

Lake Taupo long-term monitoring programme 2006-2007

Prepared by:
Max Gibbs, NIWA Hamilton

For:
Environment Waikato
PO Box 4010
HAMILTON EAST

May 2008

Peer reviewed by:
Bill Vant

Date May 2008

Approved for release by:
Viv Smith

Date May 2008

Disclaimer

This technical report has been prepared for the use of Waikato Regional Council as a reference document and as such does not constitute Council's policy.

Council requests that if excerpts or inferences are drawn from this document for further use by individuals or organisations, due care should be taken to ensure that the appropriate context has been preserved, and is accurately reflected and referenced in any subsequent spoken or written communication.

While Waikato Regional Council has exercised all reasonable skill and care in controlling the contents of this report, Council accepts no liability in contract, tort or otherwise, for any loss, damage, injury or expense (whether direct, indirect or consequential) arising out of the provision of this information or its use by you or any other party.

Lake Taupo Long-Term Monitoring Programme 2006-2007

**NIWA Client Report: HAM2008-028
March 2008**

NIWA Project: EVW07210

Lake Taupo Long-Term Monitoring Programme 2006-2007

Max Gibbs

NIWA contact/Corresponding author

Max Gibbs

Prepared for

Waikato Regional Council
(Environment Waikato)

NIWA Client Report: HAM2008-028
March 2008

NIWA Project: EVW07210

National Institute of Water & Atmospheric Research Ltd
Gate 10, Silverdale Road, Hamilton
P O Box 11115, Hamilton, New Zealand
Phone +64-7-856 7026, Fax +64-7-856 0151
www.niwa.co.nz

Contents

Executive Summary	iv
Glossary	1
1. Introduction	2
2. Methods	4
2.1 Report contents	5
2.2 Statistical evaluation	5
2.3 “TREND” definition	5
3. Results and discussion	7
3.1 Temperature and dissolved oxygen	7
3.2 VHOD rate	8
3.3 Secchi depth	10
3.4 Phytoplankton	11
3.5 Species abundance	14
3.6 Nutrients in the upper waters	14
3.7 Nutrient accumulation in the hypolimnion	16
3.7.1 Total mass accumulated	16
3.7.2 Net accumulation rate	18
3.7.3 Total N	20
4. Knowledge gaps	22
5. Summary	23
6. Acknowledgments	26
7. References	27
8. Appendix 1. Site map, sampling strategy and methods	29
8.1 Methods	30
8.2 Data handling and less than detection limit values	31
8.3 Statistical methods	33
9. Appendix 2. The calculation of net VHOD rates	35
10. Appendix 3. Temperature and dissolved Oxygen data	39
11. Appendix 4. Nutrient data	59
12. Appendix 5. Phytoplankton data	82
13. Appendix 6. Historical data	85

Reviewed by:



Dr Piet Verburg

Approved for release by



Dave Roper
p.p. Dr Julie Hall

Formatting checked



Executive Summary

With the expectation that the trophic status of Lake Taupo will slowly change to reflect changes in land use within the lake's catchments, a long term programme monitoring the lake's water quality was commissioned by Environment Waikato. This programme commenced in October 1994 and is conducted by NIWA with field assistance from the Department of Internal Affairs, Taupo Harbourmaster's Office.

The monitoring programme was designed to detect change through assessment of the rate of consumption of oxygen from the bottom waters of the lake (volumetric hypolimnetic oxygen depletion – VHOD) as an integration of all biological processes occurring in Lake Taupo. Additional parameters are measured to provide a more comprehensive picture of water quality. Recently it has become apparent that VHOD may be too coarse to determine trophic change in a lake the size and complexity of Lake Taupo. Consequently, more emphasis is now focused on the parameters 'phytoplankton biomass', 'water clarity', and nutrient (particularly nitrate) accumulation in the lake. This report presents the results from the 2006/07 monitoring period at the mid-lake site, Site A. Monitoring of additional sites in the Kuratau Basin (Site B) and the Western Bays (Site C) between January 2002 and December 2004 determined that spatial variability of water quality across Lake Taupo is minimal and that it is valid to use the mid-lake site as representative of the open water quality of the lake.

There is a trend of increasing phytoplankton biomass (chlorophyll *a*) in the upper 10 m of water column over the monitoring period of $0.04 \pm 0.03 \text{ mg m}^{-3} \text{ y}^{-1}$ with maximum chlorophyll *a* concentrations in winter 2006, at 2.8 mg m^{-3} , being higher than in most previous winter bloom periods. Regression analysis of maximum winter-spring chlorophyll *a* concentrations suggests that these have been increasing by $0.12 \pm 0.06 \text{ mg m}^{-3} \text{ y}^{-1}$ since the start of this monitoring programme in 1994. However, this trend may not be linear and concentrations may have reached a plateau. Before 2000, mean winter chlorophyll *a* maximum concentrations were 1.46 mg m^{-3} with an increasing trend of $0.18 \text{ mg m}^{-3} \text{ y}^{-1}$. After 2000, mean winter chlorophyll *a* maximum concentrations were 2.5 mg m^{-3} with no statistically significant trend or substantial change in the concentration data.

Highest biomass occurred in August when the lake had mixed and lowest biomass occurred in the upper water column in early summer when that winter biomass peak had sedimented from the water column. Chlorophyll fluorescence profiles show that, each year, a deep chlorophyll maximum (DCM) develops just below the thermocline (40 m) during summer and has up to 70% higher biomass¹ than the upper water column. The 2006 winter bloom was dominated by the diatom *Aulacoseira granulata*, with *Dinobryon* and *Botryococcus braunii* becoming dominant in summer and autumn 2007. Blue-green algae (cyanobacteria) were always present in low numbers in the upper water column throughout the 2006/2007 monitoring period, with *Anabaena lemmermannii* reaching a dominance

¹ Assuming a constant chlorophyll-fluorescence:biomass ratio

level of 3 on one occasion in March 2007. Algae collected from the DCM in April 2006 were dominated by dinoflagellates, *Dinobryon* and *Gymnodinium* sp.

Nutrient concentrations (DRP, NH₄-N, and NO₃-N) in the upper water column were comparable with concentrations measured since 2003, apart from high NO₃-N concentrations during winter mixing in 2006. With the development of the winter-spring bloom, all biologically available nitrogen, including labile DON, disappeared from the upper water column suggesting that phytoplankton growth was N-limited at that time. Subsequent appearance of NH₄-N in the upper water column through summer and autumn 2007 may indicate water column decomposition of the winter-spring bloom.

The total mass of NO₃-N in the hypolimnion before winter has increased at a statistically significant rate of about 8.4 t y⁻¹ (P < 0.002, r² = 0.41, n = 20) over the last 32 years. The net accumulation rate of NO₃-N in the hypolimnion below 70 m in 2006/2007 was 1.78 t d⁻¹. Regression analysis showed that there has been a weakly significant increase in the net NO₃-N accumulation rate of 0.03 t d⁻¹ yr⁻¹ (P < 0.1, r² = 0.145, n = 20) over the last 32 years.

Summer water clarity was similar to the previous year with Secchi depth values of 16 to 19 m. However, this level of clarity continued through most of autumn 2007 with a value of 18.5 m recorded as late as 27 June 2007. Water clarity in winter 2006 was 11 m in keeping with the high winter-spring algal biomass.

Water clarity data available through spring and early summer 2007/2008 showed an extended period with values greater than 20 m and a maximum value of 25 m, which is the highest clarity recorded for Lake Taupo. This extreme clear-water phase coincided with a drought (declared officially) and thus may reflect the reduced surface runoff and rain water input of nutrients as well as a low input of sediment from erosion.

The 2006/07 net VHOD rate at $10.73 \pm 2.45 \text{ mg m}^{-3} \text{ d}^{-1}$ (mean \pm 95% confidence limit) was about 1 mg m⁻³ d⁻¹ higher than the previous year which was $9.56 \pm 2.24 \text{ mg m}^{-3} \text{ d}^{-1}$.

In the 2002 review of the long-term monitoring programme data, 3 trends in the data were identified — increasing phytoplankton biomass² in the upper 10 m, increasing NO₃-N mass in the hypolimnion prior to winter mixing, and an increasing range in the variability of water clarity — that were of concern with respect to the water quality of Lake Taupo. In the previous report, it was also shown that the net accumulation rate of NO₃-N in the hypolimnion during the stratified period has increased over the last 30 years although the trend is not strong. These trends are still present in the data.

² Inferred from the chlorophyll *a* data and assuming the chlorophyll:biomass ratio is constant.

Glossary

BOD	Biochemical Oxygen Demand: the rate of oxygen consumption associated with biological decomposition and chemical processes and in the water column.
VHOD	Volumetric Hypolimnetic Oxygen Depletion: the net rate of oxygen loss associated with biological and chemical processes in the hypolimnion of a lake in the absence of a temperature change
Phytoplankton	Microscopic free-floating aquatic plants (algae)
Cyanobacteria	Blue-green algae. These are potentially toxic. They can adjust their depth in the water column using small gas bladders (gas vacuoles), and some species can use (i.e., fix) atmospheric nitrogen for growth when nutrient nitrogen in the water column is depleted.
Zooplankton	Small to microscopic free-swimming aquatic animals which graze on phytoplankton or smaller zooplankton
Biomass	The living mass of the phytoplankton or zooplankton populations
Thermal stratification	Separation of a water column into two layers by temperature – warmer water on top
Thermocline	The boundary zone or temperature gradient between the two layers in a thermally stratified water column.
Epilimnion	The upper water column in a thermally stratified water column
Hypolimnion	The lower water column in a thermally stratified water column
Metalimnion	The thermocline zone — of variable thickness
Euphotic zone	The upper water column in which there is sufficient light for photosynthesis and hence phytoplankton growth.
Euphotic depth	Lower limit of phytoplankton growth where light levels are 1% of surface irradiance
Nutrients	Essential dissolved inorganic nitrogen and phosphorus compounds which can be used directly by plants for growth
Ammoniacal nitrogen	Sum of ammonium ion (NH_4^+) plus free (unionised) ammonia (NH_3). Some amines (NH_2^-) may be included as interference during analysis. Symbol, $\text{NH}_4\text{-N}$.
Nitrate nitrogen	Used in this report as the sum of nitrate (NO_3^-) plus nitrite (NO_2^-). Symbol, $\text{NO}_3\text{-N}$.
DIN	Dissolved Inorganic Nitrogen: the sum of $\text{NH}_4\text{-N}$ + $\text{NO}_3\text{-N}$
DON	Dissolved Organic Nitrogen: the soluble nitrogen other than DIN
PN	Particulate Nitrogen: includes phytoplankton and other detritus
TN	Total Nitrogen: Sum of DIN + DON + PN
NO_x	Gaseous oxides of nitrogen, including N_2O , NO, NO_2

1. Introduction

With the expectation that the trophic status of Lake Taupo will slowly change to reflect changes in land use within the lake's catchment, a long term monitoring programme of the lake's water quality was commissioned by Environment Waikato. This programme commenced in October 1994 and is conducted by NIWA with field assistance from the Department of Internal Affairs, Taupo Harbourmaster's Office. The monitoring precision was augmented from February 1999 by the use of a new profiling instrument – a Richard Brancker Research model RBR410 conductivity-temperature-depth (CTD) profiler/logger fitted with a Yellow Springs Instrument (YSI) model 5739 dissolved oxygen (DO) probe. In January 2002, this instrument was upgraded to a Richard Brancker Research model XR420f freshwater profiler/logger with improved sensitivity. The new profiler is fitted with a YSI model 5739 DO probe as well as a Sea Point Chlorophyll Fluorometer to give *in situ* estimates of vertical distribution of algal biomass within the lake water column. This report presents data from the routine mid-lake monitoring station from September 2006 to August 2007.

In two previous reports, data was included from two additional sites representing those historically measured in the 1974-76 assessment of lake water quality (White et al. 1980) (Fig.1) to evaluate spatial variability of water quality across the lake. Results from these additional sites showed that, in general, there was minimal variation between the sites, and that data collected from site A (mid lake) could be used as being representative of the main body of the lake. This report presents data from site A only.

The monitoring programme has 3 components: bottom water oxygen depletion, upper water column water quality, and whole water column water quality. Bottom water oxygen depletion is estimated as the volumetric hypolimnetic oxygen depletion (VHOD) rate, which is sensitive to changes in trophic status of lakes that thermally stratify for part of the year (Burns 1995). VHOD was chosen as the parameter most likely to detect a change in the water quality of Lake Taupo. Estimates of VHOD are made from dissolved oxygen and temperature profiles measured at 2-3 week intervals during the stratified period. However, the VHOD rate will only indicate that a change has occurred and will not detect other indicators of changing water quality. For that purpose, the upper water column is sampled for nutrients, chlorophyll *a*, phytoplankton species composition and water clarity at 2-3 weekly intervals, and the whole lake water quality is estimated from full profiles which are made twice during the stratified period. The first profile is in spring, when thermal stratification has become established and is stable. The second is in autumn the following year before thermal stratification begins to break down, and the thermocline deepens. Actual sampling dates are given with the results.

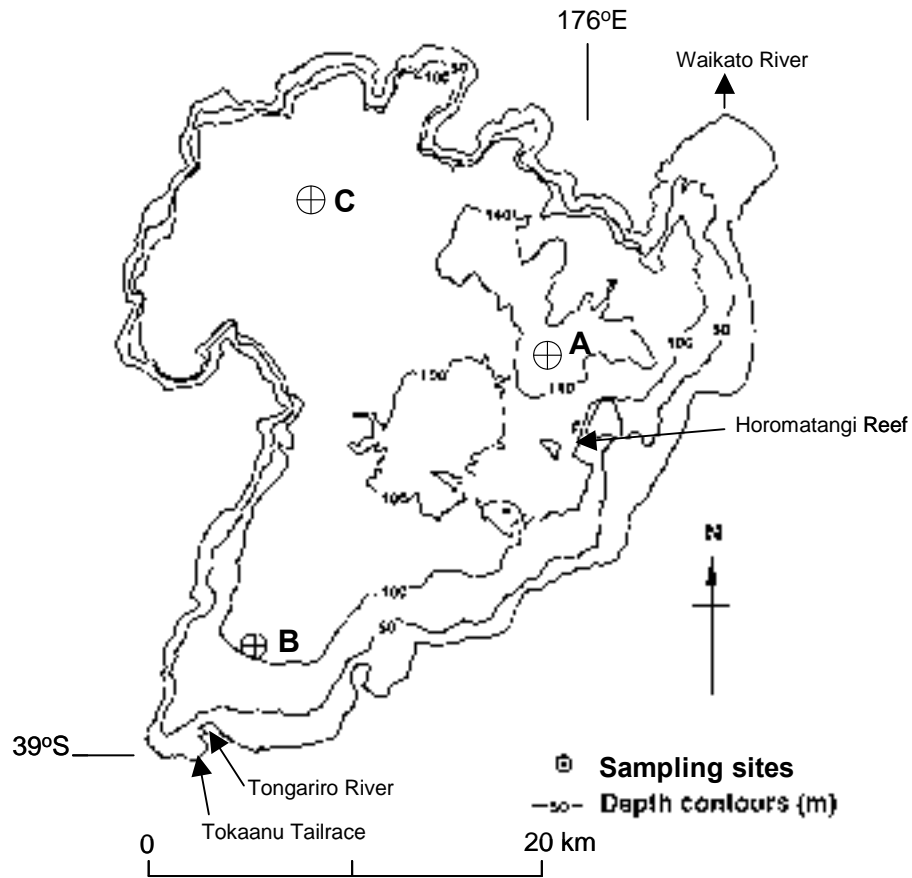


Figure 1: Site map of Lake Taupo showing location of the routine monitoring site at mid-lake (A), and the two additional sites at Kuratau Basin (B) and the Western Bays (C) sampled during the three-year period 2002-04. The generally close agreement between most data from the three sites gives confidence in the past and future use of the site A data as representing the water quality of the whole lake.

2. Methods

Detailed method descriptions are given in Appendix 1. The parameters measured routinely at 2-3 weekly intervals are:

- depth-related temperature and dissolved oxygen (DO), using the RBR XR420f CTD profiler. Additional parameters of conductivity and chlorophyll fluorescence recorded by the profiler sensors are available at NIWA and will only be reported as appropriate;
- water clarity by Secchi disc depth (20-cm black and white quartered);
- chlorophyll *a*, nitrate+nitrite-nitrogen (NO₃-N), ammoniacal-N (NH₄-N), dissolved organic N (DON), particulate-N (PN), dissolved reactive phosphorus (DRP), dissolved organic phosphorus (DOP), particulate phosphorus (PP), and algal species dominance in integrated-tube water samples from the top 10 m. Total nitrogen (TN) and total phosphorus (TP) are estimated by summation of particulate plus dissolved inorganic and organic N and P. Zooplankton net hauls from 100 m (63µm mesh) are preserved in 4% formalin and stored pending analysis.

Water samples have also been collected at the same time from just above the lake bed (150 m) for analysis of NO₃-N, NH₄-N, and DRP to assess nutrient accumulation in the hypolimnion and to assess the extent of winter mixing.

For whole water column sampling, the parameters measured at 10 m depth intervals from the surface to the bottom of the lake twice a year are:

- conductivity, pH, temperature, DO, chlorophyll *a*, DRP, DOP, PP, TP, NO₃-N, NH₄-N, DON, PN, TN, urea nitrogen (Urea-N), total suspended solids (SS), volatile suspended solids (VSS), particulate carbon (PC), and dissolved organic carbon (DOC).

Additional parameters measured twice yearly, but not as complete profiles were:

- algal species composition and abundance on water samples from 1, 10, 50, 100 and 140 m.

Details of data handling and the treatment of values that are near analytical detection limits are described in Appendix 1.

2.1 Report contents

This report presents the results from the 2006/2007 stratified period plus the winter 2007 mixing, and refers to data in previous annual monitoring reports from 1995 to 2005 (Gibbs 1995, 1997a, 1997b, 1998, 2000a, 2000b, 2002, 2004, 2005, 2006, 2007; Gibbs et al. 2002) for inter-annual comparisons, and archived historical data since 1974 held by NIWA. The methods used are as per the 1994/95 report and a copy of these methods is included in Appendix 1. The calculation of the net VHOD rate, as applied to Lake Taupo data, was described in the 1996/97 report and a copy is presented in Appendix 2. Copies of temperature and dissolved oxygen, and nutrient data from the previous twelve years are included in Appendix 3 and 4 respectively. Graphical presentations of historical time-series temperature, dissolved oxygen, and Secchi disc depth data collected since the start of this monitoring programme are updated and presented in figures in the text. Phytoplankton species composition and dominance data for 2006/07 are included in Appendix 5 and discussed in the text. Graphical presentations of all available chlorophyll *a* concentration and Secchi depth water clarity data are presented where appropriate. Historical nitrate and dissolved reactive phosphorus data from spring and autumn full lake profiles are presented in Appendix 6 for reference.

2.2 Statistical evaluation

Simple statistical evaluation of data has been made using Microsoft Excel[®] and regression results have been reported to \pm 95% confidence limits. Statistical significance (*P*), where used, is qualified with the coefficient of determination (r^2) and the number of data points used (*n*). For details see Statistical Methods, Appendix 1.

Note that statistical significance is dependent on the number of data points used. Comparisons between trends should only be made where there are similar numbers of data points.

2.3 “TREND” definition

As in previous reports, the word “trend” is used in the context of a change between the start and the end of a time series data set where the use of a linear regression analysis

shows a statistically significant difference from the null hypothesis of there being no change. Use of the word “trend” is a statistical one. It does not imply any valid *extrapolation* of the observed change beyond the period of the data set being examined by the linear regression.

3. Results and discussion

3.1 Temperature and dissolved oxygen

Depth profiles of temperature and dissolved oxygen (DO) were measured at the mid lake site, Site A (Fig. 1), at about 2-3 weekly intervals, depending on the weather, throughout the year. These data, plus profiles measured during the full water quality samplings at Site A on 1 November 2006 (spring) and 3 April 2007 (autumn), are presented in Appendix 3. The time-series temperature and DO data from 20 m (epilimnion) and 130 m (hypolimnion) collected in the monitoring programme since 1994 are presented in Figure 2.

Temperature and DO data indicate that Lake Taupo was well mixed in winter 2006 with the mixing period being from mid-July to early September. Rapid cooling in bottom waters followed but not as strong as in winter 2004 (Fig. 2A). The lake was also well mixed in winter 2007. Surface water temperatures in summer 2006/07 had an extended period above 18 °C through to April.

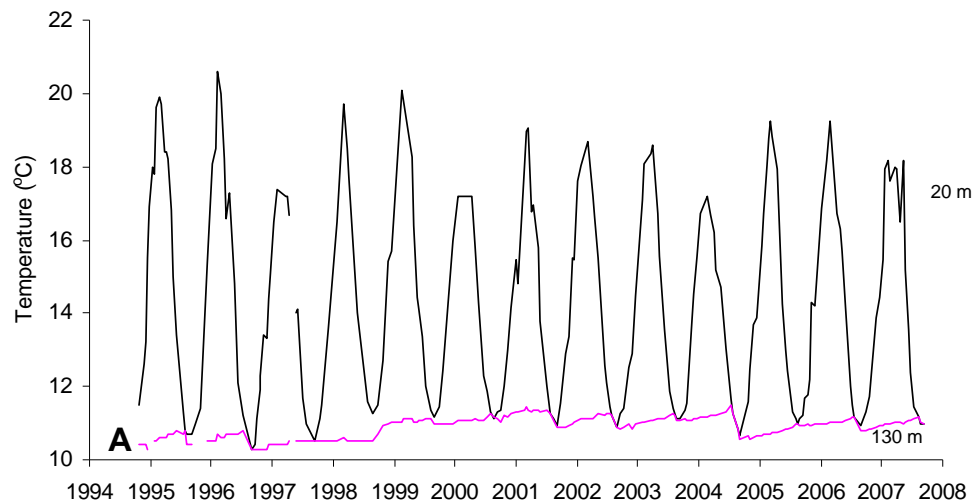


Figure 2A: Time-series temperature from 20 m (black line) and 130 m (pink line) depths. Winter mixing occurred where these two lines meet. The data show the lack of mixing in winter 1998 and only partial mixing in 1999. Mixing was brief in 1997 and 2005.

Despite years with incomplete mixing, the dissolved oxygen content of the hypolimnion has rarely fallen below 7.0 g m⁻³, even close to the sediment. During winter mixing in 2006 and 2007 the bottom oxygen concentrations exceeded 10.0 g m⁻³ (Fig. 2B), confirming the high degree of mixing inferred from the temperatures (Fig. 2A).

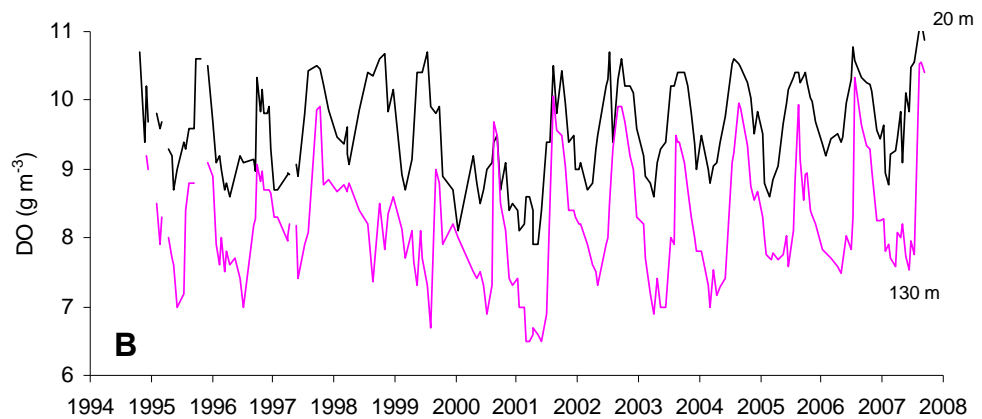


Figure 2B: Time-series dissolved oxygen data from 20 m (black line) and 130 m (pink line) depths. Mixing and complete reoxygenation occurred where the 2 lines in the temperature data (Fig. 2A) meet each winter. This corresponds with the period that the difference in oxygen concentrations between 20 m and 130 m is least. However, where temperature data indicate incomplete mixing there is reduced reoxygenation of the hypolimnion. Date ticks are 1 January in each year.

3.2 VHOD rate

The VHOD rate was estimated between September 2006 and March 2007 based on oxygen profile data collected at site A (Mid Lake). The VHOD rate in 2006/2007 was $10.73 \pm 2.45 \text{ mg m}^{-3} \text{ d}^{-1}$ (mean \pm 95% confidence limit) (Fig. 3). This value was about $1 \text{ mg m}^{-3} \text{ d}^{-1}$ higher than the value for 2005/06 at $9.56 \pm 2.24 \text{ mg m}^{-3} \text{ d}^{-1}$ (Table 1), but not significantly different.

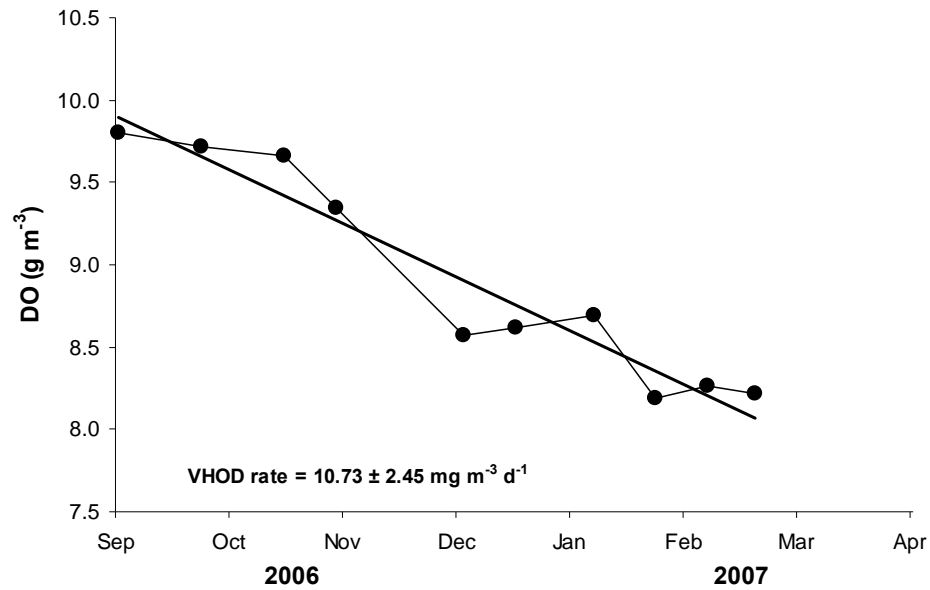


Figure 3: Time-series of volume-weighted mean dissolved oxygen concentration below 70 m depth in Lake Taupo for 2006/2007. VHOD is estimated from the linear regression through these data points. ($P < 0.001$, $r^2 = 0.93$, $n = 10$).

Table 1: Summary of VHOD rates (\pm 95% confidence limit) and the dominant phytoplankton species during the preceding winter bloom.

Year	VHOD rate	Dominant phytoplankton species	
1994-95	8.93 (2.39)	<i>Aulacoseira granulata</i> *	Diatom
1995-96	9.07 (2.77)	<i>A. granulata</i>	Diatom
1996-97	5.12 (1.37)	<i>Botryococcus braunii</i>	Colonial green
1997-98	3.21 (2.03)	<i>B. braunii</i>	Colonial green
1998-99	2.64 (1.90)	<i>B. braunii</i>	Colonial green
1999-00	5.11 (1.14)	<i>B. braunii</i> + <i>A. granulata</i> + <i>Cyclotella stelligera</i>	C.G. – Diatom mix
2000-01	9.34 (2.9)	<i>A. granulata</i>	Diatom
2001-02	9.06 (2.7)	<i>Asterionella formosa</i>	Diatom
2002-03	13.76 (2.14)	<i>A. formosa</i> + <i>A. granulata</i>	Diatom
2003-04	11.50 (2.80)	<i>A. formosa</i> + <i>A. granulata</i>	Diatom
2004-05	11.30 (1.13)	<i>Fragilaria crotonensis</i> + <i>A. formosa</i>	Diatom
2005-06	9.56 (2.24)	<i>A. formosa</i> + <i>A. granulata</i>	Diatom
2006-07	10.73 (2.45)	<i>A. granulata</i>	Diatom

* Not measured in winter but measured in October 1994.

3.3 Secchi depth

The time-series Secchi depth data (Fig. 4) show the annual cycle of water clarity is low in winter and high in summer, mostly within the range of 10 – 20 m and has a mean value of 15.7 m for the period shown. The annual cyclical pattern inversely follows the seasonal pattern of phytoplankton abundance, with low clarity during the winter/spring growth phase and high clarity during summer when the phytoplankton have sedimented out of the epilimnion, which is depleted in plant growth nutrients.

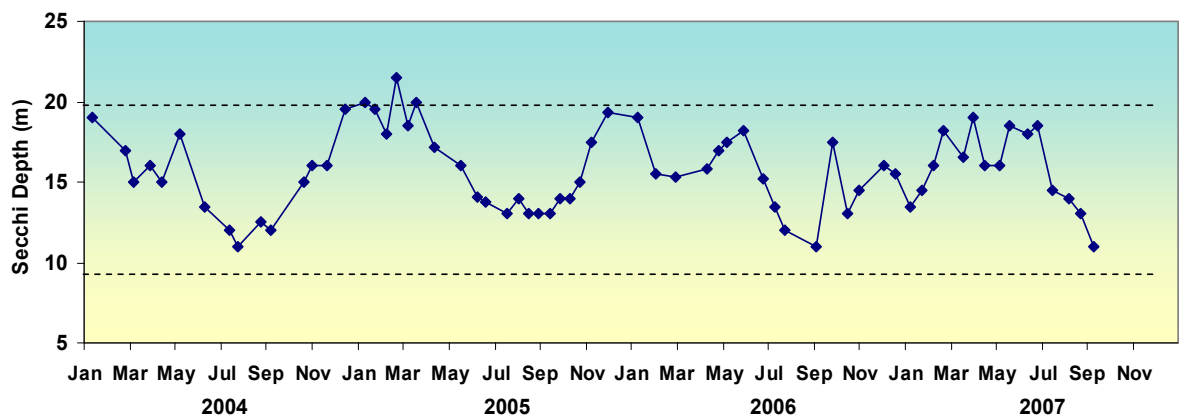


Figure 4: Water clarity as indicated by Secchi disk depth from summer 2004 through winter 2007. Broken lines represent 10 m and 20 m. Date ticks are 1st of each month.

Since 2003 the minimum winter water clarity (Secchi depth) values have been more than 12 m (Figs. 4, 5). There has also been a significant increase ($P < 0.0001$) in the annual mean water clarity over the monitoring programme since 1994, (Fig. 5). These observations are not consistent with the increase in maximum chlorophyll *a* concentrations in winter (See section 3.4, Fig. 7) and the significant increase in mean chlorophyll *a* concentrations (Fig. 6).

It is also apparent that, while water clarity in summer 2006/2007 was lower than the previous 2 years, the pattern of water clarity was comparable with summers over the previous 4 years when the period of high clarity has extended well into autumn (Figs. 4, 5). A continuation of this pattern is already apparent for 2007/08 with water clarity through spring and early summer (Fig. 5) showing exceptional clarity which reached a maximum value of 25 m. This is the highest clarity recorded for Lake Taupo. This extreme clear-water phase coincided with a drought (declared officially) and thus may reflect the reduced surface runoff and rainfall water input of nutrients as well as a low input of sediment.

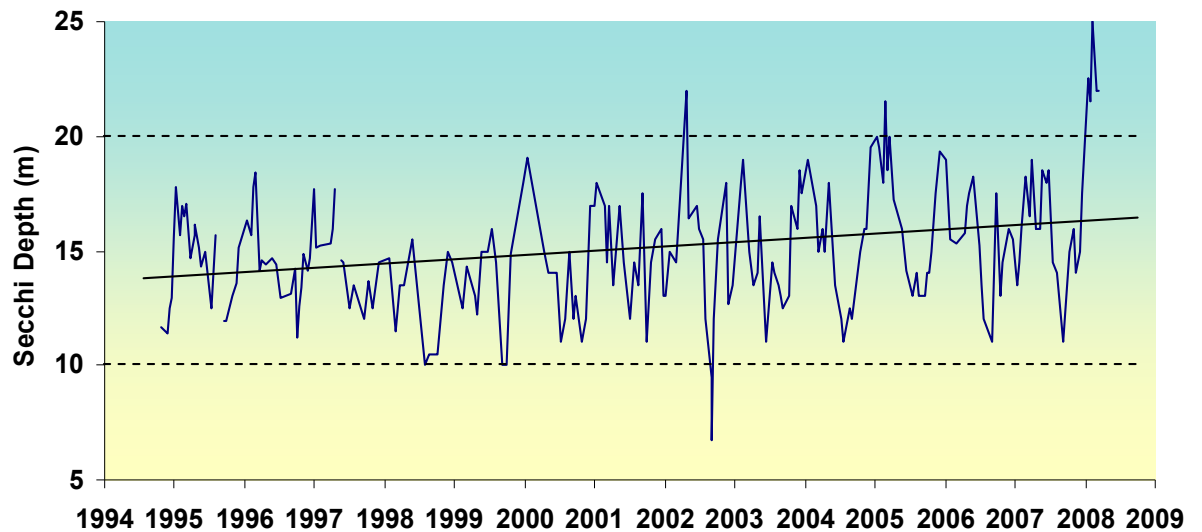


Figure 5: Long-term changes in water clarity as indicated by Secchi depth shows the variability across seasons and years for the present monitoring programme since 1994. The regression line shows a statistically significant increase in clarity of $0.19 \pm 0.08 \text{ m y}^{-1}$ ($P < 0.0001$, $r^2 = 0.083$, $n = 221$). The broken lines mark 10 m and 20 m. Date ticks are 1 January in each year.

3.4 Phytoplankton

The long-term trend of increasing chlorophyll *a* concentration in the upper 10 m of the water column at the mid lake site has continued, with higher than expected concentrations in both summer and winter 2007. The mean rate of increase [all data] was $0.038 \pm 0.019 \text{ mg m}^{-3} \text{ y}^{-1}$ ($P < 0.0002$, $r^2 = 0.07$, $n = 210$) (Fig. 6).

The overall pattern of chlorophyll *a* concentration since 1994 is one of maximum concentrations during the winter algal bloom and minimum concentrations in early summer and there is a statistically significant ($P < 0.0001$, $r^2 = 0.18$, $n = 175$) inverse logarithmic relationship between chlorophyll *a* concentration and Secchi disk depth as discussed in the 2004/05 report (Gibbs 2006).

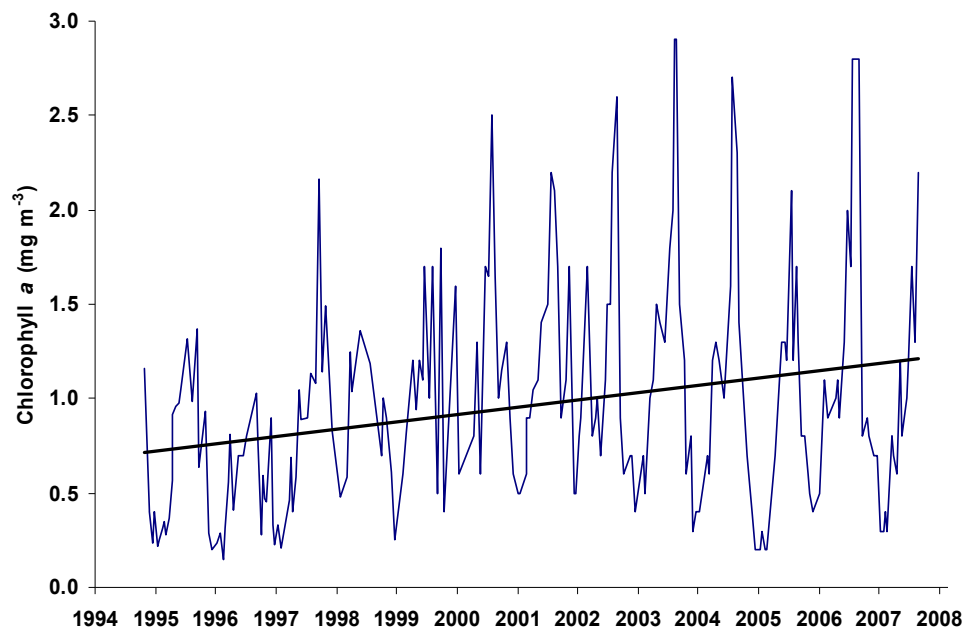


Figure 6: Time-series chlorophyll *a* concentrations in the upper 10 m of Lake Taupo at the mid-lake site, Site A. The solid regression line represents a statistically significant increase in the mean chlorophyll *a* concentrations of $0.038 \pm 0.019 \text{ mg m}^{-3} \text{ y}^{-1}$ ($P < 0.0002$, $r^2 = 0.07$, $n = 210$). Date ticks are 1 January in each year.

In the previous report (Gibbs 2007), it was noted that the low chlorophyll *a* concentrations in winter and spring 2005 corresponded with the exceptionally high water clarity at that time and appeared to be the direct result of incomplete mixing in winter 2005. It was suggested that as a consequence of incomplete mixing, only part of the nutrient mass accumulated in the hypolimnion became available for phytoplankton growth in the winter-spring bloom of 2005. The remainder of that nutrient mass should have been carried over to the next stratified period, but was not seen in the dissolved nutrient pool in the hypolimnion (see section 3.7.1, Fig. 10).

There was an extended period of very high chlorophyll *a* concentrations in winter-spring 2006 (2.8 mg m^{-3}) following complete mixing in winter 2006. The maximum chlorophyll *a* concentrations in winter-spring 2007 were not as high (2.2 mg m^{-3}) (Figs 6 & 7).

Evaluation of the chlorophyll *a* data on a seasonal basis shows that the winter maximum concentrations have increased at $0.12 \pm 0.06 \text{ mg m}^{-3} \text{ y}^{-1}$ ($P < 0.001$, $r^2 = 0.59$, $n = 14$) since 1994 while the annual mean concentrations have increased at $0.04 \pm 0.03 \text{ mg m}^{-3} \text{ y}^{-1}$ ($P < 0.01$, $r^2 = 0.44$, $n = 14$) (Fig. 7).

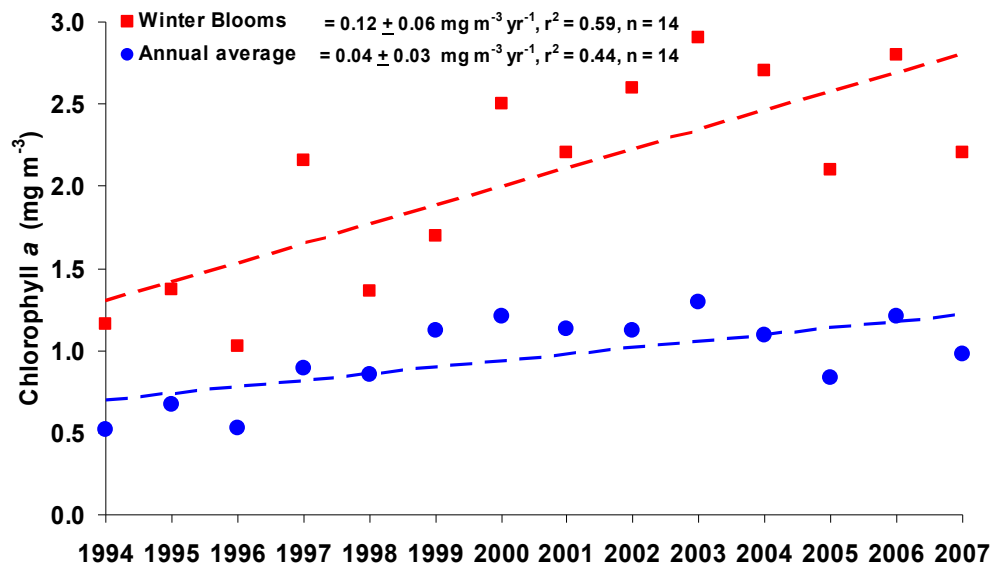


Figure 7: Annual average and winter maximum chlorophyll *a* concentrations from the 10-m tube samples since 1994. Regression lines indicate significant ($P < 0.01$) trends in the data. Regression slopes are as given in the graph (\pm 95% confidence limit). Date ticks are monitoring years not calendar dates.

This increase in chlorophyll *a* concentration may not have been continuous. From 1994 to 1999, inclusive, the mean winter maximum chlorophyll *a* concentration was 1.46 mg m^{-3} and chlorophyll *a* concentrations were increasing at the rate of about $0.18 \text{ mg m}^{-3} \text{ y}^{-1}$. From 2000 to 2007, the mean winter maximum chlorophyll *a* concentration was 2.5 mg m^{-3} and there was no statistically significant trend in the data. In contrast, from 2000 to 2007, the mean summer minimum chlorophyll *a* concentration was 0.52 mg m^{-3} and concentrations have decreased by about $0.09 \text{ mg m}^{-3} \text{ y}^{-1}$.

The monitoring programme uses the chlorophyll *a* concentrations as an indicator of algal biomass in the upper 10 m. Chlorophyll *a* concentrations there can be directly related to water clarity as indicated by Secchi depth. However, the use of the profiler fitted with a chlorophyll fluorescence sensor has shown that a large proportion of the algal biomass in Lake Taupo through spring and summer is associated with the thermocline at 40 m depth as a deep chlorophyll maximum (DCM). Assuming a constant chlorophyll *a* to chlorophyll fluorescence ratio, the DCM has a potential biomass about 70% greater than that in the 0-to-10 m layer (Gibbs 2007). Further analysis of the fluorescence profile data may indicate whether there has been a change over time in the algal biomass associated with the DCM.

3.5 Species abundance

In the 2006-07 monitoring period, there were 3 major algal species which consistently reached a dominance³ level of 1 to 3 (1 = dominant, 10 = rare) at Site A. These were *Aulacoseira granulata*, which was the dominant species through winter and spring, *Dinobryon* in early summer and *Botryococcus braunii* through mid to late summer. Cyanobacteria were present on most occasions at low levels with *Anabaena lemmermannii* being the most abundant at a dominance value of 3 on one occasion in March 2007. Algae collected from the DCM in April 2006 were dominated by dinoflagellates (*Dinobryon* and *Gymnodinium* sp.), which are motile species that can move down from high to low light levels to take advantage of the flux of nutrients diffusing up from the hypolimnion when the epilimnion is nutrient depleted.

3.6 Nutrients in the upper waters

Time-series plots of DRP (Fig. 8A), NH₄-N (Fig. 8B), NO₃-N (Fig. 8C) and DON (Fig. 8D), showed values within the seasonal range measured over the whole period of the present monitoring programme since 1994. As previously noted (Gibbs 2006), nutrient concentrations changed abruptly at the time of the Mount Ruapehu eruptions in 1995 and slowly returned to pre-eruptions levels by 2003 (Fig. 8). Since 2003, fluctuations in the surface NO₃-N concentrations (Fig. 9) have mostly corresponded with winter mixed periods when nutrient enriched bottom waters (Fig. 10) were dispersed up through the lakes water column.

The low NO₃-N but high DRP concentrations associated with the incomplete mixing in winter 2005 are in contrast to the high NO₃-N but low DRP concentrations following the sudden and complete mixing in winter 2006. Following that mixing, dissolved inorganic nitrogen concentrations were extremely low due to algal uptake which produced very high biomass, as indicated by chlorophyll *a* concentrations (Fig. 6), in spring. Because there was still DRP present in the upper water column at that time, these data suggest that the phytoplankton ran out of nitrogen for growth, i.e., they became more⁴ nitrogen limited. This is in contrast with winter 2006 where high NO₃-N and low DRP concentrations coupled with high chlorophyll *a* concentrations (Fig. 6), suggest that the phytoplankton became less nitrogen limited.

³ Algal dominance is estimated from biovolume rather than cell counts.

⁴ Phytoplankton in Lake Taupo are nitrogen limited almost all the time.

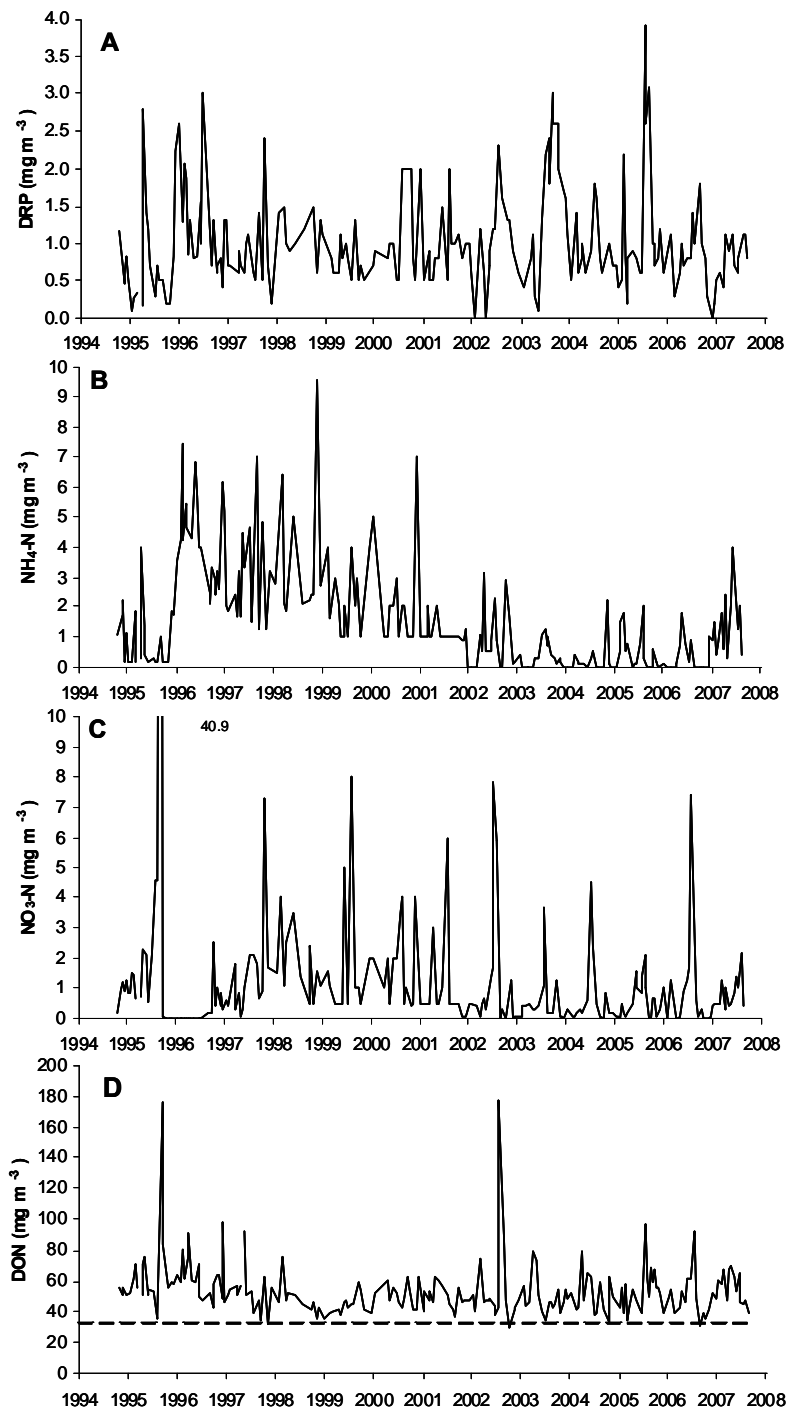


Figure 8: Time series data from the top 10 m of water column in Lake Taupo for (A) dissolved reactive phosphorus (DRP), (B) ammoniacal nitrogen ($\text{NH}_4\text{-N}$), (C) nitrate + nitrite nitrogen ($\text{NO}_3\text{-N}$), and (D) dissolved organic nitrogen (DON). Broken line indicates the minimum DON concentration, which may be the concentration of refractory organic material in the lake. Date ticks are 1 January in each year.

While the DON concentrations (Fig. 8D) do not show an obvious pattern, DON concentrations were lowest when the phytoplankton were most nitrogen limited i.e., in summer.

A feature of the 2006/2007 nutrient data were the higher, relative to 2002-2006, $\text{NH}_4\text{-N}$ concentrations in the upper water column from January through to August 2007 (Fig. 9). While $\text{NH}_4\text{-N}$ blips are often seen in the surface water at the time of winter mixing and have been attributed to upwelling of nutrient-rich bottom water, the timing and duration of this $\text{NH}_4\text{-N}$ blip cannot be linked to an upwelling event. Consequently, it is possibly related to water column decomposition of senescing phytoplankton. This conclusion is consistent with the 0-to-10m $\text{NH}_4\text{-N}$ concentrations being higher than those in the hypolimnion (Fig. 10).

