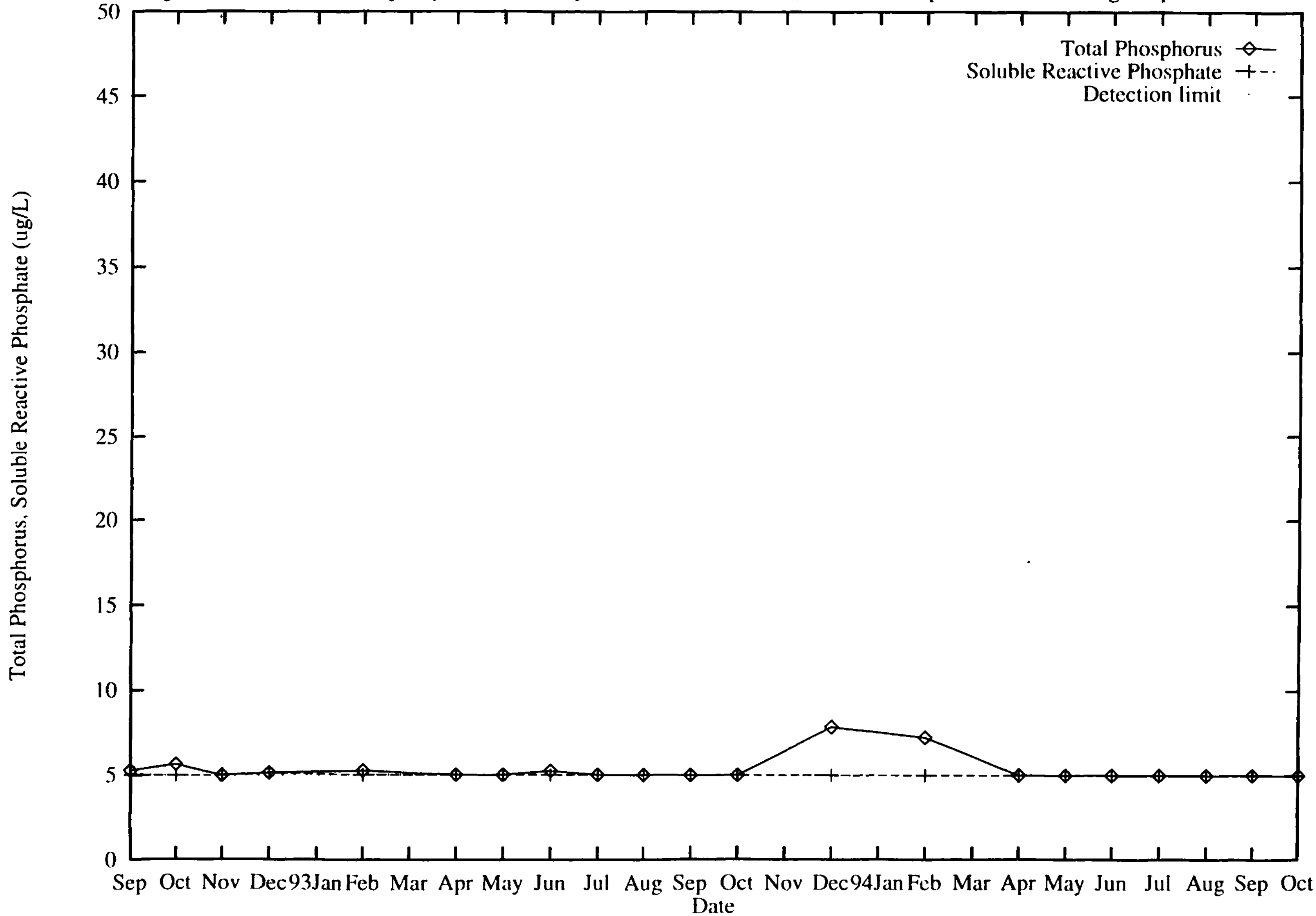


Figure 62: Lake Whatcom soluble reactive phosphate data for Site 1, September 1992 through September 1994.

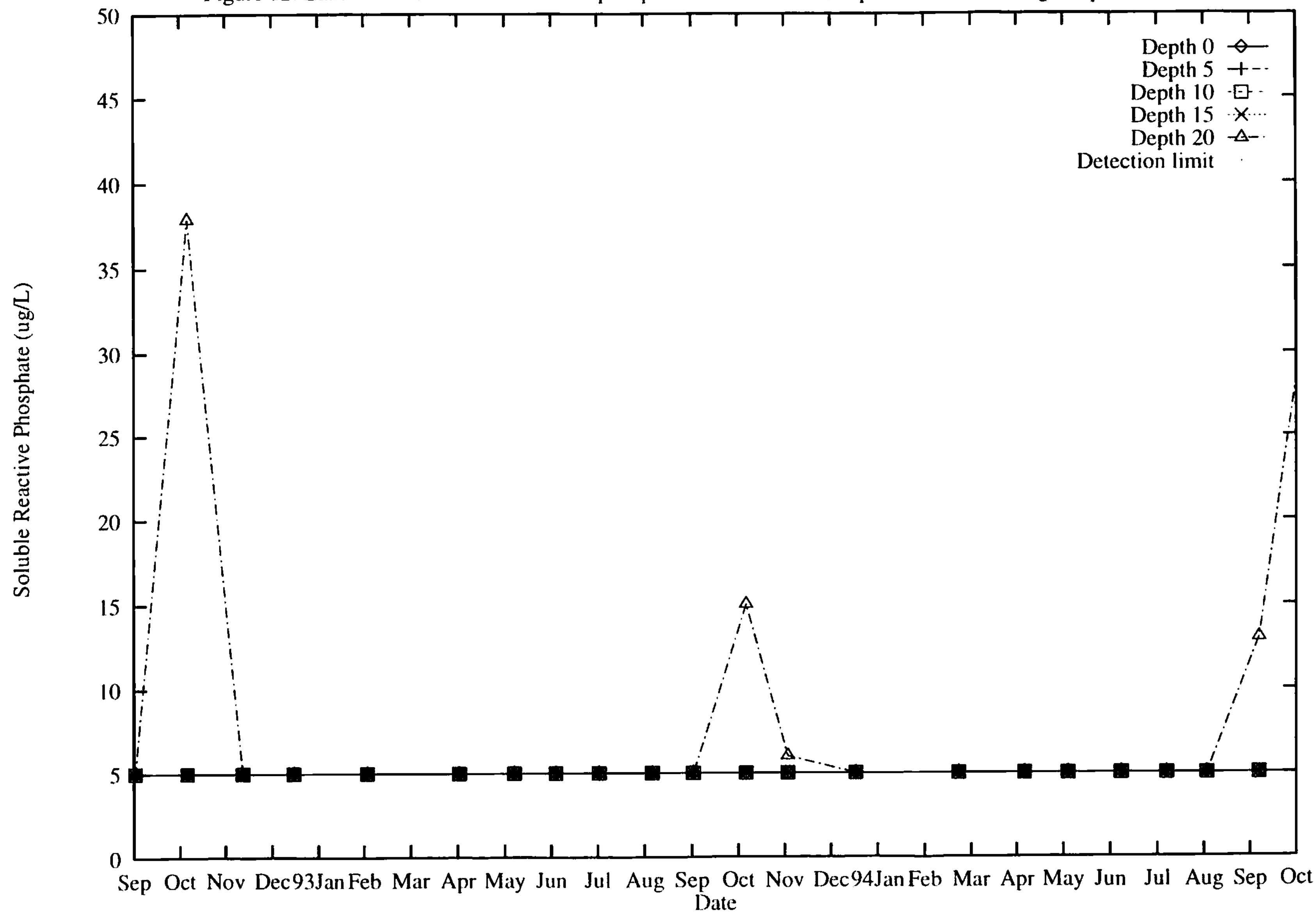


Figure 63: Lake Whatcom soluble reactive phosphate data for Site 2, September 1992 through September 1994.

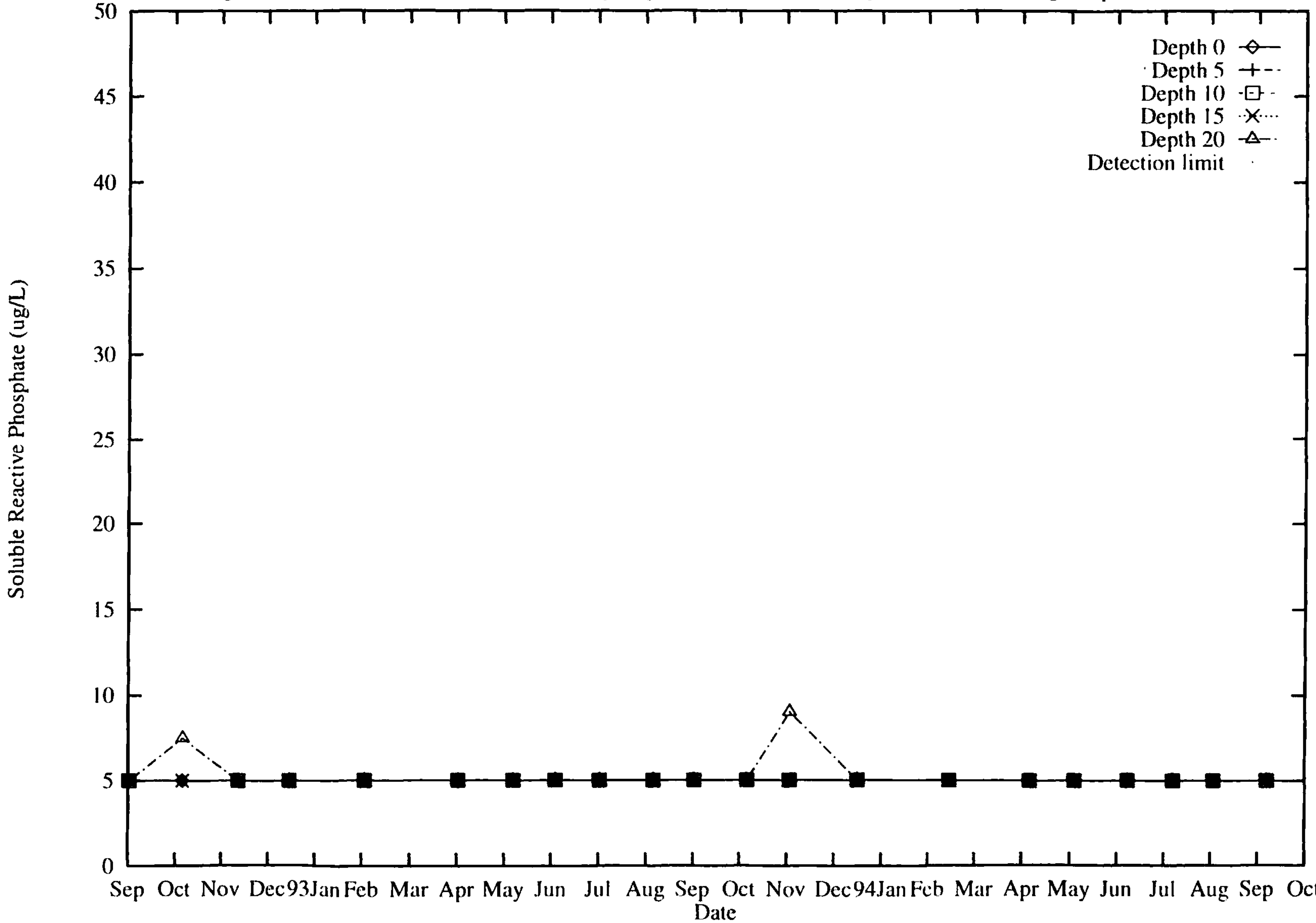


Figure 64: Lake Whatcom soluble reactive phosphate data for Intake site (basin 2), September 1992 through September 1994.

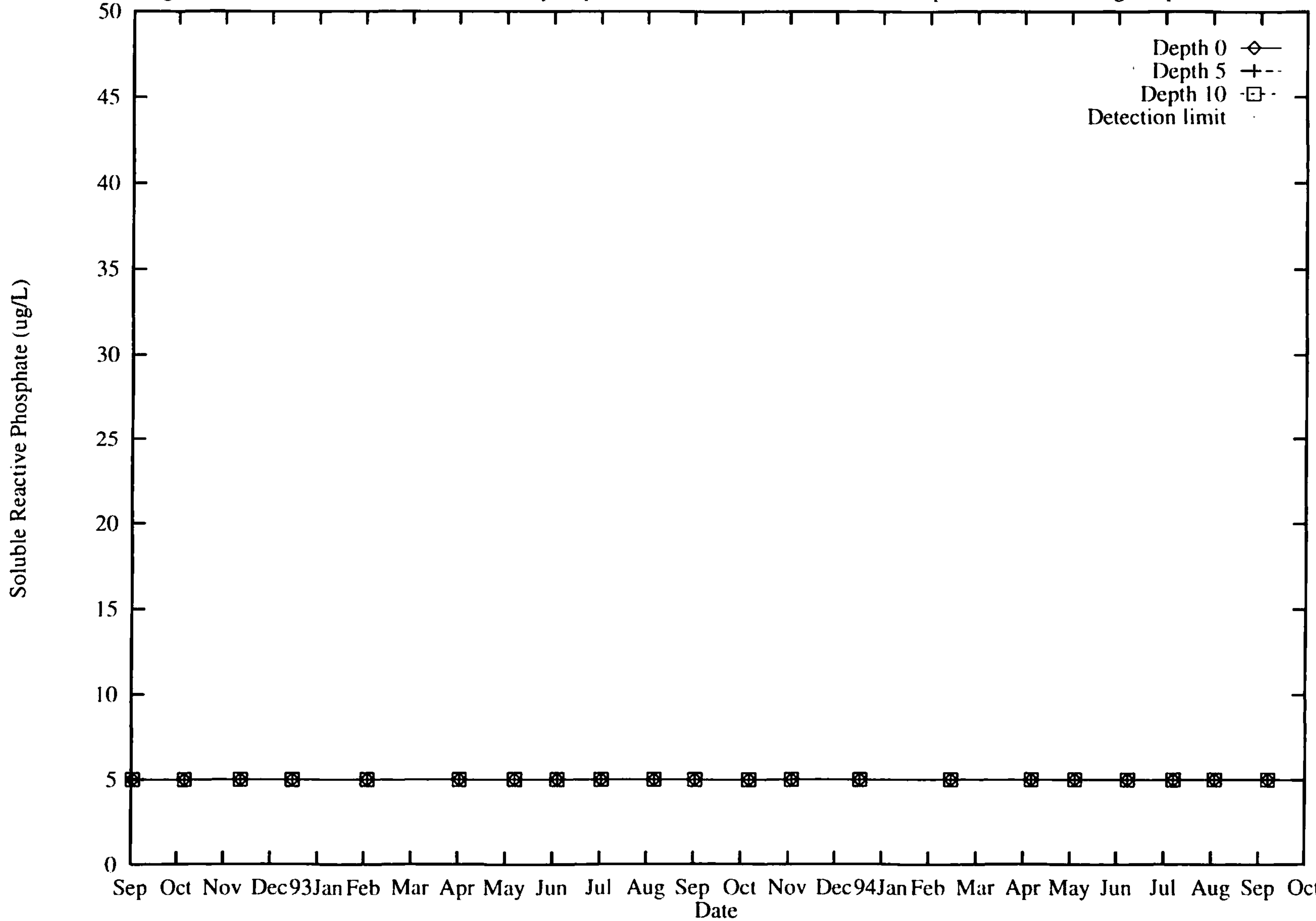


Figure 65: Lake Whatcom soluble reactive phosphate data for Site 3, September 1992 through September 1994.

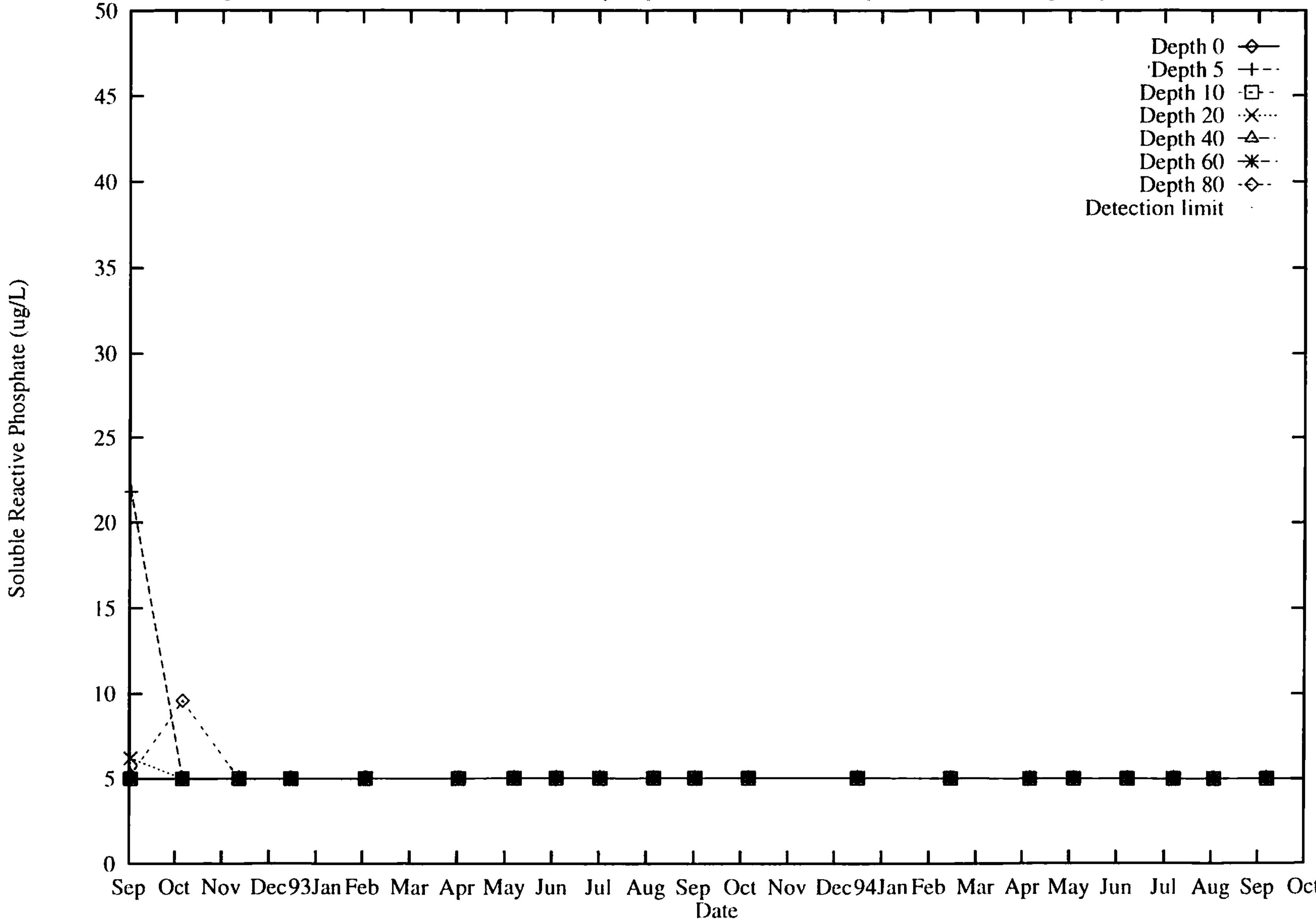


Figure 66: Lake Whatcom soluble reactive phosphate data for Site 4, September 1992 through September 1994.

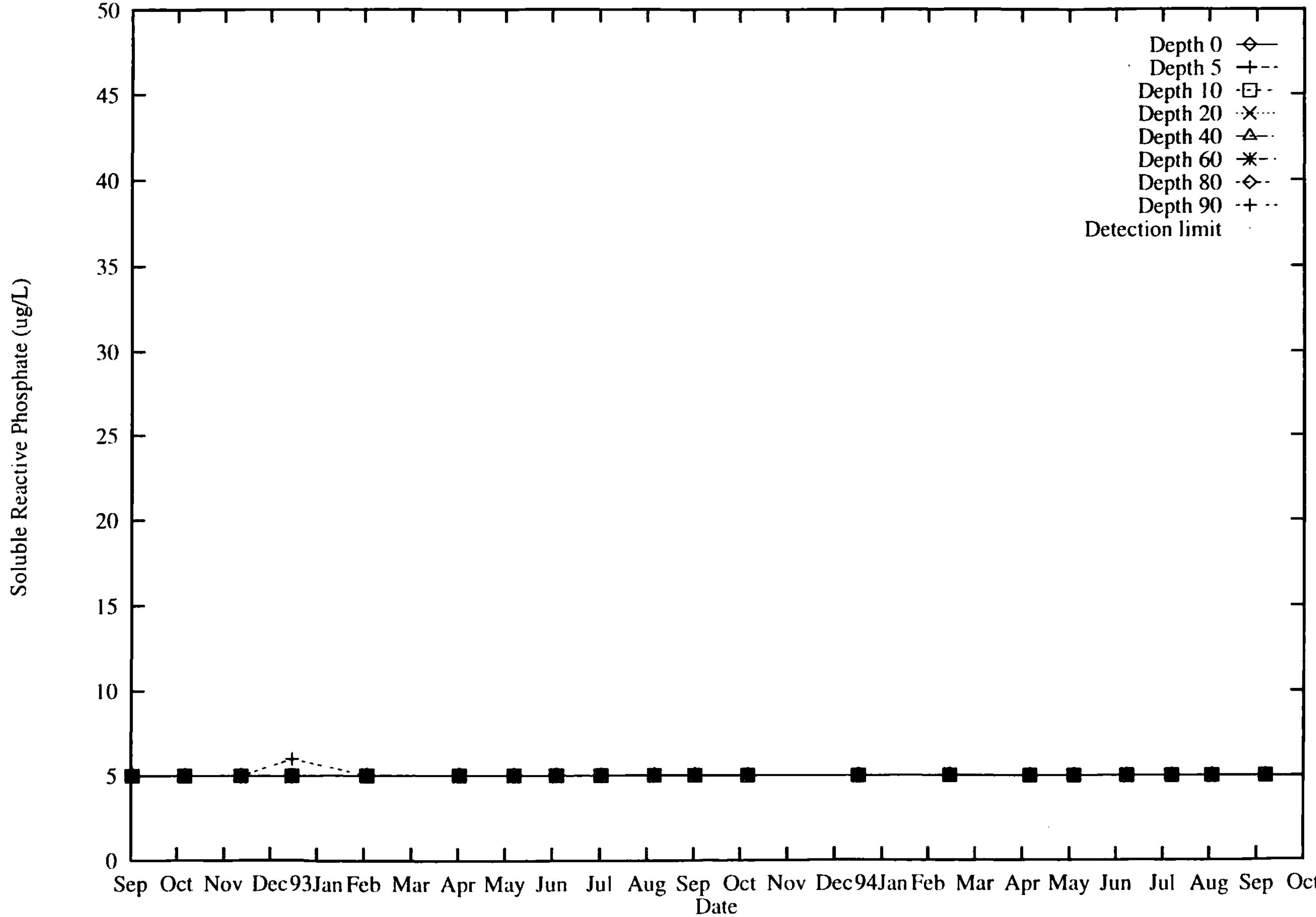


Figure 67: Lake Whatcom total phosphorus data for Site 1, September 1992 through September 1994.

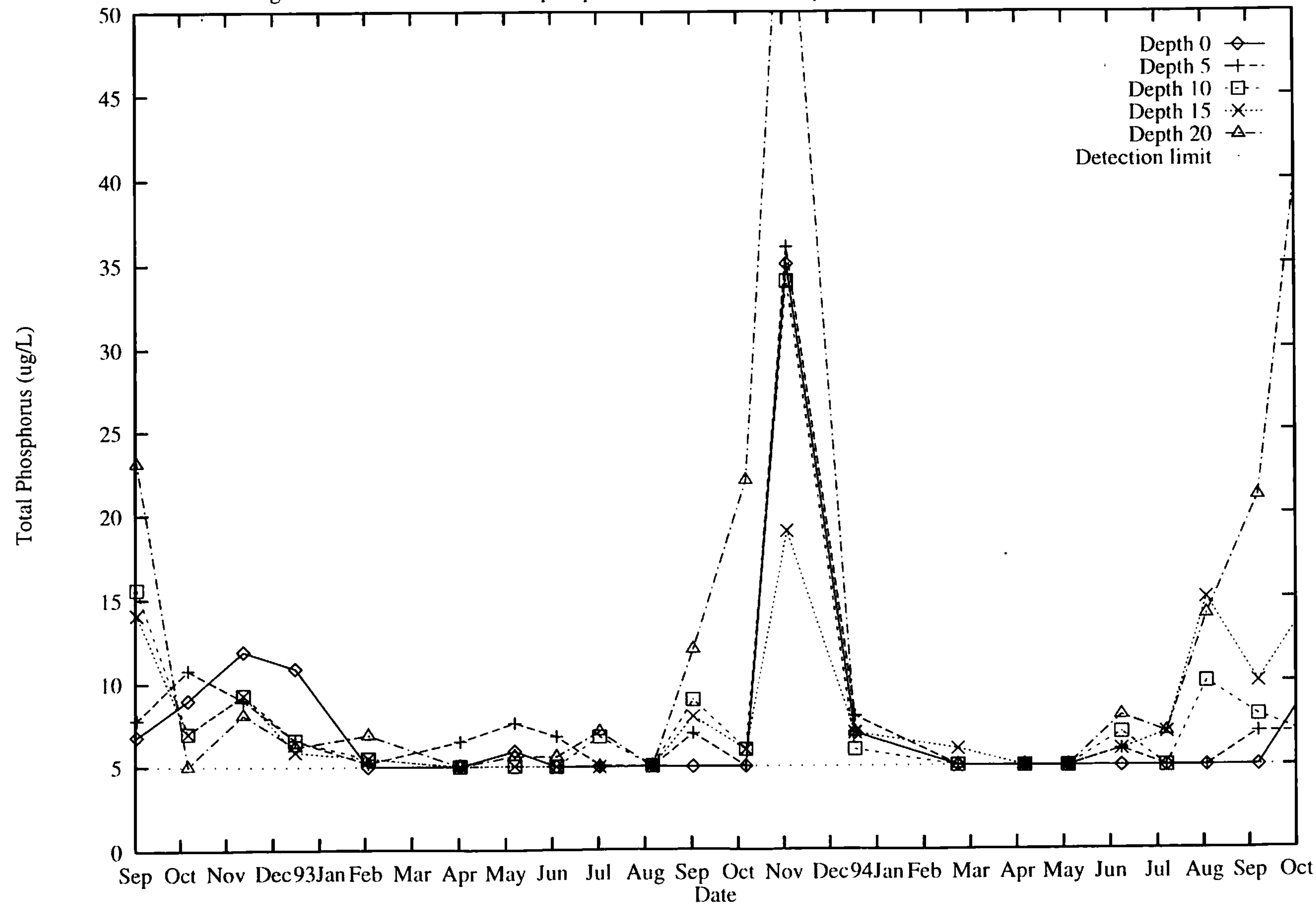


Figure 68: Lake Whatcom total phosphorus data for Site 2, September 1992 through September 1994.

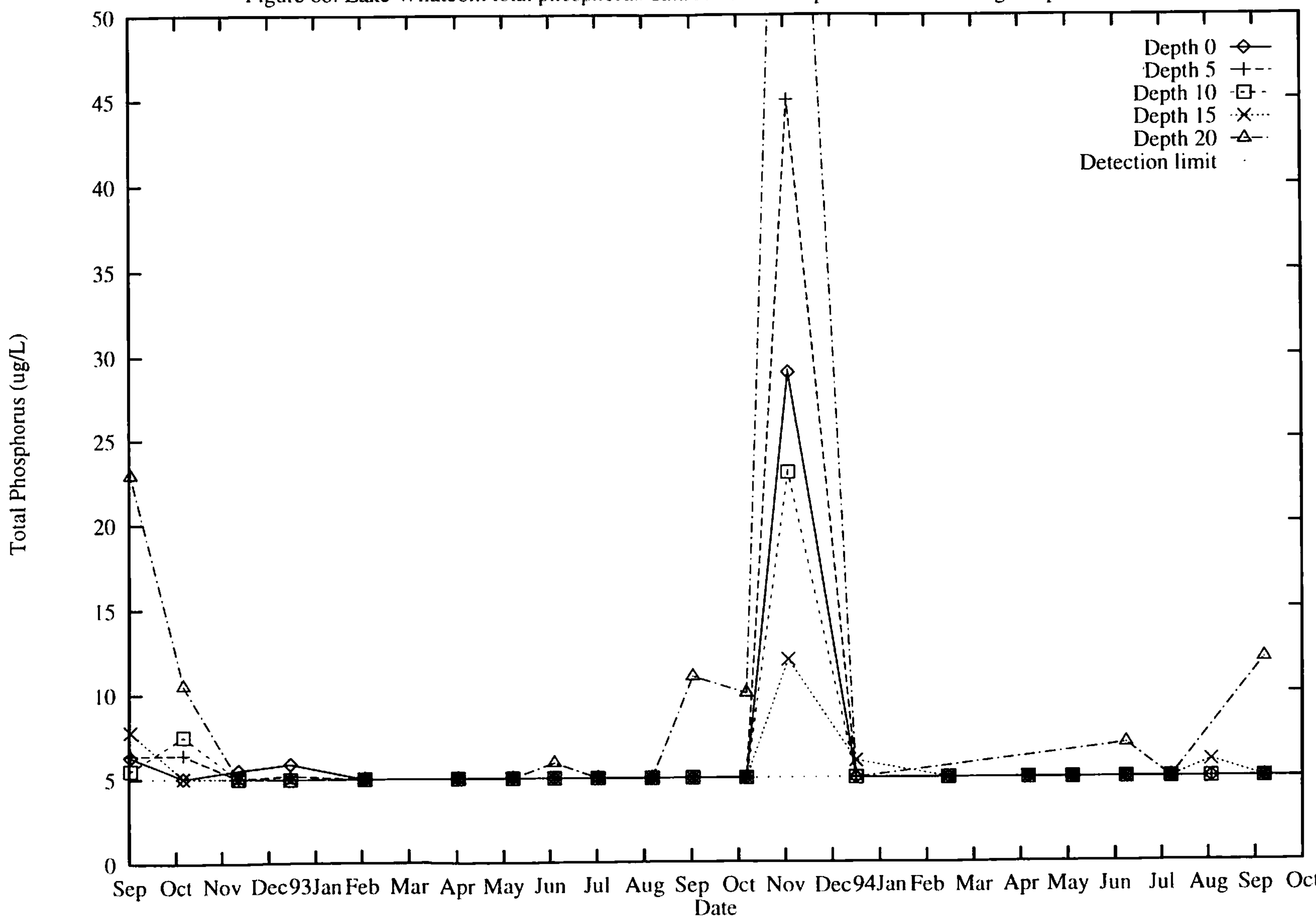


Figure 69: Lake Whatcom total phosphorus data for Intake site (basin 2), September 1992 through September 1994.

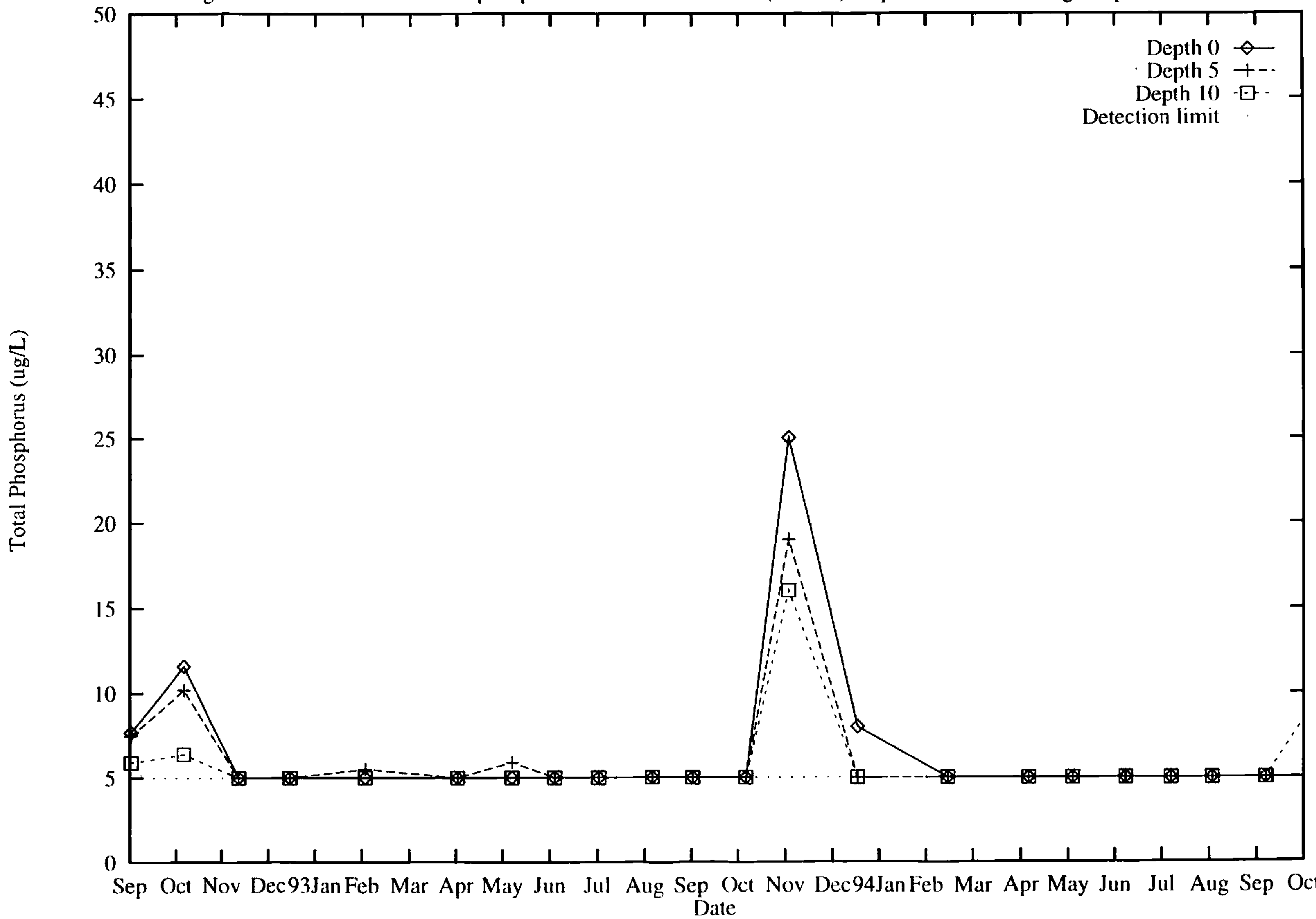


Figure 70: Lake Whatcom total phosphorus data for Site 3, September 1992 through September 1994.

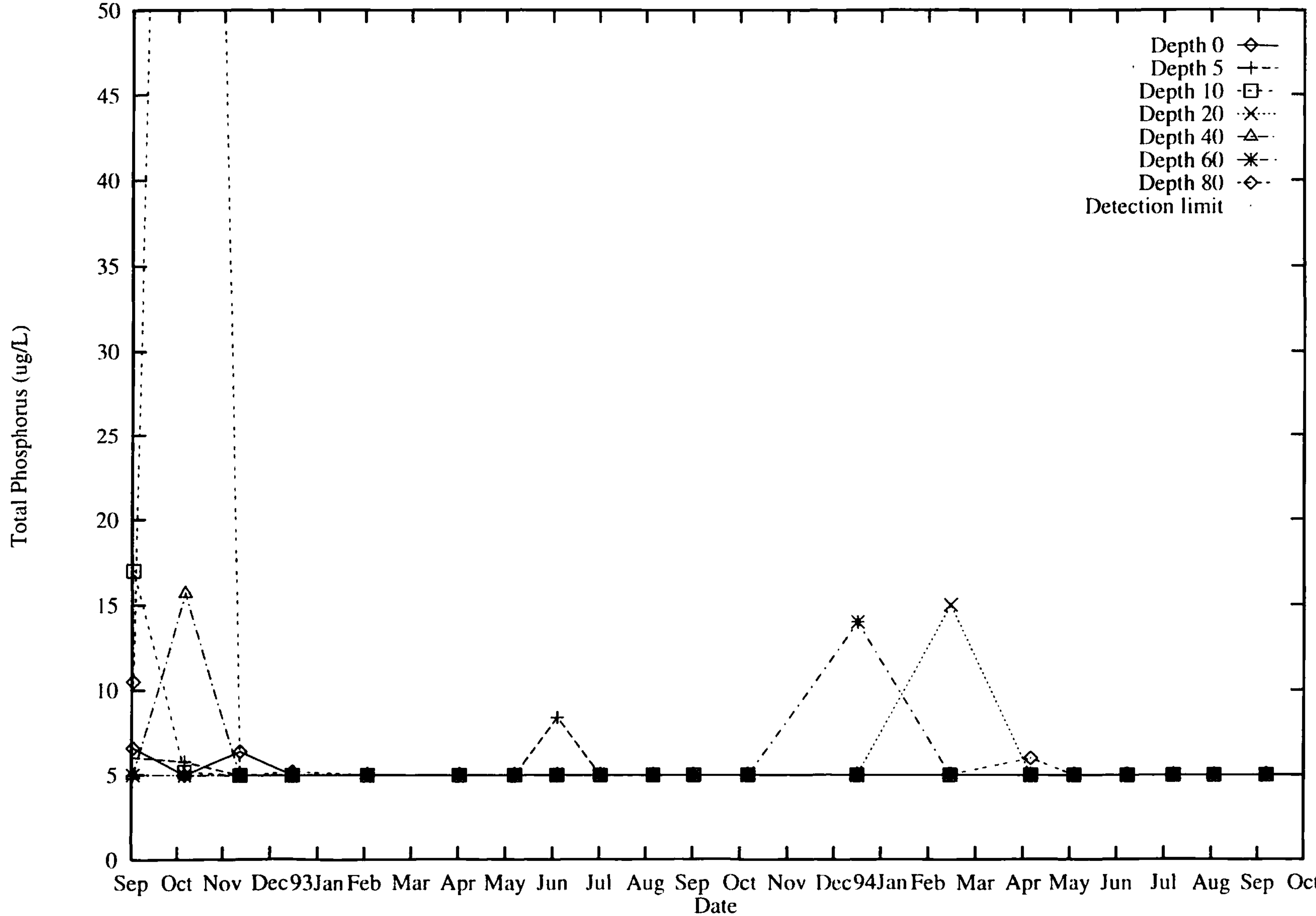


Figure 71: Lake Whatcom total phosphorus data for Site 4, September 1992 through September 1994.

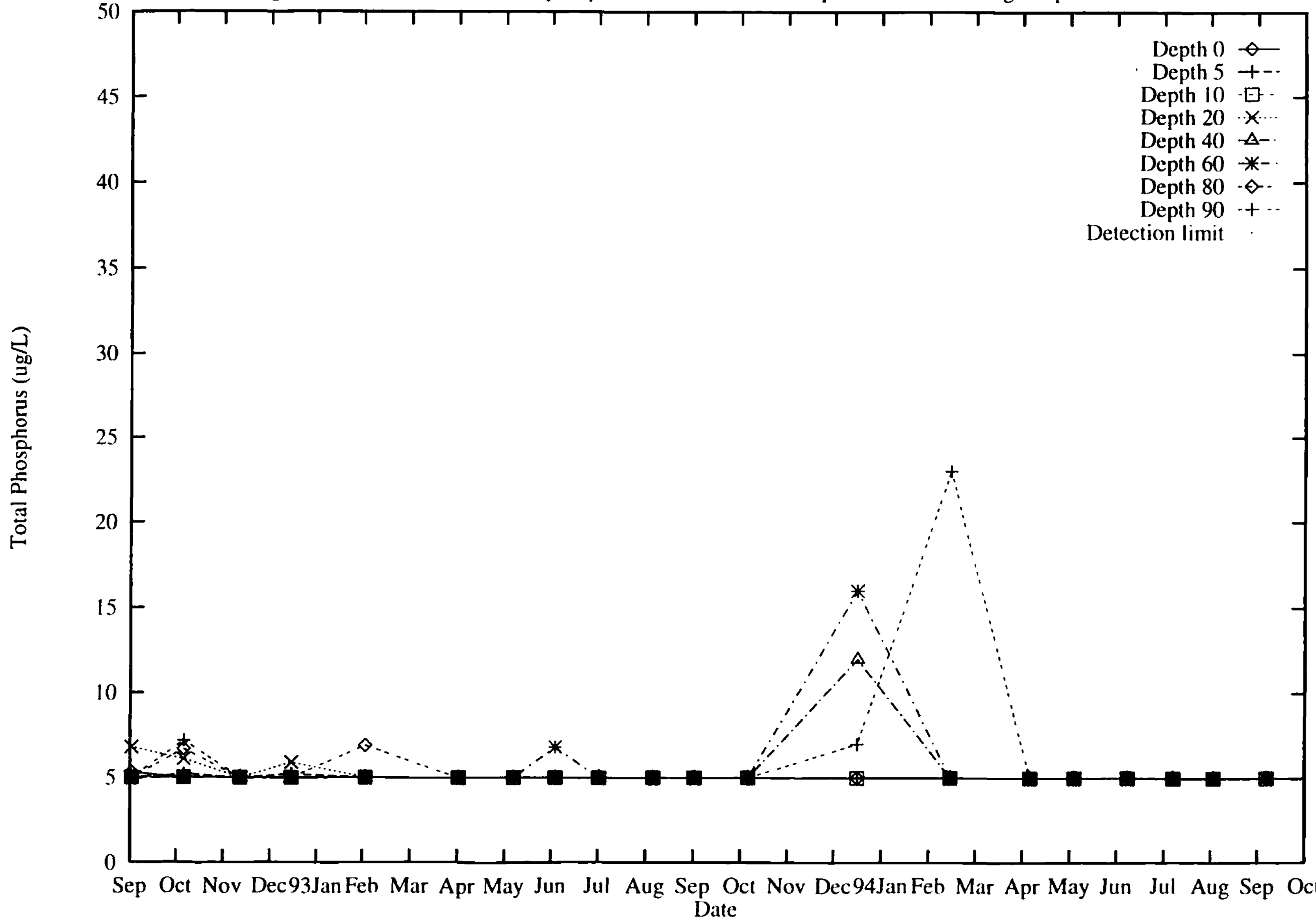


Figure 72: Lake Whatcom chlorophyll data for Site 1, September 1992 through September 1994.

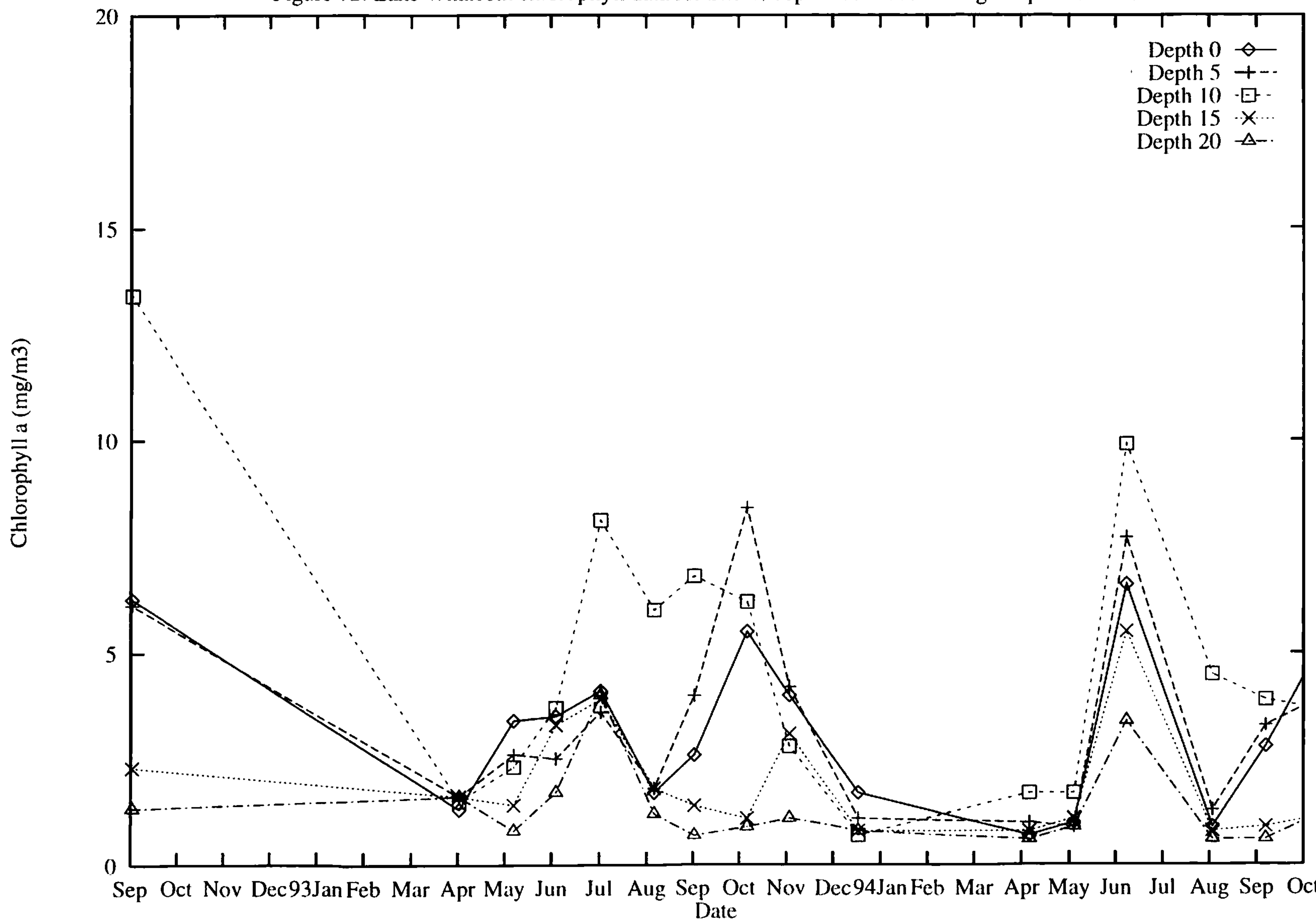


Figure 73: Lake Whatcom chlorophyll data for Site 2, September 1992 through September 1994.

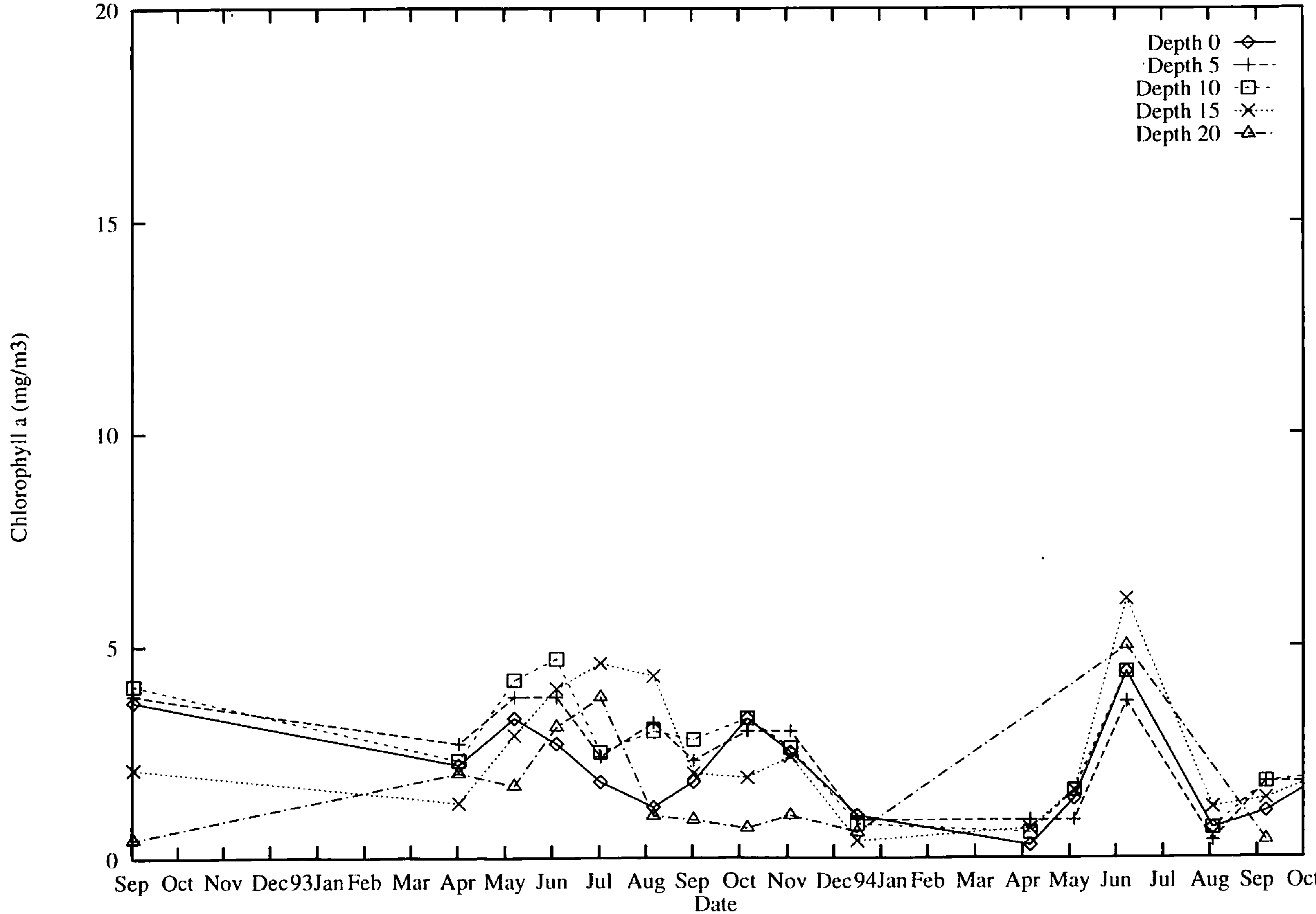


Figure 74: Lake Whatcom chlorophyll data for Intake site (basin 2), September 1992 through September 1994.

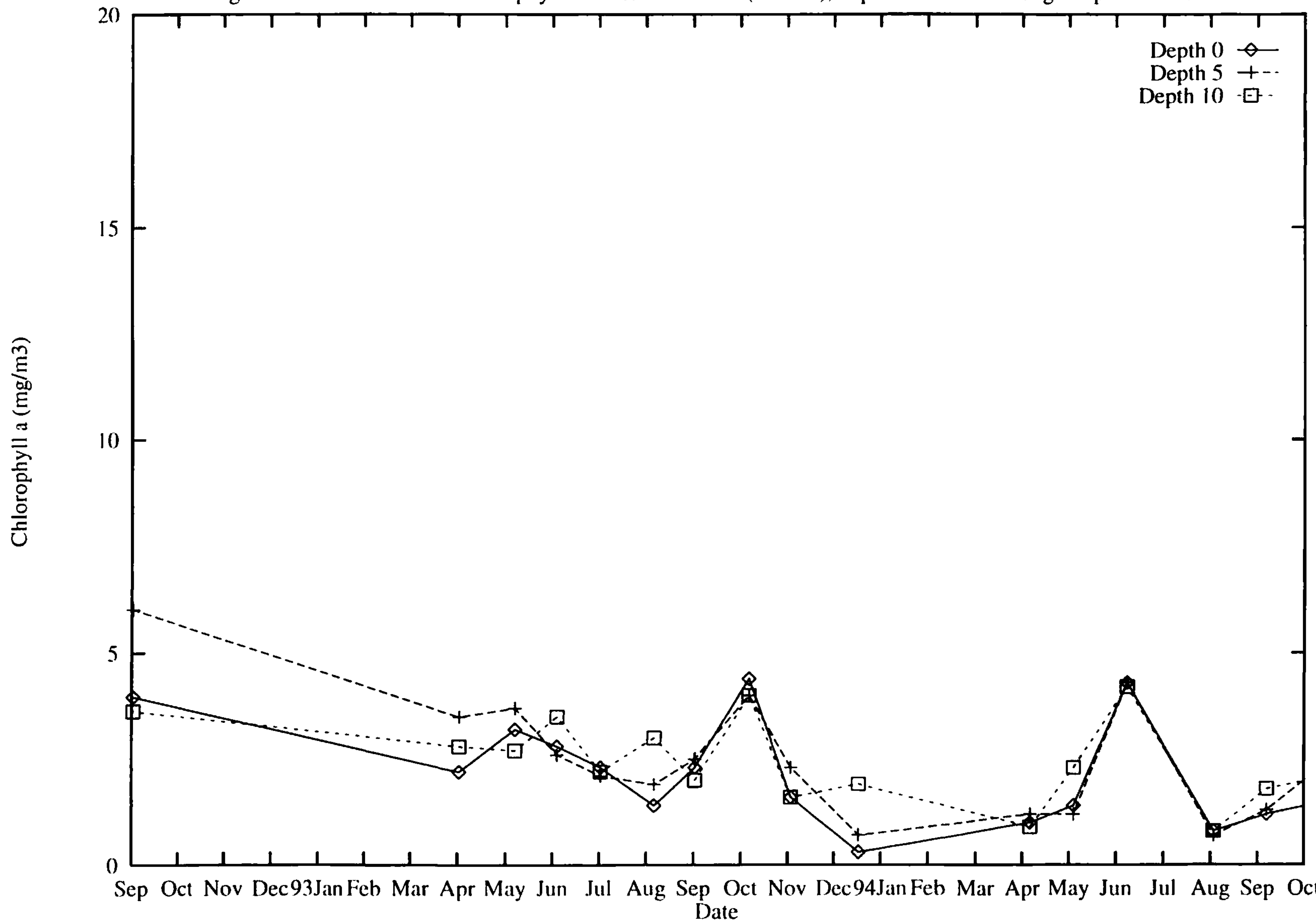


Figure 75: Lake Whatcom chlorophyll data for Site 3, September 1992 through September 1994.

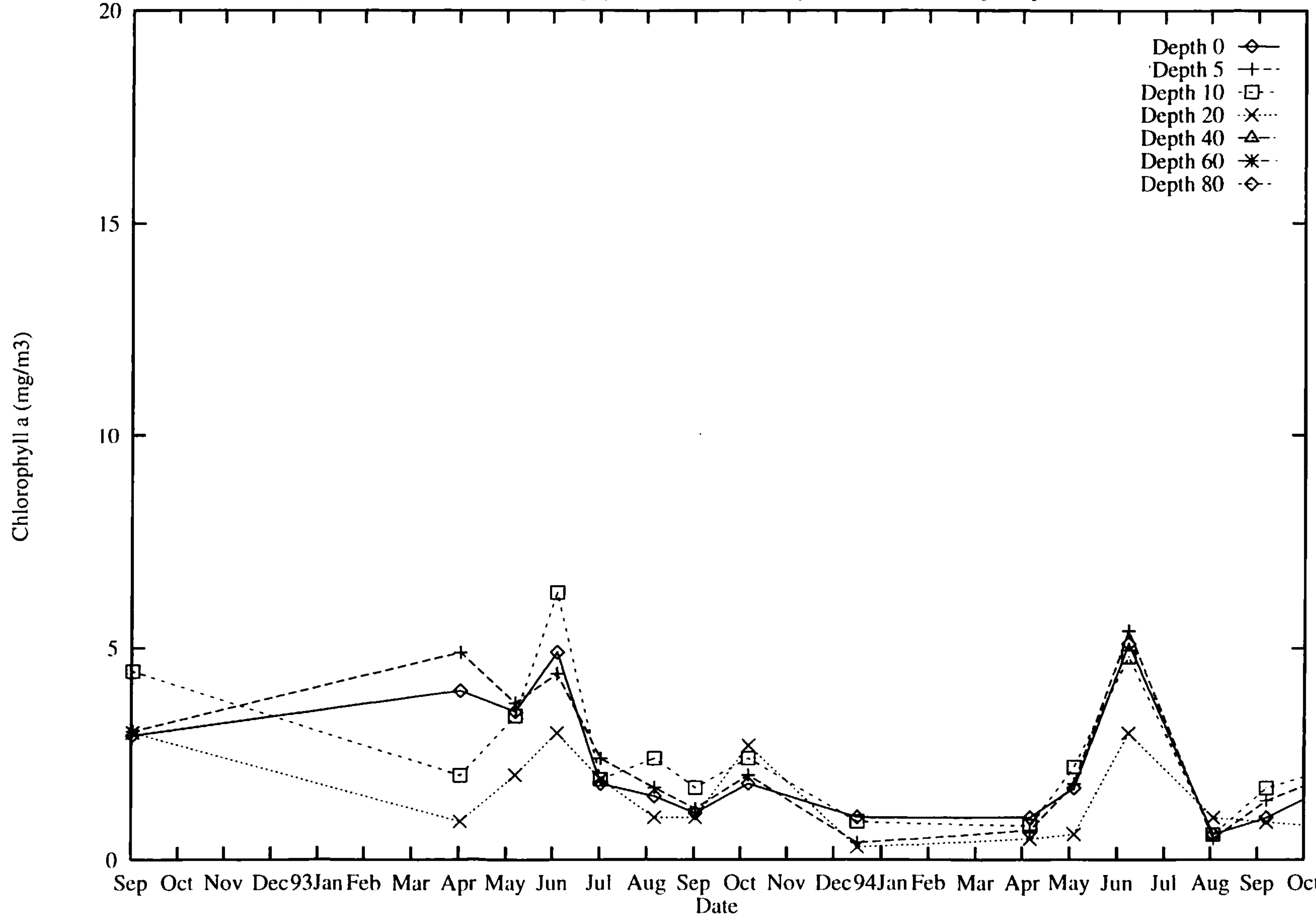


Figure 76: Lake Whatcom chlorophyll data for Site 4, September 1992 through September 1994.

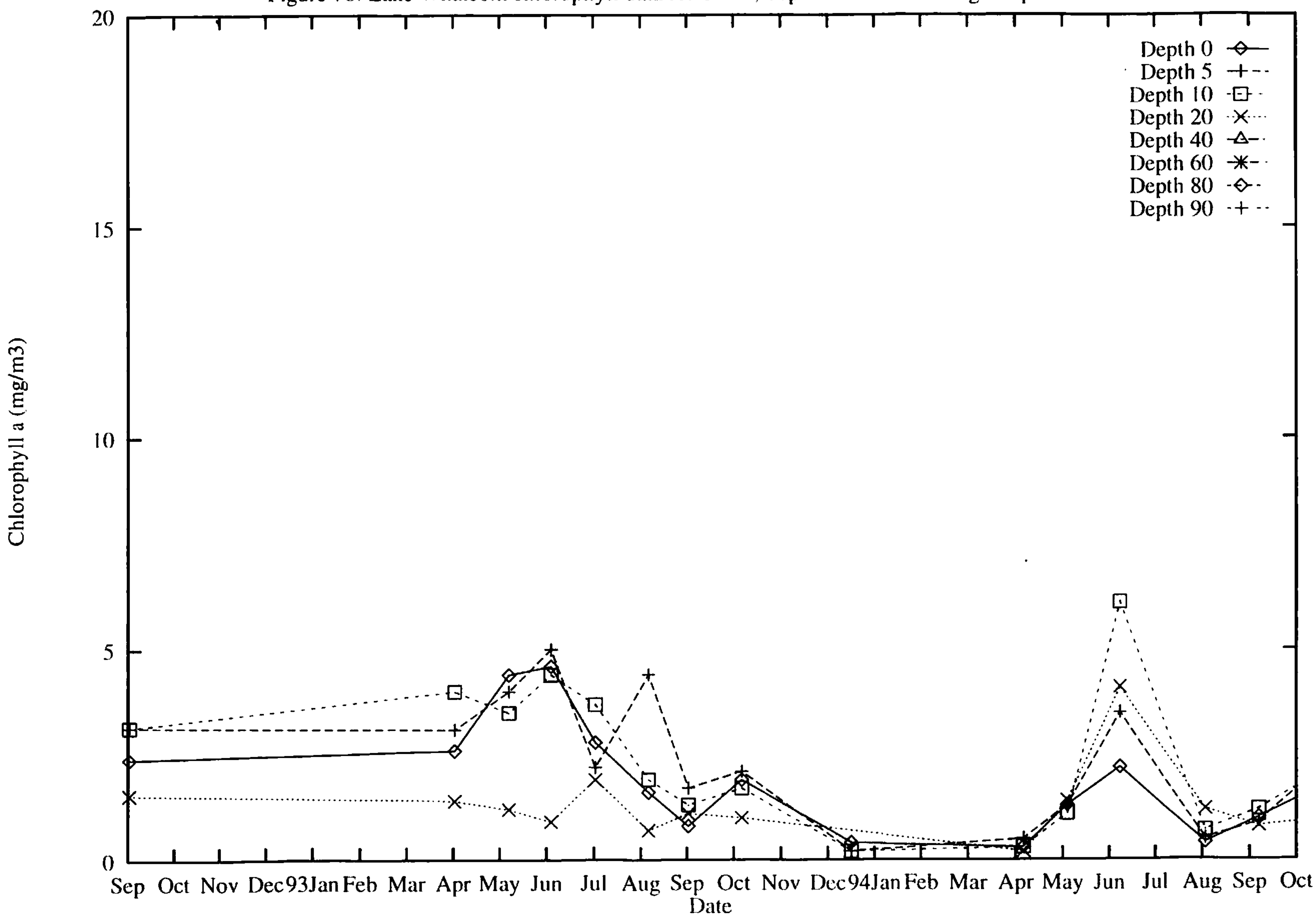


Figure 77: Lake Whatcom total coliform data for Site 1, November 1992 through November 1994.

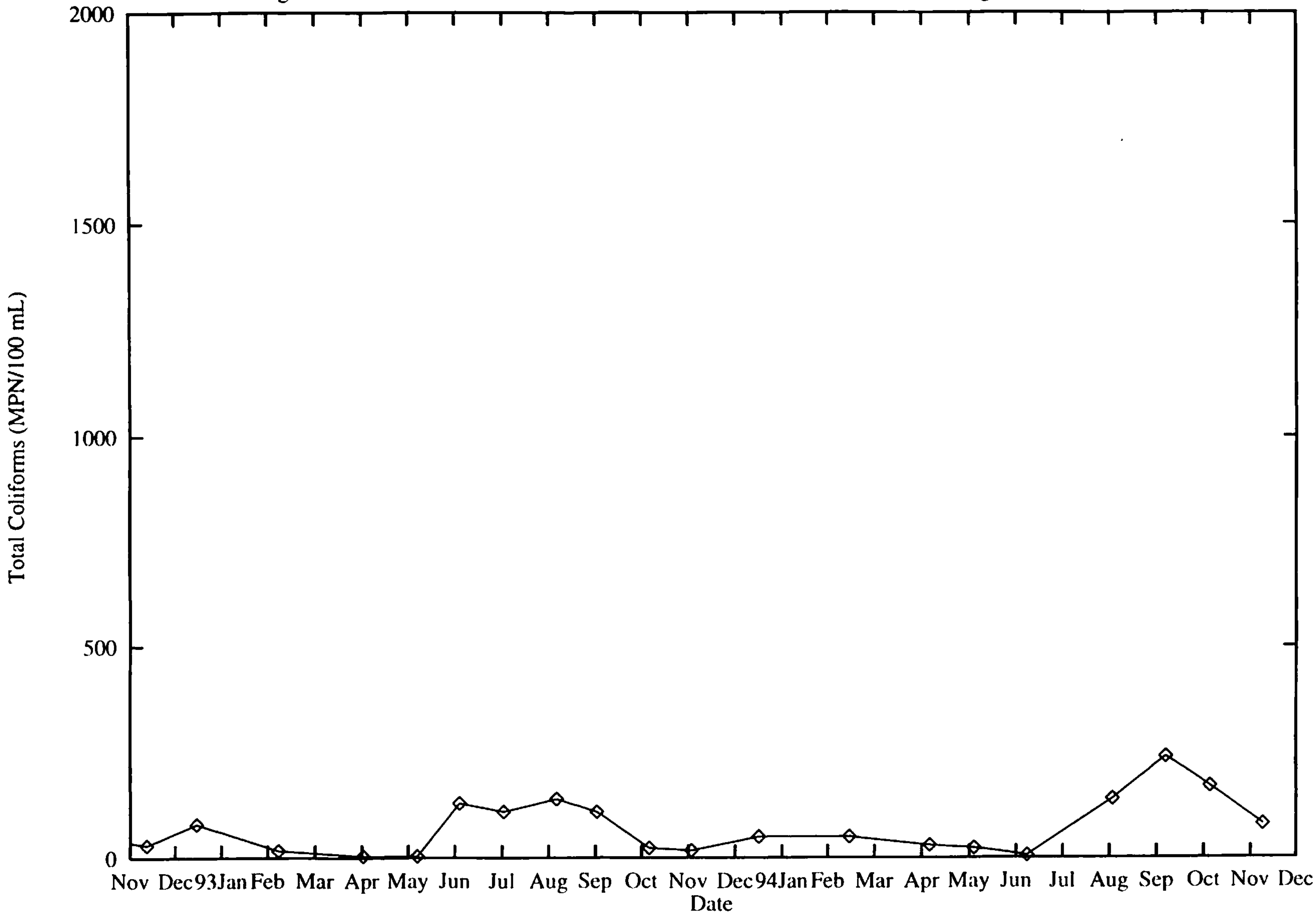


Figure 78: Lake Whatcom total coliform data for Site 2, November 1992 through November 1994.

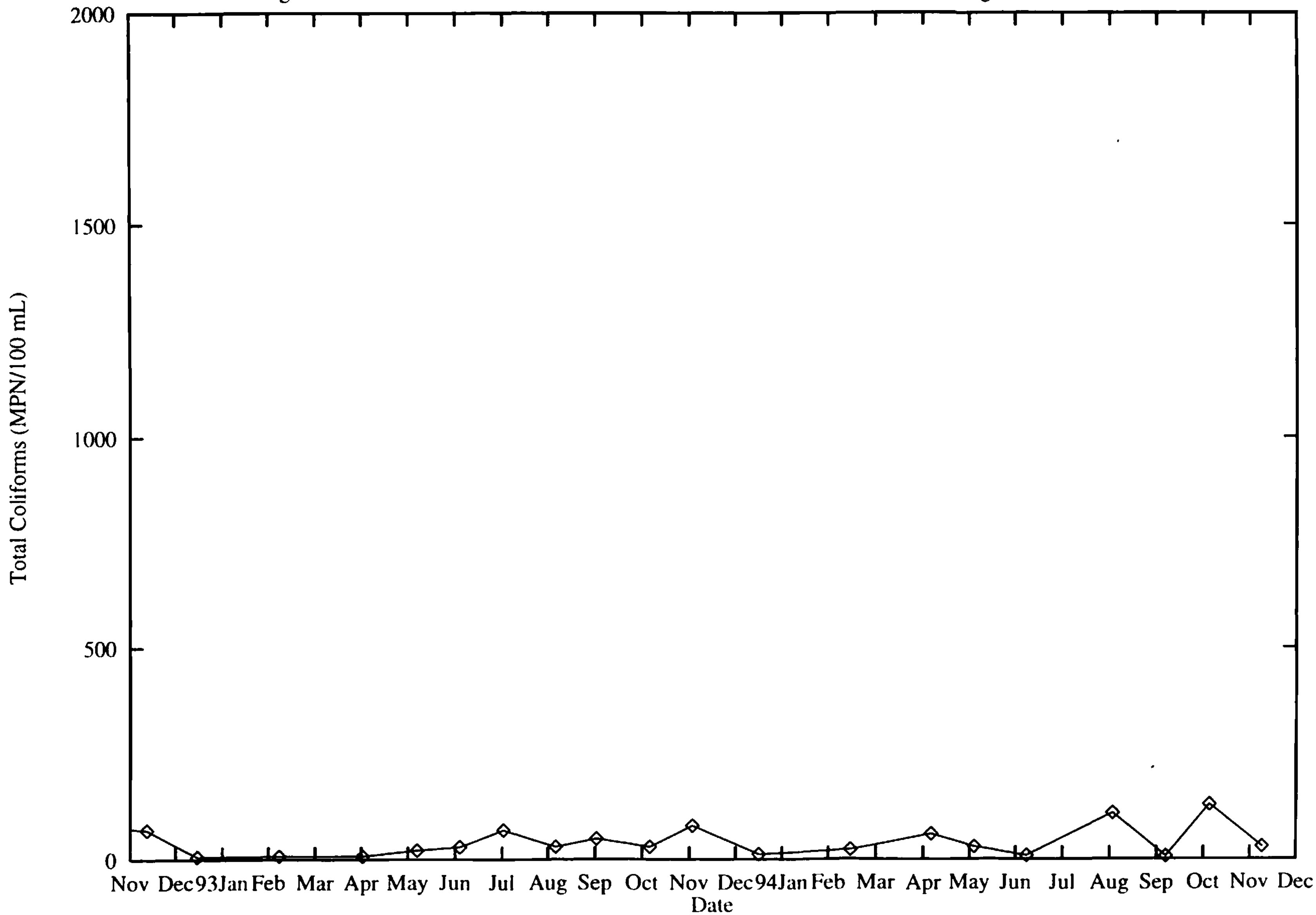


Figure 79: Lake Whatcom total coliform data for Intake site (basin 2), November 1992 through November 1994.

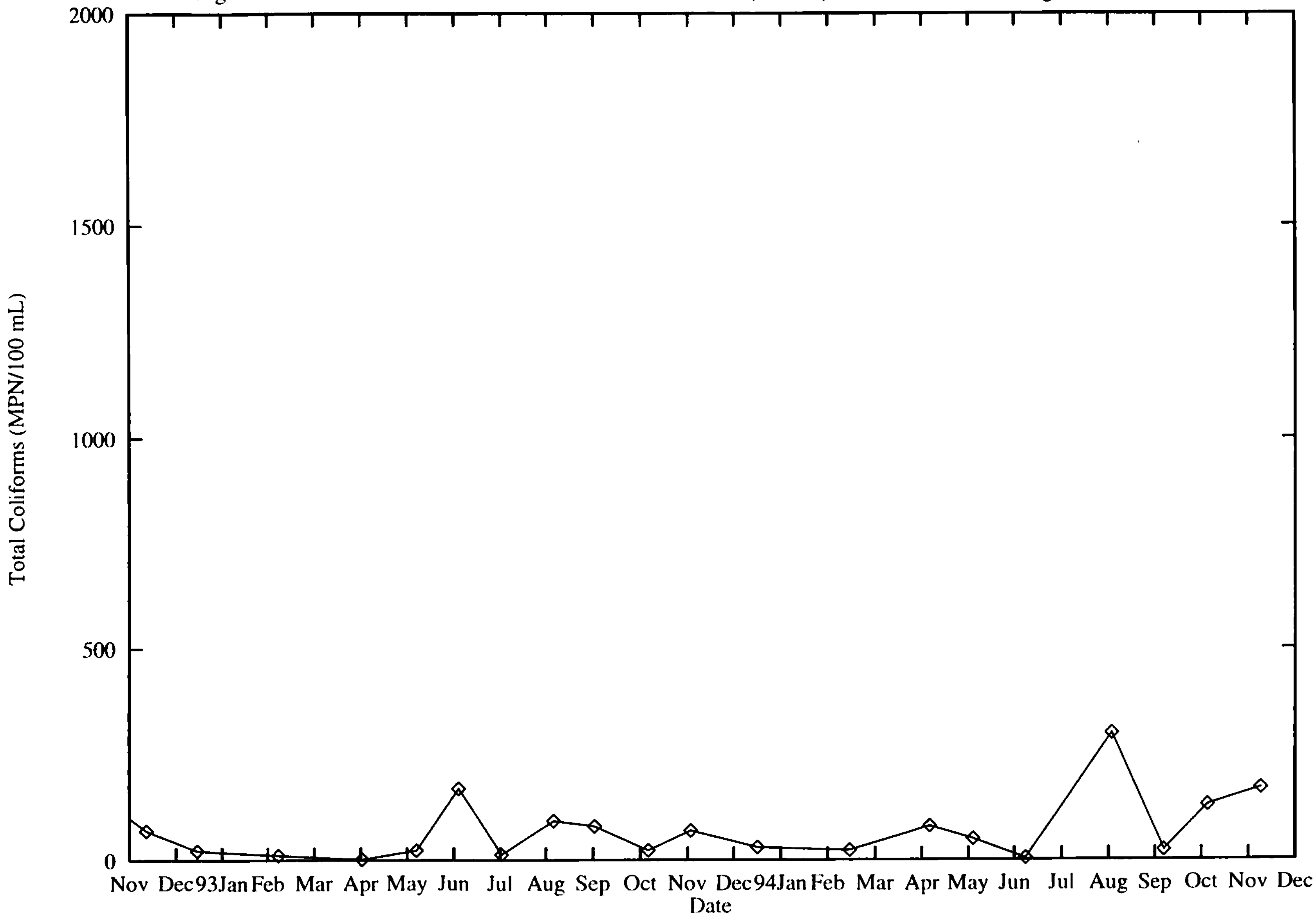


Figure 80: Lake Whatcom total coliform data for Site 3, November 1992 through November 1994.

