A WATER QUALITY ASSESSMENT
OF
LAKE AINSLIE, INVERNESS COUNTY, N. S.

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ABSTRACT

A water quality investigation was undertaken on Lake Ainslie and its inlet streams in order to address concerns related to eutrophication. An intensive sampling program was set up to determine water quality at six lake locations, as well as all inlet streams. Additionally, monitoring well #5 associated with the Kenloch Landfill Site was included as a sampling location in this study in order to assess contributions from this source. After two and a half years of monitoring, including three full open water seasons, there was no evidence to suggest that Lake Ainslie was overly productive. In fact, nutrient and chlorophyll concentrations indicated oligotrophic, or very unproductive conditions. The results of this study combined with previous investigations and anedotal evidence suggests that algal blooms occur sporadically in the lake and are likely the result of natural circumstances. That is, algal populations and resultant effects on transparency in Lake Ainslie are primarily attributed to natural occurrences and processes, including meteorological conditions, lake morphology, and trophic relationships (interactions with grazing organisms).

ACKNOWLEDGEMENTS

The water quality sampling program, in both the lake and the streams, was undertaken by staff from the provincial departments of Environment and Fisheries. Assistance was provided to this initiative by members of the Margaree Watershed Council (MWC) and to a lesser extent, by staff of the Nova Scotia Department of Health (NSDOH) and the federal Department of Fisheries and Oceans.

Staff from the Water Resources Directorate of Environment Canada provided assistance in determining stream flows. The Atmospheric Environment Service (AES) Branch of Environment Canada helped establish a precipitation recording station on the north side of Lake Ainslie. This station was attended by Bob Panuska and family who were instrumental in initiating this study.

Appreciation is extended to all who were involved in this endeavour and without who's help this study would not have been possible.

Acknowledgement is especially noted for the efforts of Bob Crawford who participated wholeheartedly in all aspects of this project and provided insights from a fisheries perspective.

INTRODUCTION

During the period of May 1991 to September 1993 a water quality monitoring program was undertaken on Lake Ainslie and its associated inlet streams. This program was initiated in response to concerns brought forward by a local watershed advisory group relating to the reoccurring presence of turbid green water conditions in the lake. During several years in recent memory, this situation had been witnessed by local residents in the summer and early fall and had occurred concurrently with luxuriant growths of periphytic plant life at the outlet stream. This anecdotal evidence combined with limited shoreline water samples and aerial photographs suggested the presence of a highly productive system which, in turn, necessitated an influx of nutrients to fuel this productivity. The purpose of this study was therefore to quantify the primary productivity of the system, confirming the cause of high turbidity if present and to identify sources of nutrients. Should the source of nutrients be of man-made origin recommendations for remedial action would be made.

STUDY AREA

Lake Ainslie and its watershed have been ably described in previous studies, including those by O'Neill and Brown in 1980, both of which addressed abundance and succession of zooplankton. Brown described Lake Ainslie as;

> ".... a large, shallow freshwater lake situated in the central region of Inverness County (latitude 46^{o} 07'),longitude 61^{0} 10') Cape Breton, N.S. It possesses a surface area of 57.4 km^2 with a maximum length and width approximately 19 km and 7 km, respectively. The mean depth is 5.75 m with a maximum depth of 18 m located in a small depression at the southern end of the lake. The major basin of the lake is a uniform depth of 7 to 8 m. The Southwest Margaree River is the only drainage outlet, and flows north-northwesterly to empty into Margaree Harbour, although underground aquifers providing secondary drainage may exist (O'Neill, 1980).
>
> The area surrounding the lake is underlain primarily by sedimentary deposits of the Horton and Windsor Formations dating from the Mississippian Period (350 million years B.P.) (Norman, 1935). The lake is thought to have been formed during the Pleistocene Epoch (2 million years B.P.) when glacial outwash blocked the drainage of the valley of Loch Ban at Kenloch (Norman, 1935).

The substrate in the central areas of the lake is predominantly sand and silt. Shoreline substrate, however, consists of boulders and rubble for the most part, broken by the occasional stretch of sandy beach. Vegetation which is sparse throughout the lake, is found in relative abundance in the Loch Ban area only. It is mainly of the emergent type (Lagler, 1956) including *Scirpus* sp. (bulrush), *Typha* sp., (cattail) *Nuphar* sp. (yellow water lily) and *Nymphaea* sp. (common water lily).

Lake and watershed morphometry are given in the following table, while bottom contours and sampling stations are shown in Figures 1 and 2.

Table 1

Morphometric measurements of Lake Ainslie *

Surface area	57.4 km^2
Shoreline length	56.8 km
Volume	329, 486, 637 m^3
Maximum depth	18 m
Mean depth	5.75 m
Maximum length	19 km
Maximum width	7 km
Drainage area	297.7 km^2
Flushing rate	0.72 times/year

* Nova Scotia Department of Lands & Forest Lake survey 1978.

Figure 1

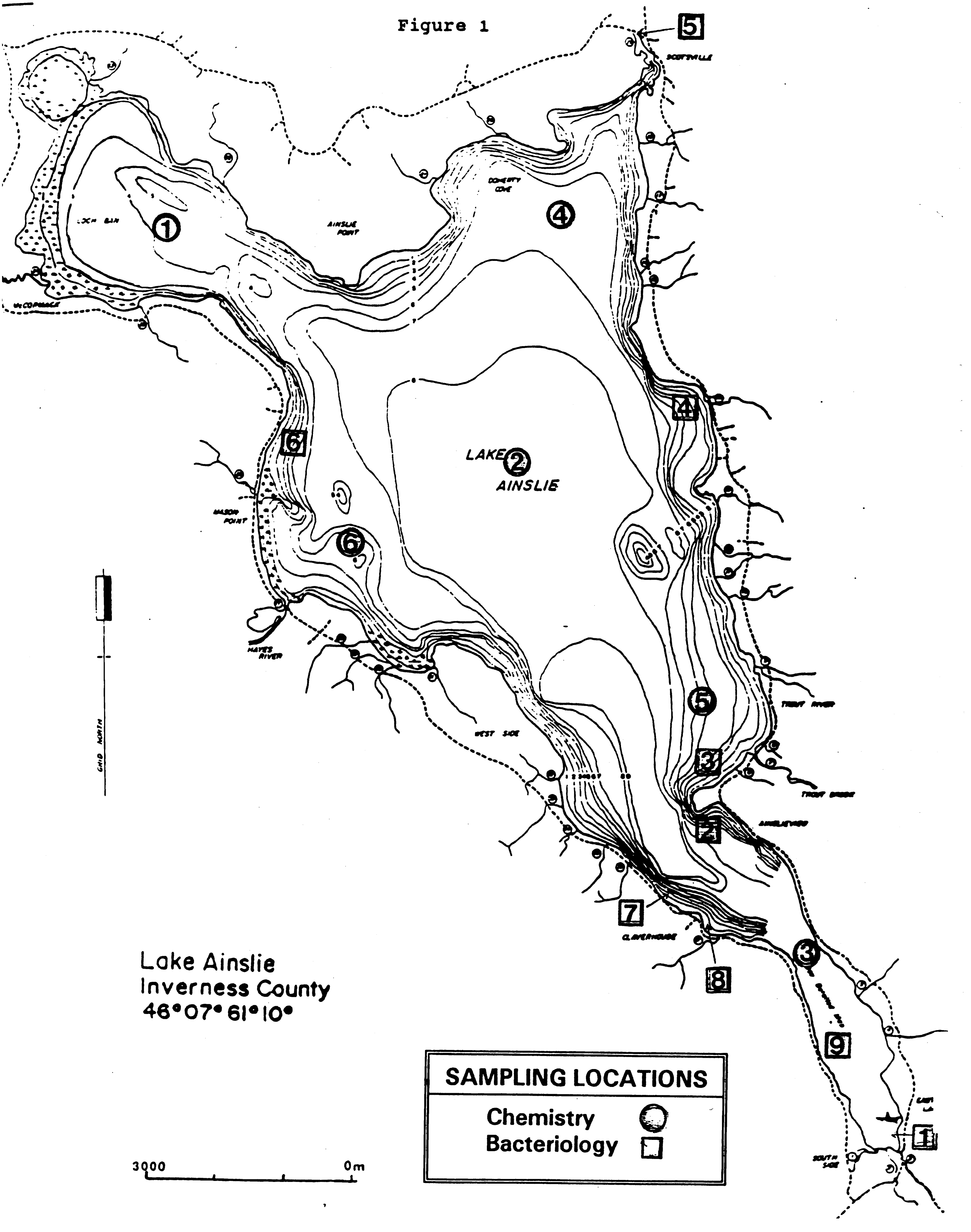
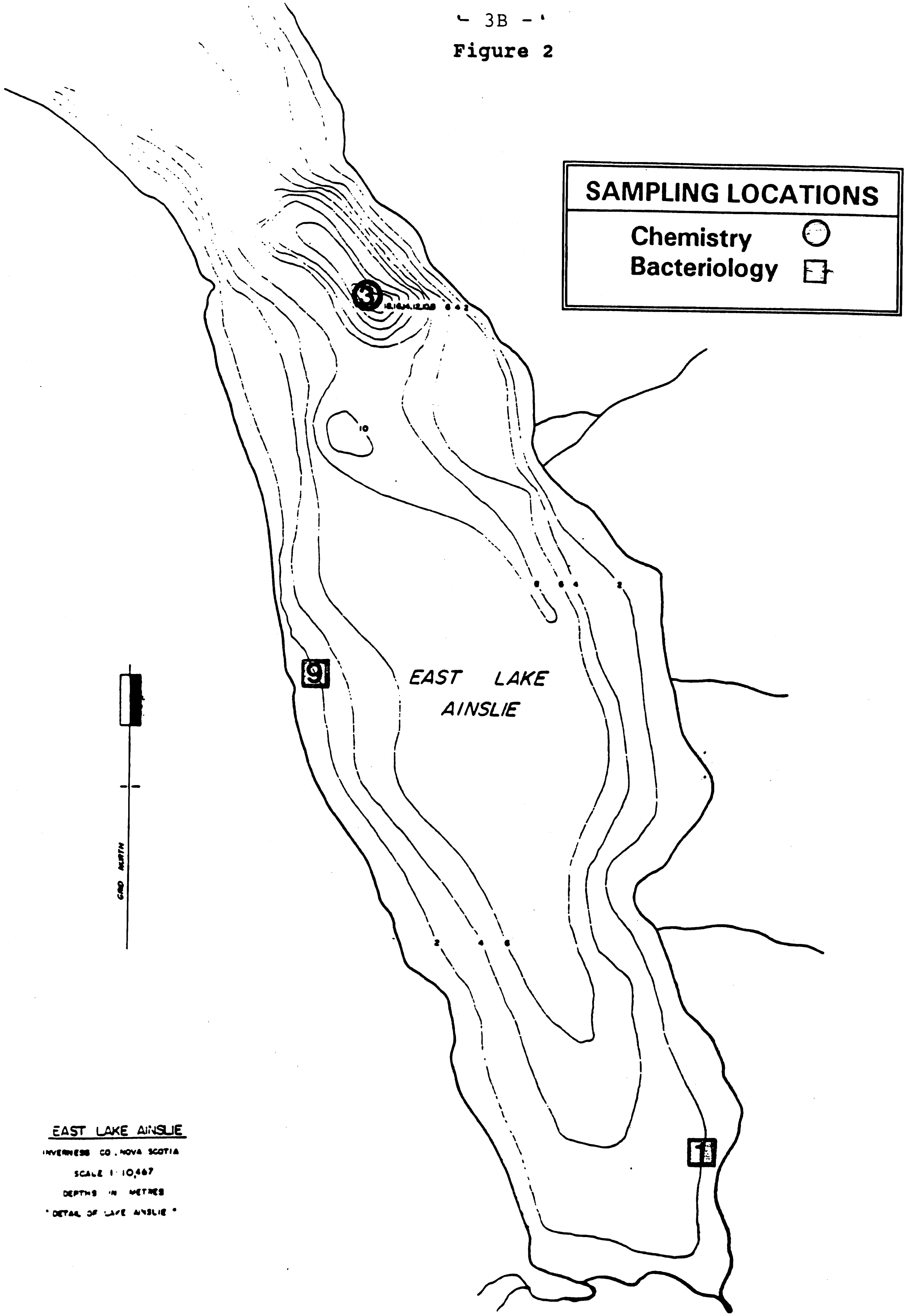

LAKE AINSLIE
Lake Ainslie
Inverness County
46°07' 61°10'
SAMPLING LOCATIONS
Chemistry
Bacteriology
3000
0m
GRID NORTH
WEST SIDE
TROUT RIVER
HAYES RIVER
MASON POINT

Figure 2


SAMPLING LOCATIONS
Chemistry
Bacteriology
EAST LAKE
AINSLIE
GRID NORTH
EAST LAKE AINSLIE
INVERNESS CO. NOVA SCOTIA
SCALE 1:10,467
DEPTHS IN METRES
"DETAIL OF LAKE AINSLIE"

METHODS

During the open-water season of 1991, a bi-weekly sampling program was undertaken in Lake Ainslie whereby physical, chemical and biological characteristics of water quality were investigated, primarily to determine nutrient levels and associated trophic state. Water temperature and dissolved oxygen profiles were determined in the field using a model 57 YSI meter while transparency or clarity was determined using a standard 20 cm Secchi disk. Water samples were collected using a 2 litre Van Dorn water sampler and placed in 500 ml polyethylene bottles previously cleaned with nitric acid, rinsed with distilled water and further rinsed with lake water. This procedure was repeated at up to six stations on the lake, as weather permitted, including bottom locations of the deeper stations (i.e. stations #2 and #3 -see Figures 1 and 2).

Inlet and outlet streams were sampled for water quality on a bi-weekly basis as well, with discharge estimated on each occasion using measured width, depth and velocity of flows. Additionally staff gauges placed at Trout Brook were read and stream height was recorded bi-weekly by NSDOE staff. More frequent readings were recorded by volunteers from the Margaree Watershed Council. This data allowed stream discharge to be determined based on stage discharge curves developed by the Water Resources Directorate of Environment Canada. This measured discharge in Trout Brook was then used to calculate discharge in the remaining inlet streams based on watershed area ratios. The estimated flows taken at the time of sampling were used to confirm calculated values. The discharge values were determined for each inlet stream in order to subsequently calculate phosphorus contributions from each sub-watershed to the lake, should this be necessary.

If in-lake nutrient concentrations were found to be high, as suggested by anecdotal evidence, relative proportions of nutrient contributions from each sub-watershed could be determined from the stream data. This would enable a prioritized approach to be taken with respect to remedial action should major sources of nutrients be identified from the watershed.

Groundwater monitoring well #5 associated with the Kenloch Landfill Site was also included as a sampling station in this study. This was done in order to assess potential nutrient contributions from this source. Samples were taken from this well and along the shoreline of the lake nearby on several occasions. Sampling frequency was reduced due to the less dynamic nature of the groundwater regime.

Bacteriological water quality was investigated in a cursory-manner at selected locations by NSDOH in order to determine suitability for body contact recreational use (i.e. swimming). All samples were collected on one sampling date July 24, 1991, at locations identified on Figure 1. They were subsequently shipped to the Environmental Chemistry Lab at the VGH where analyses were performed within 24 hours of the time of collection, as per APHA standard protocols.

All samples were kept cool and in the dark prior to lab analysis. Samples taken for chlorophyll analysis were filtered in the field using .45 micron glass-fiber filters and were subsequently fixed with 1 ml of magnesium carbonate. All samples were shipped to the lab such that analysis was performed within 24 hours of collection.

Laboratory analysis was performed at the Environmental Chemistry Lab of the Victoria General Hospital (VGH) where analytical procedures were undertaken in accordance with established protocols outlined in "Standard Methods for the Examination of Water and Waste Water" (APHA 1991).

Local meteorological conditions were determined in order to assess variations in local precipitation patterns from long established monitoring stations in the area. This would provide more accurate input data to water or nutrient budgets, should they be required, and allow inferences to be made regarding meteorological conditions at Lake Ainslie in 1990.

In 1992 and 1993 the lake sampling program as described previously was undertaken with a reduced frequency, since the 1991 data showed no indication of overly productive conditions. Sampling occurred on a monthly basis during the ice-free period and on one occasion during the period of ice cover (March 1992). The stream sampling occurred at a similar frequency during the ice-free period only.

RESULTS AND DISCUSSION

The chemical water quality characteristics or parameters which were measured during this study can be divided into three broad categories. These include parameters necessary to determine trophic state (i.e. nutrients, chlorophyll, transparency), major ions and metals. The first category was given primary consideration due to the nature of the working hypothesis (i.e. that highly turbid green lake conditions were caused by excessive algal growth). The latter two categories were included in order to ensure quality assurance of the data set and to assess suitability of the lake water for expected water uses.

As outlined in the previous section, physical characteristics were investigated in terms of water temperature and dissolved oxygen profiles for all lake stations as well as temperature and discharge at stream locations.

Additionally, bacteriological water quality was investigated to determine suitability for swimming at selected beaches around the lake. This data collected by NSDOH is included as supplemental information in Table 3.

Meterological conditions were recorded during the period of study in order to address spatial variation (ie. between local conditions and long established recording stations) and temporal variation (ie. between study period and 1990).

Results from each of the above areas of investigation are presented in applicable tables and are discussed below. The influences of trophic relationships are also briefly addressed.

IN-LAKE CONDITIONS

Trophic State

Trophic state refers to the level of biological productivity within a lake gauged over a range of very unproductive (oligotrophic) conditions to very productive (eutrophic) conditions. Conditions midway between these two extremes are termed mesotrophic. A progression from very unproductive to very productive conditions typifies the natural lake aging process and is termed eutrophication. This process, which involves the lake basin gradually infilling with silt and organic matter, takes thousands of years to complete and eventually causes the lake to evolve back to dry land. Manmade influences which contributes additional nutrients, organic matter and sediment to a lake can accelerate this process and cause the lake to infill at a much faster rate. This accelerated process is termed cultural eutrophication.

Three key indicators of trophic state have been established. They are generally recognized as being chlorophyll a, total nutrient concentrations (either phosphorus or nitrogen), and transparency as determined by a secchi disk.

Chlorophyll a concentration has been shown to correlate well with levels of algal biomass (Nicholls and Dillon 1978). Additionally, strong correlations between chlorophyll a, total nutrient concentration and transparency have been shown, based on mean annual or mean ice-free season concentrations. (Dillon and Rigler 1974, Vollenweider and Kerekes 1980, Clark and Hutchison 1992).

Total nutrient concentrations represent the chemical response of a lake to eutrophication while chlorophyll a concentrations represent the biological response, and transparency represents the physical response. Together these water quality parameters provide an excellent indication of trophic state when monitored over a full growing season and taken in the context of the lake as a whole. Each is addressed in the following text and existing water quality is compared to established values indicating trophic state (OECD 1982) as presented in Table 2.

Table 2

PROPOSED BOUNDARY VALUES FOR TROPHIC CATEGORIES (OECD 1982)
(fixed boundary system)

Trophic Category	$[\overline{P}]_\lambda$	$[\overline{chl}]$	$\begin{bmatrix} max \\ chl \end{bmatrix}$	$[\overline{Sec}]^y$	$\begin{bmatrix} min \\ Sec \end{bmatrix}^y$
	mg/m^3			m	
Ultra-oligotrophic	<4.0	<1.0	<2.5	>12.0	>6.0
Oligotrophic.	<10.0	<2.5	<8.0	>6.0	>3.0
Mesotrophic.	10 - 35	2.5 - 8	8 - 25	6 - 3	3 - 1.5
Eutrophic	35 -100	8 - 25	25 - 75	3 - 1.5	1.5 - 0.7
Hypertrophic	>100	>25	>75	<1.5	<0.7

LEGEND

$[\overline{P}]_\lambda$ → Annual Mean in-lake Total Phosphorus concentration

$[\overline{chl}]$ → Annual Mean chlorophyll a concentration

$\begin{bmatrix} max \\ chl \end{bmatrix}$ → Annual maximum chlorophyll a

$[\overline{Sec}]^y$ → Annual mean Secchi disk transparency

$\begin{bmatrix} min \\ Sec \end{bmatrix}^y$ → Annual minimum Secchi disk transparency

Nutrients

Nutrients investigated in this study include two species of phosphorus - ortho phosphorus and total phosphorus (Total P), and three species of nitrogen - nitrate + nitrite, ammonia, and total nitrogen (Total N). Results for these parameters are found in Table 8A.

Total nutrient concentrations (i.e. both organic and inorganic species, as in Total P and Total N) are considered to be the best chemical indicators of trophic state (OECD 1982, Clark & Hutchison 1992) and therefore, are of primary interest to this investigation. Ratios of Total N to Total P concentrations can be used to determine which nutrient is in shortest supply and therefore is the limiting nutrient for plant growth in any given lake. It has been shown that if the Total N/Total P ratio is greater than 17:1 phosphorus is limiting; less than 17:1 nitrogen is limiting (OECD 1982). In Lake Ainslie, as in most lakes, P is seen to be limiting from the calculated ratio of over 22:1 ,based on mean concentrations derived from the 1991-93 data.

Nutrient concentrations can vary significantly in a lake over time and space (Marshall et al 1988). The sampling protocol was established to address this variability by sampling over time at selected lake locations representative of a given surface area. Additionally, samples were taken periodically at specified depths in the water column or when stratification was evident on any given day.

Total P concentrations during the sampling period ranged from a minimum of less than detectible limits of 1 ug/l at many stations to a maximum of 65 ug/l at the bottom of station #3 on July 30, 1992. This elevated Total P concentration was determined to be caused by the reintroduction of nutrients from the bottom sediments as a result of thermal stratification and the associated reduced oxygen regime.

During the 1991 sampling year detectible limits for Total P analysis were set at 5 ug/l in anticipation of high concentrations based on anecdotal evidence. Since only very low concentrations were encountered in 1991, subsequent analysis was requested at a precipitation range, or extremely low level, for the remainder of the study. In order to facilitate data comparison and interpretation assumptions were made regarding 1991 data based on the 1992 and 1993 results. Values determined to be less than detectible limits in 1991 (i.e. < 5 ug/l Total P) were assumed to have actual values of half the detectible limit (i.e. 2.5 rounded to 3 ug/l). Therefore calculations involving 1991 Total P data should be viewed with caution.

Volume-weighted methods have been used in determining mean Total P concentrations so that sampling locations which have very small volumes in relation to other lake locations will not greatly influence or bias overall results. Surface area and volume calculations are shown in Tables 7A & 7B in Appendix A. Volume-weighted mean Total P concentrations have been determined for each sampling station and are presented in Figures 3 to 5 for each year of the study.

Figure 3

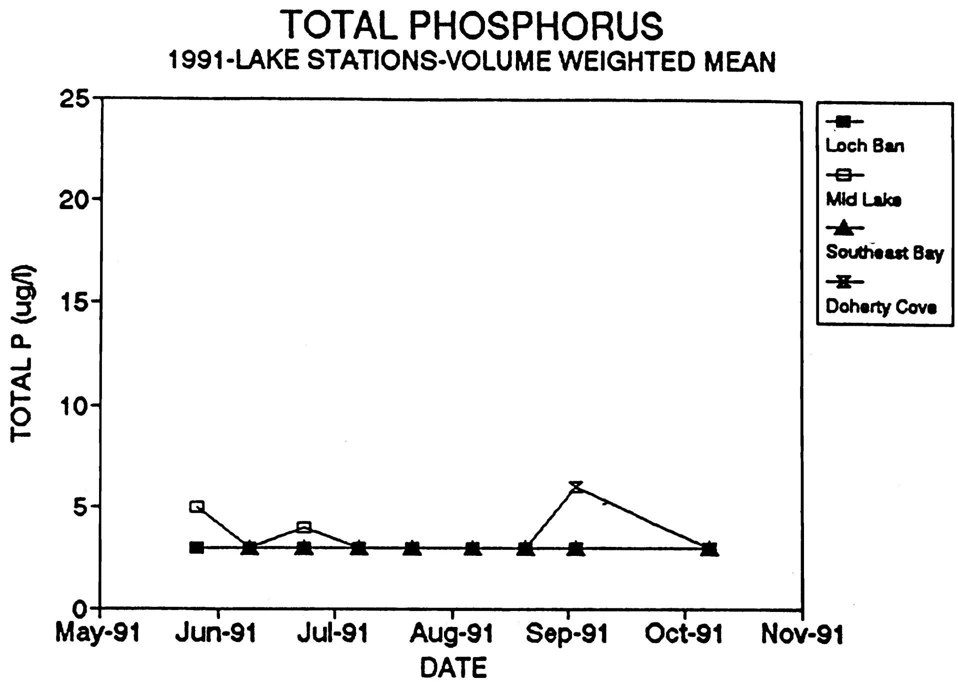


Figure 4

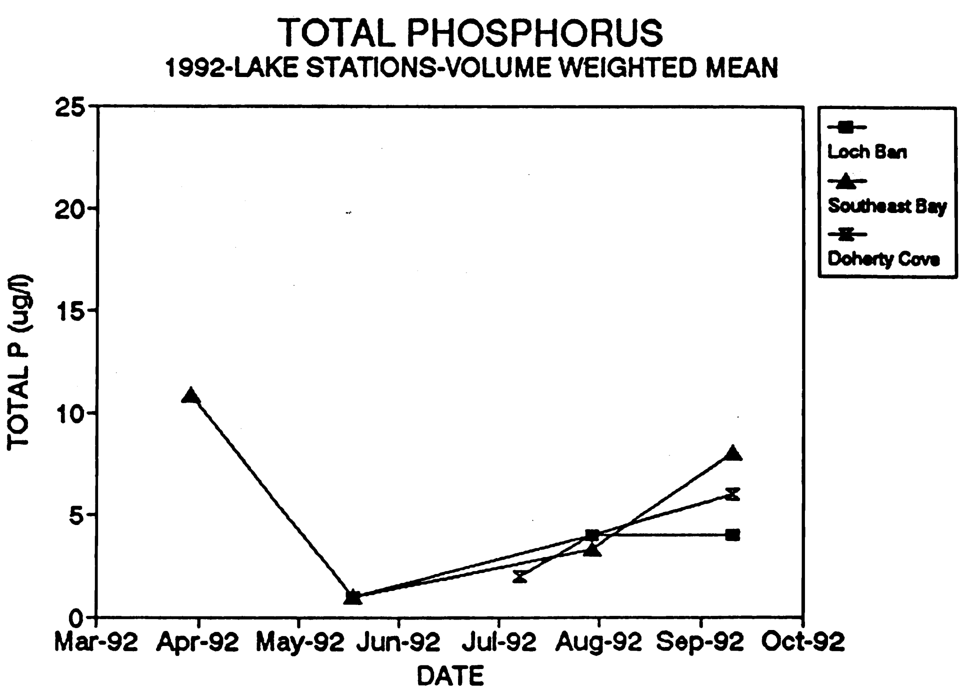
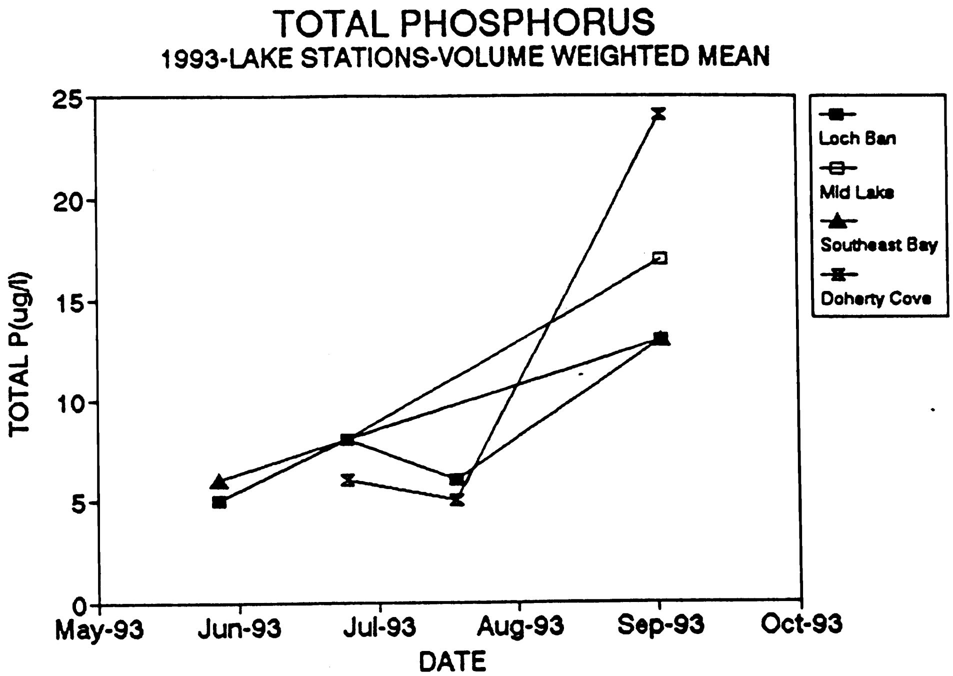


Figure 5



Whole lake volume-weighted mean concentrations of Total P for each sampling date are shown in Figures 6 to 8. A mean ice-free or growing season value for Total P has been calculated for each study year and is included on these graphs. These values range from 3.1 to 9.3 ug/l with an average of 5.2 ug/l. This value when compared to Table 2 indicates that Lake Ainslie as a whole is classified as oligotrophic.

Figure 6

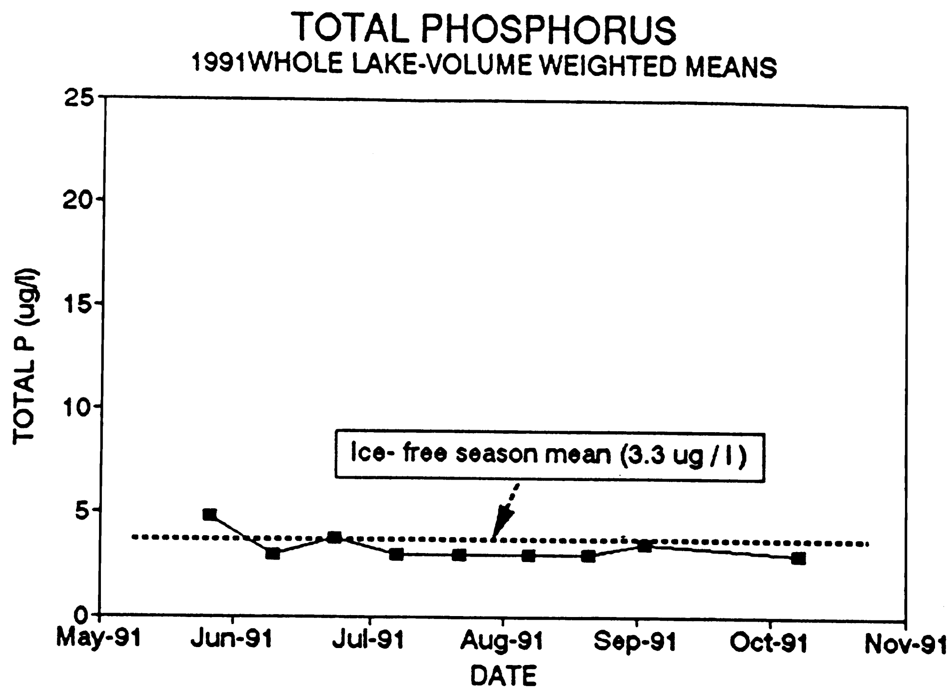


Figure 7

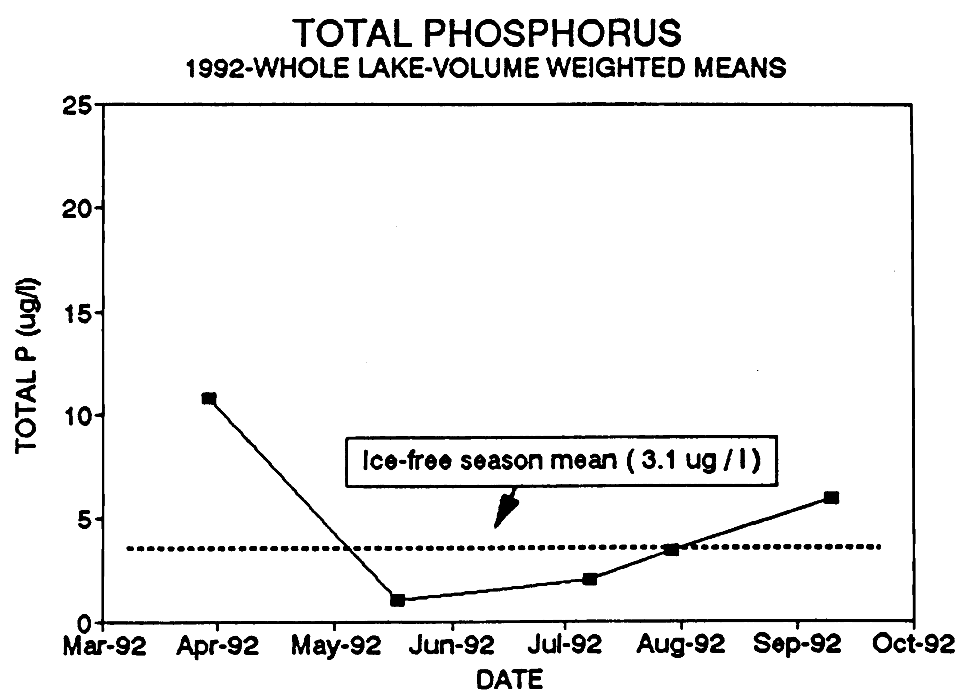
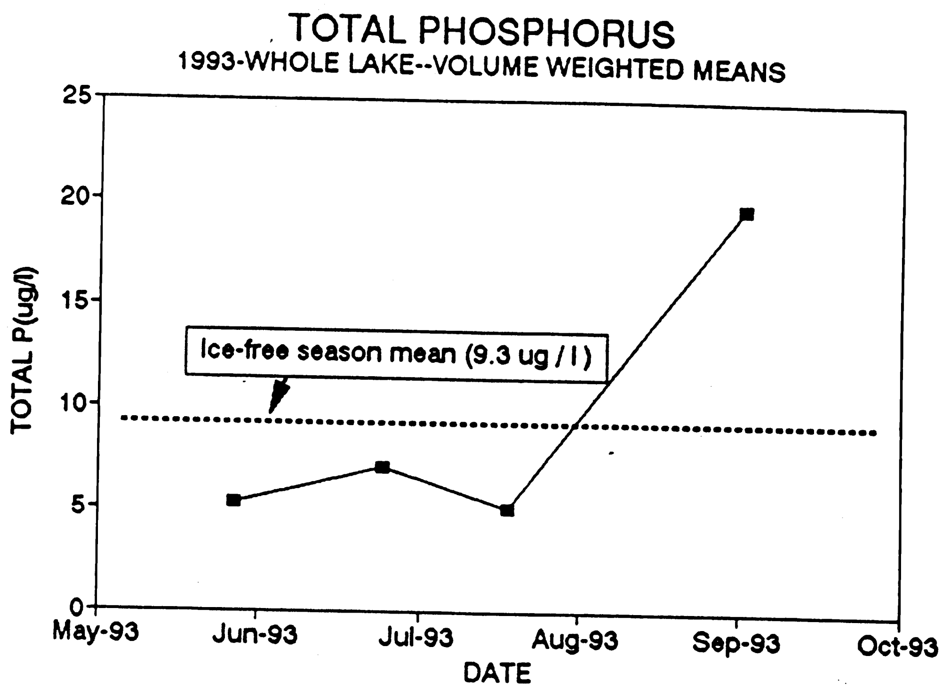


Figure 8



Chlorophyll

Primary productivity can be defined for the purpose of this study as being the extent of microscopic plant life or algal production in the water column as a result of available nutrients. The most commonly accepted indicator to quantify this primary productivity or algal biomass is obtained by measuring the chlorophyll a concentration in representative water samples. Chlorophyll a concentrations have been shown to correlate extremely well with algal biomass (Nicholls and Dillon 1978). Therefore, an increase in Chlorophyll a concentrations indicate an associated and proportional increase in algal biomass or density.

