

A survey of the status of the lakes of the English Lake District:

The Lakes Tour 2015

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District:

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EXECUTIVE SUMMARY

1. This report presents information resulting from a survey of the limnology of the 20 major lakes and tarns in the English Lake District based on samples taken in January, April, July and October 2015. This ‘Lakes Tour’ supplements similar tours in 1984, 1991, 1995, 2000, 2005 and 2010.
2. On each sampling occasion, depth-profiles were collected of water temperature and oxygen concentration and Secchi depth was measured. An integrated water sample was analysed for pH, alkalinity, major anions and cations, heavy metals, micro-organic pollutants, plant nutrients, phytoplankton chlorophyll *a* and species composition and zooplankton abundance and species composition. Some of the field work and chemical analyses were carried out collaboratively between staff from CEH and the Environment Agency.
3. The lakes had a range in tendency to stratify in summer with the weakest stratification in large, relatively shallow and exposed lakes such as Bassenthwaite Lake. During summer stratification, oxygen-depletion at depth was only found in the more productive lakes.
4. Water clarity, assessed by Secchi disc, varied between about 12 m in clear unproductive lakes such as Wastwater in January, to 2 m in the more productive lakes during summer such as Esthwaite Water in October.
5. Major ion composition varied with geology and altitude. Lakes on the Silurian slates (those in the Windermere and Coniston Water catchments) tended to have anions dominated by alkalinity (bicarbonate) and cations dominated by calcium whereas the other lakes tended to have anions dominated by chloride and cations dominated by sodium.

6. Availability of phosphorus is the main factor that affects lake productivity. Concentrations of total phosphorus were lowest in Wastwater and Crummock Water and highest in Blelham Tarn and Elterwater. Nitrate was the dominant form of nitrogen. Nitrate concentrations tended to be lowest in July because of biological uptake and seasonal fluctuations were most marked in the productive lakes. Silica, an essential nutrient for diatoms, showed a similar seasonal pattern to nitrate but the depletion was more marked in April because the spring bloom is typically dominated by diatoms. In unproductive lakes, with low biological demand, such as Wastwater and Ennerdale Water, concentrations of silica did not vary seasonally.
7. The concentration of chlorophyll *a* was used as a measure of phytoplankton abundance. Comparisons across lakes showed low concentrations all the year in the unproductive lakes and seasonally high concentrations in the more productive lakes. Blelham Tarn had the highest annual mean concentration of chlorophyll *a* at 23 mg m⁻³, but the highest concentration recorded was 40 mg m⁻³ at Elterwater in July. The lowest annual annual mean concentration was 0.8 mg m⁻³ at Wastwater.
8. The species composition varied seasonally in all the lakes, even unproductive ones with limited seasonal changes in nutrient concentrations, underlying the sensitivity of phytoplankton to environmental conditions. Overall, diatoms dominated in January and particularly, April, but in July and October a range of different groups dominated depending on the lake. Cyanobacteria were generally more common in productive lakes.
9. Zooplankton abundance was very variable and greatest in the productive lakes and seasonally, abundance tended to be greatest in July and October. Fifteen genera of zooplankton were recorded in total. The unproductive lakes tended to be dominated by *Eudiaptomus gracilis* and this species dominated most of the lakes in January. *Daphnia*

spp. were often important in the summer in the more productive lakes. At the genus level, diversity increased in the summer and autumn. Abundance of *Ceriodaphnia*, *Diaphanosoma* and *Mesocyclops* were an important part of the zooplankton community in some lakes in summer.

10. The known status of fish populations, although not undertaken in the project, was summarised. Nineteen species have been recorded in these lakes, but of these seven are probably introduced. Some lakes have very few fish-data and require more research.
11. Heavy metals were measured for the second time. Although many samples were below the limit of detection, copper concentrations were elevated in Coniston Water, lead was elevated in Bassenthwaite Lake, Haweswater and Thirlmere and zinc was elevated in Bassenthwaite Lake, Buttermere, Crummock Water and Haweswater.
12. Micro-organic pollutants were measured for the second time and most samples were below current detection limits. Of the sixty-nine compounds analysed, five gave values above the detection limit but only three exceeded the limit more than twice. Of these, Diazinon, an organophosphorus insecticide, was detected on all four sampling occasions in Blelham Tarn, Buttermere, Crummock Water, Ullswater and the North Basin of Windermere; this merits further investigation.
13. The current state of each lake was summarised in terms of key limnological variables, trophic state and ecological status under the current definitions of the Water Framework Directive (WFD), although note that this does not conform completely to WFD guidelines and Rydal Water and Loughrigg Tarn do not fall within the WFD remit.
14. Compared to 2010 there was an increase in the number of lakes at high or good status of from 10 to 14 for total phosphorus and from 11 to 14 for chlorophyll *a*. Of these,

only Wastwater, Buttermere, and Brothers Water were at high status for both variables. Based on chlorophyll *a*, Loweswater, Loughrigg Tarn, Blelham Tarn, Esthwaite Water, Elterwater and the South Basin of Windermere were only at Moderate ecological status.

15. Long-term change from 1984 to 2015 (1991 to 2015 for some variables) were analysed. There have been changes in the concentration of major ions in many sites. This has largely been caused by reduction in sulphate deposition from acid rain, causing widespread increases in alkalinity and pH and reductions in concentration of calcium, magnesium, sodium and potassium because of reduced cation-exchange in the soil. Reducing concentrations of sodium and chloride are probably also linked to reductions in stormy weather since the mid 1990s and hence reduced input of sea-salt in rain. On average, in comparison to the 2010 Lakes Tour, there has been a reduction in concentration of TP and phytoplankton chlorophyll *a* and Secchi depth has remained stable. While the magnitude of change is small, it is encouragingly in the right direction.
16. The lakes in the English Lake District are extremely valuable scientifically as they are highly diverse. This was illustrated by showing the link between catchment elevation (as a proxy for land use and soil type) and a range of water chemistry variables and the relationship between phytoplankton chlorophyll *a* and total phosphorus which shows that the productivity of these lakes is controlled by phosphorus. The magnitude of the seasonal changes in silica and nitrate is positively linked to lake productivity. Secchi depth is negatively correlated with phytoplankton, but in January Secchi depth is less for a given chlorophyll *a* concentration, probably because of attenuation by dissolved organic carbon and particulate material brought in to the lakes by winter rains.

Minimum oxygen concentration at depth is also negatively related to phytoplankton chlorophyll *a*.

17. It is suggested that more work is needed at lakes which have failed Good ecological status in order to obtain a better understanding of the reasons for this and possible remediation actions. The fish populations in many lakes need to be studied in more detail.
18. The joint-manning of the Lakes Tour by CEH and the EA worked well again and could be a model for future work.

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1. INTRODUCTION

The lakes that form the English Lake District have been sampled by the Freshwater Biological Association and the Natural Environment Research Council research institutes the Institute of Freshwater Ecology and its successor the Centre for Ecology & Hydrology, since the late 1920s. At about this time Pearsall (1921) arranged some of these lakes in an order corresponding to trophic status, which he recognised was related to their surrounding geology and land use. The lakes range from the unproductive, e.g. Wastwater, which are situated in mountainous regions on hard volcanic rocks to the more productive e.g. Esthwaite Water, which lie on softer rocks usually situated in fertile valleys with deep alluvial soils. The English Lake District is unique, certainly in the UK, in having this wide range of lake types in such a small geographic area.

Since the 1920s a number of surveys of the English Lakes have been carried out (Pearsall, 1932; Gorham *et al.*, 1974; Jones *et al.*, 1979; Kadiri & Reynolds, 1993). Some of these data were reviewed by George (1992) and Talling (1999) summarised what is known for some of these lakes. The current form of the 'Lakes Tour' started in 1984, although not all the current determinands were measured, and has been repeated in 1991, 1995, 2000, 2005 and 2010 (Hall *et al.*, 1992, 1996; Parker *et al.*, 2001; Maberly, 2006, 2011). The scheme is of a low intensity: samples are only taken four times per year, but nevertheless provides a robust and fairly comprehensive picture of how lakes have responded to environmental pressures because of its methodological consistency.

The English Lake District is one of the most popular tourist regions in the UK because of its relatively unspoilt and dramatic landscapes, of which the lakes form an integral part. This popularity, along with an increasing local population, increased agricultural use of fertilisers,

climate change and introduction of alien species by Man's activities has put large ecological pressures on the lakes. Recent legislation originating from the European Commission, the Water Framework Directive (WFD; 2000/60/EC), places a legal duty on the Environment Agency to manage inland, estuarine and coastal water, including lakes, to prevent further deterioration and to improve their ecological quality. Quality or ecological status is determined partly by water chemistry but more by a range of ecological characteristics including the composition and abundance of phytoplankton. The data from the Lakes Tour have already been used to help determine various ecological quality boundaries for the implementation of the WFD. The Lakes Tour also serves to identify lakes that may be showing signs of deterioration and which deserve further more detailed study, and documents the recovery of lakes that have already been subject to management.

For the second time, the 2015 Tour included measurements of heavy metals and micro-organic pollutants and (although not part of this research) also summarised what is known about fish populations in the twenty lakes.

2. MATERIALS & METHODS

2.1 Sites

The location of the twenty lake basins (Windermere is treated as two basins: North and South) sampled in this work is shown in Figure 2.1 and their geographical and physical features are recorded in Table 2.1.

