Metropolitan Dade County, Florida

# DEPARTMENT OF ENVIRONMENTAL RESOURCES MANAGEMENT

## BIOMONITORING IN THE FRESHWATER CANALS IN THE VICINITY OF BLACK POINT, DADE COUNTY, FLORIDA, 1993 - 1994

Technical Report 94-01

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# Final Report: Biomonitoring In Freshwater Canals In The Vicinity Of Black Point, Dade County, Florida

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## Introduction

The Dade County Department of Environmental Resources Management (DERM) has conducted ambient surface water quality monitoring in Biscayne Bay since 1978 and in the fresh water canal systems since 1980. Since 1988, data from the bay and canal monitoring programs indicate elevated levels of ammonia nitrogen (NH3-N) in the vicinity of the South Dade Municipal Landfill (SDLF) and the Old South Dade Dump (OSD). In the coastal, salt water intruded portions of the Biscayne Aquifer, elevated NH3-N, as opposed to specific conductance levels and chloride ion concentrations, is used as the primary indicator of landfill leachate migration from the SDLF and OSD.

Historical data (Weaver, 1993) show that average NH3-N values at the mouth of Goulds Channel and in Goulds Canal, just southeast of the SDLF, have been much higher (1.5 mg/L) than average values for any other canal discharging into Biscayne Bay (ranging from 0.08 - 0.3 mg/L), and have consistently exceeded the local water quality standard for NH3-N of 0.5 mg/L (Chapter 24-11(4), Metro Dade County Code). While NH3-N, in the levels measured in the canals adjacent to both landfills (up to 4 mg/L) does not necessarily have a negative impact on the local environment, NH3-N can work synergistically with other physical water quality parameters and leachate components to create conditions toxic to aquatic biota (EPA, 1986). If toxic conditions did occur, fresh water deliveries to Biscayne Bay could ultimately be detrimental to the adjacent waters of Biscayne National Park.

To determine if landfill leachate might be creating eutrophic and/or acutely toxic conditions in fresh surface waters, the DERM Planning and Evaluation Section temporarily expanded the surface water monitoring program to include biological testing in waters adjacent to the SDLF and OSD nearby (Figure 1). Funding for the biological portion of the project was provided by the South Florida Water Management District through the Biscayne Bay Surface Water Improvement Program. The Ecotoxicology Laboratory at Oregon State University (OSU) was contracted by DERM to perform the biological analyses. DERM prepared quality assurance documentation and performed all field testing and sampling for the project.

The specific objectives of the study were 1) to determine through algal assay if elevated nutrient levels in the canals in the study area (Black Creek, Goulds Canal, and L-31E) have the potential to create eutrophic conditions and 2) to determine through acute toxicity testing whether there are direct toxic impacts to aquatic biota from ammonia or from a combination of ammonia with other factors, including physical characteristics of the water or other constituents of leachate.

This report presents background information on the study area, summarizes historical data and studies, summarizes and discusses results of the biological tests performed by OSU (Green, 1994),

presents field data and the results of DERM's field data analyses for ammonia toxicity, and presents findings and recommendations.

## The Study Area

The study area, depicted in Figure 1, is bordered on the north by SW 216 Street, on the east by SW 87 Avenue, on the south by SW 264 Street, and on the west by SW 112 Avenue. The surface waters in the study area are part of the South Dade water supply and drainage system maintained by the South Florida Water Management District. Of the three canals sampled in this study, only Black Creek receives surface water deliveries (and therefore dilution) from the South Dade Conveyance System via L-31N, which originates in the water conservation area northwest of Dade County.

Flow and water levels in all three canals are controlled by the opening and closing of the coastal salinity structures S-21 and S-21A in Black Creek and Princeton Canals, respectively (Figure 2). If the salinity control structures are opened, water flows southeast in Black Creek to Biscayne Bay. If head elevations are sufficient (canal water levels are higher than ground water levels), water can also flow westward in Goulds Canal to L-31E, and southward in L-31E to Princeton Canal. Generally, the structures are opened on a daily basis with the outgoing tide. Head elevations behind the structures are maintained higher from April - October, then lowered from October - April to drain agricultural fields for the growing season (personal communication with Scott Thorp, SFWMD). Water from the central section of L-31E (east of the SDLF) flows with the outgoing tide through a partially blocked culvert and into Goulds Channel (Figure 3). Direct flows out of Goulds Canal into Goulds Channel are blocked by an earthen dam.

There are four potential sources of pollution in the study area: the South Dade Municipal Sewage Treatment Plant south of SW 216 Street; the South Dade Landfill (SDLF) north of SW 248 Street, the Old South Dade Dump (OSD) south of SW 248 Street, and 1200 acres of various farming operations west of SW 97 Avenue. Data presented in the historical information section of this report, along with field investigations, suggest that potential pollution from each of these sources is most likely a result of the ground water beneath the facilities and farm fields migrating to the canals, rather than from direct discharges.

In L-31E south of Goulds Canal, there are two 24 inch direct discharge culverts entering the canal at water level on the west side (sampling sites LO09A and LO09B - Figure 1). The culverts allow natural surface water flow from the west side of the elevated canal maintenance easement to discharge into L-31E. No discharges from the culverts were observed during the course of the study.

## Sampling Sites

To establish sampling sites, DERM conducted preliminary field work in the study area in July and

December, 1992, and February, 1993. Physical parameters, ammonia nitrogen, NH3-N, and nitrate nitrogen, NOx-N, were measured with field instruments. Methods are more fully explained in the next section. Also, historical data were reviewed to better identify the distribution of elevated nutrients.

The twelve surface water sampling sites chosen for this study are shown in Figure 1. Historical sample sites for surface and ground water are shown in Figure 2. Historical data is available for eight of the twelve sampling sites.

Background sites were chosen to better characterize the effects on water quality solely from the SDLF and OSD. A background site, BL03, was chosen upstream of the SDLF in Black Creek. No downstream sites in Black Creek were chosen because historic data and preliminary field work show that any chemically measurable effect that the SDLF might have on water quality in Black Creek is either diluted by water delivery from the South Dade Conveyance System or prevented from migrating into Black Creek by surface water head elevations maintained by the salinity structure, S-21, just downstream.

A second background site was placed at LO01 in L-31E to detect water quality effects from the Municipal Sewage Treatment Plant. The third background site, GL04B, was placed in farmland west of the SDLF. GL03 served as a background site for OSD.

Sampling sites for this study were not placed along L-31E between Black Creek and Goulds Canal (due east of the SDLF) because salinity levels were too high for the algal assays conducted. Average dry season salinities in this portion of L-31E, though still considered fresh water, are 3 ppt (from available data - Alleman, 1990 and DERM, 1990-93) and exceed the 1 ppt salinity test limit for the algal test species (Greene, 1994). This portion of the canal has also shown elevated levels of NH3-N (average 6 mg/l for available data, DERM, 1990-1993) and is the most likely conduit of the elevated NH3-N consistently measured in Goulds Channel (Alleman, 1990).

## Methods

The water flea, *Daphnia magna* and the green algae, *Selenàstrum capricornutum* were chosen as test organisms for the acute toxicity and algal assay methods for this study because the two have been shown, in combination, to be 95% effective in identifying acute toxicity (Greene et. al., 1989). The algal assay methodology, while primarily used to detect enrichment or eutrophication, can be used to verify causes of toxicity in conjunction with inorganic analyses and an acute toxicity test. Chronic toxicity is not detected by either test and was not considered under this study.

DERM sampled the 12 canal stations in February, May, July, and November, 1993 and January, 1994 for physical and inorganic parameters (pH, conductivity, temperature, salinity, dissolved oxygen, NH3-N, NOx-N, and alkalinity). Excluding February, 1993, DERM also collected separate grab samples for trace metals analyses and acute toxicity

testing and a depth composite sample for algal assay testing. The methods and quality assurance protocols for the field and laboratory methods are outlined in a Research Quality Assurance Plan (Britt, 1993) approved by the Quality Assurance Section of the Florida Department of Environmental Protection (FDEP).

Physical and inorganic parameters were measured in three depth and cross-section profiles to determine whether the waters were stratified. Physical parameters were measured using a Hydrolab Surveyor III. Ammonia and nitrate nitrogen were field tested using CHEMetric Test kits. Alkalinity was field tested using a Milton Roy Test Kit. The test kits were chosen for the project after test kit results and laboratory results from the three preliminary field trials and laboratory analyses verified test kit accuracies.

Biological and metals samples were shipped to OSU on ice by overnight mail to meet method holding times. The OSU contract included performing metals analyses (Standard Method 200.7), acute toxicity testing (EPA Method 600/3-88-029) with the water flea, *Daphnia magna*, and algal assay testing (EPA Method 600/9-78-018) with the green algae, *Selenastrum capricornutum*.

## Historical Information & Studies

Water and sediment quality studies have been performed in the near shore waters of Biscayne Bay adjacent to the SDLF by The National Park Service (Froelich, 1985 and Corcoran, 1987), the then Florida Department of Natural Resources (Corcoran, 1983), and Dade County DERM (Alleman, 1990 and unpublished data, 1991-1993). Together, these studies verified that while Goulds Channel has elevated levels of pesticides, metals, and hydrocarbons in sediments and mollusks, and elevated ammonia in surface water, the measurable chemical effects dissipate within several hundred yards offshore.

Concurrent with this study, the National Park Service conducted an investigation of water quality in Biscayne National Park and South Biscayne Bay to determine the ambient ammonium concentration in moderately and least impacted near shore waters and to investigate the contribution of ammonium from the SDLF to Biscayne Bay (Jones, 1994). The Park Service report also verifies that the ammonium contributed by the SDLF to the nearshore waters is significant, but that ambient levels are resumed offshore.

Similarly, upland studies of the landfills have been prompted by the long term presence of elevated ammonia nitrogen in ground waters well above the Dade County standard of 0.5 mg/L (Section 24-11(4) MDCC). The first significant water quality study was conducted in 1978 at OSD by the U.S. Geological Survey (USGS). While significant ground water contamination by ammonia and metals was documented, surface water degrada- tion was found only in a drainage ditch in the middle of the dump (McKenzie, 1983).

The Environmental Protection Agency (EPA) followed with a study on OSD in 1991 (Ceppos, 1991), but failed to sample for ammonia which, in

a salt water intruded environment, is the best indicator of landfill leachate. EPA did document elevated lead in surface, ground, and sediment samples in and near L-31E in the center of the dump.

OSD was operated by private management for nearly 28 years (1952-1978) as an unlined, open trench landfill. To date, there has been no attempt to clean up OSD. Except for 30 acres on the west side, OSD is still privately owned. Dade County Solid Waste Management Department (DCSWM) owns the 30 western-most acres and has taken over responsibility for water quality monitoring for the entire 250 acre site.

Nutrient enrichment (NOx-N and NH3-N) of the fresh surface waters in the study site were first documented in 1982, shortly after DERM established routine water quality monitoring programs for Biscayne Bay and its tributaries. Additional sampling sites were added in Goulds Channel, Goulds Canal, and L-31E in 1988 and 1989. Since that time, NH3-N and NOx-N levels in those canals have shown dry season elevations well above background.

DERM began monitoring ground water quality in and near the SDLF in 1981. A summary of this data through 1988 was compiled in an unpublished report (Labowski and Waller, 1988). The data show the highest ammonia levels in ground water under the SDLF to be on the east side of the now closed Cells 1 & 2 in Well S-4 (Figure 2). NH3-N values ranged as high as 50 mg/L.

DCSWM began routine ground water monitoring programs for the SDLF in 1987 and for OSD in 1989. While NH3-N levels are elevated at each of four monitoring sites in OSD, levels are highest (ranging to 40 mg/L) at OS-2 , in the area last used for landfilling (Figure 2). DCSWM data for the SDLF show similar results to the DERM data, with NH3-N levels at S-4 ranging to 50 mg/L (DCSWM, unpublished data 1987 - 1993).

## South Dade Landfill Mitigation

When Cells 1 & 2 of the SDLF were opened in 1978, the County assumed that the marl substrate liner was adequate to contain leachate. Time and water quality monitoring data have proven this not to be the case. Subsequent cells at SDLF have been more adequately constructed with synthetic liners to retain leachate.

To update Cells 1 & 2 of the SDLF, DCSWM is constructing leachate and stormwater collection systems which are designed to reduce polluted waters leaving the site by 50% (Hazen and Sawyer, P.C., 1992). The new systems include pumping collected leachate to the adjacent sewage treatment plant for treatment, future on-site treatment of leachate, filtering stormwater runoff in a wetland retention basin adjacent to L-31E, and updating the culvert connecting L-31E and Goulds Channel to a salt water in-flow structure. The structure has been designed to maintain tidal flushing through the culvert and into the wetland retention basin.

Until ground water ammonia levels are reduced by the new systems, the SDLF will continue to contribute to the elevated levels of ammonia in Goulds Canal and Goulds Channel. As part of FDEP permitting

requirements for expansion of the SDLF, DCSWM is constructing additional ground water monitoring wells at the SDLF and locating new surface water monitoring sites in Goulds Canal, Black Point, and L-31E. These additional data should provide adequate information to determine whether the remediation plan is effectively reducing leachate migration from the SDLF.

Perhaps the least examined influence upon water quality in the study area is the effect of ground and surface water level changes on leachate migration. To date, there are no continuous or reliable water level data available for the area to characterize ground water flow and tidal fluctuations. DCSWM has recently installed three continuous water level recorders in wells S-1, S-2, and S-5 at the SDLF (Figure 2). While these new data will provide valuable information, they are not adequate to identify patterns of leachate migration as they are related to water level, tides, rainfall, and water management, nor will they address leachate migration from OSD.

Historical data and data from this study indicate that elevated ammonia levels are far more likely to be detected in the dry season. This is either due to increased leachate migration in the dry season or a dilution affect in the wet season, or a combination of both. Surface water level data and accurate ground water level contour maps extending from Black Creek to Princeton Canal are needed to determine the correlation between water levels and leachate migration from both landfills.

## Biological Test Results

The OSU biological test results are available in quarterly reports and in a final report: *Biological Testing for the Effects of Pollutants In Waters Collected from the Freshwater Canals in the Coastal Portions of Black Point, Dade County, Florida* (Greene, 1994). Biological testing of the canal waters did not detect acute toxicity or eutrophication. However, due to limitations of the tests, results do not rule out the possibility that acute and/or chronically toxic conditions occur in the study area. The tests do show 1) that the local carbonate water chemistry might ameliorate the effects of enrichment and potential acute toxicity by precipitating phosphorus and trace metals out of the water column and into the sediment layer and 2) that other synergistic effects are probably not compounding potential ammonia toxicity.

Greene reported that 84.6% of the algal assay samples did not produce the algal growth which was expected based on the nutrients measured in the autoclaved and filtered sample water used in the algal assay. Greene verified that NOx-N and NH3-N values measured in the canals during field screening were comparable to values measured in autoclaved waters. His analyses showed that in 73% of the samples, phosphorus was the primary limiting nutrient.

In 36% of the samples, trace elements were the secondary factor limiting algal growth. Metals results for the project (total, unfiltered) were below method detection limits, with

minor exceptions (Greene, Quarterly Reports, 1993 and 1994). Whereas, historical data from the General Canal Program indicate that all tested metals are present in sediment (unpublished data, DERM, 1991 and 1992). Since metals are present in sediments, but not in the water column, it is likely that the carbonate environment in South Dade canals precipitates phosphorus and trace metals out of the water column and into the sediment layer,

Greene (1994) used total trace metal values on the study waters to calculate hardness (Appendix A - Table 01.XLS). He reported that the study waters are very hard (200 - 340 mg/L as CaCO3) and that this factor is probably contributing to the lower than expected algal growth results from the biological portion of this study. The lack of available phosphorus and trace elements ameliorates the potential for the enriched waters to become eutrophic.

Greene reported 83% - 100% survival in the test animal *Daphnia magna* in all 56 of the canal surface water samples tested for acute toxicity. These results suggest that acutely toxic conditions did not exist in the study area. However, there are two issues concerning the acute toxicity tests which prevent the results from being definitive.

First, dissolved oxygen (DO) levels in the tested waters were higher than in situ waters. Greene attributes the increases to agitation during shipping and sample handling during testing. This is a particular issue for eight of the sample sites where DO levels were below the 4.0 mg/L water quality standard during in situ sampling (1.2 - 3.5 mg/L), but were above the minimum standard (>5 mg/L) during testing (Greene, 1994). Since DO levels less than 4.0 mg/L can be acutely fatal to invertebrate populations (EPA, 1986), these in situ canal waters were more likely toxic than the same test waters.

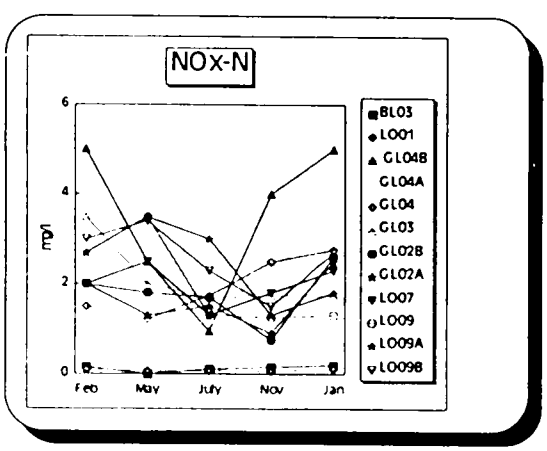
Secondly, *Daphnia magna* is more resistant to the toxic ammonia form, NH3, than are fishes and some other invertebrates (EPA, 1986). Based on the EPA Guidance Criteria, and under the surface water conditions common in the study area (pH range 7.1 - 8.1 and temperature range 21 - 32 C) and in the absence of other synergistic effects, total ammonia, NH3-N, levels would have to exceed 8.0 mg/L to potentially create conditions where unionized ammonia (NH3) alone might be lethal to *Daphnia magna.* However, under the same water conditions, fish species and other invertebrates could have shown lethality at the 4.0 mg/L NH3-N measured in some of the test waters.

Therefore, *Daphnia magna* may not adequately detect acute toxicity for the water quality standard for unionized ammonia established for the study area 0.02 mg/L (Section 17-302.530, F.A.C.). The test, using *Daphnia magna,* does tell us that other synergistic effects which could compound toxicity in conjunction with elevated NH3 were probably not active in the water column during this study. NH3 toxicity and DO considerations are discussed further in the following field data results.

## Field Data Results

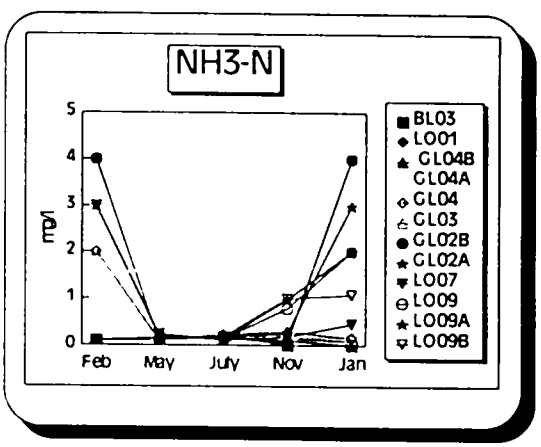
The South Dade County Municipal Landfill (SDLF), the old South Dade Dump (OSD), and adjacent farmlands to the west are contributing to seasonally elevated ammonia and nitrate levels in the Goulds and L-31E Canals. Enrichment is most likely due to ground water seepage into the canals, particularly in the dry season when head elevations are lowered in the canals. Data suggest that the South Dade Sewage Treatment Plant is not contributing to inorganic nitrogen enrichment of surface waters in the study area.

The following graphs depict the results of physical and inorganic monitoring of the sampling sites. Values in the graphs are averages of measurements taken from depth/ cross-section profiles in the water column. Data are presented as averages because the waters were only mildly stratified, if at all. Data tables and enlarged graphs are presented as Appendix A.




During this study, values for total nitrate (NOx-N) were well above background (0.1 mg/L) in all but two sites. In the dry winter seasons, NOx-N ranged from 0.1 - 5.0 mg/L. The levels were highest in the background site, GL04B, which is on the western fringe of the study area and well away from other known sources of nitrate or ammonia, other than agriculture. Most importantly, the BL03 and LO01 background sites do not show elevated nitrate, indicating that adjacent farmland is contributing more measurable nitrate to the study area than either the SDLF or OSD.

Since ground water nitrate levels under OSD are below 1 mg/L (DCSWM, 1987-1993, unpublished data) elevated nitrate in L-31E south of OSD is not likely derived from ground water migrating southeasterly from the dump. However, no ground water quality data is available from the more southerly agricultural areas to provide the same information on the source of elevated NOx-N in L-31E.




The graphed data for total ammonia (NH3-N) show an obvious dry season cycle for elevated ammonia. In spring and summer sampling events, NH3-N values at all sites were comparable to background (0.15 mg/L). During the dry winter season, NH3-N at half of the sampling sites exceeded background and in the canal sampling stations downstream from the SDLF and OSD, NH3-N

values exceeded the DERM standard of 0.5 mg/L (range: 0.45 - 4.0 mg/L).

Additionally, near upstream sites from both landfills had lower NH3-N values than downstream sites, indicating that ground water beneath Cells 1&2 of the SDLF and from the western portion of OSD are more significantly polluting downstream surface waters. However, while ground water NH3-N levels are elevated all year long (DCSWM, unpublished data, 1987-1993), surface waters are impacted most significantly during the dry season, indicating increased leachate migration during the dry season and/or dilution in surface waters during the wet season.

Jones (1994) also found this seasonal cycle for elevated NH3-N in the nearshore waters at Black Point. (The offshore waters exhibited the opposite cycle.) Regression analyses of ammonium values with salinity and rainfall did not show any correlation, ie.. increased rainfall did not result in decreased ammonium values. Therefore, dilution in surface waters is probably less of a factor than the lessened leachate migration in the wet season due to increased head elevations in the canals.

## Factors Affecting Toxicity

Elevated NH3-N is not necessarily a problem to aquatic biota. Other water quality factors are important when considering whether the seasonally elevated total ammonia values are potentially toxic. Temperature and pH are the two most important water quality factors affecting the equilibrium between the ratio of unionized (toxic) and ionized (non-toxic) forms of ammonia for a particular concentration of total ammonia (EPA, 1976). In most natural waters, the concentration of toxic ammonia substantially increases with increasing pH (>7.5) and/or temperature (>24 C). In this study, because total ammonia values are highest in the winter months when canal water temperatures are lowest (<24C), ammonia toxicity is somewhat ameliorated.

Unionized ammonia can not be measured directly. It is calculated from ionization constants which are temperature and pH dependent. For this report, unionized ammonia (NH3) was calculated from percentages* obtained from Emerson et al, 1975 (Table 1). The percentages are based on pH and temperatures measured in the canals during sampling.

**Table 1**
**Un-ionized Ammonia**
**Samples Exceeding Standard****

| Samp. Site | Samp. Date | Temp. C | pH Units | NH3-N mg/L | NH3 %* | NH3 mg/L |
|---|---|---|---|---|---|---|
| GL03 | Feb 93 | 23.24 | 7.62 | 2.0 | 1.9 | 0.04 |
| GL02B | Feb 93 | 23.67 | 7.73 | 4.0 | 2.4 | 0.1 |
| GL02B | Jan 94 | 21.5 | 7.6 | 4.0 | 1.7 | 0.07 |
| GL02A | Feb 93 | 23.38 | 7.75 | 4.0 | 2.6 | 0.1 |
| GL02A | Jan 94 | 20.75 | 7.76 | 3.0 | 2.3 | 0.07 |
| LO07 | Feb 93 | 23.03 | 7.62 | 3.0 | 1.9 | 0.06 |
| LO09A | Feb 93 | 23.02 | 7.61 | 3.0 | 1.9 | 0.06 |
| LO09B | Feb 93 | 22.86 | 7.69 | 3.0 | 2.4 | 0.07 |

**Standard = 0.02 mg/L NH3 (F.A.C. 17-302.530)

In February, 1993, calculated NH3 values exceeded the 0.02 mg/L Florida standard at GL02A, GL02B, GL03, LO07, LO09A, and LO09B (Table 1). The NH3 standard was exceeded again in January, 1994, at the downstream Goulds Canal sites,

GL02A and GL02B. While no acute toxicity of Daphnia magna occurred in the same test waters, these standard exceedences indicate that chronically toxic conditions were likely, at least for more sensitive species.

While total ammonia levels were also well elevated at the L-31E sites in January, 1994, pH levels were lower (< 7.3), thus reducing toxic NH3 formation. Lower pH values (avg. 7.3) are also seen where NOx-N is present in relatively higher amounts as in GL04B, LO09A and LO09B. Finally, sites with the highest NH3 levels, GL02A and GL02B, had consistently higher pH levels (avg. 7.76) than did the background sites with little NH3 and NOx-N (avg pH 7.5 - 7.6).

Generally, in an oxygenating surface water environment, ammonia nitrogen is expected to convert to nitrate nitrogen (EPA, 1976). As could be expected, dissolved oxygen (DO) levels were highest in the summer months when ammonia values were the lowest and lowest in the winter when NH3-N levels were the highest. However, NOx-N values did not show the same seasonal trends. NOx-N values were often elevated when DO levels were relatively high (>6), but without any resultant elevation in NH3-N. Again, It is more likely that lower summer NH3-N levels are due to lessened leachate migration due to increased head elevations in the canals.

In the winter months, in the L-31E sites south of Goulds Canal, DO levels fell below the Dade County one day water quality standard of 4 mg/l, creating potentially lethal conditions for some aquatic biota (EPA, 1986). Local ground water, which is naturally low in DO (less than 1 mg/l), can lower the DO of surface waters as it recharges the canals in periods of low surface water head elevations.

As with lower DO levels, a likely source of increased hardness is a greater infusion of ground water into the canals. Data from Greene (1994) show that, except for the background sites BL03 and LO01, surface water hardness increased by 30% - 65% in November and January as compared to May and July. Hardness values remained relatively constant for LO01 and BL03. The fact that the background sites unaffected by nutrient enrichment, LO01 and BL03, did not have reductions of DO nor exhibit increased hardness in the dry season, supports the theory that greater head elevations in the area of the canals in closer proximity to the salinity structure, even in the dry season, prevent ground water migration from beneath the landfill.

## Summary

Surface water quality immediately south of the South Dade Landfill and immediately south of the Old South Dade Dump is seasonally degraded below standard for ammonia. The levels are degraded to the extent that acutely toxic conditions could occur to sensitive biota, but more likely that chronically toxic conditions could or do occur. Finally, nitrogen levels, though well above background, do not cause the ex- pected enrichment problems because phosphorus and trace elements are not chemically available in the water column due to high water hardness.

## Recommendations

1. Based on the violations of State Standards for un-ionized ammonia in Goulds Canal and L-31E during this study, toxicity tests, using appropriate test species, should be repeated in the sampling sites downstream from the South Dade Landfill and the Old South Dade Dump. Acute toxicity tests should be performed when un-ionized ammonia exceeds the 0.02 mg/L NH3 standard. Chronic toxicity tests should also be performed, even when standard is not exceeded, including upstream sampling sites where total ammonia is elevated.

2. An ambient biomonitoring program for Dade canals should be incorporated into the already existing ambient water chemistry program. Surface water toxicity testing will become routine in certain areas of Dade County for National Pollutant and Discharge Elimination Permitting Program requirements This study shows that current methods of testing are not fully sufficient to detect toxicity or eutrophication in the carbonate system. Therefore, baseline investigations should be made of canal macrobenthics and indigenous phytoplankton standing crops and a continuous monitoring program for both should be in place to provide baseline biological integrity for reference when interpreting toxicity test data.

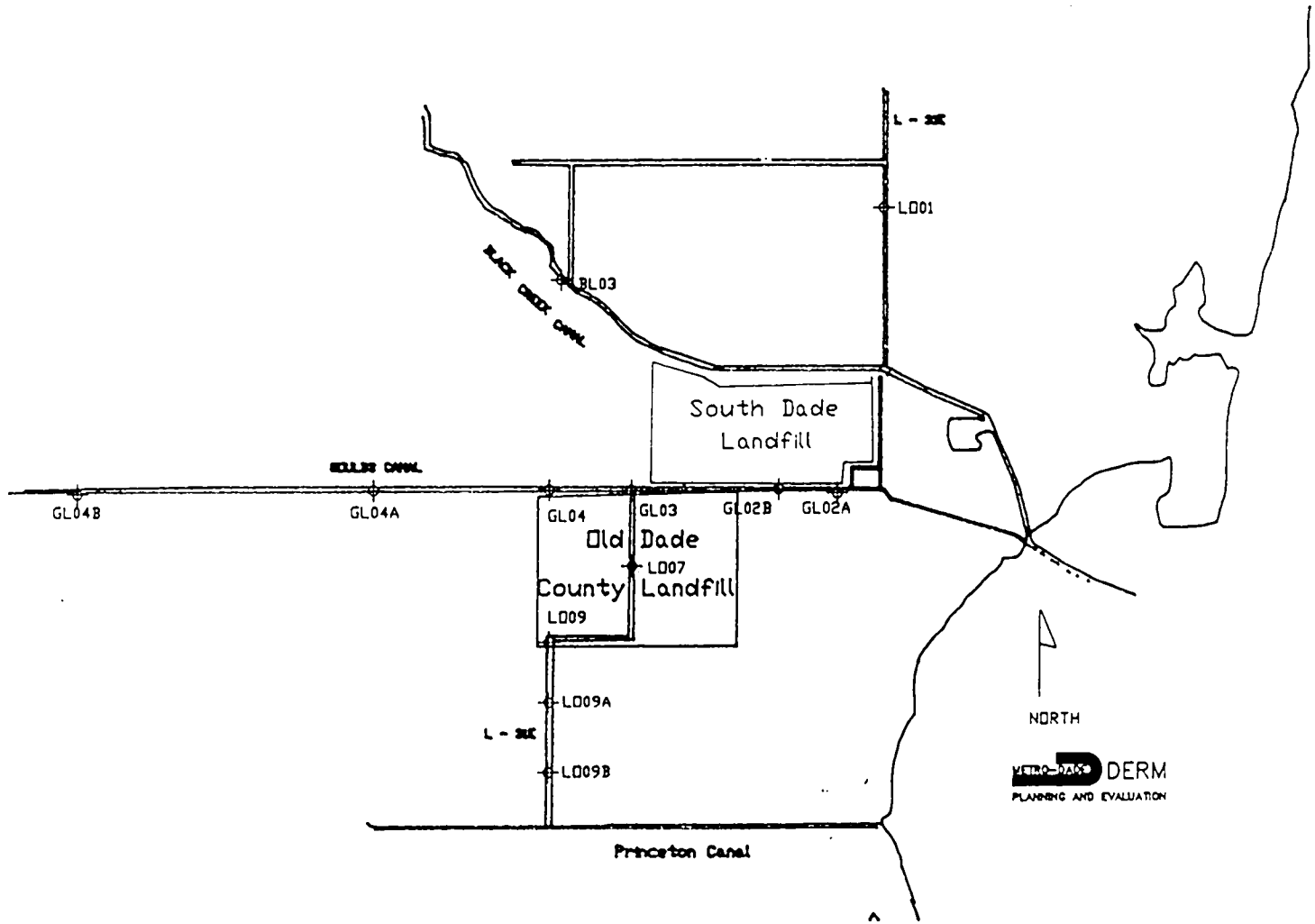
3. Though Dade County Solid Waste Management is currently installing continuous water level recorders in several wells at the SDLF, they should be encouraged to install a sufficient number of continuous water level monitoring devices in existing ground water monitoring wells in the SDLF and OSD and flow and water level measuring devices at several canal monitoring sites north and south of Goulds Canal so that accurate ground water level contour maps and surface flow maps can be constructed for the study area. Currently, no such data exists, and this information is extremely important for evaluating the effects of dilution and ground water migration on surface water quality. This data would also enable a better assessment of the effectiveness of the ground water remediation plan being implemented for the SDLF. This data is also essential to determine if there is a need to remediate for pollution from OSD. Once adequate data is available on water flows in ground and surface waters around both the SDLF and OSD, water management options such as increased head elevations in Goulds Canal and L-31E during the dry season might further limit leachate migration from both sites.

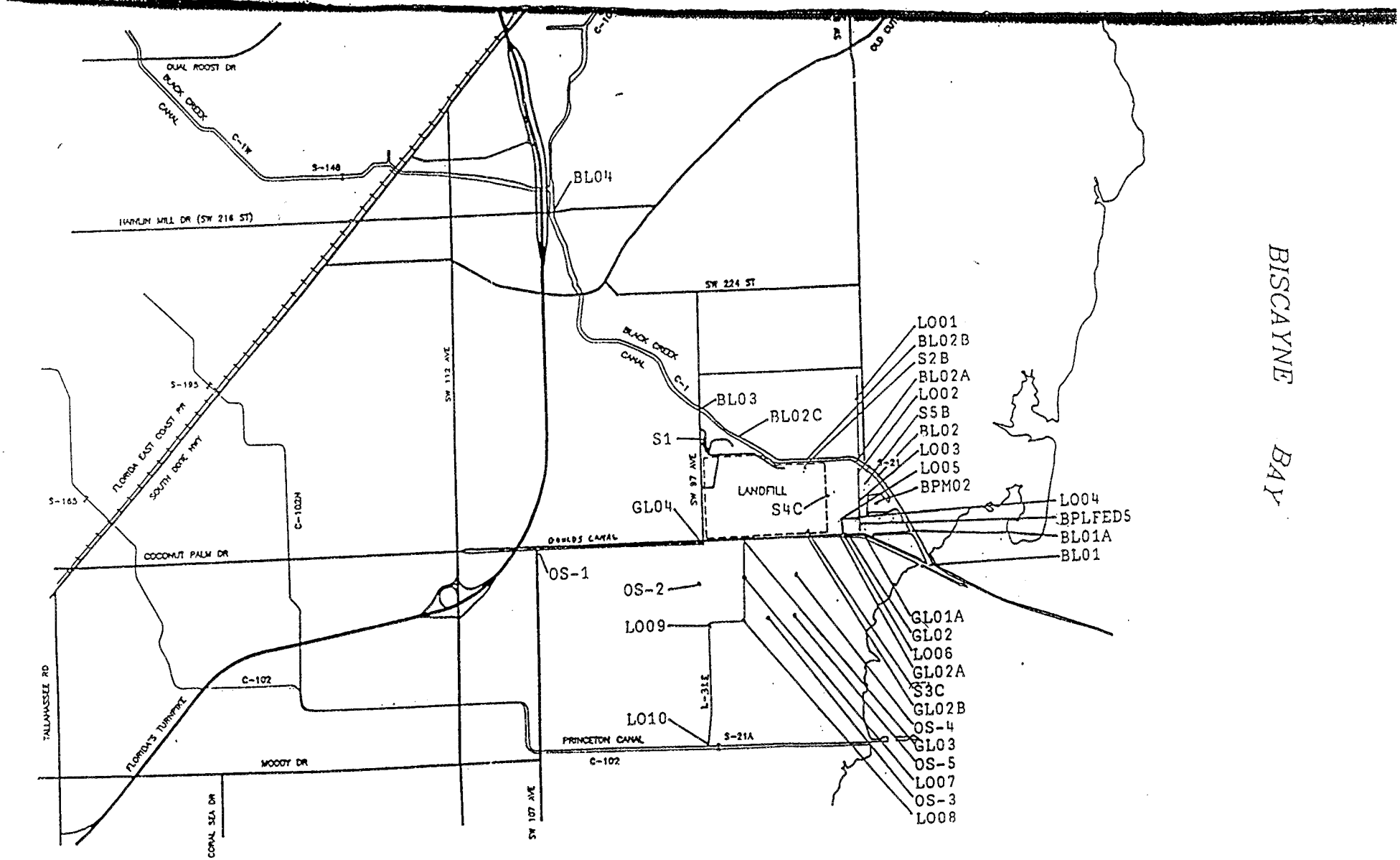
4. Insufficient information is available to ascertain what causes dissolved oxygen levels in the study area to decline below the 4 mg/l standard for Class III waters. Hardness and DO data from this study indicate that an infusion of low DO ground waters is the most likely explanation. However, a definitive study considering microbial activity should be performed to determine whether or not algal blooms and their resultant die off patterns may be a major causal factor in areas where DO are reduced below standard. Continuous DO recorders would be required.

# Figures

FIGURE 1

# BIOMONITORING AT BLACK POINT CANAL SAMPLING SITES



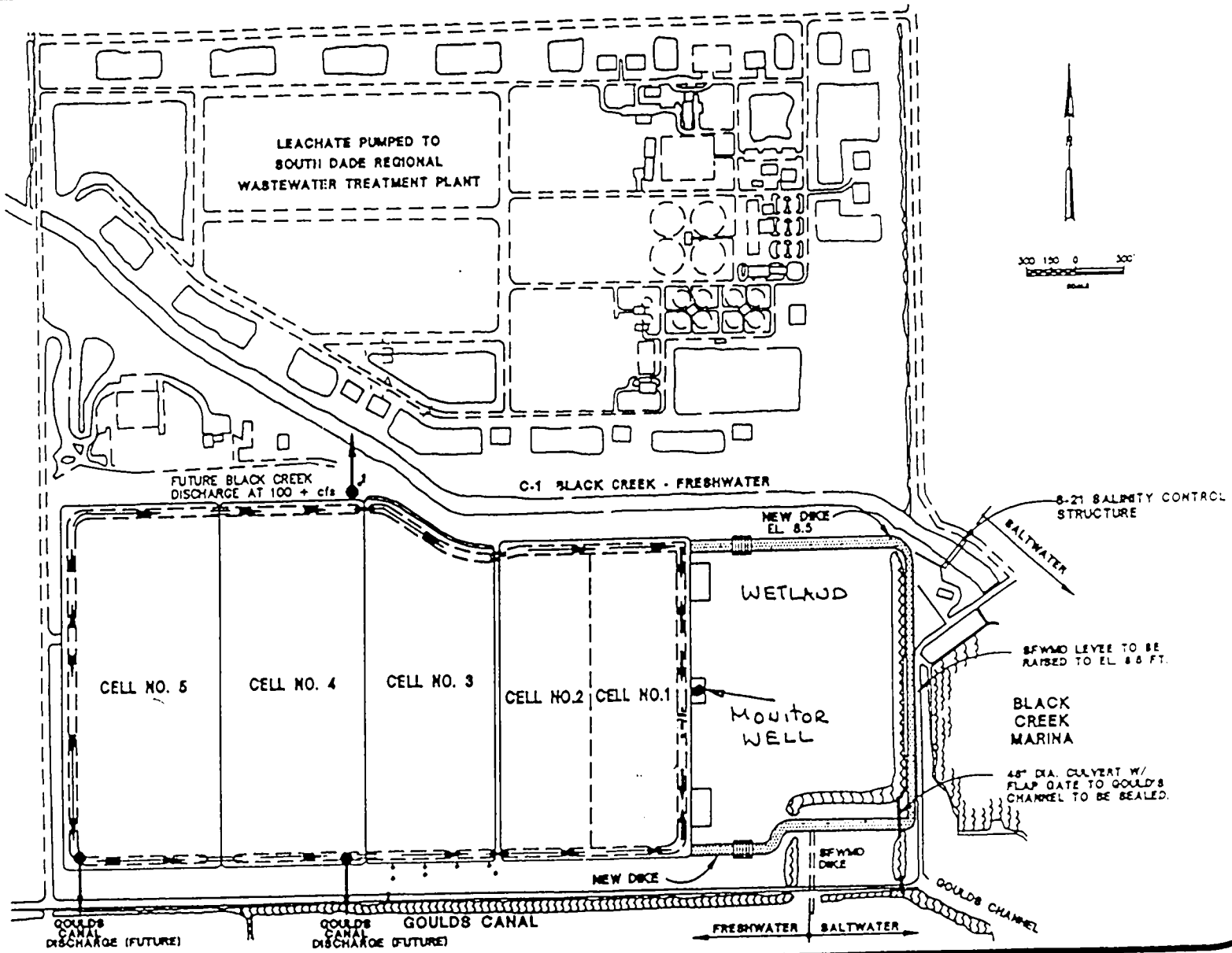



A sketch of the Black Point study area with the approximate surface water and ground-water sampling locations.