As in the case of nutrients, algal population growth can vary significantly, over time and space. Therefore, the sampling protocol was established to address this variability as outlined in the previous section.

Chlorophyll concentrations ranged from a minimum of 0.3 mg/m^3 at station # 3 at 17.5 meters depth on July 30, 1992 to a maximum of 4.3 mg/m^3 also at station # 3 at the surface on May 28, 1993. Although results indicate that chlorophyll concentrations did not differ to a large extent between sampling stations, concentrations at station #3 (Southeast Bay) were consistently higher throughout the study period. This may be the result of an internal nutrient loading from the sediments since the deepest lake location is found in this bay. Stratification, which could cause such a situation, was seen to occur only intermittently and weakly however. Increased export of nutrients from the watershed surrounding this bay could also cause the observed results, although inflowing streams did not confirm this situation.

Surface locations have been determined to be more suitable for monitoring chlorophyll and algal productivity since deeper waters are light limited. Ice-free season chlorophyll concentrations for surface locations are presented in the following graphs (Figures 9 to 11). Similarly to the previous graphs for Total P , only the four main lake stations are shown in order to maintain clarity.

Figure 9

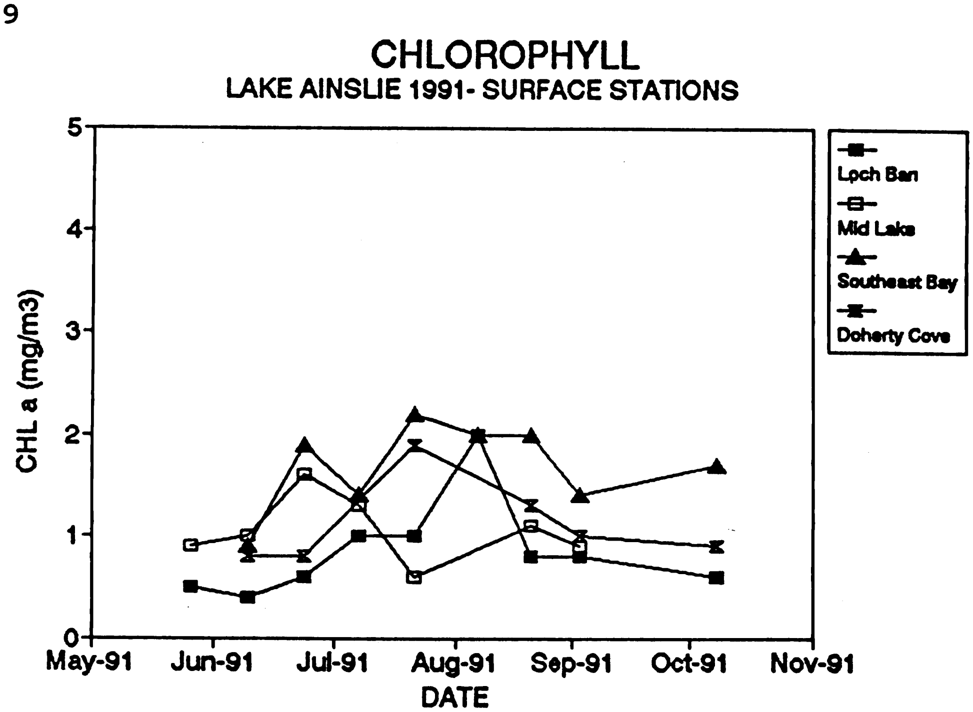


Figure 10

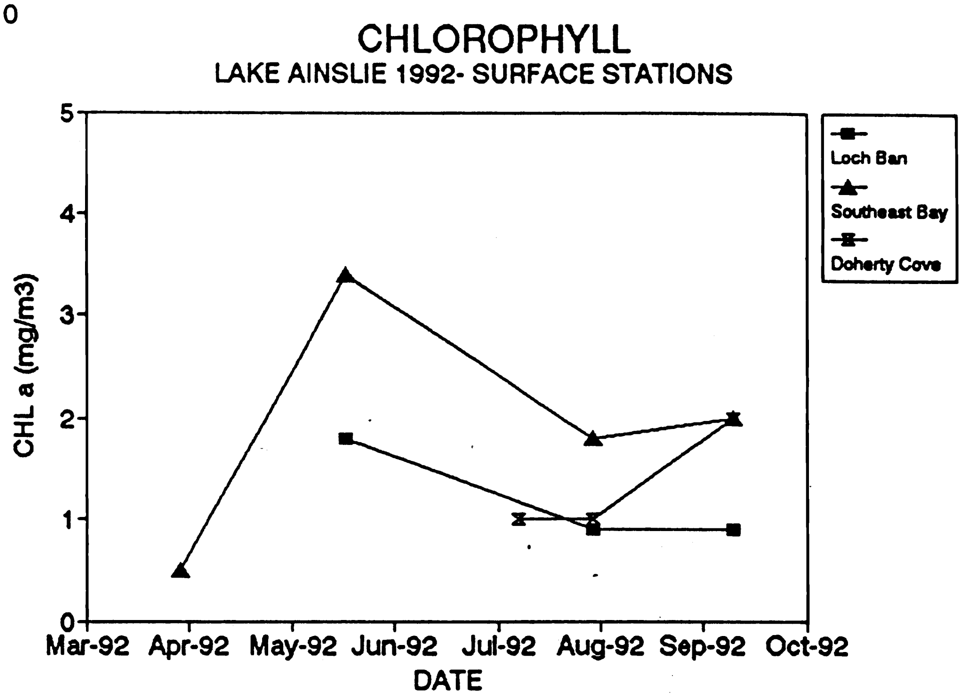
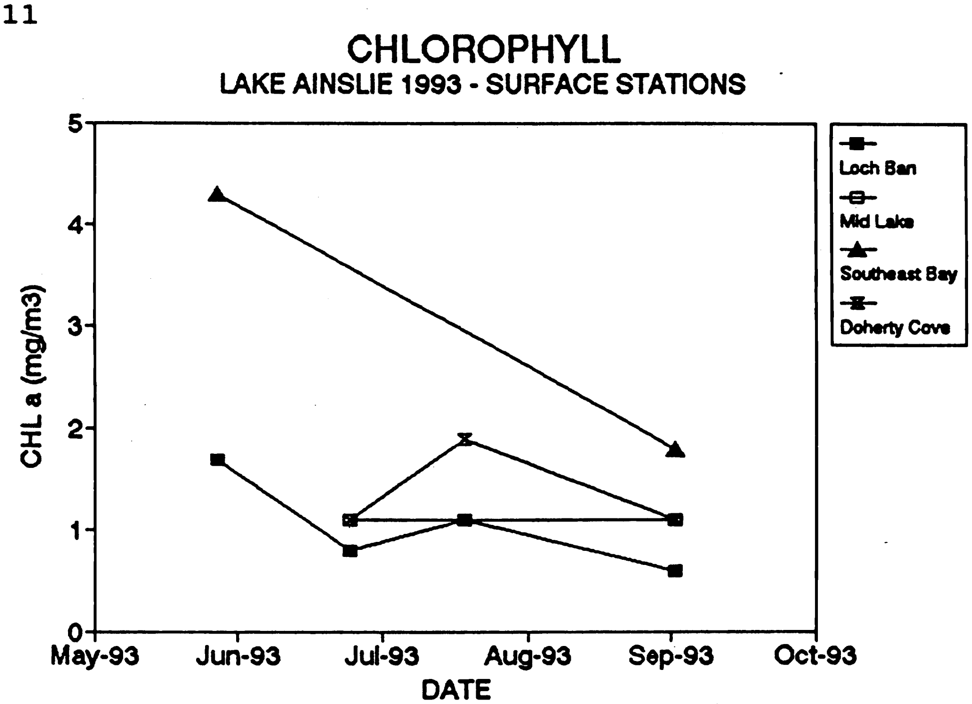


Figure 11



Whole lake mean chlorophyll concentrations were calculated for surface samples taken on each sampling date and for each study year. Data are presented in the following graphs (Figures 12 to 14) and indicates that chlorophyll concentrations and therefore algal production peaked during early August of 1991 and mid May of 1992 and 1993. Eutrophic lakes typically show spring and fall maximums of chlorophyll, while peak concentrations during the months of April and May are typical of oligotrophic systems (Marshall et al 1989). Seasonal chlorophyll patterns in Lake Ainslie therefore appear to be generally indicative of oligotrophic conditions, although some annual variation exists.

Figure 12

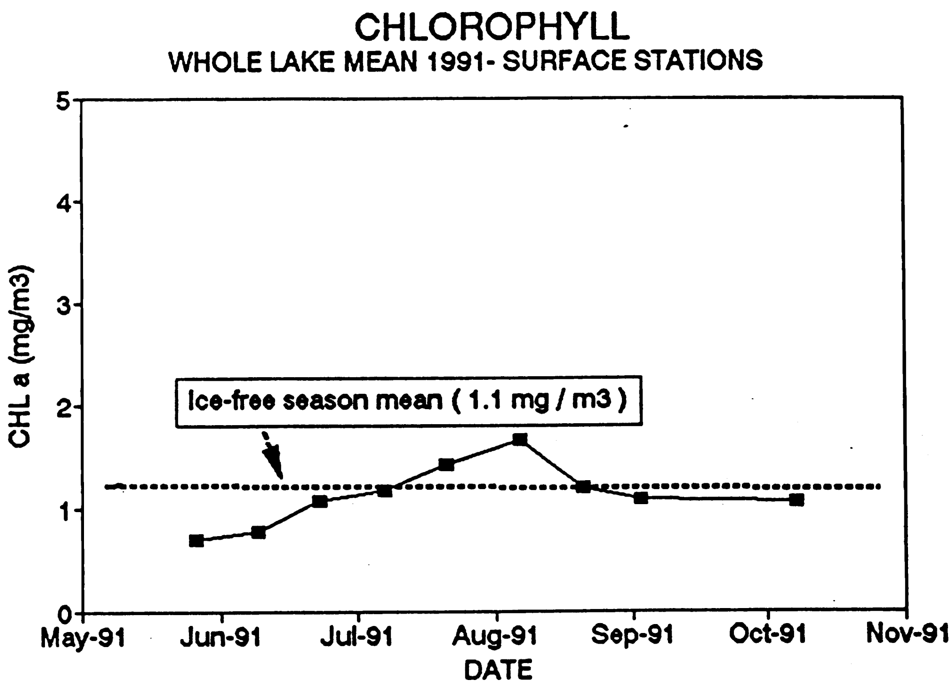


Figure 13

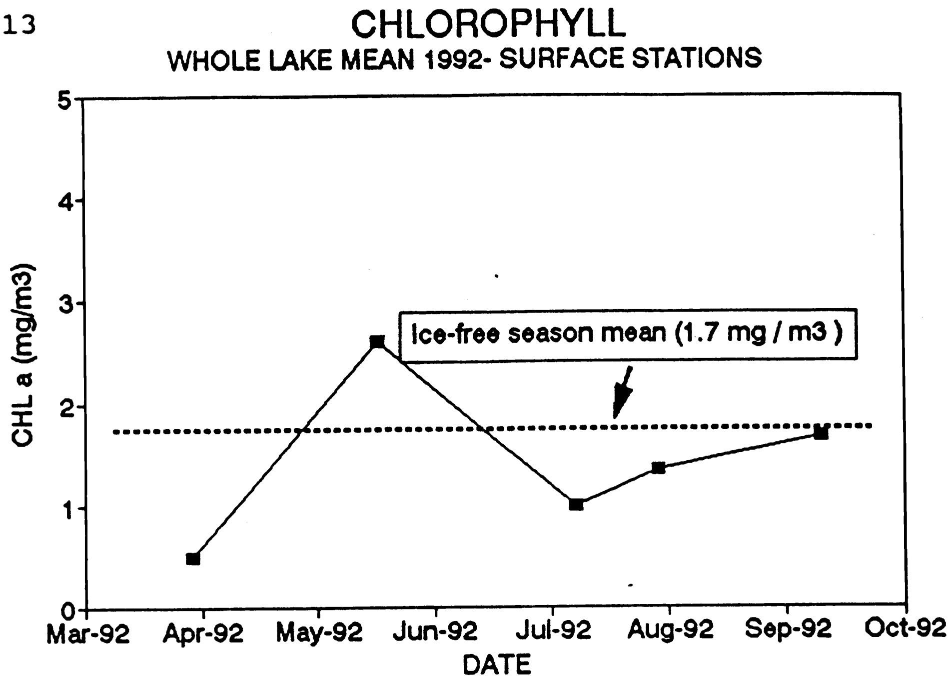
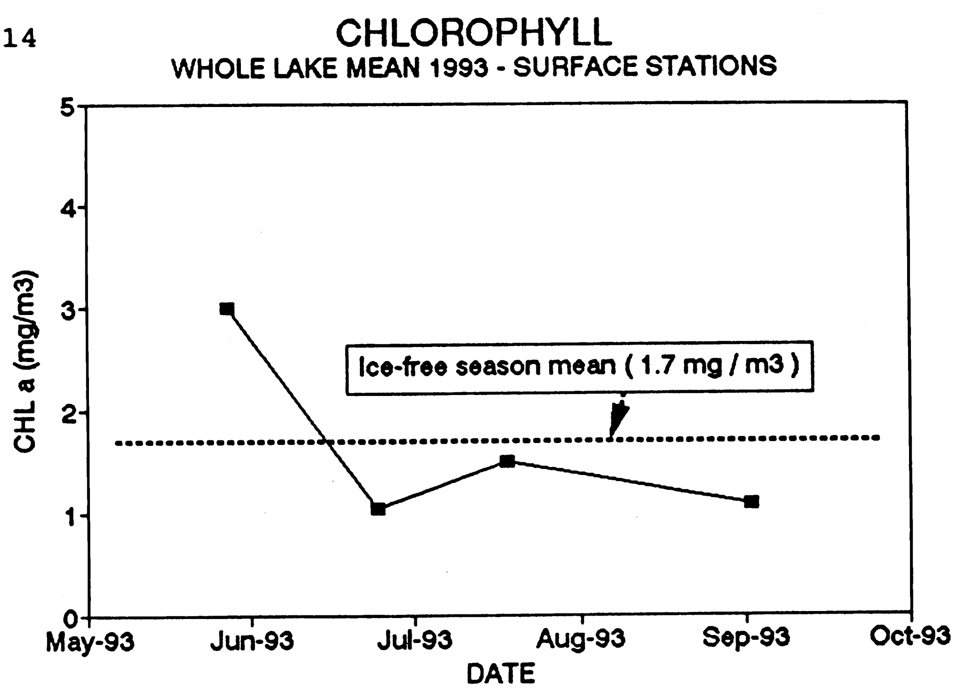


Figure 14



From the whole lake chlorophyll concentrations calculated on each sampling day, a mean ice-free season concentration was determined for each year and is also presented on these graphs. These values ranged from 1.1 mg/m3 to 1.7 mg/m3 with the average value of these three sampling seasons calculated as 1.5 mg/m3. When compared with the OECD eutrophication tables (Table 2), this value also indicates that Lake Ainslie falls into the oligotrophic category.

Transparency

Transparency, as determined by a secchi disk depth, is considered a good indicator of productivity and trophic state when suspended sediment and highly coloured waters are not present to bias results (OECD 1982). During this study samples exhibited a mean colour value of 7 True Color Units (TCU). Secchi measurements were not taken during or immediately following any major rain event. At least 48 hours following any significant rain event was used as a requirement of any given sampling date. Given these conditions, secchi depth transparency is considered to be an appropriate indicator of algal production and therefore trophic state. However, wind driven turbulence was encountered on many sampling days. In such instances bottom sediments found in shallower areas of the lake were re-suspended through wind and wave action. Transparency would undoubtably be diminished by such elevated suspended solid concentrations. In this type of situation secchi disk transparency will not be a reliable indicator of trophic state and therefore this data set should be interpreted with caution.

Moreover, the results from the Loch Ban sampling station are somewhat biased since on ocassion the bottom was encountered when using the Secchi disk. This indicated that the transparency was greater than the depth of the water column at that particular time. However, due to the limited database, particularly in the latter two years of the study, it is felt that the inclusion of this data would actually reduce overall biases when calculating means and would provide a more accurate representation of actual lake conditions.

Secchi depths ranged from a minimum of 2.5 meters at station # 3 on August 21, 1991 to a maximum of 5.0 meters at station # 5 on the same date. Despite the cautionary note above regarding the influences of suspended sediments on transparency measurements, these values do appear to be directly related to chlorophyll concentrations at the respective sampling locations. The results for the four main lake sampling stations are presented in the following graphs (Figures 15 to 17).

Figure 15

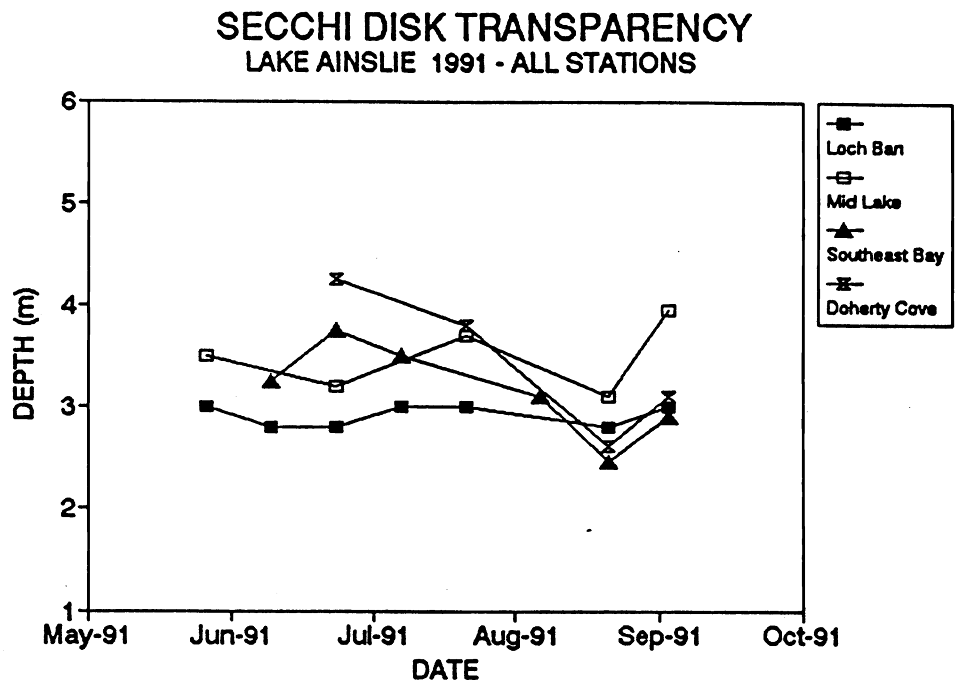


Figure 16

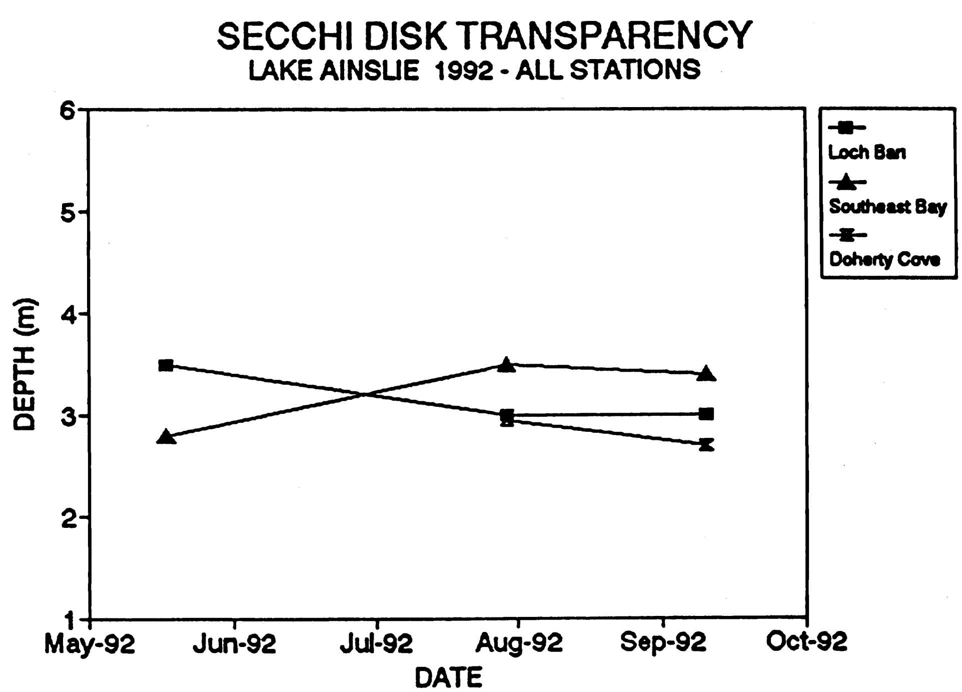
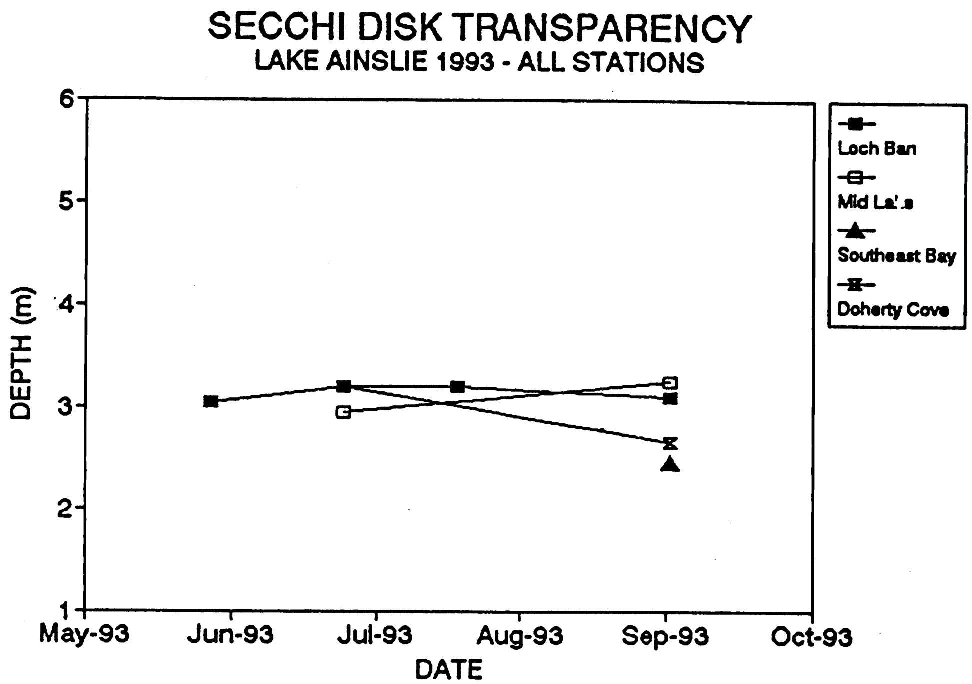


Figure 17



The mean transparency values for the lake as a whole were calculated for each sampling date in each year of the study. The results are presented in the following graphs (Figure 18 to 20). A mean ice-free season value is also indicated for each year. These values ranged from 3.1 to 3.3 meters, resulting in an average value for the three sampling years of 3.2 meters. This value, when compared to Table 2 indicates that Lake Ainslie is classified as mesotrophic. As previously indicated, the highly mixed wind driven situation is contributing to the lowered transparency and therefore is not providing an accurate indication of lake productivity.

Figure 18

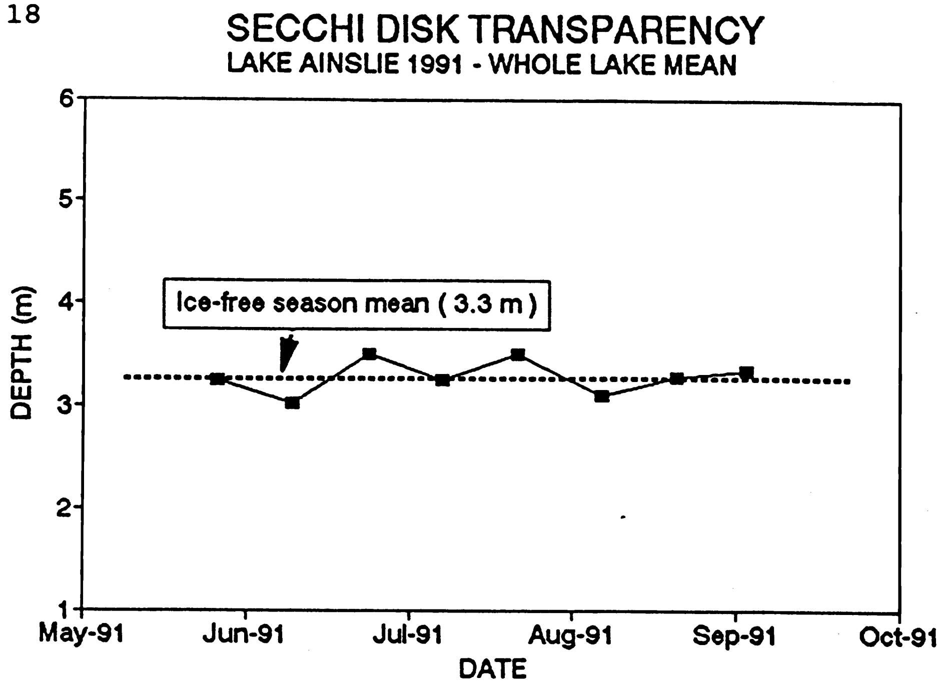


Figure 19

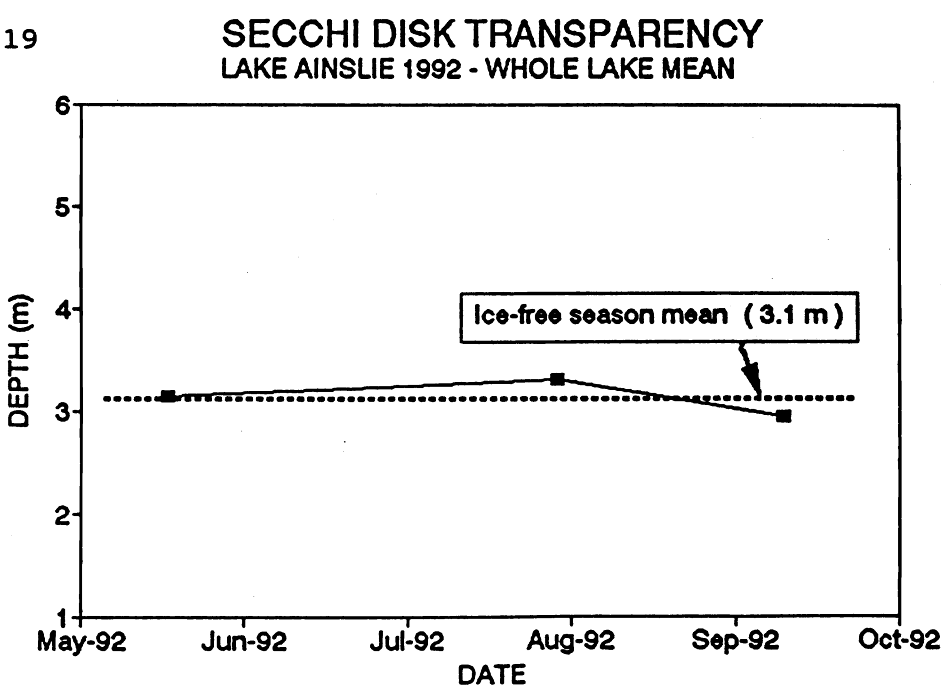
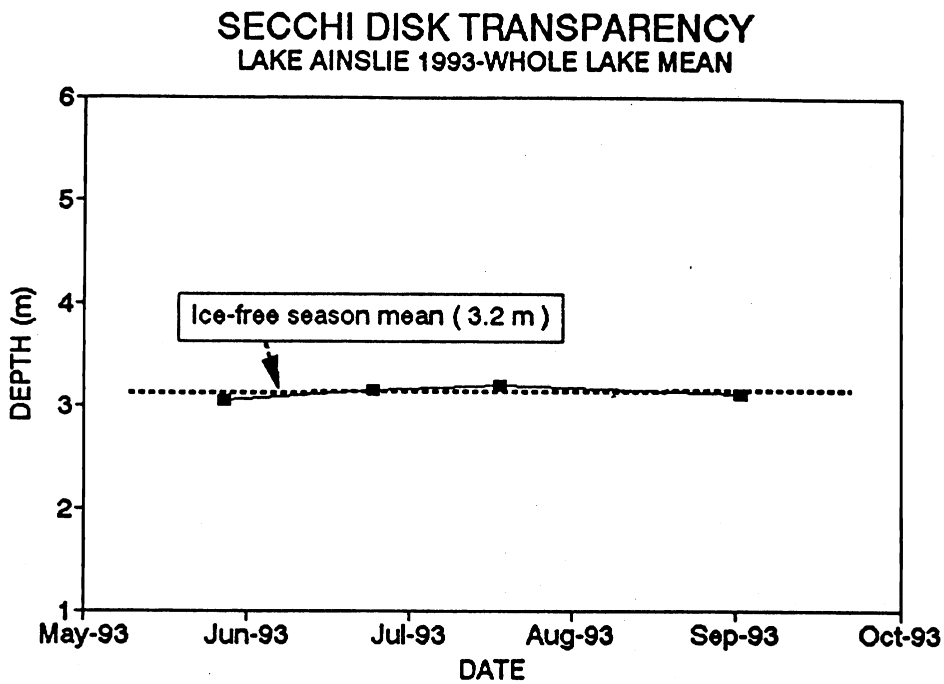


Figure 20



In summary, the primary indicators of trophic state, chlorophyll a and total phosphorus, suggest that oligotrophic conditions existed in Lake Ainslie during this study. The lake as a whole was nutrient poor, and biologically unproductive with respect to algal growth. Transparency was relatively high due to the absence of significant algal populations, although re-suspended sediments frequently lowered transparency temporarily due to wind activity.