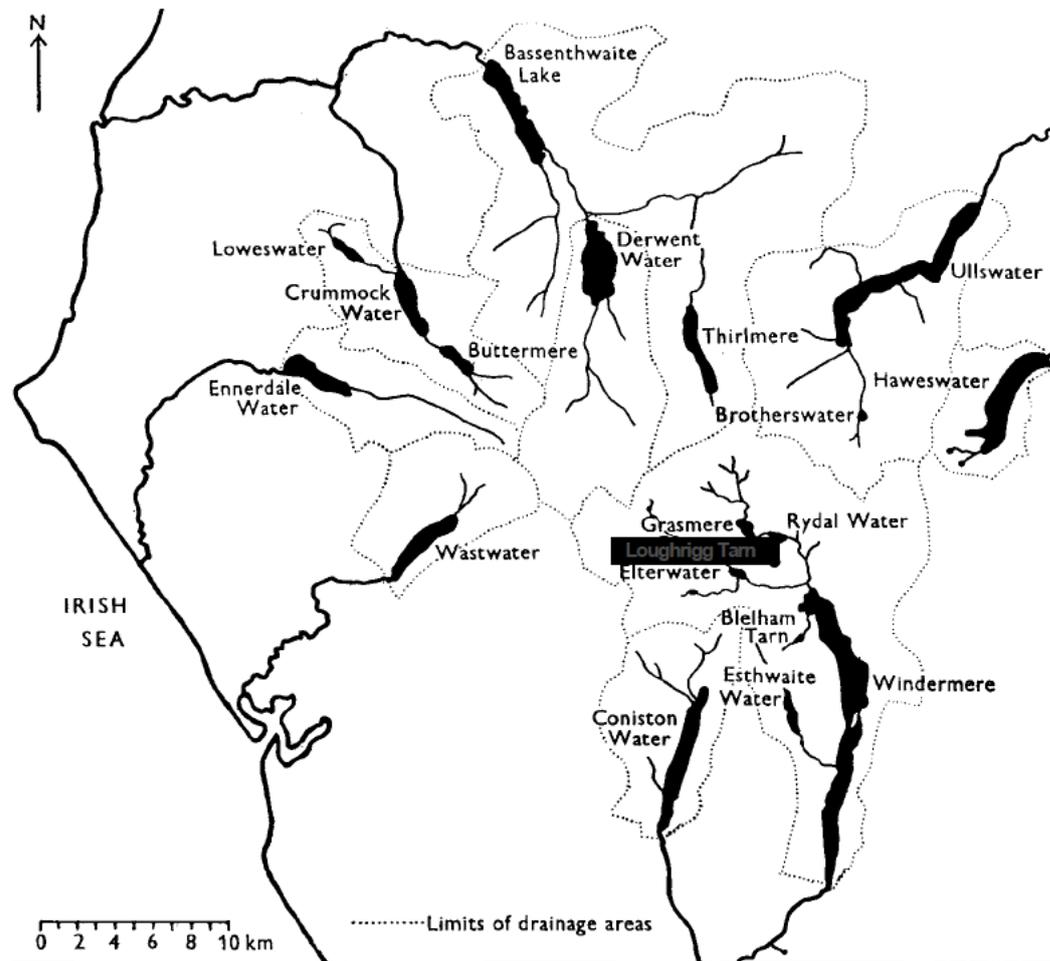


Figure 2.1. The English Lake District showing the 20 lake basins surveyed in this study (based on Knudsen, 1954).

Table 2.1. Geographical and physical characteristics of the 20 lakes basins in the Lakes Tour.

Lake	Catchment area (km ²)	Mean catchment altitude (m)	Lake altitude (m)	Lake length (km)	Max. width (km)	Area (km ²)	Volume (m ³ x 10 ⁶)	Mean depth (m)	Max. depth (m)	Approx. mean retention time (days)
Bassenthwaite Lake	360	333	69	6.2	1.10	5.3	27.9	5.3	19.0	30
Blelham Tarn	4.3	105	47	0.67	0.29	0.1	0.7	6.8	14.5	50
Brothers Water	13.2	437	161	0.60	0.40	0.2	1.5	7.2	15.0	21
Buttermere	18.7	377	101	2.0	0.54	0.9	15.2	16.6	28.6	140
Coniston Water	62.5	227	44	8.7	0.73	4.9	113.3	24.1	56.1	340
Crummock Water	62.7	327	98	4.0	0.85	2.5	66.4	26.7	43.9	200
Derwent Water	85.4	354	75	4.6	1.91	5.4	29.0	5.5	22.0	55
Elterwater	1.0	108	74	1.0	0.4	0.03	0.1	3.3	7.0	20
Ennerdale Water	43.5	374	112	3.8	1.10	3.0	53.2	17.8	42.0	200
Esthwaite Water	17.0	148	65	2.5	0.62	1.0	6.7	6.9	15.5	100
Grasmere	30.2	328	62	1.6	0.60	0.6	5.0	7.7	21.5	25
Haweswater	32.3	463	240	6.9	0.90	3.9	76.6	23.4	57.0	500
Loughrigg Tarn	0.95	175	99	0.4	0.3	0.07	0.5	6.9	10.3	117
Loweswater	8.2	243	121	1.8	0.55	0.6	5.4	8.4	16.0	150
Rydal Water	33.8	312	57	1.2	0.36	0.3	1.5	4.4	18.0	9
Thirlmere	53.8	398	179	6.0	0.78	3.3	52.5	16.1	46.0	280
Ullswater	147	393	145	11.8	1.02	8.9	223.0	25.3	63.0	350
Wastwater	42.5	385	61	4.8	0.82	2.9	115.6	40.2	76.0	350
Windermere North Basin	175	231	39	7.0	1.6	8.1	201.8	25.1	64.0	180
Windermere South Basin	250	231	39	9.8	1.0	6.7	112.7	16.8	42.0	100

2.2 Sampling

2.2.1 Location and dates

Each lake was sampled from approximately the deepest point, the location of which is shown in Table 2.2. The aim of the protocol is to collect all samples within a 2-week period, weather allowing. In 2015, the sample period was eight days in January and nine days in April, July and October (Table 2.2) so this criterion was met. The date each lake was sampled is given in Table 2.2. Overall, CEH sampled lakes on 48 occasions and the Environment Agency on 28 occasions and sampling was carried out jointly on 4 occasions.

2.2.2 Temperature and oxygen profiles in the water column

Temperature and oxygen profiles were collected by both CEH and EA and three different probes were used (detailed in Table 2.3): a Hach HQd with LD0101 probe and a Yellow Springs instrument ProODO used by CEH, and a Yellow Springs Instrument YSI6600 sonde used by the EA. The very reliable optical oxygen sensors were use on all three sondes.

2.2.3 Conductivity

Conductivity was measured in the field with a WTW Cond 197i sensor and meter for the samples analysed by CEH (see Table 2.2) and with the YSI 650 hand-held to record the data attached to the YSI WQ 6600 sonde for the samples analysed by the EA.

Table 2.2. Sampling location and dates for the Lakes Tour 2015. Sampling Teams are designated as superscripts: C= CEH, C/E = joint CEH and EA, E = EA.

Lake	Sampling location (NGR)	January	April	July	October
Bassenthwaite Lake	NY214295	22-Jan ^C	16-Apr ^C	9-Jul ^C	15-Oct ^C
Blelham Tarn	NY366006	19-Jan ^C	13-Apr ^C	6-Jul ^C	12-Oct ^C
Brothers Water	NY403127	19-Jan ^E	13-Apr ^E	6-Jul ^E	12-Oct ^E
Buttermere	NY188154	22-Jan ^E	16-Apr ^E	9-Jul ^E	15-Oct ^E
Coniston Water	SD298935	20-Jan ^E	14-Apr ^E	8-Jul ^E	14-Oct ^E
Crummock Water	NY158192	22-Jan ^E	16-Apr ^E	9-Jul ^E	15-Oct ^E
Derwent Water	NY267207	22-Jan ^C	16-Apr ^C	9-Jul ^C	15-Oct ^C
Elterwater	NY329043	15-Jan ^C	9-Apr ^C	2-Jul ^C	8-Oct ^C
Ennerdale Water	NY103153	21-Jan ^C	15-Apr ^C	8-Jul ^C	14-Oct ^C
Esthwaite Water	SD358972	20-Jan ^C	14-Apr ^C	7-Jul ^C	13-Oct ^C
Grasmere	NY340064	19-Jan ^C	13-Apr ^C	6-Jul ^C	12-Oct ^C
Haweswater	NY478139	19-Jan ^{C/E}	8-Apr ^{C/E}	1-Jul ^{C/E}	7-Oct ^{C/E}
Loughrigg Tarn	NY344044	15-Jan ^C	9-Apr ^C	2-Jul ^C	8-Oct ^C
Loweswater	NY127215	19-Jan ^E	10-Apr ^E	3-Jul ^E	9-Oct ^E
Rydal Water	NY358063	19-Jan ^C	9-Apr ^C	2-Jul ^C	8-Oct ^C
Thirlmere	NY318154	16-Jan ^C	10-Apr ^C	3-Jul ^C	9-Oct ^C
Ullswater	NY400190	20-Jan ^E	14-Apr ^E	7-Jul ^E	13-Oct ^E
Wastwater	NY160058	21-Jan ^E	9-Apr ^E	2-Jul ^E	8-Oct ^E
Windermere North Basin	NY383006	20-Jan ^C	14-Apr ^C	7-Jul ^C	13-Oct ^C
Windermere South Basin	SD382914	20-Jan ^C	14-Apr ^C	7-Jul ^C	13-Oct ^C

Table 2.3. Probes used for the temperature and oxygen profiles. H- Hach; P - YSI ProODO, Y- YSI 6600. Details of probes are given above.

Lake	January	April	July	October
Bassenthwaite Lake	H	H	H	H
Blelham Tarn	H	H	H	H
Brothers Water	Y	Y	Y	Y
Buttermere	Y	Y	Y	Y
Coniston Water	Y	Y	Y	Y
Crummock Water	Y	Y	Y	Y
Derwent Water	H	H	H	H
Elterwater	H	H	H	H
Ennerdale Water	P	P	P	P
Esthwaite Water	H	H	H	H
Grasmere	H	H	H	H
Haweswater	Y	Y	Y	P
Loughrigg Tarn	H	H	H	H
Loweswater	Y	Y	Y	Y
Rydal Water	H	H	H	H
Thirlmere	P	H	P	P
Ullswater	Y	Y	Y	Y
Wastwater	Y	Y	Y	Y
Windermere North Basin	P	P	P	P
Windermere South Basin	P	P	P	P

2.2.3 Secchi disc transparency

A metal disc was lowered into the water until it disappeared from view. The disc was then raised slightly until it reappeared and that depth was noted. Measurements carried out by CEH used a white painted metal disc, 30 cm in diameter, while measurements carried out by the EA used a 20 cm disc with black and white quadrants. Tests found reasonable agreement between these two types of disc ($R^2 = 0.89$ for eight parallel measurements).