FIGURE 2
Historical Sites

FIGURE 3
South Dade Landfill
Remediation Plan

SITE PLAN




SDLFX102

# Appendix A
# Data Tables and Graphs

Black Point Biomonitoring

Average Values Measured in Profiles Using a Hydrolab and CHEMetrics* Test Kits

| Parameter | Sample Sites | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | BL03 | LO01 | GL04B | GL04A | GL04 | GL03 | GL02B | GL02A | LO07 | LO09 | LO09A | LO09B |
| **NOx-N*** | | | | | | | | | | | | |
| Feb | 0.15 | 0.1 | 5 | | 1.5 | 3.5 | 2 | 2 | 2 | | 2.7 | 3 |
| May | 0 | 0.05 | 2.5 | 0.7 | 1.2 | 2 | 1.8 | 1.3 | 2.5 | 3.5 | 3.5 | 3.4 |
| July | 0.1 | 0.05 | 0.95 | 1.2 | 1.75 | 1.7 | 1.7 | 1.5 | 1.3 | 1.3 | 3 | 2.3 |
| Nov | 0.15 | 0.06 | 4 | 2.4 | 0.3 | 1.75 | 0.75 | 0.9 | 1.8 | 1.25 | 1.3 | 1.5 |
| Jan | 0.2 | 0.1 | 5 | 3.2 | 2.75 | 1.75 | 2.6 | 2.5 | 2.3 | 1.3 | 1.8 | 2.7 |
| **NH3-N*** | | | | | | | | | | | | |
| Feb | 0.1 | 0.1 | 0.1 | | 2 | 2 | 4 | 4 | 3 | | 3 | 3 |
| May | 0.1 | 0.1 | 0.15 | 0.11 | 0.1 | 0.14 | 0.1 | 0.1 | 0.25 | 0.25 | 0.23 | 0.19 |
| July | 0.2 | 0.25 | 0.15 | 0.17 | 0.25 | 0.12 | 0.2 | 0.2 | 0.1 | 0.12 | 0.13 | 0.2 |
| Nov | 0 | 0.16 | 0.1 | 0.2 | 2.5 | 0.17 | 0.05 | 0.25 | 0.18 | 0.8 | 0.98 | 1 |
| Jan | 0 | 0.067 | 0 | 0.17 | 0.17 | 0.1 | 4 | 3 | 0.45 | 2 | 2 | 1.1 |
| **DO** | | | | | | | | | | | | |
| Feb | 8.35 | 9.78 | 7.3 | | 6 | 6.48 | 6 | 5.66 | 5.65 | | 4.4 | 4.75 |
| May | 8.5 | 10.54 | 11.3 | 10.8 | 9.8 | 10.3 | 10.7 | 10 | 9.3 | 10.3 | 10.4 | 9.5 |
| July | 7.5 | 8.89 | 12.9 | 12.5 | 8.6 | 10.9 | 9.7 | 9.5 | 8.95 | 7.5 | 6.6 | 6.7 |
| Nov | 4.5 | 8.88 | 1.5 | 4.5 | 4 | 6.3 | 10 | 9.25 | 5 | 4.5 | 2.92 | 1.2 |
| Jan | 8.5 | 8.5 | 1.8 | 4.4 | 4.9 | 6 | 6.2 | 7 | 3.5 | 2.4 | 1.87 | 2.2 |
| **pH** | | | | | | | | | | | | |
| Feb | 7.7 | 7.92 | 7.5 | | 7.5 | 7.6 | 7.7 | 7.7 | 7.6 | | 7.6 | 7.69 |
| May | 7.4 | 7.87 | 7.7 | 7.8 | 7.7 | 7.9 | 8 | 7.9 | 7.78 | 7.7 | 7.7 | 7.1 |
| July | 7.3 | 7.48 | 7.3 | 7.68 | 7.58 | 7.48 | 7.7 | 7.7 | 7.5 | 7.5 | 7.2 | 7.3 |
| Nov | 7.35 | 7.54 | 7.2 | 7.35 | 7.3 | 7.4 | 7.8 | 7.8 | 7.38 | 7.2 | 7.17 | 7.2 |
| Jan | 7.8 | 7.6 | 7.1 | 7.25 | 7.33 | 7.38 | 7.6 | 7.7 | 7.25 | 7.15 | 7.14 | 7.26 |
| **Salinity** | | | | | | | | | | | | |
| Feb | 0.3 | 0.3 | 0.5 | | 0.5 | 0.8 | 0.9 | 0.9 | 0.7 | | 0.8 | 0.67 |
| May | 0.3 | 0.3 | 0.3 | 0.3 | 0.4 | 0.4 | 0.5 | 0.5 | 0.4 | 0.4 | 0.4 | 0.4 |
| July | 1.2 | 0.6 | 0.3 | 0.3 | 0.3 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 |
| Nov | 1.5 | 0.8 | 0.4 | 0.6 | 0.52 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 |
| Jan | 0.3 | 0.3 | 0.4 | 0.6 | 0.6 | 0.7 | 0.9 | 0.9 | 0.7 | 0.7 | 0.8 | 0.7 |

Depth profile: bottom, middle and surface

Cross section profile: center and 5 feet from each bank

Black Point Biomonitoring

Average Values Measured in Profiles Using a Hydrolab and CHEMetrics* Test Kits

| Parameter | Sample Sites | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | BL03 | LO01 | GL04B | GL04A | GL04 | GL03 | GL02B | GL02A | LO07 | LO09 | LO09A | LO09B |
| **Cond.** | | | | | | | | | | | | |
| Feb | 549 | 522 | 949 | | 1066 | 1458 | 1697 | 1759 | 1413 | | 1549 | 1279 |
| May | 538 | 551 | 621 | 640 | 765 | 852 | 934 | 947 | 777 | 714 | 750 | 800 |
| July | 2093 | 1180 | 565 | 650 | 667 | 820 | 696 | 703 | 779 | 721 | 704 | 712 |
| Nov | 1150 | 1545 | 746 | 1140 | 1040 | 1292 | 1250 | 1251 | 1280 | 1336 | 1327 | 1267 |
| Jan | 527 | 530 | 739 | 1060 | 1215 | 1245 | 1725 | 1682 | 1298 | 1375 | 1440 | 1315 |
| **Alkalinity** | | | | | | | | | | | | |
| Feb | | | | | | | | | | | | |
| May | 220 | 193 | 180 | 140 | 120 | 140 | 135 | 130 | 170 | 190 | 210 | 250 |
| July | 195 | 200 | 150 | 160 | 160 | 190 | 170 | 160 | 185 | 185 | 210 | 190 |
| Nov | 210 | 190 | 200 | 225 | 230 | 185 | 185 | 215 | 200 | 260 | 220 | 210 |
| Jan | 185 | 190 | 220 | 220 | 230 | 220 | 220 | 230 | 180 | 200 | 220 | 217 |
| **Temp.** | | | | | | | | | | | | |
| Feb | 23.07 | 21.7 | 23.26 | | 23.5 | 23.24 | 23.67 | 23.38 | 23.03 | | 23.02 | 22.86 |
| May | 26.88 | 27.15 | 27.54 | 29.5 | 29.3 | 28.7 | 28.4 | 27.32 | 23.02 | 27.82 | 27.1 | 26.51 |
| July | 28.7 | 29.2 | 31.61 | 32.3 | 31.9 | 31 | 31.07 | 30.8 | 31 | 30.48 | 28.2 | 28.65 |
| Nov | 25.85 | 26.17 | 23.8 | 25 | 25.4 | 21.1 | 26.26 | 25.6 | 25.82 | 27 | 26.67 | 26.18 |
| Jan | 22.24 | 22.2 | 23.12 | 21.56 | 21.6 | 22.06 | 21.58 | 20.76 | 23 | 23.3 | 23 | 22.5 |

Depth profile: bottom, middle and surface

Cross section profile: center and 5 feet from each bank

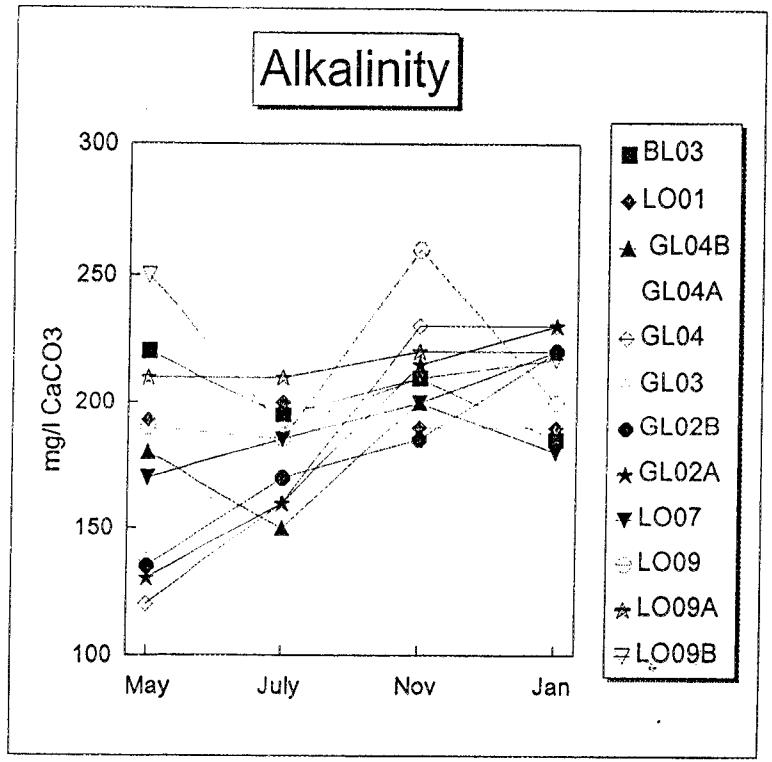
Black Point Biomonitoring

Average Values Measured in Profiles Using a Hydrolab and CHEMetrics Test Kits

Parameter

Sample Sites

| Alkalinity | BL03 | LO01 | GL04B | GL04A | GL04 | GL03 | GL02B | GL02A | LO07 | LO09 | LO09A | LO09B |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| May | 220 | 193 | 180 | 140 | 120 | 140 | 135 | 130 | 170 | 190 | 210 | 250 |
| July | 195 | 200 | 150 | 160 | 160 | 190 | 170 | 160 | 185 | 185 | 210 | 190 |
| Nov | 210 | 190 | 200 | 225 | 230 | 185 | 185 | 215 | 200 | 260 | 220 | 210 |
| Jan | 185 | 190 | 220 | 220 | 230 | 220 | 220 | 230 | 180 | 200 | 220 | 217 |



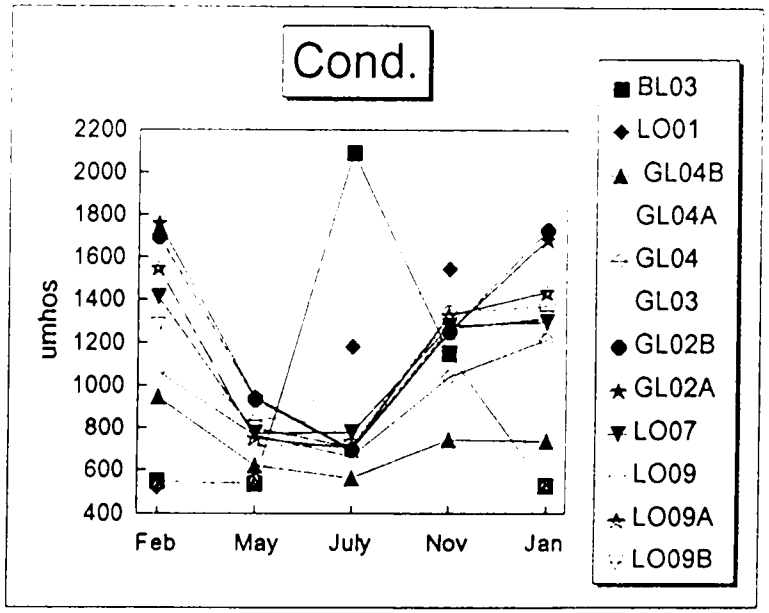

Depth profile: bottom, middle and surface

Cross section profile: center and 5 feet from each bank

Black Point Biomonitoring

Average Values Measured in Profiles Using a Hydrolab and CHEMetrics Test Kits

| Parameter | Sample Sites | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | BL03 | LO01 | GL04B | GL04A | GL04 | GL03 | GL02B | GL02A | LO07 | LO09 | LO09A | LO09B |
| Cond. | | | | | | | | | | | | |
| Feb | 549 | 522 | 949 | | 1066 | 1458 | 1697 | 1759 | 1413 | | 1549 | 1279 |
| May | 538 | 551 | 621 | 640 | 765 | 852 | 934 | 947 | 777 | 714 | 750 | 800 |
| July | 2093 | 1180 | 565 | 650 | 667 | 820 | 696 | 703 | 779 | 721 | 704 | 712 |
| Nov | 1150 | 1545 | 746 | 1140 | 1040 | 1292 | 1250 | 1251 | 1280 | 1336 | 1327 | 1267 |
| Jan | 527 | 530 | 739 | 1060 | 1215 | 1245 | 1725 | 1682 | 1298 | 1375 | 1440 | 1315 |




Depth profile: bottom, middle and surface

Cross section profile: center and 5 feet from each bank

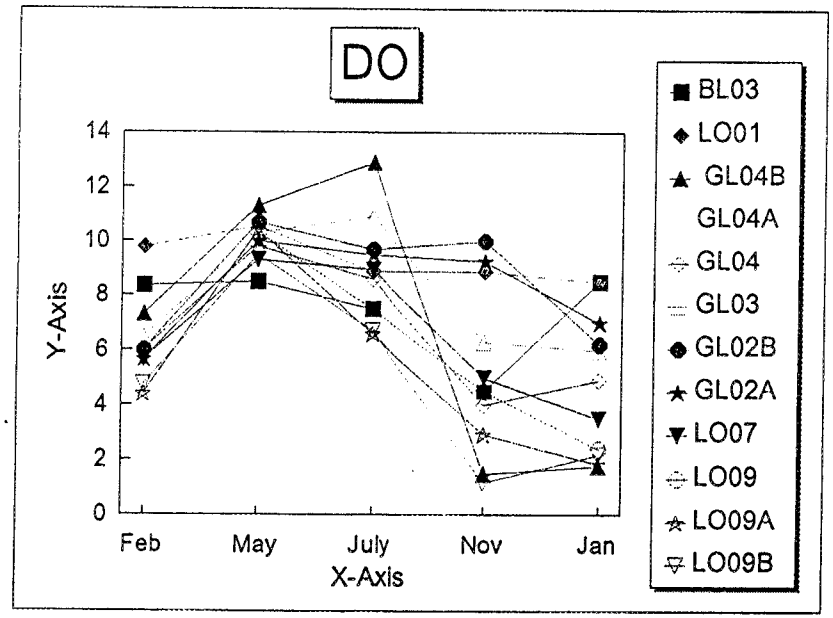
Black Point Biomonitoring

Average Values Measured in Profiles Using a Hydrolab and CHEMetrics Test Kits

Parameter

Sample Sites

| DO | BL03 | LO01 | GL04B | GL04A | GL04 | GL03 | GL02B | GL02A | LO07 | LO09 | LO09A | LO09B |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Feb | 8.35 | 9.78 | 7.3 | | 6 | 6.48 | 6 | 5.66 | 5.65 | | 4.4 | 4.75 |
| May | 8.5 | 10.54 | 11.3 | 10.8 | 9.8 | 10.3 | 10.7 | 10 | 9.3 | 10.3 | 10.4 | 9.5 |
| July | 7.5 | 8.89 | 12.9 | 12.5 | 8.6 | 10.9 | 9.7 | 9.5 | 8.95 | 7.5 | 6.6 | 6.7 |
| Nov | 4.5 | 8.88 | 1.5 | 4.5 | 4 | 6.3 | 10 | 9.25 | 5 | 4.5 | 2.92 | 1.2 |
| Jan | 8.5 | 8.5 | 1.8 | 4.4 | 4.9 | 6 | 6.2 | 7 | 3.5 | 2.4 | 1.87 | 2.2 |

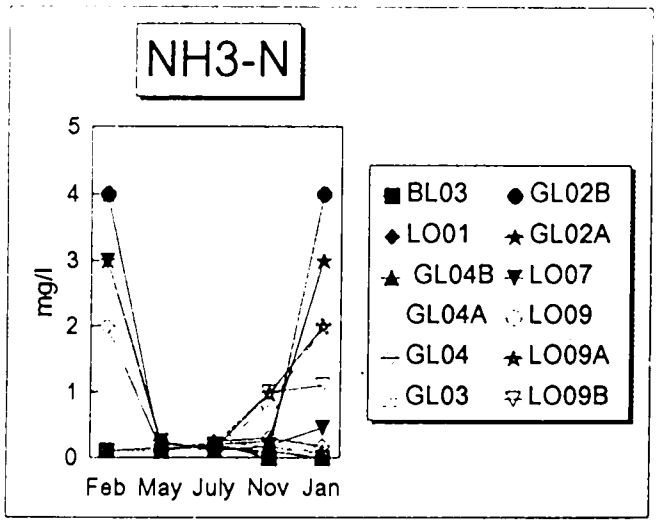



Depth profile: bottom, middle and surface

Cross section profile: center and 5 feet from each bank

Average Values Measured in Profiles Using a Hydrolab and CHEMetrics Test Kits

| Parameter | Sample Sites | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | BL03 | LO01 | GL04B | GL04A | GL04 | GL03 | GL02B | GL02A | LO07 | LO09 | LO09A | LO09B |
| NH3-N | | | | | | | | | | | | |
| Feb | 0.1 | 0.1 | 0.1 | | 2 | 2 | 4 | 4 | 3 | | 3 | 3 |
| May | 0.1 | 0.1 | 0.15 | 0.11 | 0.1 | 0.14 | 0.1 | 0.1 | 0.25 | 0.25 | 0.23 | 0.19 |
| July | 0.2 | 0.25 | 0.15 | 0.17 | 0.25 | 0.12 | 0.2 | 0.2 | 0.1 | 0.12 | 0.13 | 0.2 |
| Nov | 0 | 0.16 | 0.1 | 0.2 | 0.3 | 0.17 | 0.05 | 0.25 | 0.18 | 0.8 | 0.98 | 1 |
| Jan | 0 | 0.067 | 0 | 0.17 | 0.17 | 0.1 | 4 | 3 | 0.45 | 2 | 2 | 1.1 |



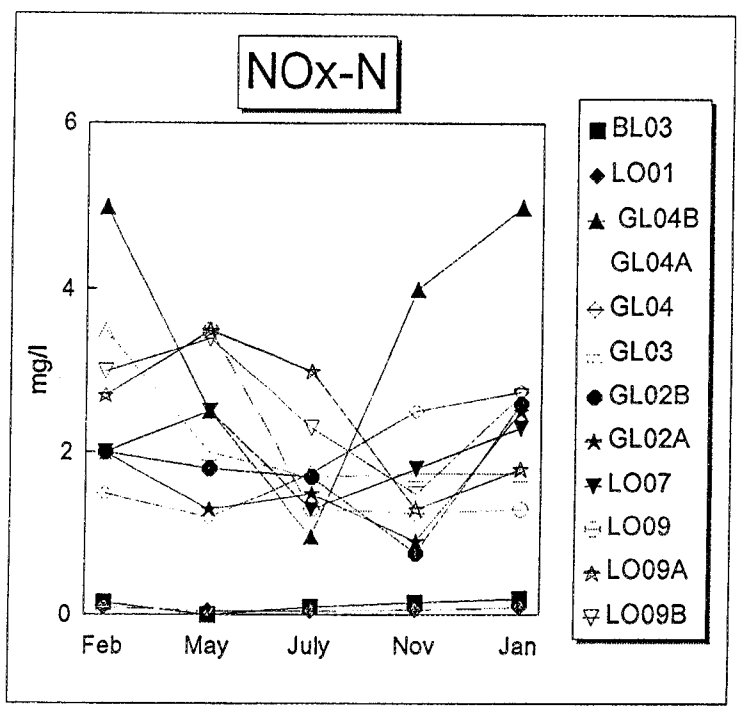

Depth profile: bottom, middle and surface

Cross section profile: center and 5 feet from each bank

Black Point Biomonitoring

Average Values Measured in Profiles Using a Hydrolab and CHEMetrics Test Kits

| Parameter | Sample Sites | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | BL03 | LO01 | GL04B | GL04A | GL04 | GL03 | GL02B | GL02A | LO07 | LO09 | LO09A | LO09B |
| NOx-N | | | | | | | | | | | | |
| Feb | 0.15 | 0.1 | 5 | | 1.5 | 3.5 | 2 | 2 | 2 | | 2.7 | 3 |
| May | 0 | 0.05 | 2.5 | 0.7 | 1.2 | 2 | 1.8 | 1.3 | 2.5 | 3.5 | 3.5 | 3.4 |
| July | 0.1 | 0.05 | 0.95 | 1.2 | 1.75 | 1.7 | 1.7 | 1.5 | 1.3 | 1.3 | 3 | 2.3 |
| Nov | 0.15 | 0.06 | 4 | 2.4 | 2.5 | 1.75 | 0.75 | 0.9 | 1.8 | 1.25 | 1.3 | 1.5 |
| Jan | 0.2 | 0.1 | 5 | 3.2 | 2.75 | 1.75 | 2.6 | 2.5 | 2.3 | 1.3 | 1.8 | 2.7 |

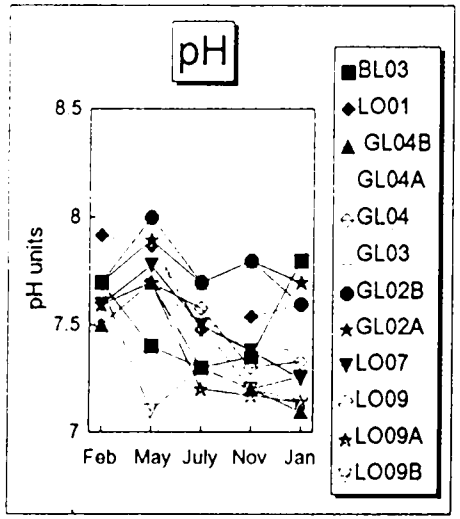



Depth profile: bottom, middle and surface

Cross section profile: center and 5 feet from each bank

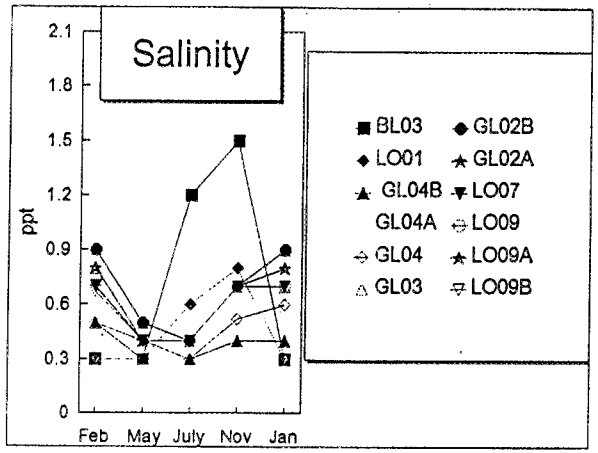
## Average Values Measured in Profiles Using a Hydrolab and CHEMetrics Test Kits

| Parameter | Sample Sites | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | BL03 | LO01 | GL04B | GL04A | GL04 | GL03 | GL02B | GL02A | LO07 | LO09 | LO09A | LO09B |
| pH | | | | | | | | | | | | |
| Feb | 7.7 | 7.92 | 7.5 | | 7.5 | 7.6 | 7.7 | 7.7 | 7.6 | | 7.6 | 7.69 |
| May | 7.4 | 7.87 | 7.7 | 7.8 | 7.7 | 7.9 | 8 | 7.9 | 7.78 | 7.7 | 7.7 | 7.1 |
| July | 7.3 | 7.48 | 7.3 | 7.68 | 7.58 | 7.48 | 7.7 | 7.7 | 7.5 | 7.5 | 7.2 | 7.3 |
| Nov | 7.35 | 7.54 | 7.2 | 7.35 | 7.3 | 7.4 | 7.8 | 7.8 | 7.38 | 7.2 | 7.17 | 7.2 |
| Jan | 7.8 | 7.6 | 7.1 | 7.25 | 7.33 | 7.38 | 7.6 | 7.7 | 7.25 | 7.15 | 7.14 | 7.26 |



Average Values Measured in Profiles Using a Hydrolab and CHEMetrics Test Kits

| Parameter | Sample Sites | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | BL03 | LO01 | GL04B | GL04A | GL04 | GL03 | GL02B | GL02A | LO07 | LO09 | LO09A | LO09B |
| Salinity | | | | | | | | | | | | |
| Feb | 0.3 | 0.3 | 0.5 | | 0.5 | 0.8 | 0.9 | 0.9 | 0.7 | | 0.8 | 0.67 |
| May | 0.3 | 0.3 | 0.3 | 0.3 | 0.4 | 0.4 | 0.5 | 0.5 | 0.4 | 0.4 | 0.4 | 0.4 |
| July | 1.2 | 0.6 | 0.3 | 0.3 | 0.3 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 |
| Nov | 1.5 | 0.8 | 0.4 | 0.6 | 0.52 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 |
| Jan | 0.3 | 0.3 | 0.4 | 0.6 | 0.6 | 0.7 | 0.9 | 0.9 | 0.7 | 0.7 | 0.8 | 0.7 |

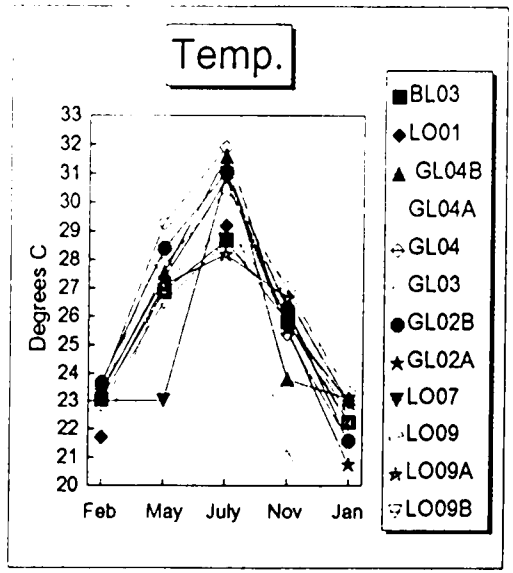



Depth profile: bottom, middle and surface

Cross section profile: center and 5 feet from each bank

Average Values Measured in Profiles Using a Hydrolab and CHEMetrics Test Kits

| Parameter | Sample Sites | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Temp. | BL03 | LO01 | GL04B | GL04A | GL04 | GL03 | GL02B | GL02A | LO07 | LO09 | LO09A | LO09B |
| Feb | 23.07 | 21.7 | 23.26 | | 23.5 | 23.24 | 23.67 | 23.38 | 23.03 | | 23.02 | 22.86 |
| May | 26.88 | 27.15 | 27.54 | 29.5 | 29.3 | 28.7 | 28.4 | 27.32 | 23.02 | 27.82 | 27.1 | 26.51 |
| July | 28.7 | 29.2 | 31.61 | 32.3 | 31.9 | 31 | 31.07 | 30.8 | 31 | 30.48 | 28.2 | 28.65 |
| Nov | 25.85 | 26.17 | 23.8 | 25 | 25.4 | 21.1 | 26.26 | 25.6 | 25.82 | 27 | 26.67 | 26.18 |
| Jan | 22.24 | 22.2 | 23.12 | 21.56 | 21.6 | 22.06 | 21.58 | 20.76 | 23 | 23.3 | 23 | 22.5 |




Depth profile: bottom, middle and surface

Cross section profile: center and 5 feet from each bank

Black Point Biomonitoring

| Site ID | Sample Date | Sample Time | HYDROLAB Temp. Deg. C | pH Units | Cond. us/cm | Salinity ppt | DO mg/l | Redox mV | Depth feet | DERM LAB NOx-N mg/l | O-P04 mg/l | CHEMetrics NH3-N mg/l | NOx-N mg/l | CAC03 mg/l |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LO01 CENTER | 02/24/93 | 101156 | 21.70 | 7.95 | 522 | 0.3 | 9.98 | 509 | 5.9 | | | | | |
| LO01 CENTER | 02/24/93 | 101247 | 21.69 | 7.91 | 522 | 0.3 | 9.67 | 511 | 3 | | | | | |
| LO01 CENTER | 02/24/93 | 101337 | 21.70 | 7.90 | 522 | 0.3 | 9.68 | 511 | 0.3 | | | 0.100 | 0.100 | |
| AVG | | | 21.70 | 7.92 | 522 | 0.3 | 9.78 | 510 | | | | 0.100 | 0.100 | |
| L001 CENTER | 05/10/93 | 122336 | 26.97 | 7.87 | 555 | 0.3 | 10.41 | 584 | 5.6 | | | 0.150 | 0.050 | 200 |
| L001 CENTER | 05/10/93 | 122433 | 27.16 | 7.85 | 551 | 0.3 | 10.46 | 580 | 2.9 | 0.02 | | 0.100 | 0.050 | 180 |
| L001 CENTER | 05/10/93 | 122540 | 27.33 | 7.88 | 547 | 0.3 | 10.75 | 573 | 0.3 | | | 0.100 | 0.050 | 200 |
| AVG | | | 27.15 | 7.87 | 551 | 0.3 | 10.54 | 579 | | | | 0.117 | 0.050 | 193 |
| L001 CENTER | 07/19/93 | 92846 | 29.17 | 7.48 | 1187 | 0.6 | 8.99 | 392 | 4.5 | | | 0.200 | 0.100 | 200 |
| L001 CENTER | 07/19/93 | 92935 | 29.22 | 7.47 | 1184 | 0.6 | 8.92 | 394 | 2.8 | | 0.004 | 0.200 | 0.030 | |
| L001 CENTER | 07/19/93 | 93003 | 29.26 | 7.49 | 1184 | 0.6 | 9.05 | 393 | 0.2 | | | 0.200 | 0.000 | 200 |
| AVG | | | 29.22 | 7.48 | 1185 | 0.6 | 8.99 | 393 | | | | 0.200 | 0.043 | 200 |
| L001 EAST | 07/19/93 | 92311 | 29.14 | 7.48 | 1189 | 0.6 | 9.08 | 409 | 3.6 | | | | | |
| L001 EAST | 07/19/93 | 92356 | 29.20 | 7.49 | 1155 | 0.6 | 8.83 | 406 | 0.1 | | | 0.250 | BDL | 200 |
| AVG | | | 29.17 | 7.49 | 1172 | 0.6 | 8.96 | 408 | | | | | | |
| L001 WEST | 07/19/93 | 92608 | 29.12 | 7.47 | 1187 | 0.6 | 8.95 | 402 | 4.6 | | | | | |
| L001 WEST | 07/19/93 | 92646 | 29.28 | 7.49 | 1184 | 0.6 | 9.10 | 398 | 0.1 | | | 0.250 | 0.050 | |
| AVG | | | 29.20 | 7.48 | 1186 | 0.6 | 9.03 | 400 | | | | | | |
| L001 CENTER | 11/08/93 | 123922 | 25.92 | 7.59 | 1538 | 0.8 | 10.24 | 356 | 6.3 | | | 0.200 | 0.100 | 220 |
| L001 CENTER | 11/08/93 | 124127 | 26.15 | 7.51 | 1549 | 0.8 | 8.39 | 352 | 3.2 | | 0.004 | 0.200 | 0.050 | 180 |
| L001 CENTER | 11/08/93 | 124301 | 26.31 | 7.50 | 1547 | 0.8 | 7.94 | 348 | 0.3 | | | 0.100 | 0.050 | 220 |
| AVG | | | 26.13 | 7.53 | 1545 | 0.8 | 8.86 | 352 | | | | 0.167 | 0.067 | 207 |
| L001 EAST | 11/08/93 | 124700 | 25.98 | 7.60 | 1547 | 0.8 | 9.79 | 356 | 5.8 | | | | | |
| L001 EAST | 11/08/93 | 124815 | 26.19 | 7.53 | 1545 | 0.8 | 8.60 | 356 | 3.7 | | | | | |
| L001 EAST | 11/08/93 | 124919 | 26.34 | 7.50 | 1545 | 0.8 | 8.19 | 344 | 0.4 | | | | | |
| AVG | | | 26.17 | 7.54 | 1546 | 0.8 | 8.56 | 352 | | | | | | |
| L001 WEST | 11/08/93 | 123212 | 26.05 | 7.56 | 1542 | 0.8 | 9.71 | 353 | 4.4 | | | | | |
| L001 WEST | 11/08/93 | 123508 | 26.19 | 7.53 | 1553 | 0.8 | 8.79 | 350 | 2.3 | | | | | |
| L001 WEST | 11/08/93 | 123400 | 26.38 | 7.53 | 1554 | 0.8 | 8.88 | 350 | 0.3 | | | 0.100 | 0.050 | 180 |
| AVG | | | 26.21 | 7.54 | 1550 | 0.8 | 9.13 | 351 | | | | | | |
| LO01 CENTER | 01/03/94 | 102121 | 21.72 | 7.47 | 551 | 0.3 | 5.84 | 480 | 5.9 | | | 0.050 | BDL | 200 |
| LO01 CENTER | 01/03/94 | 102157 | 22.22 | 7.66 | 527 | 0.3 | 8.36 | 479 | 2.6 | | 0.003 | 0.050 | 0.100 | 180 |
| LO01 CENTER | 01/03/94 | 102228 | 22.25 | 7.70 | 526 | 0.3 | 8.43 | 476 | 0.66 | | | 0.100 | 0.100 | 200 |
| AVG | | | 22.06 | 7.61 | 535 | 0.3 | 7.54 | 478 | | | | 0.067 | 0.067 | 193 |

DERM Lab MDLs: NOx-N - 0.01 mg/L, O-PO4 - 0.002 mg/L

CHEMetrics MDLs: NH3-N - 0.1 mg/L, NOx-N - 0.1 mg/L

MDL - minimum detection limit, BDL - below detection limit

Black Point Biomonitoring

| Site ID | Sample Date | Sample Time | Temp. Deg. C | pH pH Units | HYDROLAB Cond. us/cm | HYDROLAB Salinity ppt | DO mg/l | Redox mV | Depth feet | DERM LAB NOx-N mg/l | DERM LAB O-P04 mg/l | CHEMetrics NH3-N mg/l | CHEMetrics NOx-N mg/l | CHEMetrics CAC03 mg/l |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LO01 EAST | 01/03/94 | 101321 | 22.22 | 7.79 | 523 | 0.3 | 9.01 | 483 | 3.3 | | | | | |
| LO01 EAST | 01/03/94 | 101348 | 22.25 | 7.76 | 522 | 0.3 | 8.75 | 485 | 2 | | | | | |
| LO01 EAST | 01/03/94 | 101414 | 22.24 | 7.74 | 521 | 0.3 | 8.63 | 485 | 0.3 | | | 0.100 | 0.100 | 160 |
| AVG | | | 22.24 | 7.76 | 522 | 0.3 | 8.80 | 484 | | | | | | |
| LO01 WEST | 01/03/94 | 101716 | 22.25 | 7.73 | 526 | 0.3 | 8.57 | 481 | 4.6 | | | | | |
| LO01 WEST | 01/03/94 | 101739 | 22.25 | 7.73 | 526 | 0.3 | 8.47 | 481 | 2.3 | | | | | |
| LO01 WEST | 01/03/94 | 101807 | 22.27 | 7.72 | 525 | 0.3 | 8.38 | 480 | 0.3 | | | BDL | 0.100 | 200 |
| AVG | | | 22.26 | 7.73 | 526 | 0.3 | 8.47 | 481 | | | | | | |

| Site ID | Sample Date | Sample Time | Temp. Deg. C | pH pH Units | Cond. us/cm | HYDROLAB Salinity ppt | DO mg/l | Redox mV | Depth feet | DERM LAB NOx-N mg/l | DERM LAB O-P04 mg/l | CHEMetrics NH3-N mg/l | CHEMetrics NOx-N mg/l | CHEMetrics CAC03 mg/l |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

DERM Lab MDLs: NOx-N - 0.01 mg/L, O-PO4 - 0.002 mg/L CHEMetrics MDLs: NH3-N - 0.1 mg/L, NOx-N - 0.1 mg/L MDL - minimum detection limit, BDL - below detection limit