Moreover, temperature and dissolved oxygen profiles (Appendix C) indicated that no prolonged thermal stratification was observed in the lake during the summer or winter of the study period. Therefore the reintroduction of nutrients from the bottom sediments as a result of hypolimnetic oxygen depletions was not considered to be extensive.

Major Ions

Ions are both negatively and positively charged particles which are found dissolved in water. These include substances which may be considered to be nutrients and metals, but for the purpose of this study refer to all other common substances found in solution.

A list of these water quality parameters and associated results are found in Table 8A (Appendix A). Concentrations of specific parameters are compared to Canadian Water Quality Guideline (CCME 1987) values established to support aquatic life and recreational water uses, as well as typical pristine lake conditions in Nova Scotia (NAQUADAT 1994).

A brief explanation follows of each parameter, its environmental significance, and typical values expected in natural Nova Scotia surface waters.

Temperature:

Temperature profiles were recorded for the entire water column at each lake station. From this data it was determined whether thermal stratification existed at that time. This information, in association with dissolved oxygen concentrations, was primarily used to interpret analytical results.

The lake was observed to stratify weakly and intermittently during the summer period. Wind-driven mixing appeared to prevent prolonged stratification. Under ice-cover conditions the lake also showed weak stratification just prior to ice out in the spring.

Temperatures were also compared to values considered to be the upper limit of tolerance of cold-water fish species. The maximum temperature was 23.2 degrees Celsius recorded on July 22,1991 at station #1 (Loch Ban) at all depths. The highest temperature recorded at the bottom of station #3 was 20.5 degrees on August 7,1991. This location is assumed to have the coolest summer temperatures in the lake barring the influence of inlet streams or underground springs.

The temperature at this location, which can be considered a refuge for cold-water fish species during the summer, is approaching the upper limit for suitable habitat for such species. (Alabaster and Lloyd 1982). Therefore temperature may be a limiting factor with respect to growth and survival of such species.

Dissolved Oxygen:

Dissolved oxygen profiles were recorded concurrently with water temperature at all lake stations. As indicated above, dissolved oxygen concentrations were primarily used in interpreting analytical results but were additionally compared to Canadian Water Quality Guideline (CWQG) values.

The concentration of dissolved oxygen in surface waters is usually less than 10 mg/l (McNeely et al.1979). Large variations in oxygen exist seasonally and geographically and are in part the result of variations in temperature, turbulence, atmospheric pressure, and photosynthetic activity or organic decomposition.

The minimum concentration of dissolved oxygen recorded was 2.7 mg/l at the bottom of station #3 (Southeast Bay) on July 30,1992, when the greatest stratification of the study period occurred. This coincided with the highest reported values for a number of chemical parameters including Total P as might be expected through the reintroduction of substances from the bottom sediments due to these low oxygen reducing conditions.

The maximum value reported was 13.6 mg/l observed on March 30,1992 at the surface of station #3. This also might well be expected since water temperatures were at their lowest ($0^{\circ}C$) and under such conditions dissolved oxygen concentrations would be high given full saturation.

All dissolved oxygen values fell within the range suggested by the CWQG for the protection of aquatic life, with the exception of those values reported between 16 and 20 meter depth at station #3 on July 30,1992, as mentioned above, and on March 30 of the same year. Although dissolved oxygen concentrations were not always within ranges established by the CWQG, this situation is common in deeper lakes showing stratification and should be recognized as a naturally occurring phenomenon.

pH:

The pH of a solution refers to the hydrogen ion concentration or the relative acidic/basic nature of the solution expressed on a scale of 0 to 14, with a neutral pH at 7.

In natural aquatic systems, the pH usually results from the geology and geochemistry of the rocks and soils of the watershed or drainage basin. For surface waters, the pH range of interest is typically 4 to 11 (CCME 1987).

The pH concentrations during the study ranged from 6.7 to 7.7 with a mean value of 7.2 recorded. The highest value was recorded at the surface of station #2 on June 10,1991, while the minimum value was recorded at the surface of station #3 on March 30,1992. It is during this late winter - early spring period that pH is expected to be at seasonal lows. This is due to the large influx of low pH snowmelt and rainwater into the lake and through the build up of carbon dioxide during ice-covered conditions in the winter.

The pH values reported for the study period fall within the CWQG values established for the protection of aquatic life and body contact recreational water uses.

Alkalinity:

Alkalinity refers to the capacity of a solution to neutralize acid and in natural waters is primarily the result of carbonate and bicarbonate ions. Because of the predominant effect of carbonate, alkalinity is expressed in equivalent amounts of calcium carbonate ($CaCO3$). Concentrations of carbonate and bicarbonate in surface waters result in large part from the natural weathering of rock in the watershed. Greater concentrations are found, and therefore higher alkalinity exists, where sedimentary or metamorphic bedrock is present. Such is the case with Lake Ainslie where sedimentary bedrock predominates in the watershed.

In natural surface waters alkalinity varies greatly. In Nova Scotia concentrations are generally less than 50 mg/l unless limestone deposits are in close proximity in which case concentrations can more than double. Conversely, in areas of non-carbonate bedrock, alkalinities below detectable limits are common.

During this study alkalinity ranged from 10 to 18 mg/l with a mean of 14.6 mg/l. This suggests that the buffering capacity is high and that acidity or a low pH in the lake, and any associated impacts on aquatic life, should not be a concern.

The minimum value reported was observed on June 10,1991 at the surface of station #1, while the maximum value was observed on March 30,1992 at the bottom of station #3.

Conductivity:

Conductivity refers to the ability of a substance to conduct an electric current. In an aqueous solution this measurement is dependent upon the total concentration of dissolved substances and the solution's temperature.

The conductivity of natural fresh waters varies greatly and may range from less than 20 umhos/cm in dilute waters to over several hundred or more in waters influenced by limestone or salt deposits.

Values in the lake ranged from 68 to 146 umhos/cm with a mean of 116. These values are well within the normal range of unimpacted lakes in similar geological settings.

The minimum value reported was observed on March 30,1992 at the surface of station #3, while the maximum value was observed on the same date and station but at the bottom location. This was the result of the observed stratified conditions which showed three distinct layers, rather than a mixed water column, with the denser water settling to the bottom. A sample taken at a 8 meter depth indicated a conductivity of 118 umhos/cm which approximates the seasonal mean value.

Colour:

The true color of water refers to the color resulting from substances which are totally dissolved in the solution. It is not to be mistaken for apparent color resulting from suspended or colloidal matter. The color in natural waters are primarily due to colored organic substances, known as humic substances, resulting from the decay or aqueous extraction of vegetation. The presence of metals such as iron, manganese, and copper which are weathered from rock can also contribute to color, but this situation predominates in groundwater.

Natural surface waters in Nova Scotia may range in color from less than detectable limits, in many cases, to over 100 True Color Units (TCU), in a very limited number of cases where bog lakes are encountered. Average color values are usually less than 45 TCU.

Reported values from Lake Ainslie ranged from <3 to 9 TCU, with a mean of 6.1 TCU. These values reflect relatively uncolored conditions where the effects of humic substances from natural wetlands or bogs are minimal.

Minimum color values were reported on July 22,1991 at station #1, and on July 30,1992 at the surface of station #5 (offshore Ainslie Chapel). Maximum values were reported on June 10,1991 at the surface of station #2 and again on May 28,1993 at the surface of station #3.

Turbidity:

Turbidity measurements provide an approximation for concentrations of suspended material such as clay, sand, silt, finely divided organic and inorganic matter, plankton and other microorganisms in water.

Reported values ranged from 0.3 to 2.3 Nephelometric Turbidity Units (NTU), with a mean of 0.8 NTU. These values are low indicating relatively clear water conditions since sampling was avoided during storm events and plankton growth was minimal.

The minimum value was reported on September 3,1991 at station #1, while the maximum value was reported on July 30,1992 at the surface of station #5.

Suspended Solids:

Suspended solids refer to that portion of total solids that are suspended rather than dissolved. This parameter indicates concentrations of the same materials that are measured in turbidity determinations but are expressed in volumetric terms (i.e. mg/l).

Values are susceptible to significant variation over time and space depending upon meteorological conditions, activities in the watershed, and potentially in-lake activities. The primary function of this measurement is to determine the existence of sample contamination from disturbed sediments.

Values ranged from <0.4 to 8.0, with a mean of 1.9 mg/l. This confirms turbidity determinations and validates the dataset since little or no contamination from sediments are indicated. It should be noted that the analytical results for two samples were previously removed from the dataset. These were shoreline samples, taken during periods of high wave action, and therefore showed contamination from bottom sediments and were not representative of normal lake conditions. These samples were taken on August 7,1991 and October 8,1991 from the sandbar located at the entrance to Loch Ban, since wind conditions prevented sampling from a boat.

The minimum and maximum values indicated above were recorded on August 21,1991 at station #5, and on March 30,1992 at the surface of station #3, respectively.

Total Organic Carbon:

Total organic carbon (TOC) refers to the total of suspended and dissolved organic constituents of water. Elevated levels of TOC are primarily indicative of naturally occurring organic matter such as humic substances but also can reflect high algal concentrations. Levels of organic carbon in surface waters vary widely, ranging from non-detectable in newly risen rivers supplied by limestone springs to greater than 100 mg/l in peaty swamp waters (Croll 1972).

Values for TOC ranged from 1.2 to 2.6 mg/l, with a mean of 1.8 mg/l. These values are considered to be low and fall well within the range of TOC values for pristine lakes which are not associated with a bogy shoreline or watershed.

The minimum value was reported on June 10,1991 at station #1 and the maximum was reported on September 2,1993 at the same location.

Humic Acids:

Humic acids are organic acids formed from the partial decomposition of plant and animal matter and are generally associated with highly colored bog lake conditions.

Concentrations in most Nova Scotia lakes are found to be less than 10 mg/l.

Reported values during this study were identified as ranging from 1.4 to 3.8 mg/l, with a mean of 2.2 mg/l. These values, as in the case of total organic carbon, are low and reflect lake conditions which are not greatly influenced by a poorly drained bogy watershed.

The minimum value recorded was on August 21,1991 at the surface of station #2, with the maximum recorded on September 22,1993 at station #1.

Hardness:

Hardness is a traditional measure of the capacity of water to react with soap and is expressed in terms of mg/l of $CaCO_3$.
In fresh water the principal hardness-causing ions are calcium and magnesium which naturally leach from rock and soils. Soft water is considered to have a value of 0 to 60 mg/l, medium hard 60 to 120 mg/l, hard 120 to 180 mg/l, and very hard 180 mg/l and above (Health and Welfare Canada 1980).

Natural fresh waters in Nova Scotia are almost invariably soft if not in close proximity to limestone or salt deposits. Reported values in Lake Ainslie ranged from 24.1 to 28.8 mg/l, with a mean of 26.3 mg/l. These values indicate soft water conditions which are typical of lakes not having thick topsoil or predominating limestone formations in their watershed.

The minimum value was reported on June 24,1991 at the surface of station #2, while the maximum was reported on September 10,1992 at station #1.

Sodium:

Sodium is a non-toxic metal which is abundant, widely distributed in nature, and present to some extent in all natural waters. The principal sources of sodium are from the weathering of igneous rock and salt deposits, as well as the leaching of soils. Deicing salt used on highways can also significantly contribute to overall sodium levels in nearby watercourses. Concentrations in pristine surface waters vary greatly, ranging from less than 1 mg/l to over 300 mg/l, depending upon amount of rainfall and evaporation, and geologic formations present. Typical undisturbed lakes in Nova Scotia however would have sodium concentrations generally less than 50 mg/l.

Reported values for lake Ainslie ranged from 10.3 to 12.8 mg/l, with a mean of 11.5 mg/l. These values are typical of Nova Scotia lakes as shown above and indicate relatively little groundwater influence. Little or no influences from highway deicing activities are evident.

The minimum value reported was on May 27,1991 at the bottom of station #2, while the maximum value reported was on September 3,1991 at station #1.

Potassium:

Potassium is a widely distributed non-toxic element which is essential to plant and animal nutrition. The primary natural source is from the weathering of rock. Although potassium may be found in many rocks, those with significant amounts (e.g. granite) are resistant to weathering. Commercial chemical fertilizers contain substantial concentrations of this element and may be a significant cultural source from the watershed.

Concentrations of potassium in natural surface waters seldom reach 20 mg/l and is generally less than 10 mg/l (CCME 1987). Reported values for Lake Ainslie ranged from 0.4 to 0.5 mg/l with a mean of 0.5 mg/l. These values reflect a natural conditions with little migration of potassium from geologic formations in the watershed.

The minimum value reported was on August 21,1991 at station #1, while 0.5 mg/l was reported on all other sampling dates and locations.

Calcium:

Calcium is one of the most abundant cations (positively charged ions) found in surface or groundwaters. It is readily soluble in water and enters the aquatic environment through the weathering of rocks, especially limestone, and from the soil, through seepage and run-off. Calcium salts, along with those of magnesium, are primarily responsible for the hardness of water. This element is considered to be essential for nearly all living organisms.

The concentrations of calcium in natural fresh waters vary according to the proximity of calcium-rich geological formations. Typical concentrations are less than 15 mg/l, whereas waters close to carbonate rocks may have concentrations in the range of 30-100 mg/l.(CCME 1987)

Values reported during this study ranged from 7.7 to 9.5 mg/l with a mean of 8.6 mg/l. These values reflect typical lake conditions where carbonate rock has an influence on water quality but does not dominate the near shore area of the watershed.

The minimum value reported was on June 24,1991 at the surface of station #2, while the maximum value reported was on May 28,1993 at station #1.

Magnesium:

Magnesium is the eighth most abundant natural element in the earth's crust and is a common constituent of natural water (CCME 1987). The principal sources of magnesium are ferromagnesium minerals in igneous rocks and magnesium carbonates in sedimentary rocks. Along with calcium, it is one of the main contributors to water hardness, and is also considered to be an essential element for all living organisms.

Water in watersheds with magnesium-containing rock may have magnesium in the concentration range of 1 to 100 mg/l.

Values reported during the study ranged from 1.1 to 1.3 mg/l, with a mean of 1.2 mg/l. These values are low and therefore suggest magnesium poor geologic formations in the watershed.

The minimum value reported was at the surface of station #3 on June 10,1991 , while the maximum value reported was observed at station #1 on four occasions; June 24, July 8, and August 21 of 1991, and September 10,1992.

Sulphate:

Sulphate is widely distributed and is an ionic component of all natural waters. It may be leached from most sedimentary rocks, including shales, with the most appreciable contributions from such sulphate deposits as gypsum and anhydrite. Acid rain can also contribute to sulphate concentrations in surface waters.

Concentrations normally vary from 10 to 80 mg/l in naturally occurring surface waters (CCME 1987). Reported values ranged from 12.0 to 14.0 mg/l during this study, with a mean of 12.7 mg/l. These sulphate concentrations are typical values for Nova Scotia lakes having no extensive gypsum deposits in close proximity and showing no significant impacts from acid rain.

The minimum value reported was observed at station #1 and #2 on several sampling dates, including May 27 and June 24,1991. The maximum value reported was also observed on several occasions at station #1; those occasions being August 21 and September 3, 1991, and September 10,1992.

Chloride:

Chloride is widely distributed in the environment, generally as sodium chloride, potassium chloride, and calcium chloride (CCME 1987). The weathering and leaching of sedimentary rocks and soils and the dissolution of salt deposits release chlorides to water (Mc Neely et al. 1979). In natural waters, chlorides are present in low concentrations, commonly less than 50 mg/l. Deicing salts applied to highways can contribute significantly to chloride concentrations where extensive urbanization has occurred.

Reported values for Lake Ainslie ranged from 16.9 to 20.3 mg/l, with a mean of 18.3 mg/l. These values reflect naturally occurring conditions with little or no impact from highway salting.

The minimum value reported was on September 2,1993 at station #1, while the maximum value reported was on September 3,1991 also at station #1.

Fluoride:

Fluoride is present in trace amounts in soils and rocks, but is most prevalent in active or inactive volcanic regions. The weathering of igneous and sedimentary rocks, especially shales, is the primary natural source of fluoride to the aquatic environment. Most surface waters have a fluoride concentration which is less than 1 mg/l (Wentzel 1975), although concentrations may exceed 50 mg/l (Mc Neely et al. 1979).

Reported values during the study period ranged from <0.1 to 0.2 mg/l, with a mean of <0.1 mg/l. These values, although very low, are typical of natural waters and suggest geological formations in the watershed which are fluoride poor.

All samples taken during this study indicated fluoride concentrations below detectable limits of 0.1 mg/l with the exception of two. One sample taken at the surface of station #2 on June 10,1991 had a recorded concentration of 0.2 mg/l, while the other sample taken at station #1 on September 2,1993 had a concentration of 0.1 mg/l.

Silica:

Silicon is a stable, relatively light chemical element that does not occur free in nature, but combines with oxygen and other elements to form oxides of silicates (CCME 1987). The term "silica" refers to silicon in natural waters, and is usually represented by the hydrated form of the oxide. Silica is present in most rocks, but many are resistant to chemical weathering. Although relatively unreactive chemically, silicon is considered an essential micronutrient to some algal species, most notably the diatoms. Therefore silicon concentrations in freshwaters are significantly influenced by diatom cycling.

Most natural waters contain less than 5 mg/l of silica, although a range of 1 to 30 mg/l is not uncommon. Typical surface waters has a silica concentration of 3 to 4 mg/l (McNeely et al. 1979).

Reported values of silica concentrations during this study ranged from <0.5 to 1.3 mg/l, with a mean value of 0.5 mg/l. These values are low suggesting that either sources of silica are limited in the geologic setting of the watershed or diatom populations have assimilated the available silica in the water column. Since chlorophyll values are low, and therefore assumably all algal populations are low, the former reason is suspected.

The minimum value reported was below detectable limits of 0.5 mg/l and was observed on the majority of sampling days and at most stations. The maximum value was reported on September 2,1993 at station #1.

In summary, reported values for the above parameters are, with one exception, within the established guidelines for the protection of freshwater aquatic life and recreational water uses.

Only during periods of significant stratifications did dissolved oxygen concentrations in the bottom waters diminish below guideline values. This situation was only observed below 16 meter depth on these occasions and therefore restricted to an extremely small volume of water (i.e. .01% of lake volume - see Table 7B Appendix A). Since water temperatures and dissolved oxygen above the 16 meter depth were sufficient to sustain sensitive fish populations, suitable fish habitat existed elsewhere in the lake during these periods. It is therefore assumed that dissolved oxygen concentrations observed during the study period did not critically limit fish habitat. Therefore, water quality with respect to the parameters included in this section is suitable to support aquatic life and recreational uses.

Metals

Dissolved metals which were investigated during this study are listed, along with results, in Table 8B. As with major ions, concentrations of specific metals are compared to Canadian Water Quality Guideline (CWQG) values established to support aquatic life. Results indicate that metal concentrations are generally below the normal detectable limits and are within CWQG values established for the protection of aquatic life. However, on occasion, concentrations greater than the guideline values were observed for several metals. Although exceeding guideline values, these concentrations are very low and well within the normal range or unimpacted lakes. Since no specific cultural sources of these metals were observed, these concentrations should be considered natural background levels.

Bacteriology

The limited sampling program undertaken by NSDOH staff investigated concentrations of fecal coliform bacteria in near-shore swimming beach locations as shown in Figures 1 and 2.

Fecal coliform bacteria are present in wastes from warm blooded animals and are associated with disease causing organisms. Swimming areas are considered unsafe for body contact recreation when concentrations of these organisms exceed 200 per 100 mls of water. Results are found in Table 3. All samples taken show concentrations below guideline values. Therefore, bacteriological water quality was acceptable for recreational water uses.

Table 3

Bacteriological Data *

Lake Ainslie

July 24, 1991

Sample Number	Location	Fecal Coliform Concentrations (Number/100 mls)
1	Ainslie Village Campground	3
2	MacKinnon's Campground	5
3	Lands & Forests Picnic Park near Trout Brook	1
4	Lakeshore opposite Twin Rock Valley Road	18
5	Bridge at Scotsville	3
6	Westlake Cottages	1
7	Westlake - 5.0 Km from Route 395	1
8	Westlake - 4.7 Km from Route 395	2
9	Westlake - 2.2 Km from Route 395	2

* Lakeshore Sampling Results -
Reported by Nova Scotia Department of Health (Cape Breton Health Unit)

STREAM CONDITIONS

INLET STREAMS

Inlet streams generally showed little impact from human related activities in the watershed. Low nutrient concentrations were prevalent with Total phosphorus ranging from <.001 to .060 mg/l and with a mean concentration of .009 mg/l. However on several occasions certain streams were observed as being noticeably colored due to siltation, accounting for elevated nutrient concentrations under such circumstances. This eroded material, upon entry to the lake, would invariably increase productivity and contribute to overall eutrophication.

Total nitrogen concentrations in Trout Brook appeared to be elevated in relation to other inlet streams, but with little or no associated increase in Total phosphorus. Increased nutrient export from clear cutting forestry activities have been demonstrated elsewhere, (Martin et al 1986) and may account for observed conditions.

Measured discharge in Trout Brook during 1991 was used to calculate discharge in the remaining inlet streams based on watershed area ratios. Estimated flows taken at the time of sampling were used to confirm calculated values.

Since lake water quality was determined to be nutrient poor and no significant manmade sources of nutrient input were identified in this study, remedial action is not required. Therefore, the relative proportions of phosphorus contributions from the sub-watersheds are largely irrelevant and has not been calculated. Chemistry, discharge, and temperature data for all stream stations are available but are not included in this report, in the interests of brevity and clarity.

OUTLET STREAM

Nutrient concentrations reported at the outlet stream, the Southwest Margaree, (at Scotsville Bridge) were largely reflective of lake concentrations observed at station #4 (Doherty Cove). Additionally, chlorophyll a concentrations were observed to be similar at these locations during the study period.

Temperatures recorded at the Scotsville Bridge stream location, during the study period, were roughly indicative of temperatures at the lake surface and consistently 2 degrees Celsius warmer than the sampling station located near Upper Margaree.

The Upper Margaree station is an established stream gauging station located on the Southwest Margaree River at which discharge and temperature are recorded on a continuous basis. During August of 1990 stream temperatures were recorded at that station in excess of 26 degrees Celsius (per com Gerald Chaput - DFO, see Figure 21). The inference here is that temperatures at the Scotsville Bridge stream location and the lake surface were approaching 28 degrees at that time. Since temperature has been shown to be a controlling factor in regulating algal populations, conditions would have been most favourable for algal growth if that situation were realized and nutrient concentrations were elevated from a given source.

Moreover, the mean temperature recorded in August of 1990 at the gauging station, was at least 2 degrees higher than temperatures recorded for the same period in the previous two years and in at least two of the subsequent three years (i.e. 1988, 1989, 1991, and 1993). This situation could also apply to 1992, however, no data was available for that year. These higher temperatures observed in 1990 relative to other years, may partially account for the more prolific algal growth experienced in that year.

The Upper Margaree stream gauging station recorded a daily discharge of 12.0 m3/sec on August 2,1990 as compared to 5.07 m3/sec the previous day (see Table 4). This more than doubling of the discharge coincided with 84 mm of rainfall recorded at the climatological station located at Margaree Forks as the result of hurricane " Bob"(see Table 5). This circumstantial evidence appears to confirm that a major rain event did indeed occur at Lake Ainslie during this period and further supports the contention of a major nutrient flush from the watershed fuelling algal production at that time.

KENLOCH LANDFILL SITE

Samples associated with the Kenloch landfill site indicated no significant introduction of nutrients from this operation, nor did evidence exist suggesting that other contaminants had migrated through the groundwater regime to the lake (per. com. H. Doane, NSDOE). However, the most recent sample from monitoring well #5 shows somewhat elevated concentrations of certain ions including chloride (see Table 9 and 10 in Appendix B). Chloride is used as an indicator to assess migrating contaminant plumes. No other monitoring wells at the landfill site have been sampled as part of this study or any other investigation recently to the author's knowledge. Therefore, no information exists to determine whether elevated ions at well #5 are the result of migrating substances from the landfill area or are the result of annual variation. Additional sampling, spacially and temporally, is necessary and recommended in order to more fully assess this situation.

Figure 21

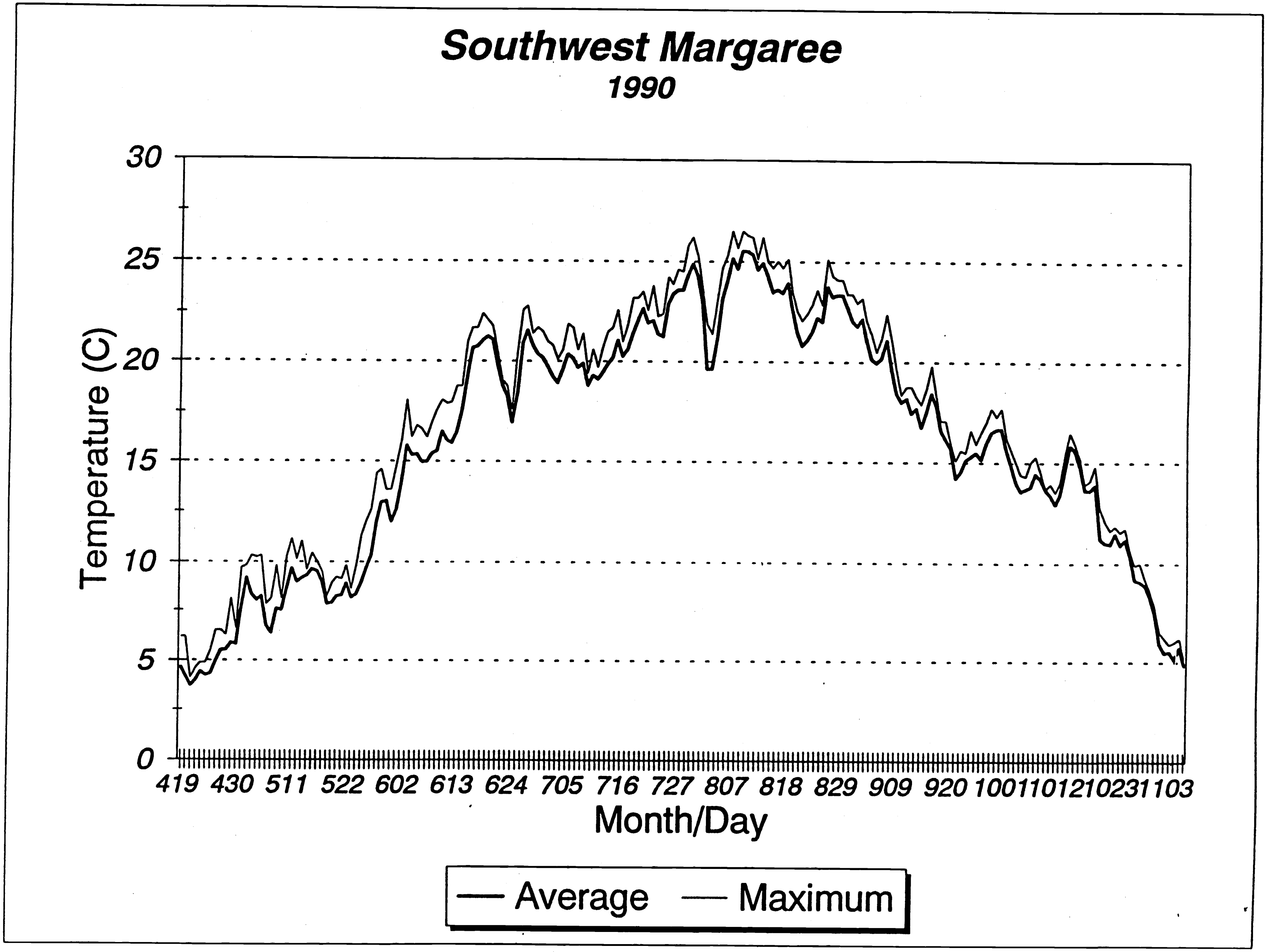

Southwest Margaree
1990
Temperature (C)
30
25
20
15
10
5
0
419 430 511 522 602 613 624 705 716 727 807 818 829 909 920 1001 1012 1023 1103
Month/Day
Average
Maximum

Table 4

SOUTHWEST MARGAREE RIVER NEAR UPPER MARGAREE - STATION NO. 01FB003
DAILY DISCHARGE IN CUBIC METRES PER SECOND FOR 1990

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	DAY
1	15.0	22.1	18.0	17.1	34.1	19.5	7.02	5.07	3.92	5.32	15.1	16.8	1
2	15.7	21.2	17.7	16.9	34.7	19.1	6.84	12.0	3.79	5.49	14.7	16.4	2
3	14.6	20.5	17.0	17.7	33.0	18.4	6.78	11.2	4.88	5.65	14.7	17.5	3
4	14.6B	20.4	16.5	24.9	31.2	18.7	6.81	8.38	4.29	5.87	14.7	17.5	4
5	14.3	19.1	16.0	39.4	30.6	17.8	6.61	7.89	4.13	6.23	14.4	22.6	5
6	14.3B	18.8	15.4	33.2	29.0	17.1	6.40	7.60	4.00	6.94	13.9	24.6	6
7	13.9	18.5	15.0	32.6	28.5	16.5	6.20	7.38	3.89	6.40	14.6	22.5	7
8	14.0	17.8	14.7	31.4	28.3	15.9	5.96	7.27	3.99	6.25	14.8	24.3	8
9	13.7	17.4	14.2	30.1	28.0	15.3	5.88	7.19	3.85	6.24	14.8	46.9	9
10	13.6B	24.7	13.8	29.4	26.9	14.5	5.70	7.10	3.69	6.71	16.0	37.4	10
11	14.2	33.8	13.4	43.2	27.0	14.0	5.49	7.01	3.52	6.54	29.4	34.9	11
12	13.7	27.3	13.0	50.0	25.7	13.4	5.26	6.95	3.50	6.44	24.4	34.3	12
13	13.5	26.0	12.6	43.0	24.7	13.0	5.01	6.67	3.44	6.43	22.3	33.2	13
14	13.2	25.4	12.1	41.2	26.4	12.5	4.94	6.65	3.35	6.53	21.4	32.2	14
15	13.1	24.2	12.0	40.2	28.6	12.1	4.69	6.84	3.27	6.86	21.1	31.4	15
16	13.0	23.7	11.6	44.8	28.7	11.6	4.55	6.26	3.59	6.63	20.7	35.0	16
17	12.7B	23.3	11.5	44.5	29.4	11.5	4.41	6.18	3.38	6.54	20.8	50.6	17
18	13.7	22.1	14.6	44.8	27.8	11.2	4.43	6.09	3.28	6.45	21.4	42.9	18
19	14.3	21.7	16.3	42.4	26.8	10.7	4.54	5.77	3.19	7.90	22.4	54.4	19
20	14.2B	21.0	15.0	41.1	25.8	11.6	4.46	5.47	3.46	7.33	23.4	47.5	20
21	13.8	20.2	16.6	41.5	25.4	10.9	4.48	5.43	4.25	6.82	22.8	45.0	21
22	13.5B	19.9	18.6	43.9	24.3	10.6	4.37	5.29	3.67	6.96	22.0	53.1	22
23	13.3	20.6	19.2	45.5	23.6	10.5	4.47	5.02	4.73	6.74	21.7	54.8	23
24	13.1	20.3	22.5	42.5	22.9	9.92	4.91	4.87	5.95	6.81	21.5	54.7	24
25	13.2	20.0	20.4	41.1	22.0	10.0	4.72	4.76	5.01	7.69	21.4	52.4	25
26	15.5	19.4	19.9	39.5	21.3	9.40	4.61	4.64	4.71	7.18	21.2	50.4	26
27	35.7	18.9	19.2	38.4	20.5	8.64	4.44	4.58	4.64	9.12	19.9	48.6	27
28	24.9	18.7	18.9	37.6	19.8	7.99	4.28	4.46	4.62	8.69	19.9	47.9	28
29	23.0		18.4	35.9	19.1	7.60	4.13	4.42	4.54	9.92	19.6	44.9	29
30	22.5		17.9	34.8	20.4	7.31	4.06	4.20	4.40	16.8	19.2	43.4	30
31	22.9		17.5		20.2		3.94	4.03		16.7		43.8	31
TOTAL	490.7	607.0	499.5	1 108.1	814.1	387.26	160.39	196.71	120.93	232.38	584.2	1 189.9	TOTAL
MEAN	15.8	21.7	16.1	36.9	26.3	12.9	5.17	6.35	4.03	7.50	19.5	38.4	MEAN
MAX	35.7	33.8	22.5	50.0	34.7	19.5	7.02	12.0	5.95	16.8	29.4	54.8	MAX
MIN	12.7	17.4	11.5	16.9	19.1	7.31	3.94	4.03	3.19	5.32	13.9	17.5	MIN

SUMMARY FOR THE YEAR 1990

DISCHARGES IN CUBIC METRES PER SECOND

MEAN, 17.5
MAXIMUM DAILY, 54.8 ON DEC 23
MINIMUM DAILY, 3.19 ON SEP 19
MAXIMUM INSTANTANEOUS,
68.0 AT 22:57 AST ON DEC 16

TYPE OF GAUGE - RECORDING
LOCATION - LAT 46 13 24 N
LONG 061 08 12 W
DRAINAGE AREA, 357 KM2

B - ICE CONDITIONS

NATURAL FLOW

MONTHLY TOTAL DISCHARGE
IN CUBIC DECAMETRES

JAN	42 400	JUL	13 900
FEB	52 400	AUG	17 000
MAR	43 200	SEP	10 400
APR	95 700	OCT	20 100
MAY	70 300	NOV	50 500
JUN	33 500	DEC	103 000

TOTAL DISCHARGE, 552 000 DAM3

Table 5

ENVIRONMENT CANADA   ENVIRONNEMENT CANADA

CLIMATE SUMMARY FOR MARGAREE FORKS   NS   AUGUST   1990
ATLANTIC REGION ID : 1020D
AES HEADQUARTERS ID : 8203423

DAY	TEMPERATURE MAX	MIN	MEAN	RAIN	TOTAL SNOW	PCP	T H	Z R	H A	SNOW GND
1	23.0E	17.0E	20.0	C		C				0
2	18.0E	15.0E	16.5	84.0		84.0				0
3	21.0E	13.5	17.3							0
4	29.0	9.0	19.0							0
5	32.0	13.0E	22.5							0
6	31.5	12.0	21.8							0
7	29.0	15.0	22.0							0
8	30.5	14.0	22.3	4.0		4.0				0
9	29.0	20.0	24.5	6.0		6.0				0
10	29.0	20.0	24.5							0
11	29.5	18.0	23.8							0
12	28.0	20.0	24.0	9.4		9.4				0
13	27.0	21.0	24.0							0
14	27.0	15.0	21.0	14.2		14.2				0
15	24.0	15.0	19.5				X			0
16	25.0	10.0	17.5							0
17	28.0	13.0E	20.5							0
18	30.0	16.0	23.0	5.2		5.2				0
19	17.5	14.0	15.8	5.0		5.0				0
20	19.0	9.0	14.0							0
21	22.0	3.0	12.5							0
22	23.0	11.0E	17.0							0
23	26.0	7.5	16.8							0
24	26.0	10.5	18.3							0
25	28.5	11.5	20.0							0
26	29.5	14.5	22.0							0
27	30.5	13.5	22.0							0
28	28.0	16.0	22.0	1.0		1.0				0
29	27.5	20.0	23.8							0
30	23.0	19.0	21.0							0
31	24.5	9.0	16.8							0
TOTAL	815.5	435.0		128.8	0.0	128.8	1	0	0	
MEAN	26.3	14.0	20.2							

MONTHLY MAXIMUM TEMPERATURE WAS 32.0 ON DAY 5
MONTHLY MINIMUM TEMPERATURE WAS 3.0 ON DAY 21
HIGHEST RAINFALL WAS 84.0 ON DAY 2

LIST OF CODES USED IS AVAILABLE ON REQUEST

The erosion of unstablized cover material was observed at the Kenloch landfill site and suggests the mobilization of surface materials toward the lake. Although there were no indications that this material migrated long distances or reached the lake, greater efforts to stablize the site should be undertaken as part of normal landfill operation thus ensuring proper mitigative measures are employed.