2.2.4 Water samples

An integrated sample of surface water was taken using a weighted 5 m long plastic tube (except on the two basins of Windermere where a 7 m long tube was used). The tube was lowered until vertical in the water column, the upper end was then sealed, and the tube recovered. Replicate samples were dispensed into a previously rinsed 5 dm³ plastic bottle. After mixing thoroughly, the water was decanted into different bottles for different analyses:

a) Two disposable 500 cm³ plastic bottles, for nutrient analysis.

b) A 1 dm³ plastic bottle containing 5 cm³ of Lugols iodine for subsequent enumeration and identification of algal populations (Lund *et al.*, 1958). The iodine was added to the algal cells to preserve them and increase their rate of sedimentation during subsequent processing in the laboratory.

c) A small glass bottle with a ground glass stopper was completely filled by inserting the stopper so that no air was trapped within the bottle. This sample was used to determine the pH and alkalinity of the sample.

d) Samples analysed by the EA were collected in: i) an acid-washed 1 dm³ glass bottle (code PEST P) for general organics; ii) a 1 dm³ plastic PET bottle (code Gen) for general inorganic; iii) a 250 cm³ plastic clear PET containing 2 cm³ of 3 M formic acid (code HERBP) for Volatile Organics; iv) a 125 cm³ polypropylene (code MET) for total metals analysis and v) a 125 cm³ polypropylene (code METD) for filtered metals.

The remainder of the water sample was used for the determination of phytoplankton chlorophyll *a* concentration.

2.2.5 Nutrient and chemical analysis

Nitrate, chloride, sulphate, sodium, calcium, magnesium and potassium concentrations were determined by ion chromatography using a Metrohm ion chromatograph. Ammonia, dissolved reactive silicate, total phosphorus, soluble reactive phosphate, alkalinity and pH were determined as described in Mackereth *et al.* (1978). All analyses were carried out at CEH apart from those for metals and micro-organics which were analysed by the Environment Agency.

2.2.6 Algal pigments and populations

The concentration of algal pigments was determined using the procedure described by Talling (1974). Briefly, a known volume of water was filtered through a Whatman GF/C filter, the pigments extracted in boiling methanol and analysed spectrophotometrically.

A 300 ml sub-sample of the iodine-preserved water sample was concentrated to 5 cm³ by sedimentation. A known volume of the concentrated sample was transferred to a counting chamber and the algae were enumerated as described by Lund *et al.* (1958). Microplankton and nanoplankton were counted at x100 magnification and x400 magnification respectively. The counts were then converted to numbers per dm³.

2.2.7 Zooplankton populations

A standard zooplankton net (mesh size 250 µm, mouth diameter 0.3 m) was lowered to 2/3 the maximum depth of the water column and then hauled steadily to the surface. The contents of the net were emptied into a bottle, and immediately fixed by adding ethanol. In the laboratory the samples were concentrated by filtration and stored in labelled vials in 70% ethanol. The zooplankton were identified and enumerated under a stereozoom microscope, according to Scourfield & Harding (1966) and Gurney (1931-1933). The counts were then converted to numbers per dm³.

2.2.8 *Fish Populations*

The additional information on fish populations present in this report, were obtained from a range of sources, using different methods. These are described in the information for each lake.

3. PRESENT STATUS & LONG-TERM CHANGE

3.1 Weather during 2015

The weather during 2015 in relation to the sampling periods is illustrated using data from Ambleside (Fig. 3.1). The January survey took place during a period of relatively cold weather that followed a mild period. The April samples were taken during a period of relatively bright weather. The April samples were taken during a period of relatively bright weather. The samples in July were taken during a period of warm weather that subsequently cooled, but was otherwise typical of the time of year. The October samples were collected during a period of dry weather.

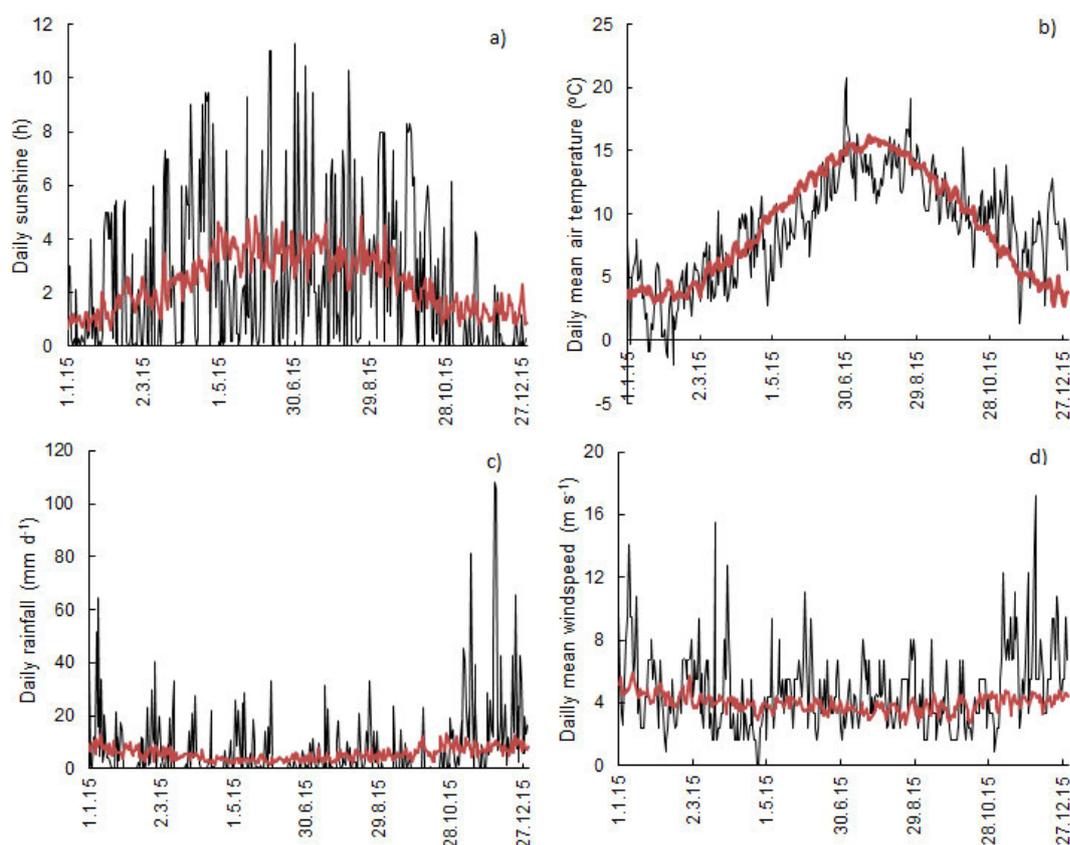


Figure 3.1. Daily mean meteorological data from Ambleside during 2015 comprising: a) daily sunshine hours; b) mean air temperature; c) daily rainfall and d) mean wind speed. The red lines show the daily average from 1984 to 2014. Data were recorded by Mr Bernard Tebay and collated by Dr Melanie Fletcher at the Freshwater Biological Association.

3.2 The limnology of the lakes in 2015

3.2.1 *Depth-profiles of temperature and oxygen concentration*

The twenty lakes showed a seasonal temperature cycle typical of temperate lakes (Fig. 3.2). All the lakes were fully mixed in January, and the mean temperature was 5.2°C. In April, surface water temperature was slightly greater than in January (mean 8.5°C), although only marginally so in lakes with a large volume, and hence large heat capacity, such as Wastwater or Ullswater, and some of the smaller lakes, such as Blelham Tarn and Elterwater had a weak stratification. All the lakes had stratified to some extent in July (Fig. 3.2). However, shallow lakes with a relatively large surface area, such as Bassenthwaite Lake (Table 2.1), tended to have a much weaker stratification than small relatively deep lakes such as Brothers Water. The variation in surface water temperature among lakes was greatest in July; Elterwater was the warmest (21.4°C) and Ullswater was the coolest (14.2°C). In October, stratification persisted, albeit weakly, in many of the lakes, but had broken down in others such as Buttermere, Loweswater and Bassenthwaite Lake. The raw temperature data are given in Appendix 1.

In a very unproductive lake the concentration of oxygen will approach 100% equilibrium at all times and depths. This is approximately the pattern in Wastwater (Fig. 3.3) where the slight reduction in concentration at the surface in summer (the orthograde oxygen distribution which is a classical feature of oligotrophic lakes) is a result of lower oxygen solubility in the warmer surface waters. An approximately uniform concentration of oxygen in stratified lakes in summer is also seen in Ennerdale Water, Haweswater and Thirlmere which are also unproductive lakes and in Bassenthwaite Lake where stratification is weak. Slight oxygen depletion at depth during stratification results from decomposition processes in the hypolimnion and sediments consuming oxygen faster than it can be replaced from the

epilimnion by mixing processes. This pattern is seen to a slight extent in lakes such as Coniston Water and Crummock Water and to a slightly greater extent in lakes such as Derwent Water and Brothers Water (Fig. 3.3). In the most productive lakes, such as Blelham Tarn or Elterwater, oxygen becomes completely depleted at depth: ie. the lower layers of the lake become anoxic (Fig. 3.3). In Blelham Tarn, slight oxygen depletion was apparent even in the April sample indicating the propensity for oxygen-depletion in a productive lake. Oxygen depletion can have severe ecological consequences as is discussed in Section 4.1 and is a symptom of extreme eutrophication. In some lakes, there is an indication of metalimnetic phytoplankton, because the oxygen profile shows a mid-lake peak, for example in Elterwater in April and July.

Table 3.1 gives the minimum concentration of oxygen recorded at depth in each lake. This usually occurred in July but in some lakes occurred in October. It should be noted that in some lakes where fortnightly data are available, such as Bassenthwaite Lake and the South Basin of Windermere, substantially greater oxygen depletion was recorded between July and October, so this coarse sampling does not necessarily capture the true extent of oxygen-depletion in a lake. The raw oxygen concentration profile data are presented in Appendix 1.

Minimum oxygen concentrations at depth are lowest in productive lakes such as Esthwaite Water and Blelham Tarn where there is a lot of degradable organic matter and highest in unproductive lakes such as Wastwater and Ennerdale Water where there is little degradable organic matter (see also Fig. 4.5).

