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# Lake Taupo Long-Term Monitoring Programme 2009–2010

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# Lake Taupo Long-term Monitoring Programme 2009 - 2010

## Prepared for Waikato Regional Council

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# 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 chlorophyll *a*, water clarity, and nutrient (particularly nitrate) accumulation in the lake.

The long-term monitoring programme uses the historical 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. Further validation of the use of a single mid-lake monitoring site was obtained in a separate study from a comparison of upper water column nutrient and chlorophyll *a* concentrations and algal enumeration between Site A and near-shore sites in Whangamata Bay (Kinloch) and Whakaipo Bay, over a 2-year period from February 2007 up to June 2009. That study determined that "the near-shore water quality was very similar to the mid-lake water quality" and that "within this similarity in the measured data was much variability which may be due to short period time lags between the near-shore and mid-lake sites with respect to nutrient sources, and the zones of algal growth". This report presents the results from the 2009/10 monitoring period at the mid-lake site, Site A.

There is a long-term trend of increasing phytoplankton biomass (chlorophyll *a*) in the upper 10 m of water column over the monitoring period of 0.021 ± 0.015 mg $m^{-3}$ $y^{-1}$. However, inter-annual variability in the data is high and the winter 2009 peak chlorophyll *a* concentration of 1.9 mg $m^{-3}$ was substantially lower than the value for 2008 at 3.0 mg $m^{-3}$, which was the highest on record for Lake Taupo.

As the long-term data accumulates, it has become apparent that the increase in chlorophyll *a* occurred mostly before 2000. The annual mean chlorophyll *a* data from 1994 to 2003 was increasing at a statistically significant rate of 0.087 ± 0.029 mg $m^{-3}$ $y^{-1}$ ($P < 0.001$, $r^2 = 0.857$, n = 10), but since 2000 there has been a non significant trend of decline at a rate of 0.023 ± 0.027 mg $m^{-3}$ $y^{-1}$ ($P = 0.085$, $r^2 = 0.29$, n = 11 ).

During this monitoring year (2009/10), highest phytoplankton biomass occurred in August 2009 when the lake had mixed and lowest biomass occurred in the upper water column in April 2010, two months later than in previous monitoring periods.

Chlorophyll fluorescence profiles show that, each year during summer, a deep chlorophyll maximum (DCM) develops just below the thermocline (40 m) and has up to 70% more biomass than the epilimnion.

The 2009 winter bloom was dominated by the diatom *Fragilaria crotonensis* which accounted for more than 50% of the biovolume. Other major components of the algal assemblage included *Asterionella formosa* and *Aulacoseira granulata*. *Fragilaria crotonensis* remained the dominant species through to summer although the biovolume fell to less than 10% of that in spring. Other algal species of note include *Oocystis sp*., and the dinoflagellates, *Gonyaulax sp*. and *Gymnodinium sp*. The colonial diatom, *Volvox aureus*, appeared in autumn 2010 and briefly dominated. Cyanobacteria (blue-green algae) were always present in low numbers in the upper water column throughout the 2009/10 monitoring period, with *Anabaena lemmermannii* being the most common species.

Nutrient concentrations - dissolved reactive phosphorus, ammoniacal nitrogen, and nitrate nitrogen (DRP, $NH_4$-N, and $NO_3$-N) - in the upper water column were comparable with concentrations measured since 2003. $NO_3$-N concentrations were lower and $NH_4$-N concentrations were elevated in the upper water column since 2007. The elevated $NH_4$-N concentrations may indicate water column decomposition of the winter-spring bloom, or excretion from a zooplankton bloom.

The total mass of $NO_3$-N in the hypolimnion before winter has increased at a statistically significant rate of about 7.4 t $y^{-1}$ ($P$ <0.001, $r^2$ = 0.39, n = 23) over the last 35 years. This value is slightly lower than the previous year but includes a decrease of around 85 t of $NO_3$-N in the hypolimnion in autumn compared with autumn the previous year. The total mass of $NO_3$-N in the hypolimnion in autumn 2010 was about 380 t. The net accumulation rate of $NO_3$-N in the hypolimnion below 70 m for the 2009/10 stratified period was 1.59 t $d^{-1}$, which is a 20% decrease over the previous year. However, because of high variability in the data, the increase in the net hypolimnetic $NO_3$-N accumulation rate during the stratified period was only weakly significant at 0.026 t $d^{-1}$ ($P$ = 0.07, $r^2$ = 0.144, n = 23) over the last 35 years.

Spring and summer 2009/10 water clarity was lower than in previous years only reaching 17 m in February 2010. This lower than expected water clarity coincided with a relatively wet spring. Water clarity increased in autumn reaching 21.5 m in April after two months without rain. This may reflect the reduced nutrient input in surface runoff as well as a low input of sediment from erosion.

As observed in 2008, lowest water clarity values (<11 m) in 2009 occurred between August and November and were associated with a wet and windy spring. Analysis of the long term data indicates that between 2000 to 2007 the lowest water clarity was most likely to occur in August but since 2007, the lowest water clarity was more likely to occur in October. This two month shift in water clarity was not accompanied by a comparable shift in the timing of the maximum algal biomass, indicating that in October the water clarity is most likely affected by suspended sediment from the land.

The 2009/10 net VHOD rate at 19.21 ± 1.78 mg $O_2$ $m^{-3}$ $d^{-1}$ (mean ± 95% confidence limit) was almost 2 mg $O_2$ $m^{-3}$ $d^{-1}$ higher than the previous year, which was 17.50 ± 3.64 mg $O_2$ $m^{-3}$ $d^{-1}$. Evaluation of the VHOD data shows that there has been a statistically significant ($P$ =

0.0002, $r^2 = 0.76$, n = 12) increase of around 1.14 mg $m^{-3}$ $d^{-1}$ in the VHOD rate each year since the low of 1999.

The persistent increase in hypolimnetic oxygen demand over the past 12 years implies a change in the organic carbon load on the lake and is in contrast with steady or decreasing mean annual chlorophyll *a* concentrations. An increased oxygen demand may be the result of higher suspended sediment inputs in spring from land.

# Introduction

A long term monitoring programme of Lake Taupo's water quality was commissioned by Environment Waikato in October 1994 in the expectation that the trophic state of the lake would change to reflect changes in land use within the lake's catchment. This programme is conducted by NIWA with field assistance from the Department of Internal Affairs, Taupo Harbourmaster's Office. Various additions and improvements to the monitoring methodology have occurred with advances in available technology but the core monitoring parameters remain unchanged (Appendix 1). This report presents data from the routine mid-lake monitoring station from August 2009 to July 2010. Additional information for water clarity, temperature, and chlorophyll *a* collected between August 2010 and the time of writing this report has also been included in the data sets in the appendices.

In two earlier reports (Gibbs 2005, 2006), data were included from two additional sites representing those historically sampled in the 1974-76 assessments of lake water quality (White et al. 1980) (Fig.1) to evaluate spatial variability of water quality across the lake. Results from these two additional sites showed that, in general, there were minimal differences between the sites in seasonal variation and that data collected from site A (mid lake) could be used as representative of the main body of the lake. More recently, a comparison of upper water column nutrient and chlorophyll *a* concentrations and algal abundance was made between Site A and near-shore sites in Whangamata Bay (Kinloch) and Whakaipo Bay (Fig. 1), over a 2-year period from February 2007 up to June 2009 (Gibbs 2010a). That study determined that, although there were small differences, "the near-shore water quality was very similar to the mid-lake water quality" and the small differences that were observed "may be due to short period time lags between the near-shore and mid-lake sites with respect to nutrient sources, and the zones of algal growth". 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 state of lakes that thermally stratify for part of the year (Burns 1995). VHOD is considered a good indicator to detect changes 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 can only indicate changes that may occur in water quality but not identify their underlying causes. In order to enable understanding of contributing processes, the upper water column (0-10 m depth) is sampled for nutrients, chlorophyll *a*, phytoplankton species composition and water clarity at 2-3 weekly intervals, and full depth profiles are carried out twice during the stratified period. The first profile is taken in spring, when thermal stratification has become established and is stable, the second profile in autumn the following year before thermal stratification begins to break down, as the thermocline deepens.

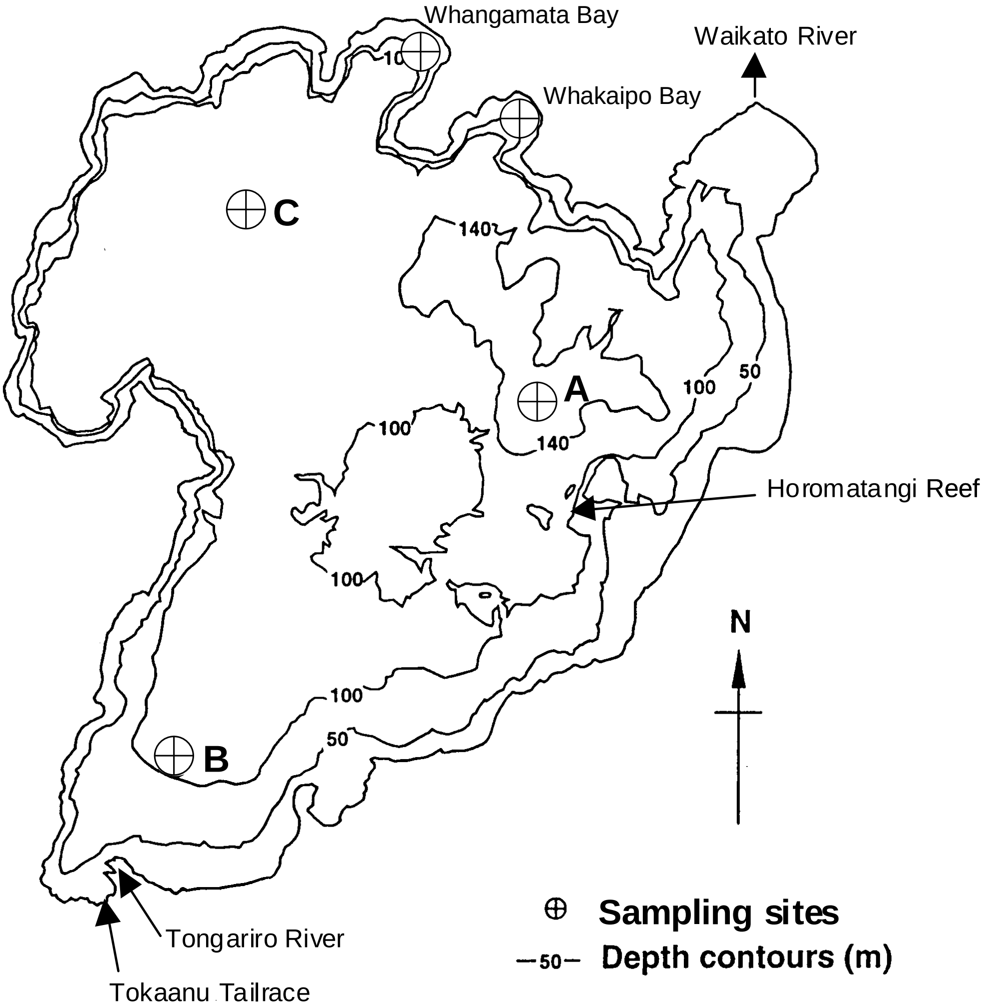


**Figure 1: Site map of Lake Taupo.** Showing location of the routine monitoring site at mid lake (A), and the two additional sites at Kuratau Basin (B) and the Western Bays (C) sampled during the three-year period 2002-04. The near-shore comparison sites at Whangamata Bay and Whakaipo Bay sampled during a two-year period 2007-09 are also shown.

# 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 until January 2008, thereafter using the RBR XR620f CTD profiling system. Additional parameters of conductivity and chlorophyll fluorescence, and since January 2008, PAR, 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 ($NO_3$-N), ammoniacal-N ($NH_4$-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. Concentrations of total nitrogen (TN) and total phosphorus (TP) are estimated by summing the respective measured fractions. Zooplankton net hauls from 100 m (63 µm mesh) are preserved in 4% formalin and stored pending analysis.

Since 2000, water samples have also been collected at the same time from just above the lake bed (150 m) for analysis of $NO_3$-N, $NH_4$-N, and DRP to assess nutrient accumulation rates in the hypolimnion and to assess the extent of winter mixing.

For whole water column sampling, carried out twice a year in spring and autumn, the parameters measured at 10 m depth intervals from the surface down to 150 m depth are:

- Conductivity, pH, temperature, DO, chlorophyll *a*, DRP, DOP, PP, TP, $NO_3$-N, $NH_4$-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 are:

- 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.

## Report contents

This report presents the results from the 2009/10 stratified period plus the winter 2010 mixing, and refers to data in previous annual monitoring reports from 1995 to 2009 (e.g., Gibbs 2010b; 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 (Gibbs 1995) 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 of the methods is presented in Appendix 2. Data of temperature and dissolved oxygen from the previous fifteen years are given in Appendix 3 and nutrient data are in Appendix 4. 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 biomass data for 2009/10 are included in Appendix 5 and discussed in the text. Historical (before 1994) nitrate and dissolved reactive phosphorus data from spring and autumn full lake profiles are presented in Appendix 6 for reference.

## Statistical evaluation

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

## "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.

# Results and discussion

## Temperature and dissolved oxygen

The time-series of temperature and DO from 20 m depth (epilimnion) and 130 m depth (hypolimnion) collected in the monitoring programme since 1994 are presented in Figures 2 and 3.

Annual maximum temperatures at 20 m are variable between 17 ºC and 21 ºC, reflecting warmer or cooler summers, while near bottom water temperatures have been relatively constant between 10.3 ºC and 11.6 ºC. Near bottom temperatures slightly increase each year during the stratified period (Fig. 2). Winter mixing occurs when the upper and lower temperatures are the same. Mixing rarely extends for more than a month (e.g., winter 2004, Figure 2) during which the whole water column cools rapidly.

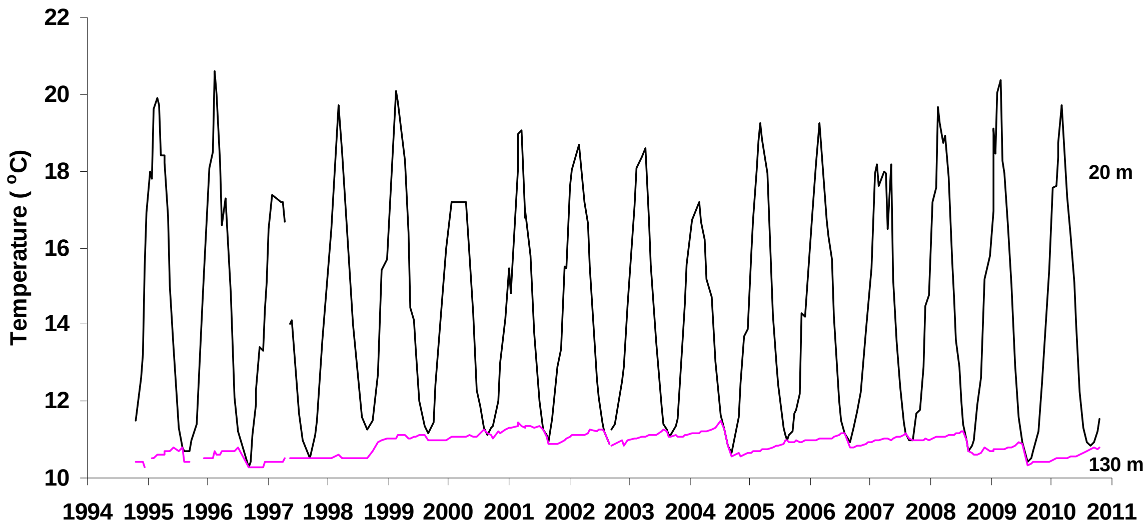


**Figure 2: Time-series temperature data.** Time-series temperature from 20 m (black line) and 130 m (pink line) depths. Winter mixing occurred where these two lines meet. The data show the lack of mixing in winter 1998 and only partial mixing in 1999 and 2005. Mixing was brief in 1997 and 2010 but strong in 1996, 2002, 2004, 2008 and 2009. Data ticks are 1 January each year.

Conversely, in some years the period of mixing may be brief or does not occur at all, for instance during winter 1998 (Fig. 2) when the bottom water continued to warm throughout winter. The decrease in bottom water temperature during winter is a reasonable indicator of the strength and duration of the winter mixing. In winter 2009, there was a significant decrease in bottom water temperature during winter mixing, suggesting strong mixing for a period of at least a month. A similar decrease in bottom water temperature occurred during winter 2008 suggesting that in both of these years the lake was well mixed.

Even in years with incomplete mixing the DO content of the hypolimnion has rarely fallen below 7.0 g m$^{-3}$, even close to the sediment except in summer 2001 (Fig. 3). However, oxygen concentrations close to the sediment were below 7.0 g m$^{-3}$ in 2008 and 2009 and, at the end of summer 2009/10, they were below 6.5 g m$^{-3}$ (Appendix. 3). In contrast, during winter mixing in 2008 and 2009 the bottom water oxygen concentrations exceeded 10.5 g m$^{-3}$ (Fig. 3) confirming the high degree of mixing in these years indicated by the colder bottom waters (Fig. 2).

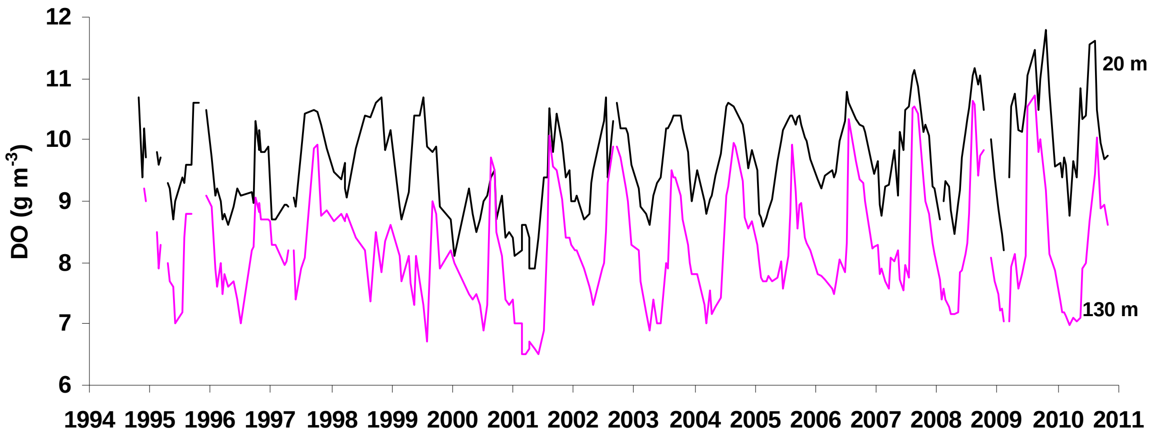


**Figure 3: Time-series dissolved oxygen data.** Time-series dissolved oxygen data from 20 m (black line) and 130 m (pink line) depths. Mixing and reoxygenation occurred where the 2 lines in the temperature data (Fig. 2) meet each winter. However, where temperature data indicate incomplete mixing there is incomplete reoxygenation of the hypolimnion. Date ticks are 1 January in each year.

## VHOD rate

The VHOD rate was estimated between August 2009 and February 2010 based on oxygen profile data collected at site A. VHOD calculations were made using the volume-weighted mean DO concentration below 70 m on each sampling occasion (Fig. 4) – see Appendix 2 for more detail. From February 2010 onwards the volume weighted mean DO concentration began to increase slightly indicating re-oxygenation was occurring and rendering those data invalid for use in the VHOD calculation. The VHOD rate in 2009/10 was 19.21 ± 1.79 mg m$^{-3}$ d$^{-1}$ (mean ± 95% confidence limit) (Fig. 4). This value was 1.7 mg m$^{-3}$ d$^{-1}$ higher than the value for 2008/09, which was 17.50 ± 3.64 mg m$^{-3}$ d$^{-1}$ (Table 1).

Reoxygenation of the hypolimnion beginning in February is unusual. At that time of year the thermocline was strongest and there was insufficient wind stress for deep mixing. Furthermore, from February to April there was a warm, calm period sufficient to allow particulate matter to settle from the epilimnion resulting in maximum clarity in April (see section 4.3). Potential sources of oxygen would be limited to photosynthesis by algae in the upper hypolimnion (see section 4.5) or entrainment of surface water into the hypolimnion with the under-flowing density current from the Tongariro River. Surface temperatures (Appendix 3) were unusually low during spring and rose by 2.8 $^{o}$C between 13 January and 11 February 2010, indicating that the Tongariro River may have been colder than usual allowing the density current to insert below the metalimnion. The DO concentrations (Appendix 3) at the lake bed continued to decrease while higher in the hypolimnion they stopped declining in February and began rising. This is consistent with either oxygen source or both.

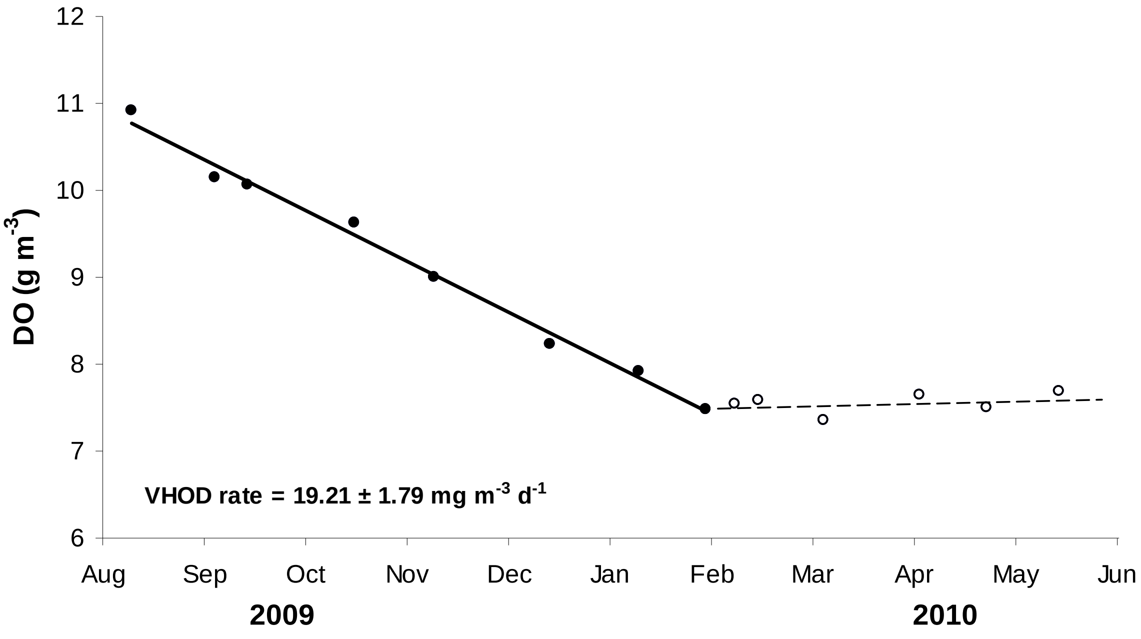


**Figure 4: VHOD.** Volume-weighted mean dissolved oxygen (DO) concentrations below 70 m for 2009/10. The slope of the linear regression through the solid data points provides the VHOD rate. ($P$ < 0.0001, $r^2$ = 0.99, n = 8). Data from February 2010 on show a slight increase indicating re-oxygenation was occurring.

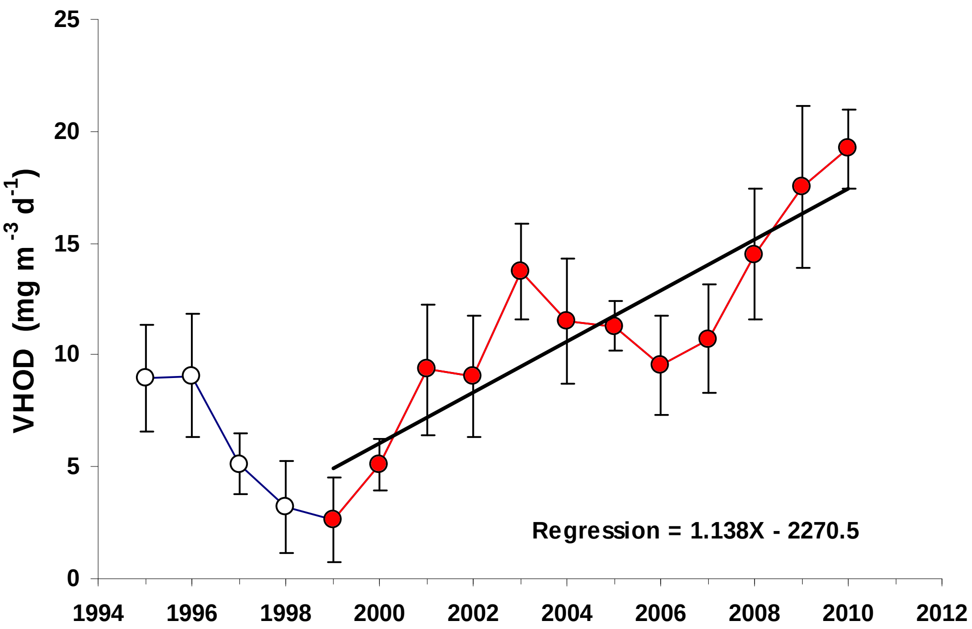


**Figure 5: Time-series VHOD data.** Time-series of VHOD rates since 1994-5. The low VHOD in 1997-2000 (following the 1995/96 eruptions of Mount Ruapehu) correlates with a shift in algal dominance from diatoms to colonial greens (*Botryococcus braunii*). The regression through the solid (red) dots ($P$ = 0.0002, $r^2$ = 0.76, n = 12), only refers to the change in VHOD since 1998/99, the year when the VHOD rate during the monitoring programme was lowest, and the last year in which diatoms were not dominant. Data ticks are by year.

Overall, there is a statistically significant ($P$ = 0.0002, $r^2$ = 0.76, n = 12) trend of increase in the VHOD rate data of over 1 mg $m^{-3}$ $d^{-1}$ each year since 1999 (Fig. 5).

**Table 1: Summary of VHOD rates.** Summary of the volumetric hypolimnetic oxygen depletion (VHOD) rates (mg $O_2$ $m^{-3}$ $d^{-1}$) (± 95% confidence limit) and the dominant phytoplankton species during the preceding winter bloom. (* not measured in winter but measured in October 1994).

| Year | VHOD rate | Dominant phytoplankton species | Type |
|---|---|---|---|
| 1994-95 | 8.93 (2.39) | *Aulacoseira granulata** | Diatom |
| 1995-96 | 9.07 (2.77) | *A. granulata* | Diatom |
| 1996-97 | 5.12 (1.37) | *Botryococcus braunii* | Colonial green |
| 1997-98 | 3.21 (2.03) | *B. braunii* | Colonial green |
| 1998-99 | 2.64 (1.90) | *B. braunii* | Colonial green |
| 1999-00 | 5.11 (1.14) | *B. braunii* + *A. granulata* + *Cyclotella stelligera* | C.G. – Diatom mix |
| 2000-01 | 9.34 (2.9) | *A. granulata* | Diatom |
| 2001-02 | 9.06 (2.7) | *Asterionella formosa* | Diatom |
| 2002-03 | 13.76 (2.14) | *A. formosa* + *A. granulata* | Diatom |
| 2003-04 | 11.50 (2.80) | *A. formosa* + *A. granulata* | Diatom |
| 2004-05 | 11.30 (1.13) | *Fragilaria crotonensis* + *A. formosa* | Diatom |
| 2005-06 | 9.56 (2.24) | *A. formosa* + *A. granulata* | Diatom |
| 2006-07 | 10.73 (2.45) | *A. granulata* | Diatom |
| 2007-08 | 14.51 (2.94) | *Fragilaria crotonensis* + *A. formosa* | Diatom |
| 2008-09 | 17.50 (3.64) | *A. formosa* + *A. granulata* | Diatom |
| 2009-10 | 19.21 (1.79) | *Fragilaria crotonensis* + *A. formosa* + *A. granulata* | Diatom |

The low VHOD in 1999 may be attributed to the effects of the 1995/96 eruption of Mount Ruapehu which deposited around 2 million tonnes of allophanic ash across the lake. While allophane is known to remove phosphate from water (see section 3.6: Nutrients in the upper waters) this event also may have triggered a temporary change in the winter bloom dominant algal species from diatoms to buoyant colonial green algae (Table 1). The change from *Aulacoseira granulata*, a heavy diatom which sinks rapidly, to *Botryococcus braunii*, a large colonial green algae which floats in the upper water column, may have allowed the phytoplankton carbon to drift inshore rather than settle in the deeper parts of the lake. The loss of organic carbon to the deep waters could have resulted in a lower VHOD at that time.

Instead of returning to the pre-eruption VHOD levels once the diatoms again dominated the algal species in the winter bloom, the VHOD rate continued to increase (Fig. 5). This sustained increase in VHOD over the past 12 years suggests a change in the export of organic carbon to the hypolimnion, either from external inputs (i.e., land-use effects), or by enhanced primary production within the lake, or a combination of both.

## Secchi depth

Water clarity, as measured by Secchi depth, in Lake Taupo generally follows a seasonal pattern inversely correlating with the pattern of phytoplankton abundance. Secchi depths in the long-term record, until recently (since 2002), have mostly been between 10 m to 20 m

(Fig. 6A) with lowest water clarity during the winter/spring growth phase and highest water clarity during summer when the phytoplankton have settled out of the epilimnion, which is depleted in nutrients at that time.

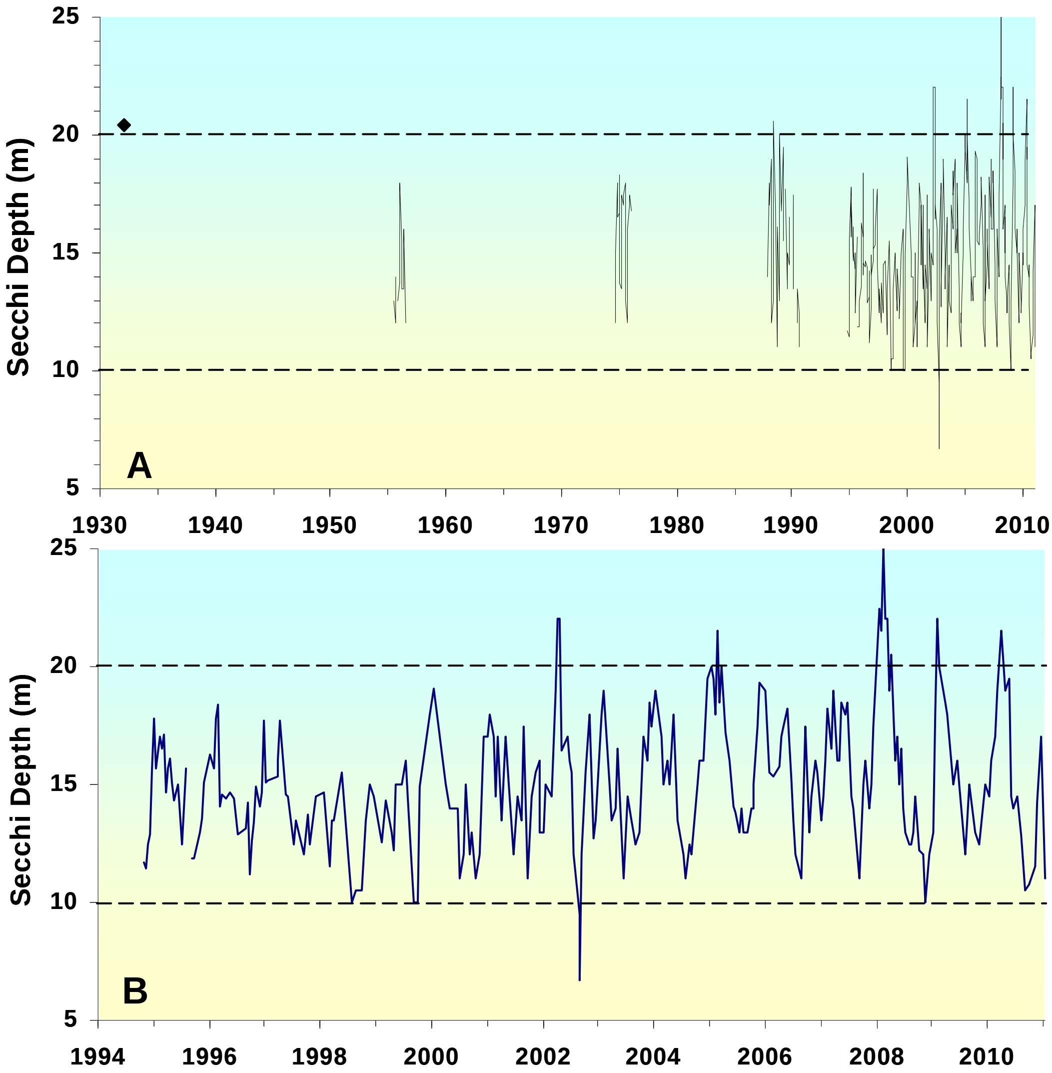


**Figure 6: Water clarity as measured by Secchi depth.** Time-series Secchi depth data A) all records since 1932 (♦), and B) all records for the present monitoring programme since 1994.

The maximum water clarity in summer 2009/10 was higher than in most years, with Secchi depths reaching 21.5 m in April 2010 (Fig. 6B). Although not as high as the maximum of 25 m recorded in February 2008, which was attributed to a drought (Gibbs 2009), the clear-water phase in 2010 also coincided with another warm and calm period with low runoff late in summer. Under very dry conditions it is possible that water clarity increases due to the reduced nutrient inputs resulting from expected lower stream flow and groundwater inflow, as well as low input of sediment from catchment erosion. Consistent with this concept, the water clarity in summer 2009/10, a wet and windy summer, only reached a Secchi depth of 17 m in February 2010 (Fig. 6B), but increased to 21.5 m after two months without rain.

Mean water clarity during winter (July – September) has increased by 0.11 ± 0.10 m $y^{-1}$ ($P$ = 0.038, $r^2$ = 0.27, n = 16) since the beginning of monitoring in 1994 (Fig. 6B). However, this increase has not been consistent over the whole period. Examining the data in 5-yearly blocks shows that the mean winter water clarities for the periods 1995-1999, 2000-2004, and 2005-2009 were 12.5 m, 13.0 m, and 13.5 m, respectively, whereas the minimum values for each period were 10 m, 9.5 m, and 11 m, respectively. The monitoring period that is the subject of this report (July 2009- June 2010) was wetter than usual and produced lower mean and minimum water clarities during the mixing period of 12.2 m and 10.5 m, respectively.

Minimum Secchi depth (1994 to 2011) usually occurs around September (Fig. 7). Since 2000 the timing of minimum water clarity may have shifted by two months, from winter to spring (Fig. 8). Between 2000 and 2007 the lowest Secchi depth values occurred usually in August but from 2007 to 2011 the lowest Secchi depth values occurred mostly in October. Water clarity in summer was higher after 2007 than before.