METEOROLOGICAL CONDITIONS

Precipitation and ambient air temperature was of primary interest to this study in order to confirm meteorological conditions at Lake Ainslie in 1990 prior to observed bloom conditions. Secondarily the precipitation data was to be used in calculating atmospheric inputs to water and nutrient budgets should the monitoring reveal extensive algal growth caused by human related nutrient sources, necessitating remediation.

Air temperature and precipitation data was recorded for lake Ainslie between June and November 1991. This data was compared to data collected during the same period at the AES meteorological station at Margaree Forks. The results are found in Table 6. Sporadic readings of meteorological information at the Inverness AES location made direct comparison impossible during this particular period of time. However sufficient data was available to compare the Margaree Forks and Inverness sites between March and December 1992. This data is also presented in Table 6.

The data suggests that there is a close agreement between meteorological conditions at Lake Ainslie and Margaree Forks. A general trend of slightly lower total precipitation values is also evident. A weaker correlation also exists between Inverness and Margaree Forks data but this appeared to be secondary to the previous relationship.

It is suggested that Margaree Forks could be used as a surrogate for Lake Ainslie with respect to weather data due to the similar meteorological conditions reported at this station, combined with the more reliable data collection when compared to the Inverness location.

Table 6

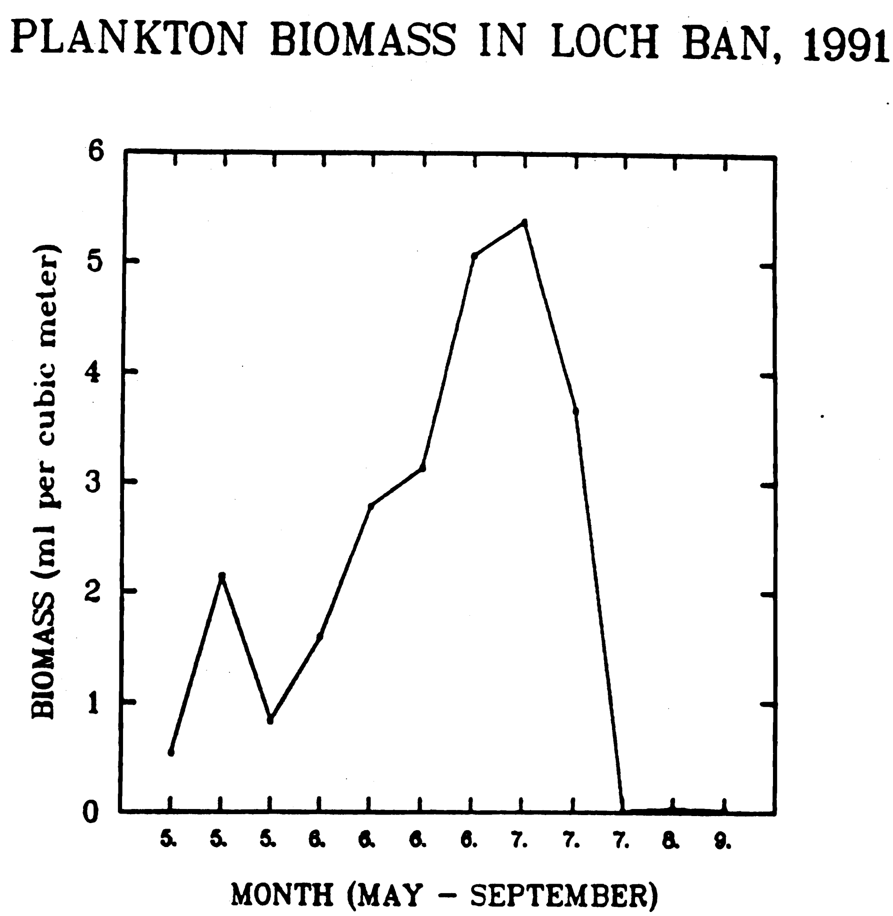
METEOROLOGICAL DATA (ATMOSPHERIC ENVIRONMENT SERVICE 1993)

DATE	LAKE AINSLIE TOTAL PRECIPITATION (mm)	LAKE AINSLIE MEAN TEMP (°C)	MARGAREE FORKS TOTAL PRECIPITATION (mm)	MARGAREE FORKS MEAN TEMP (°C)	INVERNESS TOTAL PRECIPITATION (mm)	INVERNESS MEAN TEMP (°C)
June 1991	67.1	12.8	74.0	12.9	-	-
July 1991	83.7	17.4	103.0	17.5	-	-
Aug. 1991	100.5	17.5	142.2	17.7	-	-
Sept. 1991	207.1	13.2	247.0	13.2	-	-
Oct. 1991	127.1	10.0	156.6	10.1	-	-
Nov. 1991	188.2	5.7	191.8	5.8	-	-
Dec. 1991	-	-	187.2	-2.6	-	-
Jan. 1992	-	-	118.4	-6.7	-	-
Feb. 1992	-	-	158.0	-7.8	-	-
Mar. 1992	-	-	194.8	-5.9	179.6	6.1
Apr. 1992	-	-	45.4	-1.2	87.4	1.1
May 1992	-	-	79.2	8.8	84.1	8.4
June 1992	-	-	104.8	14.1	107.9	13.8
July 1992	-	-	88.4	15.1	76.8	15.2
Aug. 1992	-	-	55.0	18.1	91.2	18.3
Sept. 1992	-	-	98.6	14.5	96.4	15.0
Oct. 1992	-	-	165.0	8.1	209.6	8.3
Nov. 1992	-	-	123.0	1.7	129.1	2.6
Dec. 1992	-	-	143.8	-2.0	144.9	-2.0

TROPHIC LEVEL RELATIONSHIPS

Relationships between populations of biological organisms occupying various levels of the food chain has been shown to influence algal populations. More specifically, the effects of grazing herbivores in zooplankton populations on algal populations have been demonstrated.(Lafontaine and McQueen 1991, Lampert, Flecker, Rai, and Taylor. 1986) Although beyond the scope of this study to investigate such interactions, previous studies in lake Ainslie have suggested that populations of organisms which graze on algal species have historically been at very low levels during late July and August (Crawford, 1991, Figure 22). This information would support the contention that an influx of nutrients from a major rain event may have contributed significantly to the observed algal bloom of 1990. Hurricane "Bob" occurred in early August when populations of zooplankton predators would be at a minimum and therefore grazing pressure at seasonal lows, allowing algal populations to flourish given an adequate nutrient supply.

Figure 22



CONCLUSIONS

Based on the results of this study, it can be concluded that Lake Ainslie, as a whole, is unproductive with respect to algal growth and can be classified as oligotrophic. No significant sources of nutrient input could be identified from the watershed through repeated sampling of inlet streams and through visual observation of direct run-off areas. Little reintroduction of nutrients from bottom sediments was evident due to the weak thermal stratification observed. Moreover, the substantial degree of wind induced mixing, as experienced during the study period, would probably ensure that any stratification and resultant hypolimnetic oxygen depletion would not exist for extended periods.

Due to lake morphology (surface area to depth ratio) and a relatively low flushing rate, seasonally high water temperatures may be approaching the limits of cold water fish habitat. Moreover, high water temperatures combined with low dissolved oxygen concentrations may reduce cold-water fish habitat to critical levels given extreme meteorological conditions.

Little or no introduction of nutrients was observed from the Kenloch landfill site, nor were other contaminants shown to have migrated through the groundwater regime to the lake. However, in monitoring well #5 concentrations of specific ions were observed to be elevated in relation to previous analysis and are either due to a migrating contaminant plume or simply to annual variation. Further monitoring is necessary to support the identification of a specific cause. Moreover greater efforts are necessary to stablize cover material as part of normal landfill operations so as to ensure no off-site impacts.

Based on 1991-93 data, water quality in Lake Ainslie with respect to chemistry and bacteriology is suitable to support the expected water uses. That is, when compared to established Canadian Water Quality Guideline values, Lake Ainslie water quality was suitable to support aquatic life and body contact recreational uses.

When compared to other Nova Scotia lakes with relatively undeveloped watersheds, Lake Ainslie has comparable water quality.

For the purposes of this study it can be concluded that precipitation data recorded at the long established meteorological station at Margaree Forks can be used as a surrogate for Lake Ainslie.

Based on the previous conclusion, precipitation data for Margaree Forks, discharge data for the outlet stream, and anecdotal evidence offered by area residents in 1990, it can further be concluded that a major rain event occurred on August 2, 1990 at Lake Ainslie. During this rain event(Hurricane "Bob") 84 mm of rain fell within 24 hours. This was nearly 70% of the normal total precipitation for the entire month of August.

Temperature and hydrometric data associated with the outlet stream (Southwest Margaree) indicated that during 1990 summer water temperatures were extremely high and stream discharge was below normal levels, confirming drought conditions during the early summer period.

It has been suggested, although supporting literature could not be found, that a major rain event subsequent to drought conditions could flush a significant amount of nutrients from the watershed as a single event as opposed to the normal continuous leaching over an extended period (pers. com. J. Kerekes-CWS, S. Beauchamp-AES). This situation would provide a significant influx of nutrients sufficient to fuel a major algal bloom.

The above scenario is strengthened by evidence that populations of zooplankton normally present in Lake Ainslie would be very low at the time of this rain event (per. com. B. Crawford-NSDOF). This suggests that populations of grazing organisms that feed on algal species would be very low at that particular time and thus provide favourable conditions for algal growth.

Although wind-driven mixing was observed in the lake and no prolonged stratification existed during the study period, it is never-the-less possible that a more significant stratification and internal nutrient loading situation could have existed in 1990. Therefore, the bottom sediments cannot be ruled out as a potentially significant source of nutrients for algal growth in Lake Ainslie, albeit under exceptional circumstances.

In summary, the foregoing conclusions suggest that algal populations and resultant effects on transparency in Lake Ainslie are primarily attributed to natural occurrences and processes, including meteorological conditions, lake morphology, and trophic relationships (interactions with grazing organisms). Although human activities in the watershed can greatly influence water quality, little evidence was found to indicate this during the study period.

RECOMMENDATIONS

No significant manmade source of nutrient input to Lake Ainslie was identified during the course of this study. Therefore recommendations regarding specific mitigation or remediation measures are not necessary.

However, Lake Ainslie appears to be very sensitive to nutrient inputs as shown by significant algal blooms in the past. Therefore, watershed management practices should be implemented in order to minimize the export of phosphorus from the watershed thereby assuring low nutrient and high transparency in-lake conditions to the greatest degree possible. Development in the watershed (e.g. forestry, farming, residential, etc.) can be accommodated without negative impacts to water quality as long as it is undertaken in an environmentally acceptable manner. Buffer strips, erosion control measures, good livestock manure management, suitable sewage disposal systems, are examples of appropriate practices which must be implemented if the water resource is to continue to provide the expected uses to area residents.

Although beyond the perview of this study more extensive monitoring is recommended with respect to the groundwater monitoring well network associated with the Kenloch landfill site in order to fully assess groundwater quality near this disposal site.

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APPENDIX A

Table 7A

LAKE AINSLIE VOLUME CALCULATIONS

BASIN # 1 - MAIN LAKE

DEPTH (m)	AREA (ha)	% TOTAL AREA (basin)	% TOTAL AREA (lake)	Stratum	m^3x10^4	% Total Volume (basin)	% Total Volume (lake)
0	4732.1	100.0	82.5				
1				0 - 2	9003.0	30.5	27.4
2	4274.7	90.3	74.5				
3				2 - 4	8100.0	27.4	24.6
4	3829.4	80.9	66.8				
5				4 - 6	7017.8	23.8	21.4
6	3197.9	67.6	55.8				
7				6 - 8	4617.4	15.6	14.1
8	1522.0	32.2	26.5				
				8 - 9	791.0	2.7	2.4
9	242.9	5.1	4.2				
				9 -9.1	8.1	0.03	0.02
9.1	0.0	0.0	0.0				
				SUBTOTAL	29,537.3	100%	89.9%

BASIN # 2 - LOCH BAN:

DEPTH (m)	AREA (ha)	% TOTAL AREA (basin)	% TOTAL AREA (lake)	Stratum	m^3x10^4	% Total Volume (basin)	% Total Volume (lake)
0	773.2	100.0	13.5				
				0 - 1	705.3	32.9	2.1
1	639.6	82.7	11.2				
				1 - 2	586.2	27.3	1.8
2	534.3	69.1	9.3				
				2 - 3	474.4	22.1	1.4
3	416.9	53.9	7.3				
				3 - 4	291.6	13.6	0.9
4	182.2	23.6	3.2				
				4 - 5	87.7	4.1	0.3
5	20.2	2.6	0.4				
				SUBTOTAL	2145.2	100%	6.5%

Table 7B **LAKE AINSLIE VOLUME CALCULATIONS** (CONT'D)

BASIN # 3 - SOUTHEAST BAY

DEPTH (m)	AREA (ha)	% TOTAL AREA (basin)	% TOTAL AREA (lake)	Stratum	$m^3 x 10^4$	% Total Volume (basin)	% Total Volume (lake)
0	230.7	100.0	4.0				
1				0 - 2	417.8	35.4	1.3
2	187.9	81.4	3.3				
3				2 - 4	325.6	27.6	1.0
4	138.9	60.2	2.4				
5				4 - 6	237.8	20.2	0.7
6	100.0	43.3	1.7				
7				6 - 8	126.6	10.7	0.4
8	32.8	14.2	0.6				
9				8 - 10	39.2	3.3	0.1
10	8.9	3.8	0.2				
11				10 - 12	15.4	1.4	0.05
12	6.6	2.9	0.1				
13				12 - 14	9.8	0.8	0.03
14	3.4	1.5	0.06				
15				14 - 16	5.2	0.4	0.02
16	1.9	0.8	0.03				
17				16 - 18	2.8	0.2	0.01
18	0.9	0.4	0.02				
				18-18.5	0.2	0.02	0.00
18.5	0.0	0.0	0.0				
				SUBTOTAL	1180.4	100%	3.61%

TOTAL LAKE VOLUME - 32862.9 (M^3 X 10^4)

Table 7C

LAKE AINSLIE
SURFACE AREA

MAJOR LAKE BASINS	SAMPLING STATION	LOCATION	LAKE AREA (ha)	% OF TOTAL AREA
Loch Ban	# 1	Loch Ban	773.2	13.5
Main Basin	# 2	Mid Lake	4732.1	82.5
	# 4	Doherty Cove		
	# 5	Off Shore Trout Brook		
	# 6	Off Shore Ainslie Chapel		
Southeast Bay	# 3	Deepest Location	230.7	4.0
Total			*5736.0	100.0

* Based on Dept. of Lands & Forests Lake Survey Data 1978.

LAKE AINSLIE
BASIN VOLUMES

MAJOR LAKE BASINS	LAKE VOLUME ($M^3 \times 10^4$)	% TOTAL VOLUME
Loch Ban	2145.2	6.5
Main Basin	29537.3	89.9
Southeast Bay	1180.4	3.6
Total	32862.9	100.0

Table 8A

Lake Ainslie Water Quality Data 1991-1993

CATEGORY	PARAMETER	MIN.	MAX.	MEAN	CWQ GUIDELINES *		LOCAL UNIMPACTED LAKES (NAQUADAT 1994)		
					Freshwater Aquatic Life	Recreation	Min.	Max.	Mean
Chemistry									
Trophic State Indicators	Ortho-PO_4 (P)	<0.01	0.05	<0.01	-	-	<0.001	0.013	0.004
	Total P (P)	<0.001	0.065	0.006	-	-	<0.001	0.045	0.007
	Nitrate + Nitrite (N)	<0.01	0.160	<0.05	-	-	<0.01	0.360	0.028
	Ammonia (N)	<0.01	0.43	<0.05	1.37-2.2(2)	-	<0.005	0.12	0.029
	Total N (N)	0.070	0.600	0.133	-	-	<0.01	0.61	0.176
	Chlorophyll a (mg/m^3)	0.3	4.3	1.3	-	-	-	-	-
	Pheophytin (mg/m^3)	<0.1	2.9	0.5	-	-	-	-	-
	Transparency (Secchi depth in meters)	2.5	5.0	3.2	-	≥1.2 meters	-	-	-
General Characteristics & Major Ions	Temperature (°C)	0.0	23.2	17.9	20-21 ▼	-	3.0	25.0	14.0
	Dissolved Oxygen	2.7	13.6	8.9	5.0-9.5	-	-	-	-
	pH (pH units)	6.7	7.7	7.2	6.5-9.0	5.0-9.5	3.2	7.4	5.7
	Alkalinity	10.0	18.0	14.6	-	-	<0.5	50.5	12.4
	Conductivity (umhos/cm)	68.0	146.0	116.0	-	-	14.1	4610.0	114.9
	Colour (TCU)	<3.0	9.0	6.1	-	-	<5.0	230.0	73.0
	Turbidity	0.3	2.3	0.8	-	-	0.2	7.9	0.7
	Suspended Solids	<0.4	8.0	1.9	<25 ▲	-	-	-	-
	Total Organic Carbon	1.2	2.6	1.8	-	-	3.0	13.5	7.9
	Humic Acids	1.4	3.8	2.2	-	-	-	-	-
	Hardness	24.1	28.8	26.3	-	-	-	-	-
	Sodium	10.3	12.8	11.5	-	-	1.6	780.0	15.5
	Potassium	0.4	0.5	0.5	-	-	<0.1	30.0	0.8
	Calcium	7.7	9.5	8.6	-	-	1.3	22.0	8.2
	Magnesium	1.1	1.3	1.2	-	-	0.7	3.3	1.7
	Sulphate	12.0	14.0	12.7	-	-	1.2	37.0	8.2
	Chloride	16.9	20.3	18.3	-	-	2.2	1509.0	33.8
	Fluoride	<0.1	0.2	<0.1	-	-	<0.05	<0.05	<0.05
	Silica	<0.5	1.3	0.5	-	-	0.2	5.5	1.5

* All concentrations are reported in mg/l unless otherwise indicated.
Nitrate - Avoid prolific weed growth
Nitrite - 0.06
(1) Guideline changes with hardness
(2) Guideline changes with temperature and pH
(3) Guideline changes with pH

▼ Upper permissable temperature for salmon and trout (Alabaster and Lloyd 1982)
▲ No harmful effects to fish (EIFAC 1965, US EPA 1973)

Table 8B **Lake Ainslie Water Quality Data 1991-1993**

CATEGORY	PARAMETER	MIN.	MAX.	MEAN	CWQ GUIDELINES *		LOCAL UNIMPACTED LAKES (NAQUADAT 1994)		
					Freshwater Aquatic Life	Recreation	MIN.	MAX.	MEAN
Chemistry									
Metals	Aluminum	<0.10	0.11	<0.10	0.005-0.1	-	<0.1	0.56	0.214
	Antimony	<0.05	<0.05	<0.05	-	-	-	-	-
	Arsenic	<0.002	<0.005	<0.005	0.05	-	<0.0005	<0.0005	<0.0005
	Barium	0.019	0.036	0.024	-	-	-	-	-
	Beryllium	<0.005	<0.005	<0.005	-	-	-	-	-
	Boron	<0.1	<0.1	<0.1	-	-	-	-	-
	Cadmium	<0.002	<0.002	<0.002	0.0002-0.0018(1)	-	<0.001	0.004	<0.001
	Chromium	<0.02	0.02	< 0.02	0.002 -0.020	-	-	-	-
	Cobalt	<0.05	<0.05	<0.05	-	-	-	-	-
	Copper	<0.01	0.01	<0.01	0.002 -0.004(1)	-	<0.002	0.011	0.001
	Iron	<0.02	0.06	0.03	0.3	-	<0.02	0.054	0.022
	Lead	<0.002	0.003	<0.002	0.001 -0.007(1)	-	<0.002	0.024	<0.002
	Manganese	<0.01	0.02	<0.01	-	-	<0.01	1.6	0.040
	Nickel	<0.02	<0.02	<0.02	0.025 -0.150(1)	-	-	-	-
	Selenium	<0.1	<0.1	<0.1	0.001	-	-	-	-
	Tin	<0.05	0.05	<0.05	-	-	-	-	-
	Vanadium	<0.01	<0.01	<0.05	-	-	-	-	-
	Zinc	<0.01	<0.01	<0.01	0.03	-	<0.002	0.04	0.007
Bacteriology	Fecal Coliform (#/100 mls)	1	18	4	-	200	-	-	-

* All concentrations are reported in mg/1 unless otherwise indicated.
Nitrate - Avoid prolific week growth
Nitrite - 0.06

(1) Guideline changes with hardness
(2) Guideline changes with temperature and pH
(3) Guideline changes with pH

▼ Upper permissable temperature for salmon and trout (Alabaster and Lloyd 1982)
▲ No harmful effects to fish (EIFAC 1965, US EPA 1973)

APPENDIX B

Date	Cond. (FIELD MEASUREMENT VALUES)	Temp. (C) (FIELD MEASUREMENT VALUES)	pH (FIELD MEASUREMENT VALUES)	Na mg/l	K mg/l	Ca mg/l	Mg mg/l	Hard. mg/l	Alk mg/l	Carb. mg/l	Bicarb. mg/l
Nov 1/78				4.9	1	51	2.9	139	138		
Jun 16/83				4.6	1.1	41	2.2	111	97		
Aug 21/84	200	10	6.8								
Aug 28/85	182	9									
Aug 27/86	150	11.5	7.3	4	0.9	36	2.2	99	86.3		
Nov 26/86	160	3	6.6	4.6	0.8	37	2.3	101	76		
Sept 1/87	128	11	6.6	4.2	0.57	36	1.9	97.6	76		
Dec 15/87				3.9	0.5	33	2	90.6	76		
Aug 16/88	155	13				40	2.2	108.9	82		
Jun 19/89	198	10				48	2.8	131.4	91		
Aug 16/90	180		7.6	4.9	0.6	37	2.4	102	81		
Jun 24/91				5.1	0.7	37.6	2.3	103	85	0.63	84.3
Aug 1/91	220	9.4	8.7	5.1	2.1	39.6	2.4	109	82	0.61	81.4
Sept 10/91				5	0.7	41.6	2.4	114	89	0.66	88.3
Sept 25/92				4.2	0.5	37.4	2.5	104	77	0.3	76.7
Sept 21/93				7.1	1	65.5	4	180	128	0.6	127

Date	SO4 mg/l	Cl mg/l	F mg/l	Si mg/l	Ortho P mg/l	NO2+NO3 mg/l	NH4 (N) mg/l	As mg/l	Fe mg/l	Mn mg/l	Pb-(HGA mg/l
Nov 1/78	8.2	10	0.1	7	0.04	<.1	<.1	<.005	3.4	1.1	0.02
Jun 16/83	10	9.5	<.1	6.7	<.2	0.2	1	<.002	2	0.8	<.002
Aug 21/84											
Aug 28/85											
Aug 27/86	12	9.5	0.1	6.2	<.01	0.05	0.14	<.005	2.2	0.64	0.017
Nov 26/86	14	10.8				<.05	<.05		1.2	0.74	
Sept 1/87	13	9	<0.1	6.1	0.07	0.05	0.05	<.005	0.63	0.54	0.008
Dec 15/87	12	8.4	0.1	6.9	<.01	<.05	0.06	<.005	1.4	0.61	0.004
Aug 16/88		21				<.05	0.1				
Jun 19/89		38				<.05	0.12				
Aug 16/90	10	18	<0.1	6.7	<.01	<.05	0.15	<.005	0.67	0.45	<.002
Jun 24/91	9	22	<0.1	6.6	<0.01	<0.05	0.18	<0.005	0.96	0.49	0.002
Aug 1/91	11	23.6	<0.1	6.9	<0.01	<0.05	0.05	0.002	1.02	0.49	0.0013
Sept 10/91	10	23.8	<0.1	6.9	<0.01	<0.05	0.29	<0.005	0.28	0.61	<0.002
Sept 25/92	11	17.8	NR	6.8	<0.01	<0.05	0.13	<0.002	0.9	0.6	0.003
Sept 21/93	10	45.5	<0.01	7.2	<0.01	<0.05	0.16	0.004	1.71	0.87	0.005

Date	Cu mg/l	Zn mg/l	TDS mg/l	SS mg/l	Color TCU	Turb. NTU	Cond. mg/l	pH	TOC mg/l	Humic mg/l	Chloro A
Nov 1/78	0.02	0.06	171	15.5	35	23	300	7.9			
Jun 16/83	0.04	0.04	144	195		82	260	7.4			
Aug 21/84											
Aug 28/85											
Aug 27/86	0.03	0.08	125	66.8	12.5	45	214	7.7			
Nov 26/86			114					7.5			
Sept 1/87	<.01	0.01	116	26	10	5	194	7.6			
Dec 15/87	<.01	0.02		14	3	9	191	7.7			
Aug 16/88			136					7.5			
Jun 19/89			218	12.5				8			
Aug 16/90	<.01	<.01		2.5	18	4.62	237	7.9			
Jun 24/91	<0.01	<0.01		12	10	5	250	7.9	0.7	1.5	
Aug 1/91	0.01	<0.01		NR	6	2.85	276	7.9	4.2	NR	
Sept 10/91	<0.01	0.03		21	<3.0	1.8	272	7.9	1	NR	
Sept 25/92	0.02	0.02		19	<0.3	4.6	241	7.6	<0.5	1	NR
Sept 21/93	<0.01	0.01		11.5	<3.0	11.7	448	7.7	0.8	0.8	NR

Date	Al mg/l	B mg/l	Ba mg/l	Be mg/l	Cr mg/l	Co mg/l	Ni mg/l	Sb mg/l	Se mg/l	Sn mg/l	Va mg/l
Nov 1/78											
Jun 16/83											
Aug 21/84											
Aug 28/85											
Aug 27/86	1.5	0.02	0.166	<.005	0.01	<.01	<.02	<.05	<.1	<.03	<.01
Nov 26/86			0.14								
Sept 1/87	0.07	<.02	0.149	<.005	<.01	<.01	<.02	<.05	<.01	<.03	<.01
Dec 15/87											
Aug 16/88											
Jun 19/89											
Aug 16/90	<.05	<.02	0.170	<.005	<.01	<.01	<.02	<.05	<.1	<.03	<.01
Jun 24/91	<0.1	<0.1	0.162	<0.005	<0.02	<0.05	<0.02	<0.05	<0.1	<0.05	<0.01
Aug 1/91	0.021	0.01	0.19	<0.005	<0.002	<0.001	0.002	<.002	<.002	<.002	<.002
Sept 10/91	<0.1	<0.1	0.171	<0.005	<0.02	<0.05	<0.02	<0.05	<0.1	<0.05	<0.01
Sept 25/92	0.04	0.01	0.2	<0.005	<0.002	<0.001	0.002	<0.002	<0.002	<0.002	<0.002
Sept 21/93	<0.10	<0.10	0.27	<0.005	<0.02	<0.05	<0.02	<0.05	<0.1	<0.05	<0.01

Date	Cd (HGA mg/l	Tot.P (UV) . mg/l	Tot. N mg/l	Pheophyt mg/l	Cat sum	Anion sum	% Diff.	Std. Dev.	Ion sum	Th. Cond.	Sat pH
Nov 1/78											
Jun 16/83											
Aug 21/84											
Aug 28/85											
Aug 27/86	<.01										
Nov 26/86											
Sept 1/87	<.01										
Dec 15/87											
Aug 16/88											
Jun 19/89											
Aug 16/90	<.5										
Jun 24/91	<0.002	0.005	0.19	NR	2.32	2.51	3.93	0.15	135	255	8.3
Aug 1/91	<.0005	NR	NR	NR	2.45	2.53	1.64	NR	140	267	8.32
Sept 10/91	<0.002	NR	N/R	N/A	2.53	2.66	2.5	0.15	144	275	8.3
Sept 25/92	<0.005	NR	NR	NR	2.3	2.3	0.1	NR	127	240	8.4
Sept 21/93	<0.0020	0.039	0.23		3.94	4.05	1.35	0.17	217	428	7.9

Date	Lang.@5	Lang @20	Lang @50
Nov 1/78			
Jun 16/83			
Aug 21/84			
Aug 28/85			
Aug 27/86			
Nov 26/86			
Sept 1/87			
Dec 15/87			
Aug 16/88			
Jun 19/89			
Aug 16/90			
Jun 24/91	-0.4	-0.1	0.5
Aug 1/91	-0.42	NR	NR
Sept 10/91	-0.4	0	0.6
Sept 25/92	-0.8	NR	NR
Sept 21/93	-0.2	0.2	0.7