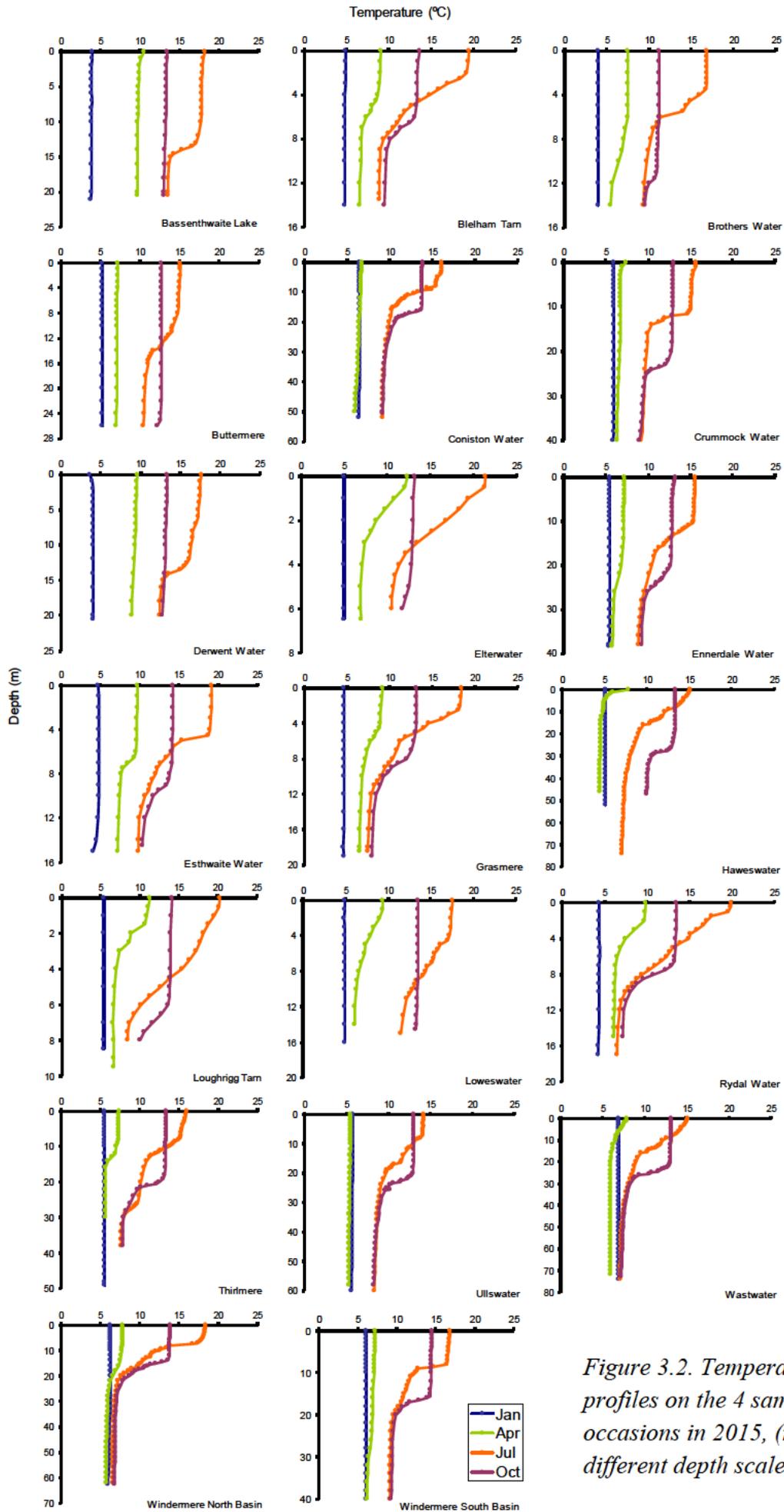


Figure 3.2. Temperature profiles on the 4 sampling occasions in 2015, (note different depth scales).

Table 3.1. Annual minimum concentrations of oxygen at depth in 2015. The annual minimum at depth was found in the July or October sample.

Lake	Minimum oxygen concentration at depth (g m ⁻³)
Bassenthwaite Lake	3.67
Blelham Tarn	0
Brothers Water	0.36
Buttermere	6.86
Coniston Water	4.46
Crummock Water	3.56
Derwent Water	3.66
Elterwater	0.04
Ennerdale Water	7.62
Esthwaite Water	0.05
Grasmere	0.07
Haweswater	5.89
Loughrigg Tarn	0.08
Loweswater	4.27
Rydal Water	0.01
Thirlmere	5.7
Ullswater	2.61
Wastwater	9.80
Windermere North Basin	5.25
Windermere South Basin	0.35

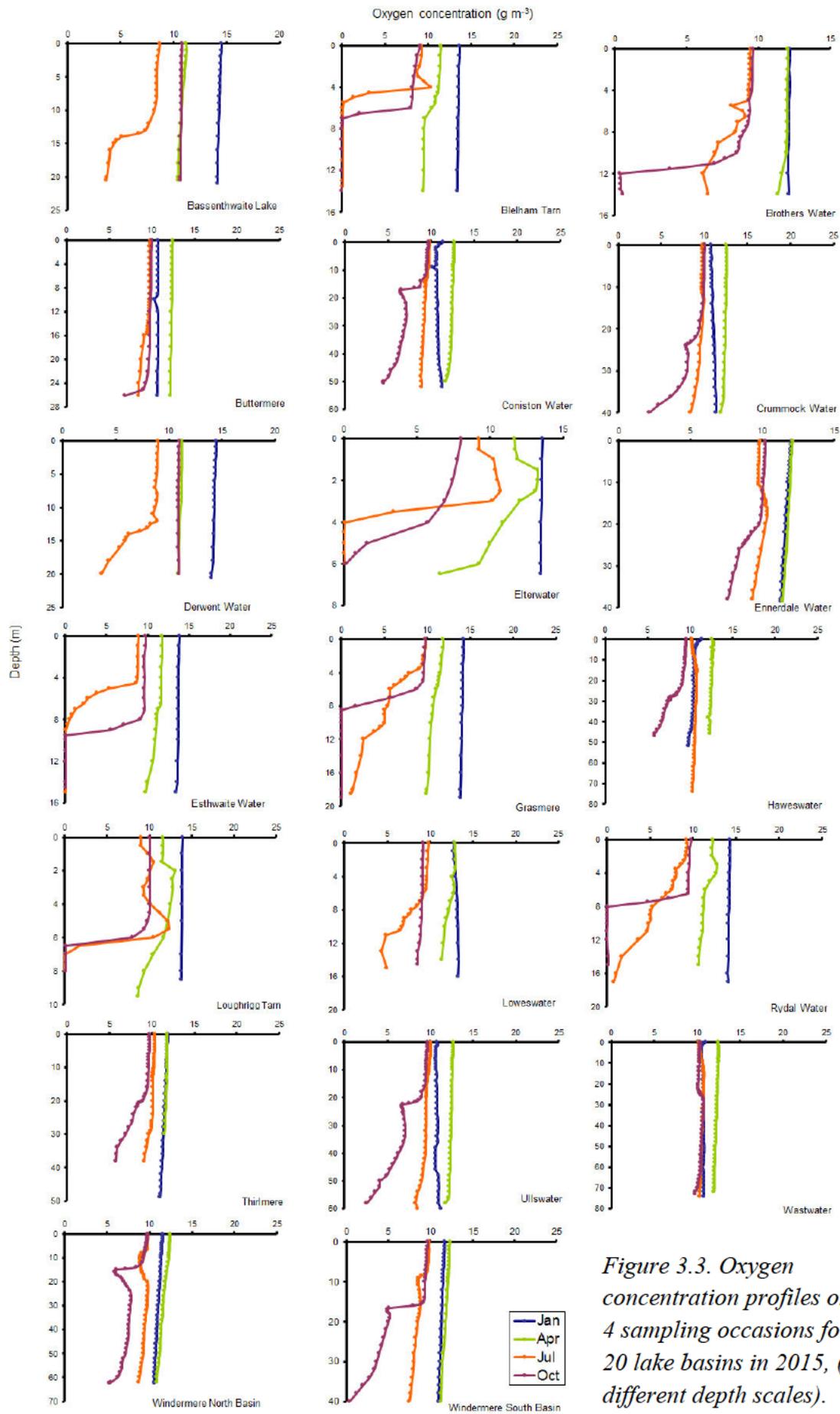


Figure 3.3. Oxygen concentration profiles on the 4 sampling occasions for the 20 lake basins in 2015, (note different depth scales).

3.2.2 Secchi disc transparency

The depth of the Secchi disc is a rough but convenient measure of water transparency. Figure 3.4 shows that in very unproductive lakes, such as Wastwater, the Secchi depth was visible down to between 6.1 and 11.9 m and in contrast, in productive and turbid lakes such as Blelham Tarn, the Secchi depth was between 1.8 and 2.5 m. Seasonal patterns of change followed phytoplankton abundance in the more productive lakes, while in the unproductive lakes there were slight seasonal variations probably resulting from the amount of particulate material brought in by winter rainfall and events within the catchment. The raw Secchi disc data are presented in Appendix 2.

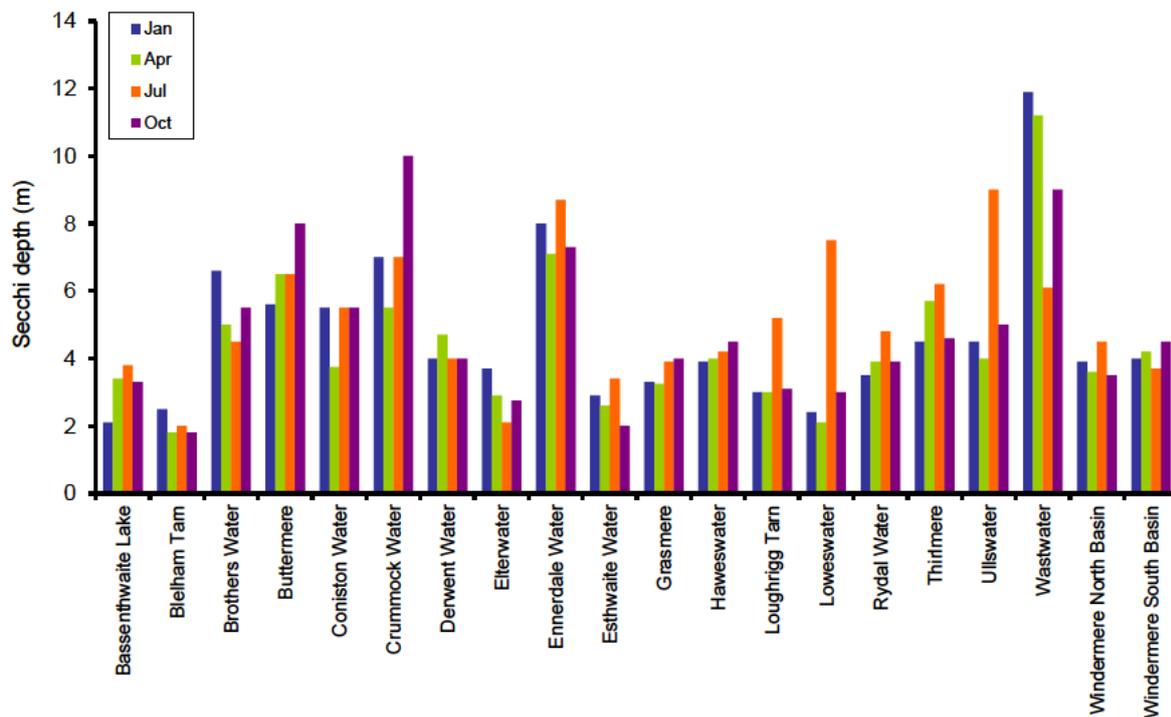


Figure 3.4. Seasonal changes in Secchi disc transparency in the 20 lake basins during 2015.