Black Point Biomonitoring

| Site ID | Sample Date | Sample Time | Temp. Deg. C | pH Unit | HYDROLAB Cond. us/cm | Salinity ppt | DO mg/l | Redox mV | Depth feet | DERM LAB NOx-N mg/l | O-P04 mg/l | CHEMetric NH3-N mg/l | NOx-N mg/l | CAC03 mg/l |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BL03 | 02/24/93 | 130820 | 22.88 | 7.76 | 548 | 0.3 | 8.56 | 489 | 14.4 | | | | | |
| BL03 | 02/24/93 | 130917 | 22.97 | 7.75 | 550 | 0.3 | 8.13 | 490 | 6.9 | | | 0.1 | 0.15 | |
| BL03 | 02/24/93 | 131013 | 23.37 | 7.79 | 549 | 0.3 | 8.37 | 488 | 0 | | | | | |
| Averages | | | 23.07 | 7.77 | 549 | 0.3 | 8.35 | 489 | | | | | | |
| BL03 CENTER | 05/10/93 | 95508 | 26.91 | 7.72 | 545 | 0.3 | 8.65 | 535 | 14.4 | | | 0.1 | BDL | 220 |
| BL03 CENTER | 05/10/93 | 95702 | 26.95 | 7.73 | 540 | 0.3 | 8.60 | 529 | 7 | 0.1 | | 0.1 | BDL | 240 |
| BL03 CENTER | 05/10/93 | 95811 | 26.91 | 7.74 | 512 | 0.3 | 8.39 | 523 | 0.1 | | | 0.1 | BDL | 200 |
| Averages | | | 26.92 | 7.73 | 532 | 0.3 | 8.55 | 529 | | | | 0.1 | BDL | 220 |
| BL03 NORTH | 05/10/93 | 94947 | 26.89 | 7.74 | 544 | 0.3 | 8.63 | 554 | 11.5 | | | | | |
| BL03 NORTH | 05/10/93 | 95138 | 26.97 | 7.72 | 541 | 0.3 | 8.45 | 547 | 5.5 | | | | | |
| BL03 NORTH | 05/10/93 | 95216 | 26.93 | 7.73 | 540 | 0.3 | 8.44 | 542 | 0.1 | | | | | |
| Averages | | | 26.93 | 7.73 | 542 | 0.3 | 8.51 | 548 | | | | | | |
| BL03 SOUTH | 05/10/93 | 110707 | 27.04 | 7.68 | 537 | 0.3 | 9.15 | 556 | 8 | | | | | |
| BL03 SOUTH | 05/10/93 | 110756 | 27.14 | 7.69 | 541 | 0.3 | 9.07 | 552 | 4 | | | | | |
| BL03 SOUTH | 05/10/93 | 110904 | 26.17 | 7.71 | 541 | 0.3 | 9.09 | 545 | 0.3 | | | | | |
| Averages | | | 26.78 | 7.69 | 539 | 0.3 | 9.10 | 551 | | | | | | |
| BL03 CENTER | 07/19/93 | 75646 | 27.20 | 7.07 | 9377 | 5.3 | 1.43 | 273 | 13.9 | | | 0.1 | 0.05 | 200 |
| BL03 CENTER | 07/19/93 | 75950 | 28.94 | 7.36 | 711 | 0.4 | 7.35 | 331 | 7.1 | | 0.003 | 0.2 | 0.15 | |
| BL03 CENTER | 07/19/93 | 80209 | 29.06 | 7.42 | 563 | 0.3 | 7.93 | 357 | 0 | | | 0.3 | 0.1 | 180 |
| Averages | | | 28.40 | 7.28 | 3550 | 2.0 | 5.57 | 320 | | | | 0.2 | 0.1 | 190 |
| BL03 NORTH | 07/19/93 | 74552 | 28.91 | 7.33 | 1017 | 0.5 | 7.17 | 422 | 8.7 | | | | | |
| BL03 NORTH | 07/19/93 | 74650 | 29.01 | 7.38 | 625 | 0.3 | 7.83 | 421 | 4.4 | | | | | |
| BL03 NORTH | 07/19/93 | 74738 | 29.03 | 7.38 | 612 | 0.3 | 7.90 | 421 | 0 | | | 0.2 | 0.1 | |
| Averages | | | 28.98 | 7.36 | 751 | 0.4 | 7.63 | 421 | | | | | | |
| BL03 SOUTH | 07/19/93 | 84547 | 28.13 | 7.17 | 4948 | 2.7 | 3.49 | 353 | 11.6 | | | | | |
| BL03 SOUTH | 07/19/93 | 48649 | 29.05 | 7.37 | 804 | 0.4 | 7.58 | 353 | 5.3 | | | | | |
| BL03 SOUTH | 07/19/93 | 84758 | 29.07 | 7.36 | 781 | 0.4 | 7.66 | 363 | 0 | | | 0.3 | 0.05 | 180 |
| Averages | | | 28.75 | 7.30 | 2178 | 1.2 | 6.24 | 356 | | | | | | |
| BL03 CENTER | 11/08/93 | 104945 | 27.12 | 7.13 | >10,000 | >10 | 0.12 | 307 | 14.6 | | | | | |
| BL03 CENTER | 11/08/93 | 105017 | 26.88 | 7.15 | 8666 | 4.9 | 0.21 | 302 | 13.5 | | | | | |
| BL03 CENTER | 11/08/93 | 105128 | 25.89 | 7.36 | 1752 | 0.9 | 3.58 | 303 | 10.8 | | | | | |
| BL03 CENTER | 11/08/93 | 105308 | 25.77 | 7.36 | 881 | 0.5 | 4.15 | 323 | 7.3 | | 0.004 | BDL | 0.15 | 220 |
| BL03 CENTER | 11/08/93 | 105708 | 25.59 | 7.62 | 50 | 0.0 | 4.58 | 341 | 0.2 | | | BDL | BDL | 200 |
| Averages | | | 25.75 | 7.45 | | 0.5 | 4.10 | 322 | | | | | | |

DERM Lab MDLs: NOx-N - 0.01 mg/L, O-PO4 - 0.002 mg/L  CHEMetrics MDLs: NH3-N - 0.1 mg/L, NOx-N - 0.1 mg/L  MDL - minimum detection limit, BDL - below detection limit

Black Point Biomonitoring

| Site ID | Sample Date | Sample Time | Temp. Deg. C | pH Unit | HYDROLAB Cond. us/cm | Salinity ppt | DO mg/l | Redox mV | Depth feet | DERM NOx-N mg/l | LAB O-P04 mg/l | NH3-N mg/l | CHEMetric: NOx-N mg/l | CAC03 mg/l |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BL03 NORTH | 11/08/93 | 113110 | 25.85 | 7.32 | 805 | 0.4 | 4.49 | 358 | 4.5 | | | BDL | 0.15 | 200 |
| BL03 SOUTH | 11/08/93 | 111802 | 25.95 | 7.27 | 2294 | 1.2 | 3.72 | 348 | 11.9 | | | | | |
| BL03 SOUTH | 11/08/93 | 111746 | 25.89 | 7.28 | 1154 | 0.9 | 3.74 | 347 | 11.6 | | | | | |
| BL03 SOUTH | 11/08/93 | 112946 | 25.86 | 7.33 | 979 | 0.5 | 4.89 | 356 | 9.3 | | | | | |
| BL03 SOUTH | 11/08/93 | 111949 | 25.80 | 7.33 | 776 | 0.4 | 4.35 | 351 | 5.5 | | | | | |
| BL03 SOUTH | 11/08/93 | 112555 | 25.95 | 7.33 | 670 | 0.3 | 4.47 | 356 | 1.2 | | | | | |
| BL03 SOUTH | 11/08/93 | 111112 | 25.91 | 7.35 | 709 | 0.4 | 4.70 | 347 | 0.8 | | | BDL | 0.15 | 220 |
| Averages | | | 25.89 | 7.34 | 718 | 0.4 | 4.51 | 351 | | | | | | |
| BL03 CENTER | 01/03/94 | 90604 | 22.06 | 7.77 | 529 | 0.3 | 8.42 | 443 | 14.8 | | | BDL | 0.2 | 180 |
| BL03 CENTER | 01/03/94 | 90703 | 22.27 | 7.82 | 531 | 0.3 | 8.53 | 441 | 8.2 | | 0.002 | BDL | | |
| BL03 CENTER | 01/03/94 | 90753 | 22.32 | 7.86 | 527 | 0.3 | 8.54 | 437 | 1 | | | BDL | 0.2 | 200 |
| Averages | | | 22.22 | 7.82 | 529 | 0.3 | 8.50 | 440 | | | | | | |
| BL03 NORTH | 01/03/94 | 93424 | 22.09 | 7.72 | 532 | 0.3 | 8.09 | 465 | 10.8 | | | | | |
| BL03 NORTH | 01/03/94 | 93504 | 22.32 | 7.81 | 524 | 0.3 | 8.59 | 462 | 5.6 | | | | | |
| BL03 NORTH | 01/03/94 | 93523 | 22.34 | 7.83 | 521 | 0.3 | 8.59 | 460 | 0.66 | | | BDL | 0.2 | 200 |
| Averages | | | 22.25 | 7.79 | 526 | 0.3 | 8.42 | 462 | | | | | | |
| BL03 SOUTH | 01/03/94 | 92953 | 22.09 | 7.74 | 530 | 0.3 | 8.77 | 465 | 11.8 | | | | | |
| BL03 SOUTH | 01/03/94 | 93051 | 22.32 | 7.81 | 528 | 0.3 | 8.61 | 462 | 6.2 | | | | | |
| BL03 SOUTH | 01/03/94 | 93136 | 22.32 | 7.84 | 524 | 0.3 | 8.54 | 458 | 0.66 | | | BDL | 0.15 | 160 |
| Averages | | | 22.24 | 7.80 | 527 | 0.3 | 8.64 | 462 | | | | | | |

DERM Lab MDLs: NOx-N - 0.01 mg/L, O-PO4 - 0.002 mg/L  CHEMetrics MDLs: NH3-N - 0.1 mg/L, NOx-N - 0.1 mg/L  MDL - minimum detection limit, BDL - below detection limit

| Site ID | Sample Date | Sample Time | Temp. Deg. C | pH pH Units | Cond. us/cm | HYDROLAB Salinity ppt | DO mg/l | Redox mV | Depth feet | DERM LAB NOx-N mg/l | O-P04 mg/l | CHEMetrics NH3-N mg/l | NOx-N mg/l | CAC03 mg/l |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| GL02A | 02/23/93 | 115837 | 22.49 | 7.64 | 1810 | 1 | 4.02 | 476 | 10.5 | | | | | |
| GL02A | 02/23/93 | 115956 | 23.63 | 7.79 | 1734 | 0.9 | 6.26 | 471 | 4.92 | 2.01 | | 4.00 | 1.50 | 100 |
| GL02A | 02/23/93 | 121512 | 24.00 | 7.82 | 1733 | 0.9 | 6.70 | 473 | 0 | | | | | |
| Averages | | | 23.39 | 7.75 | 1759 | 0.9 | 5.68 | 473 | | | | | | |
| GL02A CENTER | 05/18/93 | 91546 | 27.24 | 7.93 | 947 | 0.5 | 9.88 | 604 | 13 | | | 0.10 | 2.00 | 120 |
| GL02A CENTER | 05/18/93 | 91623 | 27.25 | 7.95 | 947 | 0.5 | 10.00 | 602 | 6.5 | 1.27 | | 0.10 | 1.50 | 120 |
| GL02A CENTER | 05/18/93 | 91657 | 27.37 | 7.99 | 948 | 0.5 | 10.17 | 598 | 0.2 | | | 0.10 | 2.00 | 140 |
| Averages | | | 27.29 | 7.96 | 947 | 0.5 | 10.02 | 601 | | | | 0.10 | 1.83 | 127 |
| GL02A CENTER DUP | 05/18/93 | 100114 | 27.31 | 7.94 | 948 | 0.5 | 9.89 | 561 | 13.4 | | | | | |
| GL02A CENTER DUP | 05/18/93 | 100207 | 27.29 | 7.94 | 947 | 0.5 | 9.96 | 561 | 6.8 | 1.35 | | | | |
| GL02A CENTER DUP | 05/18/93 | 100253 | 27.49 | 7.96 | 947 | 0.5 | 10.12 | 559 | 0.3 | | | 0.10 | 1.50 | 120 |
| Averages | | | 27.36 | 7.95 | 947 | 0.5 | 9.99 | 560 | | | | | | |
| GL02A NORTH | 05/18/93 | 84905 | 27.27 | 7.98 | 946 | 0.5 | 9.98 | 593 | 12.9 | | | | | |
| GL02A NORTH | 05/18/93 | 84005 | 27.27 | 7.97 | 946 | 0.5 | 9.83 | 591 | 6.4 | | | | | |
| GL02A NORTH | 05/18/93 | 85102 | 27.31 | 7.99 | 945 | 0 | 10.05 | 587 | 0.4 | | | 0.10 | 1.50 | 140 |
| Averages | | | 27.28 | 7.98 | 946 | 0.3 | 9.95 | 590 | | | | | | |
| GL02A NORTH DUP | 05/18/93 | 103519 | 27.31 | 7.92 | 949 | 0.5 | 10.02 | 578 | 12.9 | | | | | |
| GL02A NORTH DUP | 05/18/93 | 103646 | 27.33 | 7.93 | 945 | 0.5 | 9.97 | 575 | 6.5 | | | | | |
| GL02A NORTH DUP | 05/18/93 | 103740 | 27.68 | 7.94 | 947 | 0.5 | 10.22 | 571 | 0.4 | | | 0.10 | 1.50 | 140 |
| Averages | | | 27.44 | 7.93 | 947 | 0.5 | 10.07 | 575 | | | | | | |
| GL02A SOUTH | 05/18/93 | 104534 | 27.37 | 7.95 | 946 | 0.5 | 10.31 | 585 | 9.6 | | | | | |
| GL02A SOUTH | 05/18/93 | 104624 | 27.35 | 7.95 | 946 | 0.5 | 10.19 | 583 | 6 | | | | | |
| GL02A SOUTH | 05/18/93 | 104710 | 27.68 | 7.96 | 947 | 0.5 | 10.45 | 579 | 0.2 | | | 0.10 | 2.50 | 140 |
| Averages | | | 27.47 | 7.95 | 946 | 0.5 | 10.32 | 582 | | | | | | |
| GL02A SOUTH DUP | 05/18/93 | 104636 | 27.37 | 7.95 | 947 | 0.5 | 10.16 | 578 | 8.5 | | | | | |
| GL02A SOUTH DUP | 05/18/93 | 104913 | 27.37 | 7.94 | 946 | 0.5 | 10.16 | 577 | 5.9 | | | | | |
| GL02A SOUTH DUP | 05/18/93 | 104946 | 27.64 | 7.96 | 947 | 0.5 | 10.36 | 574 | 0.3 | | | 0.10 | 2.50 | 120 |
| Averages | | | 27.46 | 7.95 | 946 | 0.5 | 10.23 | 576 | | | | | | |
| GL02A CENTER | 07/20/93 | 72752 | 30.61 | 7.68 | 709 | 0.4 | 8.86 | 399 | 13.9 | | | 0.10 | 2.00 | |
| GL02A CENTER | 07/20/93 | 72913 | 30.84 | 7.73 | 701 | 0.4 | 9.82 | 400 | 6.8 | | 0.004 | 0.20 | 1.00 | |
| GL02A CENTER | 07/20/93 | 73019 | 30.84 | 7.74 | 699 | 0.4 | 9.93 | 401 | 0.1 | | | 0.20 | 1.50 | 160 |
| Averages | | | 30.76 | 7.72 | 703 | | 9.54 | 400 | | | | 0.17 | 1.50 | 160 |
| GL02A NORTH | 07/20/93 | 72239 | 30.59 | 7.68 | 705 | 0.4 | 8.74 | 389 | 13 | | | | | |
| GL02A NORTH | 07/20/93 | 72341 | 30.79 | 7.73 | 702 | 0.4 | 9.73 | 400 | 6.5 | | | | | |
| GL02A NORTH | 07/20/93 | 72437 | 30.81 | 7.74 | 701 | 0.4 | 9.87 | 399 | 0.3 | | | 0.30 | 1.00 | 160 |
| Averages | | | 30.73 | 7.72 | 703 | 0.4 | 9.45 | 396 | | | | | | |

DERM Lab MDLs: NOx-N - 0.01 mg/L, O-PO4 - 0.002 mg/L

CHEMetrics MDLs: NH3-N - 0.1 mg/L, NOx-N - 0.1 mg/L

MDL - minimum detection limit, BDL - below detection limit

Black Point Biomonitoring

| Site ID | Sample Date | Sample Time | Temp. Deg. C | pH pH Units | Cond. us/cm | HYDROLAB Salinity ppt | DO mg/l | Redox mV | Depth feet | DERM LAB NOx-N mg/l | O-P04 mg/l | CHEMetrics NH3-N mg/l | NOx-N mg/l | CAC03 mg/l |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| GL02A SOUTH | 07/20/93 | 74458 | 30.84 | 7.68 | 705 | 0.4 | 9.26 | 408 | 12.4 | | | | | |
| GL02A SOUTH | 07/20/93 | 74558 | 30.92 | 7.72 | 700 | 0.4 | 9.77 | 408 | 6.3 | | | | | |
| GL02A SOUTH | 07/20/93 | 74707 | 30.92 | 7.73 | 699 | 0.4 | 9.52 | 407 | 0.2 | | | 0.20 | 1.50 | |
| Averages | | | 30.89 | 7.71 | 701 | 0.4 | 9.52 | 408 | | | | | | |
| GL02A CENTER | 11/09/93 | 100131 | 25.46 | 7.72 | 1252 | 0.7 | 8.91 | 350 | 11.8 | | | 0.30 | 1.00 | 220 |
| GL02A CENTER | 11/09/93 | 100407 | 25.51 | 7.78 | 1252 | 0.7 | 9.23 | 348 | 6.1 | | 0.007 | 0.30 | 0.90 | 260 |
| GL02A CENTER | 11/09/93 | 101303 | 25.83 | 7.84 | 1250 | 0.7 | 9.53 | 333 | 0.7 | | | 0.20 | 1.00 | 220 |
| Averages | | | 25.60 | 7.78 | 1251 | 0.7 | 9.22 | 344 | | | | 0.27 | 0.97 | 233 |
| GL02A NORTH | 11/09/93 | 94657 | 25.51 | 7.76 | 1251 | 0.7 | 8.92 | 358 | 11.6 | | | | | |
| GL02A NORTH | 11/09/93 | 94905 | 25.51 | 7.79 | 1252 | 0.7 | 9.27 | 356 | 6 | | | | | |
| GL02A NORTH | 11/09/93 | 95009 | 25.75 | 7.83 | 1250 | 0.7 | 9.55 | 347 | 0.5 | | | 0.30 | 0.90 | 220 |
| Averages | | | 25.59 | 7.79 | 1251 | 0.7 | 9.25 | 354 | | | | | | |
| GL02A SOUTH | 11/09/93 | 102412 | 25.51 | 7.75 | 1251 | 0.7 | 9.15 | 357 | 10.5 | | | | | |
| GL02A SOUTH | 11/09/93 | 102552 | 25.57 | 7.78 | 1252 | 0.7 | 9.43 | 353 | 5.3 | | | | | |
| GL02A SOUTH | 11/09/93 | 102720 | 25.87 | 7.82 | 1251 | 0.7 | 9.51 | 340 | 0.6 | | | 0.20 | 0.80 | 200 |
| Averages | | | 25.65 | 7.78 | 1251 | 0.7 | 9.36 | 350 | | | | | | |
| GL02A CENTER | 01/11/94 | 90330 | 20.87 | 7.78 | 1683 | 0.9 | 7.22 | 546 | 11 | | | 3.00 | 3.00 | 220 |
| GL02A CENTER | 01/11/94 | 90544 | 20.75 | 7.78 | 1689 | 0.9 | 7.07 | 545 | 5.5 | | 0.006 | 3.00 | 3.00 | 220 |
| GL02A CENTER | 01/11/94 | 90644 | 20.73 | 7.78 | 1688 | 0.9 | 7.06 | 544 | 0.6 | | | 3.00 | 2.50 | 240 |
| Averages | | | 20.78 | 7.78 | 1687 | 0.9 | 7.12 | 545 | | | | 3.00 | 2.83 | 227 |
| GL02A NORTH | 01/11/94 | 91700 | 20.72 | 7.75 | 1670 | 0.9 | 7.07 | 530 | 8.8 | | | | | |
| GL02A NORTH | 01/11/94 | 91755 | 20.72 | 7.76 | 1682 | 0.9 | 7.06 | 530 | 4.4 | | | | | |
| GL02A NORTH | 01/11/94 | 91852 | 20.73 | 7.77 | 1682 | 0.9 | 7.08 | 527 | 1 | | | 3.00 | 2.00 | 240 |
| Averages | | | 20.72 | 7.76 | 1678 | 0.9 | 7.07 | 529 | | | | | | |
| GL02ASOUTH | 01/11/94 | 90944 | 20.75 | 7.76 | 1676 | 0.9 | 6.98 | 544 | 7.4 | | | | | |
| GL02ASOUTH | 01/11/94 | 91058 | 20.75 | 7.76 | 1682 | 0.9 | 6.97 | 542 | 3.2 | | | | | |
| GL02ASOUTH | 01/11/94 | 91140 | 20.79 | 7.75 | 1689 | 0.9 | 6.89 | 537 | 0.9 | | | 3.00 | 2.50 | 220 |
| Averages | | | 20.76 | 7.76 | 1682 | 0.9 | 6.95 | 541 | | | | | | |

DERM Lab MDLs: NOx-N - 0.01 mg/L, O-PO4 - 0.002 mg/L

CHEMetrics MDLs: NH3-N - 0.1 mg/L, NOx-N - 0.1 mg/L

MDL - minimum detection limit, BDL - below detection limit

Black Point Biomonitoring

| Site ID | Sample Date | Sample Time | HYDROLAB Temp. Deg. C | pH pH Units | Cond. us/cm | Salinity ppt | DO mg/l | Redox mV | Depth feet | DERM LAB NOx-N mg/l | O-P04 mg/l | CHEMetrics NH3-N mg/l | NOx-N mg/l | CAC03 mg/l |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| GL02B | 02/23/93 | 130030 | 23.52 | 7.60 | 1766 | 0.9 | 4.85 | 409 | 6.9 | | | | | |
| GL02B | 02/23/93 | 130123 | 23.62 | 7.77 | 1665 | 0.9 | 6.54 | 408 | 3.6 | | | 4.00 | 2.00 | |
| GL02B | 02/23/93 | 130203 | 23.87 | 7.81 | 1659 | 0.9 | 6.88 | 411 | 0.3 | | | | | |
| Averages | | | 23.67 | 7.73 | 1697 | 0.9 | 6.09 | 409 | | | | | | |
| GL02B CENTER | 05/18/93 | 130739 | 28.32 | 8.01 | 937 | 0.5 | 10.71 | 470 | 7.3 | | | 0.10 | 1.00 | 120 |
| GL02B CENTER | 05/18/93 | 130818 | 28.40 | 8.00 | 935 | 0.5 | 10.64 | 470 | 4.1 | 1.26 | | 0.10 | 2.00 | 120 |
| GL02B CENTER | 05/18/93 | 130921 | 28.49 | 7.99 | 933 | 0.5 | 10.59 | 465 | 0.1 | | | 0.10 | 1.50 | 140 |
| Averages | | | 28.40 | 8.00 | 935 | 0.5 | 10.65 | 468 | | | | 0.10 | 1.50 | 127 |
| GL02B NORTH | 05/18/93 | 134303 | 28.42 | 7.99 | 932 | 0.5 | 10.98 | 442 | 6.3 | | | | | |
| GL02B NORTH | 05/18/93 | 134336 | 28.53 | 7.99 | 935 | 0.5 | 10.83 | 443 | 3.3 | | | | | |
| GL02B NORTH | 05/18/93 | 134412 | 28.67 | 7.99 | 935 | 0.5 | 10.62 | 442 | 0.2 | | | 0.10 | 2.00 | 140 |
| Averages | | | 28.54 | 7.99 | 934 | 0.5 | 10.81 | 442 | | | | | | |
| GL02B SOUTH | 05/18/93 | 130201 | 28.30 | 8.02 | 933 | 0.5 | 10.75 | 479 | 7.6 | | | | | |
| GL02B SOUTH | 05/18/93 | 130250 | 28.34 | 8.01 | 934 | 0.5 | 10.66 | 478 | 4 | | | | | |
| GL02B SOUTH | 05/18/93 | 130332 | 28.46 | 8.00 | 931 | 0.5 | 10.74 | 476 | 0.3 | | | 0.10 | | 140 |
| Averages | | | 28.37 | 8.01 | 933 | 0.5 | 10.72 | 478 | | | | | | |
| GL02B CENTER | 07/20/93 | 84908 | 31.00 | 7.73 | 697 | 0.4 | 9.68 | 383 | 7.8 | | | 0.30 | 2.00 | 160 |
| GL02B CENTER | 07/20/93 | 85248 | 31.12 | 7.73 | 696 | 0.4 | 9.70 | 390 | 3.6 | | 0.004 | 0.30 | 2.00 | |
| GL02B CENTER | 07/20/93 | 85512 | 31.14 | 7.73 | 696 | 0.4 | 9.60 | 359 | 0.1 | | | 0.20 | 1.50 | 160 |
| Averages | | | 31.09 | 7.73 | 696 | 0.4 | 9.66 | 377 | | | | 0.27 | 1.83 | 160 |
| GL02B NORTH | 07/20/93 | 90633 | 31.00 | 7.73 | 697 | 0.4 | 9.83 | 375 | 6.1 | | | | | |
| GL02B NORTH | 07/20/93 | 90723 | 31.16 | 7.72 | 695 | 0.4 | 9.67 | 377 | 3 | | | | | |
| GL02B NORTH | 07/20/93 | 90806 | 31.16 | 7.73 | 696 | 0.4 | 9.62 | 376 | 0.2 | | | 0.20 | 1.50 | |
| Averages | | | 31.11 | 7.73 | 696 | 0.4 | 9.71 | 376 | | | | | | |
| GL02B SOUTH | 07/20/93 | 83840 | 30.96 | 7.73 | 698 | 0.4 | 9.71 | 401 | 7.5 | | | | | |
| GL02B SOUTH | 07/20/93 | 83946 | 31.03 | 7.74 | 697 | 0.4 | 9.71 | 402 | 3.5 | | | | | |
| GL02B SOUTH | 07/20/93 | 84042 | 31.06 | 7.74 | 696 | 0.4 | 9.68 | 400 | 0.2 | | | 0.20 | 1.50 | 180 |
| Averages | | | 31.02 | 7.74 | 697 | 0.4 | 9.70 | 401 | | | | | | |
| GL02B CENTER | 11/09/93 | 112834 | 26.08 | 7.86 | 1250 | 0.7 | 10.55 | 355 | 7.1 | | | BDL | 0.30 | 180 |
| GL02B CENTER | 11/09/93 | 112911 | 26.24 | 7.86 | 1250 | 0.7 | 9.82 | 354 | 3.5 | | 0.007 | BDL | 0.80 | 200 |
| GL02B CENTER | 11/09/93 | 112725 | 26.36 | 7.87 | 1251 | 0.7 | 9.76 | 351 | 0.5 | | | BDL | 0.80 | 200 |
| Averages | | | 26.23 | 7.86 | 1250 | 0.7 | 10.04 | 353 | | | | BDL | 0.63 | 193 |

DERM Lab MDLs: NOx-N - 0.01 mg/L, O-PO4 - 0.002 mg/L  CHEMetrics MDLs: NH3-N - 0.1 mg/L, NOx-N - 0.1 mg/L  MDL - minimum detection limit, BDL - below detection limit

Black Point Biomonitoring

| Site ID | Sample Date | Sample Time | HYDROLAB Temp. Deg. C | pH pH Units | Cond. us/cm | Salinity ppt | DO mg/l | Redox mV | Depth feet | DERM LAB NOx-N mg/l | O-P04 mg/l | CHEMetrics NH3-N mg/l | NOx-N mg/l | CAC03 mg/l |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| GL02B NORTH | 11/09/93 | 113149 | 26.13 | 7.86 | 1251 | 0.7 | 10.51 | 353 | 6.2 | | | | | |
| GL02B NORTH | 11/09/93 | 113117 | 26.31 | 7.84 | 1253 | 0.7 | 9.69 | 352 | 3.5 | | | | | |
| GL02B NORTH | 11/09/93 | 113041 | 26.34 | 7.85 | 1254 | 0.7 | 9.75 | 351 | 0.3 | | | 0.10 | 0.80 | 180 |
| Averages | | | 26.26 | 7.85 | 1253 | 0.7 | 9.98 | 352 | | | | | | |
| GL02B SOUTH | 11/09/93 | 112311 | 26.19 | 7.89 | 1249 | 0.7 | 10.56 | 360 | 6.7 | | | | | |
| GL02B SOUTH | 11/09/93 | 112357 | 26.23 | 7.87 | 1250 | 0.7 | 10.13 | 361 | 4.3 | | | | | |
| GL02B SOUTH | 11/09/93 | 112421 | 26.44 | 7.88 | 1249 | 0.7 | 9.93 | 359 | 0.6 | | | BDL | 0.80 | 180 |
| Averages | | | 26.29 | 7.88 | 1249 | 0.7 | 10.21 | 360 | | | | | | |
| GL02B CENTER | 01/11/94 | 102346 | 21.54 | 7.60 | 1732 | 0.9 | 6.32 | 503 | 7.4 | | | 4.00 | 1.50 | 220 |
| GL02B CENTER | 01/11/94 | 102707 | 21.54 | 7.60 | 1732 | 0.9 | 6.24 | 501 | 3.6 | | 0.008 | 4.00 | 3.00 | 220 |
| GL02B CENTER | 01/11/94 | 102812 | 21.56 | 7.60 | 1732 | 0.9 | 6.27 | 499 | 0.8 | | | 4.00 | 2.50 | 240 |
| Averages | | | 21.55 | 7.60 | 1732 | 0.9 | 6.28 | 501 | | | | 4.00 | 2.33 | 227 |
| GL02B NORTH | 01/11/94 | 103113 | 21.58 | 7.57 | 1726 | 0.9 | 6.34 | 495 | 5.3 | | | | | |
| GL02B NORTH | 01/11/94 | 103210 | 21.63 | 7.56 | 1726 | 0.9 | 5.95 | 495 | 2.3 | | | | | |
| GL02B NORTH | 01/11/94 | 103253 | 21.67 | 7.56 | 1720 | 0.9 | 5.87 | 494 | 0.8 | | | 4.00 | 2.50 | 220 |
| Averages | | | 21.63 | 7.56 | 1724 | 0.9 | 6.05 | 495 | | | | | | |
| GL02B SOUTH | 01/11/94 | 103721 | 21.51 | 7.60 | 1719 | 0.9 | 6.50 | 486 | 7.4 | | | | | |
| GL02B SOUTH | 01/11/94 | 103807 | 21.53 | 7.60 | 1725 | 0.9 | 6.40 | 486 | 3.8 | | | | | |
| GL02B SOUTH | 01/11/94 | 103916 | 21.54 | 7.61 | 1726 | 0.9 | 6.39 | 482 | 0.8 | | | 4.00 | 3.00 | 220 |
| Averages | | | 21.53 | 7.60 | 1723 | 0.9 | 6.43 | 485 | | | | | | |

DERM Lab MDLs: NOx-N - 0.01 mg/L, O-PO4 - 0.002 mg/L  CHEMetrics MDLs: NH3-N - 0.1 mg/L, NOx-N - 0.1 mg/L  MDL - minimum detection limit, BDL - below detection limit

Black Point Biomonitoring

| Site ID | Sample Date | Sample Time | Temp. Deg. C | pH pH Units | Cond. us/cm | HYDROLAB Salinity ppt | DO mg/l | Redox mV | Depth feet | DERM LAB NOx-N mg/l | O-P04 mg/l | CHEMetrics NH3-N mg/l | NOx-N mg/l | CAC03 mg/l |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| GL03 | 02/23/93 | 132538 | 23.15 | 7.58 | 1620 | 0.90 | 5.77 | 462 | 6.9 | | | | | |
| GL03 | 02/23/93 | 132854 | 23.22 | 7.64 | 1486 | 0.80 | 6.37 | 461 | 3.3 | | | 2.00 | 3.50 | |
| GL03 | 02/23/93 | 132811 | 23.35 | 7.65 | 1267 | 0.70 | 7.31 | 460 | 0.3 | | | | | |
| Averages | | | 23.24 | 7.62 | 1458 | 0.80 | 6.48 | 461 | | | | | | |
| GL03 CENTER | 05/17/93 | 105400 | 28.44 | 7.83 | 832 | 0.40 | 9.73 | 435 | 7.3 | | | 0.10 | 2.00 | 140 |
| GL03 CENTER | 05/17/93 | 105447 | 28.57 | 7.93 | 859 | 0.40 | 10.40 | 433 | 3.6 | 1.51 | | 0.05 | 2.00 | 140 |
| GL03 CENTER | 05/17/93 | 105551 | 29.01 | 7.95 | 867 | 0.50 | 10.49 | 432 | 0.2 | | | 0.20 | 1.00 | 140 |
| Averages | | | 28.67 | 7.90 | 853 | 0.43 | 10.21 | 433 | | | | 0.12 | 1.67 | 140 |
| GL03 NORTH | 05/17/93 | 112327 | 28.49 | 7.87 | 842 | 0.40 | 10.32 | 428 | 6.8 | | | | | |
| GL03 NORTH | 05/17/93 | 112429 | 28.69 | 7.93 | 859 | 0.40 | 10.81 | 426 | 3.3 | | | | | |
| GL03 NORTH | 05/17/93 | 112501 | 29.14 | 7.95 | 867 | 0.50 | 10.81 | 424 | 0.3 | | | 0.05 | 3.50 | 140 |
| Averages | | | 28.77 | 7.92 | 856 | 0.43 | 10.65 | 426 | | | | | | |
| GL03 SOUTH | 05/17/93 | 104341 | 28.46 | 7.81 | 827 | 0.40 | 9.49 | 423 | 9.3 | | | | | |
| GL03 SOUTH | 05/17/93 | 104511 | 28.51 | 7.87 | 851 | 0.40 | 9.95 | 426 | 4.6 | | | | | |
| GL03 SOUTH | 05/17/93 | 104549 | 28.99 | 7.94 | 864 | 0.40 | 10.57 | 424 | 0.2 | | | 0.30 | 2.00 | 140 |
| Averages | | | 28.65 | 7.87 | 847 | 0.40 | 10.00 | 424 | | | | | | |
| GL03 CENTER | 07/27/93 | 102747 | 30.90 | 7.48 | 821 | 0.40 | 11.10 | 366 | 7.7 | | | 0.20 | 1.25 | 200 |
| GL03 CENTER | 07/27/93 | 202940 | 30.96 | 7.47 | 825 | 0.40 | 11.03 | 368 | 3.9 | | 0.004 | 0.20 | 2.25 | 200 |
| GL03 CENTER | 07/27/93 | 103054 | 31.12 | 7.45 | 823 | 0.40 | 10.52 | 367 | 0.2 | | | 0.10 | 1.50 | 200 |
| Averages | | | 30.99 | 7.47 | 823 | 0.40 | 10.88 | 367 | | | | 0.17 | 1.67 | 200 |
| GL03 NORTH | 07/27/93 | 103933 | 30.94 | 7.52 | 819 | 0.40 | 11.36 | 352 | 6.2 | | | | | |
| GL03 NORTH | 07/27/93 | 104045 | 31.00 | 7.49 | 819 | 0.40 | 10.85 | 355 | 3.1 | | | | | |
| GL03 NORTH | 07/27/93 | 104127 | 31.12 | 7.49 | 818 | 0.40 | 10.77 | 355 | 0.2 | | | 0.10 | 1.50 | 180 |
| Averages | | | 31.02 | 7.50 | 819 | 0.40 | 10.99 | 354 | | | | | | |
| GL03 SOUTH | 07/27/93 | 101827 | 30.87 | 7.48 | 819 | 0.40 | 10.91 | 376 | 8.1 | | | | | |
| GL03 SOUTH | 07/27/93 | 101928 | 31.00 | 7.48 | 821 | 0.40 | 10.84 | 377 | 4.1 | | | | | |
| GL03 SOUTH | 07/27/93 | 102016 | 31.10 | 7.44 | 822 | 0.40 | 10.65 | 377 | 0.2 | | | 0.10 | 2.00 | 180 |
| Averages | | | 30.99 | 7.47 | 821 | 0.40 | 10.80 | 377 | | | | | | |
| GL03 CENTER | 11/16/93 | 112201 | 25.73 | 7.41 | 1290 | 0.70 | 6.15 | 330 | 7.2 | | | 0.20 | 1.00 | 220 |
| GL03 CENTER | 11/16/93 | 112436 | 26.04 | 7.42 | 1287 | 0.70 | 6.11 | 330 | 3.6 | | 0.01 | 0.20 | 2.00 | 180 |
| GL03 CENTER | 11/16/93 | 113055 | 26.15 | 7.45 | 1298 | 0.70 | 6.22 | 322 | 0.1 | | | 0.20 | 2.50 | 180 |
| Averages | | | 25.97 | 7.43 | 1292 | 0.70 | 6.16 | 327 | | | | 0.20 | 1.83 | 193 |
| GL03 NORTH | 11/16/93 | 115937 | 26.17 | 7.44 | 1292 | 0.70 | 6.71 | 314 | 4.3 | | | | | |
| GL03 NORTH | 11/16/93 | 120228 | 26.23 | 7.45 | 1292 | 0.70 | 6.44 | 315 | 2.3 | | | | | |
| GL03 NORTH | 11/16/93 | 120412 | 26.27 | 7.46 | 1292 | 0.70 | 6.53 | 305 | 0.1 | | | 0.10 | 2.00 | 180 |
| Averages | | | 26.22 | 7.45 | 1292 | 0.70 | 6.56 | 311 | | | | | | |