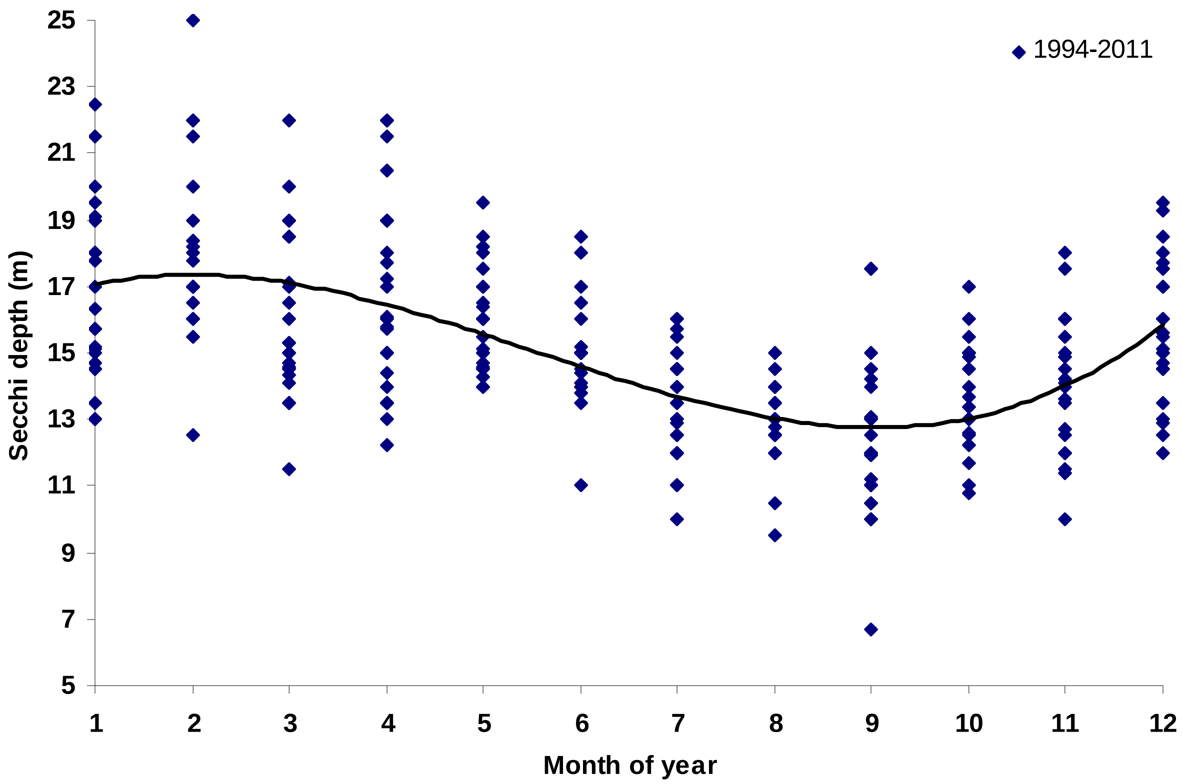


**Figure 7: Seasonal cycle of water clarity.** The annual pattern of all water clarity data has a seasonal cycle with minimum clarity occurring usually in September.

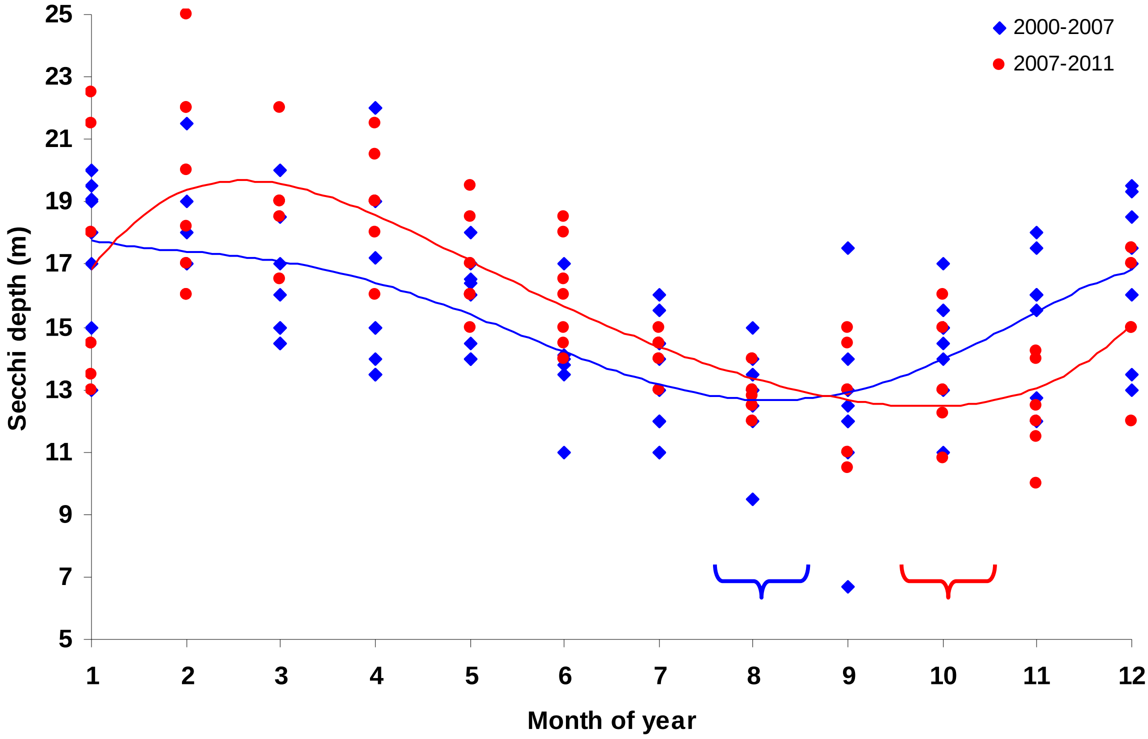


**Figure 8: The timing of minimum water clarity has recently changed.** Between 2000 and 2007 (blue), minimum water clarity occurred in winter (August:). Since 2007 (red ) minimum water clarity has occurred two months later in spring (October). Water clarity in summer was higher after 2007 than before. Curves are $3^{rd}$ order polynomials fitted to the data.

## Phytoplankton

Chlorophyll *a* concentrations tend to be maximum during the winter algal bloom and minimum in summer. As would be expected, there is a statistically significant inverse logarithmic relationship between chlorophyll *a* concentration and Secchi disk depth (Gibbs 2006).

The previously reported long-term trend of increasing mean and maximum chlorophyll *a* concentrations in the upper 10 m of the water column at the mid-lake site (e.g., Gibbs 2010b), has not changed substantially. Over the last three years, this trend in the mean rate of increase has been similar to the present value of 0.021 ± 0.015 mg $m^{-3}$ $y^{-1}$ ($P$ = 0.005, $r^2$ = 0.029, n = 268) (Fig. 9) since 1994.

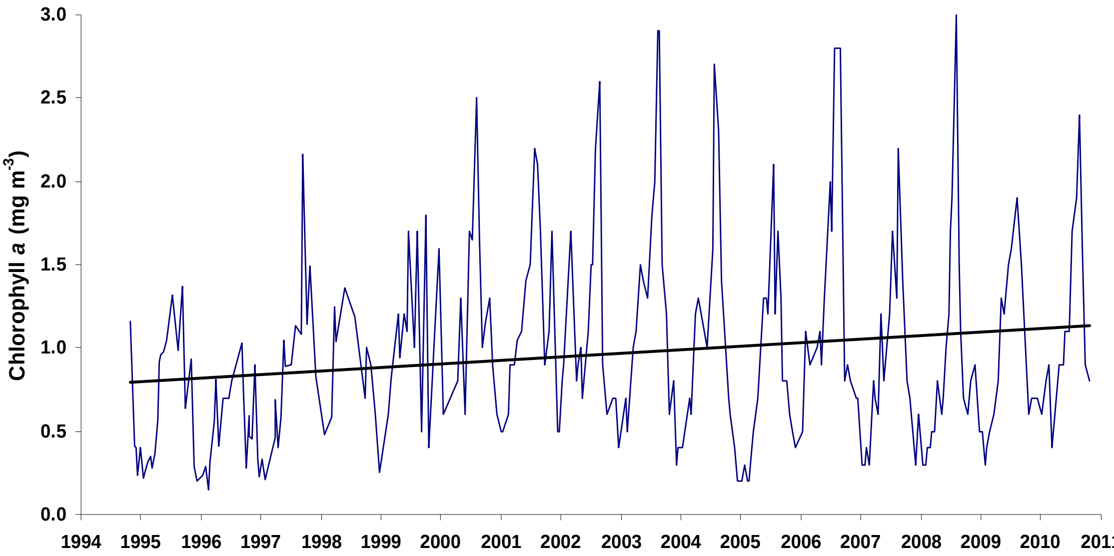


**Figure 9: Time-series chlorophyll *a* concentrations in the upper 10 m of Lake Taupo.** The solid regression line represents a statistically significant increase in the mean chlorophyll *a* concentrations of 0.021 ± 0.015 mg $m^{-3}$ $y^{-1}$ ($P$ = 0.005, $r^2$ = 0.029, n = 268). Date ticks are 1 January in each year.

While there was a statistically significant increase in the annual mean chlorophyll *a* concentrations of 0.087 ± 0.029 mg $m^{-3}$ $y^{-1}$ ($P$ < 0.001, $r^2$ = 0.857, n = 10) from 1994 to 2003 (Fig. 10), there was a non statistically significant decrease of 0.023 ± 0.027 mg $m^{-3}$ $y^{-1}$ ($P$ = 0.085, $r^2$ = 0.29, n = 11) from 2000 to 2010 (Fig. 10).

A similar pattern is seen in the annual maximum chlorophyll *a* concentrations with a statistically significant increase of 0.19 ± 0.086 mg $m^{-3}$ $y^{-1}$ ($P$ < 0.001, $r^2$ = 0.765, n = 10) from 1994 to 2003, but a non statistically significant decrease of 0.016 ± 0.08 mg $m^{-3}$ $y^{-1}$ ($P$ = 0.65, $r^2$ = 0.023, n = 11) from 2000 to 2010 (Fig. 9). The mean of the annual maxima was 2.49 ± 0.35 mg $m^{-3}$. There was no significant change during the period 1994-2010.

There has not been a comparable shift in the timing of the winter algal bloom to account for the shift in the timing of the water clarity minimum from winter to spring (Fig. 11). There has, however, been a change in weather patterns from El Niño to La Niña resulting in wetter springs in recent years (R. Bell, NIWA, pers. comm.), which might indicate that the shift in the timing of the water clarity minimum was due to suspended sediment from land runoff.

The apparent higher water clarity in summer and autumn since 2007 is consistent with lower algal biomass (Fig. 11). The reduction in biomass may be due to warmer summers with lower rainfall. Warmer summers produce stronger thermal stratification, which would reduce the upward nutrient flux from the hypolimnion, while lower rainfall reduces the amount of nutrients entering the epilimnion through stream and river inflows. The combined effect would be to reduce the amount of nutrients available for phytoplankton growth in the upper water column.

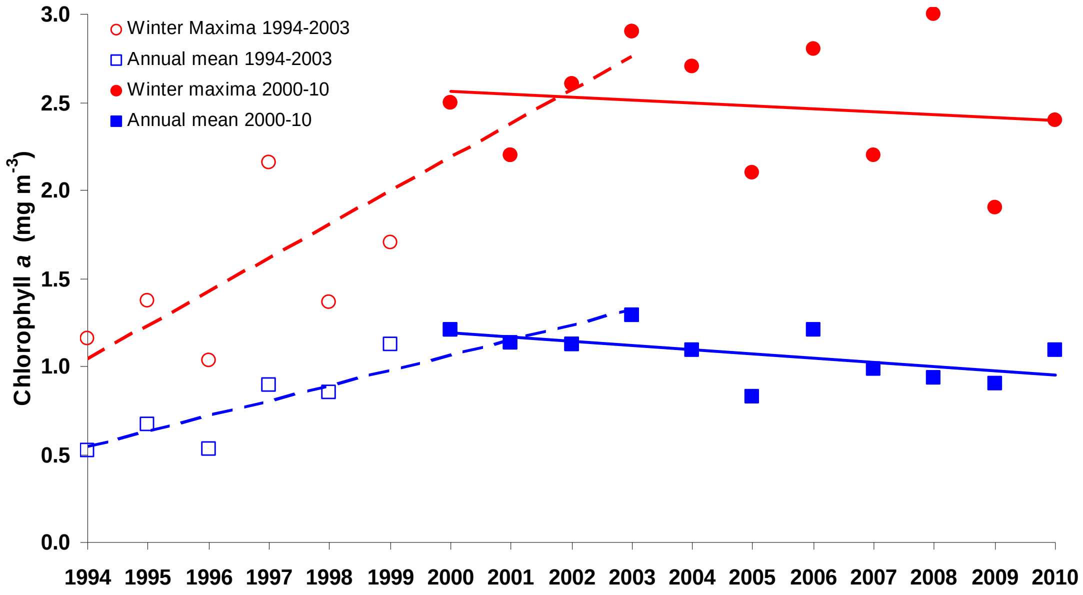


**Figure 10: Annual mean and maximum chlorophyll a concentrations.** Annual mean and winter maximum chlorophyll *a* concentrations from the 10-m tube samples since 1994. Regression lines indicate significant ($P$ <0.001) trends of increase between 1994 and 2003 (broken lines) but non significant ($P$ >0.5) trends of decrease from 2000 to 2010 (solid lines). These regressions overlap between 2000 and 2003. Regression slopes are given in the text. Date ticks are 1 January in each year.

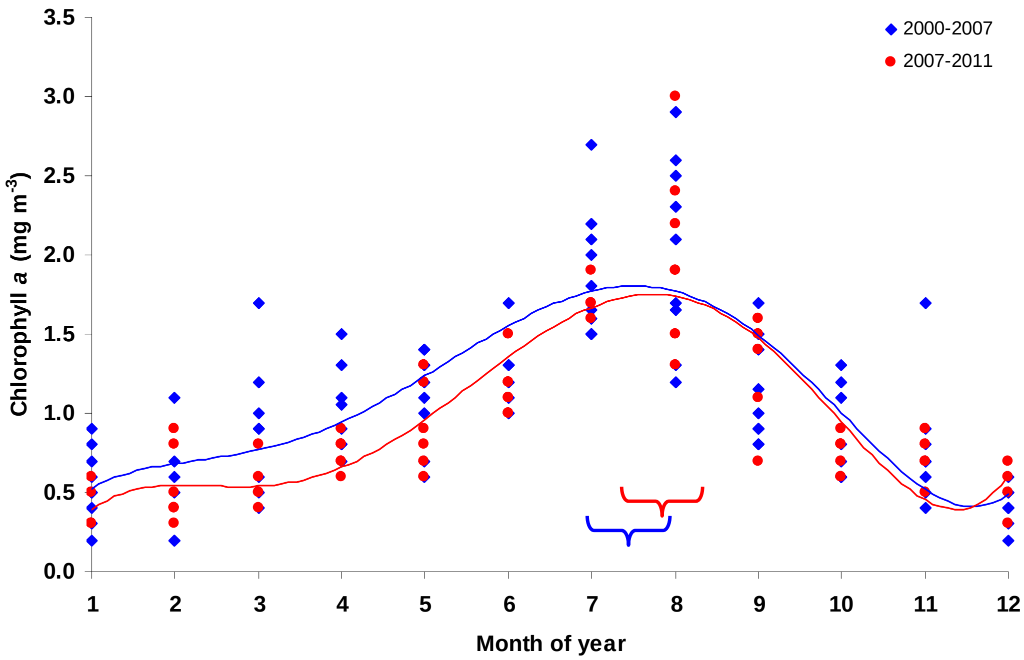


**Figure 11: Seasonal pattern of algal biomass.** Algal biomass, as indicated by chlorophyll *a* concentrations, for the periods 2000-2007 (blue) and 2007-present (red) show little change in the timing of the peak algal biomass in winter (horizontal brackets).

## Deep chlorophyll maxima

The monitoring programme uses chlorophyll *a* concentrations (extracted from water samples) as an indicator of algal biomass in the upper 10 m because surface layer chlorophyll *a* concentrations can be directly related to water clarity (Secchi depth). However, the use of the profiler fitted with a chlorophyll fluorescence sensor indicates that a large proportion of the algal biomass in Lake Taupo through spring and summer is associated with the base of the metalimnion (circa 40 to 50 m depth) as a deep chlorophyll maxima (DCM) (Fig. 12). The DCM may have a biomass up to 70% greater than the upper 10 m layer, as demonstrated in Gibbs (2007). The use of a 30-m integrated tube sampler in 1974/75 would have included part of the DCM, accounting for the higher chlorophyll *a* concentrations at that time (Gibbs 2010b). The DCM was present throughout the spring-summer phase of the 2009/10 stratified period with chlorophyll fluorescence (Chl-Fl) values comparable with previous years.

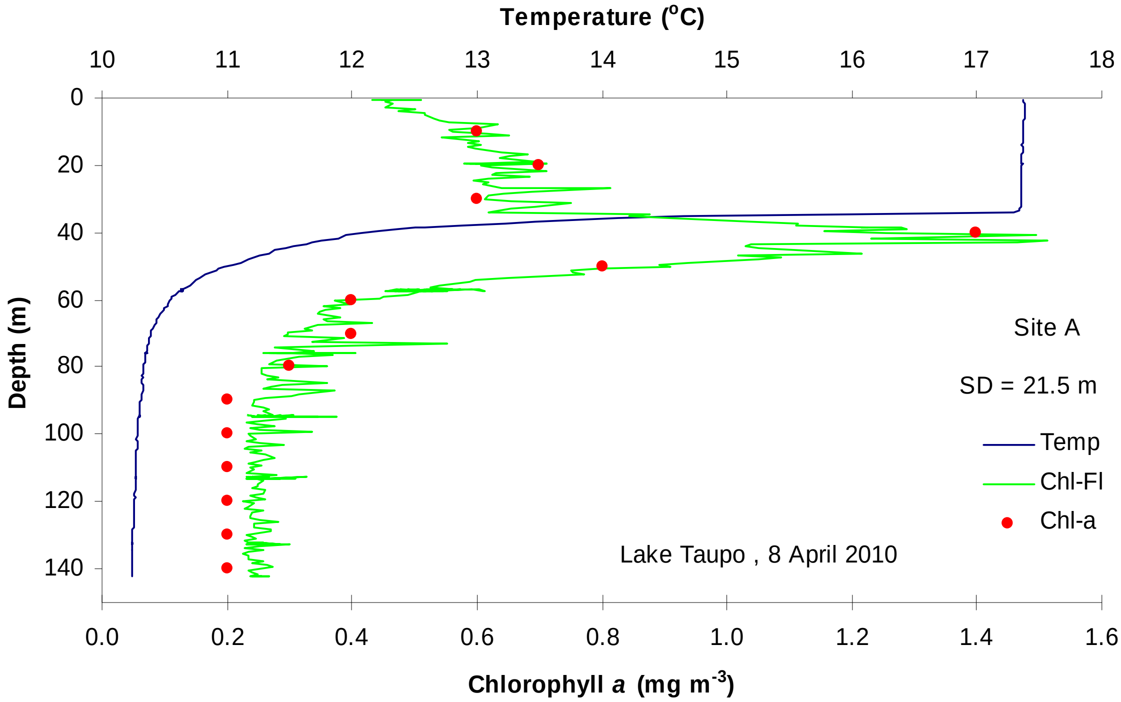


**Figure 12: Deep chlorophyll .** Example of a deep chlorophyll maxima in Lake Taupo measured by chlorophyll fluorescence (Chl-Fl) on 8 April 2010 compared with extracted chlorophyll *a* (Chl-a) concentrations (red dots) from water samples collected at 10 m depth intervals on the same day. The peak algal biomass lies just below the thermocline.

The chlorophyll fluorescence profile data are calibrated against extracted chlorophyll *a* data from discrete water samples collected from selected depths. Below 20 m depth, the resulting chlorophyll *a* concentrations estimated by the fluorescence profiler are typically within 5% of concentrations measured by extraction from the discrete water samples (Fig. 12). However, above 20 m, fluorescence quenching by sunlight means the fluorescence data cannot be used directly and a correction curve is derived by regression to provide estimates closer to the surface. The integrated tube samples provide measured chlorophyll *a* concentrations in the upper 10 m. Differences between the two estimates below 80 m depth are in part due to reporting the analytical results to one decimal place.

The chlorophyll fluorescence data provide an insight as to how the algal biomass (and thus the particulate nutrients) are distributed through the water column over the summer to the winter mixing period (Fig. 13). In 2010, the February and April profiles show the DCM. The June profile shows that wind mixing had dispersed the algal biomass through the epilimnion. In July epilimnetic algal biomass had increased and moved down with the thermocline leaving less algal biomass near the surface. In September, after winter mixing, the algal biomass had increased even more but was settling down through the whole water column.

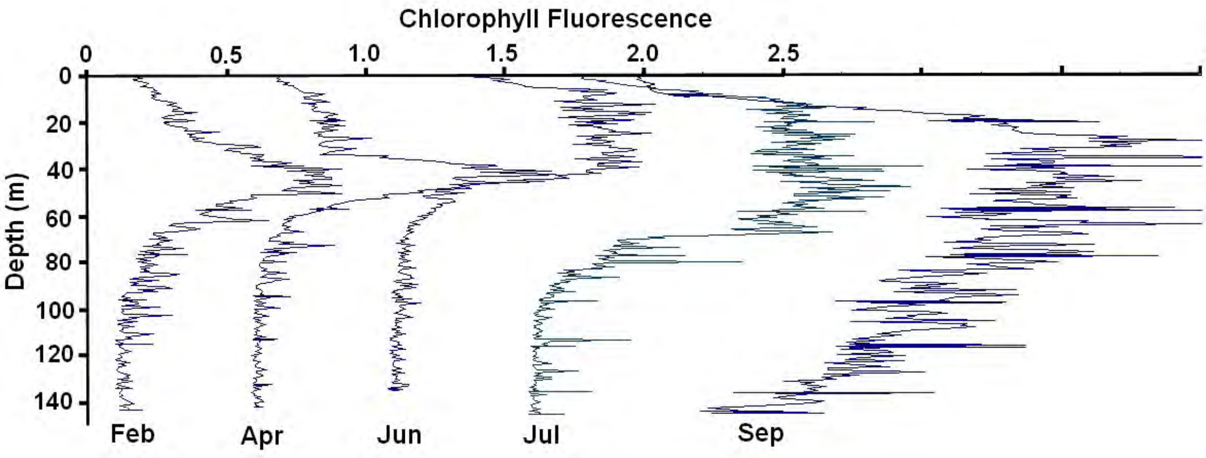


**Figure 13: Fluorescence profiles in Lake Taupo.** Selected sequential chlorophyll fluorescence profiles during 2010 showing the progression from a deep chlorophyll maxima in summer to its disappearance and sedimentation of algal matter during the winter bloom. Each profile is offset to the right by successive 0.5 chlorophyll fluorescence units for clarity.

## Algal species abundance

In spring 2009, the algal species assemblage was dominated by the diatom *Fragilaria crotonensis*, accounting for about 50% of the biovolume in the upper 50 m of the water column. While *Botryococcus braunii* ranked second in biovolume in the surface water, their numbers were very low and *Botryococcus braunii* was not found below 50 m depth. The second and third most dominant algal species were the diatoms *Asterionella formosa* and *Aulacoseira granulata* at about 25% and 10% of the total biovolume, respectively.

*Fragilaria crotonensis* remained the dominant species through to summer although its biovolume fell to less than 10% of that in spring. Other algal species of note include *Oocystis sp.*, which had an autumn biomass about half that of *Fragilaria crotonensis*, and the dinoflagellates *Gonyaulax sp.* and *Gymnodinium sp.* had elevated biomass at several depths below the surface in autumn. The colonial diatom *Volvox aureus* appeared in autumn 2010 and briefly dominated in May. The cyanobacteria *Anabaena c.f. lemmermannii* was present in low numbers throughout the year, and reached a maximum biomass about half that of *Oocystis sp.* in autumn.

A comparison of Site A algal data with near-shore algal data from Whangamata and Whakaipo Bays (Fig. 1) provides a more detailed evaluation of the seasonal changes in algal species in Lake Taupo (Gibbs, 2010a).

## Nutrients in the upper waters

The 2009/10 concentrations of DRP (Fig. 14A), $NH_4$-N (Fig. 14B), $NO_3$-N (Fig. 14C) and DON (Fig 14D), were within the range of previously measured values, except for DRP. 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 (Fig. 14). Since 2003, maximum concentrations of $NO_3$-N and $NH_4$-N in the surface layer (Fig. 14B & C) have mostly coincided with winter mixing periods when vertical mixing returns nutrients from bottom waters to the surface layer.

Of special interest are the relatively high DRP concentrations in the upper water column in winter 2009. A similar high DRP concentration during winter mixing was observed in winter 2005. While the lake only mixed briefly that year, in the winter of 2009 the lake mixed completely (Fig. 2). The high DRP concentration in the winter of 2009 may be explained by the relatively low algal biomass in the lake at that time (Fig. 10) which may have resulted in low assimilation rates of DRP (and $NO_3$-N) from winter mixing (Figs. 14A and C).

The $NH_4$-N concentrations in the upper water column have been relatively elevated since the beginning of 2007 compared with 2003 to 2007(Fig. 14B). $NH_4$-N usually appears in the surface water at the time of winter mixing, as occurred in winter 2010 (Fig. 14B), and can be attributed to upwelling of nutrient-rich bottom water. However, occasionally elevated $NH_4$-N concentrations occur at other times through the year not linked to upwelling events. Elevated $NH_4$-N concentrations during the stratified period may be the result of decomposition of senescing phytoplankton or excretion by zooplankton.

During the 2008/9 monitoring period, DON concentrations fell below the long-term minimum value of around 29 mg $m^{-3}$ for the first time since the beginning of the monitoring programme. It has been assumed that the minimum amount of DON consists of refractory organic material. During the 2009/10 monitoring period, DON concentrations were mostly twice the “minimum” value and exceeded 100 mg $m^{-3}$ during a hydrothermal eruption event around 18 February 2010. Hot water rising to the surface during such an event entrains bottom water, including surficial sediment pore water, bringing it to the lake surface. This may explain the sudden increase in epilimnetic $NO_3$-N at that time (Fig. 14C) implying entrainment of hypolimnetic water. From conductivity profile data, hydrothermal events are relatively common in Lake Taupo. That the time-series data does not show a large peak on each occasion may be due to the sampling frequency which may not coincide with a hydrothermal eruption event, although much of the variability in the $NO_3$-N and DON data may be due to such events.

Except during winter mixing, $NH_4$-N concentrations in the hypolimnion are usually very low (<1 mg $m^{-3}$) due to high rates of nitrification at the sediment–water interface and in the water column (Vincent & Downes 1981). A loss of these benthic and planktonic nitrifiers associated with the volcanic ash from the Mount Ruapehu eruptions in 1995/96 may explain the absence of $NO_3$-N and the elevated $NH_4$-N concentrations in the epilimnion for about a year after the eruption (Fig. 14B & C).

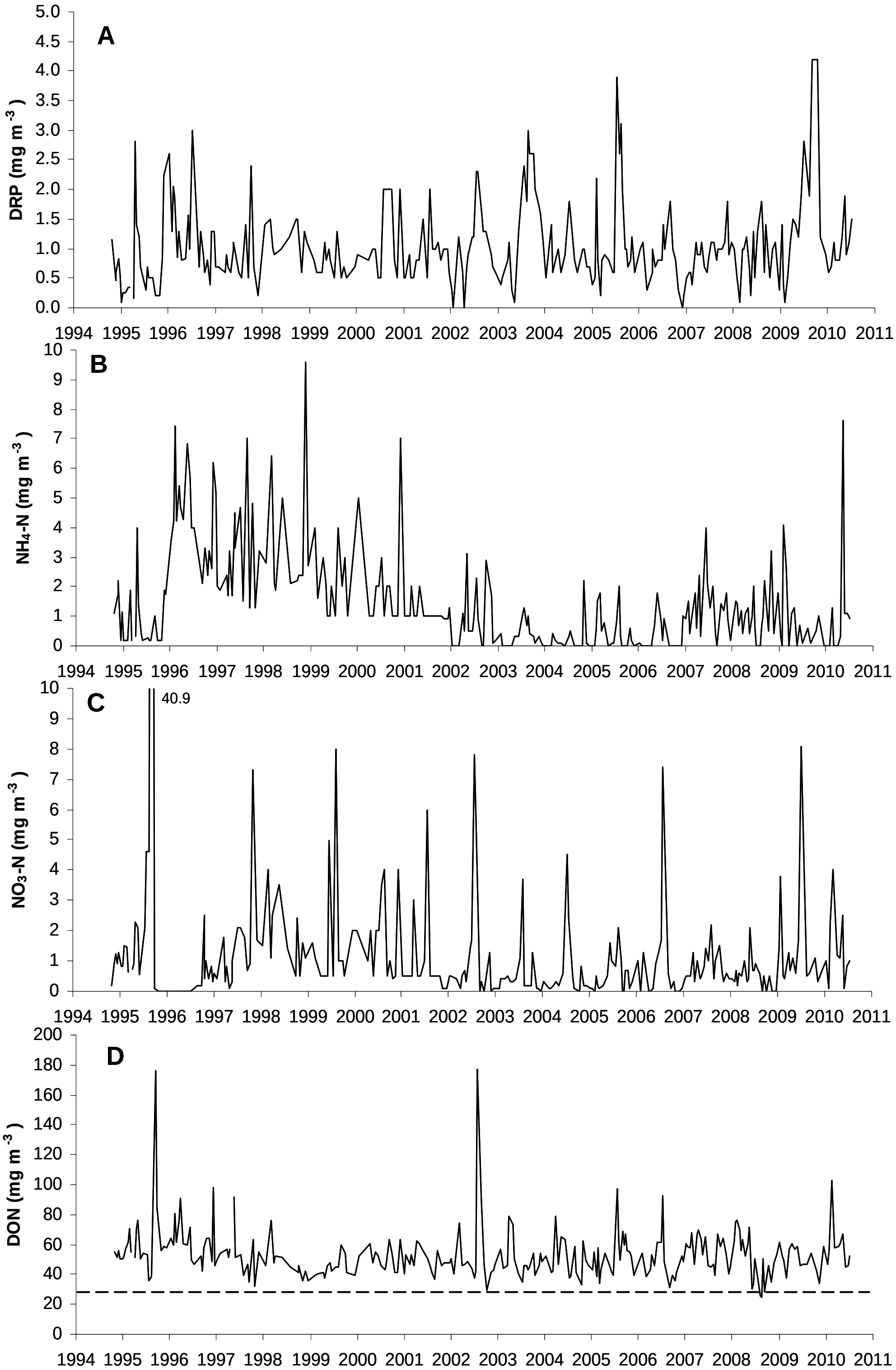


**Figure 14: Time series nutrient data in Lake Taupo.** Time series data from the top 10 m of the water column in Lake Taupo for (A) dissolved reactive phosphorus (DRP), (B) ammoniacal nitrogen ($NH_4$-N), (C) nitrate + nitrite nitrogen ($NO_3$-N), and (D) dissolved organic nitrogen (DON). Broken line indicates the long term minimum DON concentration of 29 mg $m^{-3}$, which may be mostly refractory organic material. Date ticks are 1 January in each year.

## Nutrient accumulation in the hypolimnion

Dissolved inorganic nutrients in water samples from 150 m depth demonstrate consistent seasonal patterns driven by the mixing in winter (Fig. 15). A sudden drop in DRP and $NO_3$-N concentrations usually occurs around the beginning of August as a result of winter mixing. In 2008 and 2009 mixing began in mid to early July according to temperature data (Fig. 2),. Hypolimnetic $NO_3$-N concentrations before the onset of winter mixing have been consistently around 32-35 mg $m^{-3}$ since 2004, and declined from a maximum of 46 mg $m^{-3}$ in 2001. During each brief mixing period, $NH_4$-N is released into the bottom water (Fig. 15), but its maximum concentration has decreased from around 9 mg $m^{-3}$ in 2001 to around 4-5 mg $m^{-3}$ during mixing in winter 2009. The source of this $NH_4$-N is not known.

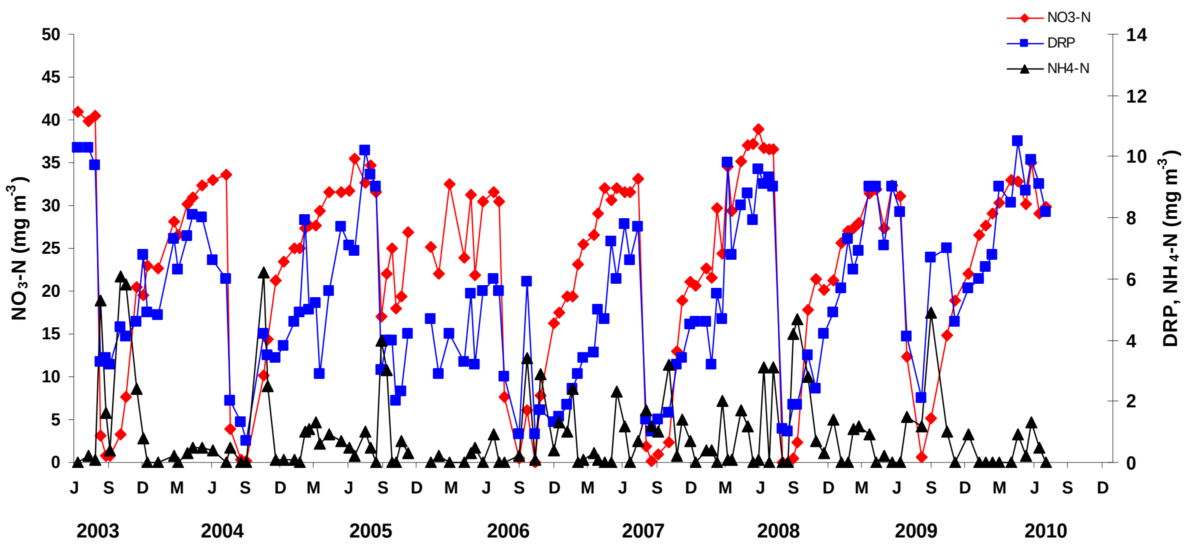


**Figure 15: Time series bottom water nutrient data .** DRP, $NO_3$-N and $NH_4$-N concentrations in the bottom waters (150 m depth) of Lake Taupo since the winter mixing of 2003.

## Total mass accumulated

The total mass[1] of $NO_3$-N in the hypolimnion (below 70 m depth) in autumn each year before the onset of winter mixing has ranged from about 120 t (1978) to more than 650 t (1999) (Fig. 16). While this graph is similar to those in earlier reports, it also includes additional information from historical data sets held by NIWA. The historical data used to produce the additional data points from 1988 to 1990 are given in Appendix 6. Since 1975 there has been a statistically significant ($P$ = 0.001, $r^2$ = 0.39, n = 23) increase in the total mass of $NO_3$-N in the hypolimnion before winter mixing of around 7.4 t $y^{-1}$ (Fig. 16). The total mass of $NO_3$-N in the hypolimnion in April 2010 was around 380 t, a decrease of around 85 t since 2009, but well within the range of inter-annual variability in the recent data.

[1] In earlier reports the total mass of $NO_3$-N in the hypolimnion each year has been referred to as the "total accumulated mass" of $NO_3$-N. It is the "standing stock" of $NO_3$-N at that time

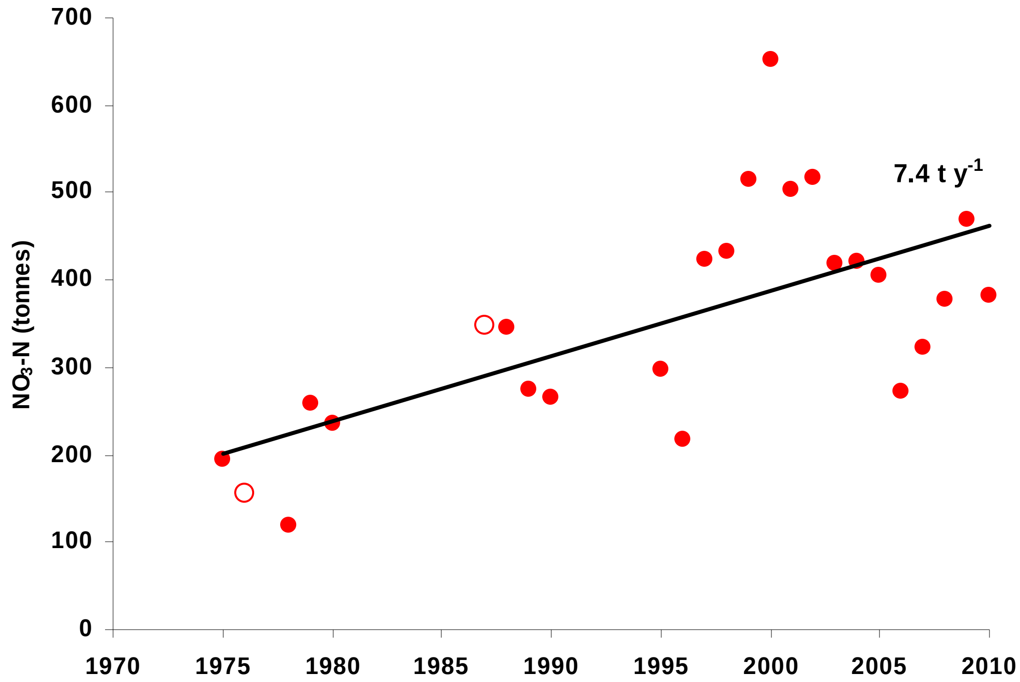


**Figure 16: Total mass of $NO_3$-N in the hypolimnion of Lake Taupo in autumn before winter mixing.** .The regression line indicates a statistically significant increase of 7.4 t $y^{-1}$ ($P$ = 0.001, $r^2$ = 0.39, n = 23). Open circle data excluded from regression as time periods and sampled depths were not the same as used for the other data. Date ticks are 1 January in each year.