3.2.3 Major ions

The ionic composition of the major lakes and tarns of the English Lake District has been widely studied (e.g Sutcliffe *et al.* 1982, Sutcliffe 1998). Although there is seasonal variation in ionic composition of the major ions, caused partly by seasonal changes in input via precipitation and partly by differential dilution resulting from evapo-transpiration, ionic composition is relatively conservative and presented here as an annual mean. The raw seasonal data are given in Appendix 3. The underlying geology (Fig. 3.5) has a large effect on the composition of the lake water, so the annual mean data are shown in Figure 3.6 ordered by the main underlying geological rock type and by altitude within each category following Sutcliffe (1998).

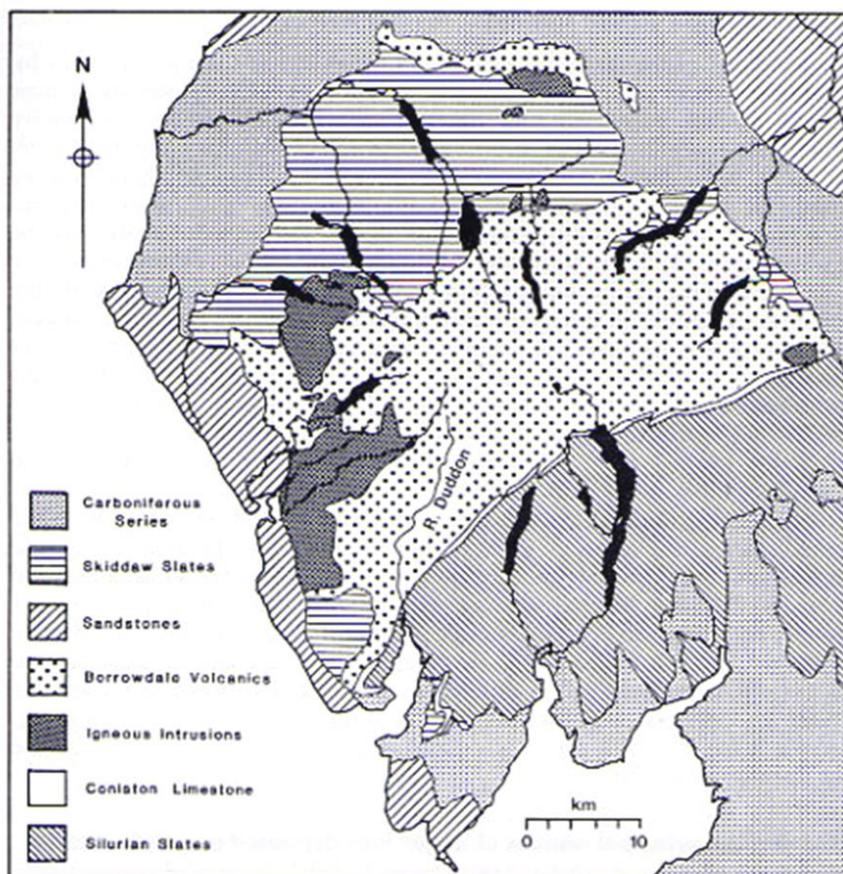


Figure 3.5. The underlying geology of the English Lake District (based on Sutcliffe, 1998).

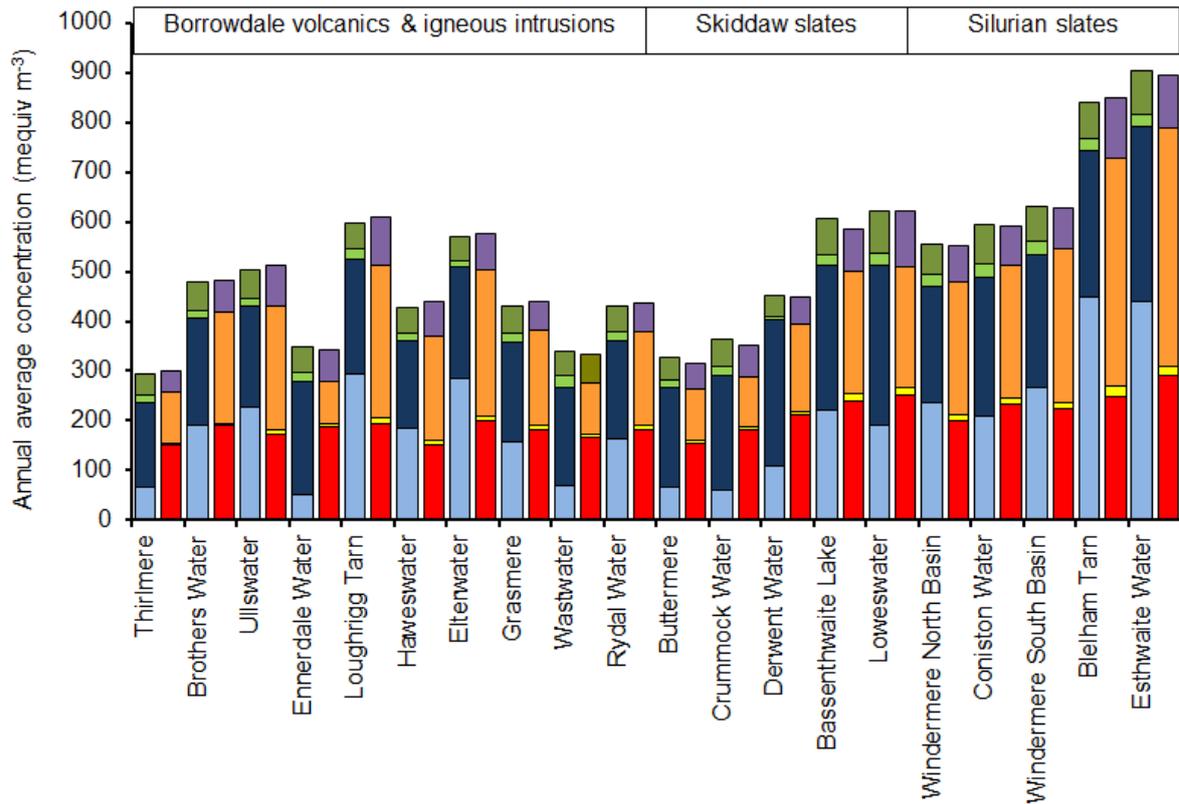


Figure 3.6. Annual mean concentration of major anions (first column) and cations (second column) for the 20 lake basins in 2015. Lakes are ordered by underlying geology and then by decreasing catchment altitude following Sutcliffe (1998). Anions are: alkalinity (bicarbonate; light blue), chloride (dark blue), nitrate (light green) and sulphate (olive green). Cations are: sodium (red), potassium (yellow), calcium (orange) and magnesium (purple).

In all lakes there is a good balance between cation and anion concentrations which shows that the analyses have been carried out accurately (Fig. 3.6). In lakes on the Silurian slates bicarbonate (alkalinity) tends to be the dominant anion, but chloride has a higher concentration in many of the lakes on the Borrowdale volcanics and Skiddaw slates. This is largely because alkalinity tends to be lower on the Borrowdale and Skiddaw series while chloride concentrations are fairly similar across the 20 lakes. A similar difference is seen in the cations

with the balance between calcium and sodium: calcium tends to be the dominant cation in lakes on the Skiddaw slates but sodium tends to dominate in lakes on the two other geologies.

Data on alkalinity, as well as pH, are shown in more detail in Figure 3.7. There is a large range of alkalinities from Buttermere, Crummock Water and Ennerdale Water with very low alkalinities to Blelham Tarn and Esthwaite Water with high alkalinities. None of these major lakes have a negative alkalinity (i.e. a net acidity). Almost all the lakes show a weak seasonality in alkalinity with lowest values in January and highest values in October. This probably results largely from changing hydrology and evapo-transpiration. The pH varied between 6.50 and 7.49 (Fig. 3.7b). Seasonal variation was mainly apparent in the more productive lakes where it results from depletion of carbon dioxide as a result of rapid photosynthesis by the phytoplankton. More detailed records (ie. 15-minutely) have shown even more extreme pH variation: for example the pH exceeds 10 in Esthwaite Water in some years (Maberly 1996) although these peak pH values have not been present more recently as the lake has become less productive because of management of nutrient loads (Maberly *et al.* 2011).