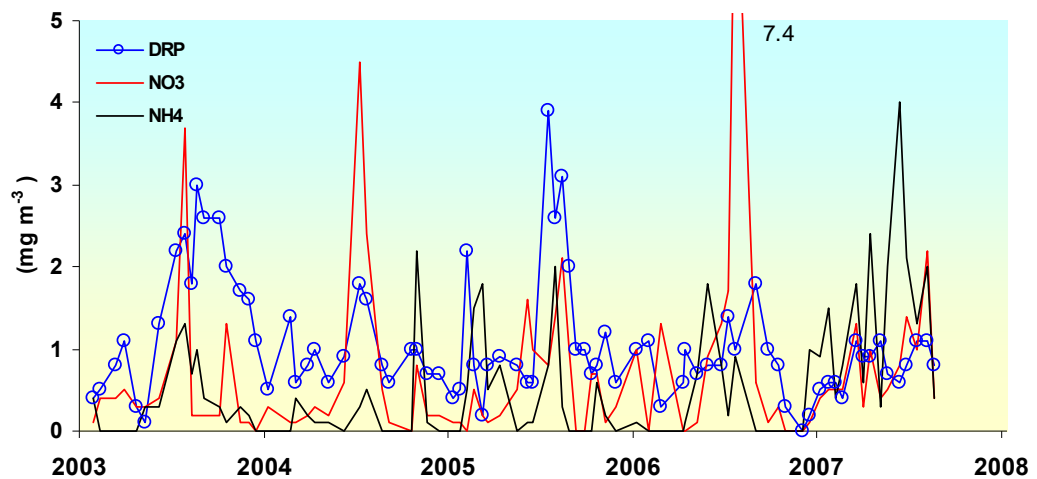


Figure 9: Time series data from the top 10 m of water column in Lake Taupo for dissolved reactive phosphorus (DRP), nitrate + nitrite nitrogen ($\text{NO}_3\text{-N}$) and ammoniacal nitrogen ($\text{NH}_4\text{-N}$) since January 2003. The elevated $\text{NH}_4\text{-N}$ concentrations in autumn 2007 may be due to water column decomposition of organic matter. Date ticks are 1 January in each year.

3.7 Nutrient accumulation in the hypolimnion

3.7.1 Total mass accumulated

Dissolved inorganic nutrients in water samples from 150 m demonstrated consistent seasonal patterns which can be used to define the time of complete mixing in winter (Fig. 10). Winter mixing was indicated by the sudden drop in DRP and $\text{NO}_3\text{-N}$ concentrations that usually occurs around the beginning of August. It is clear (Fig. 10) that $\text{NO}_3\text{-N}$ concentrations in the hypolimnion before winter mixing have been

remarkably consistent at around 32-35 mg m⁻³ in the last 4 years. Also, with the exception of 2005, winter mixing has occurred in July each year (Fig. 10).

In 2005 mixing was incomplete and, in the following stratified period, deep NO₃-N concentrations were high from the start of stratification because of carry-over from the previous stratification period. However, the rapid increase in NO₃-N concentrations observed through the beginning of the stratified period in other years did not eventuate in spring 2005. This suggests that the smaller winter bloom in winter 2005 produced less algal decomposition in the hypolimnion as the bloom sedimented out of the upper water column in spring 2005. The time-series of NO₃-N concentrations through spring 2006 followed the expected pattern from years with complete mixing.

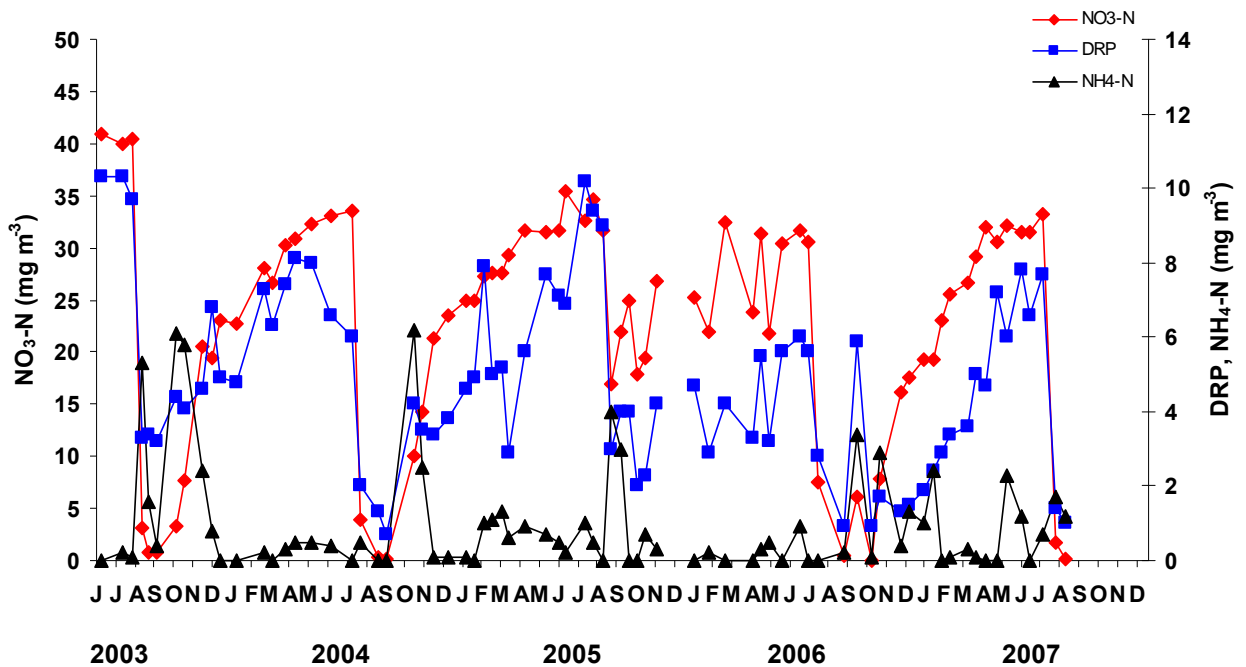


Figure 10: Time series data for DRP (blue square), NO₃-N (red diamond) and NH₄-N (black triangle) in the bottom waters of Lake Taupo since winter mixing 2003. Note the DRP and NH₄-N Y-axis scale (right side) is expanded for clarity.

The total mass⁵ of NO₃-N in the hypolimnion in autumn each year before winter mixing has ranged from about 120 t (1978) to more than 650 t (2000) (Fig. 11). While this graph is similar to those in earlier reports, this graph also includes all additional information from historical data sets held by NIWA. A copy of the historical source data used to produce the additional data points from 1975 to 1990 are included in

⁵ In previous reports the total mass of NO₃-N in the hypolimnion each year has been referred to as the “total accumulated mass” of NO₃-N. It is the “standing stock” of NO₃-N at that time.

Appendix 6. Including the additional historical data, since 1975 there has been a statistically significant ($P < 0.002$, $r^2 = 0.41$, $n = 20$) trend of increase in the total mass of $\text{NO}_3\text{-N}$ in the hypolimnion before winter mixing of around 8.4 t y^{-1} (Fig. 11).

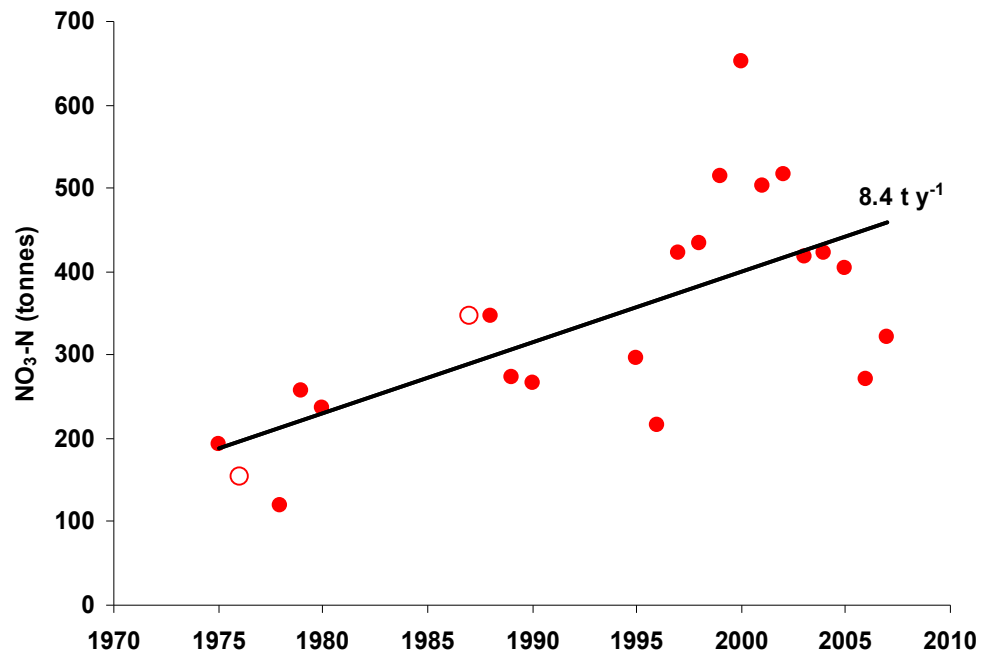


Figure 11: Long-term time series of total mass of $\text{NO}_3\text{-N}$ in the hypolimnion of Lake Taupo in autumn (~April) before winter mixing. The regression line indicates a statistically significant trend of increase in the total mass of 8.4 t y^{-1} ($P < 0.002$, $r^2 = 0.41$, $n = 20$). Open circle data excluded from regression as time periods and depth data were not the same as used for the other data. Date ticks are 1 January in each year.

3.7.2 Net accumulation rate

While the total mass of $\text{NO}_3\text{-N}$ in the hypolimnion is a “standing stock” before winter mixing, it is recognised that the standing stock is a function of the mass of $\text{NO}_3\text{-N}$ in the hypolimnion at the beginning of the stratified period plus the net mass that was released from the sediments plus algae decomposing in the water column and accumulated in the hypolimnion during the stratified period. While the standing stock is the mass present at one time, the mass released from the sediments over the stratified period can be expressed as a rate which may give a more reliable estimate of change.

To determine the net accumulation rate of $\text{NO}_3\text{-N}$ in the hypolimnion, the total mass data (Fig. 11) have been transformed into accumulation rate data by subtracting the

spring profile data from the autumn profile data and dividing by the number of days between the spring and autumn samplings (Fig. 12).

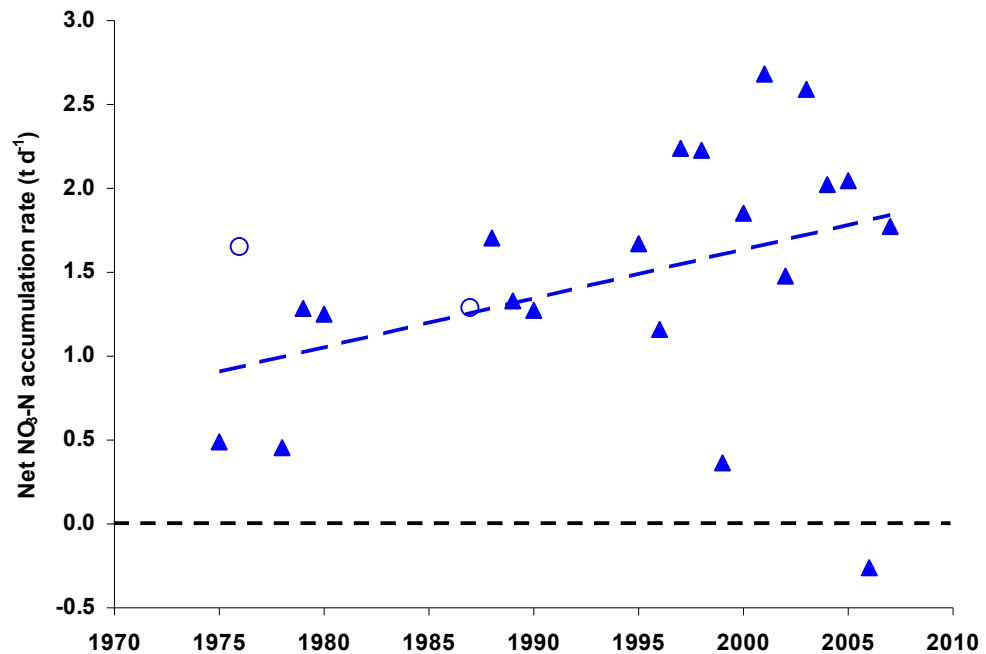


Figure 12: Net NO₃-N accumulation rates (t d⁻¹) in the hypolimnion below 70 m. The regression line shows an increase in the net accumulation rate of 0.03 t d⁻¹ (P < 0.1, r² = 0.145, n = 20). Open circle data were not included in the regression analysis (see text). Note that the Y-axis extends to -0.5 t d⁻¹ for the 2006 data point. Date ticks are 1 January in each year.

As sediment process rates are generally slow to change, the expectation would be for a reasonably consistent pattern to the net accumulation rates between years allowing any trends to be well defined. A regression through all of these rate data (Fig. 12) shows a weakly significant trend in the data with the net accumulation rate increasing at 0.03 t d⁻¹ each year (P < 0.1, r² = 0.145, n = 20) over the 32 year data record. The data for 1976 and 1987 (open circles, Fig 12) were excluded from the regression analysis because they are for different periods than the rest of the data (see also Fig. 11)).

The net accumulation rates of NO₃-N (Fig. 12) show a higher degree of variability between years than would be normally expected, with both the 1999 and 2006 data points (years following incomplete mixing) falling well below the spread of the rest of the data and the trend line. The negative net accumulation rate in 2006 indicates a substantial loss of NO₃-N from the hypolimnion during the 2005-06 stratified period.

Clearly this is not possible if the $\text{NO}_3\text{-N}$ accumulation was derived from sediment release only. The net loss is therefore an indication that net $\text{NO}_3\text{-N}$ accumulation in the hypolimnion also includes water column processes such as uptake by algae in the DCM at the top of the hypolimnion and the water column decomposition of algae falling from above. This suggests that the low or negative net $\text{NO}_3\text{-N}$ accumulation rates for years following a winter where there was incomplete mixing, are anomalies relative to the rest of the data. The effect of incomplete mixing was discussed in the previous report (Gibbs 2007). Note that the net accumulation rate for the 2006/2007 period, which had complete mixing, falls very close to the trend line (Fig. 12).

3.7.3 Total N

Total nitrogen (TN) mass in Lake Taupo was estimated from the spring profile in each year. Regression analysis found that, although there was an average increase of about 10 t y^{-1} over the data record, there was no statistically significant trend in the long-term time-series data for TN (Fig. 13). Coincidentally, the average increase of about 10 t TN y^{-1} is essentially the same as the average increase in the mass of $\text{NO}_3\text{-N}$ in the hypolimnion in autumn. Although these data are not directly linked, the algal bloom that develops following winter mixing contributes to the TN mass in the lake in spring.

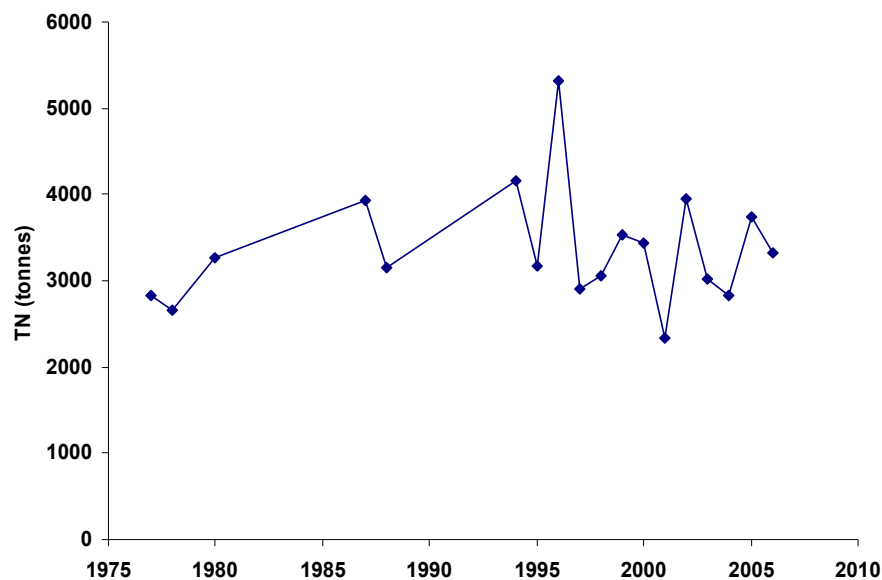


Figure 13: Long-term time series estimates of the mass of total nitrogen (TN) in Lake Taupo in spring after winter mixing. Although there is an average increase of about 10 t y^{-1} over the data record, this apparent trend in the data is not statistically significant. The mean of the mass is around 3370 t. Date ticks are 1 January in each year.

Although there is obvious interannual variability in the mass of TN in spring following winter mixing, the total mass of TN in Lake Taupo remains at around 3300 t despite a net annual external TN load on the lake of around 1200 t. This implies that around 1200 t of N are lost from the lake water column each year through sedimentation. This N may be buried or removed from the lake by denitrification.

4. Knowledge gaps

An earlier report (Gibbs 2006) commented on several knowledge gaps including in-lake processes in Lake Taupo, and process rates at the sediment-water interface. This report presents estimates of the net rate of NO₃-N accumulation in the hypolimnion during the stratified period. The low NO₃-N accumulation rate in the 2005/2006 stratified period following incomplete mixing in winter 2005, and the immediate return of the net accumulation rate to the trend in the net rate data the following year, points to water column processes being as important as sediment processes and highlights the need to understand how the in-lake processes work.

Despite a net input of TN to the lake of 1200 t y⁻¹ there is no apparent increase in the TN in the lake (Fig. 13). In addition, the total mass of NO₃-N in the hypolimnion just before winter mixing each year appears to reach a plateau (see shape of NO₃-N concentration curves Fig. 10). Together these data suggest that processes at the sediment-water interface and elsewhere in the hypolimnion are capable of sequestering very large amounts of N each year. However, as the net accumulation rate of NO₃-N in the hypolimnion is increasing, this suggests that the sediment processes of burial, decomposition, mineralisation, nitrification, and denitrification are changing.

We have little or no information on any of these process rates.

This report has also shown that both the mean annual water clarity and the mean annual chlorophyll *a* concentrations in the upper 10 m of water column have increased significantly since 1994. These parameters are usually inversely related and thus other factors must be influencing the observed increases. Note, the deep chlorophyll maximum, which may account for more than 70% of the algal biomass in Lake Taupo, is not being assessed.

5. Summary

- The annual mean chlorophyll *a* concentration in the upper 10 m of water column in Lake Taupo, as an indicator of phytoplankton biomass, has increased at a rate of $0.04 \pm 0.03 \text{ mg m}^{-3} \text{ y}^{-1}$ ($P < 0.01$, $r^2 = 0.44$, $n = 14$) over the 13 year monitoring period.
- Winter chlorophyll *a* maximum concentrations have increased at $0.12 \pm 0.06 \text{ mg m}^{-3} \text{ y}^{-1}$ ($r^2 = 0.59$, $n = 14$) since 1994 and the peak chlorophyll *a* concentration in winter 2006 at 2.8 mg m^{-3} was one of the highest on record.
- The trend of increase in the winter chlorophyll *a* maximum concentrations may not be linear and concentrations may have reached a plateau. Before 2000, mean winter chlorophyll *a* maximum concentrations were 1.46 mg m^{-3} with an increasing trend of $0.18 \text{ mg m}^{-3} \text{ y}^{-1}$. After 2000, mean winter chlorophyll *a* maximum concentrations were 2.5 mg m^{-3} with no statistically significant trend or apparent change in the data.
- There is a substantial deep chlorophyll maxima (DCM) below the thermocline (40 m) in the lake during spring and summer with an estimated chlorophyll *a* concentration about 70% higher than the chlorophyll *a* concentrations measured in the surface waters.
- Algal species dominance followed a succession from diatoms *Aulacoseira granulata* in winter and spring, with *Dinobryon* and *Botryococcus* becoming dominant in summer and autumn. Blue-green algae were always present in low numbers throughout 2006/2007 monitoring period, with *Anabaena lemmermannii* reaching a dominance level of 3 on one occasion in March 2007.
- Algae collected from the DCM in April 2006 were dominated by dinoflagellates (*Dinobryon* and *Gymnodinium* sp.), which are motile species that can move down from high to low light levels to take advantage of the diffusive flux of nutrients from the hypolimnion when the epilimnion is nutrient depleted.
- There was a statistically significant trend of increase in the total mass of $\text{NO}_3\text{-N}$ in the hypolimnion before winter mixing of around 8.4 t yr^{-1} ($P < 0.002$, $r^2 = 0.41$, $n = 20$). This increase is comparable with the non-statistically significant increase in whole Lake TN of about 10 t y^{-1} . While not directly linked, following winter

mixing the accumulated NO₃-N in the hypolimnion in autumn stimulates algal growth which contributes to the TN measured in spring.

- The net accumulation rate of NO₃-N rate in the hypolimnion below 70 m in the last few years has been in the order of 2 t d⁻¹ and regression analysis showed that there has been a weakly significant trend of increase in that rate of 0.03 t d⁻¹ each year (P < 0.1, r² = 0.145, n = 20) over the last 32 years.
- The net accumulation rate of NO₃-N in the hypolimnion in 1999 and 2006 were much lower than the trend and the data indicate that there was a net loss of NO₃-N from the hypolimnion in 2006. As sediment release should have been positive and is unlikely to change rapidly, these apparent anomalies point to water column processes in the hypolimnion being of similar importance to sediment processes.
- The 2006/2007 net VHOD rate for the period from September 2006 to March 2007 was 10.73 ± 2.45 mg m⁻³ d⁻¹ (mean ± 95% confidence limit) which was less than the previous year at 9.56 ± 2.24 mg m⁻³ d⁻¹.
- Nutrient concentrations (DRP, NH₄-N, and NO₃-N) in the upper water column were generally comparable with concentrations since 2003 and are similar to historical concentrations before Mount Ruapehu erupted in 1995.
- There were indications that N-limitation developed during spring 2006 following winter mixing in 2006 when substantial amounts of NO₃-N were dispersed through the upper water column, driving the record high phytoplankton biomass (reported above).
- Bottom water temperatures rose to just above 11 °C through the 2006/2007 period.
- Water clarity during summer 2007 was higher on average than in most previous summers, and the high clarity period extended into late autumn.
- Extremely high water clarity (Secchi depth 25 m) in summer 2008 may be attributed to the extended period of calm weather and very low surface run-off during the drought contributing less plant growth nutrients and sediment to the lake than in previous years.

In a previous annual report (Gibbs et al. 2002), 3 trends in the data were identified — increasing phytoplankton biomass in the upper 10 m, increasing NO₃-N mass in the

lake hypolimnion prior to winter mixing, and an increasing range in the variability of water clarity — that were of concern with respect to the water quality of Lake Taupo. In the previous report, it was also shown that the net accumulation rate of $\text{NO}_3\text{-N}$ in the hypolimnion during the stratified period has increased over the last 30 years, although the trend was not strong.

These trends in the data are still present.

6. Acknowledgments

This report was made possible by the team effort of Les Porter and Brent McIntosh of the Taupo Harbourmaster's Office, and Eddie Bowman (NIWA Rotorua) who have collected the data. Much of the success of this monitoring programme is attributable to the extra effort by Eddie and the team.

Water samples were processed in the NIWA chemistry laboratory and analytical results were provided by Graham Bryers, Denise Rendle, Stu Pickmere and team. Quality control was provided by Mike Crump, Lab Manager.

Phytoplankton dominance and enumeration results were provided by Karl Safi.

7. References

- Burns, N.M. (1995). Using hypolimnetic dissolved oxygen depletion rates for monitoring lakes. *New Zealand Journal of Marine and Freshwater Research* 29: 1-11.
- Gibbs, M.M. (1995). Lake Taupo long term monitoring programme. NIWA Consultancy Report to Environment Waikato, Report No. EVW60203/1.
- Gibbs, M.M. (1997a). Lake Taupo long term monitoring programme: 1995-1996. NIWA Consultancy Report to Environment Waikato, Report No. EVW60203/2.
- Gibbs, M.M. (1997b). Lake Taupo long term monitoring programme: 1996-1997. NIWA Consultancy Report to Environment Waikato, Report No. EVW60203/4.
- Gibbs, M.M. (1998). Lake Taupo long term monitoring programme: 1997-1998. NIWA Consultancy Report to Environment Waikato, Report No. EVW80203.
- Gibbs, M.M. (2000a). Lake Taupo long term monitoring programme: 1998-1999. NIWA Consultancy Report to Environment Waikato, Report No. EVW90203.
- Gibbs, M.M. (2000b). Lake Taupo long term monitoring programme: 1999-2000. NIWA Consultancy Report to Environment Waikato, report No. EVW01203.
- Gibbs, M.M.; Rutherford, J.C.; Hawes, I. (2002). Lake Taupo long term monitoring programme 2000 – 2001, with a review of accumulated data since 1994. NIWA Consultancy Report to Environment Waikato, Report No. HAM2002-029, August.
- Gibbs, M.M. (2002). Lake Taupo long term monitoring programme 2001-2002: including two additional sites. NIWA Consultancy Report to Environment Waikato, Report No.HAM2002-060, December.
- Gibbs, M.M. (2004). Lake Taupo long term monitoring programme 2002-2003: including two additional sites. NIWA Consultancy Report to Environment Waikato, Report No.HAM2004-001, March.
- Gibbs, M.M. (2005). Lake Taupo long term monitoring programme 2003-2004: including two additional sites. NIWA Consultancy Report to Environment Waikato, Report No.HAM2005-006, February.

Gibbs, M.M. (2006). Lake Taupo long term monitoring programme 2004-2005: including two additional sites. NIWA Consultancy Report to Environment Waikato, Report No.HAM2006-033, May.

Gibbs, M.M. (2007). Lake Taupo long term monitoring programme 2005-2006. NIWA Consultancy Report to Environment Waikato, Report No.HAM2007-029, March.

Vincent, W.F. (1983). Plankton production and winter mixing: contrasting effects in two oligotrophic lakes. *Journal of Ecology* 71: 1-20.

White, E.; Downes, M.; Gibbs, M.; Kemp, L.; Mackenzie, L.; and Payne, G. (1980). Aspects of the physics, chemistry, and phytoplankton biology of Lake Taupo. *New Zealand Journal of Marine and Freshwater Research*, 14(2): 139-148.

8. Appendix 1. Site map, sampling strategy and methods

Lake monitoring sites were originally established using land-based markers (Fig.1). These have now been defined using GPS and corrected for curvature using WGS84 convention.

Site Map

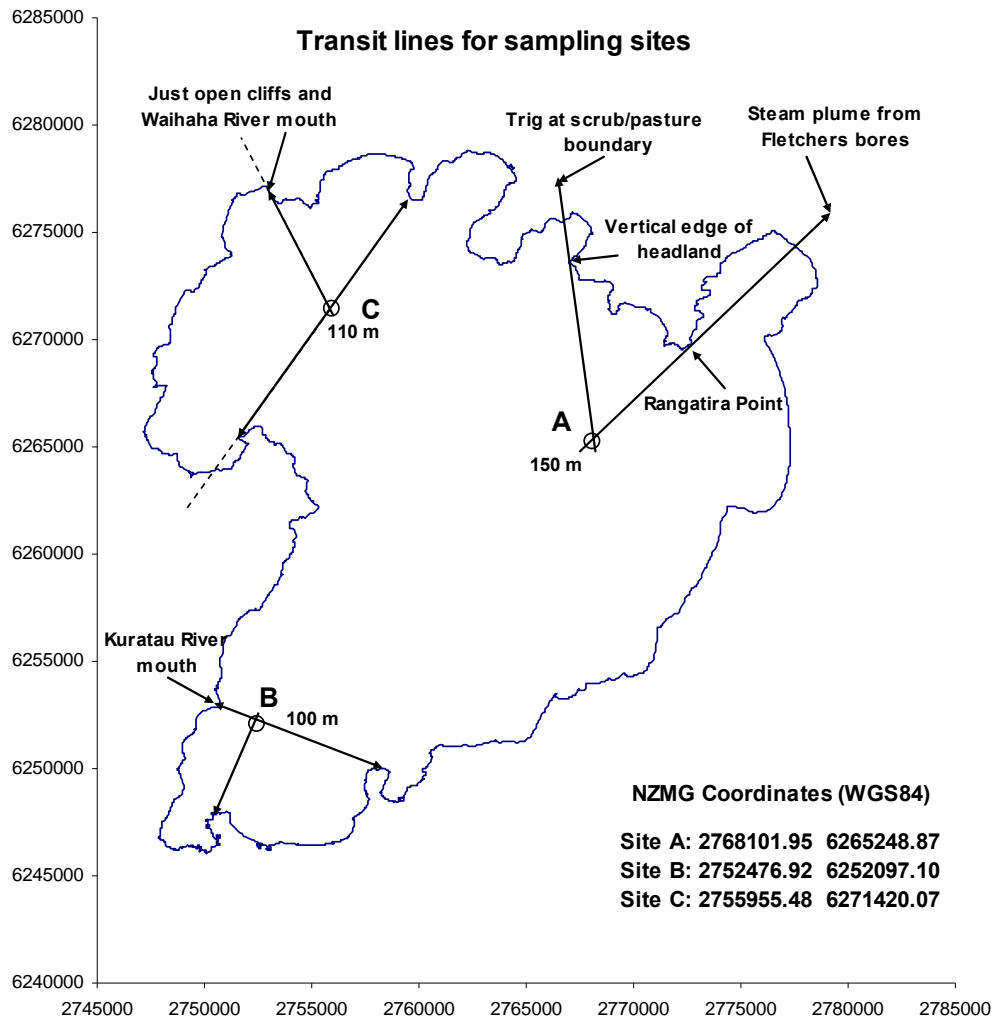


Figure 1: Site map of Lake Taupo showing location of the routine monitoring site at mid-lake (A). Two additional sites at Kuratau Basin (B) and the Western Bays (C) were sampled between January 2002 and December 2004 inclusive. Data from those sites have been retained with the Site A data presented in the appendices. Map coordinates are in NZ Map Grid with WGS84 correction. Lat. Long WGS 84 corrected co-ordinates of "Site A" are 38° 46'.810 S; 175° 58'.440 E.

The following section has been copied from Gibbs 1995, and modified after 1998.

8.1 Methods

The sampling site was selected in the central basin of Lake Taupo (Site Map) with a water depth of about 150 m. This site is more than 5 km from the nearest land and is exposed to both the north-south and east-west axis of the lake.

To calculate VHOD requires two measurements each year far enough apart in time for a measurable change to occur in the DO concentrations in the hypolimnion of the lake. Details of the procedure and limitations of this measurement are described by Vant (1987). For the monitoring of Lake Taupo, which mixes briefly in winter between July and August, the initial sampling time was selected to be in October, to give sufficient time for thermal stratification to establish a stable hypolimnion. The final sampling time was selected to be in April, before lake cooling causes the downward movement of the thermocline which precedes the winter mixing.

At each of these biannual samplings, a detailed profile of DO and temperature was measured. Prior to 1998, measurements were made at 1 m depth intervals through the full depth of the water column using an *in situ* recording Applied Microsystems STD-12 profiler fitted with a Royce DO sensor, and compared with manual measurements of DO and temperature made at 10 m depth intervals from the surface to the bottom of the lake using a Yellow Springs Instrument (YSI) model 58 dissolved oxygen meter fitted with a stirred Model 5739 probe on a 160 m cable. Subsequent to 1998, a Richard Brancker Research (RBR) model TD410 conductivity-temperature-depth (CTD) profiler fitted with a stirred YSI model 5739 DO sensor was used. In January 2002, the TD410 CTD profiler was upgraded to an RBR model XR420f freshwater CTD profiler fitted with the YSI model 5739 DO sensor and a Seapoint chlorophyll fluorescence probe. The DO sensor was calibrated regularly by NIWA, Rotorua staff and chlorophyll fluorescence was converted to chlorophyll *a* from extracted chlorophyll *a* analyses of water samples collected beside profiler.

The following parameters were also measured as profiles from water samples collected using a van Dorn water sampling bottle starting at 1 m and then at 10 m intervals from 10 m to the bottom of the lake:

DO, chlorophyll *a*, dissolved reactive phosphorus (DRP), dissolved organic phosphorus (DOP), particulate phosphorus (PP), total phosphorus (TP), nitrate + nitrite nitrogen* (NO₃-N), ammoniacal nitrogen (NH₄-N), dissolved organic nitrogen

(DON), particulate nitrogen (PN), total nitrogen (TN), urea nitrogen (Urea-N), total suspended solids (SS), volatile suspended solids (VSS), particulate carbon (PC), dissolved organic carbon (DOC), and water colour. (* Little, if any nitrite is ever found in the Lake Taupo water column, hence the use of NO₃-N, (unpub. Data)).

Note: TN and TP values are the summation of all other N and P components, respectively, excluding Urea-N which is part of the DON component.

Additional parameters measured were:

Water clarity (by Secchi disc depth) and algal species composition and abundance on water samples from 1, 10, 50, 100, and 140 m.

Determinations on the water samples were made with the standard methods routinely used for freshwater analysis by NIWA.

Data for the long term monitoring programme were scheduled to be collected from the mid-lake sampling station at 2 weekly intervals. The practicality of achieving this target was limited by the weather and in reality data were generally collected at about 2-3 weekly intervals. Parameters measured were:

DO and temperature profiles at 1 m depth intervals to the bottom of the lake by RBR XR420f profiler, water clarity as Secchi disc depth, and a 10 m tube water sample was collected for measurement of chlorophyll *a*, NO₃-N, NH₄-N, TN, DRP, TP, and algal species dominance.

Near-bottom water samples from 150 m were collected using a van Dorn water sampling bottle and analysed for DRP, NO₃-N, and NH₄-N.

8.2 Data handling and less than detection limit values

All data in this report have been processed and manipulated on Excel spreadsheets. Data is rounded using the Excel protocol to an appropriate number of significant numbers based on the need for detailed knowledge tempered with the confidence in the precision and accuracy of the analytical methods used. This treatment may lead to small differences between electronic copies of the data and the values presented in this report.

The difference between the written report and the Excel spreadsheet of essentially the same data is the treatment of the less than detection limit (<DL) results. The data have in the past been written as <DL or <DL(value). For statistical analysis the excel spreadsheet replaces <DL with 0 or uses the value in brackets in place of 0. Although it is recognised that the former action will be in error, the use of the value in brackets requires some justification.

In discussion with Burns Macaskill, Graham McBride, and Mike Crump from NIWA on this issue, the following conclusions were reached:

- In general the data is reported as a series of results from analytical methods which have known limitations and precision. The raw number is reported where ever possible so that the user can draw their own conclusions about the reliability of the "last significant figure" on any result when performing data manipulations.
- The real problem arises at very low levels and the result obtained is less than the method's prescribed DL. The problem is not so much the result obtained but what to do with it which in turn raises the question 'What do we mean by detection limit'?
- In the book "Statistical methods in water resources" Helsel & Hirsch 1992 [Studies in Environmental Science 49, Elsevier], and chapter 13 "Methods for data below the reporting limit" it is pointed out that the 'detection limit' is variously known as the 'reporting limit' or the 'limit of quantitation'. If no other value is available, there are 3 main options: call it zero (which is clearly an under estimate), call it the detection limit (which is clearly an over estimate), or call it half the detection limit (which gives a 50:50 chance of an over or under estimate). The choice then is one of 'which convention do you wish to use?'. In the written reports, I have treated the <DL as zero for summation purposes. This is an under estimate which I should have noted on each report page so that anyone using that data is aware of the convention used.
- An alternative approach is to say that, before the sample is analysed, the DL is the *predicted minimum* level that will be found using the stipulated method. However, once the sample is analysed the result is what was *actually measured* and may be <DL on the day of analysis. As it is an actual analytical result, that value (reported in brackets) should be reported even though it is <DL. This implies that the method DL is in reality a reporting level or level of confidence.

- The "DL" was derived for the Lake Taupo data, on each analytical occasion, from a series of blanks and 1ppb standards run with the samples. The "DL" is set as 3 times the SD of the 1 ppb standard. This is actually a limit of confidence. All samples are run in duplicate and the mean of the two results becomes the concentration reported.
- With the introduction of the Lachat flow injection analysis (FIA) system, the limits of detection have been confidently pushed to the point where replicate results may often be <DL. In these instances, in the written report, the value is reported as <DL(result). In the past I have still used the <DL = 0 convention in summation for the TN and TP data. This is obviously wrong and the actual result should be used, as is done in the electronic spreadsheet.

In this report the analytical value 'on-the-day' has been used wherever possible. Data reported as <DL use the <DL = DL/2 convention. Past data have not been corrected or altered to conform to this protocol.

These technical details are incorporated in this annual report so that data users are aware of how the 'DL' or confidence limit was set and how the values <DL are treated when performing data manipulations.

There is still the question of how to deal with numbers where the result has been simply reported as <DL. The use of the DL/2 convention is probably closer to reality than the DL = 0 convention.

Helsel & Hirsch suggest an alternative method for estimating a value in the <DL range. If there is sufficient real data >DL, a probability curve can be derived and extrapolated around the DL to generate the most probable number for the <DL value.

8.3 Statistical methods

Copied from Gibbs (2000b).

In this report we have used linear regressions and associated statistical tests to examine trends. The key result of these procedures is the coefficient of determination (r^2), which presents the amount of variability in the data that is accounted for by the

regression. Another is the P -value.⁶ This can be used as a weight of evidence against the hypothesis that there was in fact no trend. This weight is strong when P is small, meaning that a trend at least as large as that measured could have occurred merely by chance—we have only a limited number of data from which to infer the strength of any trend, so our measurements always are uncertain to some degree. So if P is low enough (taken as less than 5% in this report, which is the usual practice), it is conventional to say that the measured trend is "statistically significant", and that convention is followed in this report. However, it is important (and often not realised) to note that the P -value cannot be used as an *absolute* weight of evidence. This is because it tends to decrease as the number of samples taken in a given period is increased. For example, when we plot monthly Secchi disc depth data from 1994–2001 (Figure 3A, Gibbs 2000b) with these 93 data we obtain a statistically significant result (because $P < 0.05$)—even though the coefficient of determination was only $r^2 = 0.0445$. When we plot the minimum winter clarity over this period we then have only 7 data. In this case (Fig. 3B, Gibbs 2000b) we happen to have the same measured trend slope with a much higher coefficient of determination ($r^2 = 0.464$), yet the result is *not* statistically significant (because $P = 0.09$). This is entirely because of the reduced number of samples in the winter minimum case. What this makes clear is that the P value is useful as a *relative* weight of evidence when comparing datasets of the *same size*, but it has no evidential meaning when comparing results from datasets of very different sizes.

⁶ It is defined as the probability of obtaining a trend at least as extreme as was obtained if in fact there was no trend at all.

9. Appendix 2. The calculation of net VHOD rates

Copied from Gibbs 1995.

Rationale

In the strictest terms, VHOD can only be calculated for a lake which has thermally stratified and the resultant thermocline provides an effective barrier against re-oxygenation of the hypolimnion. The measure of the barrier efficiency is the rate of heating of the hypolimnion following stratification as heat will be transferred across the thermocline at a similar rate to oxygen.

In Lake Taupo, the thermal inertia of the hypolimnion is so great that heating during the stratified period is typically about 0.2 °C and never more than 0.4 °C over a 200 day period. While this would seem to meet the temperature criterion, in a lake that large, oxygen can be transferred into the hypolimnion by mechanisms other than diffusion.

Wind induced mixing may increase turbulent diffusion across the thermocline as would an internal seiche on the thermocline. Both of these mechanisms would transfer heat. The penetration of the thermocline by an underflowing density current would entrain oxygenated surface water into the hypolimnion with that flow. As the density current must be colder than the thermocline to plunge through it, there is no heat transferred with this mechanism.

In Lake Taupo the Tongariro River is always colder than the surface water and for at least 9 months of the year it is also colder than the minimum lake water temperature of 10.3 °C. Thus, during most of the stratified period, the Tongariro River flows directly into the hypolimnion entraining oxygenated surface water with it. The amount of surface water entrained has been estimated to be about 10 times the river discharge. The amount of oxygen transported in this way is likely to be more than 200 tonnes per day (Gibbs 1996).

Clearly this is a substantial oxygen input which invalidates the concept of the thermocline forming an oxygen barrier for purposes of calculating the VHOD. The true VHOD may only be calculated during mid summer when the Tongariro River flows deep into the epilimnion but does not penetrate the thermocline.

The data collected to date indicates that hypolimnetic oxygen depletion occurs throughout the stratified period - with or without the density current re-oxygenation - and hence the value obtained from a VHOD calculation over the whole stratified period is the net VHOD rate taking all the factors affecting the hypolimnion into account.

As the data from 1996/97 shows, the density current also advects dissolved organic nutrients with it. Hence, management strategies which affect the Tongariro River also impact on the lake. Hence it is appropriate to use the net VHOD rate for interannual comparisons rather than the true VHOD rate calculated only through mid summer.

Method of calculation

The following is the method used to calculate the net VHOD rate for Lake Taupo.

Requirements: Microsoft EXCEL spreadsheet or equivalent.

EASY PLOT statistical graphing package or equivalent.

Although the thermocline in Lake Taupo is usually at about 40 m, the isothermal water column lies below 70 m. To accommodate the gradient across the thermocline, the net VHOD rate calculation only uses oxygen data from below 70 m.

To calculate the mean oxygen concentration in the water column below 70 m, the DO concentration at each 10 m depth increment is multiplied by the volume of the 10 m slice it came from. This assumes rapid horizontal mixing and minimal vertical mixing to extrapolate one DO value across the whole lake. Historical data from multiple sites would suggest that this is a reasonable assumption.

The slice volumes (hypographic volumes) for Lake Taupo have been calculated for 10 m thick layers centred on the 5 m point of each slice i.e., 75, 85, 95, 105 m etc. The DO measurements are made at 10 m intervals i.e., 70, 80, 90, 100, 110 m etc.

The mass of oxygen in each 10 m slice is the average of the DO concentration at the top and bottom of a slice multiplied by the slice volume. i.e., for the 70 - 80 m slice the calculation is:-

$$\text{mass}_{70-80\text{m}} = ((\text{DO}_{70\text{m}} + \text{DO}_{80\text{m}}) \div 2) \times \text{Volume}_{70-80\text{m}}$$

For each profile date:

Compute the mass for each 10 m slice between 70 m and 150 m and sum the results as the total mass of DO in the hypolimnion below 70 m. Sum the slice volumes below 70 m as the total volume of the hypolimnion below 70 m.

The volume weighted mean DO concentration is the total mass value divided by the total volume value.

Use the sequential day number or equivalent to construct a time series of volume weighted mean DO concentrations over the stratified period and use the CURVE FIT regression analysis of EASY PLOT to obtain the $y = ax + b$ straight line fit for these data.

As the DO data are in g m^{-3} , the value of 'a' is in $\text{g m}^{-3} \text{d}^{-1}$. Multiply 'a' by 1000 to get the net VHOD rate in $\text{mg m}^{-3} \text{d}^{-1}$. The negative sign indicates a loss rate.

The hypsographic volumes and upper surface areas of the 10 m slices through the whole depth of Lake Taupo are listed at the end of this section.

Lake Taupo Hypsographic Data used in the Net VHOD RATE calculation.

Slice depths (m)	Volume of slice (km^3)	Upper surface area of slice (km^2)
0 - 10	5.849359	600
10 - 20	5.599702	570
20 - 30	5.459951	550
30 - 40	5.359888	542
40 - 50	5.288266	530
50 - 60	5.150538	528
60 - 70	4.899510	502
70 - 80	4.619076	478
80 - 90	4.278738	446
90 - 100	3.847292	410
100 - 110	3.006616	360
110 - 120	1.730549	245
120 - 130	0.837468	110
130 - 140	0.394439	60
140 - 150	0.073333	22
150 -	0	0

Statistical evaluation of the VHOD rate

From the 1999-2000 monitoring report (Gibbs 2000b), the VHOD rate is expressed as the calculated net VHOD rate \pm the 95% confidence limit. This gives a meaningful estimate of the range within which the VHOD rate lies and is more appropriate than the standard deviation on the data or a standard error estimate on the regression coefficient.

Julian Date or sequential day number for each day of the year excluding leap years. For Leap Years, add 1 to the sequential day number from 1 March to 31 December of that year.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
1	1	32	60	91	121	152	182	213	244	274	305	335	1
2	2	33	61	92	122	153	183	214	245	275	306	336	2
3	3	34	62	93	123	154	184	215	246	276	307	337	3
4	4	35	63	94	124	155	185	216	247	277	308	338	4
5	5	36	64	95	125	156	186	217	248	278	309	339	5
6	6	37	65	96	126	157	187	218	249	279	310	340	6
7	7	38	66	97	127	158	188	219	250	280	311	341	7
8	8	39	67	98	128	159	189	220	251	281	312	342	8
9	9	40	68	99	129	160	190	221	252	282	313	343	9
10	10	41	69	100	130	161	191	222	253	283	314	344	10
11	11	42	70	101	131	162	192	223	254	284	315	345	11
12	12	43	71	102	132	163	193	224	255	285	316	346	12
13	13	44	72	103	133	164	194	225	256	286	317	347	13
14	14	45	73	104	134	165	195	226	257	287	318	348	14
15	15	46	74	105	135	166	196	227	258	288	319	349	15
16	16	47	75	106	136	167	197	228	259	289	320	350	16
17	17	48	76	107	137	168	198	229	260	290	321	351	17
18	18	49	77	108	138	169	199	230	261	291	322	352	18
19	19	50	78	109	139	170	200	231	262	292	323	353	19
20	20	51	79	110	140	171	201	232	263	293	324	354	20
21	21	52	80	111	141	172	202	233	264	294	325	355	21
22	22	53	81	112	142	173	203	234	265	295	326	356	22
23	23	54	82	113	143	174	204	235	266	296	327	357	23
24	24	55	83	114	144	175	205	236	267	297	328	358	24
25	25	56	84	115	145	176	206	237	268	298	329	359	25
26	26	57	85	116	146	177	207	238	269	299	330	360	26
27	27	58	86	117	147	178	208	239	270	300	331	361	27
28	28	59	87	118	148	179	209	240	271	301	332	362	28
29	29		88	119	149	180	210	241	272	302	333	363	29
30	30		89	120	150	181	211	242	273	303	334	364	30
31	31		90		151		212	243		304		365	31

10. Appendix 3. Temperature and dissolved Oxygen data

Includes accumulated data since 1994.

* represents data missing or invalid.

For completeness, additional data from the Kuratau Basin (site B) and Western Bays (site C) collected for the period between January 2002 and December 2004 are included as separate sheets following the mid-lake data from site A for those years.

Note: unless otherwise stated, the data presented is from the mid-lake site, Site A.