## Net accumulation rate

The total mass of $NO_3$-N in the hypolimnion before winter mixing is the sum of the mass of $NO_3$-N in the hypolimnion at the beginning of the stratified period and the net mass that was released from the sediments as well as from decomposing plankton that accumulated in the hypolimnion during the stratified period. There will also be some assimilation of $NO_3$-N by phytoplankton in the DCM during spring but, because the net accumulation rate calculation uses data below 70 m (20 – 30 m below the DCM), this effect may be minimal. The difference between the standing stock of $NO_3$-N at the beginning and end of the stratified period is the net mass of $NO_3$-N accumulated in the hypolimnion.

To determine the net accumulation rate of $NO_3$-N in the hypolimnion, the total mass data below 70 m depth (Fig. 16) have been transformed into accumulation rate data by subtracting the mass present in spring from the mass present in autumn and dividing by the number of days between the spring and autumn samplings (Fig. 17).

Mineralisation and release of nutrients from the sediments are driven by microbial processes that are a function of temperature and dissolved oxygen concentration. As the hypolimnion is well oxygenated and the temperature remains constant within ± 0.3 °C, a fairly constant rate of net accumulation is expected throughout the stratified season. There was a weakly significant increase in the net accumulation rate of 0.026 ± 0.03 t $d^{-1}$ per year (P = 0.07, $r^2$ = 0.144, n = 23) since 1975 (Fig. 17). The data for 1976 and 1987 were excluded from the regression analysis because they were estimated using different periods than the rest of the data (see also Fig. 16). The data points for 1976 and 1987 are included in Figure 17 as an indication of what the net accumulation rates may have been in those two years.

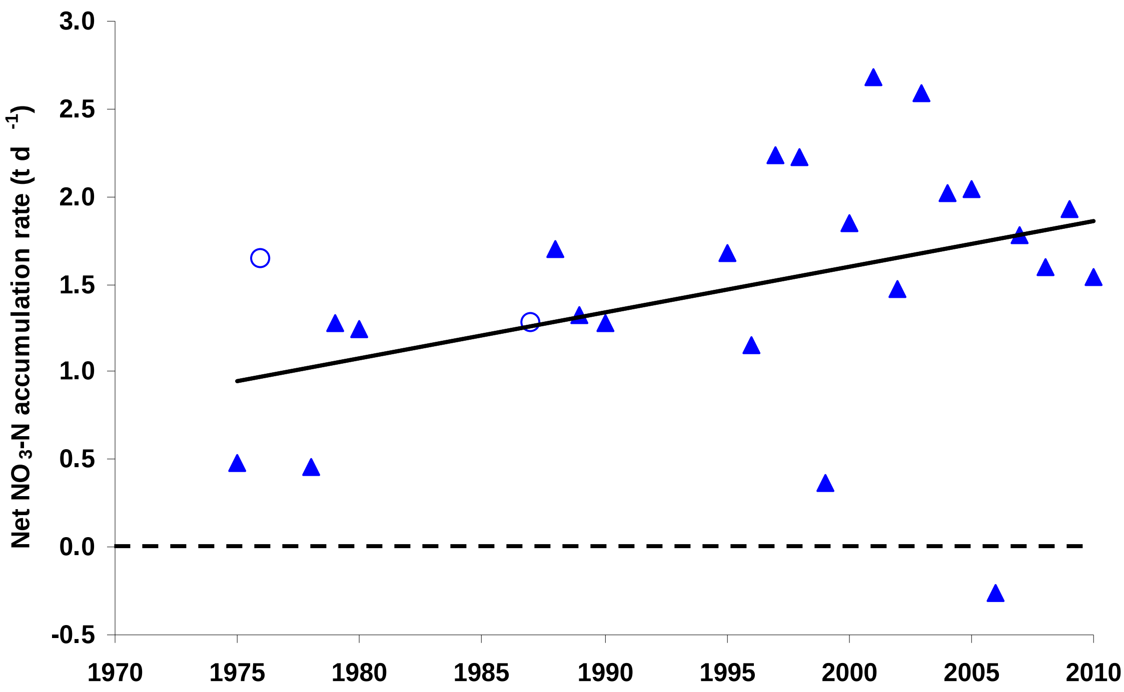


**Figure 17: Net Hypolimnetic $NO_3$-N accumulation rates .** Net $NO_3$-N accumulation rates (t $d^{-1}$) in the hypolimnion below 70 m. The regression line shows an increase in the net accumulation rate of 0.026 ± 0.03 t $d^{-1}$ ($P$ = 0.07, $r^2$ = 0.144, n = 23). Open circle data were not included 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.

The net accumulation rate for the 2009/10 period was 1.54 t $d^{-1}$, which was 20% lower than in the previous year (1.93 t $d^{-1}$). The time-series of net accumulation rates of $NO_3$-N (Fig. 17) show a high degree of variability between years, with the 1999 and 2006 data points falling well below the trend line. The negative net accumulation rate in 2006 indicates a net loss of $NO_3$-N from the hypolimnion during the 2005-06 stratified period. Both of these data points are for years following a winter where there was incomplete mixing. This suggests that those two low values are anomalies relative to the rest of the data. The effect of incomplete mixing was discussed in an earlier report (Gibbs 2007). Excluding those two values, the net accumulation rates of $NO_3$-N shows a highly significant increase of 0.036 ± 0.019 t $d^{-1}$ ($P$ <0.001, $r^2$ = 0.46, n = 21).

## Total N

Total nitrogen (TN) mass in Lake Taupo was estimated from the spring profile in each year. Although there was an average increase of about 7.5 t $y^{-1}$ since 1975 there was no statistically significant trend in the total mass of TN (Fig. 18). The mean was 3370 t, contrasting with a net annual external TN input to the lake of around 1200 t (W. Vant, Waikato Regional Council, pers. comm.), The total mass of TN in Lake Taupo in spring 2009 was 2720 t, 1200 t less than in the previous year.

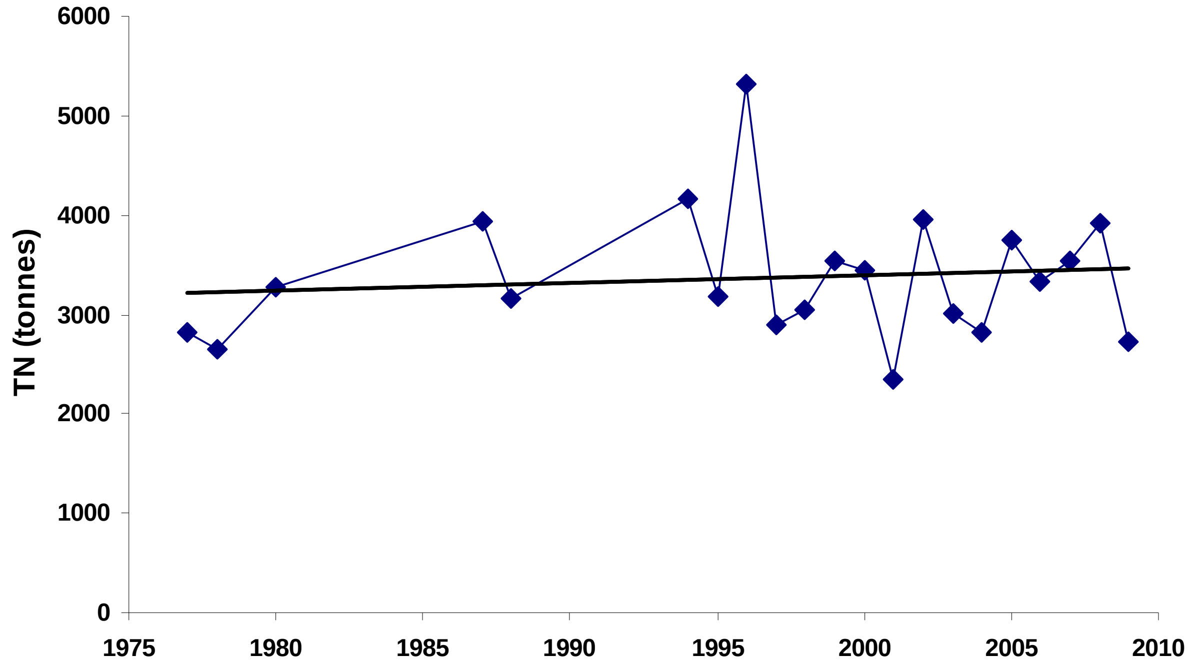


**Figure 18: Estimates of the mass of total nitrogen (TN) in Lake Taupo.** Although there was an average increase of about 7.5 t $y^{-1}$ over the data record, this apparent trend in the data is not statistically significant. The mean was 3370 t. Date ticks are 1 January in each year.

## Knowledge gaps

An earlier report (Gibbs 2006) listed 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 $NO_3$-N accumulation in the hypolimnion during the stratified period as well as estimates of the net efflux of inorganic nitrogen from the sediments. Together these data indicate that the net $NO_3$-N accumulation rates in 1999, 2002, and 2006 may be anomalous. These years have in common that they followed a year of incomplete mixing in winter. The immediate return of the net accumulation rate to the trend in the net accumulation rate data the following year, points to water column processes being as important as sediment processes for controlling hypolimnetic $NO_3$-N concentrations and highlights the need to understand how the in-lake processes work.

The sum of the external inputs to the lake from the catchment via rivers minus the mass lost from the lake via the Waikato river is estimated to be around 1200 t $y^{-1}$ (W. Vant, Waikato Regional Council, pers. comm.). Despite this net input of TN, which represents around a third of the average mass of N in the lake (3370 t), there is no significant increase in the long term TN in the lake (Fig. 18).

The total mass of $NO_3$-N in the hypolimnion just before winter mixing each year appears to reach a plateau (see shape of $NO_3$-N concentration curves, Fig. 15). This may be explained by diffusion across an increasing concentration gradient in the metalimnion or assimilation by algae in the DCM.

Together these data suggest that processes at the sediment-water interface and elsewhere in the hypolimnion are capable of sequestering a very large amount of N each year. However, as the net accumulation rate of $NO_3$-N in the hypolimnion is increasing, this suggests that the sediment processes of nitrogen burial, decomposition, mineralisation, nitrification, denitrification and assimilation are changing.

We have little or no information on any of these N transformation and sequestration process rates in Lake Taupo.

The appearance of $NH_4$-N along with DRP in the upper water column during late spring and summer in 2007, 2008 and 2009 is unusual as these nutrients are usually rapidly assimilated in Lake Taupo by phytoplankton. The source of the epilimnetic $NH_4$-N is unknown.

In February 2010, sampling coincided with a hydrothermal eruption event in the lake floor. This event brought sediment to the lake surface (personal observation) together with a pulse of $NO_3$-N and DON. The latter is presumed to have come from sediment pore water. This observation suggests that these periodic events bring additional nutrients into the upper water column. Also, it is not clear whether there are nutrients in the geothermal sources in the lake bed and whether they have a significant role in the nutrient budget of the lake.

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. Notably, the DCM is often up to 70% higher than the chlorophyll *a* concentrations in the upper 10 m layer. This represents a substantial amount of the algal biomass which is not being assessed in the monitoring reports, although it is measured as chlorophyll fluorescence at every sampling occasion.

# Summary


- Using a linear regression through all data, 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 0.021 ± 0.015 mg $m^{-3}$ $y^{-1}$ ($P$ = 0.005, $r^2$ = 0.029, n = 268) over the 16 year monitoring period.

- It has become apparent that this increase in chlorophyll *a* data may not be a linear trend. The annual mean chlorophyll *a* data from 1994 to 2003 increased at a statistically significant rate of 0.087 ± 0.029 mg $m^{-3}$ $y^{-1}$ ($P$ < 0.001, $r^2$ = 0.857, n = 10), but since 2000 there has been a non significant trend of decline at a rate of 0.023 ± 0.027 mg $m^{-3}$ $y^{-1}$ ($P$ = 0.085, $r^2$ = 0.29, n = 11 ). These data suggest an improvement in lake water quality.

- Peak chlorophyll *a* concentrations in winter have recently become highly variable with a value of 1.9 mg $m^{-3}$ in 2009 compared with 3.0 mg $m^{-3}$ in 2008, and 2.4 mg $m^{-3}$ in 2010.

- 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 up to 70% higher than the chlorophyll *a* concentrations measured in the upper 10 m. The DCM was present through the 2009/10 spring and summer period.

- Algal species in winter 2009 was dominated by diatoms, *Fragilaria crotonensis* accounting for >50% of the biovolume, then *Asterionella formosa* and *Aulacoseira granulata*. *Fragilaria crotonensis* remained the dominant species through to summer although the biovolume fell to less than 10% of that in spring. Other algal species of note include *Oocystis sp.*, and the dinoflagellates, *Gonyaulax sp.* and *Gymnodinium sp.* Cyanobacteria (blue-green algae) were always present in low numbers in the upper water column throughout the 2009/10 monitoring period, with *Anabaena lemmermannii* being the most common species. There was an ever present background of small (<5 µm) unicellular flagellates throughout the year.

- Algae collected from the DCM in October 2009 were low in biomass and numbers and were similar in composition to the surface species. The low biomass compared with the DCM as indicated by the chlorophyll fluorescence profile was probably due to the van Dorne sampler not collecting water from the centre of the DCM peak.

- There was a statistically significant trend of increase in the total mass of $NO_3$-N in the hypolimnion before winter mixing of around 7.4 t $yr^{-1}$ ($P$ = 0.001, $r^2$ = 0.39, n = 23) which was slightly lower than determined in the previous year. The amount of $NO_3$-N in the hypolimnion was around 85 t lower than the previous year.

- The net accumulation rate of $NO_3$-N 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 statistically significant trend of increase in that rate of 0.026

t $d^{-1}$ each year ($P$ = 0.07, $r^2$ = 0.154, n = 23) over the last 33 years. The net accumulation rate of $NO_3$-N in 2009/10 was 1.59 t $d^{-1}$, which was substantially lower than the 2008/09 rate of 1.93 t $d^{-1}$.

- There was a non-statistically significant increase in whole Lake TN of about 7.5 t $y^{-1}$ and a long term mean load of 3370 t. The TN content of the lake in spring 2009 was 2720 t, a decrease of around 1200 t since the previous year.
- The 2009/10 net VHOD rate for the period from August 2009 to February 2010 was 19.21 ± 1.79 mg $m^{-3}$ $d^{-1}$ (mean ± 95% confidence limit) which was almost 2 mg $m^{-3}$ $d^{-1}$ higher than the previous year at 17.50 ± 3.64 mg $m^{-3}$ $d^{-1}$.
- There has been a statistically significant ($P$ <0.0002, $r^2$ = 0.76, n = 12) increase in the VHOD rate of 1.14 mg $m^{-3}$ $d^{-1}$ each year since the low in 1999, suggesting a decline in lake water quality. While the period of the regression analysis is selected from lowest to highest, and thus does not reflect a long-term trend in Lake Taupo, this sustained increase in VHOD over an 12-year period implies a change in the export of organic carbon to the hypolimnion over this period, either from external inputs (i.e., land-use effects), or primary production within the lake, or a combination of both.
- Nutrient concentrations (DRP, $NH_4$-N, and $NO_3$-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. However, since 2006/07 there have been elevated $NH_4$-N but low $NO_3$-N concentrations in the upper water column through summer and autumn. In winter 2009 there were elevated DRP and $NO_3$-N concentrations in the upper water column. In summer 2010 there was a hydrothermal event which resulted in elevated DON and $NO_3$-N concentrations in the surface waters.
- Bottom water temperatures fell rapidly to 10.3 ºC after mixing in August 2009 and then gradually increased to 10.7 ºC during the stratified period.
- Water clarity during summer 2009/10 was 17 m, substantially lower than the previous few years. However, clarity reached a maximum of 21.5 m in autumn after a two month period without rain. The extremely high clarity events in recent years may be attributed to extended periods of calm weather with very low surface run-off. The generally low freshwater inputs during these drought conditions would contribute less plant growth nutrients and sediment to the lake than in previous years.
- From 2000 to 2007, winter minimum clarity occurred around August. Since 2007, minimum clarity occurs around October, two months later.

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 $NO_3$-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.

While these trends in the data are still present in the whole data set, there are indications that water quality may be beginning to improve e.g., mean annual chlorophyll *a* concentrations have been more or less steady since 2000. In contrast, however, the VHOD rates have been increasing since 1999, an indication that the water quality is declining.

These contrasting indicators are not mutually exclusive. The steady or slight (non significant) decline in mean annual chlorophyll *a* concentrations is consistent with the nearly constant annual maximum hypolimnetic concentrations of DRP and $NO_3$-N in autumn for the last 7 years (Fig. 15). These nutrients become available for algal growth after winter mixing. However, the persistent increase in the net VHOD rate indicating an increase in oxygen demand implies a change in the loading of organic carbon on the lake. The temporal disassociation of the chlorophyll *a* maximum in July-August (Fig. 11) from the minimum water clarity in October (Fig. 8) suggests that the carbon load through suspended sediment inputs in spring from land may have increased.

# Acknowledgements

This report was made possible by the team effort of Philip King and Duncan Pearce 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, Margaret McMonagle, Cara Mackle and team. Quality control was provided by Mike Crump, Lab Manager.

Phytoplankton dominance and enumeration results were provided by Karl Safi.

# Glossary of abbreviations and terms

| | |
|---|---|
| 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 Demand: the net rate of oxygen loss associated with biological, chemical and physical 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, $NH_4$-N. |
| Nitrate nitrogen | Used in this report as the sum of nitrate ($NO_3^-$) plus nitrite ($NO_2^-$). Symbol, $NO_3$-N. |
| DIN | Dissolved Inorganic Nitrogen: the sum of $NH_4$-N + $NO_3$-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, $NO_2$ |

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# Site map, sampling strategy and methods

## Site map

Lake monitoring sites were originally established using land-based markers (Fig.19). These have now been defined using GPS and corrected for curvature using WGS84 convention.

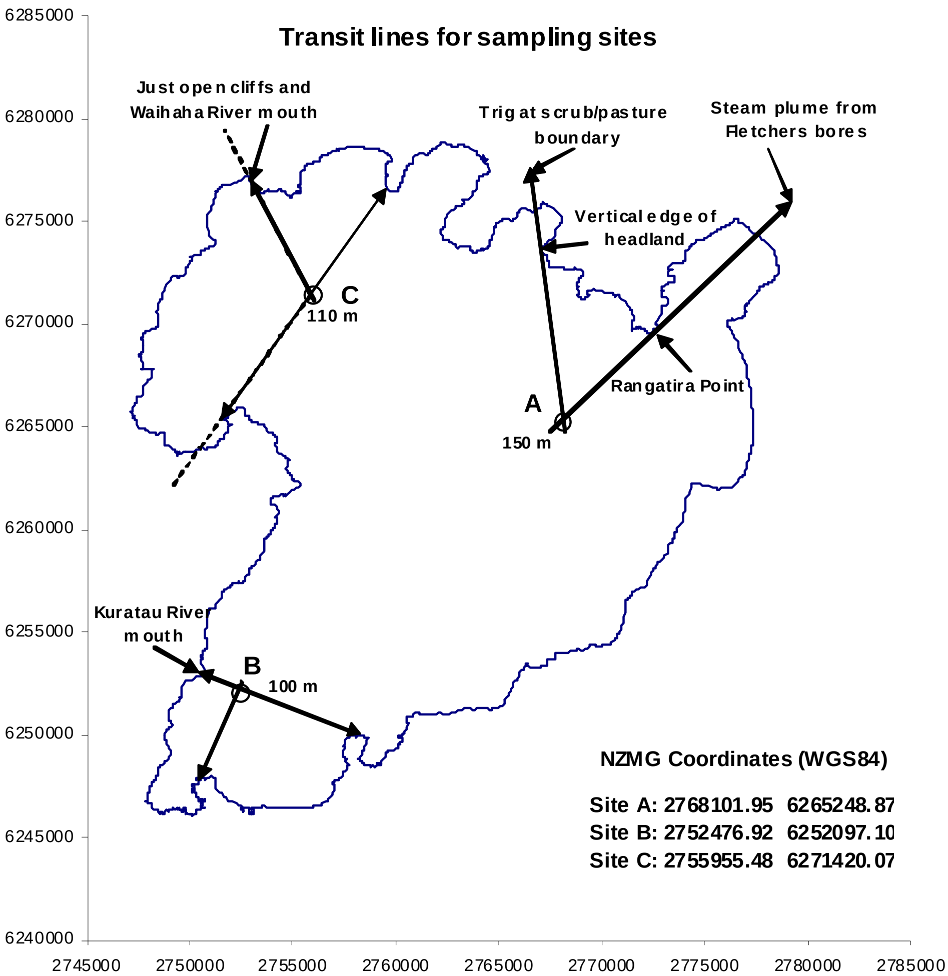


**Figure 19: Site map of Lake Taupo .** Site map of Lake Taupo showing location of the routine monitoring site at mid lake (A). Two additional sites at Kuratau Basin (B) and the Western Bays (C) were sampled between January 2002 and December 2004 inclusive. Data from those sites have been retained with 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.

## Methods

The sampling site was selected in the central basin of Lake Taupo (Site Map) with a water depth of about 160 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 the profiler.

In January 2008, the XR420f profiler was upgraded to a RBR model XR620f freshwater profiler/logger with improved sensitivity. The new profiler is fitted with a Sea Point chlorophyll fluorescence probe and a Li-Cor underwater photosynthetically active radiance (PAR) sensor to measure in situ light levels and light extinction (Kd) associated with the vertical distribution of algal biomass within the lake water column. In the new system the YSI dissolved oxygen (DO) sensor was replaced with an Oxyguard DO sensor, with a temperature sensor, fitted to a separate RBR logger attached to the profiling frame.

Cross-calibration between the two profilers confirmed the quality of the data and the XR420f has been retained as a back-up.

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 ($NO_3$-N)*, ammoniacal nitrogen ($NH_4$-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) and dissolved organic carbon (DOC). (* Little, if any nitrite is ever found in the Lake Taupo water column, hence the use of $NO_3$-N).

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 but not as complete profiles 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 on a Lachat FIA flow injection analyser.

Algal species composition and abundance were obtained by settling a measured volume of sample (up to 100 mL) in Utermöhl (1931) tubes and counting on an inverted microscope. Biovolume was estimated from cell volume tables calculated from the cell dimensions of each species. Dominance was estimated from relative biovolumes with the highest biovolume assigned dominance 1 as most common and the lowest biovolume assigned the dominance 10 as rare. Professional judgement was used to relate dominance between samplings.

Since 2007, dominance is no longer used and the algal data are reported in cell counts and biovolume.

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 profiler, water clarity as Secchi disc depth, and a 10 m tube water sample was collected for measurement of chlorophyll *a*, $NO_3$-N, $NH_4$-N, TN, DRP, TP, and algal species dominance. Chlorophyll fluorescence, conductivity, and PAR data from the profiler are archived but not routinely included in this report.

From 2000, near-bottom water samples from 150 m were collected using a van Dorn water sampling bottle and analysed for DRP, $NO_3$-N, and $NH_4$-N.

## 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 Lachet FIA system, the limits of detection have been confidently lowered 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.

## Statistical methods

Copied from Gibbs (2000).

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 measures the amount of variability in the data that is accounted for by the regression. Another is the *P*-value[2] . 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 2000) 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 2000) 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.

[2] 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.

# The calculation of 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 under-flowing 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 water is always colder than the lake surface water and for at least 9 months of the year it is also colder than the minimum lake water temperature of 10.3 ºC. 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.

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 inter-annual 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.

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 (hypsographic 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:-

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

For each profile date:

Compute the DO 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 DO 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 Excel regression analysis tool 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 g $m^{-3}$ $d^{-1}$. Multiply 'a' by 1000 to get the net VHOD rate in mg $m^{-3}$ $d^{-1}$. The negative sign from the regression equation indicates a loss rate. By convention VHOD is always a “loss” term and thus the negative sign is omitted when reporting net VHOD rates.

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.

## Statistical evaluation of the VHOD rate

From the 1999-2000 monitoring report (Gibbs 2000), the VHOD rate is expressed as the calculated net VHOD rate ± 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.

**Table 2: 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 |

**Table 3: Julian Date or sequential day number.** 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 |

## Temperature and dissolved oxygen data

Includes accumulated data since 1994.

* represents data missing or invalid.

For completeness, additional data from 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.

**Lake Taupo Temperature, Dissolved Oxygen, and Secchi Depth Database.** **2009-2010**

**Mid-Lake site A for the period starting 6 July 2009**

**Temperature**

| Date / Depth (m) | 6/07/2009 | 13/08/2009 | 7/09/2009 | 17/09/2009 | 19/10/2009 | 12/11/2009 | 17/12/2009 | 13/01/2010 | 2/02/2010 | 11/02/2010 | 18/02/2010 | 10/03/2010 | 8/04/2010 | 28/04/2010 | 20/05/2010 | 3/06/2010 | 23/06/2010 | 13/07/2010 | 10/08/2010 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 10.93 | 10.43 | 10.56 | 11.63 | 11.72 | 13.00 | 16.99 | 17.89 | 19.23 | 20.60 | 20.45 | 20.08 | 17.36 | 16.38 | 15.09 | 14.11 | 12.23 | 11.31 | 11.01 |
| 10 | 10.93 | 10.41 | 10.52 | 11.08 | 11.25 | 12.54 | 16.25 | 17.89 | 19.15 | 20.53 | 20.40 | 20.04 | 17.35 | 16.31 | 15.09 | 14.00 | 12.25 | 11.29 | 10.96 |
| 20 | 10.92 | 10.41 | 10.51 | 10.71 | 11.24 | 12.43 | 15.85 | 17.56 | 17.60 | 18.34 | 18.73 | 19.69 | 17.35 | 16.30 | 15.09 | 13.99 | 12.23 | 11.29 | 10.95 |
| 30 | 10.92 | 10.41 | 10.47 | 10.57 | 11.20 | 12.19 | 13.45 | 13.21 | 13.95 | 14.51 | 13.91 | 15.56 | 17.34 | 16.12 | 15.08 | 13.99 | 12.25 | 11.28 | 10.95 |
| 40 | 10.91 | 10.38 | 10.47 | 10.50 | 10.98 | 11.77 | 12.54 | 11.65 | 11.92 | 12.03 | 12.02 | 12.23 | 12.28 | 12.72 | 12.41 | 11.71 | 12.21 | 11.28 | 10.95 |
| 50 | 10.92 | 10.36 | 10.47 | 10.49 | 10.67 | 11.40 | 11.34 | 11.20 | 11.13 | 11.07 | 11.10 | 11.20 | 11.19 | 11.21 | 11.25 | 11.12 | 11.02 | 11.28 | 10.95 |
| 60 | 10.92 | 10.36 | 10.46 | 10.48 | 10.58 | 10.97 | 10.86 | 11.02 | 10.86 | 10.88 | 10.86 | 10.84 | 10.82 | 10.85 | 10.88 | 10.90 | 10.84 | 11.26 | 10.94 |
| 70 | 10.92 | 10.36 | 10.46 | 10.48 | 10.53 | 10.67 | 10.68 | 10.71 | 10.68 | 10.68 | 10.67 | 10.68 | 10.67 | 10.73 | 10.73 | 10.77 | 10.72 | 11.01 | 10.94 |
| 80 | 10.91 | 10.35 | 10.46 | 10.47 | 10.50 | 10.56 | 10.57 | 10.59 | 10.59 | 10.62 | 10.63 | 10.62 | 10.62 | 10.65 | 10.66 | 10.69 | 10.69 | 10.96 | 10.92 |
| 90 | 10.92 | 10.34 | 10.46 | 10.47 | 10.49 | 10.54 | 10.53 | 10.51 | 10.55 | 10.58 | 10.57 | 10.58 | 10.60 | 10.60 | 10.63 | 10.65 | 10.67 | 10.79 | 10.84 |
| 100 | 10.92 | 10.34 | 10.46 | 10.46 | 10.47 | 10.50 | 10.49 | 10.51 | 10.52 | 10.55 | 10.53 | 10.56 | 10.57 | 10.59 | 10.60 | 10.63 | 10.65 | 10.75 | 10.81 |
| 110 | 10.91 | 10.33 | 10.46 | 10.46 | 10.46 | 10.46 | 10.48 | 10.51 | 10.52 | 10.52 | 10.51 | 10.53 | 10.57 | 10.56 | 10.58 | 10.61 | 10.64 | 10.70 | 10.75 |
| 120 | 10.91 | 10.33 | 10.44 | 10.45 | 10.44 | 10.44 | 10.46 | 10.49 | 10.50 | 10.51 | 10.51 | 10.52 | 10.55 | 10.55 | 10.57 | 10.59 | 10.64 | 10.68 | 10.73 |
| 130 | 10.91 | 10.33 | 10.36 | 10.42 | 10.43 | 10.42 | 10.44 | 10.48 | 10.49 | 10.50 | 10.50 | 10.51 | 10.53 | 10.54 | 10.55 | 10.56 | 10.62 | 10.67 | 10.71 |
| 140 | 10.90 | 10.33 | 10.35 | 10.38 | 10.41 | 10.40 | 10.44 | 10.47 | 10.49 | 10.50 | 10.50 | 10.51 | 10.53 | 10.54 | 10.55 | 10.56 | 10.61 | 10.66 | 10.71 |
| 150 | 10.90 | 10.30 | 10.35 | 10.38 | 10.41 | 10.40 | 10.44 | 10.46 | 10.49 | 10.49 | 10.50 | 10.51 | 10.53 | 10.54 | 10.55 | 10.56 | 10.61 | 10.66 | 10.70 |

**Dissolved Oxygen (g m$^{-3}$)**

| Depth (m) | 6/07/2009 | 13/08/2009 | 7/09/2009 | 17/09/2009 | 19/10/2009 | 12/11/2009 | 17/12/2009 | 13/01/2010 | 2/02/2010 | 11/02/2010 | 18/02/2010 | 10/03/2010 | 8/04/2010 | 28/04/2010 | 20/05/2010 | 3/06/2010 | 23/06/2010 | 13/07/2010 | 10/08/2010 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 8.91 | 9.83 | 9.37 | 10.58 | 11.67 | 9.88 | 9.66 | 9.48 | 9.29 | 9.47 | 9.34 | 8.84 | 9.48 | 10.48 | 10.57 | 10.44 | 10.54 | 10.50 | 9.50 |
| 10 | 9.88 | 10.72 | 10.29 | 11.08 | 12.13 | 10.80 | 9.63 | 9.18 | 9.26 | 9.40 | 9.32 | 8.28 | 10.17 | 10.17 | 11.29 | 10.25 | 10.86 | 11.42 | 11.29 |
| 20 | 11.06 | 11.48 | 10.48 | 11.00 | 11.79 | 10.78 | 9.58 | 9.62 | 9.38 | 9.71 | 9.59 | 8.75 | 9.66 | 9.39 | 10.84 | 10.34 | 10.40 | 11.57 | 11.60 |
| 30 | 11.31 | 11.57 | 10.49 | 10.68 | 11.78 | 10.84 | 9.71 | 9.34 | 9.17 | 9.65 | 9.45 | 8.92 | 9.43 | 9.09 | 10.63 | 10.39 | 10.38 | 11.65 | 11.63 |
| 40 | 11.28 | 11.39 | 10.46 | 10.40 | 11.24 | 10.56 | 9.31 | 9.15 | 8.86 | 8.72 | 8.75 | 8.60 | 9.04 | 8.53 | 9.06 | 9.39 | 10.28 | 11.35 | 11.59 |
| 50 | 11.29 | 11.39 | 10.36 | 10.31 | 11.10 | 10.47 | 9.29 | 8.78 | 8.36 | 8.21 | 8.44 | 8.14 | 8.57 | 8.13 | 8.68 | 9.26 | 9.46 | 11.30 | 11.63 |
| 60 | 11.03 | 11.20 | 10.18 | 10.15 | 10.10 | 9.86 | 8.78 | 8.68 | 8.06 | 7.94 | 7.99 | 7.73 | 8.31 | 7.92 | 8.11 | 8.93 | 9.04 | 11.04 | 11.67 |
| 70 | 11.05 | 11.16 | 10.21 | 10.12 | 10.02 | 9.86 | 8.60 | 8.31 | 7.88 | 7.76 | 7.97 | 7.59 | 8.11 | 7.84 | 8.08 | 8.84 | 8.82 | 10.73 | 11.81 |
| 80 | 10.83 | 10.86 | 10.09 | 10.11 | 9.70 | 9.24 | 8.34 | 8.27 | 7.69 | 7.74 | 7.70 | 7.51 | 7.97 | 7.70 | 8.03 | 8.54 | 8.55 | 10.04 | 11.58 |
| 90 | 10.87 | 10.97 | 10.16 | 10.02 | 9.72 | 9.26 | 8.25 | 7.97 | 7.47 | 7.55 | 7.68 | 7.38 | 7.74 | 7.56 | 7.70 | 8.44 | 8.37 | 9.68 | 11.21 |
| 100 | 10.68 | 10.87 | 10.23 | 10.03 | 9.51 | 8.60 | 8.17 | 7.71 | 7.37 | 7.54 | 7.41 | 7.25 | 7.43 | 7.42 | 7.51 | 8.18 | 8.26 | 9.25 | 10.56 |
| 110 | 10.72 | 10.90 | 10.30 | 9.95 | 9.50 | 8.60 | 8.05 | 7.50 | 7.23 | 7.37 | 7.43 | 7.22 | 7.27 | 7.27 | 7.39 | 8.10 | 8.09 | 9.06 | 10.35 |
| 120 | 10.55 | 10.86 | 9.91 | 10.26 | 9.20 | 8.20 | 7.98 | 7.55 | 7.23 | 7.19 | 7.17 | 7.15 | 7.11 | 7.08 | 7.17 | 7.95 | 8.03 | 8.71 | 9.83 |
| 130 | 10.55 | 10.71 | 9.80 | 10.00 | 9.18 | 8.15 | 7.87 | 7.37 | 7.18 | 7.20 | 7.12 | 6.98 | 7.09 | 7.05 | 7.11 | 7.90 | 8.00 | 8.66 | 9.44 |
| 140 | 10.48 | 10.80 | 9.52 | 9.69 | 8.82 | 7.70 | 7.62 | 7.42 | 6.90 | 6.95 | 6.71 | 6.57 | 6.82 | 6.77 | 6.79 | 7.18 | 7.85 | 8.59 | 9.34 |
| 150 | 10.30 | 10.77 | 9.46 | 9.47 | 8.79 | 7.72 | 7.41 | 7.25 | 6.88 | 6.93 | 6.65 | 6.46 | 6.75 | 6.75 | 6.73 | 7.17 | 7.84 | 8.33 | 9.10 |

**Secchi depth**

| | 6/07/2009 | 13/08/2009 | 7/09/2009 | 17/09/2009 | 19/10/2009 | 12/11/2009 | 17/12/2009 | 13/01/2010 | 2/02/2010 | 11/02/2010 | 18/02/2010 | 10/03/2010 | 8/04/2010 | 28/04/2010 | 20/05/2010 | 3/06/2010 | 23/06/2010 | 13/07/2010 | 10/08/2010 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| (m) | 15 | 12 | 15 | * | 13 | 12.5 | 15 | 14.5 | 16 | * | 17 | 19 | 21.5 | 19 | 19.5 | 14.5 | 14 | 14.5 | 12.8 |