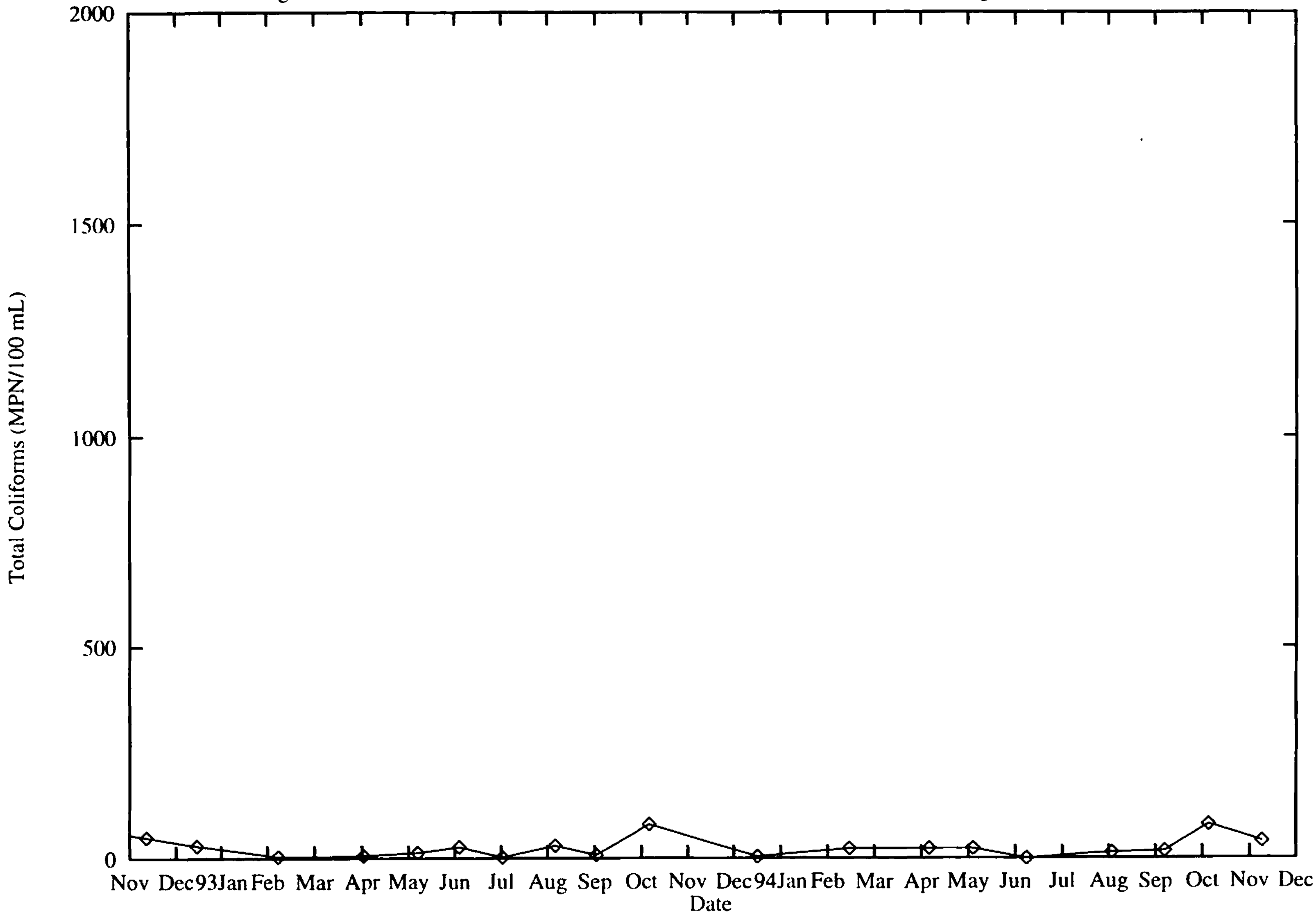


Figure 81: Lake Whatcom total coliform data for Site 4, November 1992 through November 1994.

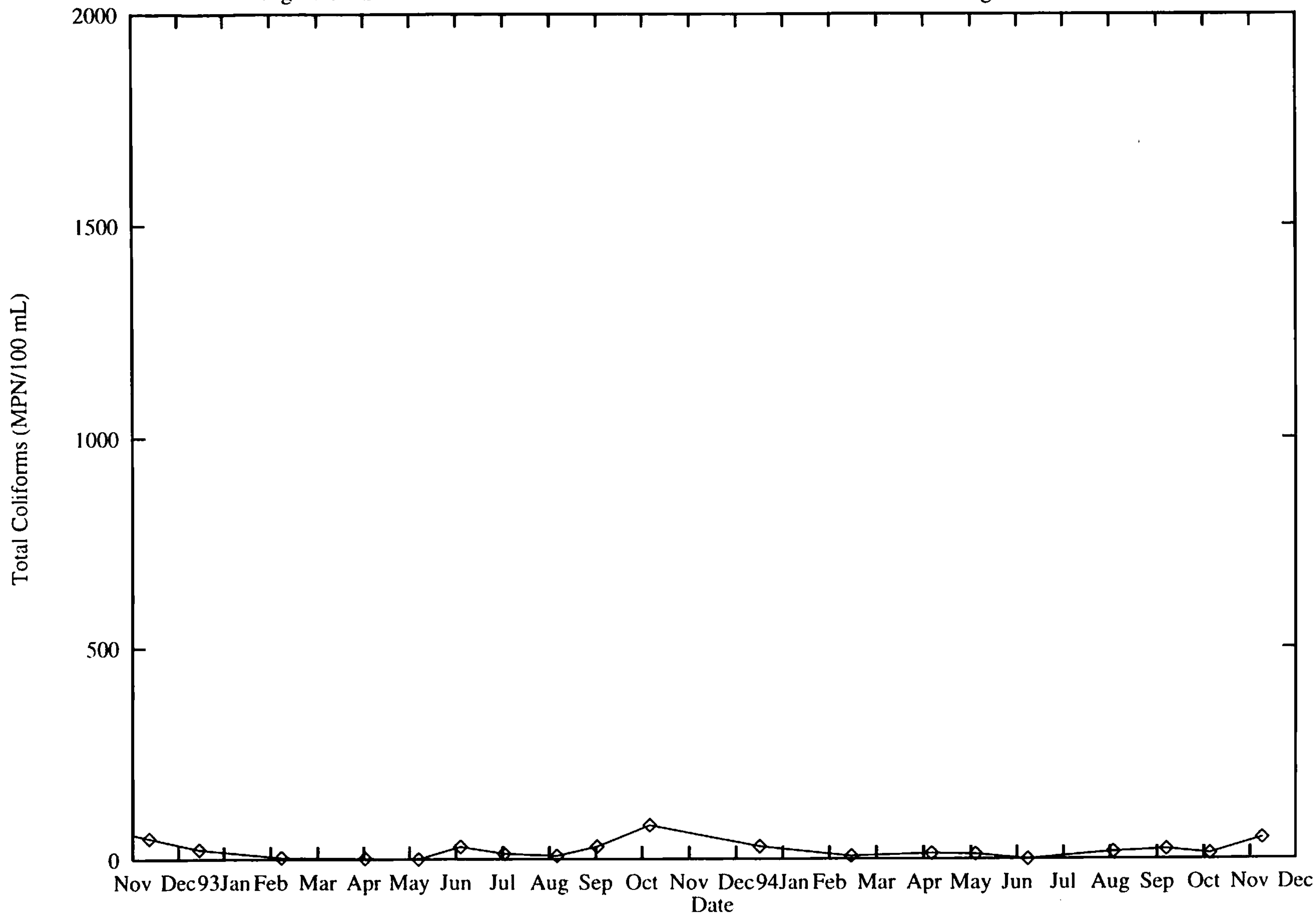


Figure 82: Lake Whatcom fecal coliform data for Site 1, November 1992 through November 1994.

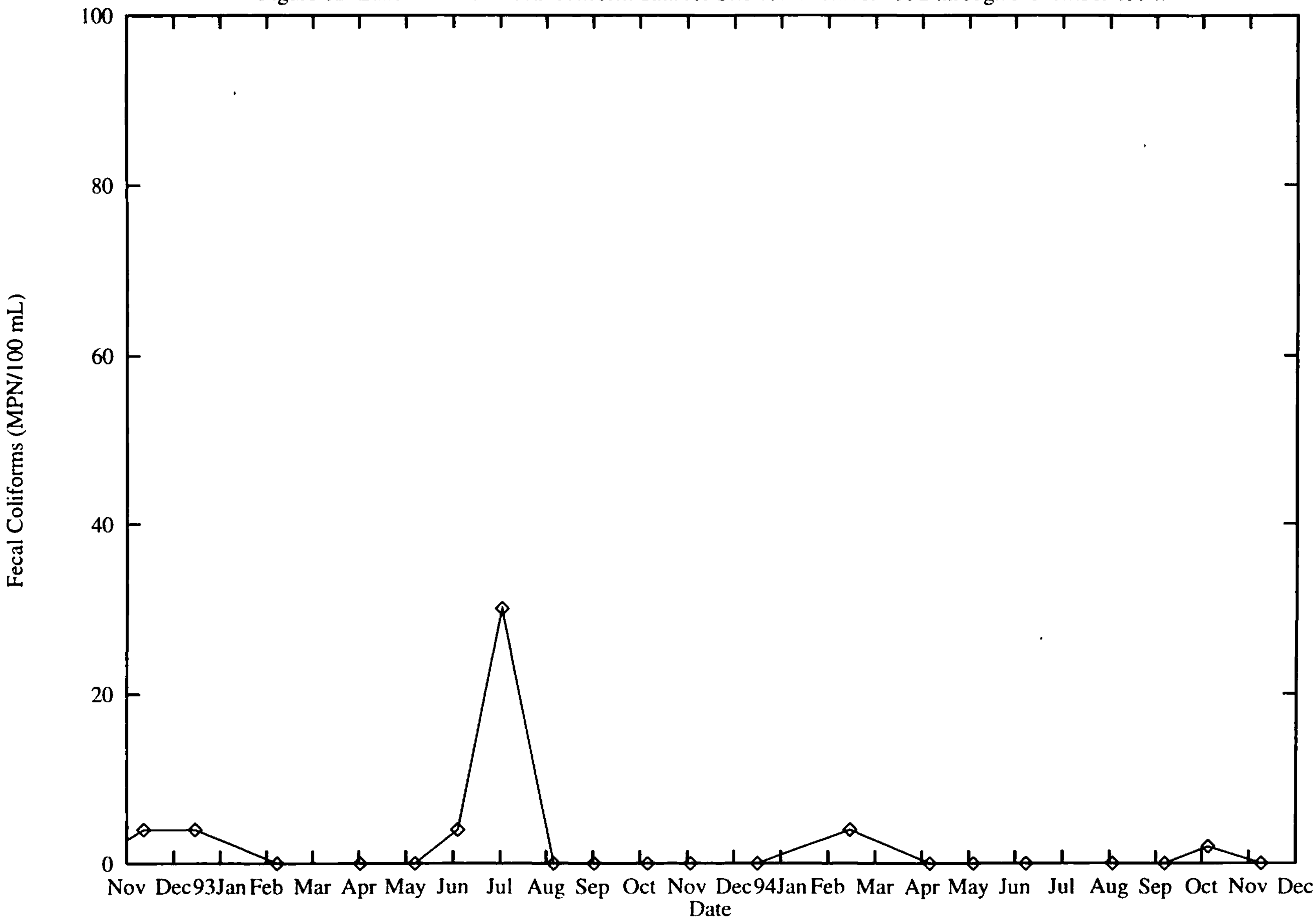


Figure 83: Lake Whatcom fecal coliform data for Site 2, November 1992 through November 1994.

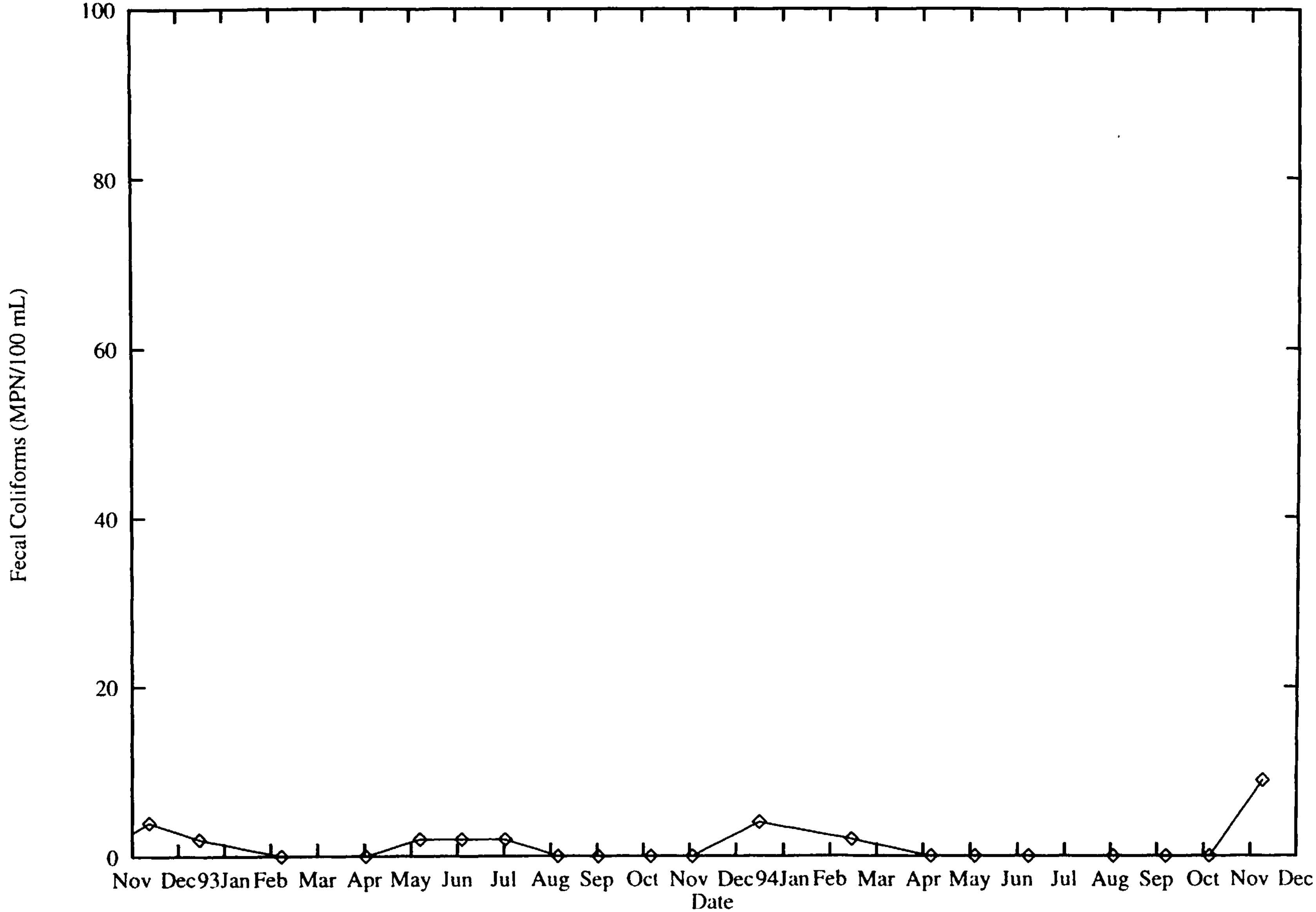


Figure 84: Lake Whatcom fecal coliform data for Intake site (basin 2), November 1992 through November 1994.

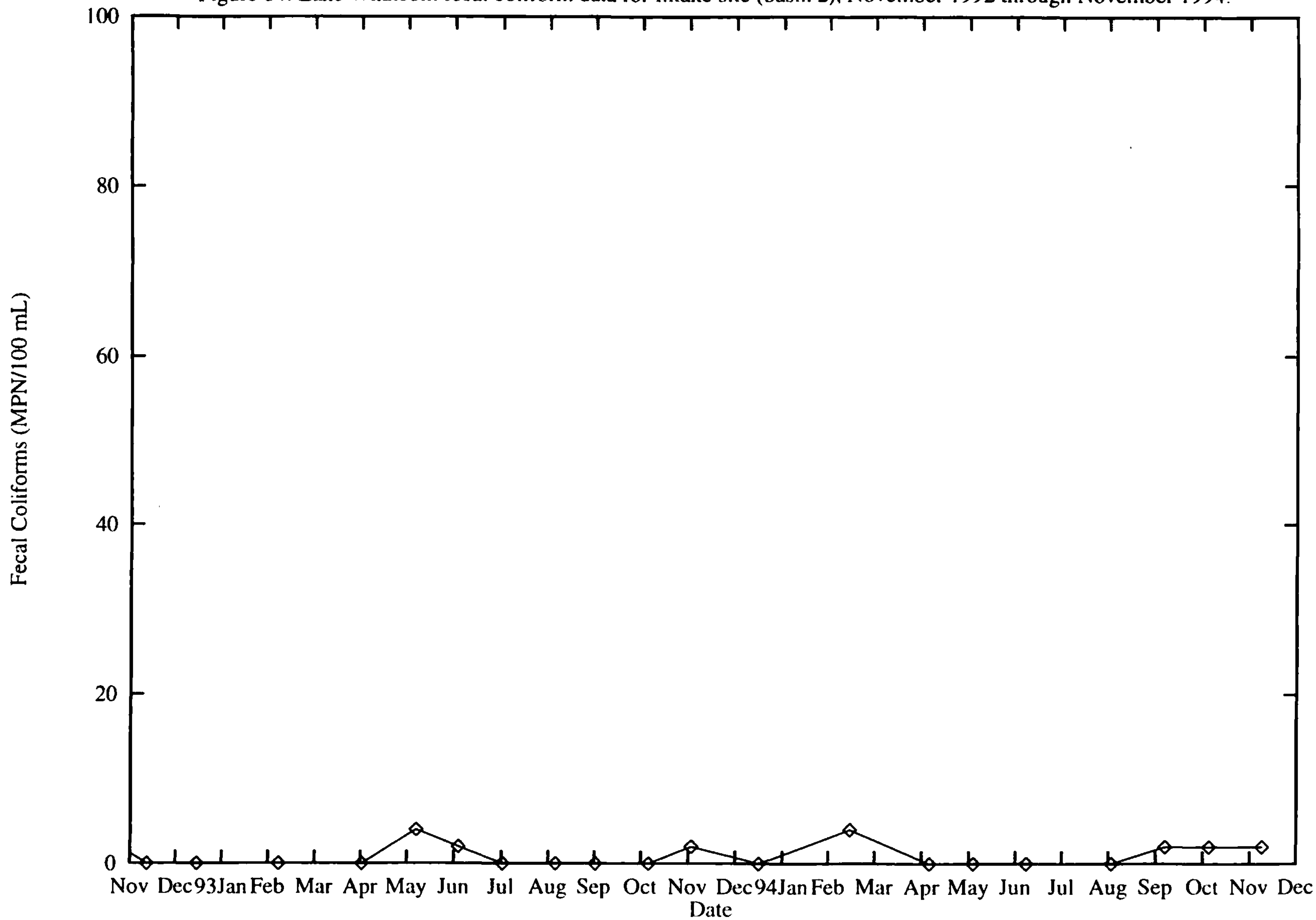


Figure 85: Lake Whatcom fecal coliform data for Site 3, November 1992 through November 1994.

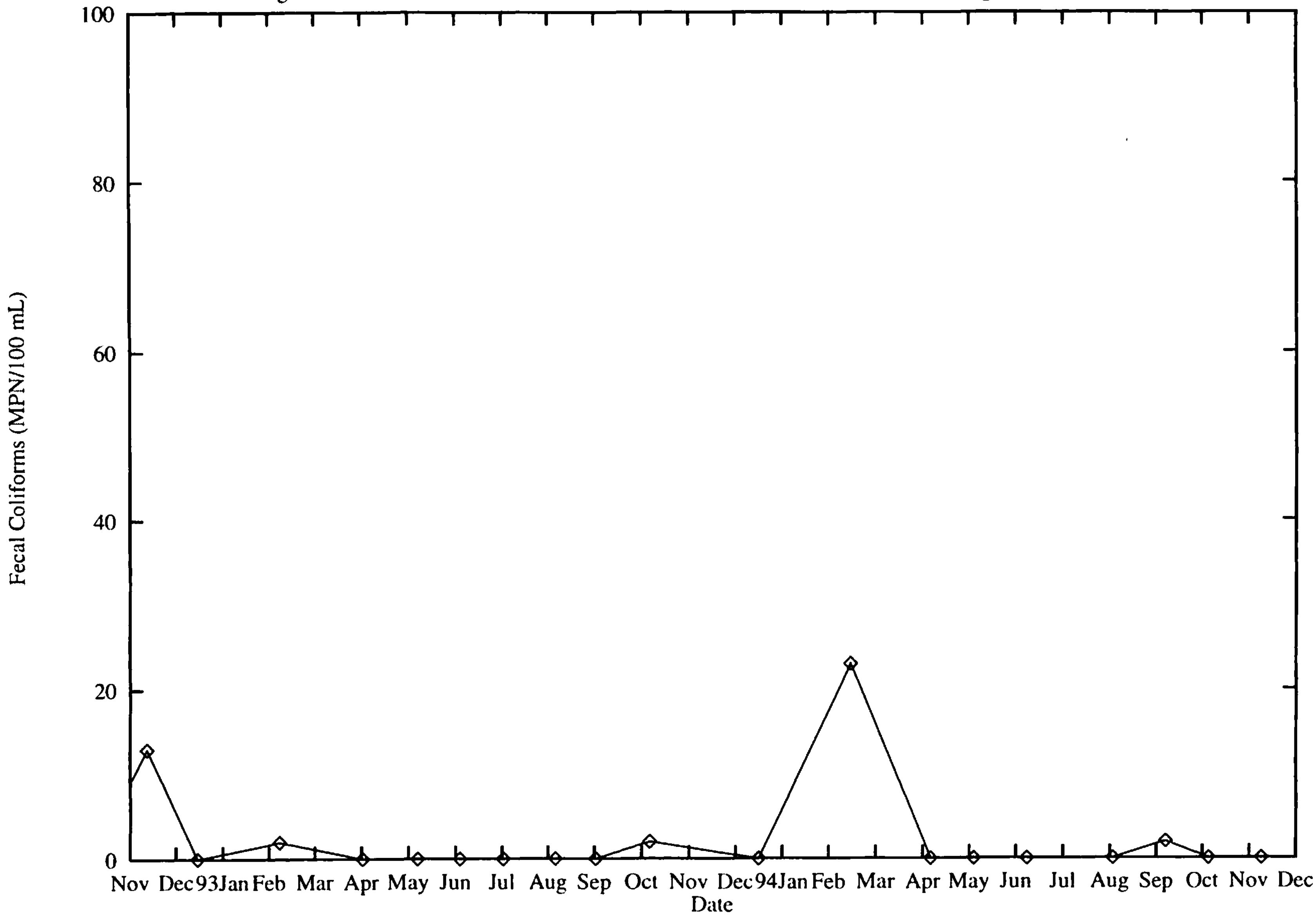


Figure 86: Lake Whatcom fecal coliform data for Site 4. November 1992 through November 1994.

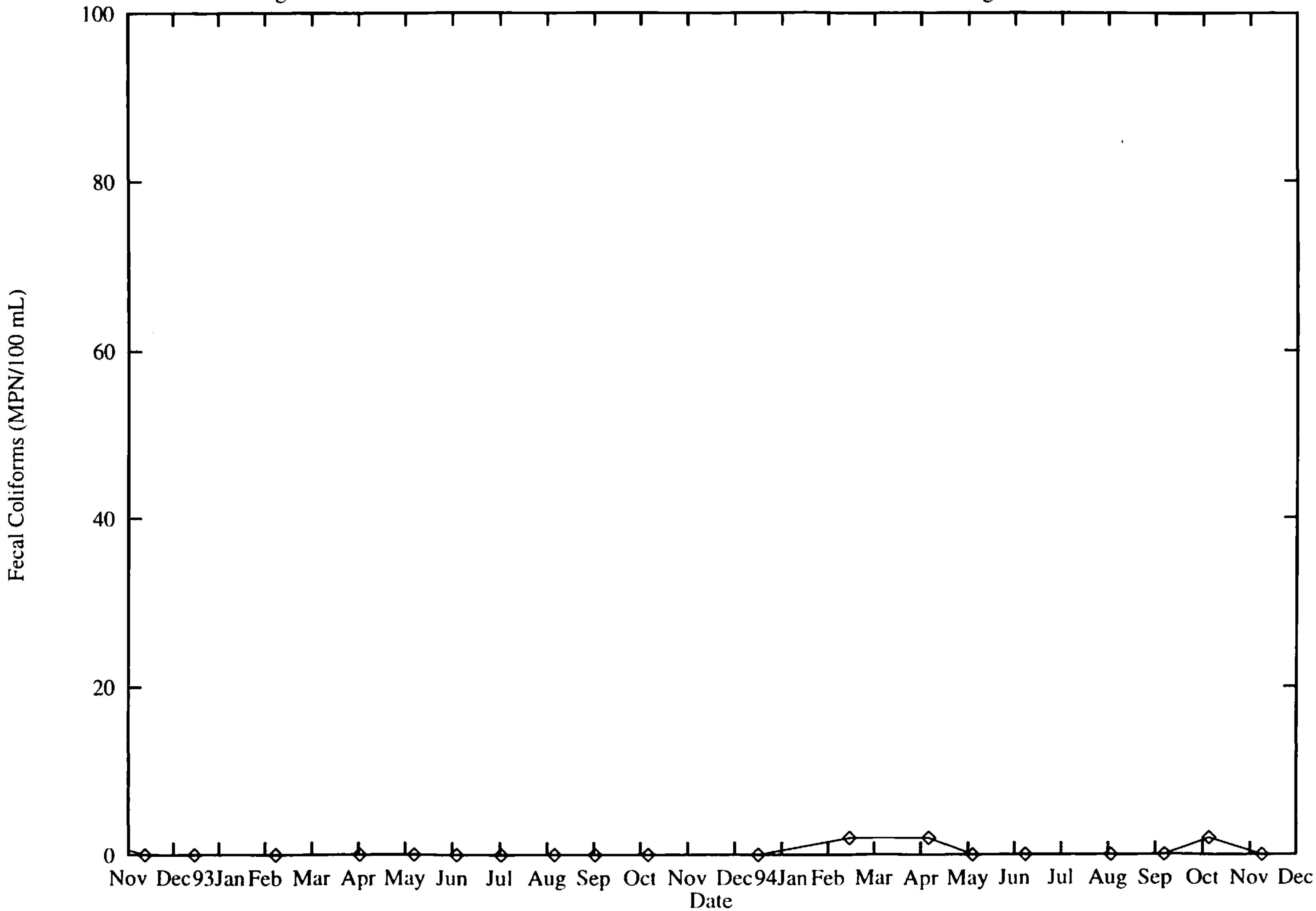


Figure 87: Lake Whatcom Plankton Data, Site 1, September 1992 through September 1994.

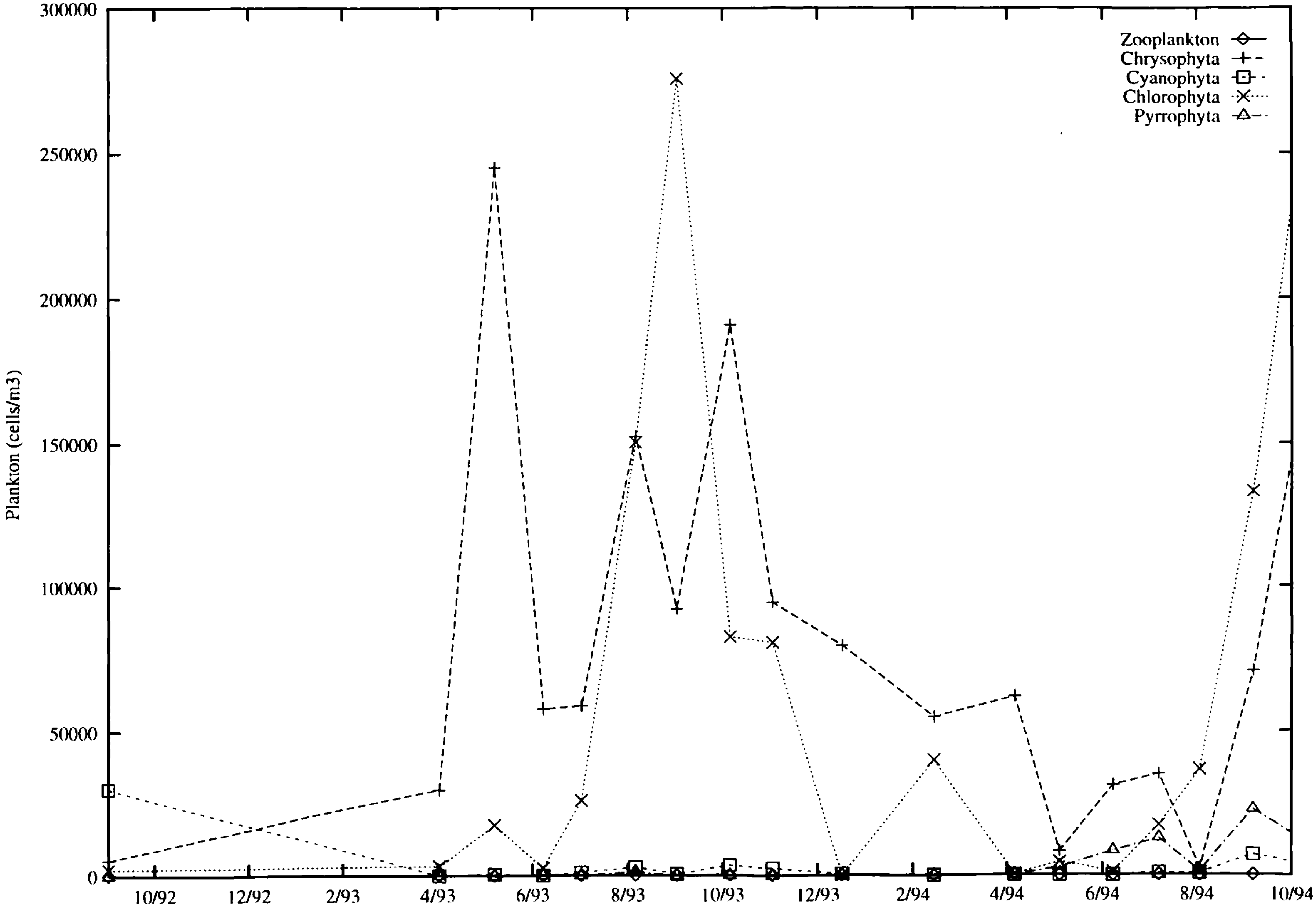


Figure 88: Lake Whatcom Plankton Data. Site 2. September 1992 through September 1994.

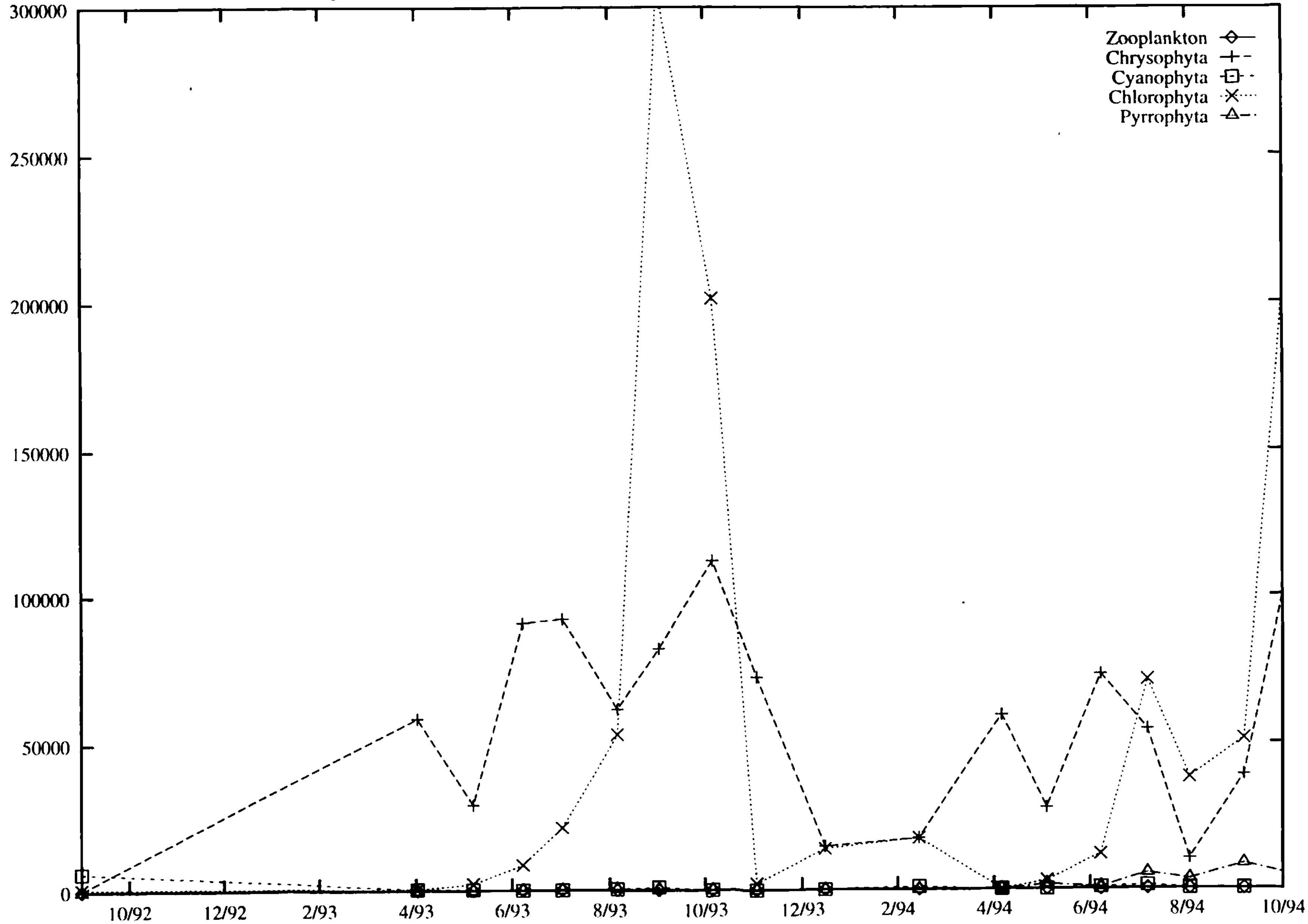


Figure 89: Lake Whatcom Plankton Data, Intake, September 1992 through September 1994.

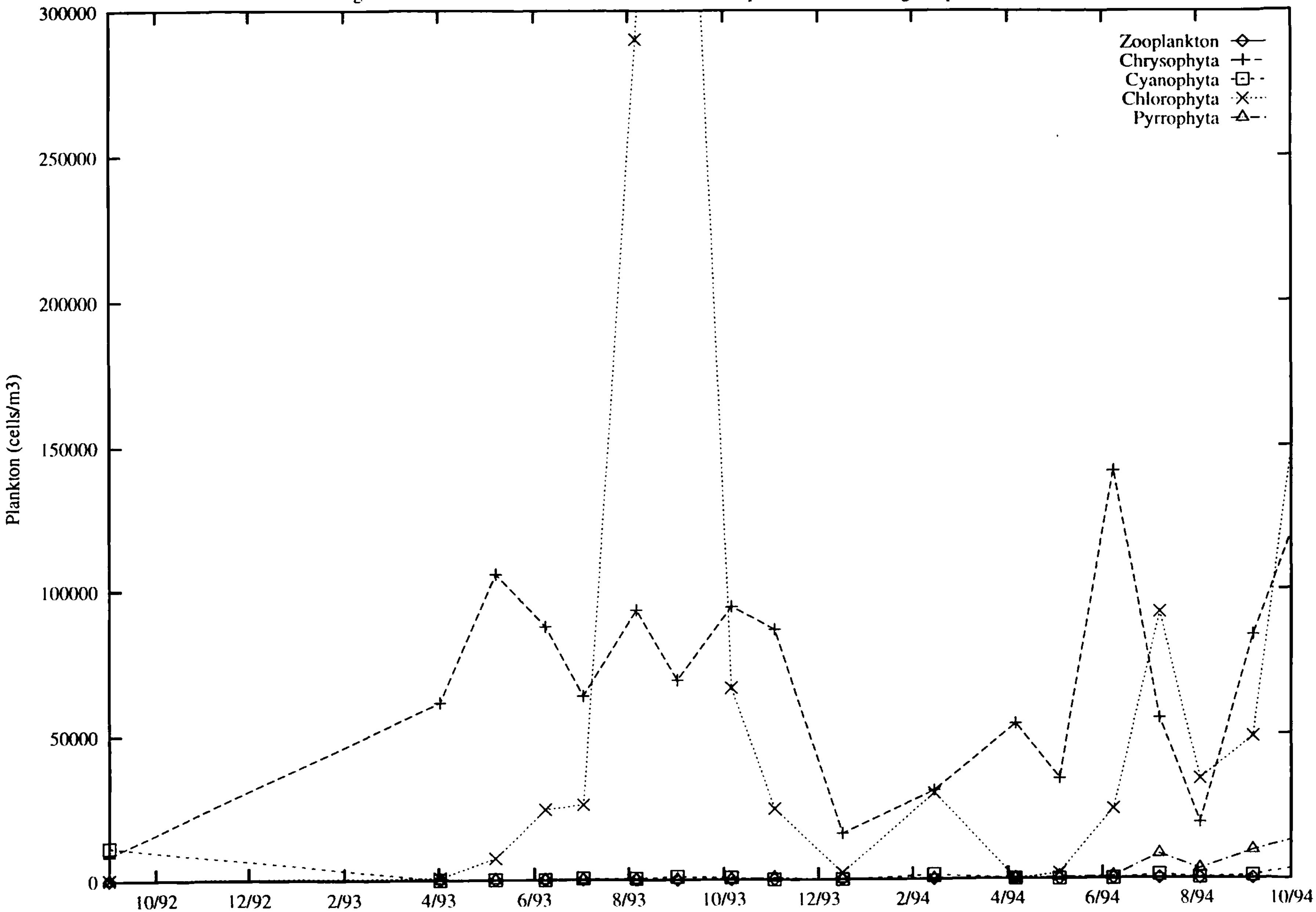


Figure 90: Lake Whatcom Plankton Data, Site 3, September 1992 through September 1994.

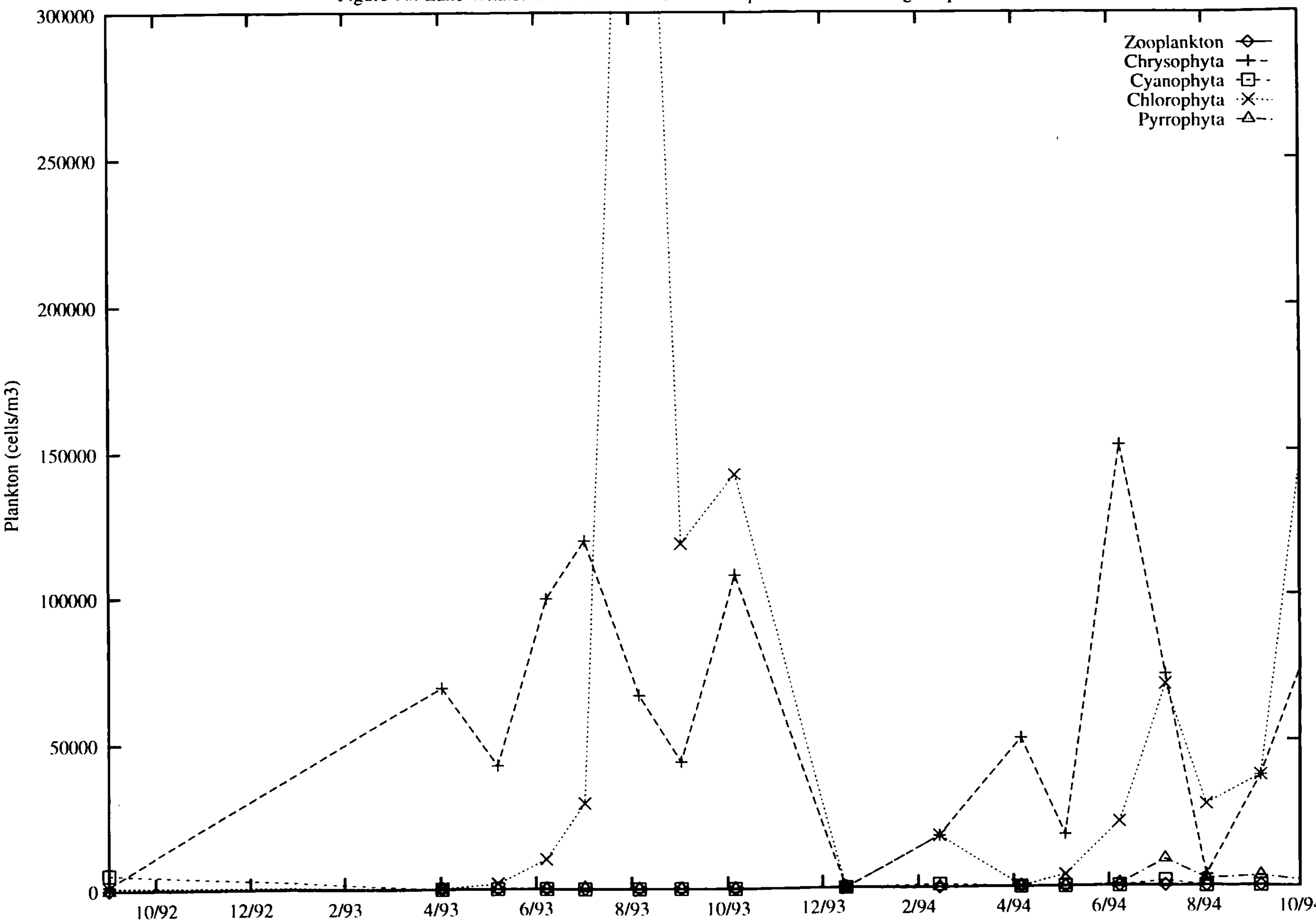


Figure 91: Lake Whatcom Plankton Data, Site 4, September 1992 through September 1994.

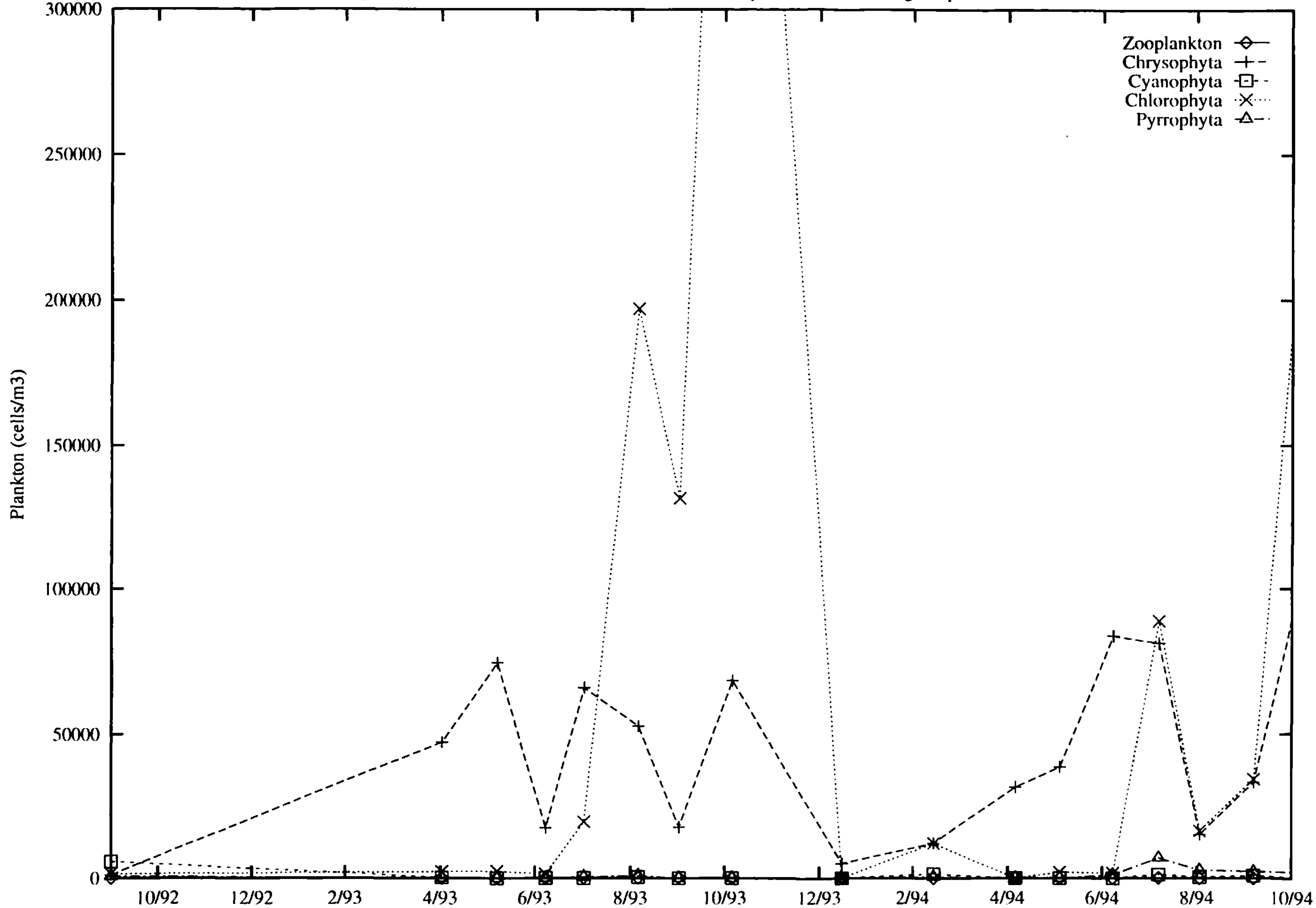


Figure 92: Lake Whatcom total bacteria data for Site 1, September 1992 through September 1994.

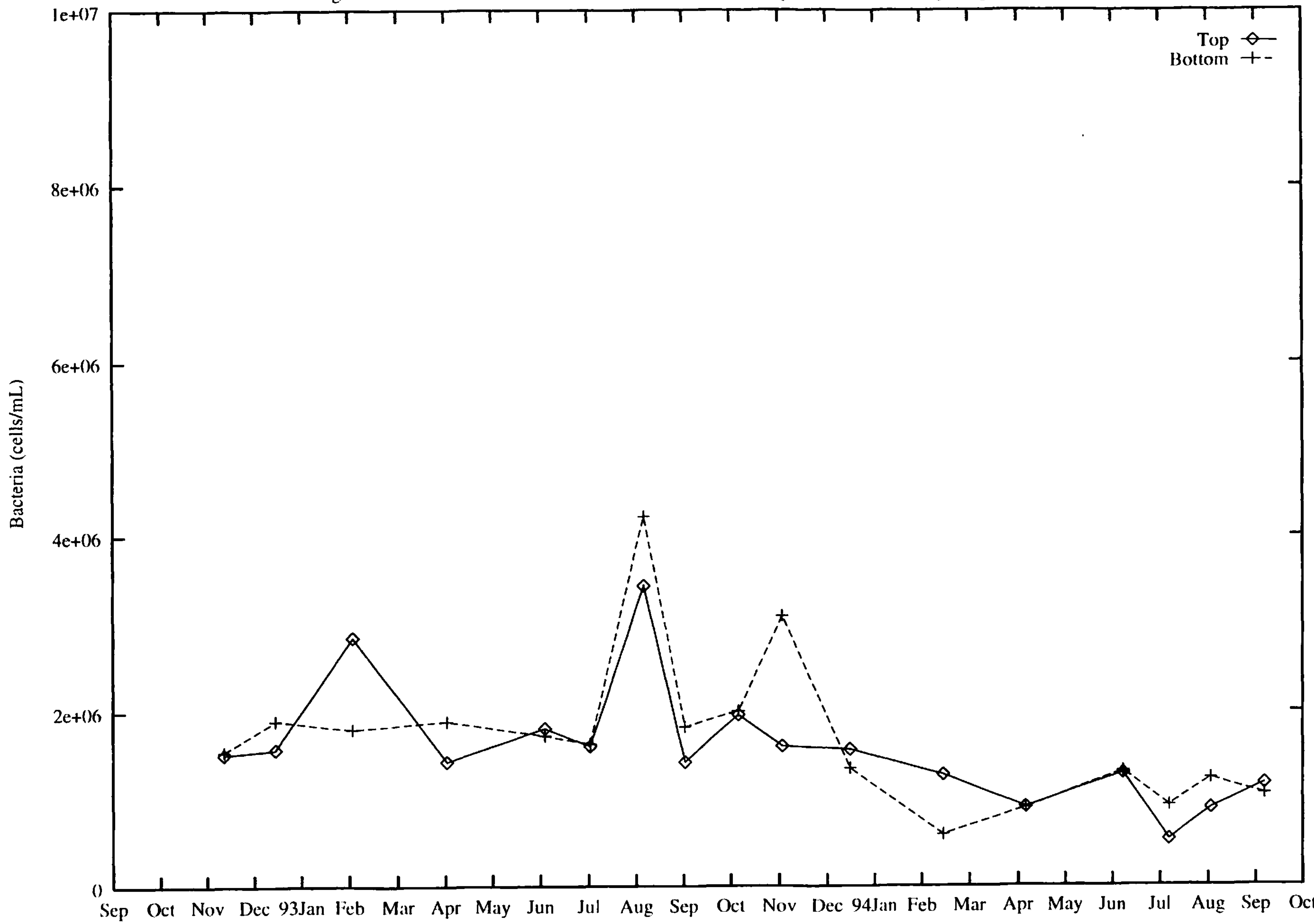


Figure 93: Lake Whatcom total bacteria data for Site 2, September 1992 through September 1994.

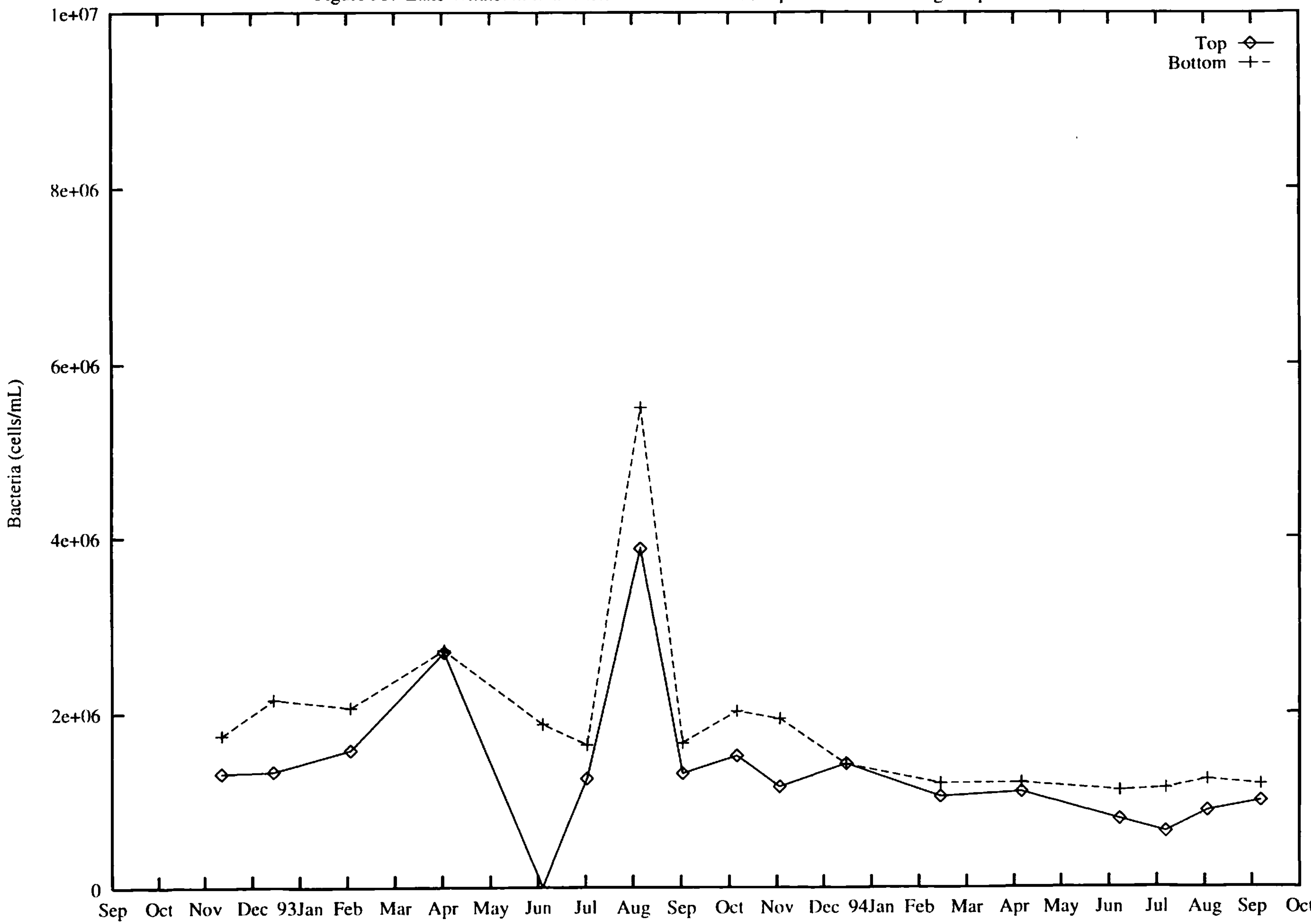


Figure 94: Lake Whatcom total bacteria data for Intake site (basin 2), September 1992 through September 1994.

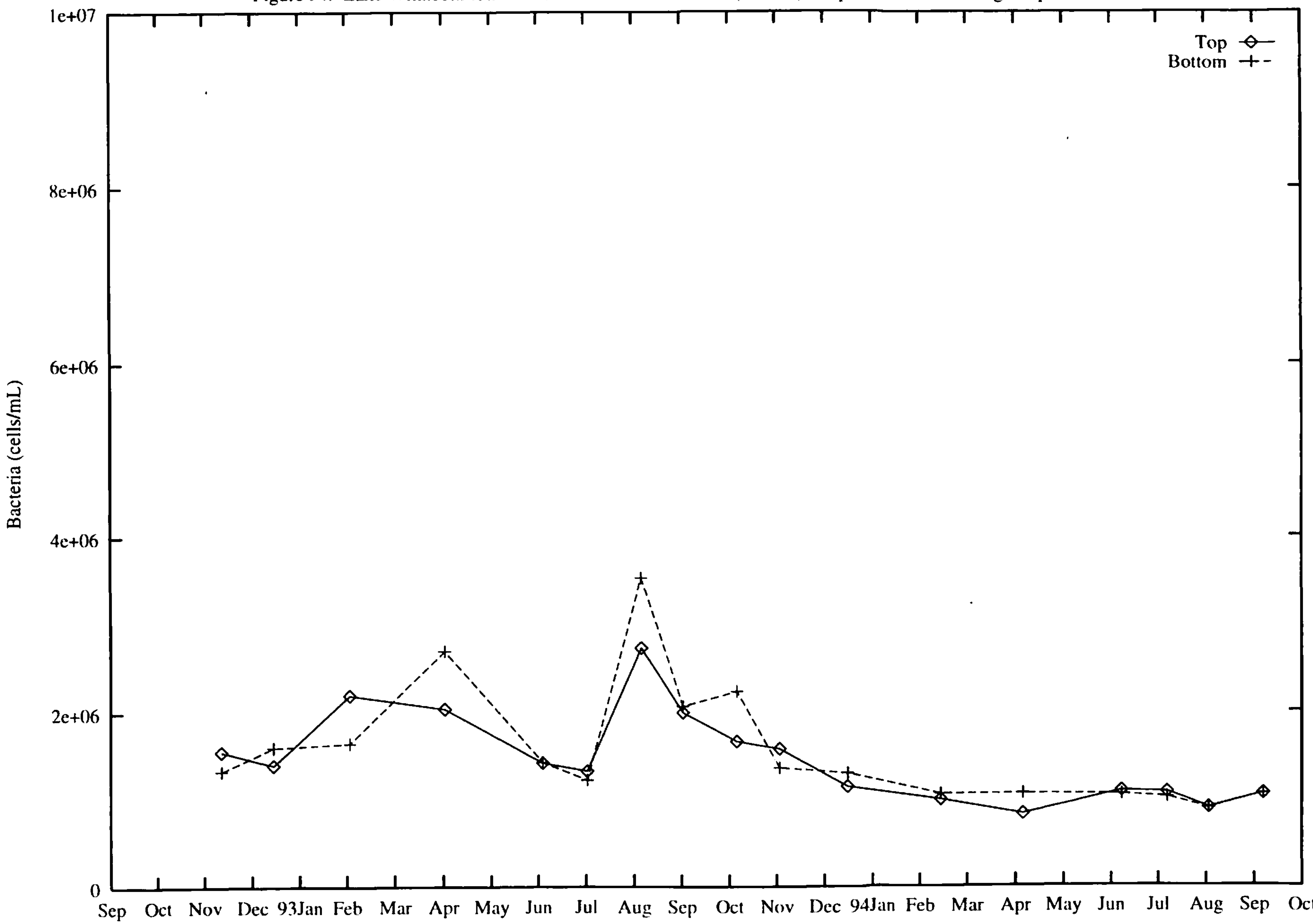


Figure 95: Lake Whatcom total bacteria data for Site 3, September 1992 through September 1994.

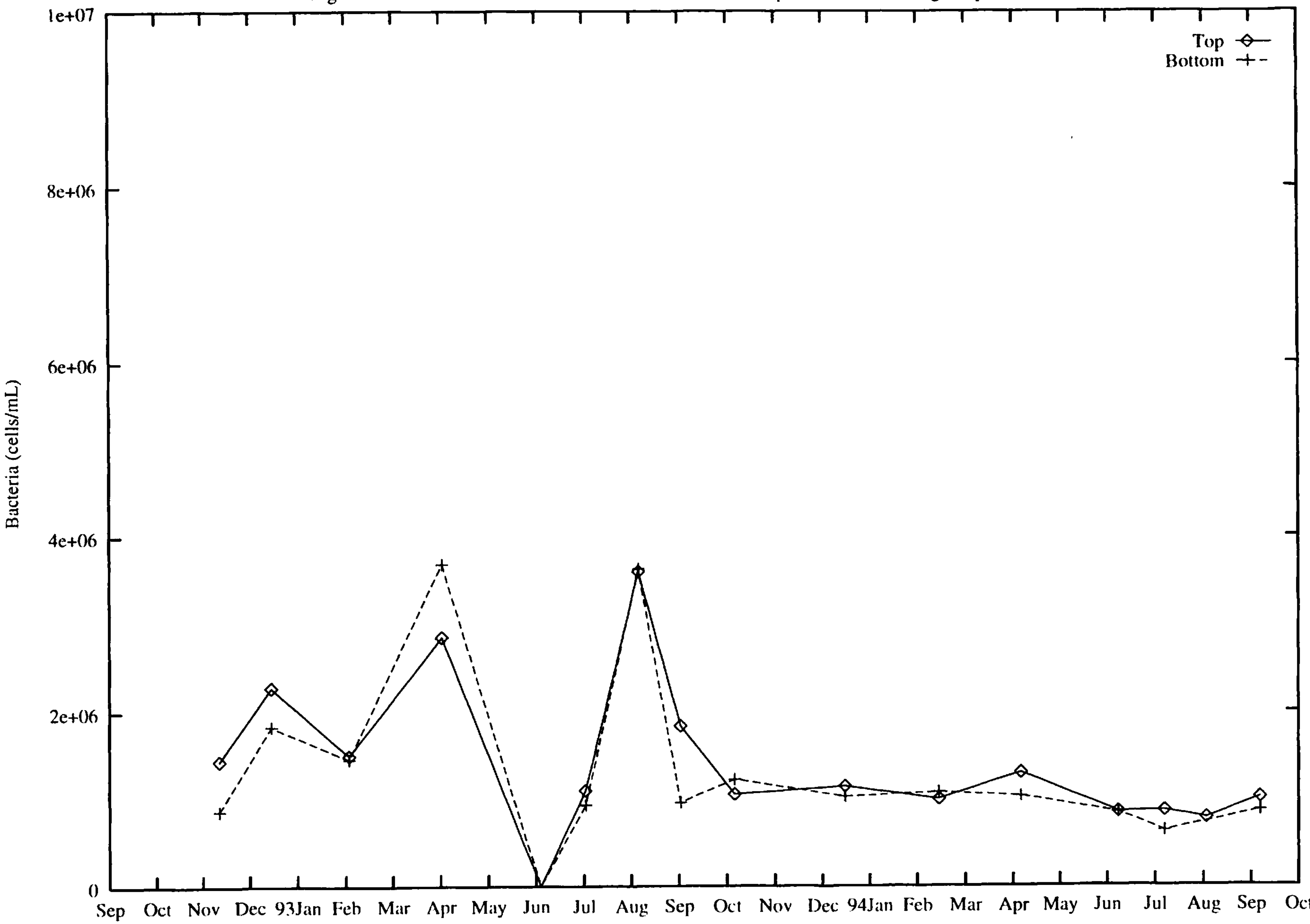


Figure 96: Lake Whatcom total bacteria data for Site 4, September 1992 through September 1994.

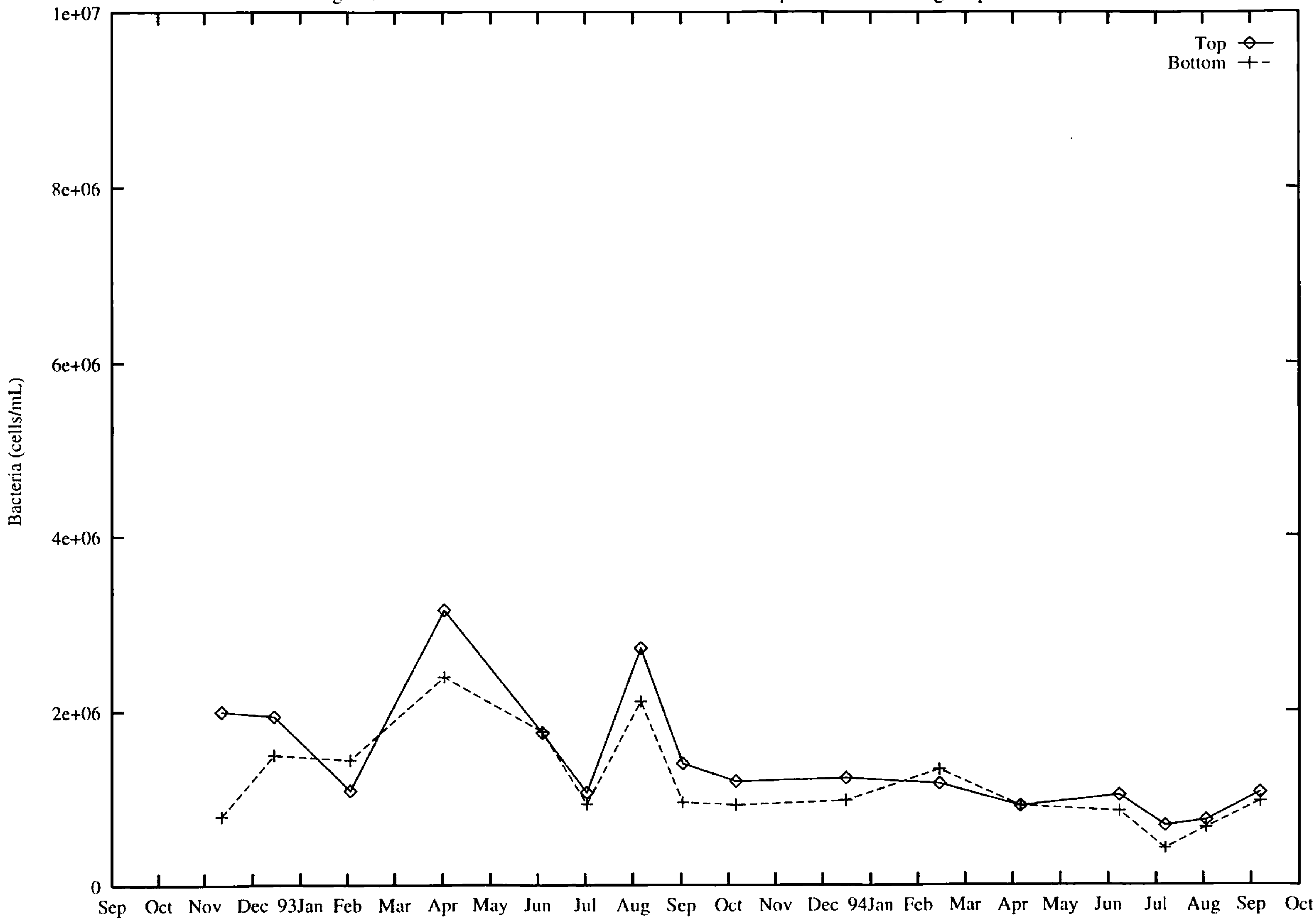


Figure 97: Lake Whatcom Secchi depths for Site 1, September 1992 through September 1994.

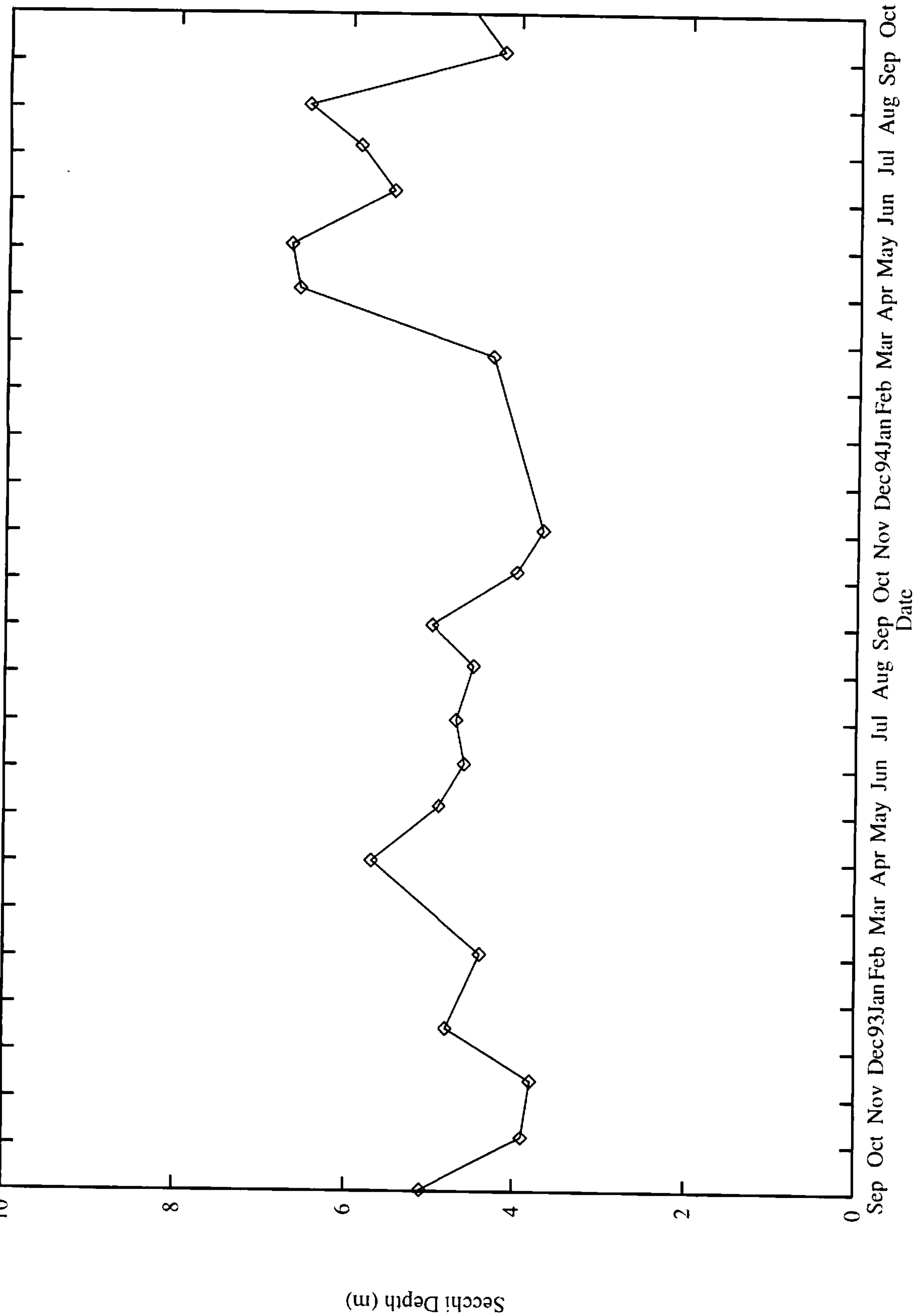


Figure 98: Lake Whatcom Secchi depths for Site 2, September 1992 through September 1994.

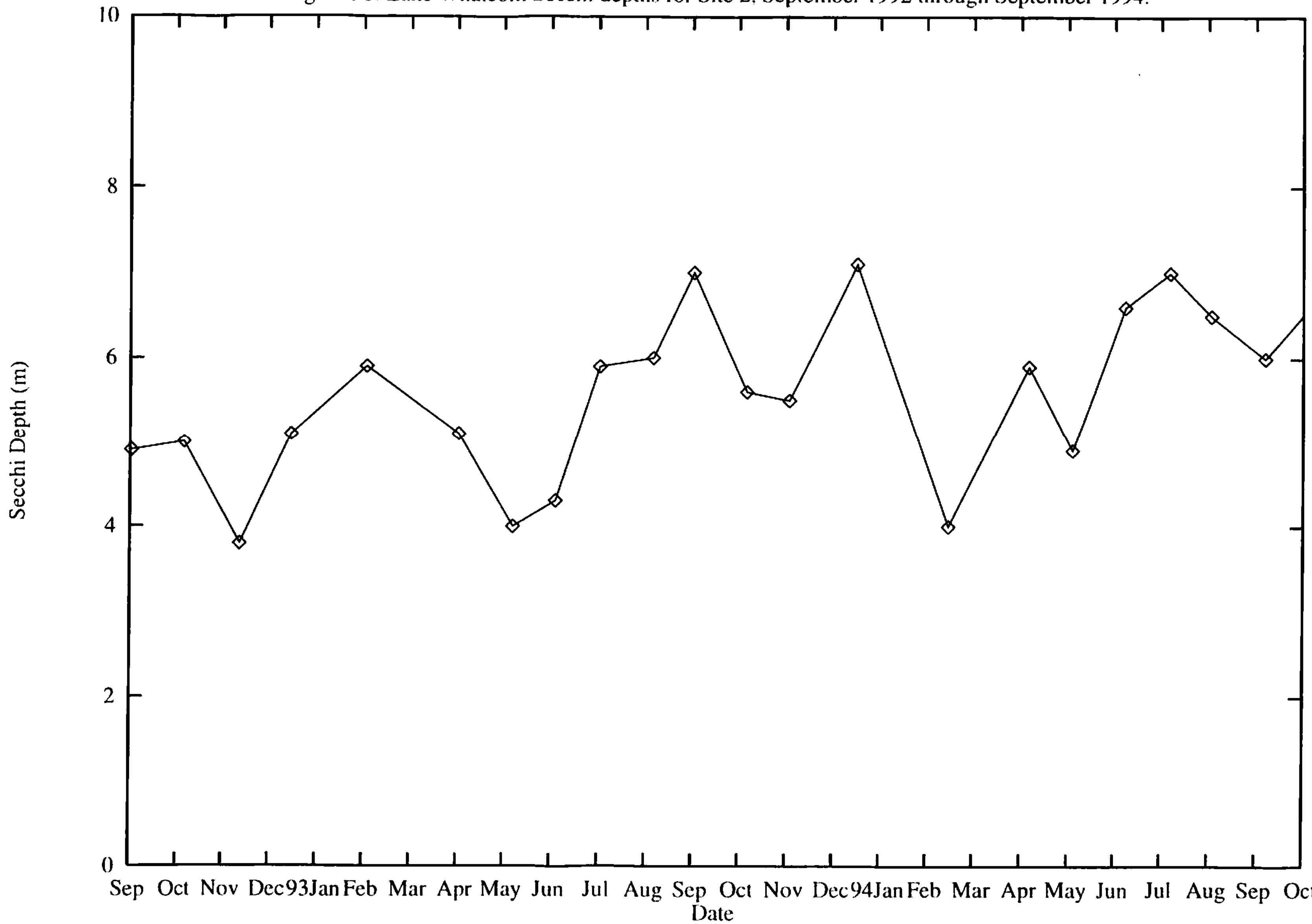


Figure 99: Lake Whatcom Secchi depths for Intake site (basin 2), September 1992 through September 1994.