Lake Taupo Temperature, Dissolved Oxygen, and Secchi Depth Database.
Mid-Lake site A for the period starting 4 September 2006

2006-2007

Temperature

Date	4/09/2006	26/09/2006	18/10/2006	1/11/2006	5/12/2006	19/12/2006	9/01/2007	25/01/2007	8/02/2007	21/02/2007	21/03/2007	3/04/2007	19/04/2007	8/05/2007	22/05/2007	14/06/2007	27/06/2007	18/07/2007	8/08/2007	23/08/2007	11/09/2007	
Depth (m)																						
0	11.10	11.88	11.72	12.43	15.21	15.62	16.51	18.60	19.31	19.58	18.70	18.04	16.49	19.29	15.17	13.56	12.38	11.43	11.15	11.00	11.00	
10	10.93	11.48	11.73	12.27	14.06	15.46	16.41	18.42	18.98	19.12	18.03	18.03	16.48	18.98	15.16	13.56	12.39	11.43	11.15	11.00	10.99	
20	10.93	11.29	11.72	12.25	13.87	14.45	15.44	17.96	18.16	17.62	17.99	17.94	16.47	18.16	15.16	13.56	12.39	11.43	11.16	11.00	10.98	
30	10.89	11.19	11.69	12.20	13.69	14.15	14.42	15.82	14.86	15.17	15.18	16.72	16.47	14.86	15.16	13.56	12.39	11.36	11.15	11.00	10.99	
40	10.87	11.15	11.45	12.10	13.16	12.43	12.25	13.05	12.89	13.09	12.65	13.50	13.78	12.89	15.15	13.56	12.39	11.29	11.16	11.00	10.99	
50	10.83	11.08	11.34	11.96	11.77	11.64	11.74	11.84	11.89	11.91	11.94	12.33	12.47	11.89	11.99	13.55	12.39	11.27	11.16	11.00	10.99	
60	10.82	11.06	11.25	11.34	11.20	11.36	11.29	11.47	11.39	11.46	11.51	11.65	11.69	11.39	11.54	11.77	12.38	11.25	11.15	11.00	10.99	
70	10.82	11.00	11.21	11.17	11.11	11.21	11.15	11.26	11.21	11.21	11.22	11.28	11.33	11.21	11.33	11.35	11.39	11.22	11.16	11.01	10.99	
80	10.82	10.94	11.16	11.06	11.06	11.10	11.09	11.14	11.15	11.15	11.16	11.22	11.20	11.15	11.21	11.22	11.28	11.17	11.16	11.01	10.96	
90	10.81	10.90	11.08	10.99	10.97	11.03	11.03	11.04	11.06	11.05	11.09	11.11	11.13	11.06	11.12	11.11	11.22	11.14	11.16	11.01	10.96	
100	10.81	10.87	10.97	10.94	10.94	11.00	11.00	11.00	11.03	11.05	11.05	11.10	11.09	11.03	11.10	11.10	11.16	11.13	11.16	11.01	10.96	
110	10.81	10.84	10.89	10.91	10.91	10.96	10.98	10.98	11.01	11.02	11.03	11.04	11.05	11.01	11.07	11.09	11.12	11.12	11.16	11.01	10.96	
120	10.80	10.81	10.86	10.88	10.90	10.94	10.97	10.99	11.06	11.02	11.02	11.04	11.04	11.06	11.07	11.08	11.11	11.12	11.16	11.01	10.96	
130	10.79	10.79	10.85	10.85	10.88	10.92	10.95	10.97	10.99	10.99	11.01	11.01	11.03	10.99	11.03	11.07	11.08	11.11	11.16	11.01	10.96	
140	10.76	10.78	10.83	10.84	10.88	10.89	10.94	10.97	10.97	10.98	10.99	11.00	11.02	10.97	11.03	11.05	11.07	11.10	11.16	11.01	10.96	
150	10.75	10.76	10.82	10.85	10.88	10.91	10.93	10.99	10.96	11.02	11.04	11.03	11.02	11.00	11.04	11.05	11.07	11.10	11.16	11.01	10.96	

Dissolved Oxygen (g m⁻³)

Depth (m)	4/09/2006	26/09/2006	18/10/2006	1/11/2006	5/12/2006	19/12/2006	9/01/2007	25/01/2007	8/02/2007	21/02/2007	21/03/2007	3/04/2007	19/04/2007	8/05/2007	22/05/2007	14/06/2007	27/06/2007	18/07/2007	8/08/2007	23/08/2007	11/09/2007
0	10.52	10.31	10.36	10.23	9.62	9.52	9.35	8.99	8.95	9.16	9.31	9.44	9.74	9.20	10.01	10.01	10.26	10.36	10.96	11.02	11.00
10	10.47	10.28	10.31	10.16	9.69	9.52	9.52	8.95	8.96	9.26	9.27	9.51	9.73	9.29	10.06	9.95	10.37	10.43	11.08	11.05	11.12
20	10.33	10.25	10.23	10.14	9.56	9.43	9.64	8.95	8.77	9.22	9.27	9.45	9.84	9.08	10.12	9.83	10.48	10.56	11.05	11.15	10.87
30	10.23	10.22	10.27	10.07	9.48	9.50	9.49	8.61	8.78	9.21	8.52	9.30	9.75	9.09	10.06	9.74	10.25	10.27	10.89	11.01	10.99
40	10.13	10.10	10.14	10.08	9.38	9.39	9.47	8.84	8.95	9.08	8.94	8.86	9.26	9.28	9.87	9.71	10.17	10.11	10.89	10.92	10.84
50	10.00	9.96	9.99	10.03	9.05	9.28	9.33	8.66	8.68	8.71	8.77	8.87	9.11	9.00	9.39	9.70	10.12	9.88	10.67	10.90	10.92
60	9.91	10.06	9.93	9.73	9.15	8.97	9.15	8.61	8.62	8.63	8.72	8.76	9.00	8.93	8.83	9.28	10.23	9.84	10.67	10.84	11.07
70	9.82	9.95	9.83	9.54	8.79	8.89	9.02	8.53	8.48	8.57	8.76	8.82	8.96	8.78	8.90	8.45	9.67	9.60	10.67	10.68	10.89
80	9.88	9.83	9.82	9.51	8.66	8.85	8.85	8.34	8.47	8.41	8.62	8.49	8.89	8.78	8.62	8.42	9.34	9.39	10.78	10.88	10.90
90	9.78	9.71	9.71	9.33	8.69	8.67	8.75	8.29	8.29	8.40	8.54	8.53	8.70	8.59	8.66	7.89	8.47	8.36	10.67	10.73	10.66
100	9.82	9.69	9.65	9.30	8.49	8.46	8.65	7.99	8.21	8.01	8.36	8.23	8.58	8.51	8.13	7.66	8.56	8.20	10.79	10.67	10.64
110	9.73	9.62	9.47	9.21	8.40	8.38	8.38	8.02	8.04	7.95	8.22	8.24	8.41	8.33	8.20	7.74	8.40	7.87	10.66	10.70	10.62
120	9.79	9.38	9.37	9.08	8.34	8.33	8.38	7.88	7.84	7.72	8.02	8.01	8.24	8.12	7.74	7.69	8.30	7.92	10.61	10.76	10.66
130	9.65	9.35	9.29	9.00	8.24	8.26	8.27	7.81	7.91	7.71	7.58	8.09	8.01	8.19	7.74	7.54	7.95	7.75	10.52	10.55	10.42
140	9.61	9.38	9.10	8.94	8.22	8.21	8.14	7.75	7.86	7.61	7.58	7.72	7.66	8.15	7.34	7.35	7.94	7.74	10.50	10.75	10.40
150	9.65	9.13	9.02	8.69	7.96	7.82	7.89	7.45	7.25	7.35	7.25	7.25	7.32	7.50	7.18	7.39	7.58	7.55	10.46	10.54	10.37

Secchi depth

(m)	4/09/2006	26/09/2006	18/10/2006	1/11/2006	5/12/2006	19/12/2006	9/01/2007	25/01/2007	8/02/2007	21/02/2007	21/03/2007	3/04/2007	19/04/2007	8/05/2007	22/05/2007	14/06/2007	27/06/2007	18/07/2007	8/08/2007	23/08/2007	11/09/2007
	11	17.5	13	14.5	16	15.5	13.5	14.5	16	18.2	16.5	19	16	16	18.5	18	18.5	14.5	14	13	11

**Lake Taupo Temperature, Dissolved Oxygen, and Secchi Depth Database.
Mid-Lake site A for the period starting 17 August 2005**

2005-2006

Temperature

Date	17/08/2005	31/08/2005	14/09/2005	29/09/2005	12/10/2005	25/10/2005	10/11/2005	1/12/2005	10/01/2006	2/02/2006	1/03/2006	12/04/2006	27/04/2006	9/05/2006	30/05/2006	27/06/2006	11/07/2006	25/07/2006	4/09/2006	
Depth (m)																				
0	11.17	11.74	12.42	11.91	11.92	13.40	16.10	15.09	17.40	20.20	19.50	16.71	16.31	15.70	14.21	11.94	11.51	11.15	11.10	
10	10.98	11.24	11.76	11.68	11.79	12.84	14.59	14.93	17.10	20.11	19.50	16.72	16.29	15.70	14.21	11.99	11.51	11.15	10.93	
20	10.97	11.10	11.22	11.67	11.76	12.17	14.27	14.22	16.85	18.15	19.25	16.72	16.29	15.70	14.21	11.99	11.50	11.15	10.93	
30	10.97	11.05	11.05	11.66	11.66	11.63	12.36	13.34	14.84	15.46	16.14	16.71	16.29	15.70	14.21	11.99	11.48	11.15	10.89	
40	10.97	11.00	11.01	11.60	11.47	11.47	11.66	12.32	12.21	13.40	12.93	16.48	13.96	13.40	14.20	11.99	11.48	11.15	10.87	
50	10.97	10.98	10.98	11.18	11.39	11.29	11.27	11.66	11.60	11.75	11.57	12.00	12.20	11.94	14.16	11.99	11.48	11.15	10.83	
60	10.97	10.97	10.99	11.02	11.37	11.17	11.15	11.26	11.21	11.35	11.35	11.53	11.56	11.36	11.54	11.39	11.47	11.15	10.82	
70	10.96	10.97	10.97	10.97	11.26	11.06	11.04	11.11	11.13	11.19	11.16	11.29	11.30	11.23	11.27	11.21	11.46	11.15	10.82	
80	10.97	10.96	10.97	10.97	11.13	10.99	11.00	11.06	11.06	11.11	11.14	11.19	11.19	11.14	11.19	11.16	11.45	11.15	10.82	
90	10.96	10.96	10.96	10.96	11.07	10.97	10.98	11.01	11.05	11.06	11.06	11.12	11.12	11.10	11.16	11.15	11.42	11.15	10.81	
100	10.96	10.95	10.96	10.95	11.01	10.97	10.97	10.98	11.04	11.04	11.05	11.08	11.08	11.09	11.12	11.14	11.23	11.15	10.81	
110	10.96	10.94	10.94	10.94	10.98	10.94	10.95	10.97	11.02	11.02	11.05	11.05	11.07	11.06	11.11	11.14	11.20	11.15	10.81	
120	10.96	10.94	10.93	10.93	10.98	10.94	10.94	10.97	11.00	11.02	11.05	11.03	11.06	11.06	11.09	11.13	11.19	11.15	10.80	
130	10.96	10.93	10.93	10.92	10.96	10.93	10.93	10.96	10.99	11.00	11.03	11.02	11.05	11.04	11.07	11.13	11.18	11.15	10.79	
140	10.95	10.93	10.91	10.91	10.96	10.93	10.94	10.96	10.99	11.00	11.00	11.02	11.04	11.03	11.07	11.12	11.18	11.15	10.76	
150	10.93	10.93	10.89	10.91	10.96	10.92	10.96	10.97	10.98	10.99	11.00	11.02	11.04	11.04	11.07	11.10	11.14	11.15	10.75	

Dissolved Oxygen (g m⁻³)

Depth (m)																				
0	10.52	10.47	10.26	10.35	10.38	10.04	9.95	9.70	9.23	9.00	9.20	9.33	9.39	9.46	9.97	10.29	10.84	10.54	10.52	
10	10.55	10.47	10.26	10.47	10.49	9.98	9.99	9.94	9.38	9.39	9.24	9.15	9.96	9.59	10.49	10.27	10.88	10.94	10.47	
20	10.41	10.26	10.37	10.39	10.40	10.04	9.88	9.69	9.37	9.20	9.43	9.51	9.39	9.47	9.97	10.30	10.77	10.59	10.33	
30	10.39	10.28	10.19	10.39	10.44	9.89	9.74	9.26	8.96	8.94	8.99	9.23	9.31	9.50	10.21	10.22	10.76	10.54	10.23	
40	10.31	9.80	9.40	10.32	10.25	9.61	9.48	9.74	8.95	8.69	9.02	8.92	8.82	8.90	9.98	10.22	10.74	10.34	10.13	
50	10.29	9.66	9.39	10.20	10.23	9.51	9.36	9.63	8.61	8.59	8.91	8.61	8.70	8.51	10.10	10.16	10.71	10.54	10.00	
60	10.17	9.57	9.18	9.83	9.92	9.14	8.65	9.08	8.69	8.22	8.78	8.49	8.31	8.29	9.25	9.64	10.70	10.38	9.91	
70	10.13	9.41	9.26	9.63	9.86	9.03	8.83	8.80	8.50	8.20	8.52	8.20	8.51	8.26	8.87	8.85	10.64	10.45	9.82	
80	10.06	9.38	9.01	9.46	9.63	8.76	8.50	8.78	8.21	8.04	8.19	7.94	8.17	8.19	8.47	8.42	10.47	10.36	9.88	
90	10.05	9.42	9.07	9.38	9.68	8.76	8.59	8.40	8.12	8.07	7.82	7.98	8.10	8.08	8.33	8.15	10.46	10.44	9.78	
100	10.04	9.41	8.86	9.20	9.33	8.54	8.35	8.39	7.96	7.88	7.89	8.05	8.12	8.06	8.16	8.05	9.65	10.34	9.82	
110	10.04	9.37	8.88	9.12	9.24	8.49	8.41	8.35	7.92	7.94	7.85	7.91	7.84	7.96	8.11	7.96	8.87	10.35	9.73	
120	9.96	9.23	8.56	9.03	9.13	8.44	8.22	8.28	7.89	7.62	7.86	7.44	7.57	7.77	8.04	7.89	8.41	10.17	9.79	
130	9.93	9.14	8.56	8.96	9.07	8.40	8.27	8.20	7.82	7.78	7.72	7.58	7.49	7.66	8.04	7.84	8.31	10.33	9.65	
140	9.32	8.94	8.38	8.79	9.01	8.38	7.92	8.08	7.62	7.36	7.67	7.34	7.32	7.58	7.99	7.82	8.29	10.39	9.61	
150	8.63	8.57	8.20	8.56	8.94	8.24	7.86	8.00	7.39	7.28	7.34	7.19	7.15	7.23	7.57	7.61	8.14	10.28	9.65	

Secchi depth

(m)	13	13	13	14	14	15	17.5	19.3	19	15.5	15.3	15.8	17	17.5	18.2	15.2	13.5	12	11
-----	----	----	----	----	----	----	------	------	----	------	------	------	----	------	------	------	------	----	----

Lake Taupo Temperature, Dissolved Oxygen, and Secchi Depth Database.
Mid-Lake site A for the period starting 24 August 2004

2004-2005

Temperature

Date	24/08/2004	7/09/2004	21/10/2004	2/11/2004	22/11/2004	15/12/2004	11/01/2005	25/01/2005	9/02/2005	22/02/2005	10/03/2005	21/03/2005	14/04/2005	18/05/2005	9/06/2005	20/06/2005	20/07/2005	3/08/2005	17/08/2005	31/08/2005	14/09/2005	
Depth (m)																						
0	10.92	10.70	11.75	12.94	15.31	14.17	16.97	19.27	20.73	20.05	19.25	19.34	17.92	14.33	12.98	12.67	11.46	11.12	11.17	11.74	12.42	
10	10.83	10.66	11.61	12.89	15.15	14.10	16.01	18.05	20.19	19.73	19.24	19.17	17.96	14.31	12.99	12.47	11.31	11.11	10.98	11.24	11.76	
20	10.83	10.66	11.60	12.49	13.69	13.89	15.83	16.72	18.05	18.80	19.23	18.81	17.95	14.24	12.98	12.43	11.31	11.10	10.97	11.10	11.22	
30	10.83	10.66	11.59	11.65	13.17	13.79	13.37	14.55	14.65	14.02	14.92	14.59	15.13	14.13	12.98	12.42	11.30	11.11	10.97	11.05	11.05	
40	10.83	10.66	11.59	11.28	11.61	13.59	12.39	13.12	12.83	12.36	13.06	12.62	12.92	13.88	12.98	12.44	11.30	11.10	10.97	11.00	11.01	
50	10.83	10.65	11.58	10.93	11.09	11.35	11.33	11.89	11.75	11.49	11.75	11.64	12.00	11.47	12.97	12.42	11.28	11.11	10.97	10.98	10.98	
60	10.83	10.66	11.15	10.75	10.97	11.03	11.04	11.23	11.12	11.00	11.16	11.20	11.33	11.18	12.57	11.54	11.28	11.10	10.97	10.97	10.99	
70	10.83	10.66	10.78	10.72	10.77	10.88	10.86	10.98	10.90	10.87	10.92	10.96	10.99	10.97	11.13	11.07	11.26	11.11	10.96	10.97	10.97	
80	10.83	10.65	10.74	10.64	10.73	10.80	10.81	10.91	10.83	10.82	10.88	10.94	10.88	10.93	10.98	11.00	11.21	11.10	10.97	10.96	10.97	
90	10.82	10.61	10.72	10.62	10.69	10.73	10.75	10.80	10.75	10.80	10.80	10.81	10.82	10.89	10.95	10.93	10.98	11.10	10.96	10.96	10.96	
100	10.83	10.58	10.71	10.61	10.68	10.70	10.74	10.81	10.80	10.78	10.80	10.82	10.78	10.90	10.90	10.91	10.94	11.10	10.96	10.95	10.96	
110	10.83	10.56	10.67	10.60	10.64	10.67	10.69	10.72	10.73	10.75	10.74	10.76	10.76	10.87	10.89	10.87	10.93	11.08	10.96	10.94	10.94	
120	10.83	10.56	10.66	10.58	10.64	10.66	10.68	10.73	10.76	10.76	10.76	10.79	10.76	10.88	10.87	10.86	10.89	10.99	10.96	10.94	10.93	
130	10.82	10.55	10.64	10.57	10.61	10.63	10.66	10.69	10.71	10.71	10.72	10.73	10.74	10.81	10.84	10.86	10.88	10.97	10.96	10.93	10.93	
140	10.82	10.53	10.61	10.57	10.61	10.61	10.65	10.68	10.74	10.73	10.75	10.77	10.74	10.82	10.80	10.86	10.88	10.93	10.95	10.93	10.91	
150	10.79	10.47	10.56	10.58	10.60	10.62	10.67	10.67	10.70	10.70	10.71	10.72	10.72	10.77	10.78	10.85	10.87	10.90	10.93	10.93	10.89	

Dissolved Oxygen (g m⁻³)

Depth (m)	24/08/2004	7/09/2004	21/10/2004	2/11/2004	22/11/2004	15/12/2004	11/01/2005	25/01/2005	9/02/2005	22/02/2005	10/03/2005	21/03/2005	14/04/2005	18/05/2005	9/06/2005	20/06/2005	20/07/2005	3/08/2005	17/08/2005	31/08/2005	14/09/2005
0	10.7	10.7	10.4	10.1	9.5	9.9	9.4	8.95	8.64	8.74	8.77	8.89	9.12	9.75	10.12	10.15	10.7	10.7	10.4	10.1	9.5
10	10.5	10.5	10.1	10.2	9.6	9.8	9.5	8.87	8.75	8.78	8.77	8.87	9.01	9.75	10.03	10.12	10.5	10.5	10.1	10.2	9.6
20	10.5	10.5	10.3	10.0	9.5	9.8	9.5	8.79	8.73	8.59	8.72	8.85	9.04	9.66	9.97	10.17	10.5	10.5	10.3	10.0	9.5
30	10.4	10.4	10.1	9.9	9.5	9.7	9.2	8.72	8.68	8.62	8.01	8.34	8.37	9.55	9.97	10.03	10.4	10.4	10.1	9.9	9.5
40	10.4	10.3	10.2	9.9	9.5	9.7	9.2	8.80	8.76	8.68	8.48	8.39	8.66	9.49	9.88	9.99	10.4	10.3	10.2	9.9	9.5
50	10.3	10.3	10.0	9.6	9.4	9.3	9.0	8.54	8.45	8.36	8.16	8.17	8.34	9.01	9.87	9.93	10.3	10.3	10.0	9.6	9.4
60	10.3	10.2	9.9	9.5	9.1	9.4	8.9	8.50	8.41	8.37	8.14	8.22	8.21	8.66	9.69	9.05	10.3	10.2	9.9	9.5	9.1
70	10.2	10.2	9.7	9.3	9.1	9.3	8.8	8.40	8.36	8.32	8.04	8.18	8.21	8.56	8.90	8.72	10.2	10.2	9.7	9.3	9.1
80	10.2	10.1	9.6	9.2	9.0	9.2	8.7	8.29	8.24	8.27	8.04	8.13	8.19	8.22	8.70	8.33	10.2	10.1	9.6	9.2	9.0
90	10.1	10.0	9.4	9.1	8.8	9.1	8.6	8.18	8.12	8.13	8.03	8.11	8.27	8.07	8.39	8.23	10.1	10.0	9.4	9.1	8.8
100	10.1	10.0	9.4	9.0	8.8	9.0	8.5	8.13	7.86	7.93	7.89	7.90	7.99	7.90	8.27	8.06	10.1	10.0	9.4	9.0	8.8
110	9.9	9.9	9.3	9.0	8.8	8.9	8.4	8.07	7.84	7.81	7.82	7.83	7.82	7.75	8.16	7.99	9.9	9.9	9.3	9.0	8.8
120	10.0	9.9	9.3	8.9	8.6	8.8	8.4	8.02	7.78	7.71	7.73	7.81	7.66	7.78	8.08	7.70	10.0	9.9	9.3	8.9	8.6
130	10.0	9.9	9.3	8.7	8.6	8.7	8.3	8.00	7.76	7.71	7.68	7.78	7.69	7.77	8.03	7.57	10.0	9.9	9.3	8.7	8.6
140	9.9	9.9	9.2	8.7	8.4	8.5	8.1	7.83	7.59	7.50	7.36	7.48	7.56	7.69	7.94	7.42	9.9	9.9	9.2	8.7	8.4
150	9.8	9.7	9.0	8.6	8.2	8.3	7.9	7.51	7.54	7.46	7.35	7.43	7.47	7.67	7.75	7.36	9.8	9.7	9.0	8.6	8.2

Secchi depth

(m)	24/08/2004	7/09/2004	21/10/2004	2/11/2004	22/11/2004	15/12/2004	11/01/2005	25/01/2005	9/02/2005	22/02/2005	10/03/2005	21/03/2005	14/04/2005	18/05/2005	9/06/2005	20/06/2005	20/07/2005	3/08/2005	17/08/2005	31/08/2005	14/09/2005
	12.5	12	15	16	16	19.5	20	19.5	18	21.5	18.5	20	17.2	16	14.1	13.8	13	14	13	13	13

Lake Taupo Temperature, Dissolved Oxygen, and Secchi Depth Database.
Mid-Lake site A for the period starting 14 July 2003

2003-2004

Temperature

Date	14/07/2003	31/07/2003	14/08/2003	26/08/2003	8/09/2003	7/10/2003	21/10/2003	19/11/2003	4/12/2003	18/12/2003	13/01/2004	26/02/2004	8/03/2004	31/03/2004	14/04/2004	10/05/2004	10/06/2004	13/07/2004	26/07/2004	24/08/2004	7/09/2004	
Depth (m)																						
0	11.85	11.38	11.25	11.23	11.13	11.48	13.11	13.96	16.15	17.72	20.29	17.20	17.50	16.49	15.27	14.74	13.04	11.59	11.29	10.92	10.70	
10	11.86	11.38	11.24	11.17	11.13	11.39	11.92	13.79	15.11	17.76	19.60	17.19	17.00	16.29	15.24	14.74	13.05	11.64	11.26	10.83	10.66	
20	11.86	11.38	11.24	11.12	11.11	11.37	11.53	13.78	14.53	15.57	16.72	17.18	16.70	16.23	15.21	14.74	13.04	11.62	11.25	10.83	10.66	
30	11.86	11.38	11.24	11.11	11.06	11.37	11.40	13.70	12.96	13.23	13.87	17.16	16.55	16.19	15.19	14.74	13.05	11.65	11.25	10.83	10.66	
40	11.86	11.38	11.24	11.11	11.06	11.32	11.34	12.30	12.26	12.33	12.58	12.90	13.30	16.15	15.13	14.73	13.05	11.62	11.26	10.83	10.66	
50	11.86	11.38	11.24	11.11	11.06	11.31	11.23	11.35	11.48	11.84	11.58	11.83	11.60	12.51	12.40	12.56	13.05	11.65	11.26	10.83	10.65	
60	11.86	11.38	11.24	11.11	11.06	11.31	11.19	11.28	11.41	11.39	11.33	11.53	11.60	11.59	11.67	11.66	13.05	11.64	11.26	10.83	10.66	
70	11.86	11.38	11.24	11.10	11.06	11.31	11.16	11.23	11.26	11.26	11.26	11.35	11.40	11.40	11.48	11.43	12.42	11.65	11.25	10.83	10.66	
80	11.35	11.38	11.24	11.00	11.06	11.30	11.15	11.19	11.25	11.22	11.23	11.30	11.35	11.34	11.39	11.38	11.56	11.64	11.25	10.83	10.65	
90	11.31	11.38	11.24	11.09	11.06	11.29	11.13	11.16	11.20	11.17	11.22	11.25	11.27	11.30	11.32	11.35	11.51	11.66	11.25	10.82	10.61	
100	11.27	11.35	11.24	11.09	11.06	11.25	11.11	11.15	11.18	11.17	11.21	11.23	11.27	11.27	11.30	11.32	11.39	11.65	11.25	10.83	10.58	
110	11.24	11.34	11.23	11.09	11.06	11.21	11.10	11.12	11.17	11.15	11.19	11.20	11.24	11.26	11.28	11.30	11.35	11.65	11.26	10.83	10.56	
120	11.22	11.32	11.22	11.09	11.06	11.14	11.10	11.11	11.18	11.14	11.18	11.18	11.22	11.24	11.25	11.30	11.34	11.65	11.26	10.83	10.56	
130	11.21	11.27	11.22	11.08	11.06	11.11	11.08	11.09	11.14	11.13	11.17	11.18	11.20	11.22	11.23	11.28	11.33	11.49	11.26	10.82	10.55	
140	11.21	11.26	11.21	11.08	11.06	11.09	11.08	11.09	11.15	11.13	11.16	11.17	11.20	11.21	11.21	11.27	11.32	11.39	11.26	10.82	10.53	
150	11.20	11.22	11.20	11.08	11.07	11.09	11.08	11.09	11.14	11.13	11.16	11.17	11.20	11.21	11.21	11.26	11.31	11.34	11.26	10.79	10.47	

Dissolved Oxygen (g m⁻³)

Depth (m)																						
0	10.3	10.6	10.5	10.5	10.5	10.5	10.1	9.9	9.5	9.1	9.2	9.3	9.4	9.2	9.5	9.7	10.2	10.5	10.6	10.7	10.7	
10	10.2	10.4	10.5	10.5	10.6	10.5	10.0	9.9	9.5	9.2	9.3	9.4	9.0	9.1	9.2	9.6	9.9	10.5	10.6	10.5	10.5	
20	10.2	10.2	10.3	10.4	10.4	10.4	10.2	9.8	9.4	9.0	9.1	9.0	8.8	9.0	9.1	9.4	9.8	10.5	10.6	10.5	10.5	
30	10.2	9.9	10.1	10.3	10.1	10.1	10.0	9.5	9.2	9.2	9.1	8.9	8.5	9.0	8.8	9.3	9.5	10.3	10.3	10.4	10.4	
40	10.1	9.9	10.0	10.0	9.8	10.0	9.7	9.3	9.0	9.1	8.7	8.4	8.0	8.9	8.8	9.2	9.5	10.1	10.1	10.4	10.3	
50	10.0	9.0	9.9	9.9	9.8	9.8	9.4	9.0	8.7	8.8	8.5	8.1	7.9	8.2	8.2	8.6	9.4	9.8	9.9	10.3	10.3	
60	9.9	8.8	9.8	9.7	9.6	9.7	9.2	8.9	8.6	8.4	8.2	8.0	7.7	8.0	8.0	8.2	9.4	9.9	9.8	10.3	10.2	
70	9.9	8.7	9.8	9.6	9.6	9.6	9.1	8.7	8.5	8.3	8.1	7.9	7.6	8.0	7.8	7.9	9.1	9.6	9.7	10.2	10.2	
80	8.7	8.6	9.7	9.5	9.5	9.6	8.9	8.6	8.4	8.1	8.0	7.9	7.5	8.0	7.7	7.9	8.5	9.7	9.6	10.2	10.1	
90	8.5	8.5	9.7	9.5	9.5	9.5	8.9	8.6	8.3	8.1	8.0	7.9	7.5	7.9	7.6	7.8	8.0	9.5	9.5	10.1	10.0	
100	8.2	8.4	9.6	9.5	9.5	9.4	8.8	8.6	8.2	7.9	7.8	7.8	7.4	7.8	7.5	7.7	7.7	9.5	9.4	10.1	10.0	
110	8.2	8.1	9.6	9.4	9.5	9.3	8.8	8.4	8.2	7.9	7.8	7.7	7.3	7.7	7.4	7.6	7.6	9.4	9.4	9.9	9.9	
120	8.0	8.0	9.5	9.4	9.5	9.3	8.7	8.4	8.1	7.8	7.7	7.5	7.1	7.6	7.3	7.4	7.5	9.4	9.3	10.0	9.9	
130	8.0	7.9	9.5	9.4	9.4	9.1	8.7	8.3	8.0	7.8	7.5	7.3	7.0	7.5	7.2	7.3	7.4	9.1	9.2	10.0	9.9	
140	7.8	7.8	9.5	9.3	9.4	9.0	8.5	8.2	7.9	7.5	7.4	7.3	6.9	7.4	7.0	7.3	7.3	8.3	9.2	9.9	9.9	
150	7.7	7.6	9.3	9.3	9.4	8.9	8.5	8.0	7.7	7.3	7.2	7.1	6.8	7.1	6.8	7.1	7.3	8.0	9.2	9.8	9.7	

Secchi depth

(m)	14.5	14	13.5	13	12.5	13	17	16	18.5	17.5	19	17	15	16	15	18	13.5	12	11	12.5	12	

**Lake Taupo Temperature, Dissolved Oxygen, and Secchi Depth Database.
Additional site B (Kuratau Basin) for the period starting 14 July 2003**

2003-2004

Temperature

Date	14/07/2003	31/07/2003	14/08/2003	26/08/2003	8/09/2003	7/10/2003	21/10/2003	19/11/2003	4/12/2003	18/12/2003	13/01/2004	26/02/2004	8/03/2004	31/03/2004	14/04/2004	10/05/2004	10/06/2004	13/07/2004	26/07/2004	24/08/2004	7/09/2004	
Depth (m)																						
0	11.82	11.32	11.38	11.36	11.13	11.70	13.31	13.79	15.65	17.08	20.25	16.83	17.63	15.92	15.10	14.72	13.02	11.43	11.26	10.92	10.85	
10	11.80	11.29	11.22	11.17	11.11	11.44	12.28	13.49	15.00	16.43	19.73	16.72	16.56	15.90	15.02	14.68	12.95	11.40	11.20	10.77	10.59	
20	11.79	11.29	11.22	11.14	11.07	11.40	11.71	13.33	13.81	15.28	16.73	16.58	16.51	15.89	15.00	14.64	12.84	11.41	11.20	10.73	10.58	
30	11.79	11.29	11.21	11.13	11.03	11.35	11.46	12.22	12.37	13.38	13.74	16.16	16.40	15.88	14.99	14.47	12.71	11.41	11.20	10.72	10.57	
40	11.79	11.29	11.21	11.13	11.02	11.34	11.38	11.67	11.90	12.91	12.48	15.75	15.53	15.53	14.18	14.07	12.67	11.41	11.19	10.72	10.57	
50	11.79	11.29	11.21	11.13	11.02	11.33	11.28	11.40	11.57	11.65	11.62	12.97	12.55	12.89	12.48	12.48	12.66	11.41	11.19	10.72	10.56	
60	11.78	11.29	11.21	11.13	11.01	11.25	11.23	11.31	11.37	11.33	11.40	11.88	11.64	11.69	11.72	11.78	12.57	11.40	11.19	10.72	10.56	
70	11.78	11.29	11.21	11.12	11.01	11.12	11.15	11.24	11.25	11.27	11.28	11.55	11.47	11.49	11.51	11.47	12.51	11.41	11.18	10.72	10.56	
80	11.77	11.29	11.16	11.12	11.01	11.06	11.09	11.18	11.21	11.25	11.20	11.38	11.41	11.37	11.43	11.38	12.27	11.37	11.18	10.72	10.51	
90	11.35	11.29	11.04	11.11	11.01	11.02	11.08	11.13	11.13	11.19	11.16	11.32	11.35	11.32	11.37	11.31	11.77	11.26	11.17	10.71	10.45	
100	11.27	11.29	10.91	11.08	11.01	11.02	11.05	11.10	11.11	11.16	11.14	11.28	11.33	11.26	11.30	11.24	11.65	11.24	11.17	10.66	10.38	

Dissolved Oxygen (g m⁻³)

Depth (m)	14/07/2003	31/07/2003	14/08/2003	26/08/2003	8/09/2003	7/10/2003	21/10/2003	19/11/2003	4/12/2003	18/12/2003	13/01/2004	26/02/2004	8/03/2004	31/03/2004	14/04/2004	10/05/2004	10/06/2004	13/07/2004	26/07/2004	24/08/2004	7/09/2004
0	10.7	10.9	10.8	10.6	10.6	10.4	10.5	10.1	9.8	9.1	9.2	9.3	9.5	8.8	10.5	11.4	12.3	10.6	10.5	10.5	10.8
10	10.5	11.0	10.6	10.6	10.5	10.4	10.4	10.3	9.9	9.3	9.2	9.1	9.0	9.0	9.5	10.2	10.7	10.6	10.5	10.4	10.7
20	10.3	11.3	10.4	10.2	10.2	10.2	10.1	9.9	9.6	9.4	9.2	9.0	8.9	8.9	9.2	9.9	10.1	10.1	10.5	10.5	10.7
30	10.2	11.2	10.1	9.9	10.1	9.9	10.0	9.6	9.3	9.1	9.0	9.0	8.7	8.8	8.9	9.4	9.7	9.8	10.3	10.4	10.6
40	10.1	11.2	9.9	9.8	9.9	9.6	9.7	9.2	8.9	9.1	8.8	8.7	8.2	8.7	8.5	9.1	9.6	9.6	10.0	10.3	10.5
50	10.0	10.9	9.8	9.6	9.8	9.6	9.4	9.0	8.8	8.7	8.5	8.2	7.9	8.2	7.9	8.5	9.3	9.5	9.8	10.2	10.3
60	9.9	10.7	9.7	9.5	9.7	9.4	9.0	8.8	8.6	8.3	8.2	8.1	7.7	8.0	7.6	8.0	9.2	9.3	9.6	10.1	10.3
70	9.9	10.4	9.7	9.5	9.7	9.3	8.9	8.7	8.6	8.3	8.1	7.9	7.6	7.8	7.3	7.7	8.9	9.2	9.6	10.1	10.2
80	9.8	10.3	9.4	9.4	9.6	9.1	8.7	8.6	8.4	7.9	7.8	7.8	7.4	7.6	7.1	7.4	8.7	9.1	9.4	10.0	10.1
90	9.2	10.1	9.2	9.3	9.6	9.0	8.7	8.5	8.3	7.9	7.8	7.7	7.3	7.6	7.0	7.5	8.3	8.7	9.5	9.9	10.1
100	8.3	10.0	9.2	9.3	9.6	8.9	8.6	8.2	7.9	7.9	7.6	7.4	7.3	7.3	6.8	7.0	8.1	8.1	9.4	9.8	10.0

Secchi depth

(m)	14/07/2003	31/07/2003	14/08/2003	26/08/2003	8/09/2003	7/10/2003	21/10/2003	19/11/2003	4/12/2003	18/12/2003	13/01/2004	26/02/2004	8/03/2004	31/03/2004	14/04/2004	10/05/2004	10/06/2004	13/07/2004	26/07/2004	24/08/2004	7/09/2004
	12	13	13	11.5	11	9.5	15	17	17	15	16	13.5	5	11	14	15.5	12	11	10	10	11

**Lake Taupo Temperature, Dissolved Oxygen, and Secchi Depth Database.
Additional site C (Western Bays) for the period starting 14 July 2003**

2003-2004

Temperature

Date	14/07/2003	31/07/2003	14/08/2003	26/08/2003	8/09/2003	7/10/2003	21/10/2003	19/11/2003	4/12/2003	18/12/2003	13/01/2004	26/02/2004	8/03/2004	31/03/2004	14/04/2004	10/05/2004	10/06/2004	13/07/2004	26/07/2004	24/08/2004	7/09/2004	
Depth (m)																						
0	11.86	11.43	11.56	11.31	11.32	11.85	13.29	15.10	15.79	17.00	20.17	16.90	18.43	16.37	15.41	14.98	13.16	11.58	11.51	10.97	11.14	
10	11.80	11.36	11.26	11.21	11.13	11.24	11.93	13.84	15.29	16.33	18.89	16.69	17.02	16.35	15.18	14.80	13.08	11.61	11.32	10.94	10.73	
20	11.80	11.34	11.25	11.14	11.09	11.17	11.62	13.76	14.31	15.26	17.11	16.34	16.45	16.35	15.15	14.76	13.07	11.61	11.30	10.90	10.71	
30	11.80	11.32	11.25	11.14	11.08	11.14	11.52	13.63	12.99	13.46	13.74	14.66	15.33	15.95	15.15	14.75	13.07	11.61	11.31	10.90	10.71	
40	11.80	11.31	11.25	11.14	11.08	11.14	11.50	11.91	12.03	12.88	12.25	12.56	13.64	13.21	15.14	14.73	13.07	11.60	11.31	10.89	10.70	
50	11.80	11.31	11.25	11.14	11.07	11.13	11.46	11.42	11.43	11.64	11.57	11.63	11.64	11.68	12.68	12.57	12.80	11.61	11.30	10.90	10.70	
60	11.80	11.31	11.25	11.14	11.07	11.13	11.38	11.31	11.30	11.31	11.36	11.53	11.48	11.45	11.76	11.73	11.68	11.60	11.30	10.89	10.70	
70	11.80	11.31	11.25	11.14	11.07	11.12	11.21	11.27	11.28	11.26	11.28	11.39	11.37	11.34	11.54	11.48	11.44	11.61	11.30	10.89	10.70	
80	11.79	11.31	11.25	11.14	11.07	1.10	11.13	11.20	11.25	11.22	11.25	11.31	11.35	11.32	11.37	11.39	11.37	11.58	11.30	10.89	10.70	
90	11.60	11.29	11.25	11.14	11.07	11.04	11.07	11.14	11.21	11.19	11.21	11.26	11.33	11.29	11.30	11.32	11.33	11.61	11.30	10.89	10.70	
100	11.28	11.27	11.24	11.14	11.07	11.03	11.07	11.11	11.19	11.12	11.19	11.23	11.32	11.25	11.29	11.31	11.32	11.61	11.30	10.89	10.70	

Dissolved Oxygen (g m⁻³)

Depth (m)	14/07/2003	31/07/2003	14/08/2003	26/08/2003	8/09/2003	7/10/2003	21/10/2003	19/11/2003	4/12/2003	18/12/2003	13/01/2004	26/02/2004	8/03/2004	31/03/2004	14/04/2004	10/05/2004	10/06/2004	13/07/2004	26/07/2004	24/08/2004	7/09/2004
0	10.3	10.7	10.3	10.4	10.4	11.4	10.1	9.8	9.5	9.2	9.2	9.3	9.3	9.4	10.4	10.3	10.6	10.6	11.0	10.4	10.7
10	10.3	10.8	10.3	10.3	10.4	11.0	10.1	9.9	9.9	9.1	9.2	9.1	9.0	9.2	9.5	9.8	10.1	10.6	10.5	10.4	10.4
20	10.1	10.3	10.1	10.1	10.2	10.8	9.9	9.9	9.5	9.2	9.1	9.2	9.1	9.0	9.1	9.7	9.9	10.6	10.2	10.3	10.4
30	10.1	10.0	9.9	9.9	10.0	10.1	9.6	9.6	9.3	9.1	8.8	8.6	8.6	8.9	8.9	9.4	9.7	10.3	9.9	10.2	10.4
40	10.0	10.0	9.8	9.7	9.9	9.7	9.4	9.4	9.0	9.1	8.8	8.4	8.4	8.3	8.7	9.2	9.6	9.9	9.8	10.1	10.3
50	9.9	9.9	9.6	9.6	9.7	9.7	9.3	9.2	8.8	8.8	8.5	8.2	8.0	8.0	8.2	8.7	9.3	9.6	9.6	10.1	10.2
60	9.8	9.6	9.6	9.5	9.6	9.5	9.2	9.0	8.5	8.5	8.2	8.0	7.9	8.0	7.8	8.2	8.6	9.5	9.5	10.1	10.2
70	9.8	9.5	9.5	9.4	9.5	9.4	9.1	8.8	8.5	8.3	8.1	7.9	7.8	7.9	7.5	8.0	8.2	9.4	9.5	10.0	10.1
80	9.7	9.5	9.5	9.4	9.5	9.3	8.8	8.8	8.3	8.2	7.9	7.8	7.8	7.8	7.4	7.8	8.0	9.3	9.4	10.0	10.0
90	9.6	9.1	9.4	9.3	9.4	9.2	8.7	8.6	8.4	7.9	7.8	7.8	7.7	7.7	7.3	7.6	7.9	9.2	9.2	9.9	10.0
100	8.8	8.8	9.0	9.3	9.4	9.1	8.7	8.5	8.3	7.9	7.7	7.6	7.7	7.5	7.3	7.5	7.8	9.1	9.3	9.9	10.0

Secchi depth

(m)	14/07/2003	31/07/2003	14/08/2003	26/08/2003	8/09/2003	7/10/2003	21/10/2003	19/11/2003	4/12/2003	18/12/2003	13/01/2004	26/02/2004	8/03/2004	31/03/2004	14/04/2004	10/05/2004	10/06/2004	13/07/2004	26/07/2004	24/08/2004	7/09/2004
	14	12	14.5	13	12	12.5	12	17.2	17	19	17.5	14	13	12.5	16.5	16	14	12.5	11	10	12

**Lake Taupo Temperature, Dissolved Oxygen, and Secchi Depth Database.
Mid-Lake site A for the period starting 1 July 2002**

2002-2003

Temperature

Date	1/07/2002	17/07/2002	31/07/2002	29/08/2002	18/09/2002	9/10/2002	13/11/2002	28/11/2002	18/12/2002	30/01/2003	13/02/2003	17/03/2003	3/04/2003	28/04/2003	15/05/2003	12/06/2003	14/07/2003	31/07/2003	14/08/2003	26/08/2003	8/09/2003	
Depth (m)																						
0	12.13	11.44	11.20	11.10	11.38	11.60	12.58	14.12	15.00	17.84	19.31	18.55	19.05	16.76	15.67	13.59	11.85	11.38	11.25	11.23	11.13	
10	12.12	11.44	11.20	10.90	11.33	11.60	12.55	14.02	14.78	17.59	19.19	18.43	18.70	16.73	15.57	13.56	11.86	11.38	11.24	11.17	11.13	
20	12.11	11.44	11.20	10.90	11.28	11.40	12.50	12.91	14.48	17.08	18.10	18.37	18.59	16.73	15.56	13.55	11.86	11.38	11.24	11.12	11.11	
30	12.11	11.44	11.20	10.80	11.02	11.30	12.38	12.41	14.26	16.13	15.50	16.77	17.02	16.72	15.57	13.55	11.86	11.38	11.24	11.11	11.06	
40	12.11	11.44	11.20	10.90	10.97	11.30	12.16	11.98	12.67	12.69	12.85	13.44	13.31	12.80	15.53	12.22	11.86	11.38	11.24	11.11	11.06	
50	12.11	11.44	11.20	10.90	10.96	11.20	12.00	11.54	11.87	12.03	12.14	12.03	12.30	11.96	12.20	11.82	11.86	11.38	11.24	11.11	11.06	
60	12.10	11.44	11.20	10.80	10.94	11.20	11.72	11.22	11.64	11.70	11.68	11.60	11.81	11.62	11.61	11.52	11.86	11.38	11.24	11.11	11.06	
70	12.10	11.44	11.20	10.80	10.93	11.20	11.51	11.09	11.31	11.41	11.33	11.39	11.52	11.34	11.36	11.38	11.86	11.38	11.24	11.10	11.06	
80	11.97	11.44	11.20	10.90	10.92	11.10	11.32	10.98	11.17	11.25	11.25	11.27	11.31	11.27	11.27	11.27	11.35	11.38	11.24	11.00	11.06	
90	11.49	11.43	11.20	10.90	10.91	11.10	11.13	10.95	11.06	11.15	11.16	11.16	11.20	11.17	11.22	11.21	11.31	11.38	11.24	11.09	11.06	
100	11.39	11.41	11.20	10.90	10.90	11.10	11.05	10.92	11.04	11.11	11.10	11.13	11.18	11.15	11.20	11.20	11.27	11.35	11.24	11.09	11.06	
110	11.32	11.37	11.20	10.90	10.89	11.00	11.05	10.90	11.04	11.09	11.08	11.10	11.13	11.13	11.16	11.17	11.24	11.34	11.23	11.09	11.06	
120	11.29	11.32	11.20	10.90	10.87	11.00	11.01	10.87	11.00	11.06	11.06	11.09	11.13	11.13	11.15	11.15	11.22	11.32	11.22	11.09	11.06	
130	11.25	11.27	11.20	10.90	10.85	10.90	10.99	10.85	10.98	11.04	11.04	11.08	11.09	11.10	11.12	11.12	11.21	11.27	11.22	11.08	11.06	
140	11.23	11.26	11.20	10.80	10.83	10.90	10.97	10.83	10.97	11.03	11.03	11.09	11.09	11.09	11.12	11.11	11.21	11.26	11.21	11.08	11.06	
150	11.23	11.26	11.20	10.80	10.81	10.90	10.96	10.82	10.97	11.03	11.03	11.07	11.08	11.09	11.11	11.11	11.20	11.22	11.20	11.08	11.07	

Dissolved Oxygen (g m⁻³)

Depth (m)	1/07/2002	17/07/2002	31/07/2002	29/08/2002	18/09/2002	9/10/2002	13/11/2002	28/11/2002	18/12/2002	30/01/2003	13/02/2003	17/03/2003	3/04/2003	28/04/2003	15/05/2003	12/06/2003	14/07/2003	31/07/2003	14/08/2003	26/08/2003	8/09/2003
0	10.3	10.4	9.7	10.5	10.5	10.3	10.2	9.8	9.6	9.1	8.9	9.0	8.8	9.2	9.5	10.0	10.3	10.6	10.5	10.5	10.5
10	10.3	10.7	9.5	10.4	10.7	10.3	10.2	10.0	9.7	9.1	8.9	8.9	8.8	9.2	9.2	9.7	10.2	10.4	10.5	10.5	10.6
20	10.3	10.7	9.4	10.3	10.6	10.2	10.2	10.1	9.6	9.2	8.9	8.8	8.6	9.1	9.3	9.4	10.2	10.2	10.3	10.4	10.4
30	10.2	10.7	9.4	10.3	10.5	10.2	10.2	10.1	9.6	9.1	8.8	8.5	8.3	8.9	9.2	9.3	10.2	9.9	10.1	10.3	10.1
40	10.2	10.6	9.4	10.2	10.4	10.2	10.1	9.7	9.5	9.2	8.8	8.4	8.0	8.4	9.1	9.0	10.1	9.9	10.0	10.0	9.8
50	10.2	10.6	9.4	10.2	10.3	10.1	10.1	9.7	9.3	9.1	8.6	8.2	7.8	8.2	8.2	10.0	9.0	9.9	9.9	9.9	9.8
60	10.1	10.5	9.4	10.2	10.2	10.1	10.0	9.5	9.1	8.9	8.4	8.0	7.7	8.1	8.1	8.1	9.9	8.8	9.8	9.7	9.6
70	10.1	10.5	9.3	10.1	10.2	10.0	9.9	9.5	8.8	8.8	8.4	7.8	7.6	8.0	8.0	8.0	9.9	8.7	9.8	9.6	9.6
80	10.0	10.3	9.4	10.1	10.2	10.1	9.7	9.4	8.7	8.7	8.3	7.8	7.5	7.9	7.8	7.9	8.7	8.6	9.7	9.5	9.5
90	9.7	10.3	9.4	10.1	10.1	10.1	9.5	9.3	8.7	8.7	8.2	7.8	7.4	7.8	7.5	7.6	8.5	8.5	9.7	9.5	9.5
100	8.6	10.1	9.4	10.1	10.0	9.8	9.4	9.1	8.6	8.6	8.1	7.7	7.3	7.7	7.2	7.5	8.2	8.4	9.6	9.5	9.5
110	8.3	9.8	9.3	9.9	9.9	9.8	9.4	9.1	8.4	8.4	8.0	7.6	7.2	7.6	7.1	7.4	8.2	8.1	9.6	9.4	9.5
120	8.1	8.8	9.3	9.9	9.9	9.8	9.3	9.0	8.3	8.3	7.8	7.4	7.0	7.5	7.1	7.2	8.0	8.0	9.5	9.4	9.5
130	8.0	8.5	9.3	9.9	9.9	9.7	9.2	9.0	8.3	8.2	7.7	7.2	6.9	7.4	7.0	7.0	8.0	7.9	9.5	9.4	9.4
140	7.8	8.1	9.3	9.9	9.9	9.4	9.0	8.8	8.2	8.0	7.4	7.1	6.8	7.2	6.8	6.7	7.8	7.8	9.5	9.3	9.4
150	7.8	8.1	9.3	9.8	9.8	9.4	8.9	8.7	8.1	7.9	7.3	6.9	6.5	6.9	6.7	6.5	7.7	7.6	9.3	9.3	9.4