**Lake Taupo Temperature, Dissolved Oxygen, and Secchi Depth Database.** **2008-2009**

**Mid-Lake site A for the period starting 11 September 2007**

**Temperature**

| Date<br>Depth (m) | 4/09/2008 | 16/09/2008 | 14/10/2008 | 4/11/2008 | 26/11/2008 | 22/12/2008 | 13/01/2009 | 22/01/2009 | 28/01/2009 | 11/02/2009 | 25/02/2009 | 16/03/2009 | 26/03/2009 | 15/04/2009 | 7/05/2009 | 27/05/2009 | 18/06/2009 | 6/07/2009 | 13/08/2009 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 10.97 | 11.34 | 12.59 | 13.37 | 15.45 | 18.84 | 19.67 | 19.84 | 20.88 | 21.42 | 20.46 | 18.71 | 17.96 | 16.60 | 15.05 | 12.97 | 11.60 | 10.93 | 10.43 |
| 10 | 10.92 | 11.14 | 12.09 | 12.94 | 15.26 | 17.50 | 19.55 | 19.23 | 20.17 | 21.21 | 20.39 | 18.29 | 17.95 | 16.59 | 15.04 | 12.96 | 11.61 | 10.93 | 10.41 |
| 20 | 10.85 | 10.99 | 11.93 | 12.62 | 15.17 | 15.77 | 16.97 | 19.12 | 18.45 | 20.04 | 20.37 | 18.25 | 17.94 | 16.59 | 15.04 | 12.96 | 11.61 | 10.92 | 10.41 |
| 30 | 10.82 | 10.93 | 11.85 | 12.55 | 12.87 | 13.32 | 13.60 | 13.90 | 13.21 | 13.92 | 14.47 | 16.68 | 13.86 | 16.58 | 15.04 | 12.90 | 11.61 | 10.92 | 10.41 |
| 40 | 10.79 | 10.91 | 11.75 | 12.35 | 12.07 | 12.27 | 12.19 | 12.11 | 11.90 | 12.09 | 12.84 | 12.43 | 12.13 | 12.53 | 12.55 | 12.62 | 11.60 | 10.91 | 10.38 |
| 50 | 10.75 | 10.88 | 11.59 | 11.51 | 11.44 | 11.39 | 11.33 | 11.52 | 11.31 | 11.50 | 11.62 | 11.56 | 11.45 | 11.56 | 11.64 | 11.50 | 11.60 | 10.92 | 10.36 |
| 60 | 10.72 | 10.79 | 10.90 | 10.83 | 10.93 | 11.06 | 11.08 | 11.04 | 11.05 | 11.19 | 11.18 | 11.22 | 11.19 | 11.12 | 11.17 | 11.06 | 11.60 | 10.92 | 10.36 |
| 70 | 10.69 | 10.69 | 10.76 | 10.79 | 10.78 | 10.88 | 10.89 | 10.90 | 10.89 | 10.97 | 10.92 | 10.98 | 10.98 | 10.98 | 11.01 | 10.94 | 11.60 | 10.92 | 10.36 |
| 80 | 10.66 | 10.68 | 10.71 | 10.72 | 10.76 | 10.81 | 10.82 | 10.87 | 10.84 | 10.86 | 10.87 | 10.88 | 10.89 | 10.92 | 10.93 | 10.90 | 11.59 | 10.91 | 10.35 |
| 90 | 10.66 | 10.66 | 10.69 | 10.70 | 10.77 | 10.78 | 10.78 | 10.81 | 10.80 | 10.81 | 10.82 | 10.83 | 10.84 | 10.88 | 10.89 | 10.88 | 11.41 | 10.92 | 10.34 |
| 100 | 10.65 | 10.65 | 10.68 | 10.68 | 10.82 | 10.75 | 10.76 | 10.80 | 10.78 | 10.77 | 10.79 | 10.81 | 10.81 | 10.86 | 10.86 | 10.86 | 11.09 | 10.92 | 10.34 |
| 110 | 10.64 | 10.64 | 10.66 | 10.67 | 10.78 | 10.73 | 10.75 | 10.78 | 10.74 | 10.76 | 10.77 | 10.80 | 10.79 | 10.84 | 10.86 | 10.85 | 11.00 | 10.91 | 10.33 |
| 120 | 10.63 | 10.64 | 10.64 | 10.65 | 10.78 | 10.71 | 10.73 | 10.77 | 10.74 | 10.75 | 10.76 | 10.79 | 10.78 | 10.82 | 10.84 | 10.84 | 10.98 | 10.91 | 10.33 |
| 130 | 10.63 | 10.63 | 10.60 | 10.63 | 10.79 | 10.70 | 10.72 | 10.74 | 10.73 | 10.73 | 10.75 | 10.77 | 10.77 | 10.79 | 10.82 | 10.82 | 10.95 | 10.91 | 10.33 |
| 140 | 10.63 | 10.62 | 10.59 | 10.63 | 10.81 | 10.70 | 10.72 | 10.73 | 10.72 | 10.73 | 10.74 | 10.77 | 10.76 | 10.78 | 10.80 | 10.81 | 10.94 | 10.90 | 10.33 |
| 150 | 10.62 | 10.62 | 10.59 | 10.63 | 10.80 | 10.70 | 10.71 | 10.74 | 10.72 | 10.73 | 10.74 | 10.76 | 10.76 | 10.78 | 10.80 | 10.81 | 10.89 | 10.90 | 10.30 |

**Dissolved Oxygen (g m$^{-3}$)**

| Depth (m) | 4/09/2008 | 16/09/2008 | 14/10/2008 | 4/11/2008 | 26/11/2008 | 22/12/2008 | 13/01/2009 | 22/01/2009 | 28/01/2009 | 11/02/2009 | 25/02/2009 | 16/03/2009 | 26/03/2009 | 15/04/2009 | 7/05/2009 | 27/05/2009 | 18/06/2009 | 6/07/2009 | 13/08/2009 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 10.03 | 9.84 | 10.29 | * | 10.09 | 9.29 | 8.67 | 9.24 | 8.52 | 8.48 | * | 9.26 | 9.44 | 9.33 | 10.05 | 10.13 | 10.47 | 8.91 | 9.83 |
| 10 | 10.85 | 10.65 | 10.29 | * | 10.08 | 9.72 | 9.21 | 8.89 | 8.45 | 8.34 | * | 9.16 | 10.06 | 10.11 | 10.15 | 10.25 | 10.73 | 9.88 | 10.72 |
| 20 | 10.90 | 11.05 | 10.50 | * | 10.00 | 9.39 | 8.88 | 8.68 | 8.47 | 8.19 | * | 9.40 | 10.55 | 10.76 | 10.15 | 10.13 | 10.59 | 11.06 | 11.48 |
| 30 | 11.12 | 10.91 | 10.46 | * | 9.79 | 9.81 | 9.02 | 8.53 | 8.54 | 8.20 | * | 9.12 | 10.34 | 10.83 | 10.15 | 10.17 | 10.57 | 11.31 | 11.57 |
| 40 | 10.76 | 10.82 | 10.34 | * | 9.23 | 9.69 | 8.96 | 8.46 | 8.06 | 8.36 | * | 8.24 | 9.86 | 10.39 | 9.15 | 9.78 | 10.56 | 11.28 | 11.39 |
| 50 | 10.88 | 10.63 | 10.05 | * | 9.10 | 9.05 | 8.49 | 8.06 | 7.98 | 7.92 | * | 7.97 | 9.25 | 9.58 | 8.91 | 9.47 | 10.49 | 11.29 | 11.39 |
| 60 | 10.74 | 10.55 | 9.89 | * | 8.54 | 8.77 | 8.25 | 7.91 | 7.81 | 7.80 | * | 7.62 | 8.97 | 9.06 | 8.67 | 8.73 | 10.40 | 11.03 | 11.20 |
| 70 | 10.52 | 10.25 | 9.86 | * | 8.60 | 8.53 | 8.10 | 7.64 | 7.74 | 7.71 | * | 7.55 | 8.94 | 8.84 | 8.51 | 8.60 | 10.43 | 11.05 | 11.16 |
| 80 | 10.48 | 10.20 | 9.81 | * | 8.43 | 8.47 | 7.98 | 7.46 | 7.66 | 7.64 | * | 7.44 | 8.54 | 8.21 | 7.79 | 8.25 | 10.43 | 10.83 | 10.86 |
| 90 | 10.34 | 10.13 | 9.85 | * | 8.44 | 8.21 | 7.92 | 7.38 | 7.56 | 7.60 | * | 7.37 | 8.45 | 8.24 | 7.79 | 8.24 | 10.25 | 10.87 | 10.97 |
| 100 | 10.28 | 10.10 | 10.03 | * | 8.20 | 8.22 | 7.78 | 7.25 | 7.53 | 7.44 | * | 7.26 | 8.24 | 8.07 | 7.65 | 8.10 | 8.65 | 10.68 | 10.87 |
| 110 | 9.79 | 10.00 | 10.13 | * | 8.31 | 7.99 | 7.67 | 7.22 | 7.47 | 7.31 | * | 7.20 | 8.26 | 8.12 | 7.62 | 8.06 | 8.53 | 10.72 | 10.90 |
| 120 | 9.62 | 9.97 | 10.09 | * | 8.04 | 7.91 | 7.63 | 7.17 | 7.32 | 7.26 | * | 7.01 | 7.94 | 8.02 | 7.63 | 7.79 | 8.17 | 10.55 | 10.86 |
| 130 | 9.42 | 9.75 | 9.83 | * | 8.09 | 7.70 | 7.48 | 7.21 | 7.24 | 7.04 | * | 7.03 | 7.93 | 8.15 | 7.59 | 7.83 | 8.11 | 10.55 | 10.71 |
| 140 | 9.37 | 9.52 | 9.76 | * | 7.88 | 7.59 | 7.40 | 7.24 | 7.08 | 6.92 | * | 6.68 | 7.08 | 8.01 | 7.74 | 7.49 | 7.99 | 10.48 | 10.80 |
| 150 | 9.17 | 9.24 | 9.85 | * | 7.85 | 7.48 | 7.25 | 7.03 | 6.90 | 6.72 | * | 6.59 | 6.91 | 7.55 | 7.35 | 7.30 | 7.97 | 10.30 | 10.77 |

**Secchi depth**

| | 4/09/2008 | 16/09/2008 | 14/10/2008 | 4/11/2008 | 26/11/2008 | 22/12/2008 | 13/01/2009 | 22/01/2009 | 28/01/2009 | 11/02/2009 | 25/02/2009 | 16/03/2009 | 26/03/2009 | 15/04/2009 | 7/05/2009 | 27/05/2009 | 18/06/2009 | 6/07/2009 | 13/08/2009 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| (m) | 13.0 | 14.5 | 12.2 | 12.0 | 10.0 | 12.0 | 13.0 | 14.8 | 18.0 | 22.0 | 20.0 | 15.6 | 18.5 | 18.0 | 16.0 | 15.0 | 16.0 | 15.0 | 12.0 |

**Lake Taupo Temperature, Dissolved Oxygen, and Secchi Depth Database.** **2007-2008**

**Mid-Lake site A for the period starting 11 September 2007**

**Temperature**

| Date / Depth (m) | 11/9/2007 | 9/10/2007 | 30/10/2007 | 15/11/2007 | 4/12/2007 | 20/12/2007 | 17/01/2008 | 31/01/2008 | 14/02/2008 | 27/02/2008 | 13/03/2008 | 26/03/2008 | 17/04/2008 | 7/05/2008 | 22/05/2008 | 5/06/2008 | 19/06/2008 | 1/07/2008 | 15/07/2008 | 7/08/2008 | 20/08/2008 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 11.00 | 12.33 | 12.84 | 13.47 | 16.64 | 17.38 | 21.23 | 19.79 | 19.87 | 19.28 | 18.83 | 19.26 | 17.88 | 15.67 | 14.65 | 13.60 | 12.89 | 11.97 | 11.42 | 11.06 | 10.70 |
| 10 | 10.99 | 11.69 | 11.83 | 13.19 | 16.20 | 17.15 | 19.96 | 19.62 | 19.81 | 19.26 | 18.75 | 19.24 | 17.87 | 15.67 | 14.65 | 13.60 | 12.90 | 12.03 | 11.41 | 10.98 | 10.70 |
| 20 | 10.98 | 11.67 | 11.76 | 12.92 | 14.48 | 14.76 | 17.21 | 17.59 | 19.65 | 19.24 | 18.75 | 18.92 | 17.85 | 15.67 | 14.65 | 13.59 | 12.90 | 12.03 | 11.40 | 10.98 | 10.69 |
| 30 | 10.99 | 11.44 | 11.70 | 12.86 | 12.58 | 13.19 | 13.64 | 13.82 | 16.07 | 14.08 | 16.20 | 16.92 | 15.58 | 15.67 | 14.65 | 13.60 | 12.90 | 12.01 | 11.40 | 10.98 | 10.69 |
| 40 | 10.99 | 11.42 | 11.64 | 12.78 | 12.02 | 12.18 | 12.26 | 12.31 | 12.63 | 12.24 | 12.54 | 12.44 | 12.38 | 15.27 | 12.27 | 13.60 | 12.90 | 12.03 | 11.40 | 10.98 | 10.69 |
| 50 | 10.99 | 11.39 | 11.51 | 11.80 | 11.69 | 11.75 | 11.64 | 11.61 | 11.80 | 11.71 | 11.76 | 11.77 | 11.72 | 12.11 | 11.66 | 11.93 | 12.86 | 12.03 | 11.39 | 10.99 | 10.70 |
| 60 | 10.99 | 11.34 | 11.43 | 11.49 | 11.42 | 11.53 | 11.41 | 11.39 | 11.47 | 11.44 | 11.47 | 11.48 | 11.48 | 11.56 | 11.44 | 11.54 | 11.60 | 12.03 | 11.39 | 10.98 | 10.70 |
| 70 | 10.99 | 11.16 | 11.32 | 11.37 | 11.29 | 11.33 | 11.23 | 11.26 | 11.33 | 11.30 | 11.34 | 11.29 | 11.34 | 11.37 | 11.32 | 11.37 | 11.36 | 11.61 | 11.38 | 10.98 | 10.70 |
| 80 | 10.96 | 11.00 | 11.23 | 11.31 | 11.25 | 11.23 | 11.22 | 11.17 | 11.25 | 11.25 | 11.24 | 11.23 | 11.27 | 11.29 | 11.27 | 11.29 | 11.27 | 11.39 | 11.38 | 10.98 | 10.70 |
| 90 | 10.96 | 10.98 | 11.16 | 11.17 | 11.14 | 11.12 | 11.12 | 11.11 | 11.19 | 11.18 | 11.18 | 11.17 | 11.20 | 11.21 | 11.22 | 11.24 | 11.23 | 11.29 | 11.35 | 10.98 | 10.70 |
| 100 | 10.96 | 10.98 | 11.07 | 11.10 | 11.10 | 11.09 | 11.12 | 11.09 | 11.15 | 11.14 | 11.14 | 11.14 | 11.17 | 11.16 | 11.18 | 11.21 | 11.21 | 11.28 | 11.30 | 10.98 | 10.70 |
| 110 | 10.96 | 10.97 | 11.04 | 11.04 | 11.07 | 11.04 | 11.06 | 11.08 | 11.11 | 11.11 | 11.11 | 11.12 | 11.14 | 11.16 | 11.16 | 11.19 | 11.19 | 11.28 | 11.25 | 10.98 | 10.70 |
| 120 | 10.96 | 10.96 | 11.02 | 11.02 | 11.05 | 11.03 | 11.04 | 11.06 | 11.07 | 11.09 | 11.09 | 11.11 | 11.15 | 11.15 | 11.15 | 11.16 | 11.17 | 11.25 | 11.22 | 10.98 | 10.70 |
| 130 | 10.96 | 10.96 | 11.00 | 11.00 | 11.02 | 11.00 | 11.02 | 11.05 | 11.06 | 11.07 | 11.07 | 11.09 | 11.12 | 11.12 | 11.13 | 11.15 | 11.15 | 11.22 | 11.20 | 10.98 | 10.70 |
| 140 | 10.96 | 10.96 | 10.98 | 10.97 | 10.99 | 11.01 | 11.00 | 11.05 | 11.05 | 11.06 | 11.06 | 11.08 | 11.11 | 11.11 | 11.12 | 11.13 | 11.15 | 11.17 | 11.19 | 10.98 | 10.70 |
| 150 | 10.96 | 10.95 | 10.96 | 10.95 | 10.98 | 10.99 | 11.00 | 11.04 | 11.04 | 11.05 | 11.06 | 11.08 | 11.11 | 11.10 | 11.12 | 11.13 | 11.15 | 11.16 | 11.19 | 10.98 | 10.70 |

**Dissolved Oxygen (g m$^{-3}$)**

| Depth (m) | 11/9/2007 | 9/10/2007 | 30/10/2007 | 15/11/2007 | 4/12/2007 | 20/12/2007 | 17/01/2008 | 31/01/2008 | 14/02/2008 | 27/02/2008 | 13/03/2008 | 26/03/2008 | 17/04/2008 | 7/05/2008 | 22/05/2008 | 5/06/2008 | 19/06/2008 | 1/07/2008 | 15/07/2008 | 7/08/2008 | 20/08/2008 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 11.00 | 10.23 | 10.18 | 10.03 | 9.35 | 9.21 | 8.61 | * | 10.77 | 9.20 | 9.38 | 9.87 | 9.49 | 9.91 | 10.13 | 10.36 | 10.53 | 10.75 | 10.89 | 10.21 | 9.55 |
| 10 | 11.12 | 10.37 | 10.27 | 10.11 | 9.45 | 9.24 | 8.63 | * | 8.76 | 9.09 | 9.05 | 8.61 | 8.97 | 9.04 | 9.37 | 9.84 | 10.26 | 10.63 | 10.66 | 11.03 | 10.80 |
| 20 | 10.87 | 10.12 | 10.25 | 10.07 | 9.23 | 9.21 | 8.70 | * | 9.00 | 9.32 | 9.24 | 8.85 | 8.46 | 8.97 | 9.18 | 9.72 | 10.14 | 10.32 | 10.51 | 11.04 | 11.16 |
| 30 | 10.99 | 10.17 | 10.07 | 10.17 | 9.36 | 9.37 | 8.93 | * | 9.35 | 9.45 | 9.01 | 8.73 | 8.52 | 8.86 | 9.16 | 9.63 | 10.10 | 10.37 | 10.48 | 10.94 | 11.11 |
| 40 | 10.84 | 9.92 | 10.02 | 9.97 | 9.09 | 9.09 | 8.69 | * | 9.01 | 8.92 | 8.96 | 8.57 | 8.72 | 8.87 | 8.68 | 9.81 | 10.12 | 10.40 | 10.42 | 10.72 | 11.08 |
| 50 | 10.92 | 10.09 | 9.85 | 9.66 | 9.08 | 9.21 | 8.67 | * | 8.64 | 8.82 | 8.60 | 8.51 | 8.48 | 8.45 | 8.56 | 9.22 | 10.10 | 10.31 | 10.52 | 10.83 | 11.07 |
| 60 | 11.07 | 9.96 | 9.52 | 9.75 | 9.14 | 8.69 | 8.60 | 8.70 | 8.44 | 8.49 | 8.34 | 8.15 | 8.20 | 8.25 | 8.58 | 8.96 | 9.51 | 10.36 | 10.45 | 10.60 | 11.05 |
| 70 | 10.89 | 9.90 | 9.77 | 9.30 | 8.74 | 8.69 | 8.26 | 8.22 | 8.19 | 8.15 | 8.02 | 7.79 | 7.84 | 7.89 | 8.37 | 8.65 | 9.07 | 10.28 | 10.39 | 10.76 | 10.98 |
| 80 | 10.90 | 9.59 | 9.58 | 9.12 | 8.76 | 8.38 | 8.03 | 8.05 | 8.16 | 7.88 | 7.92 | 7.52 | 7.71 | 7.90 | 8.30 | 8.53 | 8.91 | 9.60 | 10.34 | 10.74 | 10.96 |
| 90 | 10.66 | 9.63 | 9.42 | 9.07 | 8.62 | 8.46 | 8.10 | 8.06 | 7.99 | 7.87 | 7.76 | 7.47 | 7.57 | 7.68 | 8.22 | 8.45 | 8.72 | 9.18 | 10.23 | 10.73 | 10.91 |
| 100 | 10.64 | 9.58 | 9.49 | 9.14 | 8.46 | 8.41 | 7.90 | 7.90 | 7.97 | 7.86 | 7.69 | 7.45 | 7.45 | 7.46 | 8.14 | 8.44 | 8.66 | 9.06 | 9.93 | 10.72 | 10.90 |
| 110 | 10.62 | 9.57 | 9.16 | 8.83 | 8.37 | 8.46 | 7.83 | 7.87 | 7.81 | 7.64 | 7.50 | 7.20 | 7.29 | 7.38 | 8.03 | 8.19 | 8.43 | 8.72 | 9.34 | 10.68 | 10.84 |
| 120 | 10.66 | 9.52 | 9.27 | 8.95 | 8.42 | 8.08 | 7.95 | 7.52 | 7.82 | 7.39 | 7.45 | 7.20 | 7.29 | 7.38 | 7.94 | 8.16 | 8.32 | 8.55 | 8.94 | 10.67 | 10.83 |
| 130 | 10.42 | 9.35 | 9.01 | 8.81 | 8.31 | 8.13 | 7.72 | 7.40 | 7.59 | 7.41 | 7.27 | 7.16 | 7.18 | 7.19 | 7.86 | 7.86 | 8.14 | 8.31 | 8.79 | 10.63 | 10.57 |
| 140 | 10.40 | 9.30 | 9.11 | 8.81 | 8.28 | 7.88 | 7.74 | 7.27 | 7.62 | 7.05 | 7.10 | 7.10 | 7.13 | 7.17 | 7.81 | 7.61 | 8.01 | 8.25 | 8.48 | 10.62 | 10.38 |
| 150 | 10.37 | 9.13 | 8.91 | 8.45 | 7.95 | 7.95 | 7.33 | 7.35 | 7.27 | 7.00 | 6.76 | 6.59 | 6.72 | 6.85 | 7.40 | 7.50 | 7.73 | 8.08 | 8.48 | 10.57 | 9.67 |

**Secchi depth**

| | 11/9/2007 | 9/10/2007 | 30/10/2007 | 15/11/2007 | 4/12/2007 | 20/12/2007 | 17/01/2008 | 31/01/2008 | 14/02/2008 | 27/02/2008 | 13/03/2008 | 26/03/2008 | 17/04/2008 | 7/05/2008 | 22/05/2008 | 5/06/2008 | 19/06/2008 | 1/07/2008 | 15/07/2008 | 7/08/2008 | 20/08/2008 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| (m) | 11 | 15 | 16 | 14 | 15 | 17.5 | 22.5 | 21.5 | 25 | 22 | 22 | 19 | 20.5 | 16 | 17 | 15 | 16.5 | 14 | 13 | 12.5 | 12.5 |

**Lake Taupo Temperature, Dissolved Oxygen, and Secchi Depth Database.** **2006-2007**
**Mid-Lake site A for the period starting 4 September 2006**

**Temperature**

| Date / 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 | 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) | 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.** **2005-2006**
**Mid-Lake site A for the period starting 17 August 2005**

**Temperature**

| Date / Depth (m) | 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 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) | 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 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.** **2004-2005**
**Mid-Lake site A for the period starting 24 August 2004**

**Temperature**

| Date / 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 | 10.92 | 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 | 10.52 | 10.47 | 10.26 |
| 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 | 10.55 | 10.47 | 10.26 |
| 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 | 10.41 | 10.26 | 10.37 |
| 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 | 10.39 | 10.28 | 10.19 |
| 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 | 10.31 | 9.80 | 9.40 |
| 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 | 10.29 | 9.66 | 9.39 |
| 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 | 10.17 | 9.57 | 9.18 |
| 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 | 10.13 | 9.41 | 9.26 |
| 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 | 10.06 | 9.38 | 9.01 |
| 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 | 10.05 | 9.42 | 9.07 |
| 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 | 10.04 | 9.41 | 8.86 |
| 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 | 10.04 | 9.37 | 8.88 |
| 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 | 9.96 | 9.23 | 8.56 |
| 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 | 9.93 | 9.14 | 8.56 |
| 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 | 9.32 | 8.94 | 8.38 |
| 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 | 8.63 | 8.57 | 8.20 |

**Secchi depth**

| | 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| (m) | 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.** **2003-2004**
**Mid-Lake site A for the period starting 14 July 2003**

**Temperature**

| Date / 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 | 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) | 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 | 10.6 | 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**

| | 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| (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.** **2003-2004**
**Additional site B (Kuratau Basin ) for the period starting 14 July 2003**

**Temperature**

| Date / 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 | 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**

| | 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| (m) | 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 / 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 | 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

| | 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| (m) | 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.** **2002-2003**
**Mid-Lake site A for the period starting 1 July 2002**

### Temperature

| Date / 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 | 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 | 8.2 | 10.0 | 9.0 | 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

| | 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| (m) | 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.** **2002-2003**
**Additional site B (Kuratau Basin ) for the period starting 1 July 2002**

**Temperature**

| Date / 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 | 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 | 103 | 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**

| | 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| (m) | 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.** **2002-2003**
**Additional site C (Western Bays ) for the period starting 1 July 2002**

**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) | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 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) | 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**

| | 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| (m) | 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 / 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 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) | 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 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**

| | 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) | 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.** **2001-2002**
**Additional site C (Western Bays ) for the period starting 8 January 2002 on**

**Temperature**

| Date<br>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 | 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**

| | 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.** **2000-2001**
**For the period starting 11 July 2000**

| **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.** **1999-2000**
**For the period starting 13 July 1999**

**Temperature**

| Date<br>Depth (m) | 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 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) | 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 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**

| | 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) | 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.** **1998-1999**

**For the period starting 28 July 1998**

| **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) | | | | | | | | | | | | | | | | | | |
| 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) | 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.** **1997-1998**
**For the period starting 16 September 1997**

| **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.** **1996-1997**

**For the period starting 3 September 1996**

**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)**

| | **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** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Secchi d | 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.** **1995-1996**

**For the period starting 12 September 1995**

| **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) | | | | | | | | | | | | | | | |
| 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) | 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.** **1994-1995**

**Started 27 October 1994**

**Temperature**

| Date / Depth (m) | 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 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$^{-3}$)**

| Depth (m) | 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 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**

| | 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Depth (m) | 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

## 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 $N_2$ 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 $NH_4$-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, $NO_3$-N, and $NH_4$-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 $NO_3$-N, and 1 mg $m^{-3}$ for $NH_4$-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 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. See Appendix 1 for discussion on detection limits.

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 October1994 to September 2002.**

Samples collected from central lake site.

| Date Collected | Temp. | Secchi | DRP | DOP | PP | TP | $NH_4$-N | $NO_3$-N | DON | PN | TN | Chlorophyll *a* | PC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | °C | m | 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$^{-3}$ |
| 27/10/1994 | 11.7 | 11.7 | 1.2 | 0.7 | 2.5 | 4.4 | 1.1 | 0.2 | 56 | 16.6 | 73.4 | 1.16 | |
| 24/11/1994 | 12.8 | 11.4 | 0.5 | 2.7 | 1.7 | 4.8 | 1.7 | 1.0 | 51 | 12.6 | 66.5 | 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 | | | | 13.0 | | 0.37 | |
| 12/04/1995 | 19.4 | 15.7 | 0.2 | 1.4 | 1.7 | 3.2 | 0.3 | 0.7 | 51 | 17.3 | 69.6 | 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 | 57.3 | | |
| 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 | |
| 24/11/1995 | 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 | 76 | 14.2 | 95.3 | 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 | <0.1 | 61 | | | 0.41 | |
| 19/05/1996 | 14.8 | 14.7 | 0.8 | 3.0 | | | 6.8 | <0.1 | 59 | | | 0.70 | |
| 14/06/1996 | 12.2 | 14.4 | 1.6 | 3.2 | | | 5.7 | <0.1 | 71 | | | | |
| 19/06/1996 | 12.2 | 14.4 | 1.0 | 1.2 | | | 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 | 81.8 | 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 | | | 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 | | | | 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 | 106.2 | 0.58 | |
| 24/03/1998 | 19.3 | 13.5 | 1.0 | 1.4 | 1.8 | 3.2 | 2.1 | 1.1 | 48.0 | 13.2 | 64.4 | 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 | |
| 29/09/1998 | 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 | 0.90 | |
| 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 | 0.61 | |
| 22/12/1998 | 18.5 | 14.5 | 1.1 | 0.4 | 2.5 | 4.0 | 2.7 | 1.1 | 36.0 | 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 | 165 |
| 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 | 203 |
| 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 | 250 |
| 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 | 198 |
| 19/05/1999 | 14.4 | 15.0 | 0.8 | <1 | 1.5 | 5.1 | 1 | <1 | 46.0 | 16.2 | 63.7 | 1.2 | 166 |
| 8/06/1999 | 14.1 | 14.5 | 1.0 | <1 | 3.9 | 4.9 | 1 | <1 | 48.0 | 25.4 | 74.9 | 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 | 60.4 | 0.4 | |
| 20/12/1999 | 16.4 | 18.0 | 0.7 | 2.3 | 5 | 8 | 4 | 2 | 39 | 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 | 12.3 | 14.0 | <1 | 4 | 0 | 4.0 | 2 | 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 |
| 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 | 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 | 46.5 | 12.5 | 59.5 | 0.6 | 191 |
| 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 | 156 |
| 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 | 0.7 | <1 (0.3) | 5.15 | 6.2 | <1 (0.5) | <0.5 (0) | 34 | 35.0 | 69.5 | 1.7 | 403 |
| 10/12/2001 | 15.5 | 16.0 | 1.0 | 2 | 2.55 | 5.6 | <1 (0.9) | <0.5 (0.1) | 48 | 17.6 | 65.6 | 0.5 | 228 |
| 20/12/2001 | 17.0 | 13.0 | 0.6 | 2.7 | 2.05 | 5.4 | 1.3 | <0.5 (0.1) | 48 | 14.85 | 64.2 | 0.5 | 204 |
| 8/01/2002 | 18.3 | 13.0 | <0.5 (0.3) | 2 | 2.2 | 4.2 | <1 (0) | <0.5 | 50 | 17.15 | 67.2 | 0.8 | 247 |
| 22/01/2002 | 19.3 | 15.0 | <0.5 (0) | 7 | 2.25 | 9.3 | <1 (0) | <0.5 | 40 | 20.35 | 60.4 | 0.9 | 188 |
| 6/03/2002 | 18.7 | 14.5 | 1.2 | 0.8 | 2.05 | 4.1 | <1 (0) | <0.5 (0.4) | 74 | 17.7 | 91.7 | 1.7 | 227 |
| 4/04/2002 | 17.4 | 19.0 | 0.6 | 3 | 1.45 | 5.1 | 1.1 | <0.5 (0.1) | 46 | 10.7 | 57.8 | 0.8 | 138 |
| 17/04/2002 | 17.4 | 22.0 | <0.5 (0) | 3 | 1.65 | 4.7 | <1 (0.5) | 0.5 | 47 | 13.1 | 60.6 | 0.9 | 157 |
| 22/04/2002 | 17.05 | 22.0 | - | - | - | - | - | - | - | - | - | - | - |
| 5/05/2002 | 15.5 | 16.4 | 0.7 | 1 | | | 3.1 | 0.7 | 48 | | | 1 | |
| 16/05/2002 | | | 0.9 | 1.1 | 1.5 | 3.5 | <1 | <0.5 | 49 | 15.1 | 64.1 | 0.7 | 153 |
| 19/06/2002 | 12.6 | 17.0 | 1.2 | 1.8 | 1.9 | 4.9 | <1 (0.5) | 1.4 | 43.6 | 15.8 | 60.8 | 1.1 | 165 |
| 1/07/2002 | 12.1 | 16.0 | 1.2 | 1.8 | 1.8 | 4.8 | <1 (0.9) | 1.7 | 37.3 | 14.3 | 53.3 | 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 | 154 |
| 31/07/2002 | 11.2 | 12.0 | 2.3 | 2.7 | 2.5 | 7.5 | <1 (0.9) | 5.9 | 177.2 | 16.7 | 199.8 | 2.2 | 193 |
| 29/08/2002 | 11.1 | 9.5 | 1.6 | 1.4 | 3.1 | 6.1 | <1 (0) | <0.5 (0) | 90 | 23 | 113.0 | 2.6 | 196 |
| 5/09/2002 | | 6.7 | - | - | - | - | - | - | - | - | - | - | - |

Shaded cells: Special repeat analyses. Detection limit <0.1 mg m$^{-3}$

Detection limits prior to 14 April 1999 were

| | DL |
|---|---|
| DRP | 0.2 mg m$^{-3}$ |
| NH4-N | 0.5 mg m$^{-3}$ |
| NO3-N | 0.5 mg m$^{-3}$ |

Values reported less than the DL were special estimates of low samples.

Detection limits from 14 April 1999 on are

| | DL |
|---|---|
| DRP | 0.5 mg m$^{-3}$ |
| NH4-N | 1 mg m$^{-3}$ |
| NO3-N | 1 mg m$^{-3}$ |

Values reported less than the DL were special estimates of low samples.