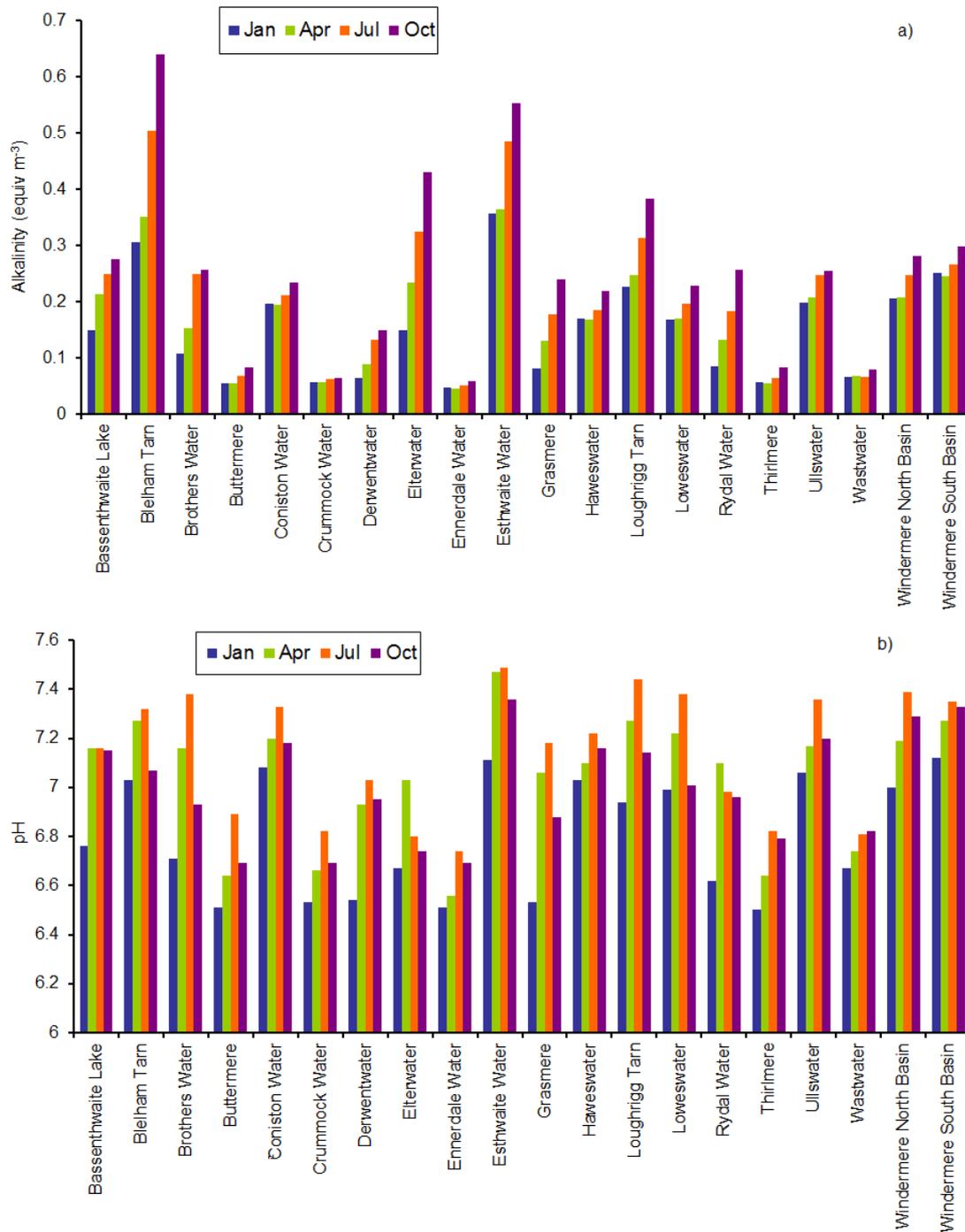


Figure 3.7. Seasonal changes in a) alkalinity and b) pH in the 20 lake basins during 2015.

3.2.4 Nutrient chemistry

Phosphorus, nitrogen and silicon are the three elements required in large amounts by some or all phytoplankton. Each of these is discussed in turn and the raw results are presented in

Appendix 4. The productivity of the major English lakes is primarily controlled by the concentration of phosphorus, the limiting nutrient (Maberly *et al.* 2011). The concentration of total phosphorus (TP) represents the total concentration of the element in dissolved and particulate fractions including inorganic and organic forms. While not all this TP is available to phytoplankton, it does indicate the trophic status of a lake. Overall concentrations range from very low concentrations in Wastwater (below the limit of detection of 5 mg m^{-3}), to high concentrations in Blelham Tarn, Esthwaite Water and Grasmere (Fig. 3.8). The seasonal variation in concentration of total phosphorus is not very great but on average over all 20 lake basins, concentrations of TP were highest in July and lowest in April (Fig. 3.9).

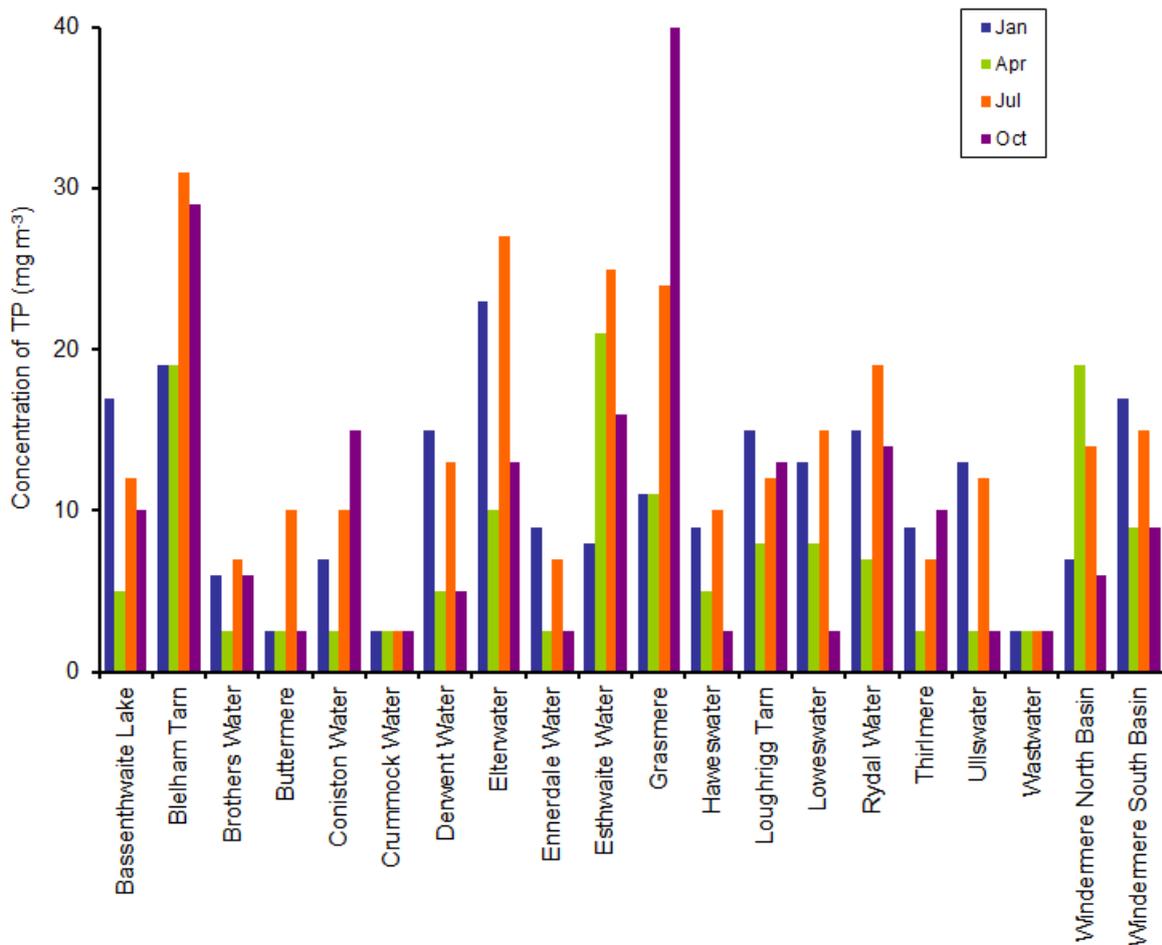


Figure 3.8. Seasonal changes in the concentration of total phosphorus in the 20 lake basins during 2015

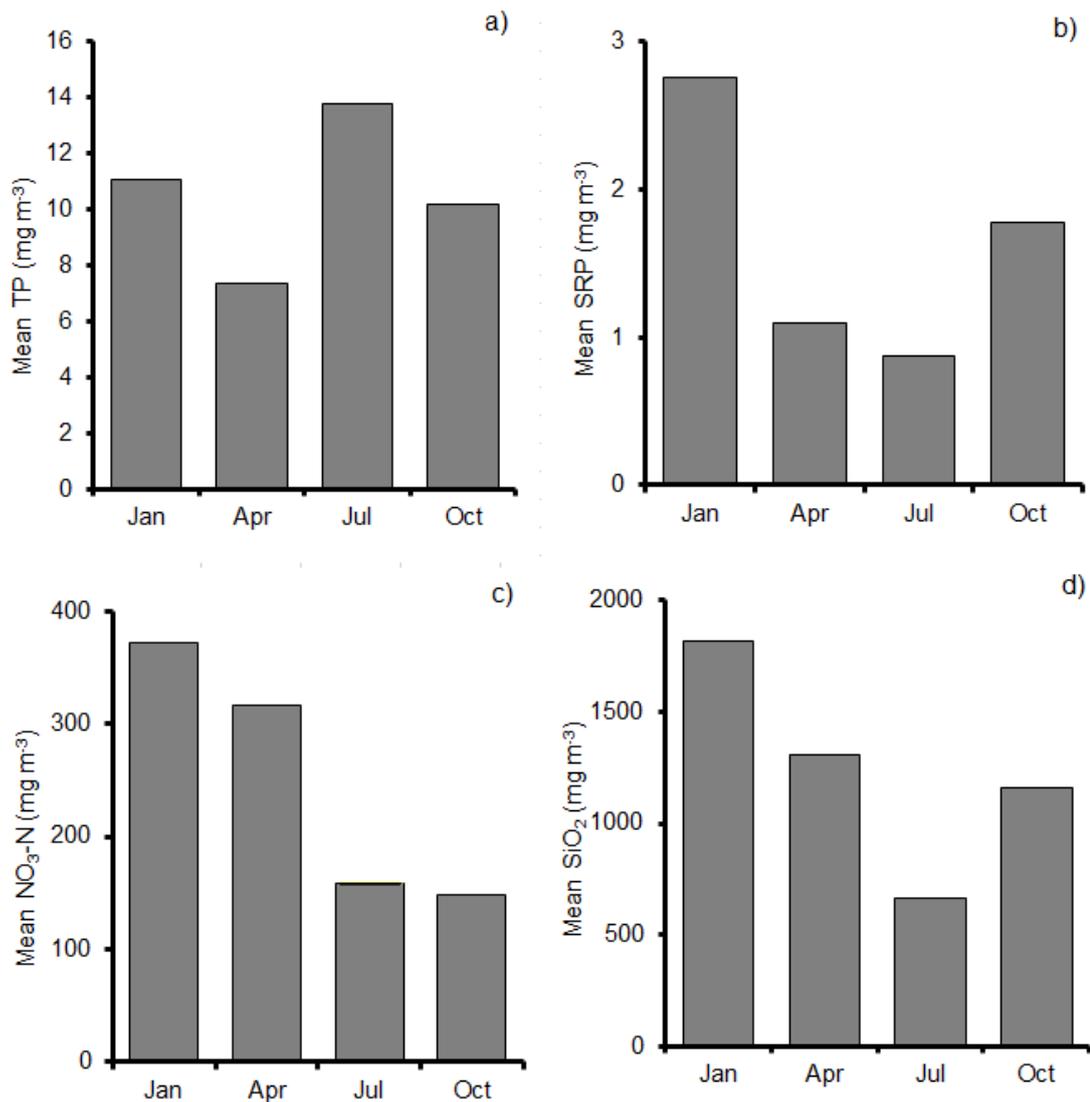


Figure 3.9. Mean seasonal concentrations of: a) total phosphorus, b) soluble reactive phosphorus, c) nitrate-nitrogen and d) silica in the 20 lake basins during 2015