Secchi depth

(m)	1/07/2002	17/07/2002	31/07/2002	29/08/2002	18/09/2002	9/10/2002	13/11/2002	28/11/2002	18/12/2002	30/01/2003	13/02/2003	17/03/2003	3/04/2003	28/04/2003	15/05/2003	12/06/2003	14/07/2003	31/07/2003	14/08/2003	26/08/2003	8/09/2003
	16	15.5	12	9.5	12	15.5	18	12.7	13.5	18	19	15	13.5	14	16.5	11	14.5	14	13.5	13	12.5

**Lake Taupo Temperature, Dissolved Oxygen, and Secchi Depth Database.
Additional site B (Kuratau Basin) for the period starting 1 July 2002**

2002-2003

Temperature

Date	1/07/2002	17/07/2002	31/07/2002	29/08/2002	18/09/2002	9/10/2002	13/11/2002	28/11/2002	18/12/2002	30/01/2003	13/02/2003	17/03/2003	3/04/2003	28/04/2003	15/05/2003	12/06/2003	14/07/2003	31/07/2003	14/08/2003	26/08/2003	8/09/2003	
Depth (m)																						
0	12.13	11.48	11.3	11	11.08	11.70	11.98	13.82	15.16	16.76	18.87	18.74	19.09	16.73	15.79	13.24	11.82	11.32	11.38	11.36	11.13	
10	12.09	11.49	11.1	10.8	11.05	11.30	11.94	13.67	15.08	16.75	18.46	18.54	18.82	16.66	15.49	13.02	11.8	11.29	11.22	11.17	11.11	
20	12.09	11.48	11.1	10.8	11.03	11.20	11.9	12.79	13.86	16.53	17.71	18.45	18.49	16.62	15.47	12.79	11.79	11.29	11.22	11.14	11.07	
30	12.09	11.48	11.1	10.8	11.03	11.20	11.8	12.31	13.4	14.33	16.2	14.87	15.32	16.2	15.41	11.83	11.79	11.29	11.21	11.13	11.03	
40	12.08	11.48	11.1	10.8	11.02	11.20	11.68	11.75	13.18	12.98	13.89	12.03	13.25	13.46	13.2	11.62	11.79	11.29	11.21	11.13	11.02	
50	11.97	11.49	11.1	10.8	10.91	11.20	11.44	11.44	12.91	12.1	12.59	12.06	12	12.28	12.09	11.51	11.79	11.29	11.21	11.13	11.02	
60	11.93	11.49	11.1	10.8	10.9	11.10	11.26	11.27	12.27	11.69	11.75	11.58	11.58	11.7	11.71	11.38	11.78	11.29	11.21	11.13	11.01	
70	11.87	11.48	11.1	10.8	10.89	11.10	11.11	11.17	11.58	11.37	11.4	11.36	11.35	11.4	11.4	11.29	11.78	11.29	11.21	11.12	11.01	
80	11.78	11.48	11.1	10.8	10.89	11.00	11	11.03	11.51	11.23	11.3	11.24	11.25	11.25	11.28	11.27	11.77	11.29	11.16	11.12	11.01	
90	11.37	11.46	11.1	10.7	10.87	11.00	10.93	10.96	11.39	11.14	11.17	11.13	11.15	11.18	11.21	11.26	11.35	11.29	11.04	11.11	11.01	
100	11.28	11.3	11	10.7	10.85	11.00	10.91	10.92	11.2	11.09	11.12	11.13	11.12	11.12	11.18	11.25	11.27	11.29	10.91	11.08	11.01	
110			10.7	10.7		10.90																

Dissolved Oxygen (g m⁻³)

Depth (m)	1/07/2002	17/07/2002	31/07/2002	29/08/2002	18/09/2002	9/10/2002	13/11/2002	28/11/2002	18/12/2002	30/01/2003	13/02/2003	17/03/2003	3/04/2003	28/04/2003	15/05/2003	12/06/2003	14/07/2003	31/07/2003	14/08/2003	26/08/2003	8/09/2003
0	10.3	10.4	9.9	10.4	10.4	10.4	10.3	9.9	9.6	9.3	9.4	8.9	8.9	9.7	9.4	10	10.7	10.9	10.8	10.6	10.6
10	10.3	10.8	9.7	10.3	10.5	10.5	10.3	10	9.7	9.3	9.3	8.9	8.8	9.6	9.4	10	10.5	11	10.6	10.6	10.5
20	10.2	10.6	9.6	10.3	10.5	10.3	10.3	9.9	9.5	9.2	9.3	8.8	8.5	9.5	9.3	9.6	10.3	11.3	10.4	10.2	10.2
30	10.2	10.6	9.6	10.2	10.5	10.3	10.3	9.9	9.6	9.2	9.2	8.2	8.1	9.4	8.8	9.2	10.2	11.2	10.1	9.9	10.1
40	10.1	10.5	9.6	10.2	10.4	10.2	10.2	9.5	9.4	9.1	9	8.2	8	8.8	8.5	8.8	10.1	11.2	9.9	9.8	9.9
50	10.1	10.5	9.6	10.1	10.3	10.1	10.1	9.5	9.4	8.9	8.8	8	7.7	8.3	7.9	8.5	10	10.9	9.8	9.6	9.8
60	9.8	10.4	9.6	10.1	10.2	10.1	9.9	9.4	9.2	8.6	8.6	7.8	7.6	8.3	7.8	8.3	9.9	10.7	9.7	9.5	9.7
70	9.7	10.4	9.5	10	10.1	9.8	9.8	9.4	9	8.4	8.4	7.7	7.4	8.2	7.7	8.2	9.9	10.4	9.7	9.5	9.7
80	9.5	10.3	9.5	10	10.1	9.7	9.7	9	8.6	8.3	8.3	7.3	7.3	8	7.7	8.1	9.8	10.3	9.4	9.4	9.6
90	9.1	10.3	9.5	10	10	9.7	9.5	9	8.6	8.2	8	7.2	7.1	7.7	7.5	7.7	9.2	10.1	9.2	9.3	9.6
100	8.7	9.8	9.6	9.9	9.9	9.7	9.2	9	8.4	7.7	7.6	7	7	7.6	7.1	7.5	8.3	10	9.2	9.3	9.6
110			9.2	9.8		9.4															

Secchi depth

(m)	1/07/2002	17/07/2002	31/07/2002	29/08/2002	18/09/2002	9/10/2002	13/11/2002	28/11/2002	18/12/2002	30/01/2003	13/02/2003	17/03/2003	3/04/2003	28/04/2003	15/05/2003	12/06/2003	14/07/2003	31/07/2003	14/08/2003	26/08/2003	8/09/2003
	16	12.5	10.5	8	11	16	14	12.7	14	18	11	14	12.8	13.5	15.5	12	12	13	13	11.5	11

**Lake Taupo Temperature, Dissolved Oxygen, and Secchi Depth Database.
Additional site C (Western Bays) for the period starting 1 July 2002**

2002-2003

Temperature

Date	1/07/2002	17/07/2002	31/07/2002	29/08/2002	18/09/2002	9/10/2002	13/11/2002	28/11/2002	18/12/2002	30/01/2003	13/02/2003	17/03/2003	3/04/2003	28/04/2003	15/05/2003	12/06/2003	14/07/2003	31/07/2003	14/08/2003	26/08/2003	8/09/2003	
Depth (m)																						
0	12.22	11.52	11.6	11.4	11.24	12.10	12.56	13.98	15.12	17.61	19.58	19.04	18.15	17.1	15.8	13.65	11.86	11.43	11.56	11.31	11.32	
10	12.15	11.5	11.2	10.9	11.23	11.30	12.5	13.45	14.21	17.49	18.95	18.45	18.58	16.82	15.54	13.62	11.8	11.36	11.26	11.21	11.13	
20	12.14	11.49	11.2	10.9	11.16	11.30	12.38	12.63	13.31	17.48	17.41	18.29	18.3	16.77	15.52	13.59	11.8	11.34	11.25	11.14	11.09	
30	12.14	11.49	11.2	10.8	11.06	11.20	12.33	12.42	12.73	14.31	14.19	14.81	14.61	16.76	15.51	13.59	11.8	11.32	11.25	11.14	11.08	
40	12.13	11.49	11.2	10.8	11.02	11.20	11.75	12.2	11.98	12.36	12.79	12.88	12.73	13.62	13.07	13.59	11.8	11.31	11.25	11.14	11.08	
50	12.13	11.49	11.2	10.8	11.02	11.20	11.28	11.98	11.53	12	11.98	11.86	12.1	12.08	12.14	13.54	11.8	11.31	11.25	11.14	11.07	
60	11.92	11.49	11.2	10.8	11	11.10	11.12	11.37	11.33	11.61	11.68	11.49	11.71	11.56	11.71	13.28	11.8	11.31	11.25	11.14	11.07	
70	11.55	11.49	11.2	10.8	10.99	11.10	11.08	11.21	11.15	11.29	11.3	11.35	11.37	11.35	11.4	11.8	11.8	11.31	11.25	11.14	11.07	
80	11.5	11.49	11.2	10.8	10.95	11.10	11.03	11.04	11.12	11.19	11.19	11.25	11.22	11.24	11.27	11.45	11.79	11.31	11.25	11.14	11.07	
90	11.47	11.49	11.2	10.8	10.94	11.00	11	10.98	11.1	11.11	11.15	11.2	11.18	11.18	11.22	11.35	11.6	11.29	11.25	11.14	11.07	
100	11.45	11.49	11.2	10.8	10.92	11.00	10.97	10.96	11.08	11.08	11.13	11.2	11.15	11.15	11.17	11.23	11.28	11.27	11.24	11.14	11.07	

Dissolved Oxygen (g m⁻³)

Depth (m)	1/07/2002	17/07/2002	31/07/2002	29/08/2002	18/09/2002	9/10/2002	13/11/2002	28/11/2002	18/12/2002	30/01/2003	13/02/2003	17/03/2003	3/04/2003	28/04/2003	15/05/2003	12/06/2003	14/07/2003	31/07/2003	14/08/2003	26/08/2003	8/09/2003
0	10.4	10.5	9.7	10.3	10.5	10.4	10.2	9.9	9.6	9.1	9.5	9.9	8.9	9.4	9.3	10	10.3	10.7	10.3	10.4	10.4
10	10.4	10.8	9.5	10.2	10.7	10.4	10.3	9.7	9.6	9	9.3	9.7	8.8	9.2	9.1	9.6	10.3	10.8	10.3	10.3	10.4
20	10.4	10.8	9.5	10.2	10.7	10.4	10.3	9.9	9.7	9	9.3	9	8.8	9.2	9	9.3	10.1	10.3	10.1	10.1	10.2
30	10.3	10.7	9.4	10.1	10.6	10.4	10.2	9.9	9.6	8.7	9	8.4	8.3	9	8.8	9.1	10.1	10	9.9	9.9	10
40	10.3	10.5	9.4	10	10.5	10.3	10.1	9.7	9.5	8.7	9	8.4	8.1	8.5	8.3	9.3	10	10	9.8	9.7	9.9
50	10.2	10.5	9.4	10	10.4	10	9.9	9.7	9.2	8.6	8.7	8.1	7.9	8.2	7.8	9.2	9.9	9.9	9.6	9.6	9.7
60	10	10.5	9.4	10	10.4	10	9.7	9.6	9.1	8.5	8.5	8.1	7.9	8.2	7.8	9.9	9.8	9.6	9.6	9.5	9.6
70	9.6	10.5	9.4	9.9	10.3	9.9	9.7	9.5	9	8.4	8.4	7.9	7.8	8	7.7	9.7	9.8	9.5	9.5	9.4	9.5
80	8.8	10.5	9.3	9.9	10.2	9.9	9.5	9	8.8	8.3	8.3	7.6	7.7	8	7.5	9.4	9.7	9.5	9.5	9.4	9.5
90	8.7	10.4	9.3	9.9	10.1	9.8	9.5	9.1	8.7	8.1	8.3	7.5	7.6	7.9	7.3	9.2	9.6	9.1	9.4	9.3	9.4
100	8.6	10.2	9.3	10	10	9.6	9.3	9.1	8.7	8	8.1	7.3	7.4	7.8	7.2	9.1	8.8	8.8	9	9.3	9.4

Secchi depth

(m)	1/07/2002	17/07/2002	31/07/2002	29/08/2002	18/09/2002	9/10/2002	13/11/2002	28/11/2002	18/12/2002	30/01/2003	13/02/2003	17/03/2003	3/04/2003	28/04/2003	15/05/2003	12/06/2003	14/07/2003	31/07/2003	14/08/2003	26/08/2003	8/09/2003
	14	12.5	12	8	12	19	16	15.5	13.5	18.5	19	15	14.5	14.5	17	11	14	12	14.5	13	12

Lake Taupo Temperature, Dissolved Oxygen, and Secchi Depth Database.

2001-2002

Mid-Lake site A for the period starting 2 July 2001

Temperature

Date	2/07/01	25/07/01	13/08/01	3/09/01	25/09/01	25/10/01	12/11/01	10/12/01	20/12/01	8/01/02	22/01/02	6/03/02	4/04/02	22/04/02	5/05/02	19/06/02	1/07/02	17/07/02	31/07/02	29/08/02	18/09/02	9/10/02
Depth (m)																						
0	12.11	11.26	11.15	10.96	11.58	12.97	14.23	15.47	17.92	18.37	19.4	18.69	17.45	17.05	15.51	12.57	12.13	11.44	11.2	11.1	11.38	11.60
10	12.04	11.26	11.12	10.98	11.57	12.91	14.16	15.51	16.60	18.07	18.8	18.69	17.38	16.64	15.54	12.57	12.12	11.44	11.2	10.9	11.33	11.60
20	12.00	11.26	11.12	10.95	11.56	12.90	13.37	15.52	15.46	17.62	18.05	18.68	17.18	16.61	15.52	12.57	12.11	11.44	11.2	10.9	11.28	11.40
30	11.99	11.26	11.11	10.94	11.52	12.89	12.85	14.52	13.79	13.5	14.8	15.3	16.83	16.56	15.5	12.56	12.11	11.44	11.2	10.8	11.02	11.30
40	11.98	11.26	11.11	10.94	11.04	12.00	11.87	13.01	12.41	12.43	13.1	12.42	12.9	13.35	15.39	12.56	12.11	11.44	11.2	10.9	10.97	11.30
50	11.98	11.26	11.11	10.94	10.96	11.50	11.57	11.80	11.70	11.61	12.06	11.73	12.09	11.93	11.92	12.56	12.11	11.44	11.2	10.9	10.96	11.20
60	11.95	11.26	11.10	10.94	10.92	11.13	11.24	11.27	11.32	11.38	11.52	11.43	11.51	11.53	11.49	12.53	12.1	11.44	11.2	10.8	10.94	11.20
70	11.76	11.26	11.09	10.94	10.91	11.01	11.13	11.13	11.22	11.24	11.25	11.27	11.3	11.3	11.33	11.98	12.1	11.44	11.2	10.8	10.93	11.20
80	11.51	11.26	11.08	10.92	10.90	10.96	11.03	11.05	11.16	11.16	11.17	11.2	11.24	11.25	11.27	11.35	11.97	11.44	11.2	10.9	10.92	11.10
90	11.45	11.26	11.08	10.91	10.90	10.95	11.01	11.02	11.12	11.13	11.15	11.17	11.19	11.22	11.28	11.27	11.49	11.43	11.2	10.9	10.91	11.10
100	11.41	11.26	11.08	10.91	10.90	10.94	10.99	11.00	11.08	11.12	11.14	11.16	11.17	11.2	11.38	11.25	11.39	11.41	11.2	10.9	10.9	11.10
110	11.39	11.26	11.08	10.91	10.90	10.92	10.97	10.99	11.07	11.1	11.13	11.13	11.14	11.18	11.27	11.24	11.32	11.37	11.2	10.9	10.89	11.00
120	11.36	11.26	11.08	10.91	10.89	10.92	10.95	10.97	11.04	11.1	11.12	11.13	11.14	11.17	11.26	11.21	11.29	11.32	11.2	10.9	10.87	11.00
130	11.35	11.26	11.07	10.90	10.89	10.91	10.94	10.96	11.04	11.09	11.1	11.13	11.13	11.15	11.24	11.2	11.25	11.27	11.2	10.9	10.85	10.90
140	11.34	11.26	11.07	10.90	10.89	10.90	10.94	10.96	11.04	11.08	11.1	11.13	11.13	11.14	11.23	11.19	11.23	11.26	11.2	10.8	10.83	10.90
150	11.33	11.26	11.07	10.90	10.89	10.90	10.94	10.96	11.03	11.08	11.1	11.12	11.13	11.14	11.19	11.9	11.23	11.26	11.2	10.8	10.81	10.90

Dissolved Oxygen (g m⁻³)

Depth (m)	2/07/01	25/07/01	13/08/01	3/09/01	25/09/01	25/10/01	12/11/01	10/12/01	20/12/01	8/01/02	22/01/02	6/03/02	4/04/02	22/04/02	5/05/02	19/06/02	1/07/02	17/07/02	31/07/02	29/08/02	18/09/02	9/10/02
0	9.2	10.2	9.6	10.6	10.4	9.9	9.5	9.4	9.1	9.1	9.0	8.7	8.8	9.4	10.5	10.2	10.3	10.4	9.7	10.5	10.5	10.3
10	9.1	10.5	9.6	10.7	10.4	9.9	9.8	9.5	8.9	9.0	8.9	8.7	8.9	9.3	9.5	10.2	10.3	10.7	9.5	10.4	10.7	10.3
20	9.4	9.4	9.6	10.6	10.4	10.0	9.4	9.5	9.0	9.0	9.1	8.7	8.8	9.3	9.5	10.2	10.3	10.7	9.4	10.3	10.6	10.2
30	9.8	9.2	9.6	10.6	10.4	10.1	9.4	9.1	8.8	9.0	9.1	8.4	8.7	9.2	9.4	10.2	10.2	10.7	9.4	10.3	10.5	10.2
40	9.8	9.1	9.6	10.6	10.0	9.7	8.9	9.1	8.6	8.8	9.0	8.4	8.3	8.7	9.3	10.1	10.2	10.6	9.4	10.2	10.4	10.2
50	9.6	8.9	9.6	10.6	9.9	9.5	9.0	8.7	8.6	8.7	8.7	8.2	8.2	8.3	8.6	10.1	10.2	10.6	9.4	10.2	10.3	10.1
60	9.4	8.9	9.5	10.5	9.8	9.3	8.7	8.6	8.5	8.6	8.6	8.2	8.1	8.1	8.3	10.0	10.1	10.5	9.4	10.2	10.2	10.1
70	9.5	9.0	9.4	10.4	9.7	9.3	8.8	8.7	8.5	8.6	8.5	8.2	8.0	8.0	8.2	9.6	10.1	10.5	9.3	10.1	10.2	10.0
80	7.7	8.9	9.4	10.4	9.7	9.2	8.6	8.4	8.5	8.6	8.4	8.1	7.9	7.9	8.2	8.5	10.0	10.3	9.4	10.1	10.2	10.1
90	7.8	8.9	9.4	10.4	9.6	9.5	8.8	8.5	8.5	8.6	8.2	8.1	7.8	7.8	8.0	8.3	9.7	10.3	9.4	10.1	10.1	10.1
100	7.5	8.6	9.3	10.4	9.6	9.2	8.6	8.4	8.3	8.5	8.1	8.0	7.8	7.8	7.5	8.2	8.6	10.1	9.4	10.1	10.0	9.8
110	7.4	8.7	9.3	10.4	9.6	9.2	8.6	8.4	8.3	8.4	8.1	8.0	7.7	7.7	7.3	8.1	8.3	9.8	9.3	9.9	9.9	9.8
120	6.9	8.5	9.3	10.3	9.5	9.0	8.4	8.4	8.3	8.2	8.1	7.9	7.7	7.6	7.2	8.0	8.1	8.8	9.3	9.9	9.9	9.8
130	6.9	8.5	9.3	10.2	9.5	9.0	8.4	8.4	8.3	8.2	8.2	7.9	7.6	7.5	7.3	7.9	8.0	8.5	9.3	9.9	9.9	9.7
140	6.8	8.3	9.2	10.2	9.5	8.6	8.2	8.2	8.1	8.0	8.1	7.8	7.1	7.8	7.3	7.8	7.8	8.1	9.3	9.9	9.9	9.4
150	6.4	8.2	9.2	10.2	9.3	8.5	8.1	8.1	7.9	7.8	7.9	7.6	7.0	7.2	7.3	7.7	7.8	8.1	9.3	9.8	9.8	9.4

Secchi depth

(m)	2/07/01	25/07/01	13/08/01	3/09/01	25/09/01	25/10/01	12/11/01	10/12/01	20/12/01	8/01/02	22/01/02	6/03/02	4/04/02	22/04/02	5/05/02	19/06/02	1/07/02	17/07/02	31/07/02	29/08/02	18/09/02	9/10/02
	12	14.5	13.5	17.5	11	14.5	15.5	16	13	13	15	14.5	19	22	16.4	17	16	15.5	12	9.5	12	15.5

Lake Taupo Temperature, Dissolved Oxygen, and Secchi Depth Database.
Additional site B (Kuratau Basin) for the period starting 8 January 2002 on

2001-2002

Temperature

Date	8/01/2002	22/01/2002	6/03/2002	4/04/2002	22/04/2002	5/05/2002	19/06/2002	1/07/2002	17/07/2002	31/07/2002	29/08/2002	18/09/2002
Depth (m)												
0	18.1	18.8	18.64	17.38	16.84	15.12	12.45	12.13	11.48	11.3	11	11.08
10	17.55	18.45	18.58	17.35	16.61	15.14	12.44	12.09	11.49	11.1	10.8	11.05
20	15.72	17.4	18.56	17.1	16.6	15.05	12.44	12.09	11.48	11.1	10.8	11.03
30	13.74	13.9	15.07	16.74	16.4	14.75	12.43	12.09	11.48	11.1	10.8	11.03
40	12.62	12.73	13.08	14.3	13.4	14.4	12.24	12.08	11.48	11.1	10.8	11.02
50	11.92	11.98	11.91	12.77	12.12	14.07	12.11	11.97	11.49	11.1	10.8	10.91
60	11.31	11.41	11.5	12.03	11.53	12.96	11.73	11.93	11.49	11.1	10.8	10.9
70	11.21	11.25	11.24	11.5	11.32	12.2	11.49	11.87	11.48	11.1	10.8	10.89
80	11.15	11.19	11.21	11.29	11.24	11.97	11.38	11.78	11.48	11.1	10.8	10.89
90	11.1	11.13	11.15	11.2	11.18	11.69	11.3	11.37	11.46	11.1	10.7	10.87
100	11.1	11.12	11.12	11.19	11.15	11.39	11.22	11.28	11.3	11	10.7	10.85
110										10.7	10.7	

Dissolved Oxygen (g m⁻³)

Depth (m)												
0	8.7	8.8	9.3	9.3	9.3	10.9	10.4	10.3	10.4	9.9	10.4	10.4
10	8.6	9	9.1	9.2	9.3	9.5	10.3	10.3	10.8	9.7	10.3	10.5
20	8.8	9	9.1	9.2	9.2	9.4	10.2	10.2	10.6	9.6	10.3	10.5
30	8.8	8.9	8.6	9.1	9.2	9.3	10.2	10.2	10.6	9.6	10.2	10.5
40	8.7	8.7	8.7	8.9	8.5	9.1	10.1	10.1	10.5	9.6	10.2	10.4
50	8.7	8.4	8.5	8.6	8.2	9	10	10.1	10.5	9.6	10.1	10.3
60	8.7	8.3	8.4	8.4	8	8.6	9	9.8	10.4	9.6	10.1	10.2
70	8.7	8.3	8.3	8.3	7.9	8.1	8.7	9.7	10.4	9.5	10	10.1
80	8.7	8.2	8.1	8.1	7.8	7.9	8.4	9.5	10.3	9.5	10	10.1
90	8.2	8.1	7.9	7.7	7.7	7.8	8.2	9.1	10.3	9.5	10	10
100	8	7.6	7.5	7.7	7.5	7.7	7.8	8.7	9.8	9.6	9.9	9.9
110	8				6.2					9.2	9.8	

Secchi depth

Depth (m)	13.5	12	14.5	19.5	19	13.2	15	16	12.5	10.5	8	11
-----------	------	----	------	------	----	------	----	----	------	------	---	----

**Lake Taupo Temperature, Dissolved Oxygen, and Secchi Depth Database.
Additional site C (Western Bays) for the period starting 8 January 2002 on**

2001-2002

Temperature

Date	8/01/2002	22/01/2002	6/03/2002	4/04/2002	22/04/2002	5/05/2002	19/06/2002	1/07/2002	17/07/2002	31/07/2002	29/08/2002	18/09/2002	9/10/2002
Depth (m)													
0	18.72	18.82	18.68	17.47	16.88	15.6	12.58	12.22	11.52	11.6	11.4	11.24	12.10
10	17.41	18.46	18.47	17.24	11.63	15.64	12.56	12.15	11.5	11.2	10.9	11.23	11.30
20	16.95	18.21	18.32	17.16	16.58	15.64	12.56	12.14	11.49	11.2	10.9	11.16	11.30
30	14	13.77	15.9	17.12	16.5	15.61	12.56	12.14	11.49	11.2	10.8	11.06	11.20
40	13.14	12.01	12.98	13.17	13.02	12.26	12.56	12.13	11.49	11.2	10.8	11.02	11.20
50	11.97	11.5	12.13	12.11	11.87	11.57	12.56	12.13	11.49	11.2	10.8	11.02	11.20
60	11.44	11.26	11.59	11.57	11.47	11.37	11.9	11.92	11.49	11.2	10.8	11	11.10
70	11.26	11.17	11.36	11.38	11.32	11.29	11.36	11.55	11.49	11.2	10.8	10.99	11.10
80	11.18	11.16	11.25	11.32	11.26	11.24	11.28	11.5	11.49	11.2	10.8	10.95	11.10
90	11.15	11.14	11.18	11.21	11.23	11.21	11.23	11.47	11.49	11.2	10.8	10.94	11.00
100	11.12	11.11	11.18	11.19	11.19	11.19	11.22	11.45	11.49	11.2	10.8	10.92	11.00
110	11.11	11.1			11.16	11.15				11.2	10.8		10.90
120										11.2	10.8		10.90

Dissolved Oxygen (g m⁻³)

Depth (m)	8/01/2002	22/01/2002	6/03/2002	4/04/2002	22/04/2002	5/05/2002	19/06/2002	1/07/2002	17/07/2002	31/07/2002	29/08/2002	18/09/2002	9/10/2002
0	8.6	8.9	9.3	9.4	9.3	10.6	10.3	10.4	10.5	9.7	10.3	10.5	10.4
10	8.4	8.9	9	9.1	9.2	9.5	10.2	10.4	10.8	9.5	10.2	10.7	10.4
20	8.9	8.9	9	9.1	9.2	9.5	10.2	10.4	10.8	9.5	10.2	10.7	10.4
30	8.6	8.9	8.8	9.1	9.1	9.4	10.1	10.3	10.7	9.4	10.1	10.6	10.4
40	8.6	8.5	8.6	8.6	8.5	8.9	10.1	10.3	10.5	9.4	10	10.5	10.3
50	8.5	8.2	8.5	8.5	8.1	8.6	10	10.2	10.5	9.4	10	10.4	10
60	8.6	8.1	8.5	8.2	7.9	8.3	9.7	10	10.5	9.4	10	10.4	10
70	8.6	8.1	8.2	8.2	7.8	8.2	9.1	9.6	10.5	9.4	9.9	10.3	9.9
80	8.7	8.1	8.1	8	7.7	8	8.4	8.8	10.5	9.3	9.9	10.2	9.9
90	8.6	8.1	8.1	7.9	7.7	7.9	8	8.7	10.4	9.3	9.9	10.1	9.8
100	8.7	8.1	8.1	7.9	7.6	7.8	7.7	8.6	10.2	9.3	10	10	9.6
110	8.5	7.9			7.6	7.7				9.3	10		9.7
120	8.5	7.7								9.1	9.9		9.6

Secchi depth

Depth (m)	8/01/2002	22/01/2002	6/03/2002	4/04/2002	22/04/2002	5/05/2002	19/06/2002	1/07/2002	17/07/2002	31/07/2002	29/08/2002	18/09/2002	9/10/2002
Depth (m)	14.5	15.5	16	19	18.5	15.6	16	14	12.5	12	8	12	19

Lake Taupo Temperature, Dissolved Oxygen, and Secchi Depth Database.
For the period starting 11 July 2000

2000-2001

Temperature																				
Date	11-7-00	04-8-00	21-8-00	11-9-00	28-9-00	25-10-00	13-11-00	06-12-00	03-1-01	15-1-01	20-2-01	01-3-01	19-3-01	09-4-01	11-4-01	10-5-01	29-5-01	02-7-01	25-7-01	13-8-01
Depth (m)																				
0	11.87	11.32	11.19	11.80	12.47	14.04	13.27	15.73	18.16	18.98	20.47	20.87	19.01	16.99	16.99	15.78	13.62	12.11	11.26	11.15
10	11.87	11.32	11.15	11.46	11.52	13.03	13.09	15.06	17.37	18.51	19.37	20.71	19.05	16.87	16.99	15.78	13.74	12.04	11.26	11.12
20	11.86	11.32	11.14	11.33	11.36	11.99	12.98	14.15	15.46	14.79	18.08	18.98	19.06	16.78	16.97	15.78	13.78	12.00	11.26	11.12
30	11.86	11.33	11.14	11.30	11.33	11.83	12.80	13.31	13.61	13.63	16.06	15.95	16.46	15.82	16.84	15.73	13.79	11.99	11.26	11.11
40	11.86	11.33	11.14	11.27	11.31	11.60	12.36	12.49	12.73	12.81	13.39	13.36	13.05	13.13	13.87	13.19	13.80	11.98	11.26	11.11
50	11.86	11.33	11.14	11.22	11.30	11.49	12.10	12.16	12.21	12.27	12.67	12.58	12.42	12.35	12.68	12.42	13.80	11.98	11.26	11.11
60	11.64	11.33	11.15	11.18	11.27	11.42	11.69	11.78	11.76	11.87	12.01	12.01	11.84	11.81	11.89	11.90	11.92	11.95	11.26	11.10
70	11.42	11.33	11.15	11.15	11.24	11.39	11.41	11.53	11.64	11.67	11.77	11.79	11.67	11.67	11.69	11.69	11.61	11.76	11.26	11.09
80	11.31	11.33	11.15	11.14	11.20	11.38	11.29	11.40	11.47	11.55	11.56	11.63	11.55	11.54	11.54	11.52	11.54	11.51	11.26	11.08
90	11.22	11.33	11.15	11.13	11.17	11.33	11.26	11.36	11.43	11.46	11.50	11.55	11.49	11.46	11.48	11.47	11.46	11.45	11.26	11.08
100	11.21	11.32	11.15	11.13	11.14	11.33	11.21	11.32	11.38	11.39	11.43	11.50	11.43	11.41	11.43	11.42	11.42	11.41	11.26	11.08
110	11.19	11.32	11.15	11.13	11.06	11.29	11.19	11.28	11.36	11.36	11.40	11.46	11.41	11.37	11.39	11.40	11.38	11.39	11.26	11.08
120	11.19	11.31	11.15	11.13	11.04	11.27	11.19	11.27	11.33	11.34	11.39	11.44	11.39	11.33	11.35	11.38	11.35	11.36	11.26	11.08
130	11.18	11.26	11.15	11.12	11.02	11.23	11.17	11.26	11.30	11.32	11.37	11.43	11.37	11.32	11.34	11.36	11.33	11.35	11.26	11.07
140	11.16	11.18	11.14	11.12	11.01	11.18	11.15	11.25	11.30	11.31	11.35	11.40	11.35	11.31	11.32	11.34	11.31	11.34	11.26	11.07
150	11.15	11.18	11.14	11.12	11.01	11.15	11.15	11.25	11.32	11.31	11.33	11.41	11.34	11.31	11.32	11.34	11.31	11.33	11.26	11.07
Dissolved Oxygen (g m ⁻³)																				
Depth (m)																				
0	9.0	9.0	9.2	9.3	9.1	8.9	8.2	8.7	8.2	8.0	8.0	8.2	8.4	8.3	8.4	8.2	8.7	9.2	10.2	9.6
10	9.0	9.0	9.4	9.5	8.7	8.8	8.4	8.3	8.3	8.6	8.0	8.5	8.3	8.3	8.2	8.0	8.5	9.1	10.5	9.6
20	9.0	9.1	9.4	9.5	8.7	9.1	8.4	8.5	8.4	8.1	8.2	8.6	8.6	8.4	7.9	7.9	8.4	9.4	9.4	9.6
30	9.0	9.1	9.6	9.5	8.7	8.9	8.4	8.5	8.5	8.2	8.0	8.3	8.0	8.0	8.0	7.8	8.4	9.8	9.2	9.6
40	9.0	9.1	9.6	9.5	9.1	8.7	8.2	8.2	8.4	7.9	8.1	8.1	7.6	7.8	7.6	7.7	8.3	9.8	9.1	9.6
50	9.0	9.1	9.6	9.5	9.1	8.5	8.2	8.2	8.2	8.1	7.9	7.8	7.6	7.5	7.4	7.5	8.3	9.6	8.9	9.6
60	9.0	9.1	9.7	9.5	8.7	8.4	8.0	7.9	8.0	7.5	7.7	7.4	6.8	7.2	7.2	7.5	7.2	9.4	8.9	9.5
70	8.9	9.1	9.7	9.5	8.7	8.3	7.9	7.8	7.9	7.4	7.6	7.2	6.8	7.1	7.4	7.3	7.0	9.5	9.0	9.4
80	7.8	9.0	9.7	9.5	8.7	8.2	7.6	7.6	7.8	7.5	7.4	7.0	6.5	6.9	7.3	7.3	7.0	7.7	8.9	9.4
90	7.4	8.9	9.7	9.5	8.7	8.2	7.6	7.6	7.7	7.5	7.4	6.9	6.5	6.9	7.1	7.1	7.0	7.8	8.9	9.4
100	7.2	8.7	9.7	9.5	8.7	8.0	7.5	7.6	7.6	7.3	7.2	6.8	6.6	6.8	7.0	7.0	6.9	7.5	8.6	9.3
110	7.1	8.3	9.7	9.5	8.7	8.0	7.5	7.5	7.6	7.2	7.1	6.7	6.5	6.8	7.0	7.0	6.7	7.4	8.7	9.3
120	6.9	7.9	9.7	9.5	8.2	8.1	7.4	7.4	7.5	7.1	7.0	6.5	6.5	6.7	6.8	6.9	6.6	6.9	8.5	9.3
130	6.9	7.3	9.7	9.5	8.5	8.1	7.4	7.3	7.4	7.0	7.0	6.5	6.5	6.6	6.7	6.6	6.5	6.9	8.5	9.3
140	6.9	7.1	9.7	9.5	8.6	8.0	7.3	7.2	7.2	6.9	6.8	6.4	6.5	6.4	6.4	6.7	6.3	6.8	8.3	9.2
150	6.8	7.4	9.7	9.3	8.5	7.9	7.3	7.1	7.1	6.6	6.5	6.3	6.4	6.3	6.3	6.6	6.1	6.4	8.2	9.2
Secchi depth																				
Depth (m)																				
11		12	15	12	13	11	12	17	17	18	17	14.5	17	13.5	13.5	17	14.5	12	14.5	13.5

**Lake Taupo Temperature, Dissolved Oxygen, and Secchi Depth Database.
For the period starting 13 July 1999**

1999-2000

Temperature																			
Date	13-7-99	6-8-99	3-9-99	29-9-99	18-10-99	19-12-99	18-1-00	12-4-00	4-5-00	25-5-00	20-6-00	11-7-00	4-8-00	21-8-00	11-9-00	28-9-00	25-10-00	13-11-00	6-12-00
Depth (m)																			
0	12.0	11.8	11.8	11.5	12.8	16.56	18.63	17.41	15.82	14.22	12.28	11.87	11.32	11.19	11.80	12.47	14.04	13.27	15.73
10	12.0	11.4	11.3	11.5	12.7	16.40	18.35	17.25	15.77	14.28	12.28	11.87	11.32	11.15	11.46	11.52	13.03	13.09	15.06
20	12.0	11.4	11.2	11.5	12.4	15.96	17.22	17.21	15.76	14.31	12.28	11.86	11.32	11.14	11.33	11.36	11.99	12.98	14.15
30	12.0	11.4	11.1	11.4	11.6	15.23	14.94	16.65	15.75	14.28	12.27	11.86	11.33	11.14	11.30	11.33	11.83	12.86	13.31
40	12.0	11.3	11.1	11.2	11.4	12.16	13.29	12.55	13.64	14.22	12.26	11.86	11.33	11.14	11.27	11.31	11.60	12.36	12.49
50	12.0	11.3	11.1	11.1	11.3	11.64	11.91	11.67	12.14	12.53	12.26	11.86	11.33	11.14	11.22	11.30	11.49	12.10	12.16
60	12.0	11.3	11.0	11.1	11.1	11.35	11.45	11.39	11.56	11.56	12.21	11.85	11.33	11.15	11.18	11.27	11.42	11.69	11.78
70	12.0	11.3	11.0	11.0	11.1	11.25	11.31	11.29	11.36	11.34	11.58	11.64	11.33	11.15	11.15	11.24	11.39	11.41	11.53
80	11.4	11.3	11.0	11.0	11.0	11.18	11.21	11.23	11.24	11.23	11.32	11.42	11.33	11.15	11.14	11.20	11.38	11.29	11.40
90	11.3	11.3	11.0	11.0	11.0	11.16	11.17	11.20	11.21	11.20	11.24	11.31	11.33	11.15	11.13	11.17	11.33	11.26	11.36
100	11.2	11.2	11.0	11.0	11.0	11.14	11.14	11.17	11.17	11.15	11.17	11.22	11.32	11.15	11.13	11.14	11.33	11.21	11.32
110	11.2	11.2	11.0	11.0	11.0	11.12	11.12	11.15	11.14	11.12	11.16	11.21	11.32	11.15	11.13	11.06	11.29	11.19	11.28
120	11.2	11.1	11.0	11.0	11.0	11.10	11.09	11.13	11.12	11.10	11.14	11.19	11.31	11.15	11.13	11.04	11.27	11.19	11.27
130	11.1	11.1	11.0	11.0	11.0	11.08	11.08	11.11	11.10	11.09	11.12	11.18	11.26	11.15	11.12	11.02	11.23	11.17	11.26
140	11.1	11.1	11.0	11.0	11.0	11.07	11.07	11.09	11.09	11.09	11.10	11.16	11.18	11.14	11.12	11.01	11.18	11.15	11.25
150	11.1	11.0	11.0	10.9	11.0	11.10	11.06	11.09	11.09	11.07	11.10	11.15	11.18	11.14	11.12	11.01	11.15	11.15	11.25
Dissolved Oxygen (g m⁻³)																			
Depth (m)																			
0	10.5	10.1	9.2	9.5	8.9	8.3	7.9	9.2	8.7	8.5	8.1	9.0	9.0	9.2	9.3	9.1	8.9	8.2	8.7
10	10.7	10.2	9.8	9.8	8.9	8.6	7.9	9.2	8.6	8.3	8.3	9.0	9.0	9.4	9.5	8.7	8.8	8.4	8.3
20	10.7	9.9	9.8	9.9	8.9	8.7	8.1	9.2	8.8	8.5	8.7	9.0	9.1	9.4	9.5	8.7	9.1	8.4	8.5
30	10.6	10.0	9.8	9.7	8.9	8.7	8.3	9.0	8.8	8.5	8.6	9.0	9.1	9.6	9.5	8.7	8.9	8.4	8.5
40	10.6	9.7	9.5	9.6	8.8	8.7	8.1	8.3	8.2	8.6	8.6	9.0	9.1	9.6	9.5	9.1	8.7	8.2	8.2
50	10.4	9.9	9.5	9.3	8.6	8.7	8.0	8.0	7.9	8.2	8.6	9.0	9.1	9.6	9.5	9.1	8.5	8.2	8.2
60	10.4	9.8	9.4	9.2	8.6	8.6	8.0	8.0	7.9	7.7	8.7	9.0	9.1	9.7	9.5	8.7	8.4	8.0	7.9
70	10.3	9.7	9.3	9.0	8.6	8.7	8.0	8.0	7.8	7.7	8.4	8.9	9.1	9.7	9.5	8.7	8.3	7.9	7.8
80	10.3	9.0	9.2	9.0	8.5	8.5	7.9	7.9	7.7	7.6	7.6	7.8	9.0	9.7	9.5	8.7	8.2	7.6	7.6
90	8.1	8.6	9.2	9.0	8.6	8.5	7.7	7.9	7.8	7.4	7.4	7.4	8.9	9.7	9.5	8.7	8.2	7.6	7.6
100	7.9	7.3	9.2	8.9	8.6	8.5	8.3	7.7	7.6	7.4	7.3	7.2	8.7	9.7	9.5	8.7	8.0	7.5	7.6
110	7.5	7.1	9.1	8.9	8.6	8.3	8.1	7.7	7.6	7.6	7.4	7.1	8.3	9.7	9.5	8.7	8.0	7.5	7.5
120	7.4	6.8	9.1	8.9	8.3	8.4	8.1	7.7	7.4	7.5	7.3	6.9	7.9	9.7	9.5	8.2	8.1	7.4	7.4
130	7.3	6.7	9.0	8.8	7.9	8.2	8.0	7.5	7.4	7.5	7.3	6.9	7.3	9.7	9.5	8.5	8.1	7.4	7.3
140	7.1	6.7	8.9	8.7	7.5	8.1	8.0	7.5	7.2	7.4	7.2	6.9	7.1	9.7	9.5	8.6	8.0	7.3	7.2
150	6.9	6.4	8.9	8.6	7.5	8.0	7.5	7.2	6.8	7.0	6.9	6.8	7.4	9.7	9.3	8.5	7.9	7.3	7.1
Secchi depth																			
Depth (m)																			
16	14.5	10	10	14.9	18	19.1	15	14	14	14	11	12	15	12	13	11	12	17	

Lake Taupo Temperature, Dissolved Oxygen, and Secchi Depth Database.
For the period starting 28 July 1998

1998-1999

Temperature

Date	28-7-98	22-8-98	29-9-98	1-11-98	26-11-98	22-12-98	12-2-99	3-3-99	14-4-99	30-4-99	19-5-99	1-6-99	17-6-99	13-7-99	6-8-99	3-9-99	29-9-99	18-10-99	
Depth (m)																			
0	11.4	11.5	12.9	13.6	18.4	18.5	20.1	20.9	18.3	16.4	14.4	14.2	13.0	12.0	11.8	11.8	11.5	12.8	
10	11.6	11.3	11.9	13.2	15.6	16.7	20.1	19.8	18.3	16.4	14.4	14.1	13.4	12.0	11.4	11.3	11.5	12.7	
20	11.6	11.3	11.5	12.7	15.4	15.7	20.1	19.8	18.3	16.4	14.5	14.1	13.4	12.0	11.4	11.2	11.5	12.4	
30	11.6	11.3	11.3	12.4	12.7	14.5	14.9	15.1	18.1	16.0	14.5	14.1	13.4	12.0	11.4	11.1	11.4	11.6	
40	11.6	11.3	11.2	12.4	12.1	12.7	13.2	13.1	12.9	13.1	14.5	13.9	13.4	12.0	11.3	11.1	11.2	11.4	
50	11.6	11.3	11.1	12.2	11.8	11.8	12.1	12.1	11.9	12.2	13.1	13.0	13.4	12.0	11.3	11.1	11.1	11.3	
60	11.6	11.3	11.1	11.7	11.5	11.5	11.6	11.8	11.6	12.0	11.8	12.0	12.1	12.0	11.3	11.0	11.1	11.1	
70	11.6	11.1	11.0	11.2	11.3	11.3	11.4	11.5	11.4	11.8	11.3	11.4	11.5	12.0	11.3	11.0	11.0	11.1	
80	10.6	10.9	11.0	11.1	11.2	11.2	11.2	11.4	11.3	11.2	11.2	11.3	11.3	11.4	11.3	11.0	11.0	11.0	
90	10.6	10.9	10.9	11.1	11.1	11.1	11.1	11.3	11.2	11.1	11.1	11.2	11.2	11.3	11.3	11.0	11.0	11.0	
100	10.5	10.8	10.9	11.0	11.1	11.1	11.1	11.3	11.2	11.1	11.1	11.1	11.2	11.2	11.2	11.0	11.0	11.0	
110	10.5	10.5	10.9	11.0	11.0	11.1	11.1	11.2	11.2	11.1	11.1	11.1	11.1	11.2	11.2	11.0	11.0	11.0	
120	10.5	10.5	10.9	11.0	11.0	11.0	11.0	11.2	11.2	11.1	11.1	11.1	11.1	11.2	11.1	11.0	11.0	11.0	
130	10.5	10.5	10.7	11.0	11.0	11.1	11.1	11.1	11.1	11.1	11.0	11.1	11.1	11.1	11.1	11.0	11.0	11.0	
140	10.5	10.5	10.7	10.9	11.0	11.1	11.1	11.1	11.1	11.1	11.0	11.1	11.0	11.1	11.1	11.0	11.0	11.0	
150	10.5	10.5	10.7	10.9	11.0	11.1	11.1	11.1	11.1	11.1	11.0	11.1	11.0	11.1	11.0	11.0	10.9	11.0	

Dissolved Oxygen (g m⁻³)

Depth (m)	28-7-98	22-8-98	29-9-98	1-11-98	26-11-98	22-12-98	12-2-99	3-3-99	14-4-99	30-4-99	19-5-99	1-6-99	17-6-99	13-7-99	6-8-99	3-9-99	29-9-99	18-10-99
0	10.6	10.6	10.6	10.4	9.6	9.7	9.0	8.6	9.1	9.5	9.9	10.0	10.4	10.5	10.1	9.2	9.5	8.9
10	10.5	10.5	10.7	10.7	9.9	10.1	9.0	8.7	9.2	9.5	10.5	10.4	10.3	10.7	10.2	9.8	9.8	8.9
20	10.4	10.4	10.6	10.7	9.8	10.2	8.9	8.7	9.1	9.6	10.4	10.4	10.4	10.7	9.9	9.8	9.9	8.9
30	10.4	10.3	10.5	10.6	10.1	10.2	9.9	9.5	9.1	9.6	10.1	10.7	10.5	10.6	10.0	9.8	9.7	8.9
40	10.3	10.3	10.3	10.4	10.0	10.1	9.9	9.2	9.1	9.1	10.0	10.4	10.4	10.6	9.7	9.5	9.6	8.8
50	10.3	10.2	10.2	10.2	9.8	9.9	9.6	8.9	9.0	8.7	9.2	9.6	10.4	10.4	9.9	9.5	9.3	8.6
60	10.3	10.1	10.1	10.0	9.7	9.7	9.5	8.8	8.9	8.7	8.7	9.4	9.0	10.4	9.8	9.4	9.2	8.6
70	10.3	9.5	9.9	9.6	9.5	9.5	9.4	8.7	8.7	8.6	8.3	9.1	8.9	10.3	9.7	9.3	9.0	8.6
80	8.6	8.2	9.5	9.1	9.2	9.3	9.2	8.6	8.6	8.4	8.2	9.1	8.6	10.3	9.0	9.2	9.0	8.5
90	8.5	7.9	9.3	8.8	9.1	9.1	9.1	8.4	8.6	8.0	7.8	8.8	8.5	8.1	8.6	9.2	9.0	8.6
100	8.3	7.4	8.9	8.5	9.1	8.9	8.9	8.3	8.6	8.0	7.7	8.5	8.2	7.9	7.3	9.2	8.9	8.6
110	8.3	7.4	8.5	8.3	8.8	8.9	8.7	8.2	8.5	8.0	7.5	8.2	8.1	7.5	7.1	9.1	8.9	8.6
120	8.2	7.4	7.7	8.0	8.6	8.8	8.3	7.9	8.3	7.9	7.4	8.2	8.0	7.4	6.8	9.1	8.9	8.3
130	8.2	7.4	7.6	7.8	8.4	8.6	8.1	7.7	8.1	7.7	7.3	8.1	7.7	7.3	6.7	9.0	8.8	7.9
140	8.1	7.4	7.4	7.6	8.2	8.4	7.9	7.5	7.9	7.5	7.2	7.8	7.4	7.1	6.7	8.9	8.7	7.5
150	8.1	7.4	7.4	7.6	8.0	8.2	7.7	7.3	7.7	7.3	7.0	7.5	7.3	6.9	6.4	8.9	8.6	7.5