New LACHAT Flow Injection Analysis Detection limits from 1 Dec 2001 on are

| | DL |
|---|---|
| DRP | 0.5 mg m$^{-3}$ |
| NH4-N | 1 mg m$^{-3}$ |
| NO3-N | 0.5 mg m$^{-3}$ |

High precision and confidence in the FIA results allow estimates below the nominal DL. Data in brackets are given as an indication

of the likely absolute concentration

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

| Date Collected | Temp. ºC | 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. ºC | 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. | Secchi | DRP | DOP | PP | TP | $NH_4$-N | $NO_3$-N | DON | PN | TN | Chlorophyll *a* | PC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ºC | (m) | (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$^{-3}$) |
| 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. | Secchi | DRP | DOP | PP | TP | $NH_4$-N | $NO_3$-N | DON | PN | TN | Chlorophyll *a* | PC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ºC | (m) | (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 $m^{-3}$) |
| 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 |
| 11/09/2007 | 11.0 | 11 | 1 | 4 | 3.3 | 8.3 | 0 | 1 | 67 | 34.7 | 102.7 | 1.4 | 324 |
| 9/10/2007 | 12.1 | 15 | 1 | 1 | 2.6 | 4.6 | 1.4 | 1.5 | 59.1 | 23.8 | 85.8 | 0.8 | 184 |
| 30/10/2007 | 12.8 | 16 | 1.1 | 0.9 | 2.4 | 4.4 | 1.2 | 0.6 | 64.2 | 30.5 | 96.5 | 0.7 | 253 |
| 15/11/2007 | 13.5 | 14 | 1.8 | 2.2 | 2.1 | 6.1 | 1.8 | 0.3 | 53.9 | 24.8 | 80.8 | 0.5 | 262 |
| 4/12/2007 | 16.6 | 15 | 0.9 | 2.1 | 2 | 5 | 0.9 | 0.6 | 40.5 | 20.6 | 62.6 | 0.3 | 196 |
| 20/12/2007 | 17.4 | 17.5 | 1.1 | 2.9 | 1.1 | 5.1 | 0.2 | 0.4 | 44.4 | 17 | 62 | 0.6 | 112 |
| 17/01/2008 | 21.1 | 22.5 | 1 | 4 | 1.5 | 6.5 | 0.9 | 0.4 | 62.7 | 24.5 | 88.5 | 0.3 | 230 |
| 31/01/2008 | 19.8 | 21.5 | 0.5 | 1.5 | 1.3 | 3.3 | 1.5 | 0.3 | 75.2 | 17.6 | 94.6 | 0.3 | 190 |
| 14/02/2008 | 19.9 | 25 | 0.3 | 1.7 | 1.6 | 3.6 | 1.4 | 0.7 | 75.9 | 19.8 | 97.8 | 0.4 | 138 |
| 27/02/2008 | 19.3 | 22 | 0.1 | 1.9 | 1.6 | 3.6 | 0.7 | 0.2 | 70.1 | 20 | 91 | 0.4 | 143 |
| 13/03/2008 | 18.8 | 22 | 1 | 1 | 1.2 | 3.2 | 1.2 | 0.6 | 56.2 | 19.6 | 77.6 | 0.5 | 147 |
| 26/03/2008 | 19.3 | 19 | 1 | 0 | 0.9 | 1.9 | 0.4 | 0.5 | 63.1 | 17.1 | 81.1 | 0.5 | 160 |
| 17/04/2008 | 17.8 | 20.5 | 1.2 | 0.8 | 1.3 | 3.3 | 1.1 | 1 | 51.9 | 14.2 | 68.2 | 0.8 | 189 |
| 7/05/2008 | 15.7 | 16 | 0.7 | 2.3 | 1.5 | 4.5 | 1.3 | 0.3 | 60.4 | 21.1 | 83.1 | 0.6 | 189 |
| 22/05/2008 | 14.7 | 17 | 0.2 | 1.8 | 1.5 | 3.5 | 0.4 | 0.4 | 71.2 | 23.6 | 95.6 | 0.7 | 191 |
| 5/06/2008 | 13.6 | 15 | 1.3 | 0.7 | 1.6 | 3.6 | 1 | 2.1 | 29.9 | 17.5 | 50.5 | 1 | 177 |
| 19/06/2008 | 12.9 | 16.5 | 0.5 | 1.5 | 1.6 | 3.6 | 2 | 0.7 | 34.3 | 29.2 | 66.2 | 1.2 | 259 |
| 1/07/2008 | 12.0 | 14 | 0.9 | 2.1 | 2.15 | 5.15 | 0.6 | 0.7 | 50.7 | 34.6 | 86.6 | 1.7 | 242 |
| 15/07/2008 | 11.4 | 13 | 1.3 | 1.7 | 2.7 | 5.7 | 0.0 | 0.9 | 38.1 | 26.5 | 65.5 | 1.9 | 193 |
| 7/08/2008 | 11.1 | 12.5 | 1.8 | 1.2 | 3.4 | 6.4 | 0.0 | 0.7 | 25.3 | 28.8 | 54.8 | 3.0 | 119 |
| 20/08/2008 | 10.7 | 12.5 | 1.3 | 1.7 | 2.1 | 5.1 | 0.7 | 0.6 | 24.7 | 25 | 51 | 1.5 | 179 |
| 4/09/2008 | 11.0 | 13 | 0.6 | 3.4 | 2 | 6 | 1.0 | 0.0 | 50 | 21.5 | 72.5 | 1.1 | 217 |
| 16/09/2008 | 11.3 | 14.5 | 1.4 | 2.6 | 2.1 | 6.1 | 2.2 | 0.5 | 28.3 | 24.3 | 55.3 | 0.7 | 202 |
| 14/10/2008 | 12.6 | 12.2 | 0.5 | 2.5 | 2.6 | 5.6 | 0.5 | 0.0 | 45.5 | 27.1 | 73.1 | 0.6 | 203 |
| 4/11/2008 | 13.4 | 12 | 1.0 | 4 | 2.5 | 7.5 | 3.2 | 0.5 | 35.3 | 28.5 | 67.5 | 0.9 | 140 |
| 26/11/2008 | 15.7 | 10 | 1.1 | 1.9 | 2.4 | 5.4 | 0.4 | 0.0 | 47.6 | 27.6 | 75.6 | 1 | 217 |
| 22/12/2008 | 18.8 | 12 | 0.3 | 1.7 | 2.3 | 4.3 | 1.8 | 0.0 | 53.2 | 35.2 | 90.2 | 0.6 | 245 |
| 13/01/2009 | 19.7 | 13 | 1.4 | 1.6 | 2.1 | 5.1 | 0.3 | 1.4 | 61.3 | 29.4 | 92.4 | 0.5 | 266 |
| 28/01/2009 | 20.9 | 18 | 0.4 | 4.6 | 1.8 | 6.8 | 0.0 | 3.8 | 52.2 | 27.6 | 83.6 | 0.3 | 204 |
| 11/02/2009 | 21.4 | 22 | 0.1 | 4.9 | 1.6 | 6.6 | 4.1 | 0.5 | 49.4 | 25.6 | 79.6 | 0.4 | 185.5 |
| 25/02/2009 | 20.5 | 20 | 0.5 | 2.5 | 1.6 | 4.6 | 2.7 | 0.4 | 37.9 | 21.3 | 62.3 | 0.5 | 186.5 |
| 26/03/2009 | 18.0 | 18.5 | 1.1 | 1.9 | 2.7 | 5.7 | 0.0 | 1.3 | 56.7 | 25.1 | 83.1 | 0.6 | 285 |
| 15/04/2009 | 16.6 | 18 | 1.5 | 2.5 | 3.4 | 7.4 | 1.1 | 0.7 | 60.8 | 22.7 | 85.3 | 0.8 | 240 |
| 7/05/2009 | 15.0 | 16 | 1.4 | 4.6 | 2.3 | 8.3 | 1.3 | 1.1 | 56.6 | 21.7 | 80.7 | 1.3 | 223 |
| 27/05/2009 | 13.0 | 15 | 1.2 | 4.8 | 1.5 | 7.5 | 0.0 | 0.6 | 58.4 | 16.7 | 75.7 | 1.2 | 190 |
| 18/06/2009 | 11.6 | 16 | 1.9 | 0.1 | 1.7 | 3.7 | 0.7 | 1.7 | 45.6 | 23.5 | 71.5 | 1.5 | 201 |
| 6/07/2009 | 10.9 | 15 | 2.8 | 1.2 | 2.4 | 6.4 | 0.1 | 8.1 | 46.8 | 23.4 | 78.4 | 1.6 | 190 |
| 13/08/2009 | 10.43 | 12 | 1.9 | 2.1 | 2.7 | 6.7 | 0.6 | 0.5 | 46.9 | 31.4 | 79.4 | 1.9 | 230 |
| 7/09/2009 | 10.56 | 15 | 4.2 | 0 | 2.9 | 7.1 | 0.1 | 0.6 | 54.3 | 32.3 | 87.3 | 1.5 | 301 |

| Date Collected | Temp. | Secchi | DRP | DOP | PP | TP | $NH_4$-N | $NO_3$-N | DON | PN | TN | Chlorophyll *a* | PC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ºC | (m) | (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 $m^{-3}$) |
| 19/10/2009 | 11.72 | 13 | 4.2 | 0 | 2.7 | 6.9 | 0.5 | 1.1 | 42.4 | 23.4 | 67.4 | 0.6 | 282.5 |
| 12/11/2009 | 13.00 | 12.5 | 1.2 | 2.8 | 2.4 | 6.4 | 1.0 | 0.3 | 33.7 | 19.5 | 54.5 | 0.7 | 249 |
| 17/12/2009 | 16.99 | 15 | 0.9 | 2.1 | 1.4 | 4.4 | 0.0 | 0.7 | 58.3 | 21 | 80.0 | 0.7 | 239.5 |
| 13/01/2010 | 17.89 | 14.5 | 0.6 | 1.4 | 1.8 | 3.8 | 0.0 | 1.0 | 47 | 21.6 | 69.6 | 0.6 | 306.5 |
| 2/02/2010 | 19.23 | 16 | 0.7 | 2.3 | 1.7 | 4.7 | 0.0 | 0.1 | 55.9 | 28.3 | 84.3 | 0.8 | 274.5 |
| 18/02/2010 | 20.45 | 17 | 1.1 | 1.9 | 3.9 | 6.9 | 1.3 | 2.3 | 102.4 | 85.4 | 191.4 | 0.9 | 530 |
| 10/03/2010 | 20.10 | 19 | 0.8 | 2.2 | 1.3 | 4.3 | 0.0 | 4 | 58 | 19.1 | 81.1 | 0.4 | 158.5 |
| 8/04/2010 | 17.40 | 21.5 | 0.8 | 2.2 | 1.7 | 4.7 | 0.0 | 1.2 | 58.8 | 26 | 86.0 | 0.7 | 231 |
| 28/04/2010 | 16.38 | 19 | 1.2 | 1.8 | 2.5 | 5.5 | 0.3 | 1.1 | 61 | 39.6 | 101.6 | 0.9 | 262 |
| 20/05/2010 | 15.09 | 19.5 | 1.9 | 1.1 | 2.1 | 5.1 | 7.6 | 2.5 | 66.9 | 25.1 | 102.1 | 0.9 | 248 |
| 3/06/2010 | 14.11 | 14.5 | 0.9 | 2.1 | 1.8 | 4.8 | 1.1 | 0.1 | 44.8 | 13.7 | 59.7 | 1.1 | 141.5 |
| 23/06/2010 | 12.23 | 14 | 1.1 | 1.9 | 2.4 | 5.4 | 1.1 | 0.8 | 46.1 | 22.1 | 70.1 | 1.1 | 196.5 |
| 13/07/2010 | 11.31 | 14.5 | 1.5 | 7.5 | 2.3 | 11.3 | 0.9 | 1.0 | 52.1 | 27.9 | 81.9 | 1.7 | 217 |
| 10/08/2010 | 11.01 | 12.8 | 1.7 | 1.3 | 2.6 | 5.6 | 0.9 | 1.0 | 30.1 | 29.7 | 61.7 | 1.9 | 225 |
| 24/08/2010 | 10.92 | 11 | 1.6 | 1.4 | 1.5 | 4.5 | 0.6 | 0.5 | 30.9 | 34.5 | 66.5 | 2.4 | 244.5 |
| 13/09/2010 | 11.37 | 10.5 | 1.1 | 0.9 | 3.3 | 5.3 | 1.3 | 0.3 | 28.4 | 33.7 | 63.7 | 1.6 | 342.5 |
| 5/10/2010 | 11.90 | 10.8 | 3.1 | 0 | 2.5 | 5.6 | 2.0 | 2.3 | 28.7 | 22.8 | 55.8 | 0.9 | 269 |
| 26/10/2010 | 13.00 | 12.5 | 1.7 | 1.3 | 2.4 | 5.4 | 0.9 | 0.9 | 34.2 | 18.2 | 54.2 | 0.8 | 237 |
| 10/11/2010 | 13.98 | 11.5 | 0.8 | 2.2 | 2.3 | 5.3 | 0.5 | 0.3 | 59.2 | 21.1 | 81.1 | 0.7 | 250.5 |

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

| Date Collected | Temp. | Secchi | DRP | DOP | PP | TP | $NH_4$-N | $NO_3$-N | DON | PN | TN | Chlorophyll *a* | PC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | $^{o}C$ | m | 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 $m^{-3}$ |
| 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. ºC | 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. | Secchi | DRP | DOP | PP | TP | $NH_4$-N | $NO_3$-N | DON | PN | TN | Chlorophyll *a* | PC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | $^{o}C$ | m | 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 $m^{-3}$ |
| 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. ºC | 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 |

**Collection date 9 October 2009** Secchi depth = 13.0 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 $m^{-3}$ |
| OT1 | 1 | 7.89 | 118 | 11.72 | 11.67 | 0.6 | <0.5 | 0.3 | 4.0 | <0.5 | 2.0 | 6.0 | 0.8 | <0.5 | 36.0 | 3 | 13.2 | 50.2 | 553 | 227.0 | 18.4 |
| OT2 | 10 | 7.87 | 121 | 11.25 | 12.13 | 0.7 | <0.5 | 0.5 | 3.5 | <0.5 | 2.2 | 5.7 | 0.5 | <0.5 | 39.3 | <1 | 14.0 | 54.0 | 538 | 267.0 | 20.2 |
| OT3 | 20 | 7.78 | 120 | 11.24 | 11.79 | 0.6 | <0.5 | 0.5 | 3.8 | <0.5 | 2.2 | 6.0 | 0.2 | <0.5 | 33.6 | 1 | 14.7 | 48.7 | 531 | 288.0 | 24.1 |
| OT4 | 30 | 7.87 | 120 | 11.20 | 11.78 | 0.6 | <0.5 | 0.5 | 4.0 | <0.5 | 2.4 | 6.4 | 0.4 | <0.5 | 31.4 | 1 | 14.4 | 46.4 | 531 | 264.0 | 21.3 |
| OT5 | 40 | 7.86 | 120 | 10.98 | 11.24 | 0.6 | <0.5 | 0.6 | 4.2 | <0.5 | 2.0 | 6.2 | 0.4 | <0.5 | 25.4 | 2 | 12.3 | 38.3 | 522 | 312.0 | 18.4 |
| OT6 | 50 | 7.73 | 121 | 10.67 | 11.10 | <0.5 | <0.5 | 0.7 | 4.6 | <0.5 | 2.0 | 6.6 | 1.0 | <0.5 | 34.8 | 2 | 12.1 | 48.1 | 521 | 214.2 | 18.5 |
| OT7 | 60 | 7.65 | 121 | 10.58 | 10.10 | <0.5 | <0.5 | 0.6 | 4.6 | <0.5 | 1.7 | 6.3 | 0.9 | <0.5 | 28.9 | <1 | 11.2 | 41.2 | 508 | 161.6 | 17.4 |
| OT8 | 70 | 7.70 | 121 | 10.53 | 10.02 | <0.5 | <0.5 | 0.5 | 4.6 | <0.5 | 1.9 | 6.5 | 0.8 | 1.2 | 34.0 | 1 | 10.2 | 46.2 | 505 | 88.9 | 22.7 |
| OT9 | 80 | 7.67 | 121 | 10.50 | 9.70 | <0.5 | <0.5 | 0.5 | 5.1 | <0.5 | 1.7 | 6.8 | 0.8 | 2.7 | 30.5 | 1 | 9.9 | 43.9 | 514 | 129.3 | 10.3 |
| OT10 | 90 | 7.62 | 122 | 10.49 | 9.72 | <0.5 | <0.5 | 0.4 | 4.9 | <0.5 | 1.4 | 6.3 | 0.9 | 4.7 | 40.4 | 2 | 8.2 | 54.2 | 493 | 121.1 | 9.4 |
| OT11 | 100 | 7.61 | 121 | 10.47 | 9.51 | <0.5 | <0.5 | 0.4 | 5.2 | <0.5 | 1.5 | 6.7 | 0.5 | 7.3 | 44.2 | 1 | 8.1 | 60.1 | 493 | 117.6 | 8.6 |
| OT12 | 110 | 7.62 | 121 | 10.46 | 9.50 | <0.5 | <0.5 | 0.2 | 5.7 | <0.5 | 1.2 | 6.9 | 0.8 | 7.6 | 34.6 | 1 | 7.5 | 50.5 | 494 | 105.6 | 10.4 |
| OT13 | 120 | 7.55 | 122 | 10.44 | 9.20 | <0.5 | <0.5 | 0.3 | 5.5 | <0.5 | 7.7 | 13.2 | 0.6 | 9.3 | 37.1 | 2 | 8.1 | 55.1 | 517 | 114.7 | 9.1 |
| OT14 | 130 | 7.62 | 122 | 10.43 | 9.18 | <0.5 | <0.5 | 0.3 | 5.9 | <0.5 | 1.7 | 7.6 | 0.5 | 12.2 | 31.3 | <1 | 9.6 | 53.6 | 504 | 125.3 | 10.1 |
| OT15 | 140 | 7.41 | 122 | 10.41 | 8.82 | <0.5 | <0.5 | 0.3 | 6.5 | <0.5 | 1.7 | 8.2 | 1.7 | 13.6 | 29.7 | 1 | 9.0 | 54.0 | 503 | 149.9 | 13.8 |
| OT16 | 150 | 7.71 | 120 | 10.41 | 8.79 | <0.5 | <0.5 | 0.5 | 3.4 | 0.6 | 1.6 | 5.6 | 0.4 | 1.0 | 30.6 | 1 | 10 | 42.0 | 491 | 135.0 | 12.2 |

**Collection date 8 April 2010** Secchi depth = 21.5 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 $m^{-3}$ |
| YZ1 | 1 | 7.76 | 115 | 17.36 | 9.48 | 1.0 | <0.5 | 0.7 | 0.8 | 1.2 | 3.2 | 5.2 | 0.0 | 0.3 | 69.7 | 8 | 19.6 | 89.6 | 893 | 173.0 | 21.2 |
| YZ2 | 10 | 7.78 | 119 | 17.35 | 10.17 | <0.5 | <0.5 | 0.6 | 0.8 | 1.2 | 1.6 | 3.6 | 0.0 | 0.2 | 50.8 | <2 | 11.5 | 62.5 | 814 | 142.5 | 16.8 |
| YZ3 | 20 | 7.83 | 118 | 17.35 | 9.66 | 0.6 | <0.5 | 0.7 | 0.8 | 2.2 | 1.4 | 4.4 | 1.9 | 0.2 | 38.9 | <2 | 12.8 | 53.8 | 683 | 121.5 | 14.2 |
| YZ4 | 30 | 7.79 | 120 | 17.34 | 9.43 | <0.5 | <0.5 | 0.6 | 1.1 | 0.9 | 1.4 | 3.4 | 0.8 | 0.0 | 40.2 | <2 | 12.2 | 53.2 | 710 | 115.0 | 12.6 |
| YZ5 | 40 | 7.74 | 119 | 12.28 | 9.04 | <0.5 | <0.5 | 1.4 | 1.0 | 2.0 | 1.9 | 4.9 | 0.7 | 0.1 | 36.2 | <2 | 16.0 | 53.0 | 593 | 117.0 | 23.8 |
| YZ6 | 50 | 7.71 | 120 | 11.19 | 8.57 | <0.5 | <0.5 | 1.4 | 2.2 | 0.8 | 1.4 | 4.4 | 0.7 | 0.5 | 32.8 | <2 | 11.5 | 45.5 | 545 | 88.1 | 9.4 |
| YZ7 | 60 | 7.61 | 121 | 10.82 | 8.31 | <0.5 | <0.5 | 0.8 | 2.2 | 0.8 | 1.1 | 4.1 | 0.0 | 0.6 | 31.4 | <2 | 7.6 | 39.6 | 496 | 53.5 | 7.7 |
| YZ8 | 70 | 7.59 | 121 | 10.67 | 8.11 | <0.5 | <0.5 | 0.4 | 4.4 | 0.6 | 0.6 | 5.6 | 0.0 | 7.7 | 28.3 | <2 | 4.7 | 40.7 | 525 | 62.2 | 6.4 |
| YZ9 | 80 | 7.52 | 121 | 10.62 | 7.97 | <0.5 | <0.5 | 0.3 | 5.2 | 0.8 | 0.6 | 6.6 | 0.0 | 16.8 | 28.2 | <2 | 4.0 | 49.0 | 491 | 43.3 | 6.3 |
| YZ10 | 90 | 7.55 | 121 | 10.60 | 7.74 | <0.5 | <0.5 | 0.2 | 6.2 | 0.8 | 0.6 | 7.6 | 0.0 | 20.8 | 29.2 | <2 | 3.9 | 53.9 | 496 | 42.1 | 10.1 |
| YZ11 | 100 | 7.53 | 122 | 10.57 | 7.43 | <0.5 | <0.5 | 0.2 | 7.2 | 0.0 | 0.6 | 7.8 | 0.0 | 23.8 | 27.2 | <2 | 3.5 | 54.5 | 491 | 38.2 | 7.8 |
| YZ12 | 110 | 7.53 | 121 | 10.57 | 7.27 | <0.5 | <0.5 | 0.2 | 6.5 | 0.5 | 0.5 | 7.5 | 0.0 | 24.3 | 24.7 | <2 | 2.9 | 51.9 | 481 | 26.7 | 5.9 |
| YZ13 | 120 | 7.46 | 122 | 10.55 | 7.11 | <0.5 | <0.5 | 0.2 | 8.3 | 0.7 | 0.9 | 9.9 | 0.0 | 29.4 | 28.6 | <2 | 6.0 | 64.0 | 505 | 43.6 | 7.3 |
| YZ14 | 130 | 7.68 | 122 | 10.53 | 7.09 | <0.5 | <0.5 | 0.2 | 10.1 | 0.0 | 1.1 | 11.2 | 0.0 | 31.5 | 34.5 | <2 | 5.6 | 71.6 | 519 | 43.2 | 8.1 |
| YZ15 | 140 | 7.4 | 122 | 10.53 | 6.82 | <0.5 | <0.5 | 0.1 | 9.3 | 5.7 | 1.0 | 16.0 | 0.0 | 33.3 | 37.7 | <2 | 5.3 | 76.3 | 517 | 48.2 | 6.6 |
| YZ16 | 150 | 7.4 | 122 | 10.53 | 6.75 | <0.5 | <0.5 | 0.2 | 10.4 | 0.6 | 1.4 | 12.4 | 0.0 | 33.4 | 29.6 | <2 | 6.6 | 69.6 | 514 | 49.5 | 8.5 |

$NH_4$, $NO_3$, DON, Urea all as N

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

Detection limits: DRP 0.5; $NO_3$-N 0.5; $NH_4$-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, $NO_3$-N, and $NH_4$-N below nominal detection limit.

**Collection date 14 October 2008** Secchi depth = 12.2 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 $cm^{-1}$ | $^oC$ | 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 $m^{-3}$ |
| SZ1 | 1 | 7.66 | 119 | 12.59 | 10.29 | 1.1 | <0.5 | 0.7 | 1.0 | 2.0 | 4.2 | 7.2 | 4.1 | 0.0 | 70.9 | | 26.1 | 101.1 | 816 | 235.0 | 24.6 |
| SZ2 | 10 | 7.70 | 121 | 12.09 | 10.29 | 0.7 | <0.5 | 0.8 | 0.6 | 2.4 | 3.9 | 6.9 | 0.1 | 0.0 | 39.9 | | 18.7 | 58.7 | 690 | 169.5 | 23.5 |
| SZ3 | 20 | 7.70 | 121 | 11.93 | 10.50 | 0.8 | <0.5 | 0.8 | 0.7 | 2.3 | 7.8 | 10.8 | 0.0 | 0.0 | 59.0 | | 32.7 | 91.7 | 638 | 250.0 | 33.1 |
| SZ4 | 30 | 7.70 | 120 | 11.85 | 10.46 | 1.0 | 0.6 | 0.7 | 0.7 | 2.3 | 5.6 | 8.6 | 0.0 | 0.0 | 65.0 | | 24.2 | 89.2 | 632 | 195.5 | 31.8 |
| SZ5 | 40 | 7.70 | 120 | 11.75 | 10.34 | 0.7 | <0.5 | 0.9 | 0.3 | 1.7 | 4.6 | 6.6 | 0.0 | 0.0 | 52.0 | | 16.2 | 68.2 | 597 | 162.5 | 15.5 |
| SZ6 | 50 | 7.69 | 120 | 11.59 | 10.05 | 0.5 | <0.5 | 0.9 | 0.4 | 2.6 | 4.5 | 7.5 | 0.5 | 0.0 | 48.5 | | 15.6 | 64.6 | 602 | 139.5 | 29.2 |
| SZ7 | 60 | 7.56 | 120 | 10.90 | 9.89 | 0.8 | 0.5 | 0.8 | 1.0 | 2.0 | 5.0 | 8.0 | 0.7 | 1.6 | 69.7 | | 16.7 | 88.7 | 603 | 94.0 | 18.2 |
| SZ8 | 70 | 7.52 | 121 | 10.76 | 9.86 | 0.6 | <0.5 | 0.6 | 1.2 | 1.8 | 3.6 | 6.6 | 0.0 | 2.6 | 45.4 | | 20.4 | 68.4 | 593 | 77.2 | 16.8 |
| SZ9 | 80 | 7.45 | 122 | 10.71 | 9.81 | 0.7 | <0.5 | 0.4 | 1.3 | 2.7 | 3.1 | 7.1 | 0.0 | 4.7 | 36.3 | | 9.5 | 50.5 | 589 | 61.8 | 25.9 |
| SZ10 | 90 | 7.49 | 121 | 10.69 | 9.85 | 0.7 | <0.5 | 0.3 | 1.8 | 0.2 | 2.3 | 4.3 | 0.0 | 5.7 | 29.3 | | 9.7 | 44.7 | 561 | 57.5 | 9.1 |
| SZ11 | 100 | 7.23 | 121 | 10.68 | 10.03 | 0.6 | <0.5 | 0.2 | 1.5 | 0.5 | 2.5 | 4.5 | 2.2 | 6.6 | 33.2 | | 9.2 | 51.2 | 605 | 71.8 | 23.1 |
| SZ12 | 110 | 7.32 | 121 | 10.66 | 10.13 | <0.5 | <0.5 | 0.3 | 1.5 | 1.5 | 2.2 | 5.2 | 3.5 | 7.4 | 33.1 | | 8.0 | 52.0 | 617 | 46.8 | 10.6 |
| SZ13 | 120 | 7.36 | 122 | 10.64 | 10.09 | 0.7 | <0.5 | 0.2 | 1.2 | 2.8 | 2.5 | 6.5 | 1.6 | 9.5 | 34.9 | | 9.9 | 55.9 | 613 | 57.6 | 28.5 |
| SZ14 | 130 | 7.45 | 121 | 10.60 | 9.83 | 0.8 | <0.5 | 0.2 | 2.6 | 0.4 | 2.1 | 5.1 | 1.6 | 11.7 | 34.7 | | 7.5 | 55.5 | 652 | 56.6 | 27.2 |
| SZ15 | 140 | 7.43 | 120 | 10.59 | 9.76 | <0.5 | <0.5 | <0.1 | 2.9 | 3.1 | 2.5 | 8.5 | 1.4 | 17.1 | 37.5 | | 8.7 | 64.7 | 686 | 46.6 | 24.1 |
| SZ16 | 150 | 7.40 | 121 | 10.59 | 9.85 | <0.5 | <0.5 | 0.2 | 2.7 | 2.3 | 3.5 | 8.5 | 2.3 | 17.3 | 39.4 | | 11.0 | 70.0 | 656 | 68.9 | 23.5 |

**Collection date 15 April 2009** 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 $cm^{-1}$ | $^oC$ | 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 | 7.89 | 123 | 16.60 | 9.33 | <0.5 | <0.5 | 0.7 | 1.1 | 0.9 | 1.7 | 3.7 | 4.3 | 1.4 | 74.3 | 17 | 16.7 | 96.7 | 834 | 187.0 | 19.2 |
| EU2 | 10 | 7.84 | 122 | 16.59 | 10.11 | <0.5 | <0.5 | 0.8 | 1.3 | 1.7 | 2.0 | 5.0 | 0.1 | 0.0 | 26.9 | <1 | 13.1 | 40.1 | 669 | 116.0 | 16.2 |
| EU3 | 20 | 7.83 | 121 | 16.59 | 10.76 | <0.5 | <0.5 | 0.9 | 1.2 | 2.8 | 2.0 | 6.0 | 0.3 | 0.0 | 29.7 | 1 | 17.2 | 47.2 | 691 | 152.0 | 18.4 |
| EU4 | 30 | 7.84 | 123 | 16.58 | 10.83 | <0.5 | <0.5 | 0.9 | 0.9 | 3.1 | 1.8 | 5.8 | 0.8 | 0.0 | 38.2 | 2 | 15.8 | 54.8 | 650 | 143.0 | 19.1 |
| EU5 | 40 | 7.8 | 121 | 12.53 | 10.39 | <0.5 | <0.5 | 1.0 | 1.4 | 6.6 | 1.5 | 9.5 | 0.7 | 0.1 | 37.3 | 1 | 13.0 | 51.1 | 627 | 81.9 | 13.2 |
| EU6 | 50 | 7.79 | 121 | 11.56 | 9.58 | <0.5 | <0.5 | 0.7 | 2.2 | 3.8 | 1.2 | 7.2 | 0.0 | 2.0 | 20.0 | <1 | 9.3 | 31.3 | 574 | 79.5 | 12.1 |
| EU7 | 60 | 7.58 | 122 | 11.12 | 9.06 | <0.5 | <0.5 | 0.5 | 3.9 | 3.1 | 1.2 | 8.2 | 0.0 | 8.5 | 24.5 | 2 | 7.4 | 40.4 | 581 | 68.6 | 11.6 |
| EU8 | 70 | 7.49 | 123 | 10.98 | 8.84 | <0.5 | <0.5 | 0.3 | 5.5 | 4.5 | 1.1 | 11.1 | 0.7 | 18.7 | 14.6 | 2 | 8.7 | 42.7 | 553 | 59.6 | 15.2 |
| EU9 | 80 | 7.03 | 124 | 10.92 | 8.21 | <0.5 | <0.5 | 0.2 | 6.6 | 6.4 | 1.2 | 14.2 | 0.0 | 24.5 | 26.5 | <1 | 9.3 | 60.3 | 635 | 51.7 | 11.8 |
| EU10 | 90 | 7.03 | 124 | 10.88 | 8.24 | 12 | 12 | 0.1 | 7.2 | 2.8 | 1.1 | 11.1 | 0.0 | 27.0 | 16.0 | 1 | 6.7 | 49.7 | 514 | 46.6 | 9.4 |
| EU11 | 100 | 7.16 | 123 | 10.86 | 8.07 | <0.5 | <0.5 | 0.1 | 6.3 | 5.7 | 0.9 | 12.9 | 0.0 | 24.7 | 32.3 | 1 | 5.1 | 62.1 | 554 | 35.9 | 8.8 |
| EU12 | 110 | 7.21 | 124 | 10.84 | 8.12 | <0.5 | <0.5 | 0.1 | 7.0 | 4 | 1.0 | 12.0 | 0.2 | 26.3 | 12.5 | <1 | 6.9 | 45.9 | 562 | 42.7 | 10.1 |
| EU13 | 120 | 7.2 | 123 | 10.82 | 8.02 | <0.5 | <0.5 | 0.1 | 7.1 | 4.9 | 1.0 | 13.0 | 0.2 | 26.8 | 25.0 | 4 | 6.8 | 58.8 | 549 | 53.7 | 10.1 |
| EU14 | 130 | 7.61 | 123 | 10.79 | 8.15 | <0.5 | <0.5 | <0.1 | 7.6 | 8.4 | 1.0 | 17.0 | 0.0 | 27.6 | <1 | 2 | 7.2 | 34.8 | 562 | 45.4 | 11.8 |
| EU15 | 140 | 7.23 | 122 | 10.78 | 8.01 | <0.5 | <0.5 | <0.1 | 8.1 | 4.9 | 1.1 | 14.1 | 0.0 | 29.0 | 8.0 | <1 | 7.3 | 44.3 | 661 | 50.3 | 9.8 |
| EU16 | 150 | 7.22 | 122 | 10.78 | 7.55 | <0.5 | <0.5 | <0.1 | 9.0 | 2 | 1.3 | 12.3 | 1.3 | 30.6 | 21.1 | 1 | 7.1 | 60.1 | 544 | 42.8 | 12.7 |

$NH_4$, $NO_3$, DON, Urea all as N

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

Detection limits: DRP 0.5; $NO_3$-N 0.5; $NH_4$-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, $NO_3$-N, and $NH_4$-N below nominal detection limit.