KENLOCH LFS MONITORING STATION S1- LOCH BAN SHORELINE

Date	Cond. mg/l	Temp (C)	pH	DO mg/l	Na mg/L	K mg/L	Ca mg/L	Mg mg/L	Hard. mg/L	Alk. mg/L	Carb. mg/L	Bicarb. mg/L	SO4 mg/L
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	FIELD	MEASUREMENT		VALUE									
28 Aug 84	140.0	25.0	6.6	11.5	8.3	0.8	16.0	1.3	45.3	22.0			21.0
21 Aug 85	130.0	25.5		6.7									
27 Aug 86	115.0	21.0	7.8	9.6	12.0	0.5	11.0	1.3	32.7	17.2			14.0
26 Nov 86	95.0	3.0		7.9	12.0	1.5	13.0	2.3	42.0	<1			46.0
01 Sep 87	112.0	18.0	6.9	8.2	13.0	0.5	11.0	1.4	33.1	6.0			16.0
15 Dec 87					11.0	0.6	11.0	1.4	33.2	6.1			25.0
16 Aug 88	100.0	18.0		8.7			9.9	1.2	29.7	16.0			
19 Jun 89	128.0	27.0					13.0	1.4	38.2	25.0			
16 Aug 90	155.0	30.0	7.6	8.0	8.4	0.6	19.0	1.7	54.4	<1			8.4
24 Jun 91	1.0				11.6	0.5	12.5	1.5	37.5	28.0	0.1	27.9	13.0
1 Aug 91	140.0	22.5	9.0		12.4	1.5	9.6	1.3	29.3	16.0	0.1	15.9	14.0
10 Sep 91					11.7	0.4	12.3	1.5	36.9	26.0	0.1	25.9	14.0
25 Sep 92					12.9	0.4	11.0	11.0	34.1	19.0	0.0	18.9	15.0
21 Sep 93					11.5	0.5	10.7	1.3	32.0	19.0	0.0	18.9	14.0

Date	Cl mg/L	F mg/L	Si mg/L	Ortho P mg/L	N03+N02 mg/L	NH4 mg/L	As ug/L	Fe ug/L	Mn ug/L	Pb (HGA) ug/L	Cu ug/L	Zn ug/L	TDS mg/l
----	----	----	----	----	----	----	------	------	------	------	------	------	--------
28 Aug 84	14.0	1.1	3.8	<.02	<.05	<.05	<50	386.0	26.0	<2	<10	10.0	130.0
21 Aug 85													
27 Aug 86	20.4	<.1	1.4	<.01	<.05	<.05	<5	340.0	50.0	3.0	<10	<10	77.0
26 Nov 86	21.0				<.05	<.05		50.0	20.0				121.0
01 Sep 87	22.0	<.1	1.7	0.01	<.05	<.05	<5	20.0	<10	<2	<10	10.0	85.5
15 Dec 87	17.0	1.2	6.4	<.01	<.05	<.05	<5	630.0	50.0	<2	<10	50.0	
16 Aug 88	17.0				<.05	<.05							66.0
19 Jun 89	16.0				<.05	<.05							103.0
16 Aug 90	14.0	0.6	1.7	0.01	16.00	<.05	<5	200.0	10.0	3.0	<10	<10	
24 Jun 91	19.0	<0.1	0.6	<0.01	<0.05	0.06	<5	30.0	10.0	<2	<10	<10	
1 Aug 91	20.0	0.1	0.8	0.04	<0.05	<0.05	<2	40.0	<10	<1	2.0	<10	
10 Sep 91	19.4	<0.1	1.0	<0.01	<0.05	0.14	<5	<20	10.0	<2	<10	20.0	
25 Sep 92	19.5	NR	1.4	0.01	<0.05	<0.05	<2	10.0	4.0	<1	3.0	<2	
21 Sep 93	19.1	<0.01	1.3	<0.01	<0.05	<0.05	<2	<20	<10	2.0	<10	<10	

Date	S.S. mg/L	Color T.C.U.	Turb. J.T.U.	Cond. umho/cm	pH units	TOC mg/L	Humics mg/l	Chloro A ug/l	Al ug/lL	B ug/lL	Ba ug/lL	Be ug/lL	Cd ug/lL	Cr ug/lL
----	----	------	------	-------	-----	-------	-----------	-----	-----	-----	-----	-----	-----	-----
28 Aug 84	13.8	70.0	1.3						160.0	<20	240.0	<5	<2	<10
21 Aug 85														
27 Aug 86	22.3	10.0	3.8	139.0	7.7				100.0	<20	83.0	<5	<10	<10
26 Nov 86					(4.3)						250.0			
01 Sep 87	2.5	10.0	1.1	137.0	7.5				<50	<20	27.0	<5	<10	<10
15 Dec 87	3.0	31.0	1.3	124.4	6.2									
16 Aug 88					6.9									
19 Jun 89	9.3				7.1									
16 Aug 90	9.3	32.0	1.1	246.0	(3.7)				<50	<20	323.0	<5	<2	<10
24 Jun 91	1.8	11.0	0.4	150.0	7.4	2.1	3.7		<100	<100	120.0	<5	<2	<20
1 Aug 91	3.5	9.0	0.8	140.0	7.5	2.0	2.1		10.0	10.0	42.0	<5	<0.5	<2
10 Sep 91	5.5	6.0	0.5	154.0	7.6	2.4	NR		<100	<100	100.0	<5	<2	<20
25 Sep 92	3.3	<0.3	0.8	140.0	7.4	2.1	2.7		20.0	10.0	50.0	<5	<.5	<2
21 Sep 93	0.5	6.0	0.4	133.0	7.4	2.6	4.0	0.6	<100	<100	30.0	<5	<2	<20

Date	Co ug/lL	Ni ug/lL	Sb ug/lL	Se ug/lL	Sn ug/lL	Va ug/lL	Tot. P. ug/L	Tot. N. ug/L
----	-----	-----	-----	-----	-----	-----	-----	-----
28 Aug 84	<10	<20	<50	<100	<30	<10		
21 Aug 85								
27 Aug 86	<10	<20	<50	<100	<30	<10		
26 Nov 86								
01 Sep 87	<10	<20	<50	<100	<30	<10		
15 Dec 87								
16 Aug 88								
19 Jun 89								
16 Aug 90	<10	<20	<50	<100	<30	<10		
24 Jun 91	<50	<20	<50	<100	<50	<10	<5	120.0
1 Aug 91	<1	<2	<2	<2	<2	<2	<100	NR
10 Sep 91	<50	<20	<50	<100	<50	<10	NR	NR
25 Sep 92	<1	<2	<2	<2	<2	<2	NR	NR
21 Sep 93	<50	<20	<50	<100	<50	<10	31.0	130.0

APPENDIX C

LAKE AINSLIE WATER QUALITY DATA

SAMPLING DATE: May 27,1991

LOCATION	Depth	Temp. (C)	DO	% Air Sat	Secchi (m)	pH	Alk	Color	Turb.	SS	Total P	Total N	Chloro A	Pheophyt.	Humic Acid
Station 1	0	11.5	10.8	98.0	3.0(b)	7.2	14.0	6.0	0.6	2.3	<0.005	0.070	0.5	0.3	1.8
	1	11.5	11.0	100.0											
	2	11.4	11.3	102.0											
	3	11.4	11.9	108.0											
Station 2	0	11.7	11.3	103.0	3.5	7.2	14.0	8.0	1.0	3.0	<0.005	0.080	0.9	<0.1	1.5
	2	11.2	11.7	105.0											
	4	11.0	12.2	110.0											
	6	11.0	12.6	113.0											
	8	10.9	11.6	104.0	------	7.2	14.0	7.0	1.1	3.5	0.007	0.070	1.4	0.4	1.5
Station 3	0														
	2														
	4														
	6														
	8														
	10														
	12														
	14														
	16														
	18														
Station 4	0														
	2														
	4														
	6														
	8														
Station 5	0														
	2														
	4														
	6														
Station 6	0														
	2														
	4														
	6														

LAKE AINSLIE WATER QUALITY DATA

SAMPLING DATE: May 27,1991

LOCATION	Depth	Na	K	Ca	Mg	HARD.	Carb	Bicarb.	SO4	Cl	F	Si	Ortho P	NO2+NO3	NH4 (N)	Cond.	TOC
Station 1	0	10.5	0.5	7.8	1.2	24.4	0.02	14.00	12.0	17.0	<0.1	0.5	<0.01	<0.05	<0.05	117.0	1.7
	1																
	2																
	3																
Station 2	0	10.3	0.5	7.9	1.2	24.6	0.02	14.00	12.0	17.0	<0.1	1.1	<0.01	<0.05	<0.05	116.0	1.5
	2																
	4																
	6																
	8	10.3	0.5	7.9	1.2	24.6	0.02	14.00	12.0	17.0	<0.1	1.1	<0.01	<0.05	<0.05	118.0	1.3
Station 3	0																
	2																
	4																
	6																
	8																
	10																
	12																
	14																
	16																
	18																
Station 4	0																
	2																
	4																
	6																
	8																
Station 5	0																
	2																
	4																
	6																
Station 6	0																
	2																
	4																
	6																

LAKE AINSLIE WATER QUALITY DATA

SAMPLING DATE: May 27,1991

LOCATION	Depth	As	Fe	Mn	Pb-HGA	Cu	Zn	Al	B	Ba	Be	Cd - HGA	Cr	Co	Ni	Sb	Se	Sn	Va
Station 1	0	<0.005	0.030	<0.01	<0.002	<0.01	<0.01	<0.1	<0.1	0.023	<0.005	<0.002	<0.02	<0.05	<0.02	<0.05	<0.1	<0.05	<0.01
	1																		
	2																		
	3																		
Station 2	0	<0.005	0.040	<0.01	<0.002	<0.01	<0.01	<0.1	<0.1	0.024	<0.005	<0.002	<0.02	<0.05	<0.02	<0.05	<0.1	<0.05	<0.01
	2																		
	4																		
	6																		
	8	<0.005	0.030	<0.01	<0.002	<0.01	<0.01	<0.1	<0.1	0.023	<0.005	<0.002	<0.02	<0.05	<0.02	<0.05	<0.1	<0.05	<0.01
Station 3	0																		
	2																		
	4																		
	6																		
	8																		
	10																		
	12																		
	14																		
	16																		
	18																		
Station 4	0																		
	2																		
	4																		
	6																		
	8																		
Station 5	0																		
	2																		
	4																		
	6																		
Station 6	0																		
	2																		
	4																		
	6																		

LAKE AINSLIE WATER QUALITY DATA

SAMPLING DATE: May 27,1991

LOCATION	Depth	Cat sum	Anion sum	% Diff	Std. Dev.	Ion sum	Th. Cond.	Sat pH	Lang.@5	Lang @20	Lang @50
Station 1	0	0.960	1.010	2.610	0.120	57.9	115.0	9.8	-2.6	-2.2	-1.6
	1										
	2										
	3										
Station 2	0	0.950	1.010	2.810	0.120	58.4	115.0	9.8	-2.6	-2.2	-1.6
	2										
	4										
	6										
	8	0.950	1.010	2.810	0.120	58.4	115.0	9.8	-2.6	-2.2	-1.6
Station 3	0										
	2										
	4										
	6										
	8										
	10										
	12										
	14										
	16										
	18										
Station 4	0										
	2										
	4										
	6										
	8										
Station 5	0										
	2										
	4										
	6										
Station 6	0										
	2										
	4										
	6										

LAKE AINSLIE WATER QUALITY DATA

SAMPLING DATE: June 10,1991

LOCATION	Depth	Temp. (C)	DO	% Air Sat	Secchi (m)	pH	Alk	Color	Turb.	SS	Total P	Total N	Chloro A	Pheophyt.	Humic Acid
Station 1	0	15.2			2.8	7.2	10.0	7.0	0.9	1.2	<0.005	0.100	0.4	0.2	3.0
	1														
	2														
	3														
Station 2	0					7.7	13.0	9.0		2.1	<0.005	0.150	1.0	0.3	
	2														
	4														
	6														
	8														
Station 3	0	16.5	10.3	105.0	3.3	7.6	14.0	5.0		0.8	<0.005	0.120	0.9	0.2	
	2	15.9	10.3	104.0											
	4	15.7	10.4	104.0											
	6	15.5	10.4	103.0											
	8	15.3	10.3	102.0											
	10	15.0	10.0	98.0											
	12	14.4	10.0	97.0											
	14	14.5	8.2	80.0											
	16														
	17.5				------	7.6	14.0	5.0		2.0	<0.005	0.100	1.5	0.4	
Station 4	0					7.5	13.0	8.0		0.4	<0.005	0.110	0.8	0.2	
	2														
	4														
	6														
	8														
Station 5	0														
	2														
	4														
	6														
Station 6	0														
	2														
	4														
	6														

LAKE AINSLIE WATER QUALITY DATA

SAMPLING DATE: June 10,1991

LOCATION	Depth	Na	K	Ca	Mg	HARD.	Carb.	Bicarb.	SO4	Cl	F	Si	Ortho P	NO2+NO3	NH4 (N)	Cond.	TOC
Station 1	0	11.6	0.5	8.8	1.2	26.9	0.02	9.98	12.0	19.0	0.2	<0.5	<0.01	<0.05	<0.05	120.0	1.2
	1																
	2																
	3																
Station 2	0			8.5	1.1	25.7	0.06	12.90					<0.01	0.05	<0.05	112.0	
	2																
	4																
	6																
	8																
Station 3	0			8.5	1.1	25.7	0.05	13.90					0.01	<0.05	<0.05	110.0	
	2																
	4																
	6																
	8																
	10																
	12																
	14																
	16																
	17.5			8.5	1.1	25.7	0.05	13.90					<0.01	<0.05	<0.05	110.0	
Station 4	0			8.2	1.1	24.9	0.04	12.90					0.16	<0.05	0.11	112.0	
	2																
	4																
	6																
	8																
Station 5	0																
	2																
	4																
	6																
Station 6	0																
	2																
	4																
	6																

LAKE AINSLIE WATER QUALITY DATA

SAMPLING DATE: June 10,1991

LOCATION	Depth	As	Fe	Mn	Pb-HGA	Cu	Zn	Al	B	Ba	Be	Cd - HGA	Cr	Co	Ni	Sb	Se	Sn	Va
Station 1	0	<0.005	<0.02	<0.01	<0.002	<0.01	<0.01	<0.1	<0.1	0.022	<0.005	<0.002	<0.02	<0.05	<0.02	<0.05	<0.1	<0.05	<0.01
	1																		
	2																		
	3																		
Station 2	0																		
	2																		
	4																		
	6																		
	8																		
Station 3	0																		
	2																		
	4																		
	6																		
	8																		
	10																		
	12																		
	14																		
	16																		
	17.5																		
Station 4	0																		
	2																		
	4																		
	6																		
	8																		
Station 5	0																		
	2																		
	4																		
	6																		
Station 6	0																		
	2																		
	4																		
	6																		

LAKE AINSLIE WATER QUALITY DATA

SAMPLING DATE: June 10,1991

LOCATION	Depth	Cat sum	Anion sum	% Diff.	Std. Dev.	Ion sum	Th. Cond.	Sat pH	Lang.@5	Lang @20	Lang @50
Station 1	0	1.060	1.000	2.900	0.120	59.1	121.0	9.9	-2.7	-2.3	-1.7
	1										
	2										
	3										
Station 2	0										
	2										
	4										
	6										
	8										
Station 3	0										
	2										
	4										
	6										
	8										
	10										
	12										
	14										
	16										
	17.5										
Station 4	0										
	2										
	4										
	6										
	8										
Station 5	0										
	2										
	4										
	6										
Station 6	0										
	2										
	4										
	6										

LAKE AINSLIE WATER QUALITY DATA

SAMPLING DATE: June 17,1991

LOCATION	Depth	Temp (C)	DO	% Air Sat	Secchi (m)	pH	Alk	Color	Turb.	SS	Total P	Total N	Chloro A	Pheophyt.	Humic Acid
Station 1	0	13.5	13.5	128.0	2.7(b)										
	1	13.5	13.8	131.0											
	2	13.5	14.3	136.0											
	3	13.5	14.5	138.0											
Station 2	0	14.0	10.5	101.0	2.7										
	2	13.7	11.9	115.0											
	4	13.2	11.2	106.0											
	6	13.2	10.2	96.0											
	8	13.2	8.8	83.0											
Station 3	0														
	2														
	4														
	6														
	8														
	10														
	12														
	14														
	16														
	17.5														
Station 4	0														
	2														
	4														
	6														
	8														
Station 5	0														
	2														
	4														
	6														
Station 6	0														
	2														
	4														
	6														

LAKE AINSLIE WATER QUALITY DATA

SAMPLING DATE: June 17,1991

LOCATION	Depth	Na	K	Ca	Mg	HARD.	Carb.	Bicarb.	SO4	Cl	F	Si	Ortho P	NO2+NO3	NH4 (N)	Cond.	TOC
Station 1	0																
	1																
	2																
	3																
Station 2	0																
	2																
	4																
	6																
	8																
Station 3	0																
	2																
	4																
	6																
	8																
	10																
	12																
	14																
	16																
	17.5																
Station 4	0																
	2																
	4																
	6																
	8																
Station 5	0																
	2																
	4																
	6																
Station 6	0																
	2																
	4																
	6																

LAKE AINSLIE WATER QUALITY DATA

SAMPLING DATE: June 17,1991

LOCATION	Depth	Temp (C)	DO	% Air Sat	Secchi (m)	pH	Alk	Color	Turb.	SS	Total P	Total N	Chloro A	Pheophyt.	Humic Acid
Station 1	0	13.5	13.5	128.0	2.7(b)										
	1	13.5	13.8	131.0											
	2	13.5	14.3	136.0											
	3	13.5	14.5	138.0											
Station 2	0	14.0	10.5	101.0	2.7										
	2	13.7	11.9	115.0											
	4	13.2	11.2	106.0											
	6	13.2	10.2	96.0											
	8	13.2	8.8	83.0											
Station 3	0														
	2														
	4														
	6														
	8														
	10														
	12														
	14														
	16														
	17.5														
Station 4	0														
	2														
	4														
	6														
	8														
Station 5	0														
	2														
	4														
	6														
Station 6	0														
	2														
	4														
	6														

LAKE AINSLIE WATER QUALITY DATA

SAMPLING DATE: June 17,1991

LOCATION	Depth	Na	K	Ca	Mg	HARD.	Carb.	Bicarb.	SO4	Cl	F	Si	Ortho P	NO2+NO3	NH4 (N)	Cond.	TOC
Station 1	0																
	1																
	2																
	3																
Station 2	0																
	2																
	4																
	6																
	8																
Station 3	0																
	2																
	4																
	6																
	8																
	10																
	12																
	14																
	16																
	17.5																
Station 4	0																
	2																
	4																
	6																
	8																
Station 5	0																
	2																
	4																
	6																
Station 6	0																
	2																
	4																
	6																

LAKE AINSLIE WATER QUALITY DATA

SAMPLING DATE: June 17,1991

LOCATION	Depth	As	Fe	Mn	Pb-HGA	Cu	Zn	Al	B	Ba	Be	Cd - HGA	Cr	Co	Ni	Sb	Se	Sn	Va
Station 1	0																		
	1																		
	2																		
	3																		
Station 2	0																		
	2																		
	4																		
	6																		
	8																		
Station 3	0																		
	2																		
	4																		
	6																		
	8																		
	10																		
	12																		
	14																		
	16																		
	17.5																		
Station 4	0																		
	2																		
	4																		
	6																		
	8																		
Station 5	0																		
	2																		
	4																		
	6																		
Station 6	0																		
	2																		
	4																		
	6																		

ATER QUALITY DATA

DATE: June 17,1991

Depth	Cat sum	Anion sum	% Diff.	Std. Dev.	Ion sum	Th. Cond.	Sat pH	Lang.@5	Lang @20	Lang @50
0										
1										
2										
3										
0										
2										
4										
6										
8										
0										
2										
4										
6										
8										
10										
12										
14										
16										
17.5										
0										
2										
4										
6										
8										
0										
2										
4										
6										
0										
2										
4										
6										

LAKE AINSLIE WATER QUALITY DATA

SAMPLING DATE: June 24,1991

LOCATION	Depth	Temp. (C)	DO	% Air Sat	Secchi (m)	pH	Alk	Color	Turb.	SS	Total P	Total N	Chloro A	Pheophyt	Humic Acid
Station 1	0	18.6	NR		2.8(b)	7.2	14.0	7.0	0.7	1.1	<0.005	0.150	0.6	<0.100	2.3
	1	17.8													
	2	17.4													
	3	17.4													
Station 2	0	19.5	9.6	103.0	3.2	7.2	14.0	8.0	1.1	2.0	<0.005	0.110	1.6	<0.100	2.3
	2	18.8	9.4	101.0											
	4	18.0	9.6	101.0											
	6	17.4	9.0	94.0											
	8	17.2	8.5	88.0		7.1	14.0			4.4	0.005	0.130	1.6	0.2	
Station 3	0	19.0	8.9	96.0	3.8	7.0	15.0			1.0	<0.005	0.090	1.9	<0.100	
	2	19.0	8.8	95.0											
	4	18.8	8.8	95.0											
	6	18.8	8.8	95.0											
	8	18.5	8.6	91.0											
	10	17.5	8.6	90.0											
	12	15.0	8.7	85.0											
	14	14.3	8.8	85.0											
	16	14.2	8.6	83.0											
	17.5	14.2	8.6	83.0		7.1	14.0			2.9	<0.005	0.100	0.7	0.3	
Station 4	0	19.0	9.2	99.0	4.3	7.1	14.0			0.7	<0.005	0.100	0.8	<0.100	
	2	18.2	9.4	99.0											
	4	17.9	9.2	97.0											
	6	17.6	9.0	94.0											
	8	17.5	8.4	88.0											
Station 5	0														
	2														
	4														
	6														
Station 6	0														
	2														
	4														
	6														
LB-Sh-0m	0					7.4	28.0	11.0	0.4	1.8	<0.005	0.120			3.7
LFS #5						7.9	85.0	10.0	5.0	12.0	0.005	0.190	N/A		1.5
LA-WLC-0m	0					7.1	14.0			0.4	<0.005	0.120	0.5	<0.100	

LAKE AINSLIE WATER QUALITY DATA

SAMPLING DATE: June 24,1991

LOCATION	Depth	Na	K	Ca	Mg	HARD.	Carb.	Bicarb.	SO4	Cl	F	Si	Ortho P	NO2+NO3	NH4 (N)	Cond.	TOC
Station 1	0	12.2	0.5	8.2	1.3	25.8	0.02	14.00	12.0	18.9	<0.1	<0.5	<0.01	<0.05	<0.05	120.0	1.7
	1																
	2																
	3																
Station 2	0	11.4	0.5	7.7	1.2	24.1	0.02	14.00	12.0	17.7	<0.1	<0.5	<0.01	<0.05	0.120	120.0	1.7
	2																
	4																
	6																
	8												<0.01	<0.05	<0.05	117.0	
Station 3	0												<0.01	<0.05	<0.05	115.0	
	2																
	4																
	6																
	8																
	10																
	12																
	14																
	16																
	17.5												<0.01	<0.05	<0.05	116.0	
Station 4	0												<0.01	<0.05	0.050	117.0	
	2																
	4																
	6																
	8																
Station 5	0																
	2																
	4																
	6																
Station 6	0																
	2																
	4																
	6																
LB-Sh-0m	0	11.6	0.5	12.5	1.5	37.5	0.07	27.90	13.0	19.0	<0.1	0.6	<0.01	<0.05	0.060	150.0	2.1
LFS #5		5.1	0.7	37.6	2.3	103.0	0.63	84.30	9.0	22.0	<0.1	6.6	<0.01	<0.05	0.180	250.0	0.7
LA-WLC-0m	0												<0.01	<0.05	0.050	118.0	

LAKE AINSLIE WATER QUALITY DATA

SAMPLING DATE: June 24,1991

LOCATION	Depth	As	Fe	Mn	Pb-HGA	Cu	Zn	Al	B	Ba	Be	Cd - HGA	Cr	Co	Ni	Sb	Se	Sn	Va
Station 1	0	<0.005	0.040	<0.01	0.003	<0.01	<0.01	<0.1	<0.1	0.019	<0.005	<0.002	<0.02	<0.05	<0.02	<0.05	<0.1	<0.05	<0.01
	1																		
	2																		
	3																		
Station 2	0	<0.005	0.050	<0.01	<0.002	<0.01	<0.01	<0.1	<0.1	0.019	<0.005	<0.002	<0.02	<0.05	<0.02	<0.05	<0.1	<0.05	<0.01
	2																		
	4																		
	6																		
	8																		
Station 3	0																		
	2																		
	4																		
	6																		
	8																		
	10																		
	12																		
	14																		
	16																		
	17.5																		
Station 4	0																		
	2																		
	4																		
	6																		
	8																		
Station 5	0																		
	2																		
	4																		
	6																		
Station 6	0																		
	2																		
	4																		
	6																		
LB-Sh-0m	0	<0.005	0.030	0.010	<0.002	<0.01	<0.01	<0.1	<0.1	0.120	<0.005	<0.002	<0.02	<0.05	<0.02	<0.05	<0.1	<0.05	<0.01
LFS #5		<0.005	0.960	0.490	0.002	<0.01	<0.01	<0.1	<0.1	0.162	<0.005	<0.002	<0.02	<0.05	<0.02	<0.05	<0.1	<0.05	<0.01
LA-WLC-0m	0																		

LAKE AINSLIE WATER QUALITY DATA

SAMPLING DATE: June 24,1991

LOCATION	Depth	Cat sum	Anion sum	% Diff.	Std. Dev	Ion sum	Th. Cond.	Sat pH	Lang.@5	Lang @20	Lang @50
Station 1	0	1.060	1.060	0.130	0.120	61.5	124.0	9.7	-2.5	-2.2	-1.6
	1										
	2										
	3										
Station 2	0	1.000	1.030	1.400	0.120	59.1	119.0	9.8	-2.6	-2.2	-1.6
	2										
	4										
	6										
	8										
Station 3	0										
	2										
	4										
	6										
	8										
	10										
	12										
	14										
	16										
	17.5										
Station 4	0										
	2										
	4										
	6										
	8										
Station 5	0										
	2										
	4										
	6										
Station 6	0										
	2										
	4										
	6										
LB-Sh-0m	0	1.270	1.370	3.690	0.130	75.6	149.0	9.3	-1.9	-1.5	-0.9
LFS #5		2.320	2.510	3.930	0.150	135.0	255.0	8.3	-0.4	-0.1	0.5
LA-WLC-0m	0										

LAKE AINSLIE WATER QUALITY DATA

SAMPLING DATE: July8,1991

LOCATION	Depth	Temp (C)	DO	% Air Sat	Secchi (m)	pH	Alk	Color	Turb.	SS	Total P	Total N	Chloro A	Pheophyt	Humic Acid
Station 1	0	19.3			3.0(B)	7.3	14.0	<3.0	0.5	1.3	<0.005	0.140	1.0	0.3	3.7
	1	19.3													
	2	19.3													
	3	19.3													
Station 2	0					7.4	14.0			1.0	<0.005	0.120	1.3	<0.100	
	2														
	4														
	6														
	8				NO SAMPLE TAKEN										
Station 3	0	19.5	9.2	99.0	3.5	7.7	15.0			2.5	<0.005	0.130	1.4	0.3	
	2	19.5	9.4	102.0											
	4	19.1	9.4	101.0											
	6	17.9	8.8	93.0											
	8	17.5	8.8	92.0											
	10	17.5	8.7	91.0											
	12	17.5	8.7	91.0											
	14	17.1	8.6	89.0											
	16	16.9	8.3	86.0											
	17.5	16.7	7.5	77.0		7.5	15.0			3.5	<0.005	0.130	1.6	0.7	
Station 4	0														
	2														
	4														
	6														
	8														
Station 5	0														
	2														
	4														
	6														
Station 6	0														
	2														
	4														
	6														
LA-WLC-0m						7.5	15.0			4.5	<0.005	0.130	1.0	0.8	

LAKE AINSLIE WATER QUALITY DATA

SAMPLING DATE:July8,1991

LOCATION	Depth	Na	K	Ca	Mg	HARD.	Carb.	Bicarb.	SO4	Cl	F	Si	Ortho P	NO2+NO3	NH4 (N)	Cond.	TOC
Station 1	0	11.4	0.5	8.4	1.3	26.3	0.03	14.00	13.0	19.0	<0.1	<0.5	<0.01	<0.05	<0.05	120.0	1.7
	1																
	2																
	3																
Station 2	0												<0.01	<0.05	<0.05	113.0	
	2																
	4																
	6																
	8																
Station 3	0												0.010	<0.05	<0.05	113.0	
	2																
	4																
	6																
	8																
	10																
	12																
	14																
	16																
	17.5												<0.01	<0.05	<0.05	113.0	
Station 4	0																
	2																
	4																
	6																
	8																
Station 5	0																
	2																
	4																
	6																
Station 6	0																
	2																
	4																
	6																
LA-WLC-0m													<0.01	<0.05	<0.05	112.0	

LAKE AINSLIE WATER QUALITY DATA

SAMPLING DATE:July8,1991

LOCATION	Depth	As	Fe	Mn	Pb-HGA	Cu	Zn	Al	B	Ba	Be	Cd - HGA	Cr	Co	Ni	Sb	Se	Sn	Va
Station 1	0	<0.005	0.020	<0.01	<0.002	<0.01	<0.01	0.110	<0.1	0.023	<0.005	<0.002	<0.02	<0.05	<0.02	<0.05	<0.1	<0.05	<0.01
	1																		
	2																		
	3																		
Station 2	0																		
	2																		
	4																		
	6																		
	8																		
Station 3	0																		
	2																		
	4																		
	6																		
	8																		
	10																		
	12																		
	14																		
	16																		
	17.5																		
Station 4	0																		
	2																		
	4																		
	6																		
	8																		
Station 5	0																		
	2																		
	4																		
	6																		
Station 6	0																		
	2																		
	4																		
	6																		

LA-WLC-0m

LAKE AINSLIE WATER QUALITY DATA

SAMPLING DATE:July8,1991

LOCATION	Depth	Cat sum	Anion sum	% Diff.	Std. Dev.	Ion sum	Th. Cond.	Sat pH	Lang.@5	Lang @20	Lang @50
Station 1	0	1.030	1.090	2.420	0.120	61.0	125.0	9.7	-2.4	-2.1	-1.5
	1										
	2										
	3										
Station 2	0										
	2										
	4										
	6										
	8										
Station 3	0										
	2										
	4										
	6										
	8										
	10										
	12										
	14										
	16										
	17.5										
Station 4	0										
	2										
	4										
	6										
	8										
Station 5	0										
	2										
	4										
	6										
Station 6	0										
	2										
	4										
	6										

LA-WLC-0m

LAKE AINSLIE WATER QUALITY DATA

SAMPLING DATE July 22,1991

LOCATION	Depth	Temp (C)	DO	% Air Sat	Secchi (m)	pH	Alk	Color	Turb	SS	Total P	Total N	Chloro A	Pheophyt	Humic Acid
Station 1	0	23.2	8.0	92.0	3.0	7.2	15.0	6.0	0.3	0.9	<0.005	0.140	1.0	0.7	2.0
	1	23.2	7.8	90.0											
	2	23.2	7.9	91.0											
	3	23.2	7.9	91.0											
Station 2	0	22.2	8.6	98.0	3.7	7.2	14.0	8.0	0.8	1.2	<0.005	0.120	0.6	2.9	1.7
	2	22.2	8.6	98.0											
	4	22.2	8.6	98.0											
	6	20.0	7.4	80.0											
	8	19.8	7.3	79.0		7.2	14.0			2.0	<0.005	0.160	1.0	0.4	
Station 3	0					7.4	14.0			0.4	<0.005	0.210	2.2	0.7	
	2														
	4														
	6														
	8														
	10														
	12														
	14														
	16														
	17.5														
Station 4	0	22.7	8.6	99.0	3.8	7.5	14.0			0.4	<0.005	0.200	1.9	0.6	
	2	23.0	8.5	98.0											
	4	23.0	8.5	98.0											
	6	22.8	8.4	97.0											
	8	20.5	7.4	81.0											
Station 5	0														
	2														
	4														
	6														
Station 6	0														
	2														
	4														
	6														

LAKE AINSLIE WATER QUALITY DATA

SAMPLING DATE: July 22,1991

LOCATION	Depth	Na	K	Ca	Mg	HARD	Carb.	Bicarb.	SO4	Cl	F	Si	Ortho P	NO2+NO3	NH4 (N)	Cond.	TOC
Station 1	0	12.1	0.5	8.8	1.2	26.9	0.02	15.00	13.0	19.1	<0.1	<0.5	0.030	<0.05	0.050	130.0	1.9
	1																
	2																
	3																
Station 2	0	12.0	0.5	8.4	1.1	25.5	0.02	14.00	12.0	18.8	<0.1	<0.5	0.010	<0.05	<0.05	120.0	1.8
	2																
	4																
	6																
	8												<0.01	<0.05	<0.05	117.0	
Station 3	0												<0.01	<0.05	<0.05	116.0	
	2																
	4																
	6																
	8																
	10																
	12																
	14																
	16																
	17.5	NO SAMPLE TAKEN															
Station 4	0												<0.01	<0.05	<0.05	118.0	
	2																
	4																
	6																
	8																
Station 5	0																
	2																
	4																
	6																
Station 6	0																
	2																
	4																
	6																