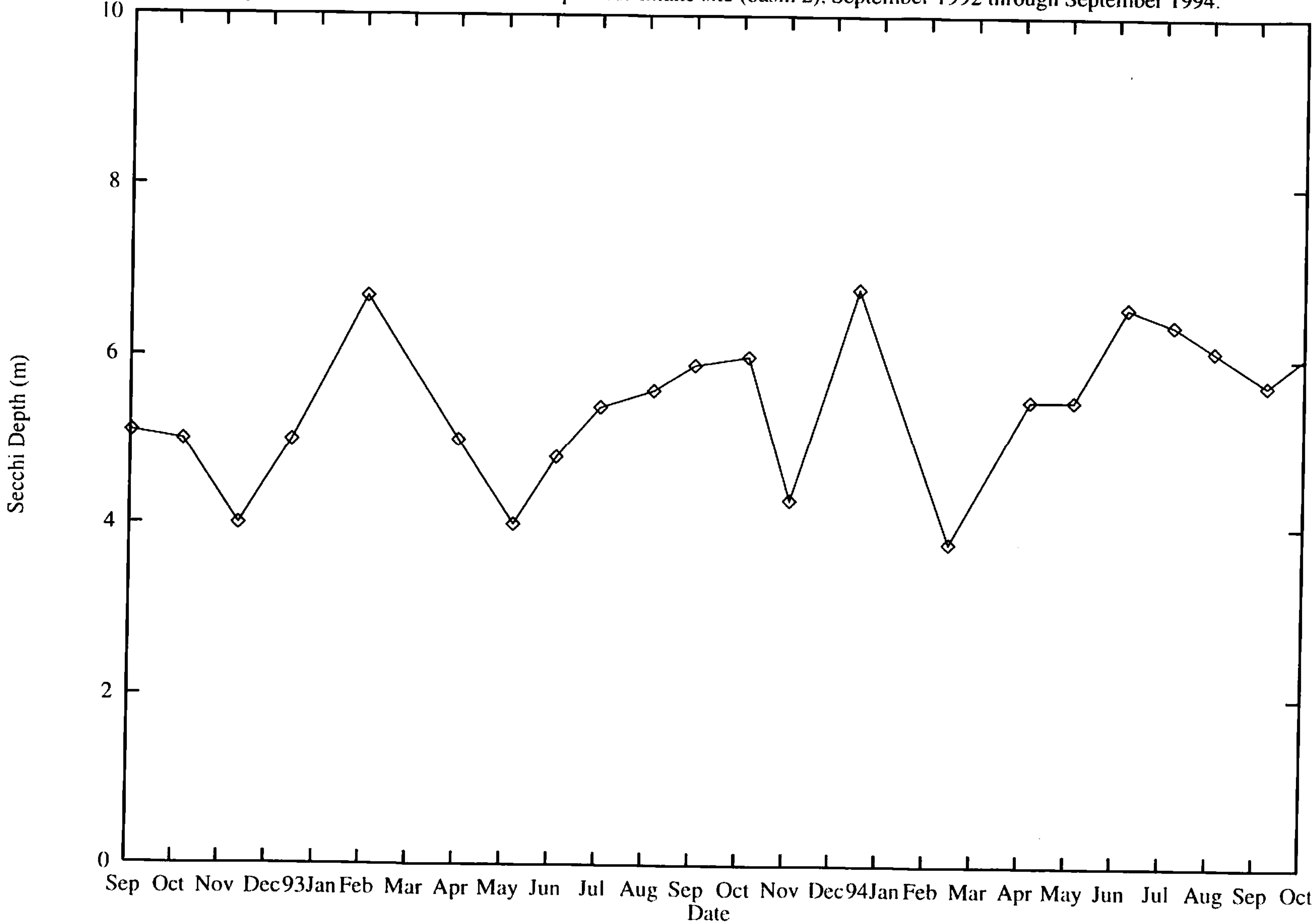


Figure 100: Lake Whatcom Secchi depths for Site 3, September 1992 through September 1994.

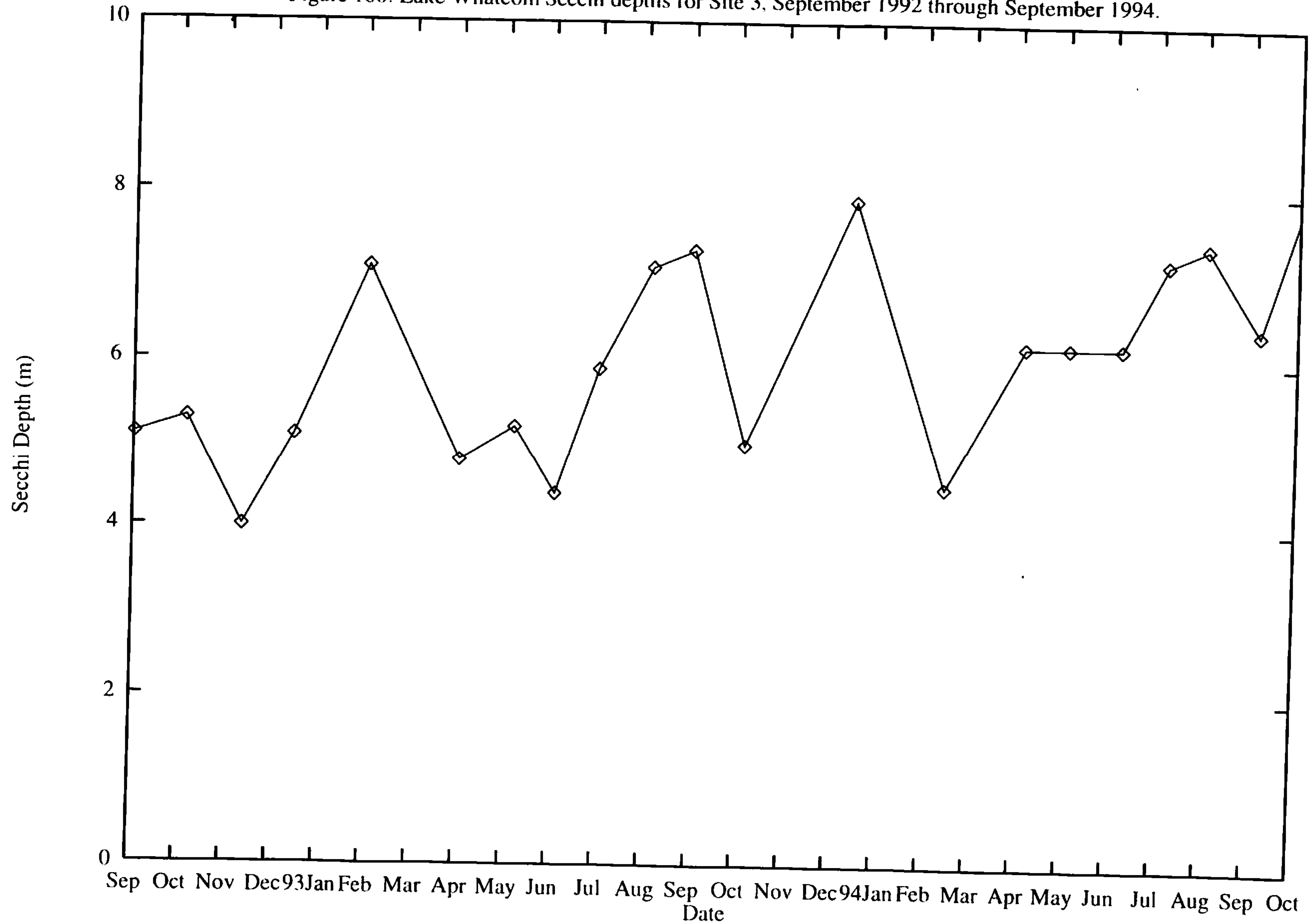
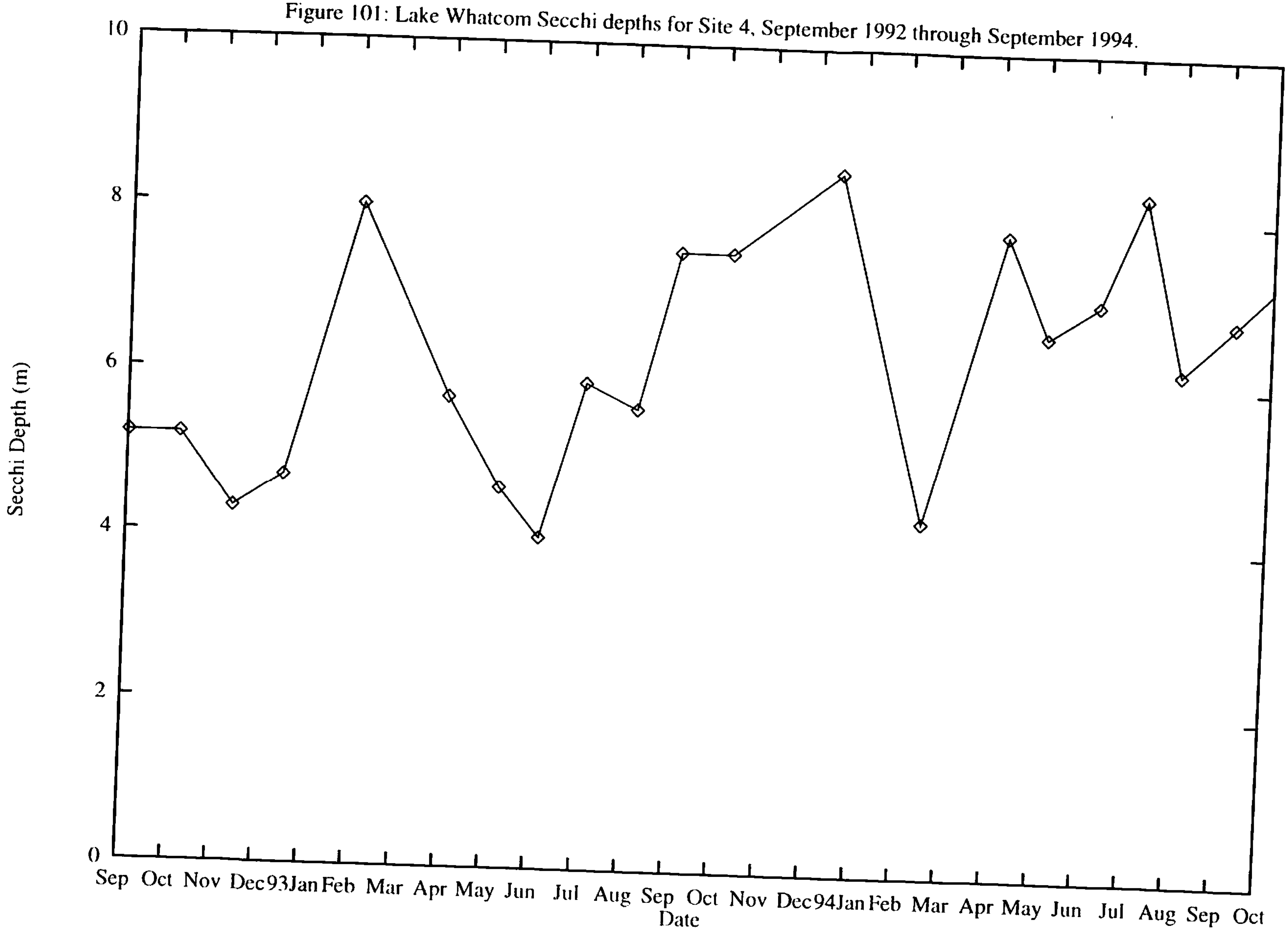


Figure 101: Lake Whatcom Secchi depths for Site 4, September 1992 through September 1994.



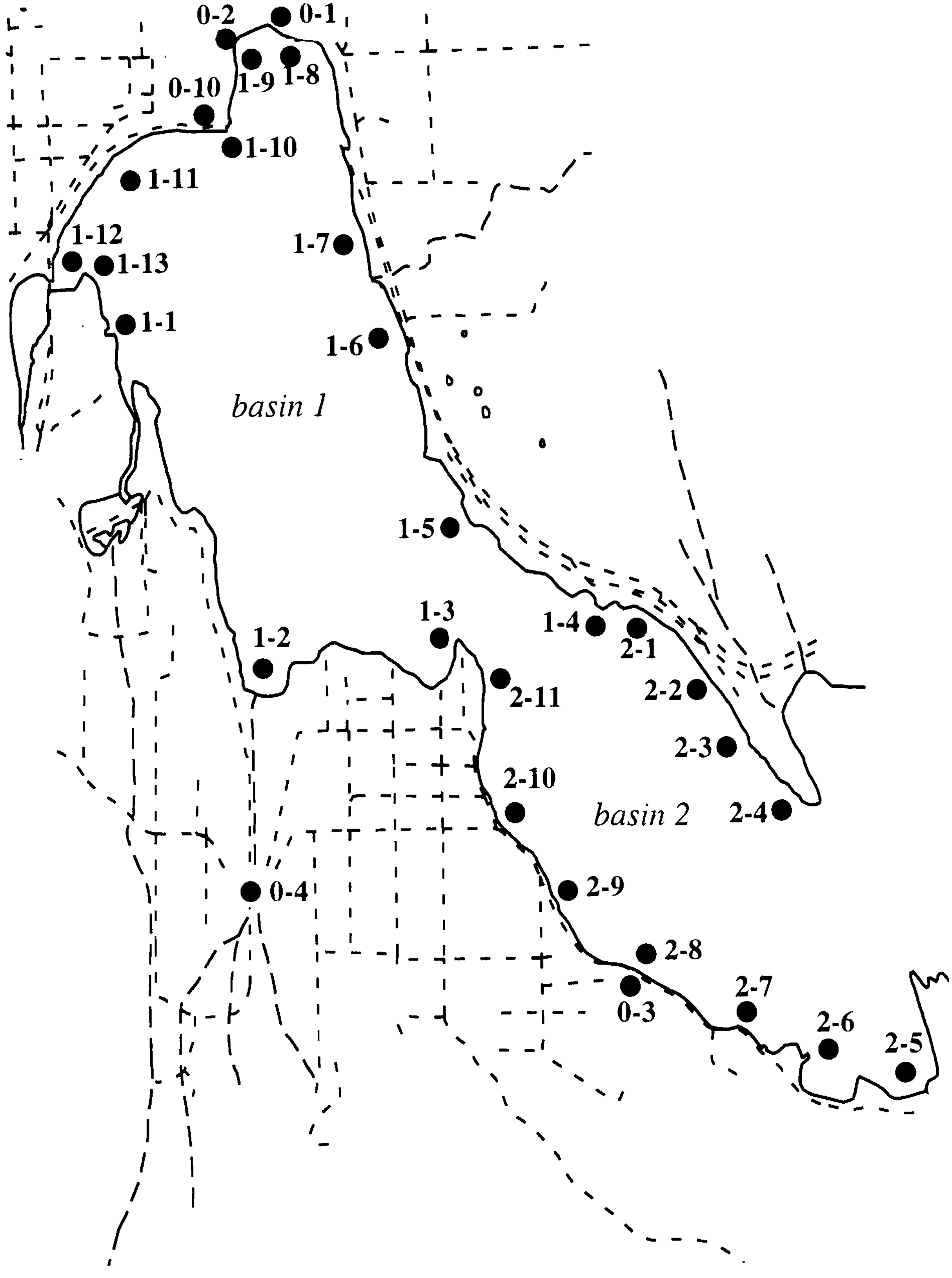


Figure 102: Nearshore bacteria sampling sites.

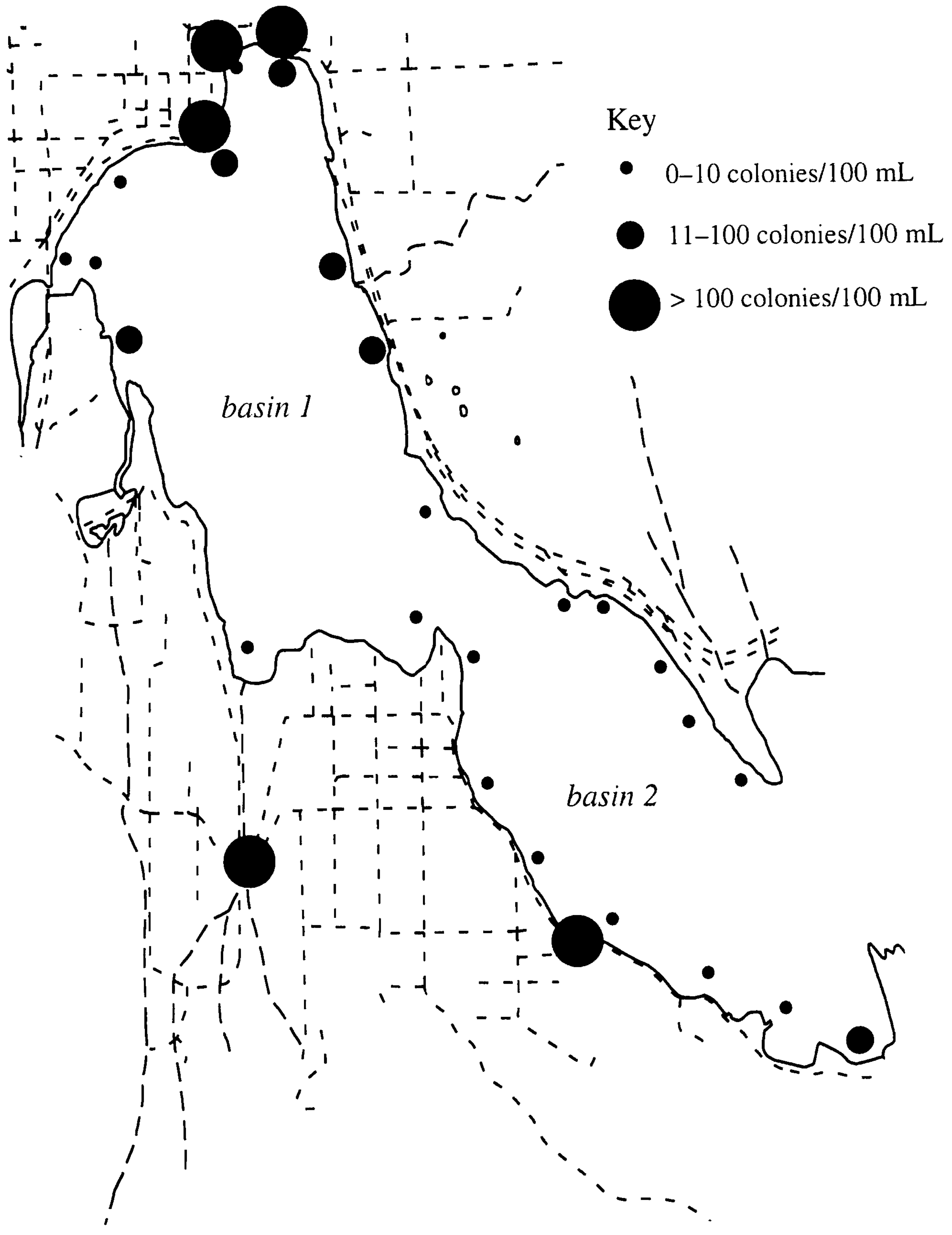


Figure 103: Nearshore total coliform counts, August 1994.

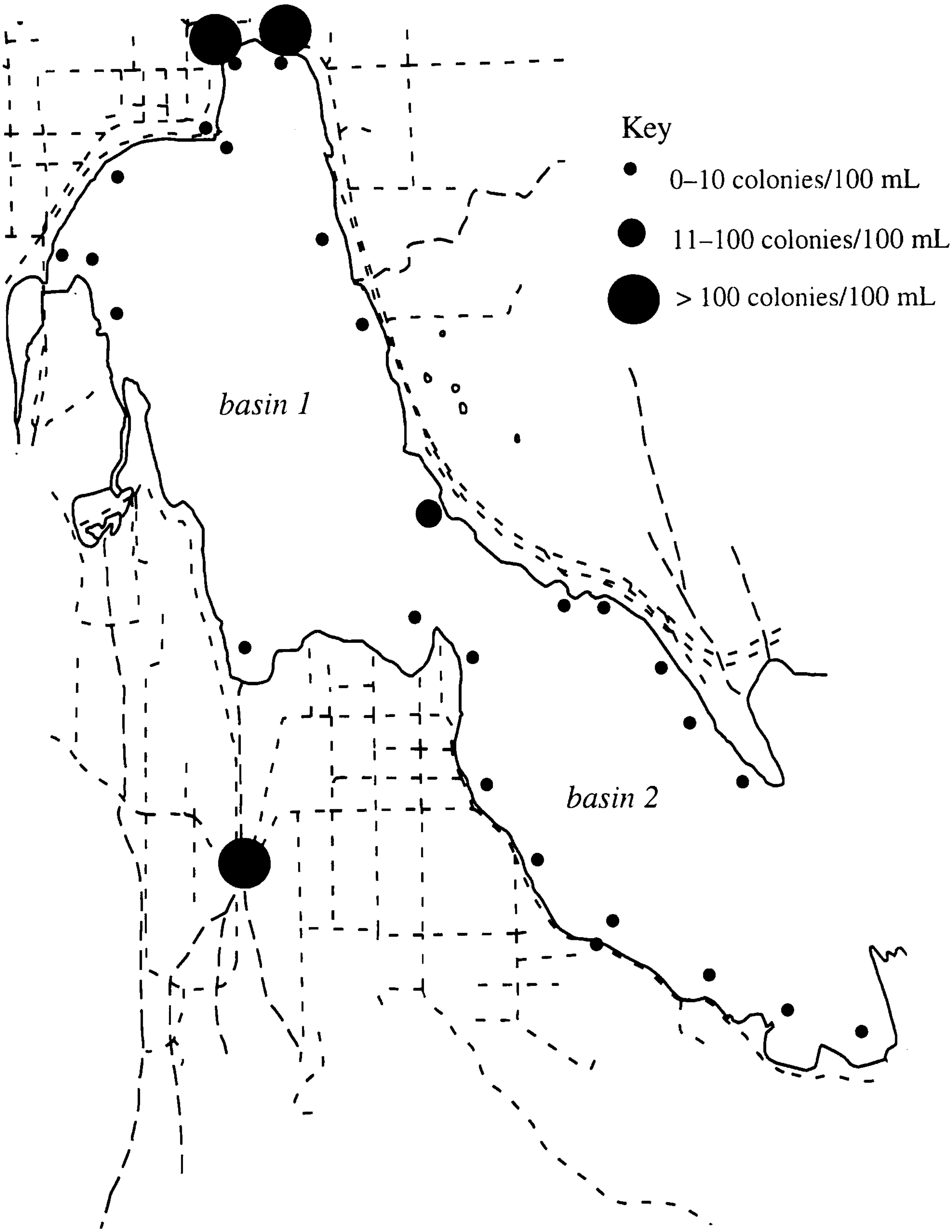


Figure 104: Nearshore fecal coliform counts, August 1994.

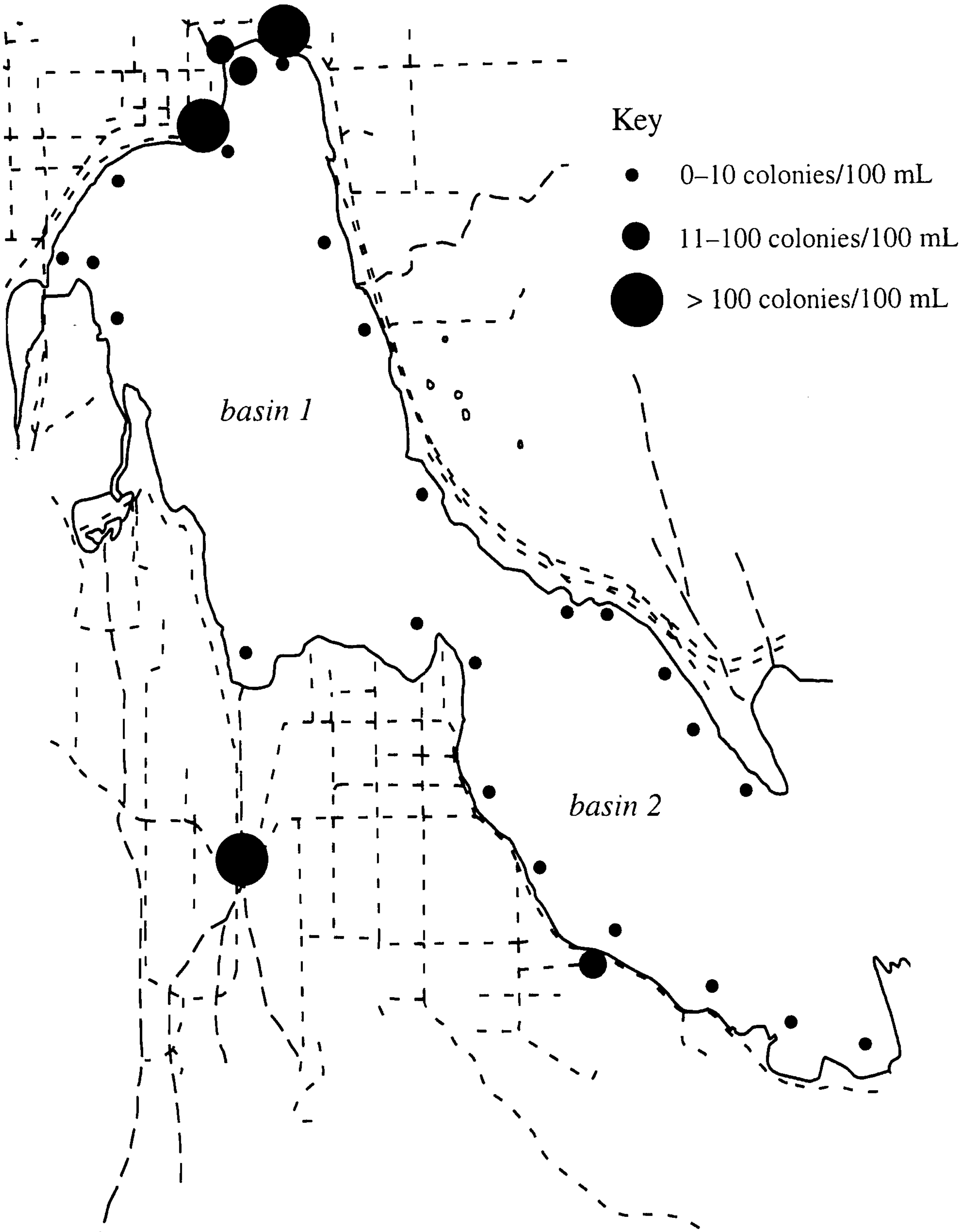


Figure 105: Nearshore enterococcus counts, August 1994.

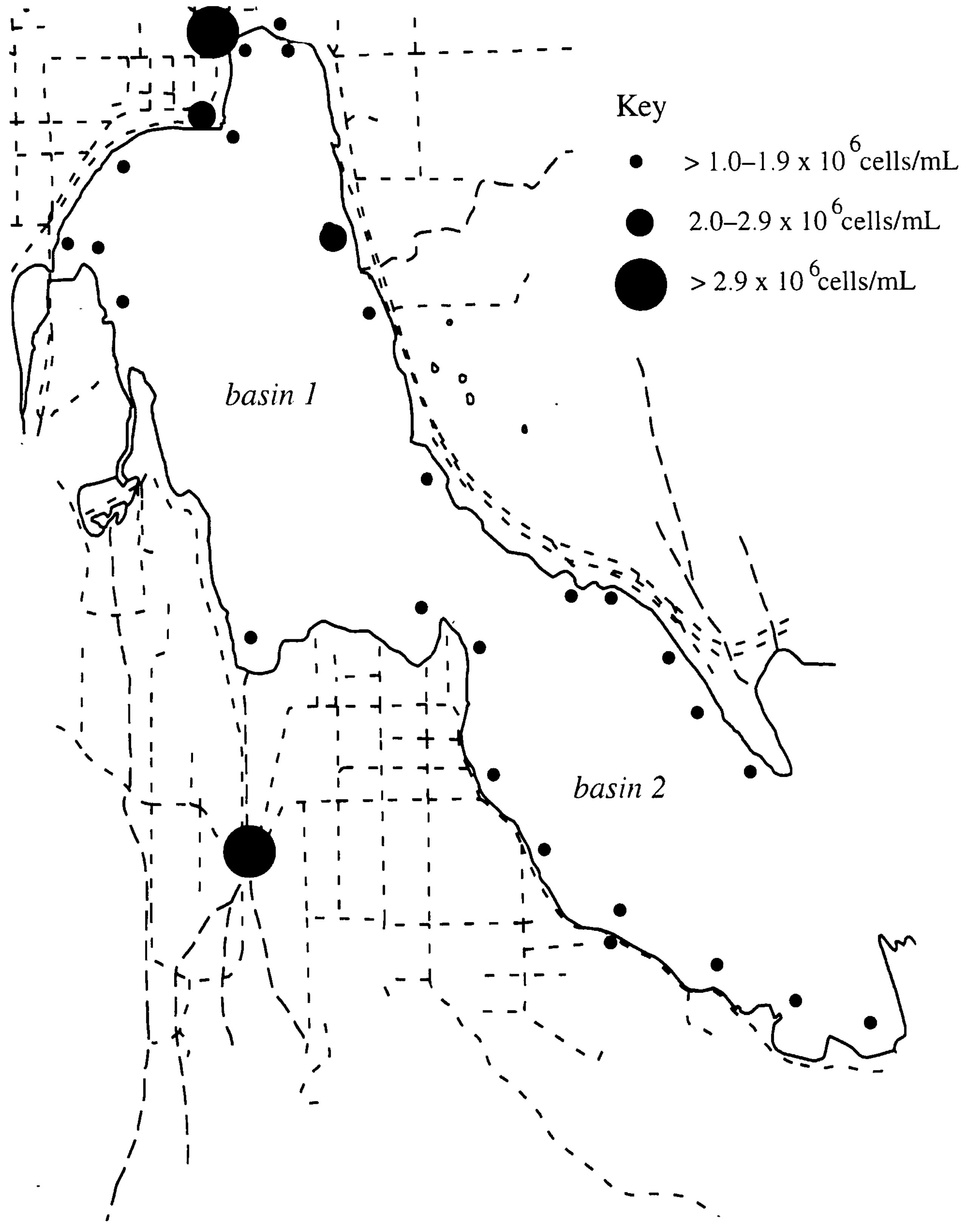


Figure 106: Nearshore total bacteria counts, August 1994.

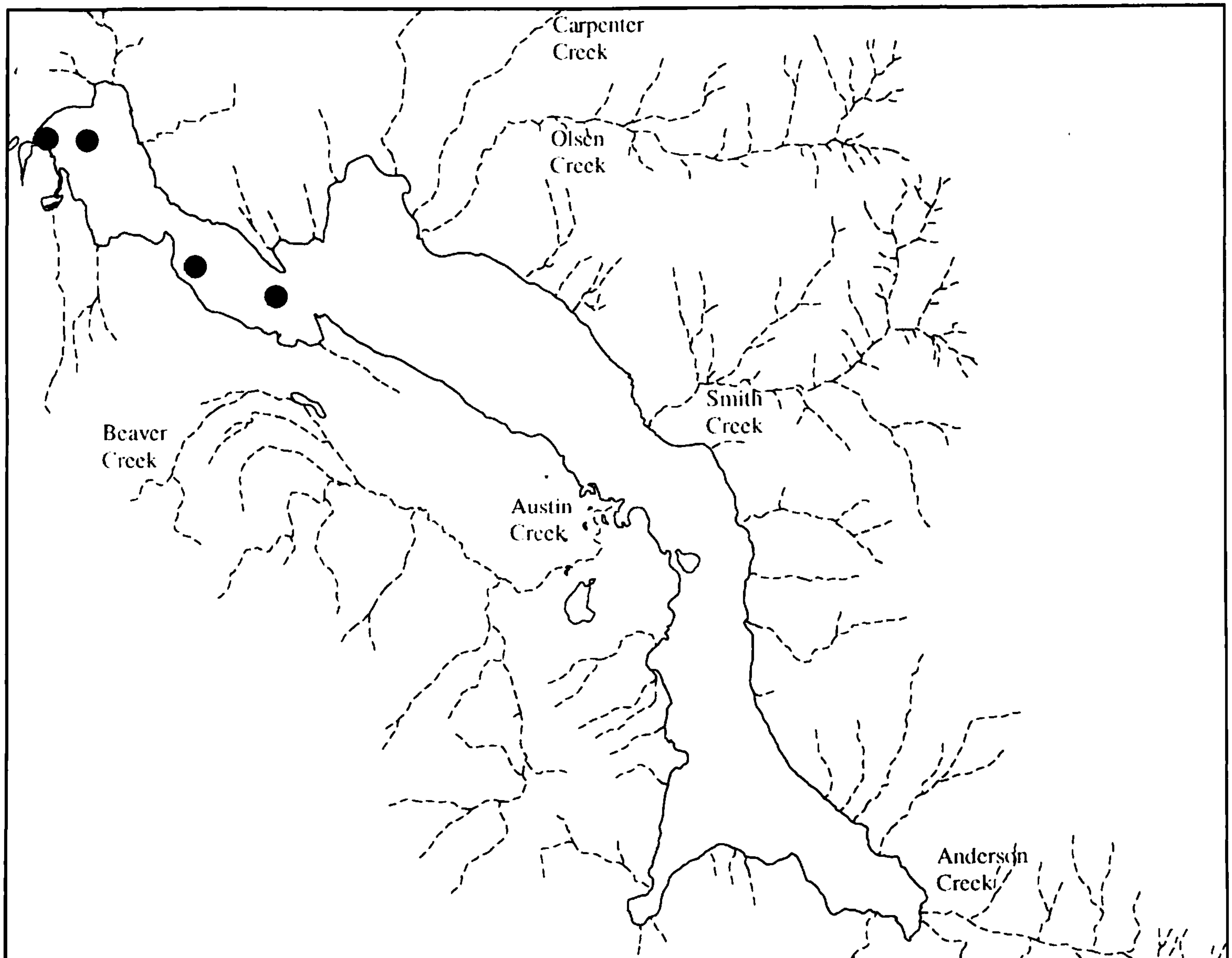


Figure 107: Lake Whatcom microlayer sampling sites.