**Collection date 30 October 2007** Secchi depth = 12.8 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 $cm^{-1}$ | $^oC$ | 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 $m^{-3}$ |
| ZA1 | 1 | 7.80 | 119 | 12.84 | 10.18 | 0.7 | <0.5 | 0.6 | 1.3 | 0.7 | 2.1 | 4.1 | 1.5 | 0.7 | 79.8 | 16 | 20.1 | 102.1 | 617 | 170.0 | 19.2 |
| ZA2 | 10 | 7.83 | 120 | 11.83 | 10.27 | <0.5 | <0.5 | 1.0 | 0.9 | 1.1 | 2.5 | 4.5 | 0.0 | 0.0 | 42.0 | <5 | 18.5 | 60.5 | 553 | 204.0 | 19.8 |
| ZA3 | 20 | 7.79 | 115 | 11.76 | 10.25 | 0.5 | <0.5 | 1.1 | 1.1 | 0.9 | 2.6 | 4.6 | 0.2 | 0.0 | 42.8 | <5 | 19.0 | 62.0 | 405 | 169.0 | 19.4 |
| ZA4 | 30 | 7.76 | 119 | 11.70 | 10.07 | 0.7 | <0.5 | 1.2 | 0.8 | 1.2 | 2.5 | 4.5 | 0.0 | 0.0 | 49.0 | <5 | 19.1 | 68.1 | 417 | 173.5 | 19.0 |
| ZA5 | 40 | 7.72 | 120 | 11.64 | 10.02 | 0.7 | <0.5 | 1.1 | 1.0 | 1.0 | 2.6 | 4.6 | 0.0 | 0.0 | 36.0 | <5 | 16.8 | 52.8 | 417 | 131.5 | 17.4 |
| ZA6 | 50 | 7.61 | 121 | 11.51 | 9.85 | 0.8 | <0.5 | 1.4 | 0.9 | 1.1 | 3.3 | 5.3 | 0.0 | 0.0 | 39.0 | <5 | 18.3 | 57.3 | 434 | 140.0 | 18.1 |
| ZA7 | 60 | 7.54 | 120 | 11.43 | 9.52 | 0.9 | <0.5 | 1.4 | 1.2 | 0.8 | 2.7 | 4.7 | 0.2 | 0.0 | 32.8 | <5 | 19.5 | 52.5 | 414 | 127.5 | 17.1 |
| ZA8 | 70 | 7.46 | 123 | 11.32 | 9.77 | 0.8 | <0.5 | 1.5 | 1.5 | 0.5 | 2.7 | 4.7 | 0.1 | 0.3 | 46.6 | <5 | 19.1 | 66.1 | 443 | 130.0 | 19.0 |
| ZA9 | 80 | 7.42 | 122 | 11.23 | 9.58 | 0.8 | <0.5 | 1.1 | 1.9 | 1.1 | 2.1 | 5.1 | 0.4 | 2.6 | 41.0 | 5 | 15.8 | 59.8 | 422 | 95.8 | 14.4 |
| ZA10 | 90 | 7.42 | 121 | 11.16 | 9.42 | 0.7 | <0.5 | 0.9 | 2.1 | 0.9 | 2.1 | 5.1 | 0.3 | 4.8 | 42.9 | <5 | 13.3 | 61.3 | 410 | 92.0 | 13.0 |
| ZA11 | 100 | 7.38 | 122 | 11.07 | 9.49 | <0.5 | <0.5 | 0.7 | 2.8 | 0.2 | 1.8 | 4.8 | 0.0 | 8.5 | 36.5 | <5 | 11.2 | 56.2 | 400 | 64.0 | 11.0 |
| ZA12 | 110 | 7.40 | 122 | 11.04 | 9.16 | 0.7 | <0.5 | 0.7 | 2.9 | 0.1 | 1.8 | 4.8 | 0.0 | 9.2 | 56.8 | <5 | 11.6 | 77.6 | 386 | 68.3 | 11.1 |
| ZA13 | 120 | 7.38 | 122 | 11.02 | 9.27 | 0.7 | <0.5 | 0.6 | 2.8 | 1.2 | 2.1 | 6.1 | 0.0 | 10.0 | 46.0 | <5 | 12.7 | 68.7 | 359 | 105.3 | 12.5 |
| ZA14 | 130 | 7.44 | 120 | 11.00 | 9.01 | 0.6 | <0.5 | 0.6 | 2.6 | 1.4 | 1.9 | 5.9 | 0.0 | 10.4 | 35.6 | <5 | 10.9 | 56.9 | 348 | 61.8 | 10.5 |
| ZA15 | 140 | 7.44 | 121 | 10.98 | 9.11 | 0.6 | <0.5 | 0.6 | 3.0 | 0.0 | 1.7 | 4.7 | 0.0 | 10.8 | 39.2 | <5 | 10.3 | 60.3 | 351 | 64.1 | 11.2 |
| ZA16 | 150 | 7.42 | 121 | 10.96 | 8.91 | <0.5 | <0.5 | 0.6 | 3.5 | 1.5 | 1.8 | 6.8 | 0.0 | 13.3 | 38.7 | <5 | 10.8 | 62.8 | 305 | 63.1 | 10.6 |

**Collection date 17 April 2008** Secchi depth = 17.8 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 $cm^{-1}$ | $^oC$ | 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 $m^{-3}$ |
| KA1 | 1 | 7.79 | 122 | 17.88 | 9.49 | <0.5 | <0.5 | 0.4 | 0.8 | 0.2 | 0.7 | 1.7 | 2.8 | 0.4 | 64.8 | 14 | 13.3 | 81.3 | 656 | 138.5 | 8.4 |
| KA2 | 10 | 7.87 | 121 | 17.87 | 8.97 | <0.5 | <0.5 | 0.8 | 0.5 | 0.5 | 0.7 | 1.7 | 1.1 | 0.3 | 48.6 | <5 | 12.0 | 62.0 | 576 | 112.5 | 8.3 |
| KA3 | 20 | 7.83 | 124 | 17.85 | 8.46 | <0.5 | <0.5 | 0.8 | 0.9 | 0.1 | 0.8 | 1.8 | 0.4 | 0.3 | 38.3 | <5 | 13.7 | 52.7 | 528 | 142.0 | 9.4 |
| KA4 | 30 | 7.71 | 122 | 15.58 | 8.52 | <0.5 | <0.5 | 0.5 | 1.0 | 0.0 | 0.9 | 1.9 | 3.1 | 0.1 | 27.8 | <5 | 10.9 | 41.9 | 526 | 110.0 | 9.1 |
| KA5 | 40 | 7.58 | 121 | 12.38 | 8.72 | <0.5 | <0.5 | 0.6 | 1.7 | 1.3 | 0.8 | 3.8 | 1.8 | 0.8 | 36.4 | <5 | 14.6 | 53.6 | 459 | 107.0 | 6.7 |
| KA6 | 50 | 7.38 | 121 | 11.72 | 8.48 | <0.5 | <0.5 | 0.5 | 1.9 | 2.1 | 0.6 | 4.6 | 0.2 | 3.4 | 29.4 | <5 | 10.2 | 43.2 | 417 | 75.1 | 6.1 |
| KA7 | 60 | 7.36 | 122 | 11.48 | 8.20 | <0.5 | <0.5 | 0.4 | 3.5 | 0.5 | 0.8 | 4.8 | 0.6 | 5.3 | 32.1 | <5 | 9.6 | 47.6 | 353 | 84.9 | 6.7 |
| KA8 | 70 | 7.31 | 122 | 11.34 | 7.84 | <0.5 | <0.5 | 0.3 | 3.5 | 1.5 | 0.7 | 5.7 | 0.9 | 10.8 | 42.3 | <5 | 10.7 | 64.7 | 481 | 85.4 | 6.8 |
| KA9 | 80 | 7.25 | 122 | 11.27 | 7.71 | <0.5 | <0.5 | 0.2 | 4.2 | 0.8 | 1.2 | 6.2 | 0.4 | 14.7 | 82.9 | <5 | 9.5 | 107.5 | 347 | 97.5 | 4.9 |
| KA10 | 90 | 7.19 | 122 | 11.20 | 7.57 | <0.5 | <0.5 | 0.1 | 5.1 | 0.0 | 0.7 | 5.8 | 0.3 | 19.8 | 43.9 | <5 | 10.2 | 74.2 | 370 | 107.0 | 5.4 |
| KA11 | 100 | 7.18 | 122 | 11.17 | 7.45 | <0.5 | <0.5 | 0.1 | 4.6 | | 0.6 | 5.2 | 0.6 | 21.2 | 30.2 | <5 | 8.6 | 60.6 | 412 | 59.8 | 4.0 |
| KA12 | 110 | 7.12 | 123 | 11.14 | 7.29 | <0.5 | <0.5 | <0.1 | 5.0 | 1.0 | 0.6 | 6.6 | 0.8 | 28.2 | 26.0 | <5 | 4.5 | 59.5 | 346 | 44.6 | 3.3 |
| KA13 | 120 | 7.07 | 123 | 11.15 | 7.29 | 0.6 | <0.5 | <0.1 | 7.4 | 0.0 | 0.8 | 8.2 | 0.1 | 30.2 | 29.7 | <5 | 7.9 | 67.9 | 373 | 85.8 | 5.8 |
| KA14 | 130 | 7.28 | 123 | 11.12 | 7.18 | <0.5 | <0.5 | <0.1 | 5.6 | 1.4 | 0.8 | 7.8 | 1.1 | 29.5 | 26.4 | <5 | 9.0 | 66.0 | 395 | 89.1 | 4.4 |
| KA15 | 140 | 7.12 | 123 | 11.11 | 7.13 | <0.5 | <0.5 | <0.1 | 8.4 | 1.6 | 1.5 | 11.5 | 1.1 | 36.8 | 27.1 | <5 | 8.5 | 73.5 | 393 | 72.6 | 4.1 |
| KA16 | 150 | 7.11 | 123 | 11.11 | 6.72 | <0.5 | <0.5 | <0.1 | 8.3 | 0.7 | 1.5 | 10.5 | 0.4 | 36.4 | 27.2 | <5 | 7.2 | 71.2 | 379 | 98.8 | 4.1 |

$NH_4$, $NO_3$, DON, Urea all as N

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

Detection limits: DRP 0.5; $NO_3$-N 0.5; $NH_4$-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, $NO_3$-N, and $NH_4$-N below nominal detection limit.

**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 $cm^{-1}$ | $^oC$ | 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 | 413 | 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 | 419 | 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 | 373 | 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 | 456 | 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 | 368 | 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 | 468 | 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 | 411 | 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 | 378 | 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 | 330 | 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 | 352 | 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 | 378 | 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 | 382 | 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 | 421 | 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 | 354 | 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 | 428 | 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 | 368 | 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 $cm^{-1}$ | $^oC$ | 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 | 567 | 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 | 522 | 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 | 498 | 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 | 481 | 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 | 444 | 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 | 419 | 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 | 393 | 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 | 434 | 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 | 436 | 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 | 460 | 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 | 469 | 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 | 437 | 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 | 452 | 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 | 389 | 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 | 413 | 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 | 439 | 51.7 | 9.5 |

$NH_4$, $NO_3$, DON, Urea all as N

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

Detection limits: DRP 0.5; $NO_3$-N 0.5; $NH_4$-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, $NO_3$-N, and $NH_4$-N below nominal detection limit.

**Collection date 25 October 2005** Secchi depth = 15.0 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 $cm^{-1}$ | $^oC$ | 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 $m^{-3}$ |
| 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 | 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 $cm^{-1}$ | $^oC$ | 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 $m^{-3}$ |
| 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 |

$NH_4$, $NO_3$, DON, Urea all as N

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

Detection limits: DRP 0.5; $NO_3$-N 0.5; $NH_4$-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, $NO_3$-N, and $NH_4$-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 | 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 $cm^{-1}$ | $^oC$ | 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 $m^{-3}$ |
| 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 | 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 $cm^{-1}$ | $^oC$ | 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 $m^{-3}$ |
| 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 | 0.1 | 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 |

$NH_4$, $NO_3$, DON, Urea all as N * = PN by wet digestion method, ** = PN by combustion furnace method.

Detection limits: DRP 0.5; $NO_3$-N 0.5; $NH_4$-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, $NO_3$-N, and $NH_4$-N below nominal detection limit.

**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 $cm^{-1}$ | $^oC$ | 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 $cm^{-1}$ | $^oC$ | 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 |

$NH_4$, $NO_3$, DON, Urea all as N

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

Detection limits: DRP 0.5; $NO_3$-N 0.5; $NH_4$-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, $NO_3$-N, and $NH_4$-N below nominal detection limit.

**Lake Taupo biannual nutrient** **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 $cm^{-1}$ | $^oC$ | 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 $cm^{-1}$ | $^oC$ | 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 |

$NH_4$, $NO_3$, DON, Urea all as N

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

Detection limits: DRP 0.5; $NO_3$-N 0.5; $NH_4$-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, $NO_3$-N, and $NH_4$-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 | pH | EC @25oC | Temp | DO | SS | VSS | Chlor_a | DRP | DOP | PP | TP | NH4-N | NO3-N | DON | UREA | PN* | TN | DOC | PC | PN** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | m | | $\mu S\ cm^{-1}$ | $^oC$ | $g\ m^{-3}$ | $g\ m^{-3}$ | $g\ m^{-3}$ | $mg\ m^{-3}$ | $mg\ m^{-3}$ | $mg\ m^{-3}$ | $mg\ m^{-3}$ | $mg\ m^{-3}$ | $mg\ m^{-3}$ | $mg\ m^{-3}$ | $mg\ m^{-3}$ | $mg\ m^{-3}$ | $mg\ m^{-3}$ | $mg\ m^{-3}$ | $g\ m^{-3}$ | $mg\ m^{-3}$ | $mg\ m^{-3}$ |
| 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 | pH | EC @25oC | Temp | DO | SS | VSS | Chlor_a | DRP | DOP | PP | TP | NH4-N | NO3-N | DON | UREA | PN* | TN | DOC | PC | PN** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | m | | $\mu S\ cm^{-1}$ | $^oC$ | $g\ m^{-3}$ | $g\ m^{-3}$ | $g\ m^{-3}$ | $mg\ m^{-3}$ | $mg\ m^{-3}$ | $mg\ m^{-3}$ | $mg\ m^{-3}$ | $mg\ m^{-3}$ | $mg\ m^{-3}$ | $mg\ m^{-3}$ | $mg\ m^{-3}$ | $mg\ m^{-3}$ | $mg\ m^{-3}$ | $mg\ m^{-3}$ | $g\ m^{-3}$ | $mg\ m^{-3}$ | $mg\ m^{-3}$ |
| 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 |

$NH_4$, $NO_3$, DON, Urea all as N * = PN by wet digestion method, ** = PN by combustion furnace method.

Detection limits: DRP 0.5; $NO_3$-N 0.5; $NH_4$-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, $NO_3$-N, and $NH_4$-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 | Temp | DO | SS | VSS | Chlor_a | DRP | DOP | PP | TP | NH4-N | NO3-N | DON | UREA | PN* | TN | DOC | PC | PN** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | m | | μS 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$^{-3}$ | g m$^{-3}$ | mg m$^{-3}$ | 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 | Temp | DO | SS | VSS | Chlor_a | DRP | DOP | PP | TP | NH4-N | NO3-N | DON | UREA | PN* | TN | DOC | PC | PN** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | m | | μS 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$^{-3}$ | g m$^{-3}$ | mg m$^{-3}$ | 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 |

$NH_4$, $NO_3$, DON, Urea all as N Detection limits: DRP 0.5; $NO_3$-N 0.5; $NH_4$-N 1.0 mg m$^{-3}$
* = PN by wet digestion method, ** = PN by combustion furnace method.

**Lake Taupo biannual nutrient database** **1999-2000** Started 27 October 1994

**Collection date 18 October 1999** Secchi depth = 14.9 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 | | µS 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$^{-3}$ |
| 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 | Temp | DO | SS | VSS | Chlor_a | DRP | DOP | PP | TP | $NH_4$-N | $NO_3$-N | DON | UREA | PN* | TN | DOC | PC | PN** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | m | | µS 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$^{-3}$ |
| 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 |

$NH_4$, $NO_3$, DON, Urea all as N Detection limits: DRP 0.5; $NO_3$-N 0.5; $NH_4$-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** **1998-1999** Started 27 October 1994

**Collection date 1 November 1998** Secchi depth = 13.5 m

| Code | Depth m | pH | EC @25oC $\mu S\ cm^{-1}$ | Temp $^oC$ | 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 m | pH | EC @25oC $\mu S\ cm^{-1}$ | Temp $^oC$ | 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 |

$NH_4$, $NO_3$, DON, Urea all as N Detection limits: DRP 0.5; $NO_3$-N 0.5; $NH_4$-N 1.0 mg $m^{-3}$

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

**Lake Taupo biannual nutrient database** **1997-1998** Started 27 October 1994

**Collection Date 30 October 1997** Secchi depth = 12.5 m

| ID | Depth | pH | EC @25°C | Temp | DO | SS | VSS | Chlor_*a* | DRP | DOP | PP | TP | $NH_4$ | $NO_3$ | DON | UREA | PN* | TN | DOC | PC | PN** | $SO_4$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | m | | $\mu S\ cm^{-1}$ | C | $g\ m^{-3}$ | $g\ m^{-3}$ | $g\ m^{-3}$ | $mg\ m^{-3}$ | $mg\ m^{-3}$ | $mg\ m^{-3}$ | $mg\ m^{-3}$ | $mg\ m^{-3}$ | $mg\ m^{-3}$ | $mg\ m^{-3}$ | $mg\ m^{-3}$ | $mg\ m^{-3}$ | $mg\ m^{-3}$ | $mg\ m^{-3}$ | $g\ m^{-3}$ | $mg\ m^{-3}$ | $mg\ m^{-3}$ | $g\ m^{-3}$ |
| 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** Secchi depth = 13.5 m

| ID | Depth | pH | EC @25°C | Temp | DO | SS | VSS | Chlor_*a* | DRP | DOP | PP | TP | $NH_4$ | $NO_3$ | DON | UREA | PN* | TN | DOC | PC | PN** | $SO_4$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | m | | $\mu S\ cm^{-1}$ | C | $g\ m^{-3}$ | $g\ m^{-3}$ | $g\ m^{-3}$ | $mg\ m^{-3}$ | $mg\ m^{-3}$ | $mg\ m^{-3}$ | $mg\ m^{-3}$ | $mg\ m^{-3}$ | $mg\ m^{-3}$ | $mg\ m^{-3}$ | $mg\ m^{-3}$ | $mg\ m^{-3}$ | $mg\ m^{-3}$ | $mg\ m^{-3}$ | $g\ m^{-3}$ | $mg\ m^{-3}$ | $mg\ m^{-3}$ | $g\ m^{-3}$ |
| 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 |

$NH_4$, $NO_3$, DON, Urea all as N Detection limits: DRP 0.5; $NO_3$-N 0.5; $NH_4$-N 1.0 $mg\ m^{-3}$

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

**Lake Taupo biannual nutrient database** **1996-1997** Started 27 October 1994

**Collection Date 24 October 1996** Secchi depth = 12.6 m

| ID | Depth | pH | EC @25°C | Temp | DO | SS | VSS | Chlor_*a* | DRP | DOP | PP | TP | $NH_4$ | $NO_3$ | DON | UREA | PN* | TN | DOC | PC | PN** | SO4 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | m | | $\mu S\ cm^{-1}$ | C | $g\ m^{-3}$ | $g\ m^{-3}$ | $g\ m^{-3}$ | $mg\ m^{-3}$ | $mg\ m^{-3}$ | $mg\ m^{-3}$ | $mg\ m^{-3}$ | $mg\ m^{-3}$ | $mg\ m^{-3}$ | $mg\ m^{-3}$ | $mg\ m^{-3}$ | $mg\ m^{-3}$ | $mg\ m^{-3}$ | $mg\ m^{-3}$ | $g\ m^{-3}$ | $mg\ m^{-3}$ | $mg\ m^{-3}$ | $g\ m^{-3}$ |
| 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** Secchi depth = 16.0 m

| ID | Depth | pH | EC @25°C | Temp | DO | SS | VSS | Chlor_*a* | DRP | DOP | PP | TP | $NH_4$ | $NO_3$ | DON | UREA | PN* | TN | DOC | PC | PN** | SO4 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | m | | $\mu S\ cm^{-1}$ | C | $g\ m^{-3}$ | $g\ m^{-3}$ | $g\ m^{-3}$ | $mg\ m^{-3}$ | $mg\ m^{-3}$ | $mg\ m^{-3}$ | $mg\ m^{-3}$ | $mg\ m^{-3}$ | $mg\ m^{-3}$ | $mg\ m^{-3}$ | $mg\ m^{-3}$ | $mg\ m^{-3}$ | $mg\ m^{-3}$ | $mg\ m^{-3}$ | $g\ m^{-3}$ | $mg\ m^{-3}$ | $mg\ m^{-3}$ | $g\ m^{-3}$ |
| 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 |

$NH_4$, $NO_3$, DON, Urea all as N    Detection limits: DRP 0.5; $NO_3$-N 0.5; $NH_4$-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 | Temp | DO | $BOD_5$ | SS | VSS | Chlor_*a* | DRP | DOP | PP | TP | $NH_4$ | $NO_3$ | DON | UREA | PN* | TN | DOC | PC | PN** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | m | | $\mu S\ cm^{-1}$ | C | $g\ m^{-3}$ | $g\ m^{-3}$ | $g\ m^{-3}$ | $g\ m^{-3}$ | $mg\ m^{-3}$ | $mg\ m^{-3}$ | $mg\ m^{-3}$ | $mg\ m^{-3}$ | $mg\ m^{-3}$ | $mg\ m^{-3}$ | $mg\ m^{-3}$ | $mg\ m^{-3}$ | $mg\ m^{-3}$ | $mg\ m^{-3}$ | $mg\ m^{-3}$ | $g\ m^{-3}$ | $mg\ m^{-3}$ | $mg\ m^{-3}$ |
| 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 | Temp | DO | $BOD_5$ | SS | VSS | Chlor_*a* | DRP | DOP | PP | TP | $NH_4$ | $NO_3$ | DON | UREA | PN* | TN | DOC | PC | PN** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | m | | $\mu S\ cm^{-1}$ | C | $g\ m^{-3}$ | $g\ m^{-3}$ | $g\ m^{-3}$ | $g\ m^{-3}$ | $mg\ m^{-3}$ | $mg\ m^{-3}$ | $mg\ m^{-3}$ | $mg\ m^{-3}$ | $mg\ m^{-3}$ | $mg\ m^{-3}$ | $mg\ m^{-3}$ | $mg\ m^{-3}$ | $mg\ m^{-3}$ | $mg\ m^{-3}$ | $mg\ m^{-3}$ | $g\ m^{-3}$ | $mg\ m^{-3}$ | $mg\ m^{-3}$ |
| 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 |

$NH_4$, $NO_3$, DON, UREA all as N Detection limits: DRP 0.5; $NO_3$-N 0.5; $NH_4$-N 1.0 $mg\ m^{-3}$

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

**Lake Taupo biannual nutrient database** **1994-1995**

**Collection date:- 27 October 1994** Secchi Depth = 11.7 m

| ID | Depth | Temp | DO | BOD$_5$ | SS | VSS | Chlor_*a* | DRP | DOP | PP | TP | NH$_4$ | NO$_3$ | DON | UREA | PN* | TN | DOC | PC | PN** | LEAD |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | m | C | g m$^{-3}$ | 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$^{-3}$ | g m$^{-3}$ | mg m$^{-3}$ | mg m$^{-3}$ | 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 | | | | 0.99 | 0.53 | 0.84 | 1.3 | 1.0 | 2.0 | 4.3 | 0.5 | 0.2 | 39 | 3.1 | 15.9 | 55.6 | 0.53 | | | |

**Collection date:- 19 April 1995** Secchi Depth = 16.1 m

| ID | Depth | Temp | DO | BOD$_5$ | SS | VSS | Chlor_*a* | DRP | DOP | PP | TP | NH$_4$ | NO$_3$ | DON | UREA | PN* | TN | DOC | PC | PN** | LEAD |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | m | C | g m$^{-3}$ | 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$^{-3}$ | g m$^{-3}$ | mg m$^{-3}$ | mg m$^{-3}$ | 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 | | | | | | | | | | | | | | | | | | | | | 10.5 |

* = Sediment contamination, sample not filtered for analysis.

$NH_4$, $NO_3$, DON, UREA all as N Detection limits: DRP 0.5; $NO_3$-N 0.5; $NH_4$-N 1.0 mg m$^{-3}$

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

## Phytoplankton data

In this report phytoplankton abundance is reported in cell counts per ml and biovolume per ml. In the previous system reporting only algal dominance, "Dominance" (rank 1 = dominant to rank 10 = rare), was calculated from algal biovolume. For continuance of the Dominance format, the species composition is ranked 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*

The new algal data has been added to this report and the data from the previous year retained to accumulate, as has been done with temperature, DO, and nutrient data.

Note: *Leptolyngbya* sp. cells on 07/09/2009 (highlighted) are likely to have been washed off something rather than being local in 150 m of water.

Name changes:

*Anabaena* has changed to *Dolichospermum* as of August 2009. It will initially be referred to as follows: *Dolichospermum sp*. (formally; *Anabaena sp*.)

Units of biomass are listed as "$\mu m^3$" in the following tables. The units are actually $\mu m^3$ /mL.

## Lake Taupo phytoplankton enumeration (10-m tube) 2009-10

**Cell counts and biovolume**

**Cells per ml numbers may be affected by rounding**

| Sample code | PH1 | PH1 | QJ1 | QJ1 | TT1 | TT1 | VA1 | VA1 | VA3 | VA3 | XF1 | XF1 | ZD1 | ZD1 | BX1 | BX1 | CU1 | CU1 | CU3 | CU3 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sampling date | 19/10/2009 | 19/10/2009 | 12/11/2009 | 12/11/2009 | 13/01/2010 | 13/01/2010 | 2/02/2010 | 2/02/2010 | 18/02/2010 | 18/02/2010 | 10/03/2010 | 10/03/2010 | 8/04/2010 | 8/04/2010 | 20/05/2010 | 20/05/2010 | 3/06/2010 | 3/06/2010 | 23/06/2010 | 23/06/2010 |
| Species composition by class | Cell (per ml) | Biovolume ($\mu m^3$) | Cell (per ml) | Biovolume ($\mu m^3$) | Cell (per ml) | Biovolume ($\mu m^3$) | Cell (per ml) | Biovolume ($\mu m^3$) | Cell (per ml) | Biovolume ($\mu m^3$) | Cell (per ml) | Biovolume ($\mu m^3$) | Cell (per ml) | Biovolume ($\mu m^3$) | Cell (per ml) | Biovolume ($\mu m^3$) | Cell (per ml) | Biovolume ($\mu m^3$) | Cell (per ml) | Biovolume ($\mu m^3$) |
| **Blue greens (Cyanophyceae)** | | | | | | | | | | | | | | | | | | | | |
| *Dolichospermum c.f. lemmermannii* (formerly; *Anabaena c.f. lemmermannii)* | 0.0 | 0 | 77.4 | 6964 | 3.0 | 270 | 17.6 | 1582 | 182.5 | 21172 | 4.2 | 492 | 5.6 | 652 | 3.6 | 418 | 4.6 | 531 | 1.9 | 218 |
| *Dolichospermum planctonicum* (formerly; *Anabaena planktonica)* | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.3 | 100 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 |
| *Dolichospermum sp.* (formerly; *Anabaena sp.)* | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 |
| *Dolichospermum circinalis* (formerly; *Anabaena circinalis)* | 6.9 | 1429 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 |
| *Chroococcus sp.* | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.8 | 11 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 |
| *Microcystis sp.* | 0.0 | 0 | 0.6 | 13 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 |
| *Leptolyngbya sp.* | 17.1 | 188 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.6 | 7 | 0.0 | 0 | 0.0 | 0 |
| *Snowella sp.* | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 |
| *Pseudanabaena sp.* | 0.7 | 14 | 0.0 | 0 | 0.2 | 4 | 0.0 | 0 | 0.0 | 0 | 0.1 | 2 | 0.1 | 1 | 0.8 | 15 | 0.0 | 0 | 0.4 | 7 |
| *Phormidium* sp. | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.2 | 5 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 |
| *Aphanocapsa* sp. | 4.0 | 36 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 2.0 | 18 |
| *Aphanothece* sp. | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 |
| *Aphanizomenon* sp. | 0.3 | 6 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 |
| **Greens (Chlorophyceae)** | | | | | | | | | | | | | | | | | | | | |
| *Monoraphidium sp. / Ankistrodesmus falcatus* | 67 | 2818 | 32 | 1341 | 5 | 227 | 21 | 863 | 0 | 0 | 2 | 68 | 18 | 750 | 14 | 591 | 27 | 1113 | 11 | 477 |
| *Stichococcus contortus* | 11 | 204 | 0 | 0 | 0 | 0 | 9 | 166 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| *Botryococcus braunii (colonies)* | 0 | 0 | 0.002 | 3900 | 0.000 | 1950 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0 | 3248 | 0.0 | 1570 |
| *Chlamydomonas sp.* | 2 | 341 | 0 | 0 | 1 | 227 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 454 | 0 | 0 | 3 | 568 |
| *Elakotothrix gelatinosa* | 4 | 454 | 3 | 341 | 1 | 114 | 4 | 454 | 0 | 0 | 1 | 114 | 0 | 0 | 15 | 1591 | 6 | 682 | 2 | 170 |
| *Eudorina elegans* | 8 | 2077 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| *Nephrocytium lunatum* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| *Oocytsis sp.* | 9 | 1229 | 12 | 1690 | 22 | 3150 | 36 | 5070 | 45 | 6376 | 10 | 1383 | 34 | 4840 | 11 | 1613 | 11 | 1613 | 6 | 845 |
| *Tetraedon gracile* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| *Paulschulzia sp.* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| *Dictyosphaerium* | 45 | 0 | 0 | 0 | 6 | 0 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 238 | 0 | 0 |
| *Crucigeniella sp* | 17 | 1090 | 18 | 1160 | 77 | 4993 | 48 | 3095 | 8 | 492 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 70 | 0 | 0 |
| *Kirchneriella contorta* | 10 | 321 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 214 | 0 | 0 |
| *Planktosphaeria gelatinosa* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| *Scenedesmus* sp. | 0 | 0 | 0 | 0 | 4 | 225 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 225 | 0 | 0 |
| *Volvox aureus* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 325 | 19476 | 173 | 10387 | 498 | 29863 |
| **Diatoms (Bacillariophyceae)** | | | | | | | | | | | | | | | | | | | | |
| *Asterionella formosa* | 186 | 51958 | 31 | 8786 | 3 | 757 | 0 | 0 | 0 | 0 | 4 | 1060 | 0 | 0 | 4 | 1212 | 10 | 2727 | 9 | 2575 |
| *Aulacoseira granulata* | 21 | 6541 | 23 | 7044 | 6 | 2013 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12 | 3857 | 9 | 2683 | 9 | 2851 |
| *Aulacoseira granulata var. angustissima* | 54 | 13925 | 4 | 1125 | 1 | 281 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| *Aulacoseria sp.* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| *Cyclotella stelligera* | 10 | 1558 | 3 | 519 | 4 | 606 | 2 | 346 | 1 | 173 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 346 |
| *Fragilaria crotonensis* | 158 | 56554 | 121 | 43190 | 60 | 21498 | 98 | 35249 | 8 | 2905 | 15 | 5229 | 12 | 4261 | 22 | 7941 | 57 | 20336 | 135 | 48226 |
| *Nitzschia sp.* | 2 | 844 | 1 | 211 | 2 | 633 | 3 | 1266 | 0 | 0 | 1 | 211 | 2 | 844 | 7 | 2743 | 2 | 633 | 0 | 0 |
| *Synedra sp.* | 1 | 426 | 0 | 0 | 1 | 213 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| *Amphora sp.* | 0 | 0 | 0 | 0 | 2 | 849 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 566 | 1 | 283 |
| *Cocconeis* | 1 | 566 | 0 | 0 | 0 | 0 | 2 | 849 | 0 | 0 | 6 | 3112 | 0 | 0 | 6 | 3395 | 8 | 3961 | 7 | 3678 |
| Small unknown diatom sp. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 238 | 1 | 60 | 1 | 119 |
| **Desmids (Mesotaeniaceae, Desmidiaceae)** | | | | | | | | | 0 | 0 | | | | | | | | | | |
| *Closterium aciculare* | 0 | 0 | 1 | 648 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| *Closterium acutum var. variable* | 1 | 408 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 204 | 1 | 408 |
| *Staurastrum* sp. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 74 | 1 | 74 | 0 | 0 |
| **Chrysophtya (Chrysophyceae)** | | | | | | | | | | | | | | | | | | | | |
| *Dinobryon sp.* | 98 | 5809 | 289 | 17077 | 16 | 926 | 37 | 2202 | 29 | 1692 | 4 | 223 | 4 | 223 | 25 | 1468 | 0 | 0 | 6 | 383 |
| *Cryptomonas sp.* | 1 | 78 | 0 | 0 | 1 | 78 | 0 | 0 | 0 | 0 | 1 | 156 | 0 | 0 | 1 | 78 | 2 | 234 | 1 | 156 |
| **Dinoflagellates (Dinophyceae)** | | | | | | | | | | | | | | | | | | | | |
| *Ceratium hirundinella* | 0 | 0 | 0 | 0 | 1 | 11361 | 1 | 22722 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| *Gymnodinium sp. 1* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1190 | 0 | 0 | 0 | 0 | 1 | 595 | 1 | 595 | 0 | 0 |
| *Gymnodinium sp. 2* | 0 | 0 | 0 | 0 | 2 | 40575 | 0 | 0 | 1 | 27050 | 0 | 0 | 0 | 5410 | 0 | 0 | 0 | 0 | 0 | 0 |
| *Peridinium sp.* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 15148 | 0 | 0 | 3 | 12984 | 0 | 0 | 1 | 2164 |
| *Gonyaulax sp.* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2164 | 0 | 0 | 3 | 6492 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Flagellates 5µm** | | | | | | | | | | | | | | | | | | | | |
| Flagellates < 5µm/unicells | 153 | 5340 | 61 | 2140 | 43 | 1496 | 42 | 1477 | 85 | 2973 | 34 | 1193 | 33 | 1155 | 29 | 1004 | 23 | 795 | 36 | 1269 |

**Lake Taupo phytoplankton enumeration (10-m tube) 2009-10 (continued)**

**Cell counts and biovolume** — Cells per ml numbers may be affected by rounding

| Sample code | EX1 | EX1 | FY1 | FY1 |
|---|---|---|---|---|
| Sampling date | 13/07/2010 | 13/07/2010 | 10/08/2010 | 10/08/2010 |
| Species composition by class | Cell (per ml) | Biovolume ($\mu m^3$) | Cell (per ml) | Biovolume ($\mu m^3$) |
| **Blue greens (Cyanophyceae)** | | | | |
| *Dolichospermum c.f. lemmermannii* (formerly; *Anabaena c.f. lemmermannii)* | 0.2 | 22 | 0.8 | 87 |
| *Dolichospermum planctonicum* (formerly; *Anabaena planktonica)* | 0.0 | 0 | 0.0 | 0 |
| *Dolichospermum sp.* (formerly; *Anabaena sp.)* | 0.0 | 0 | 0.0 | 0 |
| *Dolichospermum circinalis* (formerly; *Anabaena circinalis)* | 0.0 | 0 | 0.3 | 67 |
| *Chroococcus sp.* | 0.0 | 0 | 0.0 | 0 |
| *Microcystis sp.* | 0.0 | 0 | 0.4 | 8 |
| *Leptolyngbya sp.* | 0.0 | 0 | 1.3 | 14 |
| *Snowella sp.* | 0.0 | 0 | 0.0 | 0 |
| *Pseudanabaena sp.* | 0.5 | 9 | 0.0 | 0 |
| *Phormidium* sp. | 0.3 | 5 | 0.0 | 0 |
| *Aphanocapsa* sp. | 2.4 | 22 | 1.0 | 9 |
| *Aphanothece* sp. | 0.0 | 0 | 0.0 | 0 |
| *Aphanizomenon* sp. | 0.0 | 0 | 0.0 | 0 |
| **Greens (Chlorophyceae)** | | | | |
| *Monoraphidium sp. / Ankistrodesmus falcatus* | 68 | 2863 | 72 | 3022 |
| *Stichococcus contortus* | 0 | 0 | 29 | 526 |
| *Botryococcus braunii (colonies)* | 0.0 | 0 | 0.0 | 6160 |
| *Chlamydomonas sp.* | 0 | 0 | 2 | 341 |
| *Elakotothrix gelatinosa* | 6 | 625 | 6 | 682 |
| *Eudorina elegans* | 0 | 0 | 16 | 4155 |
| *Nephrocytium lunatum* | 0 | 0 | 0 | 0 |
| *Oocytsis sp.* | 4 | 538 | 3 | 384 |
| *Tetraedon gracile* | 0 | 0 | 0 | 0 |
| *Paulschulzia sp.* | 0 | 0 | 0 | 0 |
| *Dictyosphaerium* | 0 | 0 | 9 | 506 |
| *Crucigeniella sp* | 0 | 0 | 3 | 211 |
| *Kirchneriella contorta* | 0 | 0 | 0 | 0 |
| *Planktosphaeria gelatinosa* | 0 | 0 | 0 | 0 |
| *Scenedesmus* sp. | 2 | 113 | 0 | 0 |
| *Volvox aureus* | 87 | 5194 | 0 | 0 |
| **Diatoms (Bacillariophyceae)** | | | | |
| *Asterionella formosa* | 39 | 11058 | 155 | 43323 |
| *Aulacoseira granulata* | 23 | 7044 | 52 | 16268 |
| *Aulacoseira granulata var. angustissima* | 0 | 0 | 57 | 14910 |
| *Aulacoseria sp.* | 17 | 0 | 0 | 0 |
| *Cyclotella stelligera* | 8 | 1212 | 11 | 1818 |
| *Fragilaria crotonensis* | 62 | 22273 | 108 | 38542 |
| *Nitzschia sp.* | 1 | 422 | 3 | 1266 |
| *Synedra sp.* | 1 | 213 | 6 | 2345 |
| *Amphora sp.* | 0 | 0 | 0 | 0 |
| *Cocconeis* | 4 | 2264 | 5 | 2829 |
| | 4 | 417 | 4 | 417 |
| **Desmids (Mesotaeniaceae, Desmidiaceae)** | | | | |
| *Closterium aciculare* | 0 | 0 | 2 | 1296 |
| *Closterium acutum var. variable* | 0 | 0 | 0 | 0 |
| *Staurastrum* sp. | 0 | 0 | 0 | 0 |
| **Chrysophtya (Chrysophyceae)** | | | | |
| *Dinobryon sp.* | 0 | 0 | 5 | 287 |
| *Cryptomonas sp.* | 4 | 623 | 3 | 390 |
| **Dinoflagellates (Dinophyceae)** | | | | |
| *Ceratium hirundinella* | 0 | 0 | 0 | 0 |
| *Gymnodinium sp. 1* | 1 | 595 | 0 | 0 |
| *Gymnodinium sp. 2* | 0 | 0 | 0 | 0 |
| *Peridinium sp.* | 0 | 0 | 0 | 0 |
| *Gonyaulax sp.* | 0 | 0 | 0 | 0 |
| **Flagellates 5µm** | | | | |
| Flagellates < 5µm/unicells | 59 | 2064 | 70 | 2443 |