LAKE AINSLIE WATER QUALITY DATA

SAMPLING DATE: July 22,1991

LOCATION	Depth	As	Fe	Mn	Pb-HGA	Cu	Zn	Al	B	Ba	Be	Cd - HGA	Cr	Co	Ni	Sb	Se	Sn	Va
Station 1	0	<0.005	<0.02	<0.01	<0.002	<0.01	<0.01	<0.1	<0.1	0.024	<0.005	<0.002	<0.02	<0.05	<0.02	<0.05	<0.1	<0.05	<0.01
	1																		
	2																		
	3																		
Station 2	0	<0.005	<0.02	<0.01	<0.002	<0.01	<0.01	<0.1	<0.1	0.024	<0.005	<0.002	<0.02	<0.05	<0.02	<0.05	<0.1	<0.05	<0.01
	2																		
	4																		
	6																		
	8																		
Station 3	0																		
	2																		
	4																		
	6																		
	8																		
	10																		
	12																		
	14																		
	16																		
	17.5																		
Station 4	0																		
	2																		
	4																		
	6																		
	8																		
Station 5	0																		
	2																		
	4																		
	6																		
Station 6	0																		
	2																		
	4																		
	6																		

LAKE AINSLIE WATER QUALITY DATA

SAMPLING DATE: July 22,1991

LOCATION	Depth	Cat sum	Anion sum	% Diff.	Std. Dev	Ion sum	Th. Cond.	Sat pH	Lang.@5	Lang @20	Lang @50
Station 1	0	1.080	1.110	1.250	0.120	63.8	128.0	9.7	-2.5	-2.1	-1.6
	1										
	2										
	3										
Station 2	0	1.040	1.060	0.720	0.120	61.2	123.0	9.7	-2.5	-2.2	-1.6
	2										
	4										
	6										
	8										
Station 3	0										
	2										
	4										
	6										
	8										
	10										
	12										
	14										
	16										
	17.5										
Station 4	0										
	2										
	4										
	6										
	8										
Station 5	0										
	2										
	4										
	6										
Station 6	0										
	2										
	4										
	6										

LAKE AINSLIE WATER QUALITY DATA

SAMPLING DATE: Aug 7.1991

LOCATION	Depth	Temp (C)	DO	% Air Sat	Secchi (m)	pH	Alk	Color	Turb.	SS	Total P	Total N	Chloro A	Pheophyt.	Humic Acid
Station 1	0	(sandbar)			Shoreline	7.6	14.0	9.0	2.01	14.0	<0.005	0.12	2.0	1.1	2.0
	1														
	2														
	3														
Station 2	0														
	2														
	4														
	6														
	8														
Station 3	0	20.6	8.3	91.0	3.1	7.05	15.0			2.8	<0.005	0.1	2.0	0.9	
	2	20.5	8.3	91.0											
	4	20.5	8.3	91.0											
	6	20.5	8.2	90.0											
	8	20.5	8.1	89.0											
	10	20.5	8.1	89.0											
	12	20.5	8.1	89.0											
	14	20.5	7.0	77.0											
	16														
	17.5	20.5	7.0	77.0	------	7.14	15.0			4.4	<0.005	0.11	2.2	1	
Station 4	0														
	2														
	4														
	6														
	8														
Station 5	0														
	2														
	4														
	6														
Station 6	0														
	2														
	4														
	6														
LB-Sh-0m		22.5	pH 9.0(f)		cond 140f	7.5	16.0	9.0	0.77	3.5	<0.1				2.1
LFS															
LFS #5		9.4	pH 8.7(f)		cond 220f	7.9	82.0	6.0	2.85						
LA-WLC-0m						7.230	14.0			1.2	<0.005	0.120	1.0	0.600	

LAKE AINSLIE WATER QUALITY DATA

SAMPLING DATE Aug 7,1991

LOCATION	Depth	Na	K	Ca	Mg	HARD	Carb.	Bicarb	SO4	Cl	F	Si	Ortho P	NO2+NO3	NH4 (N)	Cond.	TOC
Station 1	0	12.7	0.5	8.9	1.3	27.6	0.05	13.9	14.0	19.4	<0.1	<0.5	<0.01	<0.05	<0.05	138.0	2.3
	1																
	2																
	3																
Station 2	0																
	2																
	4																
	6																
	8																
Station 3	0												0.01	<0.05	0.08	117.0	
	2																
	4																
	6																
	8																
	10																
	12																
	14																
	16																
	17.5												<0.01	<0.05	0.06	117.0	
Station 4	0																
	2																
	4																
	6																
	8																
Station 5	0																
	2																
	4																
	6																
Station 6	0																
	2																
	4																
	6																
LB-Sh-0m		12.4	1.5	9.6	1.3	29.3	0.05	15.9	14.0	20	0.1	0.8	0.04	<0.05	<0.05	140.0	2
LFS																	
LFS #5		5.1	2.1	39.6	2.4	109	0.61	81.4	11.0	23.6	<0.1	6.9	<0.01	<0.05	0.05	276.0	4.2
LA-WLC-0m													<0.01	<0.05	<0.05	117.0	

LAKE AINSLIE WATER QUALITY DATA

SAMPLING DATE: Aug 7,1991

LOCATION	Depth	As	Fe	Mn	Pb-HGA	Cu	Zn	Al	B	Ba	Be	Cd - HGA	Cr	Co	Ni	Sb	Se	Sn	Va
Station 1	0	<0.005	0.05	0.02	<0.002	<0.01	<0.01	<0.1	<0.1	0.025	<0.005	<0.002	<0.02	<0.05	<0.02	<0.05	<0.1	<0.05	<0.01
	1																		
	2																		
	3																		
Station 2	0																		
	2																		
	4																		
	6																		
	8																		
Station 3	0																		
	2																		
	4																		
	6																		
	8																		
	10																		
	12																		
	14																		
	16																		
	17.5																		
Station 4	0																		
	2																		
	4																		
	6																		
	8																		
Station 5	0																		
	2																		
	4																		
	6																		
Station 6	0																		
	2																		
	4																		
	6																		
LB-Sh-0m		<.002	0.04	<0.01	<0.001	0.002	<0.01	0.011	0.013	0.042	<0.005	<.0005	<.002	<.001	<.002	<.002	<.002	<.002	<.002
LFS																			
LFS #5		0.002	1.02	0.49	0.0013	0.01	<0.01	0.021	0.01	0.19	<0.005	<.0005	<0.002	<0.001	0.002	<.002	<.002	<.002	<.002
LA-WLC-0m																			

LAKE AINSLIE WATER QUALITY DATA

SAMPLING DATE: Aug 7,1991

LOCATION	Depth	Cat sum	Anion sum	% Diff	Std Dev	Ion sum	Th Cond	Sat pH	Lang @5	Lang @20	Lang @50
Station 1	0	1.12	1.12	0.09	0.12	65.2	131.0	9.7	-2.1	-1.7	-1.2
	1										
	2										
	3										
Station 2	0										
	2										
	4										
	6										
	8										
Station 3	0										
	2										
	4										
	6										
	8										
	10										
	12										
	14										
	16										
	17.5										
Station 4	0										
	2										
	4										
	6										
	8										
Station 5	0										
	2										
	4										
	6										
Station 6	0										
	2										
	4										
	6										
LB-Sh-0m		1.16	1.18	0.48		69	137.0	9.62	-2.12		
LFS											
LFS #5		2.45	2.53	1.64		140	267.0	8.32	-0.42		
LA-WLC-0m											

LAKE AINSLIE WATER QUALITY DATA

SAMPLING DATE: Aug 21,1991

LOCATION	Depth	Temp. (C)	DO	% Air Sat.	Secchi (m)	pH	Alk	Color	Turb.	SS	Total P	Total N	Chloro A	Pheophyt.	Humic Acid
Station 1	0	21.2	7.9	88.0	2.8(b)	7.2	14.0	5.0	0.9	1.8	<0.005	0.160	0.8	0.6	1.7
	1	21.2	7.9	88.0											
	2	21.4	7.9	89.0											
	3	21.4	7.8	88.0											
Station 2	0	21.5	8.2	96.0	3.1	7.3	14.0	8.0	1.3	3.5	<0.005	0.110	1.1	0.3	1.4
	2	21.5	8.1	91.0											
	4	21.5	8.0	90.0											
	6	21.5	8.1	91.0											
	8	21.5	8.1	91.0	------	7.3	13.0			1.6	<0.005	0.150	1.2	0.3	
Station 3	0	21.5	8.2	92.0		7.3	14.0			1.6	<0.005	0.130	2.0	0.5	
	2	21.7	8.1	91.0											
	4	21.7	8.0	90.0											
	6	21.7	8.0	90.0											
	8	21.7	8.0	90.0											
	10	21.7	8.0	90.0											
	12	21.7	7.8	88.0											
	14	20.2	6.8	74.0											
	16	20.0	6.4	70.0											
	17.5	19.8	5.8	63.0	------	7.2	15.0			2.0	0.006	0.150	1.5	0.4	
Station 4	0	21.6	8.3	93.0	2.6	7.3	14.0			2.8	<0.005	0.110	1.3	0.3	
	2	21.8	8.2	93.0											
	4	21.8	8.2	93.0											
	6	21.8	8.2	93.0											
	8														
Station 5	0	21.5	8.2	92.0	5.0	7.3	14.0			<0.4	<0.005	0.120	1.1	0.3	
	2	21.5	8.2	92.0											
	4	21.5	8.2	92.0											
	6	21.5	8.2	92.0											
Station 6	0	21.8	8.3	94.0	3.8	7.3	14.0			0.4	<0.005	0.120	0.9	0.4	
	2	21.8	8.3	94.0											
	4	21.8	8.3	94.0											
	6	21.8	8.2	94.0											

LAKE AINSLIE WATER QUALITY DATA

SAMPLING DATE: Aug 21,1991

LOCATION	Depth	Na	K	Ca	Mg	HARD	Carb.	Bicarb.	SO4	Cl	F	Si	Ortho P	NO2+NO3	NH4 (N)	Cond.	TOC
Station 1	0	12.2	0.4	8.6	1.3	26.8	0.02	14.00	14.0	19.5	<0.1	<0.5	<0.01	<0.05	<0.05	129.0	1.7
	1																
	2																
	3																
Station 2	0	11.9	0.5	8.3	1.2	25.6	0.03	14.00	13.0	18.9	<0.1	<0.5	<0.01	<0.05	<0.05	125.0	1.6
	2																
	4																
	6																
	8												<0.01	<0.05	<0.05	125.0	
Station 3	0												<0.01	<0.05	<0.05	125.0	
	2																
	4																
	6																
	8																
	10																
	12																
	14																
	16																
	17.5												<0.01	<0.05	<0.05	125.0	
Station 4	0												<0.01	<0.05	<0.05	126.0	
	2																
	4																
	6																
	8																
Station 5	0												<0.01	<0.05	<0.05	127.0	
	2																
	4																
	6																
Station 6	0												<0.01	<0.05	<0.05	125.0	
	2																
	4																
	6																

LAKE AINSLIE WATER QUALITY DATA

SAMPLING DATE: Aug 21,1991

LOCATION	Depth	As	Fe	Mn	Pb-HGA	Cu	Zn	Al	B	Ba	Be	Cd - HGA	Cr	Co	Ni	Sb	Se	Sn	Va
Station 1	0	<0.005	0.020	<0.01	<0.002	<0.01	<0.01	<0.1	<0.1	0.026	<0.005	<0.002	0.020	<0.05	<0.02	<0.05	<0.1	0.050	<0.01
	1																		
	2																		
	3																		
Station 2	0	<0.005	0.060	<0.01	<0.002	<0.01	<0.01	<0.1	<0.1	0.026	<0.005	<0.002	<0.02	<0.05	<0.02	<0.05	<0.1	<0.05	<0.01
	2																		
	4																		
	6																		
	8																		
Station 3	0																		
	2																		
	4																		
	6																		
	8																		
	10																		
	12																		
	14																		
	16																		
	17.5																		
Station 4	0																		
	2																		
	4																		
	6																		
	8																		
Station 5	0																		
	2																		
	4																		
	6																		
Station 6	0																		
	2																		
	4																		
	6																		

LAKE AINSLIE WATER QUALITY DATA

SAMPLING DATE: Aug 21,1991

LOCATION	Depth	Cat sum	Anion sum	% Diff.	Std. Dev.	Ion sum	Th. Cond.	Sat pH	Lang.@5	Lang @20	Lang @50
Station 1	0	1.080	1.120	2.000	0.120	64.4	130.0	9.7	-2.5	-2.2	-1.6
	1										
	2										
	3										
Station 2	0	1.040	1.080	1.880	0.120	62.2	125.0	9.7	-2.4	-2.1	-1.5
	2										
	4										
	6										
	8										
Station 3	0										
	2										
	4										
	6										
	8										
	10										
	12										
	14										
	16										
	17.5										
Station 4	0										
	2										
	4										
	6										
	8										
Station 5	0										
	2										
	4										
	6										
Station 6	0										
	2										
	4										
	6										

LAKE AINSLIE WATER QUALITY DATA

SAMPLING DATE: Sept 3,1991

LOCATION	Depth	Temp. (C)	DO	% Air Sat	Secchi (m)	pH	Alk	Color	Turb.	SS	Total P	Total N	Chloro A	Pheophyt.	Humic Acid
Station 1	0	17.7	8.6	90.0	3.0(b)	7.3	15.0	6.0	0.3	0.5	<0.005	0.120	0.8	0.4	2.2
	1	17.7	8.6	90.0											
	2	17.7	8.6	90.0											
	3	17.7	8.2	85.0											
Station 2	0	19.0	8.6	92.0	4.0	7.4	14.0			1.2	<0.005	0.180	0.9	0.4	
	2	19.0	8.6	92.0											
	4	19.0	6.0	65.0											
	6	19.0	8.6	92.0											
	8	19.0	8.6	92.0		7.3	14.0			1.2	<0.005	0.120	1.0	0.6	
Station 3	0	19.5	8.6	93.0	2.9	7.3	15.0			2.4	<0.005	0.120	1.4	0.6	
	2	19.5	8.4	91.0											
	4	19.3	8.4	91.0											
	6	19.3	8.4	91.0											
	8	19.3	8.3	90.0											
	10	19.3	8.3	90.0											
	12	19.3	8.2	89.0											
	14	19.2	8.2	89.0											
	16	19.1	8.2	88.0											
	17.5	19.0	8.1	87.0		7.3	15.0			4.4	<0.005	0.110	1.8	0.7	
Station 4	0				3.1	7.4	14.0			2.8	0.006	0.110	1.0	0.4	
	2														
	4														
	6														
	8														
Station 5	0	18.8	8.5	91.0	3.8	7.4	15.0			1.2	<0.005	0.110	1.0	0.3	
	2	18.9	8.5	91.0											
	4	18.8	8.4	90.0											
	6	18.7	8.5	91.0											
Station 6	0	19.0	8.8	95.0	3.4	7.4	15.0			2.0	0.005	0.140	1.4	0.4	
	2	19.1	8.7	94.0											
	4	19.1	8.7	94.0											
	6	19.1	8.7	94.0											
LB-Sh-0m LFS						7.6	26.0	6.0	0.5	5.5					
LFS #5						7.9	89.0	<3.000	1.8	21.0					

LAKE AINSLIE WATER QUALITY DATA

SAMPLING LOCATION	DATE: Sept 3,1991 Depth	Na	K	Ca	Mg	HARD.	Carb.	Bicarb.	SO4	Cl	F	Si	Ortho P	NO2+NO3	NH4 (N)	Cond.	TOC
Station 1	0	12.8	0.5	8.3	1.2	25.6	0.03	15.00	14.0	20.3	<0.1	<0.5	<0.01	<0.05	<0.05	138.0	2.3
	1																
	2																
	3																
Station 2	0												<0.01	<0.05	<0.05	128.0	
	2																
	4																
	6																
	8												<0.01	<0.05	<0.05	128.0	
Station 3	0												<0.01	<0.05	<0.05	129.0	
	2																
	4																
	6																
	8																
	10																
	12																
	14																
	16																
	17.5												<0.01	<0.05	<0.05	128.0	
Station 4	0												<0.01	<0.05	<0.05	129.0	
	2																
	4																
	6																
	8																
Station 5	0												<0.01	<0.05	<0.05	129.0	
	2																
	4																
	6																
Station 6	0												<0.01	<0.05	<0.05	128.0	
	2																
	4																
	6																
LB-Sh-0m LFS		11.7	0.4	12.3	1.5	36.9	0.10	25.90	14.0	19.4	<0.1	1.0	<0.01	<0.05	0.140	154.0	2.4
LFS #5		5.0	0.7	41.6	2.4	114.0	0.66	88.30	10.0	23.8	<0.1	6.9	<0.01	<0.05	0.290	272.0	1.0

LAKE AINSLIE WATER QUALITY DATA

SAMPLING DATE: Sept 3,1991

LOCATION	Depth	As	Fe	Mn	Pb-HGA	Cu	Zn	Al	B	Ba	Be	Cd - HGA	Cr	Co	Ni	Sb	Se	Sn	Va
Station 1	0	<0.005	<0.02	<0.01	<0.002	<0.01	<0.01	<0.1	<0.1	0.024	<0.005	<0.002	<0.02	<0.05	<0.02	<0.05	<0.1	<0.05	<0.01
	1																		
	2																		
	3																		
Station 2	0																		
	2																		
	4																		
	6																		
	8																		
Station 3	0																		
	2																		
	4																		
	6																		
	8																		
	10																		
	12																		
	14																		
	16																		
	17.5																		
Station 4	0																		
	2																		
	4																		
	6																		
	8																		
Station 5	0																		
	2																		
	4																		
	6																		
Station 6	0																		
	2																		
	4																		
	6																		
LB-Sh-0m LFS		<0.005	<0.02	0.010	<0.002	<0.01	0.020	<0.1	<0.1	0.100	<0.005	<0.002	<0.02	<0.05	<0.02	<0.05	<0.1	<0.05	<0.01
LFS #5		<0.005	0.280	0.610	<0.002	<0.01	0.030	<0.1	<0.1	0.171	<0.005	<0.002	<0.02	<0.05	<0.02	<0.05	<0.1	<0.05	<0.01

LAKE AINSLIE WATER QUALITY DATA

SAMPLING DATE: Sept 3,1991

LOCATION	Depth	Cat sum	Anion sum	% Diff.	Std. Dev.	Ion sum	Th. Cond.	Sat pH	Lang.@5	Lang @20	Lang @50
Station 1	0	1.080	1.160	3.610	0.130	66.1	132.0	9.7	-2.4	-2.0	-1.5
	1										
	2										
	3										
Station 2	0										
	2										
	4										
	6										
	8										
Station 3	0										
	2										
	4										
	6										
	8										
	10										
	12										
	14										
	16										
	17.5										
Station 4	0										
	2										
	4										
	6										
	8										
Station 5	0										
	2										
	4										
	6										
Station 6	0										
	2										
	4										
	6										
LB-Sh-0m LFS		1.270	1.360	3.500	0.130	76.1	150.0	9.3	-1.7	-1.3	-0.8
LFS #5		2.530	2.660	2.500	0.150	144.0	275.0	8.3	-0.4	0.0	0.6

LAKE AINSLIE WATER QUALITY DATA

SAMPLING DATE: Oct 8,1991

LOCATION	Depth	Temp. (C)	DO	% Air Sat	Secchi (m)	pH	Alk	Color	Turb.	SS	Total P	Total N	Chloro A	Pheophyt.	Humic Acid
Station 1	0	14.0	(sandbar)		Shoreline	6.7	15.0	25.0	2.2	4.2	<0.005	0.19	0.6	0.5	9.7
	1														
	2														
	3														
Station 2	0														
	2														
	4														
	6														
	8														
Station 3	0	14.0			Shoreline	6.9	14.0			2.8	<0.005	0.130	1.7	0.8	
	2														
	4														
	6														
	8														
	10														
	12														
	14														
	16														
	17.5														
Station 4	0	14.5				6.9	14.0			4.8	<0.005	0.130	0.9	0.4	
	2														
	4														
	6														
	8														
Station 5	0														
	2														
	4														
	6														
Station 6	0														
	2														
	4														
	6														

LAKE AINSLIE WATER QUALITY DATA

SAMPLING DATE: Oct 8,1991

LOCATION	Depth	Na	K	Ca	Mg	HARD.	Carb.	Bicarb.	SO4	Cl	F	Si	Ortho P	NO2+NO3	NH4 (N)	Cond.	TOC
Station 1	0	11.3	<0.1	9.2	1.2	27.8	0.01	15.00	14.0	18.5	<0.1	1.2	<0.01	<0.05	0.07	125.0	4.2
	1																
	2																
	3																
Station 2	0																
	2																
	4																
	6																
	8																
Station 3	0												<0.01	<0.05	0.050	120.0	
	2																
	4																
	6																
	8																
	10																
	12																
	14																
	16																
	17.5																
Station 4	0												<0.01	<0.05	<0.05	127.0	
	2																
	4																
	6																
	8																
Station 5	0																
	2																
	4																
	6																
Station 6	0																
	2																
	4																
	6																

LAKE AINSLIE WATER QUALITY DATA

SAMPLING LOCATION	DATE: Oct 8,1991 Depth	As	Fe	Mn	Pb-HGA	Cu	Zn	Al	B	Ba	Be	Cd - HGA	Cr	Co	Ni	Sb	Se	Sn	Va
Station 1	0	<0.005	0.1	<0.01	<0.002	<0.01	<0.01	0.1	<0.1	0.027	<0.005	<0.002	<0.02	<0.05	<0.02	<0.05	<0.1	<0.05	<0.01
	1																		
	2																		
	3																		
Station 2	0																		
	2																		
	4																		
	6																		
	8																		
Station 3	0																		
	2																		
	4																		
	6																		
	8																		
	10																		
	12																		
	14																		
	16																		
	17.5																		
Station 4	0																		
	2																		
	4																		
	6																		
	8																		
Station 5	0																		
	2																		
	4																		
	6																		
Station 6	0																		
	2																		
	4																		
	6																		

LAKE AINSLIE WATER QUALITY DATA

SAMPLING DATE: Oct 8,1991

LOCATION	Depth	Cat sum	Anion sum	% Diff.	Std. Dev.	Ion sum	Th. Cond.	Sat pH	Lang.@5	Lang @20	Lang @50
Station 1	0	1.05	1.11	2.74	0.12	64.5	127.0	9.7	-3.0	-2.6	-2.0
	1										
	2										
	3										
Station 2	0										
	2										
	4										
	6										
	8										
Station 3	0										
	2										
	4										
	6										
	8										
	10										
	12										
	14										
	16										
	17.5										
Station 4	0										
	2										
	4										
	6										
	8										
Station 5	0										
	2										
	4										
	6										
Station 6	0										
	2										
	4										
	6										

LAKE AINSLIE WATER QUALITY DATA

SAMPLING DATE: March 30,1992

LOCATION	Depth	Temp. (C)	DO	% Air Sat	Secchi (m)	pH	Alk	Color	Turb.	SS	Total P	Total N	Chloro A	Pheophyt.	Humic Acid
Station 1															
	1														
	2														
	3														
Station 2	0														
	2														
	4														
	6														
	8														
Station 3	0	0.0	13.6	93.0		6.7	13.0			8.0	0.010	0.230	0.5	<0.1	
	2	0.5	13.1	91.0											
	4	1.0	12.2	86.0											
	6	3.0	9.8	73.0											
	8	3.2	3.4	26.0		7.1	16.0			4.0	0.010	0.200	0.7	0.2	
	10	3.0	5.6	42.0											
	12	3.0	6.8	50.0											
	14	3.0	6.8	50.0											
	16	3.0	5.8	43.0											
	18	3.5	4.8	38.0		6.9	18.0			3.2	0.015	0.230	0.7	0.2	
	20	3.5	3.8	29.0											
Station 4	0														
	2														
	4														
	6														
	8														
Station 5	0														
	2														
	4														
	6														
Station 6	0														
	2														
	4														
	6														

LAKE AINSLIE WATER QUALITY DATA

SAMPLING DATE: March 30,1992

LOCATION	Depth	Na	K	Ca	Mg	HARD	Carb.	Bicarb.	SO4	Cl	F	Si	Ortho P	NO2+NO3	NH4 (N)	Cond.	TOC
Station 1																	
	1																
	2																
	3																
Station 2	0																
	2																
	4																
	6																
	8																
Station 3	0												<0.01	0.160	<0.05	68.0	
	2																
	4																
	6																
	8												<0.01	0.080	<0.05	118.0	
	10																
	12																
	14																
	16																
	18												0.01	0.150	<0.05	146.0	
	20																
Station 4	0																
	2																
	4																
	6																
	8																
Station 5	0																
	2																
	4																
	6																
Station 6	0																
	2																
	4																
	6																

LAKE AINSLIE WATER QUALITY DATA

SAMPLING DATE: March 30,1992

LOCATION	Depth	As	Fe	Mn	Pb-HGA	Cu	Zn	Al	B	Ba	Be	Cd - HGA	Cr	Co	Ni	Sb	Se	Sn	Va
Station 1																			
	1																		
	2																		
	3																		
Station 2	0																		
	2																		
	4																		
	6																		
	8																		
Station 3	0																		
	2																		
	4																		
	6																		
	8																		
	10																		
	12																		
	14																		
	16																		
	18																		
	20																		
Station 4	0																		
	2																		
	4																		
	6																		
	8																		
Station 5	0																		
	2																		
	4																		
	6																		
Station 6	0																		
	2																		
	4																		
	6																		

LAKE AINSLIE WATER QUALITY DATA

SAMPLING DATE: March 30,1992

LOCATION	Depth	Cat sum	Anion sum	% Diff.	Std. Dev.	Ion sum	Th. Cond.	Sat pH	Lang.@5	Lang @20	Lang @50
Station 1											
	1										
	2										
	3										
Station 2	0										
	2										
	4										
	6										
	8										
Station 3	0										
	2										
	4										
	6										
	8										
	10										
	12										
	14										
	16										
	18										
	20										
Station 4	0										
	2										
	4										
	6										
	8										
Station 5	0										
	2										
	4										
	6										
Station 6	0										
	2										
	4										
	6										

LAKE AINSLIE WATER QUALITY DATA

SAMPLING DATE: May18,1992

LOCATION	Depth [m]	Temp (C)	DO	% Air Sat	Secchi (m)	pH	Alk	Color	Turb.	SS	Total P	Total N	Chloro A	Pheophyt.	Humic Acid
Station 1	0	13.0	10.5	99.0	bottom	7.0	14.0			2.4	<0.001	0.110	1.8	0.8	
	1	13.0	10.5	99.0											
	2	13.0	10.5	99.0											
	3	13.0	10.5	99.0											
Station 2	0														
	2														
	4														
	6														
	8														
Station 3	0	11.0	11.8	106.0	2.8	7.1	14.0			2.8	<0.001	0.150	3.4	0.8	
	2	10.5	11.9	105.0											
	4	10.0	11.9	105.0											
	6	10.0	11.9	105.0											
	8	10.0	11.9	105.0											
	10	10.0	11.9	105.0											
	12	10.0	11.9	105.0											
	14	10.0	11.9	105.0											
	16	10.0	11.9	105.0											
	18	10.0	11.9	105.0		7.1	14.0			2.4	<0.001	0.130	3.4	0.9	
	20	10.0	11.0	97.0											
Station 4	0														
	2														
	4														
	6														
	8														
Station 5	0														
	2														
	4														
	6														
Station 6	0														
	2														
	4														
	6														

LAKE AINSLIE WATER QUALITY DATA

SAMPLING DATE: May18,1992

LOCATION	Depth [m]	Na	K	Ca	Mg	HARD	Carb.	Bicarb.	SO4	Cl	F	Si	Ortho P	NO2+NO3	NH4 (N)	Cond.	TOC
Station 1	0												<0.01	<0.05	<0.05	99.0	
	1																
	2																
	3																
Station 2	0																
	2																
	4																
	6																
	8																
Station 3	0												<0.01	<0.05	<0.05	88.0	
	2																
	4																
	6																
	8																
	10																
	12																
	14																
	16																
	18												<0.01	<0.05	<0.05	94.0	
	20																
Station 4	0																
	2																
	4																
	6																
	8																
Station 5	0																
	2																
	4																
	6																
Station 6	0																
	2																
	4																
	6																

LAKE AINSLIE WATER QUALITY DATA

SAMPLING DATE: May18,1992

LOCATION	Depth [m]	As	Fe	Mn	Pb-HGA	Cu	Zn	Al	B	Ba	Be	Cd - HGA	Cr	Co	Ni	Sb	Se	Sn	Va
Station 1	0																		
	1																		
	2																		
	3																		
Station 2	0																		
	2																		
	4																		
	6																		
	8																		
Station 3	0																		
	2																		
	4																		
	6																		
	8																		
	10																		
	12																		
	14																		
	16																		
	18																		
	20																		
Station 4	0																		
	2																		
	4																		
	6																		
	8																		
Station 5	0																		
	2																		
	4																		
	6																		
Station 6	0																		
	2																		
	4																		
	6																		

LAKE AINSLIE WATER QUALITY DATA

SAMPLING DATE: May18,1992

LOCATION	Depth [m]	Cat sum	Anion sum	% Diff.	Std. Dev	Ion sum	Th. Cond.	Sat pH	Lang.@5	Lang @20	Lang @50
Station 1	0										
	1										
	2										
	3										
Station 2	0										
	2										
	4										
	6										
	8										
Station 3	0										
	2										
	4										
	6										
	8										
	10										
	12										
	14										
	16										
	18										
	20										
Station 4	0										
	2										
	4										
	6										
	8										
Station 5	0										
	2										
	4										
	6										
Station 6	0										
	2										
	4										
	6										

LAKE AINSLIE WATER QUALITY DATA

SAMPLING DATE July 8,1992

LOCATION	Depth [m]	Temp. (C)	DO	% Air Sat	Secchi (m)	pH	Alk	Color	Turb.	SS	Total P	Total N	Chloro A	Pheophyt.	Humic Acid
Station 1	0														
	1														
	2														
	3														
Station 2	0														
	2														
	4														
	6														
	8														
Station 3	0														
	2														
	4														
	6														
	8														
	10														
	12														
	14														
	16														
	18														
	20														
Station 4	0					7.4	15.0			1.2	0.002	0.110	1.0	0.3	
	2														
	4														
	6														
	8														
Station 5	0														
	2														
	4														
	6														
Station 6	0														
	2														
	4														
	6														

LAKE AINSLIE WATER QUALITY DATA

SAMPLING DATE July 8,1992

LOCATION	Depth [m]	Na	K	Ca	Mg	HARD.	Carb.	Bicarb	SO4	Cl	F	Si	Ortho P	NO2+NO3	NH4 (N)	Cond.	TOC
Station 1	0																
	1																
	2																
	3																
Station 2	0																
	2																
	4																
	6																
	8																
Station 3	0																
	2																
	4																
	6																
	8																
	10																
	12																
	14																
	16																
	18																
	20																
Station 4	0												0.010	<0.05	<0.05	107.0	
	2																
	4																
	6																
	8																
Station 5	0																
	2																
	4																
	6																
Station 6	0																
	2																
	4																
	6																

LAKE AINSLIE WATER QUALITY DATA

SAMPLING DATE July 8,1992

LOCATION	Depth [m]	As	Fe	Mn	Pb-HGA	Cu	Zn	Al	B	Ba	Be	Cd - HGA	Cr	Co	Ni	Sb	Se	Sn	Va
Station 1	0																		
	1																		
	2																		
	3																		
Station 2	0																		
	2																		
	4																		
	6																		
	8																		
Station 3	0																		
	2																		
	4																		
	6																		
	8																		
	10																		
	12																		
	14																		
	16																		
	18																		
	20																		
Station 4	0																		
	2																		
	4																		
	6																		
	8																		
Station 5	0																		
	2																		
	4																		
	6																		
Station 6	0																		
	2																		
	4																		
	6																		

LAKE AINSLIE WATER QUALITY DATA

SAMPLING DATE July 8,1992

LOCATION	Depth [m]	Cat sum	Anion sum	% Diff.	Std. Dev.	Ion sum	Th. Cond.	Sat pH	Lang.@5	Lang @20	Lang @50
Station 1	0										
	1										
	2										
	3										
Station 2	0										
	2										
	4										
	6										
	8										
Station 3	0										
	2										
	4										
	6										
	8										
	10										
	12										
	14										
	16										
	18										
	20										
Station 4	0										
	2										
	4										
	6										
	8										
Station 5	0										
	2										
	4										
	6										
Station 6	0										
	2										
	4										
	6										