Figure 108: Lake Whatcom Inputs
September, 1993 - August, 1994

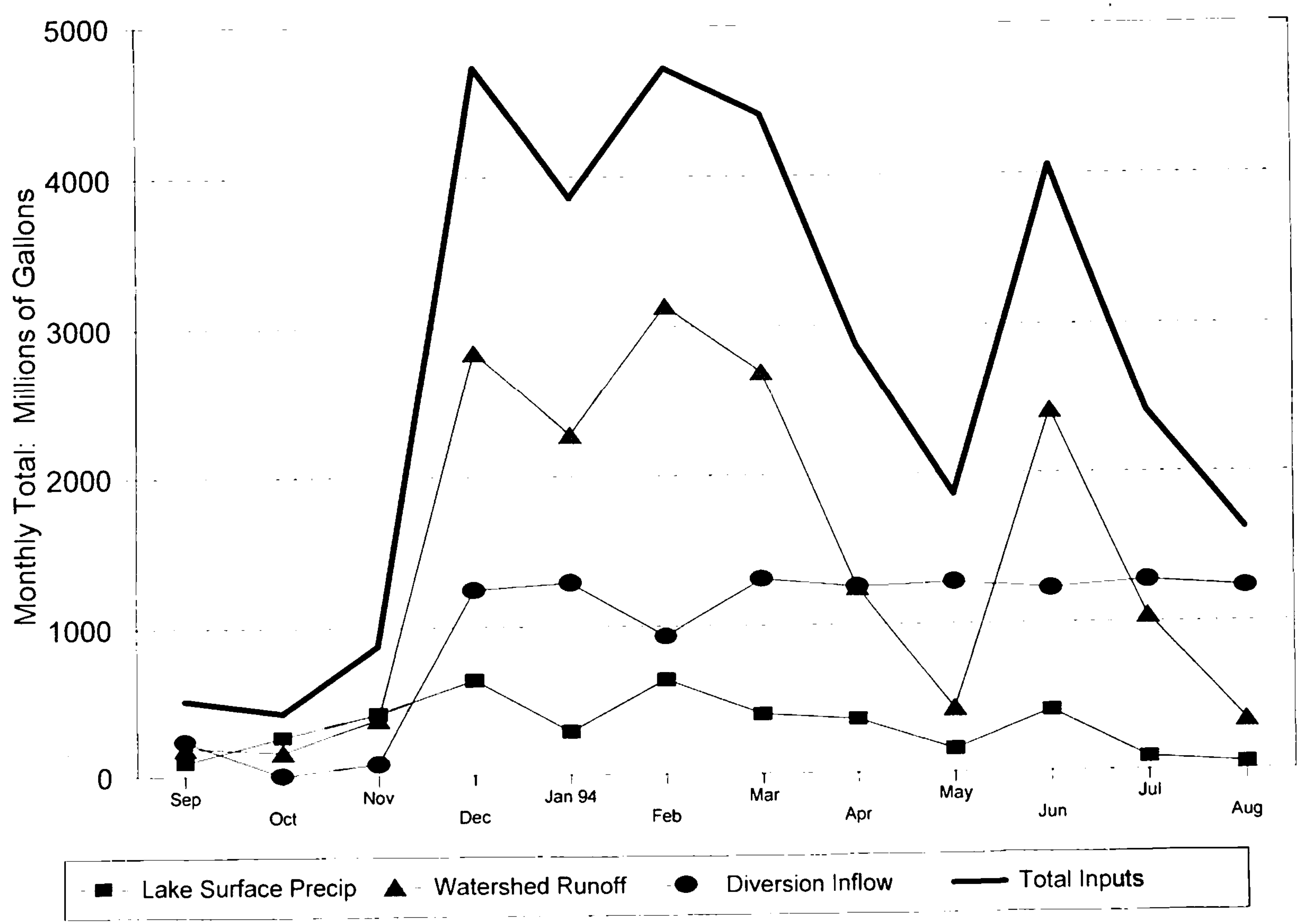


Figure 109: Lake Whatcom Inputs: Percentages
September, 1993 - August, 1994

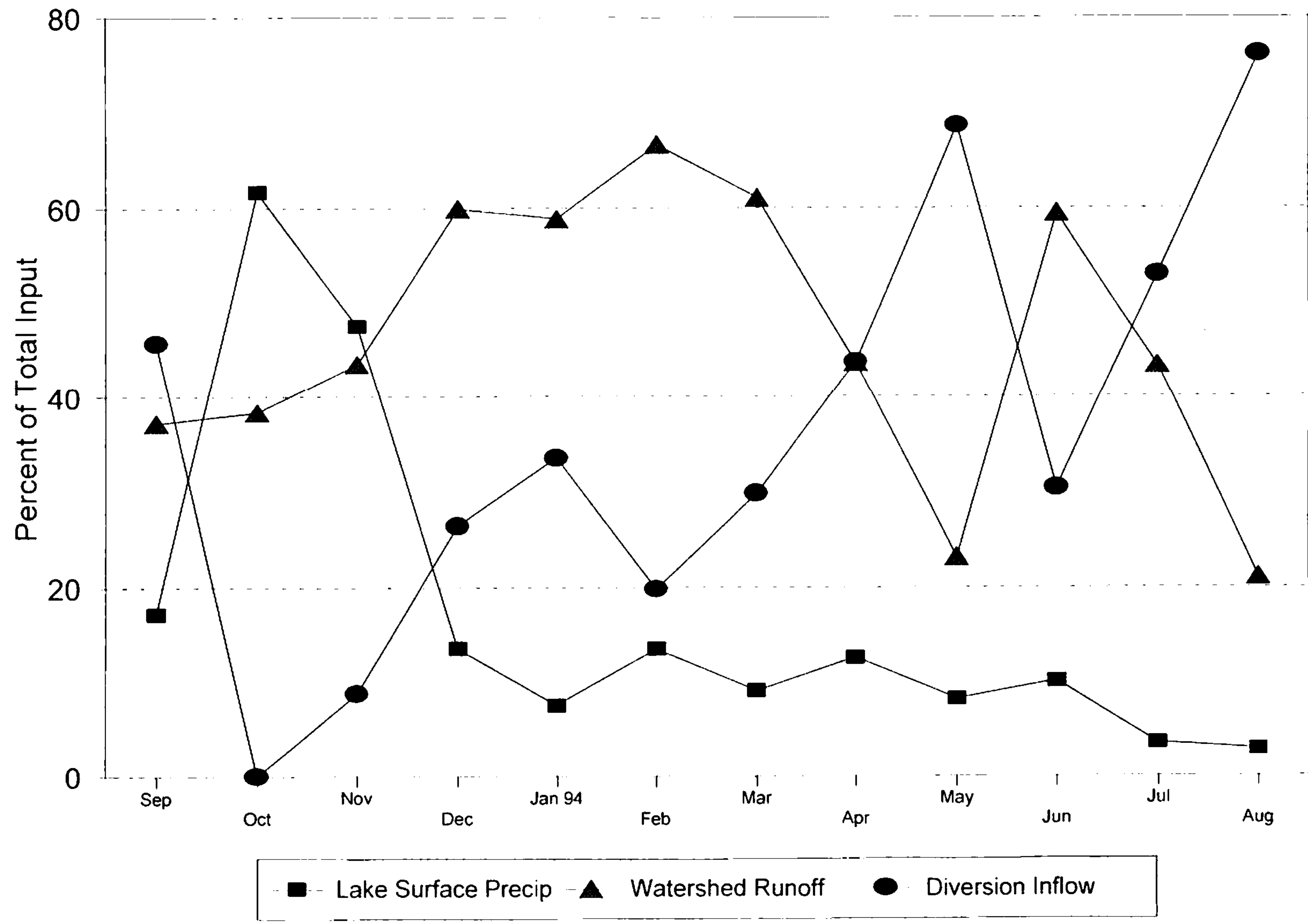


Figure 110: Lake Whatcom Inputs

March - August, 1994

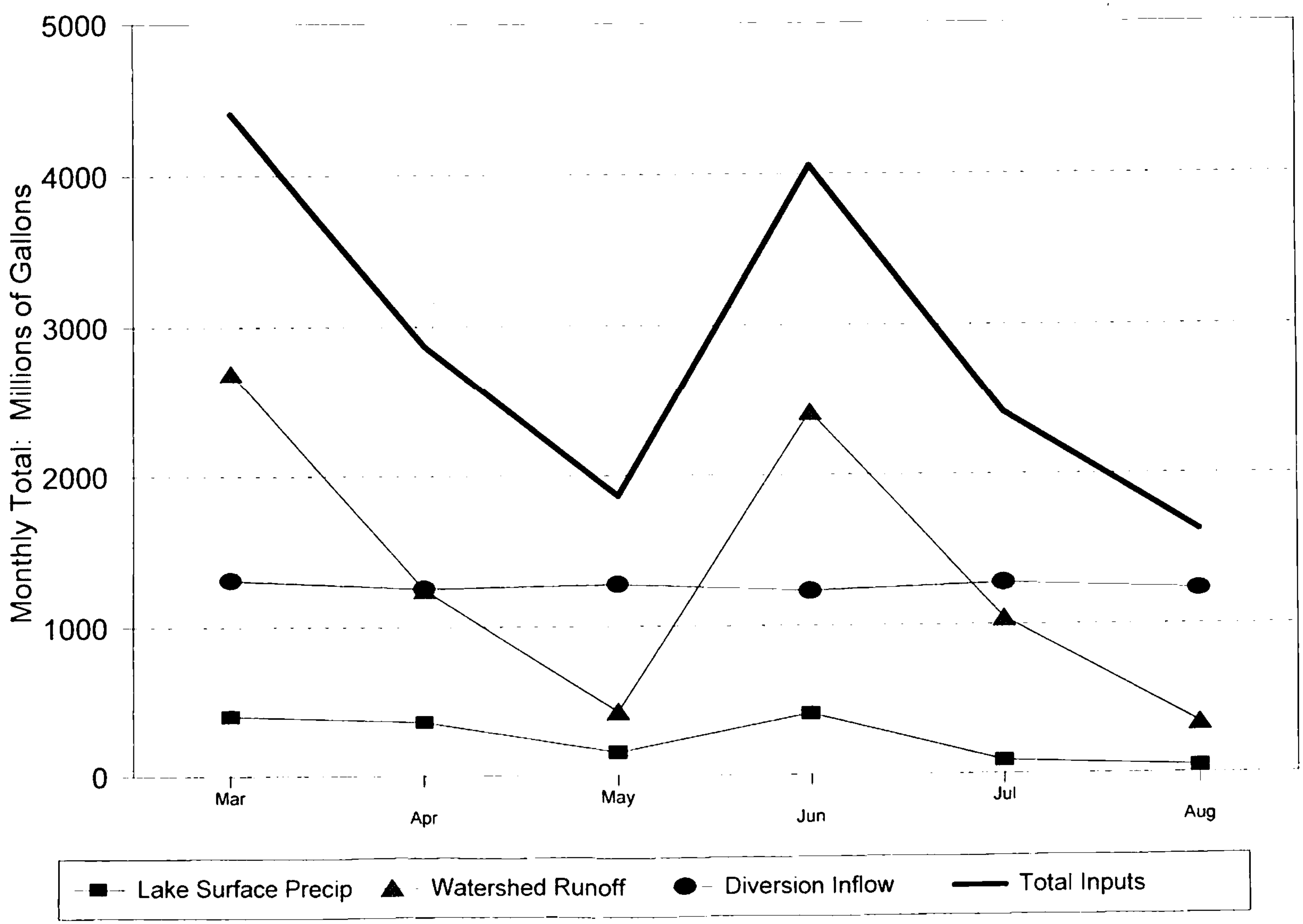


Figure 111: Lake Whatcom Inputs: Percentages

March - August 1994

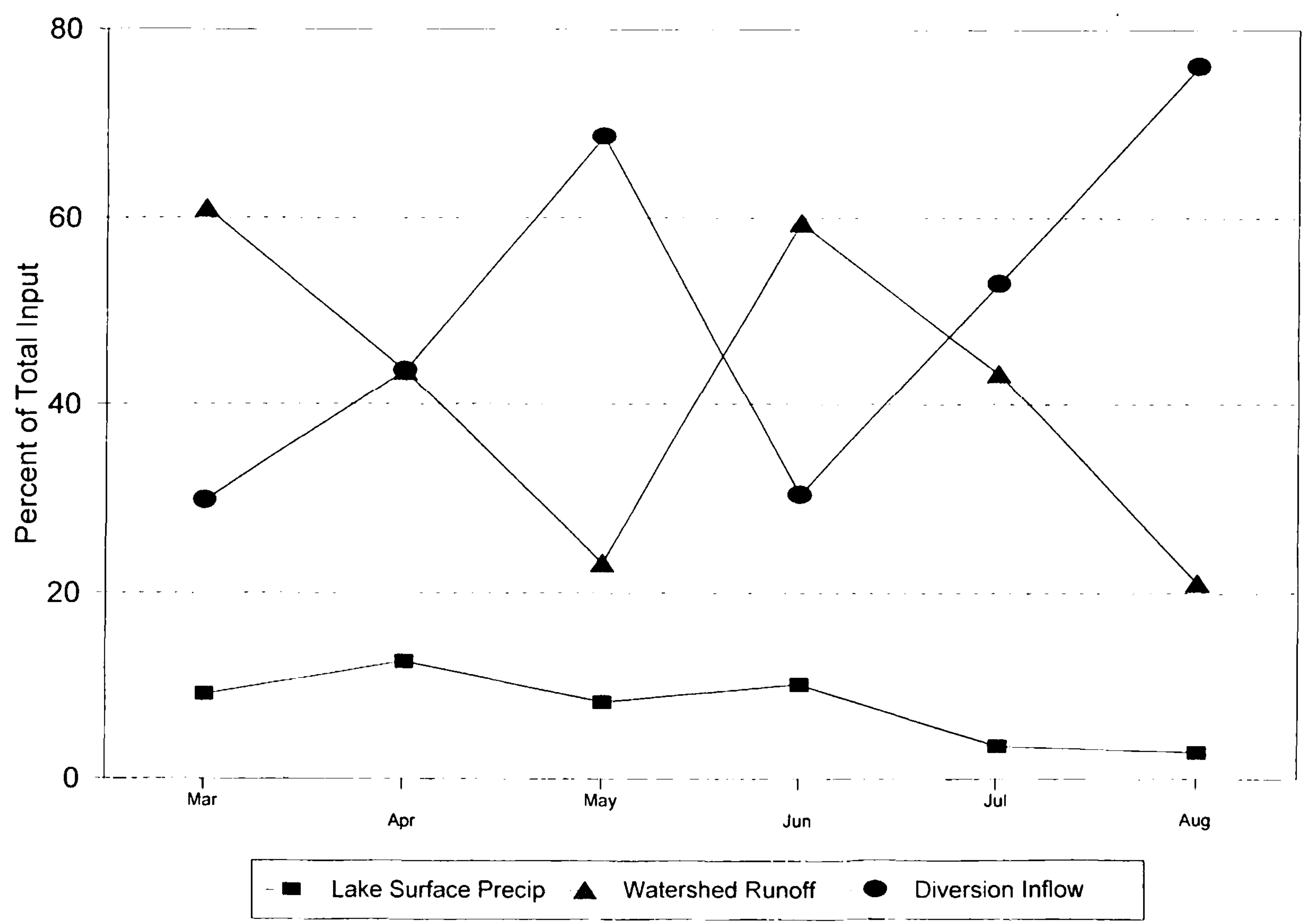


Figure 112: Lake Whatcom Outputs
September, 1993 - August, 1994

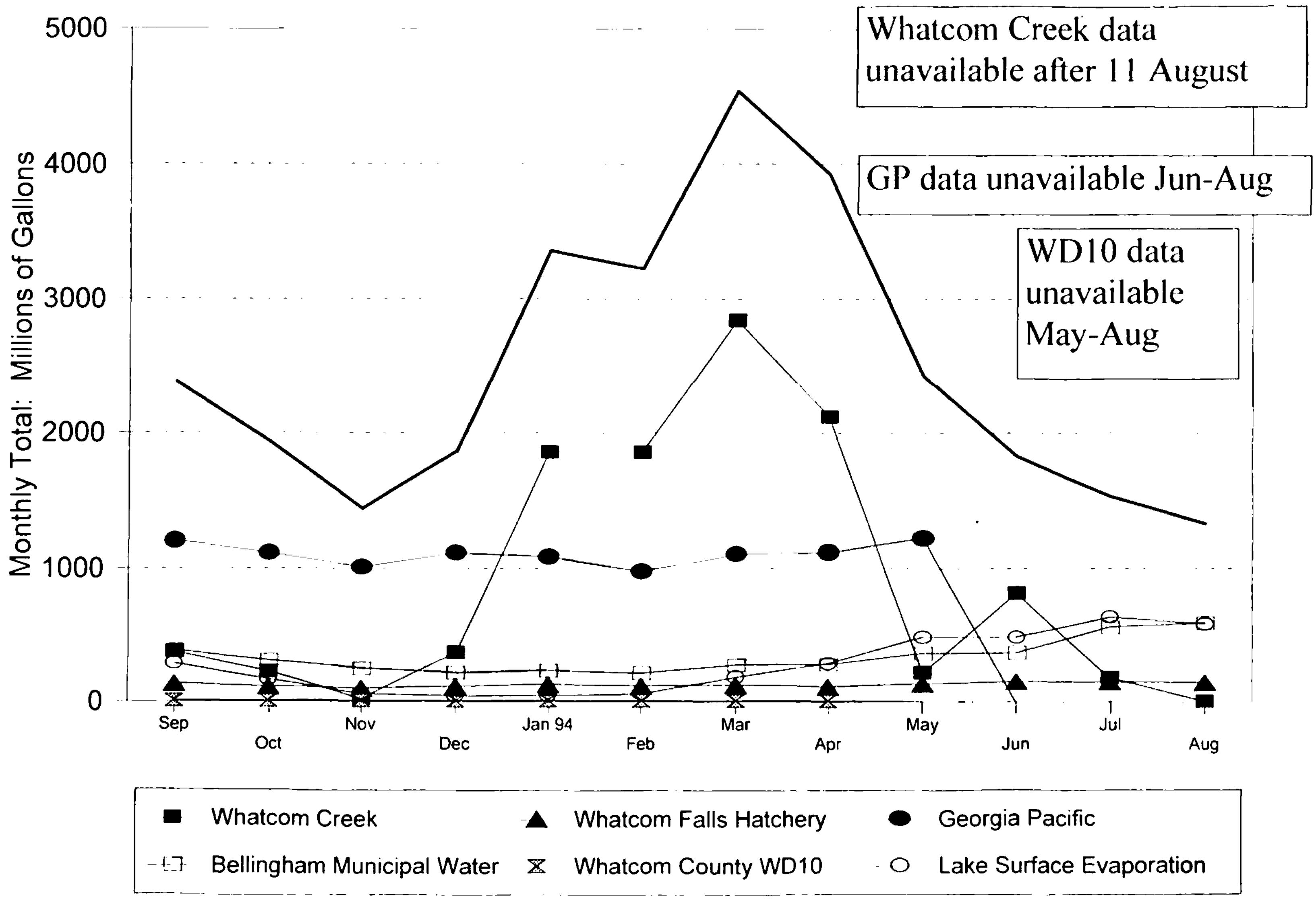


Figure 113: Lake Whatcom Outputs: Percentages

September, 1993 - August, 1994

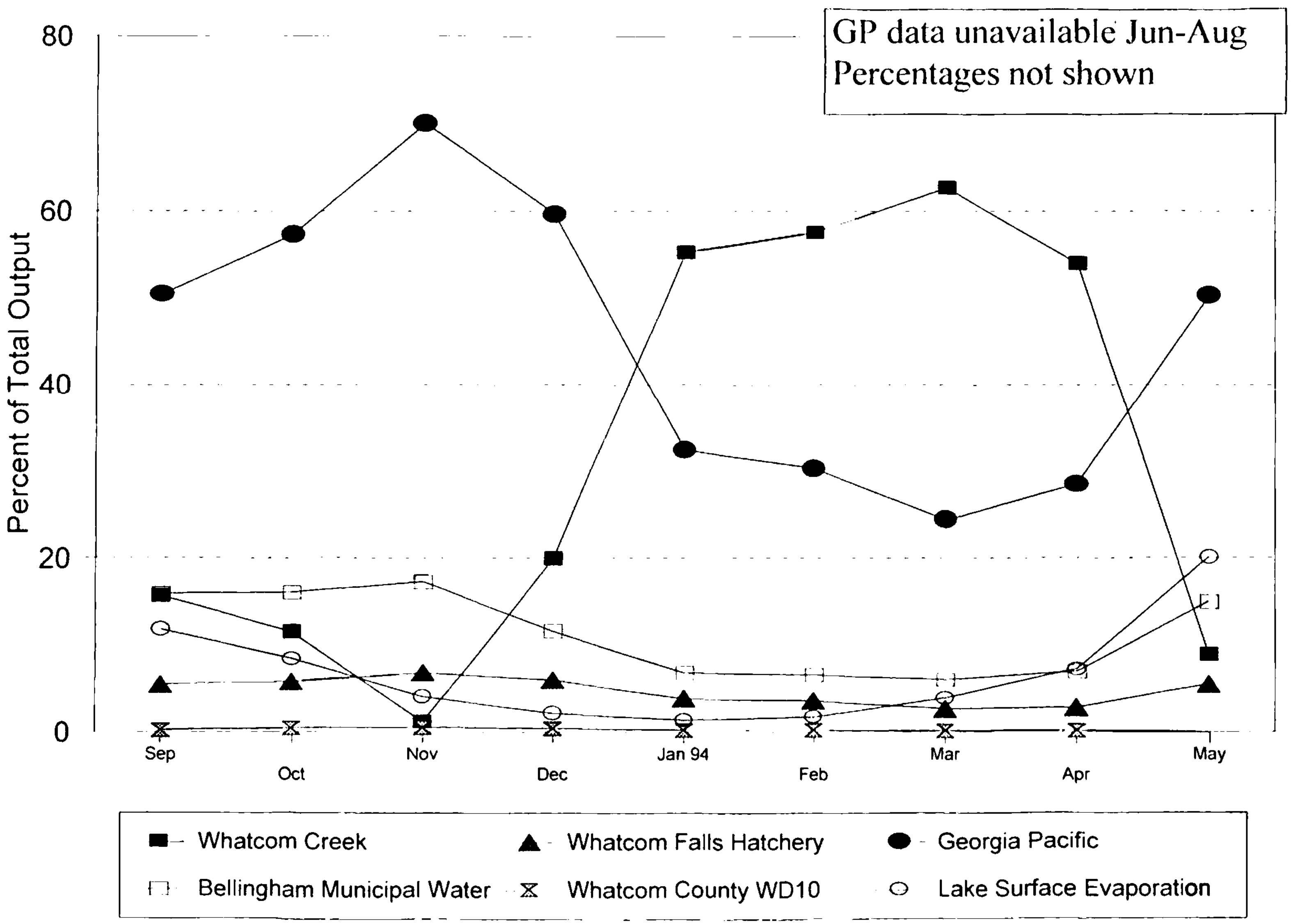


Figure 114: Lake Whatcom Outputs

March - August 1994

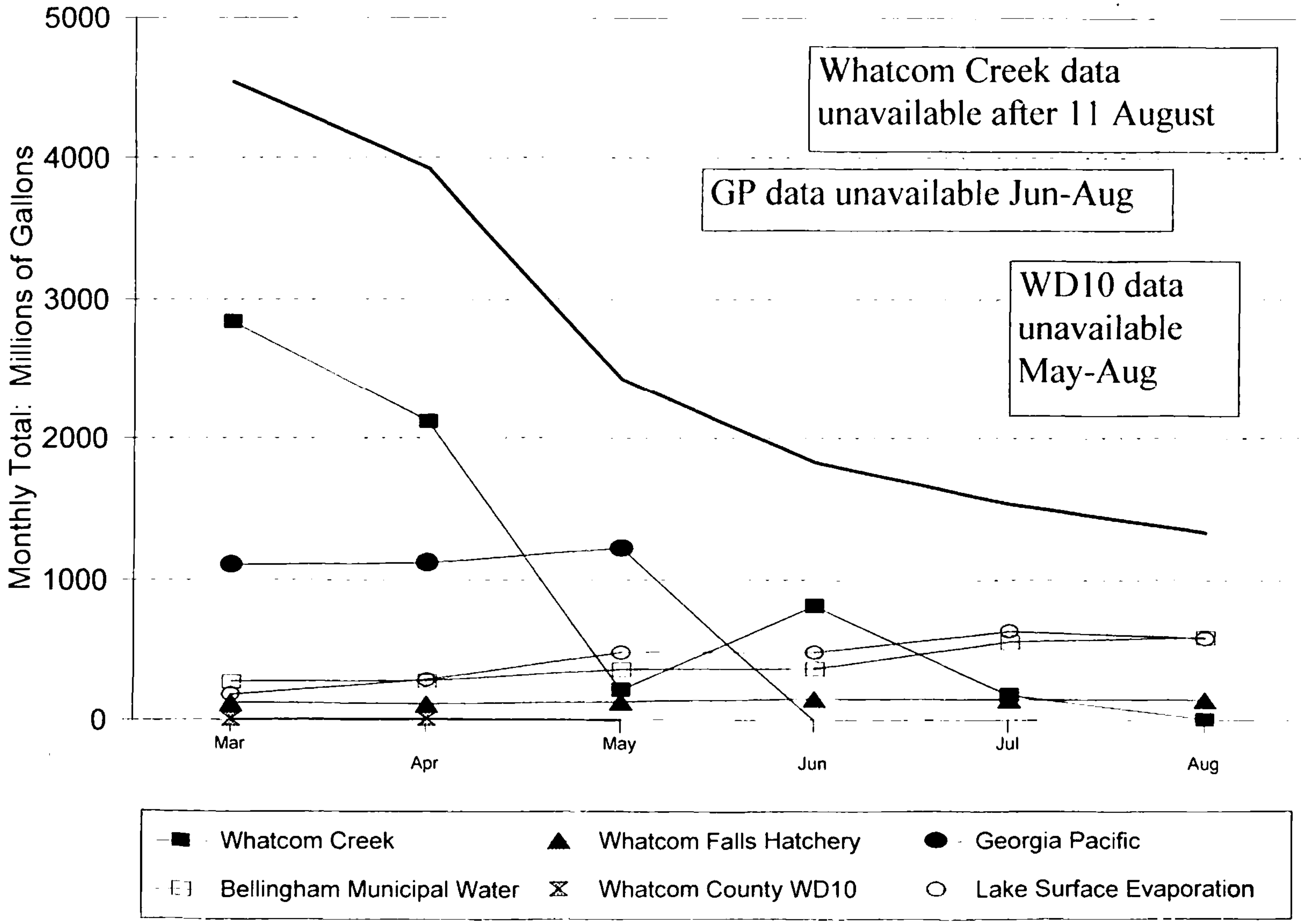


Figure 115: Lake Whatcom Outputs: Percentages

March - August, 1994

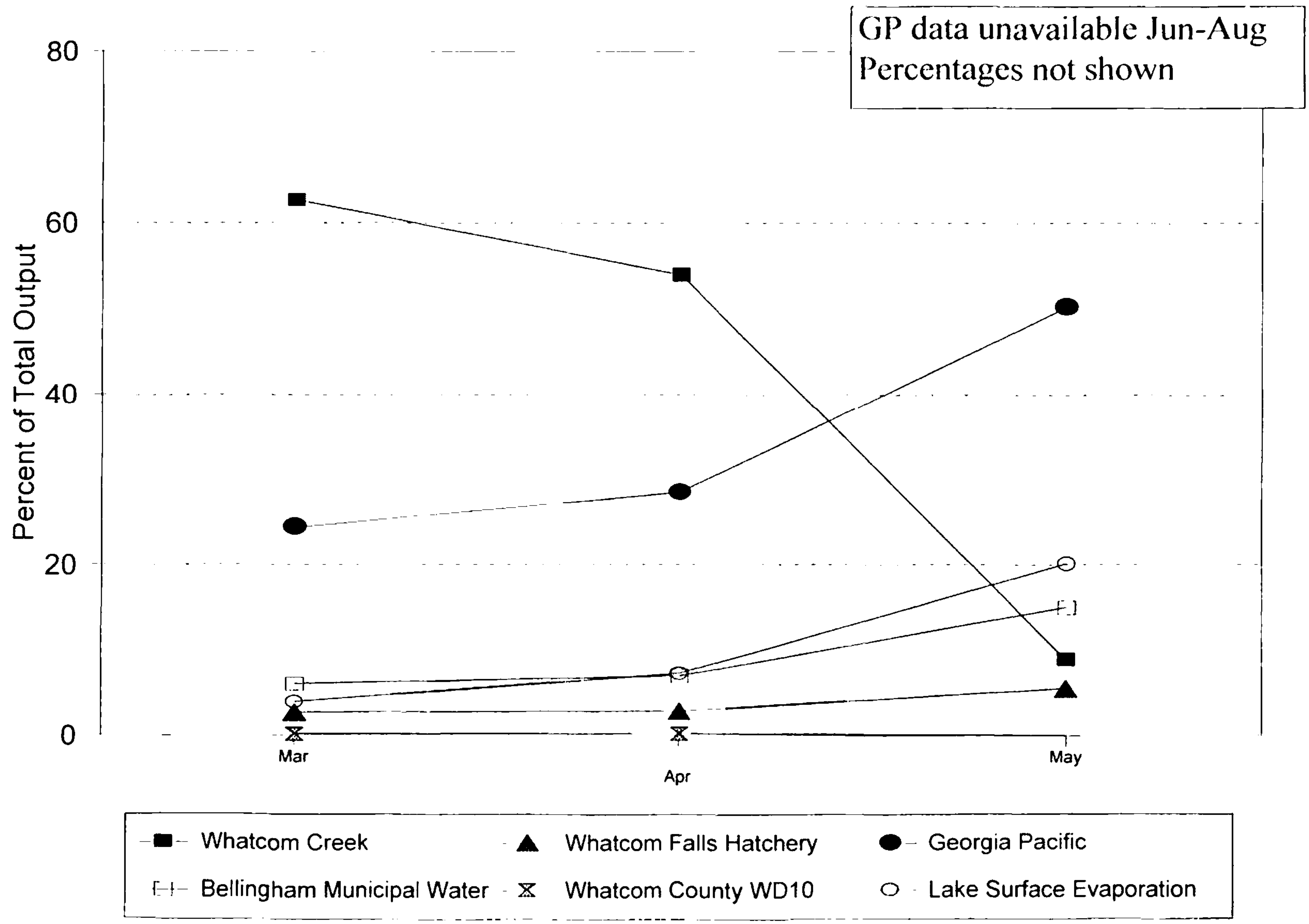


Figure 116: Lake Whatcom Inputs
July 1990 - August 1994

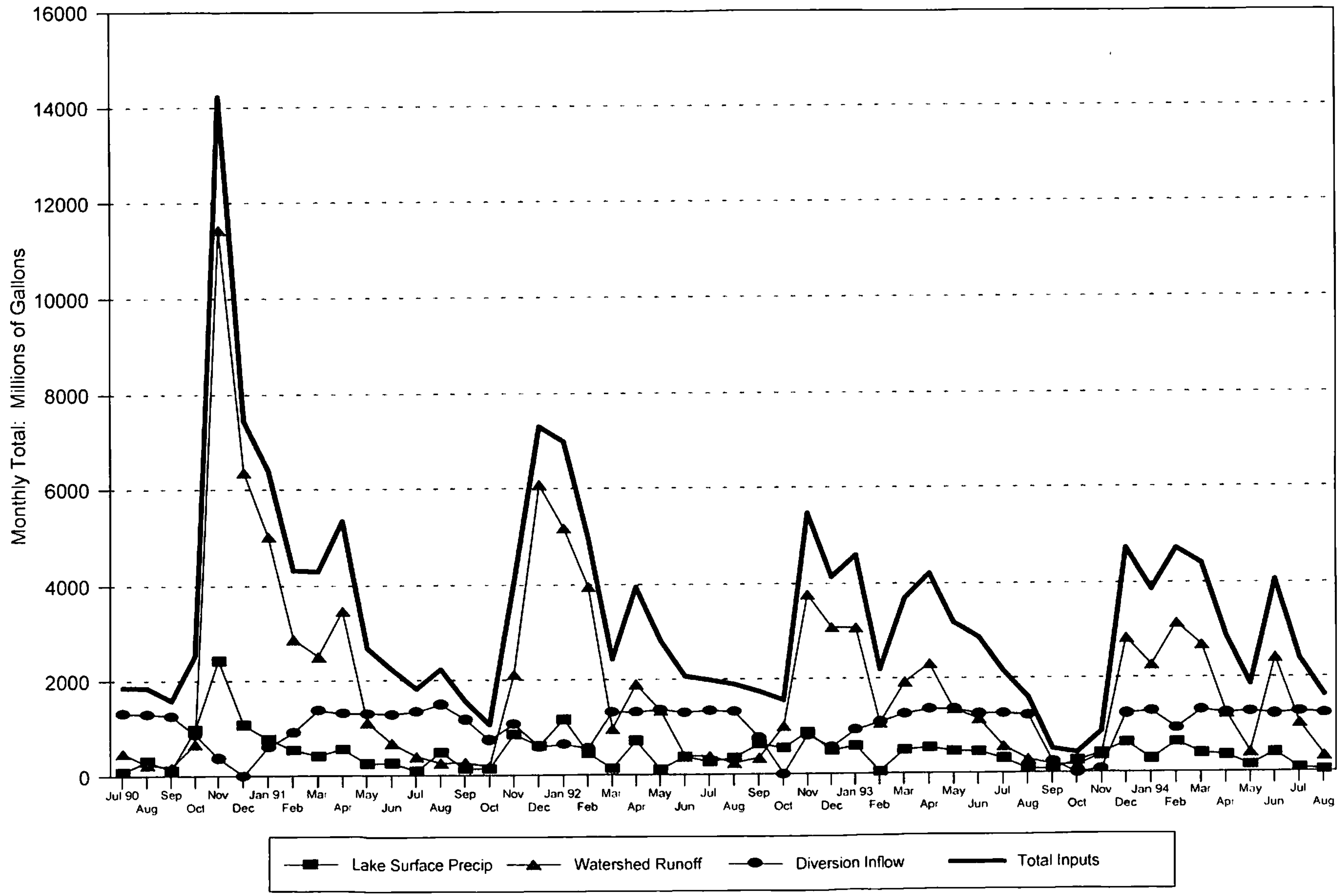


Figure 117: Lake Whatcom Inputs (0 - 5000 MG)
July 1990 - August 1994

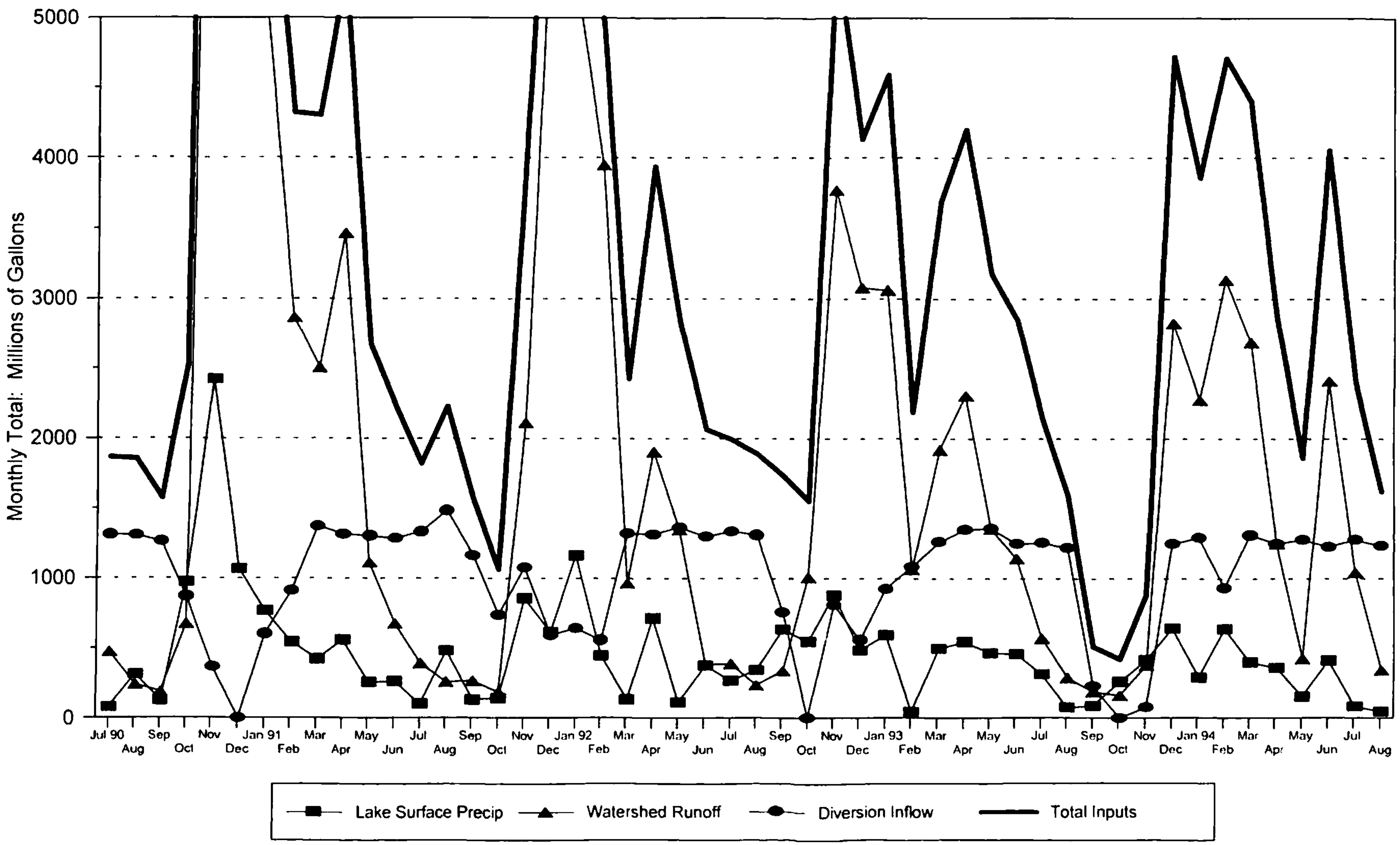


Figure 118: Lake Whatcom Inputs: Percentages

July, 1990 - August, 1994

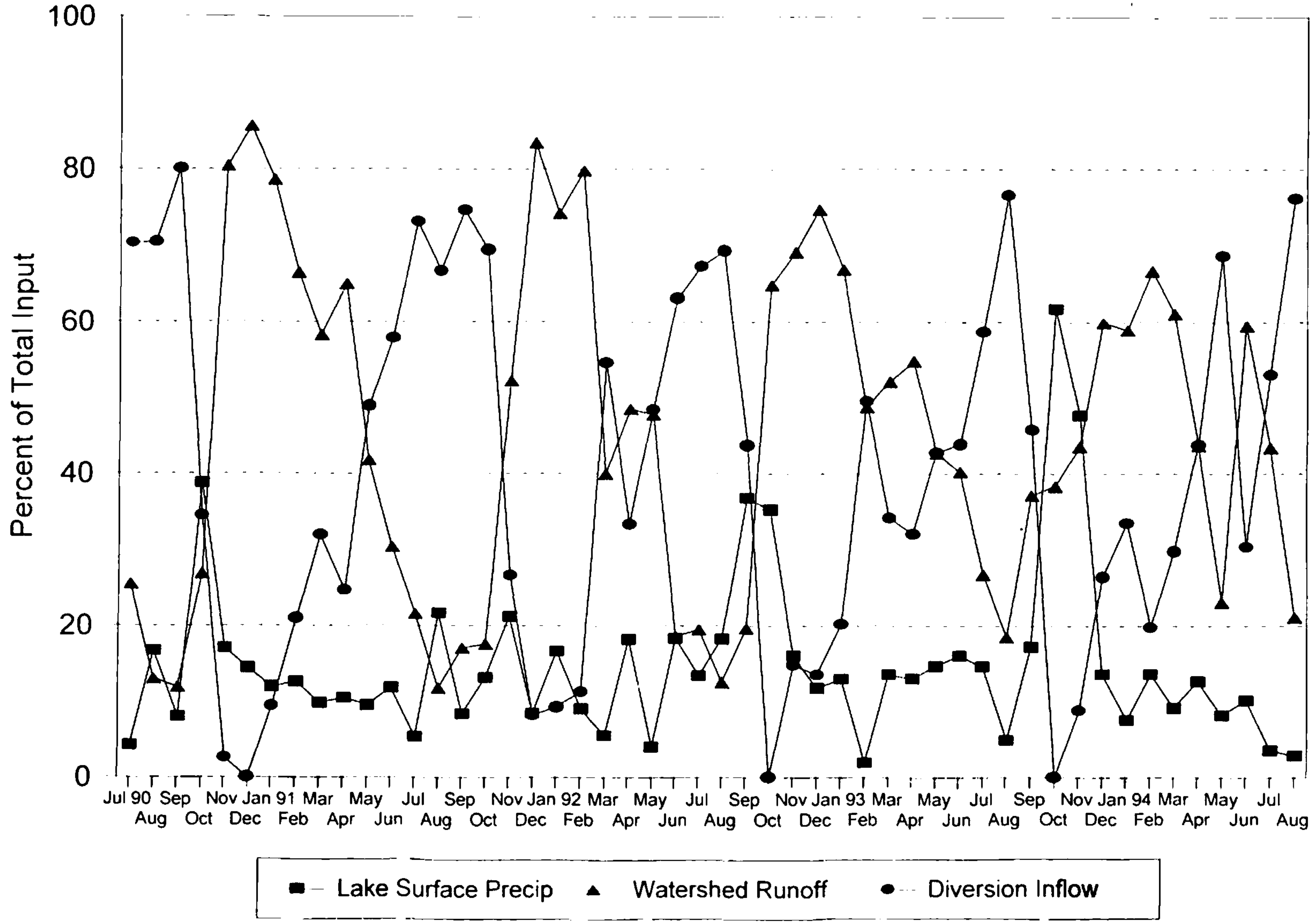


Figure 119: Lake Whatcom Outputs
July 1990 - August 1994

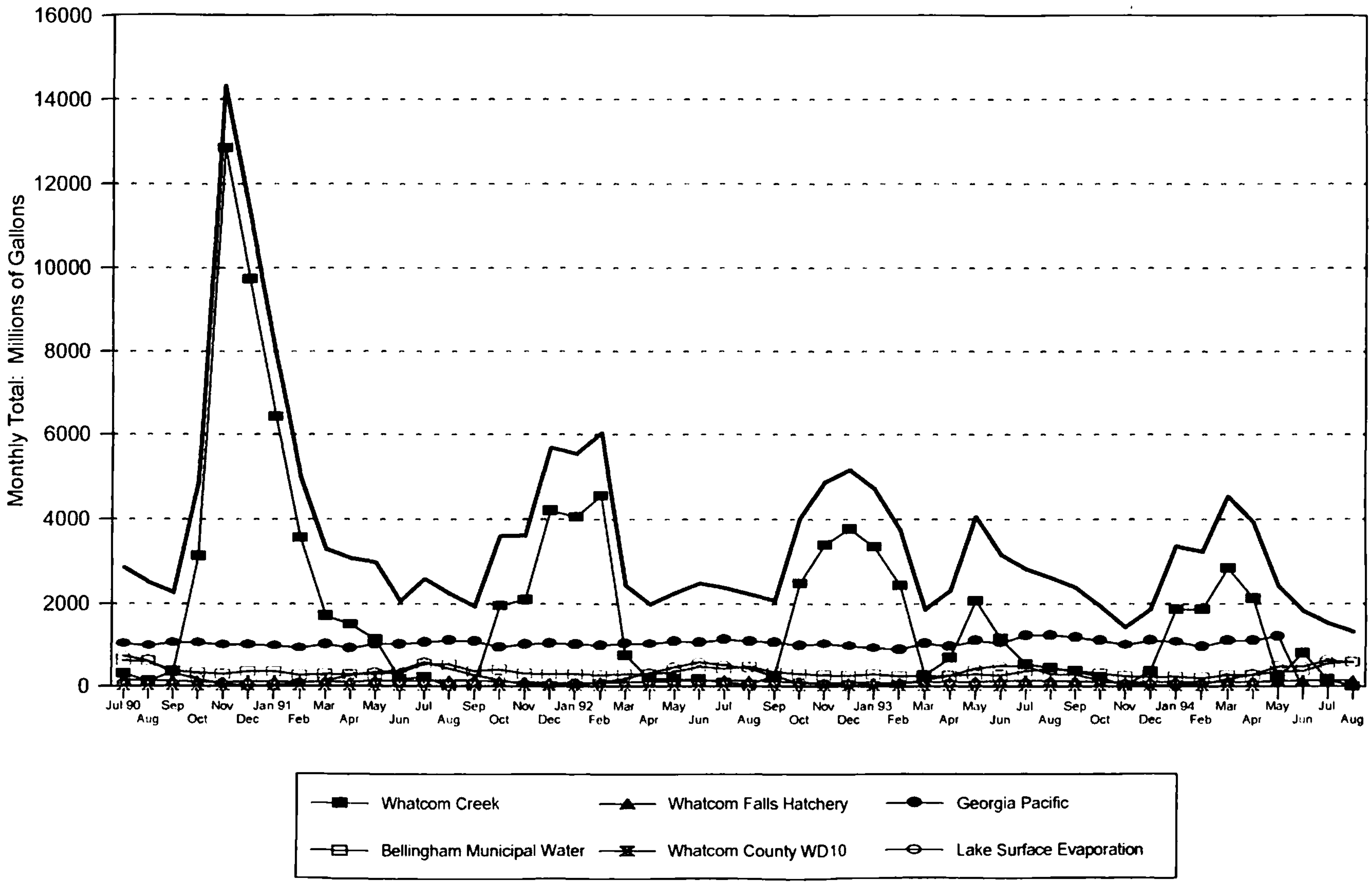


Figure 120: Lake Whatcom Outputs (0 - 5000 MG)
July 1990 - August 1994

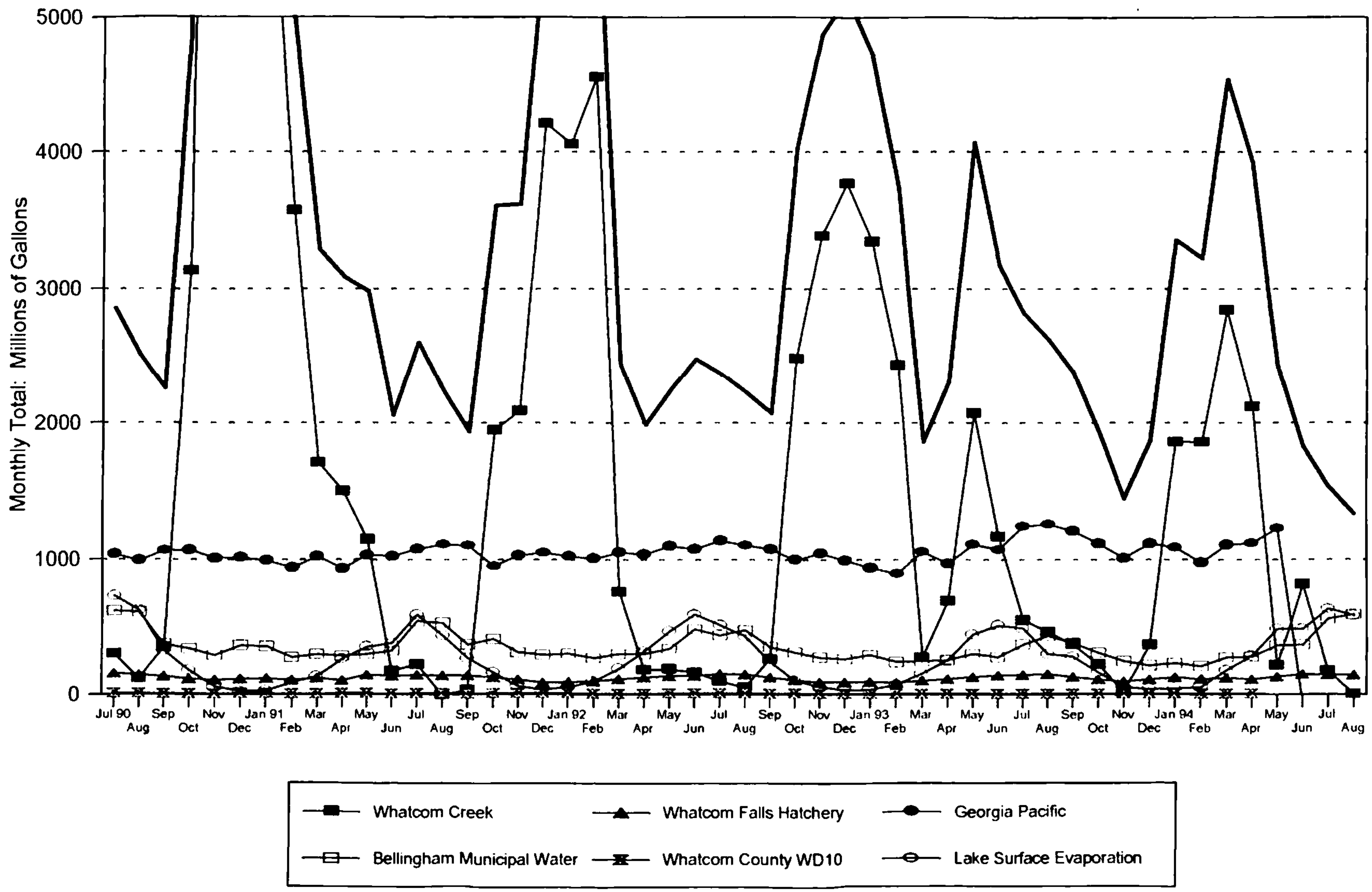


Figure 121: Lake Whatcom Outputs: Percentages

July 1990 - August 1994

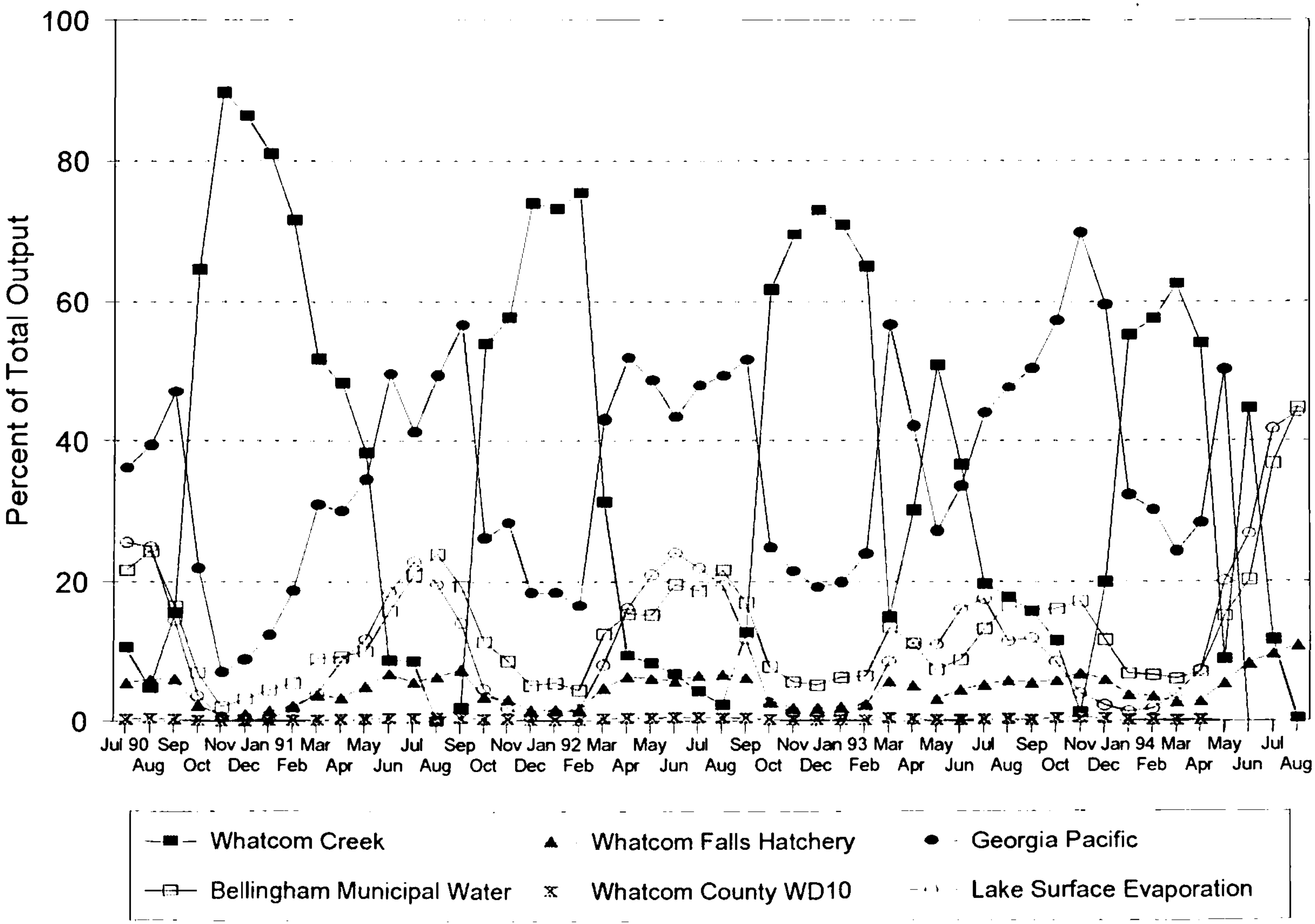


Figure 122:

CONTROL CHART: LAKE WHATCOM DATA
93/94 Alkalinity QC Duplicates

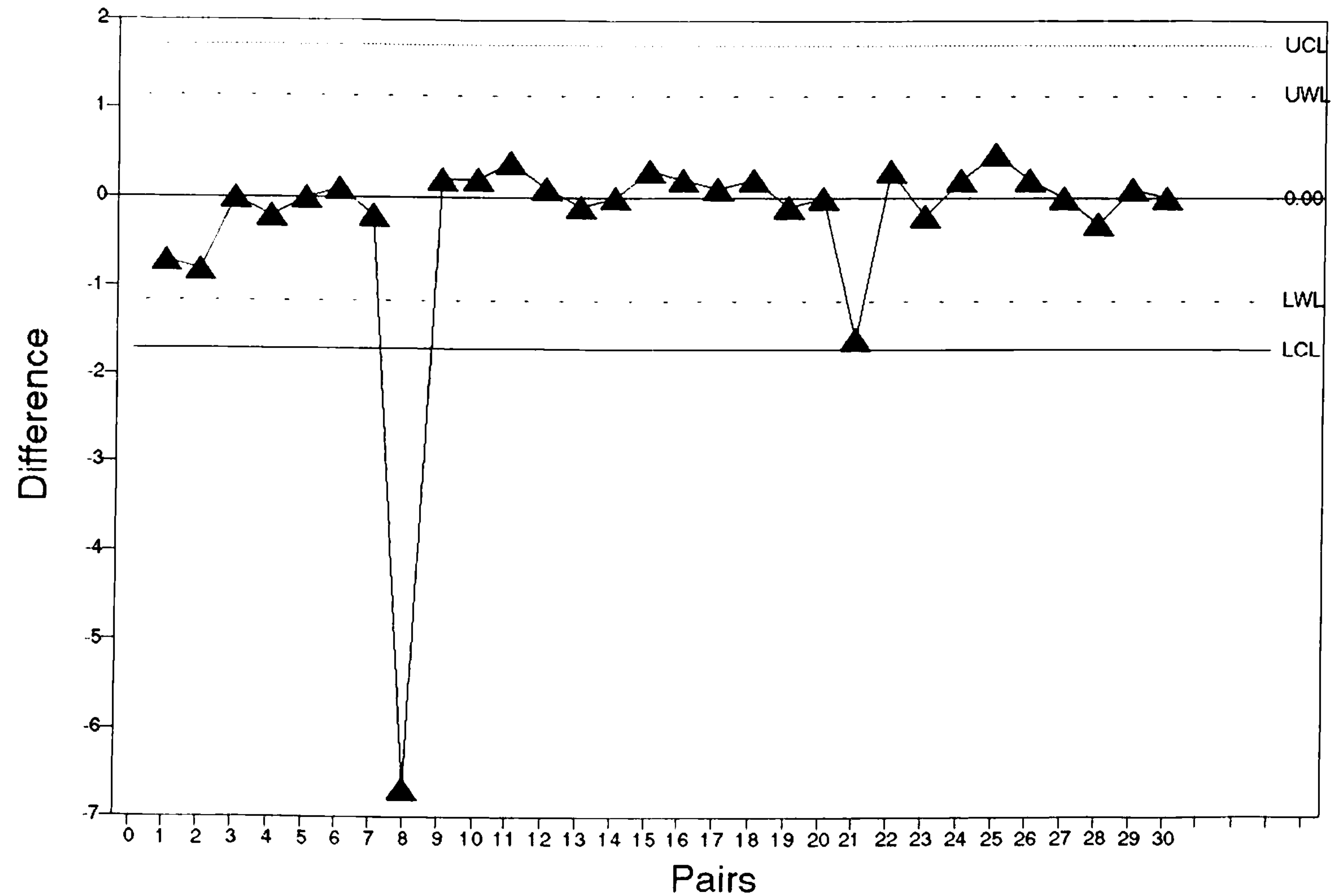


Figure 123:

CONTROL CHART: LAKE WHATCOM DATA
93/94 Conductivity QC Duplicates

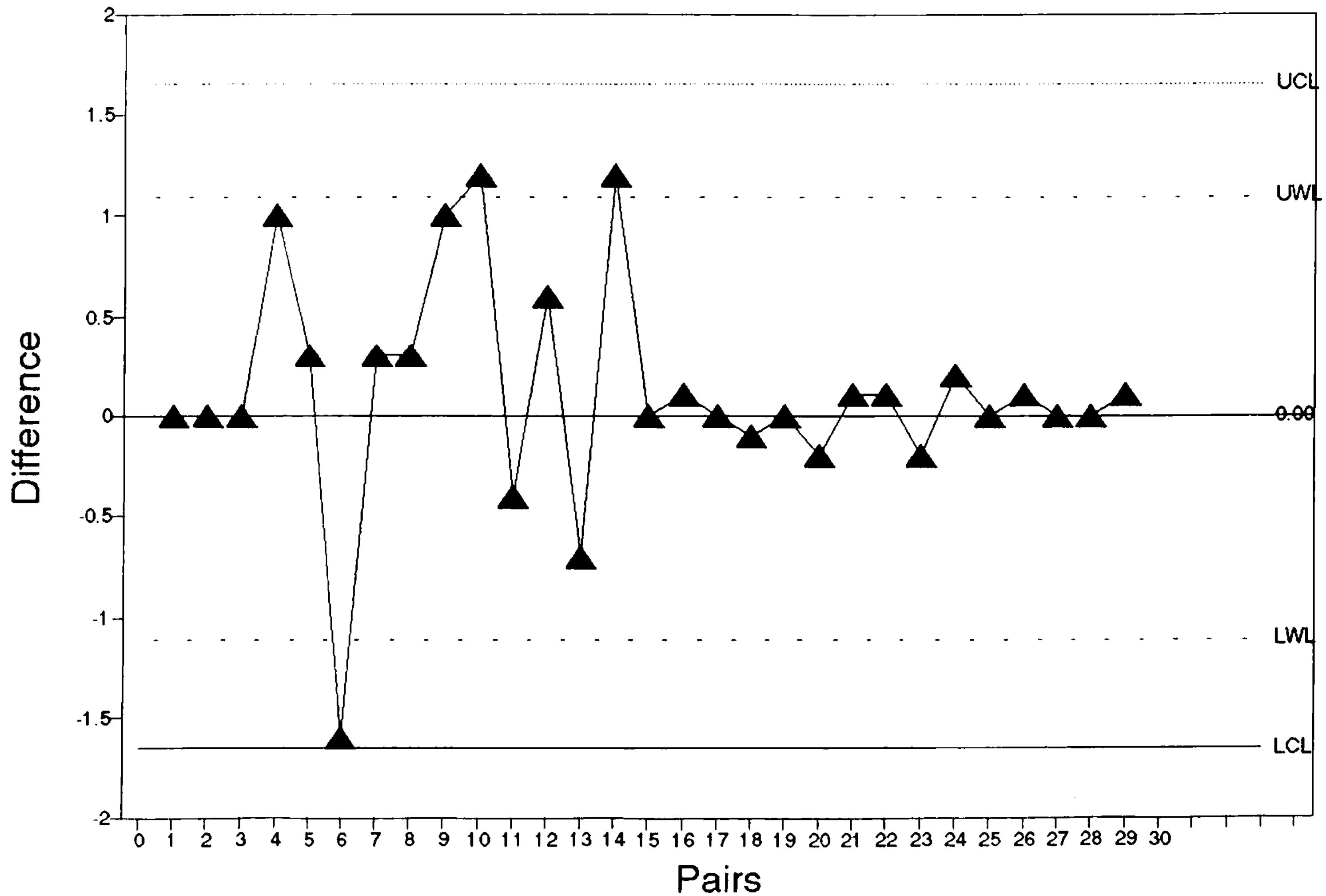


Figure 124:

CONTROL CHART: LAKE WHATCOM DATA
93/94 DO QC Duplicates

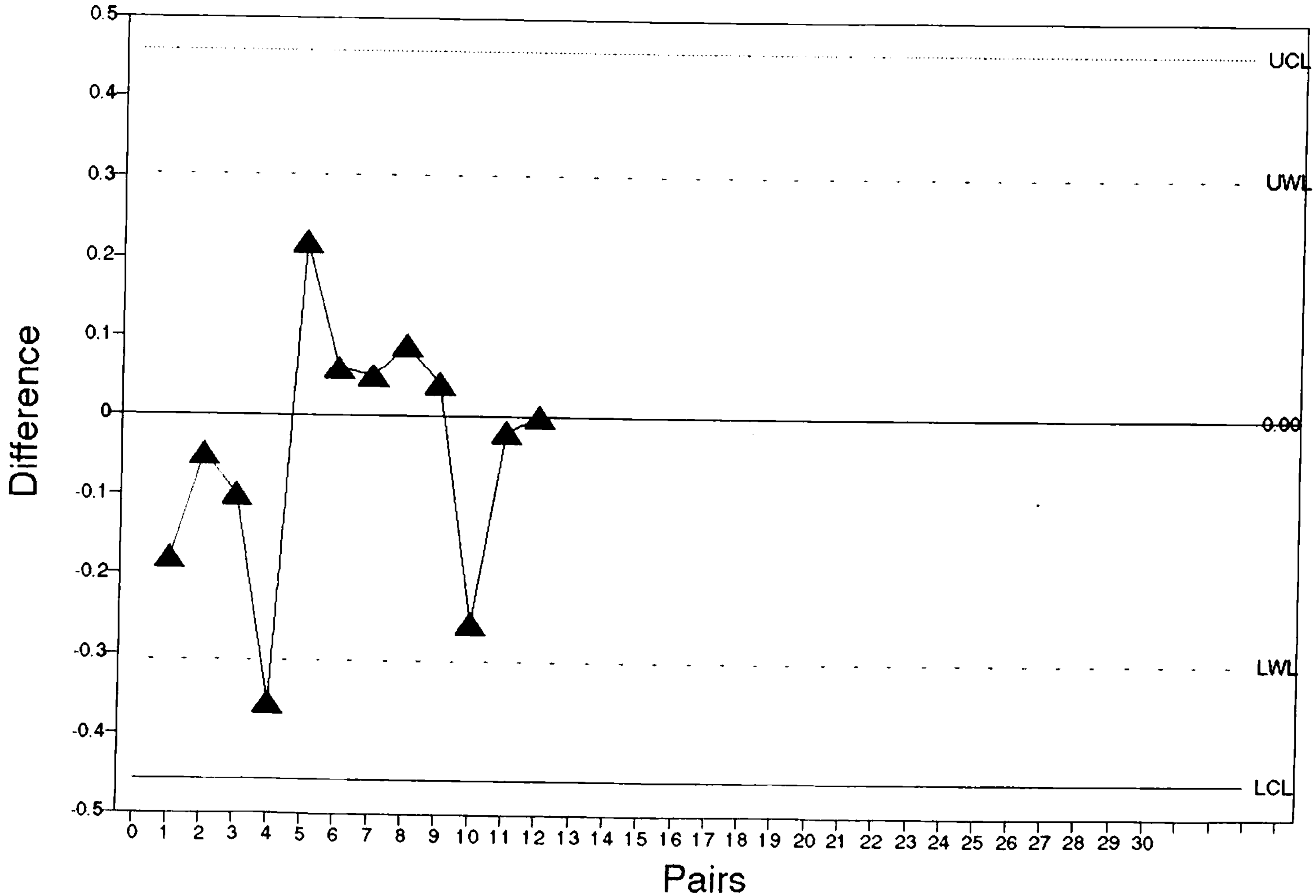


Figure 125:

CONTROL CHART: LAKE WHATCOM DATA
93/94 NO3/NO2 QC Duplicates

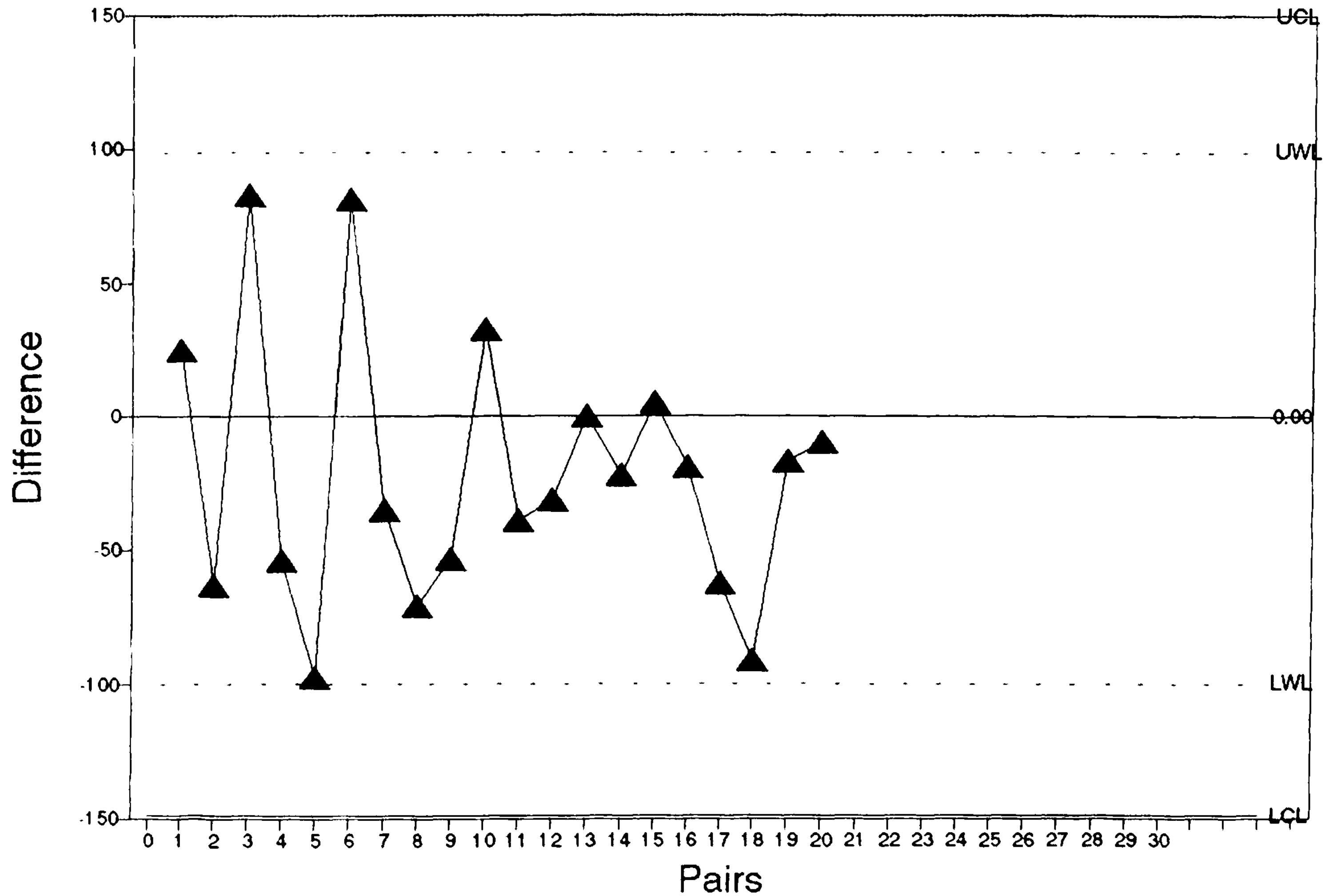


Figure 126:

CONTROL CHART: LAKE WHATCOM DATA
93/94 pH QC Duplicates

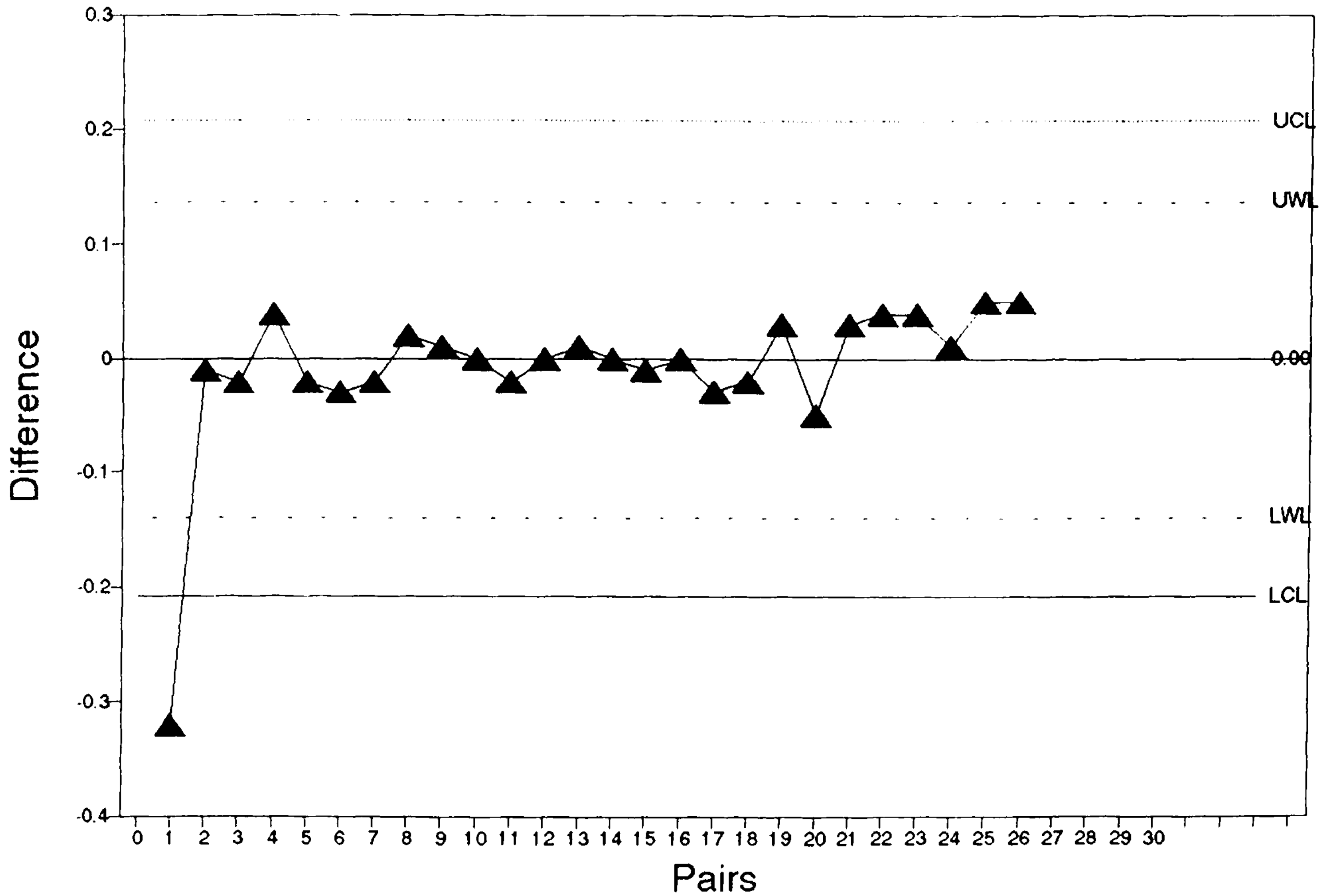
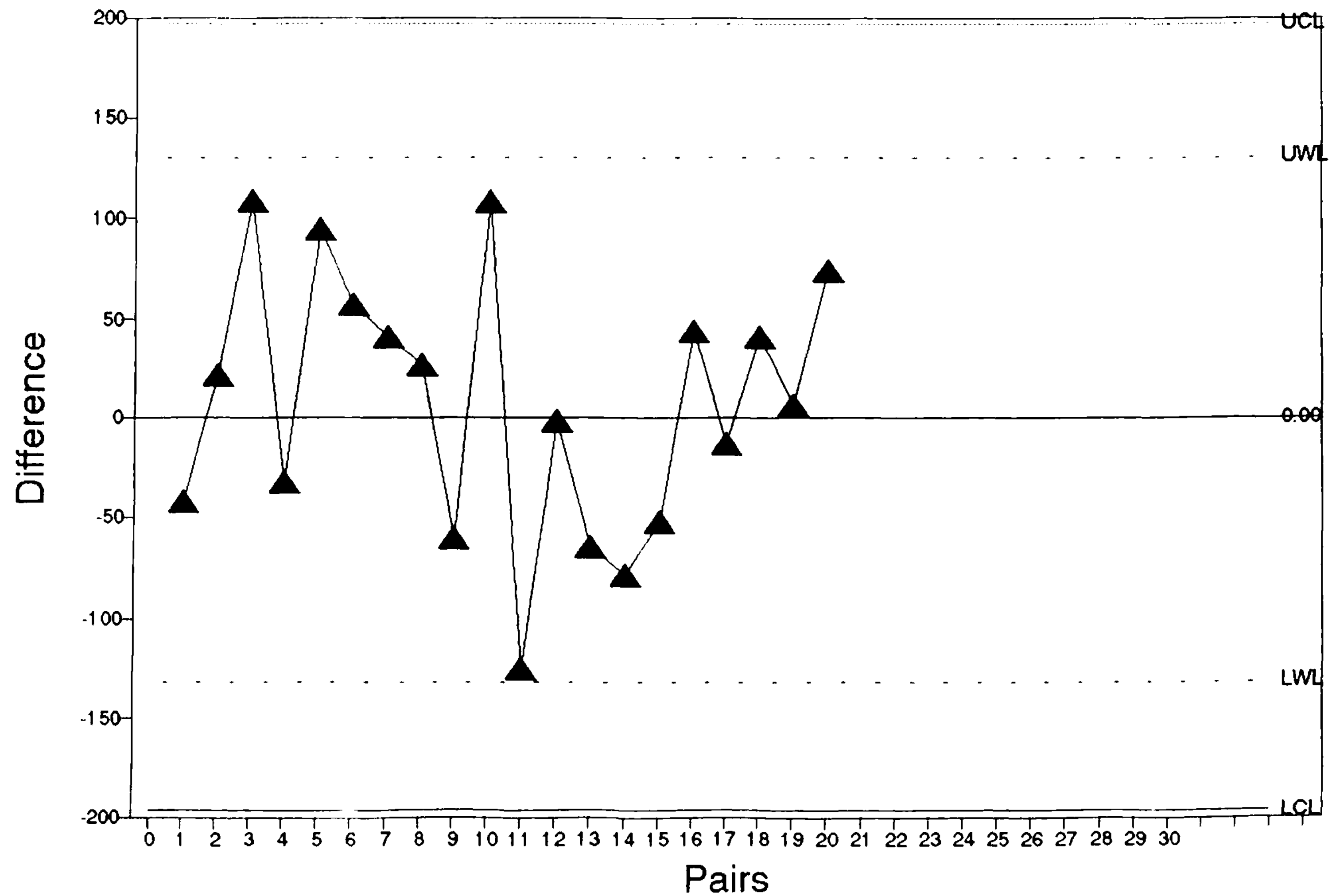


Figure 127:

CONTROL CHART: LAKE WHATCOM DATA
93/94 Total Nitrogen QC Duplicates



A Sampling Site Descriptions

A.1 Lake Whatcom Monitoring Sites

Please refer to Figure 128 and Figure 129 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 17 shows a summary of the identification codes that have been used for these five sites over time.

During the August 5, 1993 lake sampling, geographical locations for each site were determined using a GPS locater. These coordinates are listed below, but should be used with the caution because site locations in Lake Whatcom have always been approximate.

Site 1 Site 1 is located in basin 1 along a straight line from the Bloedel 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. The GPS coordinates for Site 1 on August 5, 1993 were: 48° 45.74 N, 122° 24.63 W.

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. The GPS coordinates for Site 2 on August 5, 1993 were: 48° 44.55 N, 122° 22.81 W.

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. The GPS coordinates for the Intake site on August 5, 1993 were: 48° 44.89 N, 122° 23.47 W.

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. The GPS coordinates for Site 3 on August 5, 1993 were: 48° 44.27 N, 122° 20.25 W.

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. The GPS coordinates for Site 4 on August 5, 1993 were: 48° 41.53 N, 122° 18.01 W.

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. sub-basin of basin 3
C	1982–1984	
5	1960's–1981	
4	1985–present	Located at approximately the deepest
32	1987–present	point in S. sub-basin of basin 3
E	1982–1984	
10	1960's–1981	

Table 17: Summary of site codes for Lake Whatcom water quality sampling.

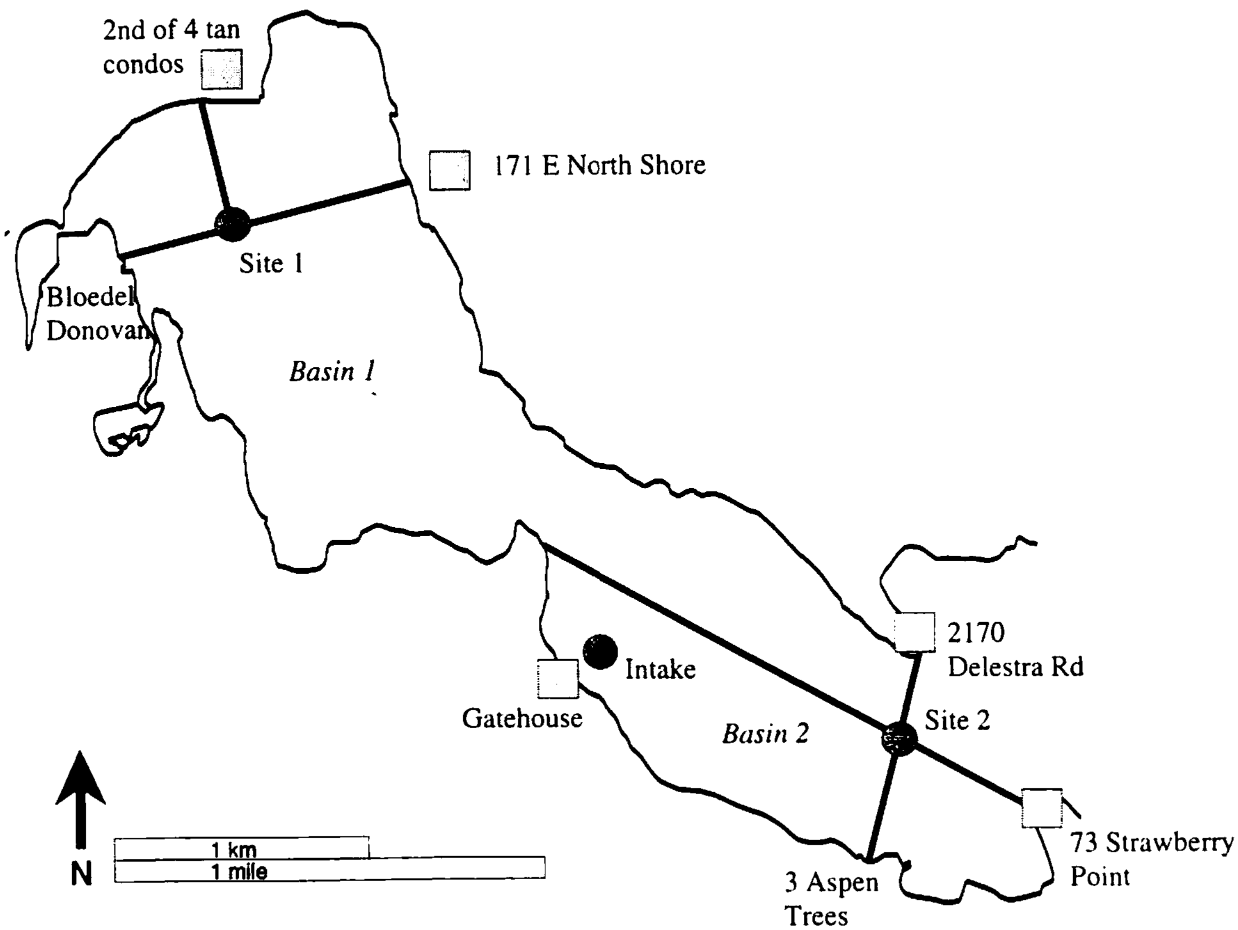


Figure 128: Basin 1 and 2 site locations. See text for descriptions of local landmarks. All distances and locations are approximate.

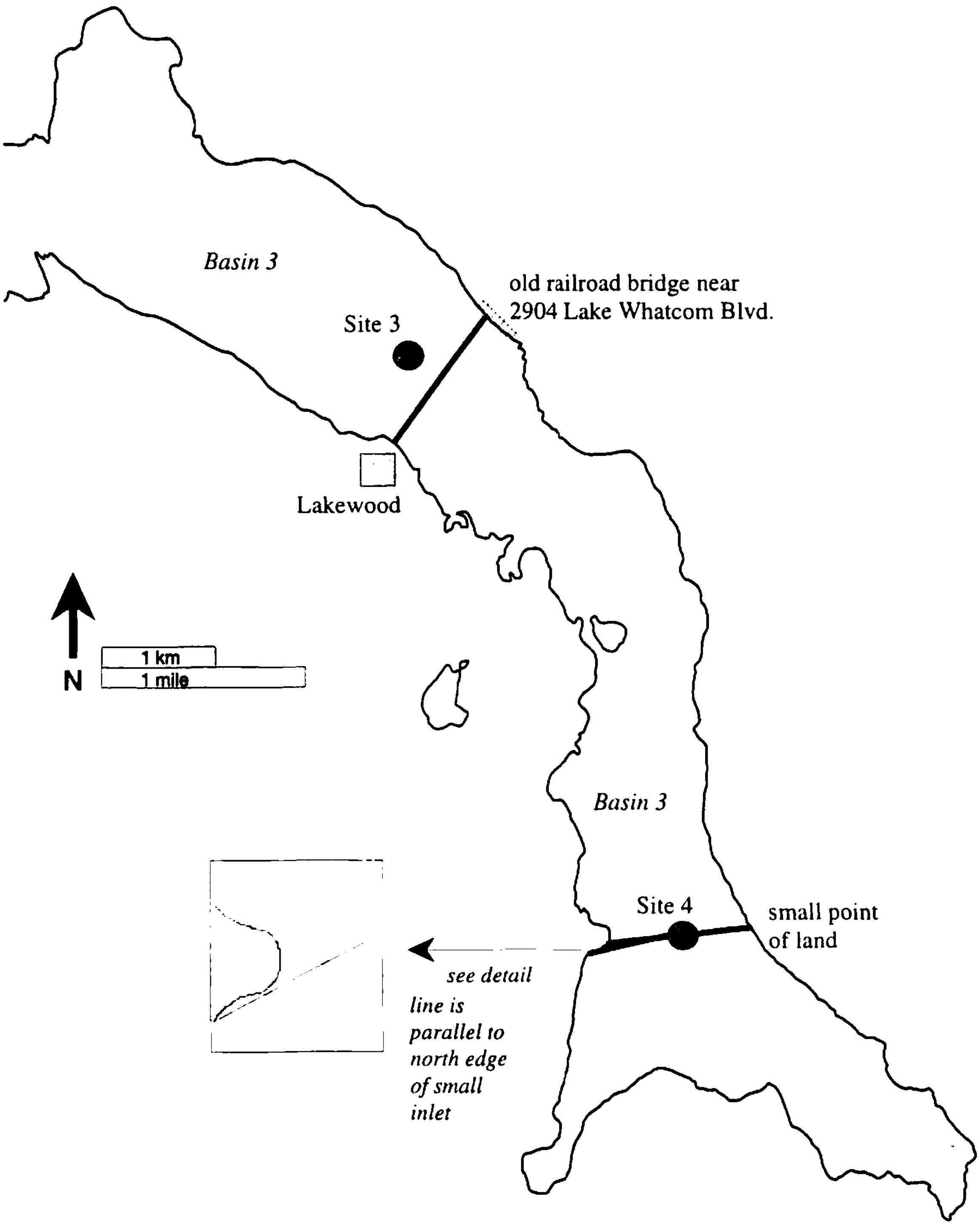


Figure 129: Basin 3 site locations. See text for descriptions of local landmarks. All distances and locations are approximate.

A.2 Lake Whatcom Near-Shore Sampling Sites

The approximate locations for the 1994 near-shore bacteria sampling are shown in Figure 102. These sites were chosen to overlap with the approximate positions of the 1985 URS coliform sampling in Lake Whatcom (URS Corporation, 1985) and the 1993 near-shore bacteria sampling for the Lake Whatcom monitoring project (Matthews and Matthews, 1994). All of the lake sites were approximately 100 m off-shore. During the near-shore sampling trip, geographical locations for the lake site were determined using a GPS locater. These coordinates are listed below, but should be used with the caution because site locations in Lake Whatcom have always been approximate.

Site #	Description	GPS Coordinates
0–1	Silver Beach Creek (basin 1)	
0–2	Park Place storm drain (basin 1)	
0–10	Culvert flowing from condos on N end of basin 1	
0–3	Plastic culvert at Grand Blvd. and Whatcom Blvd.	
0–4	Ravine at intersection of Lakeway Dr. and Euclid Ave.	
1–1	Basin 1, NW side, approx. 100 m off-shore	48° 45.38 N, 122° 24.71 W
1–2	Basin 1, SW side, approx. 100 m off-shore	48° 45.11 N, 122° 24.50 W
1–3	Basin 1, SW side, approx. 100 m off-shore	48° 45.12 N, 122° 24.87 W
1–4	Basin 1, SE side, approx. 100 m off-shore	48° 45.15 N, 122° 23.58 W
1–5	Basin 1, SE side, approx. 100 m off-shore	48° 45.22 N, 122° 23.72 W
1–6	Basin 1, E side, approx. 100 m off-shore	48° 45.60 N, 122° 24.05 W
1–7	Basin 1, E side, approx. 100 m off-shore	48° 45.92 N, 122° 24.20 W
1–8	Basin 1, N side, approx. 100 m off-shore	48° 46.12 N, 122° 24.44 W
1–9	Basin 1, N side, approx. 100 m off-shore	48° 46.11 N, 122° 24.46 W
1–10	Basin 1, N side, approx. 100 m off-shore	48° 45.93 N, 122° 24.45 W
1–11	Basin 1, NW side, approx. 100 m off-shore	48° 45.89 N, 122° 24.83 W
1–12	Basin 1, NW side, approx. 100 m off-shore	48° 45.76 N, 122° 25.13 W
1–13	Basin 1, NW side, approx. 100 m off-shore	48° 45.76 N, 122° 25.05 W
2–1	Basin 2, NE side, approx. 100 m off-shore	48° 45.14 N, 122° 23.35 W
2–2	Basin 2, NE side, approx. 100 m off-shore	48° 45.06 N, 122° 23.15 W
2–3	Basin 2, E side, approx. 100 m off-shore	48° 44.89 N, 122° 22.84 W
2–4	Basin 2, SE side, approx. 100 m off-shore	48° 44.81 N, 122° 22.63 W
2–5	Basin 2, SW side, approx. 100 m off-shore	48° 44.36 N, 122° 22.30 W
2–6	Basin 2, SW side, approx. 100 m off-shore	48° 44.39 N, 122° 22.53 W
2–7	Basin 2, SW side, approx. 100 m off-shore	48° 45.03 N, 122° 23.69 W
2–8	Basin 2, W side, approx. 100 m off-shore	48° 44.93 N, 122° 23.67 W
2–9	Basin 2, W side, approx. 100 m off-shore	48° 44.72 N, 122° 23.48 W
2–10	Basin 2, NW side, approx. 100 m off-shore	48° 44.46 N, 122° 22.92 W
2–11	Basin 2, NW side, approx. 100 m off-shore	48° 44.53 N, 122° 23.36 W

A.3 Creek Monitoring Sites

The routine creek monitoring sites are described in detail by Walker, et al. (1992), and summarized below.

Smith Creek: Samples are collected approximately 100 yards upstream from Lake Whatcom.

Silver Beach Creek: All routine monitoring samples are collected immediately upstream from the culvert under North Shore Road.

Park Place storm drain: Samples are collected inside the storm drain under Park Place (road off of North Shore Drive.) When the lake level is low enough, samples can be collected at the mouth of the outlet pipe flowing into the lake.

Austin Creek: The site is located at the Sudden Valley golf course approximately 1800 ft upstream from where the creek flows into Lake Whatcom.

Wildwood Creek: The site is located approximately 30 feet south of the entrance to the Wildwood Resort at the culvert where South Lake Whatcom Boulevard crosses the creek.

Blue Canyon Creek: This small creek is not shown on the USGS topographic map for the area. However, it is located just north of the two major Blue Canyon streams pictured on the USGS Lake Whatcom 7.5 min. quadrangle (Sect. 22, T 37N, R 4E).. Samples are collected upstream from the culvert crossing the Blue Canyon road.

B Lake Whatcom Water Quality Data

CAUTION! ⇒ Not all of the raw data contained in this Appendix have been edited to remove "bdl" data, negative values, outliers, or other extreme values. All bdl values are plotted at their detection limit in the report figures; outliers and questionable values are discussed in the text, if appropriate. Therefore, you are cautioned against using these raw data without including the necessary qualifiers.

The 1993–1994 Lake Whatcom water quality data, including data from representative creeks and special sampling projects, 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, 1992; EPA 1983), 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
Carbon, total organic	mg-C/L	na
Chlorophyll *a*	mg/m^3	na
Coliforms, fecal	col. or MPN/100 mL	< 2 col/100 mL
Coliforms, total	col. or MPN/100 mL	< 2 col/100 mL
Conductivity, Hydrolab	μMHO/cm	~ 2 μMHO/cm
Conductivity, lab	μMHO/cm	2 μMHO/cm
Enterococcus	col. or MPN/100 mL	< 2 col/100 mL
Metals, total arsenic*	μg/L	30 μg/L
Metals, total cadmium*	μg/L	2 μg/L
Metals, total chromium*	μg/L	6 μg/L
Metals, total copper*	μg/L	2 μg/L
Metals, total iron*	μg/L	10 μg/L
Metals, total lead*	μg/L	1 μg/L
Metals, total mercury*	μg/L	10 μg/L
Metals, total nickel*	μg/L	10 μg/L
Metals, total zinc*	μg/L	2 μg/L
Nitrogen, ammonia	μg-N/L	5 μg/L
Nitrogen, nitrate/nitrite	μg-N/L	50 μg/L
Nitrogen, total 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
Phosphate, soluble reactive	μg-P/L	5 μg/L
Phosphorus, total	μg-P/L	5 μg/L
Secchi depth	meters	na
Temperature	°C	na
Total Suspended Solids	mg/L	2 mg/L
Turbidity	NTU	0.2 NTU

*The AmTest metals data report is included in Appendix C.

B.1 Lake Whatcom Hydrolab Data

Site	Depth	Month	Day	Year	Temp	pH	Cond	DO	LCon	Secc
Site 1	0	10	5	92	15.7	7.5	*	8.8	59	3.9
Site 1	1	10	5	92	15.7	*	*	*	*	*
Site 1	2	10	5	92	15.7	*	*	*	*	*
Site 1	3	10	5	92	15.7	*	*	*	*	*
Site 1	4	10	5	92	15.6	*	*	*	*	*
Site 1	5	10	5	92	15.6	7.5	*	8.7	59	*
Site 1	6	10	5	92	15.6	*	*	*	*	*
Site 1	7	10	5	92	15.6	*	*	*	*	*
Site 1	8	10	5	92	15.5	*	*	*	*	*
Site 1	9	10	5	92	15.5	*	*	*	*	*
Site 1	10	10	5	92	15.4	7.4	*	8.7	59	*
Site 1	11	10	5	92	15.4	*	*	*	*	*
Site 1	12	10	5	92	15.1	*	*	*	*	*
Site 1	13	10	5	92	13.3	*	*	*	*	*
Site 1	14	10	5	92	11.8	*	*	*	*	*
Site 1	15	10	5	92	10.8	6.8	*	0.8	70	*
Site 1	16	10	5	92	10.5	*	*	*	*	*
Site 1	17	10	5	92	10.3	*	*	*	*	*
Site 1	18	10	5	92	10.2	*	*	*	*	*
Site 1	19	10	5	92	10.1	*	*	*	*	*
Site 1	20	10	5	92	10.1	6.8	*	0.2	71	*
Intake	0	10	5	92	16.1	7.6	*	9.4	57	5.0
Intake	1	10	5	92	16.1	*	*	*	*	*
Intake	2	10	5	92	16.1	*	*	*	*	*
Intake	3	10	5	92	16.0	*	*	*	*	*
Intake	4	10	5	92	15.9	*	*	*	*	*
Intake	5	10	5	92	15.9	7.4	*	9.4	57	*
Intake	6	10	5	92	15.9	*	*	*	*	*
Intake	7	10	5	92	15.8	*	*	*	*	*
Intake	8	10	5	92	15.8	*	*	*	*	*
Intake	9	10	5	92	15.8	*	*	*	*	*
Intake	10	10	5	92	15.8	7.4	*	9.3	57	*
Intake	11	10	5	92	15.8	*	*	*	*	*
Intake	12	10	5	92	15.8	*	*	*	*	*
Site 2	0	10	5	92	16.2	7.6	*	9.2	58	5.0
Site 2	1	10	5	92	16.2	*	*	*	*	*
Site 2	2	10	5	92	16.2	*	*	*	*	*
Site 2	3	10	5	92	16.2	*	*	*	*	*
Site 2	4	10	5	92	16.2	*	*	*	*	*
Site 2	5	10	5	92	16.1	7.6	*	9.7	57	*
Site 2	6	10	5	92	16.1	*	*	*	*	*
Site 2	7	10	5	92	16.0	*	*	*	*	*
Site 2	8	10	5	92	16.0	*	*	*	*	*
Site 2	9	10	5	92	16.0	*	*	*	*	*
Site 2	10	10	5	92	16.0	7.5	*	9.2	59	*
Site 2	11	10	5	92	16.0	*	*	*	*	*
Site 2	12	10	5	92	16.0	*	*	*	*	*
Site 2	13	10	5	92	16.0	*	*	*	*	*
Site 2	14	10	5	92	15.9	*	*	*	*	*
Site 2	15	10	5	92	15.1	7.5	*	9.2	58	*
Site 2	16	10	5	92	12.8	*	*	*	*	*
Site 2	17	10	5	92	11.6	*	*	*	*	*
Site 2	18	10	5	92	10.9	*	*	*	*	*
Site 2	19	10	5	92	10.7	*	*	*	*	*
Site 2	20	10	5	92	10.6	6.8	*	1.5	69	*
Site 3	0	10	5	92	16.0	7.6	*	9.3	58	5.3
Site 3	1	10	5	92	16.0	*	*	*	*	*
Site 3	2	10	5	92	16.0	*	*	*	*	*
Site 3	3	10	5	92	15.9	*	*	*	*	*
Site 3	4	10	5	92	15.8	*	*	*	*	*

Site	Depth	Month	Day	Year	Temp	pH	Cond	DO	LCon	Secc
Site 3	5	10	5	92	15.8	7.4	*	9.0	58	*
Site 3	6	10	5	92	15.9	*	*	*	*	*
Site 3	7	10	5	92	15.8	*	*	*	*	*
Site 3	8	10	5	92	15.8	*	*	*	*	*
Site 3	9	10	5	92	15.8	*	*	*	*	*
Site 3	10	10	5	92	15.8	7.6	*	9.2	58	*
Site 3	11	10	5	92	15.8	*	*	*	*	*
Site 3	12	10	5	92	15.8	*	*	*	*	*
Site 3	13	10	5	92	15.8	*	*	*	*	*
Site 3	14	10	5	92	15.8	*	*	*	*	*
Site 3	15	10	5	92	15.8	*	*	*	*	*
Site 3	16	10	5	92	15.7	*	*	*	*	*
Site 3	17	10	5	92	15.5	*	*	*	*	*
Site 3	18	10	5	92	13.0	*	*	*	*	*
Site 3	19	10	5	92	11.5	*	*	*	*	*
Site 3	20	10	5	92	11.0	7.2	*	8.2	58	*
Site 3	25	10	5	92	8.8	*	*	*	*	*
Site 3	30	10	5	92	7.6	*	*	*	*	*
Site 3	35	10	5	92	7.1	*	*	*	*	*
Site 3	40	10	5	92	6.9	7.1	*	8.5	58	*
Site 3	45	10	5	92	6.8	*	*	*	*	*
Site 3	50	10	5	92	6.7	*	*	*	*	*
Site 3	55	10	5	92	6.6	*	*	*	*	*
Site 3	60	10	5	92	6.5	7.0	*	8.2	59	*
Site 3	65	10	5	92	6.5	*	*	*	*	*
Site 3	70	10	5	92	6.4	*	*	*	*	*
Site 3	75	10	5	92	6.4	*	*	*	*	*
Site 3	80	10	5	92	6.4	6.8	*	3.6	67	*
Site 4	0	10	5	92	15.7	7.5	*	9.3	58	5.2
Site 4	1	10	5	92	15.7	*	*	*	*	*
Site 4	2	10	5	92	15.7	*	*	*	*	*
Site 4	3	10	5	92	15.7	*	*	*	*	*
Site 4	4	10	5	92	15.7	*	*	*	*	*
Site 4	5	10	5	92	15.7	7.4	*	9.2	58	*
Site 4	6	10	5	92	15.7	*	*	*	*	*
Site 4	7	10	5	92	15.7	*	*	*	*	*
Site 4	8	10	5	92	15.7	*	*	*	*	*
Site 4	9	10	5	92	15.7	*	*	*	*	*
Site 4	10	10	5	92	15.6	7.2	*	9.3	58	*
Site 4	11	10	5	92	15.6	*	*	*	*	*
Site 4	12	10	5	92	15.6	*	*	*	*	*
Site 4	13	10	5	92	15.6	*	*	*	*	*
Site 4	14	10	5	92	15.6	*	*	*	*	*
Site 4	15	10	5	92	15.6	*	*	*	*	*
Site 4	16	10	5	92	15.4	*	*	*	*	*
Site 4	17	10	5	92	15.5	*	*	*	*	*
Site 4	18	10	5	92	15.2	*	*	*	*	*
Site 4	19	10	5	92	14.4	*	*	*	*	*
Site 4	20	10	5	92	12.5	7.0	*	8.2	58	*
Site 4	25	10	5	92	8.5	*	*	*	*	*
Site 4	30	10	5	92	7.3	*	*	*	*	*
Site 4	35	10	5	92	7.0	*	*	*	*	*
Site 4	40	10	5	92	6.8	7.1	*	8.9	57	*
Site 4	45	10	5	92	6.7	*	*	*	*	*
Site 4	50	10	5	92	6.6	*	*	*	*	*
Site 4	55	10	5	92	6.6	*	*	*	*	*
Site 4	60	10	5	92	6.6	7.0	*	8.8	58	*
Site 4	65	10	5	92	6.5	*	*	*	*	*
Site 4	70	10	5	92	6.5	*	*	*	*	*
Site 4	75	10	5	92	6.5	*	*	*	*	*

Site	Depth	Month	Day	Year	Temp	pH	Cond	DO	LCon	Secc
Site 4	80	10	5	92	6.5	7.1	*	9.2	57	*
Site 4	85	10	5	92	6.5	*	*	*	*	*
Site 4	90	10	5	92	6.5	7.1	*	8.9	58	*
Gate	0	10	5	92	16.5	7.8	67	8.3	58	*
Site 1	0	11	11	92	11.3	7.4	65	9.9	30	3.8
Site 1	1	11	11	92	11.3	7.5	65	9.8	*	*
Site 1	2	11	11	92	11.3	7.5	66	9.9	*	*
Site 1	3	11	11	92	11.2	7.5	68	9.9	*	*
Site 1	4	11	11	92	11.2	7.4	68	9.9	*	*
Site 1	5	11	11	92	11.3	7.4	68	9.9	38	*
Site 1	6	11	11	92	11.2	7.4	68	9.9	*	*
Site 1	7	11	11	92	11.2	7.4	68	9.9	*	*
Site 1	8	11	11	92	11.2	7.4	68	9.9	*	*
Site 1	9	11	11	92	11.2	7.4	68	9.9	*	*
Site 1	10	11	11	92	11.2	7.4	69	9.9	48	*
Site 1	11	11	11	92	11.2	7.4	69	9.9	*	*
Site 1	12	11	11	92	11.2	7.4	70	9.9	*	*
Site 1	13	11	11	92	11.2	7.4	69	9.9	*	*
Site 1	14	11	11	92	11.2	7.4	69	9.9	*	*
Site 1	15	11	11	92	11.2	7.4	69	9.9	47	*
Site 1	16	11	11	92	11.2	7.4	69	9.9	*	*
Site 1	17	11	11	92	11.2	7.4	69	9.9	*	*
Site 1	18	11	11	92	11.2	7.4	69	9.9	*	*
Site 1	19	11	11	92	11.2	7.4	69	9.9	*	*
Site 1	20	11	11	92	11.2	7.4	69	9.9	49	*
Intake	0	11	11	92	11.8	7.5	64	10.4	49	4.0
Intake	1	11	11	92	11.8	7.5	64	10.3	*	*
Intake	2	11	11	92	11.8	7.5	65	10.3	*	*
Intake	3	11	11	92	11.8	7.5	66	10.3	*	*
Intake	4	11	11	92	11.8	7.5	66	10.3	*	*
Intake	5	11	11	92	11.8	7.5	67	10.3	47	*
Intake	6	11	11	92	11.8	7.5	67	10.2	*	*
Intake	7	11	11	92	11.8	7.5	67	10.2	*	*
Intake	8	11	11	92	11.8	7.5	67	10.2	*	*
Intake	9	11	11	92	11.8	7.5	67	10.2	*	*
Intake	10	11	11	92	11.8	7.5	68	10.2	48	*
Intake	11	11	11	92	11.7	7.5	68	10.2	*	*
Site 2	0	11	11	92	11.8	7.5	64	10.3	48	3.8
Site 2	1	11	11	92	11.8	7.5	64	10.3	*	*
Site 2	2	11	11	92	11.8	7.5	65	10.3	*	*
Site 2	3	11	11	92	11.8	7.5	66	10.3	*	*
Site 2	4	11	11	92	11.8	7.5	66	10.3	*	*
Site 2	5	11	11	92	11.8	7.5	67	10.3	49	*
Site 2	6	11	11	92	11.8	7.5	67	10.2	*	*
Site 2	7	11	11	92	11.8	7.5	67	10.3	*	*
Site 2	8	11	11	92	11.8	7.5	67	10.3	*	*
Site 2	9	11	11	92	11.8	7.5	68	10.2	*	*
Site 2	10	11	11	92	11.8	7.5	68	10.2	49	*
Site 2	11	11	11	92	11.8	7.5	68	10.2	*	*
Site 2	12	11	11	92	11.8	7.5	68	10.2	*	*
Site 2	13	11	11	92	11.8	7.5	68	10.2	*	*
Site 2	14	11	11	92	11.8	7.5	69	10.2	*	*
Site 2	15	11	11	92	11.8	7.5	69	10.2	49	*
Site 2	16	11	11	92	11.8	7.5	68	10.2	*	*
Site 2	17	11	11	92	11.8	7.5	68	10.1	*	*
Site 2	18	11	11	92	11.8	7.5	68	10.1	*	*
Site 2	19	11	11	92	11.8	7.5	68	10.1	*	*
Site 2	20	11	11	92	11.8	7.5	68	10.1	49	*
Site 3	0	11	11	92	12.0	7.5	64	10.3	50	4.0
Site 3	1	11	11	92	12.1	7.5	64	10.2	*	*

Site	Depth	Month	Day	Year	Temp	pH	Cond	DO	LCon	Secc
Site 3	2	11	11	92	12.1	7.5	65	10.2	*	*
Site 3	3	11	11	92	12.1	7.5	66	10.2	*	*
Site 3	4	11	11	92	12.1	7.5	67	10.2	*	*
Site 3	5	11	11	92	12.1	7.5	67	10.2	49	*
Site 3	6	11	11	92	12.1	7.5	67	10.2	*	*
Site 3	7	11	11	92	12.1	7.4	68	10.2	*	*
Site 3	8	11	11	92	12.1	7.5	68	10.2	*	*
Site 3	9	11	11	92	12.1	7.5	68	10.1	*	*
Site 3	10	11	11	92	12.1	7.5	68	10.2	49	*
Site 3	11	11	11	92	12.1	7.4	68	10.1	*	*
Site 3	12	11	11	92	12.1	7.4	68	10.1	*	*
Site 3	13	11	11	92	12.1	7.4	68	10.1	*	*
Site 3	14	11	11	92	12.1	7.4	68	10.1	*	*
Site 3	15	11	11	92	12.1	7.4	68	10.1	*	*
Site 3	16	11	11	92	12.1	7.4	69	10.1	*	*
Site 3	17	11	11	92	12.1	7.4	68	10.1	*	*
Site 3	18	11	11	92	12.1	7.4	68	10.1	*	*
Site 3	19	11	11	92	12.1	7.4	68	10.1	*	*
Site 3	20	11	11	92	12.1	7.4	68	10.0	49	*
Site 3	25	11	11	92	9.4	7.0	68	8.4	*	*
Site 3	30	11	11	92	8.1	7.0	68	8.6	*	*
Site 3	35	11	11	92	7.8	6.9	66	8.6	*	*
Site 3	40	11	11	92	7.6	6.9	66	8.5	50	*
Site 3	45	11	11	92	7.5	6.9	66	7.9	*	*
Site 3	50	11	11	92	7.4	6.9	65	7.8	*	*
Site 3	55	11	11	92	7.4	6.9	64	7.8	*	*
Site 3	60	11	11	92	7.4	6.8	64	7.7	51	*
Site 3	65	11	11	92	7.3	6.8	63	7.5	*	*
Site 3	70	11	11	92	7.3	6.8	65	7.2	*	*
Site 3	75	11	11	92	7.2	6.7	64	6.9	*	*
Site 3	80	11	11	92	7.2	6.6	64	5.8	52	*
Site 4	0	11	11	92	11.8	7.3	64	10.4	52	4.3
Site 4	1	11	11	92	11.8	7.3	64	10.4	*	*
Site 4	2	11	11	92	11.8	7.3	66	10.3	*	*
Site 4	3	11	11	92	11.8	7.3	66	10.1	*	*
Site 4	4	11	11	92	11.8	7.3	67	10.1	*	*
Site 4	5	11	11	92	11.9	7.3	67	10.1	52	*
Site 4	6	11	11	92	11.9	7.3	67	10.1	*	*
Site 4	7	11	11	92	11.9	7.3	67	10.1	*	*
Site 4	8	11	11	92	11.9	7.3	67	10.0	*	*
Site 4	9	11	11	92	11.9	7.4	69	10.0	*	*
Site 4	10	11	11	92	11.9	7.4	69	10.0	52	*
Site 4	11	11	11	92	11.9	7.4	69	10.0	*	*
Site 4	12	11	11	92	11.9	7.3	69	10.0	*	*
Site 4	13	11	11	92	11.9	7.3	69	10.0	*	*
Site 4	14	11	11	92	11.9	7.3	69	10.0	*	*
Site 4	15	11	11	92	11.9	7.3	69	10.0	*	*
Site 4	16	11	11	92	11.9	7.3	69	10.0	*	*
Site 4	17	11	11	92	11.9	7.3	69	9.9	*	*
Site 4	18	11	11	92	11.9	7.3	69	9.9	*	*
Site 4	19	11	11	92	11.9	7.3	69	9.9	*	*
Site 4	20	11	11	92	11.9	7.3	69	9.9	51	*
Site 4	25	11	11	92	11.7	7.3	69	9.8	*	*
Site 4	30	11	11	92	8.0	7.0	67	8.9	*	*
Site 4	35	11	11	92	7.7	6.9	69	8.7	*	*
Site 4	40	11	11	92	7.5	6.9	69	8.8	51	*
Site 4	45	11	11	92	7.5	6.9	69	8.8	*	*
Site 4	50	11	11	92	7.4	6.9	69	8.8	*	*
Site 4	55	11	11	92	7.4	6.9	68	8.7	*	*
Site 4	60	11	11	92	7.4	6.9	66	8.7	53	*