DERM Lab MDLs: NOx-N - 0.01 mg/L, O-PO4 - 0.002 mg/L

CHEMetrics MDLs: NH3-N - 0.1 mg/L, NOx-N - 0.1 mg/L

MDL - minimum detection limit, BDL - below detection limit

Black Point Biomonitoring

| Site ID | Sample Date | Sample Time | Temp. Deg. C | pH pH Units | Cond. us/cm | HYDROLAB Salinity ppt | DO mg/l | Redox mV | Depth feet | DERM LAB NOx-N mg/l | O-P04 mg/l | CHEMetrics NH3-N mg/l | NOx-N mg/l | CAC03 mg/l |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| GL03 SOUTH | 11/16/93 | 113401 | 26.04 | 7.43 | 1288 | 0.70 | 6.21 | 323 | 6.9 | | | | | |
| GL03 SOUTH | 11/16/93 | 113552 | 26.11 | 7.42 | 1284 | 0.70 | 6.26 | 320 | 3.5 | | | | | |
| GL03 SOUTH | 11/16/93 | 113814 | 26.21 | 7.47 | 1311 | 0.70 | 6.35 | 313 | 0.3 | | | 0.20 | 1.50 | 180 |
| Averages | | | 26.12 | 7.44 | 1294 | 0.70 | 6.27 | 319 | | | | | | |
| GL03 CENTER | 01/10/94 | 121957 | 22.00 | 7.37 | 1242 | 0.70 | 5.87 | 392 | 7.6 | | | 0.20 | 2.00 | 240 |
| GL03 CENTER | 01/10/94 | 122153 | 22.02 | 7.37 | 1244 | 0.70 | 5.79 | 385 | 3.8 | | 0.009 | 0.10 | 2.00 | 240 |
| GL03 CENTER | 01/10/94 | 122308 | 22.06 | 7.38 | 1238 | 0.70 | 5.88 | 373 | 0.5 | | | 0.10 | 2.00 | 220 |
| Averages | | | 22.03 | 7.37 | 1241 | 0.70 | 5.85 | 383 | | | | 0.13 | 2.00 | 233 |
| GL03 NORTH | 01/10/94 | 123526 | 22.06 | 7.40 | 1239 | 0.70 | 6.64 | 374 | 5.6 | | | | | |
| GL03 NORTH | 01/10/94 | 123605 | 22.13 | 7.39 | 1238 | 0.70 | 6.35 | 371 | 2.4 | | | | | |
| GL03 NORTH | 01/10/94 | 123631 | 22.13 | 7.39 | 1240 | 0.70 | 6.36 | 368 | 0.6 | | | 0.10 | 1.50 | 220 |
| Averages | | | 22.11 | 7.39 | 1239 | 0.70 | 6.45 | 371 | | | | | | |
| GL03 SOUTH | 01/10/94 | 123025 | 22.06 | 7.37 | 1265 | 0.70 | 5.82 | 388 | 7.4 | | | | | |
| GL03 SOUTH | 01/10/94 | 123123 | 22.06 | 7.38 | 1248 | 0.70 | 5.94 | 385 | 3.9 | | | | | |
| GL03 SOUTH | 01/10/94 | 123201 | 22.06 | 7.39 | 1242 | 0.70 | 5.93 | 381 | 0.8 | | | 0.10 | 1.50 | 220 |
| Averages | | | 22.06 | 7.38 | 1252 | 0.70 | 5.90 | 385 | | | | | | |

DERM Lab MDLs: NOx-N - 0.01 mg/L, O-PO4 - 0.002 mg/L

CHEMetrics MDLs: NH3-N - 0.1 mg/L, NOx-N - 0.1 mg/L

MDL - minimum detection limit, BDL - below detection limit

| Site ID | Sample Date | Sample Time | Temp. Deg. C | pH pH Units | Cond. us/cm | HYDROLAB Salinity ppt | DO mg/l | Redox mV | Depth feet | DERM LAB NOx-N mg/l | O-P04 mg/l | CHEMetrics NH3-N mg/l | NOx-N mg/l | CAC03 mg/l |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| GL04 | 02/23/93 | 134943 | 23.17 | 7.60 | 1429 | 0.80 | 6.20 | 430 | 3.9 | | | | | |
| GL04 | 02/23/93 | 143053 | 23.87 | 7.24 | 739 | 0.40 | 4.77 | 478 | 2 | | | | | |
| GL04 | 02/23/93 | 135101 | 23.33 | 7.57 | 1334 | 0.70 | 6.28 | 435 | 1.6 | 1.83 | | 2.00 | 1.50 | |
| GL04 | 02/23/93 | 135300 | 23.31 | 7.58 | 1124 | 0.60 | 6.69 | 440 | 0.3 | | | | | |
| Averages | | | 23.50 | 7.48 | 1068 | 0.57 | 5.91 | 451 | | | | | | |
| GL04 CENTER | 05/18/93 | 113607 | 28.83 | 7.68 | 732 | 0.40 | 9.45 | 527 | 4.7 | | | 0.10 | 0.20 | 120 |
| GL04 CENTER | 05/18/93 | 113657 | 29.42 | 7.70 | 771 | 0.40 | 9.74 | 525 | 1.1 | 0.91 | | 0.10 | 1.50 | 120 |
| Averages | | | 29.13 | 7.69 | 751 | 0.40 | 9.60 | 526 | | | | 0.10 | 0.85 | 120 |
| GL04 NORTH | 05/18/93 | 121820 | 29.44 | 7.72 | 775 | 0.40 | 10.08 | 476 | 3.5 | | | | | |
| GL04 NORTH | 05/18/93 | 121854 | 29.60 | 7.70 | 775 | 0.40 | 9.91 | 477 | 0.4 | | | 0.10 | 1.00 | 120 |
| Averages | | | 29.52 | 7.71 | 775 | 0.40 | 10.00 | 477 | | | | | | |
| GL04 SOUTH | 05/18/93 | 113240 | 29.18 | 7.74 | 759 | 0.50 | 9.83 | 528 | 4.2 | | | | | |
| GL04 SOUTH | 05/18/93 | 113316 | 29.40 | 7.71 | 760 | 0.40 | 9.72 | 529 | 0.1 | | | 0.10 | 1.50 | 140 |
| Averages | | | 29.29 | 7.73 | 760 | 0.45 | 9.78 | 529 | | | | | | |
| GL04 CENTER | 07/20/93 | 101631 | 31.76 | 7.59 | 667 | 0.30 | 8.71 | 380 | 5.5 | | | 0.25 | 2.00 | |
| GL04 CENTER | 07/20/93 | 101938 | 31.80 | 7.56 | 667 | 0.30 | 8.66 | 388 | 2.7 | | BDL | 0.25 | 1.00 | 180 |
| GL04 CENTER | 07/20/93 | 102110 | 31.85 | 7.56 | 667 | 0.30 | 8.50 | 389 | 0.2 | | | 0.20 | 2.25 | |
| Averages | | | 31.80 | 7.57 | 667 | 0.30 | 8.62 | 388 | | | | 0.23 | 1.75 | 180 |
| GL04 SOUTH | 07/20/93 | 100821 | 31.74 | 7.58 | 667 | 0.30 | 8.59 | 396 | 3.4 | | | | | |
| GL04 SOUTH | 07/20/93 | 100908 | 31.79 | 7.57 | 667 | 0.30 | 8.53 | 397 | 1.8 | | | | | |
| GL04 SOUTH | 07/20/93 | 100945 | 31.84 | 7.57 | 667 | 0.30 | 8.51 | 398 | 0.1 | | | 0.25 | 1.00 | 160 |
| Averages | | | 31.79 | 7.57 | 667 | 0.30 | 8.54 | 397 | | | | | | |
| GL04 DUP | 07/20/93 | 110802 | 31.95 | 7.57 | 667 | 0.30 | 9.07 | 389 | 5.6 | | | | | |
| GL04 DUP | 07/20/93 | 112001 | 32.18 | 7.59 | 666 | 0.30 | 9.32 | 394 | 0.2 | | BDL | | | |
| Averages | | | 32.07 | 7.58 | 667 | 0.30 | 9.20 | 392 | | | | | | |
| GL04 NORTH | 07/20/93 | 101216 | 31.76 | 7.59 | 667 | 0.30 | 8.85 | 396 | 3.5 | | | | | |
| GL04 NORTH | 07/20/93 | 101314 | 31.82 | 7.57 | 666 | 0.30 | 8.63 | 398 | 1.6 | | | | | |
| GL04 NORTH | 07/20/93 | 101345 | 31.82 | 7.58 | 666 | 0.30 | 8.64 | 398 | 0 | | | 0.25 | 1.00 | 140 |
| Averages | | | 31.80 | 7.58 | 666 | 0.30 | 8.71 | 397 | | | | | | |
| GL04 CENTER | 11/09/93 | 84454 | 25.37 | 7.29 | 1032 | 0.50 | 4.06 | 318 | 4.8 | | | 0.30 | 2.50 | 260 |
| GL04 CENTER | 11/09/93 | 84219 | 25.37 | 7.31 | 1023 | 0.50 | 4.14 | 323 | 2.5 | | 0.011 | 0.30 | 2.50 | 180 |
| GL04 CENTER | 11/09/93 | 84631 | 25.39 | 7.30 | 1025 | 0.50 | 4.15 | 304 | 0.5 | | | 0.30 | 2.50 | 260 |
| Averages | | | 25.38 | 7.30 | 1027 | 0.50 | 4.12 | 315 | | | | 0.30 | 2.50 | 233 |

DERM Lab MDLs: NOx-N - 0.01 mg/L, O-PO4 - 0.002 mg/L

CHEMetrics MDLs: NH3-N - 0.1 mg/L, NOx-N - 0.1 mg/L

MDL - minimum detection limit, BDL - below detection limit

Black Point Biomonitoring

| Site ID | Sample Date | Sample Time | Temp. Deg. C | pH pH Units | Cond. us/cm | HYDROLAB Salinity ppt | DO mg/l | Redox mV | Depth feet | DERM LAB NOx-N mg/l | O-P04 mg/l | CHEMetrics NH3-N mg/l | NOx-N mg/l | CAC03 mg/l |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| GL04 NORTH | 11/09/93 | 85145 | 25.39 | 7.30 | 1043 | 0.50 | 3.88 | 323 | 3.3 | | | | | |
| GL04 NORTH | 11/09/93 | 85250 | 25.39 | 7.29 | 1048 | 0.50 | 3.86 | 322 | 1.7 | | | | | |
| GL04 NORTH | 11/09/93 | 85450 | 25.41 | 7.30 | 1042 | 0.50 | 3.98 | 310 | 0.3 | | | 0.30 | 2.50 | 220 |
| Averages | | | 25.40 | 7.30 | 1044 | 0.50 | 3.91 | 318 | | | | | | |
| GL04 SOUTH | 11/09/93 | 90651 | 25.51 | 7.30 | 1086 | 0.60 | 3.91 | 345 | 2.6 | | | | | |
| GL04 SOUTH | 11/09/93 | 90744 | 25.47 | 7.28 | 1061 | 0.60 | 4.08 | 341 | 1.3 | | | | | |
| GL04 SOUTH | 11/09/93 | 90838 | 25.48 | 7.28 | 1064 | 0.60 | 4.02 | 335 | 0.6 | | | 0.20 | 2.00 | 240 |
| Averages | | | 25.49 | 7.29 | 1070 | 0.60 | 4.00 | 340 | | | | | | |
| GL04 CENTER | 01/10/94 | 103623 | 21.58 | 7.32 | 1214 | 0.60 | 4.97 | 436 | 5.5 | | | 0.15 | 3.50 | 240 |
| GL04 CENTER | 01/10/94 | 103851 | 21.56 | 7.33 | 1207 | 0.60 | 4.85 | 405 | 2.7 | | 0.011 | 0.10 | 2.00 | 220 |
| GL04 CENTER | 01/10/94 | 103945 | 21.65 | 7.34 | 1215 | 0.60 | 5.06 | 396 | 0.8 | | | 0.10 | 2.00 | 240 |
| Averages | | | 21.60 | 7.33 | 1212 | 0.60 | 4.96 | 412 | | | | 0.12 | 2.50 | 233 |
| GL04 NORTH | 01/10/94 | 104149 | 21.56 | 7.32 | 1216 | 0.60 | 4.88 | 386 | 4 | | | | | |
| GL04 NORTH | 01/10/94 | 104241 | 21.56 | 7.32 | 1214 | 0.60 | 4.75 | 381 | 2 | | | | | |
| GL04 NORTH | 01/10/94 | 104329 | 21.56 | 7.33 | 1215 | 0.60 | 4.76 | 374 | 0.9 | | | 0.20 | 3.00 | 220 |
| Averages | | | 21.56 | 7.32 | 1215 | 0.60 | 4.80 | 380 | | | | | | |
| GL04 SOUTH | 01/10/94 | 104537 | 21.54 | 7.33 | 1213 | 0.60 | 5.13 | 369 | 4.3 | | | | | |
| GL04 SOUTH | 01/10/94 | 104609 | 21.60 | 7.33 | 1219 | 0.60 | 4.90 | 369 | 2.1 | | | | | |
| GL04 SOUTH | 01/10/94 | 104648 | 21.61 | 7.35 | 1217 | 0.60 | 5.03 | 367 | 0.6 | | | 0.20 | 2.50 | 240 |
| Averages | | | 21.59 | 7.34 | 1216 | 0.60 | 5.02 | 368 | | | | | | |

DERM Lab MDLs: NOx-N - 0.01 mg/L, O-PO4 - 0.002 mg/L

CHEMetrics MDLs: NH3-N - 0.1 mg/L, NOx-N - 0.1 mg/L

MDL - minimum detection limit, BDL - below detection limit

Black Point Biomonitoring

| Site ID | Sample Date | Sample Time | Temp. Deg. C | pH pH Units | Cond. us/cm | HYDROLAB Salinity ppt | DO mg/l | Redox mV | Depth feet | DERM LAB NOx-N mg/l | O-P04 mg/l | CHEMetrics NH3-N mg/l | NOx-N mg/l | CAC03 mg/l |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| GL04A CENTER | 05/17/93 | 125243 | 29.20 | 7.72 | 626 | 0.3 | 10.73 | 421 | 5.6 | | | 0.20 | 0.10 | 140 |
| GL04A CENTER | 05/17/93 | 130135 | 29.40 | 7.76 | 645 | 0.3 | 10.56 | 416 | 2.7 | 0.78 | | 0.10 | 1.00 | 160 |
| GL04A CENTER | 05/17/93 | 130233 | 29.54 | 7.78 | 649 | 0.3 | 10.67 | 415 | 0.4 | | | 0.10 | 0.10 | 140 |
| Averages | | | 29.38 | 7.75 | 640 | 0.3 | 10.65 | 417 | | | | 0.13 | 0.40 | 147 |
| GL04A NORTH | 05/17/93 | 112501 | 29.44 | 7.86 | 641 | 0.3 | 10.82 | 418 | 3.6 | | | | | |
| GL04A NORTH | 05/17/93 | 125139 | 29.58 | 7.83 | 639 | 0.3 | 10.89 | 422 | 0.2 | | | 0.10 | 1.50 | 140 |
| Averages | | | 29.51 | 7.85 | 640 | 0.3 | 10.86 | 420 | | | | | | |
| GL04A SOUTH | 05/17/93 | 130310 | 29.50 | 7.74 | 625 | 0.3 | 10.98 | 421 | 4.9 | | | | | |
| GL04A SOUTH | 05/17/93 | 134954 | 29.74 | 7.79 | 643 | 0.3 | 10.89 | 419 | 0.4 | | | 0.10 | 0.30 | 140 |
| Averages | | | 29.62 | 7.77 | 634 | 0.3 | 10.94 | 420 | | | | | | |
| GL04A CENTER | 07/19/93 | 111358 | 32.14 | 7.69 | 652 | 0.3 | 12.55 | 414 | 6.5 | | | 0.10 | 1.00 | |
| GL04A CENTER | 07/19/93 | 111515 | 32.20 | 7.67 | 652 | 0.3 | 12.42 | 413 | 3.2 | | BDL | 0.20 | 1.50 | |
| GL04A CENTER | 07/19/93 | 111604 | 32.50 | 7.68 | 652 | 0.3 | 12.07 | 412 | 0.4 | | | 0.10 | 1.50 | 140 |
| Averages | | | 32.28 | 7.68 | 652 | 0.3 | 12.35 | 413 | | | | 0.13 | 1.33 | 140 |
| GL04A NORTH | 07/19/93 | 110950 | 32.06 | 7.67 | 650 | 0.3 | 12.17 | 417 | 4.7 | | | | | |
| GL04A NORTH | 07/19/93 | 111045 | 32.21 | 7.67 | 653 | 0.3 | 11.94 | 415 | 2.3 | | | | | |
| GL04A NORTH | 07/19/93 | 111142 | 32.39 | 7.68 | 652 | 0.3 | 12.12 | 413 | 0.4 | | | 0.20 | 1.00 | 180 |
| Averages | | | 32.22 | 7.67 | 652 | 0.3 | 12.08 | 415 | | | | | | |
| GL04A SOUTH | 07/19/93 | 114815 | 32.34 | 7.71 | 647 | 0.3 | 13.60 | 415 | 5.9 | | | | | |
| GL04A SOUTH | 07/19/93 | 114941 | 32.41 | 7.71 | 647 | 0.3 | 13.22 | 414 | 3 | | | | | |
| GL04A SOUTH | 07/19/93 | 115029 | 32.53 | 7.69 | 650 | 0.3 | 12.96 | 414 | 0.3 | | | 0.20 | 1.25 | |
| Averages | | | 32.43 | 7.70 | 648 | 0.3 | 13.26 | 414 | | | | | | |
| GL04A CENTER | 11/16/93 | 81125 | 24.96 | 7.35 | 1197 | 0.6 | 3.96 | 339 | 6 | | | 0.20 | 2.00 | 200 |
| GL04A CENTER | 11/16/93 | 81545 | 24.96 | 7.36 | 1127 | 0.6 | 4.41 | 341 | 3 | | 0.011 | 0.20 | 2.50 | 220 |
| GL04A CENTER | 11/16/93 | 81830 | 24.97 | 7.37 | 1123 | 0.6 | 4.45 | 323 | 0.1 | | | 0.20 | 2.50 | 240 |
| Averages | | | 24.96 | 7.36 | 1149 | 0.6 | 4.27 | | | | | 0.20 | 2.33 | 220 |
| GL04A NORTH | 11/16/93 | 82343 | 25.00 | 7.33 | 1152 | 0.6 | 4.06 | 327 | 4.1 | | | | | |
| GL04A NORTH | 11/16/93 | 82518 | 25.01 | 7.34 | 1134 | 0.6 | 4.32 | 328 | 2.3 | | | | | |
| GL04A NORTH | 11/16/93 | 82638 | 25.01 | 7.34 | 1128 | 0.6 | 4.39 | 325 | 0.2 | | | 0.20 | 2.50 | 220 |
| Averages | | | 25.01 | 7.34 | 1138 | 0.6 | 4.26 | 327 | | | | | | |
| GL04A SOUTH | 11/16/93 | 85507 | 25.02 | 7.34 | 1152 | 0.6 | 4.83 | 333 | 4.5 | | | | | |
| GL04A SOUTH | 11/16/93 | 85559 | 25.05 | 7.33 | 1137 | 0.6 | 4.89 | 332 | 2 | | | | | |
| GL04A SOUTH | 11/16/93 | 85656 | 25.11 | 7.34 | 1126 | 0.6 | 4.98 | 327 | 0.2 | | | 0.20 | 2.50 | 240 |
| Averages | | | 25.06 | 7.34 | 1138 | 0.6 | 4.90 | 331 | | | | | | |

DERM Lab MDLs: NOx-N - 0.01 mg/L, O-PO4 - 0.002 mg/L CHEMetrics MDLs: NH3-N - 0.1 mg/L, NOx-N - 0.1 mg/L MDL - minimum detection limit, BDL - below detection limit

Black Point Biomonitoring

| Site ID | Sample Date | Sample Time | Temp. Deg. C | pH pH Units | Cond. us/cm | HYDROLAB Salinity ppt | DO mg/l | Redox mV | Depth feet | DERM LAB NOx-N mg/l | O-P04 mg/l | CHEMetrics NH3-N mg/l | NOx-N mg/l | CAC03 mg/l |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| GL04A CENTER | 01/10/94 | 91020 | 21.56 | 7.25 | 1058 | 0.6 | 4.60 | 508 | 5.4 | | | BDL | 3.00 | 240 |
| GL04A CENTER | 01/10/94 | 91253 | 21.56 | 7.25 | 1056 | 0.6 | 4.40 | 474 | 2.6 | | 0.01 | 1.00 | 3.00 | 220 |
| GL04A CENTER | 01/10/94 | 91450 | 21.58 | 7.26 | 1058 | 0.6 | 4.46 | 442 | 0.6 | | | BDL | 3.50 | 220 |
| Averages | | | 21.57 | 7.25 | 1057 | 0.6 | 4.49 | 475 | | | | 0.33 | 3.17 | 227 |
| GL04A NORTH | 01/10/94 | 91846 | 21.58 | 7.25 | 1061 | 0.6 | 4.35 | 409 | 4 | | | | | |
| GL04A NORTH | 01/10/94 | 91933 | 21.56 | 7.24 | 1059 | 0.6 | 4.32 | 405 | 2 | | | | | |
| GL04A NORTH | 01/10/94 | 92010 | 21.60 | 7.25 | 1062 | 0.6 | 4.38 | 398 | 0.5 | | | 0.10 | 3.00 | 200 |
| Averages | | | 21.58 | 7.25 | 1061 | 0.6 | 4.35 | 404 | | | | | | |
| GL04A SOUTH | 01/10/94 | 92357 | 21.56 | 7.26 | 1061 | 0.6 | 4.49 | 386 | 4.8 | | | | | |
| GL04A SOUTH | 01/10/94 | 92438 | 21.54 | 7.26 | 1061 | 0.6 | 4.45 | 385 | 2.4 | | | | | |
| GL04A SOUTH | 01/10/94 | 92519 | 21.54 | 7.26 | 1061 | 0.6 | 4.53 | 381 | 0.5 | | | 0.10 | 3.50 | 200 |
| Averages | | | 21.55 | 7.26 | 1061 | 0.6 | 4.49 | 384 | | | | | | |

DERM Lab MDLs: NOx-N - 0.01 mg/L, O-PO4 - 0.002 mg/L

CHEMetrics MDLs: NH3-N - 0.1 mg/L, NOx-N - 0.1 mg/L

MDL - minimum detection limit, BDL - below detection limit

Black Point Biomonitoring

| Site ID | Sample Date | Sample Time | Temp. Deg. C | pH pH Units | Cond. us/cm | HYDROLAB Salinity ppt | DO mg/l | Redox mV | Depth feet | DERM LAB NOx-N mg/l | O-P04 mg/l | CHEMetrics NH3-N mg/l | NOx-N mg/l | CAC03 mg/l |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| GL04B | 02/23/93 | 145939 | 23.26 | 7.52 | 949 | 0.5 | 7.32 | 466 | 3 | | | 0.10 | 5.00 | |
| GL04B CENTER | 05/10/93 | 143000 | 27.58 | 7.72 | 621 | 0.3 | 11.64 | 578 | 2.7 | 1.89 | | 0.15 | 2.50 | 180 |
| GL04B CENTER | 05/10/93 | 143200 | 27.49 | 7.70 | 621 | 0.3 | 10.96 | 564 | 0.2 | | | 0.15 | 2.50 | 180 |
| Averages | | | 27.54 | 7.71 | 621 | 0.3 | 11.30 | 571 | | | | 0.15 | 2.50 | 180 |
| GL04B CENTER | 07/19/93 | 122719 | 31.57 | 7.33 | 562 | 0.3 | 13.16 | 422 | 2.6 | | BDL | 0.20 | 0.90 | |
| GL04B CENTER | 07/19/93 | 122800 | 31.66 | 7.33 | 561 | 0.3 | 13.19 | 420 | 0.2 | | | 0.20 | 1.00 | 140 |
| Averages | | | 31.62 | 7.33 | 562 | 0.3 | 13.18 | 421 | | | | 0.20 | 0.95 | |
| GL04B NORTH | 07/19/93 | 122546 | 31.55 | 7.33 | 566 | 0.3 | 12.80 | 425 | 1.9 | | | | | |
| GL04B NORTH | 07/19/93 | 122627 | 31.63 | 7.32 | 569 | 0.3 | 12.46 | 424 | 0.3 | | | 0.10 | 1.00 | 160 |
| Averages | | | 31.59 | 7.33 | 568 | 0.3 | 12.63 | 425 | | | | | | |
| GL04B SOUTH | 07/19/93 | 122910 | 31.59 | 7.33 | 566 | 0.3 | 12.90 | 419 | 1.9 | | | | | |
| GL04B SOUTH | 07/19/93 | 122942 | 31.64 | 7.32 | 564 | 0.3 | 12.95 | 419 | 0.3 | | | 0.10 | 0.80 | |
| Averages | | | 31.62 | 7.33 | 565 | 0.3 | 12.93 | 419 | | | | | | |
| GL04B CENTER | 11/08/93 | 91158 | 23.80 | 7.18 | 745 | 0.4 | 1.52 | 402 | 2.3 | | | | | |
| GL04B CENTER | 11/08/93 | 91214 | 23.80 | 7.18 | 746 | 0.4 | 1.44 | 402 | 0.3 | | 0.002 | 0.10 | 4.00 | 200 |
| Averages | | | 23.80 | 7.18 | 746 | 0.4 | 1.48 | 402 | | | | | | |
| GL04B NORTH | 11/08/93 | 91025 | 23.80 | 7.20 | 744 | 0.4 | 1.36 | 402 | 1.6 | | | 0.10 | 4.00 | 200 |
| GL04B SOUTH | 11/08/93 | 90717 | 23.78 | 7.19 | 748 | 0.4 | 1.77 | 403 | 1.9 | | | 0.10 | 4.00 | |
| GL04B CENTER | 01/10/94 | 81159 | 23.20 | 7.12 | 737 | 0.4 | 1.74 | 412 | 2.5 | | | | | |
| GL04B CENTER | 01/10/94 | 75859 | 23.15 | 7.10 | 739 | 0.4 | 1.65 | 450 | 1.3 | | 0.006 | | | |
| GL04B CENTER | 01/10/94 | 75923 | 23.17 | 7.10 | 739 | 0.4 | 1.66 | 449 | 0.6 | | | BDL | 5.00 | 200 |
| Averages | | | 23.17 | 7.11 | 738 | 0.4 | 1.68 | 437 | | | | | | |
| GL04B NORTH | 01/10/94 | 80351 | 23.08 | 7.11 | 739 | 0.4 | 1.81 | 433 | 1.9 | | | | | |
| GL04B NORTH | 01/10/94 | 80418 | 23.15 | 7.12 | 739 | 0.4 | 1.89 | 431 | 0.8 | | | BDL | 4.50 | 220 |
| Averages | | | 23.12 | 7.12 | 739 | 0.4 | 1.85 | 432 | | | | | | |
| GL04B SOUTH | 01/10/94 | 75520 | 22.90 | 7.09 | 742 | 0.4 | 2.02 | 459 | 2 | | | | | |
| GL04B SOUTH | 01/10/94 | 81851 | 23.13 | 7.14 | 738 | 0.4 | 2.35 | 400 | 0.5 | | | BDL | 5.00 | 240 |
| Averages | | | 23.02 | 7.12 | 740 | 0.4 | 2.19 | 430 | | | | | | |

DERM Lab MDLs: NOx-N - 0.01 mg/L, O-PO4 - 0.002 mg/L CHEMetrics MDLs: NH3-N - 0.1 mg/L, NOx-N - 0.1 mg/L MDL - minimum detection limit, BDL - below detection limit

| | | | | | | HYDROLAB | | | | DERM LAB | | CHEMetrics | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Site ID | Sample Date | Sample Time | Temp. Deg. C | pH pH Units | Cond. us/cm | Salinity ppt | DO mg/l | Redox mV | Depth feet | NOx-N mg/l | O-P04 mg/l | NH3-N mg/l | NOx-N mg/l | CAC03 mg/l |
| L007 | 02/23/93 | 112417 | 22.98 | 7.58 | 1582 | 0.80 | 5.46 | 502 | 9 | | | | | |
| L007 | 02/23/93 | 112530 | 23.02 | 7.61 | 1578 | 0.80 | 5.47 | 500 | 4.2 | 1.99 | | 3.00 | 2.00 | |
| L007 | 02/23/93 | 112618 | 23.10 | 7.66 | 1078 | 0.60 | 6.03 | 498 | 0.3 | | | | | |
| Averages | | | 23.03 | 7.62 | 1413 | 0.73 | 5.65 | 500 | | | | | | |
| L007 CENTER | 05/17/93 | 92646 | 27.99 | 7.78 | 777 | 0.40 | 9.29 | 467 | 8.4 | | | 0.30 | 1.50 | 160 |
| L007 CENTER | 05/17/93 | 92824 | 28.01 | 7.77 | 777 | 0.40 | 9.27 | 467 | 4 | 2.25 | | 0.25 | 2.50 | 180 |
| L007 CENTER | 05/17/93 | 93004 | 28.08 | 7.78 | 777 | 0.40 | 9.32 | 463 | 0.3 | | | 0.30 | 2.00 | 160 |
| Averages | | | 28.03 | 7.78 | 777 | 0.40 | 9.29 | 466 | | | | 0.28 | 2.00 | 167 |
| L007 WEST | 05/17/93 | 91827 | 27.93 | 7.79 | 776 | 0.40 | 9.37 | 476 | 6.4 | | | | | |
| L007 WEST | 05/17/93 | 91935 | 27.99 | 7.78 | 777 | 0.40 | 9.28 | 476 | 3.1 | | | | | |
| L007 WEST | 05/17/93 | 92207 | 28.10 | 7.78 | 778 | 0.40 | 9.40 | 470 | 0.2 | | | 0.25 | 3.35 | 180 |
| Averages | | | 28.01 | 7.78 | 777 | 0.40 | 9.35 | 474 | | | | | | |
| L007 CENTER | 07/27/93 | 91000 | 30.92 | 7.49 | 780 | 0.40 | 8.89 | 372 | 10.2 | | | 0.10 | 1.25 | 180 |
| L007 CENTER | 07/27/93 | 91054 | 30.98 | 7.49 | 778 | 0.40 | 8.87 | 373 | 5 | | 0.005 | 0.10 | 1.25 | 200 |
| L007 CENTER | 07/27/93 | 91134 | 31.04 | 7.50 | 778 | 0.40 | 8.95 | 373 | 0.4 | | | 0.10 | 1.50 | 200 |
| Averages | | | 30.98 | 7.49 | 779 | 0.40 | 8.90 | 373 | | | | 0.10 | 1.33 | 193 |
| L007 EAST | 07/27/93 | 90546 | 30.87 | 7.50 | 780 | 0.40 | 9.08 | 373 | 8.3 | | | | | |
| L007 EAST | 07/27/93 | 90638 | 30.94 | 7.51 | 778 | 0.40 | 8.96 | 374 | 4.1 | | | | | |
| L007 EAST | 07/27/93 | 90721 | 30.98 | 7.51 | 779 | 0.40 | 9.02 | 374 | 0.3 | | | 0.10 | 1.50 | 180 |
| Averages | | | 30.93 | 7.51 | 779 | 0.40 | 9.02 | 374 | | | | | | |
| L007 WEST | 07/27/93 | 92604 | 31.02 | 7.48 | 778 | 0.40 | 8.97 | 379 | 7.8 | | | | | |
| L007 WEST | 07/27/93 | 92704 | 31.04 | 7.49 | 777 | 0.40 | 8.90 | 379 | 3.6 | | | | | |
| L007 WEST | 07/27/93 | 92853 | 31.14 | 7.50 | 778 | 0.40 | 9.07 | 378 | 0.3 | | | BDL | 1.00 | 180 |
| Averages | | | 31.07 | 7.49 | 778 | 0.40 | 8.98 | 379 | | | | | | |
| L007 CENTER | 11/16/93 | 94914 | 25.74 | 7.38 | 1278 | 0.70 | 4.86 | 341 | 7.8 | | | 0.20 | 1.50 | 200 |
| L007 CENTER | 11/16/93 | 95209 | 25.74 | 7.39 | 1277 | 0.70 | 4.94 | 335 | 3.8 | | 0.008 | 0.10 | 1.50 | 200 |
| L007 CENTER | 11/16/93 | 95700 | 25.93 | 7.38 | 1276 | 0.70 | 5.10 | 315 | 0 | | | 0.20 | 2.50 | 200 |
| Averages | | | 25.80 | 7.38 | 1277 | 0.70 | 4.97 | 330 | | | | 0.17 | 1.83 | 200 |
| L007 EAST | 11/16/93 | 101634 | 25.86 | 7.34 | 1284 | 0.70 | 4.40 | 334 | 5.9 | | | | | |
| L007 EAST | 11/16/93 | 101806 | 25.80 | 7.38 | 1280 | 0.70 | 5.29 | 332 | 3.4 | | | | | |
| L007 EAST | 11/16/93 | 101833 | 25.86 | 7.38 | 1285 | 0.70 | 5.01 | 328 | 0 | | | 0.20 | 1.50 | 200 |
| Averages | | | 25.84 | 7.37 | 1283 | 0.70 | 4.90 | 331 | | | | | | |

DERM Lab MDLs: NOx-N - 0.01 mg/L, O-PO4 - 0.002 mg/L  CHEMetrics MDLs: NH3-N - 0.1 mg/L, NOx-N - 0.1 mg/L  MDL - minimum detection limit, BDL - below detection limit

Black Point Biomonitoring

| Site ID | Sample Date | Sample Time | Temp. Deg. C | pH pH Units | Cond. us/cm | HYDROLAB Salinity ppt | DO mg/l | Redox mV | Depth feet | DERM LAB NOx-N mg/l | O-P04 mg/l | CHEMetrics NH3-N mg/l | NOx-N mg/l | CAC03 mg/l |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L007 WEST | 11/16/93 | 100915 | 25.77 | 7.40 | 1276 | 0.70 | 5.35 | 326 | 5.9 | | | | | |
| L007 WEST | 11/16/93 | 101032 | 25.77 | 7.39 | 1277 | 0.70 | 5.07 | 328 | 3 | | | | | |
| L007 WEST | 11/16/93 | 101055 | 25.88 | 7.39 | 1276 | 0.70 | 5.12 | 325 | 0.2 | | | 0.20 | 2.00 | 200 |
| Averages | | | 25.81 | 7.39 | 1276 | 0.70 | 5.18 | 326 | | | | | | |
| LO07 CENTER | 01/04/94 | 123201 | 22.93 | 7.25 | 1296 | 0.70 | 3.42 | 365 | 8.4 | | | 0.30 | 2.50 | |
| LO07 CENTER | 01/04/94 | 123538 | 22.97 | 7.23 | 1298 | 0.70 | 3.25 | 360 | 4.4 | | 0.13 | 0.30 | 2.50 | 180 |
| LO07 CENTER | 01/04/94 | 123812 | 23.02 | 7.26 | 1300 | 0.70 | 3.61 | 353 | 0.4 | | | 0.60 | 2.00 | |
| Averages | | | 22.97 | 7.25 | 1298 | 0.70 | 3.43 | 359 | | | | 0.40 | 2.33 | 180 |
| LO07 EAST | 01/04/94 | 122831 | 22.93 | 7.24 | 1295 | 0.70 | 3.62 | 370 | 5.7 | | | | | |
| LO07 EAST | 01/04/94 | 122916 | 23.02 | 7.24 | 1299 | 0.70 | 3.55 | 368 | 2.8 | | | | | |
| LO07 EAST | 01/04/94 | 122949 | 23.10 | 7.24 | 1302 | 0.70 | 3.59 | 366 | 0.4 | | | 0.40 | 2.50 | 180 |
| Averages | | | 23.02 | 7.24 | 1299 | 0.70 | 3.59 | 368 | | | | | | |
| LO07 WEST | 01/04/94 | 123949 | 22.93 | 7.25 | 1295 | 0.70 | 3.48 | 354 | 7.8 | | | | | |
| LO07 WEST | 01/04/94 | 124048 | 22.99 | 7.25 | 1298 | 0.70 | 3.40 | 353 | 3.9 | | | | | |
| LO07 WEST | 01/04/94 | 124123 | 23.08 | 7.25 | 1298 | 0.70 | 3.44 | 353 | 0.2 | | | 0.60 | 2.00 | 180 |
| Averages | | | 23.00 | 7.25 | 1297 | 0.70 | 3.44 | 353 | | | | | | |

DERM Lab MDLs: NOx-N - 0.01 mg/L, O-PO4 - 0.002 mg/L  CHEMetrics MDLs: NH3-N - 0.1 mg/L, NOx-N - 0.1 mg/L  MDL - minimum detection limit, BDL - below detection limit