Secchi depth

Depth (m)	28-7-98	22-8-98	29-9-98	1-11-98	26-11-98	22-12-98	12-2-99	3-3-99	14-4-99	30-4-99	19-5-99	1-6-99	17-6-99	13-7-99	6-8-99	3-9-99	29-9-99	18-10-99
0	10.0	10.5	10.4	13.5	15.0	14.5	12.5	14.3	13.0	12.2	15.0	15.0	15.0	16.0	14.5	10.0	10.0	14.9

Lake Taupo Temperature, Dissolved Oxygen, and Secchi Depth Database.
For the period starting 16 September 1997

1997-1998

Temperature												
Date	16-9-97	11-10-97	28-10-97	02-12-97	21-1-98	04-3-98	24-3-98	26-3-98	07-4-98	29-5-98	28-7-98	22-8-98
Depth (m)												
1	10.8	11.8	12.2	14.5	17.7	20.0	19.3	18.6	17.7	14.2	11.4	11.49
10	10.5	11.4	12.0	13.7	17.6	19.9	18.6	18.6	17.7	14.3	11.6	11.32
20	10.5	11.1	11.5	13.6	16.5	19.7	18.5	18.5	17.7	14.0	11.6	11.27
30	10.5	10.8	11.5	13.1	14.3	16.4	18.0	18.1	17.5	13.1	11.6	11.27
40	10.5	10.6	11.4	12.5	12.0	13.3	13.0	12.6	13.7	12.0	11.6	11.27
50	10.5	10.5	11.1	11.5	11.2	12.0	11.9	11.7	11.5	11.2	11.6	11.26
60	10.5	10.5	11.1	11.0	11.0	11.5	11.1	11.1	11.0	10.9	11.6	11.26
70	10.5	10.5	10.8	10.8	10.8	11.0	10.7	10.8	10.8	10.8	11.6	11.12
80	10.5	10.5	10.7	10.7	10.7	10.8	10.6	10.7	10.6	10.6	10.6	10.90
90	10.5	10.5	10.6	10.6	10.6	10.7	10.5	10.6	10.6	10.6	10.6	10.86
100	10.5	10.5	10.5	10.5	10.6	10.7	10.5	10.6	10.6	10.6	10.5	10.82
110	10.5	10.5	10.4	10.5	10.6	10.6	10.5	10.5	10.5	10.6	10.5	10.5
120	10.5	10.5	10.5	10.5	10.5	10.6	10.5	10.5	10.5	10.5	10.5	10.5
130	10.5	10.5	10.5	10.5	10.5	10.6	10.5	10.5	10.5	10.5	10.5	10.5
140	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5
150	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5
Dissolved Oxygen (g m⁻³)												
Depth (m)												
1	10.55	10.37	10.68	9.89	9.27	9.17	9.43	9.10	9.14	9.92	10.60	10.64
10	10.52	10.51	10.22	9.86	9.38	9.19	9.53	9.07	9.10	9.88	10.46	10.50
20	10.50	10.46	10.24	9.86	9.46	9.22	9.61	8.95	9.07	9.87	10.40	10.36
30	10.29	10.46	10.00	9.74	9.81	9.30	9.78	8.97	9.09	9.68	10.35	10.27
40	10.31	10.39	9.96	9.66	9.85	9.32	9.73	9.47	9.32	9.40	10.32	10.26
50	10.27	10.36	9.89	9.47	9.53	9.16	9.55	9.45	9.34	9.26	10.30	10.20
60	10.16	10.31	9.77	9.44	9.37	9.17	9.30	9.47	9.30	9.18	10.28	10.10
70	10.08	10.24	9.76	9.19	9.30	9.11	9.21	9.38	9.24	9.20	10.25	9.54
80	10.06	10.15	9.85	9.04	9.13	9.04	9.14	9.30	9.13	9.12	8.58	8.15
90	10.03	10.09	9.33	9.00	9.10	8.93	9.03	9.24	9.05	9.08	8.52	7.90
100	9.99	10.06	9.23	8.96	9.01	8.89	8.39	9.16	8.97	8.94	8.34	7.36
110	9.96	10.02	9.03	8.87	8.89	8.83	8.38	8.98	8.94	8.78	8.26	7.36
120	9.91	10.00	8.96	8.87	8.84	8.75	8.38	8.87	8.88	8.69	8.21	7.36
130	9.86	9.92	8.76	8.84	8.68	8.63	8.38	8.38	8.79	8.41	8.21	7.36
140	9.82	9.87	8.76	8.71	8.45	8.30	8.38	8.38	8.58	8.41	8.14	7.36
150	9.56	9.69	8.76	8.65	8.38	8.22	8.38	8.38	8.40	8.41	8.14	7.36
Secchi depth data (m)												
Depth (m)	12.0	13.7	12.5	14.5	14.7	11.5	13.5	13.5	13.5	15.5	10.0	10.5

Lake Taupo Temperature, Dissolved Oxygen, and Secchi Depth Database.
For the period starting 3 September 1996

1996-1997

Temperature

Date	3-9-96	17-9-96	27-9-96	17-10-96	24-10-96	6-11-96	28-11-96	11-12-96	23-12-96	8-1-97	29-1-97	26-3-97	2-4-97	15-4-97	20-5-97	29-5-97	7-7-97	29-7-97	
Depth (m)																			
1	10.5	10.7	12.5	13.3	12.6	13.5	13.6	14.8	16.3	17.9	17.8	17.7	17.3	16.7	14.1	14.2	11.7	10.9	
10	10.4	10.6	11.6	12.0	12.3	13.6	13.6	14.8	15.3	16.8	17.6	17.6	17.3	16.7	14.0	14.1	11.7	11.0	
20	10.3	10.4	11.1	11.9	12.3	13.4	13.3	14.4	15.1	16.5	17.4	17.2	17.2	16.7	14.0	14.1	11.7	11.0	
30	10.3	10.3	11.0	11.8	12.3	13.3	13.3	14.2	15.0	15.6	14.8	16.6	17.2	16.7	12.6	14.1	11.7	11.0	
40	10.3	10.3	10.5	11.7	11.9	11.7	11.6	12.7	13.5	13.0	13.4	13.8	14.5	14.0	11.5	14.0	11.7	11.0	
50	10.4	10.3	10.4	11.5	11.6	10.8	10.9	12.5	12.4	11.9	11.8	12.4	11.5	11.9	11.0	12.1	11.7	11.0	
60	10.3	10.3	10.4	10.9	11.1	10.6	10.9	11.7	11.3	11.2	10.9	11.2	10.9	11.1	10.5	11.8	11.7	11.0	
70	10.3	10.3	10.3	10.6	10.6	10.5	10.5	11.7	10.7	10.8	10.7	10.7	10.6	10.9	10.5	11.1	11.7	11.0	
80	10.3	10.3	10.3	10.5	10.5	10.4	10.4	11.1	10.6	10.6	10.6	10.5	10.5	10.7	10.5	10.8	10.9	11.0	
90	10.3	10.3	10.3	10.4	10.4	10.4	10.4	10.4	10.5	10.5	10.4	10.5	10.5	10.6	10.5	10.6	10.8	10.9	
100	10.3	10.3	10.3	10.3	10.4	10.4	10.4	10.4	10.4	10.4	10.4	10.4	10.5	10.5	10.5	10.5	10.6	10.7	
110	10.3	10.3	10.3	10.3	10.3	10.3	10.3	10.4	10.4	10.4	10.4	10.4	10.4	10.5	10.5	10.5	10.5	10.6	
120	10.3	10.3	10.3	10.3	10.3	10.3	10.3	10.4	10.4	10.4	10.4	10.4	10.4	10.5	10.5	10.5	10.5	10.5	
130	10.3	10.3	10.3	10.3	10.3	10.3	10.3	10.4	10.4	10.4	10.4	10.4	10.4	10.5	10.5	10.5	10.5	10.5	
140	10.3	10.3	10.3	10.3	10.3	10.3	10.3	10.4	10.3	10.3	10.3	10.4	10.4	10.5	10.5	10.5	10.5	10.5	
150	10.3	10.3	10.3	10.3	10.3	10.3	10.3	10.3	10.3	10.3	10.3	10.4	10.4	10.5	10.4	10.4	10.5	10.5	

Dissolved Oxygen (g m⁻³)

Depth (m)	3-9-96	17-9-96	27-9-96	17-10-96	24-10-96	6-11-96	28-11-96	11-12-96	23-12-96	8-1-97	29-1-97	26-3-97	2-4-97	15-4-97	20-5-97	29-5-97	7-7-97	29-7-97
1	8.81	9.08	10.03	9.78	10.32	9.96	9.99	10.03	9.10	8.71	8.80	9.70	9.40	9.06	9.09	9.3	9.9	10.53
10	9.17	9.17	10.43	9.85	10.27	9.84	9.87	9.97	9.30	8.70	8.80	9.30	9.25	8.95	9.10	9.2	9.8	10.42
20	9.14	8.98	10.32	9.84	10.15	9.80	9.80	9.90	9.30	8.70	8.70	8.93	8.94	8.91	9.06	9.2	9.8	10.45
30	8.98	8.95	10.16	9.84	9.89	9.79	9.81	9.76	9.30	8.80	9.10	8.80	8.82	8.87	9.01	9.2	9.8	10.43
40	8.90	8.93	9.98	9.80	9.89	9.73	9.77	9.70	9.30	9.00	8.90	8.78	8.79	8.82	8.94	9.1	9.8	10.46
50	8.78	8.87	9.69	9.76	9.80	9.29	9.35	9.10	9.30	8.80	8.90	8.51	8.58	8.65	8.86	9.1	9.7	10.40
60	8.73	8.80	9.54	9.67	9.67	9.19	9.14	9.04	9.15	8.60	8.70	8.49	8.56	8.71	8.70	9.0	9.7	10.36
70	8.74	8.80	9.45	9.56	9.44	9.14	9.09	9.03	9.07	8.60	8.60	8.47	8.52	8.71	8.64	8.9	9.7	10.34
80	8.70	8.77	9.37	9.42	9.33	9.03	9.01	9.01	9.00	8.60	8.50	8.36	8.46	8.69	8.48	8.5	8.6	10.34
90	8.63	8.70	9.24	9.29	9.30	8.99	8.96	8.92	8.98	8.60	8.50	8.30	8.45	8.63	8.32	8.3	8.2	10.24
100	8.59	8.61	9.11	9.22	9.21	8.94	8.93	8.88	8.95	8.60	8.40	8.27	8.40	8.54	8.29	8.2	8.1	8.70
110	8.48	8.49	9.13	9.15	9.20	8.90	8.87	8.80	8.89	8.50	8.30	8.18	8.29	8.48	8.27	8.1	8.0	8.02
120	8.44	8.33	9.07	8.91	8.98	8.77	8.74	8.73	8.85	8.40	8.20	8.08	8.20	8.41	8.22	8.1	8.0	8.05
130	8.19	8.27	9.07	8.83	8.98	8.71	8.69	8.69	8.66	8.30	8.30	7.96	8.02	8.20	8.19	8.1	7.9	8.09
140	8.39	8.35	9.05	8.89	8.89	8.62	8.65	8.60	8.33	8.20	8.20	7.40	7.60	7.87	7.97	7.8	7.4	7.79
150	8.81	8.84	8.98	8.49	8.94	8.48	8.43	8.47	8.25	8.10	8.10	7.40	7.50	7.71	7.88	7.7	7.2	7.13

Secchi depth data (m)

Secchi d	3-9-96	17-9-96	27-9-96	17-10-96	24-10-96	6-11-96	28-11-96	11-12-96	23-12-96	8-1-97	29-1-97	26-3-97	2-4-97	15-4-97	20-5-97	29-5-97	7-7-97	29-7-97
13.1	13.1	14.2	11.2	12.6	13.4	14.9	14.1	14.7	17.7	15.1	15.2	15.3	16.0	17.7	14.6	14.5	12.5	13.5

Lake Taupo Temperature, Dissolved Oxygen, and Secchi Depth Database.
For the period starting 12 September 1995

1995-1996

Temperature

Date	12-9-95	25-9-95	30-10-95	24-11-95	06-12-95	12-1-96	31-1-96	13-2-96	29-2-96	20-3-96	28-3-96	18-4-96	19-5-96	14-6-96	9-7-96
Depth (m)															
1	10.7		13.7		17.7	21.1	21.7	22.7	20.5	18.2	16.8	17.7	14.8	12.2	11.2
10	10.7		11.9		16.2	20.7	20.7	21.0	20.1	18.2	16.7	17.4	14.8	12.2	11.2
20	10.7		11.4		15.3	18.1	18.5	20.6	20.0	18.2	16.6	17.3	14.8	12.1	11.2
30	10.7		11.2		12.4	14.8	13.5	15.1	15.5	18.1	13.7	17.0	14.8	12.1	11.2
40	10.7		10.9		11.4	12.4	12.3	12.2	11.9	12.3	12.4	12.6	14.7	12.0	11.2
50	10.7		10.8		11.0	11.5	11.6	11.6	11.3	11.4	11.6	11.4	11.6	11.2	11.2
60	10.7		10.7		10.7	11.0	11.2	11.0	11.0	11.1	11.4	11.1	11.1	10.9	11.2
70	10.7		10.5		10.6	10.9	10.8	10.8	10.8	10.9	11.6	11.1	10.9	10.8	11.2
80	10.5		10.5		10.6	10.9	10.7	10.7	10.7	10.8	11.2	10.9	10.8	10.8	11.2
90	10.4		10.5		10.6	10.7	10.7	10.7	10.7	10.7	11.3	10.8	10.7	10.8	10.8
100	10.4		10.5		10.5	10.6	10.6	10.7	10.7	10.7	10.9	10.8	10.7	10.7	10.8
110	10.4		10.5		10.5	10.5	10.6	10.7	10.7	10.6	10.8	10.8	10.7	10.7	10.8
120	10.4		10.5		10.5	10.5	10.5	10.6	10.6	10.6	10.7	10.7	10.7	10.7	10.8
130	10.4		10.5		10.5	10.5	10.5	10.7	10.6	10.6	10.7	10.7	10.7	10.7	10.8
140	10.4		10.5		10.5	10.5	10.5	10.6	10.6	10.6	10.7	10.7	10.7	10.7	10.8
150	10.4		10.5		10.5	10.5	10.5	10.6	10.6	10.6	10.6	10.7	10.7	10.7	10.8
160	10.4		*		10.5	10.5	10.5	*	*	*	*	*	*	*	*

Dissolved oxygen (g m⁻³)

Depth (m)	12-9-95	25-9-95	30-10-95	24-11-95	06-12-95	12-1-96	31-1-96	13-2-96	29-2-96	20-3-96	28-3-96	18-4-96	19-5-96	14-6-96	9-7-96
1	9.6		10.3		9.5	8.5	8.5	8.1	8.2	8.4	8.7	8.6	9.0	9.2	9.3
10	9.6		10.5		9.9	8.7	8.5	8.1	8.2	8.3	8.7	8.6	9.0	9.2	9.1
20	9.6		10.6		10.0	9.1	9.1	8.2	8.1	8.3	8.8	8.6	8.9	9.2	9.1
30	9.6		10.7		10.5	9.7	10.1	9.2	9.0	8.1	9.0	8.4	8.9	9.1	9.0
40	9.7		10.7		10.5	10.1	10.2	9.5	9.1	8.7	8.8	8.7	8.9	9.0	8.9
50	9.6		10.3		10.3	9.9	9.9	9.0	9.0	8.6	8.6	8.4	8.7	8.4	8.8
60	9.5		10.3		10.0	9.6	8.9	8.7	8.8	8.5	8.5	8.4	8.5	8.1	8.7
70	9.4		10.2		10.0	9.6	8.9	8.6	8.6	8.5	8.5	8.4	8.3	7.9	8.7
80	9.4		10.2		9.9	9.6	8.8	8.5	8.5	8.4	8.3	8.4	8.3	7.8	8.6
90	9.0		10.1		9.8	9.5	8.8	8.4	8.4	8.3	8.2	8.3	8.2	7.7	8.1
100	9.0		10.0		9.7	9.4	8.8	8.3	8.3	8.3	8.2	8.3	8.1	7.7	7.5
110	9.0		9.9		9.6	9.4	8.8	8.1	8.3	8.2	8.1	7.9	7.8	7.6	7.3
120	8.8		9.9		9.4	9.3	8.3	8.1	8.3	8.1	8.3	7.9	7.8	7.5	7.1
130	8.8		9.8		9.3	9.2	8.3	7.9	8.2	7.8	8.3	7.8	7.8	7.5	7.1
140	8.7		9.6		9.1	8.9	7.9	7.6	8.2	7.5	8.0	7.6	7.7	7.4	7.0
150	8.7		9.2		8.9	8.7	7.9	7.6	8.0	7.4	7.8	7.4	7.5	7.4	7.0

Secchi depth

Depth (m)	12-9-95	25-9-95	30-10-95	24-11-95	06-12-95	12-1-96	31-1-96	13-2-96	29-2-96	20-3-96	28-3-96	18-4-96	19-5-96	14-6-96	9-7-96
1	11.9	11.9	13.0	13.6	15.1	16.3	15.7	17.8	18.4	14.1	14.6	14.4	14.7	14.4	12.9

Lake Taupo Temperature, Dissolved Oxygen, and Secchi Depth Database.
Started 27 October 1994

1994-1995

Temperature		27-10-94	21-11-94	01-12-94	13-12-94	27-12-94	13-1-95	25-1-95	09-2-95	26-2-95	08-3-95	24-3-95	12-4-95	19-4-95	04-5-95	21-5-95	08-6-95	14-7-95	30-7-95
Date	Depth (m)																		
1	11.7	12.8	15.7	17.5	17.8	18.6	19.9	20.6	20.9	20.9	18.5	19.4	18.4	17.0	15.0	13.4	11.3	10.8	
10	11.5	12.6	14.2	16.4	17.3	18.4	19.9	20.0	19.9	19.8	18.4	18.6	18.2	16.9	15.0	13.5	11.3	10.8	
20	11.5	12.6	13.2	15.5	16.9	18.0	17.8	19.6	19.9	19.7	18.4	18.4	18.2	16.8	15.0	13.4	11.3	10.8	
30	11.3	12.6	13.0	13.2	13.3	15.9	15.6	15.0	15.0	15.1	18.4	15.7	16.5	14.6	15.0	13.4	11.3	10.8	
40	10.9	12.6	12.1	12.5	12.2	13.1	13.3	12.9	13.0	12.8	12.7	13.0	12.5	12.2	12.7	13.3	11.3	10.8	
50	10.9	12.4	11.4	11.7	11.6	12.0	11.8	11.9	11.9	11.8	12.0	11.8	11.6	11.3	11.7	12.8	11.2	10.8	
60	10.8	11.8	10.7	11.1	*	11.4	11.5	11.4	11.1	11.2	11.3	11.3	11.1	11.2	11.3	11.7	11.2	10.8	
70	10.7	10.9	10.6	10.8	*	*	11.2	11.0	10.9	10.9	11.0	10.9	10.9	10.9	11.0	11.2	11.2	10.8	
80	10.6	10.7	10.5	10.7	*	*	11.0	10.8	10.8	10.8	10.8	10.8	10.8	10.8	10.8	11.0	10.9	10.8	
90	10.5	10.6	10.5	10.6	*	*	10.7	10.7	10.7	10.7	10.7	10.7	10.7	10.7	10.8	10.8	10.8	10.8	
100	10.5	10.5	10.5	10.5	*	*	10.7	10.6	10.7	10.7	10.7	10.7	10.7	10.7	10.7	10.8	10.7	10.8	
110	10.5	10.5	10.4	10.4	*	*	10.6	10.6	10.6	10.6	10.7	10.7	10.7	10.7	10.7	10.8	10.7	10.8	
120	10.4	10.4	10.4	10.4	*	*	10.6	10.5	10.6	10.6	10.6	10.7	10.7	10.7	10.7	10.8	10.7	10.8	
130	10.4	10.4	10.4	10.3	*	*	10.5	10.5	10.6	10.6	10.6	10.6	10.7	10.7	10.7	10.8	10.7	10.8	
140	10.4	10.3	10.4	10.3	*	*	10.5	10.5	10.6	10.6	10.6	10.6	10.7	10.6	10.7	10.8	10.7	10.8	
150	10.3	10.3	10.3	10.3	*	*	10.5	10.5	10.6	10.6	10.6	10.6	10.6	10.6	10.7	10.8	10.7	10.8	
160	10.3	10.3	10.3	10.3	*	*	10.5	10.5	10.6	10.6	10.6	10.6	10.6	10.7	*	10.7	*	*	
Dissolved oxygen (g m ⁻³)																			
Date	Depth (m)																		
1	10.5	9.6	9.8	9.2	9.0	8.0	8.9	8.4	8.5	8.5	8.7	*	9.2	9.3	9.0	9.0	9.6	9.6	
10	10.6	9.4	10.3	9.4	10.6	10.4	10.2	8.5	8.4	8.0	*	*	9.3	9.1	8.8	9.1	9.6	9.5	
20	10.8	9.4	10.3	9.4	11.0	10.5	11.5	8.5	8.4	8.0	*	*	9.2	9.0	8.8	9.1	9.4	9.4	
30	10.7	9.4	10.2	9.7	12.5	11.2	11.4	9.8	9.6	9.7	*	*	9.3	9.2	8.7	9.0	9.4	9.3	
40	10.5	9.3	10.1	9.6	12.5	11.9	12.0	9.7	9.4	9.7	*	*	9.7	9.3	8.6	9.0	9.3	9.3	
50	10.4	9.3	9.9	9.5	12.6	11.9	12.0	9.4	9.4	9.5	*	*	9.5	9.2	8.5	8.8	9.2	9.3	
60	10.4	9.4	9.9	9.5	*	10.3	11.9	9.4	9.3	9.4	*	*	9.5	9.2	8.5	8.3	9.2	9.2	
70	10.4	*	9.8	9.5	*	*	11.7	9.3	9.3	9.3	*	*	9.5	9.2	8.4	8.3	9.2	9.2	
80	10.4	*	9.8	9.5	*	*	11.6	9.3	8.9	9.1	*	*	9.0	9.2	8.3	8.3	8.5	9.1	
90	10.4	*	9.7	9.5	*	*	11.4	9.2	8.8	9.0	*	*	8.7	9.0	8.1	7.9	8.3	9.0	
100	10.2	*	9.6	9.4	*	*	11.3	9.0	8.6	8.8	*	*	8.6	8.6	8.0	7.6	7.8	8.9	
110	10.3	*	9.7	9.3	*	*	11.1	9.0	8.3	8.7	*	*	8.3	8.2	8.0	7.5	7.4	8.8	
120	10.2	*	9.4	9.2	*	*	10.9	8.7	8.2	8.4	*	*	8.2	7.9	7.8	7.1	7.2	8.6	
130	9.8	*	9.2	9.0	*	*	10.6	8.5	7.9	8.3	*	*	8.0	7.7	7.6	7.0	7.2	8.4	
140	9.8	*	8.9	9.0	*	*	10.5	8.3	7.6	8.1	*	*	8.0	7.5	7.4	7.0	7.1	8.4	
150	9.9	*	8.6	8.7	*	*	10.4	8.3	7.3	7.9	*	*	7.5	7.3	7.0	7.0	7.1	8.3	
160	*	*	8.5	8.5	*	*	10.0	8.2	7.5	7.7	*	*	6.6	7.2	*	6.8	*	*	
Secchi depth																			
Date	Depth (m)																		
1	11.7	11.4	12.5	12.9	15.6	17.8	15.7	17.0	16.5	17.1	14.7	15.7	16.1	15.1	14.3	15.0	12.5	15.7	

* = missing or invalid data

11. Appendix 4. Nutrient data

Includes accumulated 10-m tube data since 1994. Blank cells represent missing data.

For completeness, 10-m tube data collected from the Kuratau Basin (site B) and Western Bays (site C) from January 2002 to December 2004 are included as separate sheets following the mid-lake data from site A for those years.

In the spring/autumn profile data, two different analytical methods are used to measure particulate nitrogen: (1) A wet digestion method involving high temperature refluxing in digestion mixture [persulphate / sulphuric acid / Selenium catalyst] for 3 hours followed by colorimetric determination of the nitrogen as the ammoniacal form, and (2) a CHN combustion method which converts all nitrogen compounds to N₂ gas in a furnace at ~1000°C to be measured in a thermal conductivity detector.

Particulate nitrogen analysed by the wet digestion method may not include some refractory nitrogen components which may be detected by the CHN combustion furnace method. Consequently the PN value from the CHN combustion furnace method should always be greater than or equal to the PN value obtained by the wet digestion method. Occasionally they are reported as less than the wet digestion method value in which case the wet digestion value should be regarded as correct. The cause of this difference is unknown but may be associated with the presence of low molecular weight organic nitrogen compounds lost during the drying step before combustion. The PN values for the time series data are all from wet digestion method analyses and hence are directly comparable with the profile data.

Low level NH₄-N results are likely to be subject to interference from low molecular weight DON and hence may not be biologically available for phytoplankton growth.

From February 2002, DRP, NO₃-N, and NH₄-N were measured on a Lachat Flow Injection Analysis (FIA) system but using essentially the same chemistry as previously used on the Technical Auto-Analyzer system. The reported detection limits for these nutrients remains the same at 0.5 mg m⁻³ for DRP and NO₃-N, and 1 mg m⁻³ for NH₄-N, however, the greater precision of the FIA system provides confidence in reporting results to a lower level as an indication of likely absolute values near zero. Such values are provided as an indication only and the true value should be expressed as less than the detection limit. TN and TP values are the sum of all other N and P components, excluding Urea-N which is part of the DON component. All analytical values 'on-the-day' are used wherever possible or <DL = DL/2 for summation in TN and TP.

The DON value for 5/08/2000 was corrected from 12 to 43.5 in March 2006. This was a transcription error from the original analytical result sheet.

Lake Taupo cumulative database of 10m tube sample data from October 1994 to September 2002.
Samples collected from central lake site.

Date Collected	Temp. °C	Secchi m	DRP mg m ⁻³	DOP mg m ⁻³	PP mg m ⁻³	TP mg m ⁻³	NH ₄ -N mg m ⁻³	NO ₃ -N mg m ⁻³	DON mg m ⁻³	PN mg m ⁻³	TN mg m ⁻³	Chlorophyll a mg m ⁻³	PC mg m ⁻³
27/10/1994	11.7	11.7	1.2	0.7	2.5	4.4	1.1	0.2	56	16.6	73.4	1.18	
24/11/1994	12.8	11.4	0.5	2.7	1.7	4.8	1.7	1.0	51	12.6	66.6	0.41	
1/12/1994	15.7	12.5	0.6	2.4	2.4	5.4	2.2	1.2	56	18.5	78.0	0.41	
13/12/1994	17.5	12.9	0.8	4.2	1.4	6.4	<0.2	0.9	51	9.3	60.8	0.24	
28/12/1994	17.8	15.6	0.5	1.7	1.9	4.1	1.1	1.3	51	16.7	69.6	0.41	
13/01/1995	18.6	17.8	0.1	2.2	1.6	3.8	<0.2	0.8	53	11.6	64.9	0.22	
24/01/1995	19.9	15.7	0.2	2.1	1.2	3.6	<0.2	0.8	57	13.3	71.0	0.25	
10/02/1995	20.6	17.0	0.3	2.2	1.2	3.6	<0.2	1.5	62	10.2	73.3	0.32	
27/02/1995	20.9	16.5	0.4	<0.5	2.5	2.8	1.9	1.5	71	16.5	90.8	0.35	
9/03/1995	20.9	17.1	0.4	1.7	1.7	3.7	0.2	0.7	55	11.6	67.5	0.28	
24/03/1995	18.5	14.7			1.9	1.9			51	13.0		0.37	
12/04/1995	18.4	15.7	0.2	1.4	1.7	3.2	0.3	0.7	51	17.3	68.6	0.57	
19/04/1995	18.4	16.1	2.8	1.5	1.4	5.7	4.0	0.9	71	14.1	90.0	0.92	
4/05/1995	17.0	15.1	1.4	1.1	3.0	5.5	1.4	2.3	76	24.7	104.4	0.96	
21/05/1995	15.0	14.3	1.2	0.9	2.2	4.3	0.4	2.1	50	29.2	81.8	0.98	
8/06/1995	13.4	15.0	0.7	0.4	1.8	2.9	0.2	0.6	54	15.4	70.2	1.05	
14/07/1995	11.3	12.5	0.3	2.5	1.7	4.5	0.3	2.1	53	15.0	70.8	1.32	
30/07/1995	10.8	15.7	0.7	0.7	1.9	3.3	<0.2	4.6	35	17.3	67.3	0.29	
13/08/1995			0.5	0.4	1.9	2.8	<0.2	4.6	39	14.2	57.4	0.99	
12/09/1995	10.7	11.9	0.5	2.2	2.2	4.9	1.0	40.9	177	19.1	237.6	1.37	
25/09/1995	11.5	11.9	<0.2	0.7	2.1	2.8	<0.2	0.1	84	17.6	101.6	0.64	
30/10/1995	13.0	13.0	<0.2	2.4	1.9	4.3	<0.2	<0.1	56	14.7	70.4	0.93	
29/10/1995	13.7	13.6	0.8	1.8	1.6	4.3	1.9	<0.1	59	12.6	73.3	0.29	
6/12/1995	17.7	15.1	2.2	0.4	1.2	3.9	1.7	<0.1	58	11.3	70.8	0.20	
12/01/1996	21.1	16.3	2.6	0.6	1.2	4.4	3.6	<0.1	64	10.1	77.8	0.24	
31/01/1996	21.7	15.7	1.3	1.6	1.3	4.2	4.2	<0.1	59	11.9	75.5	0.29	
13/02/1996	22.7	17.8	2.1	3.3	1.2	6.6	7.4	<0.1	81	10.4	98.9	0.15	
29/02/1996	20.5	18.4	1.9	2.2	1.2	5.3	4.2	<0.1	61	10.8	76.3	0.31	
20/03/1996	18.2	14.1	0.8	2.2	1.4	4.5	5.4	<0.1	75	14.2	95.5	0.56	
28/03/1996	16.8	14.6	1.3	1.8	1.4	4.5	4.7	<0.1	91	12.6	108.3	0.81	
18/04/1996	17.7	14.4	0.8	2.2	4.3	4.3	<0.1	0.1	61			0.41	
19/05/1996	14.8	14.7	0.8	3.0	6.8	6.8	<0.1	51				0.70	
14/06/1996	12.2	14.4	1.6	3.2	5.7	5.7	<0.1	79					
19/06/1996	12.2	14.4	1.0	1.2	4.0	4.0	<0.1	49				0.70	
9/07/1996	11.2	12.9	3.0		1.9	4.0	<0.1	47		11.3		0.80	
3/09/1996	10.5	13.1	0.7	2.0	3.0	5.7	2.5	0.2	52	17.0	71.7	1.03	
18/09/1996	10.7	14.2	1.3	1.2	2.4	4.9	2.1	0.2	42	14.0	58.3	0.75	
30/09/1996	12.5	11.2	0.9	1.6	1.8	4.3	3.3	0.2	58	11.0	72.5	0.28	
17/10/1996	13.3	12.6	0.6	2.1	2.6	5.3	2.9	2.5	64	19.0	88.4	0.59	
24/10/1996	12.6	13.4	0.7	2.3	2.2	5.2	2.4	0.4	64	15.0	81.0	0.47	
6/11/1996	13.5	14.9	0.8	2.6	2.2	5.6	3.2	1.0	64	17.0	85.2	0.45	
28/11/1996	13.6	14.1	0.4	1.9	2.4	4.7	2.6	0.4	49	20.0	72.0	0.90	
11/12/1996	14.8	14.7	1.3	1.7	1.3	4.3	6.2	0.8	98	17.0	122.0	0.33	
23/12/1996	16.3	17.7	1.3	1.1	1.1	5.2	5.2	0.3	46			0.23	
8/01/1997	17.9	15.1	0.7	1.7	1.9	4.3	2.0	0.6	50	15.0	67.6	0.33	
29/01/1997	17.8	15.2	0.7	1.8	1.6	4.1	1.9	0.4	54	17.0	73.3	0.21	
26/03/1997	17.7	15.3	0.6	1.7	2.1	4.4	2.4	1.8	57	19.0	80.2	0.46	
2/04/1997	17.3	16.0	0.9	1.3	1.6	3.8	1.7	0.3	51	16.0	69.0	0.69	
15/04/1997	16.7	17.7	0.7	2.5	1.5	4.7	3.2	0.8	57	12.0	73.0	0.40	
1/05/1997	15.6	16.0	0.6				1.7	0.1	57			0.58	
21/05/1997	14.2	14.6	1.0	8.8	1.7	11.5	4.5	0.3	92	15.0	111.8	1.05	
29/05/1997	14.3	14.5	1.1	1.1			3.3	1.0	51			0.89	
7/07/1997	11.6	12.5	0.6	0.9			4.7	2.1	53			0.90	
29/07/1997	10.9	13.5	0.5	1.6			1.5	2.1	39			1.13	
2/09/1997	10.6	14.1	1.4	1.1	1.7	4.2	7.0	1.8	47.0	13.1	68.9	1.08	
16/09/1997	10.6	12.0	0.5	1.1			1.3	0.7	35			2.16	
11/10/1997	11.6	13.7	2.4	2.8	1.7	6.9	4.8	0.9	63.3	16.2	85.2	1.14	
29/10/1997	12.1	12.5	0.7	1.9	1.9	4.5	1.3	7.3	32	19.0	59.6	1.49	
2/12/1997	14.5	14.5	0.2	2.3			3.2	1.7	55			0.83	
21/01/1998	17.7	14.7	1.4	1.1	1.2	3.7	2.8	1.5	46.0	10.0	60.3	0.48	
4/03/1998	20.0	11.5	1.5	1.7	2.6	5.8	6.4	4.0	76.0	19.8	108.2	0.58	
24/03/1998	19.3	13.5	1.0	1.4	1.2	3.2	2.1	1.1	40.3	16.4	69.4	1.25	
7/04/1998	17.7	13.5	0.9	1.4	1.8	4.1	1.9	2.5	52.0	13.7	70.1	1.04	
29/05/1998	14.2	15.5	1.0	1.9	1.9	4.8	5.0	3.5	51.0	16.4	75.9	1.36	
28/07/1998	11.4	10.0	1.2	1.0	3.1	5.3	2.1	1.4	45.0	26.0	74.5	1.19	
29/08/1998	12.9	10.5	1.5	1.0			2.2	0.5	41.0	20.3	64.0	0.70	
8/10/1998	12.9	10.4	1.5	<1			2.4	2.4	46.0	37.6	88.4	1.00	
1/11/1998	13.6	13.5	0.6	1.3	2.6	4.5	2.4	<0.5	36.0	15.2	53.6	0.60	
26/11/1998	18.4	15.0	1.3	2.6	2.1	6.0	9.6	1.6	42.0	16.4	69.6	0.91	
22/12/1998	18.5	14.5	1.1	0.4	2.5	4.0	2.7	0.4	61.0	17.7	61.5	0.25	
12/02/1999	20.1	12.5	0.8	2.8	1.7	5.3	4.0	1.6	39.0	11.4	56.0	0.60	
3/03/1999	20.9	14.3	0.6	2.9	2.0	5.5	1.6	1.1	40.0	16.8	59.5	0.82	
14/04/1999	18.3	13.0	0.6	<1	1.8	2.4	3.0	<0.5	41.0	19.0	61.6	1.20	
30/04/1999	16.4	12.2	1.1	1.5	1.7	4.3	2.1	<0.5	38.0	19.6	60.2	0.94	
19/05/1999	14.4	15.0	0.8	<1	1.5	5.1	1	<1	46.0	16.2	63.7	1.2	
8/06/1999	14.1	14.5	1.0	<1	3.0	4.9	1	<1	48.0	13.4	69.4	1.1	
18/06/1999	13.0	15.0	0.8	<1	2.0	5.0	2	5	42.0	16.5	65.5	1.7	
20/07/1999	12.0	16.0	0.5	<1	3.1	3.6	1	<1	45.0	28.3	74.3	1.0	
9/08/1999	11.5	14.5	1.3	1.7	2.3	5.3	4	8	45.0	18.4	75.4	1.7	
6/09/1999	11.1	10.0	<0.5	2.5	2.1	5.1	2	1	60	16.2	79.2	0.5	
29/09/1999	11.5	10.0	0.7	1	4	5.7	3	1	54	32.6	90.6	1.8	
18/10/1999	12.7	14.9	0.5	3	2.5	6	<1	<1	41	19.4	64.4	0.4	
20/10/1999	16.4	18.0	0.7	2.3	5	8	5	2	39	8	38	83	1.6
18/01/2000	17.6	19.1	0.9	2	2	4	5	2	52	18.5	70.5	0.6	
12/04/2000	17.3	15.0	0.8	3	2	5	1	1	61	22	83	0.8	
4/05/2000	15.8	14.0	1	3	2	5	1	2	48	17	68	1.3	
25/05/2000	14.3	14.0	1	4	1	6	2	<1	55	17	65	0.6	
20/06/2000	13.0	14.0	<1	4	2	4.0	2	52	16	72.0	1.7	194	
11/07/2000	11.9	11.0	<1	4	3	7.0	3	2	46	22.5	73.5	1.65	198
5/08/2000	11.3	12.0	2	2	3	7.0	1	3.5	43.5	19.5	66.0	2.5	154
22/08/2000	11.2	15.0	2	2	2	6.0	2	4	49	16.5	71.5	1.65	159
12/09/2000	11.5	12.0	2	5	3.5	10.5	2	<1	63	23.5	88.5	1	148
29/09/2000	11.5	13.0	2	4	2	8.0	1	1	54	21	77.0	1.15	237
25/10/2000	13.1	11.0	0.8	4.2	3	8.0	1.0	0.4	41.6	25	68.0	1.1	237
14/11/2000	13.1	12.0	<1	4	2	6.0	1	<1	41	14.5	56.5	0.9	171
7/12/2000	15.1	17.0	2	2	1.55	5.6	7	4	63	14.75	88.8	0.6	166
4/01/2001	18.0	14.5	<1	2	1.5	3.5	1	<1	40	11	52.0	0.5	127
16/01/2001	19.0	18.0	0.5	2.5	1.5	4.5	1	0.5	53.5	13	68.0	0.5	119
21/02/2001	20.5	17.0	0.9	1.1	1.5	3.5	<1	0.5	48.5	12.5	59.5	0.6	191
2/03/2001	20.												

**Lake Taupo cumulative database of 10 m tube sample data from June 2000 on
Samples collected from Mid Lake (Site A)**

Date Collected	Temp. °C	Secchi (m)	DRP (mg m ⁻³)	DOP (mg m ⁻³)	PP (mg m ⁻³)	TP (mg m ⁻³)	NH ₄ -N (mg m ⁻³)	NO ₃ -N (mg m ⁻³)	DON (mg m ⁻³)	PN (mg m ⁻³)	TN (mg m ⁻³)	Chlorophyll a (mg m ⁻³)	PC (mg m ⁻³)
20/06/2000	12.3	14.0	<1	4	0	4.0	2	2	52	16	72.0	1.7	193.5
11/07/2000	11.9	11.0	<1	4	3	7.0	3	2	46	22.5	73.5	1.65	198
5/08/2000	11.3	12.0	2	2	3	7.0	1	3.5	43.5	19.5	36.0	2.5	153.5
22/08/2000	11.2	15.0	2	2	2	6.0	2	4	49	16.5	71.5	1.65	158.5
12/09/2000	11.5	12.0	2	5	3.5	10.5	2	<1	63	23.5	88.5	1	148
29/09/2000	11.5	13.0	2	4	2	8.0	1	1	54	21	77.0	1.15	236.5
26/10/2000	13.1	11.0	0.8	4.2	3	8.0	1.0	0.4	41.6	25	68.0	1.3	237
14/11/2000	13.1	12.0	<1	4	2	6.0	1	<1	41	14.5	56.5	0.9	171
7/12/2000	15.1	17.0	2	2	1.55	5.6	7	4	63	14.75	88.8	0.6	165.5
4/01/2001	18.0	14.5	<1	2	1.5	3.5	1	<1	40	11	52.0	0.5	127
16/01/2001	19.0	18.0	0.5	2.5	1.5	4.5	1	0.5	53.5	13	68.0	0.5	118.5
21/02/2001	20.5	17.0	0.9	1.1	1.5	3.5	<1	0.5	46.5	12.5	59.5	0.6	190.5
2/03/2001	20.7	14.5	<1	2	2	4.0	2	<1	53	18	73.0	0.9	193
20/03/2001	19.0	17.0	<1	3	1.4	4.4	<1	<1	46	14.25	60.3	0.9	154
9/04/2001	17.0	13.5	0.8	1.2	2.15	4.2	<1	3	62	19.45	84.5	1.05	199
8/05/2001	15.8	17.0	0.8	3.2	1.7	5.7	2	<1	61	23	86.0	1.1	248
30/05/2001	13.6	14.5	1.5	1.5	2	5.0	1	<1	57	12	70.0	1.4	203
2/07/2001	12.1	12.0	<1	3	2.3	5.3	1	1	50	18.3	70.3	1.5	155.5
25/07/2001	11.3	14.5	2	1	2.65	5.7	<1	6	45	19.75	70.8	2.2	188
13/08/2001	11.2	13.5	1	1	2.85	4.9	1	<1	41	21.9	63.9	2.1	225
3/09/2001	10.2	17.5	1	1	2.6	4.6	<1	<1	37	19	56.0	1.7	203
25/09/2001	11.6	11.0	1.1	0.9	2.8	4.8	1	<1	56	24.5	81.5	0.9	283
25/10/2001	13.0	14.5	0.8	1.2	2.4	4.4	<1	<1	46	19.4	65.4	1.1	246
12/11/2001	14.3	15.5	1.0	2	2.55	5.6	0.9	0.1	48	17.6	66.6	0.5	227.5
10/12/2001	15.5	16.0	1.0	2	2.55	5.6	0.9	0.1	48	17.6	66.6	0.5	227.5
20/12/2001	17.0	13.0	0.6	2.7	2.05	5.4	1.3	0.1	48	14.85	64.3	0.5	203.5
8/01/2002	18.3	13.0	0.3	2	2.2	4.5	0	<1	50	17.15	67.2	0.8	246.5
22/01/2002	19.3	15.0	0	7	2.25	9.3	0	<1	40	20.35	60.4	0.9	188
6/03/2002	18.7	14.5	1.2	0.8	2.05	4.1	0.0	0.4	74	17.7	92.1	1.7	226.5
4/04/2002	17.4	19.0	0.6	3	1.45	5.1	1.1	0.1	46	10.7	57.9	0.8	138
17/04/2002	17.4	22.0	0.0	3	1.65	4.7	0.5	0.5	47	13.1	61.1	0.9	157
5/05/2002	15.5	16.4	0.7	1			3.1	0.7	48			1	
19/06/2002	12.6	17.0	1.2	1.8	1.9	4.9	0.5	1.4	43.6	15.8	61.3	1.1	165.0
1/07/2002	12.1	16.0	1.2	1.8	1.8	4.8	0.9	1.7	37.3	14.3	54.2	1.5	214
17/07/2002	11.4	15.5	2.3	2.7	1.7	6.7	2.3	7.8	41.9	14.6	66.6	1.5	153.5
31/07/2002	11.2	12.0	2.3	2.7	2.5	7.5	0.9	5.9	177.2	16.7	200.7	2.2	193

Date Collected	Temp. °C	Secchi (m)	DRP (mg m ⁻³)	DOP (mg m ⁻³)	PP (mg m ⁻³)	TP (mg m ⁻³)	NH ₄ -N (mg m ⁻³)	NO ₃ -N (mg m ⁻³)	DON (mg m ⁻³)	PN (mg m ⁻³)	TN (mg m ⁻³)	Chlorophyll a (mg m ⁻³)	PC (mg m ⁻³)
29/08/2002	11.1	9.5	1.6	1.4	3.1	6.1	0.0	0	90	23	113.0	2.6	196
18/09/2002	11.4	12	1.3	1.7	2	5.0	0	0.3	47	13	60.3	0.9	196.5
9/10/2002	11.6	15.5	1.3	2.7	2.1	6.1	2.9	0	29	12	43.9	0.6	159.5
13/11/2002	12.6	18	0.9	1.1	2.4	4.4	1.7	1.3	41	14.0	58.0	0.7	158.5
28/11/2002	14.1	12.7	0.7	2.3	2.7	5.7	0.1	0.0	43.0	22.0	65.1	0.7	201.5
18/12/2002	15.0	13.5	0.6	1.8	2.5	4.9	0.2	0.1	47.0	14.0	61.3	0.4	123.0
30/01/2003	17.8	18	0.4	3.6	1.9	5.9	0.4	0.1	56.5	12.0	69.0	0.7	166.0
13/02/2003	19.3	19	0.5	2.5	1.6	4.6	0.0	0.4	43.6	8.0	52.0	0.5	146.0
17/03/2003	18.5	15	0.8	2.2	1.7	4.7	<1	0.4	45.6	13.0	59.0	1.0	212
3/04/2003	19.3	13.5	1.1	2.9	1.8	5.8	<1	0.5	78.5	17.7	96.7	1.1	234.5
28/04/2003	16.7	14	0.3	3.7	1.9	5.9	<1	0.3	73.7	15.6	89.6	1.5	208.5
15/05/2003	15.6	16.5	0.1	3.9	2.2	6.2	0.3	0.3	50.4	19.5	70.5	1.4	228.5
12/06/2003	13.5	11	1.3	2.7	2.2	6.2	0.3	0.4	40.3	13.7	54.7	1.3	111.0
14/07/2003	11.8	14.5	2.2	1.8	2.6	6.6	1.1	1.1	34.8	18.0	55.0	1.8	102.0
31/07/2003	11.4	14	2.4	1.6	2.4	6.4	1.3	3.7	46.0	16.7	67.7	2.0	89.5
14/08/2003	11.2	13.5	1.8	2.2	3.1	7.1	0.7	0.2	46.1	21.1	68.1	2.9	91.5
26/08/2003	11.2	13	3.0	1.0	4.0	8.0	1.0	0.2	42.8	21.7	65.7	2.9	135.5
8/09/2003	11.1	12.5	2.6	0.4	3.3	6.3	0.4	0.2	45.2	17.4	63.2	1.5	199.5
7/10/2003	11.4	13.0	2.6	1.6	2.8	7.0	0.3	0.2	54.5	17.8	72.8	1.2	157.5
21/10/2003	13.0	17.0	2.0	1.0	2.3	5.3	0.1	1.3	39.6	14.0	55.0	0.6	146.0
19/11/2003	13.9	16.0	1.7	1.3	2.8	5.8	0.3	0.1	45.6	20.0	66.0	0.8	148.0
4/12/2003	16.0	18.5	1.6	2.4	1.8	5.8	0.2	0.1	53.7	13.4	67.4	0.3	106.5
18/12/2003	17.7	17.5	1.1	3.9	3.1	8.1	0.0	0.0	49.0	20.6	69.6	0.4	151.5
13/01/2004	20.3	19.0	0.5	3.5	1.6	5.6	0.0	0.3	52.0	12.5	64.8	0.4	127.0
26/02/2004	17.2	17.0	1.4	1.7	1.6	4.7	0.0	0.1	40.9	15.5	56.5	0.7	139.0
8/03/2004	17.5	15.0	0.6	2.4	2.0	5.0	0.4	0.1	42.5	12.4	55.4	0.6	177.5
31/03/2004	16.4	16.0	0.8	5.2	1.9	7.9	0.2	0.2	78.6	11.5	90.5	1.2	159.5
14/04/2004	15.3	15.0	1.0	3.0	2.4	6.4	0.1	0.3	46.6	16.0	63.0	1.3	187.5
10/05/2004	14.7	18.0	0.6	4.4	1.8	6.8	0.1	0.2	64.7	16.8	81.8	1.2	215.0
10/06/2004	13.6	13.5	0.9	2.1	2.1	5.1	0.0	0.6	63.4	17.8	81.8	1.0	371.5
13/07/2004	11.6	12.0	1.8	3.2	2.4	7.4	0.3	4.5	37.2	19.4	61.4	1.6	193.3
26/07/2004	11.3	11.0	1.6	2.4	3.0	7.0	0.5	2.4	38.1	23.4	64.4	2.7	196.0
24/08/2004	10.9	12.5	0.8	3.2	2.7	6.7	0.0	0.5	58.5	18.6	77.6	2.3	181.5
7/09/2004	10.7	12.0	0.6	2.4	2.7	5.7	0.0	0.1	40.9	15.5	56.5	1.4	162.5
21/10/2004	11.6	15.0	1.0	3.0	2.0	6.0	0.0	0.0	33.0	13.0	46.0	0.7	185.0
2/11/2004	12.9	16.0	1.0	3.0	1.9	5.9	2.2	0.8	62.0	14.7	79.7	0.6	147.0
22/11/2004	15.1	16.0	0.7	2.3	2.1	5.1	0.1	0.2	49.7	16.4	66.4	0.4	195.0
15/12/2004	14.1	19.5	0.7	3.3	2.2	6.2	0.0	0.2	45.8	14.7	60.7	0.2	127.5