Site	Depth	Month	Day	Year	Temp	pH	Cond	DO	LCon	Secc
Site 4	65	11	11	92	7.4	6.8	65	8.6	*	*
Site 4	70	11	11	92	7.4	6.8	65	8.6	*	*
Site 4	75	11	11	92	7.3	6.8	64	8.7	*	*
Site 4	80	11	11	92	7.3	6.8	64	8.7	52	*
Site 4	85	11	11	92	7.3	6.8	65	8.7	*	*
Site 4	90	11	11	92	7.3	6.8	64	8.6	52	*
Gate	0	11	11	92	12.1	7.7	65	10.1	50	*
Site 1	0	12	14	92	6.8	7.4	66	11.9	37	4.8
Site 1	1	12	14	92	6.8	7.4	66	11.9	*	*
Site 1	2	12	14	92	6.8	7.5	66	11.9	*	*
Site 1	3	12	14	92	6.8	7.5	67	11.9	*	*
Site 1	4	12	14	92	6.8	7.5	68	11.9	*	*
Site 1	5	12	14	92	6.7	7.5	68	11.9	39	*
Site 1	6	12	14	92	6.7	7.5	68	11.9	*	*
Site 1	7	12	14	92	6.7	7.5	69	11.9	*	*
Site 1	8	12	14	92	6.7	7.4	69	11.9	*	*
Site 1	9	12	14	92	6.7	7.4	69	11.9	*	*
Site 1	10	12	14	92	6.7	7.4	69	11.9	38	*
Site 1	11	12	14	92	6.7	7.4	69	11.8	*	*
Site 1	12	12	14	92	6.7	7.5	70	11.9	*	*
Site 1	13	12	14	92	6.7	7.4	70	11.8	*	*
Site 1	14	12	14	92	6.7	7.4	70	11.8	*	*
Site 1	15	12	14	92	6.7	7.4	68	11.8	40	*
Site 1	16	12	14	92	6.7	7.4	70	11.7	*	*
Site 1	17	12	14	92	6.7	7.4	70	11.7	*	*
Site 1	18	12	14	92	6.7	7.4	70	11.7	*	*
Site 1	19	12	14	92	6.7	7.4	69	11.6	*	*
Site 1	20	12	14	92	6.7	7.4	69	11.6	37	*
Intake	0	12	14	92	8.2	7.4	63	11.5	39	5.0
Intake	1	12	14	92	8.2	7.4	65	11.4	*	*
Intake	2	12	14	92	8.2	7.4	65	11.4	*	*
Intake	3	12	14	92	8.2	7.4	65	11.4	*	*
Intake	4	12	14	92	8.2	7.4	67	11.3	*	*
Intake	5	12	14	92	8.1	7.4	67	11.4	36	*
Intake	6	12	14	92	8.1	7.4	67	11.4	*	*
Intake	7	12	14	92	8.1	7.4	67	11.4	*	*
Intake	8	12	14	92	8.1	7.4	67	11.3	*	*
Intake	9	12	14	92	8.1	7.4	67	11.3	*	*
Intake	10	12	14	92	8.1	7.4	67	11.4	39	*
Intake	11	12	14	92	8.0	7.4	68	11.4	*	*
Site 2	0	12	14	92	8.2	7.3	62	11.5	42	5.1
Site 2	1	12	14	92	8.2	7.4	63	11.3	*	*
Site 2	2	12	14	92	8.2	7.4	63	11.4	*	*
Site 2	3	12	14	92	8.2	7.4	64	11.4	*	*
Site 2	4	12	14	92	8.1	7.4	65	11.4	*	*
Site 2	5	12	14	92	8.1	7.4	65	11.4	44	*
Site 2	6	12	14	92	8.1	7.4	65	11.4	*	*
Site 2	7	12	14	92	8.1	7.4	66	11.4	*	*
Site 2	8	12	14	92	8.1	7.4	65	11.4	*	*
Site 2	9	12	14	92	8.1	7.4	66	11.4	*	*
Site 2	10	12	14	92	8.1	7.4	67	11.4	40	*
Site 2	11	12	14	92	8.1	7.4	66	11.4	*	*
Site 2	12	12	14	92	8.1	7.4	67	11.3	*	*
Site 2	13	12	14	92	8.1	7.4	66	11.4	*	*
Site 2	14	12	14	92	8.1	7.4	66	11.4	*	*
Site 2	15	12	14	92	8.1	7.4	67	11.4	42	*
Site 2	16	12	14	92	8.1	7.4	66	11.4	*	*
Site 2	17	12	14	92	8.1	7.4	66	11.4	*	*
Site 2	18	12	14	92	8.1	7.4	67	11.4	*	*
Site 2	19	12	14	92	8.1	7.4	67	11.3	41	*

Site	Depth	Month	Day	Year	Temp	pH	Cond	DO	LCon	Secc
Site 3	0	12	14	92	8.4	7.2	61	11.1	42	5.1
Site 3	1	12	14	92	8.4	7.2	63	11.1	*	*
Site 3	2	12	14	92	8.4	7.3	63	11.1	*	*
Site 3	3	12	14	92	8.4	7.3	63	11.1	*	*
Site 3	4	12	14	92	8.4	7.3	64	11.1	*	*
Site 3	5	12	14	92	8.4	7.3	64	11.1	41	*
Site 3	6	12	14	92	8.4	7.3	64	11.1	*	*
Site 3	7	12	14	92	8.4	7.3	65	11.1	*	*
Site 3	8	12	14	92	8.4	7.3	65	11.1	*	*
Site 3	9	12	14	92	8.4	7.3	65	11.0	*	*
Site 3	10	12	14	92	8.4	7.3	65	11.1	42	*
Site 3	11	12	14	92	8.4	7.3	65	11.0	*	*
Site 3	12	12	14	92	8.4	7.3	65	11.0	*	*
Site 3	13	12	14	92	8.4	7.3	65	11.0	*	*
Site 3	14	12	14	92	8.4	7.3	65	11.0	*	*
Site 3	15	12	14	92	8.4	7.3	65	11.0	*	*
Site 3	16	12	14	92	8.4	7.3	66	11.0	*	*
Site 3	17	12	14	92	8.4	7.3	66	11.0	*	*
Site 3	18	12	14	92	8.4	7.3	66	11.0	*	*
Site 3	19	12	14	92	8.4	7.3	66	11.0	*	*
Site 3	20	12	14	92	8.4	7.3	65	11.0	42	*
Site 3	25	12	14	92	8.4	7.3	66	10.8	*	*
Site 3	30	12	14	92	8.4	7.3	65	10.8	*	*
Site 3	35	12	14	92	8.4	7.3	65	10.7	*	*
Site 3	40	12	14	92	8.4	7.3	65	10.5	42	*
Site 3	45	12	14	92	7.8	7.1	64	9.1	*	*
Site 3	50	12	14	92	7.5	7.0	64	8.8	*	*
Site 3	55	12	14	92	7.4	6.9	63	8.5	*	*
Site 3	60	12	14	92	7.4	6.8	63	8.6	44	*
Site 3	65	12	14	92	7.4	6.8	64	8.5	*	*
Site 3	70	12	14	92	7.3	6.8	64	8.4	*	*
Site 3	75	12	14	92	7.3	6.8	64	8.2	*	*
Site 3	80	12	14	92	7.3	6.8	62	8.1	48	*
Site 4	0	12	14	92	8.4	7.1	61	10.9	43	4.7
Site 4	1	12	14	92	8.4	7.2	61	10.9	*	*
Site 4	2	12	14	92	8.4	7.2	62	10.9	*	*
Site 4	3	12	14	92	8.4	7.2	63	10.9	*	*
Site 4	4	12	14	92	8.4	7.2	63	10.9	*	*
Site 4	5	12	14	92	8.4	7.2	63	10.8	42	*
Site 4	6	12	14	92	8.4	7.2	64	10.8	*	*
Site 4	7	12	14	92	8.4	7.2	65	10.8	*	*
Site 4	8	12	14	92	8.4	7.2	64	10.8	*	*
Site 4	9	12	14	92	8.4	7.2	64	10.8	*	*
Site 4	10	12	14	92	8.4	7.2	64	10.8	42	*
Site 4	11	12	14	92	8.4	7.3	65	10.8	*	*
Site 4	12	12	14	92	8.4	7.3	65	10.8	*	*
Site 4	13	12	14	92	8.4	7.3	65	10.8	*	*
Site 4	14	12	14	92	8.4	7.3	65	10.8	*	*
Site 4	15	12	14	92	8.4	7.3	65	10.8	*	*
Site 4	16	12	14	92	8.4	7.3	65	10.8	*	*
Site 4	17	12	14	92	8.4	7.3	65	10.7	*	*
Site 4	18	12	14	92	8.4	7.3	65	10.7	*	*
Site 4	19	12	14	92	8.4	7.3	65	10.6	*	*
Site 4	20	12	14	92	8.4	7.3	65	10.6	41	*
Site 4	25	12	14	92	8.4	7.3	64	10.6	*	*
Site 4	30	12	14	92	8.0	7.2	64	9.7	*	*
Site 4	35	12	14	92	7.6	7.0	63	9.0	*	*
Site 4	40	12	14	92	7.5	7.0	63	8.8	41	*
Site 4	45	12	14	92	7.4	6.9	63	8.6	*	*
Site 4	50	12	14	92	7.4	6.9	63	8.6	*	*

Site	Depth	Month	Day	Year	Temp	pH	Cond	DO	LCon	Secc
Site 4	55	12	14	92	7.4	6.9	61	8.7	*	*
Site 4	60	12	14	92	7.4	6.9	61	8.6	40	*
Site 4	65	12	14	92	7.3	6.9	60	8.6	*	*
Site 4	70	12	14	92	7.3	6.9	61	8.6	*	*
Site 4	75	12	14	92	7.3	6.9	61	8.6	*	*
Site 4	80	12	14	92	7.3	6.9	61	8.6	41	*
Site 4	85	12	14	92	7.3	6.9	61	8.7	*	*
Site 4	90	12	14	92	7.3	6.9	59	8.7	41	*
Gate	0	12	14	92	8.5	7.1	63	11.2	41	*
Site 1	0	2	2	93	5.4	7.1	65	12.6	*	4.4
Site 1	1	2	2	93	5.3	7.1	68	12.6	*	*
Site 1	2	2	2	93	5.3	7.2	68	12.6	*	*
Site 1	3	2	2	93	5.3	7.3	68	12.7	*	*
Site 1	4	2	2	93	5.3	7.3	68	12.7	*	*
Site 1	5	2	2	93	5.2	7.3	70	12.8	35	*
Site 1	6	2	2	93	5.2	7.3	70	12.8	*	*
Site 1	7	2	2	93	5.1	7.4	70	12.8	*	*
Site 1	8	2	2	93	5.0	7.4	71	12.8	*	*
Site 1	9	2	2	93	5.0	7.4	71	12.7	*	*
Site 1	10	2	2	93	5.0	7.4	71	12.7	34	*
Site 1	11	2	2	93	4.9	7.4	72	12.7	*	*
Site 1	12	2	2	93	4.9	7.4	72	12.6	*	*
Site 1	13	2	2	93	4.8	7.4	72	12.7	*	*
Site 1	14	2	2	93	4.8	7.4	72	12.6	*	*
Site 1	15	2	2	93	4.8	7.5	72	12.6	*	*
Site 1	16	2	2	93	4.8	7.4	72	12.6	*	*
Site 1	17	2	2	93	4.8	7.5	72	12.6	*	*
Site 1	18	2	2	93	4.7	7.5	72	12.6	*	*
Site 1	19	2	2	93	4.7	7.4	72	12.6	*	*
Site 1	20	2	2	93	4.7	7.5	71	12.6	35	*
Intake	0	2	2	93	6.5	7.3	64	12.1	34	6.7
Intake	1	2	2	93	6.4	7.3	65	12.1	*	*
Intake	2	2	2	93	6.2	7.3	65	12.1	*	*
Intake	3	2	2	93	6.2	7.3	67	12.1	*	*
Intake	4	2	2	93	6.1	7.3	67	12.0	*	*
Intake	5	2	2	93	6.1	7.3	67	12.0	*	*
Intake	6	2	2	93	6.1	7.3	68	12.0	*	*
Intake	7	2	2	93	6.1	7.3	69	11.9	*	*
Intake	8	2	2	93	6.1	7.3	69	11.9	*	*
Intake	9	2	2	93	6.1	7.3	69	11.9	*	*
Intake	10	2	2	93	6.1	7.3	69	11.9	34	*
Intake	11	2	2	93	6.0	7.3	69	12.0	*	*
Site 2	0	2	2	93	6.8	7.3	64	11.9	*	5.9
Site 2	1	2	2	93	6.5	7.3	64	11.9	*	*
Site 2	2	2	2	93	6.2	7.3	65	12.1	*	*
Site 2	3	2	2	93	6.2	7.3	65	12.1	*	*
Site 2	4	2	2	93	6.2	7.3	66	12.1	*	*
Site 2	5	2	2	93	6.1	7.3	67	12.1	*	*
Site 2	6	2	2	93	6.1	7.4	67	12.1	*	*
Site 2	7	2	2	93	6.1	7.4	67	12.1	*	*
Site 2	8	2	2	93	6.1	7.4	68	12.1	*	*
Site 2	9	2	2	93	6.1	7.4	68	12.1	*	*
Site 2	10	2	2	93	6.0	7.4	69	12.1	*	*
Site 2	11	2	2	93	6.0	7.4	69	12.0	*	*
Site 2	12	2	2	93	6.0	7.4	68	12.0	*	*
Site 2	13	2	2	93	6.0	7.4	69	11.9	*	*
Site 2	14	2	2	93	5.9	7.4	69	11.9	*	*
Site 2	15	2	2	93	5.9	7.4	69	11.9	34	*
Site 2	16	2	2	93	5.9	7.3	70	11.8	*	*
Site 2	17	2	2	93	5.9	7.3	70	11.7	*	*

Site	Depth	Month	Day	Year	Temp	pH	Cond	DO	LCon	Secc
Site 2	18	2	2	93	5.9	7.3	70	11.7	*	*
Site 2	19	2	2	93	5.9	7.3	70	11.6	*	*
Site 2	20	2	2	93	5.9	7.3	70	11.5	35	*
Site 3	0	2	2	93	6.4	7.1	64	11.5	*	7.1
Site 3	1	2	2	93	6.3	7.1	65	11.5	*	*
Site 3	2	2	2	93	6.3	7.2	65	11.6	*	*
Site 3	3	2	2	93	6.2	7.2	66	11.5	*	*
Site 3	4	2	2	93	6.2	7.2	66	11.6	*	*
Site 3	5	2	2	93	6.2	7.2	66	11.6	*	*
Site 3	6	2	2	93	6.1	7.3	67	11.6	*	*
Site 3	7	2	2	93	6.1	7.3	67	11.6	*	*
Site 3	8	2	2	93	6.1	7.3	68	11.6	*	*
Site 3	9	2	2	93	6.1	7.3	68	11.6	*	*
Site 3	10	2	2	93	6.1	7.3	68	11.6	34	*
Site 3	15	2	2	93	6.1	7.3	69	11.4	*	*
Site 3	20	2	2	93	6.1	7.3	70	11.3	*	*
Site 3	25	2	2	93	6.0	7.3	69	11.3	*	*
Site 3	30	2	2	93	6.0	7.3	70	11.2	*	*
Site 3	35	2	2	93	6.0	7.3	69	11.2	*	*
Site 3	40	2	2	93	6.0	7.3	69	11.1	*	*
Site 3	45	2	2	93	6.0	7.3	69	11.2	*	*
Site 3	50	2	2	93	6.0	7.3	67	11.1	*	*
Site 3	55	2	2	93	6.0	7.3	66	11.1	*	*
Site 3	60	2	2	93	6.0	7.3	68	11.1	*	*
Site 3	65	2	2	93	5.9	7.3	68	11.1	*	*
Site 3	70	2	2	93	5.9	7.3	67	11.1	*	*
Site 3	75	2	2	93	5.9	7.3	66	11.1	*	*
Site 3	80	2	2	93	5.9	7.3	67	11.0	*	*
Site 4	0	2	2	93	6.2	6.9	65	11.5	*	8.0
Site 4	1	2	2	93	6.2	7.0	67	11.4	*	*
Site 4	2	2	2	93	6.2	7.1	67	11.4	*	*
Site 4	3	2	2	93	6.1	7.1	67	11.4	*	*
Site 4	4	2	2	93	6.1	7.2	67	11.5	*	*
Site 4	5	2	2	93	6.1	7.2	68	11.5	*	*
Site 4	6	2	2	93	6.1	7.2	68	11.5	*	*
Site 4	7	2	2	93	6.1	7.2	68	11.4	*	*
Site 4	8	2	2	93	6.1	7.2	69	11.4	*	*
Site 4	9	2	2	93	6.1	7.2	69	11.4	*	*
Site 4	10	2	2	93	6.1	7.2	70	11.4	34	*
Site 4	15	2	2	93	6.1	7.2	70	11.3	*	*
Site 4	20	2	2	93	6.0	7.2	70	11.1	34	*
Site 4	25	2	2	93	6.0	7.2	70	11.1	*	*
Site 4	30	2	2	93	6.0	7.2	70	11.1	*	*
Site 4	35	2	2	93	6.0	7.2	69	11.1	*	*
Site 4	40	2	2	93	6.0	7.2	69	11.0	*	*
Site 4	45	2	2	93	6.0	7.2	68	11.1	*	*
Site 4	50	2	2	93	6.0	7.2	67	11.1	*	*
Site 4	55	2	2	93	6.0	7.2	68	11.1	*	*
Site 4	60	2	2	93	6.0	7.2	67	11.1	34	*
Site 4	65	2	2	93	6.0	7.2	66	11.0	*	*
Site 4	70	2	2	93	6.0	7.2	66	11.0	*	*
Site 4	75	2	2	93	6.0	7.2	65	11.0	*	*
Site 4	80	2	2	93	6.0	7.2	65	11.0	*	*
Site 4	85	2	2	93	6.0	7.2	65	10.9	*	*
Site 4	90	2	2	93	6.0	7.2	64	10.9	*	*
Gate	0	2	2	93	6.4	7.1	66	11.7	*	*
Site 1	0	4	1	93	8.6	7.0	75	11.6	63	5.7
Site 1	1	4	1	93	8.6	7.1	75	11.6	*	*
Site 1	2	4	1	93	8.6	7.2	75	11.6	*	*
Site 1	3	4	1	93	8.6	7.2	77	11.7	*	*

Site	Depth	Month	Day	Year	Temp	pH	Cond	DO	LCon	Secc
Site 1	4	4	1	93	8.5	7.2	77	11.7	*	*
Site 1	5	4	1	93	8.4	7.3	78	11.7	63	*
Site 1	6	4	1	93	8.4	7.3	79	11.7	*	*
Site 1	7	4	1	93	8.3	7.3	79	11.7	*	*
Site 1	8	4	1	93	8.3	7.3	79	11.7	*	*
Site 1	9	4	1	93	8.2	7.3	80	11.6	*	*
Site 1	10	4	1	93	8.2	7.3	80	11.6	63	*
Site 1	11	4	1	93	8.2	7.3	80	11.6	*	*
Site 1	12	4	1	93	8.1	7.3	81	11.5	*	*
Site 1	13	4	1	93	8.0	7.3	81	11.5	*	*
Site 1	14	4	1	93	7.9	7.3	81	11.5	*	*
Site 1	15	4	1	93	7.9	7.3	81	11.4	63	*
Site 1	16	4	1	93	7.9	7.3	81	11.4	*	*
Site 1	17	4	1	93	7.8	7.3	81	11.3	*	*
Site 1	18	4	1	93	7.7	7.3	80	11.2	*	*
Site 1	19	4	1	93	7.7	7.3	80	11.2	*	*
Site 1	20	4	1	93	7.6	7.3	80	11.2	63	*
Intake	0	4	1	93	8.3	7.1	71	12.1	61	5.0
Intake	1	4	1	93	8.1	7.2	70	12.1	*	*
Intake	2	4	1	93	8.0	7.3	71	12.1	*	*
Intake	3	4	1	93	8.0	7.3	73	12.1	*	*
Intake	4	4	1	93	7.7	7.4	73	12.2	*	*
Intake	5	4	1	93	7.6	7.4	74	12.1	61	*
Intake	6	4	1	93	7.5	7.4	74	12.2	*	*
Intake	7	4	1	93	7.5	7.4	74	12.2	*	*
Intake	8	4	1	93	7.5	7.4	75	12.1	*	*
Intake	9	4	1	93	7.5	7.4	75	12.2	*	*
Intake	10	4	1	93	7.4	7.4	76	12.1	61	*
Intake	11	4	1	93	7.4	7.4	76	12.1	*	*
Site 2	0	4	1	93	8.2	7.0	71	12.2	61	5.1
Site 2	1	4	1	93	8.0	7.2	70	12.2	*	*
Site 2	2	4	1	93	7.9	7.3	71	12.2	*	*
Site 2	3	4	1	93	7.9	7.3	72	12.2	*	*
Site 2	4	4	1	93	7.8	7.3	73	12.2	*	*
Site 2	5	4	1	93	7.6	7.4	73	12.2	61	*
Site 2	6	4	1	93	7.5	7.4	74	12.2	*	*
Site 2	7	4	1	93	7.4	7.4	74	12.1	*	*
Site 2	8	4	1	93	7.4	7.4	74	12.1	*	*
Site 2	9	4	1	93	7.1	7.4	75	12.0	*	*
Site 2	10	4	1	93	7.0	7.3	76	11.9	61	*
Site 2	11	4	1	93	7.0	7.3	76	11.9	*	*
Site 2	12	4	1	93	6.8	7.3	77	11.9	*	*
Site 2	13	4	1	93	6.7	7.3	76	11.8	*	*
Site 2	14	4	1	93	6.7	7.3	77	11.8	*	*
Site 2	15	4	1	93	6.6	7.3	76	11.7	61	*
Site 2	16	4	1	93	6.6	7.3	76	11.6	*	*
Site 2	17	4	1	93	6.5	7.3	77	11.4	*	*
Site 2	18	4	1	93	6.5	7.2	77	11.3	*	*
Site 2	19	4	1	93	6.5	7.2	77	11.3	*	*
Site 2	20	4	1	93	6.5	7.2	76	11.3	61	*
Site 3	0	4	1	93	7.8	7.0	70	12.3	61	4.8
Site 3	1	4	1	93	7.7	7.2	70	12.2	*	*
Site 3	2	4	1	93	7.7	7.3	71	12.2	*	*
Site 3	3	4	1	93	7.6	7.3	72	12.3	*	*
Site 3	4	4	1	93	7.5	7.3	72	12.2	*	*
Site 3	5	4	1	93	7.4	7.3	73	12.2	61	*
Site 3	6	4	1	93	7.4	7.4	74	12.2	*	*
Site 3	7	4	1	93	7.3	7.4	74	12.2	*	*
Site 3	8	4	1	93	7.3	7.4	74	12.1	*	*
Site 3	9	4	1	93	7.2	7.3	75	12.1	*	*

Site	Depth	Month	Day	Year	Temp	pH	Cond	DO	LCon	Secc
Site 3	10	4	1	93	7.1	7.3	76	12.1	61	*
Site 3	15	4	1	93	6.7	7.3	76	11.9	*	*
Site 3	20	4	1	93	6.4	7.3	76	11.7	61	*
Site 3	25	4	1	93	6.3	7.3	76	11.6	*	*
Site 3	30	4	1	93	6.3	7.3	76	11.4	*	*
Site 3	35	4	1	93	6.2	7.2	75	11.4	*	*
Site 3	40	4	1	93	6.2	7.2	75	11.4	61	*
Site 3	45	4	1	93	6.1	7.2	75	11.3	*	*
Site 3	50	4	1	93	6.0	7.2	75	11.3	*	*
Site 3	55	4	1	93	6.0	7.2	75	11.2	*	*
Site 3	60	4	1	93	5.9	7.2	74	11.0	61	*
Site 3	65	4	1	93	5.8	7.2	74	11.0	*	*
Site 3	70	4	1	93	5.8	7.1	74	10.9	*	*
Site 3	75	4	1	93	5.8	7.1	74	10.9	*	*
Site 3	80	4	1	93	5.8	7.1	74	10.9	61	*
Site 4	0	4	1	93	7.6	7.0	74	12.2	61	5.7
Site 4	1	4	1	93	7.6	7.2	73	12.1	*	*
Site 4	2	4	1	93	7.5	7.3	74	12.1	*	*
Site 4	3	4	1	93	7.4	7.3	75	12.1	*	*
Site 4	4	4	1	93	7.4	7.3	76	12.1	*	*
Site 4	5	4	1	93	7.4	7.3	76	12.1	61	*
Site 4	6	4	1	93	7.4	7.4	76	12.1	*	*
Site 4	7	4	1	93	7.4	7.4	77	12.1	*	*
Site 4	8	4	1	93	7.4	7.4	77	12.1	*	*
Site 4	9	4	1	93	7.4	7.4	78	12.1	*	*
Site 4	10	4	1	93	7.4	7.4	78	12.1	61	*
Site 4	15	4	1	93	7.1	7.4	78	12.0	*	*
Site 4	20	4	1	93	6.6	7.4	78	11.6	61	*
Site 4	25	4	1	93	6.4	7.3	77	11.5	*	*
Site 4	30	4	1	93	6.3	7.3	76	11.4	*	*
Site 4	35	4	1	93	6.1	7.3	76	11.3	*	*
Site 4	40	4	1	93	6.1	7.3	75	11.3	61	*
Site 4	45	4	1	93	6.0	7.3	73	11.2	*	*
Site 4	50	4	1	93	6.0	7.3	74	11.2	*	*
Site 4	55	4	1	93	6.0	7.2	73	11.2	*	*
Site 4	60	4	1	93	5.9	7.2	72	11.1	61	*
Site 4	65	4	1	93	5.9	7.2	73	11.1	*	*
Site 4	70	4	1	93	5.9	7.2	72	11.1	*	*
Site 4	75	4	1	93	5.9	7.2	72	11.1	*	*
Site 4	80	4	1	93	5.9	7.2	72	11.1	61	*
Site 4	85	4	1	93	5.9	7.2	72	11.1	*	*
Site 4	90	4	1	93	5.8	7.2	71	11.0	61	*
Gate	0	4	1	93	7.5	7.1	76	11.5	61	*
Site 1	0	5	6	93	12.5	7.0	69	10.9	65	4.9
Site 1	1	5	6	93	12.5	7.3	71	10.9	*	*
Site 1	2	5	6	93	12.5	7.4	72	10.9	*	*
Site 1	3	5	6	93	12.5	7.5	72	10.9	*	*
Site 1	4	5	6	93	12.4	7.6	72	10.9	*	*
Site 1	5	5	6	93	12.4	7.7	74	11.0	63	*
Site 1	6	5	6	93	11.8	7.7	75	10.9	*	*
Site 1	7	5	6	93	11.6	7.6	75	10.8	*	*
Site 1	8	5	6	93	11.5	7.7	77	10.9	*	*
Site 1	9	5	6	93	11.4	7.6	78	10.8	*	*
Site 1	10	5	6	93	11.3	7.6	78	10.8	63	*
Site 1	11	5	6	93	11.3	7.6	78	10.7	*	*
Site 1	12	5	6	93	11.2	7.6	78	10.5	*	*
Site 1	13	5	6	93	11.1	7.6	79	10.3	*	*
Site 1	14	5	6	93	11.1	7.6	78	10.3	*	*
Site 1	15	5	6	93	11.1	7.5	79	10.3	62	*
Site 1	16	5	6	93	11.1	7.5	78	10.1	*	*

Site	Depth	Month	Day	Year	Temp	pH	Cond	DO	LCon	Secc
Site 1	17	5	6	93	11.0	7.5	79	10.0	*	*
Site 1	18	5	6	93	11.0	7.5	78	10.0	*	*
Site 1	19	5	6	93	11.0	7.5	78	9.8	*	*
Site 1	20	5	6	93	10.9	7.5	79	9.8	63	*
Intake	0	5	6	93	11.8	7.4	74	11.7	61	4.0
Intake	1	5	6	93	11.8	7.8	74	11.7	*	*
Intake	2	5	6	93	11.5	7.9	74	11.8	*	*
Intake	3	5	6	93	11.1	8.0	74	11.9	*	*
Intake	4	5	6	93	11.1	8.1	74	11.8	*	*
Intake	5	5	6	93	11.0	8.1	75	11.8	61	*
Intake	6	5	6	93	10.9	8.1	77	11.8	*	*
Intake	7	5	6	93	10.7	8.1	76	11.7	*	*
Intake	8	5	6	93	10.0	8.0	77	11.5	*	*
Intake	9	5	6	93	9.5	7.8	77	11.1	*	*
Intake	10	5	6	93	9.3	7.7	78	10.8	61	*
Intake	11	5	6	93	9.1	7.6	79	10.6	*	*
Site 2	0	5	6	93	11.8	7.7	74	11.5	61	4.0
Site 2	1	5	6	93	11.8	7.5	73	11.6	*	*
Site 2	2	5	6	93	11.6	7.8	73	11.6	*	*
Site 2	3	5	6	93	11.5	7.9	73	11.6	*	*
Site 2	4	5	6	93	11.1	7.9	75	11.7	*	*
Site 2	5	5	6	93	11.0	8.0	75	11.7	61	*
Site 2	6	5	6	93	10.8	8.0	76	11.8	*	*
Site 2	7	5	6	93	10.5	8.0	77	11.7	*	*
Site 2	8	5	6	93	10.5	8.0	76	11.7	*	*
Site 2	9	5	6	93	10.1	7.9	77	11.6	*	*
Site 2	10	5	6	93	9.9	7.9	77	11.3	61	*
Site 2	11	5	6	93	9.7	7.8	78	11.4	*	*
Site 2	12	5	6	93	9.5	7.8	78	11.4	*	*
Site 2	13	5	6	93	9.4	7.8	79	11.4	*	*
Site 2	14	5	6	93	9.3	7.7	80	11.4	*	*
Site 2	15	5	6	93	9.1	7.7	80	11.3	61	*
Site 2	16	5	6	93	9.0	7.7	80	11.2	*	*
Site 2	17	5	6	93	8.9	7.6	80	11.0	*	*
Site 2	18	5	6	93	8.7	7.6	81	10.9	*	*
Site 2	19	5	6	93	8.6	7.6	80	11.1	*	*
Site 2	20	5	6	93	8.5	7.6	80	11.1	61	*
Site 3	0	5	6	93	10.6	7.2	76	11.6	61	5.2
Site 3	1	5	6	93	10.2	7.3	75	11.7	*	*
Site 3	2	5	6	93	10.1	7.4	75	11.7	*	*
Site 3	3	5	6	93	9.9	7.4	74	11.7	*	*
Site 3	4	5	6	93	10.0	7.5	75	11.7	*	*
Site 3	5	5	6	93	10.0	7.6	75	11.7	61	*
Site 3	6	5	6	93	10.0	7.6	76	11.7	*	*
Site 3	7	5	6	93	9.9	7.6	77	11.7	*	*
Site 3	8	5	6	93	9.9	7.6	77	11.7	*	*
Site 3	9	5	6	93	9.9	7.7	77	11.7	*	*
Site 3	10	5	6	93	9.9	7.7	77	11.7	61	*
Site 3	15	5	6	93	9.0	7.7	78	11.6	*	*
Site 3	20	5	6	93	8.3	7.6	79	11.5	61	*
Site 3	25	5	6	93	7.9	7.6	79	11.4	*	*
Site 3	30	5	6	93	7.3	7.5	78	11.3	*	*
Site 3	35	5	6	93	6.7	7.5	79	11.1	*	*
Site 3	40	5	6	93	6.4	7.5	78	11.0	61	*
Site 3	45	5	6	93	6.3	7.4	78	10.9	*	*
Site 3	50	5	6	93	6.2	7.4	78	10.9	*	*
Site 3	55	5	6	93	6.2	7.4	77	10.8	*	*
Site 3	60	5	6	93	6.1	7.4	77	10.8	61	*
Site 3	65	5	6	93	6.1	7.4	78	10.8	*	*
Site 3	70	5	6	93	6.1	7.4	77	10.8	*	*

Site	Depth	Month	Day	Year	Temp	pH	Cond	DO	LCon	Secc
Site 3	75	5	6	93	6.1	7.4	76	10.7	*	*
Site 3	80	5	6	93	6.0	7.4	75	10.5	61	*
Site 4	0	5	6	93	10.5	7.2	74	11.8	61	4.6
Site 4	1	5	6	93	10.5	7.6	74	11.8	*	*
Site 4	2	5	6	93	10.4	7.7	73	11.9	*	*
Site 4	3	5	6	93	10.4	7.8	73	11.9	*	*
Site 4	4	5	6	93	10.4	7.8	73	11.9	*	*
Site 4	5	5	6	93	10.3	7.8	74	11.9	61	*
Site 4	6	5	6	93	10.1	7.8	74	12.0	*	*
Site 4	7	5	6	93	9.8	7.8	75	12.0	*	*
Site 4	8	5	6	93	9.3	7.8	77	11.8	*	*
Site 4	9	5	6	93	9.1	7.8	77	11.8	*	*
Site 4	10	5	6	93	8.9	7.7	77	11.7	61	*
Site 4	15	5	6	93	8.6	7.7	78	11.6	*	*
Site 4	20	5	6	93	7.9	7.7	78	11.5	61	*
Site 4	25	5	6	93	7.5	7.6	78	11.4	*	*
Site 4	30	5	6	93	6.8	7.6	77	11.2	*	*
Site 4	35	5	6	93	6.4	7.5	76	11.0	*	*
Site 4	40	5	6	93	6.3	7.5	75	10.9	61	*
Site 4	45	5	6	93	6.2	7.5	75	10.9	*	*
Site 4	50	5	6	93	6.2	7.5	74	10.9	*	*
Site 4	55	5	6	93	6.1	7.5	75	10.9	*	*
Site 4	60	5	6	93	6.1	7.5	74	10.9	61	*
Site 4	65	5	6	93	6.1	7.5	73	10.9	*	*
Site 4	70	5	6	93	6.0	7.4	72	10.9	*	*
Site 4	75	5	6	93	6.0	7.4	74	10.8	*	*
Site 4	80	5	6	93	6.0	7.4	75	10.9	61	*
Site 4	85	5	6	93	6.0	7.4	72	10.8	*	*
Site 4	90	5	6	93	6.0	7.4	73	10.7	61	*
Gate	0	5	6	93	9.9	7.2	67	10.7	61	*
Site 1	0	6	3	93	18.2	8.1	80	9.9	62	4.6
Site 1	1	6	3	93	18.3	8.1	80	9.8	*	*
Site 1	2	6	3	93	18.3	8.1	80	9.8	*	*
Site 1	3	6	3	93	18.3	8.1	80	9.8	*	*
Site 1	4	6	3	93	18.2	8.1	81	9.9	*	*
Site 1	5	6	3	93	17.6	8.2	82	10.4	62	*
Site 1	6	6	3	93	15.7	8.2	82	11.0	*	*
Site 1	7	6	3	93	14.7	8.1	84	11.0	*	*
Site 1	8	6	3	93	13.5	7.9	83	10.3	*	*
Site 1	9	6	3	93	12.9	7.8	81	9.9	*	*
Site 1	10	6	3	93	12.6	7.6	83	9.8	62	*
Site 1	11	6	3	93	12.3	7.5	83	9.2	*	*
Site 1	12	6	3	93	12.1	7.4	83	8.7	*	*
Site 1	13	6	3	93	12.0	7.3	83	8.1	*	*
Site 1	14	6	3	93	11.8	7.3	83	8.0	*	*
Site 1	15	6	3	93	11.7	7.2	82	7.7	62	*
Site 1	16	6	3	93	11.6	7.2	83	7.7	*	*
Site 1	17	6	3	93	11.6	7.1	82	7.6	*	*
Site 1	18	6	3	93	11.5	7.1	83	7.4	*	*
Site 1	19	6	3	93	11.4	7.1	82	7.3	*	*
Site 1	20	6	3	93	11.4	7.1	82	7.2	63	*
Intake	0	6	3	93	17.7	8.1	76	10.2	61	4.8
Intake	1	6	3	93	17.7	8.2	76	10.2	*	*
Intake	2	6	3	93	17.8	8.2	77	10.2	*	*
Intake	3	6	3	93	17.8	8.2	78	10.2	*	*
Intake	4	6	3	93	17.7	8.2	79	10.2	*	*
Intake	5	6	3	93	17.7	8.2	80	10.2	61	*
Intake	6	6	3	93	17.6	8.2	80	10.2	*	*
Intake	7	6	3	93	17.6	8.2	80	10.2	*	*
Intake	8	6	3	93	17.5	8.1	80	10.2	*	*

Site	Depth	Month	Day	Year	Temp	pH	Cond	DO	LCon	Secc
Intake	9	6	3	93	15.7	8.0	80	10.6	*	*
Intake	10	6	3	93	13.9	7.9	81	11.0	61	*
Intake	11	6	3	93	12.9	7.8	82	11.0	*	*
Site 2	0	6	3	93	17.6	8.1	77	10.2	61	4.3
Site 2	1	6	3	93	17.7	8.1	77	10.2	*	*
Site 2	2	6	3	93	17.6	8.1	78	10.2	*	*
Site 2	3	6	3	93	17.6	8.2	78	10.2	*	*
Site 2	4	6	3	93	17.4	8.3	80	10.4	*	*
Site 2	5	6	3	93	17.3	8.2	80	10.4	61	*
Site 2	6	6	3	93	17.1	8.3	81	10.5	*	*
Site 2	7	6	3	93	17.0	8.3	80	10.4	*	*
Site 2	8	6	3	93	16.7	8.3	81	10.6	*	*
Site 2	9	6	3	93	15.7	8.2	81	10.7	*	*
Site 2	10	6	3	93	14.2	8.0	82	10.9	61	*
Site 2	11	6	3	93	12.0	7.9	83	10.9	*	*
Site 2	12	6	3	93	10.8	7.6	83	10.8	*	*
Site 2	13	6	3	93	10.4	7.6	83	10.7	*	*
Site 2	14	6	3	93	10.2	7.5	84	10.5	*	*
Site 2	15	6	3	93	10.1	7.4	83	10.6	61	*
Site 2	16	6	3	93	10.0	7.4	84	10.5	*	*
Site 2	17	6	3	93	9.8	7.3	83	10.2	*	*
Site 2	18	6	3	93	9.6	7.3	83	9.8	*	*
Site 3	0	6	3	93	17.1	8.0	77	10.3	61	4.4
Site 3	1	6	3	93	17.1	8.2	76	10.4	*	*
Site 3	2	6	3	93	17.1	8.2	77	10.4	*	*
Site 3	3	6	3	93	17.1	8.2	78	10.4	*	*
Site 3	4	6	3	93	17.0	8.3	78	10.4	*	*
Site 3	5	6	3	93	16.9	8.2	79	10.4	61	*
Site 3	6	6	3	93	16.7	8.2	79	10.4	*	*
Site 3	7	6	3	93	16.6	8.2	79	10.4	*	*
Site 3	8	6	3	93	16.2	8.2	78	10.5	*	*
Site 3	9	6	3	93	15.1	8.1	80	10.9	*	*
Site 3	10	6	3	93	14.5	8.1	79	11.0	61	*
Site 3	15	6	3	93	11.2	7.8	81	11.1	*	*
Site 3	20	6	3	93	9.6	7.6	81	10.9	61	*
Site 3	25	6	3	93	8.3	7.5	81	10.8	*	*
Site 3	30	6	3	93	7.7	7.4	81	10.8	*	*
Site 3	35	6	3	93	7.1	7.4	81	10.7	*	*
Site 3	40	6	3	93	6.7	7.3	81	10.6	61	*
Site 3	45	6	3	93	6.6	7.3	80	10.5	*	*
Site 3	50	6	3	93	6.4	7.2	80	10.4	*	*
Site 3	55	6	3	93	6.3	7.2	80	10.4	*	*
Site 3	60	6	3	93	6.3	7.2	80	10.4	61	*
Site 3	65	6	3	93	6.2	7.2	79	10.4	*	*
Site 3	70	6	3	93	6.2	7.1	80	10.3	*	*
Site 3	75	6	3	93	6.2	7.1	78	10.1	*	*
Site 3	80	6	3	93	6.1	7.1	76	10.0	61	*
Site 4	0	6	3	93	17.0	8.3	75	10.4	61	4.0
Site 4	1	6	3	93	16.9	8.3	76	10.4	*	*
Site 4	2	6	3	93	16.8	8.4	75	10.4	*	*
Site 4	3	6	3	93	16.7	8.4	76	10.5	*	*
Site 4	4	6	3	93	16.7	8.4	76	10.5	*	*
Site 4	5	6	3	93	16.5	8.4	78	10.5	61	*
Site 4	6	6	3	93	14.5	8.3	78	11.1	*	*
Site 4	7	6	3	93	14.2	8.2	77	11.0	*	*
Site 4	8	6	3	93	12.6	7.9	79	11.1	*	*
Site 4	9	6	3	93	11.9	7.9	80	11.1	*	*
Site 4	10	6	3	93	11.2	7.8	80	11.1	60	*
Site 4	15	6	3	93	9.3	7.6	80	11.0	*	*
Site 4	20	6	3	93	8.4	7.5	81	10.9	61	*

Site	Depth	Month	Day	Year	Temp	pH	Cond	DO	LCon	Secc
Site 4	25	6	3	93	7.3	7.5	81	10.8	*	*
Site 4	30	6	3	93	6.9	7.4	79	10.7	*	*
Site 4	35	6	3	93	6.7	7.4	79	10.6	*	*
Site 4	40	6	3	93	6.5	7.4	79	10.6	61	*
Site 4	45	6	3	93	6.4	7.4	78	10.5	*	*
Site 4	50	6	3	93	6.4	7.3	77	10.5	*	*
Site 4	55	6	3	93	6.3	7.3	78	10.6	*	*
Site 4	60	6	3	93	6.3	7.3	77	10.6	61	*
Site 4	65	6	3	93	6.2	7.3	77	10.6	*	*
Site 4	70	6	3	93	6.2	7.3	76	10.7	*	*
Site 4	75	6	3	93	6.1	7.3	77	10.6	*	*
Site 4	80	6	3	93	6.1	7.3	76	10.3	62	*
Site 4	85	6	3	93	6.1	7.2	77	10.5	*	*
Site 4	90	6	3	93	6.0	7.2	77	10.4	61	*
Gate	0	6	3	93	11.9	7.9	79	10.8	61	*
Site 1	0	7	1	93	18.9	8.3	75	9.9	62	4.7
Site 1	1	7	1	93	18.9	8.3	73	9.8	*	*
Site 1	2	7	1	93	18.9	8.2	72	9.8	*	*
Site 1	3	7	1	93	18.9	8.2	73	9.8	*	*
Site 1	4	7	1	93	18.9	8.2	74	9.8	*	*
Site 1	5	7	1	93	18.9	8.2	80	9.8	62	*
Site 1	6	7	1	93	18.5	8.1	79	9.8	*	*
Site 1	7	7	1	93	17.7	8.0	80	10.0	*	*
Site 1	8	7	1	93	16.7	7.9	80	10.0	*	*
Site 1	9	7	1	93	15.1	7.7	82	9.1	*	*
Site 1	10	7	1	93	13.7	7.5	82	8.4	62	*
Site 1	11	7	1	93	13.0	7.4	83	6.9	*	*
Site 1	12	7	1	93	12.4	7.3	84	5.6	*	*
Site 1	13	7	1	93	12.3	7.2	85	5.1	*	*
Site 1	14	7	1	93	11.9	7.1	85	4.7	*	*
Site 1	15	7	1	93	11.9	7.0	86	4.7	63	*
Site 1	16	7	1	93	11.8	7.0	86	4.6	*	*
Site 1	17	7	1	93	11.8	7.0	86	4.5	*	*
Site 1	18	7	1	93	11.8	6.9	86	4.4	*	*
Site 1	19	7	1	93	11.7	6.9	86	4.3	*	*
Site 1	20	7	1	93	11.7	6.9	86	4.2	64	*
Intake	0	7	1	93	18.6	8.0	77	10.0	61	5.4
Intake	1	7	1	93	18.6	8.1	77	9.9	*	*
Intake	2	7	1	93	18.6	8.1	79	9.9	*	*
Intake	3	7	1	93	18.5	8.1	80	9.9	*	*
Intake	4	7	1	93	18.3	8.1	81	9.9	*	*
Intake	5	7	1	93	18.0	8.1	81	10.0	61	*
Intake	6	7	1	93	18.0	8.2	83	10.1	*	*
Intake	7	7	1	93	17.8	8.3	83	10.1	*	*
Intake	8	7	1	93	17.6	8.2	83	10.1	*	*
Intake	9	7	1	93	17.5	8.1	84	10.1	*	*
Intake	10	7	1	93	17.4	8.0	83	9.9	61	*
Intake	11	7	1	93	16.5	7.8	85	9.8	*	*
Site 2	0	7	1	93	18.2	8.1	77	10.1	61	5.9
Site 2	1	7	1	93	18.2	8.1	77	10.1	*	*
Site 2	2	7	1	93	18.1	8.1	79	10.1	*	*
Site 2	3	7	1	93	18.0	8.1	79	10.1	*	*
Site 2	4	7	1	93	17.7	8.1	80	10.1	*	*
Site 2	5	7	1	93	17.7	8.1	81	10.2	61	*
Site 2	6	7	1	93	17.5	8.1	82	10.2	*	*
Site 2	7	7	1	93	17.5	8.1	81	10.2	*	*
Site 2	8	7	1	93	17.3	8.0	82	10.2	*	*
Site 2	9	7	1	93	17.3	8.0	82	10.2	*	*
Site 2	10	7	1	93	17.1	7.9	84	10.2	61	*
Site 2	11	7	1	93	16.8	7.7	83	10.2	*	*

Site	Depth	Month	Day	Year	Temp	pH	Cond	DO	LCon	Secc
Site 2	12	7	1	93	15.6	7.4	83	10.2	*	*
Site 2	13	7	1	93	11.9	7.1	85	9.9	*	*
Site 2	14	7	1	93	11.3	7.0	84	9.5	*	*
Site 2	15	7	1	93	10.7	7.0	85	9.3	61	*
Site 2	16	7	1	93	10.6	7.0	84	8.9	*	*
Site 2	17	7	1	93	10.4	7.0	84	8.7	*	*
Site 2	18	7	1	93	10.3	7.0	85	8.7	*	*
Site 3	0	7	1	93	18.1	8.0	80	10.1	61	5.9
Site 3	1	7	1	93	18.1	8.1	81	10.0	*	*
Site 3	2	7	1	93	18.0	8.1	80	10.0	*	*
Site 3	3	7	1	93	17.9	8.1	82	9.9	*	*
Site 3	4	7	1	93	17.7	8.1	82	10.0	*	*
Site 3	5	7	1	93	17.6	8.1	82	10.0	61	*
Site 3	6	7	1	93	17.5	8.1	83	10.1	*	*
Site 3	7	7	1	93	17.5	8.1	84	10.1	*	*
Site 3	8	7	1	93	17.4	8.1	83	10.1	*	*
Site 3	9	7	1	93	17.2	8.1	84	10.1	*	*
Site 3	10	7	1	93	16.7	8.0	84	10.2	61	*
Site 3	15	7	1	93	11.8	7.7	86	10.5	*	*
Site 3	20	7	1	93	10.0	7.5	87	10.7	61	*
Site 3	25	7	1	93	8.4	7.4	86	10.6	*	*
Site 3	30	7	1	93	7.5	7.4	86	10.6	*	*
Site 3	35	7	1	93	7.0	7.3	86	10.6	*	*
Site 3	40	7	1	93	6.7	7.3	85	10.5	61	*
Site 3	45	7	1	93	6.5	7.3	86	10.5	*	*
Site 3	50	7	1	93	6.5	7.2	84	10.4	*	*
Site 3	55	7	1	93	6.4	7.2	81	10.4	*	*
Site 3	60	7	1	93	6.3	7.2	82	10.3	61	*
Site 3	65	7	1	93	6.3	7.2	83	10.2	*	*
Site 3	70	7	1	93	6.3	7.1	82	10.2	*	*
Site 3	75	7	1	93	6.2	7.1	80	9.8	*	*
Site 3	80	7	1	93	6.2	7.0	80	9.4	62	*
Site 4	0	7	1	93	17.2	8.1	82	10.4	60	5.9
Site 4	1	7	1	93	17.2	8.1	80	10.2	*	*
Site 4	2	7	1	93	17.1	8.2	80	10.3	*	*
Site 4	3	7	1	93	17.1	8.2	80	10.2	*	*
Site 4	4	7	1	93	17.0	8.2	82	10.3	*	*
Site 4	5	7	1	93	17.0	8.2	82	10.2	60	*
Site 4	6	7	1	93	17.0	8.2	82	10.3	*	*
Site 4	7	7	1	93	17.0	8.2	82	10.2	*	*
Site 4	8	7	1	93	16.8	8.1	82	10.3	*	*
Site 4	9	7	1	93	16.5	8.1	83	10.3	*	*
Site 4	10	7	1	93	15.8	8.0	83	10.4	60	*
Site 4	15	7	1	93	11.4	7.7	86	10.6	*	*
Site 4	20	7	1	93	8.8	7.6	86	10.6	61	*
Site 4	25	7	1	93	8.0	7.6	86	10.6	*	*
Site 4	30	7	1	93	7.4	7.5	84	10.6	*	*
Site 4	35	7	1	93	7.0	7.5	82	10.6	*	*
Site 4	40	7	1	93	6.8	7.4	81	10.6	61	*
Site 4	45	7	1	93	6.6	7.4	81	10.6	*	*
Site 4	50	7	1	93	6.5	7.3	80	10.6	*	*
Site 4	55	7	1	93	6.4	7.3	79	10.6	*	*
Site 4	60	7	1	93	6.4	7.3	78	10.6	61	*
Site 4	65	7	1	93	6.3	7.3	77	10.6	*	*
Site 4	70	7	1	93	6.3	7.2	78	10.7	*	*
Site 4	75	7	1	93	6.3	7.2	78	10.7	*	*
Site 4	80	7	1	93	6.2	7.2	77	10.7	62	*
Site 4	85	7	1	93	6.2	7.2	76	10.7	*	*
Site 4	90	7	1	93	6.2	7.2	76	10.5	62	*
Site 1	0	8	5	93	22.4	8.2	77	9.7	63	4.5

Site	Depth	Month	Day	Year	Temp	pH	Cond	DO	LCon	Secc
Site 1	1	8	5	93	22.2	8.3	76	9.8	*	*
Site 1	2	8	5	93	22.1	8.3	77	9.8	*	*
Site 1	3	8	5	93	20.3	8.6	78	10.4	*	*
Site 1	4	8	5	93	19.6	8.7	78	10.6	*	*
Site 1	5	8	5	93	19.2	8.6	79	10.6	63	*
Site 1	6	8	5	93	18.9	8.6	80	10.4	*	*
Site 1	7	8	5	93	18.5	8.2	82	9.7	*	*
Site 1	8	8	5	93	17.7	7.6	84	8.6	*	*
Site 1	9	8	5	93	16.4	7.4	85	6.9	*	*
Site 1	10	8	5	93	14.5	7.2	87	4.7	63	*
Site 1	11	8	5	93	13.3	7.0	88	3.7	*	*
Site 1	12	8	5	93	12.6	6.8	90	2.5	*	*
Site 1	13	8	5	93	12.4	6.7	92	2.1	*	*
Site 1	14	8	5	93	12.2	6.7	92	2.0	*	*
Site 1	15	8	5	93	12.0	6.6	93	2.0	67	*
Site 1	16	8	5	93	11.9	6.6	94	1.9	*	*
Site 1	17	8	5	93	11.8	6.6	93	1.9	*	*
Site 1	18	8	5	93	11.8	6.5	93	1.8	*	*
Site 1	19	8	5	93	11.8	6.5	94	1.9	*	*
Site 1	20	8	5	93	11.7	6.5	94	1.8	67	*
Intake	0	8	5	93	23.0	7.9	76	9.9	63	5.6
Intake	1	8	5	93	22.5	7.9	76	9.9	*	*
Intake	2	8	5	93	20.9	8.1	78	10.4	*	*
Intake	3	8	5	93	20.2	8.3	79	10.5	*	*
Intake	4	8	5	93	19.7	8.4	80	10.6	*	*
Intake	5	8	5	93	19.4	8.3	81	10.6	62	*
Intake	6	8	5	93	19.2	8.4	82	10.6	*	*
Intake	7	8	5	93	19.0	8.4	83	10.6	*	*
Intake	8	8	5	93	18.8	8.4	83	10.6	*	*
Intake	9	8	5	93	18.5	8.3	84	10.6	*	*
Intake	10	8	5	93	18.2	8.3	84	10.6	62	*
Intake	11	8	5	93	17.6	8.0	85	10.1	*	*
Intake	12	8	5	93	16.4	7.7	86	9.7	*	*
Site 2	0	8	5	93	22.7	7.9	75	9.9	63	6.0
Site 2	1	8	5	93	22.6	7.9	76	9.9	*	*
Site 2	2	8	5	93	21.2	8.1	78	10.2	*	*
Site 2	3	8	5	93	20.8	8.1	78	10.3	*	*
Site 2	4	8	5	93	20.4	8.2	78	10.5	*	*
Site 2	5	8	5	93	20.0	8.2	79	10.5	62	*
Site 2	6	8	5	93	19.5	8.3	81	10.6	*	*
Site 2	7	8	5	93	19.3	8.3	82	10.7	*	*
Site 2	8	8	5	93	18.7	8.4	83	10.7	*	*
Site 2	9	8	5	93	18.3	8.3	83	10.6	*	*
Site 2	10	8	5	93	18.1	8.2	83	10.5	62	*
Site 2	11	8	5	93	17.7	8.0	84	10.3	*	*
Site 2	12	8	5	93	16.7	7.8	85	10.0	*	*
Site 2	13	8	5	93	15.4	7.6	85	9.9	*	*
Site 2	14	8	5	93	12.4	7.3	87	8.1	*	*
Site 2	15	8	5	93	11.8	7.2	88	7.4	62	*
Site 2	16	8	5	93	11.3	7.0	90	8.9	*	*
Site 2	17	8	5	93	10.9	6.9	90	5.6	*	*
Site 2	18	8	5	93	10.7	6.9	91	5.0	*	*
Site 2	19	8	5	93	10.6	6.8	91	4.7	*	*
Site 2	20	8	5	93	10.5	6.7	91	4.4	66	*
Site 3	0	8	5	93	22.8	7.8	75	9.8	62	7.1
Site 3	1	8	5	93	22.5	8.0	75	9.9	*	*
Site 3	2	8	5	93	21.9	8.1	75	9.9	*	*
Site 3	3	8	5	93	21.5	8.1	77	10.1	*	*
Site 3	4	8	5	93	21.3	8.1	77	10.1	*	*
Site 3	5	8	5	93	19.8	8.3	77	10.4	62	*

Site	Depth	Month	Day	Year	Temp	pH	Cond	DO	LCon	Secc
Site 3	6	8	5	93	18.9	8.4	79	10.6	*	*
Site 3	7	8	5	93	18.6	8.3	80	10.6	*	*
Site 3	8	8	5	93	18.3	8.3	80	10.5	*	*
Site 3	9	8	5	93	18.1	8.2	81	10.5	*	*
Site 3	10	8	5	93	17.9	8.1	81	10.4	63	*
Site 3	15	8	5	93	15.3	7.7	85	10.1	*	*
Site 3	20	8	5	93	9.6	7.5	87	10.5	64	*
Site 3	25	8	5	93	8.3	7.5	87	10.7	*	*
Site 3	30	8	5	93	7.6	7.4	86	10.7	*	*
Site 3	35	8	5	93	7.0	7.3	87	10.8	*	*
Site 3	40	8	5	93	6.8	7.2	87	10.8	62	*
Site 3	45	8	5	93	6.6	7.2	85	10.8	*	*
Site 3	50	8	5	93	6.6	7.2	86	10.7	*	*
Site 3	55	8	5	93	6.5	7.1	85	10.7	*	*
Site 3	60	8	5	93	6.4	7.1	84	10.6	63	*
Site 3	65	8	5	93	6.4	7.1	84	10.6	*	*
Site 3	70	8	5	93	6.3	7.0	85	10.0	*	*
Site 3	75	8	5	93	6.3	7.0	82	9.6	*	*
Site 3	80	8	5	93	6.3	6.9	82	8.9	64	*
Site 4	0	8	5	93	22.0	7.9	75	9.9	62	5.6
Site 4	1	8	5	93	22.0	8.0	74	9.8	*	*
Site 4	2	8	5	93	21.8	8.0	75	9.8	*	*
Site 4	3	8	5	93	21.6	8.0	77	9.9	*	*
Site 4	4	8	5	93	21.3	8.0	78	9.9	*	*
Site 4	5	8	5	93	20.8	8.1	79	10.0	63	*
Site 4	6	8	5	93	20.1	8.1	79	10.3	*	*
Site 4	7	8	5	93	18.9	8.0	79	10.3	*	*
Site 4	8	8	5	93	18.2	8.0	81	10.4	*	*
Site 4	9	8	5	93	18.1	8.0	82	10.4	*	*
Site 4	10	8	5	93	17.8	8.0	82	10.3	62	*
Site 4	15	8	5	93	14.6	7.7	86	10.1	*	*
Site 4	20	8	5	93	10.0	7.6	87	10.3	62	*
Site 4	25	8	5	93	8.5	7.5	87	10.5	*	*
Site 4	30	8	5	93	7.7	7.4	87	10.6	*	*
Site 4	35	8	5	93	7.2	7.3	87	10.7	*	*
Site 4	40	8	5	93	6.9	7.3	86	10.7	63	*
Site 4	45	8	5	93	6.8	7.3	86	10.7	*	*
Site 4	50	8	5	93	6.7	7.2	85	10.7	*	*
Site 4	55	8	5	93	6.6	7.2	85	10.8	*	*
Site 4	60	8	5	93	6.5	7.2	83	10.8	64	*
Site 4	65	8	5	93	6.4	7.1	83	10.9	*	*
Site 4	70	8	5	93	6.4	7.1	83	10.9	*	*
Site 4	75	8	5	93	6.3	7.1	83	10.8	*	*
Site 4	80	8	5	93	6.3	7.1	80	10.9	62	*
Site 4	85	8	5	93	6.3	7.1	81	10.9	*	*
Site 4	90	8	5	93	6.3	7.1	80	10.6	63	*
Gate	0	8	5	93	17.4	7.9	79	9.7	62	*
Site 1	0	9	1	93	20.2	8.4	79	9.7	*	5.0
Site 1	1	9	1	93	20.1	8.5	78	10.1	*	*
Site 1	2	9	1	93	20.1	8.4	77	10.0	*	*
Site 1	3	9	1	93	20.1	8.4	78	9.9	*	*
Site 1	4	9	1	93	20.0	8.4	78	9.9	*	*
Site 1	5	9	1	93	19.9	8.4	78	9.8	*	*
Site 1	6	9	1	93	19.7	8.3	79	9.7	*	*
Site 1	7	9	1	93	19.6	8.1	79	9.6	*	*
Site 1	8	9	1	93	19.4	8.0	78	9.3	*	*
Site 1	9	9	1	93	17.1	7.4	83	4.9	*	*
Site 1	10	9	1	93	16.0	7.3	83	3.4	*	*
Site 1	11	9	1	93	14.5	7.2	84	1.7	*	*
Site 1	12	9	1	93	12.9	7.1	87	1.7	*	*

Site	Depth	Month	Day	Year	Temp	pH	Cond	DO	LCon	Secc
Site 1	13	9	1	93	12.6	7.1	87	1.7	*	*
Site 1	14	9	1	93	12.4	7.0	87	1.7	*	*
Site 1	15	9	1	93	12.3	7.0	87	1.7	*	*
Site 1	16	9	1	93	12.2	6.9	87	1.7	*	*
Site 1	17	9	1	93	12.1	6.9	87	1.7	*	*
Site 1	18	9	1	93	12.0	6.9	88	1.6	*	*
Site 1	19	9	1	93	11.9	6.8	88	1.6	*	*
Site 1	20	9	1	93	11.9	6.8	87	1.6	*	*
Intake	0	9	1	93	20.0	8.2	72	9.8	*	5.9
Intake	1	9	1	93	19.9	8.2	72	9.9	*	*
Intake	2	9	1	93	19.7	8.2	73	9.9	*	*
Intake	3	9	1	93	18.9	8.1	74	9.9	*	*
Intake	4	9	1	93	18.9	8.1	73	9.9	*	*
Intake	5	9	1	93	18.7	8.0	75	9.8	*	*
Intake	6	9	1	93	18.5	7.9	75	9.7	*	*
Intake	7	9	1	93	18.5	7.9	75	9.7	*	*
Intake	8	9	1	93	18.4	7.8	76	9.6	*	*
Intake	9	9	1	93	18.4	7.8	76	9.6	*	*
Intake	10	9	1	93	18.1	7.7	77	9.4	*	*
Site 2	0	9	1	93	19.5	8.0	71	9.9	*	7.0
Site 2	1	9	1	93	19.5	8.0	71	9.8	*	*
Site 2	2	9	1	93	19.5	8.1	73	9.8	*	*
Site 2	3	9	1	93	19.5	8.1	73	9.8	*	*
Site 2	4	9	1	93	19.5	8.1	73	9.8	*	*
Site 2	5	9	1	93	19.5	8.1	75	9.8	*	*
Site 2	6	9	1	93	19.5	8.1	75	9.8	*	*
Site 2	7	9	1	93	19.0	8.0	76	9.8	*	*
Site 2	8	9	1	93	18.8	8.0	76	9.7	*	*
Site 2	9	9	1	93	18.7	7.9	76	9.7	*	*
Site 2	10	9	1	93	18.6	7.8	77	9.8	*	*
Site 2	11	9	1	93	17.9	7.8	77	9.3	*	*
Site 2	12	9	1	93	16.8	7.6	77	8.9	*	*
Site 2	13	9	1	93	15.5	7.5	79	8.2	*	*
Site 2	14	9	1	93	14.1	7.4	79	6.1	*	*
Site 2	15	9	1	93	12.4	7.2	82	4.3	*	*
Site 2	16	9	1	93	11.8	7.1	83	3.5	*	*
Site 2	17	9	1	93	11.5	7.0	83	2.6	*	*
Site 2	18	9	1	93	11.1	6.9	84	2.2	*	*
Site 2	19	9	1	93	11.0	6.9	85	2.0	*	*
Site 2	20	9	1	93	10.8	6.9	85	2.0	*	*
Site 3	0	9	1	93	19.8	8.1	73	9.7	*	7.3
Site 3	1	9	1	93	19.7	8.1	72	9.8	*	*
Site 3	2	9	1	93	19.6	8.1	73	9.8	*	*
Site 3	3	9	1	93	19.6	8.1	74	9.8	*	*
Site 3	4	9	1	93	19.4	8.1	74	9.8	*	*
Site 3	5	9	1	93	19.2	8.1	74	9.9	*	*
Site 3	6	9	1	93	19.1	8.0	74	9.8	*	*
Site 3	7	9	1	93	19.1	8.0	74	9.8	*	*
Site 3	8	9	1	93	19.0	8.0	75	9.8	*	*
Site 3	9	9	1	93	19.0	7.9	75	9.7	*	*
Site 3	10	9	1	93	18.4	7.8	76	9.6	*	*
Site 3	15	9	1	93	14.4	7.7	78	9.4	*	*
Site 3	20	9	1	93	9.8	7.7	80	9.8	*	*
Site 3	25	9	1	93	8.1	7.6	80	10.1	*	*
Site 3	30	9	1	93	7.4	7.6	80	10.3	*	*
Site 3	35	9	1	93	7.1	7.5	80	10.3	*	*
Site 3	40	9	1	93	6.9	7.5	80	10.3	*	*
Site 3	45	9	1	93	6.7	7.4	80	10.3	*	*
Site 3	50	9	1	93	6.6	7.4	78	10.3	*	*
Site 3	55	9	1	93	6.6	7.4	79	10.1	*	*

Site	Depth	Month	Day	Year	Temp	pH	Cond	DO	LCon	Secc
Site 3	60	9	1	93	6.5	7.3	79	10.1	*	*
Site 3	65	9	1	93	6.4	7.3	79	9.6	*	*
Site 3	70	9	1	93	6.4	7.3	77	9.7	*	*
Site 3	75	9	1	93	6.3	7.2	76	9.2	*	*
Site 3	77	9	1	93	6.3	7.1	78	7.5	*	*
Site 4	0	9	1	93	19.9	8.3	78	9.7	*	7.5
Site 4	1	9	1	93	19.6	8.2	76	9.6	*	*
Site 4	2	9	1	93	19.5	8.2	76	9.6	*	*
Site 4	3	9	1	93	19.5	8.1	76	9.6	*	*
Site 4	4	9	1	93	19.4	8.1	75	9.6	*	*
Site 4	5	9	1	93	19.3	8.1	76	9.7	*	*
Site 4	6	9	1	93	19.3	8.1	76	9.7	*	*
Site 4	7	9	1	93	19.2	8.1	76	9.6	*	*
Site 4	8	9	1	93	19.2	8.0	76	9.6	*	*
Site 4	9	9	1	93	19.1	8.0	78	9.6	*	*
Site 4	10	9	1	93	19.1	7.9	77	9.6	*	*
Site 4	15	9	1	93	15.8	7.8	79	9.3	*	*
Site 4	20	9	1	93	10.8	7.8	81	9.6	*	*
Site 4	25	9	1	93	8.4	7.7	81	9.9	*	*
Site 4	30	9	1	93	7.4	7.7	80	10.1	*	*
Site 4	35	9	1	93	7.1	7.6	79	10.2	*	*
Site 4	40	9	1	93	6.8	7.6	79	10.3	*	*
Site 4	45	9	1	93	6.7	7.5	79	10.4	*	*
Site 4	50	9	1	93	6.7	7.5	78	10.3	*	*
Site 4	55	9	1	93	6.6	7.5	77	10.4	*	*
Site 4	60	9	1	93	6.5	7.4	78	10.4	*	*
Site 4	65	9	1	93	6.5	7.4	78	10.4	*	*
Site 4	70	9	1	93	6.4	7.3	78	10.3	*	*
Site 4	75	9	1	93	6.3	7.3	75	10.3	*	*
Site 4	80	9	1	93	6.3	7.3	75	10.1	*	*
Site 4	85	9	1	93	6.3	7.3	76	10.1	*	*
Site 4	90	9	1	93	6.3	7.2	76	9.6	*	*
Gate	0	9	1	93	17.9	8.4	83	9.0	*	*
Site 1	0	10	5	93	17.4	8.1	72	10.0	62	4.0
Site 1	1	10	5	93	17.4	8.1	73	9.9	*	*
Site 1	2	10	5	93	17.4	8.1	73	9.9	*	*
Site 1	3	10	5	93	17.4	8.0	74	9.9	*	*
Site 1	4	10	5	93	17.4	8.0	74	9.9	*	*
Site 1	5	10	5	93	17.4	8.0	75	9.9	62	*
Site 1	6	10	5	93	17.4	8.0	76	9.9	*	*
Site 1	7	10	5	93	17.4	8.0	77	9.9	*	*
Site 1	8	10	5	93	17.3	7.9	78	9.2	*	*
Site 1	9	10	5	93	17.1	7.7	78	7.5	*	*
Site 1	10	10	5	93	15.5	7.2	79	2.1	63	*
Site 1	11	10	5	93	14.2	6.9	87	2.1	*	*
Site 1	12	10	5	93	13.6	6.8	87	2.2	*	*
Site 1	13	10	5	93	12.7	6.8	88	2.2	*	*
Site 1	14	10	5	93	12.4	6.7	86	2.2	*	*
Site 1	15	10	5	93	12.2	6.7	86	2.2	72	*
Site 1	16	10	5	93	12.0	6.7	88	2.2	*	*
Site 1	17	10	5	93	12.0	6.6	88	2.2	*	*
Site 1	18	10	5	93	11.9	6.6	88	2.1	*	*
Site 1	19	10	5	93	11.8	6.6	89	2.1	*	*
Site 1	20	10	5	93	11.8	6.6	90	2.1	74	*
Intake	0	10	5	93	17.2	7.9	73	10.1	62	6.0
Intake	1	10	5	93	17.2	7.9	73	10.2	*	*
Intake	2	10	5	93	17.2	7.9	75	10.2	*	*
Intake	3	10	5	93	17.2	7.9	75	10.3	*	*
Intake	4	10	5	93	17.2	7.9	76	10.3	*	*
Intake	5	10	5	93	17.2	7.9	76	10.4	62	*

Site	Depth	Month	Day	Year	Temp	pH	Cond	DO	LCon	Secc
Intake	6	10	5	93	17.2	7.9	77	10.4	*	*
Intake	7	10	5	93	17.2	7.9	77	10.5	*	*
Intake	8	10	5	93	17.2	7.8	78	10.5	*	*
Intake	9	10	5	93	17.2	7.8	78	10.5	*	*
Intake	10	10	5	93	17.2	7.8	78	10.5	62	*
Site 2	0	10	5	93	17.1	7.8	72	10.0	62	5.6
Site 2	1	10	5	93	17.2	7.8	73	9.9	*	*
Site 2	2	10	5	93	17.2	7.9	74	9.9	*	*
Site 2	3	10	5	93	17.2	7.9	75	9.8	*	*
Site 2	4	10	5	93	17.3	7.9	74	9.8	*	*
Site 2	5	10	5	93	17.2	7.9	76	9.8	62	*
Site 2	6	10	5	93	17.2	7.9	76	9.8	*	*
Site 2	7	10	5	93	17.2	7.8	76	9.8	*	*
Site 2	8	10	5	93	17.2	7.8	77	9.7	*	*
Site 2	9	10	5	93	17.2	7.8	77	9.7	*	*
Site 2	10	10	5	93	17.1	7.8	78	9.7	62	*
Site 2	11	10	5	93	16.8	7.5	78	9.1	*	*
Site 2	12	10	5	93	15.8	7.1	78	5.9	*	*
Site 2	13	10	5	93	13.9	6.8	80	2.7	*	*
Site 2	14	10	5	93	12.2	6.7	83	2.6	*	*
Site 2	15	10	5	93	11.5	6.6	85	2.6	62	*
Site 2	16	10	5	93	11.2	6.6	85	2.6	*	*
Site 2	17	10	5	93	11.0	6.6	86	2.6	*	*
Site 2	18	10	5	93	10.9	6.5	87	2.6	*	*
Site 2	20	10	5	93	*	*	*	*	66	*
Site 3	0	10	5	93	17.2	7.7	71	9.9	62	5.0
Site 3	1	10	5	93	17.2	7.7	71	9.9	*	*
Site 3	2	10	5	93	17.2	7.7	72	9.8	*	*
Site 3	3	10	5	93	17.2	7.8	72	9.8	*	*
Site 3	4	10	5	93	17.2	7.8	73	9.8	*	*
Site 3	5	10	5	93	17.2	7.8	74	9.8	62	*
Site 3	6	10	5	93	17.3	7.8	75	9.8	*	*
Site 3	7	10	5	93	17.3	7.8	75	9.8	*	*
Site 3	8	10	5	93	17.3	7.8	75	9.7	*	*
Site 3	9	10	5	93	17.3	7.8	75	9.7	*	*
Site 3	10	10	5	93	17.3	7.7	76	9.7	62	*
Site 3	15	10	5	93	14.9	7.3	77	8.8	*	*
Site 3	20	10	5	93	9.9	7.2	78	9.3	61	*
Site 3	25	10	5	93	7.8	7.2	79	9.8	*	*
Site 3	30	10	5	93	7.4	7.1	79	9.8	*	*
Site 3	35	10	5	93	6.8	7.1	79	9.9	*	*
Site 3	40	10	5	93	6.7	7.0	79	10.0	62	*
Site 3	45	10	5	93	6.6	7.0	78	9.8	*	*
Site 3	50	10	5	93	6.5	7.0	78	9.6	*	*
Site 3	55	10	5	93	6.4	6.9	78	9.5	*	*
Site 3	60	10	5	93	6.4	6.9	78	9.5	62	*
Site 3	65	10	5	93	6.4	6.9	77	9.3	*	*
Site 3	70	10	5	93	6.3	6.9	78	9.4	*	*
Site 3	75	10	5	93	6.3	6.8	76	9.3	*	*
Site 3	80	10	5	93	*	*	*	*	62	*
Site 4	0	10	5	93	17.2	7.8	70	9.8	62	7.5
Site 4	1	10	5	93	17.2	7.8	71	9.8	*	*
Site 4	2	10	5	93	17.3	7.8	71	9.9	*	*
Site 4	3	10	5	93	17.3	7.8	72	9.9	*	*
Site 4	4	10	5	93	17.3	7.8	72	9.9	*	*
Site 4	5	10	5	93	17.3	7.8	73	9.9	62	*
Site 4	6	10	5	93	17.3	7.8	72	9.8	*	*
Site 4	7	10	5	93	17.3	7.8	74	9.8	*	*
Site 4	8	10	5	93	17.3	7.8	74	9.8	*	*
Site 4	9	10	5	93	17.3	7.8	74	9.8	*	*