## Lake Taupo phytoplankton enumeration (10-m tube) 2008-09

**Cell counts and biovolume**

**Cells per ml numbers may be affected by rounding**

| Sample code | RL4 | RL4 | SV2 | SV2 | UP4 | UP4 | XE2 | XE2 | XZ2 | XZ2 | XZ1 | XZ1 | AH2 | AH2 | AH4 | AH4 | DU1 | DU1 | EW2 | EW2 | GV2 | GV2 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sampling date | 16/09/2008 | 16/09/2008 | 14/10/2008 | 14/10/2008 | 26/11/2008 | 26/11/2008 | 22/12/2008 | 22/12/2008 | 13/01/2009 | 13/01/2009 | 28/01/2009 | 28/01/2009 | 11/02/2009 | 11/02/2009 | 25/02/2009 | 25/02/2009 | 26/03/2009 | 26/03/2009 | 15/04/2009 | 15/04/2009 | 7/05/2009 | 7/05/2009 |
| Species composition by class | Cell | Biovolume | Cell | Biovolume | Cell | Biovolume | Cell | Biovolume | Cell | Biovolume | Cell | Biovolume | Cell | Biovolume | Cell | Biovolume | Cell | Biovolume | Cell | Biovolume | Cell | Biovolume |
| | (per ml) | $(\mu m^3)$ | (per ml) | $(\mu m^3)$ | (per ml) | $(\mu m^3)$ | (per ml) | $(\mu m^3)$ | (per ml) | $(\mu m^3)$ | (per ml) | $(\mu m^3)$ | (per ml) | $(\mu m^3)$ | (per ml) | $(\mu m^3)$ | (per ml) | $(\mu m^3)$ | (per ml) | $(\mu m^3)$ | (per ml) | $(\mu m^3)$ |
| **Blue greens (Cyanophyceae)** | | | | | | | | | | | | | | | | | | | | | | |
| *Anabaena lemmermannii* | 0.0 | 0 | 0.0 | 0 | 46.5 | 1905 | 16.3 | 670 | 1.3 | 116 | 1.3 | 120 | 7.4 | 669 | 75.6 | 41 | 1.4 | 126 | 27.7 | 2495 | 13.6 | 1226 |
| *Pseudanabaena limnetica* | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.1 | 2 | 0.0 | 0 | 4.4 | 83 | 0.0 | 0 | 0.0 | 0 |
| *Anabaena planktonica* | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.8 | 299 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 |
| *Anabaena* sp. | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 |
| *Anabaena circinalis* | 0.0 | 0 | 8.9 | 581 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 |
| *Chroococcus* sp. | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.3 | 4 |
| *Microcystis* sp. | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | | |
| *Leptolyngbya sp.* | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 2.1 | 23 |
| *Snowella* sp. | | | | | | | | | | | | | | | | | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 |
| **Greens (Chlorophyceae)** | | | | | | | | | | | | | | | | | | | | | | |
| *Monoraphidium* sp. / *Ankistrodesmus falcatus* | 94 | 3956 | 4 | 172 | 4 | 172 | 16 | 688 | 53 | 2236 | 139 | 5848 | 56 | 2359 | 0 | 0 | 0 | 0 | 1 | 49 | 5 | 221 |
| *Stichococcus contortus* | 12 | 211 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| *Botryococcus braunii* | 0.0 | 218 | 0.0 | 0 | 0.0 | 8877 | 0.0 | 127636 | 0.0 | 0 | 0.0 | 1908 | 0.0 | 0 | 0.0 | 543 | 0 | 0 | 0.0 | 4213 | 0.0 | 6058 |
| *Chlamydomonas* sp. | 0 | 0 | 1 | 123 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| *Elakotothrix gelatinosa* | 4 | 369 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 491 | 12 | 1229 | 16 | 1720 | 18 | 1843 | 0 | 0 | 1 | 114 | 0 | 0 |
| *Eudorina elegans* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 1647 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 674 | 0 | 0 |
| *Nephrocytium lunatum* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| *Oocytsis* sp. | 14 | 1994 | 8 | 1163 | 5 | 748 | 5 | 665 | 0 | 0 | 2 | 249 | 5 | 665 | 0 | 0 | 0 | 0 | 5 | 748 | 4 | 498 |
| *Tetraedon gracile* | 0 | 0 | 0 | 0 | 0 | 0 | 20 | 2252 | 9 | 1030 | 1 | 64 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| *Paulschulzia sp.* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 18 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| *Dictyosphaerium* sp. | 0 | 0 | 0 | | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | | | | 5 | 0 | 0 | 0 |
| *Crucigeniella* sp | 0 | 0 | 0 | | 7 | 456 | 4 | 228 | 2 | 152 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 30 | 1969 | 53 | 3422 |
| **Diatoms (Bacillariophyceae)** | | | | | | | | | | | | | | | | | | | | | | |
| *Asterionella formosa* | 64 | 18018 | 42 | 11794 | 29 | 8190 | 3 | 819 | 22 | 6061 | 35 | 9828 | 5 | 1310 | 1 | 328 | 4 | 1147 | 11 | 3112 | 19 | 5242 |
| *Aulacoseira granulata* | 15 | 4534 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 2539 | 0 | 0 | 0 | 0 |
| *Aulacoseira granulata* var. *angustissima* | 0 | 0 | 1 | 304 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| *Aulacoseria* sp. | 12 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| *Cyclotella stelligera* | 15 | 2340 | 2 | 374 | 7 | 1123 | 0 | 0 | 1 | 187 | 1 | 187 | 1 | 187 | 0 | 0 | 1 | 187 | 1 | 187 | 4 | 655 |
| *Fragilaria crotonensis* | 37 | 13194 | 33 | 11728 | 99 | 35603 | 66 | 23456 | 70 | 25132 | 21 | 7539 | 48 | 17173 | 16 | 5864 | 2 | 838 | 21 | 7539 | 8 | 2723 |
| *Nitzschia* sp. | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 1369 | 0 | 0 | 4 | 1597 | 2 | 913 | 2 | 913 | 0 | 0 | 0 | 0 | 0 | 0 |
| *Synedra* sp. | 1 | 230 | 0 | 0 | 0 | 0 | 2 | 691 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 230 | 0 | 0 | 0 | 0 |
| *Amphora* sp. | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 306 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| *Cocconeis* | 1 | 306 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| **Desmids (Mesotaeniaceae, Desmidiaceae)** | | | | | | | | | | | | | | | | | | | | | | |
| *Closterium aciculare* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| *Closterium acutum* var. *variable* | 1 | 441 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Chrysophtya (Chrysophyceae)** | | | | | | | | | | | | | | | | | | | | | | |
| *Dinobryon* sp. | 0 | 0 | 53 | 3106 | 313 | 18466 | 23 | 1381 | 0 | 0 | 2 | 104 | 38 | 2243 | 53 | 3141 | 0 | 0 | 11 | 621 | 13 | 794 |
| *Cryptomonas* sp. | 0 | 0 | 0 | 0 | 1 | 168 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 84 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Dinoflagellates (Dinophyceae)** | | | | | | | | | | | | | | | | | | | | | | |
| *Ceratium hirundinella* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| *Gymnodinium* sp. 1 | 0 | 0 | 0 | 0 | 1 | 205 | 1 | 205 | 1 | 205 | 4 | 4505 | 4 | 4505 | 3 | 3218 | 0 | 0 | 1 | 1287 | 1 | 644 |
| *Gymnodinium* sp. 2 | 0 | 0 | 0 | 0 | 1 | 14625 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 150 | 0 | 50 | 0 | 25 |
| *Peridinium* sp. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 4680 | 1 | 2340 | 0 | 0 | 0 | 0 | 1 | 2340 | 0 | 0 |
| *Gonyaulax* sp. | | | | | | | | | | | | | | | | | 1 | 1170 | 1 | 1170 | 0 | 0 |
| **Flagellates 5µm** | | | | | | | | | | | | | | | | | | | | | | |
| Flagellates < 5µm/unicells | 113 | 3972 | 68 | 2375 | 78 | 2723 | 249 | 8722 | 182 | 6368 | 57 | 2007 | 51 | 1781 | 83 | 2907 | 37 | 1290 | 51 | 1781 | 145 | 5078 |

## Lake Taupo phytoplankton enumeration (10-m tube) 2008-09 continued

| Sample code | GV4 | GV4 | JO1 | JO1 | KI1 | KI1 | NEW NAMES INTRODUCED | LT1 | LT1 | ND1 | ND1 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sampling date | 27/05/2009 | 27/05/2009 | 18/06/2009 | 18/06/2009 | 6/07/2009 | 6/07/2009 | August 2009 | 13/08/2009 | 13/08/2009 | 7/09/2009 | 7/09/2009 |
| Species composition by class | Cell (per ml) | Biovolume ($\mu m^3$) | Cell (per ml) | Biovolume ($\mu m^3$) | Cell (per ml) | Biovolume ($\mu m^3$) | | Cell (per ml) | Biovolume ($\mu m^3$) | Cell (per ml) | Biovolume ($\mu m^3$) |
| **Blue greens (Cyanophyceae)** | | | | | | | **Blue greens (Cyanophyceae)** | | | | |
| *Anabaena lemmermannii* | 9.4 | 849 | 5.8 | 41 | 0.3 | 28 | ***Dolichospermum c.f. lemmermannii*** (formerly; ***Anabaena c.f. lemmermannii)*** | 0.1 | 10 | 0.1 | 11 |
| *Pseudanabaena limnetica* | 0.0 | 0 | 0.0 | 0 | 1.0 | 19 | *Pseudanabaena sp.* | 0.0 | 0 | 0.0 | 0 |
| *Anabaena planktonica* | 0.2 | 88 | 0.0 | 0 | 0.0 | 0 | ***Dolichospermum planctonicum*** (formerly; ***Anabaena planktonica)*** | 0.0 | 0 | 0.0 | 0 |
| *Anabaena* sp. | 2.1 | 188 | 0.3 | 23 | 0.5 | 46 | ***Dolichospermum sp.*** (formerly; ***Anabaena sp.)*** | 0.0 | 0 | 0.0 | 0 |
| *Anabaena circinalis* | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | ***Dolichospermum circinalis*** (formerly; ***Anabaena circinalis)*** | 0.0 | 0 | 0.0 | 0 |
| *Chroococcus* sp. | 0.1 | 1 | 0.0 | 0 | 0.0 | 0 | *Chroococcus sp.* | 0.2 | 2 | 0.8 | 11 |
| *Microcystis* sp. | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | *Microcystis sp.* | 0.0 | 0 | 2.5 | 53 |
| *Leptolyngbya sp.* | 0.6 | 6 | 0.1 | 2 | 0.0 | 0 | *Leptolyngbya sp.* | 0.0 | 0 | 120.0 | 1320 |
| *Snowella* sp. | 0.1 | 3 | 0.0 | 0 | 0.0 | 0 | *Snowella sp.* | 3.3 | 83 | 222.9 | 5572 |
| **Greens (Chlorophyceae)** | | | | | | | **Greens (Chlorophyceae)** | | | 0.0 | 0 |
| *Monoraphidium* sp. */ Ankistrodesmus falcatus* | 14 | 590 | 42 | 1744 | 42 | 1750 | *Monoraphidium sp. / Ankistrodesmus falcatus* | 24 | 1022 | 225 | 9459 |
| *Stichococcus contortus* | 0 | 0 | 3 | 53 | 0 | 0 | *Stichococcus contortus* | 19 | 351 | 63 | 1141 |
| *Botryococcus braunii* | 0.0 | 15954 | 0.0 | 14315 | 0.0 | 30946 | *Botryococcus braunii (colonies)* | 0.0 | 0 | 0.0 | 205716 |
| *Chlamydomonas* sp. | 0 | 0 | 0 | 0 | 0 | 0 | *Chlamydomonas sp.* | 0 | 0 | 0 | 0 |
| *Elakotothrix gelatinosa* | 0 | 0 | 0 | 0 | 0 | 0 | *Elakotothrix gelatinosa* | 1 | 114 | 8 | 819 |
| *Eudorina elegans* | 0 | 0 | 0 | 0 | 0 | 0 | *Eudorina elegans* | 0 | 0 | 0 | 0 |
| *Nephrocytium lunatum* | 0 | 0 | 0 | 0 | 0 | 0 | *Nephrocytium lunatum* | 0 | 0 | 0 | 0 |
| *Oocytsis* sp. | 0 | 0 | 4 | 498 | 0 | 0 | *Oocytsis sp.* | 15 | 2151 | 0 | 0 |
| *Tetraedon gracile* | 0 | 0 | 0 | 0 | 0 | 0 | *Tetraedon gracile* | 0 | 0 | 0 | 0 |
| *Paulschulzia sp.* | 0 | 0 | 0 | 0 | 0 | 0 | *Paulschulzia sp.* | 0 | 0 | 0 | 0 |
| *Dictyosphaerium* sp. | 0 | 0 | 0 | | 0 | 0 | *Dictyosphaerium* | 0 | 0 | 12 | 295 |
| *Crucigeniella* sp | 36 | 2358 | 11 | 722 | 9 | 598 | *Crucigeniella sp* | 2 | 141 | 0 | 0 |
| **Diatoms (Bacillariophyceae)** | | | | | | | **Diatoms (Bacillariophyceae)** | | | | |
| *Asterionella formosa* | 10 | 2785 | 22 | 6143 | 55 | 15299 | *Asterionella formosa* | 366 | 102400 | 215 | 60333 |
| *Aulacoseira granulata* | 7 | 2176 | 0 | 0 | 102 | 31529 | *Aulacoseira granulata* | 30 | 9392 | 18 | 5441 |
| *Aulacoseira granulata* var. *angustissima* | 0 | 0 | 15 | 3955 | 0 | 0 | *Aulacoseira granulata var. angustissima* | 0 | 0 | 4 | 1014 |
| *Aulacoseria* sp. | 0 | 0 | 0 | 0 | 0 | 0 | *Aulacoseria sp.* | 0 | 0 | 0 | 0 |
| *Cyclotella stelligera* | 1 | 187 | 9 | 1404 | 2 | 346 | *Cyclotella stelligera* | 5 | 866 | 21 | 3432 |
| *Fragilaria crotonensis* | 18 | 6492 | 35 | 12566 | 24 | 8716 | *Fragilaria crotonensis* | 0 | 0 | 34 | 12217 |
| *Nitzschia* sp. | 1 | 456 | 2 | 913 | 2 | 844 | *Nitzschia sp.* | 5 | 2110 | 1 | 380 |
| *Synedra* sp. | 0 | 0 | 0 | 0 | 0 | 0 | *Synedra sp.* | 1 | 213 | 0 | 0 |
| *Amphora* sp. | 0 | 0 | 0 | 0 | 0 | 0 | *Amphora sp.* | 0 | 0 | 0 | 0 |
| *Cocconeis* | 0 | | 1 | 306 | 0 | 0 | *Cocconeis* | 0 | 0 | 0 | 0 |
| **Desmids (Mesotaeniaceae, Desmidiaceae)** | | | | | | | **Desmids (Mesotaeniaceae, Desmidiaceae)** | | | | |
| *Closterium aciculare* | 0 | 0 | 1 | 350 | 0 | 0 | *Closterium aciculare* | 0 | 0 | 0 | 0 |
| *Closterium acutum* var. *variable* | 0 | 0 | 0 | 0 | 1 | 204 | *Closterium acutum var. variable* | 0 | 0 | 1 | 368 |
| **Chrysophtya (Chrysophyceae)** | | | | | | | **Chrysophtya (Chrysophyceae)** | | | 0 | 0 |
| *Dinobryon* sp. | 8 | 449 | 0 | 0 | 0 | 0 | *Dinobryon sp.* | 0 | 0 | 0 | 0 |
| *Cryptomonas* sp. | 0 | 0 | 1 | 84 | 1 | 78 | *Cryptomonas sp.* | 0 | 0 | 0 | 0 |
| **Dinoflagellates (Dinophyceae)** | | | | | | | **Dinoflagellates (Dinophyceae)** | | | | |
| *Ceratium hirundinella* | 0 | 0 | 0 | 0 | 0 | 0 | *Ceratium hirundinella* | 0 | 0 | 0 | 0 |
| *Gymnodinium* sp. 1 | 1 | 1287 | 1 | 644 | 2 | 1785 | *Gymnodinium sp. 1* | 0 | 0 | 0 | 0 |
| *Gymnodinium* sp. 2 | 0 | 0 | 0 | 2925 | 0 | 0 | *Gymnodinium sp. 2* | 0 | 0 | 0 | 0 |
| *Peridinium* sp. | 0 | 0 | 0 | 0 | 0 | 0 | *Peridinium sp.* | 0 | 0 | 0 | 0 |
| *Gonyaulax* sp. | 1 | 2340 | 1 | 1170 | 0 | 0 | *Gonyaulax sp.* | 0 | 0 | 0 | 0 |
| **Flagellates 5µm** | | | | | | | **Flagellates 5µm** | | | 0 | 0 |
| Flagellates < 5µm/unicells | 67 | 2334 | 51 | 1781 | 76 | 2651 | Flagellates < 5µm/unicells | 328 | 11494 | 193 | 6757 |

## Lake Taupo phytoplankton enumeration (10-m tube) 2007-08

**Cell counts and biovolume**

**Cells per ml numbers may be affected by rounding**

| Sample code | TZ2 | TZ2 | TZ4 | TZ4 | WF2 | WF2 | XX1 | XX1 | XX4 | XX4 | AM1 | AM1 | BM1 | BM1 | BM3 | BM3 | DT1 | DT1 | EO1 | EO1 | EO3 | EO3 | EO5 | EO5 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sampling date | 8/08/2007 | 8/08/2007 | 23/08/2007 | 23/08/2007 | 11/09/2007 | 11/09/2007 | 9/10/2007 | 9/10/2007 | 30/10/2007 | 30/10/2007 | 15/11/2007 | 15/11/2007 | 4/12/2007 | 4/12/2007 | 20/12/2007 | 20/12/2007 | 17/01/2008 | 17/01/2008 | 31/01/2008 | 31/01/2008 | 14/02/2008 | 14/02/2008 | 27/02/2008 | 27/02/2008 |
| Species composition by class | Cell (per ml) | Biovolume ($\mu m^3$) | Cell (per ml) | Biovolume ($\mu m^3$) | Cell (per ml) | Biovolume ($\mu m^3$) | Cell (per ml) | Biovolume ($\mu m^3$) | Cell (per ml) | Biovolume ($\mu m^3$) | Cell (per ml) | Biovolume ($\mu m^3$) | Cell (per ml) | Biovolume ($\mu m^3$) | Cell (per ml) | Biovolume ($\mu m^3$) | Cell (per ml) | Biovolume ($\mu m^3$) | Cell (per ml) | Biovolume ($\mu m^3$) | Cell (per ml) | Biovolume ($\mu m^3$) | Cell (per ml) | Biovolume ($\mu m^3$) |
| **Blue greens (Cyanophyceae)** | | | | | | | | | | | | | | | | | | | | | | | | |
| *Anabaena lemmermannii* | 2 | 64 | 3 | 108 | 1 | 27 | 17 | 696 | 51 | 2100 | 18 | 725 | 1 | 27 | 29 | 1175 | 28.7 | 1175 | 21.3 | 875 | 25.0 | 1025 | 85.8 | 3518 |
| *Pseudanabaena limnetica* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.1 | 2 | 0.0 | 0 | 0.0 | 0 | 0.5 | 9 |
| *Chroococcus* sp. | 0 | 0 | 1 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 |
| *Microcystis* sp. | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 |
| *c.f Rivularia* sp. | 0 | 0 | 0 | 0 | 1 | 19 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| *Aphanothece* sp. | 0 | 0 | 1 | 15 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 |
| *Aphanizomenon* sp. | 2 | 30 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 32 | 3 | 48 | 4 | 78 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 4.0 | 76 |
| *Leptolyngbya sp.* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 8 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 |
| **Greens (Chlorophyceae)** | | | | | | | | | | | | | | | | | | | | | | | | |
| *Monoraphidium* sp. / *Ankistrodesmus falcatus* | 20 | 839 | 17 | 695 | 3 | 123 | 6 | 247 | 10 | 418 | 28 | 1189 | 18 | 737 | 114 | 4785 | 66 | 2764 | 0 | 0 | 0 | 0 | 0 | 0 |
| *Stichococcus contortus* | 175 | 0 | 97 | 1749 | 25 | 453 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 53 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| *Kirchneriella contorta* | 0 | 0 | 0 | 0 | 56 | 1853 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| *Botryococcus braunii* | 0 | 0 | 0 | 4800 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1100 | 1 | 92840 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 259720 |
| *Chlamydomonas* sp. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| *Elakotothrix gelatinosa* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 532 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 246 |
| *Eudorina elegans* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 300 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 624 | 4 | 1108 | 0 | 0 | 3 | 749 |
| *Lagerheimia* sp. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| *Oocytsis* sp. | 0 | 0 | 0 | 0 | 1 | 166 | 5 | 758 | 5 | 665 | 0 | 0 | 1 | 166 | 6 | 839 | 2 | 277 | 0 | 0 | 0 | 0 | 0 | 0 |
| *Planktosphaeria gelatinosa* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| *Quadrigula lacustrus* | 0 | 0 | 5 | 788 | 3 | 480 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 554 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| *Westella botryoides* | 10 | 634 | 29 | 1909 | 0 | 0 | 0 | 0 | 9 | 608 | 0 | 0 | 0 | 0 | 0 | 0 | 17 | 1077 | 0 | 0 | 0 | 0 | 0 | 0 |
| *Paulschulzia sp.* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Diatoms (Bacillariophyceae)** | | | | | | | | | | | | | | | | | | | | | | | | |
| *Asterionella formosa* | 275 | 77123 | 292 | 81787 | 753 | 210974 | 124 | 34838 | 62 | 17363 | 15 | 4187 | 4 | 983 | 2 | 473 | 50 | 14060 | 11 | 3181 | 0 | 0 | 2 | 655 |
| *Aulacoseira granulata* | 0 | 0 | 0 | 0 | 13 | 3990 | 0 | 0 | 16 | 5078 | 3 | 993 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| *Aulacoseira granulata* var. *angustissima* | 52 | 13436 | 11 | 2777 | 0 | 0 | 0 | 0 | 3 | 761 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 507 | 0 | 0 | 0 | 0 | 0 | 0 |
| *Cyclotella stelligera* | 14 | 2184 | 11 | 1709 | 8 | 1310 | 9 | 1452 | 11 | 1685 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 156 | 0 | 0 | 0 | 0 | 0 | 0 |
| *Fragilaria crotonensis* | 57 | 20419 | 27 | 9750 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 574 | 1 | 209 | 9 | 3324 | 19 | 6806 | 5 | 1743 | 0 | 0 | 13 | 4607 |
| *Nitzschia* sp. | 0 | 0 | 5 | 2083 | 1 | 228 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 456 | 14 | 5596 | 1 | 380 | 0 | 0 | 0 | 0 | 2 | 684 |
| *Synedra* sp. | 1 | 0 | 0 | 0 | 1 | 1638 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Small unknown diatom sp. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 60 | 0 | 0 | 0 | 0 |
| **Desmids (Mesotaeniaceae, Desmidiaceae)** | | | | | | | | | | | | | | | | | | | | | | | | |
| *Closterium aciculare* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 160 | 0 | 0 | 1 | 320 | 1 | 350 | 1 | 506 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| *Closterium acutum* var. *variable* | 1 | 551 | 1 | 201 | 1 | 221 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Chrysophtya (Chrysophyceae)** | | | | | | | | | | | | | | | | | | | | | | | | |
| *Dinobryon* sp. | 21 | 1266 | 2 | 126 | 0 | 0 | 146 | 8633 | 297 | 17534 | 81 | 4789 | 76 | 4487 | 8 | 448 | 7 | 431 | 6 | 383 | 32 | 1915 | 73 | 4314 |
| *Cryptomonas* sp. | 0 | 0 | 1 | 77 | 0 | 0 | 1 | 77 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| *Mallomonas sp.* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Dinoflagellates (Dinophyceae)** | | | | | | | | | | | | | | | | | | | | | | | | |
| *Gymnodinium* sp. 1 | 0 | 1463 | 0 | 0 | 0 | 0 | 1 | 3204 | 1 | 1755 | 0 | 0 | 1 | 1755 | 1 | 2532 | 0 | 0 | 6 | 17853 | 4 | 10820 | 16 | 49140 |
| *Gymnodinium* sp. 2 | 0 | 12188 | 1 | 13350 | 0 | 0 | 0 | 6675 | 0 | 0 | 0 | 0 | 0 | 7313 | 3 | 63300 | 0 | 6094 | 0 | 0 | 0 | 0 | 3 | 73125 |
| **Flagellates 5μm** | | | | | | | | | | | | | | | | | | | | | | | | |
| Flagellates < 5μm/unicells | 153 | 6582 | 296 | 10354 | 112 | 3911 | 129 | 4504 | 93 | 3256 | 78 | 2729 | 125 | 4382 | 526 | 18403 | 83 | 2901 | 99 | 3465 | 39 | 1373 | 60 | 2109 |

| Sample code | HT1 | HT1 | HT3 | HT3 | KB1 | KB1 | LB1 | LB1 | LB3 | LB3 | MW1 | MW1 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sampling date | 13/03/2008 | 13/03/2008 | 26/03/2008 | 26/03/2008 | 17/04/2008 | 17/04/2008 | 7/05/2008 | 7/05/2008 | 22/05/2008 | 22/05/2008 | 5/06/2008 | 5/06/2008 |
| Species composition by class | Cell (per ml) | Biovolume ($\mu m^3$) | Cell (per ml) | Biovolume ($\mu m^3$) | Cell (per ml) | Biovolume ($\mu m^3$) | Cell (per ml) | Biovolume ($\mu m^3$) | Cell (per ml) | Biovolume ($\mu m^3$) | Cell (per ml) | Biovolume ($\mu m^3$) |
| **Blue greens (Cyanophyceae)** | | | | | | | | | | | | |
| *Anabaena lemmermannii* | 92 | 3778 | 7.0 | 288 | 56.6 | 2319 | 120.6 | 4946 | 2.2 | 91 | 1.1 | 46 |
| *Pseudanabaena limnetica* | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 |
| *Chroococcus* sp. | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 |
| *Microcystis* sp. | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 |
| *c.f Rivularia* sp. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| *Aphanothece* sp. | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 |
| *Aphanizomenon* sp. | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 |
| *Leptolyngbya sp.* | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 |
| **Greens (Chlorophyceae)** | | | | | | | | | | | | |
| *Monoraphidium* sp. / *Ankistrodesmus falcatus* | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 197 | 0 | 0 | 0 | 0 |
| *Stichococcus contortus* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| *Kirchneriella contorta* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| *Botryococcus braunii* | 0.1 | 469151 | 0 | 14435 | 0.04 | 259837 | 0 | 104870 | 0 | 28871 | 0 | 132806 |
| *Chlamydomonas* sp. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| *Elakotothrix gelatinosa* | 2 | 246 | 6 | 676 | 1 | 123 | 4 | 369 | 2 | 246 | 1 | 123 |
| *Eudorina elegans* | 8 | 2097 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 11 | 2696 |
| *Lagerheimia* sp. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| *Oocytsis* sp. | 0 | 0 | 0 | 0 | 1 | 166 | 5 | 665 | 2 | 332 | 0 | 0 |
| *Planktosphaeria gelatinosa* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| *Quadrigula lacustrus* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| *Westella botryoides* | 0 | 0 | 0 | 0 | 0 | 0 | 15 | 951 | 0 | 0 | 0 | 0 |
| *Paulschulzia sp.* | 0 | 0 | 0 | 0 | 0 | 0 | 9 | 0 | 0 | 0 | 0 | 0 |
| **Diatoms (Bacillariophyceae)** | | | | | | | | | | | | |
| *Asterionella formosa* | 19 | 5242 | 12 | 3276 | 5 | 1310 | 10 | 2785 | 28 | 7862 | 25 | 6880 |
| *Aulacoseira granulata* | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 725 | 12 | 3808 | 13 | 4171 |
| *Aulacoseira granulata* var. *angustissima* | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 913 | 0 | 0 | 0 | 0 |
| *Cyclotella stelligera* | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 468 | 1 | 187 | 2 | 374 |
| *Fragilaria crotonensis* | 0 | 0 | 15 | 5445 | 4 | 1466 | 0 | 0 | 57 | 20315 | 61 | 21781 |
| *Nitzschia* sp. | 1 | 228 | 1 | 342 | 3 | 1141 | 2 | 684 | 2 | 913 | 0 | 0 |
| *Synedra* sp. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Small unknown diatom sp. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Desmids (Mesotaeniaceae, Desmidiaceae)** | | | | | | | | | | | | |
| *Closterium aciculare* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| *Closterium acutum* var. *variable* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Chrysophtya (Chrysophyceae)** | | | | | | | | | | | | |
| *Dinobryon* sp. | 26 | 1519 | 2 | 104 | 4 | 242 | 8 | 483 | 8 | 466 | 9 | 518 |
| *Cryptomonas* sp. | 1 | 84 | 0 | 0 | 1 | 84 | 1 | 168 | 1 | 84 | 1 | 84 |
| *Mallomonas sp.* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Dinoflagellates (Dinophyceae)** | | | | | | | | | | | | |
| *Gymnodinium* sp. 1 | 6 | 19305 | 42 | 126360 | 12 | 36855 | 5 | 1843 | 35 | 12285 | 5 | 1638 |
| *Gymnodinium* sp. 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 29250 |
| **Flagellates 5µm** | | | | | | | | | | | | |
| Flagellates < 5µm/unicells | 57 | 1986 | 56 | 1945 | 73 | 2539 | 131 | 4586 | 47 | 1638 | 63 | 2191 |

| Sample code | MW3 | MW3 | OL1 | OL1 | OL3 | OL3 | QA2 | QA2 | QA4 | QA4 | RL2 | RL2 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sampling date | 18/06/2008 | 18/06/2008 | 1/07/2008 | 1/07/2008 | 15/07/2008 | 15/07/2008 | 7/08/2008 | 7/08/2008 | 20/08/2008 | 20/08/2008 | 4/09/2008 | 4/09/2008 |
| Species composition by class | Cell (per ml) | Biovolume ($\mu m^3$) | Cell (per ml) | Biovolume ($\mu m^3$) | Cell (per ml) | Biovolume ($\mu m^3$) | Cell (per ml) | Biovolume ($\mu m^3$) | Cell (per ml) | Biovolume ($\mu m^3$) | Cell (per ml) | Biovolume ($\mu m^3$) |
| **Blue greens (Cyanophyceae)** | | | | | | | | | | | | |
| *Anabaena lemmermannii* | 1.7 | 71 | 12.2 | 500 | 9.8 | 403 | 0.8 | 32 | 0.2 | 7 | 0.9 | 37 |
| *Pseudanabaena limnetica* | 0.0 | 0 | 0.0 | 0 | 2.8 | 53 | 0.3 | 5 | 0.0 | 0 | 0.0 | 0 |
| *Chroococcus* sp. | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 |
| *Microcystis* sp. | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 |
| *c.f Rivularia* sp. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| *Aphanothece* sp. | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 |
| *Aphanizomenon* sp. | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 |
| *Leptolyngbya sp.* | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 1.4 | 16 | 0.0 | 0 |
| **Greens (Chlorophyceae)** | | | | | | | | | | | | |
| *Monoraphidium* sp. / *Ankistrodesmus falcatus* | 0.0 | 0 | 188 | 7907 | 0 | 0 | 73 | 3047 | 73 | 3071 | 130 | 5479 |
| *Stichococcus contortus* | 0.0 | 0 | 0 | 0 | 0 | 0 | 0.0 | 0 | 0 | 0 | 26 | 474 |
| *Kirchneriella contorta* | 0.0 | 0 | 0 | 0 | 0 | 0 | 0.0 | 0 | 0 | 0 | 0 | 0 |
| *Botryococcus braunii* | 0.0 | 3609 | 0 | 5774 | 0.1 | 226456 | 0.0 | 5413 | 0 | 0 | 0.0 | 17746 |
| *Chlamydomonas* sp. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| *Elakotothrix gelatinosa* | 0 | 0 | 1 | 114 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| *Eudorina elegans* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9 | 2246 | 0 | 0 |
| *Lagerheimia* sp. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 1797 |
| *Oocytsis* sp. | 0 | 0 | 6 | 914 | 0 | 0 | 5 | 665 | 7 | 997 | 0 | 0 |
| *Planktosphaeria gelatinosa* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 1412 |
| *Quadrigula lacustrus* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| *Westella botryoides* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| *Paulschulzia sp.* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Diatoms (Bacillariophyceae)** | | | | | | | | | | | | |
| *Asterionella formosa* | 22 | 6061 | 25 | 7043 | 102 | 28501 | 191 | 53399 | 79 | 22113 | 94 | 26208 |
| *Aulacoseira granulata* | 2 | 725 | 0 | 0 | 35 | 10700 | 151 | 46788 | 0 | 0 | 18 | 5622 |
| *Aulacoseira granulata* var. *angustissima* | 0 | 0 | 25 | 6388 | 0 | 0 | 0 | 0 | 57 | 14754 | 0 | 0 |
| *Cyclotella stelligera* | 1 | 94 | 4 | 562 | 1 | 94 | 1 | 187 | 12 | 1872 | 18 | 2902 |
| *Fragilaria crotonensis* | 84 | 29948 | 46 | 16545 | 30 | 10890 | 18 | 6283 | 49 | 17592 | 59 | 20943 |
| *Nitzschia* sp. | 1 | 228 | 4 | 1369 | 4 | 1597 | 1 | 456 | 0 | 0 | 2 | 684 |
| *Synedra* sp. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Small unknown diatom sp. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Desmids (Mesotaeniaceae, Desmidiaceae)** | | | | | | | | | | | | |
| *Closterium aciculare* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 1051 |
| *Closterium acutum* var. *variable* | 0 | 0 | 1 | 221 | 0 | 0 | 1 | 441 | 0 | 0 | 0 | 0 |
| **Chrysophtya (Chrysophyceae)** | | | | | | | | | | | | |
| *Dinobryon* sp. | 0 | 0 | 9 | 518 | 0 | 0 | 0 | 0 | 0 | 0 | 20 | 1208 |
| *Cryptomonas* sp. | 2 | 337 | 0 | 0 | 2 | 337 | 0 | 0 | 0 | 0 | 0 | 0 |
| *Mallomonas sp.* | 0 | 0 | 3 | 1053 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Dinoflagellates (Dinophyceae)** | | | | | | | | | | | | |
| *Gymnodinium* sp. 1 | 4 | 1229 | 0 | 0 | 6 | 2048 | 0 | 0 | 0 | 0 | 0 | 0 |
| *Gymnodinium* sp. 2 | 0 | 7313 | 0 | 0 | 1 | 14625 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Flagellates 5µm** | | | | | | | | | | | | |
| Flagellates < 5µm/unicells | 111 | 3890 | 121 | 4238 | 115 | 4013 | 87 | 3030 | 207 | 7228 | 104 | 3645 |