Black Point Biomonitoring

| Site ID | Sample Date | Sample Time | Temp. Deg. C | pH pH Units | Cond. us/cm | HYDROLAB Salinity ppt | DO mg/l | Redox mV | Depth feet | DERM LAB NOx-N mg/l | O-P04 mg/l | CHEMetrics NH3-N mg/l | NOx-N mg/l | CAC03 mg/l |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L009 CENTER | 05/11/93 | 140310 | 27.43 | 7.72 | 709 | 0.4 | 10.37 | 573 | 6.4 | | | 0.20 | 4.00 | 200 |
| L009 CENTER | 05/11/93 | 140433 | 27.97 | 7.75 | 719 | 0.4 | 10.25 | 566 | 3.3 | 3.42 | | 0.20 | 4.00 | 200 |
| L009 CENTER | 05/11/93 | 140532 | 28.08 | 7.75 | 722 | 0.4 | 10.24 | 561 | 0.4 | | | 0.40 | 4.00 | 190 |
| Averages | | | 27.83 | 7.74 | 716 | 0.4 | 10.29 | 567 | | | | 0.27 | 4.00 | 197 |
| L009 EAST | 05/11/93 | 131054 | 27.50 | 7.74 | 711 | 0.4 | 10.45 | 542 | 6.3 | | | | | |
| L009 EAST | 05/11/93 | 131214 | 28.14 | 7.74 | 721 | 0.4 | 10.30 | 536 | 0.4 | | | 0.20 | 4.00 | 180 |
| Averages | | | 27.82 | 7.74 | 716 | 0.4 | 10.38 | 539 | | | | | | |
| L009 WEST | 05/11/93 | 141028 | 27.56 | 7.74 | 704 | 0.4 | 10.41 | 542 | 6.3 | | | | | |
| L009 WEST | 05/11/93 | 140739 | 27.70 | 7.73 | 706 | 0.4 | 10.58 | 556 | 4.4 | | | | | |
| L009 WEST | 05/11/93 | 140900 | 28.08 | 7.74 | 721 | 0.4 | 10.17 | 548 | 0.5 | | | 0.30 | 5.00 | 190 |
| Averages | | | 27.78 | 7.74 | 710 | 0.4 | 10.39 | 549 | | | | | | |
| L009 CENTER | 07/26/93 | 95150 | 30.41 | 7.48 | 723 | 0.4 | 7.33 | 391 | 7.1 | | | 0.10 | 1.50 | 160 |
| L009 CENTER | 07/26/93 | 95254 | 30.49 | 7.48 | 720 | 0.4 | 7.40 | 391 | 3.4 | | 0.005 | 0.10 | 1.25 | 160 |
| L009 CENTER | 07/26/93 | 95338 | 30.54 | 7.49 | 720 | 0.4 | 7.52 | 391 | 0.3 | | | 0.10 | 1.25 | 180 |
| Averages | | | 30.48 | 7.48 | 721 | 0.4 | 7.42 | 391 | | | | 0.10 | 1.33 | 167 |
| L009 EAST | 07/26/93 | 95553 | 30.46 | 7.49 | 720 | 0.4 | 7.44 | 390 | 4.7 | | | | | |
| L009 EAST | 07/26/93 | 95648 | 30.54 | 7.49 | 720 | 0.4 | 7.44 | 391 | 2.3 | | | | | |
| L009 EAST | 07/26/93 | 95730 | 30.53 | 7.49 | 720 | 0.4 | 7.37 | 391 | 0.2 | | | 0.20 | 1.50 | 180 |
| Averages | | | 30.51 | 7.49 | 720 | 0.4 | 7.42 | 391 | | | | | | |
| L009 WEST | 07/26/93 | 94815 | 30.37 | 7.50 | 721 | 0.4 | 7.60 | 389 | 4.5 | | | | | |
| L009 WEST | 07/26/93 | 94907 | 30.47 | 7.49 | 721 | 0.4 | 7.47 | 389 | 2.3 | | | | | |
| L009 WEST | 07/26/93 | 94957 | 30.48 | 7.50 | 722 | 0.4 | 7.58 | 389 | 0.3 | | | 0.10 | 1.25 | 200 |
| Averages | | | 30.44 | 7.50 | 721 | 0.4 | 7.55 | 389 | | | | | | |
| L009 CENTER | 11/15/93 | 121811 | 27.13 | 7.19 | 1344 | 0.7 | 2.59 | 326 | 7.1 | | | 1.00 | 1.00 | 240 |
| L009 CENTER | 11/15/93 | 122634 | 27.10 | 7.20 | 1332 | 0.7 | 4.49 | 328 | 3.3 | | 0.005 | 0.80 | 1.00 | 260 |
| L009 CENTER | 11/15/93 | 122802 | 24.41 | 7.20 | 1335 | 0.7 | 4.29 | 324 | 0.4 | | | 0.80 | 1.00 | 260 |
| Averages | | | 26.21 | 7.20 | 1337 | 0.7 | 3.79 | 326 | | | | 0.87 | 1.00 | 253 |
| L009 EAST | 11/15/93 | 124258 | 27.10 | 7.20 | 1338 | 0.7 | 5.47 | 320 | 4.8 | | | | | |
| L009 EAST | 11/15/93 | 124344 | 27.17 | 7.21 | 1333 | 0.7 | 5.10 | 322 | 1.9 | | | | | |
| L009 EAST | 11/15/93 | 124426 | 27.51 | 7.19 | 1337 | 0.7 | 4.47 | 322 | 0.4 | | | 0.80 | 1.50 | 260 |
| Averages | | | 27.26 | 7.20 | 1336 | 0.7 | 5.01 | 321 | | | | | | |

DERM Lab MDLs: NOx-N - 0.01 mg/L, O-PO4 - 0.002 mg/L CHEMetrics MDLs: NH3-N - 0.1 mg/L, NOx-N - 0.1 mg/L MDL - minimum detection limit, BDL - below detection limit

Black Point Biomonitoring

| Site ID | Sample Date | Sample Time | Temp. Deg. C | pH pH Units | Cond. us/cm | HYDROLAB Salinity ppt | DO mg/l | Redox mV | Depth feet | DERM LAB NOx-N mg/l | DERM LAB O-P04 mg/l | CHEMetrics NH3-N mg/l | CHEMetrics NOx-N mg/l | CHEMetrics CAC03 mg/l |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L009 WEST | 11/15/93 | 123351 | 27.04 | 7.20 | 1336 | 0.7 | 5.27 | 330 | 5.6 | | | | | |
| L009 WEST | 11/15/93 | 123539 | 27.06 | 7.20 | 1336 | 0.7 | 4.68 | 332 | 2.8 | | | | | |
| L009 WEST | 11/15/93 | 123752 | 27.46 | 7.21 | 1337 | 0.7 | 4.53 | 326 | 0.4 | | | 0.80 | 1.25 | 260 |
| Averages | | | 27.19 | 7.20 | 1336 | 0.7 | 4.83 | 329 | | | | | | |
| LO09 CENTER | 01/04/94 | 113045 | 23.29 | 7.15 | 1378 | 0.7 | 2.51 | 327 | 5.5 | | | 2.00 | 2.00 | 200 |
| LO09 CENTER | 01/04/94 | 113131 | 23.33 | 7.14 | 1372 | 0.7 | 2.36 | 331 | 2.7 | | | 2.00 | 2.00 | 200 |
| LO09 CENTER | 01/04/94 | 113206 | 23.33 | 7.14 | 1372 | 0.7 | 2.33 | 331 | 0.3 | | | 2.00 | 1.00 | 180 |
| Averages | | | 23.32 | 7.14 | 1374 | 0.7 | 2.40 | 330 | | | | 2.00 | 1.67 | 193 |
| LO09 EAST | 01/04/94 | 112323 | 23.26 | 7.13 | 1383 | 0.7 | 2.45 | 346 | 3.2 | | | | | |
| LO09 EAST | 01/04/94 | 112549 | 23.26 | 7.14 | 1383 | 0.7 | 2.31 | 342 | 2 | | | | | |
| LO09 EAST | 01/04/94 | 112637 | 23.26 | 7.14 | 1382 | 0.7 | 2.24 | 337 | 0.4 | | | 2.00 | 0.30 | |
| Averages | | | 23.26 | 7.14 | 1383 | 0.7 | 2.33 | 342 | | | | | | |
| LO09 WEST | 01/04/94 | 113341 | 23.35 | 7.15 | 1372 | 0.7 | 2.49 | 333 | 5 | | | | | |
| LO09 WEST | 01/04/94 | 113431 | 23.35 | 7.14 | 1374 | 0.7 | 2.38 | 335 | 2.4 | | | | | |
| LO09 WEST | 01/04/94 | 113503 | 23.37 | 7.15 | 1372 | 0.7 | 2.38 | 333 | 0.5 | | | 2.00 | 1.00 | 220 |
| Averages | | | 23.36 | 7.15 | 1373 | 0.7 | 2.42 | 334 | | | | | | |

DERM Lab MDLs: NOx-N - 0.01 mg/L, O-PO4 - 0.002 mg/L

CHEMetrics MDLs: NH3-N - 0.1 mg/L, NOx-N - 0.1 mg/L

MDL - minimum detection limit, BDL - below detection limit

Black Point Biomonitoring

| Site ID | Sample Date | Sample Time | Temp. Deg. C | pH pH Units | Cond. us/cm | HYDROLAB Salinity ppt | DO mg/l | Redox mV | Depth feet | DERM LAB NOx-N mg/l | DERM LAB O-P04 mg/l | CHEMETRICS NH3-N mg/l | CHEMETRICS NOx-N mg/l | CHEMETRICS CAC03 mg/l |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L009A | 02/23/93 | 104753 | 22.95 | 7.62 | 1628 | 0.90 | 4.45 | 517 | 5.2 | | | | | |
| L009A | 02/23/93 | 104859 | 23.03 | 7.61 | 1617 | 0.90 | 4.41 | 516 | 2.6 | 2.71 | | 3.00 | 3.00 | |
| L009A | 02/23/93 | 104943 | 23.09 | 7.61 | 1403 | 0.70 | 4.42 | 514 | 0.3 | | | | | |
| Averages | | | 23.02 | 7.61 | 1549 | 0.83 | 4.43 | 516 | | | | | | |
| L009A CENTER | 05/11/93 | 111032 | 26.59 | 7.67 | 748 | 0.40 | 9.93 | 561 | 6.8 | | | 0.25 | 2.75 | 220 |
| L009A CENTER | 05/11/93 | 111139 | 26.68 | 7.67 | 751 | 0.40 | 9.79 | 558 | 3.3 | 3.54 | | 0.25 | 2.25 | 200 |
| L009A CENTER | 05/11/93 | 111228 | 26.95 | 7.71 | 748 | 0.40 | 10.25 | 553 | 0.3 | | | 0.20 | 3.50 | 200 |
| Averages | | | 26.74 | 7.68 | 749 | 0.40 | 9.99 | 557 | | | | 0.23 | 2.83 | 207 |
| L009A CENTER DUP | 05/11/93 | 120646 | 26.78 | 7.70 | 748 | 0.40 | 10.17 | 560 | 6.8 | | | | | |
| L009A CENTER DUP | 05/11/93 | 120754 | 26.89 | 7.68 | 752 | 0.40 | 10.02 | 557 | 3.4 | 3.46 | | | | |
| L009A CENTER DUP | 05/11/93 | 120845 | 27.35 | 7.73 | 753 | 0.40 | 10.18 | 550 | 0.3 | | | | | |
| Averages | | | 27.01 | 7.70 | 751 | 0.40 | 10.12 | 556 | | | | | | |
| L009A EAST | 05/11/93 | 123840 | 26.99 | 7.69 | 749 | 0.40 | 10.52 | 540 | 5.1 | | | | | |
| L009A EAST | 05/11/93 | 123928 | 27.49 | 7.71 | 752 | 0.40 | 10.70 | 537 | 0.6 | | | 0.25 | 2.75 | 220 |
| Averages | | | 27.24 | 7.70 | 750 | 0.40 | 10.61 | 359 | | | | | | |
| L009A EAST DUP. | 05/11/93 | 124045 | 26.95 | 7.68 | 750 | 0.40 | 10.46 | 535 | 4.9 | | | | | |
| L009A EAST DUP. | 05/11/93 | 124144 | 27.56 | 7.71 | 751 | 0.40 | 10.58 | 531 | 0.4 | | | | | |
| Averages | | | 27.28 | 7.70 | 751 | 0.40 | 10.52 | 533 | | | | | | |
| L009A WEST | 05/11/93 | 124427 | 27.04 | 7.69 | 752 | 0.40 | 10.53 | 524 | 4.3 | | | | | |
| L009A WEST | 05/11/93 | 124511 | 27.60 | 7.71 | 754 | 0.40 | 10.41 | 520 | 0.3 | | | 0.10 | 5.00 | 190 |
| Averages | | | 27.32 | 7.70 | 753 | 0.40 | 10.47 | 522 | | | | | | |
| L009A WEST DUP. | 05/11/93 | 124621 | 27.01 | 7.69 | 751 | 0.40 | 10.49 | 519 | 5.4 | | | | | |
| L009A WEST DUP. | 05/11/93 | 124723 | 27.70 | 7.72 | 752 | 0.40 | 10.63 | 514 | 0.5 | | | | | |
| Averages | | | 27.36 | 7.71 | 751 | 0.40 | 10.56 | 517 | | | | | | |
| L009A CENTER | 07/27/93 | 75052 | 28.14 | 7.18 | 703 | 0.40 | 6.59 | 379 | 6.3 | | | 0.15 | 2.50 | 220 |
| L009A CENTER | 07/27/93 | 75147 | 28.20 | 7.19 | 705 | 0.40 | 6.53 | 379 | 3.1 | | 0.003 | 0.20 | 3.00 | 220 |
| L009A CENTER | 07/27/93 | 75222 | 28.21 | 7.20 | 705 | 0.40 | 6.51 | 379 | 0.4 | | | 0.15 | 2.00 | 200 |
| Averages | | | 28.18 | 7.19 | 704 | 0.40 | 6.54 | 379 | | | | 0.17 | 2.50 | 213 |
| L009A WEST | 07/27/93 | 74714 | 28.20 | 7.20 | 704 | 0.40 | 6.71 | 373 | 3.9 | | | | | |
| L009A WEST | 07/27/93 | 74820 | 28.22 | 7.21 | 704 | 0.40 | 6.59 | 375 | 1.7 | | | | | |
| L009A WEST | 07/27/93 | 74904 | 28.24 | 7.21 | 705 | 0.40 | 6.57 | 376 | 0.1 | | | 0.10 | 4.25 | 200 |
| Averages | | | 28.22 | 7.21 | 704 | 0.40 | | 375 | | | | | | |
| L009A CENTER | 11/15/93 | 105244 | 26.66 | 7.17 | 1326 | 0.70 | 3.04 | 329 | 5.6 | | | 1.00 | 2.00 | 220 |
| L009A CENTER | 11/15/93 | 105344 | 26.66 | 7.17 | 1327 | 0.70 | 2.80 | 325 | 3.1 | | 0.004 | 0.80 | 2.00 | 220 |
| L009A CENTER | 11/15/93 | 105435 | 26.67 | 7.18 | 1325 | 0.70 | 2.82 | 320 | 0.2 | | | 1.00 | 1.50 | 220 |
| Averages | | | 26.66 | 7.17 | 1326 | 0.70 | 2.89 | 325 | | | | 0.93 | 1.83 | 220 |
| LO09A EAST | 11/15/93 | | 26.66 | 7.17 | 1325 | 0.7 | 3.02 | 317 | 6.2 | | | | | |
| LO09A EAST | 11/15/93 | | 26.67 | 7.17 | 1325 | 0.7 | 2.89 | 318 | 3.1 | | | | | |
| LO09A EAST | 11/15/93 | | 26.68 | 7.17 | 1325 | 0.7 | 2.86 | 309 | 0.2 | | | 1 | 1 | 220 |
| Averages | | | 26.67 | 7.17 | 1325.00 | 0.70 | 2.92 | 314.67 | | | | | | |

DERM Lab MDLs: NOx-N - 0.01 mg/L, O-PO4 - 0.002 mg/L

CHEMetrics MDLs: NH3-N - 0.1 mg/L, NOx-N - 0.1 mg/L

MDL - minimum detection limit, BDL - below detection limit

Black Point Biomonitoring

| Site ID | Sample Date | Sample Time | Temp. Deg. C | pH pH Units | Cond. us/cm | HYDROLAB Salinity ppt | DO mg/l | Redox mV | Depth feet | DERM LAB NOx-N mg/l | O-P04 mg/l | CHEMETRICS NH3-N mg/l | NOx-N mg/l | CAC03 mg/l |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LO09AWEST | 11/15/93 | | 26.66 | 7.17 | 1328 | 0.7 | 2.95 | 320 | 4.8 | | | | | |
| LO09AWEST | 11/15/93 | | 26.69 | 7.18 | 1330 | 0.7 | 2.93 | 320 | 2.4 | | | | | |
| LO09AWEST | 11/15/93 | | 26.68 | 7.18 | 1330 | 0.7 | 3 | 318 | 0.2 | | | 1 | 1 | 220 |
| Averages | | | 26.68 | 7.18 | 1329.33 | 0.70 | 2.98 | 319.33 | | | | | | |
| LO09A CENTER | 01/04/94 | 101736 | 22.99 | 7.13 | 1441 | 0.80 | 1.76 | 347 | 5.6 | | | 2.00 | 2.50 | 160 |
| LO09A CENTER | 01/04/94 | 101821 | 23.01 | 7.14 | 1440 | 0.80 | 1.90 | 346 | 2.6 | | 0.006 | 2.00 | 1.50 | |
| LO09A CENTER | 01/04/94 | 101859 | 23.01 | 7.14 | 1443 | 0.80 | 1.94 | 346 | 0.6 | | | 2.00 | 1.50 | 180 |
| Averages | | | 23.00 | 7.14 | 1441 | 0.80 | 1.87 | 346 | | | | 2.00 | 1.83 | 170 |
| LO09A EAST | 01/04/94 | 100018 | 22.99 | 7.13 | 1437 | 0.80 | 1.69 | 374 | 3.9 | | | | | |
| LO09A EAST | 01/04/94 | 100058 | 22.99 | 7.13 | 1439 | 0.80 | 1.67 | 373 | 2.7 | | | | | |
| LO09A EAST | 01/04/94 | 100159 | 22.99 | 7.13 | 1438 | 0.80 | 1.66 | 371 | 0.6 | | | 2.00 | 1.50 | 260 |
| Averages | | | 22.99 | 7.13 | 1438 | 0.80 | 1.67 | 373 | | | | | | |
| LO09A WEST | 01/04/94 | 100532 | 22.99 | 7.15 | 1441 | 0.80 | 2.16 | 369 | 2.9 | | | | | |
| LO09A WEST | 01/04/94 | 100649 | 23.01 | 7.15 | 1440 | 0.80 | 2.05 | 369 | 1.5 | | | | | |
| LO09A WEST | 01/04/94 | 100755 | 23.02 | 7.15 | 1441 | 0.80 | 2.18 | 368 | 0.5 | | | 2.00 | 2.50 | |
| Averages | | | 23.01 | 7.15 | 1441 | 0.80 | 2.13 | 369 | | | | | | |

DERM Lab MDLs: NOx-N - 0.01 mg/L, O-PO4 - 0.002 mg/L

CHEMetrics MDLs: NH3-N - 0.1 mg/L, NOx-N - 0.1 mg/L

MDL - minimum detection limit, BDL - below detection limit

Black Point Biomonitoring

| Site ID | Sample Date | Sample Time | Temp. Deg. C | pH pH Units | Cond. us/cm | HYDROLAB Salinity ppt | DO mg/l | Redox mV | Depth feet | DERM LAB NOx-N mg/l | O-P04 mg/l | CHEMetrics NH3-N mg/l | NOx-N mg/l | CAC03 mg/l |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L009B | 02/23/93 | 101429 | 22.96 | 7.66 | 1571 | 0.80 | 4.35 | 520 | 7.9 | | | | | |
| L009B | 02/23/93 | 101547 | 23.08 | 7.67 | 1497 | 0.80 | 4.74 | 520 | 3.9 | 2.95 | | 3.00 | 3.00 | |
| L009B | 02/23/93 | 101651 | 22.55 | 7.75 | 769 | 0.40 | 5.16 | 511 | 0 | | | | | |
| Averages | | | 22.86 | 7.69 | 1279 | 0.67 | 4.75 | 517 | | | | | | |
| L009B CENTER | 05/11/93 | 92235 | 26.44 | 7.72 | 801 | 0.40 | 9.52 | 588 | 8.9 | | | 0.15 | 3.00 | 240 |
| L009B CENTER | 05/11/93 | 92341 | 26.47 | 7.71 | 799 | 0.40 | 9.47 | 586 | 4.4 | 3.42 | | 0.15 | 3.25 | 240 |
| L009B CENTER | 05/11/93 | 92450 | 26.51 | 7.71 | 801 | 0.40 | 9.44 | 581 | 0.3 | | | 0.25 | 3.25 | 240 |
| Averages | | | 26.47 | 7.71 | 800 | 0.40 | 9.48 | 585 | | | | 0.18 | 3.17 | 240 |
| L009B EAST | 05/11/93 | 93412 | 26.49 | 7.71 | 799 | 0.40 | 9.56 | 557 | 4.1 | | | | | |
| L009B EAST | 05/11/93 | 93507 | 26.55 | 7.71 | 800 | 0.40 | 9.49 | 554 | 0.6 | | | 0.25 | 3.25 | 240 |
| Averages | | | 26.52 | 7.71 | 799 | 0.40 | 9.53 | 556 | | | | | | |
| L009B WEST | 05/11/93 | 92758 | 26.49 | 7.71 | 801 | 0.40 | 9.53 | 573 | 4.5 | | | | | |
| L009B WEST | 05/11/93 | 92849 | 26.55 | 7.71 | 799 | 0.40 | 9.59 | 568 | 0.3 | | | 0.25 | 3.25 | 260 |
| Averages | | | 26.52 | 7.71 | 800 | 0.40 | 9.56 | 571 | | | | | | |
| L009B RESAMPLE | 05/17/93 | 82723 | 26.93 | 7.72 | 699 | 0.40 | 9.80 | 393 | 0.2 | | | 0.10 | 4.50 | 140 |
| L009B CENTER | 07/26/93 | 72515 | 27.89 | 7.24 | 711 | 0.40 | 6.34 | 398 | 9 | | | 0.10 | 2.50 | 200 |
| L009B CENTER | 07/26/93 | 72624 | 27.98 | 7.25 | 710 | 0.40 | 6.32 | 397 | 4.6 | | 0.002 | 0.10 | 4.00 | 220 |
| L009B CENTER | 07/26/93 | 72720 | 29.69 | 7.43 | 714 | 0.40 | 7.58 | 394 | 0.2 | | | 0.10 | 2.50 | 180 |
| Averages | | | 28.52 | 7.31 | 712 | 0.40 | 6.75 | 396 | | | | 0.10 | 3.00 | 200 |
| L009B CENTER DUP | 07/26/93 | 85911 | 27.68 | 7.20 | 709 | 0.40 | 6.39 | 401 | 9.2 | | | | | |
| L009B CENTER DUP | 07/26/93 | 90012 | 27.77 | 7.22 | 710 | 0.40 | 6.26 | 401 | 4.6 | | BDL | | | |
| L009B CENTER DUP | 07/26/93 | 90122 | 29.61 | 7.43 | 714 | 0.40 | 7.48 | 394 | 0.3 | | | | | |
| Averages | | | 28.35 | 7.28 | 711 | 0.40 | 6.71 | 399 | | | | | | |
| L009B EAST | 07/26/93 | 72155 | 28.02 | 7.25 | 713 | 0.40 | 6.23 | 396 | 5.3 | | | | | |
| L009B EAST | 07/26/93 | 72248 | 28.41 | 7.26 | 713 | 0.40 | 6.37 | 397 | 2.7 | | | | | |
| L009B EAST | 07/26/93 | 27329 | 29.70 | 7.41 | 714 | 0.40 | 7.52 | 393 | 0.2 | | | 0.30 | 2.00 | 160 |
| Averages | | | 28.71 | 7.31 | 713 | 0.40 | 6.71 | 395 | | | | | | |
| L009B EAST DUP | 07/26/93 | 84852 | 27.72 | 7.22 | 709 | 0.40 | 6.20 | 402 | 6 | | | | | |
| L009B EAST DUP | 07/26/93 | 84948 | 27.80 | 7.22 | 710 | 0.40 | 6.18 | 401 | 3.1 | | | | | |
| L009B EAST DUP | 07/26/93 | 85048 | 29.49 | 7.41 | 716 | 0.40 | 7.50 | 396 | 0.2 | | | | | |
| Averages | | | 28.34 | 7.28 | 712 | 0.40 | 6.63 | 400 | | | | | | |
| L009B WEST | 07/26/93 | 71735 | 27.97 | 7.25 | 713 | 0.40 | 6.22 | 398 | 6.1 | | | | | |
| L009B WEST | 07/26/93 | 71852 | 28.44 | 7.26 | 715 | 0.40 | 6.29 | 398 | 3 | | | | | |
| L009B WEST | 07/26/93 | 71931 | 29.75 | 7.43 | 713 | 0.40 | 7.49 | 394 | 0.2 | | | 0.20 | 2.00 | 200 |
| Averages | | | 28.72 | 7.31 | 714 | 0.40 | 6.67 | 397 | | | | | | |

DERM Lab MDLs: NOx-N - 0.01 mg/L, O-PO4 - 0.002 mg/L

CHEMetrics MDLs: NH3-N - 0.1 mg/L, NOx-N - 0.1 mg/L

MDL - minimum detection limit, BDL - below detection limit

Black Point Biomonitoring

| Site ID | Sample Date | Sample Time | Temp. Deg. C | pH pH Units | Cond. us/cm | HYDROLAB Salinity ppt | DO mg/l | Redox mV | Depth feet | DERM LAB NOx-N mg/l | O-P04 mg/l | CHEMetrics NH3-N mg/l | NOx-N mg/l | CAC03 mg/l |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L009B WEST DUP | 07/26/93 | 91827 | 27.77 | 7.23 | 710 | 0.40 | 6.34 | 400 | 6.6 | | | | | |
| L009B WEST DUP | 07/26/93 | 91927 | 27.81 | 7.22 | 710 | 0.40 | 6.34 | 400 | 3.3 | | | | | |
| L009B WEST DUP | 07/26/93 | 91712 | 27.79 | 7.41 | 715 | 0.40 | 7.53 | 396 | 0.2 | | | | | |
| Averages | | | 27.79 | 7.29 | 712 | 0.40 | 6.74 | 399 | | | | | | |
| L009B CENTER | 11/15/93 | 85421 | 26.19 | 7.17 | 1318 | 0.70 | 0.99 | 302 | 7.5 | | | 1.00 | 2.00 | 180 |
| L009B CENTER | 11/15/93 | 85646 | 26.21 | 7.16 | 1320 | 0.70 | 1.07 | 305 | 3.6 | | 0.004 | 1.00 | 2.00 | 180 |
| L009B CENTER | 11/15/93 | 85947 | 26.25 | 7.17 | 1320 | 0.70 | 1.26 | 301 | 0.1 | | | 1.00 | 2.00 | 180 |
| Averages | | | 26.22 | 7.17 | 1319 | 0.70 | 1.11 | 303 | | | | 1.00 | 2.00 | 180 |
| L009B EAST | 11/15/93 | 90640 | 26.23 | 7.16 | 1321 | 0.70 | 1.12 | 304 | 5.9 | | | | | |
| L009B EAST | 11/15/93 | 90758 | 26.25 | 7.16 | 1321 | 0.70 | 1.14 | 304 | 3 | | | | | |
| L009B EAST | 11/15/93 | 90948 | 25.81 | 7.46 | 851 | 0.40 | 1.40 | 296 | 0 | | | 1.00 | 1.50 | 220 |
| Averages | | | 26.10 | 7.26 | 1164 | 0.60 | 1.22 | 301 | | | | | | |
| L009B WEST | 11/15/93 | 90227 | 26.23 | 7.17 | 1320 | 0.70 | 1.23 | 303 | 7 | | | | | |
| L009B WEST | 11/15/93 | 90343 | 26.25 | 7.16 | 1320 | 0.70 | 1.22 | 303 | 3.5 | | | | | |
| L009B WEST | 11/15/93 | 90428 | 26.26 | 7.17 | 1320 | 0.70 | 1.26 | 303 | 0.3 | | | 1.00 | 1.00 | 220 |
| Averages | | | 26.25 | 7.17 | 1320 | 0.70 | 1.24 | 303 | | | | | | |
| LO09B CENTER | 01/04/94 | | 22.52 | 7.13 | 1468 | 0.80 | 0.88 | 405 | 8.1 | | | 2.00 | 3.00 | 220 |
| LO09B CENTER | 01/04/94 | 83839 | 22.77 | 7.13 | 1464 | 0.80 | 0.89 | 402 | 4.2 | | 0.006 | 2.00 | 2.00 | 200 |
| LO09B CENTER | 01/04/94 | 84116 | 22.15 | 7.39 | 1013 | 0.50 | 4.59 | 360 | 0.2 | | | 1.00 | 3.00 | 220 |
| Averages | | | 22.48 | 7.22 | 1315 | 0.70 | 2.12 | 389 | | | | 1.67 | 2.67 | 213 |
| LO09B EAST | 01/04/94 | 84438 | 22.79 | 7.13 | 1466 | 0.80 | 1.00 | 353 | 5.9 | | | | | |
| LO09B EAST | 01/04/94 | 84531 | 22.83 | 7.13 | 1437 | 0.80 | 1.18 | 354 | 2.9 | | | | | |
| LO09B EAST | 01/04/94 | 84633 | 22.95 | 7.27 | 1057 | 0.60 | 4.27 | 355 | 0.3 | | | 0.80 | 3.50 | 220 |
| Averages | | | 22.86 | 7.18 | 1320 | 0.73 | 2.15 | 354 | | | | | | |
| LO09B WEST | 01/04/94 | 85018 | 22.83 | 7.13 | 1468 | 0.80 | 1.08 | 357 | 6.9 | | | | | |
| LO09B WEST | 01/04/94 | 85122 | 22.84 | 7.15 | 1380 | 0.70 | 1.61 | 357 | 3.5 | | | | | |
| LO09B WEST | 01/04/94 | 85258 | 21.38 | 7.75 | 191 | 0.10 | 4.16 | 348 | 0.2 | | | 1.00 | 2.00 | 220 |
| Averages | | | 22.35 | 7.34 | 1013 | 0.53 | 2.28 | 354 | | | | | | |

DERM Lab MDLs: NOx-N - 0.01 mg/L, O-PO4 - 0.002 mg/L

CHEMetrics MDLs: NH3-N - 0.1 mg/L, NOx-N - 0.1 mg/L

MDL - minimum detection limit, BDL - below detection limit

| Site ID | Sample Date | Sample Time | HYDROLAB Temp. Degree C | pH pH Units | Cond. us/cm | Salinity ppt | DO mg/l | Redox mV | Depth | DERM LAB NOx-N mg/l | OPO4 mg/l | CHEMetrics NH3-N mg/l | NOx-N mg/l | CaCO3 mg/l |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L007 CENTER | 07/27/93 | 91000 | 30.92 | 7.49 | 780 | 0.4 | 8.89 | 372 | 10.2 | | | 0.1 | 1.25 | 180 |
| L007 CENTER | 07/27/93 | 91054 | 30.98 | 7.49 | 778 | 0.4 | 8.87 | 373 | 5 | | 0.005 | 0.1 | 1.25 | 200 |
| L007 CENTER | 07/27/93 | 91134 | 31.04 | 7.5 | 778 | 0.4 | 8.95 | 373 | 0.4 | | | 0.1 | 1.5 | 200 |
| L007 EAST | 07/27/93 | 90546 | 30.87 | 7.5 | 780 | 0.4 | 9.08 | 373 | 8.3 | | | | | |
| L007 EAST | 07/27/93 | 90638 | 30.94 | 7.51 | 778 | 0.4 | 8.96 | 374 | 4.1 | | | | | |
| L007 EAST | 07/27/93 | 90721 | 30.98 | 7.51 | 779 | 0.4 | 9.02 | 374 | 0.3 | | | 0.1 | 1.5 | 180 |
| L007 WEST | 07/27/93 | 92604 | 31.02 | 7.48 | 778 | 0.4 | 8.97 | 379 | 7.8 | | | | | |
| L007 WEST | 07/27/93 | 92704 | 31.04 | 7.49 | 777 | 0.4 | 8.9 | 379 | 3.6 | | | | | |
| L007 WEST | 07/27/93 | 92853 | 31.14 | 7.5 | 778 | 0.4 | 9.07 | 378 | 0.3 | | | BDL | 1 | 180 |
| L009A CENTER | 07/27/93 | 75052 | 28.14 | 7.18 | 703 | 0.4 | 6.59 | 379 | 6.3 | | | 0.15 | 2.5 | 220 |
| L009A CENTER | 07/27/93 | 75147 | 28.2 | 7.19 | 705 | 0.4 | 6.53 | 379 | 3.1 | | 0.003 | 0.2 | 3 | 220 |
| L009A CENTER | 07/27/93 | 75222 | 28.21 | 7.2 | 705 | 0.4 | 6.51 | 379 | 0.4 | | | 0.15 | 2 | 200 |
| L009A WEST | 07/27/93 | 74714 | 28.2 | 7.2 | 704 | 0.4 | 6.71 | 373 | 3.9 | | | | | |
| L009A WEST | 07/27/93 | 74820 | 28.22 | 7.21 | 704 | 0.4 | 6.59 | 375 | 1.7 | | | | | |
| L009A WEST | 07/27/93 | 74904 | 28.24 | 7.21 | 705 | 0.4 | 6.57 | 376 | 0.1 | | | 0.1 | 4.25 | 200 |
| BL03 CENTER | 11/08/93 | 104945 | 27.12 | 7.13 | 99999 | 99999 | 0.12 | 307 | 14.6 | | | | | |
| BL03 CENTER | 11/08/93 | 105017 | 26.88 | 7.15 | 8666 | 4.9 | 0.21 | 302 | 13.5 | | | | | |
| BL03 CENTER | 11/08/93 | 105128 | 25.89 | 7.36 | 1752 | 0.9 | 3.58 | 303 | 10.8 | | | | | |
| BL03 CENTER | 11/08/93 | 105308 | 25.77 | 7.36 | 881 | 0.5 | 4.15 | 323 | 7.3 | | 0.004 | BDL | 0.15 | 220 |
| BL03 CENTER | 11/08/93 | 105708 | 25.59 | 7.62 | 50.2 | 0 | 4.58 | 341 | 0.2 | | | BDL | 0 | 200 |
| BL03 NORTH | 11/08/93 | 113110 | 25.85 | 7.32 | 805 | 0.4 | 4.49 | 358 | 4.5 | | | BDL | 0.15 | 200 |
| BL03 SOUTH | 11/08/93 | 111802 | 25.95 | 7.27 | 2294 | 1.2 | 3.72 | 348 | 11.9 | | | | | |
| BL03 SOUTH | 11/08/93 | 111746 | 25.89 | 7.28 | 1154 | 0.9 | 3.74 | 347 | 11.6 | | | | | |
| BL03 SOUTH | 11/08/93 | 112946 | 25.86 | 7.33 | 979 | 0.5 | 4.89 | 356 | 9.3 | | | | | |
| BL03 SOUTH | 11/08/93 | 111949 | 25.8 | 7.33 | 776 | 0.4 | 4.35 | 351 | 5.5 | | | | | |
| BL03 SOUTH | 11/08/93 | 112555 | 25.95 | 7.33 | 670 | 0.3 | 4.47 | 356 | 1.2 | | | | | |
| BL03 SOUTH | 11/08/93 | 111112 | 25.91 | 7.35 | 709 | 0.4 | 4.7 | 347 | 0.8 | | | BDL | 0.15 | 220 |
| GL04B CENTER | 11/08/93 | 91158 | 23.8 | 7.18 | 745 | 0.4 | 1.52 | 402 | 2.3 | | | | | |
| GL04B CENTER | 11/08/93 | 91214 | 23.8 | 7.18 | 746 | 0.4 | 1.44 | 402 | 0.3 | | 0.002 | 0.1 | 4 | 200 |
| GL04B NORTH | 11/08/93 | 91025 | 23.8 | 7.2 | 744 | 0.4 | 1.36 | 402 | 1.6 | | | 0.1 | 4 | 200 |
| GL04B SOUTH | 11/08/93 | 90717 | 23.78 | 7.19 | 748 | 0.4 | 1.77 | 403 | 1.9 | | | 0.1 | 4 | |
| L001 CENTER | 11/08/93 | 123922 | 25.92 | 7.59 | 1538 | 0.8 | 10.24 | 356 | 6.3 | | | 0.2 | 0.1 | 220 |
| L001 CENTER | 11/08/93 | 124127 | 26.15 | 7.51 | 1549 | 0.8 | 8.39 | 352 | 3.2 | | 0.004 | 0.2 | 0.05 | 180 |
| L001 CENTER | 11/08/93 | 124301 | 26.31 | 7.5 | 1547 | 0.8 | 7.94 | 348 | 0.3 | | | 0.1 | 0.05 | 220 |
| L001 EAST | 11/08/93 | 124700 | 25.98 | 7.6 | 1547 | 0.8 | 9.79 | 356 | 5.8 | | | | | |
| L001 EAST | 11/08/93 | 124815 | 26.19 | 7.53 | 1545 | 0.8 | 8.6 | 356 | 3.7 | | | | | |
| L001 EAST | 11/08/93 | 124919 | 26.34 | 7.5 | 1545 | 0.8 | 8.19 | 344 | 0.4 | | | | | |
| L001 WEST | 11/08/93 | 123212 | 26.05 | 7.56 | 1542 | 0.8 | 9.71 | 353 | 4.4 | | | | | |
| L001 WEST | 11/08/93 | 123508 | 26.19 | 7.53 | 1553 | 0.8 | 8.79 | 350 | 2.3 | | | | | |
| L001 WEST | 11/08/93 | 123400 | 26.38 | 7.53 | 1554 | 0.8 | 8.88 | 350 | 0.3 | | | 0.1 | 0.05 | 180 |
| GL02A CENTER | 11/09/93 | 100131 | 25.46 | 7.72 | 1252 | 0.7 | 8.91 | 350 | 11.8 | | | 0.3 | 1 | 220 |
| GL02A CENTER | 11/09/93 | 100407 | 25.51 | 7.78 | 1252 | 0.7 | 9.23 | 348 | 6.1 | | 0.007 | 0.3 | 0.9 | 260 |
| GL02A CENTER | 11/09/93 | 101303 | 25.83 | 7.84 | 1250 | 0.7 | 9.53 | 333 | 0.7 | | | 0.2 | 1 | 220 |
| GL02A NORTH | 11/09/93 | 94657 | 25.51 | 7.70 | 1251 | 0.7 | 8.92 | 358 | 11.6 | | | | | |
| GL02A NORTH | 11/09/93 | 94905 | 25.51 | 7.79 | 1252 | 0.7 | 9.269 | 356 | 6 | | | | | |
| GL02A NORTH | 11/09/93 | 95009 | 25.75 | 7.83 | 1250 | 0.7 | 9.55 | 347 | 0.5 | | | 0.3 | 0.9 | 220 |
| GL02A SOUTH | 11/09/93 | 102412 | 25.51 | 7.75 | 1251 | 0.7 | 9.15 | 357 | 10.5 | | | | | |
| GL02A SOUTH | 11/09/93 | 102552 | 25.57 | 7.78 | 1252 | 0.7 | 9.43 | 353 | 5.3 | | | | | |