Site	Depth	Month	Day	Year	Temp	pH	Cond	DO	LCon	Secc
Site 4	10	10	5	93	17.3	7.7	74	9.8	62	*
Site 4	15	10	5	93	14.5	7.5	76	8.9	*	*
Site 4	20	10	5	93	10.3	7.3	76	9.4	61	*
Site 4	25	10	5	93	8.2	7.3	75	9.9	*	*
Site 4	30	10	5	93	7.3	7.2	75	10.2	*	*
Site 4	35	10	5	93	6.9	7.2	76	10.3	*	*
Site 4	40	10	5	93	6.7	7.2	74	10.4	62	*
Site 4	45	10	5	93	6.6	7.1	74	10.5	*	*
Site 4	50	10	5	93	6.6	7.1	74	10.5	*	*
Site 4	55	10	5	93	6.5	7.1	73	10.3	*	*
Site 4	60	10	5	93	6.5	7.1	73	10.5	62	*
Site 4	65	10	5	93	6.4	7.0	74	10.4	*	*
Site 4	70	10	5	93	6.4	7.0	72	10.3	*	*
Site 4	75	10	5	93	6.4	7.0	72	10.2	*	*
Site 4	80	10	5	93	6.4	7.0	72	10.3	62	*
Site 4	85	10	5	93	6.3	7.0	74	10.4	*	*
Site 4	90	10	5	93	6.3	6.9	74	9.4	62	*
Gate	0	10	5	93	17.3	8.0	73	9.7	62	*
Site 1	0	11	2	93	13.5	*	83	8.9	66	3.7
Site 1	1	11	2	93	13.5	*	84	8.9	*	*
Site 1	2	11	2	93	13.5	*	84	8.9	*	*
Site 1	3	11	2	93	13.5	*	84	8.9	*	*
Site 1	4	11	2	93	13.5	*	85	8.9	*	*
Site 1	5	11	2	93	13.5	*	85	8.9	66	*
Site 1	6	11	2	93	13.5	*	86	8.9	*	*
Site 1	7	11	2	93	13.5	*	85	8.9	*	*
Site 1	8	11	2	93	13.5	*	86	8.9	*	*
Site 1	9	11	2	93	13.5	*	85	8.9	*	*
Site 1	10	11	2	93	13.5	*	85	8.9	67	*
Site 1	11	11	2	93	13.5	*	86	8.9	*	*
Site 1	12	11	2	93	13.5	*	85	8.9	*	*
Site 1	13	11	2	93	13.5	*	86	8.8	*	*
Site 1	14	11	2	93	13.5	*	85	8.8	*	*
Site 1	15	11	2	93	13.4	*	86	8.2	67	*
Site 1	16	11	2	93	13.3	*	86	7.6	*	*
Site 1	17	11	2	93	13.0	*	88	5.8	*	*
Site 1	18	11	2	93	12.1	*	98	2.0	*	*
Site 1	19	11	2	93	11.9	*	98	2.0	*	*
Site 1	20	11	2	93	11.8	*	99	2.0	79	*
Intake	0	11	2	93	13.8	*	81	10.0	65	4.3
Intake	1	11	2	93	13.8	*	81	10.0	*	*
Intake	2	11	2	93	13.8	*	81	10.0	*	*
Intake	3	11	2	93	13.9	*	81	10.0	*	*
Intake	4	11	2	93	13.9	*	81	10.0	*	*
Intake	5	11	2	93	13.9	*	81	10.0	64	*
Intake	6	11	2	93	13.9	*	82	10.0	*	*
Intake	7	11	2	93	13.9	*	82	10.0	*	*
Intake	8	11	2	93	13.9	*	83	10.0	*	*
Intake	9	11	2	93	13.9	*	82	10.0	*	*
Intake	10	11	2	93	13.9	*	83	10.0	64	*
Site 2	0	11	2	93	13.9	*	80	9.9	65	5.5
Site 2	1	11	2	93	13.9	*	80	9.9	*	*
Site 2	2	11	2	93	13.9	*	80	9.9	*	*
Site 2	3	11	2	93	14.0	*	80	9.9	*	*
Site 2	4	11	2	93	14.0	*	81	9.9	*	*
Site 2	5	11	2	93	14.0	*	81	9.9	63	*
Site 2	6	11	2	93	14.0	*	82	9.9	*	*
Site 2	7	11	2	93	14.0	*	82	9.9	*	*
Site 2	8	11	2	93	14.0	*	82	9.9	*	*
Site 2	9	11	2	93	14.0	*	83	9.9	*	*

Site	Depth	Month	Day	Year	Temp	pH	Cond	DO	LCon	Secc
Site 2	10	11	2	93	14.0	*	83	9.9	64	*
Site 2	11	11	2	93	14.0	*	83	9.8	*	*
Site 2	12	11	2	93	14.0	*	82	9.8	*	*
Site 2	13	11	2	93	14.0	*	82	9.8	*	*
Site 2	14	11	2	93	14.0	*	82	9.7	*	*
Site 2	15	11	2	93	13.9	*	82	9.4	63	*
Site 2	16	11	2	93	11.5	*	94	2.1	*	*
Site 2	17	11	2	93	10.8	*	97	2.1	*	*
Site 2	20	11	2	93	*	*	*	*	76	*
Gate	0	11	2	93	14.3	*	85	9.7	65	*
Site 1	0	12	16	93	6.0	*	*	10.2	65	*
Site 1	1	12	16	93	5.0	*	*	10.0	*	*
Site 1	2	12	16	93	4.8	*	*	10.1	*	*
Site 1	3	12	16	93	4.6	*	*	9.8	*	*
Site 1	4	12	16	93	5.0	*	*	9.8	*	*
Site 1	5	12	16	93	5.0	*	*	9.5	65	*
Site 1	6	12	16	93	5.5	*	*	9.6	*	*
Site 1	7	12	16	93	6.0	*	*	9.6	*	*
Site 1	8	12	16	93	6.2	*	*	9.6	*	*
Site 1	9	12	16	93	6.5	*	*	10.0	*	*
Site 1	10	12	16	93	6.9	*	*	9.8	65	*
Site 1	11	12	16	93	7.0	*	*	9.7	*	*
Site 1	12	12	16	93	7.1	*	*	9.8	*	*
Site 1	13	12	16	93	7.1	*	*	9.8	*	*
Site 1	14	12	16	93	7.1	*	*	9.6	*	*
Site 1	15	12	16	93	7.2	*	*	9.6	65	*
Site 1	16	12	16	93	7.2	*	*	9.5	*	*
Site 1	17	12	16	93	7.2	*	*	9.5	*	*
Site 1	18	12	16	93	7.2	*	*	9.6	*	*
Site 1	19	12	16	93	7.2	*	*	9.6	*	*
Site 1	20	12	16	93	7.2	*	*	9.6	66	*
Intake	0	12	16	93	7.7	*	*	10.0	63	6.8
Intake	1	12	16	93	7.8	*	*	10.0	*	*
Intake	2	12	16	93	7.8	*	*	9.8	*	*
Intake	3	12	16	93	7.8	*	*	9.6	*	*
Intake	4	12	16	93	7.8	*	*	9.1	*	*
Intake	5	12	16	93	7.8	*	*	9.2	63	*
Intake	6	12	16	93	7.8	*	*	9.1	*	*
Intake	7	12	16	93	7.9	*	*	9.2	*	*
Intake	8	12	16	93	7.9	*	*	9.3	*	*
Intake	9	12	16	93	7.9	*	*	9.3	*	*
Intake	10	12	16	93	7.9	*	*	9.4	65	*
Site 2	0	12	15	93	5.0	*	*	11.0	63	7.1
Site 2	1	12	15	93	5.0	*	*	11.2	*	*
Site 2	2	12	15	93	5.0	*	*	11.2	*	*
Site 2	3	12	15	93	5.0	*	*	10.8	*	*
Site 2	4	12	15	93	5.0	*	*	11.0	*	*
Site 2	5	12	15	93	5.0	*	*	11.1	64	*
Site 2	6	12	15	93	5.5	*	*	11.0	*	*
Site 2	7	12	15	93	5.5	*	*	10.8	*	*
Site 2	8	12	15	93	5.6	*	*	10.6	*	*
Site 2	9	12	15	93	6.0	*	*	11.2	*	*
Site 2	10	12	15	93	6.0	*	*	11.1	63	*
Site 2	11	12	15	93	6.0	*	*	11.0	*	*
Site 2	12	12	15	93	6.0	*	*	11.2	*	*
Site 2	13	12	15	93	6.0	*	*	11.1	*	*
Site 2	14	12	15	93	6.0	*	*	11.1	*	*
Site 2	15	12	15	93	6.0	*	*	11.0	63	*
Site 2	16	12	15	93	6.0	*	*	11.0	*	*
Site 2	17	12	15	93	6.0	*	*	11.0	*	*

Site	Depth	Month	Day	Year	Temp	pH	Cond	DO	LCon	Secc
Site 2	18	12	15	93	6.0	*	*	11.0	*	*
Site 2	20	12	15	93	*	*	*	*	63	*
Site 3	0	12	15	93	6.0	*	*	10.4	64	7.9
Site 3	1	12	15	93	6.6	*	*	10.0	*	*
Site 3	2	12	15	93	6.8	*	*	10.0	*	*
Site 3	3	12	15	93	7.0	*	*	10.0	*	*
Site 3	4	12	15	93	7.0	*	*	10.0	*	*
Site 3	5	12	15	93	7.0	*	*	9.8	63	*
Site 3	6	12	15	93	7.0	*	*	9.8	*	*
Site 3	7	12	15	93	7.0	*	*	9.5	*	*
Site 3	8	12	15	93	7.1	*	*	9.6	*	*
Site 3	9	12	15	93	7.2	*	*	9.7	*	*
Site 3	10	12	15	93	7.8	*	*	9.6	63	*
Site 3	15	12	15	93	8.0	*	*	9.4	*	*
Site 3	20	12	15	93	8.0	*	*	9.6	63	*
Site 3	25	12	15	93	7.8	*	*	9.2	*	*
Site 3	30	12	15	93	7.8	*	*	8.5	*	*
Site 3	35	12	15	93	7.4	*	*	8.4	*	*
Site 3	40	12	15	93	7.2	*	*	8.0	63	*
Site 3	45	12	15	93	7.0	*	*	8.2	*	*
Site 3	50	12	15	93	7.0	*	*	7.8	*	*
Site 3	55	12	15	93	7.0	*	*	7.6	*	*
Site 3	60	12	15	93	7.0	*	*	7.6	64	*
Site 3	65	12	15	93	7.0	*	*	7.4	*	*
Site 3	70	12	15	93	6.8	*	*	7.3	*	*
Site 3	75	12	15	93	6.8	*	*	7.1	*	*
Site 3	80	12	15	93	6.8	*	*	7.0	63	*
Site 4	0	12	15	93	8.4	*	*	11.5	63	8.5
Site 4	1	12	15	93	8.5	*	*	11.2	*	*
Site 4	2	12	15	93	8.6	*	*	11.4	*	*
Site 4	3	12	15	93	8.5	*	*	11.2	*	*
Site 4	4	12	15	93	8.4	*	*	11.0	*	*
Site 4	5	12	15	93	8.2	*	*	10.8	63	*
Site 4	6	12	15	93	8.5	*	*	10.6	*	*
Site 4	7	12	15	93	8.4	*	*	10.6	*	*
Site 4	8	12	15	93	8.4	*	*	10.6	*	*
Site 4	9	12	15	93	8.3	*	*	10.4	*	*
Site 4	10	12	15	93	8.3	*	*	10.4	63	*
Site 4	15	12	15	93	8.3	*	*	10.2	*	*
Site 4	20	12	15	93	8.2	*	*	10.4	62	*
Site 4	25	12	15	93	8.2	*	*	10.2	*	*
Site 4	30	12	15	93	8.2	*	*	9.2	*	*
Site 4	35	12	15	93	8.2	*	*	9.3	*	*
Site 4	40	12	15	93	8.0	*	*	9.0	64	*
Site 4	45	12	15	93	8.0	*	*	9.2	*	*
Site 4	50	12	15	93	8.0	*	*	8.9	*	*
Site 4	55	12	15	93	8.0	*	*	8.9	*	*
Site 4	60	12	15	93	7.8	*	*	8.5	65	*
Site 4	65	12	15	93	7.6	*	*	8.4	*	*
Site 4	70	12	15	93	7.6	*	*	8.4	*	*
Site 4	75	12	15	93	7.6	*	*	8.4	*	*
Site 4	80	12	15	93	7.6	*	*	8.6	90	*
Site 4	85	12	15	93	7.4	*	*	8.8	*	*
Site 4	90	12	15	93	7.3	*	*	8.8	63	*
Gate	0	12	16	93	8.0	*	*	10.5	64	*
Gate	0	2	22	94	*	*	*	*	65	*
Site 1	0	2	22	94	5.7	7.6	67	12.6	66	4.3
Site 1	1	2	22	94	5.6	7.6	66	12.3	*	*
Site 1	2	2	22	94	5.6	7.6	66	12.2	*	*
Site 1	3	2	22	94	5.5	7.5	66	12.2	*	*

Site	Depth	Month	Day	Year	Temp	pH	Cond	DO	LCon	Secc
Site 1	4	2	22	94	5.5	7.5	64	12.2	*	*
Site 1	5	2	22	94	5.5	7.5	64	12.1	65	*
Site 1	6	2	22	94	5.4	7.5	64	12.1	*	*
Site 1	7	2	22	94	5.4	7.5	64	12.1	*	*
Site 1	8	2	22	94	5.4	7.5	64	12.2	*	*
Site 1	9	2	22	94	5.4	7.4	64	12.2	*	*
Site 1	10	2	22	94	5.4	7.4	63	12.2	66	*
Site 1	11	2	22	94	5.4	7.4	63	12.2	*	*
Site 1	12	2	22	94	5.4	7.4	63	12.2	*	*
Site 1	13	2	22	94	5.4	7.4	62	12.2	*	*
Site 1	14	2	22	94	5.4	7.4	63	12.2	*	*
Site 1	15	2	22	94	5.4	7.4	63	12.2	65	*
Site 1	16	2	22	94	5.7	7.4	63	12.2	*	*
Site 1	17	2	22	94	5.4	7.4	62	12.2	*	*
Site 1	18	2	22	94	5.4	7.4	62	12.1	*	*
Site 1	19	2	22	94	5.4	7.4	62	12.2	*	*
Site 1	20	2	22	94	5.3	7.4	61	12.2	66	*
Intake	0	2	14	94	6.0	7.3	63	12.3	70	3.8
Intake	1	2	14	94	6.0	7.3	62	12.1	*	*
Intake	2	2	14	94	6.0	7.3	62	12.0	*	*
Intake	3	2	14	94	6.0	7.3	61	11.9	*	*
Intake	4	2	14	94	6.0	7.3	61	11.9	*	*
Intake	5	2	14	94	6.0	7.3	61	11.8	66	*
Intake	6	2	14	94	6.0	7.3	61	11.8	*	*
Intake	7	2	14	94	6.0	7.3	61	11.8	*	*
Intake	8	2	14	94	6.0	7.3	61	11.8	*	*
Intake	9	2	14	94	6.0	7.3	60	11.8	*	*
Intake	10	2	14	94	6.0	7.3	60	11.8	70	*
Site 2	0	2	14	94	6.0	7.2	63	12.3	65	4.0
Site 2	1	2	14	94	5.9	7.3	63	12.1	*	*
Site 2	2	2	14	94	5.9	7.3	63	11.9	*	*
Site 2	3	2	14	94	5.9	7.3	63	11.8	*	*
Site 2	4	2	14	94	5.9	7.3	61	11.9	*	*
Site 2	5	2	14	94	5.9	7.3	61	11.9	66	*
Site 2	6	2	14	94	5.9	7.3	61	11.9	*	*
Site 2	7	2	14	94	5.9	7.3	61	11.9	*	*
Site 2	8	2	14	94	5.9	7.3	61	11.9	*	*
Site 2	9	2	14	94	5.9	7.3	61	11.9	*	*
Site 2	10	2	14	94	5.9	7.3	60	11.9	65	*
Site 2	11	2	14	94	5.9	7.3	61	11.9	*	*
Site 2	12	2	14	94	5.9	7.3	60	11.8	*	*
Site 2	13	2	14	94	5.9	7.3	60	11.8	*	*
Site 2	14	2	14	94	5.9	7.3	60	11.8	*	*
Site 2	15	2	14	94	5.9	7.3	60	11.8	67	*
Site 2	16	2	14	94	5.9	7.3	60	11.8	*	*
Site 2	17	2	14	94	5.9	7.3	60	11.8	66	*
Site 3	0	2	14	94	6.4	7.2	64	12.1	65	4.5
Site 3	1	2	14	94	6.4	7.2	64	11.6	*	*
Site 3	2	2	14	94	6.4	7.2	64	11.5	*	*
Site 3	3	2	14	94	6.4	7.2	62	11.3	*	*
Site 3	4	2	14	94	6.4	7.2	61	11.2	*	*
Site 3	5	2	14	94	6.4	7.2	62	11.2	65	*
Site 3	6	2	14	94	6.4	7.2	61	11.1	*	*
Site 3	7	2	14	94	6.4	7.2	62	11.1	*	*
Site 3	8	2	14	94	6.4	7.2	61	11.1	*	*
Site 3	9	2	14	94	6.4	7.2	61	11.1	*	*
Site 3	10	2	14	94	6.4	7.2	61	11.1	64	*
Site 3	15	2	14	94	6.4	7.2	60	11.1	*	*
Site 3	20	2	14	94	6.4	7.2	60	11.1	64	*
Site 3	25	2	14	94	6.4	7.2	59	11.0	*	*

Site	Depth	Month	Day	Year	Temp	pH	Cond	DO	LCon	Secc
Site 3	30	2	14	94	6.4	7.1	59	11.0	*	*
Site 3	35	2	14	94	6.4	7.1	59	11.0	*	*
Site 3	40	2	14	94	6.4	7.1	59	11.0	64	*
Site 3	45	2	14	94	6.4	7.1	59	11.0	*	*
Site 3	50	2	14	94	6.4	7.1	59	11.0	*	*
Site 3	55	2	14	94	6.4	7.1	58	11.0	*	*
Site 3	60	2	14	94	6.4	7.1	58	11.0	65	*
Site 3	65	2	14	94	6.4	7.1	58	10.9	*	*
Site 3	70	2	14	94	6.4	7.1	58	10.9	*	*
Site 3	75	2	14	94	6.4	7.1	58	10.9	*	*
Site 3	80	2	14	94	6.4	7.1	58	10.9	64	*
Site 4	0	2	14	94	6.5	7.3	64	11.3	65	4.3
Site 4	1	2	14	94	6.5	7.3	64	11.0	*	*
Site 4	2	2	14	94	6.5	7.3	64	10.9	*	*
Site 4	3	2	14	94	6.5	7.3	63	10.9	*	*
Site 4	4	2	14	94	6.5	7.3	62	10.8	*	*
Site 4	5	2	14	94	6.5	7.2	62	10.8	64	*
Site 4	6	2	14	94	6.5	7.2	62	10.8	*	*
Site 4	7	2	14	94	6.5	7.2	62	10.8	*	*
Site 4	8	2	14	94	6.5	7.2	62	10.8	*	*
Site 4	9	2	14	94	6.5	7.2	62	10.8	*	*
Site 4	10	2	14	94	6.5	7.2	61	10.8	65	*
Site 4	15	2	14	94	6.5	7.2	61	10.7	*	*
Site 4	20	2	14	94	6.5	7.2	60	10.7	65	*
Site 4	25	2	14	94	6.5	7.2	60	10.7	*	*
Site 4	30	2	14	94	6.5	7.2	60	10.7	*	*
Site 4	35	2	14	94	6.5	7.2	60	10.7	*	*
Site 4	40	2	14	94	6.5	7.1	60	10.7	65	*
Site 4	45	2	14	94	6.5	7.1	59	10.7	*	*
Site 4	50	2	14	94	6.5	7.1	60	10.7	*	*
Site 4	55	2	14	94	6.5	7.1	59	10.7	*	*
Site 4	60	2	14	94	6.5	7.1	60	10.7	65	*
Site 4	65	2	14	94	6.5	7.1	60	10.7	*	*
Site 4	70	2	14	94	6.5	7.1	60	10.7	*	*
Site 4	75	2	14	94	6.5	7.1	60	10.7	*	*
Site 4	80	2	14	94	6.5	7.1	59	10.7	66	*
Site 4	85	2	14	94	6.5	7.1	60	10.7	*	*
Site 4	90	2	14	94	6.5	7.1	60	10.7	66	*
Gate	0	4	5	94	8.3	7.6	62	11.5	66	*
Site 1	0	4	5	94	10.3	7.5	60	11.6	65	6.6
Site 1	1	4	5	94	10.3	7.5	60	11.4	*	*
Site 1	2	4	5	94	10.3	7.6	60	11.3	*	*
Site 1	3	4	5	94	10.1	7.6	60	11.4	*	*
Site 1	4	4	5	94	10.1	7.6	60	11.3	*	*
Site 1	5	4	5	94	10.1	7.6	60	11.3	66	*
Site 1	6	4	5	94	9.4	7.6	60	11.1	*	*
Site 1	7	4	5	94	8.6	7.5	60	11.3	*	*
Site 1	8	4	5	94	8.1	7.5	60	11.3	*	*
Site 1	9	4	5	94	8.0	7.4	60	11.1	*	*
Site 1	10	4	5	94	7.8	7.4	60	11.0	65	*
Site 1	11	4	5	94	7.8	7.4	59	11.0	*	*
Site 1	12	4	5	94	7.7	7.4	59	10.9	*	*
Site 1	13	4	5	94	7.6	7.3	60	10.8	*	*
Site 1	14	4	5	94	7.6	7.3	60	10.6	*	*
Site 1	15	4	5	94	7.5	7.3	60	10.6	66	*
Site 1	16	4	5	94	7.5	7.3	59	10.7	*	*
Site 1	17	4	5	94	7.5	7.3	59	10.6	*	*
Site 1	18	4	5	94	7.5	7.3	58	10.6	*	*
Site 1	19	4	5	94	7.5	7.2	59	10.6	*	*
Site 1	20	4	5	94	7.5	7.2	59	10.5	67	*

Site	Depth	Month	Day	Year	Temp	pH	Cond	DO	LCon	Secc
Intake	0	4	5	94	9.6	7.4	60	12.1	65	5.5
Intake	1	4	5	94	9.6	7.5	59	11.9	*	*
Intake	2	4	5	94	9.5	7.5	58	11.9	*	*
Intake	3	4	5	94	9.4	7.5	59	11.9	*	*
Intake	4	4	5	94	9.4	7.6	58	11.9	*	*
Intake	5	4	5	94	9.4	7.6	58	11.8	64	*
Intake	6	4	5	94	9.3	7.6	58	11.8	*	*
Intake	7	4	5	94	9.3	7.6	58	11.9	*	*
Intake	8	4	5	94	9.0	7.5	57	11.8	*	*
Intake	9	4	5	94	8.8	7.5	58	11.8	*	*
Intake	10	4	5	94	8.8	7.5	58	11.8	65	*
Site 2	0	4	5	94	9.6	7.5	60	11.9	65	5.9
Site 2	1	4	5	94	9.6	7.5	60	11.8	*	*
Site 2	2	4	5	94	9.5	7.6	60	11.7	*	*
Site 2	3	4	5	94	9.5	7.6	60	11.7	*	*
Site 2	4	4	5	94	9.3	7.6	60	11.6	*	*
Site 2	5	4	5	94	9.0	7.6	59	11.7	64	*
Site 2	6	4	5	94	8.9	7.6	59	11.6	*	*
Site 2	7	4	5	94	8.9	7.6	59	11.6	*	*
Site 2	8	4	5	94	8.9	7.6	59	11.6	*	*
Site 2	9	4	5	94	8.7	7.6	59	11.5	*	*
Site 2	10	4	5	94	8.7	7.5	58	11.5	65	*
Site 2	11	4	5	94	8.4	7.5	59	11.5	*	*
Site 2	12	4	5	94	7.8	7.5	58	11.4	*	*
Site 2	13	4	5	94	7.6	7.5	59	11.3	*	*
Site 2	14	4	5	94	7.4	7.4	58	11.2	*	*
Site 2	15	4	5	94	7.3	7.4	58	11.1	64	*
Site 2	16	4	5	94	7.1	7.3	59	11.0	*	*
Site 2	17	4	5	94	7.0	7.3	59	10.9	*	*
Site 2	18	4	5	94	7.0	7.3	58	10.6	*	*
Site 3	0	4	5	94	8.7	7.5	61	11.7	63	6.2
Site 3	1	4	5	94	8.8	7.6	61	11.6	*	*
Site 3	2	4	5	94	8.8	7.6	61	11.6	*	*
Site 3	3	4	5	94	8.7	7.6	60	11.6	*	*
Site 3	4	4	5	94	8.7	7.6	60	11.6	*	*
Site 3	5	4	5	94	8.7	7.6	59	11.6	63	*
Site 3	6	4	5	94	8.6	7.6	59	11.6	*	*
Site 3	7	4	5	94	8.6	7.6	60	11.6	*	*
Site 3	8	4	5	94	8.4	7.6	60	11.5	*	*
Site 3	9	4	5	94	7.7	7.6	59	11.4	*	*
Site 3	10	4	5	94	7.5	7.5	60	11.4	63	*
Site 3	15	4	5	94	7.2	7.5	59	11.3	*	*
Site 3	20	4	5	94	7.1	7.4	59	11.3	65	*
Site 3	25	4	5	94	6.9	7.4	57	11.2	*	*
Site 3	30	4	5	94	6.8	7.4	58	11.1	*	*
Site 3	35	4	5	94	6.8	7.4	58	11.1	*	*
Site 3	40	4	5	94	6.8	7.3	58	11.0	64	*
Site 3	45	4	5	94	6.7	7.3	57	11.0	*	*
Site 3	50	4	5	94	6.7	7.3	57	11.0	*	*
Site 3	55	4	5	94	6.7	7.3	57	11.0	*	*
Site 3	60	4	5	94	6.6	7.3	57	10.9	65	*
Site 3	65	4	5	94	6.6	7.3	57	10.8	*	*
Site 3	70	4	5	94	6.5	7.2	58	10.6	*	*
Site 3	75	4	5	94	6.5	7.2	57	10.5	*	*
Site 3	80	4	5	94	6.5	7.2	56	10.5	64	*
Site 4	0	4	5	94	8.0	7.6	61	11.9	65	7.8
Site 4	1	4	5	94	7.9	7.6	61	11.7	*	*
Site 4	2	4	5	94	7.9	7.6	61	11.6	*	*
Site 4	3	4	5	94	7.9	7.6	61	11.6	*	*
Site 4	4	4	5	94	7.9	7.6	61	11.6	*	*

Site	Depth	Month	Day	Year	Temp	pH	Cond	DO	LCon	Secc
Site 4	5	4	5	94	7.9	7.6	60	11.6	65	*
Site 4	6	4	5	94	7.9	7.6	60	11.5	*	*
Site 4	7	4	5	94	7.9	7.6	61	11.5	*	*
Site 4	8	4	5	94	7.9	7.6	60	11.5	*	*
Site 4	9	4	5	94	7.9	7.6	60	11.5	*	*
Site 4	10	4	5	94	7.8	7.6	60	11.5	64	*
Site 4	15	4	5	94	7.2	7.6	59	11.3	*	*
Site 4	20	4	5	94	7.0	7.5	58	11.2	64	*
Site 4	25	4	5	94	6.8	7.5	59	11.1	*	*
Site 4	30	4	5	94	6.7	7.4	58	11.1	*	*
Site 4	35	4	5	94	6.7	7.4	57	11.0	*	*
Site 4	40	4	5	94	6.7	7.4	57	11.0	65	*
Site 4	45	4	5	94	6.6	7.4	57	11.0	*	*
Site 4	50	4	5	94	6.6	7.4	56	11.0	*	*
Site 4	55	4	5	94	6.6	7.3	58	11.0	*	*
Site 4	60	4	5	94	6.5	7.4	57	11.0	64	*
Site 4	65	4	5	94	6.6	7.3	56	11.0	*	*
Site 4	70	4	5	94	6.5	7.3	57	10.9	*	*
Site 4	75	4	5	94	6.5	7.3	57	10.9	*	*
Site 4	80	4	5	94	6.5	7.3	58	10.8	64	*
Site 4	85	4	5	94	6.5	7.3	57	10.8	*	*
Site 4	90	4	5	94	6.5	7.3	58	10.7	66	*
Gate	0	5	3	94	11.3	7.5	63	11.8	62	*
Site 1	0	5	3	94	13.5	7.8	64	11.2	66	6.7
Site 1	1	5	3	94	13.5	7.8	64	11.1	*	*
Site 1	2	5	3	94	13.4	7.8	64	11.0	*	*
Site 1	3	5	3	94	13.3	7.8	63	11.0	*	*
Site 1	4	5	3	94	13.1	7.9	64	11.1	*	*
Site 1	5	5	3	94	12.9	7.9	64	11.1	65	*
Site 1	6	5	3	94	12.6	7.9	63	11.3	*	*
Site 1	7	5	3	94	11.6	7.8	63	11.4	*	*
Site 1	8	5	3	94	10.8	7.7	63	11.1	*	*
Site 1	9	5	3	94	10.4	7.6	63	10.9	*	*
Site 1	10	5	3	94	10.0	7.5	63	10.3	63	*
Site 1	11	5	3	94	9.9	7.4	63	10.2	*	*
Site 1	12	5	3	94	9.7	7.3	63	9.8	*	*
Site 1	13	5	3	94	9.6	7.2	63	9.7	*	*
Site 1	14	5	3	94	9.6	7.2	63	9.6	*	*
Site 1	15	5	3	94	9.5	7.1	63	9.5	63	*
Site 1	16	5	3	94	9.5	7.1	63	9.4	*	*
Site 1	17	5	3	94	9.4	7.1	63	9.4	*	*
Site 1	18	5	3	94	9.4	7.0	63	9.4	*	*
Site 1	19	5	3.	94	9.3	7.0	62	9.1	*	*
Site 1	20	5	3	94	9.3	7.0	62	9.0	63	*
Intake	0	5	3	94	13.1	7.6	63	11.5	62	5.5
Intake	1	5	3	94	12.9	7.8	63	11.3	*	*
Intake	2	5	3	94	12.5	7.8	63	11.4	*	*
Intake	3	5	3	94	12.1	7.8	62	11.4	*	*
Intake	4	5	3	94	12.0	7.9	62	11.4	*	*
Intake	5	5	3	94	11.8	7.9	62	11.5	62	*
Intake	6	5	3	94	11.8	7.8	62	11.4	*	*
Intake	7	5	3	94	11.7	7.8	62	11.5	*	*
Intake	8	5	3	94	11.6	7.8	62	11.4	*	*
Intake	9	5	3	94	11.6	7.8	62	11.4	*	*
Intake	10	5	3	94	11.5	7.8	62	11.4	62	*
Site 2	0	5	3	94	12.8	7.8	63	11.5	63	4.9
Site 2	1	5	3	94	12.7	7.8	62	11.4	*	*
Site 2	2	5	3	94	12.5	7.8	63	11.4	*	*
Site 2	3	5	3	94	12.3	7.8	63	11.4	*	*
Site 2	4	5	3	94	12.2	7.8	63	11.4	*	*

Site	Depth	Month	Day	Year	Temp	pH	Cond	DO	LCon	Secc
Site 2	5	5	3	94	12.0	7.9	63	11.4	62	*
Site 2	6	5	3	94	11.9	7.9	62	11.4	*	*
Site 2	7	5	3	94	11.8	7.9	63	11.5	*	*
Site 2	8	5	3	94	11.8	7.8	62	11.5	*	*
Site 2	9	5	3	94	11.6	7.8	62	11.5	*	*
Site 2	10	5	3	94	11.4	7.8	62	11.4	62	*
Site 2	11	5	3	94	11.2	7.8	62	11.4	*	*
Site 2	12	5	3	94	10.5	7.7	62	11.6	*	*
Site 2	13	5	3	94	9.3	7.6	62	11.3	*	*
Site 2	14	5	3	94	8.8	7.5	62	11.2	*	*
Site 2	15	5	3	94	8.6	7.4	61	11.2	62	*
Site 2	16	5	3	94	8.5	7.4	61	11.1	*	*
Site 2	17	5	3	94	8.4	7.3	61	10.9	*	*
Site 2	18	5	3	94	8.2	7.3	61	10.7	62	*
Site 3	0	5	3	94	11.8	7.6	62	11.2	62	6.2
Site 3	1	5	3	94	11.8	7.7	62	11.2	*	*
Site 3	2	5	3	94	11.7	7.7	62	10.9	*	*
Site 3	3	5	3	94	11.7	7.8	63	10.9	*	*
Site 3	4	5	3	94	11.5	7.8	63	10.8	*	*
Site 3	5	5	3	94	11.4	7.8	63	10.8	62	*
Site 3	6	5	3	94	11.2	7.8	62	10.9	*	*
Site 3	7	5	3	94	11.1	7.8	62	11.0	*	*
Site 3	8	5	3	94	11.1	7.8	62	10.9	*	*
Site 3	9	5	3	94	11.0	7.7	62	10.9	*	*
Site 3	10	5	3	94	10.9	7.7	62	10.9	62	*
Site 3	15	5	3	94	8.6	7.5	62	10.5	*	*
Site 3	20	5	3	94	7.7	7.4	62	10.6	62	*
Site 3	25	5	3	94	7.3	7.3	60	10.4	*	*
Site 3	30	5	3	94	7.2	7.3	59	10.4	*	*
Site 3	35	5	3	94	7.0	7.2	60	10.5	*	*
Site 3	40	5	3	94	6.9	7.2	61	10.4	62	*
Site 3	45	5	3	94	6.8	7.2	61	10.4	*	*
Site 3	50	5	3	94	6.8	7.1	59	10.3	*	*
Site 3	55	5	3	94	6.7	7.1	60	10.1	*	*
Site 3	60	5	3	94	6.7	7.1	60	10.2	62	*
Site 3	65	5	3	94	6.7	7.1	61	10.7	*	*
Site 3	70	5	3	94	6.7	7.1	59	10.7	*	*
Site 3	75	5	3	94	6.6	7.1	60	10.7	*	*
Site 3	80	5	3	94	6.6	7.1	58	10.6	62	*
Site 4	0	5	3	94	11.7	7.4	64	12.1	62	6.6
Site 4	1	5	3	94	11.5	7.6	63	11.9	*	*
Site 4	2	5	3	94	11.3	7.6	63	11.8	*	*
Site 4	3	5	3	94	11.1	7.7	64	11.8	*	*
Site 4	4	5	3	94	11.1	7.7	64	11.7	*	*
Site 4	5	5	3	94	10.9	7.7	63	11.7	62	*
Site 4	6	5	3	94	10.9	7.7	62	11.6	*	*
Site 4	7	5	3	94	10.8	7.7	62	11.6	*	*
Site 4	8	5	3	94	10.8	7.7	62	11.6	*	*
Site 4	9	5	3	94	10.8	7.7	63	11.6	*	*
Site 4	10	5	3	94	10.7	7.7	63	11.6	62	*
Site 4	15	5	3	94	9.8	7.6	62	11.6	*	*
Site 4	20	5	3	94	9.1	7.5	62	11.5	62	*
Site 4	25	5	3	94	8.2	7.4	60	11.3	*	*
Site 4	30	5	3	94	7.5	7.4	61	11.2	*	*
Site 4	35	5	3	94	7.1	7.3	60	11.1	*	*
Site 4	40	5	3	94	6.9	7.3	61	11.0	62	*
Site 4	45	5	3	94	6.8	7.3	60	11.0	*	*
Site 4	50	5	3	94	6.8	7.2	60	11.0	*	*
Site 4	55	5	3	94	6.7	7.2	60	11.0	*	*
Site 4	60	5	3	94	6.7	7.2	60	11.0	62	*

Site	Depth	Month	Day	Year	Temp	pH	Cond	DO	LCon	Secc
Site 4	65	5	3	94	6.7	7.2	58	11.0	*	*
Site 4	70	5	3	94	6.6	7.2	60	11.0	*	*
Site 4	75	5	3	94	6.6	7.1	60	11.0	*	*
Site 4	80	5	3	94	6.6	7.1	60	10.8	62	*
Site 4	85	5	3	94	6.6	7.1	60	10.8	*	*
Site 4	90	5	3	94	6.6	7.1	60	10.7	62	*
Gate	0	6	7	94	14.5	7.5	60	10.2	62	*
Site 1	0	6	7	94	16.5	8.4	62	10.8	62	5.5
Site 1	1	6	7	94	16.5	8.5	61	10.6	*	*
Site 1	2	6	7	94	16.5	8.5	61	10.6	*	*
Site 1	3	6	7	94	16.4	8.5	61	10.6	*	*
Site 1	4	6	7	94	16.3	8.5	61	10.5	*	*
Site 1	5	6	7	94	16.3	8.4	61	10.4	62	*
Site 1	6	6	7	94	16.3	8.4	61	10.4	*	*
Site 1	7	6	7	94	15.5	8.0	61	10.2	*	*
Site 1	8	6	7	94	14.4	7.7	61	10.3	*	*
Site 1	9	6	7	94	12.8	7.4	62	9.7	*	*
Site 1	10	6	7	94	11.7	7.2	62	8.8	63	*
Site 1	11	6	7	94	11.1	7.1	61	8.2	*	*
Site 1	12	6	7	94	10.7	7.0	62	6.8	*	*
Site 1	13	6	7	94	10.5	6.9	62	6.4	*	*
Site 1	14	6	7	94	10.3	6.8	62	6.2	*	*
Site 1	15	6	7	94	10.2	6.8	62	5.9	64	*
Site 1	16	6	7	94	10.1	6.7	62	5.8	*	*
Site 1	17	6	7	94	10.1	6.7	61	5.8	*	*
Site 1	18	6	7	94	10.0	6.7	62	5.8	*	*
Site 1	19	6	7	94	10.0	6.7	62	5.7	*	*
Site 1	20	6	7	94	10.0	6.6	62	5.6	64	*
Intake	0	6	7	94	16.0	7.9	62	10.6	62	6.6
Intake	1	6	7	94	16.0	8.0	62	10.5	*	*
Intake	2	6	7	94	15.9	8.0	62	10.4	*	*
Intake	3	6	7	94	15.8	8.1	61	10.4	*	*
Intake	4	6	7	94	15.8	8.1	61	10.4	*	*
Intake	5	6	7	94	15.8	8.1	61	10.4	62	*
Intake	6	6	7	94	15.8	8.1	61	10.4	*	*
Intake	7	6	7	94	15.8	8.1	61	10.4	*	*
Intake	8	6	7	94	15.8	8.0	60	10.3	*	*
Intake	9	6	7	94	15.8	8.0	60	10.3	*	*
Intake	10	6	7	94	15.8	8.0	60	10.3	62	*
Site 2	0	6	7	94	15.8	8.1	61	10.4	62	6.6
Site 2	1	6	7	94	15.9	8.1	61	10.4	*	*
Site 2	2	6	7	94	15.8	8.1	61	10.4	*	*
Site 2	3	6	7	94	15.8	8.1	61	10.4	*	*
Site 2	4	6	7	94	15.6	8.1	61	10.4	*	*
Site 2	5	6	7	94	15.6	8.1	61	10.4	62	*
Site 2	6	6	7	94	15.6	8.1	61	10.4	*	*
Site 2	7	6	7	94	15.6	8.1	61	10.4	*	*
Site 2	8	6	7	94	15.6	8.1	61	10.3	*	*
Site 2	9	6	7	94	15.5	8.0	61	10.3	*	*
Site 2	10	6	7	94	15.4	8.0	61	10.3	62	*
Site 2	11	6	7	94	14.3	7.8	61	10.5	*	*
Site 2	12	6	7	94	13.9	7.7	60	10.5	*	*
Site 2	13	6	7	94	12.5	7.5	60	10.2	*	*
Site 2	14	6	7	94	10.9	7.3	60	9.1	*	*
Site 2	15	6	7	94	9.8	7.0	60	8.5	62	*
Site 2	16	6	7	94	9.4	6.9	60	8.0	*	*
Site 2	17	6	7	94	9.4	6.9	60	7.8	*	*
Site 2	18	6	7	94	9.3	6.8	60	7.4	62	*
Site 3	0	6	7	94	15.2	8.1	62	10.7	62	6.2
Site 3	1	6	7	94	15.2	8.2	62	10.6	*	*

Site	Depth	Month	Day	Year	Temp	pH	Cond	DO	LCon	Secc
Site 3	2	6	7	94	15.3	8.2	61	10.5	*	*
Site 3	3	6	7	94	15.3	8.2	61	10.5	*	*
Site 3	4	6	7	94	15.2	8.2	62	10.5	*	*
Site 3	5	6	7	94	15.2	8.2	61	10.5	62	*
Site 3	6	6	7	94	15.2	8.1	61	10.5	*	*
Site 3	7	6	7	94	15.1	8.1	61	10.5	*	*
Site 3	8	6	7	94	15.1	8.1	60	10.5	*	*
Site 3	9	6	7	94	15.1	8.1	60	10.5	*	*
Site 3	10	6	7	94	15.1	8.1	60	10.5	62	*
Site 3	15	6	7	94	12.9	7.8	60	10.8	*	*
Site 3	20	6	7	94	9.3	7.6	59	10.8	62	*
Site 3	25	6	7	94	7.9	7.4	59	10.7	*	*
Site 3	30	6	7	94	7.4	7.3	59	10.7	*	*
Site 3	35	6	7	94	7.2	7.3	58	10.7	*	*
Site 3	40	6	7	94	7.0	7.2	59	10.6	62	*
Site 3	45	6	7	94	6.9	7.2	58	10.6	*	*
Site 3	50	6	7	94	6.8	7.2	58	10.6	*	*
Site 3	55	6	7	94	6.8	7.2	58	10.6	*	*
Site 3	60	6	7	94	6.7	7.1	58	10.5	62	*
Site 3	65	6	7	94	6.7	7.1	58	10.4	*	*
Site 3	70	6	7	94	6.7	7.1	58	10.4	*	*
Site 3	75	6	7	94	6.7	7.1	58	9.8	*	*
Site 3	80	6	7	94	6.6	7.0	58	9.4	62	*
Site 4	0	6	7	94	15.1	7.9	61	11.2	61	7.0
Site 4	1	6	7	94	15.1	8.1	61	11.1	*	*
Site 4	2	6	7	94	15.0	8.1	61	11.0	*	*
Site 4	3	6	7	94	15.0	8.2	61	11.0	*	*
Site 4	4	6	7	94	15.0	8.2	61	10.9	*	*
Site 4	5	6	7	94	14.9	8.2	61	10.9	62	*
Site 4	6	6	7	94	14.9	8.2	61	10.9	*	*
Site 4	7	6	7	94	14.9	8.2	61	10.8	*	*
Site 4	8	6	7	94	14.9	8.2	60	10.8	*	*
Site 4	9	6	7	94	14.5	8.1	60	10.8	*	*
Site 4	10	6	7	94	14.1	8.1	60	10.9	62	*
Site 4	15	6	7	94	11.9	7.8	59	10.9	*	*
Site 4	20	6	7	94	9.1	7.6	59	10.8	62	*
Site 4	25	6	7	94	8.1	7.5	58	10.8	*	*
Site 4	30	6	7	94	7.4	7.4	59	10.6	*	*
Site 4	35	6	7	94	7.2	7.4	58	10.7	*	*
Site 4	40	6	7	94	7.1	7.3	58	10.7	62	*
Site 4	45	6	7	94	7.0	7.3	59	10.7	*	*
Site 4	50	6	7	94	6.9	7.3	59	10.8	*	*
Site 4	55	6	7	94	6.9	7.3	59	10.8	*	*
Site 4	60	6	7	94	6.8	7.3	60	10.8	62	*
Site 4	65	6	7	94	6.8	7.2	59	10.8	*	*
Site 4	70	6	7	94	6.7	7.2	59	10.8	*	*
Site 4	75	6	7	94	6.7	7.2	58	10.8	*	*
Site 4	80	6	7	94	6.7	7.2	57	10.7	62	*
Site 4	85	6	7	94	6.7	7.2	59	10.5	*	*
Site 4	90	6	7	94	6.7	7.1	58	10.4	62	*
Gate	0	7	6	94	*	*	*	*	*	*
Site 1	0	7	6	94	18.3	8.4	64	10.1	62	5.9
Site 1	1	7	6	94	18.3	8.4	64	10.1	*	*
Site 1	2	7	6	94	18.3	8.4	64	10.1	*	*
Site 1	3	7	6	94	18.3	8.4	63	10.1	*	*
Site 1	4	7	6	94	18.2	8.4	63	10.2	*	*
Site 1	5	7	6	94	18.2	8.4	62	10.2	62	*
Site 1	6	7	6	94	18.2	8.4	62	10.2	*	*
Site 1	7	7	6	94	17.7	7.9	63	9.8	*	*
Site 1	8	7	6	94	17.1	7.8	63	9.9	*	*

Site	Depth	Month	Day	Year	Temp	pH	Cond	DO	LCon	Secc
Site 1	9	7	6	94	15.4	7.3	64	8.7	*	*
Site 1	10	7	6	94	14.6	7.2	64	8.1	63	*
Site 1	11	7	6	94	13.1	7.0	64	6.1	*	*
Site 1	12	7	6	94	11.6	6.8	65	3.8	*	*
Site 1	13	7	6	94	11.1	6.7	66	3.7	*	*
Site 1	14	7	6	94	10.8	6.7	65	3.5	*	*
Site 1	15	7	6	94	10.7	6.7	65	3.0	67	*
Site 1	16	7	6	94	10.5	6.6	66	3.2	*	*
Site 1	17	7	6	94	10.4	6.6	66	2.9	*	*
Site 1	18	7	6	94	10.4	6.6	66	3.0	*	*
Site 1	19	7	6	94	10.3	6.6	65	2.9	*	*
Site 1	20	7	6	94	10.3	6.6	65	2.9	67	*
Intake	0	7	6	94	18.5	8.1	61	10.5	62	6.4
Intake	1	7	6	94	18.4	8.1	61	10.2	*	*
Intake	2	7	6	94	18.2	8.1	62	10.1	*	*
Intake	3	7	6	94	17.7	8.1	62	10.2	*	*
Intake	4	7	6	94	17.4	8.1	62	10.2	*	*
Intake	5	7	6	94	17.3	8.1	62	10.3	62	*
Intake	6	7	6	94	16.9	8.1	61	10.3	*	*
Intake	7	7	6	94	16.8	8.0	61	10.2	*	*
Intake	8	7	6	94	16.7	8.0	61	10.2	*	*
Intake	9	7	6	94	16.7	7.9	62	10.2	*	*
Intake	10	7	6	94	16.6	7.8	61	10.2	62	*
Site 2	0	7	6	94	17.9	8.0	63	10.3	62	7.0
Site 2	1	7	6	94	17.9	8.0	62	10.2	*	*
Site 2	2	7	6	94	17.9	8.1	62	10.2	*	*
Site 2	3	7	6	94	17.8	8.1	61	10.2	*	*
Site 2	4	7	6	94	17.8	8.1	61	10.2	*	*
Site 2	5	7	6	94	17.5	8.1	62	10.2	62	*
Site 2	6	7	6	94	17.3	8.0	62	10.2	*	*
Site 2	7	7	6	94	17.2	8.0	61	10.2	*	*
Site 2	8	7	6	94	17.0	8.0	61	10.3	*	*
Site 2	9	7	6	94	16.8	8.0	61	10.3	*	*
Site 2	10	7	6	94	16.7	7.9	61	10.3	62	*
Site 2	11	7	6	94	16.5	7.9	61	10.2	*	*
Site 2	12	7	6	94	15.9	7.7	61	10.2	*	*
Site 2	13	7	6	94	13.9	7.5	61	9.6	*	*
Site 2	14	7	6	94	13.1	7.2	61	9.2	*	*
Site 2	15	7	6	94	12.1	7.0	61	8.4	62	*
Site 2	16	7	6	94	11.3	6.9	61	7.2	*	*
Site 2	17	7	6	94	10.7	6.7	62	5.9	*	*
Site 2	18	7	6	94	10.2	6.7	61	5.0	62	*
Site 3	0	7	6	94	17.6	7.9	61	10.5	62	7.2
Site 3	1	7	6	94	17.5	7.9	62	10.1	*	*
Site 3	2	7	6	94	17.4	8.0	62	10.0	*	*
Site 3	3	7	6	94	17.1	7.9	61	10.1	*	*
Site 3	4	7	6	94	16.8	8.0	61	10.1	*	*
Site 3	5	7	6	94	16.7	8.0	62	10.2	62	*
Site 3	6	7	6	94	16.6	8.0	61	10.3	*	*
Site 3	7	7	6	94	16.5	8.0	61	10.3	*	*
Site 3	8	7	6	94	16.4	8.0	62	10.3	*	*
Site 3	9	7	6	94	16.4	7.9	62	10.3	*	*
Site 3	10	7	6	94	16.4	7.9	61	10.3	62	*
Site 3	15	7	6	94	14.5	7.7	61	10.6	*	*
Site 3	20	7	6	94	10.1	7.4	60	10.5	62	*
Site 3	25	7	6	94	8.3	7.2	60	10.6	*	*
Site 3	30	7	6	94	7.6	7.1	59	10.6	*	*
Site 3	35	7	6	94	7.3	7.1	59	10.5	*	*
Site 3	40	7	6	94	7.1	7.1	60	10.6	62	*
Site 3	45	7	6	94	7.0	7.1	61	10.6	*	*

Site	Depth	Month	Day	Year	Temp	pH	Cond	DO	LCon	Secc
Site 3	50	7	6	94	6.9	7.0	60	10.5	*	*
Site 3	55	7	6	94	6.8	7.0	61	10.5	*	*
Site 3	60	7	6	94	6.8	7.0	60	10.5	62	*
Site 3	65	7	6	94	6.8	7.0	60	10.4	*	*
Site 3	70	7	6	94	6.7	6.9	60	10.1	*	*
Site 3	75	7	6	94	6.7	6.9	60	9.8	*	*
Site 3	80	7	6	94	6.7	6.9	61	8.4	62	*
Site 4	0	7	6	94	16.5	7.9	62	10.4	62	8.3
Site 4	1	7	6	94	16.4	8.0	62	10.3	*	*
Site 4	2	7	6	94	16.3	8.0	63	10.4	*	*
Site 4	3	7	6	94	16.2	8.1	62	10.4	*	*
Site 4	4	7	6	94	16.2	8.1	62	10.5	*	*
Site 4	5	7	6	94	16.2	8.1	62	10.5	62	*
Site 4	6	7	6	94	16.2	8.1	62	10.5	*	*
Site 4	7	7	6	94	16.2	8.1	62	10.5	*	*
Site 4	8	7	6	94	16.1	8.1	60	10.6	*	*
Site 4	9	7	6	94	15.8	8.0	61	10.7	*	*
Site 4	10	7	6	94	15.6	7.9	61	10.7	61	*
Site 4	15	7	6	94	11.7	7.5	62	10.6	*	*
Site 4	20	7	6	94	9.1	7.4	61	10.6	62	*
Site 4	25	7	6	94	7.7	7.3	60	10.5	*	*
Site 4	30	7	6	94	7.4	7.3	60	10.6	*	*
Site 4	35	7	6	94	7.2	7.2	59	10.6	*	*
Site 4	40	7	6	94	7.1	7.2	60	10.6	62	*
Site 4	45	7	6	94	7.0	7.2	60	10.6	*	*
Site 4	50	7	6	94	6.9	7.2	59	10.6	*	*
Site 4	55	7	6	94	6.9	7.1	60	10.5	*	*
Site 4	60	7	6	94	6.9	7.1	60	10.5	62	*
Site 4	65	7	6	94	6.8	7.1	60	10.6	*	*
Site 4	70	7	6	94	6.8	7.1	59	10.6	*	*
Site 4	75	7	6	94	6.8	7.1	61	10.5	*	*
Site 4	80	7	6	94	6.8	7.1	60	10.7	62	*
Site 4	85	7	6	94	6.7	7.1	59	10.4	*	*
Site 4	90	7	6	94	6.7	7.0	59	10.3	62	*
Gate	0	8	2	94	18.2	7.0	62	9.4	62	*
Site 1	0	8	2	94	22.2	7.3	63	9.5	62	6.5
Site 1	1	8	2	94	22.1	7.6	63	9.4	*	*
Site 1	2	8	2	94	22.1	7.7	63	9.3	*	*
Site 1	3	8	2	94	22.0	7.8	63	9.3	*	*
Site 1	4	8	2	94	22.0	7.8	63	9.3	*	*
Site 1	5	8	2	94	21.9	7.9	63	9.3	63	*
Site 1	6	8	2	94	21.2	8.1	63	9.9	*	*
Site 1	7	8	2	94	20.1	8.1	62	10.3	*	*
Site 1	8	8	2	94	18.1	7.8	64	9.5	*	*
Site 1	9	8	2	94	17.1	7.6	64	8.3	*	*
Site 1	10	8	2	94	15.8	7.3	65	6.0	63	*
Site 1	11	8	2	94	13.4	7.0	67	2.0	*	*
Site 1	12	8	2	94	12.0	6.9	70	0.5	*	*
Site 1	13	8	2	94	11.6	6.8	69	0.4	*	*
Site 1	14	8	2	94	11.4	6.7	69	0.3	*	*
Site 1	15	8	2	94	11.2	6.7	69	0.3	70	*
Site 1	16	8	2	94	11.0	6.6	68	0.3	*	*
Site 1	17	8	2	94	10.9	6.6	69	0.2	*	*
Site 1	18	8	2	94	10.9	6.6	69	0.2	*	*
Site 1	19	8	2	94	10.8	6.6	69	0.2	*	*
Site 1	20	8	2	94	10.7	6.6	69	0.2	70	*
Intake	0	8	2	94	22.5	7.9	63	9.5	62	6.1
Intake	1	8	2	94	22.3	7.9	63	9.4	*	*
Intake	2	8	2	94	21.5	7.9	62	9.3	*	*
Intake	3	8	2	94	21.2	7.8	62	9.3	*	*

Site	Depth	Month	Day	Year	Temp	pH	Cond	DO	LCon	Secc
Intake	4	8	2	94	21.0	7.8	62	9.2	*	*
Intake	5	8	2	94	21.0	7.8	63	9.3	62	*
Intake	6	8	2	94	20.8	7.8	63	9.4	*	*
Intake	7	8	2	94	20.6	7.8	62	9.3	*	*
Intake	8	8	2	94	20.5	7.8	62	9.4	*	*
Intake	9	8	2	94	20.3	7.8	62	9.4	*	*
Intake	10	8	2	94	20.1	7.6	62	9.3	62	*
Site 2	0	8	2	94	22.0	7.8	63	9.2	62	6.5
Site 2	1	8	2	94	22.0	7.8	62	9.2	*	*
Site 2	2	8	2	94	21.8	7.8	62	9.2	*	*
Site 2	3	8	2	94	21.6	7.8	63	9.2	*	*
Site 2	4	8	2	94	21.1	7.8	63	9.2	*	*
Site 2	5	8	2	94	21.0	7.8	62	9.2	62	*
Site 2	6	8	2	94	21.0	7.8	62	9.2	*	*
Site 2	7	8	2	94	20.9	7.8	63	9.2	*	*
Site 2	8	8	2	94	20.7	7.8	62	9.3	*	*
Site 2	9	8	2	94	20.2	7.7	62	9.4	*	*
Site 2	10	8	2	94	19.9	7.7	61	9.7	62	*
Site 2	11	8	2	94	18.3	7.6	61	9.9	*	*
Site 2	12	8	2	94	17.2	7.4	61	9.7	*	*
Site 2	13	8	2	94	15.0	7.3	61	8.9	*	*
Site 2	14	8	2	94	14.1	7.0	62	7.5	*	*
Site 2	15	8	2	94	13.1	6.9	62	5.9	62	*
Site 2	16	8	2	94	11.8	6.7	63	3.8	*	*
Site 2	17	8	2	94	11.1	6.6	64	2.1	*	*
Site 2	18	8	2	94	10.8	6.5	65	1.5	63	*
Site 3	0	8	2	94	21.5	7.9	62	9.2	62	7.4
Site 3	1	8	2	94	21.5	7.9	62	9.1	*	*
Site 3	2	8	2	94	21.4	7.9	63	9.1	*	*
Site 3	3	8	2	94	21.4	7.9	63	9.1	*	*
Site 3	4	8	2	94	21.2	7.8	62	9.1	*	*
Site 3	5	8	2	94	21.0	7.8	62	9.1	62	*
Site 3	6	8	2	94	21.0	7.8	63	9.1	*	*
Site 3	7	8	2	94	20.5	7.8	62	9.3	*	*
Site 3	8	8	2	94	20.5	7.8	63	9.3	*	*
Site 3	9	8	2	94	20.3	7.8	62	9.3	*	*
Site 3	10	8	2	94	19.8	7.8	62	9.4	62	*
Site 3	15	8	2	94	16.2	7.7	61	9.9	*	*
Site 3	20	8	2	94	9.6	7.4	61	9.7	62	*
Site 3	25	8	2	94	8.1	7.3	60	9.7	*	*
Site 3	30	8	2	94	7.6	7.2	59	9.8	*	*
Site 3	35	8	2	94	7.3	7.1	60	9.8	*	*
Site 3	40	8	2	94	7.2	7.1	60	9.8	62	*
Site 3	45	8	2	94	7.0	7.0	60	9.9	*	*
Site 3	50	8	2	94	6.9	7.0	60	9.9	*	*
Site 3	55	8	2	94	6.9	7.0	60	9.8	*	*
Site 3	60	8	2	94	6.8	7.0	60	9.8	62	*
Site 3	65	8	2	94	6.8	7.0	61	9.5	*	*
Site 3	70	8	2	94	6.8	6.9	60	9.6	*	*
Site 3	75	8	2	94	6.7	6.9	60	8.9	*	*
Site 3	80	8	2	94	6.7	6.8	61	7.3	63	*
Site 4	0	8	2	94	21.5	7.9	62	9.0	62	6.2
Site 4	1	8	2	94	21.0	7.3	62	8.8	*	*
Site 4	2	8	2	94	20.9	7.5	62	8.9	*	*
Site 4	3	8	2	94	20.8	7.7	62	8.6	*	*
Site 4	4	8	2	94	20.8	7.7	63	8.6	*	*
Site 4	5	8	2	94	20.7	7.8	63	8.6	62	*
Site 4	6	8	2	94	20.7	7.7	63	8.7	*	*
Site 4	7	8	2	94	20.6	7.8	63	8.7	*	*
Site 4	8	8	2	94	20.5	7.8	62	8.8	*	*

Site	Depth	Month	Day	Year	Temp	pH	Cond	DO	LCon	Secc
Site 4	9	8	2	94	19.3	7.8	62	9.2	*	*
Site 4	10	8	2	94	19.0	7.7	60	9.1	62	*
Site 4	15	8	2	94	14.8	7.6	62	9.2	*	*
Site 4	20	8	2	94	12.2	7.4	60	9.1	62	*
Site 4	25	8	2	94	8.8	7.3	60	9.2	*	*
Site 4	30	8	2	94	7.7	7.3	60	9.3	*	*
Site 4	35	8	2	94	7.4	7.2	60	9.6	*	*
Site 4	40	8	2	94	7.3	7.2	60	9.3	62	*
Site 4	45	8	2	94	7.2	7.1	60	9.3	*	*
Site 4	50	8	2	94	7.2	7.1	59	9.1	*	*
Site 4	55	8	2	94	7.1	7.1	60	9.2	*	*
Site 4	60	8	2	94	7.0	7.1	60	9.4	62	*
Site 4	65	8	2	94	7.0	7.1	60	9.4	*	*
Site 4	70	8	2	94	6.9	7.0	60	9.4	*	*
Site 4	75	8	2	94	6.9	7.0	60	9.9	*	*
Site 4	80	8	2	94	6.9	7.0	59	10.0	62	*
Site 4	85	8	2	94	6.9	7.0	60	10.0	*	*
Site 4	90	8	2	94	6.8	7.0	60	9.8	62	*
Gate	0	9	6	94	19.4	7.8	61	9.0	63	*
Site 1	0	9	6	94	20.2	8.2	61	9.6	63	4.2
Site 1	1	9	6	94	20.1	8.3	62	9.6	*	*
Site 1	2	9	6	94	20.0	8.3	61	9.6	*	*
Site 1	3	9	6	94	20.0	8.3	61	9.5	*	*
Site 1	4	9	6	94	20.0	8.3	62	9.5	*	*
Site 1	5	9	6	94	19.9	8.3	61	9.4	63	*
Site 1	6	9	6	94	19.8	8.2	61	9.1	*	*
Site 1	7	9	6	94	19.8	8.1	61	9.3	*	*
Site 1	8	9	6	94	19.7	8.1	62	9.0	*	*
Site 1	9	9	6	94	18.3	7.3	63	4.5	*	*
Site 1	10	9	6	94	15.9	7.0	66	0.1	64	*
Site 1	11	9	6	94	14.2	6.8	67	0.1	*	*
Site 1	12	9	6	94	12.4	6.7	71	0.0	*	*
Site 1	13	9	6	94	11.7	6.7	71	0.0	*	*
Site 1	14	9	6	94	11.4	6.7	71	0.0	*	*
Site 1	15	9	6	94	11.2	6.7	71	0.0	72	*
Site 1	16	9	6	94	11.1	6.7	70	0.0	*	*
Site 1	17	9	6	94	11.0	6.7	70	0.0	*	*
Site 1	18	9	6	94	10.9	6.7	70	0.0	*	*
Site 1	19	9	6	94	10.8	6.7	71	0.0	*	*
Site 1	20	9	6	94	10.8	6.7	72	0.0	72	*
Intake	0	9	6	94	20.4	7.9	61	9.6	62	5.7
Intake	1	9	6	94	20.3	8.1	61	9.5	*	*
Intake	2	9	6	94	19.7	8.3	61	9.6	*	*
Intake	3	9	6	94	19.7	8.3	61	9.5	*	*
Intake	4	9	6	94	19.6	8.3	61	9.5	*	*
Intake	5	9	6	94	19.6	8.2	61	9.4	63	*
Intake	6	9	6	94	19.6	8.1	61	9.4	*	*
Intake	7	9	6	94	19.5	8.1	61	9.3	*	*
Intake	8	9	6	94	19.5	7.9	61	9.3	*	*
Intake	9	9	6	94	19.5	7.9	61	9.2	*	*
Intake	10	9	6	94	19.5	7.9	60	9.2	63	*
Site 2	0	9	6	94	20.4	7.7	60	9.5	63	6.0
Site 2	1	9	6	94	20.4	7.9	61	9.4	*	*
Site 2	2	9	6	94	20.0	8.1	61	9.4	*	*
Site 2	3	9	6	94	19.8	8.2	60	9.4	*	*
Site 2	4	9	6	94	19.7	8.3	60	9.5	*	*
Site 2	5	9	6	94	19.6	8.3	60	9.5	62	*
Site 2	6	9	6	94	19.6	8.2	61	9.4	*	*
Site 2	7	9	6	94	19.5	8.1	61	9.3	*	*
Site 2	8	9	6	94	19.5	8.0	61	9.3	*	*

Site	Depth	Month	Day	Year	Temp	pH	Cond	DO	LCon	Secc
Site 2	9	9	6	94	19.5	8.0	61	9.2	*	*
Site 2	10	9	6	94	19.4	7.9	60	9.1	63	*
Site 2	11	9	6	94	19.3	7.8	60	9.0	*	*
Site 2	12	9	6	94	18.8	7.6	60	8.3	*	*
Site 2	13	9	6	94	17.1	7.3	61	6.8	*	*
Site 2	14	9	6	94	15.0	7.0	61	4.2	*	*
Site 2	15	9	6	94	13.2	6.7	63	0.9	63	*
Site 2	16	9	6	94	12.1	6.6	64	0.0	*	*
Site 2	17	9	6	94	11.7	6.6	65	0.0	*	*
Site 2	17	9	6	94	11.6	6.6	64	0.0	67	*
Site 3	0	9	6	94	19.9	8.0	61	9.4	62	6.4
Site 3	1	9	6	94	19.9	8.0	60	9.3	*	*
Site 3	2	9	6	94	19.9	8.1	61	9.4	*	*
Site 3	3	9	6	94	19.9	8.1	61	9.3	*	*
Site 3	4	9	6	94	19.9	8.1	60	9.3	*	*
Site 3	5	9	6	94	19.9	8.1	61	9.3	63	*
Site 3	6	9	6	94	19.6	8.1	60	9.4	*	*
Site 3	7	9	6	94	19.6	8.1	61	9.3	*	*
Site 3	8	9	6	94	19.5	8.1	61	9.4	*	*
Site 3	9	9	6	94	19.5	8.1	61	9.3	*	*
Site 3	10	9	6	94	19.5	8.0	60	9.3	63	*
Site 3	15	9	6	94	15.8	7.6	59	9.2	*	*
Site 3	20	9	6	94	10.7	7.5	58	9.2	62	*
Site 3	25	9	6	94	8.3	7.4	58	9.4	*	*
Site 3	30	9	6	94	7.7	7.3	59	9.4	*	*
Site 3	35	9	6	94	7.5	7.3	58	9.4	*	*
Site 3	40	9	6	94	7.3	7.2	58	9.6	62	*
Site 3	45	9	6	94	7.2	7.2	58	9.7	*	*
Site 3	50	9	6	94	7.1	7.2	58	9.6	*	*
Site 3	55	9	6	94	7.1	7.2	58	9.5	*	*
Site 3	60	9	6	94	7.0	7.1	58	9.2	62	*
Site 3	65	9	6	94	6.9	7.1	58	9.2	*	*
Site 3	70	9	6	94	6.9	7.1	58	8.5	*	*
Site 3	75	9	6	94	6.8	7.0	59	8.3	*	*
Site 3	80	9	6	94	6.8	6.9	61	5.7	64	*
Site 4	0	9	6	94	19.9	7.7	60	9.7	62	6.8
Site 4	1	9	6	94	19.8	7.8	60	9.5	*	*
Site 4	2	9	6	94	19.8	7.8	60	9.4	*	*
Site 4	3	9	6	94	19.7	7.8	61	9.4	*	*
Site 4	4	9	6	94	19.6	7.9	61	9.4	*	*
Site 4	5	9	6	94	19.6	7.9	61	9.4	63	*
Site 4	6	9	6	94	19.5	8.0	61	9.4	*	*
Site 4	7	9	6	94	19.5	8.0	61	9.4	*	*
Site 4	8	9	6	94	19.5	8.0	61	9.4	*	*
Site 4	9	9	6	94	19.5	8.0	60	9.4	*	*
Site 4	10	9	6	94	19.4	7.9	60	9.4	63	*
Site 4	15	9	6	94	18.2	7.7	60	9.0	*	*
Site 4	20	9	6	94	12.5	7.6	60	9.0	62	*
Site 4	25	9	6	94	8.5	7.4	58	9.3	*	*
Site 4	30	9	6	94	7.7	7.4	58	9.5	*	*
Site 4	35	9	6	94	7.4	7.3	58	9.6	*	*
Site 4	40	9	6	94	7.3	7.3	59	9.7	62	*
Site 4	45	9	6	94	7.2	7.2	58	9.7	*	*
Site 4	50	9	6	94	7.1	7.2	58	9.7	*	*
Site 4	55	9	6	94	7.1	7.2	59	9.7	*	*
Site 4	60	9	6	94	7.0	7.2	58	9.7	62	*
Site 4	65	9	6	94	7.0	7.2	59	9.7	*	*
Site 4	70	9	6	94	6.9	7.1	58	9.7	*	*
Site 4	75	9	6	94	6.9	7.1	58	9.6	*	*
Site 4	80	9	6	94	6.9	7.1	58	9.5	62	*

Site	Depth	Month	Day	Year	Temp	pH	Cond	DO	LCon	Secc
Site 4	85	9	6	94	6.8	7.1	59	9.4	*	*
Site 4	90	9	6	94	6.8	7.0	60	8.9	63	*
Gate	0	10	4	94	18.2	7.5	63	9.4	63	*
Site 1	0	10	4	94	17.6	7.3	65	9.0	64	4.6
Site 1	1	10	4	94	17.6	7.4	65	8.9	*	*
Site 1	2	10	4	94	17.6	7.4	65	8.8	*	*
Site 1	3	10	4	94	17.6	7.4	64	8.8	*	*
Site 1	4	10	4	94	17.6	7.4	64	8.7	*	*
Site 1	5	10	4	94	17.6	7.4	64	8.7	64	*
Site 1	6	10	4	94	17.6	7.4	64	8.7	*	*
Site 1	7	10	4	94	17.6	7.4	64	8.7	*	*
Site 1	8	10	4	94	17.6	7.4	64	8.7	*	*
Site 1	9	10	4	94	17.6	7.4	64	8.6	*	*
Site 1	10	10	4	94	17.5	7.4	64	8.5	64	*
Site 1	11	10	4	94	14.4	6.8	77	0.1	*	*
Site 1	12	10	4	94	13.0	6.7	76	0.1	*	*
Site 1	13	10	4	94	11.9	6.7	77	0.0	*	*
Site 1	14	10	4	94	11.6	6.7	76	0.0	*	*
Site 1	15	10	4	94	11.3	6.7	77	0.0	77	*
Site 1	16	10	4	94	11.1	6.7	77	0.0	*	*
Site 1	17	10	4	94	11.1	6.7	77	0.0	*	*
Site 1	18	10	4	94	10.9	6.7	77	0.0	*	*
Site 1	19	10	4	94	10.8	6.7	78	0.0	*	*
Site 1	20	10	4	94	10.8	6.7	78	0.0	79	*
Intake	0	10	4	94	18.4	7.2	64	9.9	63	6.1
Intake	1	10	4	94	18.4	7.4	62	9.7	*	*
Intake	2	10	4	94	18.2	7.6	62	9.6	*	*
Intake	3	10	4	94	18.1	7.6	63	9.6	*	*
Intake	4	10	4	94	18.1	7.7	63	9.5	*	*
Intake	5	10	4	94	18.0	7.8	62	9.5	63	*
Intake	6	10	4	94	18.0	7.8	62	9.5	*	*
Intake	7	10	4	94	18.0	7.8	62	9.4	*	*
Intake	8	10	4	94	18.0	7.8	63	9.4	*	*
Intake	9	10	4	94	17.9	7.8	62	9.4	*	*
Intake	10	10	4	94	17.9	7.7	63	9.4	63	*
Site 2	0	10	4	94	18.5	7.5	63	9.7	63	6.6
Site 2	1	10	4	94	18.4	7.6	64	9.6	*	*
Site 2	2	10	4	94	18.2	7.7	63	9.6	*	*
Site 2	3	10	4	94	18.1	7.7	63	9.6	*	*
Site 2	4	10	4	94	18.1	7.8	62	9.5	*	*
Site 2	5	10	4	94	18.1	7.8	63	9.5	63	*
Site 2	6	10	4	94	18.1	7.8	62	9.5	*	*
Site 2	7	10	4	94	18.1	7.8	63	9.4	*	*
Site 2	8	10	4	94	18.1	7.7	63	9.4	*	*
Site 2	9	10	4	94	18.1	7.7	63	9.3	*	*
Site 2	10	10	4	94	18.0	7.7	62	9.3	63	*
Site 2	11	10	4	94	18.0	7.7	62	9.3	*	*
Site 2	12	10	4	94	18.0	7.6	62	9.2	*	*
Site 2	13	10	4	94	17.8	7.6	62	7.8	*	*
Site 2	14	10	4	94	15.7	6.7	65	0.3	*	*
Site 2	15	10	4	94	13.8	6.5	65	0.0	63	*
Site 2	16	10	4	94	12.2	6.5	71	0.0	*	*
Site 2	17	10	4	94	11.4	6.5	74	0.0	68	*
Site 3	0	10	4	94	18.4	7.3	65	10.0	63	8.0
Site 3	1	10	4	94	18.3	7.5	64	9.8	*	*
Site 3	2	10	4	94	18.2	7.7	63	9.8	*	*
Site 3	3	10	4	94	18.2	7.8	62	9.7	*	*
Site 3	4	10	4	94	18.2	7.9	62	9.7	*	*
Site 3	5	10	4	94	18.1	7.9	62	9.7	63	*
Site 3	6	10	4	94	18.1	7.9	63	9.7	*	*

Site	Depth	Month	Day	Year	Temp	pH	Cond	DO	LCon	Secc
Site 3	7	10	4	94	18.1	7.9	63	9.7	*	*
Site 3	8	10	4	94	18.1	7.9	62	9.6	*	*
Site 3	9	10	4	94	18.1	7.9	63	9.6	*	*
Site 3	10	10	4	94	18.1	7.9	63	9.6	63	*
Site 3	15	10	4	94	17.2	7.7	63	9.0	*	*
Site 3	20	10	4	94	11.4	7.6	62	8.7	62	*
Site 3	25	10	4	94	8.4	7.4	60	9.0	*	*
Site 3	30	10	4	94	7.7	7.3	60	9.2	*	*
Site 3	35	10	4	94	7.4	7.3	60	9.3	*	*
Site 3	40	10	4	94	7.3	7.2	60	9.4	62	*
Site 3	45	10	4	94	7.2	7.2	59	9.4	*	*
Site 3	50	10	4	94	7.1	7.2	60	9.3	*	*
Site 3	55	10	4	94	7.1	7.1	59	9.3	*	*
Site 3	60	10	4	94	7.0	7.1	59	9.1	62	*
Site 3	65	10	4	94	6.9	7.1	60	8.9	*	*
Site 3	70	10	4	94	6.9	7.0	60	8.5	*	*
Site 3	75	10	4	94	6.8	7.0	61	7.7	*	*
Site 3	80	10	4	94	6.8	6.8	70	3.5	64	*
Site 4	0	10	4	94	18.0	7.3	64	9.8	63	7.3
Site 4	1	10	4	94	18.0	7.5	63	9.6	*	*
Site 4	2	10	4	94	18.0	7.5	62	9.5	*	*
Site 4	3	10	4	94	18.0	7.6	62	9.5	*	*
Site 4	4	10	4	94	18.0	7.6	63	9.5	*	*
Site 4	5	10	4	94	18.0	7.7	63	9.5	63	*
Site 4	6	10	4	94	18.0	7.7	62	9.5	*	*
Site 4	7	10	4	94	18.0	7.7	62	9.4	*	*
Site 4	8	10	4	94	18.0	7.7	62	9.4	*	*
Site 4	9	10	4	94	18.0	7.7	62	9.4	*	*
Site 4	10	10	4	94	18.0	7.7	62	9.4	62	*
Site 4	15	10	4	94	18.0	7.7	62	9.4	*	*
Site 4	20	10	4	94	10.8	7.3	61	8.6	62	*
Site 4	25	10	4	94	8.3	7.2	60	9.1	*	*
Site 4	30	10	4	94	7.6	7.2	60	9.4	*	*
Site 4	35	10	4	94	7.3	7.1	61	9.6	*	*
Site 4	40	10	4	94	7.2	7.1	60	9.5	62	*
Site 4	45	10	4	94	7.1	7.1	59	9.6	*	*
Site 4	50	10	4	94	7.1	7.1	60	9.8	*	*
Site 4	55	10	4	94	7.0	7.1	60	10.0	*	*
Site 4	60	10	4	94	6.9	7.0	59	10.0	62	*
Site 4	65	10	4	94	6.9	7.0	59	10.0	*	*
Site 4	70	10	4	94	6.9	7.0	60	9.9	*	*
Site 4	75	10	4	94	6.9	7.0	61	9.8	*	*
Site 4	80	10	4	94	6.8	7.0	60	9.8	62	*
Site 4	85	10	4	94	6.8	7.0	60	9.6	*	*
Site 4	90	10	4	94	6.8	6.9	61	8.9	63	*