Date Collected	Temp. °C	Secchi (m)	DRP (mg m ⁻³)	DOP (mg m ⁻³)	PP (mg m ⁻³)	TP (mg m ⁻³)	NH ₄ -N (mg m ⁻³)	NO ₃ -N (mg m ⁻³)	DON (mg m ⁻³)	PN (mg m ⁻³)	TN (mg m ⁻³)	Chlorophyll a (mg m ⁻³)	PC (mg m ⁻³)
11/01/2005	16.0	20	0.4	2.6	1.4	4.4	0	0.1	42.9	12.5	55.5	0.2	137
25/01/2005	19.3	19.5	0.5	2.5	1.5	4.5	0.0	0.1	54.9	14.5	69.5	0.3	131.0
9/02/2005	20.7	18	2.2	0.8	1.4	4.4	0.5	0.0	38.5	12.7	51.7	0.2	136.0
22/02/2005	20.0	21.5	0.8	5.2	1.7	7.7	1.5	0.5	58.0	15.8	75.8	0.2	159.0
10/03/2005	19.3	18.5	0.2	2.8	1.4	4.4	1.8	0.2	34.0	14.5	50.5	0.4	158.0
21/03/2005	19.3	20	0.8	3.2	1.2	5.2	0.5	0.1	43.4	10.0	54.0	0.5	140.0
14/04/2005	17.9	17.2	0.9	2.1	1.6	4.6	0.8	0.2	54.0	14.0	69.0	0.7	177.0
18/05/2005	14.3	16	0.8	2.2	1.9	4.9	0.0	0.5	46.5	13.9	60.9	1.3	177.5
9/06/2005	13.0	14.1	0.6	3.4	2.2	6.2	0.1	1.6	41.3	17.4	60.4	1.3	140.5
20/06/2005	12.7	13.8	0.6	3.4	2.0	6.0	0.1	1.0	39.9	18.5	59.5	1.2	158.5
20/07/2005	11.5	13	3.9	6.1	2.5	12.5	0.8	0.8	97.4	19.1	118.1	2.1	169
3/08/2005	11.1	14	2.6	1.4	2.3	6.3	2.0	1.4	61.6	20.3	85.3	1.2	116
17/08/2005	11.2	13	3.1	1	3.2	7.3	0.3	2.1	49.6	26.4	78.4	1.7	172.5
31/08/2005	11.7	13	2	1	2.4	5.4	<1	1	69	22.2	92.2	1.3	330
14/09/2005	12.4	13	1	1	2.5	4.5	<1	<1	60	19.9	79.9	0.8	243
29/09/2005	11.9	14	1	1	2.4	4.4	<1	<1	67	18	85	0.8	253.5
12/10/2005	11.9	14	0.7	2.3	2.7	5.7	0.0	0.7	56.3	23.2	80.2	0.8	301
25/10/2005	13.4	15	0.8	4.2	1.8	6.8	0.6	0.7	54.7	16.8	72.8	0.6	193
10/11/2005	16.3	17.5	1.2	3.8	1.5	6.5	0.2	0.1	52.7	15.6	68.6	0.5	160
1/12/2005	15.1	19.3	0.6	2.4	1.4	4.4	0	0.3	39.7	16.1	56.1	0.4	141
10/01/2006	17.4	19	1	2	1.4	4.4	0.1	1	49.9	17.8	68.8	0.5	167
2/02/2006	20.2	15.5	1.1	8.9	1.5	11.5	0.0	0.0	54	18	72	1.1	193.5
1/03/2006	19.5	15.3	0.3	7.7	1.6	9.6	0.0	1.3	38.7	18.5	58.5	0.9	160.5
12/04/2006	16.7	15.8	0.6	2.4	1.6	4.6	0.0	0.0	43	20.4	63.4	1.0	230
27/04/2006	16.3	17	1.0	2	1.6	4.6	0.1	0.0	52.9	17.6	70.6	1.1	196.5
9/05/2006	15.7	17.5	0.7	2.3	1.6	4.6	0.7	0.1	46.2	17.2	64.2	0.9	233
30/05/2006	14.2	18.2	0.8	2.2	1.6	4.6	1.8	0.9	61.3	16.6	80.6	1.3	233
27/06/2006	11.9	15.2	0.8	3.2	1.9	5.9	0.8	1.3	61.9	23.2	87.2	2	243
11/07/2006	11.5	13.5	1.4	5.6	2.3	9.3	0.2	1.7	93.1	21	116	1.7	209
25/07/2006	11.1	12	1.0	0	2.1	3.1	0.9	7.4	48.7	17.6	74.6	2.8	192
4/09/2006	11.1	11	1.8	1.2	2.5	5.5	0.0	0.6	31.4	24.5	56.5	2.8	218
26/09/2006	11.9	17.5	1.0	0.8	2.3	4.1	0.0	0.1	39.9	18.6	58.6	0.8	347
18/10/2006	11.7	13	0.8	1.2	2.5	4.5	0.0	0.3	35.7	18.2	54.2	0.9	227.5
1/11/2006	12.4	14.5	0.3	2.7	2.4	5.4	0.0	0.0	41	19.4	60.4	0.8	203
5/12/2006	14.7	16	0.0	3	2	5	0.0	0.0	52	20.2	72.2	0.7	186
19/12/2006	15.6	15.5	0.2	1.8	1.8	3.8	1.0	0.1	48.9	15.4	65.4	0.7	150
9/01/2007	16.5	13.5	0.5	1.5	1.6	3.6	0.9	0.4	60.7	15	77	0.3	207
25/01/2007	18.5	14.5	0.6	0	1.6	2.2	1.5	0.5	59	18.6	79.6	0.3	212
8/02/2007	19.3	16	0.6	0	1.6	2.2	0.4	0.5	58.1	16.8	75.8	0.4	156
21/02/2007	19.6	18.2	0.4	0	1.8	2.2	0.8	0.5	68.3	24.4	94	0.3	182
21/03/2007	18.6	16.5	1.1	0	2.1	3.2	1.8	1.3	47.2	22.1	72.4	0.8	175
3/04/2007	18.0	19	0.9	6.1	1.8	8.8	0.6	0.3	66.9	23.8	91.6	0.7	
19/04/2007	16.5	16	0.9	3.1	2.7	6.7	2.4	1.0	69.6	29.2	102.2	0.6	193

Date Collected	Temp. °C	Secchi (m)	DRP (mg m ⁻³)	DOP (mg m ⁻³)	PP (mg m ⁻³)	TP (mg m ⁻³)	NH ₄ -N (mg m ⁻³)	NO ₃ -N (mg m ⁻³)	DON (mg m ⁻³)	PN (mg m ⁻³)	TN (mg m ⁻³)	Chlorophyll a (mg m ⁻³)	PC (mg m ⁻³)
8/05/2007	19.3	16	1.1	3.9	1.2	6.2	0.3	0.4	63.3	17.8	81.8	1.2	169
22/05/2007	15.2	18.5	0.7	2.3	1.3	4.3	2.0	0.5	53.5	15.4	71.4	0.8	201
14/06/2007	13.6	18	0.6	2.4	1.8	4.8	4.0	0.8	65.2	21.8	91.8	1	159
27/06/2007	12.4	18.5	0.8	0.2	3.6	4.6	2.1	1.4	45.5	25.8	74.8	1.2	162
18/07/2007	11.4	14.5	1.1	1.9	2.9	5.9	1.3	1.0	44.7	37.8	84.8	1.7	
8/08/2007	11.1	14	1.1	1.9	2.8	5.8	2.0	2.2	46.8	28.2	79.2	1.3	229
23/08/2007	11.0	13	0.8	2.2	2.5	5.5	0.4	0.4	39.2	30.3	70.3	2.2	202

**Lake Taupo cumulative database of 10 m tube sample data
Samples collected from Kuratau Basin (Site B)**

Date Collected	Temp. °C	Secchi m	DRP mg m ⁻³	DOP mg m ⁻³	PP mg m ⁻³	TP mg m ⁻³	NH ₄ -N mg m ⁻³	NO ₃ -N mg m ⁻³	DON mg m ⁻³	PN mg m ⁻³	TN mg m ⁻³	Chlorophyll a mg m ⁻³	PC mg m ⁻³
8/01/2002	18.1	13.5	0.4	2	2.2	4.6	0.4	1.3	48	16.7	66.4	0.9	233
22/01/2002	18.8	12	0.9	2	2.6	5.5	0.9	0.3	41	19.9	62.1	0.9	221
6/03/2002	18.6	14.5	0.3	2	2.3	4.6	1.4	0.5	73	18.3	93.2	0.9	207
4/04/2002	17.4	19.5	0.6	2	1.5	4.1	0.4	0.1	40	11.2	51.7	0.9	162
17/04/2002	16.8	19	0.0	3	1.6	4.6	0.5	0.1	45	12.3	57.9	0.9	143
5/05/2002	15.1	13.2	0.3	1.1			1.6	0.4	40			0.9	
19/06/2002	12.5	15	1.0	1	2.2	4.2	0.4	0.8	48.2	17.4	66.8	1.5	182
1/07/2002	12.1	16	1.5	1.5	1.8	4.8	0.8	1.7	41.5	14.2	58.2	1.6	146
17/07/2002	11.5	12.5	1.8	2.2	2	6	0.8	5.1	51.1	16.1	73.1	1.5	156.5
31/07/2002	11.3	10.5	2.0	3	2.5	7.5	1.5	2.2	81.5	18.5	103.7	2.6	194.5
29/08/2002	11.0	8	1.2	4.8	3.3	9.3	0	0.2	184.0	22.9	207.1	2.3	221
18/09/2002	11.1	11	1.9	2.1	2.1	6.1	0.4	0.6	43.4	14	58.4	1.1	149
9/10/2002	11.7	16	1.4	1.6	1.7	4.7	4.4	0.2	19.6	11.7	35.9	0.5	149
13/11/2002	12.0	14	1	3	2.5	6.5	0.3	0	35	15.2	50.5	1.8	478
28/11/2002	13.8	12.7	0.9	2.9	2	5.8	0	0	40	16.7	56.7	0.7	203.5
18/12/2002	15.2	14	0.6	1.4	2.1	4.1	0	0.1	36	11.2	47.3	0.4	143
30/01/2003	16.8	18	0.5	2.5	1.7	4.7	<1	0.8	43	12.1	55.9	0.6	148.5
13/02/2003	18.8	11	0.7	1.3	1.6	3.6	0.4	0.2	45	9.3	54.9	0.7	131
17/03/2003	18.7	14	0.5	3.5	2	6	<1	0.7	49	16.3	66.0	1.0	208
3/04/2003	19.0	12.8	0.6	3.4	2.1	6.1	<1	0.1	50	19.6	69.7	1.1	239.5
28/04/2003	16.7	13.5	0.6	3.4	1.6	5.6	<1	0.2	57	13.1	70.3	1.4	218.5
15/05/2003	15.7	15.5	0.4	3.6	1.8	5.8	<1	0.2	63	13.5	76.7	1.7	229.5
12/06/2003	12.5	12	1.7	1.3	2.2	5.2	0.1	2.8	39.1	13.9	55.9	1.3	
14/07/2003	11.8	12	1.7	2.3	2.2	6.2	0.9	1.9	39.4	15.9	58.1	1.7	96.5
31/07/2003	11.3	13	2.1	1.9	2.7	6.7	1.2	2.0	43.8	18.0	65.0	2.1	108.5
14/08/2003	11.4	13	1.8	2.2	3.3	7.3	0.3	0.3	33	22.3	55.9	2.5	112.0
26/08/2003	11.3	11.5	3.1	0.9	4.0	8	0.4	0.1	37	22.4	59.9	3.1	148.0
8/09/2003	11.1	11	2.5	1.5	3.3	7.3	0.4	0.1	36	23.5	60.0	1.4	196.5
7/10/2003	11.7	9.5	2.3	1.7	3.0	7.0	0.0	0.1	49.9	20.5	70.5	1.2	185.5
21/10/2003	13.2	15.0	2.2	0.8	2.7	5.7	0.3	0.2	38.5	14.9	53.9	0.8	155.5
19/11/2003	13.8	17.0	1.6	2.4	2.4	6.4	0.0	0.1	51.0	14.6	65.7	0.6	139.5
4/12/2003	15.6	17.0	1.8	2.2	1.8	5.8	0.2	0.1	44.7	13.5	58.5	0.4	126.5
18/12/2003	17.0	15.0	0.5	3.5	1.9	5.9	0.0	0.2	56.0	12.4	68.6	0.5	145.5
13/01/2004	20.3	16.0	0.4	4.6	1.8	6.8	0.0	0.2	54.0	13.7	67.9	0.5	125.0

Date Collected	Temp. °C	Secchi (m)	DRP (mg m ⁻³)	DOP (mg m ⁻³)	PP (mg m ⁻³)	TP (mg m ⁻³)	NH ₄ -N (mg m ⁻³)	NO ₃ -N (mg m ⁻³)	DON (mg m ⁻³)	PN (mg m ⁻³)	TN (mg m ⁻³)	Chlorophyll a (mg m ⁻³)	PC (mg m ⁻³)
26/02/2004	16.8	13.5	1.1	1.9	1.8	4.8	0.6	0.1	42.3	15.8	58.8	0.8	157.0
8/03/2004	17.6	5.0	0.8	2.2	3.1	6.1	1.0	0.3	41.7	17.5	60.5	0.9	172.0
31/03/2004	15.9	11.0	0.8	3.2	1.8	5.8	0.7	0.2	45.1	9.9	55.9	1.4	124.5
14/04/2004	15.0	14.0	0.9	4.1	2.2	7.2	0.6	0.3	52.1	14.9	67.9	1.3	171.5
10/05/2004	14.7	15.5	0.8	2.2	1.7	4.7	0.0	0.2	59.8	15.9	75.9	1.3	179.0
10/06/2004	12.9	12.0	1.4	2.6	2.1	6.1	0.0	0.2	108.8	18.6	127.6	1.2	183.0
13/07/2004	11.4	11.0	2.1	2.9	2.5	7.5	0.0	8.4	40.6	19.3	68.3	1.4	154.0
26/07/2004	11.2	10.0	1.3	2.7	3.2	7.2	0.2	5.8	38.0	25.0	69.0	2.7	204.0
24/08/2004	10.9	10.0	0.7	3.3	3.1	7.1	0.0	0.0	47.0	20.9	67.9	2.5	158.0
7/09/2004	10.8	11.0	0.7	2.3	2.6	5.6	0.0	0.2	44.8	17.1	62.1	1.5	172.5
21/10/2004	11.7	11.0	1.2	1.8	2.1	5.1	0.2	0.0	30.8	16.1	47.1	0.8	172.5
2/11/2004	13.1	15.0	1.0	2.0	1.7	4.7	0.2	0.1	42.7	11.0	54.0	0.5	152.0
22/11/2004	14.9	15.0	0.6	3.4	1.6	5.6	0.6	0.0	33.4	9.5	43.5	0.5	141.5
15/12/2004	13.2	17.2	0.6	3.4	1.6	5.6	0.4	0.1	39.5	12.6	52.6	0.2	120.0

Lake Taupo cumulative database of 10 m tube sample data

Samples collected from Western Bays (site C)

Date Collected	Temp. °C	Secchi m	DRP mg m ⁻³	DOP mg m ⁻³	PP mg m ⁻³	TP mg m ⁻³	NH ₄ -N mg m ⁻³	NO ₃ -N mg m ⁻³	DON mg m ⁻³	PN mg m ⁻³	TN mg m ⁻³	Chlorophyll a mg m ⁻³	PC mg m ⁻³
8/01/2002	18.72	14.5	0.9	4	2.3	7.2	0.9	0.6	88	16.1	105.6	0.8	213
22/01/2002	18.82	15.5	0.7	2	2.2	4.9	0.7	0.0	37	16.8	54.5	0.8	221
6/03/2002	18.68	16	0.2	2	2	4.2	0	0.1	45	16	61.1	0.7	177
4/04/2002	17.47	19	0.6	2	1.4	4	0.0	0.0	38	8.8	46.8	0.9	152
17/04/2002	16.88	18.5	0	3	1.6	4.6	0.7	0.2	44	11.8	56.7	0.9	167
5/05/2002	15.6	15.6	0.4	1			2	0.2	45			1.1	
19/06/2002	12.58	16	0.9	2.1	2	5	0.3	1.2	38.8	15.9	56.2	0.9	161
1/07/2002	12.22	14	1.3	1.7	1.9	4.9	0.3	0.4	45	15	60.7	1.4	148
17/07/2002	11.52	12.5	1.9	2.1	2	6	0.9	4.9	46.1	16.3	68.2	1.5	160
31/07/2002	11.6	12	2.3	2.7	2.3	7.3	1.7	4.0	113.3	16.7	135.7	2.3	150
29/08/2002	11.4	8	1	3	3.2	7.2	0	0	177	22.3	199.3	2.4	217
18/09/2002	11.24	12	2.8	2.2	2	7	1.7	0.4	45.3	11.7	59.1	0.9	152
9/10/2002	12.10	19	1.5	1.5	1.7	4.7	0.3	0.2	28	10.2	38.7	0.4	116
13/11/2002	12.60	16	1.1	2.9	2	6	0.1	0	51	12.2	63.3	0.6	141
28/11/2002	13.90	15.5	0.9	2.1	2	5	0.4	0.4	40	14.4	55.2	0.8	125.5
18/12/2002	15.10	13.5	0.8	2.2	1.9	4.9	0	0.3	45	10.2	55.5	0.5	136.5
30/01/2003	17.60	18.5	0.5	2.5	1.5	4.5	<1	0.1	46	8.6	54.7	0.4	141.5
13/02/2003	19.50	19	0.6	1.4	1.6	3.6	0	0.1	42	8.4	50.5	0.5	104
17/03/2003	18.70	15	0.5	2.5	1.7	4.7	<1	0.4	46	14.6	61.0	1.1	215
3/04/2003	18.80	14.5	0.5	2.5	1.6	4.6	<1	0.4	49	16.5	65.9	1.2	204
28/04/2003	17.00	14.5	0.4	2.6	1.4	4.4	<1	0.4	54	12.2	66.6	1.5	191
15/05/2003	15.60	17	0.1	3.9	2.2	6.2	<1	0.1	56	18	74.1	1.3	197
12/06/2003	13.70	11	1.3	1.7	2	5	0.1	0.9	40	13.8	54.8	1.3	
14/07/2003	11.80	14	1.9	2.1	2	6	1	4.7	39.3	14.9	59.9	1.5	85.0
31/07/2003	11.40	12	3.1	5.9	2.8	11	0.1	4.0	55	20.3	79.4	2.3	101.5
14/08/2003	11.50	14.5	2.4	2.6	2.9	7.9	1.1	3.8	46.1	19.5	70.5	2.8	92.5
26/08/2003	11.30	13	2.8	2.2	3.8	8.8	0.5	0.2	39	25.0	64.7	3.2	174.5
8/09/2003	11.30	12	2.6	0.4	3	6	0.1	0.1	40	19.5	59.7	1.3	233.0
7/10/2003	11.7	12.5	2.7	1.3	2.8	6.8	0.0	0.3	44.7	18.4	63.4	1.5	157.5

Date Collected	Temp. °C	Secchi (m)	DRP (mg m ⁻³)	DOP (mg m ⁻³)	PP (mg m ⁻³)	TP (mg m ⁻³)	NH ₄ -N (mg m ⁻³)	NO ₃ -N (mg m ⁻³)	DON (mg m ⁻³)	PN (mg m ⁻³)	TN (mg m ⁻³)	Chlorophyll a (mg m ⁻³)	PC (mg m ⁻³)
21/10/2003	13.0	12.0	1.5	1.5	3.1	6.1	0.3	0.0	44.7	17.4	62.4	1.1	195.0
19/11/2003	14.3	17.2	1.5	1.5	2.3	5.3	0.8	0.0	38.2	14.4	53.4	0.7	123.0
4/12/2003	15.5	17.0	1.7	3.3	1.7	6.7	0.0	0.2	46.8	11.2	58.2	0.5	129.0
18/12/2003	17.0	19.0	0.5	4.5	1.5	6.5	0.0	0.0	47.0	9.9	56.9	0.4	124.5
13/01/2004	20.2	17.5	0.7	4.3	1.6	6.6	0.0	0.1	53.0	11.9	65.0	0.4	118.5
26/02/2004	16.9	14.0	0.9	2.1	2.2	5.2	0.8	0.4	40.8	17.2	59.2	0.7	156.0
8/03/2004	18.4	13.0	0.8	2.2	2.0	5.0	0.7	0.1	34.2	11.1	46.1	0.6	124.0
31/03/2004	16.4	12.5	0.6	3.4	2.0	6.0	0.7	0.3	51.0	12.3	64.3	1.2	175.5
14/04/2004	15.4	16.5	0.9	3.1	2.3	6.3	0.6	0.3	50.1	14.2	65.2	1.2	159.0
10/05/2004	14.9	16.0	0.8	3.2	1.6	5.6	0.0	0.2	48.8	15.4	64.4	1.1	153.0
10/06/2004	13.1	14.0	0.8	2.2	2.0	5.0	0.0	0.2	41.8	16.6	58.6	1.0	151.0
13/07/2004	11.6	12.5	1.3	2.7	2.5	6.5	0.0	5.9	39.1	19.9	64.9	1.6	156.5
26/07/2004	11.5	11.0	1.5	2.5	2.9	6.9	0.3	2.7	46.0	22.2	71.2	2.4	180.5
24/08/2004	10.9	10.0	1.0	3.0	2.9	6.9	0.0	0.4	37.6	18.5	56.5	2.5	161.0
7/09/2004	11.1	12.0	1.2	3.8	2.6	7.6	0.0	0.0	54.0	16.8	70.8	1.5	202.0
21/10/2004	11.7	12.0	1.1	1.9	1.9	4.9	0.2	0.0	35.8	14.8	50.8	0.6	167.5
2/11/2004	12.4	17.0	1.0	3.0	1.7	5.7	0.3	1.2	45.5	16.3	63.3	0.4	173.0
22/11/2004	14.8	16.0	0.5	3.5	1.7	5.7	0.0	0.2	37.8	10.8	48.8	0.5	149.0
15/12/2004	14.2	20.8	0.9	4.1	1.4	6.4	0.0	0.0	42.0	12.2	54.2	0.2	131.0

Lake Taupo biannual nutrient database

2006-2007

Started 27 October 1994

Collection date 1 November 2006				Secchi depth = 14.5 m																	
Code	Depth	pH	EC @25oC	Temp	DO	SS	VSS	Chlor_a	DRP	DOP	PP	TP	NH ₄ -N	NO ₃ -N	DON	UREA	PN*	TN	DOC	PC	PN**
	m		mS cm ⁻¹	°C	g m ⁻³	g m ⁻³	g m ⁻³	mg m ⁻³	mg m ⁻³	mg m ⁻³	mg m ⁻³	mg m ⁻³	mg m ⁻³	mg m ⁻³	mg m ⁻³	mg m ⁻³	mg m ⁻³	mg m ⁻³	mg m ⁻³	mg m ⁻³	mg m ⁻³
HW1	1	7.79	118	12.43	10.2	0.5	<0.5	0.5	1.2	0.0	1.7	2.9	0.1	1.0	75.9		13.6	90.6		168.0	15.4
HW2	10	7.77	119	12.27	10.1	0.8	<0.5	0.6	1.0	0.0	1.9	2.9	0.0	0.1	61.9		13.8	75.8		187.0	13.8
HW3	20	7.77	120	12.25	10.1	0.7	<0.5	0.7	0.9	1.1	2.3	4.3	0.0	0.1	32.9		17.8	50.8		209.5	17.4
HW4	30	7.81	119	12.20	10.1	0.8	<0.5	0.6	1.0	0.0	2.7	3.7	0.3	0.0	38.7		22.3	61.3		215.5	18.1
HW5	40	7.78	119	12.10	10.1	0.9	<0.5	0.6	1.1	0.9	2.2	4.2	0.0	0.1	30.9		17.9	48.9		227.5	19.8
HW6	50	7.74	119	11.96	10.0	0.6	<0.5	0.7	1.2	0.0	1.9	3.1	0.0	0.2	29.8		14.0	44.0		169.0	13.9
HW7	60	7.67	120	11.34	9.7	0.7	<0.5	1.1	1.5	0.0	1.8	3.3	0.6	0.1	31.3		13.9	45.9		123.5	13.5
HW8	70	7.64	119	11.17	9.5	<0.5	<0.5	1.3	1.2	1.8	2.0	5.0	0.5	0.1	29.4		14.5	44.5		98.0	12.3
HW9	80	7.57	119	11.06	9.4	0.7	<0.5	1.3	1.3	0.7	2.2	4.2	2.5	1.8	27.7		14.1	46.1		91.5	11.2
HW10	90	7.56	119	10.99	9.3	<0.5	<0.5	1.3	1.2	0.8	2.2	4.2	2.7	2.3	52.0		14.4	71.4		122.5	15.3
HW11	100	7.56	119	10.94	9.3	0.5	<0.5	1.1	1.4	0.0	2.3	3.7	2.9	3.1	43.0		13.4	62.4		105.5	13.2
HW12	110	7.50	121	10.91	9.2	<0.5	<0.5	0.9	1.8	0.0	2.3	4.1	3.7	4.6	73.7		14.3	96.3		106.5	12.8
HW13	120	7.50	119	10.88	9.1	<0.5	<0.5	0.7	1.8	2.2	2.2	6.2	3.7	5.8	52.5		11.5	73.5		87.5	11.5
HW14	130	7.57	120	10.85	9.0	<0.5	<0.5	0.9	1.8	2.2	2.2	6.2	3.3	4.4	38.3		12.0	58.0		84.5	11.6
HW15	140	7.50	119	10.84	8.9	0.6	<0.5	0.8	1.4	0.6	2.3	4.3	3.0	4.5	43.5		13.4	64.4		110.5	12.9
HW16	150	7.49	120	10.84	8.7	<0.5	<0.5	0.7	2.0	3.0	2.4	7.4	4.7	7.6	52.7		12.8	77.8		98.0	10.7

Collection date 3 April 2007				Secchi depth = 19.0 m																	
Code	Depth	pH	EC @25oC	Temp	DO	SS	VSS	Chlor_a	DRP	DOP	PP	TP	NH ₄ -N	NO ₃ -N	DON	UREA	PN*	TN	DOC	PC	PN**
	m		mS cm ⁻¹	°C	g m ⁻³	g m ⁻³	g m ⁻³	mg m ⁻³	mg m ⁻³	mg m ⁻³	mg m ⁻³	mg m ⁻³	mg m ⁻³	mg m ⁻³	mg m ⁻³	mg m ⁻³	mg m ⁻³	mg m ⁻³	mg m ⁻³	mg m ⁻³	mg m ⁻³
HW17	1	7.94	119	18.04	9.4	<0.5	<0.5	0.7	1.6	2.4	1.4	5.4	4.7	0.9	62.4		14.9	82.9		122.0	18.4
HW18	10	8.09	119	18.03	9.5	<0.5	<0.5	0.8	1.1	3.9	1.8	6.8	0.0	0.1	59.9		14.9	74.9		317.5	19.2
HW19	20	8.09	119	17.94	9.4	<0.5	<0.5	0.8	1.2	2.8	1.6	5.6	0.0	0.2	65.8		14.8	80.8		177.5	16.8
HW20	30	7.95	119	16.72	9.3	<0.5	<0.5	1.2	1.0	4.0	2.0	7.0	0.0	0.1	63.9		17.5	81.5		133.0	19.6
HW21	40	7.73	119	13.50	8.9	<0.5	<0.5	1.2	1.8	2.2	1.6	5.6	0.0	0.3	55.7		12.3	68.3		76.4	12.1
HW22	50	7.62	120	12.33	8.9	<0.5	<0.5	0.8	1.5	4.5	1.3	7.3	0.1	0.8	53.2		9.0	63.1		68.1	10.1
HW23	60	7.54	119	11.65	8.8	<0.5	<0.5	0.7	1.2	3.8	1.5	6.5	0.1	3.4	51.5		7.7	62.7		49.9	6.3
HW24	70	7.48	120	11.28	8.8	<0.5	<0.5	0.9	2.0	2.0	1.3	5.3	0.0	9.7	70.2		6.4	86.3		68.3	8.6
HW25	80	7.43	115	11.22	8.5	<0.5	<0.5	0.6	2.0	3.0	1.2	6.2	0.0	14.6	52.4		6.4	73.4		58.0	8.3
HW26	90	7.39	121	11.11	8.5	<0.5	<0.5	0.3	1.7	3.3	1.0	6.0	0.1	16.3	54.7		7.1	78.2		62.7	8.4
HW27	100	7.35	121	11.10	8.2	<0.5	<0.5	0.3	2.5	1.5	1.1	5.1	0.0	19.4	50.5		7.0	76.9		48.9	6.7
HW28	110	7.31	121	11.04	8.2	<0.5	<0.5	0.2	2.7	2.3	0.9	5.9	1.5	20.9	47.1		5.9	75.4		40.4	7.5
HW29	120	7.32	120	11.04	8.0	<0.5	<0.5	0.2	3.0	2.0	0.9	5.9	0.0	23.8	57.7		4.9	86.4		48.5	7.8
HW30	130	7.73	121	11.01	8.1	<0.5	<0.5	0.2	2.7	3.3	0.9	6.9	0.0	24.8	51.2		3.8	79.8		42.7	6.7
HW31	140	7.30	118	11.00	7.7	<0.5	<0.5	0.2	3.7	2.3	1.3	7.3	0.0	24.6	47.4		3.8	75.8		43.2	6.4
HW32	150	7.25	121	10.99	7.4	<0.5	<0.5	0.2	4.5	3.5	1.6	9.6	0.0	30.5	50.5		6.1	87.1		51.7	9.5

NH₄, NO₃, DON, Urea all as N

* = PN by wet digestion method, ** = PN by combustion furnace method.

Detection limits: DRP 0.5; NO₃-N 0.5; NH₄-N 1.0 mg m⁻³

New Analytical instrument (Flow Injection Analysis) from January 2002, gives greatly improved resolution at low levels.

FIA instrument results are given as a better indication of likely absolute low levels of DRP, NO₃-N, and NH₄-N below nominal detection limit.

Lake Taupo biannual nutrient database

2005-2006

Started 27 October 1994

Collection date 25 October 2005

Secchi depth = 15.0 m

Code	Depth m	pH	EC @25oC mS cm ⁻¹	Temp °C	DO g m ⁻³	SS g m ⁻³	VSS g m ⁻³	Chlor_a mg m ⁻³	DRP mg m ⁻³	DOP mg m ⁻³	PP mg m ⁻³	TP mg m ⁻³	NH ₄ -N mg m ⁻³	NO ₃ -N mg m ⁻³	DON mg m ⁻³	UREA mg m ⁻³	PN* mg m ⁻³	TN mg m ⁻³	DOC mg m ⁻³	PC mg m ⁻³	PN** mg m ⁻³
QD1	1	7.81	119	13.40	10.1	<0.5	<0.5	0.4	1.0	3.0	1.3	5.3	0.6	0.3	51.1	4	8.5	60.5	613	132.5	11.0
QD2	10	7.88	119	12.88	10.0	0.5	<0.5	0.5	0.7	2.3	1.9	4.9	0.1	0.0	52.9	3	12.8	65.8	623	169.0	13.5
QD3	20	7.74	119	12.17	10.1	0.6	<0.5	0.7	0.6	2.4	2.7	5.7	0.4	0.2	43.4	2	17.0	61.0	625	216.5	20.0
QD4	30	7.77	118	11.65	9.9	0.7	<0.5	0.6	0.6	5.4	2.6	8.6	0.7	0.0	57.3	2	17.3	75.3	566	212.0	16.0
QD5	40	7.68	119	11.49	9.8	<0.5	<0.5	0.9	0.6	3.4	3.1	7.1	0.0	0.2	49.8	2	22.2	72.2	581	229.5	20.5
QD6	50	7.59	119	11.29	9.5	<0.5	<0.5	1.4	0.8	1.2	2.2	4.2	1.4	0.1	35.5	2	15.9	52.9	599	172.5	14.0
QD7	60	7.46	120	11.18	9.2	0.7	<0.5	0.7	1.7	2.3	1.6	5.6	1.7	9.6	41.7	2	9.8	62.8	503	103.5	6.5
QD8	70	7.37	120	11.07	9.0	0.5	<0.5	0.8	1.9	2.1	1.5	5.5	1.6	12.8	56.6	2	9.2	80.2	482	101.5	6.0
QD9	80	7.35	120	11.01	8.8	0.6	<0.5	0.6	2.5	1.5	1.4	5.4	0.6	15.3	30.1	13	9.0	55.0	521	86.5	6.0
QD10	90	7.36	121	10.97	8.8	0.7	<0.5	0.4	2.8	1.2	1.4	5.4	0.3	17.1	47.6	2	7.3	72.3	478	62.5	4.0
QD11	100	7.29	121	10.97	8.6	<0.5	<0.5	0.5	2.8	1.2	1.4	5.4	0.4	17.4	39.2	2	7.8	64.8	476	77.5	4.5
QD12	110	7.34	120	10.94	8.5	<0.5	<0.5	0.5	3.0	1.0	1.3	5.3	1.5	18.7	48.8	2	7.4	76.4	462	92.5	3.0
QD13	120	7.29	121	10.94	8.5	<0.5	<0.5	0.5	2.8	2.2	1.2	6.2	0.8	20.4	42.8	2	6.2	70.2	549		5.0
QD14	130	7.32	120	10.93	8.4	<0.5	<0.5	0.5	2.7	1.3	1.3	5.3	0.1	20.3	35.6	3	5.9	61.9	504	69.5	6.0
QD15	140	7.34	121	10.93	8.4	<0.5	<0.5	0.6	3.0	2.0	1.4	6.4	1.4	20.9	34.7	1	7.8	64.8	352	77.5	6.5
QD16	150	7.26	120	10.92	8.2	<0.5	<0.5	0.5	3.8	1.2	1.5	6.5	0.9	23.5	29.6	3	7.1	61.1	533	66.0	6.0

Collection date 12 April 2006

Secchi depth = 15.8 m

Code	Depth m	pH	EC @25oC mS cm ⁻¹	Temp °C	DO g m ⁻³	SS g m ⁻³	VSS g m ⁻³	Chlor_a mg m ⁻³	DRP mg m ⁻³	DOP mg m ⁻³	PP mg m ⁻³	TP mg m ⁻³	NH ₄ -N mg m ⁻³	NO ₃ -N mg m ⁻³	DON mg m ⁻³	UREA mg m ⁻³	PN* mg m ⁻³	TN mg m ⁻³	DOC mg m ⁻³	PC mg m ⁻³	PN** mg m ⁻³
ZD1	1	7.9	119	16.72	9.6	<0.5	<0.5	1.2	1.1	0.9	1.9	3.9	0.0	0.2	50.8	2	19.2	70.2		213.5	19.0
ZD2	10	7.9	118	16.72	9.2	<0.5	<0.5	1.3	0.8	1.2	1.6	3.6	0.0	0.0	38.0	2	16.6	54.6		196.0	13.5
ZD3	20	7.9	116	16.72	9.0	0.5	<0.5	1.1	0.7	0.3	1.3	2.3	0.0	0.0	42.0	<1	15.65	57.7		235.0	15.5
ZD4	30	7.88	120	16.71	9.4	<0.5	<0.5	1.2	0.6	1.4	1.6	3.6	0.1	0.0	50.9	<1	15.45	66.5		172.0	13.5
ZD5	40	7.9	116	16.64	9.2	0.8	0.7	1.3	0.5	1.5	1.55	3.6	0.0	0.0	41.0	2	15.45	56.5		224.5	13.0
ZD6	50	7.6	119	12.11	8.7	<0.5	<0.5	1.0	0.7	2.3	1.2	4.2	0.0	0.1	33.9	8	11.4	45.4		133.0	8.5
ZD7	60	7.43	121	11.52	8.5	<0.5	<0.5	1.0	0.7	2.3	1.05	4.1	0.0	0.5	44.5	2	9.15	54.2		171.5	8.0
ZD8	70	7.49	121	11.31	8.3	<0.5	<0.5	0.9	0.7	2.3	1.15	4.2	0.0	0.7	37.3	6	9.55	47.6		130.5	9.0
ZD9	80	7.9	120	11.18	8.3	<0.5	<0.5	1.1	0.5	2.5	1.4	4.4	0.3	0.0	50.7	5	16.1	67.1		182.0	12.5
ZD10	90	7.31	122	11.11	8.1	<0.5	<0.5	0.2	3.0	1	0.45	4.5	0.0	23.0	28.0	2	4.1	55.1		62.5	6.0
ZD11	100	7.31	122	11.08	8.1	<0.5	<0.5	0.3	3.2	0.8	0.5	4.5	0.1	22.8	24.1	<1	4.95	52.0		68.5	6.5
ZD12	110	7.91	119	11.05	8.0	0.7	0.5	1.1	3.2	1.8	1.5	6.5	0.1	22.2	25.7	3	16.5	64.5		196.0	15.0
ZD13	120	7.42	122	11.03	7.9	<0.5	<0.5	0.3	3.1	1.9	0.5	5.5	0.0	21.6	27.4	<1	5.2	54.2		86.5	7.0
ZD14	130	7.5	121	11.02	7.7	<0.5	<0.5	0.3	3.0	2	0.55	5.6	0.0	19.9	32.1	2	5.45	57.5		69.5	6.5
ZD15	140	7.3	119	11.02	7.3	<0.5	<0.5	0.2	3.4	1.6	0.55	5.6	0.0	23.1	31.9	2	6.5	61.5		87.0	7.5
ZD16	150	7.24	122	11.02	7.2	<0.5	<0.5	0.3	2.9	1.1	0.55	4.6	0.2	21.0	28.8	5	5.85	55.9		77.5	7.0

NH₄, NO₃, DON, Urea all as N

* = PN by wet digestion method, ** = PN by combustion furnace method.

Detection limits: DRP 0.5; NO₃-N 0.5; NH₄-N 1.0 mg m⁻³

New Analytical instrument (Flow Injection Analysis) from January 2002, gives greatly improved resolution at low levels.

FIA instrument results are given as a better indication of likely absolute low levels of DRP, NO₃-N, and NH₄-N below nominal detection limit.

Lake Taupo biannual nutrient database

2004-2005

Started 27 October 1994

Collection date 21 October 2004 Secchi depth = 15.0 m

Code	Depth m	pH	EC @25oC mS cm ⁻¹	Temp °C	DO g m ⁻³	SS g m ⁻³	VSS g m ⁻³	Chlor_a mg m ⁻³	DRP mg m ⁻³	DOP mg m ⁻³	PP mg m ⁻³	TP mg m ⁻³	NH ₄ -N mg m ⁻³	NO ₃ -N mg m ⁻³	DON mg m ⁻³	UREA mg m ⁻³	PN* mg m ⁻³	TN mg m ⁻³	DOC mg m ⁻³	PC mg m ⁻³	PN** mg m ⁻³
VZ1	1	7.88	122	11.75	10.4	0.6	0.5	0.6	1.3	2.7	1.6	5.6	0.1	0.4	39.5	19	9.7	49.7	500	110.0	8
VZ2	10	7.82	120	11.61	10.2	0.8	0.6	0.8	1.1	2.9	2.0	6.0	0.2	0.1	35.7	24	12.8	48.8	447	157.0	8.5
VZ3	20	7.87	120	11.59	10.1	0.9	0.7	0.8	1.0	3.0	1.9	5.9	0.0	0.0	33.0	16	11.3	44.3	440	153.0	8.5
VZ4	30	7.91	123	11.59	10.2	1.5	1.0	0.7	1.0	2.0	1.9	4.9	0.0	0.0	34.0	15	11.3	45.3	490	157.5	8
VZ5	40	7.82	117	11.58	10.1	1.1	0.6	0.7	1.4	3.6	2.0	7.0	0.2	0.1	33.7	7	11.2	45.2	445	155.0	10
VZ6	50	7.83	120	11.58	9.9	1.1	0.7	0.9	1.0	4.0	2.1	7.1	0.0	0.1	33.9	9	13.2	47.2	494	197.5	15
VZ7	60	7.79	119	11.15	9.9	1.1	0.7	1.0	1.6	2.4	2.3	6.3	0.5	0.4	34.1	11	26.0	61.0	585	167.0	16
VZ8	70	7.66	118	10.79	9.7	0.7	0.5	1.0	1.9	1.1	1.9	4.9	2.4	0.8	40.8	21	11.5	55.5	468	114.0	11.5
VZ9	80	7.63	118	10.74	9.6	0.6	<0.5	0.9	2.0	1.0	1.7	4.7	2.8	1.3	47.9	16	8.9	60.9	440	103.0	9.5
VZ10	90	7.61	119	10.72	9.5	0.6	<0.5	0.7	2.0	2.0	1.6	5.6	3.9	2.2	28.9	9	9.1	44.1	633	100.5	10
VZ11	100	7.53	118	10.70	9.4	0.7	0.5	0.7	2.3	1.7	1.5	5.5	5.1	3.6	34.3	7	9.0	52.0	570	93.0	10
VZ12	110	7.56	119	10.68	9.4	0.5	<0.5	0.7	2.0	5.0	1.6	8.6	5.3	2.8	28.9	9	9.2	46.2	514	101.5	9
VZ13	120	7.49	119	10.66	9.3	0.5	<0.5	0.7	2.1	1.9	1.5	5.5	5.3	3.9	35.8	6	8.5	53.5	391	91.5	11
VZ14	130	7.48	118	10.65	9.3	<0.5	<0.5	0.6	2.5	1.5	1.6	5.6	5.8	5.3	34.9	5	8.6	54.6	366	73.5	8.5
VZ15	140	7.58	118	10.61	9.2	<0.5	<0.5	0.6	2.9	1.1	1.6	5.6	5.9	7.3	33.8	13	9.1	56.1	491	93.5	10.5
VZ16	150	7.58	119	10.56	9.1	<0.5	<0.5	0.6	2.4	1.6	1.5	5.5	4.5	3.3	35.2	21	8.7	51.7	464	78.0	9

Collection date 14 April 2005 Secchi depth = 17.2 m

Code	Depth m	pH	EC @25oC mS cm ⁻¹	Temp °C	DO g m ⁻³	SS g m ⁻³	VSS g m ⁻³	Chlor_a mg m ⁻³	DRP mg m ⁻³	DOP mg m ⁻³	PP mg m ⁻³	TP mg m ⁻³	NH ₄ -N mg m ⁻³	NO ₃ -N mg m ⁻³	DON mg m ⁻³	UREA mg m ⁻³	PN* mg m ⁻³	TN mg m ⁻³	DOC mg m ⁻³	PC mg m ⁻³	PN** mg m ⁻³
GC1	1	7.85	119	17.92	9.1	0.4	0.4	0.7	0.8	1.2	1.9	3.9	1.2	0.2	64.6	7	15.1	81.1	690	176.0	19.0
GC2	10	7.86	118	17.96	9.0	0.3	0.4	0.9	0.8	2.2	1.9	4.9	0.0	0.0	46	3	14.1	60.1	580	199.5	19.0
GC3	20	7.9	119	17.95	9.0	0.3	0.3	0.9	0.8	2.2	2.0	5.0	0.0	0.1	55.9	1	14.5	70.5	580	179.0	17.0
GC4	30	7.82	118	15.13	8.4	0.3	0.3	0.9	0.8	2.2	1.8	4.8	0.0	0.3	49.7	2	12.8	62.8	570	176.5	17.0
GC5	40	7.58	121	12.92	8.7	0.2	0.2	0.8	2.3	0.7	1.2	4.2	0.3	0.6	31.1	2	8.9	40.9	510	109.5	14.0
GC6	50	7.51	120	12.00	8.3	0.1	0.1	0.6	3.1	0.9	1.0	5.0	0.0	6.4	39.6	3	6.8	52.8	480	84.0	9.0
GC7	60	7.47	121	11.33	8.2	0.1	0.1	0.5	3.6	1.4	1.1	6.1	0.0	8.3	40.7	2	8.2	57.2	510	78.5	7.5
GC8	70	7.48	120	10.99	8.2	0.1	0.1	0.3	4.2	0.8	0.9	5.9	0.0	15.7	38.3	2	6.5	60.5	490	96.0	7.0
GC9	80	7.39	121	10.88	8.2	0.2	0.2	0.3	3.8	0.2	0.8	4.8	0.1	15.7	36.2	1	4.3	56.3	480	72.5	7.5
GC10	90	7.21	121	10.82	8.3	0.0	0.1	0.1	5.6	1.4	0.9	7.9	0.2	23.8	38	2	5.6	67.6	480	64.0	7.0
GC11	100	7.31	121	10.78	8.0	0.0	0.1	0.1	5.7	1.3	0.8	7.8	0.2	23.6	53.2	2	5.0	82.0	460	78.5	7.0
GC12	110	7.32	121	10.76	7.8	0.1	0.1	0.1	5.7	1.3	0.8	7.8	0.0	25.9	47.1	2	5.6	78.6	470	43.5	6.0
GC13	120	7.33	121	10.76	7.7	0.1	0.1	<0.1	6.4	1.6	0.8	8.8	0.3	26.8	37.9	1	4.9	69.9	450	56.0	6.5
GC14	130	7.33	121	10.74	7.7	0.1	0.1	<0.1	6.1	0	0.8	6.8	0.3	26.7	57	1	4.4	88.4	470	43.5	5.5
GC15	140	7.34	121	10.74	7.6	0.1	0.1	<0.1	6.6	0.4	0.9	7.9	0.2	28.8	39	2	5.8	73.8	490	54.5	6.0
GC16	150	7.36	121	10.72	7.5	0.3	0.3	0.1	7.8	0.2	1.1	9.1	0.0	32.1	51.9	1	6.9	90.9	490	46.0	7.5

NH₄, NO₃, DON, Urea all as N

* = PN by wet digestion method, ** = PN by combustion furnace method.

Detection limits: DRP 0.5; NO₃-N 0.5; NH₄-N 1.0 mg m⁻³

New Analytical instrument (Flow Injection Analysis) from January 2002, gives greatly improved resolution at low levels.

FIA instrument results are given as a better indication of likely absolute low levels of DRP, NO₃-N, and NH₄-N below nominal detection limit.