Soluble reactive phosphorus (SRP), the analysed form of phosphorus which most closely reflects that available to microbes including the phytoplankton, showed large seasonal changes and differences among the 20 lake basins (Fig. 3.10). In contrast to TP, concentrations of SRP were highest in January (Fig. 3.9) when demand by phytoplankton was low because temperature and daily light levels were low. Concentrations were at about 1 mg m^{-3} or lower in April and July during the period of intensive phytoplankton growth and had increased in

most lakes in October. The very high concentration of SRP (and TP) in Grasmere in October coincided with a breakdown of stratification causing phosphorus produced at depth, supplemented by output from the Grasmere WwTW which enters the lake at 7.5 m (Reynolds *et al.* 2012), to be mixed back into the surface water.

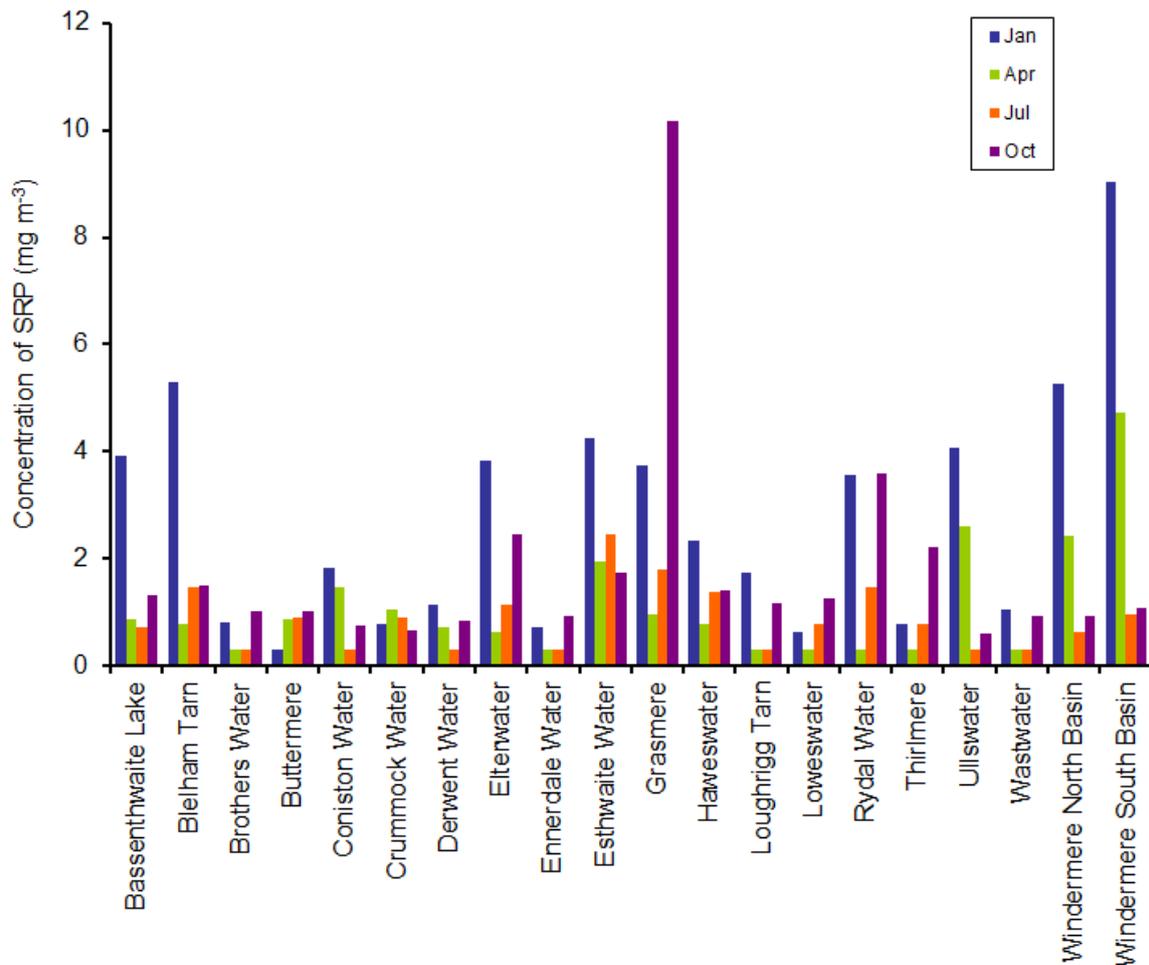


Figure 3.10. Seasonal changes in the concentration of soluble reactive phosphorus in the 20 lake basins during 2015.

Nitrate is usually the main form of nitrogen available to phytoplankton. Like SRP, concentrations were highest in January but the concentration in April was only slightly depleted in contrast to SRP in April where concentrations were already strongly depleted (Fig. 3.9).

Derwent Water had the lowest maximum concentrations of nitrate of the 20 lakes and Buttermere and Thirlmere also had low concentrations while Blelham Tarn had the highest maximum concentration (Fig. 3.11) but the difference in nitrate concentration among lakes was less than for TP or SRP.

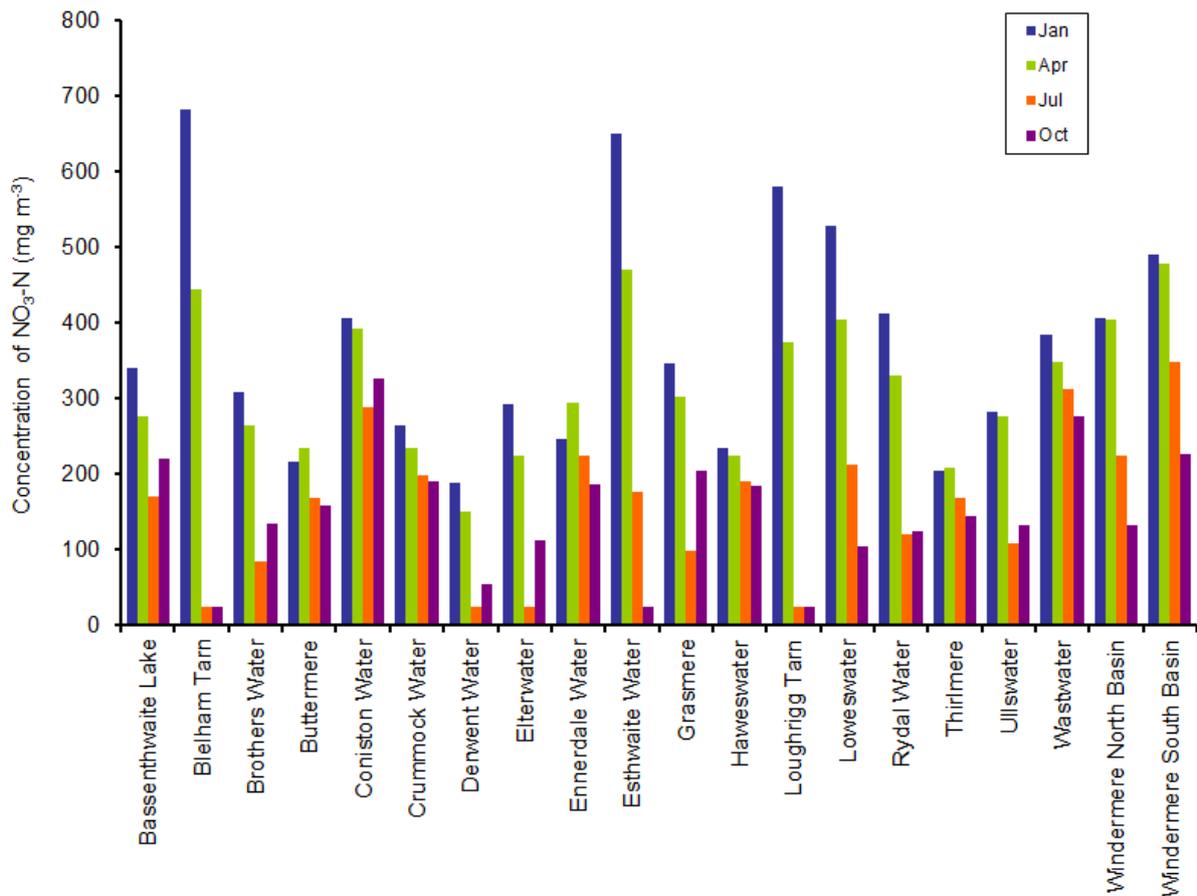


Figure 3.11. Seasonal changes in the concentration of nitrate-nitrogen in the 20 lake basins during 2015.

Ammonium was generally present in very low concentrations (Fig. 3.12). Concentrations of nitrate exceeded those of ammonium in all lakes and occasions apart from in Blelham Tarn and Elterwater in July and October. Some of the more productive lakes, such as Grasmere and

Elterwater, showed relatively high concentrations of ammonium in October possibly as a result of entrainment of ammonium into surface waters from depth as stratification broke down.