B.2 Lake Whatcom Water Quality Data

Site	Depth	Month	Day	Year	Alk	Turb	NH3	TKN	NO3	SRP	TP	ChlA
Site 1	0	10	5	92	19.9	1.0	12	145	113	BDL	9	*
Site 1	5	10	5	92	20.3	1.1	19	BDL	108	BDL	11	*
Site 1	10	10	5	92	19.6	1.0	20	145	100	BDL	7	*
Site 1	15	10	5	92	26.4	3.8	155	268	76	BDL	7	*
Site 1	20	10	5	92	25.2	3.1	159	332	67	38	BDL	*
Intake	0	10	5	92	20.3	0.7	57	285	240	BDL	12	*
Intake	5	10	5	92	18.1	0.9	24	262	229	BDL	10	*
Intake	10	10	5	92	19.3	0.9	29	328	230	BDL	6	*
Site 2	0	10	5	92	18.2	0.8	32	380	218	BDL	BDL	*
Site 2	5	10	5	92	18.3	0.7	32	349	218	BDL	6	*
Site 2	10	10	5	92	18.5	0.7	33	250	203	*	8	*
Site 2	15	10	5	92	18.3	0.7	34	248	240	BDL	BDL	*
Site 2	20	10	5	92	25.3	1.4	170	305	458	8	11	*
Site 3	0	10	5	92	18.3	0.7	56	239	231	BDL	BDL	*
Site 3	5	10	5	92	16.8	0.8	51	310	227	BDL	6	*
Site 3	10	10	5	92	18.0	0.6	45	359	216	BDL	5	*
Site 3	20	10	5	92	17.3	0.3	36	303	659	BDL	BDL	*
Site 3	40	10	5	92	17.0	0.6	34	588	760	BDL	16	*
Site 3	60	10	5	92	17.1	0.0	33	464	764	BDL	BDL	*
Site 3	80	10	5	92	21.7	74.0	82	598	626	10	156	*
Site 4	0	10	5	92	15.9	0.6	34	287	*	BDL	BDL	*
Site 4	5	10	5	92	17.5	0.6	34	285	380	BDL	5	*
Site 4	10	10	5	92	18.0	0.9	32	293	328	BDL	BDL	*
Site 4	20	10	5	92	17.5	0.6	31	421	307	BDL	6	*
Site 4	40	10	5	92	16.6	0.2	27	509	721	BDL	BDL	*
Site 4	60	10	5	92	17.5	0.5	25	542	436	BDL	BDL	*
Site 4	80	10	5	92	17.6	0.5	185	561	423	BDL	7	*
Site 4	90	10	5	92	17.0	0.5	63	553	799	BDL	7	*
Gate	0	10	5	92	18.6	0.9	49	204	154	BDL	14	*
Site 1	0	11	11	92	18.5	0.6	91	262	122	BDL	12	*
Site 1	5	11	11	92	19.7	0.6	48	219	128	BDL	9	*
Site 1	10	11	11	92	18.3	0.8	43	215	157	BDL	9	*
Site 1	15	11	11	92	19.3	0.7	34	277	125	BDL	9	*
Site 1	20	11	11	92	18.7	0.7	39	324	125	BDL	8	*
Intake	0	11	11	92	18.0	0.4	20	328	142	BDL	BDL	*
Intake	5	11	11	92	17.0	0.4	7	345	122	BDL	BDL	*
Intake	10	11	11	92	17.9	0.4	BDL	326	277	BDL	BDL	*
Site 2	0	11	11	92	17.3	0.4	BDL	326	145	BDL	6	*
Site 2	5	11	11	92	17.3	0.4	BDL	336	139	BDL	BDL	*
Site 2	10	11	11	92	17.5	0.4	6	322	139	BDL	BDL	*
Site 2	15	11	11	92	17.7	0.4	BDL	287	166	BDL	BDL	*
Site 2	20	11	11	92	15.7	0.4	6	231	154	BDL	BDL	*
Site 3	0	11	11	92	17.4	0.4	BDL	295	160	BDL	6	*
Site 3	5	11	11	92	17.7	0.3	39	353	160	BDL	BDL	*
Site 3	10	11	11	92	18.0	0.3	18	308	145	BDL	BDL	*
Site 3	15	11	11	92	*	*	*	*	*	*	*	*
Site 3	20	11	11	92	17.6	0.3	8	328	157	BDL	BDL	*
Site 3	40	11	11	92	15.7	0.3	BDL	474	294	BDL	BDL	*
Site 3	60	11	11	92	17.3	0.6	BDL	466	291	BDL	BDL	*
Site 3	80	11	11	92	17.4	0.6	8	485	268	BDL	BDL	*
Site 4	0	11	11	92	16.3	0.4	15	376	154	BDL	BDL	*
Site 4	5	11	11	92	17.4	0.5	11	367	168	BDL	BDL	*
Site 4	10	11	11	92	17.9	0.4	19	369	163	BDL	BDL	*
Site 4	15	11	11	92	*	*	*	*	*	*	*	*
Site 4	20	11	11	92	11.3	0.5	15	373	168	BDL	BDL	*
Site 4	40	11	11	92	16.1	0.3	17	485	145	BDL	BDL	*
Site 4	60	11	11	92	17.4	0.4	14	569	382	BDL	BDL	*
Site 4	80	11	11	92	17.4	0.4	12	442	274	BDL	BDL	*
Site 4	90	11	11	92	16.4	0.4	6	469	496	BDL	BDL	*
Gate	0	11	11	92	16.0	0.5	BDL	359	285	BDL	7	*

Site	Depth	Month	Day	Year	Alk	Turb	NH3	TKN	NO3	SRP	TP	ChlA
Site 1	0	12	14	92	18.1	0.4	BDL	337	261	BDL	11	*
Site 1	5	12	14	92	18.0	0.5	BDL	428	244	BDL	7	*
Site 1	10	12	14	92	18.8	0.5	BDL	337	253	BDL	7	*
Site 1	15	12	14	92	18.8	0.5	BDL	433	244	BDL	6	*
Site 1	20	12	14	92	18.2	0.5	BDL	350	240	BDL	6	*
Intake	0	12	14	92	17.9	0.3	BDL	638	321	BDL	BDL	*
Intake	5	12	14	92	17.9	0.3	BDL	516	323	BDL	BDL	*
Intake	10	12	14	92	17.6	0.3	BDL	367	339	BDL	BDL	*
Site 2	0	12	14	92	17.4	0.4	BDL	544	307	BDL	6	*
Site 2	5	12	14	92	17.7	0.4	BDL	468	284	BDL	5	*
Site 2	10	12	14	92	17.8	0.3	BDL	479	276	BDL	BDL	*
Site 2	15	12	14	92	17.8	0.3	BDL	412	315	BDL	BDL	*
Site 2	20	12	14	92	18.0	0.4	BDL	389	316	BDL	BDL	*
Site 3	0	12	14	92	18.0	0.3	BDL	553	338	BDL	BDL	*
Site 3	5	12	14	92	17.4	0.3	BDL	472	342	BDL	BDL	*
Site 3	10	12	14	92	17.2	0.3	BDL	502	311	BDL	BDL	*
Site 3	15	12	14	92	*	*	*	*	*	*	*	*
Site 3	20	12	14	92	17.2	0.2	BDL	582	324	BDL	BDL	*
Site 3	40	12	14	92	17.2	0.3	BDL	578	342	BDL	BDL	*
Site 3	60	12	14	92	16.6	0.3	BDL	668	423	BDL	BDL	*
Site 3	80	12	14	92	16.6	0.3	BDL	644	419	BDL	5	*
Site 4	0	12	14	92	16.8	0.2	BDL	596	361	BDL	BDL	*
Site 4	5	12	14	92	16.9	0.3	BDL	573	341	BDL	5	*
Site 4	10	12	14	92	17.9	0.3	BDL	629	356	BDL	BDL	*
Site 4	15	12	14	92	*	*	*	*	*	*	*	*
Site 4	20	12	14	92	17.0	0.3	15	576	308	BDL	6	*
Site 4	40	12	14	92	16.4	0.3	BDL	667	486	BDL	BDL	*
Site 4	60	12	14	92	16.6	0.3	BDL	562	484	BDL	BDL	*
Site 4	80	12	14	92	17.2	0.3	BDL	610	484	BDL	BDL	*
Site 4	90	12	14	92	16.9	0.3	BDL	667	453	6	BDL	*
Gate	0	12	14	92	17.5	0.3	BDL	626	330	BDL	6	*
Site 1	0	2	2	93	18.1	1.0	BDL	409	208	BDL	BDL	*
Site 1	5	2	2	93	17.1	1.2	BDL	405	341	BDL	5	*
Site 1	10	2	2	93	18.4	1.1	BDL	427	381	BDL	6	*
Site 1	15	2	2	93	18.1	1.0	BDL	372	325	BDL	6	*
Site 1	20	2	2	93	17.6	1.1	BDL	414	279	BDL	7	*
Intake	0	2	2	93	17.0	0.7	BDL	432	450	BDL	BDL	*
Intake	5	2	2	93	17.3	0.5	BDL	437	426	BDL	6	*
Intake	10	2	2	93	17.3	0.5	BDL	385	389	BDL	BDL	*
Site 2	0	2	2	93	17.0	0.5	BDL	378	403	BDL	BDL	*
Site 2	5	2	2	93	18.7	0.6	BDL	454	409	BDL	BDL	*
Site 2	10	2	2	93	17.3	0.5	BDL	419	526	BDL	BDL	*
Site 2	15	2	2	93	17.6	0.6	BDL	403	533	BDL	BDL	*
Site 2	20	2	2	93	16.7	0.6	BDL	385	295	BDL	BDL	*
Site 3	0	2	2	93	17.1	0.3	BDL	432	329	BDL	BDL	*
Site 3	5	2	2	93	16.5	0.5	7	491	202	BDL	BDL	*
Site 3	10	2	2	93	17.1	0.5	5	467	333	BDL	BDL	*
Site 3	20	2	2	93	17.2	0.4	5	432	447	BDL	BDL	*
Site 3	40	2	2	93	17.6	0.5	BDL	425	439	BDL	BDL	*
Site 3	60	2	2	93	16.8	0.5	5	417	444	BDL	BDL	*
Site 3	80	2	2	93	17.0	0.6	BDL	424	429	BDL	BDL	*
Site 4	0	2	2	93	17.4	0.5	BDL	491	445	BDL	BDL	*
Site 4	5	2	2	93	17.0	0.4	8	477	357	BDL	BDL	*
Site 4	10	2	2	93	17.6	0.4	BDL	509	475	BDL	BDL	*
Site 4	20	2	2	93	16.7	0.5	5	489	537	BDL	BDL	*
Site 4	40	2	2	93	16.9	0.6	5	462	500	BDL	BDL	*
Site 4	60	2	2	93	17.8	0.6	6	486	530	BDL	BDL	*
Site 4	80	2	2	93	16.6	0.9	BDL	530	550	BDL	7	*
Site 4	90	2	2	93	17.3	0.8	6	551	525	BDL	BDL	*
Gate	0	2	2	93	17.3	0.6	7	504	420	BDL	BDL	*

Site	Depth	Month	Day	Year	Alk	Turb	NH3	TKN	NO3	SRP	TP	ChlA
Site 1	0	4	1	93	18.0	0.7	BDL	430	348	BDL	BDL	1.3
Site 1	5	4	1	93	18.6	0.7	BDL	446	395	BDL	7	1.6
Site 1	10	4	1	93	*	0.8	BDL	423	409	BDL	BDL	1.5
Site 1	15	4	1	93	*	0.8	BDL	444	412	BDL	BDL	1.6
Site 1	20	4	1	93	16.5	0.8	BDL	391	385	BDL	BDL	1.6
Intake	0	4	1	93	19.0	0.6	BDL	484	325	BDL	BDL	2.2
Intake	5	4	1	93	17.5	0.5	BDL	493	422	BDL	BDL	3.5
Intake	10	4	1	93	17.0	0.5	BDL	498	338	BDL	BDL	2.8
Site 2	0	4	1	93	17.5	0.5	BDL	486	395	BDL	BDL	2.2
Site 2	5	4	1	93	17.5	0.5	6	474	372	BDL	BDL	2.7
Site 2	10	4	1	93	17.5	0.5	BDL	463	429	BDL	BDL	2.3
Site 2	15	4	1	93	16.5	0.5	BDL	482	409	BDL	BDL	1.3
Site 2	20	4	1	93	16.5	0.5	BDL	507	469	BDL	BDL	2.0
Site 3	0	4	1	93	16.7	0.5	BDL	498	422	BDL	BDL	4.0
Site 3	5	4	1	93	16.5	0.6	BDL	463	432	BDL	BDL	4.9
Site 3	10	4	1	93	17.1	0.6	BDL	486	369	BDL	BDL	2.0
Site 3	15	4	1	93	*	*	*	*	*	*	*	2.7
Site 3	20	4	1	93	16.4	0.4	BDL	514	399	BDL	BDL	0.9
Site 3	40	4	1	93	16.5	0.6	BDL	539	406	BDL	BDL	*
Site 3	60	4	1	93	17.1	0.5	BDL	540	335	BDL	BDL	*
Site 3	80	4	1	93	16.8	0.5	BDL	621	416	BDL	BDL	*
Site 4	0	4	1	93	16.7	0.7	BDL	251	429	BDL	BDL	2.6
Site 4	5	4	1	93	16.5	0.6	BDL	472	443	BDL	BDL	3.1
Site 4	10	4	1	93	17.1	0.5	BDL	719	469	BDL	BDL	4.0
Site 4	15	4	1	93	*	*	*	*	*	*	*	3.0
Site 4	20	4	1	93	16.3	0.5	BDL	521	486	BDL	BDL	1.4
Site 4	40	4	1	93	17.7	0.4	BDL	533	311	BDL	BDL	*
Site 4	60	4	1	93	16.3	0.5	BDL	502	496	BDL	BDL	*
Site 4	80	4	1	93	16.7	0.5	BDL	533	516	BDL	BDL	*
Site 4	90	4	1	93	16.7	0.5	BDL	270	550	BDL	BDL	*
Gate	0	4	1	93	18.6	0.6	BDL	524	392	BDL	BDL	*
Site 1	0	5	6	93	17.2	0.7	BDL	439	325	BDL	6	3.4
Site 1	5	5	6	93	17.1	0.7	BDL	405	276	BDL	8	2.6
Site 1	10	5	6	93	17.8	0.7	BDL	416	327	BDL	5	2.3
Site 1	15	5	6	93	17.5	0.6	BDL	497	312	BDL	BDL	1.4
Site 1	20	5	6	93	17.4	0.7	BDL	454	252	BDL	6	0.8
Intake	0	5	6	93	16.4	0.6	BDL	516	301	BDL	BDL	3.2
Intake	5	5	6	93	17.2	0.6	BDL	474	312	BDL	6	3.7
Intake	10	5	6	93	17.3	0.5	BDL	495	298	BDL	BDL	2.7
Site 2	0	5	6	93	17.2	0.5	BDL	467	292	BDL	BDL	3.3
Site 2	5	5	6	93	17.3	0.5	BDL	510	300	BDL	BDL	3.8
Site 2	10	5	6	93	18.1	0.5	BDL	497	349	BDL	BDL	4.2
Site 2	15	5	6	93	17.7	0.5	BDL	493	345	BDL	BDL	2.9
Site 2	20	5	6	93	16.7	0.4	BDL	508	296	BDL	BDL	1.7
Site 3	0	5	6	93	16.6	0.5	BDL	453	287	BDL	BDL	3.5
Site 3	5	5	6	93	17.5	0.6	BDL	496	329	BDL	BDL	3.7
Site 3	10	5	6	93	16.5	0.5	BDL	449	320	BDL	BDL	3.4
Site 3	15	5	6	93	*	*	*	*	*	*	*	3.8
Site 3	20	5	6	93	17.1	0.5	BDL	445	307	BDL	BDL	2.0
Site 3	40	5	6	93	16.7	0.4	BDL	439	349	BDL	BDL	*
Site 3	60	5	6	93	17.1	0.4	BDL	470	338	BDL	BDL	*
Site 3	80	5	6	93	16.9	0.4	BDL	458	300	BDL	BDL	*
Site 4	0	5	6	93	16.7	0.5	BDL	488	338	BDL	BDL	4.4
Site 4	5	5	6	93	17.6	0.5	BDL	445	374	BDL	BDL	4.0
Site 4	10	5	6	93	17.0	0.5	BDL	474	376	BDL	BDL	3.5
Site 4	15	5	6	93	*	*	*	*	*	*	*	2.4
Site 4	20	5	6	93	16.8	0.4	BDL	468	352	BDL	BDL	1.2
Site 4	40	5	6	93	17.0	0.5	BDL	429	336	BDL	BDL	*
Site 4	60	5	6	93	17.1	0.4	BDL	437	316	BDL	BDL	*
Site 4	80	5	6	93	17.1	0.5	BDL	399	406	BDL	BDL	*

Site	Depth	Month	Day	Year	Alk	Turb	NH3	TKN	NO3	SRP	TP	ChlA
Site 4	90	5	6	93	16.0	0.5	BDL	419	370	BDL	BDL	*
Gate	0	5	6	93	17.1	0.5	BDL	486	410	BDL	BDL	*
Site 1	0	6	3	93	17.9	0.7	BDL	434	279	BDL	BDL	3.5
Site 1	5	6	3	93	18.2	0.9	BDL	529	242	BDL	7	2.5
Site 1	10	6	3	93	18.5	0.6	BDL	555	235	BDL	5	3.7
Site 1	15	6	3	93	18.1	1.0	BDL	517	307	BDL	5	3.3
Site 1	20	6	3	93	18.5	1.2	BDL	452	311	BDL	6	1.7
Intake	0	6	3	93	18.0	0.6	BDL	507	244	BDL	BDL	2.8
Intake	5	6	3	93	18.2	0.7	BDL	427	227	BDL	BDL	2.6
Intake	10	6	3	93	18.2	0.7	BDL	443	242	BDL	BDL	3.5
Site 2	0	6	3	93	18.8	0.7	BDL	432	250	BDL	BDL	2.7
Site 2	5	6	3	93	18.2	0.6	BDL	*	261	BDL	BDL	3.8
Site 2	10	6	3	93	18.0	0.7	BDL	434	302	BDL	BDL	4.7
Site 2	15	6	3	93	17.4	0.6	BDL	414	423	BDL	BDL	4.0
Site 2	20	6	3	93	17.8	0.6	BDL	483	382	BDL	6	3.1
Site 3	0	6	3	93	17.8	0.6	BDL	391	253	BDL	BDL	4.9
Site 3	5	6	3	93	17.5	0.6	BDL	*	229	BDL	8	4.4
Site 3	10	6	3	93	18.2	0.6	BDL	394	309	BDL	BDL	6.3
Site 3	15	6	3	93	*	*	*	*	*	*	*	4.5
Site 3	20	6	3	93	17.4	0.4	BDL	402	352	BDL	BDL	3.0
Site 3	40	6	3	93	17.5	0.3	BDL	430	430	BDL	BDL	*
Site 3	60	6	3	93	17.5	0.5	BDL	509	393	BDL	BDL	*
Site 3	80	6	3	93	17.5	0.5	BDL	345	434	BDL	BDL	*
Site 4	0	6	3	93	18.0	0.5	BDL	391	270	BDL	BDL	4.6
Site 4	5	6	3	93	18.0	0.5	BDL	407	263	BDL	BDL	5.0
Site 4	10	6	3	93	18.0	0.7	BDL	407	266	BDL	BDL	4.4
Site 4	15	6	3	93	*	*	*	*	*	*	*	2.0
Site 4	20	6	3	93	17.2	0.3	BDL	378	432	BDL	BDL	0.9
Site 4	40	6	3	93	17.5	0.3	BDL	365	412	BDL	BDL	*
Site 4	60	6	3	93	17.5	0.4	BDL	455	397	BDL	7	*
Site 4	80	6	3	93	17.5	0.3	BDL	378	300	BDL	BDL	*
Site 4	90	6	3	93	17.8	0.3	BDL	455	432	BDL	BDL	*
Gate	0	6	3	93	17.8	0.5	BDL	342	302	BDL	BDL	*
Site 1	0	7	1	93	17.5	0.5	10	297	165	BDL	BDL	4.1
Site 1	5	7	1	93	17.8	0.6	BDL	283	204	BDL	5	3.6
Site 1	10	7	1	93	17.4	0.7	22	358	207	BDL	7	8.1
Site 1	15	7	1	93	17.5	0.6	31	354	275	BDL	BDL	3.9
Site 1	20	7	1	93	*	0.7	BDL	452	265	BDL	7	4.0
Intake	0	7	1	93	17.7	0.6	BDL	314	221	BDL	BDL	2.3
Intake	5	7	1	93	17.5	0.5	BDL	323	245	BDL	BDL	2.1
Intake	10	7	1	93	16.7	0.5	BDL	300	252	BDL	BDL	2.2
Site 2	0	7	1	93	17.3	0.5	BDL	305	265	BDL	BDL	1.8
Site 2	5	7	1	93	17.0	0.6	BDL	221	287	BDL	BDL	2.4
Site 2	10	7	1	93	17.1	0.9	BDL	380	238	BDL	BDL	2.5
Site 2	15	7	1	93	16.9	0.5	BDL	421	326	BDL	BDL	4.6
Site 2	20	7	1	93	16.7	0.8	BDL	398	343	BDL	BDL	3.8
Site 3	0	7	1	93	16.9	0.9	BDL	334	270	BDL	BDL	1.8
Site 3	5	7	1	93	17.2	0.6	BDL	308	224	BDL	BDL	2.4
Site 3	10	7	1	93	17.1	0.5	BDL	361	246	BDL	BDL	1.9
Site 3	15	7	1	93	*	*	*	*	*	*	*	3.4
Site 3	20	7	1	93	16.4	0.4	BDL	456	399	BDL	BDL	1.9
Site 3	40	7	1	93	16.4	0.5	BDL	459	411	BDL	BDL	*
Site 3	60	7	1	93	16.4	0.5	BDL	409	452	BDL	BDL	*
Site 3	80	7	1	93	16.6	0.7	BDL	444	399	BDL	BDL	*
Site 4	0	7	1	93	17.0	0.7	BDL	407	299	BDL	BDL	2.8
Site 4	5	7	1	93	17.4	0.9	BDL	447	318	BDL	BDL	2.2
Site 4	10	7	1	93	17.2	0.7	BDL	363	319	BDL	BDL	3.7
Site 4	15	7	1	93	*	*	*	*	*	BDL	*	0.0
Site 4	20	7	1	93	16.4	0.4	BDL	380	345	BDL	BDL	1.9
Site 4	40	7	1	93	16.6	0.3	BDL	487	404	BDL	BDL	*

Site	Depth	Month	Day	Year	Alk	Turb	NH3	TKN	NO3	SRP	TP	ChlA
Site 4	60	7	1	93	16.6	0.4	BDL	488	493	BDL	BDL	*
Site 4	80	7	1	93	16.4	0.6	BDL	485	321	BDL	BDL	*
Site 4	90	7	1	93	16.5	0.4	BDL	456	360	BDL	BDL	*
Gate	0	7	1	93	*	*	*	*	*	*	*	*
Site 1	0	8	5	93	18.3	0.9	5	326	81	BDL	BDL	1.7
Site 1	5	8	5	93	18.1	0.7	5	341	104	BDL	BDL	1.8
Site 1	10	8	5	93	18.6	0.8	8	403	100	BDL	5	6.0
Site 1	15	8	5	93	19.1	1.0	11	462	204	BDL	5	1.8
Site 1	20	8	5	93	19.1	1.1	BDL	420	161	BDL	BDL	1.2
Intake	0	8	5	93	19.2	0.7	BDL	426	96	BDL	BDL	1.4
Intake	5	8	5	93	18.0	0.4	BDL	286	147	BDL	BDL	1.9
Intake	10	8	5	93	18.6	0.4	BDL	399	149	BDL	BDL	3.0
Site 2	0	8	5	93	18.2	0.5	BDL	343	110	BDL	BDL	1.2
Site 2	5	8	5	93	18.2	0.4	BDL	374	211	BDL	BDL	3.2
Site 2	10	8	5	93	17.5	0.5	6	407	170	BDL	BDL	3.0
Site 2	15	8	5	93	17.0	0.5	11	372	219	BDL	BDL	4.3
Site 2	20	8	5	93	19.0	0.8	139	485	276	BDL	BDL	1.0
Site 3	0	8	5	93	17.8	0.3	5	314	163	BDL	BDL	1.5
Site 3	5	8	5	93	17.7	0.4	6	391	182	BDL	BDL	1.7
Site 3	10	8	5	93	17.8	0.4	7	391	159	BDL	BDL	2.4
Site 3	15	8	5	93	*	*	*	*	*	*	*	2.2
Site 3	20	8	5	93	16.8	0.4	14	516	*	BDL	BDL	1.0
Site 3	40	8	5	93	16.6	0.3	BDL	487	377	BDL	BDL	*
Site 3	60	8	5	93	16.7	0.4	BDL	583	403	BDL	BDL	*
Site 3	80	8	5	93	17.2	0.4	16	510	387	BDL	BDL	*
Site 4	0	8	5	93	17.3	0.4	6	353	137	BDL	BDL	1.6
Site 4	5	8	5	93	17.7	0.4	7	457	170	BDL	BDL	4.4
Site 4	10	8	5	93	17.6	0.5	5	353	194	BDL	BDL	1.9
Site 4	15	8	5	93	*	*	*	*	*	*	*	1.8
Site 4	20	8	5	93	16.7	0.4	6	501	338	BDL	BDL	0.7
Site 4	40	8	5	93	16.7	0.3	5	560	414	BDL	BDL	*
Site 4	60	8	5	93	17.1	0.3	BDL	506	276	BDL	BDL	*
Site 4	80	8	5	93	15.7	0.3	BDL	462	301	BDL	BDL	*
Site 4	90	8	5	93	16.9	0.3	5	487	412	BDL	BDL	*
Gate	0	8	5	93	17.2	0.4	BDL	432	213	BDL	BDL	*
Site 1	0	9	1	93	18.7	0.5	*	357	135	BDL	5	2.6
Site 1	5	9	1	93	18.8	1.0	*	311	144	BDL	7	4.0
Site 1	10	9	1	93	18.6	0.7	*	414	138	BDL	9	6.8
Site 1	15	9	1	93	21.0	2.3	*	327	165	BDL	8	1.4
Site 1	20	9	1	93	21.2	4.3	*	371	154	BDL	12	0.7
Intake	0	9	1	93	18.1	0.4	*	379	193	BDL	BDL	2.3
Intake	5	9	1	93	17.7	0.4	*	338	179	BDL	BDL	2.5
Intake	10	9	1	93	19.7	0.4	*	459	184	BDL	5	2.0
Site 2	0	9	1	93	18.1	0.4	*	348	172	BDL	BDL	1.8
Site 2	5	9	1	93	17.8	0.4	*	371	184	BDL	BDL	2.3
Site 2	10	9	1	93	*	0.4	*	375	166	BDL	BDL	2.8
Site 2	15	9	1	93	18.4	0.5	*	502	218	BDL	BDL	2.0
Site 2	20	9	1	93	22.3	1.4	*	539	374	BDL	11	0.9
Site 3	0	9	1	93	18.3	0.4	*	377	198	BDL	BDL	1.1
Site 3	5	9	1	93	18.5	0.4	*	459	225	BDL	BDL	1.2
Site 3	10	9	1	93	18.6	0.4	*	309	181	BDL	BDL	1.7
Site 3	15	9	1	93	*	*	*	*	*	*	*	2.0
Site 3	20	9	1	93	17.9	0.4	*	520	314	BDL	BDL	1.0
Site 3	40	9	1	93	17.6	0.4	*	507	348	BDL	BDL	*
Site 3	60	9	1	93	17.7	0.4	*	507	381	BDL	BDL	*
Site 3	80	9	1	93	17.8	0.6	*	562	343	BDL	BDL	*
Site 4	0	9	1	93	19.3	0.3	*	348	210	BDL	BDL	0.8
Site 4	5	9	1	93	18.7	0.4	*	363	179	BDL	BDL	1.7
Site 4	10	9	1	93	18.7	0.4	*	437	191	BDL	BDL	1.3
Site 4	15	9	1	93	*	*	*	*	*	*	*	0.9

Site	Depth	Month	Day	Year	Alk	Turb	NH3	TKN	NO3	SRP	TP	ChlA
Site 4	20	9	1	93	18.2	0.5	*	536	358	BDL	BDL	1.1
Site 4	40	9	1	93	17.6	0.4	*	555	404	BDL	BDL	*
Site 4	60	9	1	93	17.6	0.4	*	468	364	BDL	BDL	*
Site 4	80	9	1	93	17.9	0.5	*	605	357	BDL	BDL	*
Site 4	90	9	1	93	17.7	0.4	*	541	388	BDL	BDL	*
Gate	0	9	1	93	18.4	0.6	*	479	232	BDL	BDL	*
Site 1	0	10	5	93	20.2	0.6	*	126	190	BDL	BDL	5.5
Site 1	5	10	5	93	20.2	0.6	*	159	192	BDL	BDL	8.4
Site 1	10	10	5	93	19.9	0.6	*	132	196	BDL	6	6.2
Site 1	15	10	5	93	24.7	0.7	*	240	226	BDL	6	1.1
Site 1	20	10	5	93	25.2	0.6	*	232	212	15	22	0.9
Intake	0	10	5	93	17.4	0.4	*	184	218	BDL	BDL	4.4
Intake	5	10	5	93	18.9	0.4	*	255	229	BDL	BDL	4.0
Intake	10	10	5	93	18.8	0.4	*	236	215	BDL	BDL	4.0
Site 2	0	10	5	93	19.0	0.4	*	202	206	BDL	BDL	3.3
Site 2	5	10	5	93	18.8	0.5	*	266	226	BDL	BDL	3.0
Site 2	10	10	5	93	19.0	0.8	*	193	217	BDL	BDL	3.3
Site 2	15	10	5	93	19.8	0.9	*	284	206	BDL	BDL	1.9
Site 2	20	10	5	93	22.6	3.5	*	202	207	BDL	10	0.7
Site 3	0	10	5	93	18.7	0.3	*	253	243	BDL	BDL	1.8
Site 3	5	10	5	93	18.9	0.3	*	241	215	BDL	BDL	2.0
Site 3	10	10	5	93	18.8	0.4	*	206	220	BDL	BDL	2.4
Site 3	15	10	5	93	*	*	*	*	*	*	*	2.0
Site 3	20	10	5	93	18.1	0.3	*	385	322	BDL	BDL	2.7
Site 3	40	10	5	93	17.0	0.2	*	456	372	BDL	BDL	*
Site 3	60	10	5	93	17.8	0.4	*	411	397	BDL	BDL	*
Site 3	80	10	5	93	17.7	0.6	*	353	383	BDL	BDL	*
Site 4	0	10	5	93	18.8	0.3	*	219	226	BDL	BDL	1.9
Site 4	5	10	5	93	18.7	0.3	*	212	236	BDL	BDL	2.1
Site 4	10	10	5	93	18.9	0.3	*	214	237	BDL	BDL	1.7
Site 4	15	10	5	93	*	*	*	*	*	*	*	1.4
Site 4	20	10	5	93	17.5	0.3	*	372	402	BDL	BDL	1.0
Site 4	40	10	5	93	17.5	0.3	*	413	380	BDL	BDL	*
Site 4	60	10	5	93	17.4	0.3	*	433	369	BDL	BDL	*
Site 4	80	10	5	93	17.6	0.5	*	435	383	BDL	BDL	*
Site 4	90	10	5	93	17.7	0.5	*	394	413	BDL	BDL	*
Gate	0	10	5	93	19.4	0.6	*	221	220	BDL	BDL	*
Site 1	0	11	2	93	21.2	0.7	*	148	175	BDL	35	4.0
Site 1	5	11	2	93	21.6	0.7	*	199	198	BDL	36	4.2
Site 1	10	11	2	93	19.1	0.8	*	165	187	BDL	34	2.8
Site 1	15	11	2	93	20.7	0.7	*	BDL	169	BDL	19	3.1
Site 1	20	11	2	93	26.2	1.2	*	336	173	6	62	1.1
Intake	0	11	2	93	19.4	0.4	*	240	230	BDL	25	1.6
Intake	5	11	2	93	19.3	0.4	*	159	216	BDL	19	2.3
Intake	10	11	2	93	20.1	0.4	*	177	231	BDL	16	1.6
Site 2	0	11	2	93	20.8	0.4	*	248	230	BDL	29	2.5
Site 2	5	11	2	93	18.7	0.4	*	273	222	BDL	45	3.0
Site 2	10	11	2	93	19.1	0.4	*	213	222	BDL	23	2.6
Site 2	15	11	2	93	26.6	0.4	*	197	230	BDL	12	2.4
Site 2	20	11	2	93	19.4	0.7	*	538	197	9	81	1.0
Gate	0	11	2	93	19.8	0.4	*	244	225	BDL	25	*
Site 1	0	12	16	93	19.2	1.4	*	339	111	BDL	7	1.7
Site 1	5	12	16	93	19.4	1.3	*	386	134	BDL	8	1.1
Site 1	10	12	16	93	19.4	1.5	*	376	157	BDL	6	0.7
Site 1	15	12	16	93	19.5	2.0	*	336	122	BDL	7	0.8
Site 1	20	12	16	93	19.7	1.6	*	490	125	BDL	7	0.8
Intake	0	12	16	93	18.2	1.3	*	531	208	BDL	8	0.3
Intake	5	12	16	93	18.2	1.2	*	380	226	BDL	BDL	0.7
Intake	10	12	16	93	18.3	1.1	*	465	188	BDL	BDL	1.9
Site 2	0	12	15	93	19.0	0.7	*	481	197	BDL	BDL	1.0

Site	Depth	Month	Day	Year	Alk	Turb	NH3	TKN	NO3	SRP	TP	ChlA
Site 2	5	12	15	93	18.0	0.7	*	477	217	BDL	5	0.9
Site 2	10	12	15	93	18.1	0.8	*	514	197	BDL	BDL	0.8
Site 2	15	12	15	93	18.7	0.9	*	428	200	BDL	6	0.4
Site 2	20	12	15	93	18.1	0.9	*	494	211	BDL	BDL	0.6
Site 3	0	12	15	93	17.8	0.5	*	446	291	BDL	5	1.0
Site 3	5	12	15	93	18.0	0.8	*	440	289	BDL	5	0.4
Site 3	10	12	15	93	17.4	0.6	*	459	217	BDL	5	0.9
Site 3	15	12	15	93	*	*	*	*	*	*	*	0.5
Site 3	20	12	15	93	18.1	0.8	*	407	248	BDL	BDL	0.3
Site 3	40	12	15	93	17.9	0.6	*	782	309	BDL	BDL	*
Site 3	60	12	15	93	17.4	0.6	*	570	309	BDL	14	*
Site 3	80	12	15	93	17.6	0.7	*	529	309	BDL	BDL	*
Site 4	0	12	15	93	18.6	0.5	*	463	217	BDL	5	0.4
Site 4	5	12	15	93	17.9	0.6	*	643	254	BDL	BDL	0.2
Site 4	10	12	15	93	18.4	0.6	*	488	248	BDL	BDL	0.2
Site 4	15	12	15	93	*	*	*	*	*	*	*	0.1
Site 4	40	12	15	93	18.1	0.5	*	666	286	BDL	12	*
Site 4	60	12	15	93	17.8	0.7	*	715	246	BDL	16	*
Site 4	80	12	15	93	17.7	0.5	*	552	283	BDL	5	*
Site 4	90	12	15	93	17.1	0.5	*	647	360	BDL	7	*
Gate	0	12	16	93	18.5	1.1	*	492	234	BDL	5	*
Site 1	0	2	22	94	18.8	1.0	*	374	254	BDL	BDL	*
Site 1	5	2	22	94	18.6	0.9	*	371	241	BDL	BDL	*
Site 1	10	2	22	94	19.1	1.0	*	384	300	BDL	BDL	*
Site 1	15	2	22	94	19.3	0.9	*	410	319	BDL	6	*
Site 1	20	2	22	94	18.7	1.0	*	367	274	BDL	BDL	*
Intake	0	2	14	94	21.0	0.4	*	457	327	BDL	BDL	*
Intake	5	2	14	94	20.9	0.5	*	443	362	BDL	BDL	*
Intake	10	2	14	94	17.9	0.5	*	464	338	BDL	BDL	*
Site 2	0	2	14	94	18.0	0.4	*	459	400	BDL	BDL	*
Site 2	5	2	14	94	20.8	0.5	*	484	436	BDL	BDL	*
Site 2	10	2	14	94	20.0	0.5	*	451	346	BDL	BDL	*
Site 2	15	2	14	94	20.4	0.5	*	445	384	BDL	BDL	*
Site 2	17	2	14	94	18.7	0.5	*	503	338	BDL	BDL	*
Site 3	0	2	14	94	18.2	0.4	*	445	381	BDL	BDL	*
Site 3	5	2	14	94	19.2	0.4	*	403	404	BDL	BDL	*
Site 3	10	2	14	94	18.9	0.4	*	457	353	BDL	BDL	*
Site 3	20	2	14	94	17.7	0.5	*	596	358	BDL	15	*
Site 3	40	2	14	94	17.8	0.4	*	424	346	BDL	BDL	*
Site 3	60	2	14	94	16.2	0.4	*	*	343	BDL	BDL	*
Site 3	80	2	14	94	18.2	0.4	*	413	368	BDL	BDL	*
Site 4	0	2	14	94	17.9	0.6	*	474	384	BDL	BDL	*
Site 4	5	2	14	94	17.9	0.4	*	426	405	BDL	BDL	*
Site 4	10	2	14	94	18.0	0.5	*	590	413	BDL	BDL	*
Site 4	20	2	14	94	17.9	0.4	*	443	415	BDL	BDL	*
Site 4	40	2	14	94	17.8	0.4	*	526	440	BDL	BDL	*
Site 4	60	2	14	94	17.6	0.5	*	495	366	BDL	BDL	*
Site 4	80	2	14	94	17.8	0.4	*	493	352	BDL	BDL	*
Site 4	90	2	14	94	16.6	0.5	*	495	430	BDL	23	*
Gate	0	2	14	94	17.6	0.6	*	413	364	BDL	BDL	*
Site 1	0	4	5	94	19.0	0.5	BDL	448	394	BDL	BDL	0.7
Site 1	5	4	5	94	19.0	0.5	BDL	410	409	BDL	BDL	1.0
Site 1	10	4	5	94	18.0	0.6	BDL	461	334	BDL	5	1.7
Site 1	15	4	5	94	18.5	0.5	BDL	430	381	BDL	BDL	0.8
Site 1	20	4	5	94	18.7	0.7	13	477	465	BDL	BDL	0.6
Intake	0	4	5	94	17.6	0.4	BDL	544	431	BDL	BDL	1.0
Intake	5	4	5	94	17.0	0.4	BDL	412	409	BDL	BDL	1.2
Intake	10	4	5	94	18.4	0.4	BDL	487	398	BDL	BDL	0.9
Site 2	0	4	5	94	17.8	0.4	BDL	473	401	BDL	BDL	0.3
Site 2	5	4	5	94	17.9	0.4	BDL	450	454	BDL	BDL	0.9

Site	Depth	Month	Day	Year	Alk	Turb	NH3	TKN	NO3	SRP	TP	ChlA
Site 2	10	4	5	94	17.6	0.4	BDL	516	448	BDL	BDL	0.6
Site 2	15	4	5	94	17.8	0.7	BDL	442	368	BDL	BDL	0.7
Site 2	18	4	5	94	17.8	0.5	11	485	409	BDL	BDL	0.5
Site 3	0	4	5	94	17.8	0.4	BDL	552	439	BDL	BDL	1.0
Site 3	5	4	5	94	17.7	0.4	BDL	511	390	BDL	5	0.7
Site 3	10	4	5	94	17.7	0.6	BDL	538	424	BDL	BDL	0.8
Site 3	15	4	5	94	*	*	*	*	*	*	*	0.4
Site 3	20	4	5	94	17.4	0.3	BDL	471	366	BDL	BDL	0.5
Site 3	40	4	5	94	18.4	0.4	BDL	477	459	BDL	BDL	*
Site 3	60	4	5	94	17.9	0.4	BDL	444	461	BDL	BDL	*
Site 3	80	4	5	94	17.7	0.5	BDL	485	499	BDL	6	*
Site 4	0	4	5	94	18.0	0.4	BDL	461	400	BDL	BDL	0.3
Site 4	5	4	5	94	17.9	0.5	BDL	461	474	BDL	BDL	0.5
Site 4	10	4	5	94	19.6	0.4	BDL	446	420	BDL	BDL	0.3
Site 4	15	4	5	94	*	*	*	*	*	*	*	0.3
Site 4	20	4	5	94	17.9	0.4	BDL	467	529	BDL	BDL	0.2
Site 4	40	4	5	94	17.9	0.4	BDL	402	439	BDL	BDL	*
Site 4	60	4	5	94	17.2	0.5	BDL	422	443	BDL	BDL	*
Site 4	80	4	5	94	17.8	0.4	BDL	452	407	BDL	BDL	*
Site 4	90	4	5	94	17.5	0.5	BDL	463	562	BDL	BDL	*
Gate	0	4	5	94	17.8	0.4	BDL	459	452	BDL	BDL	*
Site 1	0	5	3	94	18.7	0.4	BDL	486	371	BDL	BDL	1.0
Site 1	5	5	3	94	18.9	0.4	BDL	532	375	BDL	BDL	0.9
Site 1	10	5	3	94	18.5	0.4	BDL	441	394	BDL	BDL	1.7
Site 1	15	5	3	94	18.2	0.5	13	460	396	BDL	BDL	1.1
Site 1	20	5	3	94	18.5	0.4	19	411	420	BDL	BDL	0.9
Intake	0	5	3	94	18.2	0.5	BDL	443	416	BDL	BDL	1.4
Intake	5	5	3	94	18.0	0.4	BDL	643	475	BDL	BDL	1.2
Intake	10	5	3	94	17.5	0.4	BDL	471	394	BDL	BDL	2.3
Site 2	0	5	3	94	17.9	0.4	BDL	460	424	BDL	BDL	1.4
Site 2	5	5	3	94	17.8	0.4	BDL	525	375	BDL	BDL	0.9
Site 2	10	5	3	94	18.3	0.4	BDL	411	426	BDL	BDL	1.6
Site 2	15	5	3	94	18.0	0.4	BDL	491	418	BDL	BDL	1.6
Site 2	18	5	3	94	17.7	0.4	BDL	456	471	BDL	BDL	1.5
Site 3	0	5	3	94	17.9	0.4	BDL	423	377	BDL	BDL	1.7
Site 3	5	5	3	94	18.0	0.4	BDL	465	471	BDL	BDL	1.8
Site 3	10	5	3	94	18.0	0.4	BDL	452	426	BDL	BDL	2.2
Site 3	15	5	3	94	*	*	*	*	*	*	*	0.8
Site 3	20	5	3	94	17.8	0.4	BDL	430	386	BDL	BDL	0.6
Site 3	40	5	3	94	17.4	0.3	BDL	447	455	BDL	BDL	*
Site 3	60	5	3	94	17.6	0.4	BDL	478	556	BDL	BDL	*
Site 3	80	5	3	94	17.5	0.4	BDL	476	430	BDL	BDL	*
Site 4	0	5	3	94	17.9	0.4	BDL	458	402	BDL	BDL	1.3
Site 4	5	5	3	94	17.9	0.4	BDL	387	475	BDL	BDL	1.3
Site 4	10	5	3	94	17.9	0.4	BDL	471	483	BDL	BDL	1.1
Site 4	15	5	3	94	*	*	*	*	*	*	*	1.1
Site 4	20	5	3	94	17.6	0.3	BDL	482	447	BDL	BDL	1.4
Site 4	40	5	3	94	17.4	0.3	BDL	413	552	BDL	BDL	*
Site 4	60	5	3	94	17.7	0.4	BDL	400	530	BDL	BDL	*
Site 4	80	5	3	94	17.7	0.4	BDL	534	442	BDL	BDL	*
Site 4	90	5	3	94	17.5	0.3	BDL	439	495	BDL	BDL	*
Gate	0	5	3	94	18.3	0.4	BDL	430	469	BDL	BDL	*
Site 1	0	6	7	94	19.3	0.5	BDL	365	248	BDL	5	6.6
Site 1	5	6	7	94	19.1	0.5	BDL	303	266	BDL	6	7.7
Site 1	10	6	7	94	19.0	0.8	BDL	476	288	BDL	7	9.9
Site 1	15	6	7	94	18.5	0.5	19	341	277	BDL	6	5.5
Site 1	20	6	7	94	18.6	0.5	33	435	340	BDL	8	3.4
Intake	0	6	7	94	18.4	0.4	BDL	430	317	BDL	BDL	4.3
Intake	5	6	7	94	18.4	0.4	BDL	430	306	BDL	5	4.3
Intake	10	6	7	94	18.6	0.4	BDL	362	277	BDL	BDL	4.2

Site	Depth	Month	Day	Year	Alk	Turb	NH3	TKN	NO3	SRP	TP	ChlA
Site 2	0	6	7	94	18.5	0.4	BDL	349	288	BDL	BDL	4.4
Site 2	5	6	7	94	18.3	0.4	14	362	413	BDL	BDL	3.7
Site 2	10	6	7	94	18.4	0.4	BDL	327	330	BDL	BDL	4.4
Site 2	15	6	7	94	17.9	0.5	16	476	333	BDL	5	6.1
Site 2	20	6	7	94	17.9	0.5	35	435	384	BDL	7	5.0
Site 3	0	6	7	94	16.5	0.4	BDL	428	301	BDL	BDL	5.1
Site 3	5	6	7	94	16.6	0.4	BDL	347	404	BDL	BDL	5.4
Site 3	10	6	7	94	18.1	0.4	BDL	360	264	BDL	BDL	4.8
Site 3	15	6	7	94	*	*	*	*	*	*	*	5.2
Site 3	20	6	7	94	18.0	0.3	BDL	371	375	BDL	BDL	3.0
Site 3	40	6	7	94	17.6	0.2	BDL	441	485	BDL	BDL	*
Site 3	60	6	7	94	17.5	0.3	BDL	433	417	BDL	BDL	*
Site 3	80	6	7	94	18.0	0.4	BDL	476	449	BDL	BDL	*
Site 4	0	6	7	94	18.4	0.3	BDL	299	395	BDL	BDL	2.2
Site 4	5	6	7	94	18.5	0.4	BDL	433	397	BDL	BDL	3.5
Site 4	10	6	7	94	18.2	0.3	BDL	398	306	BDL	BDL	6.1
Site 4	15	6	7	94	*	*	*	*	*	*	*	4.3
Site 4	20	6	7	94	17.9	0.3	BDL	487	273	BDL	BDL	4.1
Site 4	40	6	7	94	18.6	0.4	BDL	402	382	BDL	BDL	*
Site 4	60	6	7	94	17.8	0.3	BDL	461	424	BDL	BDL	*
Site 4	80	6	7	94	17.9	0.4	BDL	358	342	BDL	BDL	*
Site 4	90	6	7	94	17.6	0.4	BDL	450	433	BDL	BDL	*
Gate	0	6	7	94	18.4	0.7	BDL	391	288	BDL	6	*
Site 1	0	7	6	94	19.2	0.5	BDL	343	170	BDL	BDL	*
Site 1	5	7	6	94	19.6	0.5	BDL	400	154	BDL	5	*
Site 1	10	7	6	94	19.3	0.7	BDL	480	208	BDL	BDL	*
Site 1	15	7	6	94	19.6	0.8	33	449	216	BDL	7	*
Site 1	20	7	6	94	19.9	0.8	68	598	247	BDL	7	*
Intake	0	7	6	94	19.6	0.4	BDL	419	228	BDL	BDL	*
Intake	5	7	6	94	18.7	0.4	BDL	489	206	BDL	BDL	*
Intake	10	7	6	94	18.4	0.4	BDL	558	246	BDL	BDL	*
Site 2	0	7	6	94	18.6	0.3	BDL	449	221	BDL	BDL	*
Site 2	5	7	6	94	18.5	0.4	BDL	430	269	BDL	BDL	*
Site 2	10	7	6	94	18.4	0.3	BDL	452	255	BDL	BDL	*
Site 2	15	7	6	94	18.3	0.5	BDL	720	283	BDL	BDL	*
Site 2	20	7	6	94	18.6	0.5	26	544	283	BDL	BDL	*
Site 3	0	7	6	94	18.6	0.4	BDL	433	306	BDL	BDL	*
Site 3	5	7	6	94	18.5	0.4	BDL	522	269	BDL	BDL	*
Site 3	10	7	6	94	18.6	0.4	BDL	435	251	BDL	BDL	*
Site 3	20	7	6	94	18.1	0.4	BDL	447	287	BDL	BDL	*
Site 3	40	7	6	94	17.6	0.3	BDL	657	393	BDL	BDL	*
Site 3	60	7	6	94	17.8	0.4	BDL	539	360	BDL	BDL	*
Site 3	80	7	6	94	17.9	0.3	BDL	520	349	BDL	BDL	*
Site 4	0	7	6	94	18.5	0.3	BDL	423	321	BDL	BDL	*
Site 4	5	7	6	94	18.6	0.4	BDL	454	262	BDL	BDL	*
Site 4	10	7	6	94	18.3	0.4	BDL	461	257	BDL	BDL	*
Site 4	20	7	6	94	17.8	0.3	BDL	539	326	BDL	BDL	*
Site 4	40	7	6	94	17.8	0.3	BDL	617	414	BDL	BDL	*
Site 4	60	7	6	94	18.1	0.3	BDL	548	367	BDL	BDL	*
Site 4	80	7	6	94	17.8	0.4	BDL	631	345	BDL	BDL	*
Site 4	90	7	6	94	17.9	0.4	BDL	588	462	BDL	BDL	*
Gate	0	7	6	94	*	*	*	*	*	*	*	*
Site 1	0	8	2	94	18.7	0.5	BDL	271	126	BDL	BDL	0.9
Site 1	5	8	2	94	19.5	0.5	BDL	225	159	BDL	BDL	1.3
Site 1	10	8	2	94	19.9	1.0	BDL	261	95	BDL	10	4.5
Site 1	15	8	2	94	21.3	1.3	100	373	176	BDL	15	0.8
Site 1	20	8	2	94	21.5	1.8	105	361	208	BDL	14	0.6
Intake	0	8	2	94	18.5	0.4	BDL	267	222	BDL	BDL	0.8
Intake	5	8	2	94	18.9	0.5	BDL	295	193	BDL	BDL	0.7
Intake	10	8	2	94	17.9	0.4	BDL	305	236	BDL	BDL	0.8

Site	Depth	Month	Day	Year	Alk	Turb	NH3	TKN	NO3	SRP	TP	ChlA
Site 2	0	8	2	94	16.4	0.4	BDL	261	196	BDL	BDL	0.7
Site 2	5	8	2	94	18.7	0.4	BDL	286	212	BDL	BDL	0.4
Site 2	10	8	2	94	18.3	0.4	BDL	312	251	BDL	BDL	0.7
Site 2	15	8	2	94	18.8	0.5	BDL	327	210	BDL	6	1.2
Site 2	18	8	2	94	18.3	0.6	30	473	275	BDL	8	1.5
Site 3	0	8	2	94	18.4	0.4	BDL	325	205	BDL	BDL	0.6
Site 3	5	8	2	94	18.5	0.3	BDL	307	239	BDL	BDL	0.5
Site 3	10	8	2	94	18.4	0.4	BDL	305	210	BDL	BDL	0.6
Site 3	15	8	2	94	*	*	*	*	*	*	*	1.0
Site 3	20	8	2	94	17.8	0.3	BDL	382	301	BDL	BDL	1.0
Site 3	40	8	2	94	17.5	0.2	BDL	378	333	BDL	BDL	*
Site 3	60	8	2	94	17.4	0.2	BDL	450	357	BDL	BDL	*
Site 3	80	8	2	94	17.8	0.3	BDL	409	404	BDL	BDL	*
Site 4	0	8	2	94	18.2	0.5	BDL	356	177	BDL	BDL	0.4
Site 4	5	8	2	94	18.1	0.4	BDL	344	215	BDL	BDL	0.5
Site 4	10	8	2	94	18.2	0.5	BDL	286	231	BDL	BDL	0.7
Site 4	15	8	2	94	*	*	*	*	*	*	*	0.9
Site 4	20	8	2	94	17.8	0.4	BDL	363	282	BDL	BDL	1.2
Site 4	40	8	2	94	17.4	0.3	BDL	431	414	BDL	BDL	*
Site 4	60	8	2	94	18.4	0.2	BDL	450	472	BDL	BDL	*
Site 4	80	8	2	94	17.4	0.2	BDL	428	294	BDL	BDL	*
Site 4	90	8	2	94	17.6	0.2	BDL	492	354	BDL	BDL	*
Gate	0	8	2	94	18.4	0.5	BDL	418	*	BDL	BDL	*
Site 1	0	9	6	94	19.9	0.6	12	146	68	BDL	BDL	2.8
Site 1	5	9	6	94	20.0	0.7	BDL	192	83	BDL	7	3.3
Site 1	10	9	6	94	20.0	0.9	24	160	77	BDL	8	3.9
Site 1	15	9	6	94	23.6	2.0	182	168	32	BDL	10	0.9
Site 1	20	9	6	94	22.5	2.0	188	143	BDL	13	21	0.6
Intake	0	9	6	94	17.7	0.4	BDL	200	184	BDL	BDL	1.2
Intake	5	9	6	94	17.2	0.5	BDL	326	203	BDL	BDL	1.3
Intake	10	9	6	94	16.7	0.5	BDL	227	205	BDL	BDL	1.8
Site 2	0	9	6	94	15.0	0.4	BDL	203	235	BDL	BDL	1.1
Site 2	5	9	6	94	14.2	0.4	BDL	214	227	BDL	BDL	1.8
Site 2	10	9	6	94	19.0	0.4	BDL	268	195	BDL	BDL	1.8
Site 2	15	9	6	94	19.0	0.6	31	389	336	BDL	BDL	1.4
Site 2	20	9	6	94	21.4	1.8	130	284	293	BDL	12	0.4
Site 3	0	9	6	94	18.9	0.3	BDL	310	257	BDL	BDL	1.0
Site 3	5	9	6	94	19.0	0.4	BDL	291	274	BDL	BDL	1.4
Site 3	10	9	6	94	19.0	0.4	BDL	256	261	BDL	BDL	1.7
Site 3	15	9	6	94	*	*	*	*	*	*	*	1.2
Site 3	20	9	6	94	18.0	0.4	14	343	409	BDL	BDL	0.9
Site 3	40	9	6	94	17.6	0.3	BDL	494	520	5	BDL	*
Site 3	60	9	6	94	17.8	0.3	BDL	316	505	BDL	BDL	*
Site 3	80	9	6	94	18.6	0.2	14	507	510	BDL	BDL	*
Site 4	0	9	6	94	18.8	0.4	BDL	*	229	BDL	BDL	1.0
Site 4	5	9	6	94	19.2	0.4	BDL	275	257	BDL	BDL	0.9
Site 4	10	9	6	94	18.7	0.5	BDL	276	255	BDL	BDL	1.2
Site 4	15	9	6	94	*	*	*	*	*	*	*	1.0
Site 4	20	9	6	94	18.0	0.5	18	353	424	BDL	BDL	0.8
Site 4	40	9	6	94	17.4	0.3	BDL	410	407	BDL	BDL	*
Site 4	60	9	6	94	17.7	0.3	BDL	427	424	BDL	BDL	*
Site 4	80	9	6	94	17.8	0.2	BDL	384	499	BDL	BDL	*
Site 4	90	9	6	94	17.9	0.5	BDL	448	576	BDL	BDL	*
Gate	0	9	6	94	17.3	0.5	10	195	246	BDL	BDL	*
Site 1	0	10	4	94	20.6	1.2	23	289	65	BDL	9	4.7
Site 1	5	10	4	94	20.6	0.7	20	230	67	BDL	7	3.8
Site 1	10	10	4	94	20.4	0.8	18	216	60	BDL	7	3.7
Site 1	15	10	4	94	26.5	2.1	307	385	53	BDL	14	1.1
Site 1	20	10	4	94	27.0	2.2	302	395	59	31	43	1.1
Intake	0	10	4	94	19.2	0.4	BDL	287	195	BDL	BDL	1.4

Site	Depth	Month	Day	Year	Alk	Turb	NH3	TKN	NO3	SRP	TP	ChlA
Intake	5	10	4	94	19.3	0.5	BDL	293	188	BDL	BDL	2.1
Intake	10	10	4	94	19.3	0.5	BDL	414	186	BDL	9	2.0
Site 2	0	10	4	94	19.1	0.4	BDL	335	185	BDL	BDL	1.7
Site 2	5	10	4	94	19.2	0.4	BDL	372	200	BDL	BDL	1.8
Site 2	10	10	4	94	19.2	0.4	BDL	320	203	BDL	BDL	1.9
Site 2	15	10	4	94	19.1	0.5	BDL	372	62	BDL	BDL	1.8
Site 2	17	10	4	94	23.7	1.8	188	333	198	BDL	13	0.5
Site 3	0	10	4	94	19.1	0.3	BDL	341	214	BDL	BDL	1.5
Site 3	5	10	4	94	19.1	0.4	BDL	358	241	BDL	BDL	1.8
Site 3	10	10	4	94	19.0	0.3	BDL	341	335	BDL	BDL	2.0
Site 3	15	10	4	94	*	*	*	*	*	*	*	1.9
Site 3	20	10	4	94	20.3	0.3	14	487	183	BDL	BDL	0.8
Site 3	40	10	4	94	17.8	0.3	BDL	545	475	BDL	BDL	*
Site 3	60	10	4	94	17.7	0.3	BDL	522	480	BDL	BDL	*
Site 3	80	10	4	94	18.7	0.6	BDL	599	403	BDL	BDL	*
Site 4	0	10	4	94	18.9	0.3	BDL	355	207	BDL	BDL	1.5
Site 4	5	10	4	94	18.5	0.3	BDL	301	203	BDL	BDL	1.8
Site 4	10	10	4	94	18.9	0.3	BDL	362	206	BDL	BDL	1.8
Site 4	15	10	4	94	*	*	*	*	*	*	*	1.9
Site 4	20	10	4	94	17.8	0.3	19	534	463	BDL	BDL	0.9
Site 4	40	10	4	94	17.7	0.3	BDL	545	448	BDL	BDL	*
Site 4	60	10	4	94	17.5	0.3	BDL	562	397	BDL	BDL	*
Site 4	80	10	4	94	17.8	0.4	BDL	482	439	BDL	BDL	*
Site 4	90	10	4	94	17.9	0.4	BDL	530	448	BDL	BDL	*
Gate	0	10	4	94	19.2	0.5	BDL	333	189	BDL	BDL	*

B.3 Lake Whatcom Plankton Data

Lake Whatcom zooplankton and phytoplankton data.

Site	Depth	Month	Day	Year	Zooplank (#/m3)	Yellow-Gr algae (#/m3)	BG algae (#/m3)	Gr. algae (#/m3)	Dinoflag (#/m3)
Intake	5	10	7	91	1390	42800	2200	2700	9600
1	5	10	7	91	1070	47200	7000	800	29200
2	5	10	7	91	650	36100	1700	4300	5000
3	5	10	7	91	1480	45300	1700	3100	1500
4	5	10	7	91	1230	52900	1500	4600	3300
Intake	5	11	4	91	220	43700	600	700	400
1	5	11	4	91	700	482700	800	600	200
2	5	11	4	91	310	10600	200	0	0
3	5	11	4	91	360	45700	400	600	1000
4	5	11	4	91	170	11500	0	100	100
Intake	5	12	2	91	110	22600	0	2200	0
1	5	12	2	91	370	268900	0	2500	200
2	5	12	2	91	140	46100	0	1900	0
3	5	12	2	91	90	44800	0	600	0
4	5	12	2	91	130	10000	0	100	0
Intake	5	2	3	92	20	69200	0	200	0
1	5	2	3	92	90	139200	2400	3000	0
2	5	2	3	92	10	31800	0	100	0
3	5	2	3	92	30	36700	300	200	0
4	5	2	3	92	10	17500	0	200	0
Intake	5	4	7	92	120	25700	0	1300	0
1	5	4	7	92	680	83800	0	1600	0
2	5	4	7	92	70	17600	0	400	0
3	5	4	7	92	90	35000	0	1600	0
4	5	4	7	92	130	58100	0	300	0
Intake	5	6	2	92	440	46600	400	1100	100
1	5	6	2	92	760	164400	3900	1500	700
2	5	6	2	92	620	105700	3500	800	0
3	5	6	2	92	740	60500	900	200	100
4	5	6	2	92	1030	77200	1200	1000	300
Intake	5	8	31	92	100	8400	11300	200	0
1	5	8	31	92	105	5200	29800	2100	0
2	5	8	31	92	40	200	6100	700	0
3	5	8	31	92	95	1400	5300	900	0
4	5	8	31	92	85	1100	5700	1500	700
Intake	5	4	1	93	0	61500	0	600	3
1	5	4	1	93	43	29800	0	3200	20
2	5	4	1	93	6	58700	400	400	0
3	5	4	1	93	21	69200	0	200	3
4	5	4	1	93	17	47200	200	2200	2
Intake	5	5	6	93	16	105600	100	7400	100

Lake Whatcom zooplankton and phytoplankton data.

Site	Depth	Month	Day	Year	Zooplank (#/m3)	Yellow-Gr algae (#/m3)	BG algae (#/m3)	Gr. algae (#/m3)	Dinoflag (#/m3)
1	5	5	6	93	38	244800	500	17500	0
2	5	5	6	93	11	29200	300	2200	0
3	5	5	6	93	19	42600	0	1800	0
4	5	5	6	93	32	74500	0	2400	0
Intake	5	6	7	93	92	87700	0	24400	13
1	5	6	7	93	13	57800	0	2500	33
2	5	6	7	93	58	90900	0	8600	- 11
3	5	6	7	93	75	99300	0	10100	31
4	5	6	7	93	8	17400	0	1400	0
Intake	5	7	1	93	93	63800	500	26100	0
1	5	7	1	93	52	58900	1000	26000	0
2	5	7	1	93	104	92300	0	21300	0
3	5	7	1	93	55	119000	0	29300	400
4	5	7	1	93	151	66100	0	19600	400
Intake	5	8	5	93	114	93200	400	290100	0
1	5	8	5	93	170	152300	2800	150300	1200
2	5	8	5	93	94	61700	400	53100	400
3	5	8	5	93	59	66300	0	529800	0
4	5	8	5	93	50	52800	400	197000	900
Intake	5	9	1	93	18	69100	1100	497600	0
1	5	9	1	93	38	92400	500	275800	0
2	5	9	1	93	78	82200	1000	307100	500
3	5	9	1	93	83	43500	0	118000	0
4	5	9	1	93	101	17600	0	131200	0
Intake	5	10	5	93	19	94400	700	66500	0
1	5	10	5	93	69	190900	3500	82800	0
2	5	10	5	93	66	111900	0	201400	0
3	5	10	5	93	51	107200	0	142100	0
4	5	10	5	93	33	68500	0	555000	0
Intake	5	11	2	93	54	86400	0	24500	600
1	5	11	2	93	207	94500	2500	80700	0
2	5	11	2	93	42	72400	0	2200	0
1	5	12	16	93	68	79600	500	0	0
2	5	12	15	93	33	14800	0	14000	0
3	5	12	15	93	6	0	0	0	0
4	5	12	15	93	14	5100	0	0	0
Intake	5	12	16	93	27	15900	0	2300	0
1	5	2	14	94	30	55000	0	40100	0
2	5	2	14	94	5	17600	900	17600	0
3	5	2	14	94	0	17800	1000	17800	0
4	5	2	14	94	0	12200	1500	12200	500

Lake Whatcom zooplankton and phytoplankton data.

Site	Depth	Month	Day	Year	Zooplank (#/m3)	Yellow-Gr algae (#/m3)	BG algae (#/m3)	Gr. algae (#/m3)	Dinoflag (#/m3)
Intake	5	2	14	94	16	30800	1500	29800	0
1	5	4	5	94	22	62200	0	200	0
2	5	4	5	94	14	59600	0	0	0
3	5	4	5	94	12	51300	0	200	0
4	5	4	5	94	6	31800	0	0	0
Intake	5	4	5	94	15	54000	0	0	0
1	5	5	3	94	10	8206	0	4476	2611
Intake	5	5	3	94	23	34971	0	1928	551
2	5	5	3	94	25	27888	0	2789	1594
3	5	5	3	94	14	17897	0	3851	0
4	5	5	3	94	12	38702	0	2086	0
1	5	6	7	94	6	31317	0	1099	8241
Intake	5	6	7	94	46	141271	0	24271	622
2	5	6	7	94	19	73295	591	11822	591
3	5	6	7	94	33	151850	0	22237	635
4	5	6	7	94	18	83828	0	1711	1141
1	5	7	6	94	36	35262	578	17342	12718
Intake	5	7	6	94	82	55698	1198	92231	8385
2	5	7	6	94	61	54703	1052	71535	5260
3	5	7	6	94	53	72892	1695	69501	9041
4	5	7	6	94	86	81438	1172	89054	7031
1	5	8	2	94	17	2104	526	36819	1052
Intake	5	8	2	94	15	19540	292	34705	3208
2	5	8	2	94	12	10265	141	38246	3234
3	5	8	2	94	32	3609	0	28271	2406
4	5	8	2	94	8	15337	404	16548	2825
1	5	9	6	94	36	70915	6952	132792	22711
Intake	5	9	6	94	26	84341	1029	49370	9668
2	5	9	6	94	20	39069	161	51339	8395
3	5	9	6	94	11	38207	0	38207	3315
4	5	9	6	94	20	33466	885	34528	2302

B.4 Lake Whatcom Bacteria Data

Lake Whatcom coliform data.

Site	Depth	Month	Day	Year	T. coliforms (cells/100 mL)	F. coliforms (cells/100 mL)
1	0.3	10	7	91	300	0
Intake	0.3	10	7	91	30	23
2	0.3	10	7	91	70	0
3	0.3	10	7	91	30	0
4	0.3	10	7	91	50	0
1	0.3	11	4	91	140	2
Intake	0.3	11	4	91	240	0
2	0.3	11	4	91	220	2
3	0.3	11	4	91	50	0
4	0.3	11	4	91	30	0
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	0
3	0.3	2	3	92	23	8
4	0.3	2	3	92	22	0
1	0.3	4	7	92	50	4
Intake	0.3	4	7	92	9	0
2	0.3	4	7	92	8	0
3	0.3	4	7	92	4	0
4	0.3	4	7	92	4	0
1	0.3	6	2	92	80	30
Intake	0.3	6	2	92	14	0
2	0.3	6	2	92	26	4
3	0.3	6	2	92	130	0
4	0.3	6	2	92	30	0
1	0.3	7	6	92	500	2
Intake	0.3	7	6	92	240	0
2	0.3	7	6	92	110	4
3	0.3	7	6	92	50	0
4	0.3	7	6	92	110	4
1	0.3	8	3	92	500	2
Intake	0.3	8	3	92	130	0
2	0.3	8	3	92	22	0
3	0.3	8	3	92	17	0
4	0.3	8	3	92	8	0

Lake Whatcom coliform data.

Site	Depth	Month	Day	Year	T. coliforms (cells/100 mL)	F. coliforms (cells/100 mL)
1	0.3	8	31	92	900	23
Intake	0.3	8	31	92	1600	0
2	0.3	8	31	92	300	11
3	0.3	8	31	92	130	11
4	0.3	8	31	92	23	0
1	0.3	10	5	92	50	0
Intake	0.3	10	5	92	170	4
2	0.3	10	5	92	80	0
3	0.3	10	5	92	70	0
4	0.3	10	5	92	80	2
1	0.3	11	11	92	30	4
Intake	0.3	11	11	92	70	0
2	0.3	11	11	92	70	4
3	0.3	11	11	92	50	13
4	0.3	11	11	92	50	0
1	0.3	12	14	92	80	4
Intake	0.3	12	14	92	22	0
2	0.3	12	14	92	7	2
3	0.3	12	14	92	30	0
4	0.3	12	14	92	23	0
1	0.3	2	7	93	17	0
Intake	0.3	2	7	93	11	0
2	0.3	2	7	93	8	0
3	0.3	2	7	93	4	2
4	0.3	2	7	93	4	0
1	0.3	4	1	93	4	0
Intake	0.3	4	1	93	2	0
2	0.3	4	1	93	8	0
3	0.3	4	1	93	6	0
4	0.3	4	1	93	2	0
1	0.3	5	6	93	4	0
Intake	0.3	5	6	93	23	4
2	0.3	5	6	93	22	2
3	0.3	5	6	93	13	0
4	0.3	5	6	93	0	0
1	0.3	6	3	93	130	4
Intake	0.3	6	3	93	170	2
2	0.3	6	3	93	30	2
3	0.3	6	3	93	27	0
4	0.3	6	3	93	30	0

Lake Whatcom coliform data.

Site	Depth	Month	Day	Year	T. coliforms (cells/100 mL)	F. coliforms (cells/100 mL)
1	0.3	7	1	93	110	30
Intake	0.3	7	1	93	13	0
2	0.3	7	1	93	70	2
3	0.3	7	1	93	2	0
4	0.3	7	1	93	13	0
1	0.3	8	5	93	140	0
Intake	0.3	8	5	93	93	0
2	0.3	8	5	93	30	0
3	0.3	8	5	93	30	0
4	0.3	8	5	93	8	0
1	0.3	9	1	93	110	0
Intake	0.3	9	1	93	80	0
2	0.3	9	1	93	50	0
3	0.3	9	1	93	8	0
4	0.3	9	1	93	30	0
1	0.3	10	5	93	23	0
Intake	0.3	10	5	93	23	0
2	0.3	10	5	93	30	0
3	0.3	10	5	93	80	2
4	0.3	10	5	93	80	0
1	0.3	11	2	93	17	0
Intake	0.3	11	2	93	70	2
2	0.3	11	2	93	80	0
1	0.3	12	15	93	50	0
Intake	0.3	12	15	93	30	0
2	0.3	12	15	93	12	4
3	0.3	12	15	93	4	0
4	0.3	12	15	93	30	0
1	0.3	2	14	94	50	4
Intake	0.3	2	14	94	23	4
2	0.3	2	14	94	23	2
3	0.3	2	14	94	23	23
4	0.3	2	14	94	7	2
1	0.3	4	5	94	30	0
Intake	0.3	4	5	94	80	0
2	0.3	4	5	94	60	0
3	0.3	4	5	94	23	0
4	0.3	4	5	94	13	2
1	0.3	5	3	94	23	0
Intake	0.3	5	3	94	50	0

Lake Whatcom coliform data.

Site	Depth	Month	Day	Year	T. coliforms (cells/100 mL)	F. coliforms (cells/100 mL)
2	0.3	5	3	94	30	0
3	0.3	5	3	94	23	0
4	0.3	5	3	94	11	0
1	0.3	6	7	94	6	0
Intake	0.3	6	7	94	4	0
2	0.3	6	7	94	9	0
3	0.3	6	7	94	0	0
4	0.3	6	7	94	0	0
1	0.3	7	6	94	-99	-99
Intake	0.3	7	6	94	-99	-99
2	0.3	7	6	94	-99	-99
3	0.3	7	6	94	-99	-99
4	0.3	7	6	94	-99	-99
1	0.3	8	2	94	140	0
Intake	0.3	8	2	94	300	0
2	0.3	8	2	94	110	0
3	0.3	8	2	94	13	0
4	0.3	8	2	94	17	0
1	0.3	9	6	94	240	0
Intake	0.3	9	6	94	23	2
2	0.3	9	6	94	7	0
3	0.3	9	6	94	17	2
4	0.3	9	6	94	23	0
1	0.3	10	4	94	170	2
Intake	0.3	10	4	94	130	2
2	0.3	10	4	94	130	0
3	0.3	10	4	94	80	0
4	0.3	10	4	94	13	2

Lake Whatcom total bacteria counts (October ,1993 - September 1994) .