DERM Lab MDLs: NOx-N - 0.01 mg/L, O-PO4 - .002 mg/L

CHEMetrics MDLs: NOx-N - 0.1 mg/L, NH3-N - 0.1 mg/L

MDL - minimum detection limit, BDL - below detection limit

| Site ID | Sample Date | Sample Time | HYDROLAB Temp. Degree C | pH pH Units | Cond. us/cm | Salinity ppt | DO mg/l | Redox mV | Depth | DERM LAB NOx-N mg/l | OPO4 mg/l | CHEMetrics NH3-N mg/l | NOx-N mg/l | CaCO3 mg/l |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| GL02A SOUTH | 11/09/93 | 102720 | 25.87 | 7.82 | 1251 | 0.7 | 9.51 | 340 | 0.6 | | | 0.2 | 0.8 | 200 |
| GL02B CENTER | 11/09/93 | 112834 | 26.08 | 7.86 | 1250 | 0.7 | 10.55 | 355 | 7.1 | | | BDL | 0.3 | 180 |
| GL02B CENTER | 11/09/93 | 112911 | 26.24 | 7.86 | 1250 | 0.7 | 9.82 | 354 | 3.5 | | 0.007 | BDL | 0.8 | 200 |
| GL02B CENTER | 11/09/93 | 112725 | 26.36 | 7.87 | 1251 | 0.7 | 9.76 | 351 | 0.5 | | | BDL | 0.8 | 200 |
| GL02B NORTH | 11/09/93 | 113149 | 26.13 | 7.86 | 1251 | 0.7 | 10.51 | 353 | 6.2 | | | | | |
| GL02B NORTH | 11/09/93 | 113117 | 26.31 | 7.84 | 1253 | 0.7 | 9.69 | 352 | 3.5 | | | | | |
| GL02B NORTH | 11/09/93 | 113041 | 26.34 | 7.85 | 1254 | 0.7 | 9.75 | 351 | 0.3 | | | 0.1 | 0.8 | 180 |
| GL02B SOUTH | 11/09/93 | 112311 | 26.19 | 7.89 | 1249 | 0.7 | 10.56 | 360 | 6.7 | | | | | |
| GL02B SOUTH | 11/09/93 | 112357 | 26.23 | 7.87 | 1250 | 0.7 | 10.13 | 361 | 4.3 | | | | | |
| GL02B SOUTH | 11/09/93 | 112421 | 26.44 | 7.88 | 1249 | 0.7 | 9.93 | 359 | 0.6 | | | BDL | 0.8 | 180 |
| GL04 CENTER | 11/09/93 | 84454 | 25.37 | 7.29 | 1032 | 0.5 | 4.06 | 318 | 4.8 | | | 0.3 | 2.5 | 260 |
| GL04 CENTER | 11/09/93 | 84219 | 25.37 | 7.31 | 1023 | 0.5 | 4.14 | 323 | 2.5 | | 0.011 | 0.3 | 2.5 | 180 |
| GL04 CENTER | 11/09/93 | 84631 | 25.39 | 7.3 | 1025 | 0.5 | 4.15 | 304 | 0.5 | | | 0.3 | 2.5 | 260 |
| GL04 NORTH | 11/09/93 | 85145 | 25.39 | 7.3 | 1043 | 0.5 | 3.88 | 323 | 3.3 | | | | | |
| GL04 NORTH | 11/09/93 | 85250 | 25.39 | 7.29 | 1048 | 0.5 | 3.86 | 322 | 1.7 | | | | | |
| GL04 NORTH | 11/09/93 | 85450 | 25.41 | 7.3 | 1042 | 0.5 | 3.98 | 310 | 0.3 | | | 0.3 | 2.5 | 220 |
| GL04 SOUTH | 11/09/93 | 90651 | 25.51 | 7.3 | 1086 | 0.6 | 3.91 | 345 | 2.6 | | | | | |
| GL04 SOUTH | 11/09/93 | 90744 | 25.47 | 7.28 | 1061 | 0.6 | 4.08 | 341 | 1.3 | | | | | |
| GL04 SOUTH | 11/09/93 | 90838 | 25.48 | 7.25 | 1064 | 0.6 | 4.02 | 335 | 0.6 | | | 0.2 | 2 | 240 |
| L009 CENTER | 11/15/93 | 121811 | 27.13 | 7.19 | 1344 | 0.7 | 2.59 | 326 | 7.1 | | | 1 | 1 | 240 |
| L009 CENTER | 11/15/93 | 122634 | 27.1 | 7.2 | 1332 | 0.7 | 4.49 | 328 | 3.3 | | 0.005 | 0.8 | 1 | 260 |
| L009 CENTER | 11/15/93 | 122802 | 24.41 | 7.2 | 1335 | 0.7 | 4.29 | 324 | 0.4 | | | 0.8 | 1 | 260 |
| L009 EAST | 11/15/93 | 124258 | 27.1 | 7.2 | 1338 | 0.7 | 5.47 | 320 | 4.8 | | | | | |
| L009 EAST | 11/15/93 | 124344 | 27.17 | 7.21 | 1333 | 0.7 | 5.1 | 322 | 1.9 | | | | | |
| L009 EAST | 11/15/93 | 124426 | 27.51 | 7.19 | 1337 | 0.7 | 4.47 | 322 | 0.4 | | | 0.8 | 1.5 | 260 |
| L009 WEST | 11/15/93 | 123351 | 27.04 | 7.2 | 1336 | 0.7 | 5.27 | 330 | 5.6 | | | | | |
| L009 WEST | 11/15/93 | 123539 | 27.06 | 7.2 | 1336 | 0.7 | 4.68 | 332 | 2.8 | | | | | |
| L009 WEST | 11/15/93 | 123752 | 27.46 | 7.21 | 1337 | 0.7 | 4.53 | 326 | 0.4 | | | 0.8 | 1.25 | 260 |
| L009A CENTER | 11/15/93 | 105244 | 26.66 | 7.17 | 1326 | 0.7 | 3.04 | 329 | 5.6 | | | 1 | 2 | 220 |
| L009A CENTER | 11/15/93 | 105344 | 26.66 | 7.17 | 1327 | 0.7 | 2.8 | 325 | 3.1 | | 0.004 | 0.8 | 2 | 220 |
| L009A CENTER | 11/15/93 | 105435 | 26.67 | 7.18 | 1325 | 0.7 | 2.82 | 320 | 0.2 | | | 1 | 1.5 | 220 |
| LO09A EAST | 11/15/93 | | 26.66 | 7.17 | 1325 | 0.7 | 3.02 | 317 | 6.2 | | | | | |
| LO09A EAST | 11/15/93 | | 26.67 | 7.17 | 1325 | 0.7 | 2.89 | 318 | 3.1 | | | | | |
| LO09A EAST | 11/15/93 | | 26.68 | 7.17 | 1325 | 0.7 | 2.86 | 309 | 0.2 | | | 1 | 1 | 220 |
| LO09AWEST | 11/15/93 | | 26.66 | 7.17 | 1328 | 0.7 | 2.95 | 320 | 4.8 | | | | | |
| LO09AWEST | 11/15/93 | | 26.69 | 7.18 | 1330 | 0.7 | 2.93 | 320 | 2.4 | | | | | |
| LO09AWEST | 11/15/93 | | 26.68 | 7.18 | 1330 | 0.7 | 3 | 318 | 0.2 | | | 1 | 1 | 220 |
| L009B CENTER | 11/15/93 | 85421 | 26.19 | 7.17 | 1318 | 0.7 | 0.99 | 302 | 7.5 | | | 1 | 2 | 180 |
| L009B CENTER | 11/15/93 | 85646 | 26.21 | 7.16 | 1320 | 0.7 | 1.07 | 305 | 3.6 | | 0.004 | 1 | 2 | 180 |
| L009B CENTER | 11/15/93 | 85947 | 26.25 | 7.17 | 1320 | 0.7 | 1.26 | 301 | 0.1 | | | 1 | 2 | 180 |
| L009B EAST | 11/15/93 | 90640 | 26.23 | 7.16 | 1321 | 0.7 | 1.12 | 304 | 5.9 | | | | | |
| L009B EAST | 11/15/93 | 90758 | 26.25 | 7.16 | 1321 | 0.7 | 1.14 | 304 | 3 | | | | | |
| L009B EAST | 11/15/93 | 90948 | 25.81 | 7.46 | 851 | 0.4 | 1.4 | 296 | 0 | | | 1 | 1.5 | 220 |
| L009B WEST | 11/15/93 | 90227 | 26.23 | 7.17 | 1320 | 0.7 | 1.23 | 303 | 7 | | | | | |
| L009B WEST | 11/15/93 | 90343 | 26.25 | 7.16 | 1320 | 0.7 | 1.22 | 303 | 3.5 | | | | | |
| L009B WEST | 11/15/93 | 90428 | 26.26 | 7.17 | 1320 | 0.7 | 1.26 | 303 | 0.3 | | | 1 | 1 | 220 |
| GL03 CENTER | 11/16/93 | 112201 | 25.73 | 7.41 | 1290 | 0.7 | 6.15 | 330 | 7.2 | | | 0.2 | 1 | 220 |
| GL03 CENTER | 11/16/93 | 112436 | 26.04 | 7.42 | 1287 | 0.7 | 6.11 | 330 | 3.6 | | 0.01 | 0.2 | 2 | 180 |

DERM Lab MDLs: NOx-N - 0.01 mg/L, O-PO4 - .002 mg/L

CHEMetrics MDLs: NOx-N - 0.1 mg/L, NH3-N - 0.1 mg/L

MDL - minimum detection limit, BDL - below detection limit

| Site ID | Sample Date | Sample Time | HYDROLAB Temp. Degree C | pH pH Units | Cond. us/cm | Salinity ppt | DO mg/l | Redox mV | Depth | DERM LAB NOx-N mg/l | OPO4 mg/l | CHEMetrics NH3-N mg/l | NOx-N mg/l | CaCO3 mg/l |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| GL03 CENTER | 11/16/93 | 113055 | 26.15 | 7.45 | 1298 | 0.7 | 6.22 | 322 | 0.1 | | | 0.2 | 2.5 | 180 |
| GL03 NORTH | 11/16/93 | 115937 | 26.17 | 7.44 | 1292 | 0.7 | 6.71 | 314 | 4.3 | | | | | |
| GL03 NORTH | 11/16/93 | 120228 | 26.23 | 7.45 | 1292 | 0.7 | 6.44 | 315 | 2.3 | | | | | |
| GL03 NORTH | 11/16/93 | 120412 | 26.27 | 7.46 | 1292 | 0.7 | 6.53 | 305 | 0.1 | | | 0.1 | 2 | 180 |
| GL03 SOUTH | 11/16/93 | 113401 | 26.04 | 7.43 | 1288 | 0.7 | 6.21 | 323 | 6.9 | | | | | |
| GL03 SOUTH | 11/16/93 | 113552 | 26.11 | 7.42 | 1284 | 0.7 | 6.26 | 320 | 3.5 | | | | | |
| GL03 SOUTH | 11/16/93 | 113814 | 26.21 | 7.47 | 1311 | 0.7 | 6.35 | 313 | 0.3 | | | 0.2 | 1.5 | 180 |
| GL04A CENTER | 11/16/93 | 81125 | 24.96 | 7.35 | 1197 | 0.6 | 3.96 | 339 | 6 | | | 0.2 | 2 | 200 |
| GL04A CENTER | 11/16/93 | 81545 | 24.96 | 7.36 | 1127 | 0.6 | 4.41 | 341 | 3 | | 0.011 | 0.2 | 2.5 | 220 |
| GL04A CENTER | 11/16/93 | 81830 | 24.97 | 7.37 | 1123 | 0.6 | 4.45 | 323 | 0.1 | | | 0.2 | 2.5 | 240 |
| GL04A NORTH | 11/16/93 | 82343 | 25 | 7.33 | 1152 | 0.6 | 4.06 | 327 | 4.1 | | | | | |
| GL04A NORTH | 11/16/93 | 82518 | 25.01 | 7.34 | 1134 | 0.6 | 4.32 | 328 | 2.3 | | | | | |
| GL04A NORTH | 11/16/93 | 82638 | 25.01 | 7.34 | 1128 | 0.6 | 4.39 | 325 | 0.2 | | | 0.2 | 2.5 | 220 |
| GL04A SOUTH | 11/16/93 | 85507 | 25.02 | 7.34 | 1152 | 0.6 | 4.83 | 333 | 4.5 | | | | | |
| GL04A SOUTH | 11/16/93 | 85559 | 25.05 | 7.33 | 1137 | 0.6 | 4.89 | 332 | 2 | | | | | |
| GL04A SOUTH | 11/16/93 | 85656 | 25.11 | 7.34 | 1126 | 0.6 | 4.98 | 327 | 0.2 | | | 0.2 | 2.5 | 240 |
| L007 CENTER | 11/16/93 | 94914 | 25.74 | 7.38 | 1278 | 0.7 | 4.86 | 341 | 7.8 | | | 0.2 | 1.5 | 200 |
| L007 CENTER | 11/16/93 | 95209 | 25.74 | 7.39 | 1277 | 0.7 | 4.94 | 335 | 3.8 | | 0.008 | 0.1 | 1.5 | 200 |
| L007 CENTER | 11/16/93 | 95700 | 25.93 | 7.38 | 1276 | 0.7 | 5.1 | 315 | 0 | | | 0.2 | 2.5 | 200 |
| L007 EAST | 11/16/93 | 101634 | 25.86 | 7.34 | 1284 | 0.7 | 4.4 | 334 | 5.9 | | | | | |
| L007 EAST | 11/16/93 | 101806 | 25.8 | 7.38 | 1280 | 0.7 | 5.29 | 332 | 3.4 | | | | | |
| L007 EAST | 11/16/93 | 101833 | 25.86 | 7.38 | 1285 | 0.7 | 5.01 | 328 | 0 | | | 0.2 | 1.5 | 200 |
| L007 WEST | 11/16/93 | 100915 | 25.77 | 7.4 | 1276 | 0.7 | 5.35 | 326 | 5.9 | | | | | |
| L007 WEST | 11/16/93 | 101032 | 25.77 | 7.39 | 1277 | 0.7 | 5.07 | 328 | 3 | | | | | |
| L007 WEST | 11/16/93 | 101055 | 25.88 | 7.39 | 1276 | 0.7 | 5.12 | 325 | 0.2 | | | 0.2 | 2 | 200 |
| BL03 CENTER | 01/03/94 | 90604 | 22.06 | 7.77 | 529 | 0.3 | 8.42 | 443 | 14.8 | | | BDL | 0.2 | 180 |
| BL03 CENTER | 01/03/94 | 90703 | 22.27 | 7.82 | 531 | 0.3 | 8.53 | 441 | 8.2 | | 0.002 | BDL | | |
| BL03 CENTER | 01/03/94 | 90753 | 22.32 | 7.86 | 527 | 0.3 | 8.54 | 437 | 1 | | | BDL | 0.2 | 200 |
| BL03 NORTH | 01/03/94 | 93424 | 22.09 | 7.72 | 532 | 0.3 | 8.09 | 465 | 10.8 | | | | | |
| BL03 NORTH | 01/03/94 | 93504 | 22.32 | 7.81 | 524 | 0.3 | 8.59 | 462 | 5.6 | | | | | |
| BL03 NORTH | 01/03/94 | 93523 | 22.34 | 7.83 | 521 | 0.3 | 8.59 | 460 | 0.66 | | | BDL | 0.2 | 200 |
| BL03 SOUTH | 01/03/94 | 92953 | 22.09 | 7.74 | 530 | 0.3 | 8.77 | 465 | 11.8 | | | 0 | | |
| BL03 SOUTH | 01/03/94 | 93051 | 22.32 | 7.81 | 528 | 0.3 | 8.61 | 462 | 6.2 | | | 0 | | |
| BL03 SOUTH | 01/03/94 | 93136 | 22.32 | 7.84 | 524 | 0.3 | 8.54 | 458 | 0.66 | | | BDL | 0.15 | 160 |
| LO01 CENTER | 01/03/94 | 102121 | 21.72 | 7.47 | 551 | 0.3 | 5.84 | 480 | 5.9 | | | 0.05 | BDL | 200 |
| LO01 CENTER | 01/03/94 | 102157 | 22.22 | 7.66 | 527 | 0.3 | 8.36 | 479 | 2.6 | | 0.003 | 0.05 | 0.1 | 180 |
| LO01 CENTER | 01/03/94 | 102228 | 22.25 | 7.7 | 526 | 0.3 | 8.43 | 476 | 0.66 | | | 0.1 | 0.1 | 200 |
| LO01 EAST | 01/03/94 | 101321 | 22.22 | 7.79 | 523 | 0.3 | 9.01 | 483 | 3.3 | | | | | |
| LO01 EAST | 01/03/94 | 101348 | 22.25 | 7.76 | 522 | 0.3 | 8.75 | 485 | 2 | | | | | |
| LO01 EAST | 01/03/94 | 101414 | 22.24 | 7.74 | 521 | 0.3 | 8.63 | 485 | 0.3 | | | 0.1 | 0.1 | 160 |
| LO01 WEST | 01/03/94 | 101716 | 22.25 | 7.73 | 526 | 0.3 | 8.57 | 481 | 4.6 | | | | | |
| LO01 WEST | 01/03/94 | 101739 | 22.25 | 7.73 | 526 | 0.3 | 8.47 | 481 | 2.3 | | | | | |
| LO01 WEST | 01/03/94 | 101807 | 22.27 | 7.72 | 525 | 0.3 | 8.38 | 480 | 0.3 | | | BDL | 0.1 | 200 |
| LO07 CENTER | 01/04/94 | 123201 | 22.93 | 7.25 | 1296 | 0.7 | 3.42 | 365 | 8.4 | | | 0.3 | 2.5 | |
| LO07 CENTER | 01/04/94 | 123538 | 22.97 | 7.23 | 1298 | 0.7 | 3.25 | 360 | 4.4 | | 0.13 | 0.3 | 2.5 | 180 |
| LO07 CENTER | 01/04/94 | 123812 | 23.02 | 7.26 | 1300 | 0.7 | 3.61 | 353 | 0.4 | | | 0.6 | 2 | |
| LO07 EAST | 01/04/94 | 122831 | 22.93 | 7.24 | 1295 | 0.7 | 3.62 | 370 | 5.7 | | | | | |
| LO07 EAST | 01/04/94 | 122916 | 23.02 | 7.24 | 1299 | 0.7 | 3.55 | 368 | 2.8 | | | | | |

DERM Lab MDLs: NOx-N - 0.01 mg/L, O-PO4 - .002 mg/L

CHEMetrics MDLs: NOx-N - 0.1 mg/L, NH3-N - 0.1 mg/L

MDL - minimum detection limit, BDL - below detection limit

Raw Data

| Site ID | Sample Date | Sample Time | HYDROLAB Temp. Degree C | pH pH Units | Cond. us/cm | Salinity ppt | DO mg/l | Redox mV | Depth | DERM LAB NOx-N mg/l | OPO4 mg/l | CHEMetrics NH3-N mg/l | NOx-N mg/l | CaCO3 mg/l |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LO07 EAST | 01/04/94 | 122949 | 23.1 | 7.24 | 1302 | 0.7 | 3.59 | 366 | 0.4 | | | 0.4 | 2.5 | 180 |
| LO07 WEST | 01/04/94 | 123949 | 22.93 | 7.25 | 1295 | 0.7 | 3.48 | 354 | 7.8 | | | | | |
| LO07 WEST | 01/04/94 | 124048 | 22.99 | 7.25 | 1298 | 0.7 | 3.4 | 353 | 3.9 | | | | | |
| LO07 WEST | 01/04/94 | 124123 | 23.08 | 7.25 | 1298 | 0.7 | 3.44 | 353 | 0.2 | | | 0.6 | 2 | 180 |
| LO09 CENTER | 01/04/94 | 113045 | 23.29 | 7.15 | 1378 | 0.7 | 2.51 | 327 | 5.5 | | | 2 | 2 | 200 |
| LO09 CENTER | 01/04/94 | 113131 | 23.33 | 7.14 | 1372 | 0.7 | 2.36 | 331 | 2.7 | | | 2 | 2 | 200 |
| LO09 CENTER | 01/04/94 | 113206 | 23.33 | 7.14 | 1372 | 0.7 | 2.33 | 331 | 0.3 | | | 2 | 1 | 180 |
| LO09 EAST | 01/04/94 | 112323 | 23.26 | 7.13 | 1383 | 0.7 | 2.45 | 346 | 3.2 | | | | | |
| LO09 EAST | 01/04/94 | 112549 | 23.26 | 7.14 | 1383 | 0.7 | 2.31 | 342 | 2 | | | | | |
| LO09 EAST | 01/04/94 | 112637 | 23.26 | 7.14 | 1382 | 0.7 | 2.24 | 337 | 0.4 | | | 2 | 0.3 | |
| LO09 WEST | 01/04/94 | 113341 | 23.35 | 7.15 | 1372 | 0.7 | 2.49 | 333 | 5 | | | | | |
| LO09 WEST | 01/04/94 | 113431 | 23.35 | 7.14 | 1374 | 0.7 | 2.38 | 335 | 2.4 | | | | | |
| LO09 WEST | 01/04/94 | 113503 | 23.37 | 7.15 | 1372 | 0.7 | 2.38 | 333 | 0.5 | | | 2 | 1 | 220 |
| LO09A CENTER | 01/04/94 | 101736 | 22.99 | 7.13 | 1441 | 0.8 | 1.76 | 347 | 5.6 | | | 2 | 2.5 | 160 |
| LO09A CENTER | 01/04/94 | 101821 | 23.01 | 7.14 | 1440 | 0.8 | 1.9 | 346 | 2.6 | | 0.006 | 2 | 1.5 | |
| LO09A CENTER | 01/04/94 | 101859 | 23.01 | 7.14 | 1443 | 0.8 | 1.94 | 346 | 0.6 | | | 2 | 1.5 | 180 |
| LO09A EAST | 01/04/94 | 100018 | 22.99 | 7.13 | 1437 | 0.8 | 1.69 | 374 | 3.9 | | | | | |
| LO09A EAST | 01/04/94 | 100058 | 22.99 | 7.13 | 1439 | 0.8 | 1.67 | 373 | 2.7 | | | | | |
| LO09A EAST | 01/04/94 | 100159 | 22.99 | 7.13 | 1438 | 0.8 | 1.66 | 371 | 0.6 | | | 2 | 1.5 | 260 |
| LO09A WEST | 01/04/94 | 100532 | 22.99 | 7.15 | 1441 | 0.8 | 2.16 | 369 | 2.9 | | | | | |
| LO09A WEST | 01/04/94 | 100649 | 23.01 | 7.15 | 1440 | 0.8 | 2.05 | 369 | 1.5 | | | | | |
| LO09A WEST | 01/04/94 | 100755 | 23.02 | 7.15 | 1441 | 0.8 | 2.18 | 368 | 0.5 | | | 2 | 2.5 | |
| LO09B CENTER | 01/04/94 | | 22.52 | 7.13 | 1468 | 0.8 | 0.88 | 405 | 8.1 | | | 2 | 3 | 220 |
| LO09B CENTER | 01/04/94 | 83839 | 22.77 | 7.13 | 1464 | 0.8 | 0.89 | 402 | 4.2 | | 0.006 | 2 | 2 | 200 |
| LO09B CENTER | 01/04/94 | 84116 | 22.15 | 7.39 | 1013 | 0.5 | 4.59 | 360 | 0.2 | | | 1 | 3 | 220 |
| LO09B EAST | 01/04/94 | 84438 | 22.79 | 7.13 | 1466 | 0.8 | 1 | 353 | 5.9 | | | | | |
| LO09B EAST | 01/04/94 | 84531 | 22.83 | 7.13 | 1437 | 0.8 | 1.18 | 354 | 2.9 | | | | | |
| LO09B EAST | 01/04/94 | 84633 | 22.95 | 7.27 | 1057 | 0.6 | 4.27 | 355 | 0.3 | | | 0.8 | 3.5 | 220 |
| LO09B WEST | 01/04/94 | 85018 | 22.83 | 7.13 | 1468 | 0.8 | 1.08 | 357 | 6.9 | | | | | |
| LO09B WEST | 01/04/94 | 85122 | 22.84 | 7.15 | 1380 | 0.7 | 1.61 | 357 | 3.5 | | | | | |
| LO09B WEST | 01/04/94 | 85258 | 21.38 | 7.75 | 191 | 0.1 | 4.16 | 348 | 0.2 | | | 1 | 2 | 220 |
| GL03 CENTER | 01/10/94 | 121957 | 22 | 7.37 | 1242 | 0.7 | 5.87 | 392 | 7.6 | | | 0.2 | 2 | 240 |
| GL03 CENTER | 01/10/94 | 122153 | 22.02 | 7.37 | 1244 | 0.7 | 5.79 | 385 | 3.8 | | 0.009 | 0.1 | 2 | 240 |
| GL03 CENTER | 01/10/94 | 122308 | 22.06 | 7.38 | 1238 | 0.7 | 5.88 | 373 | 0.5 | | | 0.1 | 2 | 220 |
| GL03 NORTH | 01/10/94 | 123526 | 22.06 | 7.4 | 1239 | 0.7 | 6.64 | 374 | 5.6 | | | | | |
| GL03 NORTH | 01/10/94 | 123605 | 22.13 | 7.39 | 1238 | 0.7 | 6.35 | 371 | 2.4 | | | | | |
| GL03 NORTH | 01/10/94 | 123631 | 22.13 | 7.39 | 1240 | 0.7 | 6.36 | 368 | 0.6 | | | 0.1 | 1.5 | 220 |
| GL03 SOUTH | 01/10/94 | 123025 | 22.06 | 7.37 | 1265 | 0.7 | 5.82 | 388 | 7.4 | | | | | |
| GL03 SOUTH | 01/10/94 | 123123 | 22.06 | 7.38 | 1248 | 0.7 | 5.94 | 385 | 3.9 | | | | | |
| GL03 SOUTH | 01/10/94 | 123201 | 22.06 | 7.39 | 1242 | 0.7 | 5.93 | 381 | 0.8 | | | 0.1 | 1.5 | 220 |
| GL04 CENTER | 01/10/94 | 103623 | 21.58 | 7.32 | 1214 | 0.6 | 4.97 | 436 | 5.5 | | | 0.15 | 3.5 | 240 |
| GL04 CENTER | 01/10/94 | 103851 | 21.56 | 7.33 | 1207 | 0.6 | 4.85 | 405 | 2.7 | | 0.011 | 0.1 | 2 | 220 |
| GL04 CENTER | 01/10/94 | 103945 | 21.65 | 7.34 | 1215 | 0.6 | 5.06 | 396 | 0.8 | | | 0.1 | 2 | 240 |
| GL04 NORTH | 01/10/94 | 104149 | 21.56 | 7.32 | 1216 | 0.6 | 4.88 | 386 | 4 | | | | | |
| GL04 NORTH | 01/10/94 | 104241 | 21.56 | 7.32 | 1214 | 0.6 | 4.75 | 381 | 2 | | | | | |
| GL04 NORTH | 01/10/94 | 104329 | 21.56 | 7.33 | 1215 | 0.6 | 4.76 | 374 | 0.9 | | | 0.2 | 3 | 220 |
| GL04 SOUTH | 01/10/94 | 104537 | 21.54 | 7.33 | 1213 | 0.6 | 5.13 | 369 | 4.3 | | | | | |
| GL04 SOUTH | 01/10/94 | 104609 | 21.6. | 7.33 | 1219 | 0.6 | 4.9 | 369 | 2.1 | | | | | |

DERM Lab MDLs: NOx-N - 0.01 mg/L, O-PO4 - .002 mg/L

CHEMetrics MDLs: NOx-N - 0.1 mg/L, NH3-N - 0.1 mg/L

MDL - minimum detection limit, BDL - below detection limit

| Site ID | Sample Date | Sample Time | HYDROLAB Temp. Degree C | pH pH Units | Cond. us/cm | Salinity ppt | DO mg/l | Redox mV | Depth | DERM LAB NOx-N mg/l | OPO4 mg/l | CHEMetrics NH3-N mg/l | NOx-N mg/l | CaCO3 mg/l |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| GL04 SOUTH | 01/10/94 | 104648 | 21.61 | 7.35 | 1217 | 0.6 | 5.03 | 367 | 0.6 | | | 0.2 | 2.5 | 240 |
| GL04A CENTER | 01/10/94 | 91020 | 21.56 | 7.25 | 1058 | 0.6 | 4.6 | 508 | 5.4 | | | BDL | 3 | 240 |
| GL04A CENTER | 01/10/94 | 91253 | 21.56 | 7.25 | 1056 | 0.6 | 4.4 | 474 | 2.6 | | 0.01 | 1 | 3 | 220 |
| GL04A CENTER | 01/10/94 | 91450 | 21.58 | 7.26 | 1058 | 0.6 | 4.46 | 442 | 0.6 | | | BDL | 3.5 | 220 |
| GL04A NORTH | 01/10/94 | 91846 | 21.58 | 7.25 | 1061 | 0.6 | 4.35 | 409 | 4 | | | | | |
| GL04A NORTH | 01/10/94 | 91933 | 21.56 | 7.24 | 1059 | 0.6 | 4.32 | 405 | 2 | | | | | |
| GL04A NORTH | 01/10/94 | 92010 | 21.6 | 7.25 | 1062 | 0.6 | 4.38 | 398 | 0.5 | | | 0.1 | 3 | 200 |
| GL04A SOUTH | 01/10/94 | 92357 | 21.56 | 7.26 | 1061 | 0.6 | 4.49 | 386 | 4.8 | | | | | |
| GL04A SOUTH | 01/10/94 | 92438 | 21.54 | 7.26 | 1061 | 0.6 | 4.45 | 385 | 2.4 | | | | | |
| GL04A SOUTH | 01/10/94 | 92519 | 21.54 | 7.26 | 1061 | 0.6 | 4.53 | 381 | 0.5 | | | 0.1 | 3.5 | 200 |
| GL04B CENTER | 01/10/94 | 81159 | 23.2 | 7.12 | 737 | 0.4 | 1.74 | 412 | 2.5 | | | | | |
| GL04B CENTER | 01/10/94 | 75859 | 23.15 | 7.1 | 739 | 0.4 | 1.65 | 450 | 1.3 | | | | | |
| GL04B CENTER | 01/10/94 | 75923 | 23.17 | 7.1 | 739 | 0.4 | 1.66 | 449 | 0.6 | | | BDL | 5 | 200 |
| GL04B NORTH | 01/10/94 | 80351 | 23.08 | 7.11 | 739 | 0.4 | 1.81 | 433 | 1.9 | | | | | |
| GL04B NORTH | 01/10/94 | 80418 | 23.15 | 7.12 | 739 | 0.4 | 1.89 | 431 | 0.8 | | | BDL | 4.5 | 220 |
| GL04B SOUTH | 01/10/94 | 75520 | 22.9 | 7.09 | 742 | 0.4 | 2.02 | 459 | 2 | | | | | |
| GL04B SOUTH | 01/10/94 | 81851 | 23.13 | 7.14 | 738 | 0.4 | 2.35 | 400 | 0.5 | | | BDL | 5 | 240 |
| GL02A CENTER | 01/11/94 | 90330 | 20.87 | 7.78 | 1683 | 0.9 | 7.22 | 546 | 11 | | | 3 | 3 | 220 |
| GL02A CENTER | 01/11/94 | 90544 | 20.75 | 7.78 | 1689 | 0.9 | 7.07 | 545 | 5.5 | | 0.006 | 3 | 3 | 220 |
| GL02A CENTER | 01/11/94 | 90644 | 20.73 | 7.78 | 1688 | 0.9 | 7.06 | 544 | 0.6 | | | 3 | 2.5 | 240 |
| GL02A NORTH | 01/11/94 | 91700 | 20.72 | 7.75 | 1670 | 0.9 | 7.07 | 530 | 8.8 | | | | | |
| GL02A NORTH | 01/11/94 | 91755 | 20.72 | 7.76 | 1682 | 0.9 | 7.06 | 530 | 4.4 | | | | | |
| GL02A NORTH | 01/11/94 | 91852 | 20.73 | 7.77 | 1682 | 0.9 | 7.08 | 527 | 1 | | | 3 | 2 | 240 |
| GL02ASOUTH | 01/11/94 | 90944 | 20.75 | 7.76 | 1676 | 0.9 | 6.98 | 544 | 7.4 | | | | | |
| GL02ASOUTH | 01/11/94 | 91058 | 20.75 | 7.76 | 1682 | 0.9 | 6.97 | 542 | 3.2 | | | | | |
| GL02ASOUTH | 01/11/94 | 91140 | 20.79 | 7.75 | 1689 | 0.9 | 6.89 | 537 | 0.9 | | | 3 | 2.5 | 220 |
| GL02B CENTER | 01/11/94 | 102346 | 21.54 | 7.6 | 1732 | 0.9 | 6.32 | 503 | 7.4 | | | 4 | 1.5 | 220 |
| GL02B CENTER | 01/11/94 | 102707 | 21.54 | 7.6 | 1732 | 0.9 | 6.24 | 501 | 3.6 | | 0.008 | 4 | 3 | 220 |
| GL02B CENTER | 01/11/94 | 102812 | 21.56 | 7.6 | 1732 | 0.9 | 6.27 | 499 | 0.8 | | | 4 | 2.5 | 240 |
| GL02B NORTH | 01/11/94 | 103113 | 21.58 | 7.57 | 1726 | 0.9 | 6.34 | 495 | 5.3 | | | | | |
| GL02B NORTH | 01/11/94 | 103210 | 21.63 | 7.56 | 1726 | 0.9 | 5.95 | 495 | 2.3 | | | | | |
| GL02B NORTH | 01/11/94 | 103253 | 21.67 | 7.56 | 1720 | 0.9 | 5.87 | 494 | 0.8 | | | 4 | 2.5 | 220 |
| GL02B SOUTH | 01/11/94 | 103721 | 21.51 | 7.6 | 1719 | 0.9 | 6.5 | 486 | 7.4 | | | | | |
| GL02B SOUTH | 01/11/94 | 103807 | 21.53 | 7.6 | 1725 | 0.9 | 6.4 | 486 | 3.8 | | | | | |
| GL02B SOUTH | 01/11/94 | 103916 | 21.54 | 7.61 | 1726 | 0.9 | 6.39 | 482 | 0.8 | | | 4 | 3 | 220 |

DERM Lab MDLs: NOx-N - 0.01 mg/L, O-PO4 - .002 mg/L

CHEMetrics MDLs: NOx-N - 0.1 mg/L, NH3-N - 0.1 mg/L

MDL - minimum detection limit, BDL - below detection limit

Raw Data

| Site ID | Sample Date | Sample Time | Temp. Degree C | pH pH Units | Cond. us/cm | Salinity ppt | DO mg/l | Redox mV | Depth | DERM LAB NOx-N mg/l | NO2 mg/l | NO3 mg/l | TKN mg/l | T-PO4 mg/l | O-PO4 mg/l |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Preliminary Data | | | | | | | | | | | | | | | |
| GL02A CENTER | 07/28/92 | 1300 | 31.91 | 7.53 | 1041 | 0.5 | 5.76 | 292 | 3.5 | 1.65 | 0.02 | 1.63 | 1.3 | 0.005 | 0.0025 |
| BL03 CENTER | 07/28/92 | 1500 | 29.83 | 7.22 | 496 | 0.3 | 8.74 | 294 | 3.5 | 0.08 | 0.005 | 0.08 | 0.7 | 0.005 | 0.0025 |
| GLO2A NORTH | 07/28/92 | 1300 | 31.03 | 7.65 | 983 | 0.5 | 7.57 | 284 | 2.8 | | | | | | |
| BL03 NORTH | 07/28/92 | 1500 | 29.76 | 7.23 | 496 | 0.3 | 8.86 | 308 | 2.8 | | | | | | |
| L007 CENTER | 07/28/92 | 1100 | 30.12 | 7.44 | 636 | 0.3 | 8.95 | 307 | 2.8 | 3.38 | 0.01 | 3.37 | 0.44 | 0.005 | 0.0025 |
| GLO2A SOUTH | 07/28/92 | 1300 | 31.1 | 7.73 | 958 | 0.5 | 9.06 | 293 | 2.5 | | | | | | |
| BL03 SOUTH | 07/28/92 | 1500 | 29.84 | 7.25 | 498 | 0.3 | 9.18 | 315 | 2.5 | | | | | | |
| L009A CENTER | 07/28/92 | 900 | 28.99 | 7.17 | 618 | 0.3 | 6.92 | 337 | 2.2 | 4 | 0.02 | 3.98 | 0.63 | 0.005 | 0.0025 |
| L007 EAST | 07/28/92 | 1100 | 30.24 | 7.43 | 643 | 0.3 | 9.6 | 310 | 2.1 | | | | | | |
| L009A EAST | 07/28/92 | 900 | 29.05 | 7.31 | 617 | 0.3 | 6.64 | 326 | 1.8 | | | | | | |
| BL03 CENTER | 07/28/92 | 1500 | 30.94 | 7.39 | 490 | 0.2 | 8.65 | 294 | 1.7 | | | | | | |
| GL02A CENTER | 07/28/92 | 1300 | 31.23 | 7.77 | 950 | 0.5 | 9.65 | 288 | 1.7 | | | | | | |
| L007 WEST | 07/28/92 | 1100 | 30.22 | 7.45 | 635 | 0.3 | 9.67 | 309 | 1.7 | | | | | | |
| L007 CENTER | 07/28/92 | 1100 | 30.28 | 7.45 | 652 | 0.3 | 8.94 | 309 | 1.4 | | | | | | |
| GLO2A NORTH | 07/28/92 | 1300 | 31.38 | 7.76 | 953 | 0.5 | 9.66 | 293 | 1.4 | | | | | | |
| L009A WEST | 07/28/92 | 900 | 29.07 | 7.31 | 617 | 0.3 | 6.87 | 326 | 1.3 | | | | | | |
| GLO2A SOUTH | 07/28/92 | 1300 | 31.33 | 7.76 | 955 | 0.5 | 9.64 | 293 | 1.3 | | | | | | |
| BL03 NORTH | 07/28/92 | 1500 | 31.05 | 7.4 | 492 | 0.2 | 8.5 | 304 | 1.3 | | | | | | |
| L009A CENTER | 07/28/92 | 900 | 29.02 | 7.25 | 616 | 0.3 | 6.7 | 329 | 1.1 | | | | | | |
| BL03 SOUTH | 07/28/92 | 1500 | 31.24 | 7.43 | 491 | 0.2 | 8.78 | 311 | 1 | | | | | | |
| L009A EAST | 07/28/92 | 900 | 29.05 | 7.31 | 617 | 0.3 | 6.67 | 326 | 0.9 | | | | | | |
| L007 WEST | 07/28/92 | 1100 | 30.35 | 7.45 | 642 | 0.3 | 9.46 | 311 | 0.9 | | | | | | |
| L007 EAST | 07/28/92 | 1100 | 30.43 | 7.44 | 661 | 0.3 | 9.32 | 311 | 0.8 | | | | | | |
| L009A WEST | 07/28/92 | 900 | 29.08 | 7.32 | 618 | 0.3 | 6.97 | 326 | 0.5 | | | | | | |
| BL03 NORTH | 07/28/92 | 1500 | 31.43 | 7.44 | 490 | 0.2 | 8.58 | 303 | 0.2 | | | | | | |
| GLO2A SOUTH | 07/28/92 | 1300 | 32.37 | 7.75 | 937 | 0.5 | 9.52 | 292 | 0.1 | | | | | | |
| GLO2A NORTH | 07/28/92 | 1300 | 32.64 | 7.79 | 939 | 0.5 | 9.12 | 291 | 0.1 | | | | | | |
| L007 CENTER | 07/28/92 | 1100 | 30.69 | 7.48 | 685 | 0.4 | 8.81 | 308 | 0.1 | | | | | | |
| BL03 SOUTH | 07/28/92 | 1500 | 31.5 | 7.45 | 489 | 0.2 | 9 | 310 | 0.1 | | | | | | |
| GL02A CENTER | 07/28/92 | 1300 | 32.53 | 7.79 | 937 | 0.5 | 9.12 | 287 | 0.1 | | | | | | |
| BL03 CENTER | 07/28/92 | 1500 | 31.42 | 7.45 | 490 | 0.2 | 8.79 | 295 | 0.1 | | | | | | |
| L007 WEST | 07/28/92 | 1100 | 30.52 | 7.45 | 657 | 0.3 | 9.22 | 313 | 0.1 | | | | | | |
| L009A WEST | 07/28/92 | 900 | 29.08 | 7.32 | 617 | 0.3 | 6.95 | 327 | 0 | | | | | | |
| L007 EAST | 07/28/92 | 1100 | 30.78 | 7.46 | 686 | 0.4 | 9.11 | 311 | 0 | | | | | | |
| L009A EAST | 07/28/92 | 900 | 29.01 | 7.12 | 9.1 | 0 | 7 | 336 | -0.1 | | | | | | |
| GL04B SOUTH | 12/14/92 | 151948 | 24.12 | 7.2 | 726 | 0.4 | 5.43 | 167 | 37 | | | | | | |
| BL02A CENTER | 12/16/92 | 112725 | 21.86 | 7.57 | 606 | 0.3 | 7.14 | 316 | 4.4 | | | | | | |
| BL02C CENTER | 12/16/92 | 121432 | 22.49 | 7.47 | 599 | 0.3 | 6.52 | 318 | 4.3 | | | | | | |
| BL03 CENTER | 12/16/92 | 124808 | 22.77 | 7.47 | 605 | 0.3 | 6.53 | 309 | 4.1 | | | | | | |
| BL02A NORTH | 12/16/92 | 114004 | 22.05 | 7.57 | 605 | 0.3 | 7.4 | 316 | 4 | | | | | | |
| GL02A CENTER | 12/15/92 | 112213 | 20.38 | 7.53 | 1756 | 0.9 | 4.3 | 267 | 3.9 | | | | | | |
| GL02A SOUTH | 12/15/92 | 113100 | 20.38 | 7.53 | 1751 | 0.9 | 4.3 | 266 | 3.1 | | | | | | |
| BL02A NORTH | 12/16/92 | 114113 | 22.03 | 7.53 | 601 | 0.3 | 7.04 | 317 | 3 | | | | | | |
| BL02A CENTER | 12/16/92 | 113005 | 22.05 | 7.5 | 602 | 0.3 | 6.92 | 317 | 2.9 | | | | | | |
| GL03 CENTER | 12/15/92 | 95603 | 21.32 | 7.49 | 1454 | 0.8 | 5.1 | 257 | 2.8 | | | | | | |
| GL02A NORTH | 12/15/92 | 111150 | 20.42 | 7.53 | 1755 | 0.9 | 4.36 | 268 | 2.7 | | | | | | |
| BL02A SOUTH | 12/16/92 | 112002 | 22.27 | 4.55 | 599 | 0.3 | 7.22 | 320 | 2.5 | | | | | | |
| BL03 SOUTH | 12/16/92 | 124337 | 22.86 | 7.49 | 603 | 0.3 | 6.88 | 316 | 2.5 | | | | | | |
| GL03 SOUTH | 12/15/92 | 101553 | 21.33 | 7.43 | 1458 | 0.8 | 5.03 | 264 | 2.5 | | | | | | |
| BL02C NORTH | 12/16/92 | 122307 | 22.63 | 7.47 | 599 | 0.3 | 6.53 | 313 | 2.4 | | | | | | |
| BL02A SOUTH | 12/16/92 | 112047 | 22.18 | 7.53 | 600 | 0.3 | 7.21 | 320 | 2.4 | | | | | | |