Lake Taupo biannual nutrient database

2003-2004

Started 27 October 1994

Collection date 19 November 2003										Secchi depth = 16.0 m											
Code	Depth	pH	EC @25oC	Temp	DO	SS	VSS	Chlor_a	DRP	DOP	PP	TP	NH ₄ -N	NO ₃ -N	DON	UREA	PN*	TN	DOC	PC	PN**
	m		mS cm ⁻¹	°C	g m ⁻³	g m ⁻³	g m ⁻³	mg m ⁻³	mg m ⁻³	mg m ⁻³	mg m ⁻³	mg m ⁻³	mg m ⁻³	mg m ⁻³	mg m ⁻³	mg m ⁻³	mg m ⁻³	mg m ⁻³	mg m ⁻³	mg m ⁻³	mg m ⁻³
EU1	1	7.84	119	13.96	9.9	<0.5	<0.5	0.8	1.7	2.3	2.3	6.3	8.0	0.8	42.2	1	14.8	65.8	476	90.5	10.5
EU2	10	7.84	120	13.79	9.9	<0.5	<0.5	0.9	1.6	1.4	2.5	5.5	0.3	0.3	52.4	1	14.4	67.4	461	147.5	15.0
EU3	20	7.83	120	13.78	9.8	<0.5	<0.5	0.7	1.8	1.2	3.4	6.4	0.4	0.1	46.5	1	19.4	66.4	466	151.0	20.5
EU4	30	7.84	120	13.70	9.5	<0.5	<0.5	0.9	1.8	2.2	3.8	7.8	0.4	0.3	42.3	1	26.3	69.3	450	133.0	18.5
EU5	40	7.69	120	12.30	9.3	<0.5	<0.5	1.5	2.6	1.4	3.3	7.3	0.7	0.2	35.1	1	20.6	56.6	437	133.0	17.0
EU6	50	7.63	121	11.35	9.0	<0.5	<0.5	1.2	2.8	1.2	1.9	5.9	0.4	0.5	37.1	1	11.9	49.9	470	92.5	11.0
EU7	60	7.58	121	11.28	8.9	<0.5	<0.5	0.7	3.3	0.7	1.5	5.5	1.0	3.2	27.8	2	9.6	41.6	503	69.5	8.0
EU8	70	7.59	121	11.23	8.7	<0.5	<0.5	0.6	3.5	0.5	1.1	5.1	3.4	4.8	25.8	1	6.2	40.2	465	47.0	<6
EU9	80	7.6	121	11.19	8.6	<0.5	<0.5	0.5	3.6	0.4	1.1	5.1	0.6	5.9	29.5	2	5.1	41.1	430	65.0	<6
EU10	90	7.57	121	11.16	8.6	<0.5	<0.5	0.5	3.9	0.1	1.2	5.2	1.0	7.0	27	3	6.4	41.4	391	39.5	<6
EU11	100	7.59	121	11.15	8.6	<0.5	0.7	0.4	4.1	0.9	1.2	6.2	0.8	7.8	33.4	2	4.0	46.0	405	46.5	<6
EU12	110	7.6	121	11.12	8.4	<0.5	<0.5	0.4	4.1	0.9	1.1	6.1	1.1	11.8	29.1	3	3.4	45.4	428	45.5	<6
EU13	120	7.57	120	11.11	8.4	<0.5	<0.5	0.4	4.6	0.4	1.2	6.2	0.7	13.6	32.7	2	3.0	50.0	439	37.0	<6
EU14	130	7.53	121	11.09	8.3	<0.5	<0.5	0.3	5.1	0.4	1.2	6.7	0.8	16.1	32.7	3	3.7	53.3	408	33.0	<6
EU15	140	7.57	121	11.09	8.2	<0.5	<0.5	0.3	5.3	0.7	1.2	7.2	0.4	18.1	32.5	3	5.1	56.1	440	54.5	<6
EU16	150	7.54	120	11.09	8.0	0.5	<0.5	0.5	5.6	1.4	1.5	8.5	2.4	20.7	32.9	4	6.4	62.4	481	44.0	<6

Collection date 31 March 2004										Secchi depth = 16.0 m											
Code	Depth	pH	EC @25oC	Temp	DO	SS	VSS	Chlor_a	DRP	DOP	PP	TP	NH ₄ -N	NO ₃ -N	DON	UREA	PN*	TN	DOC	PC	PN**
	m		mS cm ⁻¹	°C	g m ⁻³	g m ⁻³	g m ⁻³	mg m ⁻³	mg m ⁻³	mg m ⁻³	mg m ⁻³	mg m ⁻³	mg m ⁻³	mg m ⁻³	mg m ⁻³	mg m ⁻³	mg m ⁻³	mg m ⁻³	mg m ⁻³	mg m ⁻³	mg m ⁻³
MB1	1	7.86	118	16.49	9.2	<0.5	<0.5	0.7	0.9	4.1	1.4	6.4	1	0	69	-	9.7	79.7	622	91.0	-
MB2	10	7.83	118	16.29	9.1	<0.5	<0.5	1.2	0.5	3.5	2.0	6.0	0	0	47	-	12.4	59.4	548	141.5	17.0
MB3	20	7.83	118	16.23	9.0	<0.5	<0.5	1.1	0.6	3.4	2.1	6.1	1	0.2	47.8	-	14.8	63.8	561	140.5	17.0
MB4	30	7.83	118	16.19	9.0	<0.5	<0.5	1.1	0.8	3.2	1.9	5.9	1	0.2	50.8	-	13.5	65.5	749	131.5	15.5
MB5	40	7.66	118	16.15	8.9	<0.5	<0.5	0.9	1.5	1.5	1.9	4.9	1	2.8	71.2	-	11.6	86.6	560	114.5	14.0
MB6	50	7.46	120	12.51	8.2	<0.5	<0.5	0.5	3.3	2.7	1.5	7.5	1	12.1	58.9	-	7.2	79.2	467	109.0	7.5
MB7	60	7.41	121	11.59	8.0	<0.5	<0.5	0.3	4.7	2.3	1.0	8.0	1	18.0	41	-	4.2	64.2	394	54.5	7.0
MB8	70	7.36	121	11.40	8.0	<0.5	<0.5	0.2	4.5	1.5	0.8	6.8	1	19.1	36.9	-	3.7	60.7	404	45.0	<4
MB9	80	7.42	121	11.34	8.0	<0.5	<0.5	0.2	5.0	1.0	0.8	6.8	1	20.2	31.8	-	5.3	58.3	464	41.0	<4
MB10	90	7.36	121	11.30	7.9	<0.5	<0.5	0.1	5.2	1.8	0.7	7.7	3	22.1	35.9	-	3.9	64.9	453	52.0	<4
MB11	100	7.31	122	11.27	7.8	<0.5	<0.5	0.1	5.6	2.4	0.8	8.8	2	23.9	38.1	-	3.0	67.0	477	36.5	<4
MB12	110	7.29	122	11.26	7.7	<0.5	<0.5	<0.1	5.8	2.2	1.0	9.0	1	25.0	30	-	6.2	62.2	392	36.5	5.5
MB13	120	7.31	121	11.24	7.6	<0.5	<0.5	0.1	5.9	3.1	0.8	9.8	1	25.0	59	-	3.6	88.6	373	53.5	<4
MB14	130	7.3	121	11.22	7.5	<0.5	<0.5	<0.1	6.3	2.7	0.9	9.9	0	27.0	35	-	3.3	65.3	393	61.0	<4
MB15	140	7.3	121	11.21	7.4	<0.5	<0.5	<0.1	6.6	3.4	0.8	10.8	0	27.8	46.2	-	3.3	77.3	356	35.0	<4
MB16	150	7.31	120	11.21	7.1	<0.5	<0.5	0.1	7.2	2.8	1.0	11.0	0	30.1	48.9	-	4.0	83.0	394	34.0	<4

NH₄, NO₃, DON, Urea all as N

* = PN by wet digestion method, ** = PN by combustion furnace method.

Detection limits: DRP 0.5; NO₃-N 0.5; NH₄-N 1.0 mg m⁻³

New Analytical instrument (Flow Injection Analysis) from January 2002, gives greatly improved resolution at low levels.

FIA instrument results are given as a better indication of likely absolute low levels of DRP, NO₃-N, and NH₄-N below nominal detection limit.

Lake Taupo biannual nutrient database

2002-2003

Started 27 October 1994

Collection date 13 November 2002				Secchi depth = 18.0 m																	
Code	Depth	pH	EC @25oC	Temp	DO	SS	VSS	Chlor_a	DRP	DOP	PP	TP	NH ₄ -N	NO ₃ -N	DON	UREA	PN*	TN	DOC	PC	PN**
	m		mS cm ⁻¹	°C	g m ⁻³	g m ⁻³	g m ⁻³	mg m ⁻³	mg m ⁻³	mg m ⁻³	mg m ⁻³	mg m ⁻³	mg m ⁻³	mg m ⁻³	mg m ⁻³	mg m ⁻³	mg m ⁻³	mg m ⁻³	mg m ⁻³	mg m ⁻³	mg m ⁻³
NZ1	1	7.87	122	12.58	10.2	0.6	<0.5	0.6	1.3	1.7	2.2	5.2	0.8	0.6	65.6	2	15.3	82.3	620	160.0	12.5
NZ2	10	7.86	120	12.58	10.3	0.5	<0.5	0.7	1.2	1.8	2.1	5.1	0.7	0.0	49.3	1	13.7	63.7	573	180.5	13.5
NZ3	20	7.93	120	12.49	10.2	1.0	<0.5	0.7	1.1	1.9	2.2	5.2	0.5	0.1	61.4	1	15.8	77.8	536	157.5	12.0
NZ4	30	7.85	121	12.38	10.2	<0.5	<0.5	0.8	0.9	3.1	2.6	6.6	0.7	0.5	74.8	2	17.7	93.7	657	242.0	14.0
NZ5	40	7.81	119	12.16	10.1	<0.5	<0.5	0.7	1.2	1.8	1.9	4.9	0.6	0.7	58.7	1	12.9	72.9	506	164.5	8.0
NZ6	50	7.83	120	12.00	10.1	<0.5	<0.5	0.7	1.6	1.4	1.7	4.7	1.6	0.0	55.4	1	11.5	68.5	505	170.0	9.5
NZ7	60	7.78	119	11.81	10.0	<0.5	<0.5	0.6	1.5	1.5	1.5	4.5	1.2	0.0	64.8	2	9.5	75.5	531	108.5	6.5
NZ8	70	7.72	120	11.51	9.9	<0.5	<0.5	0.6	2.8	1.2	1.3	5.3	3.4	2.2	42.4	7	7.1	55.1	514	53.5	5.0
NZ9	80	7.67	120	11.32	9.7	<0.5	<0.5	0.4	2.7	1.3	1.1	5.1	3.3	0.9	38.8	2	5.9	48.9	578	61.0	4.5
NZ10	90	7.77	121	11.13	9.6	<0.5	<0.5	0.4	2.8	1.2	1.0	5.0	3.7	0.4	44.9	4	6.6	55.6	487	41.0	<2
NZ11	100	7.53	122	11.08	9.4	<0.5	<0.5	0.2	3.0	2.0	0.8	5.8	4.2	3.7	65.1	5	6.1	79.1	525	31.0	<2
NZ12	110	7.64	121	11.05	9.4	<0.5	<0.5	0.1	3.3	1.7	0.7	5.7	3.4	5.4	57.2	4	4.4	70.4	472	38.0	<2
NZ13	120	7.55	122	11.01	9.3	<0.5	<0.5	0.2	3.6	0.4	1.0	5.0	3.0	7.0	51.0	6	5.9	66.9	473	64.5	4.0
NZ14	130	7.32	123	10.99	9.2	<0.5	<0.5	0.1	3.6	0.4	1.0	5.0	2.9	7.5	45.6	5	6.7	62.7	555	70.5	3.5
NZ15	140	7.47	121	10.97	9.1	0.5	<0.5	0.1	3.7	1.3	0.9	5.9	2.5	10.5	60.0	16	6.7	79.7	460	54.5	3.0
NZ16	150	7.46	121	10.96	9.0	<0.5	<0.5	0.2	4.3	1.7	1.0	7.0	0.5	12.9	58.6	4	6.4	78.4	461	52.5	3.0

Collection date 3 April 2003				Secchi depth = 13.5 m																	
Code	Depth	pH	EC @25oC	Temp	DO	SS	VSS	Chlor_a	DRP	DOP	PP	TP	NH ₄ -N	NO ₃ -N	DON	UREA	PN*	TN	DOC	PC	PN**
	m		mS cm ⁻¹	°C	g m ⁻³	g m ⁻³	g m ⁻³	mg m ⁻³	mg m ⁻³	mg m ⁻³	mg m ⁻³	mg m ⁻³	mg m ⁻³	mg m ⁻³	mg m ⁻³	mg m ⁻³	mg m ⁻³	mg m ⁻³	mg m ⁻³	mg m ⁻³	mg m ⁻³
UJ1	1	8.01	119	19.20	8.8	3.0	0.5	0.7	0.8	3.2	1.8	5.8	5	0.4	75.6	5	18.8	99.8	546	219.0	19.5
UJ2	10	8.07	146	18.71	8.8	0.7	1.0	1.4	0.9	4.1	2.5	7.5	<1	0.6	45.4	1	24.0	70.0	511	304.5	29.0
UJ3	20	8.15	120	18.60	8.6	1.0	0.7	1.3	0.6	3.4	2.3	6.3	<1	0.6	40.4	1	23.7	64.7	520	270.0	31.5
UJ4	30	7.93	119	16.93	8.3	<0.5	<0.5	1.5	0.8	3.2	1.8	5.8	<1	0.3	39.7	1	20.4	60.4	503	181.0	39.0
UJ5	40	7.66	118	13.31	8.0	<0.5	<0.5	1.3	1.7	3.3	1.7	6.7	<1	0.8	39.2	1	12.2	52.2	443	115.0	54.0
UJ6	50	7.61	122	12.39	7.9	<0.5	1.0	0.7	2.9	2.1	1.3	6.3	<1	4.8	35.2	3	8.6	48.6	410	92.5	5.5
UJ7	60	7.57	138	11.80	7.7	<0.5	<0.5	0.5	3.9	2.1	1.1	7.1	<1	10.7	32.3	1	5.9	48.9	366	86.5	4.5
UJ8	70	7.42	121	11.50	7.6	<0.5	<0.5	0.2	4.4	1.6	0.9	6.9	<1	16.3	27.7	1	6.1	50.1	404	109.5	4.0
UJ9	80	7.39	121	11.32	7.5	<0.5	<0.5	0.1	4.5	1.5	1.0	7.0	<1	19.3	41.7	1	6.2	67.2	365	37.0	4.0
UJ10	90	7.32	121	11.20	7.3	<0.5	<0.5	0.1	4.7	1.3	0.8	6.8	<1	21.9	24.1	2	4.5	50.5	360	40.0	<4
UJ11	100	7.29	121	11.19	7.3	<0.5	<0.5	<0.1	5.3	2.7	0.9	8.9	<1	23.9	27.1	2	4.6	55.6	387	92.5	<4
UJ12	110	7.26	120	11.12	7.2	<0.5	<0.5	<0.1	5.5	0.5	0.7	6.7	<1	25.2	30.8	1	2.9	58.9	366	28.5	<4
UJ13	120	7.33	122	11.11	7.0	<0.5	<0.5	<0.1	6.6	0.4	0.7	7.7	<1	28.8	36.2	5	2.5	67.5	409	40.0	<4
UJ14	130	7.27	123	11.09	6.9	<0.5	<0.5	<0.1	7.7	0.3	0.9	8.9	<1	30.9	29.1	3	3.2	63.2	382	15.5	<4
UJ15	140	7.28	122	11.10	6.8	<0.5	<0.5	<0.1	7.6	0.4	0.8	8.8	<1	30.4	47.6	4	4.3	82.3	384	47.5	<4
UJ16	150	7.29	122	11.09	6.5	<0.5	<0.5	<0.1	9.0	5.0	1.6	15.6	<1	36.4	30.6	2	6.5	73.5	371	38.5	<4

NH₄, NO₃, DON, Urea all as N * = PN by wet digestion method, ** = PN by combustion furnace method.

Detection limits: DRP 0.5; NO₃-N 0.5; NH₄-N 1.0 mg m⁻³

New Analytical instrument (Flow Injection Analysis) from January 2002, gives greatly improved resolution at low levels.

FIA instrument results are given as a better indication of likely absolute low levels of DRP, NO₃-N, and NH₄-N below nominal detection limit.

Lake Taupo biannual nutrient database

2001-2002

Started 27 October 1994

Collection date 12 November 2001

Secchi depth = 15.5 m

Code	Depth m	pH	EC @25oC µS cm ⁻¹	Temp °C	DO g m ⁻³	SS g m ⁻³	VSS g m ⁻³	Chlor_a mg m ⁻³	DRP mg m ⁻³	DOP mg m ⁻³	PP mg m ⁻³	TP mg m ⁻³	NH4-N mg m ⁻³	NO3-N mg m ⁻³	DON mg m ⁻³	UREA mg m ⁻³	PN* mg m ⁻³	TN mg m ⁻³	DOC mg m ⁻³	PC mg m ⁻³	PN** mg m ⁻³
XH1	1	7.85	122	14.23	9.5	0.5	<0.5	0.6	0.9	1.1	1.55	3.6	<1	<0.5	29	2	6	35	500	146.5	12.0
XH2	10	7.86	122	14.16	9.8	0.5	<0.5	0.7	1.1	0.9	4.3	6.3	<1	<0.5	32	2	16.5	49	520	212.0	31.3
XH3	20	7.82	119	13.37	9.4	<0.5	<0.5	1.0	1.1	<0.5	3.5	4.6	<1	<0.5	28	1	20	48	510	340.5	26.8
XH4	30	7.6	116	12.85	9.4	0.6	0.7	1.3	1.6	<0.5	3.1	4.7	<1	1.0	29	1	14.5	45	480	264.5	24.7
XH5	40	7.44	122	11.87	8.9	<0.5	<0.5	1.3	2.2	<0.5	2.8	5.0	1	2.5	25.5	2	11.5	41	470	200.5	21.7
XH6	50	7.46	121	11.57	9.0	<0.5	<0.5	0.9	2.6	<0.5	1.75	4.4	<1	7.2	26.8	2	6	40	470	136.5	12.6
XH7	60	7.41	121	11.24	8.7	1.3	1.2	0.7	2.6	<0.5	1.4	4.0	<1	8.0	24	2	<2	32	440	104.5	9.1
XH8	70	7.4	122	11.13	8.8	<0.5	<0.5	0.5	2.9	<0.5	1.15	4.1	<1	12.3	21.7	2	<2	34	450	142.0	7.2
XH9	80	7.38	122	11.03	8.6	<0.5	<0.5	0.4	3.2	<0.5	1.15	4.4	<1	13.6	29.4	4	<2	43	440	103.0	8.1
XH10	90	7.4	119	11.01	8.8	<0.5	<0.5	0.4	3.2	<0.5	1.05	4.3	<1	15.1	21.9	2	<2	37	420	79.0	6.2
XH11	100	7.35	120	10.99	8.6	<0.5	<0.5	0.3	3.8	<0.5	1.05	4.9	<1	17.8	25.2	2	4	47	460	98.0	6.6
XH12	110	7.36	122	10.97	8.6	<0.5	<0.5	0.3	4.0	<0.5	1.1	5.1	<1	19.5	24.5	2	<2	44	490	116.5	5.8
XH13	120	7.35	126	10.95	8.4	<0.5	<0.5	0.3	4.5	<0.5	1.3	5.8	<1	22.0	22	2	<2	44	490	93.5	5.6
XH14	130	7.38	127	10.94	8.4	<0.5	<0.5	0.3	4.4	<0.5	1.1	5.5	<1	21.1	21.9	2	<2	43	420	113.5	5.5
XH15	140	7.34	126	10.94	8.2	<0.5	<0.5	0.3	5.2	<0.5	1.3	6.5	<1	24.7	25.3	2	<2	50	440	93.5	7.3
XH16	150	7.38	127	10.94	8.1	1.3	0.6	0.3	5.3	<0.5	1.3	6.6	<1	25.2	26.8	3	<2	52	480	83.5	7.7

Collection date 4 April 2002

Secchi depth = 19.0 m

Code	Depth m	pH	EC @25oC µS cm ⁻¹	Temp °C	DO g m ⁻³	SS g m ⁻³	VSS g m ⁻³	Chlor_a mg m ⁻³	DRP mg m ⁻³	DOP mg m ⁻³	PP mg m ⁻³	TP mg m ⁻³	NH4-N mg m ⁻³	NO3-N mg m ⁻³	DON mg m ⁻³	UREA mg m ⁻³	PN* mg m ⁻³	TN mg m ⁻³	DOC g m ⁻³	PC mg m ⁻³	PN** mg m ⁻³
EJ1	1	7.91	119	17.45	8.8	<0.5	<0.5	0.72	0.5	0.5	1	2.0	1.1	0.3	44.6		7.85	53.9	0.5	187.0	10.0
EJ2	10	7.94	118	17.38	8.9	<0.5	<0.5	0.96	0.6	1.4	1.4	3.4	0.2	0.1	44.7		9.4	54.4	0.6	164.5	10.5
EJ3	20	7.88	119	17.18	8.8	<0.5	<0.5	1.02	0.5	1.5	1.35	3.4	0.3	0.0	38.7		9.45	48.5	0.8	154.5	11.0
EJ4	30	7.85	119	16.83	8.7	<0.5	<0.5	0.95	0.7	2.3	1.45	4.5	0.4	0.1	40.5		8.4	49.4	0.5	136.5	10.5
EJ5	40	7.65	121	12.9	8.3	<0.5	<0.5	0.89	1.4	0.6	1.2	3.2	0.4	0.8	32.8		7.95	42.0	0.4	100.0	8.0
EJ6	50	7.66	120	12.09	8.2	<0.5	<0.5	0.85	2.1	0.9	1.3	4.3	0.4	3.5	35.1		7.8	46.8	0.4	114.0	9.0
EJ7	60	7.60	123	11.51	8.1	<0.5	<0.5	0.50	3.9	2.1	1	7.0	0.9	12.3	30.8		5.7	49.7	0.4	75.0	6.0
EJ8	70	7.42	123	11.3	8.0	<0.5	<0.5	0.26	4.5	0.5	0.95	6.0	0.0	20.9	30.1		5.65	56.7	0.5	49.5	4.0
EJ9	80	7.46	121	11.24	7.9	<0.5	<0.5	0.24	4.6	0.4	1.1	6.1	0.2	24.8	29		7.55	61.6	0.3	50.0	5.0
EJ10	90	7.38	121	11.19	7.8	<0.5	<0.5	0.19	5.3	<0.5	0.75	6.1	0.3	28.1	23.6		4.45	56.5	0.4	48.0	4.0
EJ11	100	7.33	121	11.17	7.8	<0.5	<0.5	0.11	5.4	0.6	0.8	6.8	0.1	28.6	30.3		5.05	64.1	0.3	76.0	5.5
EJ12	110	7.37	122	11.14	7.7	<0.5	<0.5	0.10	6.0	<0.5	0.8	6.8	0.5	31.7	23.8		6.15	62.2	0.6	67.5	7.5
EJ13	120	7.36	122	11.14	7.7	<0.5	<0.5	0.10	6.3	<0.5	0.6	6.9	0.2	32.2	24.6		3.25	60.3	0.3	46.5	4.0
EJ14	130	7.32	122	11.13	7.6	<0.5	<0.5	0.09	6.5	<0.5	0.45	7.0	0.1	32.2	26.7		0.8	59.8	0.5	48.0	5.5
EJ15	140	7.34	122	11.13	7.1	<0.5	<0.5	0.07	7.0	<0.5	0.7	7.7	1.1	34.0	29.9		4.9	69.9	0.4	44.0	4.0
EJ16	150	7.44	122	11.13	7.0	<0.5	<0.5	0.09	8.7	<0.5	0.9	9.6	0.8	36.3	24.9		4.45	66.5	0.4	75.5	4.0

NH₄, NO₃, DON, Urea all as N * = PN by wet digestion method, ** = PN by combustion furnace method.

Detection limits: DRP 0.5; NO₃-N 0.5; NH₄-N 1.0 mg m⁻³

New Analytical instrument (Flow Injection Analysis) from January 2002, gives greatly improved resolution at low levels.

FIA instrument results are given for Autumn as an indication of likely absolute low levels of DRP, NO₃-N, and NH₄-N.

Lake Taupo biannual nutrient database

2000-2001

Started 27 October 1994

Collection date 26 October 2000

Secchi depth = 11 m

Code	Depth	pH	EC @25°C μS cm ⁻¹	Temp °C	DO g m ⁻³	SS g m ⁻³	VSS g m ⁻³	Chlor_a mg m ⁻³	DRP mg m ⁻³	DOP mg m ⁻³	PP mg m ⁻³	TP mg m ⁻³	NH4-N mg m ⁻³	NO3-N mg m ⁻³	DON mg m ⁻³	UREA mg m ⁻³	PN* mg m ⁻³	TN mg m ⁻³	DOC g m ⁻³	PC mg m ⁻³	PN** mg m ⁻³
FX1	1	7.87	120	12.5	9.1	0.5	<0.5	0.4	<1	3	2	5.0	1	<1	25	4	9	35	0.5	104.5	4.0
FX2	10	7.85	120	11.5	8.7	0.8	0.5	1.1	1	4	3	8.0	<1	<1	33	2	23	56	0.5	196.0	12.0
FX3	20	7.79	120	11.4	8.7	<0.5	<0.5	1.3	<1	2	4	6.0	<1	<1	41	2	29	70	0.5	237.0	19.0
FX4	30	7.74	120	11.3	8.7	1.1	0.5	1.3	<1	2	3	5.0	<1	<1	36	1	24	60	0.5	183.0	11.0
FX5	40	7.69	119	11.3	9.1	0.9	0.5	1.5	<1	2	3	5.0	1	<1	38	2	18	57	0.5	90.5	7.0
FX6	50	7.63	120	11.3	9.1	0.8	<0.5	1.4	1	2	2	5.0	2	<1	64	2	14	80	0.4	79.5	6.0
FX7	60	7.54	120	11.3	8.7	0.9	<0.5	1.2	1	1	2	4.0	<1	<1	45	2	14	59	0.4	58.0	5.0
FX8	70	7.52	120	11.2	8.7	<0.5	<0.5	1.2	1	1	2	4.0	4	1	38	4	14	57	0.5	61.5	5.0
FX9	80	7.52	120	11.2	8.7	0.9	<0.5	1.1	2	2	2.5	6.5	5	2	44	2	13	64	0.5	44.5	<4
FX10	90	7.59	120	11.2	8.7	0.9	<0.5	1.1	2	2	2	6.0	6	3	37	2	14	60	0.5	58.5	5.5
FX11	100	7.47	120	11.1	8.7	<0.5	<0.5	1.4	1	1	3	5.0	3	4	39	4	16	62	0.4	48.5	6.0
FX12	110	7.41	121	11.1	8.7	0.9	<0.5	1.2	2	2	3	7.0	3	4	38	3	15	60	0.4	29.5	<4
FX13	120	7.40	121	11.0	8.2	0.5	<0.5	0.8	2	2	2	6.0	6	7	38	5	8	59	0.4	104.0	5.5
FX14	130	7.42	121	11.0	8.5	0.6	<0.5	0.2	2	2	2	6.0	6	7	41	4	11	65	0.4	71.0	6.5
FX15	140	7.36	121	11.0	8.6	0.8	<0.5	0.6	4	1	3	8.0	5	11	40	3	11	67	0.4	65.5	5.0
FX16	150	7.32	121	11.0	8.5	0.6	<0.5	1.4	4	2	4	10.0	8	13	47	9	18	86	0.4	110.5	8.0

Collection date 8 April 2001

Secchi depth = 13.5 m

Code	Depth	pH	EC @25oC μS cm ⁻¹	Temp °C	DO g m ⁻³	SS g m ⁻³	VSS g m ⁻³	Chlor_a mg m ⁻³	DRP mg m ⁻³	DOP mg m ⁻³	PP mg m ⁻³	TP mg m ⁻³	NH4-N mg m ⁻³	NO3-N mg m ⁻³	DON mg m ⁻³	UREA mg m ⁻³	PN* mg m ⁻³	TN mg m ⁻³	DOC g m ⁻³	PC mg m ⁻³	PN** mg m ⁻³
NZ1	1	7.94	120	17.0	8.3	<0.5	<0.5	1.0	<1	2	2	4.0	2	1	40	7	20.0	63.0	0.6	201.0	15.5
NZ2	10	7.97	120	16.9	8.3	<0.5	<0.5	1.4	<1	1	2	3.0	<1	<1	29	1	19.0	48.0	0.6	189.0	13.0
NZ3	20	7.99	120	16.8	8.4	<0.5	<0.5	1.5	<1	1	2	3.0	<1	<1	36	1	19.0	55.0	0.6	208.5	14.5
NZ4	30	7.96	124	15.8	8.0	<0.5	<0.5	1.2	<1	2	2	4.0	1	<1	42	1	16.0	59.0	0.6	156.0	10.5
NZ5	40	7.76	120	13.1	7.8	<0.5	<0.5	1.2	<1	1	1.5	2.5	1	1	22	2	12.0	36.0	0.5	145.0	8.5
NZ6	50	7.69	119	12.4	7.5	<0.5	<0.5	1.0	2	0	1	3.0	1	2	22	2	10.0	35.0	0.5	100.0	5.5
NZ7	60	7.60	120	11.8	7.2	<0.5	<0.5	0.8	1	1	1	3.0	<1	9	16	2	7.0	32.0	0.5	82.0	<2
NZ8	70	7.57	120	11.7	7.1	<0.5	<0.5	0.4	3	0	<1	3.0	<1	19	25	2	5.5	49.5	0.4	80.5	<2
NZ9	80	7.44	121	11.5	6.9	<0.5	<0.5	0.3	3	0	<1	3.0	2	24	15	3	5.0	46.0	0.6	70.0	<2
NZ10	90	7.39	121	11.5	6.9	<0.5	<0.5	0.2	3	1	<1	4.0	2	26	14	4	4.0	46.0	0.5	57.5	<2
NZ11	100	7.38	122	11.4	6.8	<0.5	<0.5	0.2	4	0	<1	4.0	2	29	16	1	4.0	51.0	0.5	47.5	<2
NZ12	110	7.39	122	11.4	6.8	<0.5	<0.5	0.1	4	1	<1	4.0	2	31	18	4	3.5	54.5	0.5	42.5	<2
NZ13	120	7.41	121	11.3	6.7	<0.5	<0.5	0.1	5	0	<1	5.0	1	33	16	4	5.0	55.0	0.4	40.0	<2
NZ14	130	7.42	122	11.3	6.6	<0.5	<0.5	0.1	5	0	<1	5.0	1	33	20	4	5.0	59.0	0.5	42.5	<2
NZ15	140	7.34	123	11.3	6.4	<0.5	<0.5	0.1	6	1	<1	7.0	2	38	12	5	4.5	56.5	0.5	55.0	<2
NZ16	146	7.30	123	11.3	6.3	<0.5	<0.5	0.1	7	2	1	10.0	2	43	22	5	6.5	73.5	0.5	70.5	<2

NH₄, NO₃, DON, Urea all as N Detection limits: DRP 0.5; NO₃-N 0.5; NH₄-N 1.0 mg m⁻³

* = PN by wet digestion method, ** = PN by combustion furnace method.

Lake Taupo biannual nutrient database
Collection date 18 October 1999

1999-2000

Started 27 October 1994

Secchi depth = 14.9 m

Code	Depth	pH	EC @25oC µS cm ⁻¹	Temp °C	DO g m ⁻³	SS g m ⁻³	VSS g m ⁻³	Chlor_a ⁺ mg m ⁻³	DRP mg m ⁻³	DOP mg m ⁻³	PP mg m ⁻³	TP mg m ⁻³	NH ₄ -N mg m ⁻³	NO ₃ -N mg m ⁻³	DON mg m ⁻³	UREA mg m ⁻³	PN* mg m ⁻³	TN mg m ⁻³	DOC mg m ⁻³	PC mg m ⁻³	PN** mg m ⁻³
PX1	1	7.71	119	12.8	8.9	0.5	<0.5	0.14	0.5	3	3.7	7.2	<1	<1	41	16	19.4	60.4	441	105.7	8.8
PX2	10	7.74	117	12.7	8.9	<0.5	<0.5	0.39	0.5	4	3.2	7.7	<1	<1	36	4	19.9	55.9	411	160.8	12.9
PX3	20	7.73	122	12.4	8.9	0.6	<0.5	0.80	1	2	5.5	8.5	<1	<1	34	1	37.8	71.8	437	254.7	37.3
PX4	30	7.76	120	11.6	8.9	<0.5	1.9	1.06	1	2	3.9	6.9	<1	<1	36	<1	26.7	62.7	413	198.3	24.2
PX5	40	7.57	117	11.4	8.8	<0.5	<0.5	3.14	2	2	2.4	6.4	5	<1	44	22	14.6	63.6	392	117.2	9.7
PX6	50	7.48	119	11.3	8.6	<0.5	<0.5	2.90	2.5	2	1.7	6.2	8	2	33	5	9.1	52.1	417	87.0	6.6
PX7	60	7.49	118	11.1	8.6	0.5	<0.5	1.45	3	1	1.5	5.5	7	9	36	5	12.6	64.6	449	95.0	11.1
PX8	70	7.41	117	11.1	8.6	<0.5	<0.5	0.65	3.5	1	1.5	6.0	4	15	27	9	5.6	51.6	421	49.9	4.9
PX9	80	7.39	117	11.0	8.5	<0.5	<0.5	0.75	3.5	2	1.4	6.9	4	17	31	7	5.7	57.7	398	42.7	5.7
PX10	90	7.36	118	11.0	8.6	<0.5	<0.5	0.54	4	2	1.3	7.3	3	17	29	2	5.8	54.8	393	51.2	5.7
PX11	100	7.36	118	11.0	8.6	<0.5	<0.5	0.63	4	1	1.6	6.6	4	18	30	2	7.3	59.3	492	56.1	5.8
PX12	110	7.35	118	11.0	8.6	0.5	<0.5	0.65	4	2	1.8	7.8	5	18	46	10	20.1	89.1	547	129.5	21.4
PX13	120	7.33	119	11.0	8.3	0.8	0.7	0.71	4	2	1.7	7.7	6	19	47	20	45.3	117.3	530	222.3	44.3
PX14	130	7.33	119	11.0	7.9	0.6	0.5	0.59	4	2	1.7	7.7	5	19	40	12	15.3	79.3	461	112.9	19.7
PX15	140	7.32	123	11.0	7.5	0.6	<0.5	0.90	4	1	2.3	7.3	4	19	53	12	16.5	92.5	514	84.5	9.7
PX16	150	7.29	119	11.0	7.5	1.6	<0.5	0.67	4.5	2	2.1	8.6	3	19	34	7	9.6	65.6	783	63.9	6.8

Collection date 12 April 2000

Secchi depth = 15 m

Code	Depth	pH	EC @25oC µS cm ⁻¹	Temp °C	DO g m ⁻³	SS g m ⁻³	VSS g m ⁻³	Chlor_a mg m ⁻³	DRP mg m ⁻³	DOP mg m ⁻³	PP mg m ⁻³	TP mg m ⁻³	NH ₄ -N mg m ⁻³	NO ₃ -N mg m ⁻³	DON mg m ⁻³	UREA mg m ⁻³	PN* mg m ⁻³	TN mg m ⁻³	DOC mg m ⁻³	PC mg m ⁻³	PN** mg m ⁻³
YX1	1	7.86	118	17.4	9.2	0.6		1.3	<1	4	2	6.0	6	2	72	8	16	96.0	542	255.0	31.0
YX2	10	7.88	118	17.3	9.2	1.1		1.3	<1	3	2	5.0	3	1	57	1	21	82.0	472	198.5	16.5
YX3	20	7.88	118	17.2	9.2	1.0		1.4	<1	3	2	5.0	1	<1	59	3	15.5	75.5	599	166.5	12.0
YX4	30	7.79	118	16.7	9.0	1.1		1.3	<1	3	2	5.0	1	<1	59	2	17	77.0	608	154.0	17.5
YX5	40	7.29	119	12.6	8.3	0.6		1.1	2	2	1	5.0	2	2	57	6	9.5	70.5	396	72.0	6.0
YX6	50	7.17	120	11.7	8.0	1.0		0.8	3	2	1	6.0	2	7	42	7	8.5	59.5	403	94.5	7.5
YX7	60	7.18	119	11.4	8.0	0.5		1.0	4	1	<1	5.0	1	16	44	1	4	65.0	402	48.5	<4
YX8	70	7.1	120	11.3	8.0	0.6		<0.1	6	1	<1	7.0	6	29	35	1	6.5	76.5	418	41.0	4.0
YX9	80	7.14	120	11.2	7.9	1.0		<0.1	6	1	<1	7.0	2	32	46	1	12	92.0	451	105.5	8.0
YX10	90	7.11	120	11.2	7.9	0.7		<0.1	7	<1	<1	7.0	1	35	34	2	11	81.0	428	67.5	5.0
YX11	100	7.12	125	11.2	7.7	0.7		<0.1	7	2	<1	9.0	2	37	41	1	8.5	88.5	417	68.5	<4
YX12	110	7.12	120	11.2	7.7	0.9		<0.1	7	2	<1	9.0	2	37	50	3	11	100.0	439	65.0	5.5
YX13	120	7.06	120	11.1	7.7	0.6		<0.1	8	1	<1	9.0	3	39	47	1	6.5	95.5	431	40.5	0.0
YX14	130	7.12	120	11.1	7.5	1.2		<0.1	8	1	<1	9.0	2	40	47	3	9	98.0	453	57.0	5.0
YX15	140	7.08	120	11.1	7.5	1.2		<0.1	9	<1	<1	9.0	2	42	45	2	8	97.0	415	50.5	<4
YX16	146	7.04	120	11.1	7.2	1.7		0.1	10	3	1	14.0	4	43	42	2	10	99.0	429	92.0	4.0

NH₄, NO₃, DON, Urea all as N

Detection limits: DRP 0.5; NO₃-N 0.5; NH₄-N 1.0 mg m⁻³

* = PN by wet digestion method, ** = PN by combustion furnace method. ** = from calibrated chlorophyll fluorescence profiler (filters damaged)

Lake Taupo biannual nutrient database
Collection date 1 November 1998

1998-1999

Started 27 October 1994

Secchi depth = 13.5 m

Code	Depth	pH	EC @25oC μS cm ⁻¹	Temp °C	DO g m ⁻³	SS g m ⁻³	VSS g m ⁻³	Chlor_a mg m ⁻³	DRP mg m ⁻³	DOP mg m ⁻³	PP mg m ⁻³	TP mg m ⁻³	NH4-N mg m ⁻³	NO3-N mg m ⁻³	DON mg m ⁻³	PN* mg m ⁻³	TN mg m ⁻³	DOC g m ⁻³	PC mg m ⁻³	PN** mg m ⁻³
DM1	1	7.91	118	13.6	10.4	0.8	<0.5	0.8	0.7	1.5	2.0	4.2	3.4	<0.5	35	10.8	49.2	133.5	12.0	
DM2	10	7.87	117	13.2	10.7	0.8	<0.5	1.0	0.6	1.3	2.6	4.5	2.4	<0.5	36	15.2	53.6	180.5	15.0	
DM3	20	7.82	118	12.7	10.7	0.5	<0.5	1.4	0.6	1.4	2.9	4.9	1.9	1.1	37	18.0	58.0	215.0	23.3	
DM4	30	7.80	118	12.4	10.6	<0.5	<0.5	1.1	0.5	1.3	2.3	4.1	1.9	<0.5	34	14.1	50.0	128.0	13.5	
DM5	40	7.75	118	12.4	10.4	<0.5	<0.5	0.6	0.6	1.2	1.7	3.5	2.5	<0.5	34	9.2	45.7	118.0	10.4	
DM6	50	7.70	118	12.2	10.2	<0.5	<0.5	0.6	0.6	1.2	1.7	3.5	2.6	0.6	31	8.1	42.3	114.5	7.9	
DM7	60	7.46	119	11.7	10.0	<0.5	<0.5	0.4	2.1	1.0	1.4	4.5	1.6	9.5	32	6.0	49.1	73.0	6.0	
DM8	70	7.30	120	11.2	9.6	<0.5	<0.5	0.3	3.3	0.9	1.0	5.2	2.7	16.0	32	3.8	54.5	56.0	2.7	
DM9	80	7.15	121	11.1	9.1	<0.5	<0.5	0.2	3.9	0.8	0.9	5.6	1.5	20.5	29	5.0	56.0	64.5	2.7	
DM10	90	7.07	122	11.1	8.8	<0.5	<0.5	0.2	4.9	0.5	0.9	6.3	2.6	24.8	32	5.0	64.4	45.0	2.9	
DM11	100	7.16	121	11.0	8.5	<0.5	<0.5	0.2	5.0	0.5	0.9	6.4	3.3	26.2	34	3.6	67.1	42.5	2.0	
DM12	110	7.16	122	11.0	8.3	<0.5	<0.5	0.1	6.2	0.4	0.8	7.4	2.0	29.2	30	4.0	65.2	54.0	2.9	
DM13	120	7.11	122	11.0	8.0	<0.5	<0.5	0.1	6.4	0.3	0.8	7.5	2.2	30.6	29	3.3	65.1	63.0	1.8	
DM14	130	7.08	122	11.0	7.8	<0.5	<0.5	0.1	7.0	0.2	0.8	8.0	2.2	31.4	28	3.1	64.7	48.5	2.0	
DM15	140	7.07	123	10.9	7.6	<0.5	<0.5	0.1	7.9	0.0	0.9	8.8	2.0	33.8	32	5.0	72.8	54.0	2.0	
DM16	150	7.10	123	10.9	7.6	2.5	<0.5	0.2	8.2	0.4	3.7	12.3	2.7	35.4	34	12.8	84.9	140.5	10.5	

Collection date 14 April 1999

Secchi depth = 13 m

Code	Depth	pH	EC @25oC μS cm ⁻¹	Temp °C	DO g m ⁻³	SS g m ⁻³	VSS g m ⁻³	Chlor_a mg m ⁻³	DRP mg m ⁻³	DOP mg m ⁻³	PP mg m ⁻³	TP mg m ⁻³	NH4-N mg m ⁻³	NO3-N mg m ⁻³	DON mg m ⁻³	PN* mg m ⁻³	TN mg m ⁻³	DOC g m ⁻³	PC mg m ⁻³	PN** mg m ⁻³
II1	1		119	18.3	8.9	<0.5	<0.5	1.2	0.6		1.8	2.4	3	<0.5	43	19.0	65.0	0.6	221.4	19.5
II2	10		118	18.3	8.8	<0.5	<0.5	1.2	0.5		1.8	2.3	1	<0.5	40	19.3	60.3	0.5	216.3	17.6
II3	20		118	18.3	8.8	<0.5	<0.5	1.2	0.5		1.7	2.2	1	2	41	19.0	63.0	0.5	132.3	8.9
II4	30		118	18.1	8.7	<0.5	<0.5	1.2	1.1		1.4	2.5	1	3	34	14.0	52.0	0.6	136.8	9.7
II5	40		118	12.9	8.4	<0.5	<0.5	0.7	2.3		0.9	3.2	1	6	31	8.9	46.9	0.7	91.2	6.5
II6	50		119	11.9	8.1	<0.5	<0.5	0.4	3.1		0.7	3.8	1	14	28	7.9	50.9	0.5	63.1	4.8
II7	60		121	11.6	8.0	<0.5	<0.5	0.3	4.3		0.7	5.0	1	19	33	7.3	60.3	0.6	42.3	5.0
II8	70		121	11.4	8.0	<0.5	<0.5	0.2	5.5		0.8	6.3	1	23	27	8.6	59.6	0.4	48.4	7.0
II9	80		122	11.3	7.8	<0.5	<0.5	0.1	5.9		0.8	6.7	2	28	29	8.3	67.3	0.5	51.5	6.1
II10	90		123	11.2	7.6	<0.5	<0.5	0.1	6.1		0.6	6.7	1	30	31	6.4	68.4	0.5	62.1	4.2
II11	100		122	11.2	7.4	<0.5	<0.5	0.1	6.1		0.5	6.6	2	27	28	6.1	63.1	0.6	33.1	1.5
II12	110		120	11.2	7.2	<0.5	<0.5	0.1	6.6		0.5	7.1	2	28	27	6.1	63.1	0.5	35.7	2.9
II13	120		122	11.2	7.1	<0.5	<0.5	0.1	6.4		0.5	6.9	2	24	26	5.2	57.2	0.6	34.1	2.2
II14	130		122	11.1	6.8	<0.5	<0.5	<0.1	7.5		0.5	8.0	2	28	31	6.3	67.3	0.6	46.9	5.5
II15	140		122	11.1	6.3	<0.5	<0.5	0.1	8.8		0.9	9.7	2	33	31	6.4	72.4	0.5	63.4	3.0
II16	150		116	11.1	5.9	<0.5	<0.5	<0.1	8.6		0.9	9.5	4	28	60	7.7	99.7	0.9	51.1	1.1

NH₄, NO₃, DON, Urea all as N Detection limits: DRP 0.5; NO₃-N 0.5; NH₄-N 1.0 mg m⁻³

* = PN by wet digestion method, ** = PN by combustion furnace method.

Lake Taupo biannual nutrient database

Collection Date 30 October 1997

ID	Depth m	pH	EC @25°C µS cm ⁻¹	Temp C	DO g m ⁻³	SS g m ⁻³	Secchi depth = 12.5 m													PN*	TN mg m ⁻³	DOC g m ⁻³	PC mg m ⁻³	PN** mg m ⁻³	SO ₄ g m ⁻³
							VSS g m ⁻³	Chlor_a mg m ⁻³	DRP mg m ⁻³	DOP mg m ⁻³	PP mg m ⁻³	TP mg m ⁻³	NH ₄ mg m ⁻³	NO ₃ mg m ⁻³	DON mg m ⁻³	UREA mg m ⁻³									
TT1	1	7.70	116.9	12.2	10.7	0.61	0.30	1.28	1.0	1.3	1.5	3.8	2.1	2.9	36	1.1	14.3	55.3	0.71	168.3	17.2				
TT2	10	7.71	117.8	12.0	10.2	0.54	0.29	1.49	0.7	1.9	1.9	4.5	1.3	7.3	32	1.1	18.7	59.7	0.82	160.7	18.8				
TT3	20	7.65	118.1	11.5	10.2	0.59	0.32	1.58	0.8	1.6	1.7	4.0	1.6	0.7	36	1.1	14.0	52.0	0.60	133.0	16.5				
TT4	30	7.64	118.2	11.5	10.0	0.52	0.25	1.19	0.4	1.5	1.9	3.8	1.5	1.3	31	0.9	15.8	49.8	0.60	146.9	16.0				
TT5	40	7.62	117.1	11.4	10.0	0.55	0.28	1.31	0.6	1.5	1.6	3.7	1.7	0.3	33	1.0	14.1	49.1	0.62	126.3	13.4				
TT6	50	7.63	116.9	11.1	9.9	0.37	0.20	1.10	0.4	1.5	1.4	3.2	2.2	0.3	32	0.8	12.3	46.3	0.51	112.1	12.1				
TT7	60	7.54	117.7	11.1	9.8	0.21	0.10	0.93	1.4	0.7	1.5	3.5	3.3	0.7	34	1.6	14.3	52.3	0.74	80.6	9.0				
TT8	70	7.45	117.8	10.8	9.8	0.41	0.12	0.79	1.1	1.1	1.1	3.2	8.2	1.3	31	1.5	7.9	47.9	0.65	58.4	4.8				
TT9	80	7.36	118.3	10.7	9.9	0.31	0.04	0.54	1.5	1.1	0.8	3.3	6.1	2.3	31	0.6	6.0	45.0	0.57	57.6	9.0				
TT10	90	7.48	117.8	10.6	9.3	0.44	0.27	0.74	1.1	1.2	1.2	3.5	7.9	4.8	33	0.7	12.4	58.4	0.52	69.3	12.2				
TT11	100	7.29	118.5	10.5	9.2	0.25	0.11	0.40	2.0	1.2	0.8	4.1	8.4	5.0	30	1.1	5.7	48.7	0.63	64.5	8.3				
TT12	110	6.97	119.3	10.4	9.0	0.21	0.06	0.29	2.3	1.0	1.1	4.3	10.8	5.6	29	2.5	6.7	51.7	0.59	53.0	5.5				
TT13	120	7.00	119.1	10.5	9.0	0.29	0.26	0.27	2.0	1.2	1.0	4.1	9.9	6.7	31	6.1	5.8	53.8	0.58	37.5	5.3				
TT14	130	6.80	119.8	10.5	8.8	0.28	0.26	0.28	2.2	1.2	1.3	4.7	10.6	7.1	32	1.5	8.2	58.2	0.56	49.0	6.4				
TT15	140	7.23	117.9	10.4	8.8	0.25	0.20	0.26	2.7	1.4	1.1	5.2	10.8	9.5	37	2.0	10.9	67.9	0.63	66.0	8.5				
TT16	150	7.29	118.9	10.4	8.8	0.50	0.27	0.32	2.5	1.1	1.0	4.5	11.6	9.6	37	3.0	7.6	65.6	0.54	69.0	9.2				

Collection Date:- 7 April 1998

ID	Depth m	pH	EC @25°C µS cm ⁻¹	Temp C	DO g m ⁻³	SS g m ⁻³	Secchi depth = 13.5 m													PN*	TN mg m ⁻³	DOC g m ⁻³	PC mg m ⁻³	PN** mg m ⁻³	SO ₄ g m ⁻³
							VSS g m ⁻³	Chlor_a mg m ⁻³	DRP mg m ⁻³	DOP mg m ⁻³	PP mg m ⁻³	TP mg m ⁻³	NH ₄ mg m ⁻³	NO ₃ mg m ⁻³	DON mg m ⁻³	UREA mg m ⁻³									
YE1	1	8.00	118	17.7	9.1	0.40	0.10	0.67	0.8	1.4	1.3	3.5	2.9	4.6	53	3.7	9.9	70.4	0.83	156.5	14.4	7.7			
YE2	10	7.99	119	17.7	9.1	0.49	0.12	1.04	0.9	1.4	1.8	4.1	1.9	2.5	52	4.6	13.7	70.1	0.78	179.5	16.0	8.1			
YE3	20	8.00	119	17.7	9.1	0.32	0.32	1.07	0.7	1.5	1.7	3.9	2.4	1.5	48	3.7	12.6	64.5	0.71	162.5	15.2	8.5			
YE4	30	7.99	120	17.5	9.1	0.30	0.20	1.06	0.7	1.7	1.6	4.0	2.0	1.2	48	3.7	12.7	63.9	0.78	138.5	14.5	8.0			
YE5	40	7.60	120	13.7	9.3	0.13	0.13	1.18	1.2	1.0	1.2	3.4	2.0	3.1	39	4.2	8.2	52.3	0.69	112.5	8.2	7.7			
YE6	50	7.50	120	11.5	9.3	0.34	0.00	0.75	2.4	0.9	0.9	4.2	2.5	4.5	52	3.2	6.5	65.5	0.65	88.0	6.7	7.8			
YE7	60	7.38	120	11.0	9.3	0.11	0.00	0.49	3.0	0.7	0.8	4.5	1.5	11.7	32	3.2	5.3	50.5	0.72	74.5	5.8	7.7			
YE8	70	7.32	121	10.8	9.2	0.20	0.00	0.33	3.1	0.9	0.6	4.6	1.0	17.7	38	3.7	4.0	60.7	0.78	57.5	4.1	7.9			
YE9	80	7.23	120	10.6	9.1	0.24	0.24	0.24	3.5	0.6	0.8	4.9	1.4	23.1	43	6.9	5.7	73.2	0.69	49.5	4.5	7.9			
YE10	90	7.27	121	10.6	9.1	0.31	0.21	0.17	4.4	0.6	0.7	5.7	1.3	24.1	41	6.5	5.6	72.0	0.68	47.5	4.9	7.9			
YE11	100	7.29	121	10.6	9.0	0.32	0.11	0.16	4.5	0.7	0.8	6.0	1.0	24.5	39	3.7	6.8	71.3	0.57	58.0	7.4	7.8			
YE12	110	7.29	121	10.5	8.9	0.35	0.35	0.12	4.8	0.7	0.5	6.0	1.3	25.1	40	5.5	6.5	72.9	0.63	52.5	2.6	7.8			
YE13	120	7.35	121	10.5	8.9	0.24	0.08	0.37	3.4	0.6	1.2	5.2	1.0	18.9	35	4.6	4.1	59.0	0.75	63.5	3.8	7.7			
YE14	130	7.24	122	10.5	8.8	0.32	0.16	0.11	5.7	0.6	0.7	7.0	1.0	27.0	39	6.0	3.5	70.5	0.63	52.0	3.9	7.9			
YE15	140	7.21	122	10.5	8.6	0.45	0.05	0.15	6.4	0.6	1.0	8.0	4.2	29.1	65	10.6	6.7	105.0	0.74	60.5	5.9	7.8			
YE16	150	7.49	121	10.5	8.4	0.80	0.15	0.62	3.3	1.1	1.6	6.0	2.5	13.0	62	9.7	14.2	91.7	0.70	135.5	13.6	7.9			

NH₄, NO₃, DON, Urea all as N

Detection limits: DRP 0.5; NO₃-N 0.5; NH₄-N 1.0 mg m⁻³

* = PN by wet digestion method, ** = PN by combustion furnace method.