LAKE AINSLIE WATER QUALITY DATA

SAMPLING DATE: July30,1992

LOCATION	Depth [m]	Temp. (C)	DO	% Air Sat	Secchi (m)	pH	Alk	Color	Turb.	SS	Total P	Total N	Chloro A	Pheophyt.	Humic Acid
Station 1	0	21.3	8.7	97.0	2.4	7.1	16.0			<0.5	0.004	0.110	0.9	0.4	
	1	21.3	8.7	97.0											
	2	21.3	8.7	97.0											
	3														
Station 2	0														
	2														
	4														
	6														
	8														
Station 3	0	21.5	8.8	98.0	3.5	7.1	16.0			1.0	0.003	0.200	1.8	1.1	
	2	20.9	8.8	98.0											
	4	20.7	8.7	97.0											
	6	20.5	8.5	92.0											
	8	20.2	8.0	87.0											
	10	19.9	7.7	84.0											
	12	19.8	7.5	81.0											
	14	19.2	7.2	77.0											
	16	17.5	5.4	56.0											
	18	17.3	3.4	35.0		7.0	19.0			1.5	0.065	0.600	0.3	1.3	
	20	17.2	2.7	28.0											
Station 4	0	20.4			3.0	7.0	16.0			1.0	0.004	0.100	1.0	0.8	
	2														
	4														
	6														
	8														
Station 5	0	21.0	9.1	101.0	3.5	7.4	16.0	<3.0	2.3	<0.5	0.003	0.130	1.7	0.6	
	2	20.9	9.0	100.0											
	4	20.4	8.7	94.0											
	6	20.0	7.9	86.0											
Station 6	0														
	2														
	4														
	6														

LAKE AINSLIE WATER QUALITY DATA

SAMPLING DATE: July30,1992

LOCATION	Depth [m]	Na	K	Ca	Mg	HARD	Carb.	Bicarb.	SO4	Cl	F	Si	Ortho P	NO2+NO3	NH4 (N)	Cond.	TOC
Station 1	0												<0.01	<0.05	<0.05	122.0	
	1																
	2																
	3																
Station 2	0																
	2																
	4																
	6																
	8																
Station 3	0												<0.01	<0.05	<0.05	119.0	
	2																
	4																
	6																
	8																
	10																
	12																
	14																
	16																
	18												0.050	<0.05	0.430	125.0	
	20																
Station 4	0												<0.01	<0.05	<0.05	121.0	
	2																
	4																
	6																
	8																
Station 5	0	11.0	0.5	8.6	1.2	26.4	0.04	15.90	13.0	17.4	<0.1	0.8	<0.01	<0.05	<0.05	120.0	2.5
	2																
	4																
	6																
Station 6	0																
	2																

LAKE AINSLIE WATER QUALITY DATA

SAMPLING DATE. July30,1992

LOCATION	Depth [m]	As	Fe	Mn	Pb-HGA	Cu	Zn	Al	B	Ba	Be	Cd - HGA	Cr	Co	Ni	Sb	Se	Sn	Va
Station 1	0																		
	1																		
	2																		
	3																		
Station 2	0																		
	2																		
	4																		
	6																		
	8																		
Station 3	0																		
	2																		
	4																		
	6																		
	8																		
	10																		
	12																		
	14																		
	16																		
	18																		
	20																		
Station 4	0																		
	2																		
	4																		
	6																		
	8																		
Station 5	0	<0.002	<0.02	<0.01	<0.002	0.010	<0.01	<0.1	<0.1	0.023	<0.005	<0.002	<0.02	<0.05	<0.02	<0.05	<0.1	<0.05	<0.01
	2																		
	4																		
	6																		

LAKE AINSLIE WATER QUALITY DATA

SAMPLING DATE: July30,1992

LOCATION	Depth [m]	Cat sum	Anion sum	% Diff.	Std. Dev.	Ion sum	Th. Cond.	Sat pH	Lang.@5	Lang @20	Lang @50
Station 1	0										
	1										
	2										
	3										
Station 2	0										
	2										
	4										
	6										
	8										
Station 3	0										
	2										
	4										
	6										
	8										
	10										
	12										
	14										
	16										
	18										
	20										
Station 4	0										
	2										
	4										
	6										
	8										
Station 5	0	1.020	1.080	2.940	0.120	62.1					
	2										
	4										
	6										
Station 6	0										
	2										
	4										

LAKE AINSLIE WATER QUALITY DATA

SAMPLING DATE: Sept10,1992

LOCATION	Depth [m]	Temp (C)	DO	% Air Sat	Secchi (m)	pH	Alk	Color	Turb	SS	Total P	Total N	Chloro A	Pheophyt	Humic Acid
Station 1	0	20.0	9.1	99.0	3.2	7.2	17.0		0.3	<0.4	0.004	0.150	0.9	<0.1	
	1	20.0	9.0	98.0											
	2	20.0	9.0	98.0											
	3	20.0	9.2	100.0											
Station 2	0														
	2														
	4														
	6														
	8														
Station 3	0	20.5	8.7	94.0	3.5	7.0	16.1			<0.4	0.008	0.140	2.0	0.4	
	2	20.3	8.7	94.0											
	4	20.0	8.6	93.0											
	6	19.5	7.6	82.0											
	8	19.3	7.2	77.0											
	10	19.2	7.1	76.0											
	12	19.0	7.2	77.0											
	14	19.0	7.2	77.0		7.1	16.0			2.4	0.008	0.150	1.3	0.4	
	16	19.0	7.0	75.0											
	18														
	20														
Station 4	0	20.0	8.7	94.0	2.8	7.1	16.0			2.0	0.006	0.130	2.0	0.4	
	2	19.8	8.6	93.0											
	4	17.8	8.6	90.0											
	6	19.8	8.6	93.0											
	8	19.8	8.5	92.0											
Station 5	0	20.0	8.7	94.0	2.8	7.1	16.0			2.0	0.006	0.140	1.8	0.7	
	2	19.8	8.6	93.0											
	4	19.8	8.6	93.0											
	6	19.6	8.4	91.0											
Station 6	0														
	2														
	4														
	6														
*LB-Sh-0m *LFS						7.4	19.0	<3.0	0.8	3.3					2.7
*LFS #5						7.6	77.0	<3.0	4.6	19.0					1.0

* Samples taken september 25 1992

LAKE AINSLIE WATER QUALITY DATA

SAMPLING DATE: Sept10,1992

LOCATION	Depth [m]	Na	K	Ca	Mg	HARD.	Carb.	Bicarb.	SO4	Cl	F	Si	Ortho P	NO2+NO3	NH4 (N)	Cond.	TOC
Station 1	0	12.1	0.5	9.4	1.3	28.8	0.03	17.00	14.0	18.6	<0.1	1.0	<0.01	<0.05	<0.05	129.0	2.1
	1																
	2																
	3																
Station 2	0																
	2																
	4																
	6																
	8																
Station 3	0												<0.01	<0.05	<0.05	110.0	
	2																
	4																
	6																
	8																
	10																
	12																
	14												<0.01	<0.05	<0.05	110.0	
	16																
	18																
	20																
Station 4	0												<0.01	<0.05	<0.05	111.0	
	2																
	4																
	6																
	8																
Station 5	0												<0.01	<0.05	<0.05	110.0	
	2																
	4																
	6																
Station 6	0																
	2																
	4																
	6																
*LB-Sh-0m *LFS		12.9	0.4	11.0	11.0	34.1	0.04	18.9	15.0	19.5		1.4	0.01	<0.05	<0.05	140.0	2.1
*LFS #5		4.2	0.5	37.4	2.5	104.0	0.3	76.7	11.0	17.8		6.8	<0.01	<0.05	0.13	241.0	<0.5

* Samples taken september 25, 1992

LAKE AINSLIE WATER QUALITY DATA

SAMPLING DATE: Sept10,1992

LOCATION	Depth [m]	As	Fe	Mn	Pb-HGA	Cu	Zn	Al	B	Ba	Be	Cd - HGA	Cr	Co	Ni	Sb	Se	Sn	Va
Station 1	0	<0.002	<0.02	<0.01	<0.002	<0.01	<0.01	<0.1	<0.1	0.036	<0.005	<0.002	<0.02	<0.05	<0.02	<0.05	<0.1	<0.05	<0.01
	1																		
	2																		
	3																		
Station 2	0																		
	2																		
	4																		
	6																		
	8																		
Station 3	0																		
	2																		
	4																		
	6																		
	8																		
	10																		
	12																		
	14																		
	16																		
	18																		
	20																		
Station 4	0																		
	2																		
	4																		
	6																		
	8																		
Station 5	0																		
	2																		
	4																		
	6																		
Station 6	0																		
	2																		
	4																		
	6																		
*LB-Sh-0m *LFS		<0.002	0.01	0.0	0.0	0.0	<0.002	0.02	0.01	0.05	<0.005	<0.0005	<0.002	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002
*LFS #5		<0.002	0.9	0.6	0.0	0.02	0.02	0.04	0.01	0.2	<0.005	<0.005	<0.002	<0.001	0.0	<0.002	<0.002	<0.002	<0.002

* Samples taken september 25 1992

LAKE AINSLIE WATER QUALITY DATA

SAMPLING DATE: Sept10,1992

LOCATION	Depth [m]	Cat sum	Anion sum	% Diff.	Std. Dev.	Ion sum	Th. Cond.	Sat pH	Lang.@5	Lang @20	Lang @50
Station 1	0	1.120	1.160	1.780	0.120	85.1					
	1										
	2										
	3										
Station 2	0										
	2										
	4										
	6										
	8										
Station 3	0										
	2										
	4										
	6										
	8										
	10										
	12										
	14										
	16										
	18										
	20										
Station 4	0										
	2										
	4										
	6										
	8										
Station 5	0										
	2										
	4										
	6										
Station 6	0										
	2										
	4										
	6										
*LB-Sh-0m *LFS		1.3	1.2	0.4		73.0	144.0	9.5	-2.1		
*LFS #5		2.3	2.3	0.1		127.0	240.0	8.4	-0.8		

* Samples taken september 25, 1992

LAKE AINSLIE WATER QUALITY DATA

SAMPLING DATE May28,1993

LOCATION	Depth [m]	Temp (C)	DO	% Air Sat	Secchi (m)	pH	Alk	Color	Turb.	SS	Total P	Total N	Chloro A	Pheophyt	Humic Acid
Station 1	0	12.1			3.1	6.9	15.0	<3.0			0.005	0.140	1.7	0.5	
	1														
	2														
	3														
Station 2	0														
	2														
	4														
	6														
	8														
Station 3	0					7.3	15.0	9.0			0.006	0.130	4.3	0.8	
	2														
	4														
	6														
	8														
	10														
	12														
	14														
	16														
	18														
	20														
Station 4	0														
	2														
	4														
	6														
	8														
Station 5	0														
	2														
	4														
	6														
Station 6	0														
	2														
	4														
	6														

LAKE AINSLIE WATER QUALITY DATA

SAMPLING DATE: May28,1993

LOCATION	Depth [m]	Na	K	Ca	Mg	HARD	Carb.	Bicarb.	SO4	Cl	F	Si	Ortho P	NO2+NO3	NH4 (N)	Cond.	TOC
Station 1	0			9.5	1.2	28.7	0.01	15.00					<0.001	<0.05	<0.05	100.0	
	1																
	2																
	3																
Station 2	0																
	2																
	4																
	6																
	8																
Station 3	0			9.0	1 2	27 1	0 03	15.00					<0.001	<0.05	<0.05	95.0	
	2																
	4																
	6																
	8																
	10																
	12																
	14																
	16																
	18																
	20																
Station 4	0																
	2																
	4																
	6																
	8																
Station 5	0																
	2																
	4																
	6																
Station 6	0																
	2																
	4																
	6																

LAKE AINSLIE WATER QUALITY DATA

SAMPLING DATE May28,1993

LOCATION	Depth [m]	As	Fe	Mn	Pb-HGA	Cu	Zn	Al	B	Ba	Be	Cd - HGA	Cr	Co	Ni	Sb	Se	Sn	Va
Station 1	0																		
	1																		
	2																		
	3																		
Station 2	0																		
	2																		
	4																		
	6																		
	8																		
Station 3	0																		
	2																		
	4																		
	6																		
	8																		
	10																		
	12																		
	14																		
	16																		
	18																		
	20																		
Station 4	0																		
	2																		
	4																		
	6																		
	8																		
Station 5	0																		
	2																		
	4																		
	6																		
Station 6	0																		
	2																		
	4																		
	6																		

LAKE AINSLIE WATER QUALITY DATA

SAMPLING DATE May28,1993

LOCATION	Depth [m]	Cat sum	Anion sum	% Diff	Std. Dev.	Ion sum	Th. Cond.	Sat pH	Lang.@5	Lang @20	Lang @50
Station 1	0										
	1										
	2										
	3										
Station 2	0										
	2										
	4										
	6										
	8										
Station 3	0										
	2										
	4										
	6										
	8										
	10										
	12										
	14										
	16										
	18										
	20										
Station 4	0										
	2										
	4										
	6										
	8										
Station 5	0										
	2										
	4										
	6										
Station 6	0										
	2										
	4										
	6										

LAKE AINSLIE WATER QUALITY DATA

SAMPLING DATE: June 25,1993

LOCATION	Depth [m]	Temp (C)	DO	% Air Sat	Secchi (m)	pH	Alk	Color	Turb.	SS	Total P	Total N	Chloro A	Pheophyt	Humic Acid
Station 1	0	16.2			bot	7.3	15.0	7.0			0.008	0.100	0.8	0.4	
	1														
	2														
	3														
Station 2	0	15.7			3.0	7.3	15.0	8.0			0.008	0.090	1.1	0.4	
	2														
	4														
	6														
	8														
Station 3	0														
	2														
	4														
	6														
	8														
	10														
	12														
	14														
	16														
	18														
	20														
Station 4	0	16.0			3.2	7.3	15.0	4.0			0.006	0.090	1.1	0.4	
	2														
	4														
	6														
	8														
Station 5	0	16.0			3.3	7.3	15.0	8.0			0.007	0.090	1.2	0.4	
	2														
	4														
	6														
Station 6	0														
	2														
	4														
	6														

LAKE AINSLIE WATER QUALITY DATA

SAMPLING DATE June 25,1993

LOCATION	Depth [m]	Na	K	Ca	Mg	HARD.	Carb.	Bicarb.	SO4	Cl	F	Si	Ortho P	NO2+NO3	NH4 (N)	Cond.	TOC
Station 1	0			9.0	1.2	26.9	0.03	15.00					<0.001	<0.05	<0.05	106.0	
	1																
	2																
	3																
Station 2	0			8.9	1.2	26.9	0.03	15.00					<0.001	<0.05	<0.05	106.0	
	2																
	4																
	6																
	8																
Station 3	0																
	2																
	4																
	6																
	8																
	10																
	12																
	14																
	16																
	18																
	20																
Station 4	0			8.9	1.2	26.8	0.03	15.00					<0.001	<0.05	<0.05	108.0	
	2																
	4																
	6																
	8																
Station 5	0			9.0	1.2	27.1	0.03	15.00					<0.001	<0.05	<0.05	108.0	
	2																
	4																
	6																
Station 6	0																
	2																
	4																
	6																

LAKE AINSLIE WATER QUALITY DATA

SAMPLING DATE June 25,1993

LOCATION	Depth [m]	As	Fe	Mn	Pb-HGA	Cu	Zn	Al	B	Ba	Be	Cd - HGA	Cr	Co	Ni	Sb	Se	Sn	Va
Station 1	0																		
	1																		
	2																		
	3																		
Station 2	0																		
	2																		
	4																		
	6																		
	8																		
Station 3	0																		
	2																		
	4																		
	6																		
	8																		
	10																		
	12																		
	14																		
	16																		
	18																		
	20																		
Station 4	0																		
	2																		
	4																		
	6																		
	8																		
Station 5	0																		
	2																		
	4																		
	6																		
Station 6	0																		
	2																		
	4																		
	6																		

LAKE AINSLIE WATER QUALITY DATA

SAMPLING DATE June 25,1993

LOCATION	Depth [m]	Cat sum	Anion sum	% Diff	Std. Dev	Ion sum	Th. Cond.	Sat pH	Lang @5	Lang @20	Lang @50
Station 1	0										
	1										
	2										
	3										
Station 2	0										
	2										
	4										
	6										
	8										
Station 3	0										
	2										
	4										
	6										
	8										
	10										
	12										
	14										
	16										
	18										
	20										
Station 4	0										
	2										
	4										
	6										
	8										
Station 5	0										
	2										
	4										
	6										
Station 6	0										
	2										
	4										
	6										

LAKE AINSLIE WATER QUALITY DATA

SAMPLING DATE: July 19,1993

LOCATION	Depth [m]	Temp (C)	DO	% Air Sat	Secchi (m)	pH	Alk	Color	Turb.	SS	Total P	Total N	Chloro A	Pheophyt.	Humic Acid
Station 1	0	15.8			3.2	7.7	16.0	6.0			0.006	0.120	1.1	0.6	
	1														
	2														
	3														
Station 2	0														
	2														
	4														
	6														
	8														
Station 3	0														
	2														
	4														
	6														
	8														
	10														
	12														
	14														
	16														
	18														
	20														
Station 4	0					7.5	16.0	7.0			0.005	0.110	1.9	0.8	
	2														
	4														
	6														
	8														
Station 5	0														
	2														
	4														
	6														
Station 6	0														
	2														
	4														
	6														

LAKE AINSLIE WATER QUALITY DATA

SAMPLING DATE July 19,1993

LOCATION	Depth [m]	Na	K	Ca	Mg	HARD.	Carb.	Bicarb.	SO4	Cl	F	Si	Ortho P	NO2+NO3	NH4 (N)	Cond.	TOC
Station 1	0			9.1	1.2	27.7	0.07	15.90					0.001	<0.05	<0.05	116.0	
	1																
	2																
	3																
Station 2	0																
	2																
	4																
	6																
	8																
Station 3	0																
	2																
	4																
	6																
	8																
	10																
	12																
	14																
	16																
	18																
	20																
Station 4	0			9.2	1.2	28.0	0.05	15.90					0.001	<0.05	<0.05	116.0	
	2																
	4																
	6																
	8																
Station 5	0																
	2																
	4																

LAKE AINSLIE WATER QUALITY DATA

SAMPLING DATE: July 19,1993

LOCATION	Depth [m]	As	Fe	Mn	Pb-HGA	Cu	Zn	Al	B	Ba	Be	Cd - HGA	Cr	Co	Ni	Sb	Se	Sn	Va
Station 1	0																		
	1																		
	2																		
	3																		
Station 2	0																		
	2																		
	4																		
	6																		
	8																		
Station 3	0																		
	2																		
	4																		
	6																		
	8																		
	10																		
	12																		
	14																		
	16																		
	18																		
	20																		
Station 4	0																		
	2																		
	4																		
	6																		
	8																		
Station 5	0																		
	2																		
	4																		
	6																		
Station 6	0																		
	2																		
	4																		
	6																		

LAKE AINSLIE WATER QUALITY DATA

SAMPLING DATE July 19,1993

LOCATION	Depth [m]	Cat sum	Anion sum	% Diff	Std. Dev.	Ion sum	Th. Cond	Sat pH	Lang @5	Lang @20	Lang @50
Station 1	0										
	1										
	2										
	3										
Station 2	0										
	2										
	4										
	6										
	8										
Station 3	0										
	2										
	4										
	6										
	8										
	10										
	12										
	14										
	16										
	18										
	20										
Station 4	0										
	2										
	4										
	6										
	8										
Station 5	0										
	2										
	4										
	6										
Station 6	0										
	2										
	4										
	6										

LAKE AINSLIE WATER QUALITY DATA

SAMPLING DATE Sept 2,1993

LOCATION	Depth [m]	Temp (C)	DO	% Air Sat	Secchi (m)	pH	Alk	Color	Turb	SS	Total P	Total N	Chloro A	Pheophyt	Humic Acid
Station 1	0	17.5	9.2	95.0	3.1	7.4	16.0	4.0	0.4	<0.06	0.013	0.120	0.6	0.3	3.8
	1	17.5	9.2	95.0											
	2	17.5	9.2	95.0											
	3	17.4	9.2	95.0											
Station 2	0	19.5	9.3	100.0	3.3	7.5	16.0			0.8	0.018	0.110	1.1	0.3	
	2	19.0	9.4	101.0											
	4	18.5	9.3	98.0											
	6	18.4	9.2	103.0		7.2	17.0			2.0	0.016	0.110	1.0	0.4	
	8														
Station 3	0	18.6	9.6	103.0	2.5	7.3	17.0			1.6	0.013	0.120	1.8	0.4	
	2	18.5	9.5	100.0											
	4	18.1	9.4	99.0											
	6	18.1	9.3	98.0											
	8	18.1	9.3	98.0											
	10	18.0	9.2	97.0											
	12	18.0	9.2	97.0											
	14	17.9	9.2	97.0											
	16	17.8	9.1	96.0		7.3	17.0			5.0	0.013	0.130	1.1	0.8	
	18														
	20														
Station 4	0	19.6	9.5	103.0	2.7	7.3	17.0			1.6	0.024	0.120	1.1	0.2	
	2	18.9	9.3	100.0											
	4	18.4	9.3	98.0											
	6	18.0	9.2	97.0											
	8														
station 4.5	0					7.2	16.0			0.8	0.023	0.110	1.0	0.2	
Station 5	0	19.3	9.1	98.0	3.9	6.8	17.0			0.8	0.018	0.120	0.9	0.3	
	2	18.5	9.0	95.0											
	4	18.5	9.1	96.0											
	6														
Station 6	0	19.6	9.8	106.0	3.4	7.0	16.0			1.6	0.023	0.120	1.0	0.3	
	2	18.8	9.8	105.0											
	4	18.4	9.7	102.0											
	6	18.3	9.5	100.0											
*LB-Sh-0m						7.4	19.0	6.0	0.4	0.5	0.031	0.13	0.6	0.40	4.0
*LFS															
*LFS #5						7.7	128.0	<3.0	11.7	11.5	0.039	0.23			0.8

* Samples taken september 21, 1993

LAKE AINSLIE WATER QUALITY DATA

SAMPLING DATE Sept 2,1993

LOCATION	Depth [m]	Na	K	Ca	Mg	HARD.	Carb.	Bicarb.	SO4	Cl	F	Si	Ortho P	NO2+NO3	NH4 (N)	Cond.	TOC
Station 1	0	11.0	0.5	8.8	1.1	26.7	0.04	15.90	13.0	16.9	0.1	1.3	<0.01	<0.05	<0.05	114.0	2.6
	1																
	2																
	3																
Station 2	0												<0.001	0.010	<0.01	114.0	
	2																
	4																
	6												<0.001	0.010	<0.01	115.0	
	8																
Station 3	0												<0.001	0.010	<0.01	114.0	
	2																
	4																
	6																
	8																
	10																
	12																
	14																
	16												<0.001	<0.01	<0.01	114.0	
	18																
	20																
Station 4	0												<0.001	<0.01	<0.01	116.0	
	2																
	4																
	6																
	8																
station 4.5	0												<0.001	<0.01	<0.01	119.0	
Station 5	0												<0.001	0.010	<0.01	119.0	
	2																
	4																
	6																
Station 6	0												<0.001	0.010	<0.01	116.0	
	2																
	4																
	6																
*LB-Sh-0m *LFS		11.5	0.5	10.7	1.3	32.0	0.0	18.9	14.0	19.1	<0.01	1.3	<0.01	<0.05	<0.05	133.0	2.6
*LFS #5		7.1	1.0	65.5	4.0	180.0	0.6	127.0	10.0	45.5	<0.01	7.2	<0.01	<0.05	0.16	448.0	0.8

* Samples taken september 21, 1993

LAKE AINSLIE WATER QUALITY DATA

SAMPLING DATE Sept 2,1993

LOCATION	Depth [m]	As	Fe	Mn	Pb-HGA	Cu	Zn	Al	B	Ba	Be	Cd - HGA	Cr	Co	Ni	Sb	Se	Sn	Va
Station 1	0	<0.002	<0.02	<0.01	<0.002	<0.01	<0.01	<0.10	<0.10	0.023	<0.005	<0.0020	<0.02	<0.05	<0.02	<0.05	<0.1	<0.05	<0.01
	1																		
	2																		
	3																		
Station 2	0																		
	2																		
	4																		
	6																		
	8																		
Station 3	0																		
	2																		
	4																		
	6																		
	8																		
	10																		
	12																		
	14																		
	16																		
	18																		
	20																		
Station 4	0																		
	2																		
	4																		
	6																		
	8																		
station 4.5	0																		
Station 5	0																		
	2																		
	4																		
	6																		
Station 6	0																		
	2																		
	4																		
	6																		
*LB-Sh-0m *LFS		<0.002	<0.02	<0.01	0.0	<0.01	<0.01	<0.10	<0.10	0.0	<0.005	<0.0020	<0.02	<0.05	<0.02	<0.05	<0.1	<0.05	<0.01
*LFS #5		0.0	1.7	0.9	0.0	<0.01	0.0	<0.10	<0.10	0.3	<0.005	<0.0020	<0.02	<0.05	<0.02	<0.05	<0.1	<0.05	<0.01

* Samples taken september 21, 1993

LAKE AINSLIE WATER QUALITY DATA

SAMPLING DATE Sept 2,1993

LOCATION	Depth [m]	Cat sum	Anion sum	% Diff	Std. Dev.	Ion sum	Th. Cond.	Sat pH	Lang.@5	Lang @20	Lang @50
Station 1	0	1.020	1.070	2.290	0.120	62.3	122.0	9.7	-2.2	-1.9	-1.3
	1										
	2										
	3										
Station 2	0										
	2										
	4										
	6										
	8										
Station 3	0										
	2										
	4										
	6										
	8										
	10										
	12										
	14										
	16										
	18										
	20										
Station 4	0										
	2										
	4										
	6										
	8										
station 4.5	0										
Station 5	0										
	2										
	4										
	6										
Station 6	0										
	2										
	4										
	6										
*LB-Sh-0m *LFS		1.2	1.2	2.4	0.3	69.8	137.0	9.5	-2.1	-1.7	-1.2
*LFS #5		3.9	4.1	1.4	0.2	217.0	428.0	7.9	-0.2	0.2	0.7

* Samples taken september 21, 1993

LAKE AINSLIE WATER QUALITY DATABASE-1991

STATION	Date	Temp (C)	DO	Secchi (m)	pH	Alk	Color	Turb	SS	total P	total N	Chloro A	Pheophyt.	Humic acid
LA-1-0m	May 27	11.5	10.8	3.0(b)	7.2	14.0	6.0	0.6	2.3	<0.005	0.070	0.5	0.3	1.8
(Bot=3m)	Jun 10	15.2		2.8	7.2	10.0	7.0	0.9	1.2	<0.005	0.100	0.4	0.2	3.0
	Jun 17	13.5	13.5	2.7(b)										
	Jun 24	18.0		2.8(b)	7.2	14.0	7.0	0.7	1.1	<0.005	0.150	0.6	<0.100	2.3
	Jul 8	19.3		3.0(b)	7.3	14.0	<3.0	0.5	1.3	<0.005	0.140	1.0	0.3	3.7
	Jul 22	23.2	8.0	3.0	7.2	15.0	6.0	0.3	0.9	<0.005	0.140	1.0	0.7	2.0
	Aug 7	(sandbar)		Shoreline	7.6	14.0	9.0	2.0	14.0	<0.005	0.120	2.0	1.1	2.0
	Aug 21	21.2	7.9	2.8(b)	7.2	14.0	5.0	0.9	1.8	<0.005	0.160	0.8	0.6	1.7
	Sept 3	17.7	8.6	3.0(b)	7.3	15.0	6.0	0.3	0.5	<0.005	0.120	0.8	0.4	2.2
	Oct 8	(sandbar)		Shoreline	6.7	15.0	25.0	2.2	4.2	<0.005	0.190	0.6	0.5	9.7
LA-2-0M	May 27	12.1	11.3	3.5	7.2	14.0	8.0	1.0	3.0	<0.005	0.080	0.9	<0.100	1.5
	Jun 10				7.7	13.0	9.0		2.1	<0.005	0.150	1.0	0.3	
	Jun 17	14.0	10.5	2.7										
	Jun 24	19.5	9.6	3.2	7.2	14.0	8.0	1.1	2.0	<0.005	0.110	1.6	<0.100	2.3
	Jul 8				7.4	14.0			1.0	<0.005	0.120	1.3	<0.100	
	Jul 22	22.2	8.6	3.7	7.2	14.0	8.0	0.8	1.2	<0.005	0.120	0.6	2.9	1.7
	Aug 21	21.5	8.2	3.1	7.3	14.0	8.0	1.3	3.5	<0.005	0.110	1.1	0.3	1.4
	Sept 3	19.0	8.6	4.0	7.4	14.0			1.2	<0.005	0.180	0.9	0.4	
LA-2-B[7m]	May 27	11.0	11.6	------	7.2	14.0	7.0	1.1	3.5	0.007	0.070	1.4	0.4	1.5
	Jun 17	13.2	8.8	------										
	Jun 24	17.2	8.5	------	7.1	14.0			4.4	0.005	0.130	1.6	0.2	
	Jul 8			NO SAMPLE TAKEN										
	Jul 22	19.8	7.3	------	7.2	14.0			2.0	<0.005	0.160	1.0	0.4	
	Aug 21	21.5	8.1	------	7.3	13.0			1.6	<0.005	0.150	1.2	0.3	
	Sept 3	19.0	8.6	------	7.3	14.0			1.2	<0.005	0.120	1.0	0.6	
LA-3-0m	Jun 10	16.5	10.3	3.3	7.6	14.0	5.0		0.8	<0.005	0.120	0.9	0.2	
	Jun 24	19.0	8.9	3.8	7.0	15.0			1.0	<0.005	0.090	1.9	<0.100	
	Jul 8	19.5	9.2	3.5	7.7	15.0			2.5	<0.005	0.130	1.4	0.3	
	Jul 22				7.4	14.0			0.4	<0.005	0.210	2.2	0.7	
	Aug 7	20.6	8.3	3.1	7.1	15.0			2.8	<0.005	0.100	2.0	0.9	
	Aug 21	21.5	8.2	2.5	7.3	14.0			1.6	<0.005	0.130	2.0	0.5	
	Sept 3	19.5	8.6	2.9	7.3	15.0			2.4	<0.005	0.120	1.4	0.6	
	Oct 3			Shoreline	6.9	14.0			2.8	<0.005	0.130	1.7	0.8	

Note (b) indicates bottom

LAKE AINSLIE WATER QUALITY DATABASE-1991

STATION	Date	Temp (C)	DO	Secchi (m)	pH	Alk	Color	Turb	SS	total P	total N	Chloro A	Pheophyt.	Humic acid
LA-3-B(17.5)	Jun 10	14.5	8.2	------	7.6	14.0	5.0		2.0	<0.005	0.100	1.5	0.4	
	Jun 24	14.2	8.6	------	7.1	14.0			2.9	<0.005	0.100	0.7	0.3	
	Jul 8/91	16.7	7.5	------	7.5	15.0			3.5	<0.005	0.130	1.6	0.7	
	Jul 22													
	Aug 7	20.5	7.0	------	7.1	15.0			4.4	<0.005	0.110	2.2	1.0	
	Aug 21	19.8	5.8	------	7.2	15.0			2.0	0.006	0.150	1.5	0.4	
	Sept 3	19.0	8.1	------	7.3	15.0			4.4	<0.005	0.110	1.8	0.7	
LA-4-0m	Jun 10				7.5	13.0	8.0		0.4	<0.005	0.110	0.8	0.2	
(Bot=6m)	Jun 24	19.0	9.2	4.3	7.1	14.0			0.7	<0.005	0.100	0.8	<0.100	
	Jul 22	22.7	8.6	3.8	7.5	14.0			0.4	<0.005	0.200	1.9	0.6	
	Aug 21	21.6	8.3	2.6	7.3	14.0			2.8	<0.005	0.110	1.3	0.3	
	Sept 3			3.1	7.4	14.0			2.8	0.006	0.110	1.0	0.4	
	Oct 8				6.9	14.0			4.8	<0.005	0.130	0.9	0.4	
LA-5-0m	Aug 21	21.5	8.2	5.0	7.3	14.0			<0.4	<0.005	0.120	1.1	0.3	
(Bot=6m)	Sept 3	18.8	8.5	3.8	7.4	15.0			1.2	<0.005	0.110	1.0	0.3	
LA-6-0m	Aug 21	21.8	8.3	3.8	7.3	14.0			0.4	<0.005	0.120	0.9	0.4	
(Bot=8m)	Sept 3	19.0	8.8	3.4	7.4	15.0			2.0	0.005	0.140	1.4	0.4	
LB-Sh-0m	Jun 24				7.4	28.0	11.0	0.4	1.8	<0.005	0.120			3.7
	Aug 1	22.5	pH 9.0(f)	cond 140(f)	7.5	16.0	9.0	0.8	3.5	<0.1				2.1
LFS	Sept 10				7.6	26.0	6.0	0.5	5.5					
LFS #5	Jun 24				7.9	85.0	10.0	5.0	12.0	0.005	0.190			1.5
	Aug 1	9.4	pH 8.7(f)	cond 220(f)	7.9	82.0	6.0	2.9						
	Sept 10				7.9	89.0	<3.0	1.8	21.0					
LA-WLC-0m	Jun 24				7.1	14.0			0.4	<0.005	0.120	0.5	<0.100	
	Jul 8/91				7.5	15.0			4.5	<0.005	0.130	1.0	0.8	
	Aug 7				7.2	14.0			1.2	<0.005	0.120	1.0	0.6	
LA-TR-0m	Apr 29				7.1	11.0	7.0	0.6		0.021	0.170	1.0		2.8