DERM Lab MDLs: NOx-N - 0.01 mg/L, O-PO4 - .002 mg/L

CHEMetrics MDLs: NOx-N - 0.1 mg/L, NH3-N - 0.1 mg/L

MDL - minimum detection limit, BDL - below detection limit

Raw Data

| Site ID | Sample Date | Sample Time | Temp. Degree C | pH pH Units | Cond. us/cm | Salinity ppt | DO mg/l | Redox mV | Depth | DERM LAB NOx-N mg/l | NO2 mg/l | NO3 mg/l | TKN mg/l | T-PO4 mg/l | O-PO4 mg/l |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BL03 CENTER | 12/16/92 | 124848 | 22.83 | 7.46 | 604 | 0.3 | 6.58 | 310 | 2.3 | | | | | | |
| L003 CENTER | 12/14/92 | 142205 | 24.08 | 6.81 | 9999 | 99999 | 0.09 | -155 | 2.2 | | | | | | |
| BL02C SOUTH | 12/16/92 | 120921 | 22.62 | 7.49 | 599 | 0.3 | 6.9 | 320 | 2.2 | | | | | | |
| BL02C SOUTH | 12/16/92 | 130856 | 22.62 | 7.5 | 597 | 0.3 | 7.05 | 320 | 2.2 | | | | | | |
| GL03 NORTH | 12/15/92 | 100546 | 21.3 | 7.46 | 1423 | 0.8 | 5.31 | 260 | 2.2 | | | | | | |
| L005 NORTH | 12/14/92 | 140812 | 21.01 | 7.22 | 7704 | 4.3 | 0.13 | -74 | 2.1 | | | | | | |
| L007 CENTER | 12/15/92 | 122104 | 21.47 | 7.34 | 1319 | 0.7 | 5.15 | 271 | 2.1 | | | | | | |
| L005 CENTER | 12/14/92 | 134530 | 20.78 | 7.16 | 7757 | 4.3 | 0.18 | 30 | 2.1 | | | | | | |
| BL02C CENTER | 12/16/92 | 121548 | 22.61 | 7.47 | 598 | 0.3 | 6.5 | 317 | 2.1 | | | | | | |
| BL02A SOUTH | 12/16/92 | 112145 | 22.15 | 7.52 | 600 | 0.3 | 7.23 | 319 | 2 | | | | | | |
| GL02A CENTER | 12/15/92 | 112604 | 20.38 | 7.54 | 1760 | 0.9 | 4.42 | 266 | 2 | | | | | | |
| BL03 NORTH | 12/16/92 | 125513 | 22.86 | 4.47 | 601 | 0.3 | 6.85 | 311 | 1.9 | | | | | | |
| GL03 CENTER | 12/15/92 | 95939 | 21.24 | 7.48 | 1398 | 37 | 5.28 | 262 | 1.9 | | | | | | |
| BL02A CENTER | 12/16/92 | 113050 | 22.15 | 7.5 | 599 | 0.3 | 6.93 | 316 | 1.9 | | | | | | |
| L003 WEST | 12/14/92 | 143104 | 21.49 | 6.97 | 99999 | 99999 | 0.3 | -120 | 1.9 | | | | | | |
| BL02A NORTH | 12/16/92 | 114203 | 22.19 | 7.51 | 599 | 0.3 | 6.96 | 317 | 1.8 | | | | | | |
| L000 | 12/14/92 | 113630 | 19.55 | 7.73 | 635 | 0.3 | 8.11 | 445 | 1.8 | | | | | | |
| L009A CENTER | 12/15/92 | 131912 | 21.26 | 7.29 | 1353 | 0.7 | 4.78 | 277 | 1.8 | | | | | | |
| L005 SOUTH | 12/14/92 | 140042 | 20.26 | 7.68 | 6382 | 3.5 | 1.41 | 14 | 1.7 | | | | | | |
| L007 WEST | 12/15/92 | 124045 | 21.51 | 7.33 | 1320 | 0.7 | 5.28 | 265 | 1.7 | | | | | | |
| L001 CENTER | 12/16/92 | 105531 | 21.02 | 7.64 | 638 | 0.3 | 7.44 | 317 | 1.6 | | | | | | |
| L001 EAST | 12/16/92 | 105200 | 21 | 7.65 | 638 | 0.3 | 7.51 | 313 | 1.6 | | | | | | |
| L003 EAST | 12/14/92 | 142723 | 20.25 | 7.86 | 6246 | 3.5 | 2.19 | -5 | 1.4 | | | | | | |
| L001 EAST | 12/16/92 | 110040 | 20.96 | 7.64 | 637 | 0.3 | 7.5 | 313 | 1.4 | | | | | | |
| L001 WEST | 12/16/92 | 110645 | 21.05 | 7.64 | 641 | 0.3 | 7.29 | 309 | 1.3 | | | | | | |
| L31-E | 12/14/92 | 115848 | 19.05 | 7.84 | 746 | 0.4 | 9.08 | 412 | 1.3 | | | | | | |
| L007 EAST | 12/15/92 | 121435 | 21.54 | 7.34 | 1318 | 0.7 | 5.26 | 275 | 1.2 | | | | | | |
| BL03 SOUTH | 12/16/92 | 124449 | 22.89 | 7.48 | 604 | 0.3 | 6.77 | 315 | 1.2 | | | | | | |
| GL02A SOUTH | 12/15/92 | 113346 | 20.44 | 7.55 | 1755 | 0.9 | 4.42 | 267 | 1.2 | | | | | | |
| BL02C CENTER | 12/16/92 | 121704 | 22.61 | 7.47 | 598 | 0.3 | 6.53 | 315 | 1.2 | | | | | | |
| L009A CENTER | 12/15/92 | 132030 | 21.31 | 7.29 | 1352 | 0.7 | 4.84 | 278 | 1.1 | | | | | | |
| BL02C NORTH | 12/16/92 | 122357 | 22.69 | 7.47 | 598 | 0.3 | 6.52 | 312 | 1.1 | | | | | | |
| L009A EAST | 12/15/92 | 131526 | 21.36 | 7.29 | 1349 | 0.7 | 4.85 | 277 | 1.1 | | | | | | |
| GL03 NORTH | 12/15/92 | 100727 | 21.31 | 7.44 | 1331 | 0.7 | 5.21 | 263 | 1 | | | | | | |
| L001 EAST | 12/16/92 | 110113 | 21.11 | 7.63 | 639 | 0.3 | 7.49 | 313 | 1 | | | | | | |
| GL03 SOUTH | 12/15/92 | 102038 | 21.33 | 7.43 | 1309 | 0.7 | 5.2 | 266 | 1 | | | | | | |
| BL02A SOUTH | 12/16/92 | 112254 | 22.26 | 7.51 | 599 | 0.3 | 6.97 | 317 | 1 | | | | | | |
| L001 WEST | 12/16/92 | 110710 | 21.09 | 7.63 | 640 | 0.3 | 7.36 | 309 | 1 | | | | | | |
| BL02A CENTER | 12/16/92 | 113132 | 22.23 | 7.51 | 600 | 0.3 | 6.91 | 315 | 1 | | | | | | |
| BL03 NORTH | 12/16/92 | 125610 | 22.9 | 7.48 | 602 | 0.3 | 6.97 | 311 | 1 | | | | | | |
| L001 CENTER | 12/16/92 | 102628 | 21.1 | 7.62 | 638 | 0.3 | 7.29 | 317 | 1 | | | | | | |
| L005 CENTER | 12/14/92 | 142357 | 20.5 | 8.03 | 6022 | 3.3 | 5.32 | -9 | 0.9 | | | | | | |
| BL02A NORTH | 12/16/92 | 114310 | 22.31 | 7.52 | 600 | 0.3 | 6.98 | 316 | 0.9 | | | | | | |
| BL02C SOUTH | 12/16/92 | 121017 | 22.64 | 7.49 | 598 | 0.3 | 6.75 | 319 | 0.9 | | | | | | |
| L009A EAST | 12/15/92 | 131631 | 21.4 | 7.29 | 1350 | 0.7 | 4.87 | 278 | 0.9 | | | | | | |
| L005 CENTER | 12/14/92 | 134813 | 21.11 | 7.83 | 6091 | 3.4 | 3.7 | 71 | 0.9 | | | | | | |
| L009A WEST | 12/15/92 | 133241 | 21.36 | 7.29 | 1352 | 0.7 | 4.96 | 275 | 0.9 | | | | | | |
| L31-E | 12/14/92 | 120032 | 19.07 | 7.83 | 749 | 0.4 | 8.97 | 413 | 0.9 | | | | | | |
| L007 WEST | 12/15/92 | 124209 | 21.54 | 7.32 | 1323 | 0.7 | 5.1 | 268 | 0.9 | | | | | | |
| L003 EAST | 12/14/92 | 142815 | 20.42 | 7.98 | 6055 | 3.3 | 4.45 | 2 | 0.9 | | | | | | |
| L005 NORTH | 12/14/92 | 141019 | 21.21 | 7.87 | 6082 | 3.4 | 3.74 | 19 | 0.9 | | | | | | |
| BL03 CENTER | 12/16/92 | 124924 | 22.87 | 7.48 | 604 | 0.3 | 6.68 | 309 | 0.9 | | | | | | |
| L007 CENTER | 12/15/92 | 122220 | 21.52 | 7.33 | 1321 | 0.7 | 5.17 | 273 | 0.9 | | | | | | |

DERM Lab MDLs: NOx-N - 0.01 mg/L, O-PO4 - .002 mg/L

CHEMetrics MDLs: NOx-N - 0.1 mg/L, NH3-N - 0.1 mg/L

MDL - minimum detection limit, BDL - below detection limit

Raw Data

| Site ID | Sample Date | Sample Time | Temp. Degree C | pH pH Units | Cond. us/cm | Salinity ppt | DO mg/l | Redox mV | Depth | DERM LAB NOx-N mg/l | NO2 mg/l | NO3 mg/l | TKN mg/l | T-PO4 mg/l | O-PO4 mg/l |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L005 SOUTH | 12/14/92 | 140405 | 21.25 | 7.89 | 6087 | 3.4 | 4.18 | 48 | 0.9 | | | | | | |
| GL03 CENTER | 12/15/92 | 100113 | 21.31 | 7.47 | 1325 | 0.7 | 5.26 | 264 | 0.9 | | | | | | |
| L007 EAST | 12/15/92 | 121639 | 21.53 | 7.33 | 1320 | 0.7 | 5.21 | 273 | 0.8 | | | | | | |
| GL02A NORTH | 12/15/92 | 111425 | 20.49 | 7.54 | 1764 | 0.9 | 4.66 | 268 | 0.8 | | | | | | |
| L000 | 12/14/92 | 113722 | 19.8 | 7.79 | 637 | 0.3 | 8.71 | 436 | 0.8 | | | | | | |
| GL04B NORTH | 12/14/92 | 152534 | 24.17 | 7.19 | 725 | 0.4 | 5.47 | 179 | 0.5 | | | | | | |
| BL03 SOUTH | 12/16/92 | 124524 | 22.95 | 7.49 | 604 | 0.3 | 6.69 | 315 | 0.1 | | | | | | |
| L001 CENTER | 12/16/92 | 102518 | 21.3 | 7.6 | 643 | 0.3 | 7.32 | 316 | 0.1 | | | | | | |
| L001 WEST | 12/16/92 | 110806 | 21.34 | 7.6 | 644 | 0.3 | 7.26 | 308 | 0.1 | | | | | | |
| L009A EAST | 12/15/92 | 131716 | 21.58 | 7.31 | 1344 | 0.7 | 5.22 | 276 | 0.1 | | | | | | |
| BL02A SOUTH | 12/16/92 | 112349 | 22.32 | 7.53 | 599 | 0.3 | 7.03 | 314 | 0.1 | | | | | | |
| GL02A NORTH | 12/15/92 | 111602 | 20.55 | 7.54 | 1760 | 0.9 | 4.62 | 267 | 0.1 | | | | | | |
| GL02A CENTER | 12/15/92 | 112723 | 20.59 | 7.55 | 1759 | 0.9 | 4.43 | 266 | 0.1 | | | | | | |
| L31-E | 12/14/92 | 120149 | 19.38 | 7.87 | 760 | 0.4 | 9.15 | 413 | 0.1 | | | | | | |
| L003 EAST | 12/14/92 | 142927 | 20.64 | 8.06 | 5938 | 3.3 | 5.91 | 8 | 0.1 | | | | | | |
| L003 WEST | 12/14/92 | 143300 | 20.58 | 8.06 | 5937 | 3.3 | 5.5 | -2 | 0.1 | | | | | | |
| BL02A CENTER | 12/16/92 | 113217 | 22.36 | 7.52 | 601 | 0.3 | 6.89 | 313 | 0.1 | | | | | | |
| L005 CENTER | 12/14/92 | 142508 | 20.62 | 8.05 | 5905 | 3.3 | 5.7 | -3 | 0 | | | | | | |
| GL03 CENTER | 12/15/92 | 100333 | 21.33 | 7.46 | 1278 | 0.7 | 5.38 | 259 | 0 | | | | | | |
| GL04B NORTH | 12/14/92 | 152645 | 24.17 | 7.19 | 726 | 0.4 | 5.53 | 184 | 0 | | | | | | |
| L005 SOUTH | 12/14/92 | 140520 | 21.5 | 7.93 | 6099 | 3.4 | 4.91 | 59 | 0 | | | | | | |
| GL04B SOUTH | 12/14/92 | 152054 | 24.09 | 7.19 | 725 | 0.4 | 5.45 | 172 | 0 | | | | | | |
| L005 CENTER | 12/14/92 | 134916 | 21.49 | 7.9 | 6114 | 3.4 | 4.8 | 111 | 0 | | | | | | |
| L001 EAST | 12/16/92 | 110155 | 21.28 | 7.63 | 640 | 0.3 | 7.52 | 312 | 0 | | | | | | |
| L001 EAST | 12/16/92 | 110214 | 21.27 | 7.63 | 640 | 0.3 | 7.51 | 312 | 0 | | | | | | |
| BL03 NORTH | 12/16/92 | 125651 | 23.16 | 7.5 | 593 | 0.3 | 7.21 | 308 | 0 | | | | | | |
| GL03 NORTH | 12/15/92 | 101034 | 21.35 | 7.45 | 1291 | 0.7 | 5.32 | 264 | 0 | | | | | | |
| L009A CENTER | 12/15/92 | 132129 | 21.69 | 7.31 | 1319 | 0.7 | 5.11 | 274 | 0 | | | | | | |
| L009A WEST | 12/15/92 | 133401 | 21.93 | 7.33 | 1271 | 0.7 | 5.65 | 266 | 0 | | | | | | |
| BL02C NORTH | 12/16/92 | 122459 | 22.81 | 7.48 | 598 | 0.3 | 6.84 | 309 | 0 | | | | | | |
| BL02C SOUTH | 12/16/92 | 121057 | 22.67 | 7.49 | 596 | 0.3 | 6.89 | 318 | 0 | | | | | | |
| L007 EAST | 12/15/92 | 121816 | 21.63 | 7.34 | 1322 | 0.7 | 5.33 | 271 | 0 | | | | | | |
| L007 WEST | 12/15/92 | 124307 | 21.67 | 7.33 | 1330 | 0.7 | 5.11 | 268 | 0 | | | | | | |
| GL03 SOUTH | 12/15/92 | 102522 | 21.38 | 7.44 | 1303 | 0.7 | 5.52 | 263 | 0 | | | | | | |
| BL03 CENTER | 12/16/92 | 124957 | 22.97 | 7.49 | 604 | 0.3 | 6.76 | 308 | 0 | | | | | | |
| L007 CENTER | 12/15/92 | 122343 | 21.65 | 7.34 | 1322 | 0.7 | 5.26 | 265 | 0 | | | | | | |
| BL02A NORTH | 12/16/92 | 114350 | 22.42 | 7.54 | 599 | 0.3 | 7.14 | 315 | 0 | | | | | | |
| L003 WEST | 12/14/92 | 143431 | 20.61 | 8.08 | 5900 | 3.3 | 6.36 | 9 | 0 | | | | | | |

DERM Lab MDLs: NOx-N - 0.01 mg/L, O-PO4 - .002 mg/L

CHEMetrics MDLs: NOx-N - 0.1 mg/L, NH3-N - 0.1 mg/L

MDL - minimum detection limit, BDL - below detection limit

| Site ID | Sample Date | Sample Time | HYDROLAB Temp. Degree C | pH pH Units | Cond. us/cm | Salinity ppt | DO mg/l | Redox mV | Depth | DERM LAB NOx-N mg/l | OPO4 mg/l | CHEMetrics NH3-N mg/l | NOx-N mg/l | CaCO3 mg/l |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Master List | | | | | | | | | | | | | | |
| GL02A | 02/23/93 | 115837 | 22.49 | 7.64 | 1810 | 1 | 4.02 | 476 | 10.5 | | | | | |
| GL02A | 02/23/93 | 115956 | 23.66 | 7.79 | 1734 | 0.9 | 6.26 | 471 | 4.92 | 2.01 | | 4 | 1.5 | 100 |
| GL02A | 02/23/93 | 121512 | 24 | 7.82 | 1733 | 0.9 | 6.7 | 473 | 0 | | | | | |
| GL02B | 02/23/93 | 130030 | 23.52 | 7.6 | 1766 | 0.9 | 4.85 | 409 | 6.9 | | | | | |
| GL02B | 02/23/93 | 130123 | 23.62 | 7.77 | 1665 | 0.9 | 6.54 | 408 | 3.6 | | | 4 | 2 | 52.5 |
| GL02B | 02/23/93 | 130203 | 23.87 | 7.81 | 1659 | 0.9 | 6.88 | 411 | 0.3 | | | | | |
| GL03 | 02/23/93 | 132538 | 23.15 | 7.58 | 1620 | 0.9 | 5.77 | 462 | 6.9 | | | | | |
| GL03 | 02/23/93 | 132854 | 23.22 | 7.64 | 1486 | 0.8 | 6.37 | 461 | 3.3 | | | 2 | 3.5 | 100 |
| GL03 | 02/23/93 | 132811 | 23.35 | 7.65 | 1267 | 0.7 | 7.31 | 460 | 0.3 | | | | | |
| GL04 | 02/23/93 | 134943 | 23.17 | 7.6 | 1429 | 0.8 | 62 | 430 | 3.9 | | | | | |
| GL04 | 02/23/93 | 143053 | 23.87 | 7.24 | 739 | 0.4 | 4.77 | 478 | 2 | | | | | |
| GL04 | 02/23/93 | 135101 | 23.33 | 7.57 | 1334 | 0.7 | 6.28 | 435 | 1.6 | 1.83 | | 2 | 1.5 | 57.5 |
| GL04 | 02/23/93 | 135300 | 23.31 | 7.58 | 1124 | 0.6 | 6.69 | 440 | 0.3 | | | | | |
| GL04B | 02/23/93 | 145939 | 23.26 | 7.52 | 949 | 0.5 | 7.32 | 466 | 3 | | | 0.1 | 5 | 70 |
| L007 | 02/23/93 | 112417 | 22.98 | 7.58 | 1582 | 0.8 | 5.46 | 502 | 9 | | | | | |
| L007 | 02/23/93 | 112530 | 23.02 | 7.61 | 1578 | 0.8 | 5.47 | 500 | 4.2 | 1.99 | | 3 | 2 | 53.5 |
| L007 | 02/23/93 | 112618 | 23.1 | 7.66 | 1078 | 0.6 | 6.03 | 498 | 0.3 | | | | | |
| L009A | 02/23/93 | 104753 | 22.95 | 7.62 | 1628 | 0.9 | 4.45 | 517 | 5.2 | | | | | |
| L009A | 02/23/93 | 104859 | 23.03 | 7.61 | 1617 | 0.9 | 4.41 | 516 | 2.6 | 2.71 | | 3 | 3 | 125 |
| L009A | 02/23/93 | 104943 | 23.09 | 7.61 | 1403 | 0.7 | 4.42 | 514 | 0.3 | | | | | |
| L009B | 02/23/93 | 101429 | 22.96 | 7.66 | 1571 | 0.8 | 4.35 | 520 | 7.9 | | | | | |
| L009B | 02/23/93 | 101547 | 23.08 | 7.67 | 1497 | 0.8 | 4.74 | 520 | 3.9 | 2.95 | | 3 | 3 | |
| L009B | 02/23/93 | 101651 | 22.55 | 7.75 | 769 | 0.4 | 5.16 | 511 | 0 | | | | | |
| BL02A | 02/24/93 | 103842 | 22.5 | 7.85 | 534 | 0.3 | 9.17 | 506 | 15 | | | | | |
| BL02A | 02/24/93 | 104040 | 22.64 | 7.82 | 534 | 0.3 | 8.89 | 508 | 7.2 | | | 0.5 | 0.1 | |
| BL02A | 02/24/93 | 104206 | 22.74 | 7.82 | 534 | 0.3 | 8.96 | 508 | 0 | | | | | |
| BL02B | 02/24/93 | 114138 | 22.74 | 7.8 | 537 | 0.3 | 9.25 | 491 | 13.8 | | | | | |
| BL02B | 02/24/93 | 114328 | 22.8 | 7.76 | 540 | 0.3 | 8.41 | 494 | 6.5 | | | 0.5 | 0.15 | |
| BL02B | 02/24/93 | 114518 | 22.86 | 7.78 | 538 | 0.3 | 8.64 | 492 | 0 | | | | | |
| BL03 | 02/24/93 | 130820 | 22.88 | 7.76 | 548 | 0.3 | 8.56 | 489 | 14.4 | | | | | |
| BL03 | 02/24/93 | 130917 | 22.97 | 7.75 | 550 | 0.3 | 8.13 | 490 | 6.9 | | | 0.1 | 0.15 | |
| BL03 | 02/24/93 | 131013 | 23.37 | 7.79 | 549 | 0.3 | 8.37 | 488 | 0 | | | | | |
| BLO2C | 02/24/93 | 121851 | 22.7 | 7.76 | 542 | 0.3 | 8.58 | 488 | 15 | | | | | |
| BLO2C | 02/24/93 | 122137 | 22.8 | 7.72 | 544 | 0.3 | 7.85 | 492 | 7.2 | | | 0.1 | 0.15 | |
| BLO2C | 02/24/93 | 122349 | 23.16 | 7.75 | 546 | 0.3 | 8.05 | 489 | 0 | | | | | |
| L001 | 02/24/93 | 101156 | 21.7 | 7.95 | 522 | 0.3 | 9.98 | 509 | 5.9 | | | 0.1 | 0.1 | |
| L001 | 02/24/93 | 101247 | 21.69 | 7.91 | 522 | 0.3 | 9.67 | 511 | 3 | | | | | |
| L001 | 02/24/93 | 101337 | 21.7 | 7.9 | 522 | 0.3 | 9.68 | 511 | 0.3 | | | | | |
| L003 | 02/24/93 | 142220 | 22.25 | 7.88 | 2725 | 1.5 | 5.29 | 428 | 6.5 | | | | | |
| L003 | 02/24/93 | 142430 | 22.68 | 7.9 | 2719 | 1.5 | 5.69 | 387 | 3 | | | 0.1 | 0.9 | |
| L003 | 02/24/93 | 142652 | 23.01 | 7.89 | 2701 | 1.5 | 5.73 | 409 | 0.3 | | | | | |
| L005 | 02/24/93 | 145423 | 21.98 | 7.82 | 2704 | 1.5 | 4.25 | 455 | 6.5 | | | | | |
| L005 | 02/24/93 | 145551 | 23.27 | 7.88 | 2693 | 1.5 | 5.37 | 453 | 3 | | | 0.85 | 0.15 | |
| L005 | 02/24/93 | 145700 | 23.79 | 7.93 | 2710 | 1.5 | 5.82 | 452 | 0.3 | | | | | |
| BL03 CENTER | 05/10/93 | 95508 | 26.91 | 7.72 | 544.7 | 0.3 | 8.65 | 535 | 14.4 | | | 0.1 | BDL | 220 |
| BL03 CENTER | 05/10/93 | 95702 | 26.95 | 7.73 | 540 | 0.3 | 8.6 | 529 | 7 | 0.1 | | 0.1 | BDL | 240 |
| BL03 CENTER | 05/10/93 | 95811 | 26.91 | 7.74 | 512.2 | 0.3 | 8.39 | 523 | 0.1 | | | 0.1 | BDL | 200 |

DERM Lab MDLs: NOx-N - 0.01 mg/L, O-PO4 - .002 mg/L

CHEMetrics MDLs: NOx-N - 0.1 mg/L, NH3-N - 0.1 mg/L

MDL - minimum detection limit, BDL - below detection limit

Raw Data

| Site ID | Sample Date | Sample Time | HYDROLAB Temp. Degree C | pH pH Units | Cond. us/cm | Salinity ppt | DO mg/l | Redox mV | Depth | DERM LAB NOx-N mg/l | OPO4 mg/l | CHEMetrics NH3-N mg/l | NOx-N mg/l | CaCO3 mg/l |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BL03 NORTH | 05/10/93 | 94947 | 26.89 | 7.74 | 543.6 | 0.3 | 8.63 | 554 | 11.5 | | | | | |
| BL03 NORTH | 05/10/93 | 95138 | 26.97 | 7.72 | 541.1 | 0.3 | 8.45 | 547 | 5.5 | | | | | |
| BL03 NORTH | 05/10/93 | 95216 | 26.93 | 7.73 | 540 | 0.3 | 8.44 | 542 | 0.1 | | | | | |
| BL03 SOUTH | 05/10/93 | 110707 | 27.04 | 7.68 | 536.6 | 0.3 | 9.15 | 556 | 8 | | | | | |
| BL03 SOUTH | 05/10/93 | 110756 | 27.14 | 7.69 | 540.8 | 0.3 | 9.07 | 552 | 4 | | | | | |
| BL03 SOUTH | 05/10/93 | 110904 | 26.17 | 7.71 | 540.9 | 0.3 | 9.09 | 545 | 0.3 | | | | | |
| GL04B CENTER | 05/10/93 | 143000 | 27.58 | 7.72 | 621 | 0.3 | 11.64 | 578 | 2.7 | 1.89 | | 0.15 | 2.5 | 180 |
| GL04B CENTER | 05/10/93 | 143200 | 27.49 | 7.7 | 621 | 0.3 | 10.96 | 564 | 0.2 | | | 0.15 | 2.5 | 180 |
| L001 CENTER | 05/10/93 | 122336 | 26.97 | 7.87 | 554.5 | 0.3 | 10.41 | 584 | 5.6 | | | 0.15 | BDL | 200 |
| L001 CENTER | 05/10/93 | 122433 | 27.16 | 7.85 | 550.5 | 0.3 | 10.46 | 580 | 2.9 | 0.02 | | 0.1 | BDL | 180 |
| L001 CENTER | 05/10/93 | 122540 | 27.33 | 7.88 | 546.5 | 0.3 | 10.75 | 573 | 0.3 | | | 0.1 | BDL | 200 |
| L009 CENTER | 05/11/93 | 140310 | 27.43 | 7.72 | 709 | 0.4 | 10.37 | 573 | 6.4 | | | 0.2 | 4 | 200 |
| L009 CENTER | 05/11/93 | 140433 | 27.97 | 7.75 | 718.9 | 0.4 | 10.25 | 566 | 3.3 | 3.42 | | 0.2 | 4 | 200 |
| L009 CENTER | 05/11/93 | 140532 | 28.08 | 7.75 | 721.5 | 0.4 | 10.24 | 561 | 0.4 | | | 0.4 | 4 | 190 |
| L009 EAST | 05/11/93 | 131054 | 27.5 | 7.74 | 711.4 | 0.4 | 10.45 | 542 | 6.3 | | | | | |
| L009 EAST | 05/11/93 | 131214 | 28.14 | 7.74 | 720.9 | 0.4 | 10.3 | 536 | 0.4 | | | 0.2 | 4 | 180 |
| L009 WEST | 05/11/93 | 141028 | 27.56 | 7.74 | 704 | 0.4 | 10.41 | 542 | 6.3 | | | | | |
| L009 WEST | 05/11/93 | 140739 | 27.7 | 7.73 | 705.8 | 0.4 | 10.58 | 556 | 4.4 | | | | | |
| L009 WEST | 05/11/93 | 140900 | 28.08 | 7.74 | 720.5 | 0.4 | 10.17 | 548 | 0.5 | | | 0.3 | 5 | 190 |
| L009A CENTER | 05/11/93 | 111032 | 26.59 | 7.67 | 748.2 | 0.4 | 9.93 | 561 | 6.8 | | | 0.25 | 2.75 | 220 |
| L009A CENTER | 05/11/93 | 111139 | 26.68 | 7.67 | 750.7 | 0.4 | 9.79 | 558 | 3.3 | 3.54 | | 0.25 | 2.25 | 200 |
| L009A CENTER | 05/11/93 | 111228 | 26.95 | 7.71 | 748.4 | 0.4 | 10.25 | 553 | 0.3 | | | 0.2 | 3.5 | 200 |
| L009A CENTER DUP | 05/11/93 | 120646 | 26.78 | 7.7 | 748.4 | 0.4 | 10.17 | 560 | 6.8 | | | | | |
| L009A CENTER DUP | 05/11/93 | 120754 | 26.89 | 7.68 | 751.9 | 0.4 | 10.02 | 557 | 3.4 | 3.46 | | | | |
| L009A CENTER DUP | 05/11/93 | 120845 | 27.35 | 7.73 | 752.7 | 0.4 | 10.18 | 550 | 0.3 | | | | | |
| L009A EAST | 05/11/93 | 123840 | 26.99 | 7.69 | 748.6 | 0.4 | 10.52 | 540 | 5.1 | | | | | |
| L009A EAST | 05/11/93 | 123928 | 27.49 | 7.71 | 751.6 | 0.4 | 10.7 | 537 | 0.6 | | | 0.25 | 2.75 | 220 |
| L009A EAST DUP. | 05/11/93 | 124045 | 26.95 | 7.68 | 750.3 | 0.4 | 10.46 | 535 | 4.9 | | | | | |
| L009A EAST DUP. | 05/11/93 | 124144 | 27.56 | 7.71 | 751.1 | 0.4 | 10.58 | 531 | 0.4 | | | | | |
| L009A WEST | 05/11/93 | 124427 | 27.04 | 7.69 | 751.8 | 0.4 | 10.53 | 524 | 4.3 | | | | | |
| L009A WEST | 05/11/93 | 124511 | 27.6 | 7.71 | 754.2 | 0.4 | 10.41 | 520 | 0.3 | | | 0.1 | 5 | 190 |
| L009A WEST DUP. | 05/11/93 | 124621 | 27.01 | 7.69 | 750.7 | 0.4 | 10.49 | 519 | 5.4 | | | | | |
| L009A WEST DUP. | 05/11/93 | 124723 | 27.7 | 7.72 | 751.9 | 0.4 | 10.63 | 514 | 0.5 | | | | | |
| L009B CENTER | 05/11/93 | 92235 | 26.44 | 7.72 | 800.7 | 0.4 | 9.52 | 588 | 8.9 | | | 0.15 | 3 | 240 |
| L009B CENTER | 05/11/93 | 92341 | 26.47 | 7.71 | 799 | 0.4 | 9.47 | 586 | 4.4 | 3.42 | | 0.15 | 3.25 | 240 |
| L009B CENTER | 05/11/93 | 92450 | 26.51 | 7.71 | 801.1 | 0.4 | 9.44 | 581 | 0.3 | | | 0.25 | 3.25 | 240 |
| L009B EAST | 05/11/93 | 93412 | 26.49 | 7.71 | 799.1 | 0.4 | 9.56 | 557 | 4.1 | | | | | |
| L009B EAST | 05/11/93 | 93507 | 26.55 | 7.71 | 799.5 | 0.4 | 9.49 | 554 | 0.6 | | | 0.25 | 3.25 | 240 |
| L009B WEST | 05/11/93 | 92758 | 26.49 | 7.71 | 801 | 0.4 | 9.53 | 573 | 4.5 | | | | | |
| L009B WEST | 05/11/93 | 92849 | 26.55 | 7.71 | 798.5 | 0.4 | 9.59 | 568 | 0.3 | | | 0.25 | 3.25 | 260 |
| L009B RESAMPLE | 05/17/93 | 82723 | 26.93 | 7.72 | 698.6 | 0.4 | 9.8 | 393 | 0.2 | | | 0.1 | 4.5 | 140 |
| GL03 CENTER | 05/17/93 | 105400 | 28.44 | 7.83 | 832 | 0.4 | 9.73 | 435 | 7.3 | | | 0.1 | 2 | 140 |
| GL03 CENTER | 05/17/93 | 105447 | 28.57 | 7.93 | 859.1 | 0.4 | 10.4 | 433 | 3.6 | 1.51 | | 0.05 | 2 | 140 |
| GL03 CENTER | 05/17/93 | 105551 | 29.01 | 7.95 | 867.1 | 0.5 | 10.49 | 432 | 0.2 | | | 0.2 | 1 | 140 |
| GL03 NORTH | 05/17/93 | 112327 | 28.49 | 7.87 | 842 | 0.4 | 10.32 | 428 | 6.8 | | | | | |
| GL03 NORTH | 05/17/93 | 112429 | 28.69 | 7.93 | 859 | 0.4 | 10.81 | 426 | 3.3 | | | | | |
| GL03 NORTH | 05/17/93 | 112501 | 29.14 | 7.95 | 867.2 | 0.5 | 10.81 | 424 | 0.3 | | | 0.05 | 3.5 | 140 |
| GL03 SOUTH | 05/17/93 | 104341 | 28.46 | 7.81 | 827.3 | 0.4 | 9.49 | 423 | 9.3 | | | | | |