Lake Taupo biannual nutrient database

Collection Date 24 October 1996

ID	Depth m	pH	EC @25°C µS cm ⁻¹	Temp C	DO g m ⁻³	Secchi depth = 12.6 m				1996-1997											Started 27 October 1994			
						SS g m ⁻³	VSS g m ⁻³	Chlor_a mg m ⁻³	DRP mg m ⁻³	DOP mg m ⁻³	PP mg m ⁻³	TP mg m ⁻³	NH ₄ mg m ⁻³	NO ₃ mg m ⁻³	DON mg m ⁻³	UREA mg m ⁻³	PN* mg m ⁻³	TN mg m ⁻³	DOC g m ⁻³	PC mg m ⁻³	PN** mg m ⁻³	SO ₄ g m ⁻³		
IG1	1			12.4	10.3	0.45	0.34	0.27	0.6	2.1	1.7	4.4	3.0	0.5	59.3	1.4	13.9	76.7	0.86	171	14.5	7.82		
IG2	10			12.3	10.3	0.72	0.42	0.47	0.7	2.3	2.2	5.2	2.4	0.4	64.5	1.0	14.5	81.8	0.88	201	16.8	7.90		
IG3	20			12.3	10.2	0.67	0.40	0.45	0.8	2.8	2.9	6.5	2.6	0.4	75.8	0.6	18.7	97.5	0.91	232	19.8	7.87		
IG4	30			12.3	9.9	0.85	0.49	0.64	0.6	2.3	3.1	6.0	3.3	0.5	73.6	0.4	20.6	98.0	0.95	198	15.7	7.86		
IG5	40			11.9	9.9	0.71	0.46	0.56	0.5	1.8	2.5	4.8	2.6	1.2	64.8	0.3	14.6	83.2	0.80	183	12.8	7.84		
IG6	50			11.6	9.8	0.62	0.34	0.45	1.1	3.1	2.1	6.3	2.9	0.6	71.2	0.9	13.2	87.9	0.92	157	14.9	7.95		
IG7	60			11.1	9.7	0.77	0.32	0.70	0.9	1.8	2.3	5.0	4.4	13.2	175.4	3.5	14.3	207.3	1.29	151	14.1	10.67		
IG8	70			10.6	9.4	0.65	0.28	0.54	0.8	1.5	1.9	4.2	2.9	0.8	59.3	1.5	9.2	72.2	0.78	116	10.2	7.85		
IG9	80			10.5	9.3	0.51	0.27	0.55	0.9	2.5	1.8	5.2	3.0	3.0	76.1	1.3	9.8	91.9	0.95	103	10.8	7.80		
IG10	90			10.4	9.3	0.49	0.23	0.50	0.6	1.8	1.8	4.2	2.1	1.0	52.3	1.4	10.9	66.3	0.73	95	11.0	7.69		
IG11	100			10.4	9.2	0.50	0.21	0.51	0.5	1.5	1.8	3.8	1.8	3.6	53.9	4.5	9.6	68.9	1.04	106	12.8	7.85		
IG12	110			10.4	9.2	0.43	0.23	0.49	0.4	1.3	2.0	3.7	2.5	5.2	54.0	6.0	9.3	71.0	0.80	94	11.5	7.85		
IG13	120			10.4	9.0	0.47	0.21	0.47	0.8	1.4	1.8	4.0	3.7	9.6	61.9	6.9	8.0	83.2	0.78	78	9.7	7.97		
IG14	130			10.3	8.9	0.44	0.18	0.38	1.1	1.5	2.3	4.9	4.5	9.7	52.4	4.6	12.0	78.6	1.00	83	8.7	7.99		
IG15	140			10.3	8.9	0.49	0.22	0.51	1.5	1.6	2.5	5.6	4.3	12.9	57.8	5.0	10.4	85.4	0.99	80	8.9	8.14		
IG16	150			10.3	8.9	1.13	0.26	0.57	1.2	2.3	3.5	7.0	5.1	13.6	65.9	4.8	14.5	99.1	0.91	121	13.4	8.15		

Collection Date:- 2 April 1997

ID	Depth m	pH	EC @25°C µS cm ⁻¹	Temp C	DO g m ⁻³	Secchi depth = 16.0 m				1996-1997											Started 27 October 1994			
						SS g m ⁻³	VSS g m ⁻³	Chlor_a mg m ⁻³	DRP mg m ⁻³	DOP mg m ⁻³	PP mg m ⁻³	TP mg m ⁻³	NH ₄ mg m ⁻³	NO ₃ mg m ⁻³	DON mg m ⁻³	UREA mg m ⁻³	PN* mg m ⁻³	TN mg m ⁻³	DOC g m ⁻³	PC mg m ⁻³	PN** mg m ⁻³	SO ₄ g m ⁻³		
NA1	1	8.02	118.4	17.3	9.4	0.30	0.30	0.63	0.9	2.2	1.5	4.6	4.0	0.6	67.4	4.9	18.1	90.1	0.82	186.5	17.3	7.80		
NA2	10	8.01	118.3	17.3	9.2	0.20	0.10	0.69	0.9	1.3	1.6	3.8	1.7	0.3	51.0	3.3	14.4	67.4	0.77	190.0	17.1	7.86		
NA3	20	8.03	118.2	17.2	8.9	0.40	0.30	0.63	0.6	1.2	1.6	3.4	1.8	0.3	51.8	2.2	17.6	71.5	0.75	192.0	19.1	7.85		
NA4	30	7.98	118.4	17.2	8.8	0.40	0.40	0.52	0.7	1.0	1.5	3.2	2.5	0.6	47.5	2.7	15.2	65.8	0.56	207.5	20.3	7.90		
NA5	40	7.52	118.5	14.2	8.8	0.20	0.20	0.72	0.8	1.8	1.4	4.0	2.7	0.3	53.2	4.1	13.3	69.5	0.69	158.0	15.2	7.91		
NA6	50	7.32	119.3	11.3	8.6	0.00	0.00	0.39	1.5	1.4	1.0	3.9	11.2	3.1	54.7	4.5	9.7	78.7	0.62	116.5	10.6	7.88		
NA7	60	7.18	120.2	10.9	8.6	0.20	0.20	0.16	1.7	1.3	0.8	3.8	3.7	10.1	48.9	2.1	10.5	73.2	0.86	100.0	13.8	7.88		
NA8	70	7.13	119.6	10.6	8.5	0.10	0.10	0.12	1.9	1.7	0.8	4.4	4.3	11.8	58.3	2.2	8.0	82.4	0.83	75.0	8.7	7.87		
NA9	80	7.12	120.1	10.5	8.5	0.10	0.10	0.05	3.3	1.4	0.7	5.4	6.9	26.9	82.4	16.9	6.7	122.9	0.98	77.5	9.9	7.90		
NA10	90	7.12	120.4	10.5	8.5	0.00	0.00	0.25	3.6	2.2	0.7	6.5	28.9	22.9	108.3	7.4	8.1	168.2	0.63	110.5	8.8	8.00		
NA11	100	7.10	120.4	10.5	8.4	0.20	0.20	0.04	4.4	1.2	0.8	6.4	10.7	22.5	72.0	5.2	7.1	112.3	0.85	71.0	8.3	7.97		
NA12	110	7.07	120.6	10.4	8.3	0.20	0.20	0.02	3.7	2.0	0.8	6.5	2.9	21.9	52.5	3.8	6.4	83.7	1.01	77.0	9.6	7.93		
NA13	120	7.07	120.5	10.4	8.2	0.30	0.20	0.02	3.3	2.4	0.8	6.5	6.4	22.8	56.4	4.2	13.0	98.6	0.70	113.5	15.4	7.88		
NA14	130	7.08	120.4	10.4	8.0	0.20	0.20	0.01	4.3	1.6	0.8	6.7	6.2	27.9	56.7	6.2	8.2	99.0	0.81	118.5	11.0	7.97		
NA15	140	7.10	121.1	10.4	7.6	0.40	0.40	0.04	4.5	1.7	1.2	7.4	3.9	28.9	58.5	7.9	24.7	116.0	0.80	212.5	28.8	7.91		
NA16	150	7.10	122.1	10.4	7.5	1.20	0.40	0.07	5.0	1.0	2.7	8.7	8.6	29.0	61.5	11.8	20.2	119.3	2.07	234.5	22.1	7.97		

NH₄, NO₃, DON, Urea all as N

Detection limits: DRP 0.5; NO₃-N 0.5; NH₄-N 1.0 mg m⁻³

* = analysed by wet digestion method, ** = analysed by CHN combustion furnace method.

Lake Taupo biannual nutrient database
1995-1996
Collection Date:- 30 October 1995

Secchi depth = 13.0 m

ID	Depth	pH	EC @25°C µS cm ⁻¹	Temp C	DO g m ⁻³	BOD ₅ g m ⁻³	SS g m ⁻³	VSS g m ⁻³	Chlor_a mg m ⁻³	DRP mg m ⁻³	DOP mg m ⁻³	PP mg m ⁻³	TP mg m ⁻³	NH ₄ mg m ⁻³	NO ₃ mg m ⁻³	DON mg m ⁻³	UREA mg m ⁻³	PN* mg m ⁻³	TN mg m ⁻³	DOC g m ⁻³	PC mg m ⁻³	PN** mg m ⁻³
ZH1	1	7.40	115.1	13.7	10.3	0.80	0.60	0.38	0.45	<0.2	2.4	1.27	3.67	<0.2	<0.1	55.7	3	6.89	62.69	0.75	123	10.3
ZH2	10	7.59	116.1	11.9	10.5	0.40	0.95	0.53	0.96	<0.2	0.8	1.94	2.74	<0.2	<0.1	48.0	3	14.69	62.69	0.61	217	18.0
ZH3	20	7.39	117.8	11.4	10.6	-0.05	1.09	0.59	1.18	0.3	1.5	2.41	4.21	0.2	<0.1	51.5	4	19.47	71.17	0.58	285	22.3
ZH4	30	7.58	116.6	11.2	10.7	-0.15	1.15	0.58	1.26	0.2	0.7	2.21	3.11	<0.2	<0.1	44.6	2	17.83	62.43	0.45	242	19.4
ZH5	40	7.48	116.2	10.9	10.7	0.00	0.91	0.57	1.22	<0.2	1.1	1.88	2.98	<0.2	<0.1	41.9	2	13.00	54.90	0.44	183	15.8
ZH6	50	7.36	117.0	10.8	10.3	0.25	0.69	0.42	1.10	<0.2	0.8	1.71	2.51	<0.2	<0.1	41.7	3	8.55	50.25	0.43	116	10.3
ZH7	60	7.28	117.2	10.7	10.3	0.70	0.49	0.28	1.03	<0.2	0.8	1.55	2.35	<0.2	0.1	41.1	3	7.75	48.95	0.40	110	10.3
ZH8	70	7.25	117.8	10.5	10.2	0.50	0.64	0.43	1.03	<0.2	0.6	1.50	2.10	<0.2	0.2	40.4	2	7.27	47.87	0.38	108	9.9
ZH9	80	7.25	117.5	10.5	10.2	0.40	0.72	0.43	1.19	<0.2	0.8	1.58	2.38	<0.2	0.7	41.4	2	7.19	49.39	0.48	115	12.1
ZH10	90	7.30	118.0	10.5	10.1	0.00	0.72	0.40	1.27	0.3	0.6	1.59	2.49	<0.2	1.5	38.5	3	7.30	47.30	0.47	101	12.1
ZH11	100	7.25	117.5	10.5	10.0	0.15	0.71	0.39	1.30	<0.2	0.2	1.77	1.97	<0.2	2.4	36.4	3	10.67	49.47	0.49	107	12.5
ZH12	110	7.25	117.5	10.5	9.9	0.35	0.71	0.38	1.32	<0.2	0.9	1.69	2.59	0.5	4.6	44.3	3	10.26	59.66	0.52	93	13.1
ZH13	120	7.23	117.3	10.5	9.9	0.30	0.70	0.41	1.35	<0.2	1.3	1.55	2.85	0.5	5.6	51.3	9	7.99	65.39	0.51	99	12.9
ZH14	130	7.25	117.3	10.5	9.8	0.20	0.69	0.47	1.32	<0.2	0.4	1.89	2.29	1.3	6.6	49.7	7	13.42	71.02	0.55	112	18.5
ZH15	140	7.25	117.3	10.5	9.6	0.40	0.97	0.47	1.60	<0.2	0.2	2.54	2.74	5.7	11.7	60.6	9	11.77	89.77	0.57	113	15.8
ZH16	150	7.25	117.5	10.5	9.2	0.40	1.77	0.91	1.77	0.7	0.4	3.05	4.15	8.3	13.2	90.9	15	48.30	160.70	0.69	357	55.1

Collection Date:- 28 March 1996

Secchi depth = 14.6 m

ID	Depth	pH	EC @25°C µS cm ⁻¹	Temp C	DO g m ⁻³	BOD ₅ g m ⁻³	SS g m ⁻³	VSS g m ⁻³	Chlor_a mg m ⁻³	DRP mg m ⁻³	DOP mg m ⁻³	PP mg m ⁻³	TP mg m ⁻³	NH ₄ mg m ⁻³	NO ₃ mg m ⁻³	DON mg m ⁻³	UREA mg m ⁻³	PN* mg m ⁻³	TN mg m ⁻³	DOC g m ⁻³	PC mg m ⁻³	PN** mg m ⁻³
DR1	1	8.02	117.4	16.8	8.7	0.15	0.31	0.18	0.48	1.3	1.8	0.93	4.03	<0.2	4.7	91.0	1.4	12.69	108.39	0.35	118	9.7
DR2	10	8.02	117.4	16.7	8.7	0.20	0.44	0.25	0.81	1.3	1.5	1.43	4.23	<0.2	7.4	111.0	6.2	12.60	131.00	0.42	149	12.3
DR3	20	7.95	117.6	16.6	8.8	0.25	0.34	0.23	0.76	1.0	1.8	1.30	4.10	0.6	<0.1	60.0	2.0	11.70	72.30	0.35	126	11.7
DR4	30	7.59	119.0	13.7	9.0	0.25	0.39	0.15	1.13	1.5	1.7	1.51	4.71	0.5	0.2	64.0	2.0	11.72	76.42	0.26	101	12.8
DR5	40	7.43	118.9	12.4	8.8	0.25	0.35	0.16	0.97	1.3	1.4	1.41	4.11	1.1	<0.1	51.0	2.2	11.77	63.87	0.22	68	8.6
DR6	50	7.34	119.5	11.6	8.6	0.10	0.32	0.14	0.71	1.8	1.5	1.17	4.47	0.8	5.0	68.0	3.5	8.76	82.56	0.18	60	6.4
DR7	60	7.32	119.4	11.4	8.5	0.25	0.27	0.10	0.48	2.2	1.0	1.06	4.26	1.8	5.9	59.0	1.8	8.32	75.02	0.17	46	5.7
FR8	70	7.29	120.4	11.6	8.5	0.25	0.23	0.13	0.28	2.3	1.5	0.80	4.60	<0.2	14.1	87.0	3.4	6.65	107.75	0.26	48	6.4
DR9	80	7.20	120.8	11.2	8.3	0.20	0.30	0.14	0.17	2.9	1.3	0.83	5.03	1.5	10.0	68.0	1.4	5.15	84.65	0.23	45	5.5
DR10	90	7.20	121.2	11.3	8.2	0.20	0.39	0.14	0.12	2.7	2.1	0.89	5.69	2.5	11.5	55.0	1.4	5.34	74.34	0.17	51	6.7
DR11	100	7.24	121.3	10.9	8.2	0.05	0.45	0.19	0.10	2.8	1.8	0.93	5.53	2.2	11.4	72.0	8.1	9.25	94.85	0.22	46	6.9
DR12	110	7.32	122.1	10.8	8.1	0.25	0.25	0.15	0.08	2.7	1.8	0.88	5.38	1.0	11.5	68.0	1.6	5.86	86.36	0.23	52	8.1
DR13	120	7.39	120.2	10.7	8.3	0.15	0.24	0.11	0.09	2.8	1.2	0.74	4.74	2.2	11.2	75.0	3.8	3.91	92.31	0.26	34	5.3
DR14	130	7.47	120.3	10.7	8.3	0.25	0.31	0.15	0.08	3.1	1.5	0.70	5.30	1.5	12.4	70.0	2.5	3.43	87.33	0.27	45	3.8
DR15	140	7.43	121.1	10.7	8.0	0.15	0.33	0.15	0.08	4.6	1.4	0.96	6.96	2.9	16.0	88.0	5.7	4.28	111.18	0.26	51	7.4
DR16	150	7.52	120.1	10.6	7.8	0.75	0.75	0.63	0.07	4.7	1.5	2.13	8.33	3.2	15.9	140.0	32.4	69.74	228.84	0.52	349	70.7

 NH₄, NO₃, DON, UREA all as N

 Detection limits: DRP 0.5; NO₃-N 0.5; NH₄-N 1.0 mg m⁻³

* = analysed by wet digest method, ** = analysed by CHN combustion furnace method.

Lake Taupo biannual nutrient database
Collection date:- 27 October 1994

1994-1995

Secchi Depth = 11.7 m

ID	Depth m	Temp C	DO g m ⁻³	BOD ₅ g m ⁻³	SS g m ⁻³	VSS g m ⁻³	Chlor_a mg m ⁻³	DRP mg m ⁻³	DOP mg m ⁻³	PP mg m ⁻³	TP mg m ⁻³	NH ₄ mg m ⁻³	NO ₃ mg m ⁻³	DON mg m ⁻³	UREA mg m ⁻³	PN* mg m ⁻³	TN mg m ⁻³	DOC g m ⁻³	PC mg m ⁻³	PN** mg m ⁻³	Total LEAD mg m ⁻³
MM1	1	11.7	10.5	0.30	0.93	0.55	1.16	1.6	0.7	2.5	4.8	1.1	0.2	61	0.1	16.6	78.9	0.67	193.3	20.3	0.22
MM2	10	11.5	10.6	0.35	0.86	0.49	0.97	1.5	0.4	2.5	4.4	2.2	0.1	50	<0.1	15.2	67.5	0.42	203.8	19.0	
MM3	20	11.5	10.8	0.70	0.87	0.58	0.92	1.2	1.1	2.8	5.1	5.1	<0.1	49	0.2	17.4	71.5	0.40	254.5	19.6	
MM4	30	11.3	10.7	0.30	0.86	0.54	0.99	1.2	0.0	2.3	3.5	<0.4	2.5	88	8.3	13.7	104.2	0.64	199.1	18.9	
MM5	40	10.9	10.5	0.05	0.83	0.49	0.97	1.0	1.4	2.1	4.5	0.4	<0.1	49	1.6	12.4	61.8	0.55	193.7	17.5	
MM6	50	10.9	10.4	0.15	0.85	0.48	0.83	1.0	0.9	2.2	4.1	<0.4	1.1	70	6.4	14.9	86.0	0.37	182.0	16.6	
MM7	60	10.8	10.4	0.00	1.04	0.53	0.88	1.1	0.9	2.1	4.1	<0.4	<0.1	47	1.0	13.6	60.6	0.46	184.6	20.0	
MM8	70	10.7	10.4	0.10	1.23	0.54	1.18	1.1	1.2	2.3	4.6	2.6	0.4	57	1.6	14.7	74.7	0.96	198.7	23.0	
MM9	80	10.6	10.4	0.35	1.07	0.45	1.37	1.0	1.4	2.4	4.8	1.2	0.1	47	1.0	15.3	63.6	0.51	154.4	22.6	
MM10	90	10.5	10.4	0.10	1.24	0.48	1.79	1.0	1.1	1.9	4.0	1.5	<0.1	43	1.3	15.6	60.1	0.48	152.0	22.0	
MM11	100	10.5	10.2	0.10	1.22	0.49	1.76	1.2	1.0	2.5	4.7	1.5	0.4	58	1.8	17.9	77.8	1.21	183.7	33.9	
MM12	110	10.5	10.3	0.45	1.15	0.48	1.78	1.4	0.4	3.0	4.8	1.4	0.4	52	1.9	16.8	70.6	0.65	105.8	28.4	
MM13	120	10.4	10.2	0.00	0.96	0.41	1.94	1.1	0.7	2.8	4.6	<0.4	0.6	61	1.6	16.7	78.4	1.00	106.7	29.8	
MM14	130	10.4	9.8	0.00	1.07	0.41	2.37	1.0	1.2	2.6	4.8	6.8	0.9	73	5.5	20.8	101.5	0.53	157.6	23.7	
MM15	140	10.4	9.8	0.00	1.63	0.57	2.32	1.1	1.1	2.3	4.5	3.7	0.9	61	1.9	20.6	86.2	0.44	176.0	19.2	0.36
MM16	150	10.3	9.9	0.25	1.73	0.75	2.49	1.8	0.8	2.3	4.9	4.2	1.9	60	12.1	39.6	105.7	0.57	303.6	44.0	1.09

MM17 Tube

Collection date:- 19 April 1995

Secchi Depth = 16.1 m

ID	Depth m	Temp C	DO g m ⁻³	BOD ₅ g m ⁻³	SS g m ⁻³	VSS g m ⁻³	Chlor_a mg m ⁻³	DRP mg m ⁻³	DOP mg m ⁻³	PP mg m ⁻³	TP mg m ⁻³	NH ₄ mg m ⁻³	NO ₃ mg m ⁻³	DON mg m ⁻³	UREA mg m ⁻³	PN* mg m ⁻³	TN mg m ⁻³	DOC g m ⁻³	PC mg m ⁻³	PN** mg m ⁻³	Total LEAD mg m ⁻³
SZ1	1	18.4	9.2	0.10	0.22	0.22	0.95	3.3	1.7	1.3	6.3	3.6	0.9	83	7.7	14.6	102.1	0.70	160.5	16.8	<0.5
SZ2	10	18.2	9.3	0.15	0.28	0.28	0.89	2.2	1.2	1.5	4.9	2.0	0.8	59	6.5	13.5	75.3	0.68	189.0	18.1	<0.5
SZ3	20	18.2	9.2	0.25	0.24	0.24	0.80	1.3	0.0	1.4	2.7	1.0	1.0	56	4.5	10.7	68.7	0.60	153.5	14.5	
SZ4	30	16.5	9.3	0.50	0.26	0.26	1.35	1.3	1.0	1.6	3.9	1.2	0.7	55	8.4	13.4	70.3	0.60	151.5	14.7	<0.5
SZ5	40	12.5	9.7	0.45	0.16	0.16	0.98	1.1	0.2	1.2	2.5	2.0	1.0	47	4.4	8.0	58.0	0.60	111.0	8.6	
SZ6	50	11.6	9.5	0.60	0.10	0.10	0.86	2.0	0.5	1.2	3.7	1.7	1.3	47	5.3	8.8	58.8	0.60	119.0	10.5	
SZ7	60	11.1	9.5	0.30	0.07	0.07	0.73	1.0	1.1	1.2	3.3	0.5	5.4	40	5.3	7.0	52.9	0.50	83.8	9.0	
SZ8	70	10.9	9.5	0.55	0.04	0.04	0.45	1.4	0.7	1.3	3.4	0.5	7.7	39	6.2	8.7	55.9	0.55	97.4	11.1	
SZ9	80	10.8	9.0	0.40	0.10	0.10	0.35	1.6	0.0	1.0	2.6	0.5	11.3	36	3.2	6.1	53.9	0.53	75.5	8.2	
SZ10	90	10.7	8.7	0.30	0.07	0.07	0.25	1.3	0.5	1.4	3.2	0.5	15.7	40	6.1	9.8	66.0	0.50	92.5	9.6	
SZ11	100	10.7	8.6	0.75	0.01	0.01	0.23	2.8	0.1	0.8	3.7	0.4	18.4	37	6.3	8.2	64.0	0.60	68.7	6.3	
SZ12	110	10.7	8.3	0.50	0.09	0.09	0.20	2.1	1.0	1.3	4.4	0.5	20.4	41	4.4	12.4	74.3	0.55	99.0	14.0	
SZ13	120	10.7	8.2	0.40	0.05	0.05	0.16	2.5	0.0	0.9	3.4	0.5	22.0	37	3.5	4.8	64.3	0.50	62.1	4.5	
SZ14	130	10.7	8.0	0.70	0.00	0.00	0.17	3.1	0.0	1.0	4.1	0.6	26.5	45	3.5	5.9	78.0	0.55	77.0	7.4	
SZ15	140	10.6	7.8	1.00	0.28	0.25	0.17	4.1	0.0	1.7	5.8	0.5	30.7	44	3.6	11.2	86.4	0.60	133.5	12.4	<0.5
SZ16	150	10.6	7.5	2.05	49.47	5.58	64.05	38.9	1.4	*	40.3	1.7	40.9	48	11.4	*	90.6	0.75	*	*	<0.5

Surficial sediment

* = Sediment contamination, sample not filtered for analysis.

NH₄, NO₃, DON, UREA all as N

Detection limits: DRP 0.5; NO₃-N 0.5; NH₄-N 1.0 mg m⁻³

* = analysed by wet digestion method, ** = analysed by CHN combustion furnace method.

12. Appendix 5. Phytoplankton data

In this report there is a transition from just reporting “Dominance” (rank 1 = dominant to rank 10 = rare), which is calculated from algal biovolume, to reporting cell counts plus biovolume. Both systems are presented in this report. For continuance of the Dominance format, rank the species composition by biovolume.

Note: reporting counts as cells per ml rounded to a whole number may result in cell counts of “0” despite a large biovolume where the algal species is large or colonial e.g., *Botryococcus braunii*

Lake Taupo phytoplankton dominance plus enumeration (10-m tube) 2006-07

Dominance by biovolume (rank 1 = dominant,...rank 10 = rare), plus cell counts and biovolume from May 2007

Sample code	EM8	EM10	EM13	EM17	EM20	EM23	EM27	EM29	EM31	EM34	EM36	EM38	EM40	EM40	EM40	EM42	EM42	EM42	RY2	RY2	RY2	RY5	RY5	RY5
Sampling date	26/09/2006	18/10/2006	1/11/2006	5/12/2007	14/12/2007	9/01/2007	8/02/2007	21/02/2007	21/03/2007	3/04/2007	19/04/2007	8/05/2007	22/05/07	22/05/07	22/05/07	14/06/07	14/06/07	14/06/07	27/06/07	27/06/07	27/06/07	18/07/2007	18/07/2007	18/07/2007
Species composition by class	Rank	Rank	Rank	Rank	Rank	Rank	Rank	Rank	Rank	Rank	Rank	Rank	Rank	Biovolume (µm ³)	cell (per ml)	Rank	Biovolume (µm ³)	cell (per ml)	Rank	Biovolume (µm ³)	cell (per ml)	Rank	Biovolume (µm ³)	cell (per ml)
Blue greens (Cyanophyceae)																								
<i>Anabaena lemmermannii</i>	5	5	5	5	9	5	9	9	3	4	5	4	6	303	10	8	450	15	5	1091	36	4	3652	17
<i>Anabaena</i> sp.														0	0		0	0	10	29	0		0	0
<i>Aphanizomenon</i> sp.							8	8	7	7	9	9	10	5	0		0	0		0	0	10	27	1
<i>Phormidium</i> sp.									10	10	10			0	0		0	0		0	0		0	0
Greens (Chlorophyceae)																								
<i>Ankistrodesmus falcatus</i> / <i>Schroederia</i> sp.																			9	120	5		0	0
<i>Botryococcus braunii</i>	7	2	2	3	3	1	1	1	1	1	5	3	1	1014600	0	1	38448	1	8	438	0		0	0
<i>Chlorosarcinopsis</i> sp.	10	10																						
<i>Elakotothrix gelatinosa</i>													6	342	4		0	0		0	0		0	0
<i>Eudorina elegans</i>	9	9	10	10	10		10	10	10	10		10		0	0		0	0		0	0		0	0
<i>Kirchneriella contorta</i>														0	0	10	157	7		0	0	10	21	1
<i>Monoraphidium</i> sp/ <i>Ankistrodesmus falcatus</i>	10	10	10	10	10	10	10	10	8	8	9	7	5	561	19	2	20456	259	2	5061	46	5	2574	12
<i>Oocystis</i> sp.	7	8	9	9	9	10	7	7	10	10	10		9	43	1	6	3210	11	4	1605	5	9	293	1
<i>Quadrigula lacustris</i>	9													0	0		0	0		0	0		0	0
<i>Stichococcus contortus</i>														0	0		0	0	7	534	4	6	1073	5
<i>Westella botryoides</i>	9	9	9	10	10	10	10	10						0	0		0	0		0	0		0	0
Diatoms (Bacillariophyceae)																								
<i>Asterionella formosa</i>	2	2	6	4	4		4	5						0	0	6	3173	10	3	4414	14	2	25087	81
<i>Aulacoseira granulata</i>	3	1	1	1	2	9	6	2	2	2	1			0	0	4	6760	22	1	7863	25	2	29167	94
<i>Aulacoseira granulata</i> var. <i>angustissima</i>												2	3	5590	8		0	0		0	0		0	0
<i>Cyclotella stelligera</i>	5	5	9	7	6	6	5	6						0	0	8	427	3	10	71	0	8	468	3
<i>Fragilaria crotonensis</i>	1	4	7				6	7	6	6		7	4	2294	6	3	13382	37	10	33	0	1	109152	107
<i>Gomphonema</i> sp.																5	5559	14	5	1042	3	7	952	2
<i>Nitzschia</i> sp.	10	10	10	10	10	10	10	10	10	10	7		8	155	1									
unknown diatom sp.											8			0	0		0	0		0	0		0	0
Desmids (Mesotaeniaceae, Desmidiaceae)																								
<i>Closterium acutum</i>	9	10	10	9	9	7	8	8	10	10				0	0	7	1335	3	6	668	1		0	0
<i>Closterium acutum</i> var. <i>variable</i>	10	10	10	9	8	8	8	8						0	0		0	0		0	0	7	731	1
<i>Mougeotia</i> sp.														0	0		0	0		0	0		0	0
<i>Staurastrum</i> sp.	10	10				10					9	6		0	0		0	0		0	0		0	0
Chrysophyta (Chrysophyceae)																								
<i>Cryptomonas</i> sp.	10	10	10				10	10	10	10	10			0	0	9	267	1	9	196	1	9	293	1
<i>Dinobryon</i> sp.	9	3	3	2	1	2	6	8	3	5	2	1	7	256	1		0	0		0	0		0	0
Dinoflagellates (Dinophyceae)																								
<i>Ceratium hirundinella</i>		10	10	10	10		4	1	3					0	0		0	0		0	0		0	0
<i>Gymnodinium</i> sp.	5	7	4	3	5	7	3	3	4	6	4		2	11748	1		0	0		0	0		0	0
<i>Gymnodinium</i> sp. 2												8		0	0		0	0	3	4450	0		0	0
Flagellates 5µm																								
Flagellates < 5µm/unicells	3	6	8	6	6	6	2	4	5	4	3	4	4	2138	50	3	16227	381	1	7521	177	3	4133	97

Lake Taupo phytoplankton species composition and biovolume (μm^3) 2006-2007
From Site A (Mid Lake) 1/11/2006

	Sample code Depth	HW1 surface cell (per ml)	HW3 20 m cell (per ml)	HW6 50 m cell (per ml)	HW11 100 m cell (per ml)	HW16 150 m cell (per ml)	HW1 surface Biovolume (μm^3)	HW3 20 m Biovolume (μm^3)	HW6 50 m Biovolume (μm^3)	HW11 100 m Biovolume (μm^3)	HW16 150 m Biovolume (μm^3)
Species composition by class											
Blue greens (Cyanophyceae)											
	<i>Anabaena lemmermannii</i>	63	25	0	0	0	3488.1	1367	25	15	0
	<i>Aphanocapsa</i> sp.	0	0	2	3	0	0	0	14	31	0
Greens (Chlorophyceae)											
	<i>Botryococcus braunii</i> (colonies)	0	0	0	0	0	5151	5901	7321	0	0
	<i>Chlorosarcinopsis</i> sp.	3	0	2	2	0	259	0	182	208	0
	<i>Eudorina elegans</i>	2	5	6	0	0	621	1198	1498	0	0
	<i>Kirchneriella contorta</i>	5	4	0	0	0	176	116	0	0	0
	<i>Lagerheimia</i> sp.	0	1	1	0	0	0	125	166	0	0
	<i>Monoraphidium</i> sp. / <i>Ankistrodesmus falcatus</i>	3	0	0	0	0	143	0	0	0	0
	<i>Oocystis</i> sp.	7	6	6	6	3	1034	872	831	831	415
	<i>Westella botryoides</i>	0	0	7	0	0	0	0	0	0	0
Diatoms (Bacillariophyceae)											
	<i>Asterionella formosa</i>	14	8	7	8	2	3806	2129	1884	2211	573
	<i>Aulacoseira granulata</i>	63	54	49	47	54	19413	16866	15052	14689	16594
	<i>Aulacoseira granulata</i> var. <i>angustissima</i>	0	0	2	3	0	0	0	456	837	0
	<i>Cyclotella stelligera</i>	46	8	4	7	4	7301	1264	562	1123	655
	<i>Fragilaria crotonensis</i>	5	0	2	8	3	1912	0	628	2723	1047
	<i>Nitzschia</i> sp.	2	1	1	0	0	947	342	342	0	0
Desmids (Mesotaeniaceae, Desmidiaceae)											
	<i>Closterium aciculare</i>	0	0	0	0	0	0	35	175	0	0
	<i>Closterium acutum</i> var. <i>variable</i>	0	0	0	0	0	0	0	110	0	0
Chrysophyta (Chrysophyceae)											
	<i>Dinobryon</i> sp.	8	4	6	0	0	458	242	362	0	0
Dinoflagellates (Dinophyceae)											
	<i>Gymnodinium</i> sp. 1	0	1	0	0	0	0	2633	1316	0	88
	<i>Gymnodinium</i> sp. 2	0	0	0	0	0	6068	0	0	0	0
Flagellates 5μm											
	Flagellates < 5 μm /unicells	50	19	31	23	4	1750	676	1085	788	143

Lake Taupo phytoplankton species composition and biovolume (μm^3) 2006-2007
From Site A (Mid Lake) 2/04/2007

Sample code	HW17	HW18	HW19	HW22	HW27	HW32	HW17	HW18	HW19	HW22	HW27	HW32
Depth	surface	10 m	20 m	50 m	100 m	150 m	surface	10 m	20 m	50 m	100 m	150 m
	cell	cell	cell	cell	cell	cell	Biovolume	Biovolume	Biovolume	Biovolume	Biovolume	Biovolume
	(per ml)	(per ml)	(per ml)	(per ml)	(per ml)	(per ml)	(μm^3)	(μm^3)	(μm^3)	(μm^3)	(μm^3)	(μm^3)
Species composition by class												
Blue greens (Cyanophyceae)												
<i>Anabaena lemmermannii</i>	36	65	56	0	2	0	1493	2655	2286	5	86	10
Greens (Chlorophyceae)												
<i>Botryococcus braunii (colonies)</i>	1	0	0	0	0	0	27630	0	0	41446	0	0
<i>Monoraphidium</i> sp. / <i>Ankistrodesmus falcatus</i>	49	17	17	0	1	0	2064	725	725	0	25	0
<i>Oocystis</i> sp.	2	1	1	0	1	0	332	166	125	0	166	0
<i>Stichococcus contortus</i>	0	0	0	0	0	1	0	0	0	0	0	21
Diatoms (Bacillariophyceae)												
<i>Asterionella formosa</i>	0	0	1	0	0	1	0	82	246	0	0	164
<i>Aulacoseira granulata</i>	2	0	0	5	11	8	544	0	0	1541	3264	2630
<i>Aulacoseira granulata</i> var. <i>angustissima</i>	0	0	0	0	7	2	0	0	0	76	1901	608
<i>Cyclotella stelligera</i>	1	1	1	1	2	1	168	94	94	234	374	140
<i>Eunotia</i> sp.	0	0	0	0	4	0	0	0	0	0	0	0
<i>Fragilaria crotonensis</i>	0	0	0	0	0	1	0	0	0	0	0	209
<i>Nitzschia</i> sp.	2	0	1	0	0	0	799	114	228	0	0	0
Small unknown diatom sp.	0	0	0	0	1	0	0	0	0	0	64	0
Desmids (Mesotaeniaceae, Desmidiaceae)												
<i>Closterium aciculare</i>	0	0	0	1	4	0	0	0	0	350	2453	0
<i>Closterium acutum</i> var. <i>variable</i>	0	0	0	1	0	0	0	0	0	331	0	0
Chrysophyta (Chrysophyceae)												
<i>Cryptomonas</i> sp.	0	1	1	4	0	0	0	211	126	590	0	0
<i>Dinobryon</i> sp.	0	0	0	1	0	0	0	0	0	86	0	0
Dinoflagellates (Dinophyceae)												
<i>Gymnodinium</i> sp. 1	1	0	0	0	0	0	2106	878	878	176	0	0
<i>Gymnodinium</i> sp. 2	1	1	1	0	0	0	14625	21938	14625	0	0	0
Flagellates $5\mu\text{m}$												
Flagellates $< 5\mu\text{m}$ /unicells	185	97	84	127	16	10	6470	3389	2928	4433	573	338

13. Appendix 6. Historical data

Historical data held by NIWA has frequently been referred to and included in some analysis or comparison of the data from the long-term monitoring programme. To ensure that this data is always readily available, copies of the relevant historical data are included in this report. These data are the spring and autumn profiles of NO₃-N and DRP from 1974 to 1990 extracted from archived data books. The nitrate data for 27 September 1979 was taken from Vincent (1983). Subsequent data can be found in the appendices above.

Note that the profiles given are aligned with the spring data above the corresponding autumn data, by date. Note also that the early profiles were to a depth of 110 m rather than 150 m. Also, as there was no March or April data collected in 1976, for completeness, the last valid profile in that series (12 January 1976) has been included.

The elapsed time given is the number of days between the spring profile in about October and the autumn profile in March/April of the following year. The average elapsed time between the two samplings across all data from 1974 to 2006 is 165 days.

The historical data also include an un-paired profile from July 1987. As there were no data for April 1987 and the lake was still stratified in July, when the next period of monitoring began, the July 1987 may be used as an indication of the total mass of nutrient accumulation in that year. Because these data are for an un-paired profile in July and not April, if the data are converted to rate estimates the assumption must be made that there was no spring carryover and the elapsed time is longer being estimated as the average elapsed time plus three months.

Because the 1976 and 1987 data are for periods other than spring (October/November) to autumn (March/April), these data points have been excluded from any regression analysis of time-series data although the data points have been plotted as an indication of levels/rates for those years.

Historical data from Site A in Lake Taupo

Nitrate concentrations (mg m⁻³)

Spring									
Date	18/11/1974	16/10/1975	4/10/1977	10/10/1978	27/09/1979		5/10/1987	17/10/1988	6/10/1989
Depth (m)									
0	0.8	0.3	1.1	0.0	0.0		0.3	2.6	1.2
10	0.3	0.4	1.2	1.4	0.0		0.4	2.7	1.8
20	0.0	0.0	0.6	0.8	0.5		0.5	2.8	1.0
30	0.3	0.4	0.0	0.7	0.5		0.4	2.8	1.4
40	0.8	0.0	0.1	0.6	1.0		0.6	3.0	1.3
50	2.1	0.3	0.6	0.7	1.0		0.8	2.9	1.0
60	4.9	0.0	1.0	0.8	0.5		1.2	2.5	0.8
70	4.1	0.4	1.1	0.8	1.0		1.0	2.9	1.6
80	5.3	0.0	3.2	1.2	1.5		1.4	2.9	1.6
90	5.4	0.0	1.3	1.2	1.0		1.5	2.5	1.7
100	8.4	1.8	3.3	1.4	1.5		1.2	2.6	1.7
110	12.0	4.1	2.8	1.4	1.5		6.0	2.4	0.8
120			2.8	1.7	2.5		0.7	2.7	1.6
130			2.7	2.1	5.0		1.2	2.7	1.1
140			1.7	2.1	6.0		1.2	3.1	1.1
150			1.4	2.5	7.0		1.1	2.4	0.3

Autumn									
Date	14/04/1975	12/01/1976	14/03/1978	10/04/1979	10/03/1980	7/07/1987	5/04/1988	4/04/1989	10/04/1990
Depth (m)									
0	0.8	0.5	0.0	0.3	0.0	2.0	1.1	2.1	0.1
10	0.4	1	0.0	0.0	0.3	1.6	1.3	2.5	0.6
20	0.2	0.2	0.0	0.0	0.0	1.0	1.3	2.4	1.3
30	0.1	0	0.0	0.0	0.0	0.2	1.1	2.5	1.2
40	0.3	0.2	0.0	0.3	0.2	0.9	2.2	2.4	1.7
50	0.5	0.3	0.0	1.0	0.8	1.1	4.0	4.9	4.9
60	4.2	1.3	0.0	7.3	4.9	14.5	12.3	5.2	3.4
70	5.6	1.5	2.2	11.1	6.2	16.4	14.6	5.1	12.0
80	9.2	8.3	4.9	12.7	9.4	16.1	16.9	10.9	11.2
90	11.2	11.1	5.8	13.5	13.5	18.5	19.0	13.5	12.4
100	12.4	14	7.4	15.0	14.4	19.8	20.7	17.1	17.1
110	16.0		9.2	14.8	15.7	20.2	19.1	20.4	16.2
120			10.1	15.0	16.7	20.9	18.6	23.3	18.2
130			8.0	16.6	18.9	21.9	21.5	24.2	17.9
140			11.0	17.3	19.4	22.1	25.4	27.1	22.4
150			14.2	19.7	19.9	21.5	27.0	28.6	24.2

DRP concentrations (mg m⁻³)

Spring									
Date	18/11/1974	16/10/1975	4/10/1977	10/10/1978			5/10/1987	17/10/1988	6/10/1989
Depth (m)									
0	8.7	1.1	0.3	0.6			0.2	0.2	0.0
10	8.0	1.2	0.0	0.6			0.1	0.1	0.2
20	8.3	1.1	0.1	0.5			0.2	0.0	0.1
30	7.5	0.9	0.0	0.3			0.3	0.1	0.0
40	8.4	0.8	0.3	0.2			0.2	0.1	0.0
50	7.6	0.8	0.2	0.3			0.4	0.1	0.0
60	8.3	0.7	0.0	0.3			0.3	0.2	0.0
70	7.7	0.7	1.1	0.4			0.3	0.2	0.0
80	8.1	0.8	0.7	0.5			0.3	0.2	0.3
90	7.9	1.0	0.8	0.4			0.2	0.3	0.1
100	8.5	1.7	0.4	0.4			0.2	0.3	0.1
110	9.8	1.6	0.4	0.4			0.4	0.5	0.1
120			0.5	0.4			0.4	0.4	0.0
130			0.4	0.3			0.4	0.4	0.2
140			0.6	0.3			0.4	0.5	0.3
150			0.5	0.4			0.3	0.5	0.2

Autumn									
Date	14/04/1975	12/01/1976	14/03/1978	10/04/1979	10/03/1980	7/07/1987	5/04/1988	4/04/1989	10/04/1990
Depth (m)									
0	0.8	1.4	0.2	0.1	0.7	1.9	0.1	0.0	0.2
10	0.5	1.4	0.2	0.1	0.4	2.2	0.1	0.0	0.0
20	0.5	7.0	0.2	0.1	0.3	0.9	0.2	0.0	0.1
30	0.5	2.5	0.2	0.1	0.2	1.0	0.2	0.0	0.2
40	0.5	0.2	0.2	0.4	0.5	0.9	0.6	0.2	0.5
50	0.5	0.9	0.7	1.0	0.7	0.7	1.1	0.5	1.1
60	1.0	0.1	0.7	1.6	1.0	3.4	2.0	0.6	0.9
70	1.0	0.8	1.0	2.0	1.1	3.7	2.2	0.9	1.9
80	1.7	1.2	1.5	2.2	1.6	3.6	2.7	1.1	1.7
90	2.0	2.0	1.8	2.4	2.2	4.1	2.9	1.3	1.8
100	2.2	3.3	1.9	2.7	2.4	4.6	3.1	1.9	2.6
110	2.9		2.4	2.8	2.6	4.5	2.9	2.7	2.1
120			2.7	2.9	2.7	4.7	3.0	3.4	2.5
130			2.1	3.0	3.7	5.1	3.4	3.8	2.4
140			2.8	3.6	3.6	5.3	4.4	4.5	3.5
150			0.9	3.8	3.8	5.0	4.6	4.8	4.0

Elapsed period (days)									
	147	88	161	182	165	270*	183	169	186

??? = possible analytical problem (e.g., Si interference)
 * = average period of 165 days plus 3 months