Note (f) indicates field measurements

LAKE AINSLIE WATER QUALITY DATABASE-1991

STATION	Date	Na	K	Ca	Mg	HARD	Carb	Bicarb.	SO4	Cl	F	Si	Ortho P	NO2+NO3	NH4 (N)	Cond	TOC
LA-1-0m	May 27	10.5	0.5	7.8	1.2	24.4	0.02	14.00	12.0	17.0	<0.1	0.5	<0.01	<0.05	<0.05	117.0	1.7
(Bot=3m)	Jun 10	11.6	0.5	8.8	1.2	26.9	0.02	9.98	12.0	19.0	0.2	<0.5	<0.01	<0.05	<0.05	120.0	1.2
	Jun 17																
	Jun 24	12.2	0.5	8.2	1.3	25.8	0.02	14.00	12.0	18.9	<0.1	<0.5	<0.01	<0.05	<0.05	120.0	1.7
	Jul 8	11.4	0.5	8.4	1.3	26.3	0.03	14.00	13.0	19.0	<0.1	<0.5	<0.01	<0.05	<0.05	120.0	1.7
	Jul 22	12.1	0.5	8.8	1.2	26.9	0.02	15.00	13.0	19.1	<0.1	<0.5	0.030	<0.05	0.050	130.0	1.9
	Aug 7	12.7	0.5	8.9	1.3	27.6	0.05	13.90	14.0	19.4	<0.1	<0.5	<0.01	<0.05	<0.05	138.0	2.3
	Aug 21	12.2	0.4	8.6	1.3	26.8	0.02	14.00	14.0	19.5	<0.1	<0.5	<0.01	<0.05	<0.05	129.0	1.7
	Sept 3	12.8	0.5	8.3	1.2	25.6	0.03	15.00	14.0	20.3	<0.1	<0.5	<0.01	<0.05	<0.05	138.0	2.3
	Oct 8	11.3	<0.1	9.2	1.2	27.8	0.01	15.00	14.0	18.5	<0.1	1.2	<0.01	<0.05	0.07	125.0	4.2
LA-2-0M	May 27	10.3	0.5	7.9	1.2	24.6	0.02	14.00	12.0	17.0	<0.1	1.1	<0.01	<0.05	<0.05	116.0	1.5
	Jun 10			8.5	1.1	25.7	0.06	12.90					<0.01	0.050	<0.05	112.0	
	Jun 17																
	Jun 24	11.4	0.5	7.7	1.2	24.1	0.02	14.00	12.0	17.7	<0.1	<0.5	<0.01	<0.05	0.120	120.0	1.7
	Jul 8												<0.01	<0.05	<0.05	113.0	
	Jul 22	12.0	0.5	8.4	1.1	25.5	0.02	14.00	12.0	18.8	<0.1	<0.5	0.010	<0.05	<0.05	120.0	1.8
	Aug 21	11.9	0.5	8.3	1.2	25.6	0.03	14.00	13.0	18.9	<0.1	<0.5	<0.01	<0.05	<0.05	125.0	1.6
	Sept 3												<0.01	<0.05	<0.05	128.0	
LA-2-B[7m]	May 27	10.3	0.5	7.9	1.2	24.6	0.02	14.00	12.0	17.0	<0.1	1.1	<0.01	<0.05	<0.05	118.0	1.3
	Jun 17																
	Jun 24												<0.01	<0.05	<0.05	117.0	
	Jul 8																
	Jul 22												<0.01	<0.05	<0.05	117.0	
	Aug 21												<0.01	<0.05	<0.05	125.0	
	Sept 3												<0.01	<0.05	<0.05	128.0	
LA-3-0m	Jun 10			8.5	1.1	25.7	0.05	13.90					0.010	<0.05	<0.05	110.0	
	Jun 24												<0.01	<0.05	<0.05	115.0	
	Jul 8												0.010	<0.05	<0.05	113.0	
	Jul 22												<0.01	<0.05	<0.05	116.0	
	Aug 7												0.01	<0.05	0.08	117.0	
	Aug 21												<0.01	<0.05	<0.05	125.0	
	Sept 3												<0.01	<0.05	<0.05	129.0	
	Oct 3												<0.01	<0.05	0.050	120.0	

LAKE AINSLIE WATER QUALITY DATABASE-1991

STATION	Date	Na	K	Ca	Mg	HARD	Carb	Bicarb	SO4	Cl	F	Si	Ortho P	NO2+NO3	NH4 (N)	Cond	TOC
LA-3-B(17.5)	Jun 10			8.5	1.1	25.7	0.05	13.90					<0.01	<0.05	<0.05	110.0	
	Jun 24												<0.01	<0.05	<0.05	116.0	
	Jul 8/91												<0.01	<0.05	<0.05	113.0	
	Jul 22	NO SAMPLE TAKEN															
	Aug 7												<0.01	<0.05	0.06	117.0	
	Aug 21												<0.01	<0.05	<0.05	125.0	
	Sept 3												<0.01	<0.05	<0.05	128.0	
LA-4-0m	Jun 10			8.2	1.1	24.9	0.04	12.90					0.160	<0.05	0.110	112.0	
(Bot=6m)	Jun 24												<0.01	<0.05	0.050	117.0	
	Jul 22												<0.01	<0.05	<0.05	118.0	
	Aug 21												<0.01	<0.05	<0.05	126.0	
	Sept 3												<0.01	<0.05	<0.05	129.0	
	Oct 8												<0.01	<0.05	<0.05	127.0	
LA-5-0m	Aug 21												<0.01	<0.05	<0.05	127.0	
(Bot=6m)	Sept 3												<0.01	<0.05	<0.05	129.0	
LA-6-0m	Aug 21												<0.01	<0.05	<0.05	125.0	
(Bot=8m)	Sept 3												<0.01	<0.05	<0.05	128.0	
LB-Sh-0m	Jun 24	11.6	0.5	12.5	1.5	37.5	0.07	27.90	13.0	19.0	<0.1	0.6	<0.01	<0.05	0.060	150.0	2.1
	Aug 1	12.4	1.5	9.6	1.3	29.3	0.05	15.90	14.0	20.0	0.1	0.8	0.04	<0.05	<0.05	140.0	2.0
LFS	Sept 10	11.7	0.4	12.3	1.5	36.9	0.10	25.90	14.0	19.4	<0.1	1.0	<0.01	<0.05	0.1	154.0	2.4
LFS #5	Jun 24	5.1	0.7	37.6	2.3	103.0	0.63	84.30	9.0	22.0	<0.1	6.6	<0.01	<0.05	0.180	250.0	0.7
	Aug 1	5.1	2.1	39.6	2.4	109.0	0.61	81.40	11.0	23.6	<0.1	6.9	<0.01	<0.05	0.1	276.0	4.2
	Sept 10	5.0	0.7	41.6	2.4	114.0	0.66	88.30	10.0	23.8	<0.1	6.9	<0.01	<0.05	0.3	272.0	1.0
LA-WLC-0m	Jun 24												<0.01	<0.05	0.050	118.0	
	Jul 8/91												<0.01	<0.05	<0.05	112.0	
	Aug 7												<0.01	<0.05	<0.05	117.0	
LA-TR-0m	Apr 29	6.3	0.5	4.9	1.0	16.3	0.01	11.00	6.0	8.8	0.1	5.2	<0.01	<0.05	<0.05	72.0	0.8

LAKE AINSLIE WATER QUALITY DATABASE-1991

STATION	Date	As	Fe	Mn	Pb-HGA	Cu	Zn	Al	B	Ba	Be	Cd - HG	Cr	Co	Ni	Sb	Se	Sn	Va
LA-1-0m	May 27	<0.005	0.030	<0.01	<0.002	<0.01	<0.01	<0.1	<0.1	0.023	<0.005	<0.002	<0.02	<0.05	<0.02	<0.05	<0.1	<0.05	<0.01
(Bot=3m)	Jun 10	<0.005	<0.02	<0.01	<0.002	<0.01	<0.01	<0.1	<0.1	0.022	<0.005	<0.002	<0.02	<0.05	<0.02	<0.05	<0.1	<0.05	<0.01
	Jun 17																		
	Jun 24	<0.005	0.040	<0.01	0.003	<0.01	<0.01	<0.1	<0.1	0.019	<0.005	<0.002	<0.02	<0.05	<0.02	<0.05	<0.1	<0.05	<0.01
	Jul 8	<0.005	0.020	<0.01	<0.002	<0.01	<0.01	0.1	<0.1	0.023	<0.005	<0.002	<0.02	<0.05	<0.02	<0.05	<0.1	<0.05	<0.01
	Jul 22	<0.005	<0.02	<0.01	<0.002	<0.01	<0.01	<0.1	<0.1	0.024	<0.005	<0.002	<0.02	<0.05	<0.02	<0.05	<0.1	<0.05	<0.01
	Aug 7	<0.005	0.050	0.020	<0.002	<0.01	<0.01	<0.1	<0.1	0.025	<0.005	<0.002	<0.02	<0.05	<0.02	<0.05	<0.1	<0.05	<0.01
	Aug 21	<0.005	0.020	<0.01	<0.002	<0.01	<0.01	<0.1	<0.1	0.026	<0.005	<0.002	0.02	<0.05	<0.02	<0.05	<0.1	0.05	<0.01
	Sept 3	<0.005	<0.02	<0.01	<0.002	<0.01	<0.01	<0.1	<0.1	0.024	<0.005	<0.002	<0.02	<0.05	<0.02	<0.05	<0.1	<0.05	<0.01
	Oct 8	<0.005	0.100	<0.01	<0.002	<0.01	<0.01	0.1	<0.1	0.027	<0.005	<0.002	<0.02	<0.05	<0.02	<0.05	<0.1	<0.05	<0.01
LA-2-0M	May 27	<0.005	0.040	<0.01	<0.002	<0.01	<0.01	<0.1	<0.1	0.024	<0.005	<0.002	<0.02	<0.05	<0.02	<0.05	<0.1	<0.05	<0.01
	Jun 10																		
	Jun 17																		
	Jun 24	<0.005	0.050	<0.01	<0.002	<0.01	<0.01	<0.1	<0.1	0.019	<0.005	<0.002	<0.02	<0.05	<0.02	<0.05	<0.1	<0.05	<0.01
	Jul 8																		
	Jul 22	<0.005	<0.02	<0.01	<0.002	<0.01	<0.01	<0.1	<0.1	0.024	<0.005	<0.002	<0.02	<0.05	<0.02	<0.05	<0.1	<0.05	<0.01
	Aug 21	<0.005	0.080	<0.01	<0.002	<0.01	<0.01	<0.1	<0.1	0.026	<0.005	<0.002	<0.02	<0.05	<0.02	<0.05	<0.1	<0.05	<0.01
	Sept 3																		
LA-2-B[7m]	May 27	<0.005	0.030	<0.01	<0.002	<0.01	<0.01	<0.1	<0.1	0.023	<0.005	<0.002	<0.02	<0.05	<0.02	<0.05	<0.1	<0.05	<0.01
	Jun 17																		
	Jun 24																		
	Jul 8																		
	Jul 22																		
	Aug 21																		
	Sept 3																		
LA-3-0m	Jun 10																		
	Jun 24																		
	Jul 8																		
	Jul 22																		
	Aug 7																		
	Aug 21																		
	Sept 3																		
	Oct 3																		

LAKE AINSLIE WATER QUALITY DATABASE-1991

STATION	Date	As	Fe	Mn	Pb-HGA	Cu	Zn	Al	B	Ba	Be	Cd - HG	Cr	Co	Ni	Sb	Se	Sn	Va
LA-3-B(17.5)	Jun 10																		
	Jun 24																		
	Jul 8/91																		
	Jul 22																		
	Aug 7																		
	Aug 21																		
	Sept 3																		
LA-4-0m	Jun 10																		
(Bot=6m)	Jun 24																		
	Jul 22																		
	Aug 21																		
	Sept 3																		
	Oct 8																		
LA-5-0m	Aug 21																		
(Bot=6m)	Sept 3																		
LA-6-0m	Aug 21																		
(Bot=8m)	Sept 3																		
LB-Sh-0m	Jun 24	<0.005	0.030	0.010	<0.002	<0.01	<0.01	<0.1	<0.1	0.120	<0.005	<0.002	<0.02	<0.05	<0.02	<0.05	<0.1	<0.05	<0.01
	Aug 1	<.002	0.040	<0.01	<0.001	0.00	<0.01	0.0	0.0	0.042	<0.005	<.0005	<.002	<.001	<.002	<.002	<.002	<.002	<.002
LFS	Sept 10	<0.005	<0.02	0.010	<0.002	<0.01	0.02	<0.1	<0.1	0.100	<0.005	<0.002	<0.02	<0.05	<0.02	<0.05	<0.1	<0.05	<0.01
LFS #5	Jun 24	<0.005	0.960	0.490	0.002	<0.01	<0.01	<0.1	<0.1	0.162	<0.005	<0.002	<0.02	<0.05	<0.02	<0.05	<0.1	<0.05	<0.01
	Aug 1	0.002	1.020	0.490	0.001	0.01	<0.01	0.0	0.0	0.190	<0.005	<.0005	<0.002	<0.001	0.00	<.002	<.002	<.002	<.002
	Sept 10	<0.005	0.280	0.610	<0.002	<0.01	0.03	<0.1	<0.1	0.171	<0.005	<0.002	<0.02	<0.05	<0.02	<0.05	<0.1	<0.05	<0.01
LA-WLC-0m	Jun 24																		
	Jul 8/91																		
	Aug 7																		
LA-TR-0m	Apr 29	<0.005	0.070	0.020	<0.002	<0.01	<0.01												

LAKE AINSLIE WATER QUALITY DATABASE-1991

STATION	Date	Cat sum	Anion sum	% Diff.	Std. Dev.	Ion sum	Th. Cond.	Sat pH	Lang.@5	Lang @20	Lang @50
LA-1-0m	May 27	0.960	1.010	2.610	0.120	57.9	115.0	9.8	-2.6	-2.2	-1.6
(Bot=3m)	Jun 10	1.060	1.000	2.900	0.120	59.1	121.0	9.9	-2.7	-2.3	-1.7
	Jun 17										
	Jun 24	1.060	1.060	0.130	0.120	61.5	124.0	9.7	-2.5	-2.2	-1.6
	Jul 8	1.030	1.090	2.420	0.120	61.0	125.0	9.7	-2.4	-2.1	-1.5
	Jul 22	1.080	1.110	1.250	0.120	63.8	128.0	9.7	-2.5	-2.1	-1.6
	Aug 7	1.120	1.120	0.090	0.120	65.2	131.0	9.7	-2.1	-1.7	-1.2
	Aug 21	1.080	1.120	2.000	0.120	64.4	130.0	9.7	-2.5	-2.2	-1.6
	Sept 3	1.080	1.160	3.610	0.130	66.1	132.0	9.7	-2.4	-2.0	-1.5
	Oct 8	1.050	1.110	2.740	0.120	64.5	127.0	9.7	-3.0	-2.6	-2.0
LA-2-0M	May 27	0.950	1.010	2.810	0.120	58.4	115.0	9.8	-2.6	-2.2	-1.6
	Jun 10										
	Jun 17										
	Jun 24	1.000	1.030	1.400	0.120	59.1	119.0	9.8	-2.6	-2.2	-1.6
	Jul 8										
	Jul 22	1.040	1.060	0.720	0.120	61.2	123.0	9.7	-2.5	-2.2	-1.6
	Aug 21	1.040	1.080	1.880	0.120	62.2	125.0	9.7	-2.4	-2.1	-1.5
	Sept 3										
LA-2-B[7m]	May 27	0.950	1.010	2.810	0.120	58.4	115.0	9.8	-2.6	-2.2	-1.6
	Jun 17										
	Jun 24										
	Jul 8										
	Jul 22										
	Aug 21										
	Sept 3										
LA-3-0m	Jun 10										
	Jun 24										
	Jul 8										
	Jul 22										
	Aug 7										
	Aug 21										
	Sept 3										
	Oct 3										

LAKE AINSLIE WATER QUALITY DATABASE-1991

STATION	Date	Cat sum	Anion sum	% Diff	Std Dev	Ion sum	Th. Cond	Sat pH	Lang @5	Lang @20	Lang @50
LA-3-B(17.5)	Jun 10										
	Jun 24										
	Jul 8/91										
	Jul 22										
	Aug 7										
	Aug 21										
	Sept 3										
LA-4-0m	Jun 10										
(Bot=6m)	Jun 24										
	Jul 22										
	Aug 21										
	Sept 3										
	Oct 8										
LA-5-0m	Aug 21										
(Bot=6m)	Sept 3										
LA-6-0m	Aug 21										
(Bot=8m)	Sept 3										
LB-Sh-0m	Jun 24	1.270	1.370	3.690	0.130	75.6	149.0	9.3	-1.9	-1.5	-0.9
	Aug 1	1.160	1.180	0.480		69.0	137.0	9.6	-2.1		
LFS	Sept 10	1.270	1.360	3.500	0.130	76.1	150.0	9.3	-1.7	-1.3	-0.8
LFS #5	Jun 24	2.320	2.510	3.930	0.150	135.0	255.0	8.3	-0.4	-0.1	0.5
	Aug 1	2.450	2.530	1.640		140.0	267.0	8.3	-0.4		
	Sept 10	2.530	2.660	2.500	0.150	144.0	275.0	8.3	-0.4	0.0	0.6
LA-WLC-0m	Jun 24										
	Jul 8/91										
	Aug 7										
LA-TR-0m	Apr 29										

LAKE AINSLIE WATER QUALITY DATABASE-1992

STATION	Date	Temp. (C)	DO	%Air Sat	Secchi (m)	pH	Alk	Color	Turb.	SS	Total P	Total N	Chloro A	Pheophyt.	Humic acid
LA-1-0m	May 18	13.0	10.5	99.0	bottom	7.0	14.0			2.4	<0.001	0.11	1.8	0.80	
LA-1-0m	Jul 30	21.3	8.7	97.0	bottom	7.1	16.0			<0.5	0.004	0.11	0.9	0.40	
LA-1-0m	Sept 10	20.0	9.1	99.0	bottom	7.2	17.0	6.0	0.3	<0.4	0.004	0.15	0.9	<0.1	
LA-2-0m															
LA-2-7m															
LA-3-0m	Mar 30	0.0	13.6	93.0		6.7	13.0			8.0	0.010	0.23	0.5	<0.1	
LA-3-0m	May 18	11.0	11.8	107.0	2.8	7.1	14.0			2.8	<0.001	0.15	3.4	0.80	
LA-3-0m	Jul 30	21.5	8.8	100.0	3.5	7.1	16.0			1.0	0.003	0.20	1.8	1.10	
LA-3-0m	Sept 10	20.5	8.7	97.0	3.4	7.0	16.1			<0.4	0.008	0.14	2.0	0.40	
LA-3-17.5m	Mar 30	3.5	3.8	29.0		6.9	18.0			3.2	0.015	0.23	0.7	0.20	
LA-3-17.5m	May 18	10.0	11.9	105.0		7.1	14.0			2.4	<0.001	0.13	3.4	0.90	
LA-3-17.5m	Jul 30	17.2	8.8	100.0		7.0	19.0			1.5	0.065	0.60	0.3	1.30	
LA-3-17.5m	Sept 10	19.0	7.0	75.0		7.1	16.0			2.4	0.008	0.15	1.3	0.40	
LA-4-0m	Jul 8					7.4	15.0			1.2	0.002	0.11	1.0	0.30	
LA-4-0m	Jul 30	20.4			3.0	7.0	16.0			1.0	0.004	0.10	1.0	0.80	
LA-4-0m	Sept 10	20.0	8.7	95.0	2.7	7.1	16.0			2.0	0.006	0.13	2.0	0.40	
LA-5-0m	Jul 30	21.0	9.1	111.0	3.8	7.4	16.0	<3.0	2.3	<0.5	0.003	0.13	1.7	0.60	
LA-5-0m	Sept 10	20.0	8.7	95.0	2.7	7.1	16.0			2.0	0.006	0.14	1.8	0.70	
LA-6-0m (Bot=8m)															
LB-Sh-0m LFS	Sept 25					7.4	19.0	<3.0	0.8	3.3					2.7
LFS #5	Sept 25					7.6	77.0	<3.0	4.6	19.0					1.0

LAKE AINSLIE WATER QUALITY DATABASE-1992

STATION	Date	Na	K	Ca	Mg	HARD.	Carb.	Bicarb	SO4	Cl	F	Si	Ortho P	NO2+NO3	NH4 (N)	Cond	TOC
LA-1-0m	May 18												<0.01	<0.05	<0.05	99.0	
LA-1-0m	Jul 30												<0.01	<0.05	<0.05	122.0	
LA-1-0m	Sept 10	12.1	0.5	9.4	1.3	28.8	0.0	17.0	14.0	18.6	<0.1	1.0	<0.01	<0.05	<0.05	129.0	2.1
LA-2-0m																	
LA-2-7m																	
LA-3-0m	Mar 30												<0.01	0.16	<0.05	68.0	
LA-3-0m	May 18												<0.01	<0.05	<0.05	88.0	
LA-3-0m	Jul 30												<0.01	<0.05	<0.05	119.0	
LA-3-0m	Sept 10												<0.01	<0.05	<0.05	110.0	
LA-3-17.5m	Mar 30												0.01	0.15	<0.05	146.0	
LA-3-17.5m	May 18												<0.01	<0.05	<0.05	94.0	
LA-3-17.5m	Jul 30												0.05	<0.05	0.43	125.0	
LA-3-17.5m	Sept 10												<0.01	<0.05	<0.05	110.0	
LA-4-0m	Jul 8												0.01	<0.05	<0.05	107.0	
LA-4-0m	Jul 30												<0.01	<0.05	<0.05	121.0	
LA-4-0m	Sept 10												<0.01	<0.05	<0.05	111.0	
LA-5-0m	Jul 30	11.0	0.5	8.6	1.2	26.4	0.0	15.9	13.0	17.4	<0.1	0.8	<0.01	<0.05	<0.05	120.0	2.5
LA-5-0m	Sept 10												<0.01	<0.05	<0.05	110.0	
LA-6-0m (Bot=8m)																	
LB-Sh-0m LFS	Sept 25	12.9	0.4	11.0	11.0	34.1	0.04	18.9	15.0	19.5		1.4	0.01	<0.05	<0.05	140.0	2.1
LFS #5	Sept 25	4.2	0.5	37.4	2.5	104.0	0.3	76.7	11.0	17.8		6.8	<0.01	<0.05	0.13	241.0	<0.5

LAKE AINSLIE WATER QUALITY DATABASE-1992

STATION	Date	As	Fe	Mn	Pb-HGA	Cu	Zn	Al	B	Ba	Be	Cd - HGA	Cr	Co	Ni	Sb	Se	Sn	Va
LA-1-0m	May 18																		
LA-1-0m	Jul 30																		
LA-1-0m	Sept 10	<0.002	<0.02	<0.01	<0.002	<0.01	<0.01	<0.1	<0.1	0.0	<0.005	<0.002	<0.02	<0.05	<0.02	<0.05	<0.1	<0.05	<0.01
LA-2-0m																			
LA-2-7m																			
LA-3-0m	Mar 30																		
LA-3-0m	May 18																		
LA-3-0m	Jul 30																		
LA-3-0m	Sept 10																		
LA-3-17.5m	Mar 30																		
LA-3-17.5m	May 18																		
LA-3-17.5m	Jul 30																		
LA-3-17.5m	Sept 10																		
LA-4-0m	Jul 8																		
LA-4-0m	Jul 30																		
LA-4-0m	Sept 10																		
LA-5-0m	Jul 30	<0.002	<0.02	<0.01	<0.002	0.01	<0.01	<0.1	<0.1	0.02	<0.005	<0.002	<0.02	<0.05	<0.02	<0.05	<0.1	<0.05	<0.01
LA-5-0m	Sept 10																		
LA-6-0m (Bot=8m)																			
LB-Sh-0m LFS	Sept 25	<0.002	0.01	0.0	0.0	0.0	<0.002	0.02	0.01	0.05	<0.005	<0.0005	<0.002	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002
LFS #5	Sept 25	<0.002	0.9	0.6	0.0	0.02	0.02	0.04	0.01	0.2	<0.005	<0.005	<0.002	<0.001	0.0	<0.002	<0.002	<0.002	<0.002

LAKE AINSLIE WATER QUALITY DATABASE-1992

STATION	Date	Cat sum	Anion sum	% Diff	Std. Dev	Ion sum	Th. Cond	Sat pH	Lang.@5	Lang @20	Lang @50
LA-1-0m	May 18										
LA-1-0m	Jul 30										
LA-1-0m	Sept 10	1.1	1.2	1.8	0.1	85.1					
LA-2-0m											
LA-2-7m											
LA-3-0m	Mar 30										
LA-3-0m	May 18										
LA-3-0m	Jul 30										
LA-3-0m	Sept 10										
LA-3-17.5m	Mar 30										
LA-3-17.5m	May 18										
LA-3-17.5m	Jul 30										
LA-3-17.5m	Sept 10										
LA-4-0m	Jul 8										
LA-4-0m	Jul 30										
LA-4-0m	Sept 10										
LA-5-0m	Jul 30	1.0	1.1	2.9	0.1	62.1					
LA-5-0m	Sept 10										
LA-6-0m (Bot=8m)											
LB-Sh-0m LFS	Sept 25	1.3	1.2	0.4		73.0	144.0	9.5	-2.1		
LFS #5	Sept 25	2.3	2.3	0.1		127.0	240.0	8.4	-0.8		

LAKE AINSLIE WATER QUALITY DATABASE-1993

STATION	Date	Temp. (C)	DO	%Air Sat	Secchi (m)	pH	Alk	Color	Turb.	SS	Total P	Total N	Chloro A	Pheophyt.	Humic acid
LA-1-0m	May 28	12.1			3.1	6.9	15.0	<3.0			0.005	0.14	1.7	0.50	
	Jun 25	16.2			3.1(b)	7.3	15.0	7.0			0.008	0.10	0.8	0.40	
	Jul 19	15.8			3.2	7.7	16.0	6.0			0.0	0.1	1.1	0.6	
	Sept 2	17.5	9.2	95.0	3.1	7.4	16.0	4.0	0.4	<0.06	0.013	0.12	0.6	0.30	3.8
LA-2-0m	Jun 25	15.7			3.0	7.3	15.0	8.0			0.008	0.09	1.1	0.40	
	Sept 2	19.5	9.3	100.0	3.3	7.5	16.0			0.8	0.0	0.1	1.1	0.3	
LA-2-7m	Sept 2					7.2	17.0			2.0	0.016	0.11	1.0	0.40	
LA-3-0m	May 28					7.3	15.0	9.0			0.006	0.13	4.3	0.80	
	Sept 2	18.6	9.6	103.0	2.5	7.3	17.0			1.6	0.013	0.12	1.8	0.40	
LA-3-17.5m	Sept 2					7.3	17.0			5.0	0.013	0.13	1.1	0.80	
LA-4-0m	May 28	16			3.2	7.3	15.0	4.0			0.006	0.09	1.1	0.40	
	Jul 19					7.5	16.0	7.0			0.005	0.11	1.9	0.80	
	Sept 2	19.6	9.5	103.0	2.7	7.3	17.0			1.6	0.024	0.12	1.1	0.20	
LA-4.5-0M	Sept 2					7.2	16.0			0.8	0.023	0.11	1.0	0.20	
LA-5-0m	Jun 25	16			3.3	7.3	15.0	8.0			0.007	0.09	1.2	0.40	
	Sept 2	19.3	9.1	98.0	3.9	6.8	17.0			0.8	0.018	0.12	0.9		
LA-6-0m (Bot=8m)	Sept 2	19.6	9.8	106.0	3.4	7.0	16.0			1.6	0.023	0.12	1.0	0.30	
LB-Sh-0m	Sept 21					7.4	19.0	6.0	0.4	0.5	0.031	0.13	0.6	0.40	4.0
LFS #5	Sept 21					7.7	128.0	<3.0	11.7	11.5	0.039	0.23			0.8

Note: (b) indicates bottom.

LAKE AINSLIE WATER QUALITY DATABASE-1993

STATION	Date	Na	K	Ca	Mg	HARD.	Carb.	Bicarb.	SO4	Cl	F	Si	Ortho P	NO2+NO3	NH4 (N)	Cond.	TOC
LA-1-0m	May 28			9.5	1.2	28.7	0.0	15.0					<0.001	<0.05	<0.05	100.0	
	Jun 25			8.9	1.2	26.9	0.0	15.0					<0.001	<0.05	<0.05	106.0	
	Jul 19			9.1	1.2	27.7	0.1	15.9					0.0	<0.05	<0.05	116.0	
	Sept 2	11.0	0.5	8.8	1.1	26.7	0.0	15.9	13.0	16.9	0.1	1.3	<0.01	<0.05	<0.05	114.0	2.6
LA-2-0m	Jun 25			8.9	1.2	26.9	0.0	15.0					<0.001	<0.05	<0.05	106.0	
	Sept 2												<0.001	0.0	<0.01	114.0	
LA-2-7m	Sept 2												<0.001	0.01	<0.01	115.0	
LA-3-0m	May 28			9.0	1.2	27.1	0.0	15.0					<0.001	<0.05	<0.05	95.0	
	Sept 2												<0.001	0.01	<0.01	114.0	
LA-3-17.5m	Sept 2												<0.001	<0.01	<0.01	114.0	
LA-4-0m	May 28			8.9	1.2	26.8	0.0	15.0					<0.001	<0.05	<0.05	108.0	
	Jul 19			9.2	1.2	28.0	0.1	15.9					0.00	<0.05	<0.05	116.0	
	Sept 2												<0.001	<0.01	<0.01	116.0	
LA-4.5-0M	Sept 2												<0.001	<0.01	<0.01	119.0	
LA-5-0m	Jun 25			9.0	1.2	27.1	0.0	15.0					<0.001	<0.05	<0.05	108.0	
	Sept 2												<0.001	0.01	<0.01	119.0	
LA-6-0m (Bot=8m)	Sept 2												<0.001	0.01	<0.01	116.0	
LB-Sh-0m	Sept 21	11.5	0.5	10.7	1.3	32.0	0.0	18.9	14.0	19.1	<0.01	1.3	<0.01	<0.05	<0.05	133.0	2.6
LFS #5	Sept 21	7.1	1.0	65.5	4.0	180.0	0.6	127.0	10.0	45.5	<0.01	7.2	<0.01	<0.05	0.16	448.0	0.8

Note: (b) indicates bottom.

LAKE AINSLIE WATER QUALITY DATABASE-1993

STATION	As	Fe	Mn	Pb-HGA	Cu	Zn	Al	B	Ba	Be	Cd - HGA	Cr	Co	Ni	Sb	Se	Sn	Va
LA-1-0m																		
	<0.002	<0.02	<0.01	<0.002	<0.01	<0.01	<0.10	<0.10	0.0	<0.005	<0.0020	<0.02	<0.05	<0.02	<0.05	<0.1	<0.05	<0.01
LA-2-0m																		
LA-2-7m																		
LA-3-0m																		
LA-3-17.5m																		
LA-4-0m																		
LA-4.5-0M																		
LA-5-0m																		
LA-6-0m (Bot=8m)																		
LB-Sh-0m	<0.002	<0.02	<0.01	0.0	<0.01	<0.01	<0.10	<0.10	0.0	<0.005	<0.0020	<0.02	<0.05	<0.02	<0.05	<0.1	<0.05	<0.01
LFS #5	0.0	1.7	0.9	0.0	<0.01	0.0	<0.10	<0.10	0.3	<0.005	<0.0020	<0.02	<0.05	<0.02	<0.05	<0.1	<0.05	<0.01

Note: (b) indicates bottom.

LAKE AINSLIE WATER QUALITY DATABASE-1993

STATION	Date	Cat sum	Anion sum	% Diff.	Std. Dev.	Ion sum	Th. Cond.	Sat pH	Lang.@5	Lang @20	Lang @50
LA-1-0m	May 28										
	Jun 25										
	Jul 19										
	Sept 2	1.0	1.1	2.3	0.1	62.3	122.0	9.7	-2.2	-1.9	-1.3
LA-2-0m	Jun 25										
	Sept 2										
LA-2-7m	Sept 2										
LA-3-0m	May 28										
	Sept 2										
LA-3-17.5m	Sept 2										
LA-4-0m	May 28										
	Jul 19										
	Sept 2										
LA-4.5-0M	Sept 2										
LA-5-0m	Jun 25										
	Sept 2										
LA-6-0m (Bot=8m)	Sept 2										
LB-Sh-0m	Sept 21	1.2	1.2	2.4	0.3	69.8	137.0	9.5	-2.1	-1.7	-1.2
LFS #5	Sept 21	3.9	4.1	1.4	0.2	217.0	428.0	7.9	-0.2	0.2	0.7

Note: (b) indicates bottom.