Site	Depth	Date	Cells/mL	Field 1	Field 2	Field 3	Field 4	Field 5	Field 6	Field 7	Field 8	Field 9	Field 10	Avg	Field Portion	Filter Radius	Sample mL	Count Dev
1	surface	10/05/93	2092998	40	42	29	26	26	31	30	31	36	34	33	0.5	8.00	1.00	5.46
1	surface	10/05/93	1842322	29	20	29	27	27	34	26	22	33	22	27	0.5	8.25	1.00	4.63
1	bottom	10/05/93	2311958	26	30	37	32	40	44	38	29	38	45	36	0.5	8.00	1.00	6.42
1	bottom	10/05/93	1712196	25	25	31	26	27	27	28	28	17	16	25	0.5	8.25	1.00	4.81
Intake	surface	10/05/93	1445779	43	49	48	32	45	50	45	46	48	43	45	1	8.00	1.00	5.13
Intake	surface	10/05/93	1869718	27	30	27	29	31	26	30	30	17	26	27	0.5	8.25	1.00	4.06
Intake	bottom	10/05/93	2189598	35	44	36	37	33	28	35	29	35	28	34	0.5	8.00	1.00	4.88
Intake	bottom	10/05/93	2280644	40	34	44	27	40	25	26	34	28	35	33	0.5	8.25	1.00	6.65
2	surface	10/05/93	1555258	41	44	47	54	51	53	42	53	49	49	48	1	8.00	1.00	4.69
2	surface	10/05/93	1469064	35	48	47	47	45	40	47	41	35	44	43	1	8.25	1.00	4.93
2	bottom	10/05/93	2138078	28	23	32	32	37	35	29	38	46	32	33	0.5	8.00	1.00	6.30
2	bottom	10/05/93	1910810	28	26	32	31	27	30	28	27	27	23	28	0.5	8.25	1.00	2.60
3	surface	10/05/93	1043279	43	31	33	15	44	36	50	15	20	37	32	1	8.00	1.00	12.26
3	surface	10/05/93	1075259	33	28	31	41	23	35	30	31	29	33	31	1	8.25	1.00	4.72
3	bottom	10/05/93	1474759	22	20	26	27	26	20	19	22	23	24	23	0.5	8.00	1.00	2.81
3	bottom	10/05/93	986225	29	27	26	32	38	24	32	30	26	24	29	1	8.25	1.00	4.37
4	surface	10/05/93	1194619	28	37	38	44	38	43	48	31	23	41	37	1	8.00	1.00	7.72
4	surface	10/05/93	1195113	27	34	32	37	34	41	38	27	39	40	35	1	8.25	1.00	5.04
4	bottom	10/05/93	872619	24	24	21	29	38	25	31	35	20	24	27	1	8.00	1.00	5.97
4	bottom	10/05/93	969103	30	29	28	30	31	24	22	30	25	34	28	1	8.25	1.00	3.62
1	surface	11/02/93	1564918	47	49	48	53	65	39	49	39	55	42	49	1	8.00	1.00	7.89
1	surface	11/02/93	1653981	49	30	53	52	40	54	39	50	52	64	48	1	8.25	1.00	9.56
1	bottom	11/02/93	3155597	45	35	44	70	64	53	51	46	45	37	49	0.5	8.00	1.00	11.02
1	bottom	11/02/93	3013464	43	41	42	63	50	44	36	37	37	47	44	0.5	8.25	1.00	8.04
Intake	surface	11/02/93	1548818	55	45	43	44	55	48	61	32	44	54	48	1	8.00	1.00	8.33
Intake	surface	11/02/93	1599191	46	47	42	47	47	45	47	55	42	49	47	1	8.25	1.00	3.68
Intake	bottom	11/02/93	1230039	36	39	28	40	51	34	50	27	31	46	38	1	8.00	1.00	8.64
Intake	bottom	11/02/93	1479337	49	34	37	35	48	48	45	50	49	37	43	1	8.25	1.00	6.60
2	surface	11/02/93	1204279	42	32	39	31	23	33	38	49	36	51	37	1	8.00	1.00	8.45
2	surface	11/02/93	1112927	44	31	36	34	34	32	28	28	32	26	33	1	8.25	1.00	5.10
2	bottom	11/02/93	2395678	34	31	45	34	34	45	45	42	39	23	37	0.5	8.00	1.00	7.30
2	bottom	11/02/93	1472488	40	48	38	30	40	55	43	34	48	54	43	1	8.25	1.00	8.22
1	surface	12/15/93	1674398	54	60	50	30	54	45	70	55	52	50	52	1	8.00	1.00	10.25
1	surface	12/15/93	1458791	36	54	52	50	37	33	28	56	45	35	43	1	8.25	1.00	9.98
1	bottom	12/15/93	1333079	53	41	34	48	58	19	58	29	38	36	41	1	8.00	1.00	12.83
1	bottom	12/15/93	1366332	46	30	37	49	32	45	44	33	41	42	40	1	8.25	1.00	6.54

Lake Whatcom total bacteria counts (October ,1993 - September 1994) .

Site	Depth	Date	Cells/mL	Field 1	Field 2	Field 3	Field 4	Field 5	Field 6	Field 7	Field 8	Field 9	Field 10	Avg	Field Portion	Filter Radius	Sample mL	Count Dev
Intake	surface	12/15/93	1149539	44	24	41	43	37	29	31	32	28	48	36	1	8.00	1.00	8.03
Intake	surface	12/15/93	1130049	37	38	33	21	27	33	39	40	26	36	33	1	8.25	1.00	6.36
Intake	bottom	12/15/93	1432899	45	46	40	47	41	34	42	49	55	46	45	1	8.00	1.00	5.68
Intake	bottom	12/15/93	1164293	24	32	43	32	40	29	46	41	37	16	34	1	8.25	1.00	9.29
2	surface	12/15/93	1204279	43	34	39	40	31	37	38	41	27	44	37	1	8.00	1.00	5.36
2	surface	12/15/93	1633435	49	46	42	49	61	46	51	49	37	47	48	1	8.25	1.00	6.20
2	bottom	12/15/93	1526278	64	42	54	49	41	20	46	53	51	54	47	1	8.00	1.00	11.70
2	bottom	12/15/93	1290995	42	20	43	47	42	44	26	33	42	38	38	1	8.25	1.00	8.71
3	surface	12/15/93	1320199	42	44	40	32	50	49	52	35	31	35	41	1	8.00	1.00	7.67
3	surface	12/15/93	969103	20	31	31	37	26	33	25	22	29	29	28	1	8.25	1.00	5.14
3	bottom	12/15/93	1011079	26	11	45	32	38	54	5	45	23	35	31	1	8.00	1.00	15.46
3	bottom	12/15/93	1037591	31	35	34	34	27	26	24	36	31	25	30	1	8.25	1.00	4.47
4	surface	12/15/93	1313759	48	43	52	39	12	46	45	38	42	43	41	1	8.00	1.00	10.92
4	surface	12/15/93	1157444	31	36	25	27	24	39	41	39	37	39	34	1	8.25	1.00	6.46
4	bottom	12/15/93	1323419	39	40	44	21	53	50	47	30	43	44	41	1	8.00	1.00	9.48
4	bottom	12/15/93	634339	15	21	16	18	12	26	25	27	15	22	20	1	8.00	1.00	5.25
1	bottom	02/14/94	589259	11	21	12	19	18	20	25	21	16	20	18	1	8.00	1.00	4.27
1	surface	02/14/94	1056159	45	18	38	28	24	36	27	25	44	43	33	1	8.00	1.00	9.60
1	surface	02/14/94	1486186	28	40	60	52	49	20	53	52	39	41	43	1	8.25	1.00	12.33
Intake	surface	02/14/94	830759	32	9	23	34	26	43	30	17	27	17	26	1	8.00	1.00	9.81
Intake	surface	02/14/94	1160869	23	35	22	36	26	47	32	41	31	46	34	1	8.25	1.00	8.88
Intake	bottom	02/14/94	956339	42	43	32	26	21	20	36	32	22	23	30	1	8.00	1.00	8.60
Intake	bottom	02/14/94	1160869	28	38	45	27	42	25	45	42	20	27	34	1	8.25	1.00	9.41
2	surface	02/14/94	830759	19	32	11	40	35	21	25	26	25	24	26	1	8.00	1.00	8.28
2	surface	02/14/94	1249903	40	40	43	28	47	31	55	19	36	26	37	1	8.25	1.00	10.74
2	bottom	02/14/94	920919	20	26	33	35	18	38	14	36	29	37	29	1	8.00	1.00	8.69
2	bottom	02/14/94	1465639	22	23	64	86	78	40	33	18	42	22	43	1	8.25	1.00	24.79
3	surface	02/14/94	869399	16	43	34	36	34	18	27	20	31	11	27	1	8.00	1.00	10.32
3	surface	02/14/94	1126625	36	40	64	25	42	50	11	31	13	17	33	1	8.25	1.00	16.99
3	bottom	02/14/94	972439	31	8	22	36	35	33	45	34	28	30	30	1	8.00	1.00	9.80
3	bottom	02/14/94	1181415	27	41	34	39	30	28	23	43	47	33	35	1	8.25	1.00	7.78
4	surface	02/14/94	985319	26	31	30	37	28	24	37	38	28	27	31	1	8.00	1.00	5.04
4	surface	02/14/94	1359483	36	52	45	55	10	18	17	60	55	49	40	1	8.25	1.00	18.34
4	bottom	02/14/94	1043279	30	27	23	16	35	44	42	27	38	42	32	1	8.00	1.00	9.30
4	bottom	02/14/94	1633435	56	33	7	31	55	61	63	57	61	53	48	1	8.25	1.00	18.18
Smith	surface	02/16/94	511979	16	12	15	17	17	22	17	18	15	10	16	1	8.00	1.00	3.28

Lake Whatcom total bacteria counts (October ,1993 - September 1994) .

Site	Depth	Date	Cells/mL	Field 1	Field 2	Field 3	Field 4	Field 5	Field 6	Field 7	Field 8	Field 9	Field 10	Avg	Field Portion	Filter Radius	Sample mL	Count Dev
Smith	surface	02/16/94	845825	25	24	27	27	30	21	33	11	30	19	25	1	8.25	1.00	6.41
Silver B.	surface	02/16/94	1384599	31	44	58	51	49	44	23	41	49	40	43	1	8.00	1.00	10.11
Silver B.	surface	02/16/94	1342361	55	40	31	44	36	45	30	30	38	43	39	1	8.25	1.00	7.96
Park Pl.	surface	02/16/94	1194619	43	49	26	49	47	40	31	28	21	37	37	1	8.00	1.00	10.15
Park Pl.	surface	02/16/94	1410849	45	36	44	46	49	39	42	38	46	27	41	1	8.25	1.00	6.44
Blue C.	surface	02/16/94	386400	9	18	12	13	15	11	16	8	9	9	12	1	8.00	1.00	3.43
Blue C.	surface	02/16/94	558176	10	14	14	13	20	29	17	15	18	13	16	1	8.25	1.00	5.29
Wildwd	surface	02/16/94	405720	21	5	9	20	7	10	19	18	10	7	13	1	8.00	1.00	6.17
Wildwd	surface	02/16/94	431473	9	12	14	17	13	10	11	9	17	14	13	1	8.25	1.00	2.95
Austin	surface	02/16/94	624679	17	10	17	22	10	22	29	17	26	24	19	1	8.00	1.00	6.36
Austin	surface	02/16/94	784186	21	13	23	12	31	30	30	19	32	18	23	1	8.25	1.00	7.52
1	surface	04/05/94	798559	10	10	11	42	46	30	18	37	18	26	25	1	8.00	1.00	13.51
1	surface	04/05/94	1013620	37	35	33	28	13	35	32	36	27	20	30	1	8.25	1.00	7.81
1	bottom	04/05/94	991759	28	34	24	32	41	22	37	28	30	32	31	1	8.00	1.00	5.73
1	bottom	04/05/94	801308	24	8	32	32	28	29	25	31	16	9	23	1	8.25	1.00	9.19
Intake	surface	04/05/94	714839	46	17	18	17	29	19	25	22	14	15	22	1	8.00	1.00	9.55
Intake	surface	04/05/94	955405	34	29	33	12	18	31	21	22	39	40	28	1	8.25	1.00	9.29
Intake	bottom	04/05/94	1223599	44	36	26	15	45	11	48	61	62	32	38	1	8.00	1.00	17.42
Intake	bottom	04/05/94	921161	26	11	24	34	36	31	23	23	41	20	27	1	8.25	1.00	8.75
2	surface	04/05/94	1201059	48	51	35	20	29	37	32	53	22	46	37	1	8.00	1.00	11.83
2	surface	04/05/94	1003347	37	37	32	26	33	24	20	18	39	27	29	1	8.25	1.00	7.39
2	bottom	04/05/94	1188179	32	39	39	47	32	49	16	18	50	47	37	1	8.00	1.00	12.35
2	bottom	04/05/94	1222508	28	34	44	35	40	39	23	39	38	37	36	1	8.25	1.00	6.15
3	surface	04/05/94	1320199	44	31	38	46	42	33	56	17	51	52	41	1	8.00	1.00	11.69
3	surface	04/05/94	1294420	27	21	28	37	36	49	47	39	50	44	38	1	8.25	1.00	9.99
3	bottom	04/05/94	1049719	38	40	30	23	31	36	28	34	27	39	33	1	8.00	1.00	5.70
3	bottom	04/05/94	1020469	31	29	23	37	29	31	33	25	31	29	30	1	8.25	1.00	3.91
4	surface	04/05/94	1062599	51	16	48	41	15	17	21	38	32	51	33	1	8.00	1.00	14.82
4	surface	04/05/94	770488	34	15	13	24	30	12	24	23	21	29	23	1	8.25	1.00	7.41
4	bottom	04/05/94	904819	29	12	23	30	36	37	20	16	36	42	28	1	8.00	1.00	9.99
4	bottom	04/05/94	928010	27	29	11	28	31	26	23	33	35	28	27	1	8.25	1.00	6.62
1	surface	06/07/94	1323419	55	37	23	37	36	23	46	56	51	47	41	1	8.00	1.00	11.96
1	surface	06/07/94	1260176	47	28	38	42	18	36	34	33	50	42	37	1	8.25	1.00	9.35
1	bottom	06/07/94	1281559	51	54	52	39	40	10	37	41	40	34	40	1	8.00	1.00	12.51
1	bottom	06/07/94	1349210	45	38	40	33	51	38	41	35	35	38	39	1	8.25	1.00	5.32
Intake	surface	06/07/94	1181739	37	47	53	21	14	37	47	39	29	43	37	1	8.00	1.00	12.22

Lake Whatcom total bacteria counts (October ,1993 - September 1994) .

Site	Depth	Date	Cells/mL	Field 1	Field 2	Field 3	Field 4	Field 5	Field 6	Field 7	Field 8	Field 9	Field 10	Avg	Field Portion	Filter Radius	Sample mL	Count Dev
Intake	surface	06/07/94	1013620	23	35	35	40	29	28	12	21	36	37	30	1	8.25	1.00	8.77
Intake	bottom	06/07/94	1078699	33	38	32	22	37	38	35	27	36	37	34	1	8.00	1.00	5.28
Intake	bottom	06/07/94	1030742	14	6	30	43	40	39	28	39	22	40	30	1	8.25	1.00	12.61
2	surface	06/07/94	846859	24	28	30	20	25	23	17	37	33	26	26	1	8.00	1.00	5.96
2	surface	06/07/94	715698	32	16	23	14	18	19	27	11	25	24	21	1	8.25	1.00	6.44
2	bottom	06/07/94	1078699	25	43	34	40	22	28	34	41	43	25	34	1	8.00	1.00	8.07
2	bottom	06/07/94	1147171	31	52	28	11	30	40	16	41	41	45	34	1	8.25	1.00	12.87
3	surface	06/07/94	859739	17	26	23	23	22	31	29	29	30	37	27	1	8.00	1.00	5.68
3	surface	06/07/94	849249	26	19	36	22	8	33	20	22	32	30	25	1	8.25	1.00	8.35
3	bottom	06/07/94	830759	24	23	29	23	28	33	29	20	21	28	26	1	8.00	1.00	4.18
3	bottom	06/07/94	862947	29	29	31	18	21	14	22	19	38	31	25	1	8.25	1.00	7.48
4	surface	06/07/94	1075479	36	38	38	30	34	28	29	34	27	40	33	1	8.00	1.00	4.65
4	surface	06/07/94	999922	27	32	36	28	31	15	24	26	29	44	29	1	8.25	1.00	7.61
4	bottom	06/07/94	920919	34	32	37	17	26	30	15	30	33	32	29	1	8.00	1.00	7.24
4	bottom	06/07/94	787610	16	16	19	19	32	28	23	23	29	25	23	1	8.25	1.00	5.54
1	surface	07/06/94	410550	25	18	21	36	28	10	28	33	38	18	26	1	8.00	2.00	8.87
1	surface	07/06/94	645498	23	33	41	36	26	30	33	49	54	52	38	1	8.25	2.00	10.89
1	bottom	07/06/94	1098019	35	22	45	35	30	33	31	23	44	43	34	0.5	8.00	2.00	8.13
1	bottom	07/06/94	746517	32	41	39	51	50	45	43	54	35	46	44	1	8.25	2.00	7.06
Intake	surface	07/06/94	1101239	34	31	26	42	43	36	39	24	31	36	34	0.5	8.00	2.00	6.32
Intake	surface	07/06/94	1058137	38	22	31	17	23	42	30	37	36	33	31	0.5	8.25	2.00	8.01
Intake	bottom	07/06/94	991759	40	21	37	20	24	33	34	32	40	27	31	0.5	8.00	2.00	7.44
Intake	bottom	07/06/94	1054712	34	26	32	31	26	33	29	29	41	27	31	0.5	8.25	2.00	4.57
2	surface	07/06/94	544179	20	32	35	19	38	37	25	42	66	24	34	1	8.00	2.00	13.82
2	surface	07/06/94	734532	36	45	24	55	47	30	13	75	46	58	43	1	8.25	2.00	17.95
2	bottom	07/06/94	953119	61	69	62	54	63	64	63	47	52	57	59	1	8.00	2.00	6.60
2	bottom	07/06/94	1332088	50	29	30	45	34	37	38	63	34	29	39	0.5	8.25	2.00	10.90
3	surface	07/06/94	924139	32	29	30	23	28	29	34	27	42	13	29	0.5	8.00	2.00	7.45
3	surface	07/06/94	803020	51	34	46	31	53	40	44	50	56	64	47	1	8.25	2.00	10.08
3	bottom	07/06/94	624679	43	43	27	37	31	40	54	48	37	28	39	1	8.00	2.00	8.66
3	bottom	07/06/94	638649	54	34	36	34	34	30	50	46	32	23	37	1	8.25	2.00	9.64
4	surface	07/06/94	676199	43	55	34	43	37	41	42	31	48	46	42	1	8.00	2.00	6.94
4	surface	07/06/94	698576	42	39	40	34	43	42	40	42	38	48	41	1	8.25	2.00	3.65
4	bottom	07/06/94	423430	20	31	26	34	24	22	30	33	16	27	26	1	8.00	2.00	5.87
4		07/06/94	563499	55	43	24	54	40	17	28	33	31	25	35	1	8.00	2.00	12.75
Smith		07/19/94	144900	17	12	17	8	14	11	6	24	15	11	14	1	8.00	3.00	5.15

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Site	Depth	Date	Cells/mL	Field 1	Field 2	Field 3	Field 4	Field 5	Field 6	Field 7	Field 8	Field 9	Field 10	Avg	Field Portion	Filter Radius	Sample mL	Count Dev
Smith		07/19/94	179210	15	21	19	16	17	11	13	15	16	14	16	1	8.25	3.00	2.87
Silver B.		07/19/94	452946	24	29	26	22	23	24	21	19	8	15	21	0.5	8.00	3.00	5.97
Silver B.		07/19/94	604976	31	28	26	30	28	27	24	25	25	21	27	0.5	8.25	3.00	2.95
Park Pl.		07/19/94	2196038	50	38	34	24	42	25	42	21	34	31	34	0.5	8.00	1.00	9.18
Park Pl.		07/19/94	2054358	47	18	46	39	29	18	45	19	39	19	32	0.5	8.00	1.00	12.59
Blue C.		07/19/94	336490	29	15	18	14	18	29	23	22	22	19	21	1	8.00	2.00	5.17
Blue C.		07/19/94	362250	23	19	19	29	19	26	34	11	31	14	23	1	8.00	2.00	7.46
Wildwd		07/19/94	194810	24	22	23	32	15	26	30	22	29	19	24	1	8.00	4.00	5.20
Wildwd		07/19/94	235060	17	33	24	23	34	44	31	22	35	29	29	1	8.00	4.00	7.89
Austin		07/19/94	573159	38	37	22	32	18	15	32	36	20	17	27	0.5	8.00	3.00	9.13
Austin		07/19/94	579864	23	35	19	34	26	23	20	20	22	32	25	0.5	8.25	3.00	6.08
1	surface	08/02/94	965999	38	40	36	21	32	26	21	34	29	23	30	1	8.00	1.00	7.06
1	surface	08/02/94	808156	32	24	14	21	28	28	23	28	23	15	24	1	8.25	1.00	5.80
1	bottom	08/02/94	1368499	50	50	40	21	51	48	36	40	45	44	43	1	8.00	1.00	9.07
1	bottom	08/02/94	1088956	33	35	29	39	37	9	29	13	35	59	32	1	8.25	1.00	13.86
Intake	surface	08/02/94	840419	36	31	28	32	20	30	20	23	18	23	26	1	8.00	1.00	6.10
Intake	surface	08/02/94	958830	30	33	25	25	27	31	34	24	27	24	28	1	8.25	1.00	3.74
Intake	bottom	08/02/94	959559	43	15	31	36	29	34	15	30	32	33	30	1	8.00	1.00	8.73
Intake	bottom	08/02/94	825278	12	29	22	31	32	23	20	21	22	29	24	1	8.25	1.00	6.15
2	surface	08/02/94	1023959	31	33	35	19	36	34	34	38	32	26	32	1	8.00	1.00	5.53
2	surface	08/02/94	739668	23	22	24	19	18	12	25	22	28	23	22	1	8.25	1.00	4.40
2	bottom	08/02/94	1162419	28	32	32	41	45	43	39	28	26	47	36	1	8.00	1.00	7.78
2	bottom	08/02/94	1321815	33	29	39	44	29	23	19	60	63	47	39	1	8.25	1.00	14.89
3	surface	08/02/94	804999	26	20	29	33	27	23	26	25	22	19	25	1	8.00	1.00	4.22
3	surface	08/02/94	749942	28	16	18	21	30	23	20	20	17	26	22	1	8.25	1.00	4.75
4	surface	08/02/94	827539	23	24	20	21	25	34	22	28	32	28	26	1	8.00	1.00	4.69
4	surface	08/02/94	671181	21	15	21	21	23	15	21	20	22	17	20	1	8.25	1.00	2.88
4	bottom	08/02/94	666539	24	15	25	21	22	20	10	14	28	28	21	1	8.00	1.00	6.06
4	bottom	08/02/94	660907	23	22	13	17	17	19	31	17	20	14	19	1	8.25	1.00	5.19
1	surface	09/06/94	866179	17	17	44	20	39	21	33	30	16	32	27	1	8.00	1.00	10.05
1	surface	09/06/94	1469064	44	36	40	33	53	49	51	50	43	30	43	1	8.25	1.00	8.01
1	bottom	09/06/94	1033619	27	45	36	21	31	32	50	22	33	24	32	1	8.00	1.00	9.55
1	bottom	09/06/94	1068410	20	34	34	32	33	27	34	33	32	33	31	1	8.25	1.00	4.44
Intake	surface	09/06/94	1027179	28	40	35	25	32	36	31	28	37	27	32	1	8.00	1.00	4.95
Intake	surface	09/06/94	1088956	30	27	33	33	41	34	29	25	34	32	32	1	8.25	1.00	4.44
Intake	bottom	09/06/94	1098019	46	26	32	24	27	24	43	24	40	55	34	1	8.00	1.00	11.15

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Site	Depth	Date	Cells/mL	Field 1	Field 2	Field 3	Field 4	Field 5	Field 6	Field 7	Field 8	Field 9	Field 10	Avg	Field Portion	Filter Radius	Sample mL	Count Dev
Intake	bottom	09/06/94	1020469	33	33	34	23	29	32	17	28	35	34	30	1	8.25	1.00	5.79
2	surface	09/06/94	924139	34	26	25	30	33	42	13	23	32	29	29	1	8.00	1.00	7.72
2	surface	09/06/94	1058137	36	39	30	32	27	31	24	37	29	24	31	1	8.25	1.00	5.22
2	bottom	09/06/94	1320199	43	35	35	38	52	41	49	44	36	37	41	1	8.00	1.00	5.96
2	bottom	09/06/94	1051288	28	30	18	25	37	32	40	36	33	28	31	1	8.25	1.00	6.41
3	surface	09/06/94	1033619	39	45	24	34	28	30	30	32	28	31	32	1	8.00	1.00	6.03
3	surface	09/06/94	999922	30	22	30	26	28	23	36	32	36	29	29	1	8.25	1.00	4.76
3	bottom	09/06/94	734159	31	27	24	26	27	11	14	25	17	26	23	1	8.00	1.00	6.49
3	bottom	09/06/94	996498	34	27	32	24	25	27	34	25	30	33	29	1	8.25	1.00	3.96
4	surface	09/06/94	1162419	47	20	28	40	36	49	47	33	23	38	36	1	8.00	1.00	10.16
4	surface	09/06/94	975951	25	33	37	40	25	34	18	29	18	26	29	1	8.25	1.00	7.50
4	bottom	09/06/94	1130219	28	37	21	40	37	60	38	32	28	30	35	1	8.00	1.00	10.51
4	bottom	09/06/94	801308	27	23	26	20	30	10	18	19	32	29	23	1	8.25	1.00	6.74
1-1	surface	08/23/94	1394259	44	35	33	42	65	53	33	27	53	48	43	1	8.00	1.00	11.69
1-1	surface	08/23/94	1486186	48	42	49	48	44	48	42	43	39	31	43	1	8.25	1.00	5.50
1-1	bottom	08/23/94	1403919	46	58	47	28	43	51	39	62	48	14	44	1	8.00	1.00	14.06
1-1	bottom	08/23/94	1691649	46	50	43	54	43	39	58	52	58	51	49	1	8.25	1.00	6.50
1-2	surface	08/23/94	1803198	68	44	61	36	71	47	72	60	44	57	56	1	8.00	1.00	12.63
1-2	surface	08/23/94	1520430	51	48	42	45	43	41	45	53	38	38	44	1	8.25	1.00	5.08
1-2	bottom	08/23/94	1655078	58	45	59	49	50	58	47	36	58	54	51	1	8.00	1.00	7.46
1-2	bottom	08/23/94	1667678	42	51	39	53	54	56	39	58	52	43	49	1	8.25	1.00	7.21
1-3	surface	08/23/94	1555258	54	25	53	56	53	50	53	37	50	52	48	1	8.00	1.00	9.71
1-3	surface	08/23/94	1267025	37	45	34	36	38	28	38	39	34	41	37	1	8.25	1.00	4.55
1-3	bottom	08/23/94	1304099	46	29	34	47	38	50	50	17	49	45	41	1	8.00	1.00	10.95
1-3	bottom	08/23/94	1356059	33	41	40	35	46	40	36	41	42	42	40	1	8.25	1.00	3.86
1-4	surface	08/23/94	1043279	28	31	21	36	26	33	37	34	34	44	32	1	8.00	1.00	6.38
1-4	surface	08/23/94	1017044	29	31	28	27	26	27	35	40	29	25	30	1	8.25	1.00	4.60
1-4	bottom	08/23/94	917699	35	41	49	23	21	25	29	22	19	21	29	1	8.00	1.00	10.04
1-4	bottom	08/23/94	1325239	47	36	39	39	32	32	42	39	41	40	39	1	8.25	1.00	4.52
1-5	surface	08/23/94	1226819	58	38	51	33	45	20	36	23	51	26	38	1	8.00	1.00	12.95
1-5	surface	08/23/94	1537552	42	20	39	60	55	55	59	35	45	39	45	1	8.25	1.00	12.59
1-5	bottom	08/23/94	2031818	68	72	69	34	60	69	58	49	79	73	63	1	8.00	1.00	13.35
1-5	bottom	08/23/94	1609464	48	67	45	49	43	60	30	41	33	54	47	1	8.25	1.00	11.37
1-6	surface	08/23/94	1941658	69	43	68	47	62	63	51	78	51	71	60	1	8.00	1.00	11.65
1-6	surface	08/23/94	1715620	45	42	61	60	40	58	30	31	70	64	50	1	8.25	1.00	14.26
1-6	bottom	08/23/94	1941658	57	46	65	45	63	82	54	55	75	61	60	1	8.00	1.00	11.71

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Site	Depth	Date	Cells/mL	Field 1	Field 2	Field 3	Field 4	Field 5	Field 6	Field 7	Field 8	Field 9	Field 10	Avg	Field Portion	Filter Radius	Sample mL	Count Dev
1-6	bottom	08/23/94	1811503	53	65	49	46	33	52	54	58	61	58	53	1	8.25	1.00	8.97
1-7	surface	08/23/94	1632538	63	56	50	39	57	58	34	58	36	56	51	1	8.00	1.00	10.47
1-7	surface	08/23/94	1821776	50	40	52	86	47	48	34	56	57	62	53	1	8.25	1.00	14.12
1-7	bottom	08/23/94	3104077	37	52	57	54	51	35	27	56	62	51	48	0.5	8.00	1.00	11.26
1-7	bottom	08/23/94	1862869	48	51	63	65	56	49	52	75	64	21	54	1	8.25	1.00	14.56
1-8	surface	08/23/94	1861158	55	49	67	66	50	55	63	71	53	49	58	1	8.00	1.00	8.22
1-8	surface	08/23/94	1763561	39	57	48	40	48	64	61	57	50	51	52	1	8.25	1.00	8.32
1-8	bottom	08/23/94	1767778	58	61	76	54	31	66	73	37	46	47	55	1	8.00	1.00	14.82
1-8	bottom	08/23/94	1890264	54	52	67	53	49	60	58	52	55	52	55	1	8.25	1.00	5.22
1-9	surface	08/23/94	1632538	54	72	65	54	61	55	53	21	32	40	51	1	8.00	1.00	15.48
1-9	surface	08/23/94	1314966	39	29	37	29	33	43	45	35	54	40	38	1	8.25	1.00	7.68
1-10	surface	08/23/94	1729138	65	67	62	52	48	53	53	46	52	39	54	1	8.00	1.00	8.74
1-10	surface	08/23/94	1133473	29	39	35	33	37	32	34	27	31	34	33	1	8.25	1.00	3.57
1-10	bottom	08/23/94	1645418	69	49	46	59	48	50	47	47	43	53	51	1	8.00	1.00	7.65
1-10	bottom	08/23/94	1606039	53	35	47	33	42	54	50	54	49	52	47	1	8.25	1.00	7.72
1-11	surface	08/23/94	1532718	56	53	45	50	45	44	38	32	51	62	48	1	8.00	1.00	8.73
1-11	surface	08/23/94	1635758	58	50	34	54	51	61	44	54	47	55	51	1	8.00	1.00	7.73
1-11	bottom	08/23/94	1494079	48	37	43	44	51	39	43	43	51	65	46	1	8.00	1.00	7.99
1-11	bottom	08/23/94	1490859	50	46	54	45	52	43	37	46	44	46	46	1	8.00	1.00	4.83
1-12	surface	08/23/94	1539158	58	58	43	40	52	28	45	52	49	53	48	1	8.00	1.00	9.16
1-12	surface	08/23/94	1400576	36	44	46	44	42	44	37	37	34	45	41	1	8.25	1.00	4.41
1-12	bottom	08/23/94	1642198	51	52	63	33	43	49	56	43	51	69	51	1	8.00	1.00	10.27
1-12	bottom	08/23/94	1506732	28	38	48	40	51	43	59	51	36	46	44	1	8.25	1.00	8.92
1-13	surface	08/23/94	2009278	51	35	29	28	27	28	29	30	23	32	31	0.5	8.00	1.00	7.63
1-13	surface	08/23/94	1506732	42	28	48	45	55	45	42	42	47	46	44	1	8.25	1.00	6.83
1-13	bottom	08/23/94	1381379	49	49	56	20	33	48	27	60	27	60	43	1	8.00	1.00	14.85
1-13	bottom	08/23/94	1445093	49	37	47	31	48	50	52	37	34	37	42	1	8.25	1.00	7.70
2-1	surface	08/23/94	1130219	36	37	38	34	40	37	31	27	28	43	35	1	8.00	1.00	5.13
2-1	surface	08/23/94	1130049	26	33	36	27	32	38	34	37	36	31	33	1	8.25	1.00	4.08
2-1	bottom	08/23/94	1458659	48	39	44	49	35	51	44	46	53	44	45	1	8.00	1.00	5.42
2-1	bottom	08/23/94	1177991	40	23	41	43	43	34	29	24	30	37	34	1	8.25	1.00	7.57
2-2	surface	08/23/94	1155979	39	38	40	40	25	38	34	35	41	29	36	1	8.00	1.00	5.26
2-2	surface	08/23/94	1208810	21	39	35	40	35	37	35	35	31	45	35	1	8.25	1.00	6.29
2-2	bottom	08/23/94	1233259	44	40	38	34	17	38	43	28	50	51	38	1	8.00	1.00	10.19
2-2	bottom	08/23/94	986225	30	29	26	34	28	32	35	30	20	24	29	1	8.25	1.00	4.57
2-3	bottom	08/23/94	1152759	47	14	46	38	48	13	41	39	33	39	36	1	8.00	1.00	12.62

Lake Whatcom total bacteria counts (October ,1993 - September 1994) .

Site	Depth	Date	Cells/mL	Field 1	Field 2	Field 3	Field 4	Field 5	Field 6	Field 7	Field 8	Field 9	Field 10	Avg	Field Portion	Filter Radius	Sample mL	Count Dev
2-3	bottom	08/23/94	1099230	25	33	26	41	39	31	27	31	33	35	32	1	8.25	1.00	5.30
2-3	surface	08/23/94	959559	38	29	29	21	23	23	50	14	39	32	30	1	8.00	1.00	10.46
2-3	surface	08/23/94	917737	30	23	26	29	31	33	28	26	17	25	27	1	8.25	1.00	4.57
2-4	surface	08/23/94	927359	21	25	25	35	32	28	29	32	26	35	29	1	8.00	1.00	4.66
2-4	surface	08/23/94	996498	27	27	24	20	33	35	33	35	35	22	29	1	8.25	1.00	5.80
2-4	bottom	08/23/94	1271899	28	31	45	28	52	47	48	40	42	34	40	1	8.00	1.00	8.75
2-4	bottom	08/23/94	917737	30	25	27	30	24	23	21	29	27	32	27	1	8.25	1.00	3.52
2-5	surface	08/23/94	1162419	46	40	40	43	40	39	22	29	32	30	36	1	8.00	1.00	7.48
2-5	surface	08/23/94	835551	20	21	25	23	27	25	26	34	19	24	24	1	8.25	1.00	4.27
2-5	bottom	08/23/94	1056159	34	33	37	32	32	20	30	42	36	32	33	1	8.00	1.00	5.65
2-5	bottom	08/23/94	907464	22	37	23	26	33	26	28	23	21	26	27	1	8.25	1.00	5.06
2-6	surface	08/23/94	1197839	45	26	35	24	44	60	52	18	33	35	37	1	8.00	1.00	13.09
2-6	surface	08/23/94	945132	24	34	36	30	29	28	25	25	21	24	28	1	8.25	1.00	4.74
2-6	bottom	08/23/94	1201059	34	43	38	38	15	53	41	35	42	34	37	1	8.00	1.00	9.66
2-6	bottom	08/23/94	811581	28	17	30	17	28	12	14	25	35	31	24	1	8.25	1.00	8.03
2-7	surface	08/23/94	1442559	54	37	54	22	41	44	44	48	48	56	45	1	8.00	1.00	10.06
2-7	surface	08/23/94	1047864	25	26	25	32	35	38	38	39	23	25	31	1	8.25	1.00	6.45
2-7	bottom	08/23/94	1040059	35	39	33	22	36	21	40	27	24	46	32	1	8.00	1.00	8.46
2-7	bottom	08/23/94	1400576	35	47	47	47	44	46	35	36	41	31	41	1	8.25	1.00	6.14
2-8	surface	08/23/94	1210719	34	28	42	37	39	44	35	37	40	40	38	1	8.00	1.00	4.55
2-8	surface	08/23/94	1130049	35	31	44	30	28	29	31	32	34	36	33	1	8.25	1.00	4.64
2-8	bottom	08/23/94	1213939	38	44	38	41	43	49	28	24	38	34	38	1	8.00	1.00	7.47
2-8	bottom	08/23/94	1205386	40	37	22	32	37	42	34	31	41	36	35	1	8.25	1.00	5.90
2-9	surface	08/23/94	1123779	35	43	42	37	31	34	35	31	28	33	35	1	8.00	1.00	4.75
2-9	surface	08/23/94	962254	30	19	31	30	27	33	32	18	37	24	28	1	8.25	1.00	6.12
2-9	bottom	08/23/94	1069039	21	38	30	35	44	32	34	40	26	32	33	1	8.00	1.00	6.70
2-9	bottom	08/23/94	804732	25	20	19	18	23	20	29	29	26	26	24	1	8.25	1.00	4.09
2-10	surface	08/23/94	1278339	44	29	31	29	49	41	33	50	42	49	40	1	8.00	1.00	8.53
2-10	surface	08/23/94	1314966	26	30	36	44	44	35	39	53	41	36	38	1	8.25	1.00	7.68
2-10	bottom	08/23/94	1136659	37	23	42	47	37	38	38	22	22	47	35	1	8.00	1.00	9.68
2-10	bottom	08/23/94	797883	19	23	23	16	32	27	18	14	31	30	23	1	8.25	1.00	6.50
2-11	surface	08/23/94	1101239	19	37	42	35	41	45	30	44	34	15	34	1	8.00	1.00	10.25
2-11	surface	08/23/94	993073	32	36	32	25	30	20	30	26	34	25	29	1	8.25	1.00	4.90
2-11	bottom	08/23/94	1069039	34	41	22	32	30	35	43	32	33	30	33	1	8.00	1.00	5.87
2-11	bottom	08/23/94	1136898	35	15	35	40	37	42	35	30	25	38	33	1	8.25	1.00	8.02
0-10		08/23/94	1333079	41	50	25	32	52	36	40	63	38	37	41	1	8.00	1.00	10.92

Lake Whatcom total bacteria counts (October ,1993 - September 1994) .

Site	Depth	Date	Cells/mL	Field 1	Field 2	Field 3	Field 4	Field 5	Field 6	Field 7	Field 8	Field 9	Field 10	Avg	Field Portion	Filter Radius	Sample mL	Count Dev
0-10		08/23/94	2568293	27	42	43	40	26	37	39	45	32	44	38	0.5	8.25	1.00	6.92
0-1		08/22/94	1004639	20	33	45	25	11	33	38	38	34	35	31	1	8.00	1.00	9.91
0-1		08/22/94	969103	28	34	30	32	28	32	28	25	23	23	28	1	8.25	1.00	3.80
0-2		08/22/94	3915516	42	50	35	53	66	74	82	74	50	82	61	0.5	8.00	1.00	16.96
0-2		08/22/94	3150440	25	57	60	23	49	31	57	65	37	56	46	0.5	8.25	1.00	15.58
0-3		08/22/94	679419	28	26	27	22	20	12	21	16	20	19	21	1	8.00	1.00	4.98
0-3		08/22/94	397229	10	13	9	11	14	15	11	11	9	13	12	1	8.25	1.00	2.07
0-4		08/22/94	4527315	57	75	67	59	79	85	67	47	79	88	70	0.5	8.00	1.00	13.22
0-4		08/22/94	5287260	91	91	84	78	74	59	80	78	73	64	77	0.5	8.25	1.00	10.38
0-5		08/22/94	2331278	30	38	29	46	43	31	43	40	31	31	36	0.5	8.00	1.00	6.48
0-5		08/22/94	1835474	57	53	54	54	55	59	51	40	47	66	54	1	8.25	1.00	6.93
0-6		08/22/94	1725893	48	39	45	68	51	38	54	68	35	58	50	1	8.25	1.00	11.77

LAKE WHATCOM MONITORING
CONTRACT: 55811 1993/1994

Nearshore Bacteria Sample
Sample date: 8/22/94

Sample depths
Note: all stations had samples collected at surface (0.3 m)
and at depth specified

Station	Depth
Basin 1	(meters)
1-1	3.2
1-2	7
1-3	5.4
1-4	4.3
1-5	1.5
1-6	7.5
1-7	6.6
1-8	1.7
1-9	only surface
1-10	3.3
1-11	5.4
1-12	1.8
1-13	2.6
Basin 2	
2-1	1.5
2-2	4.8
2-3	6.4
2-4	5.5
2-5	10.2
2-6	2.3
2-7	2.7
2-8	5.2
2-9	2.0
2-10	3.0
2-11	3.0

City of Bellingham Laboratory
Membrane Filtration Results

Collection Date: 8/23/94 Sample Type: Lake Whatcom Nearshore (basin 1)

Sample	Colonies / 100 ml			Comments
	Total Coliform*	Fecal Coliform	Enterococcus	
1-1S	11/TNTC	3	2	numbers in total
1-1B	4/TNTC	<2	<2	coliform column
1-2S	5/TNTC	3	<2	are:
1-2B	9/TNTC	<2	<2	typ/atyp. colonies
1-3S	10/TNTC	2	<2	
1-3B	8/TNTC	7	3	
1-4S	2/TNTC	<2	<2	old site 9 (basin 2)
1-4B	3/TNTC	<2	<2	
1-5S	7/TNTC	6	3	
1-5B	9/TNTC	16	3	
1-6S	11/TNTC	<2	2	
1-6B	4/TNTC	<2	2	
1-7S	9/TNTC	2	<2	
1-7B	22/TNTC	4	4	
1-8S	13/TNTC	<2	2	
1-8B	6/TNTC	<2	<2	
1-9S	6/TNTC	3	15	
1-10S	18/TNTC	6	<2	
1-10B	14/TNTC	<2	<2	
1-11S	10/TNTC	3	<2	
1-11B	6/TNTC	3	2	
1-12S	6/1370	<2	<2	
1-12B	6/1225	5	<2	
1-13S	6/1271	4	<2	
1-13B	<6/867	<2	3	
Bloedel Swimming Area	448	100	15	collected 8/26

*Total coliform densities may have been compromised by plate crowding with atypical colonies

City of Bellingham Laboratory
Membrane Filtration Results

Collection Date: 8/23/94 Sample Type: Lake Whatcom Nearshore (basin2)

Sample	Colonies / 100 ml			Comments
	Total Coliform *	Fecal Coliform	Enterococcus	
2-1S	<2/TNTC	<2	<2	old site 8
2-1B	5/TNTC	<2	<2	
2-2S	<2/TNTC	<2	.<2	old site 7
2-2B	4/TNTC	<2	<2	
2-3S	3/92	<2	<2	old site 6
2-3B	<2/214	<2	<2	
2-4S	<2/231	<2	<2	old site 45
2-4B	3/TNTC	<2	<2	
2-5S	17/138	<2	<2	old site 28
2-5B	3/TNTC	<2	<2	
2-6S	3/TNTC	<2	<2	old site 27
2-6B	4 /TNTC	<2	<2	
2-7S	5 /TNTC	<2	<2	old site 26
2-7B	<2/TNTC	<2	<2	
2-8S	<2/TNTC	9	<2	old site 25
2-8B	6/TNTC	<2	<2	
2-9S	<2/TNTC	<2	<2	old site 24
2-9B	4/TNTC	<2	<2	
2-10S	<2 /TNTC	2	<2	old site 23
2-10B	<2/TNTC	<2	<2	
2-11S	<2/TNTC	<2	<2	old site 22
2-11B	<2/TNTC	<2	<2	

*Total coliform density for many sites may have been compromised by plate crowding

City of Bellingham Laboratory
Membrane Filtration Results

Collection Date: 8/22, 8/26/94 Sample Type: LW Stream Study [illegible]

Sample	Colonies / 100 ml			Comments
	Total Coliform*	Fecal Coliform	Enterococcus	
0-1 Silver Beach	74000	2400	3700	TC & Ent. 8/26
0-2 Park Place	<167/TNTC	330	11	TC & FC 8/26
0-3 Culver near Grand	500/TNTC	7	32	8/22/94
0-4 "Bob	TNTC	TNTC	TNTC	8/22/94
Condo Creek 0-4D	TNTC	<2	168	8/23/94

City of Bellingham Laboratory

Membrane Filtration Results

Collection Date: 8/22-8/23, 8/26 Sample Type: QA/QC LW Nearshore 1994

Sample	Colonies / 100 ml			Comments
	Total Coliform*	Fecal Coliform	Enterococcus	
FD1 @ 1-4S	4/TNTC	<2	<2	
1-4S	2/TNTC	<2	<2	
FD2 @ 1-9S	12/TNTC	<2	14	
1-9S	6/TNTC	3	15	
FD3 @ 1-13B	<6/867	2	<2	
1-13B	6/329	<2	3	
2-FD4 @ 2-4S	<2/777	<2	<2	
2-4S	<2/231	<2	<2	
LD 1-11S	13/TNTC	-	<2	
1-11S	10/TNTC	3	<2	
LD 2-2B	2/TNTC	<2	<2	
2-2B	<2/TNTC	<2	<2	
LD 2-10S	<2/TNTC	<2	<2	
2-FD5 @ 2-10S	-	<2	<2	
2-10S	<2/TNTC	2	<2	
FD @ 0-3	588/TNTC	4	41	
0-3	500/TNTC	7	32	

C AmTest Data Reports

ANALYSIS REPORT

AMTEST
AmTest Inc
Professional
Analytical
Services
14603 N.E. 87th St.
Redmond WA
98052
Fax: 206 883 3495
Tel: 206 885 1664

Western Washington University
Huxley College
ESC 518A
Bellingham, WA 98225
Attention: Michael Hilles

Date Received: 2/18/94
Date Reported: 3/ 8/94

WATER SAMPLES

AM TEST Identification Number 94-A004033
Client Identification CW1
Sampling Date 2/16/94

PARAMETER	RESULT	Q	D.L.
Total Metals			
Arsenic (mg/l)	< 0.03		0.03
Cadmium (mg/l)	< 0.002		0.002
Chromium (mg/l)	< 0.006		0.006
Copper (mg/l)	< 0.002		0.002
Iron (mg/l)	0.77		0.01
Mercury (mg/l)	< 0.01		0.01
Nickel (mg/l)	< 0.01		0.01
Lead (mg/l)	0.003		0.001
Zinc (mg/l)	0.019		0.002

ANALYSIS REPORT /

Western Washington University
Michael Hilles

Date Received: 2/18/94
Date Reported: 3/ 8/94

WATER SAMPLES

AM TEST Identification Number 94-A004034
Client Identification CW2
Sampling Date 2/16/94

PARAMETER	RESULT	Q	D.L.
Total Metals			
Arsenic (mg/l)	< 0.03		0.03
Cadmium (mg/l)	< 0.002		0.002
Chromium (mg/l)	< 0.006		0.006
Copper (mg/l)	< 0.002		0.002
Iron (mg/l)	1.7		0.01
Mercury (mg/l)	< 0.01		0.01
Nickel (mg/l)	< 0.01		0.01
Lead (mg/l)	0.002		0.001
Zinc (mg/l)	0.022		0.002

ANALYSIS REPORT / [illegible]

Western Washington University
Michael Hilles

Date Received: 2/18/94
Date Reported: 3/ 8/94

WATER SAMPLES

AM TEST Identification Number	94-A004035
Client Identification	CW3
Sampling Date	2/16/94

PARAMETER	RESULT	Q	D.L.
Total Metals			
Arsenic (mg/l)	< 0.03		0.03
Cadmium (mg/l)	0.010		0.002
Chromium (mg/l)	0.008		0.006
Copper (mg/l)	< 0.002		0.002
Iron (mg/l)	2.7		0.01
Mercury (mg/l)	< 0.01		0.01
Nickel (mg/l)	< 0.01		0.01
Lead (mg/l)	0.002		0.001
Zinc (mg/l)	0.026		0.002

ANALYSIS REPORT /

Western Washington University
Michael Hilles

Date Received: 2/18/94
Date Reported: 3/ 8/94

WATER SAMPLES

AM TEST Identification Number 94-A004036
Client Identification CW4
Sampling Date 2/16/94

PARAMETER	RESULT	Q	D.L.
Total Metals			
Arsenic (mg/l)	< 0.03		0.03
Cadmium (mg/l)	< 0.002		0.002
Chromium (mg/l)	< 0.006		0.006
Copper (mg/l)	< 0.002		0.002
Iron (mg/l)	0.07		0.01
Mercury (mg/l)	< 0.01		0.01
Nickel (mg/l)	< 0.01		0.01
Lead (mg/l)	0.002		0.001
Zinc (mg/l)	0.017		0.002

ANALYSIS REPORT / ѴVI▮⊃▮

Western Washington University
Michael Hilles

Date Received: 2/18/94
Date Reported: 3/ 8/94

WATER SAMPLES

AM TEST Identification Number 94-A004037
Client Identification CW5
Sampling Date 2/16/94

PARAMETER	RESULT	Q	D.L.
Total Metals			
Arsenic (mg/l)	< 0.03		0.03
Cadmium (mg/l)	< 0.002		0.002
Chromium (mg/l)	< 0.006		0.006
Copper (mg/l)	< 0.002		0.002
Iron (mg/l)	0.06		0.01
Mercury (mg/l)	< 0.01		0.01
Nickel (mg/l)	< 0.01		0.01
Lead (mg/l)	0.001		0.001
Zinc (mg/l)	0.023		0.002

ANALYSIS REPORT / \VI▮⊐I

Western Washington University
Michael Hilles

Date Received: 2/18/94
Date Reported: 3/ 8/94

WATER SAMPLES

AM TEST Identification Number 94-A004038
Client Identification CW6
Sampling Date 2/16/94

PARAMETER	RESULT	Q	D.L.
Total Metals			
Arsenic (mg/l)	< 0.03		0.03
Cadmium (mg/l)	< 0.002		0.002
Chromium (mg/l)	< 0.006		0.006
Copper (mg/l)	< 0.002		0.002
Iron (mg/l)	1.0		0.01
Mercury (mg/l)	< 0.01		0.01
Nickel (mg/l)	< 0.01		0.01
Lead (mg/l)	0.002		0.001
Zinc (mg/l)	0.018		0.002

ANALYSIS REPORT / [illegible]

Western Washington University
Michael Hilles

Date Received: 2/18/94
Date Reported: 3/ 8/94

WATER SAMPLES

AM TEST Identification Number 94-A004039
Client Identification CW FD
Sampling Date 2/16/94

PARAMETER	RESULT	Q	D.L.
Total Metals			
Arsenic (mg/l)	< 0.03		0.03
Cadmium (mg/l)	< 0.002		0.002
Chromium (mg/l)	< 0.006		0.006
Copper (mg/l)	< 0.002		0.002
Iron (mg/l)	0.09		0.01
Mercury (mg/l)	< 0.01		0.01
Nickel (mg/l)	< 0.01		0.01
Lead (mg/l)	0.001		0.001
Zinc (mg/l)	0.019		0.002

AMTEST
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Analytical
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14603 N.E. 87th St.
Redmond, WA
98052
Fax. 206 883 3495
Tel. 206 885 1664

METHODOLOGY REPORT

AM TEST ID 94-A004033
CLIENT ID CW1

MATRIX : Water
SAMPLED: 2/16/94

ANALYTE	UNITS	METHOD	METHOD REFERENCE	DETECTION LIMIT	DATE ANALYZED
Arsenic	mg/l	200.7	EPA	0.03	3/ 4/94
Cadmium	mg/l	200.7	EPA	0.002	3/ 4/94
Chromium	mg/l	200.7	EPA	0.006	3/ 4/94
Copper	mg/l	200.7	EPA	0.002	3/ 4/94
Iron	mg/l	200.7	EPA	0.01	3/ 4/94
Mercury	mg/l	200.7	EPA	0.01	3/ 4/94
Nickel	mg/l	200.7	EPA	0.01	3/ 4/94
Lead	mg/l	239.2	EPA	0.001	3/ 7/94
Zinc	mg/l	200.7	EPA	0.002	3/ 4/94
Acid Dig.(Tot Metals)		3010	EPA		2/25/94

SM = Standards Methods for the Examination of Water and Wastewater 18th ed.
SW-846 = Test Methods for Evaluating Solid Waste Physical/Chemical Methods
EPA = Methods for Chemical Analysis of Water and Wastes 1983

MAR/11/1994

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Western Washington University
Huxley College
Michael Hilles

Date Received: 02/18/93
Date Reported: 03/08/93

QUALITY CONTROL - METALS IN WATER - METHOD BLANKS
PLASMA SPECTROGRAPHIC ANALYSES BY EPA METHOD 200.7

AM TEST Sample Numbers		BLANK #1	BLANK #2	
Client Identification		--------	--------	
ELEMENTS		RESULTS (mg/l)		DETECTION LIMITS (mg/l)
Silver	Ag	ND	ND	0.010
Aluminum	Al	0.06	0.03	0.01
Arsenic	As	ND	ND	0.03
Boron	B	ND	ND	0.10
Barium	Ba	ND	ND	0.003
Beryllium	Be	ND	ND	0.007
Calcium	Ca	ND	ND	0.10
Cadmium	Cd	ND	ND	0.002
Cobalt	Co	ND	ND	0.003
Chromium	Cr	ND	ND	0.006
Copper	Cu	ND	ND	0.002
Iron	Fe	0.01	ND	0.01
Mercury	Hg	ND	ND	0.01
Potassium	K	ND	ND	1.0
Lithium	Li	ND	ND	0.02
Magnesium	Mg	ND	ND	0.10
Manganese	Mn	ND	ND	0.002
Molybdenum	Mo	ND	ND	0.01
Sodium	Na	ND	ND	0.50
Nickel	Ni	ND	ND	0.01
Phosphorus	P	ND	ND	0.05
Lead	Pb	ND	ND	0.02
Sulfur	S	ND	ND	0.1
Antimony	Sb	ND	ND	0.02
Selenium	Se	ND	ND	0.03
Silicon	Si	0.60	0.21	0.10
Tin	Sn	ND	ND	0.02
Strontium	Sr	ND	ND	0.003
Titanium	Ti	ND	ND	0.01
Thallium	Tl	ND	ND	0.03
Vanadium	V	ND	ND	0.002
Yttrium	Y	ND	ND	0.001
Zinc	Zn	ND	0.002	0.002

ND = Not Detected

Western Washington University
Huxley College
Michael Hilles

Date Received: 02/18/93
Date Reported: 03/08/93

QUALITY CONTROL - DUPLICATES - METALS BY EPA METHOD 200.7

AM TEST Sample Number 94-A004033
Client Identification CW1

ELEMENTS		SAMPLE VALUE (mg/l)	DUPLICATE VALUE (mg/l)	RELATIVE PERCENT DIFFERENCE (%)
Arsenic	As	<0.03	<0.03	-
Cadmium	Cd	<0.002	<0.002	-
Chromium	Cr	<0.006	<0.006	-
Copper	Cu	<0.002	<0.002	-
Iron	Fe	0.77	0.72	6.71
Nickel	Ni	<0.01	<0.01	-
Zinc	Zn	0.019	0.018	5.41

< = less than

MAR/11/1994

Western Washington University
Huxley College
Michael Hilles

Date Received: 02/18/93
Date Reported: 03/08/93

QUALITY CONTROL - SPIKE RECOVERIES
METALS BY EPA METHOD 200.7

AM TEST Sample Number 94-A004034
Client Identification CW2

ELEMENTS		SAMPLE VALUE (mg/l)	SAMPLE + SPIKE (mg/l)	SPIKE ADDED (mg/l)	RECOVERY (%)
Arsenic	As	<0.03	0.5	0.5	100.0
Cadmium	Cd	<0.002	0.507	0.500	101.4
Chromium	Cr	<0.006	0.97	0.99	98.0
Copper	Cu	<0.002	0.97	0.94	103.2
Iron	Fe	1.7	2.1	0.5	80.0
Nickel	Ni	<0.01	0.97	0.93	104.3
Zinc	Zn	0.022	1.0	0.95	102.9

< = less than

REPORTED BY Kathy Fugiel

KF/pb

AM TEST

Professional
Analytical
Services

14603 N.E. 87th St
Redmond, WA
98052

Fax 206 883 3495

Tel. 206 885 1664

3/ 8/94

Western Washington University
Huxley College
ESC 518A
Bellingham, WA 98225
Attention: Michael Hilles

Dear Michael Hilles:

Enclosed please find the analytical data for your project.

The following is a cross correlation of client and laboratory identification for your convenience.

CLIENT ID	MATRIX	AM TEST ID	TEST
CW1	Water	94-A004033	MET,
CW2	Water	94-A004034	MET,
CW3	Water	94-A004035	MET,
CW4	Water	94-A004036	MET,
CW5	Water	94-A004037	MET,
CW6	Water	94-A004038	MET,
CW FD	Water	94-A004039	MET,

Your seven (7) samples were received at AM TEST on 2/18/94.

At the time of receipt, the samples were logged in and properly maintained prior to subsequent analyses.

The analytical procedures used in the laboratory are well documented and are typically derived from the protocols of the EPA, USDA, FDA or the Army Corps of Engineers.

If you should have any questions pertaining to the data package, please feel free to contact me.

Sincerely,

Kathy Fugiel
Director of Inorganic Laboratory

BACT = Bacteriological
CONV = Conventionals
MET = Metals
ORG = Organics

ANALYSIS REPORT

Western Washington University
Huxley College
ESC 518A
Bellingham, WA 98225-9180
Attention: Michael Hilles

Date Received: 9/ 9/94
Date Reported: 9/22/94

Project Name: Lake Whatcom
Project #: 55811
Date Sampled: 9/ 6/94

Water Samples

PARAMETER	UNITS	RESULT
94-A016887		
Client ID: LW11-0		
METALS		
Arsenic	mg/l	< 0.03
Cadmium	mg/l	< 0.002
Chromium	mg/l	< 0.006
Copper	mg/l	0.006
Iron	mg/l	0.03
Mercury	mg/l	< 0.01
Nickel	mg/l	< 0.01
Lead	mg/l	< 0.001
Zinc	mg/l	0.003
94-A016888		
Client ID: LW11-20		
METALS		
Arsenic	mg/l	< 0.03
Cadmium	mg/l	< 0.002
Chromium	mg/l	< 0.006
Copper	mg/l	0.006
Iron	mg/l	0.91
Mercury	mg/l	< 0.01
Nickel	mg/l	< 0.01
Lead	mg/l	< 0.001
Zinc	mg/l	0.002

ANALYSIS REPORT

Western Washington University
Attention: Michael Hilles

Date Received: 9/ 9/94
Date Reported: 9/22/94

Water Samples

PARAMETER	UNITS	RESULT
94-A016889		
Client ID: LW21-0		
METALS		
Arsenic	mg/l	< 0.03
Cadmium	mg/l	< 0.002
Chromium	mg/l	< 0.006
Copper	mg/l	0.008
Iron	mg/l	0.03
Mercury	mg/l	< 0.01
Nickel	mg/l	< 0.01
Lead	mg/l	< 0.001
Zinc	mg/l	< 0.002
94-A016890		
Client ID: LW21-10		
METALS		
Arsenic	mg/l	< 0.03
Cadmium	mg/l	< 0.002
Chromium	mg/l	< 0.006
Copper	mg/l	0.006
Iron	mg/l	< 0.01
Mercury	mg/l	< 0.01
Nickel	mg/l	< 0.01
Lead	mg/l	< 0.001
Zinc	mg/l	0.011
94-A016891		
Client ID: LW22-0		
METALS		
Arsenic	mg/l	< 0.03
Cadmium	mg/l	< 0.002
Chromium	mg/l	< 0.006
Copper	mg/l	0.004
Iron	mg/l	< 0.01
Mercury	mg/l	< 0.01
Nickel	mg/l	< 0.01
Lead	mg/l	< 0.001
Zinc	mg/l	< 0.002

AMTEST

ANALYSIS REPORT

Western Washington University

Date Received: 9/ 9/94
Date Reported: 9/22/94

Attention: Michael Hilles

Water Samples

PARAMETER	UNITS	RESULT
94-A016892		
Client ID: LW22-20		
METALS		
Arsenic	mg/l	< 0.03
Cadmium	mg/l	0.003
Chromium	mg/l	< 0.006
Copper	mg/l	0.004
Iron	mg/l	0.29
Mercury	mg/l	< 0.01
Nickel	mg/l	< 0.01
Lead	mg/l	< 0.001
Zinc	mg/l	< 0.002
94-A016893		
Client ID: LW31-0		
METALS		
Arsenic	mg/l	< 0.03
Cadmium	mg/l	< 0.002
Chromium	mg/l	< 0.006
Copper	mg/l	0.012
Iron	mg/l	0.01
Mercury	mg/l	< 0.01
Nickel	mg/l	< 0.01
Lead	mg/l	< 0.001
Zinc	mg/l	0.012
94-A016894		
Client ID: LW31-80		
METALS		
Arsenic	mg/l	< 0.03
Cadmium	mg/l	0.003
Chromium	mg/l	< 0.006
Copper	mg/l	0.005
Iron	mg/l	0.02
Mercury	mg/l	< 0.01
Nickel	mg/l	< 0.01
Lead	mg/l	< 0.001
Zinc	mg/l	< 0.002

ANALYSIS REPORT

Western Washington University

Date Received: 9/ 9/94
Date Reported: 9/22/94

Attention: Michael Hilles

Water Samples

PARAMETER	UNITS	RESULT
94-A016895		
Client ID: LW32-0		
METALS		
Arsenic	mg/l	< 0.03
Cadmium	mg/l	< 0.002
Chromium	mg/l	< 0.006
Copper	mg/l	0.003
Iron	mg/l	< 0.01
Mercury	mg/l	< 0.01
Nickel	mg/l	< 0.01
Lead	mg/l	< 0.001
Zinc	mg/l	< 0.002
94-A016896		
Client ID: LW32-90		
METALS		
Arsenic	mg/l	< 0.03
Cadmium	mg/l	0.003
Chromium	mg/l	< 0.006
Copper	mg/l	0.005
Iron	mg/l	0.03
Mercury	mg/l	< 0.01
Nickel	mg/l	< 0.01
Lead	mg/l	< 0.001
Zinc	mg/l	0.002
94-A016897		
Client ID: LWFD1		
METALS		
Arsenic	mg/l	0.04
Cadmium	mg/l	0.002
Chromium	mg/l	< 0.006
Copper	mg/l	0.006
Iron	mg/l	< 0.01
Mercury	mg/l	< 0.01
Nickel	mg/l	< 0.01
Lead	mg/l	< 0.001
Zinc	mg/l	< 0.002

Reported by:

AmTest Inc
Professional Analytical Services

14603 N.E. 87th St.
Redmond, WA
98052

Fax: 206 883 3495

Tel: 206 885 1664

METHODOLOGY REPORT

AM TEST ID 94-A016887
CLIENT ID LW11-0

MATRIX : Water
SAMPLED: 9/ 6/94

ANALYTE	UNITS	METHOD NUMBER	METHOD REFERENCE	DETECTION LIMIT *	DATE OF ANALYSIS
Arsenic	mg/l	200.7	EPA	0.03	9/19/94
Cadmium	mg/l	200.7	EPA	0.002	9/19/94
Chromium	mg/l	200.7	EPA	0.006	9/19/94
Copper	mg/l	200.7	EPA	0.002	9/19/94
Iron	mg/l	200.7	EPA	0.01	9/19/94
Mercury	mg/l	200.7	EPA	0.01	9/19/94
Nickel	mg/l	200.7	EPA	0.01	9/19/94
Lead	mg/l	239.2	EPA	0.001	9/20/94
Zinc	mg/l	200.7	EPA	0.002	9/19/94
Acid Dig.(Tot Metals)		3010	EPA		9/16/94

SM = Standards Methods for the Examination of Water and Wastewater 18th ed.
SW-846 = Test Methods for Evaluating Solid Waste Physical/Chemical Methods
EPA = Methods for Chemical Analysis of Water and Wastes 1983
* Instrument Detection Limit

AMTEST

Client: Western Washington University

Date Received: 9/9/94

Associated
Sample Numbers: 94-A016887 to 16897

Date Analyzed: 9/19/94

PLASMA SPECTROGRAPHIC ANALYSIS BY EPA METHOD 200.7

ELEMENTS		TRUE VALUE (ppm)	RESULTS (mg/l)	RECOVERY (%)	DETECTION LIMITS (mg/l)
Silver	Ag	0.2	0.20	99	0.010
Aluminum	Al	10	9.99	100	0.01
Arsenic	As	2	2.00	100	0.03
Barium	Ba	2	1.99	100	0.003
Calcium	Ca	10	10.06	101	0.1
Cadmium	Cd	2	2.00	100	0.002
Chromium	Cr	2	1.97	99	0.006
Copper	Cu	2	2.01	101	0.002
Iron	Fe	2	2.02	101	0.01
Mercury	Hg	2	1.99	99	0.010
Potassium	K	100	99.40	99	1.0
Magnesium	Mg	20	19.44	97	0.10
Manganese	Mn	2	1.99	100	0.002
Molybdenum	Mo	2	2.01	101	0.01
Sodium	Na	20	20.36	102	0.50
Nickel	Ni	2	1.94	97	0.01
Phosphorus	P	10	10.83	108	0.05
Lead	Pb	2	2.02	101	0.02
Sulfur	S	2	2.14	107	0.1
Antimony	Sb	2	2.10	105	0.02
Selenium	Se	2	2.01	100	0.03
Tin	Sn	2	1.95	97	0.02
Strontium	Sr	2	2.07	104	0.003
Titanium	Ti	2	2.03	102	0.01
Thallium	Tl	2	2.04	102	0.03
Zinc	Zn	2	1.99	99	0.002

ND = not detected; All results reported in (mg/l).

AMTEST

Client: Western Washington University

Date Received: 9/9/94

Associated
Sample Numbers: 94-A016887 to 16897

Date Analyzed: 9/19/94

QUALITY CONTROL - METHOD BLANK
PLASMA SPECTROGRAPHIC ANALYSIS BY EPA METHOD 200.7

ELEMENTS		METHOD BLANK #1 (mg/l)	DETECTION LIMITS (mg/l)
Silver	Ag	ND	0.010
Aluminum	Al	0.09	0.01
Arsenic	As	ND	0.03
Boron	B	ND	0.10
Barium	Ba	ND	0.003
Beryllium	Be	ND	0.007
Calcium	Ca	ND	0.10
Cadmium	Cd	ND	0.002
Cobalt	Co	ND	0.003
Chromium	Cr	ND	0.006
Copper	Cu	0.007	0.002
Iron	Fe	ND	0.01
Mercury	Hg	ND	0.010
Potassium	K	ND	1.0
Lithium	Li	ND	0.02
Magnesium	Mg	ND	0.10
Manganese	Mn	ND	0.002
Molybdenum	Mo	ND	0.01
Sodium	Na	ND	0.50
Nickel	Ni	ND	0.01
Phosphorus	P	ND	0.05
Lead	Pb	ND	0.02
Sulfur	S	ND	0.1
Antimony	Sb	ND	0.02
Selenium	Se	ND	0.03
Silica	Si	0.19	0.10
Tin	Sn	0.04	0.02
Strontium	Sr	ND	0.003
Titanium	Ti	ND	0.01
Thallium	Tl	ND	0.03
Vanadium	V	ND	0.002
Yttrium	Y	ND	0.001
Zinc	Zn	ND	0.002

ND= not detected; All results reported in (mg/l).

AMTEST

Client: Western Washington University

Date Received: 9/9/94

Associated
Sample Numbers: 94-A016887 to 16897

Date Analyzed: 9/19/94

INDUCTIVELY COUPLED PLASMA – EPA METHOD 200.7
DUPLICATE ANALYSIS Sample #: 94-A016887

ELEMENT		REPLICATE #1 (mg/l)	REPLICATE #2 (mg/l)	RELATIVE PERCENT DIFFERENCE (%)	DETECTION LIMITS (mg/l)
Arsenic	As	< 0.03	< 0.03	-	0.03
Cadmium	Cd	< 0.002	< 0.002	-	0.002
Chromium	Cr	< 0.006	< 0.006	-	0.006
Copper	Cu	0.002	0.006	100.00	0.002
Iron	Fe	0.02	0.03	40.00	0.01
Mercury	Hg	< 0.01	< 0.01	-	0.010
Nickel	Ni	< 0.01	< 0.01	-	0.01
Zinc	Zn	0.003	< 0.002	-	0.002

All results reported in (mg/l).

AMTEST

Client: Western Washington University

Date Received: 9/9/94

Associated
Sample Numbers: 94-A016887 to 16897

Date Analyzed: 9/19/94

INDUCTIVELY COUPLED PLASMA – EPA METHOD 200.7

SPIKE RECOVERY DATA   Sample #: 94-A0016888

ELEMENT		SAMPLE CONC. (mg/l)	SAMPLE + SPIKE (mg/l)	SPIKE ADDED (mg/l)	RECOVERY (%)	DETECTION LIMITS (mg/l)
Arsenic	As	< 0.03	0.47	0.5	94.0	0.03
Cadmium	Cd	< 0.002	0.48	0.5	96.0	0.002
Chromium	Cr	< 0.006	0.95	1	95.0	0.006
Copper	Cu	0.007	0.934	1	92.7	0.002
Iron	Fe	1.3	1.9	0.5	120.0	0.01
Nickel	Ni	< 0.01	0.96	1	96.0	0.01
Zinc	Zn	0.002	0.947	1	94.5	0.002

All results reported in (mg/l).

ANALYSIS REPORT AMTEST

Western Washington University
Huxley College
Michael Hilles

Date Received: 09/09/94
Date Reported: 09/22/94
Project: Lake Whatcom
Project No.: 55811

QUALITY CONTROL - METHOD BLANKS

ANALYTE/SAMPLE NO.		UNITS	RESULTS
LEAD	BLANK #1	mg/l	ND

QUALITY CONTROL - DUPLICATES

ANALYTE/SAMPLE NO.		SAMPLE VALUE (mg/l)	DUPLICATE VALUE (mg/l)	R.P.D.* (%)
LEAD	94-A016887	<0.001	<0.001	-

QUALITY CONTROL - SPIKE RECOVERIES

ANALYTE/SAMPLE NO.		SAMPLE VALUE (mg/l)	SAMPLE + SPIKE (mg/l)	SPIKE ADDED (mg/l)	RECOVERY (%)
LEAD	94-A016888	<0.001	0.025	0.025	100.

STANDARD REFERENCE MATERIALS

ANALYTE/SRM NO.		SRM VALUE (mg/l)	TRUE VALUE (mg/l)	RECOVERY (%)
LEAD	WP 31	0.0170	0.0150	113.

< = less than
*R.P.D. = Relative Percent Difference

REPORTED BY ______________________
Kathy Fugiel

KF/pb

AM Test Professional Analytical Services ... N.E. 8 Redmond, WA 98052 Fa ... 883 3... Tel 206 885 1664

CHAIN OF CUSTODY RECORD

PROJ. NO.	PROJECT NAME	Client Name
5811	Lake Whatcom	Hillers

SAMPLERS: (Signature) [signatures]

Client Address: WWU/Huxley College 98518

Client Phone: 206 650 6587

Contact Person: Michael Hilles

P.O. No.

NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS						
11-0	9-6-94			✓		1						
11-20	9-6-94			✓		1						
21-0	9-6-94			✓		1						
21-10	9-6-94			✓		1						
22-0	9-6-94			✓		1						
22-20	9-6-94			✓		1						
31-0	9-6-94			✓		1						
31-30	9-6-94			✓		1						
32-0	9-6-94			✓		1						
32-90	9-6-94			✓		1						
FD	9-6-94			✓		1						

Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Relinquished by: (Signature)	Date/Time	Received by: (Signature)
Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Relinquished by: (Signature)	Date/Time	Received by: (Signature)
Relinquished by: (Signature)	Date/Time	Received for Laboratory by: (Signature) [signature]	Date/Time 9/6/94	Remarks	

Distribution: Original Accompanies Shipment; Copy to Coordinator Field Files