**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 ($\mu m^3$) | cell (per ml) | Rank | Biovolume ($\mu m^3$) | cell (per ml) | Rank | Biovolume ($\mu m^3$) | cell (per ml) | Rank | Biovolume ($\mu m^3$) | cell (per ml) |
| **Blue greens (Cyanophyceae)** | | | | | | | | | | | | | | | | | | | | | | | | |
| ***Anabaena lemmermannii*** | 5 | 5 | 5 | 5 | 9 | 5 | 9 | 9 | 3 | 4 | 5 | 4 | 6 | 303 | 10 | 8 | 450 | 15 | 5 | 1091 | 36 | 4 | 3652 | 17 |
| ***Anabaena* sp.** | | | | | | | | | | | | | | 0 | 0 | | 0 | 0 | 10 | 29 | 0 | | 0 | 0 |
| ***Aphanizomenon* sp.** | | | | | | | 8 | 8 | 7 | 7 | 9 | 9 | 10 | 5 | 0 | | 0 | 0 | | 0 | 0 | 10 | 27 | 1 |
| ***Phormidium* sp.** | | | | | | | | | 10 | 10 | 10 | | | 0 | 0 | | 0 | 0 | | 0 | 0 | | 0 | 0 |
| **Greens (Chlorophyceae)** | | | | | | | | | | | | | | | | | | | | | | | | |
| ***Ankistrodesmus falcatus/ Schroederia sp.*** | | | | | | | | | | | | | | | | | | | 9 | 120 | 5 | | 0 | 0 |
| ***Botryococcus braunii*** | 7 | 2 | 2 | 3 | 3 | 1 | 1 | 1 | 1 | 1 | 5 | 3 | 1 | 1014600 | 0 | 1 | 38448 | 1 | 8 | 438 | 0 | | 0 | 0 |
| ***Chlorosarcinopsis* sp.** | 10 | 10 | | | | | | | | | | | | | | | | | | | | | | |
| ***Elakotothrix gelatinosa*** | | | | | | | | | | | | | 6 | 342 | 4 | | 0 | 0 | | 0 | 0 | | 0 | 0 |
| ***Eudorina elegans*** | 9 | 9 | 10 | 10 | 10 | | 10 | 10 | 10 | 10 | | 10 | | 0 | 0 | | 0 | 0 | | 0 | 0 | | 0 | 0 |
| ***Kirchneriella contorta*** | | | | | | | | | | | | | | 0 | 0 | 10 | 157 | 7 | | 0 | 0 | 10 | 21 | 1 |
| ***Monoraphidium sp/ Ankistrodesmus falcatus*** | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 8 | 8 | 9 | 7 | 5 | 561 | 19 | 2 | 20456 | 259 | 2 | 5061 | 46 | 5 | 2574 | 12 |
| ***Oocytsis* sp.** | 7 | 8 | 9 | 9 | 9 | 10 | 7 | 7 | 10 | 10 | 10 | | 9 | 43 | 1 | 6 | 3210 | 11 | 4 | 1605 | 5 | 9 | 293 | 1 |
| ***Quadrigula lacustrus*** | 9 | | | | | | | | | | | | | 0 | 0 | | 0 | 0 | | 0 | 0 | | 0 | 0 |
| ***Stichococcus contortus*** | | | | | | | | | | | | | | 0 | 0 | | 0 | 0 | 7 | 534 | 4 | 6 | 1073 | 5 |
| ***Westella botryoides*** | 9 | 9 | 9 | 10 | 10 | 10 | 10 | 10 | | | | | | 0 | 0 | | 0 | 0 | | 0 | 0 | | 0 | 0 |
| **Diatoms (Bacillariophyceae)** | | | | | | | | | | | | | | | | | | | | | 0 | | | |
| ***Asterionella formosa*** | 2 | 2 | 6 | 4 | 4 | | 4 | 5 | | | | | | 0 | 0 | 6 | 3173 | 10 | 3 | 4414 | 14 | 2 | 25087 | 81 |
| ***Aulacoseira granulata*** | 3 | 1 | 1 | 1 | 2 | 9 | 6 | 2 | 2 | 2 | 1 | | | 0 | 0 | 4 | 6760 | 22 | 1 | 7863 | 25 | 2 | 29167 | 94 |
| ***Aulacoseira granulata* var. *angustissima*** | | | | | | | | | | | | 2 | 3 | 5590 | 8 | | 0 | 0 | | 0 | 0 | | 0 | 0 |
| ***Cyclotella stelligera*** | 5 | 5 | 9 | 7 | 6 | 6 | 5 | 6 | | | | | | 0 | 0 | 8 | 427 | 3 | 10 | 71 | 0 | 8 | 468 | 3 |
| ***Fragilaria crotonensis*** | 1 | 4 | 7 | | | | 6 | 7 | 6 | 6 | | 7 | 4 | 2294 | 6 | 3 | 13382 | 37 | 10 | 33 | 0 | 1 | 109152 | 107 |
| ***Gomphonema* sp.** | | | | | | | | | | | | | | | | 5 | 5559 | 14 | 5 | 1042 | 3 | 7 | 952 | 2 |
| ***Nitzschia* 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)** | | | | | | | | | | | | | | | | | | | | | | | | |
| ***Closterium acutum*** | 9 | 10 | 10 | 9 | 9 | 7 | 8 | 8 | 10 | 10 | | | | 0 | 0 | 7 | 1335 | 3 | 6 | 668 | 1 | | 0 | 0 |
| ***Closterium acutum* var. *variable*** | 10 | 10 | 10 | 9 | 8 | 8 | 8 | 8 | | | | | | 0 | 0 | | 0 | 0 | | 0 | 0 | 7 | 731 | 1 |
| ***Mougeotia* sp.** | | 10 | | | | | | | | | | | | 0 | 0 | | 0 | 0 | | 0 | 0 | | 0 | 0 |
| ***Staurastrum* sp.** | 10 | 10 | | | | 10 | | | | | 9 | 6 | | 0 | 0 | | 0 | 0 | | 0 | 0 | | 0 | 0 |
| **Chrysophytya (Chrysophyceae)** | | | | | | | | | | | | | | | | | | | | | | | | |
| ***Cryptomonas* sp.** | 10 | 10 | 10 | | | | 10 | 10 | 10 | 10 | 10 | | | 0 | 0 | 9 | 267 | 1 | 9 | 196 | 1 | 9 | 293 | 1 |
| ***Dinobryon* sp.** | 9 | 3 | 3 | 2 | 1 | 2 | 6 | 8 | 3 | 5 | 2 | 1 | 7 | 256 | 1 | | 0 | 0 | | 0 | 0 | | 0 | 0 |
| **Dinoflagellates (Dinophyceae)** | | | | | | | | | | | | | | | | | | | | | | | | |
| ***Ceratium hirundinella*** | | 10 | 10 | 10 | 10 | | 4 | 1 | 3 | | | | | 0 | 0 | | 0 | 0 | | 0 | 0 | | 0 | 0 |
| ***Gymnodinium* sp.** | 5 | 7 | 4 | 3 | 5 | 7 | 3 | 3 | 4 | 6 | 4 | | 2 | 11748 | 1 | | 0 | 0 | | 0 | 0 | | 0 | 0 |
| ***Gymnodinium* 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$^3$) 2009-2010

**From Site A (Mid Lake) 19/10/2009**

| Sample code<br>Depth | OT1<br>Surface<br>Cell<br>(per ml) | OT2<br>10m<br>Cell<br>(per ml) | OT3<br>20m<br>Cell<br>(per ml) | OT6<br>50m<br>Cell<br>(per ml) | OT8<br>70m<br>Cell<br>(per ml) | OT11<br>100m<br>Cell<br>(per ml) | OT16<br>150m<br>Cell<br>(per ml) | OT1<br>Surface<br>Biovolume<br>(µm$^3$) | OT2<br>10m<br>Biovolume<br>(µm$^3$) | OT3<br>20m<br>Biovolume<br>(µm$^3$) | OT6<br>50m<br>Biovolume<br>(µm$^3$) | OT8<br>70m<br>Biovolume<br>(µm$^3$) | OT11<br>100m<br>Biovolume<br>(µm$^3$) | OT16<br>150m<br>Biovolume<br>(µm$^3$) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Blue greens (Cyanophyceae)** | | | | | | | | | | | | | | |
| ***Dolichospermum c.f. lemmermannii (formally; Anabaena c.f. lemmermannii)*** | 27.4 | 6.8 | 1.1 | 0.4 | 0.0 | 0.0 | 0.1 | 2470 | 610 | 99 | 40 | 0 | 0 | 9 |
| ***Chroococcus* sp.** | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |
| ***Microcystis* sp.** | 0.0 | 0.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0 | 19 | 0 | 0 | 0 | 0 | 0 |
| ***Dictyosphaerium sp.*** | 18.0 | 31.6 | 31.3 | 7.4 | 2.7 | 0.4 | 0.0 | 451 | 789 | 782 | 186 | 67 | 11 | 0 |
| ***Phormidium* sp.** | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| ***Pseudanabaena* sp.** | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 0.0 | 0.0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 |
| **Greens (Chlorophyceae)** | | | | | | | | | | | | | | |
| ***Monoraphidium* sp. / *Ankistrodesmus falcatus*** | 2 | 4 | 0 | 0 | 12 | 0 | 0 | 68 | 147 | 0 | 0 | 491 | 0 | 0 |
| ***Botryococcus braunii (colonies)*** | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 | 30946 | 0 | 950 | 0 | 0 | 0 | 1900 |
| ***Crucigeniella* sp** | 4 | 8 | 0 | 0 | 0 | 2 | 0 | 281 | 494 | 0 | 0 | 0 | 152 | 0 |
| ***Dictyosphaerium sp.*** | 0 | 0 | 0 | 0 | 0 | 0 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 658 |
| ***Eudorina elegans*** | 0 | 0 | 0 | 11 | 0 | 0 | 0 | 0 | 0 | 0 | 2696 | 0 | 0 | 0 |
| ***Nephrocytium agardhianum*** | 0 | 11 | 5 | 0 | 0 | 0 | 0 | 0 | 790 | 351 | 0 | 0 | 0 | 0 |
| ***Oocytsis* sp.** | 0 | 7 | 5 | 0 | 2 | 2 | 0 | 0 | 997 | 665 | 0 | 332 | 332 | 0 |
| ***Westella botryoides*** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| ***Paulschulzia sp.*** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Diatoms (Bacillariophyceae)** | | | | | | | | | | | | | | |
| ***Asterionella formosa*** | 128 | 218 | 97 | 78 | 26 | 4 | 43 | 35749 | 60934 | 27191 | 21785 | 7207 | 983 | 12121 |
| ***Aulacoseira granulata* var. *angustissima*** | 17 | 49 | 43 | 21 | 65 | 40 | 36 | 4360 | 12624 | 11103 | 5476 | 16883 | 10343 | 9278 |
| ***Cyclotella stelligera*** | 4 | 5 | 1 | 2 | 11 | 15 | 18 | 692 | 842 | 187 | 374 | 1778 | 2340 | 2808 |
| ***Fragilaria crotonensis*** | 267 | 467 | 352 | 153 | 76 | 32 | 47 | 95677 | 167335 | 126077 | 54871 | 27226 | 11519 | 16754 |
| ***Nitzschia* sp.** | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 422 | 0 | 228 | 0 | 0 | 0 | 0 |
| ***Synedra* sp.** | 1 | 2 | 0 | 0 | 0 | 0 | 2 | 213 | 922 | 0 | 0 | 0 | 0 | 691 |
| **Desmids (Mesotaeniaceae, Desmidiaceae)** | | | | | | | | | | | | | | |
| ***Closterium aciculare*** | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 350 | 350 | 0 | 0 | 0 | 0 |
| ***Closterium acutum* var. *variable*** | 2 | 1 | 0 | 1 | 2 | 1 | 1 | 612 | 441 | 0 | 441 | 662 | 221 | 441 |
| **Chrysophtya (Chrysophyceae)** | | | | | | | | | | | | | | |
| ***Dinobryon* sp.** | 23 | 70 | 140 | 89 | 3 | 0 | 0 | 1373 | 4142 | 8284 | 5246 | 173 | 0 | 0 |
| ***Cryptomonas* sp.** | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 84 | 168 | 0 | 0 |
| **Dinoflagellates (Dinophyceae)** | | | | | | | | | | | | | | |
| ***Gymnodinium* sp. 1** | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 595 | 0 | 0 | 0 | 0 | 0 | 0 |
| ***Gymnodinium* sp. 2** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2925 | 2925 | 0 | 0 | 0 |
| ***Peridinium* sp.** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1170 | 0 | 0 | 0 |
| ***Gonyaulax* sp.** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Flagellates 5µm** | | | | | | | | | | | | | | |
| **Flagellates < 5µm/unicells** | 144 | 294 | 211 | 172 | 159 | 79 | 102 | 5037 | 10299 | 7371 | 6020 | 5569 | 2764 | 3583 |

## Lake Taupo phytoplankton species composition and biovolume ($\mu m^3$) 2009-2010

**From Site A (Mid Lake) 7/04/2010**

| Sample code / Depth | YZ1 Surface Cell (per ml) | YZ2 10m Cell (per ml) | YZ3 20m Cell (per ml) | YZ6 50m Cell (per ml) | YZ11 100m Cell (per ml) | YZ16 150m Cell (per ml) | YZ1 Surface Biovolume ($\mu m^3$) | YZ2 10m Biovolume ($\mu m^3$) | YZ3 20m Biovolume ($\mu m^3$) | YZ6 50m Biovolume ($\mu m^3$) | YZ11 100m Biovolume ($\mu m^3$) | YZ16 150m Biovolume ($\mu m^3$) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Blue greens (Cyanophyceae)** | | | | | | | | | | | | |
| ***Anabaena c.f. lemmermannii*** | 10.2 | 27.6 | 15.4 | 5.3 | 0.3 | 0.6 | 921 | 2482 | 1390 | 475 | 27 | 53 |
| ***Dolichospermum planctonicum*** (formerly; ***Anabaena planktonica)*** | 0.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 242 | 0 | 0 | 0 | 0 | 0 |
| ***Aphanocapsa* sp.** | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 | 0.0 | 0 | 0 | 0 | 0 | 4 | 0 |
| ***cf Heteroleibleinia* sp.** | 0.0 | 0.0 | 0.3 | 0.0 | 0.0 | 0.0 | 0 | 0 | 5 | 0 | 0 | 0 |
| ***Phormidium* sp.** | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 | 0 | 0 | 0 | 0 | 0 | 8 |
| ***Pseudanabaena* sp.** | 0.0 | 0.0 | 0.0 | 0.0 | 2.3 | 0.3 | 0 | 0 | 0 | 0 | 44 | 6 |
| **Greens (Chlorophyceae)** | | | | | | | | | | | | |
| ***Monoraphidium* sp. / *Ankistrodesmus falcatus*** | 0 | 0 | 0 | 111 | 0 | 0 | 0 | 0 | 0 | 4643 | 0 | 0 |
| ***Botryococcus braunii (colonies)*** | 0.0 | 0 | 0 | 0 | 0 | 0 | 1200 | 76 | 6621 | 0 | 76 | 76 |
| ***Elakotothrix gelatinosa*** | 1 | 0 | 0 | 0 | 0 | 0 | 157 | 0 | 0 | 0 | 0 | 0 |
| ***Eudorina elegans*** | 0 | 0 | 4 | 0 | 0 | 0 | 96 | 0 | 930 | 0 | 0 | 0 |
| ***Nephrocytium agardhianum*** | 10 | 2 | 2 | 2 | 0 | 0 | | 182 | 0 | 0 | 0 | 0 |
| ***Nephrocytium lunatum*** | 0 | 5 | 0 | 0 | 0 | 0 | 784 | 387 | 121 | 121 | 0 | 0 |
| ***Oocytsis* sp.** | 16 | 28 | 12 | 23 | 2 | 15 | 2225 | 4010 | 1719 | 3208 | 344 | 2177 |
| ***Quadrigula lacustrus*** | 1 | 0 | 0 | 0 | 0 | 0 | 245 | 0 | 0 | 0 | 0 | 0 |
| ***Scenedesmus* sp.** | 0 | 2 | 0 | 3 | 0 | 0 | 0 | 84 | 0 | 168 | 0 | 0 |
| **Diatoms (Bacillariophyceae)** | | | | | | | | | | | | |
| ***Asterionella formosa*** | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 226 | 0 |
| ***Aulacoseira granulata*** | 0 | 0 | 0 | 0 | 0 | 8 | 116 | 0 | 0 | 0 | 0 | 2626 |
| ***Aulacoseira granulata* var. *angustissima*** | 0 | 0 | 0 | 1 | 5 | 0 | 0 | 0 | 0 | 210 | 1259 | 0 |
| ***Cocconeis*** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 211 | 0 | 0 | 0 |
| ***Cyclotella stelligera*** | 4 | 0 | 0 | 2 | 0 | 1 | 716 | 0 | 0 | 323 | 0 | 194 |
| ***Fragilaria crotonensis*** | 0 | 23 | 7 | 8 | 2 | 1 | 134 | 8088 | 2600 | 2744 | 578 | 433 |
| ***Nitzschia* sp.** | 2 | 4 | 4 | 0 | 1 | 0 | 873 | 1416 | 1416 | 0 | 315 | 0 |
| ***Eunotia* sp.** | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Desmids (Mesotaeniaceae, Desmidiaceae)** | | | | | | | | | | | | |
| ***Closterium acutum* var. *variable*** | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 304 | 456 | 152 |
| ***Staurastrum* sp.** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| **Chrysophtya (Chrysophyceae)** | | | | | | | | | | | | |
| ***Dinobryon* sp.** | 42 | 13 | 61 | 6 | 0 | 0 | 2487 | 738 | 3618 | 381 | 0 | 0 |
| ***Cryptomonas* sp.** | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 58 | 232 | 0 | 0 |
| **Dinoflagellates (Dinophyceae)** | | | | | | | | | | | | |
| ***Ceratium hirundinella*** | 0 | 0 | 2 | 4 | 0 | 0 | 126 | 147 | 246 | 369 | 0 | 0 |
| ***Gymnodinium* sp. 1** | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 888 | 0 | 0 | 444 | 0 |
| ***Gymnodinium* sp. 2** | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 20172 | 0 | 0 | 0 | 0 |
| ***Gonyaulax* sp.** | 6 | 5 | 3 | 0 | 0 | 0 | 12686 | 10490 | 5648 | 0 | 0 | 0 |
| **Flagellates 5µm** | | | | | | | | | | | | |
| **Flagellates < 5µm/unicells** | 47 | 59 | 56 | 40 | 11 | 19 | 1658 | 2062 | 1949 | 1384 | 395 | 650 |

## Lake Taupo phytoplankton species composition and biovolume ($\mu m^3$) 2008-2009

**From Site A (Mid Lake) 15/04/2009**

| Sample code / Depth | SZ1 Surface Cell (per ml) | SZ2 10m Cell (per ml) | SZ3 20m Cell (per ml) | SZ6 50m Cell (per ml) | SZ11 100m Cell (per ml) | SZ16 150m Cell (per ml) | SZ1 Surface Biovolume ($\mu m^3$) | SZ2 10m Biovolume ($\mu m^3$) | SZ3 20m Biovolume ($\mu m^3$) | SZ6 50m Biovolume ($\mu m^3$) | SZ11 100m Biovolume ($\mu m^3$) | SZ16 150m Biovolume ($\mu m^3$) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Species composition by class** | | | | | | | | | | | | |
| **Blue greens (Cyanophyceae)** | | | | | | | | | | | | |
| ***Dolichospermum c.f. lemmermannii (formally; Anabaena c.f. lemmermannii)*** | 0.0 | 1.3 | 0.0 | 0.8 | 0.0 | 0.0 | 0 | 51 | 0 | 31 | 0 | 0 |
| ***Aphanothece sp.*** | 0.0 | 0.0 | 0.0 | 0.0 | 7.3 | 0.0 | 0 | 0 | 0 | 0 | 66 | 0 |
| ***Pseudanabaena sp.*** | 0.0 | 0 | 0.0 | 0.0 | 22.2 | 5.3 | 0 | 0 | 0 | 0 | 422 | 100 |
| **Greens (Chlorophyceae)** | | | | | | | | | | | | |
| ***Monoraphidium sp. / Ankistrodesmus falcatus*** | 68 | 71 | 0.5 | 55 | 13 | 6 | 2875 | 2998 | 22 | 2318 | 545 | 273 |
| ***Stichococcus contortus*** | 0 | 0 | 0.0 | 0 | 17 | 15 | 0 | 0 | 0 | 0 | 302 | 263 |
| ***Kirchneriella contorta*** | 0 | 0 | 0.0 | 1 | 0 | 0 | 0 | 0 | 0 | 36 | 0 | 0 |
| ***Botryococcus braunii (colonies)*** | 0.0 | 0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 | 21653 | 16240 | 76507.95 | 0 |
| ***Elakotothrix gelatinosa*** | 5 | 10 | 2 | 2 | 0 | 0 | 491 | 1044 | 227 | 227 | 0 | 0 |
| ***Nephrocytium agardhianum*** | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| ***Oocytsis sp.*** | 6 | 1 | 4 | 1 | 4 | 1 | 831 | 166 | 581 | 166 | 498 | 166 |
| ***Quadrigula lacustrus*** | 2 | 0 | 0 | 0 | 0 | 0 | 384 | 0 | 0 | 0 | 0 | 0 |
| **Diatoms (Bacillariophyceae)** | | | | | | | | | | | | |
| ***Asterionella formosa*** | 94 | 71 | 102 | 71 | 6 | 2 | 26372 | 19820 | 28501 | 19984 | 1802 | 655 |
| ***Aulacoseira granulata*** | 0 | 0 | 0 | 1 | 3 | 1 | 0 | 0 | 0 | 363 | 907 | 363 |
| ***Aulacoseira granulata var. angustissima*** | 1 | 22 | 8 | 8 | 0 | 0 | 304 | 5628 | 2129 | 1977 | 0 | 0 |
| ***Cyclotella stelligera*** | 5 | 4 | 11 | 4 | 2 | 2 | 842 | 562 | 1685 | 562 | 374 | 281 |
| ***Fragilaria crotonensis*** | 151 | 42 | 9 | 183 | 15 | 7 | 54033 | 14870 | 3141 | 65552 | 5236 | 2513 |
| ***Synedra sp.*** | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| ***Eunotia sp.*** | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Desmids (Mesotaeniaceae, Desmidiaceae)** | | | | | | | | | | | | |
| ***Closterium aciculare*** | 1 | 1 | 0 | 1 | 0 | 0 | 701 | 701 | 0 | 701 | 0 | 0 |
| ***Closterium acutum var. variable*** | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 221 | 0 | 221 | 221 |
| **Chrysophtya (Chrysophyceae)** | | | | | | | | | | | | |
| ***Dinobryon sp.*** | 1 | 0 | 32 | 3 | 0 | 0 | 69 | 0 | 1898 | 173 | 0 | 0 |
| ***Cryptomonas sp.*** | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 84 | 0 | 84 | 0 | 0 |
| **Dinoflagellates (Dinophyceae)** | | | | | | | | | | | | |
| ***Gymnodinium sp. 2*** | 1 | 0 | 1 | 0 | 0 | 0 | 14625 | 0 | 14625 | 0 | 0 | 0 |
| **Flagellates 5µm** | | | | | | | | | | | | |
| **Flagellates < 5µm/unicells** | 132 | 201 | 111 | 140 | 24 | 13 | 4607 | 7023 | 3870 | 4914 | 839 | 450 |

## Lake Taupo phytoplankton species composition and biovolume ($\mu m^3$) 2008-2009

**From Site A (Mid Lake) 14/10/2008**

| Sample code<br>Depth | EU1<br>Surface<br>Cell<br>(per ml) | EU2<br>10m<br>Cell<br>(per ml) | EU6<br>50m<br>Cell<br>(per ml) | EU8<br>70m<br>Cell<br>(per ml) | EU11<br>100m<br>Cell<br>(per ml) | EU16<br>150m<br>Cell<br>(per ml) | EU1<br>Surface<br>Biovolume<br>($\mu m^3$) | EU2<br>10m<br>Biovolume<br>($\mu m^3$) | EU6<br>50m<br>Biovolume<br>($\mu m^3$) | EU8<br>70m<br>Biovolume<br>($\mu m^3$) | EU11<br>100m<br>Biovolume<br>($\mu m^3$) | EU16<br>150m<br>Biovolume<br>($\mu m^3$) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Species composition by class** | | | | | | | | | | | | |
| **Blue greens (Cyanophyceae)** | | | | | | | | | | | | |
| *Dolichospermum c.f. lemmermannii (formally; Anabaena c.f. lemmermannii)* | 1.2 | 8.5 | 1.6 | 0.0 | 0.0 | 0.0 | 104 | 767 | 143 | 4 | 0 | 0 |
| *Dolichospermum sp. (formally; Anabaena* sp.) | 0.5 | 0.9 | 0.0 | 0.0 | 0.0 | 0.0 | 49 | 83 | 0 | 0 | 0 | 0 |
| *Pseudanabaena sp.* | 0.0 | 0.0 | 0.0 | 1.7 | 0.3 | 0.6 | 0 | 0 | 0 | 33 | 5 | 11 |
| **Greens (Chlorophyceae)** | | | | | | | | | | | | |
| *Monoraphidium sp. / Ankistrodesmus falcatus* | 0 | 0 | 54 | 2 | 19 | 2 | 0 | 0 | 2260 | 66 | 786 | 82 |
| *Botryococcus braunii (colonies)* | 0.0 | 1 | 0 | 0 | 1 | 0 | 123784 | 1111500 | 370500 | 0 | 741000 | 0 |
| *Crucigeniella sp* | 52 | 53 | 5 | 3 | 0 | 0 | 3399 | 3448 | 304 | 203 | 0 | 0 |
| *Elakotothrix gelatinosa* | 1 | 0 | 0 | 0 | 0 | 0 | 76 | 0 | 0 | 0 | 0 | 0 |
| *Eudorina elegans* | 0 | 11 | 2 | 0 | 0 | 0 | 0 | 2796 | 599 | 0 | 0 | 0 |
| *Oocytsis sp.* | 3 | 0 | 2 | 0 | 1 | 0 | 410 | 0 | 222 | 0 | 111 | 0 |
| *Westella botryoides* | 0 | 5 | 3 | 2 | 0 | 0 | 0 | 304 | 203 | 152 | 0 | 0 |
| *Paulschulzia sp.* | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Diatoms (Bacillariophyceae)** | | | | | | | | | | | | |
| *Asterionella formosa* | 3 | 6 | 4 | 4 | 1 | 1 | 707 | 1638 | 1201 | 1092 | 218 | 218 |
| *Aulacoseira granulata* | 0 | 2 | 4 | 9 | 5 | 1 | 0 | 605 | 1209 | 2660 | 1693 | 242 |
| *Aulacoseira granulata var. angustissima* | 0 | 2 | 6 | 0 | 0 | 2 | 0 | 507 | 1622 | 0 | 0 | 406 |
| *Cyclotella stelligera* | 1 | 1 | 4 | 1 | 0 | 0 | 115 | 187 | 686 | 125 | 62 | 62 |
| *Fragilaria crotonensis* | 6 | 10 | 0 | 0 | 0 | 1 | 2066 | 3630 | 0 | 0 | 0 | 419 |
| *Nitzschia sp.* | 0 | 0 | 0 | 0 | 0 | 0 | 70 | 152 | 0 | 0 | 0 | 152 |
| **Desmids (Mesotaeniaceae, Desmidiaceae)** | | | | | | | | | | | | |
| *Closterium aciculare* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 117 | 0 | 0 | 0 |
| *Closterium acutum var. variable* | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 147 | 735 | 0 | 0 |
| **Chrysophtya (Chrysophyceae)** | | | | | | | | | | | | |
| *Dinobryon sp.* | 7 | 2 | 0 | 0 | 0 | 0 | 426 | 138 | 0 | 0 | 0 | 0 |
| *Cryptomonas sp.* | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 168 | 0 | 0 | 0 |
| **Dinoflagellates (Dinophyceae)** | | | | | | | | | | | | |
| *Gymnodinium sp. 1* | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 2145 | 0 | 0 | 0 | 0 |
| *Gymnodinium sp. 2* | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 19500 | 0 | 0 | 0 | 0 |
| *Gonyaulax sp.* | 1 | 1 | 0 | 0 | 0 | 0 | 2164 | 1560 | 0 | 0 | 0 | 0 |
| **Flagellates 5µm** | | | | | | | | | | | | |
| **Flagellates < 5µm/unicells** | 34 | 46 | 27 | 22 | 10 | 9 | 1174 | 1611 | 956 | 778 | 355 | 300 |

**Lake Taupo phytoplankton species composition and biovolume (µm$^3$) 2007-2008**
**From Site A (Mid Lake) 30/10/2007**

| Sample code | ZA1 | ZA2 | ZA3 | ZA6 | ZA8 | ZA11 | ZA16 | ZA1 | ZA2 | ZA3 | ZA6 | ZA8 | ZA11 | ZA16 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Depth | Surface | 10m | 20m | 50m | 70m | 100m | 150m | Surface | 10m | 20m | 50m | 70m | 100m | 150m |
| Species composition by class | cell (per ml) | cell (per ml) | cell (per ml) | cell (per ml) | cell (per ml) | cell (per ml) | cell (per ml) | Biovolume (µm$^3$) | Biovolume (µm$^3$) | Biovolume (µm$^3$) | Biovolume (µm$^3$) | Biovolume (µm$^3$) | Biovolume (µm$^3$) | Biovolume (µm$^3$) |
| **Blue greens (Cyanophyceae)** | | | | | | | | | | | | | | |
| ***Anabaena lemmermannii*** | 18.7 | 22.0 | 2.9 | 0.4 | 0.0 | 0.0 | 1.6 | 1683 | 1976 | 257 | 33 | 0 | 0 | 140 |
| *Chroococcus* sp. | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| *Aphanocapsa* sp. | 0.0 | 0.0 | 0.0 | 6.9 | 0.0 | 5.8 | 6.6 | 0 | 0 | 0 | 62 | 0 | 52 | 59 |
| *Planktolyngbya* sp. | 21.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 192 | 0 | 0 | 0 | 0 | 0 | 0 |
| *Pseudanabaena* sp. | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.9 | 0.3 | 0 | 0 | 0 | 0 | 0 | 94 | 6 |
| **Greens (Chlorophyceae)** | | | | | | | | | | | | | | |
| *Monoraphidium* sp. / *Ankistrodesmus falcatus* | 52 | 21 | 29 | 15 | 6 | 0 | 0 | 2187 | 885 | 1229 | 614 | 270 | 0 | 0 |
| *Stichococcus contortus* | 39 | 6 | 13 | 15 | 6 | 2 | 4 | 706 | 116 | 242 | 274 | 116 | 42 | 63 |
| *Botryococcus braunii (colonies)* | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 235139 | 0 | 804 | 0 |
| *Eudorina elegans* | 13 | 3 | 7 | 0 | 0 | 0 | 0 | 3295 | 749 | 1797 | 0 | 0 | 0 | 0 |
| *Crucigeniella* sp. | 0 | 2 | 8 | 5 | 5 | 0 | 0 | 0 | 152 | 532 | 304 | 304 | 0 | 0 |
| *Nephrocytium agardhianum* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| *Oocytsis* sp. | 9 | 4 | 0 | 1 | 0 | 9 | 1 | 1246 | 498 | 0 | 166 | 0 | 1246 | 166 |
| **Diatoms (Bacillariophyceae)** | | | | | | | | | | | | | | |
| *Asterionella formosa* | 33 | 73 | 102 | 62 | 34 | 4 | 14 | 9173 | 20311 | 28665 | 17363 | 9500 | 983 | 3931 |
| *Aulacoseira granulata* | 15 | 37 | 91 | 25 | 9 | 25 | 13 | 4715 | 11606 | 28109 | 7617 | 2902 | 7617 | 4171 |
| *Aulacoseira granulata var. angustissima* | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 761 | 0 |
| *Cyclotella stelligera* | 6 | 8 | 22 | 9 | 5 | 9 | 10 | 1030 | 1217 | 3557 | 1404 | 842 | 1404 | 1591 |
| *Fragilaria crotonensis* | 11 | 14 | 22 | 7 | 7 | 20 | 2 | 3770 | 5026 | 7958 | 2513 | 2513 | 7330 | 838 |
| *Nitzschia sp.* | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 228 | 0 |
| **Desmids (Mesotaeniaceae, Desmidiaceae)** | | | | | | | | | | | | | | |
| *Closterium aciculare* | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 701 | 350 | 0 | 526 | 526 | 350 | 350 |
| *Closterium acutum* var. *variable* | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 221 | 265 | 0 | 44 | 0 | 0 | 0 |
| **Chrysophtya (Chrysophyceae)** | | | | | | | | | | | | | | |
| *Dinobryon* sp. | 275 | 182 | 227 | 135 | 108 | 1 | 0 | 16222 | 10734 | 13392 | 7938 | 6351 | 69 | 0 |
| *Cryptomonas* sp. | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 168 | 168 | 0 | 0 | 0 |
| **Dinoflagellates (Dinophyceae)** | | | | | | | | | | | | | | |
| *Gymnodinium* sp. 1 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 3510 | 3510 | 1755 | 1755 | 0 | 0 |
| *Gymnodinium* sp. 2 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 14044 | 26750 | 1463 | 0 | 0 | 0 |
| **Flagellates 5µm** | | | | | | | | | | | | | | |
| Flagellates < 5µm/unicells | 139 | 404 | 406 | 243 | 144 | 25 | 13 | 4853 | 14148 | 14210 | 8497 | 5037 | 860 | 450 |

**Lake Taupo phytoplankton species composition and biovolume (µm$^3$) 2007-2008**
**From Site A (Mid Lake) 17/04/2008**

| Sample code | KA1 | KA2 | KA3 | KA6 | KA11 | KA16 | KA1 | KA2 | KA3 | KA6 | KA11 | KA16 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Depth | Surface | 10m | 20m | 50m | 100m | 150m | Surface | 10m | 20m | 50m | 100m | 150m |
| **Species composition by class** | cell (per ml) | cell (per ml) | cell (per ml) | cell (per ml) | cell (per ml) | cell (per ml) | Biovolume (µm$^3$) | Biovolume (µm$^3$) | Biovolume (µm$^3$) | Biovolume (µm$^3$) | Biovolume (µm$^3$) | Biovolume (µm$^3$) |
| **Blue greens (Cyanophyceae)** | | | | | | | | | | | | |
| ***Anabaena lemmermannii*** | 44.8 | 46.9 | 24.3 | 0.0 | 6.5 | 1.4 | 4031 | 4220 | 2183 | 0 | 584 | 16 |
| *Pseudanabaena* sp. | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 17.4 | 0 | 0 | 0 | 0 | 0 | 331 |
| **Greens (Chlorophyceae)** | | | | | | | | | | | | |
| *Monoraphidium* sp. / *Ankistrodesmus falcatus* | 14 | 3 | 8 | 8 | 0 | 1 | 590 | 123 | 344 | 344 | 0 | 49 |
| ***Stichococcus contortus*** | 6 | 26 | 6 | 0 | 0 | 0 | 116 | 463 | 116 | 0 | 0 | 0 |
| ***Botryococcus braunii (colonies)*** | 0 | 0 | 0 | 0 | 0 | 1 | 54 | 31352 | 6431 | 26908 | 1608 | 156759 |
| ***Elakotothrix gelatinosa*** | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 154 | 123 | 0 | 123 | 0 |
| ***Eudorina elegans*** | 0 | 6 | 0 | 0 | 0 | 0 | 75 | 1498 | 75 | 0 | 0 | 0 |
| *Crucigeniella* sp. | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 76 | 0 | 0 |
| *Oocytsis* sp. | 2 | 10 | 2 | 0 | 2 | 1 | 332 | 1412 | 332 | 0 | 332 | 83 |
| ***Westella botryoides*** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 0 | 0 |
| **Diatoms (Bacillariophyceae)** | | | | | | | | | | | | |
| ***Asterionella formosa*** | 12 | 23 | 32 | 12 | 3 | 4 | 3276 | 6552 | 8935 | 3276 | 819 | 983 |
| ***Aulacoseira granulata*** | 5 | 16 | 5 | 12 | 5 | 9 | 1484 | 4946 | 1484 | 3808 | 1632 | 2720 |
| ***Cyclotella stelligera*** | 2 | 6 | 2 | 5 | 1 | 1 | 340 | 936 | 340 | 749 | 94 | 94 |
| ***Fragilaria crotonensis*** | 4 | 10 | 39 | 1 | 1 | 1 | 1523 | 3427 | 14089 | 419 | 419 | 209 |
| *Nitzschia* sp. | 0 | 0 | 22 | 0 | 0 | 0 | 0 | 0 | 8442 | 0 | 0 | 0 |
| Small unknown diatom sp. | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 64 | 0 |
| **Desmids (Mesotaeniaceae, Desmidiaceae)** | | | | | | | | | | | | |
| ***Closterium aciculare*** | 0 | 1 | 0 | 0 | 1 | 0 | 105 | 701 | 105 | 0 | 350 | 4 |
| ***Closterium acutum* var. *variable*** | 0 | 1 | 2 | 2 | 0 | 0 | 0 | 221 | 662 | 662 | 0 | 22 |
| **Chrysophtya (Chrysophyceae)** | | | | | | | | | | | | |
| *Dinobryon* sp. | 64 | 164 | 101 | 0 | 0 | 0 | 3797 | 9664 | 5971 | 0 | 0 | 0 |
| *Cryptomonas* sp. | 1 | 1 | 1 | 3 | 0 | 0 | 84 | 84 | 84 | 421 | 0 | 0 |
| **Dinoflagellates (Dinophyceae)** | | | | | | | | | | | | |
| *Gymnodinium* sp. 1 | 1 | 1 | 1 | 0 | 0 | 0 | 3191 | 3191 | 3191 | 0 | 0 | 0 |
| *Gymnodinium* sp. 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 146 | 134 | 0 |
| **Flagellates 5µm** | | | | | | | | | | | | |
| Flagellates < 5µm/unicells | 46 | 126 | 196 | 37 | 7 | 3 | 1619 | 4411 | 6850 | 1290 | 246 | 102 |

**Lake Taupo phytoplankton species composition and biovolume (µm3) 2006-2007**
**From Site A (Mid Lake) 1/11/2006**

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

## Lake Taupo phytoplankton species composition and biovolume (µm3) 2006-2007

**From Site A (Mid Lake) 2/04/2007**

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

## 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 these data are always readily available, copies of the relevant historical data are included in this report. These data are the spring and autumn profiles of $NO_3$-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 previous appendices.

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