DERM Lab MDLs: NOx-N - 0.01 mg/L, O-PO4 - .002 mg/L

CHEMetrics MDLs: NOx-N - 0.1 mg/L, NH3-N - 0.1 mg/L

MDL - minimum detection limit, BDL - below detection limit

Raw Data

| Site ID | Sample Date | Sample Time | Temp. Degree C | pH pH Units | Cond. us/cm | HYDROLAB Salinity ppt | DO mg/l | Redox mV | Depth | DERM LAB NOx-N mg/l | DERM LAB OPO4 mg/l | CHEMetrics NH3-N mg/l | CHEMetrics NOx-N mg/l | CHEMetrics CaCO3 mg/l |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| GL03 SOUTH | 05/17/93 | 104511 | 28.51 | 7.87 | 850.9 | 0.4 | 9.95 | 426 | 4.6 | | | | | |
| GL03 SOUTH | 05/17/93 | 104549 | 28.99 | 7.94 | 864 | 0.4 | 10.57 | 424 | 0.2 | | | 0.3 | 2 | 140 |
| GL04A CENTER | 05/17/93 | 125243 | 29.2 | 7.72 | 626.1 | 0.3 | 10.73 | 421 | 5.6 | | | 0.2 | 0.1 | 140 |
| GL04A CENTER | 05/17/93 | 130135 | 29.4 | 7.76 | 644.8 | 0.3 | 10.56 | 416 | 2.7 | 0.78 | | 0.1 | 1 | 160 |
| GL04A CENTER | 05/17/93 | 130233 | 29.54 | 7.78 | 648.5 | 0.3 | 10.67 | 415 | 0.4 | | | 0.1 | 0.1 | 140 |
| GL04A NORTH | 05/17/93 | 112501 | 29.44 | 7.86 | 641.1 | 0.3 | 10.82 | 418 | 3.6 | | | | | |
| GL04A NORTH | 05/17/93 | 125139 | 29.58 | 7.83 | 638.9 | 0.3 | 10.89 | 422 | 0.2 | | | 0.1 | 1.5 | 140 |
| GL04A SOUTH | 05/17/93 | 130310 | 29.5 | 7.74 | 624.8 | 0.3 | 10.98 | 421 | 4.9 | | | | | |
| GL04A SOUTH | 05/17/93 | 134954 | 29.74 | 7.72 | 642.8 | 0.3 | 10.89 | 419 | 0.4 | | | 0.1 | 0.3 | 140 |
| L007 CENTER | 05/17/93 | 92646 | 27.99 | 7.78 | 776.8 | 0.4 | 9.29 | 467 | 8.4 | | | 0.3 | 1.5 | 160 |
| L007 CENTER | 05/17/93 | 92824 | 28.01 | 7.77 | 776.9 | 0.4 | 9.27 | 467 | 4 | 2.25 | | 0.25 | 2.5 | 180 |
| L007 CENTER | 05/17/93 | 93004 | 28.08 | 7.78 | 776.5 | 0.4 | 9.32 | 463 | 0.3 | | | 0.3 | 2 | 160 |
| L007 WEST | 05/17/93 | 91827 | 27.93 | 7.79 | 776.4 | 0.4 | 9.37 | 476 | 6.4 | | | | | |
| L007 WEST | 05/17/93 | 91935 | 27.99 | 7.78 | 776.8 | 0.4 | 9.28 | 476 | 3.1 | | | | | |
| L007 WEST | 05/17/93 | 92207 | 28.1 | 7.78 | 777.6 | 0.4 | 9.4 | 470 | 0.2 | | | 0.25 | 3.35 | 180 |
| GL02A CENTER | 05/18/93 | 91546 | 27.24 | 7.93 | 947.4 | 0.5 | 9.88 | 604 | 13 | | | 0.1 | 2 | 120 |
| GL02A CENTER | 05/18/93 | 91623 | 27.25 | 7.95 | 946.6 | 0.5 | 10 | 602 | 6.5 | 1.27 | | 0.1 | 1.5 | 120 |
| GL02A CENTER | 05/18/93 | 91657 | 27.37 | 7.99 | 947.5 | 0.5 | 10.17 | 598 | 0.2 | | | 0.1 | 2 | 140 |
| GL02A CENTER DUP | 05/18/93 | 100114 | 27.31 | 7.94 | 948 | 0.5 | 9.89 | 561 | 13.4 | | | | | |
| GL02A CENTER DUP | 05/18/93 | 100207 | 27.29 | 7.94 | 946.9 | 0.5 | 9.96 | 561 | 6.8 | 1.35 | | | | |
| GL02A CENTER DUP | 05/18/93 | 100253 | 27.49 | 7.96 | 947.4 | 0.5 | 10.12 | 559 | 0.3 | | | 0.1 | 1.5 | 120 |
| GL02A NORTH | 05/18/93 | 84905 | 27.27 | 7.98 | 945.8 | 0.5 | 9.98 | 593 | 12.9 | | | | | |
| GL02A NORTH | 05/18/93 | 84005 | 27.27 | 7.97 | 945.8 | 0.5 | 9.83 | 591 | 6.4 | | | | | |
| GL02A NORTH | 05/18/93 | 85102 | 27.31 | 7.99 | 945.1 | 0 | 10.05 | 587 | 0.4 | | | 0.1 | 1.5 | 140 |
| GL02A NORTH DUP | 05/18/93 | 103519 | 27.31 | 7.92 | 949 | 0.5 | 10.02 | 578 | 12.9 | | | | | |
| GL02A NORTH DUP | 05/18/93 | 103646 | 27.33 | 7.93 | 945.3 | 0.5 | 9.97 | 575 | 6.5 | | | | | |
| GL02A NORTH DUP | 05/18/93 | 103740 | 27.68 | 7.94 | 946.9 | 0.5 | 10.22 | 571 | 0.4 | | | 0.1 | 1.5 | 140 |
| GL02A SOUTH | 05/18/93 | 104534 | 27.37 | 7.95 | 945.6 | 0.5 | 10.31 | 585 | 9.6 | | | | | |
| GL02A SOUTH | 05/18/93 | 104624 | 27.35 | 7.95 | 946.4 | 0.5 | 10.19 | 583 | 6 | | | | | |
| GL02A SOUTH | 05/18/93 | 104710 | 27.68 | 7.96 | 946.9 | 0.5 | 10.45 | 579 | 0.2 | | | 0.1 | 2.5 | 140 |
| GL02A SOUTH DUP | 05/18/93 | 104636 | 27.37 | 7.95 | 946.5 | 0.5 | 10.16 | 578 | 8.5 | | | | | |
| GL02A SOUTH DUP | 05/18/93 | 104913 | 27.37 | 7.94 | 945.6 | 0.5 | 10.16 | 577 | 5.9 | | | | | |
| GL02A SOUTH DUP | 05/18/93 | 104946 | 27.64 | 7.96 | 946.6 | 0.5 | 10.36 | 574 | 0.3 | | | 0.1 | 2.5 | 120 |
| GL02B CENTER | 05/18/93 | 130739 | 28.32 | 8.01 | 937.4 | 0.5 | 10.71 | 470 | 7.3 | | | 0.1 | 1 | 120 |
| GL02B CENTER | 05/18/93 | 130818 | 28.4 | 8 | 935.2 | 0.5 | 10.64 | 470 | 4.1 | 1.26 | | 0.1 | 2 | 120 |
| GL02B CENTER | 05/18/93 | 130921 | 28.49 | 7.99 | 933 | 0.5 | 10.59 | 465 | 0.1 | | | 0.1 | 1.5 | 140 |
| GL02B NORTH | 05/18/93 | 134303 | 28.42 | 7.99 | 932.4 | 0.5 | 10.98 | 442 | 6.3 | | | | | |
| GL02B NORTH | 05/18/93 | 134336 | 28.53 | 7.99 | 935.3 | 0.5 | 10.83 | 443 | 3.3 | | | | | |
| GL02B NORTH | 05/18/93 | 134412 | 28.67 | 7.99 | 935.4 | 0.5 | 10.62 | 442 | 0.2 | | | 0.1 | 2 | 140 |
| GL02B SOUTH | 05/18/93 | 130201 | 28.3 | 8.02 | 933.4 | 0.5 | 10.75 | 479 | 7.6 | | | | | |
| GL02B SOUTH | 05/18/93 | 130250 | 28.34 | 8.01 | 933.7 | 0.5 | 10.66 | 478 | 4 | | | | | |
| GL02B SOUTH | 05/18/93 | 130332 | 28.46 | 8 | 930.8 | 0.5 | 10.74 | 476 | 0.3 | | | 0.1 | 0.2 | 140 |
| GL04 CENTER | 05/18/93 | 113607 | 28.83 | 7.68 | 731.8 | 0.4 | 9.45 | 527 | 4.7 | | | 0.1 | 0.2 | 120 |
| GL04 CENTER | 05/18/93 | 113657 | 29.42 | 7.7 | 770.7 | 0.4 | 9.74 | 525 | 1.1 | 0.91 | | 0.1 | 1.5 | 120 |
| GL04 NORTH | 05/18/93 | 121820 | 29.44 | 7.72 | 774.8 | 0.4 | 10.08 | 476 | 3.5 | | | | | |
| GL04 NORTH | 05/18/93 | 121854 | 29.6 | 7.7 | 774.9 | 0.4 | 9.91 | 477 | 0.4 | | | 0.1 | 1 | 120 |
| GL04 SOUTH | 05/18/93 | 113240 | 29.18 | 7.74 | 759.4 | 0.5 | 9.83 | 528 | 4.2 | | | | | |
| GL04 SOUTH | 05/18/93 | 113316 | 29.4 | 7.71 | 759.9 | 0.4 | 9.72 | 529 | 0.1 | | | 0.1 | 1.5 | 140 |

DERM Lab MDLs: NOx-N - 0.01 mg/L, O-PO4 - .002 mg/L

CHEMetrics MDLs: NOx-N - 0.1 mg/L, NH3-N - 0.1 mg/L

MDL - minimum detection limit, BDL - below detection limit

Raw Data

| Site ID | Sample Date | Sample Time | HYDROLAB Temp. Degree C | pH pH Units | Cond. us/cm | Salinity ppt | DO mg/l | Redox mV | Depth | DERM LAB NOx-N mg/l | OPO4 mg/l | CHEMetrics NH3-N mg/l | NOx-N mg/l | CaCO3 mg/l |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BL03 CENTER | 07/19/93 | 75646 | 27.2 | 7.07 | 9377 | 5.3 | 1.43 | 273 | 13.9 | | | 0.1 | 0.05 | 200 |
| BL03 CENTER | 07/19/93 | 75950 | 28.94 | 7.36 | 711 | 0.4 | 7.35 | 331 | 7.1 | | 0.003 | 0.2 | 0.15 | |
| BL03 CENTER | 07/19/93 | 80209 | 29.06 | 7.42 | 563 | 0.3 | 7.93 | 357 | 0 | | | 0.3 | 0.1 | 180 |
| BL03 NORTH | 07/19/93 | 74552 | 28.91 | 7.33 | 1017 | 0.5 | 7.17 | 422 | 8.7 | | | | | |
| BL03 NORTH | 07/19/93 | 74650 | 29.01 | 7.38 | 625 | 0.3 | 7.83 | 421 | 4.4 | | | | | |
| BL03 NORTH | 07/19/93 | 74738 | 29.03 | 7.38 | 612 | 0.3 | 7.9 | 421 | 0 | | | 0.2 | 0.1 | |
| BL03 SOUTH | 07/19/93 | 84547 | 28.13 | 7.17 | 4948 | 2.7 | 3.49 | 353 | 11.6 | | | | | |
| BL03 SOUTH | 07/19/93 | 48649 | 29.05 | 7.37 | 804 | 0.4 | 7.58 | 353 | 5.3 | | | | | |
| BL03 SOUTH | 07/19/93 | 84758 | 29.07 | 7.36 | 781 | 0.4 | 7.66 | 363 | 0 | | | 0.3 | 0.05 | 180 |
| GL04A CENTER | 07/19/93 | 111358 | 32.14 | 7.69 | 652 | 0.3 | 12.55 | 414 | 6.5 | | | 0.1 | 1 | |
| GL04A CENTER | 07/19/93 | 111515 | 32.2 | 7.67 | 652 | 0.3 | 12.42 | 413 | 3.2 | | BDL | 0.2 | 1.5 | |
| GL04A CENTER | 07/19/93 | 111604 | 32.5 | 7.68 | 652 | 0.3 | 12.07 | 412 | 0.4 | | | 0.1 | 1.5 | 140 |
| GL04A NORTH | 07/19/93 | 110950 | 32.06 | 7.67 | 650 | 0.3 | 12.17 | 417 | 4.7 | | | | | |
| GL04A NORTH | 07/19/93 | 111045 | 32.21 | 7.67 | 653 | 0.3 | 11.94 | 415 | 2.3 | | | | | |
| GL04A NORTH | 07/19/93 | 111142 | 32.39 | 7.68 | 652 | 0.3 | 12.12 | 413 | 0.4 | | | 0.2 | 1 | 180 |
| GL04A SOUTH | 07/19/93 | 114815 | 32.34 | 7.71 | 647 | 0.3 | 13.6 | 415 | 5.9 | | | | | |
| GL04A SOUTH | 07/19/93 | 114941 | 32.41 | 7.71 | 647 | 0.3 | 13.22 | 414 | 3 | | | | | |
| GL04A SOUTH | 07/19/93 | 115029 | 32.53 | 7.69 | 650 | 0.3 | 12.96 | 414 | 0.3 | | | 0.2 | 1.25 | |
| GL04B CENTER | 07/19/93 | 122719 | 31.57 | 7.33 | 562 | 0.3 | 13.16 | 422 | 2.6 | | BDL | 0.2 | 0.9 | |
| GL04B CENTER | 07/19/93 | 122800 | 31.66 | 7.33 | 561 | 0.3 | 13.19 | 420 | 0.2 | | | 0.2 | 1 | 140 |
| GL04B NORTH | 07/19/93 | 122546 | 31.55 | 7.33 | 566 | 0.3 | 12.8 | 425 | 1.9 | | | | | |
| GL04B NORTH | 07/19/93 | 122627 | 31.63 | 7.32 | 569 | 0.3 | 12.46 | 424 | 0.3 | | | 0.1 | 1 | 160 |
| GL04B SOUTH | 07/19/93 | 122910 | 31.59 | 7.33 | 566 | 0.3 | 12.9 | 419 | 1.9 | | | | | |
| GL04B SOUTH | 07/19/93 | 122942 | 31.64 | 7.32 | 564 | 0.3 | 12.95 | 419 | 0.3 | | | 0.1 | 0.8 | |
| L001 CENTER | 07/19/93 | 92846 | 29.17 | 7.48 | 1187 | 0.6 | 8.99 | 392 | 4.5 | | | 0.2 | 0.1 | 200 |
| L001 CENTER | 07/19/93 | 92935 | 29.22 | 7.47 | 1184 | 0.6 | 8.92 | 394 | 2.8 | | 0.004 | 0.2 | 0.03 | |
| L001 CENTER | 07/19/93 | 93003 | 29.26 | 7.49 | 1184 | 0.6 | 9.05 | 393 | 0.2 | | | 0.2 | BDL | 200 |
| L001 EAST | 07/19/93 | 92311 | 29.14 | 7.48 | 1189 | 0.6 | 9.08 | 409 | 3.6 | | | | | |
| L001 EAST | 07/19/93 | 92356 | 29.2 | 7.49 | 1155 | 0.6 | 8.83 | 406 | 0.1 | | | 0.25 | BDL | 200 |
| L001 WEST | 07/19/93 | 92608 | 29.12 | 7.47 | 1187 | 0.6 | 8.95 | 402 | 4.6 | | | | | |
| L001 WEST | 07/19/93 | 92646 | 29.28 | 7.49 | 1184 | 0.6 | 9.1 | 398 | 0.1 | | | 0.25 | 0.05 | |
| GL02A CENTER | 07/20/93 | 72752 | 30.61 | 7.68 | 709 | 0.4 | 8.86 | 399 | 13.9 | | | 0.1 | 2 | |
| GL02A CENTER | 07/20/93 | 72913 | 30.84 | 7.73 | 701 | 0.4 | 9.82 | 400 | 6.8 | | 0.004 | 0.2 | 1 | |
| GL02A CENTER | 07/20/93 | 73019 | 30.84 | 7.74 | 699 | 0.4 | 9.93 | 401 | 0.1 | | | 0.2 | 1.5 | 160 |
| GL02A NORTH | 07/20/93 | 72239 | 30.59 | 7.68 | 705 | 0.4 | 8.74 | 389 | 13 | | | | | |
| GL02A NORTH | 07/20/93 | 72341 | 30.79 | 7.73 | 702 | 0.4 | 9.73 | 400 | 6.5 | | | | | |
| GL02A NORTH | 07/20/93 | 72437 | 30.81 | 7.74 | 701 | 0.4 | 9.87 | 399 | 0.3 | | | 0.3 | 1 | 160 |
| GL02A SOUTH | 07/20/93 | 74458 | 30.84 | 7.68 | 705 | 0.4 | 9.26 | 408 | 12.4 | | | | | |
| GL02A SOUTH | 07/20/93 | 74558 | 30.92 | 7.72 | 700 | 0.4 | 9.77 | 408 | 6.3 | | | | | |
| GL02A SOUTH | 07/20/93 | 74707 | 30.92 | 7.73 | 699 | 0.4 | 7.93 | 407 | 0.2 | | | 0.2 | 1.5 | |
| GL02B CENTER | 07/20/93 | 84908 | 31 | 7.73 | 697 | 0.4 | 9.68 | 383 | 7.8 | | | 0.3 | 2 | 160 |
| GL02B CENTER | 07/20/93 | 85248 | 31.12 | 7.73 | 696 | 0.4 | 9.7 | 390 | 3.6 | | 0.004 | 0.3 | 2 | |
| GL02B CENTER | 07/20/93 | 85512 | 31.14 | 7.73 | 696 | 0.4 | 9.6 | 359 | 0.1 | | | 0.2 | 1.5 | 160 |
| GL02B NORTH | 07/20/93 | 90633 | 31 | 7.73 | 697 | 0.4 | 9.83 | 375 | 6.1 | | | | | |
| GL02B NORTH | 07/20/93 | 90723 | 31.16 | 7.72 | 695 | 0.4 | 9.67 | 377 | 3 | | | | | |
| GL02B NORTH | 07/20/93 | 90806 | 31.16 | 7.73 | 696 | 0.4 | 9.62 | 376 | 0.2 | | | 0.2 | 1.5 | |
| GL02B SOUTH | 07/20/93 | 83840 | 30.96 | 7.73 | 698 | 0.4 | 9.71 | 401 | 7.5 | | | | | |
| GL02B SOUTH | 07/20/93 | 83946 | 31.03 | 7.74 | 697 | 0.4 | 9.71 | 402 | 3.5 | | | | | |

DERM Lab MDLs: NOx-N - 0.01 mg/L, O-PO4 - .002 mg/L

CHEMetrics MDLs: NOx-N - 0.1 mg/L, NH3-N - 0.1 mg/L

MDL - minimum detection limit, BDL - below detection limit

| Site ID | Sample Date | Sample Time | HYDROLAB Temp. Degree C | pH pH Units | Cond. us/cm | Salinity ppt | DO mg/l | Redox mV | Depth | DERM LAB NOx-N mg/l | OPO4 mg/l | CHEMetrics NH3-N mg/l | NOx-N mg/l | CaCO3 mg/l |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| GL02B SOUTH | 07/20/93 | 84042 | 31.06 | 7.74 | 696 | 0.4 | 9.68 | 400 | 0.2 | | | 0.2 | 1.5 | 180 |
| GL04 CENTER | 07/20/93 | 101631 | 31.76 | 7.59 | 667 | 0.3 | 8.71 | 380 | 5.5 | | | 0.25 | 2 | |
| GL04 CENTER | 07/20/93 | 101938 | 31.8 | 7.56 | 667 | 0.3 | 8.66 | 388 | 2.7 | | BDL | 0.25 | 1 | 180 |
| GL04 CENTER | 07/20/93 | 102110 | 31.85 | 7.56 | 667 | 0.3 | 8.5 | 389 | 0.2 | | | 0.2 | 2.25 | |
| GL04 SOUTH | 07/20/93 | 100821 | 31.74 | 7.58 | 667 | 0.3 | 8.59 | 396 | 3.4 | | | | | |
| GL04 SOUTH | 07/20/93 | 100908 | 31.79 | 7.57 | 667 | 0.3 | 8.53 | 397 | 1.8 | | | | | |
| GL04 SOUTH | 07/20/93 | 100945 | 31.84 | 7.57 | 667 | 0.3 | 8.51 | 398 | 0.1 | | | 0.25 | 1 | 160 |
| GLO4 DUP | 07/20/93 | 110802 | 31.95 | 7.57 | 667 | 0.3 | 9.07 | 389 | 5.6 | | | | | |
| GLO4 DUP | 07/20/93 | 112001 | 32.18 | 7.59 | 666 | 0.3 | 9.32 | 394 | 0.2 | | BDL | | | |
| GLO4 NORTH | 07/20/93 | 101216 | 31.76 | 7.59 | 667 | 0.3 | 8.85 | 396 | 3.5 | | | | | |
| GLO4 NORTH | 07/20/93 | 101314 | 31.82 | 7.57 | 666 | 0.3 | 8.63 | 398 | 1.6 | | | | | |
| GLO4 NORTH | 07/20/93 | 101345 | 31.82 | 7.59 | 666 | 0.3 | 8.64 | 398 | 0 | | | 0.25 | 1 | 140 |
| L009 CENTER | 07/26/93 | 95150 | 30.41 | 7.48 | 723 | 0.4 | 7.33 | 391 | 7.1 | | | 0.1 | 1.5 | 160 |
| L009 CENTER | 07/26/93 | 95254 | 30.49 | 7.48 | 720 | 0.4 | 7.4 | 391 | 3.4 | | 0.005 | 0.1 | 1.25 | 160 |
| L009 CENTER | 07/26/93 | 95338 | 30.54 | 7.49 | 720 | 0.4 | 7.52 | 391 | 0.3 | | | 0.1 | 1.25 | 180 |
| L009 EAST | 07/26/93 | 95553 | 30.46 | 7.49 | 720 | 0.4 | 7.44 | 390 | 4.7 | | | | | |
| L009 EAST | 07/26/93 | 95648 | 30.54 | 7.49 | 720 | 0.4 | 7.44 | 391 | 2.3 | | | | | |
| L009 EAST | 07/26/93 | 95730 | 30.53 | 7.49 | 720 | 0.4 | 7.37 | 391 | 0.2 | | | 0.2 | 1.5 | 180 |
| L009 WEST | 07/26/93 | 94815 | 30.37 | 7.5 | 721 | 0.4 | 7.6 | 389 | 4.5 | | | | | |
| L009 WEST | 07/26/93 | 94907 | 30.47 | 7.49 | 721 | 0.4 | 7.47 | 389 | 2.3 | | | | | |
| L009 WEST | 07/26/93 | 94957 | 30.48 | 7.5 | 722 | 0.4 | 7.58 | 389 | 0.3 | | | 0.1 | 1.25 | 200 |
| L009B CENTER | 07/26/93 | 72515 | 27.89 | 7.24 | 711 | 0.4 | 6.34 | 398 | 9 | | | 0.1 | 2.5 | 200 |
| L009B CENTER | 07/26/93 | 72624 | 27.98 | 7.25 | 710 | 0.4 | 6.32 | 397 | 4.6 | | 0.002 | 0.1 | 4 | 220 |
| L009B CENTER | 07/26/93 | 72720 | 29.69 | 7.43 | 714 | 0.4 | 7.58 | 394 | 0.2 | | | 0.1 | 2.5 | 180 |
| L009B CENTER DUP | 07/26/93 | 85911 | 27.68 | 7.2 | 709 | 0.4 | 6.39 | 401 | 9.2 | | | | | |
| L009B CENTER DUP | 07/26/93 | 90012 | 27.77 | 7.22 | 710 | 0.4 | 6.26 | 401 | 4.6 | | BDL | | | |
| L009B CENTER DUP | 07/26/93 | 90122 | 29.61 | 7.43 | 714 | 0.4 | 7.48 | 394 | 0.3 | | | | | |
| L009B EAST | 07/26/93 | 72155 | 28.02 | 7.25 | 713 | 0.4 | 6.23 | 396 | 5.3 | | | | | |
| L009B EAST | 07/26/93 | 72248 | 28.41 | 7.26 | 713 | 0.4 | 6.37 | 397 | 2.7 | | | | | |
| L009B EAST | 07/26/93 | 27329 | 29.7 | 7.41 | 714 | 0.4 | 7.52 | 393 | 0.2 | | | 0.3 | 2 | 160 |
| L009B EAST DUP | 07/26/93 | 84852 | 27.72 | 7.22 | 709 | 0.4 | 6.2 | 402 | 6 | | | | | |
| L009B EAST DUP | 07/26/93 | 84948 | 27.8 | 7.22 | 710 | 0.4 | 6.18 | 401 | 3.1 | | | | | |
| L009B EAST DUP | 07/26/93 | 85048 | 29.49 | 7.41 | 716 | 0.4 | 7.5 | 396 | 0.2 | | | | | |
| L009B WEST | 07/26/93 | 71735 | 27.97 | 7.25 | 713 | 0.4 | 6.22 | 398 | 6.1 | | | | | |
| L009B WEST | 07/26/93 | 71852 | 28.44 | 7.26 | 715 | 0.4 | 6.29 | 398 | 3 | | | | | |
| L009B WEST | 07/26/93 | 71931 | 29.75 | 7.43 | 713 | 0.4 | 7.49 | 394 | 0.2 | | | 0.2 | 2 | 200 |
| L009B WEST DUP | 07/26/93 | 91827 | 27.77 | 7.23 | 710 | 0.4 | 6.34 | 400 | 6.6 | | | | | |
| L009B WEST DUP | 07/26/93 | 91927 | 27.81 | 7.22 | 710 | 0.4 | 6.34 | 400 | 3.3 | | | | | |
| L009B WEST DUP | 07/26/93 | 91712 | 29.58 | 7.41 | 715 | 0.4 | 7.53 | 396 | 0.2 | | | | | |
| GL03 CENTER | 07/27/93 | 102747 | 30.9 | 7.48 | 821 | 0.4 | 11.1 | 366 | 7.7 | | | 0.2 | 1.25 | 200 |
| GL03 CENTER | 07/27/93 | 202940 | 30.96 | 7.47 | 825 | 0.4 | 11.03 | 368 | 3.9 | | 0.004 | 0.2 | 2.25 | 200 |
| GL03 CENTER | 07/27/93 | 103054 | 31.12 | 7.45 | 823 | 0.4 | 10.52 | 367 | 0.2 | | | 0.1 | 1.5 | 200 |
| GL03 NORTH | 07/27/93 | 103933 | 30.94 | 7.52 | 819 | 0.4 | 11.36 | 352 | 6.2 | | | | | |
| GL03 NORTH | 07/27/93 | 104045 | 31 | 7.49 | 819 | 0.4 | 10.85 | 355 | 3.1 | | | | | |
| GL03 NORTH | 07/27/93 | 104127 | 31.12 | 7.49 | 818 | 0.4 | 10.77 | 355 | 0.2 | | | 0.1 | 1.5 | 180 |
| GL03 SOUTH | 07/27/93 | 101827 | 30.87 | 7.48 | 819 | 0.4 | 10.91 | 376 | 8.1 | | | | | |
| GL03 SOUTH | 07/27/93 | 101928 | 31 | 7.48 | 821 | 0.4 | 10.84 | 377 | 4.1 | | | | | |
| GL03 SOUTH | 07/27/93 | 102016 | 31.1 | 7.44 | 822 | 0.4 | 10.65 | 377 | 0.2 | | | 0.1 | 2 | 180 |

DERM Lab MDLs: NOx-N - 0.01 mg/L, O-PO4 - .002 mg/L

CHEMetrics MDLs: NOx-N - 0.1 mg/L, NH3-N - 0.1 mg/L

MDL - minimum detection limit, BDL - below detection limit

**Table 1a.** Results from chemical analysis of Black Point canal waters used for the performance of toxicity tests using the macroinvertebrate daphnia magna.

| Sampling Station and Date | Ca | Mg | Hard-ness | K | Na | S | P | Si | Fe | Mn | Zn | B | Sr |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BL03 May 93 | 79.922 | 3.267 | 213 | 2.350 | 25.110 | 7.350 | BDL | 1.678 | BDL | BDL | BDL | 0.019 | 0.872 |
| BL03 Jul 93 | 80.984 | 4.931 | 223 | 2.590 | 40.586 | 7.961 | BDL | 1.904 | BDL | BDL | 0.017 | 0.038 | 0.853 |
| BL03 Nov 93 | 90.690 | 5.184 | 248 | 3.440 | 41.951 | 8.964 | BDL | 2.311 | BDL | 0.004 | 0.008 | BDL | 0.941 |
| BL03 Jan 94 | 81.184 | 2.896 | 215 | 2.270 | 23.653 | 7.630 | BDL | 1.836 | BDL | BDL | BDL | 0.023 | 0.894 |
| LO01 May 93 | 73.679 | 3.857 | 200 | 2.690 | 30.386 | 7.731 | BDL | 1.496 | BDL | BDL | BDL | BDL | 0.849 |
| LO01 Jul 93 | 88.257 | 13.918 | 278 | 4.920 | 119.620 | 13.672 | BDL | 1.853 | BDL | BDL | BDL | 0.043 | 0.994 |
| LO01 Nov 93 | 97.257 | 21.450 | 331 | 7.770 | 177.980 | 19.458 | BDL | 2.125 | BDL | BDL | 0.007 | 0.050 | 1.113 |
| LO01 Jan 94 | 75.012 | 3.854 | 203 | 2.630 | 30.866 | 8.273 | BDL | 1.471 | BDL | BDL | 0.007 | BDL | 0.897 |
| LO01 duplicate | 71.562 | 3.409 | 193 | 2.550 | 27.580 | 7.862 | BDL | 1.330 | BDL | BDL | BDL | BDL | 0.851 |
| GL04B May 93 | 83.136 | 4.116 | 225 | 9.550 | 32.884 | 9.807 | BDL | 1.565 | BDL | 0.010 | BDL | BDL | 1.074 |
| GL04B Jul 93 | 64.958 | 3.884 | 178 | 33.803 | 33.803 | 9.606 | BDL | 0.618 | BDL | 0.008 | BDL | 0.021 | 0.938 |
| GL04B Nov 93 | 110.180 | 4.659 | 294 | 10.000 | 36.645 | 11.557 | BDL | 2.227 | BDL | 0.011 | BDL | 0.022 | 1.229 |
| GL04B Jan 94 | 105.510 | 4.310 | 281 | 8.890 | 35.348 | 11.677 | BDL | 2.028 | BDL | 0.004 | BDL | 0.053 | 1.183 |
| GL04A May 93 | 75.040 | 5.446 | 210 | 8.670 | 42.522 | 12.443 | BDL | 1.509 | BDL | 0.005 | 0.006 | 0.054 | 1.023 |
| GL04A Jul 93 | 68.977 | 6.419 | 199 | 8.620 | 41.622 | 17.171 | BDL | 1.435 | BDL | BDL | BDL | 0.045 | 0.898 |
| GL04A Nov 93 | 123.600 | 10.352 | 351 | 11.170 | 92.079 | 22.039 | 0.085 | 2.221 | 0.050 | 0.025 | 0.009 | 0.038 | 1.335 |
| GL04A Jan 94 | 116.610 | 9.569 | 329 | 10.550 | 84.233 | 21.133 | 0.076 | 2.086 | 0.032 | 0.010 | BDL | 0.068 | 1.304 |
| GL04 May 93 | 74.912 | 7.988 | 220 | 10.120 | 63.471 | 16.392 | BDL | 1.303 | BDL | BDL | 0.006 | 0.051 | 1.060 |
| GL04 Jul 93 | 85.523 | 5.552 | 236 | 8.540 | 31.973 | 15.816 | BDL | 1.597 | BDL | BDL | BDL | 0.021 | 0.946 |
| GL04 duplicate | 85.269 | 5.549 | 236 | 8.500 | 31.921 | 15.847 | BDL | 1.607 | BDL | BDL | BDL | 0.019 | 0.942 |
| GL04 Nov 93 | 114.590 | 9.352 | 325 | 11.650 | 81.006 | 20.445 | BDL | 2.358 | 0.021 | 0.017 | 0.006 | 0.028 | 1.288 |
| GL04 Jan 94 | 116.320 | 11.787 | 339 | 11.350 | 107.240 | 23.707 | 0.073 | 2.198 | 0.046 | 0.010 | BDL | 0.076 | 1.307 |
| GL04 duplicate | 116.080 | 11.748 | 338 | 11.290 | 106.870 | 22.912 | 0.082 | 2.192 | 0.048 | 0.010 | BDL | 0.079 | 1.306 |
| GL03 May 93 | 80.087 | 9.604 | 240 | 10.840 | 75.794 | 18.893 | BDL | 1.295 | BDL | BDL | 0.006 | 0.062 | 1.084 |
| GL03 Jul 93 | 94.453 | 6.923 | 264 | 9.170 | 57.724 | 16.351 | BDL | 1.711 | BDL | BDL | BDL | BDL | 1.152 |
| GL03 Nov 93 | 113.800 | 13.838 | 341 | 12.480 | 123.140 | 24.855 | BDL | 2.177 | 0.066 | 0.022 | BDL | 0.060 | 1.310 |
| GL03 Jan 94 | 116.190 | 12.042 | 340 | 11.390 | 108.920 | 22.717 | 0.091 | 2.201 | 0.059 | 0.011 | BDL | 0.074 | 1.310 |

BDL Below the methothods detection limit.

Table 1b. Results from chemical analysis of Black Point canal waters used for the performance of toxicity tests using the macroinvertebrate daphnia magna.

| Sampling Station and Date | Ca | Mg | Hard-ness | K | Na | S | P | Si | Fe | Mn | Zn | B | Sr |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| GL02B May 93 | 77.746 | 10.512 | 237 | 11.500 | 86.328 | 19.893 | BDL | 1.124 | BDL | BDL | BDL | 0.065 | 1.108 |
| GL02B Jul 93 | 81.749 | 6.414 | 231 | 9.680 | 40.796 | 17.138 | BDL | 1.616 | BDL | BDL | 0.007 | 0.031 | 0.955 |
| GL02B Nov 93 | 104.400 | 14.189 | 319 | 12.990 | 124.110 | 25.113 | BDL | 2.090 | BDL | 0.004 | 0.009 | 0.048 | 1.302 |
| GL02B duplicate | 104.010 | 14.164 | 318 | 12.950 | 124.120 | 25.010 | BDL | 2.063 | BDL | 0.004 | BDL | 0.049 | 1.298 |
| GL02B Jan 94 | 101.850 | 21.454 | 343 | 19.740 | 191.800 | 22.833 | 0.123 | 1.829 | 0.075 | 0.008 | BDL | 0.156 | 1.302 |
| GL02A May 93 | 79.276 | 10.863 | 239 | 11.730 | 89.144 | 20.365 | BDL | 1.134 | BDL | BDL | BDL | 0.069 | 1.142 |
| GL02A duplicate | 78.826 | 10.805 | 241 | 11.720 | 88.673 | 20.518 | BDL | 1.134 | BDL | BDL | 0.006 | 0.068 | 1.135 |
| GL02A Jul 93 | 80.367 | 6.487 | 227 | 9.650 | 41.758 | 17.238 | BDL | 1.596 | BDL | BDL | BDL | 0.033 | 0.951 |
| GL02A Nov 93 | 103.790 | 14.004 | 317 | 12.850 | 122.270 | 24.824 | BDL | 2.054 | BDL | 0.004 | BDL | 0.049 | 1.304 |
| GL02A Jan 94 | 100.870 | 21.144 | 339 | 18.220 | 187.960 | 23.409 | 0.109 | 1.725 | 0.034 | 0.005 | BDL | 0.148 | 1.310 |
| LO09B May 93 | 101.290 | 7.751 | 285 | 8.780 | 46.964 | 16.438 | BDL | 2.008 | BDL | BDL | BDL | 0.021 | 0.986 |
| LO09B Jul 93 | 100.080 | 5.326 | 272 | 8.080 | 32.544 | 15.309 | BDL | 1.854 | BDL | BDL | BDL | 0.029 | 1.015 |
| LO09B duplicate | 102.100 | 5.447 | 277 | 8.270 | 33.385 | 15.488 | BDL | 1.898 | BDL | BDL | BDL | BDL | 1.036 |
| LO09B Nov 93 | 116.470 | 14.018 | 349 | 14.470 | 121.700 | 23.753 | 0.075 | 2.108 | 0.085 | 0.023 | BDL | 0.072 | 1.340 |
| LO09B duplicate | 116.590 | 13.991 | 349 | 14.540 | 121.410 | 24.257 | 0.086 | 2.101 | 0.079 | 0.022 | 0.006 | 0.073 | 1.339 |
| LO09B Jan 93 | 109.120 | 16.728 | 341 | 15.500 | 143.170 | 22.714 | 0.082 | 2.258 | 0.167 | 0.031 | BDL | 0.091 | 1.293 |
| LO09A May 93 | 99.226 | 6.963 | 276 | 8.520 | 40.540 | 16.029 | BDL | 1.914 | BDL | BDL | BDL | BDL | 0.983 |
| LO09A duplicate | 98.031 | 6.936 | 273 | 8.540 | 40.441 | 15.915 | BDL | 1.908 | BDL | BDL | BDL | 0.019 | 0.970 |
| LO09A Jul 93 | 100.880 | 5.458 | 274 | 8.310 | 33.397 | 15.543 | BDL | 1.814 | BDL | BDL | BDL | BDL | 1.039 |
| LO09A Nov 93 | 116.120 | 14.060 | 348 | 14.490 | 122.180 | 23.459 | BDL | 2.098 | 0.085 | 0.022 | 0.009 | 0.075 | 1.336 |
| LO09A Jan 94 | 109.280 | 16.395 | 340 | 15.070 | 141.180 | 22.606 | 0.087 | 2.287 | 0.188 | 0.028 | 0.009 | 0.085 | 1.289 |
| LO09 May 93 | 97.689 | 6.300 | 270 | 8.350 | 34.728 | 15.496 | BDL | 1.862 | BDL | BDL | 0.008 | BDL | 0.969 |
| LO09 Jul 93 | 85.036 | 6.209 | 238 | 9.310 | 45.253 | 15.310 | BDL | 1.721 | BDL | 0.004 | BDL | 0.021 | 1.023 |
| LO09 Nov 93 | 116.510 | 14.236 | 350 | 14.730 | 123.110 | 23.803 | BDL | 2.119 | 0.096 | 0.021 | BDL | 0.076 | 1.343 |
| LO09 Jan 94 | 110.480 | 15.121 | 338 | 14.170 | 130.040 | 22.803 | 0.078 | 2.303 | 0.198 | 0.026 | BDL | 0.081 | 1.288 |
| LO07 May 93 | 91.916 | 7.956 | 260 | 9.240 | 51.915 | 17.490 | BDL | 1.555 | BDL | BDL | BDL | 0.062 | 0.995 |
| LO07 Jul 93 | 92.106 | 6.785 | 258 | 9.560 | 53.366 | 16.286 | BDL | 1.765 | BDL | 0.003 | BDL | 0.018 | 1.111 |
| LO07 Nov 93 | 114.960 | 13.196 | 341 | 12.450 | 118.040 | 24.187 | BDL | 2.158 | BDL | 0.022 | BDL | 0.054 | 1.313 |
| LO07 Jan 94 | 111.230 | 13.478 | 333 | 13.090 | 120.415 | 23.555 | 0.080 | 2.194 | 0.098 | 0.018 | BDL | 0.054 | 1.272 |

BDL Below the methothods detection limit.

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