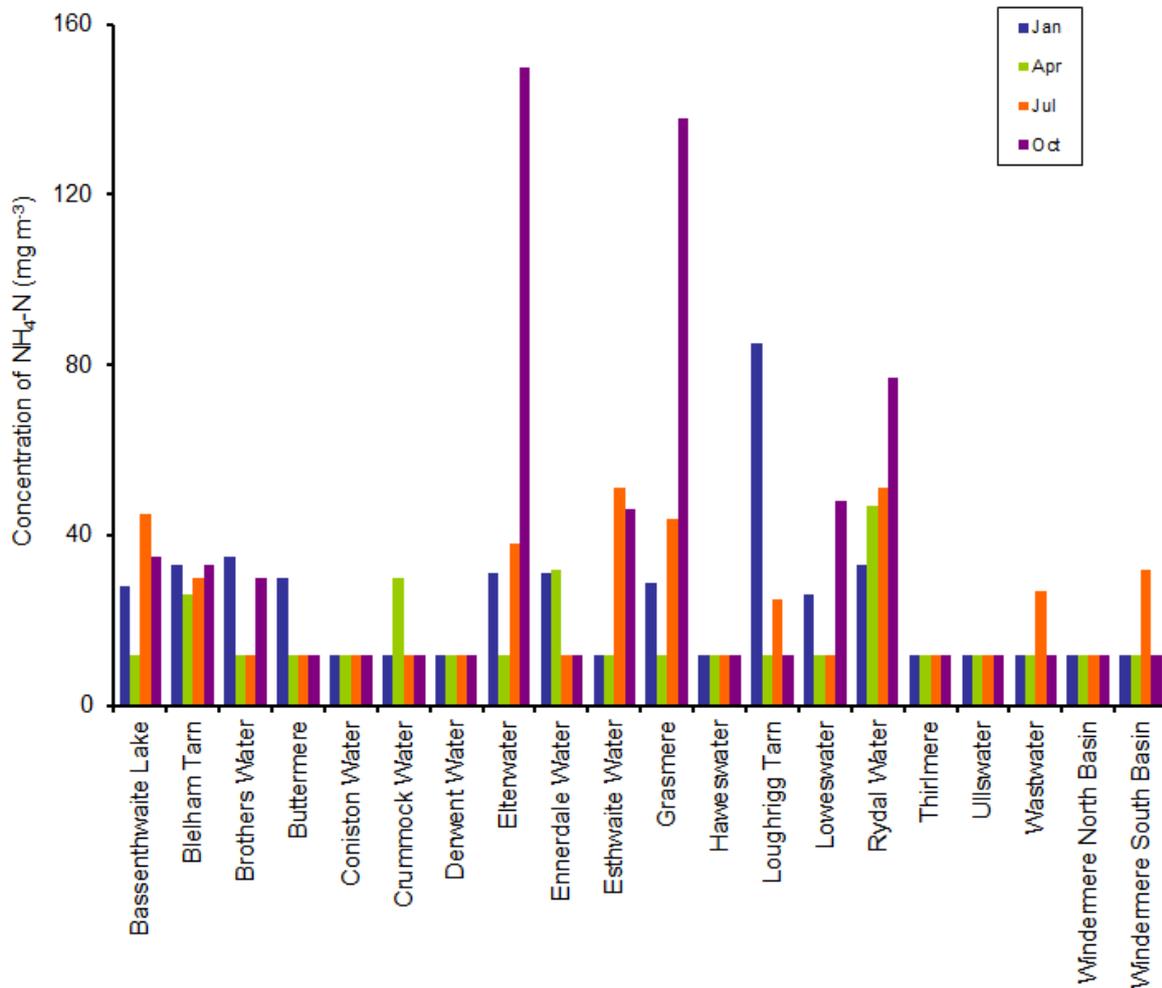


Figure 3.12. Seasonal changes in the concentration of ammonium-nitrogen in the 20 lake basins during 2015. Note, most samples were below the detection limit.

Silicon is used by a number of groups of phytoplankton, such as the chrysophytes, but is an essential major nutrient for the diatoms. The mean seasonal pattern of change of silica is rather similar to that of nitrate (Fig. 3.9) although the depletion of concentration in April is slightly more marked for silica since spring is usually a major period of diatom growth. Esthwaite Water and Ennerdale Water had the highest maximum concentrations in silica, in January and

April respectively (Fig. 3.13). The concentration in unproductive Ennerdale Water showed very little seasonal variation in concentration, as in other unproductive lakes such as Wastwater, Crummock Water and Thirlmere. In contrast, the concentration in productive Esthwaite Water varied markedly as it also did in other productive lakes such as Grasmere and the South Basin of Windermere. In nine of the lakes the concentration of silica fell below 500 mg m⁻³ which is the approximate concentration at which diatom growth becomes limited by this nutrient (Lund 1950).

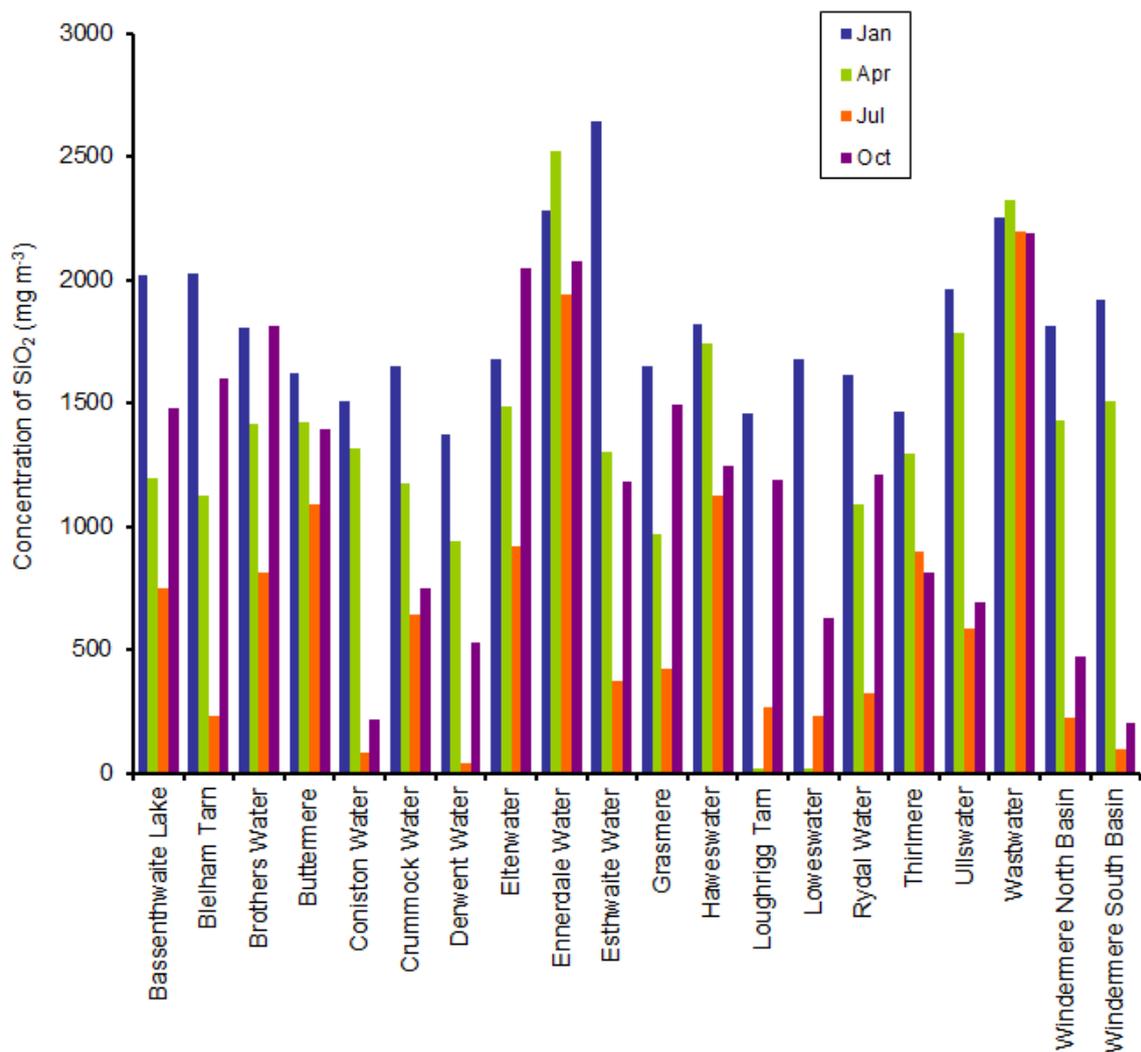


Figure 3.13. Seasonal changes in the concentration of silica in the 20 lake basins during 2015.

3.2.5 *Phytoplankton chlorophyll a concentration*

Phytoplankton biomass is estimated here using the concentration of the photosynthesis pigment chlorophyll *a* which is found in all types of phytoplankton. Figure 3.14 shows the large variation in the concentration of chlorophyll *a* both among lakes and at different times within a lake. In 2015, the concentration of chlorophyll *a* varied between 0.5 mg m⁻³ in Brother Water in January and 40.0 mg m⁻³ for Elterwater in July. The pattern of phytoplankton chlorophyll *a* is broadly the inverse of that for Secchi depth with low concentrations in lakes like Wastwater and Buttermere, and high concentrations in lakes like Blelham Tarn and Loughrigg Tarn (see Section 4.1). In January, concentrations were generally low in all lakes since there is little phytoplankton growth at this time of year because of low light availability, made worse by full mixing of cells throughout the lake depth as the lakes are not stratified and low temperature. Furthermore, especially for the more rapidly flushed lakes (Table 2.1), washout of phytoplankton by hydraulic discharge is likely to be particularly rapid. Seven of the lakes, such as Rydal Water and Grasmere showed an annual maximum concentration of chlorophyll *a* in April corresponding to the spring bloom (Fig. 3.14). In six, such as Blelham Tarn and Elterwater the maximum occurred in July. In seven lakes, including Esthwaite Water and Windermere North Basin, the maximum was in October. Wastwater had the lowest annual mean concentration of phytoplankton chlorophyll *a* (0.8 mg m⁻³) and Blelham Tarn the highest (23.0 mg m⁻³). The raw data on phytoplankton chlorophyll *a* are presented in Appendix 2.

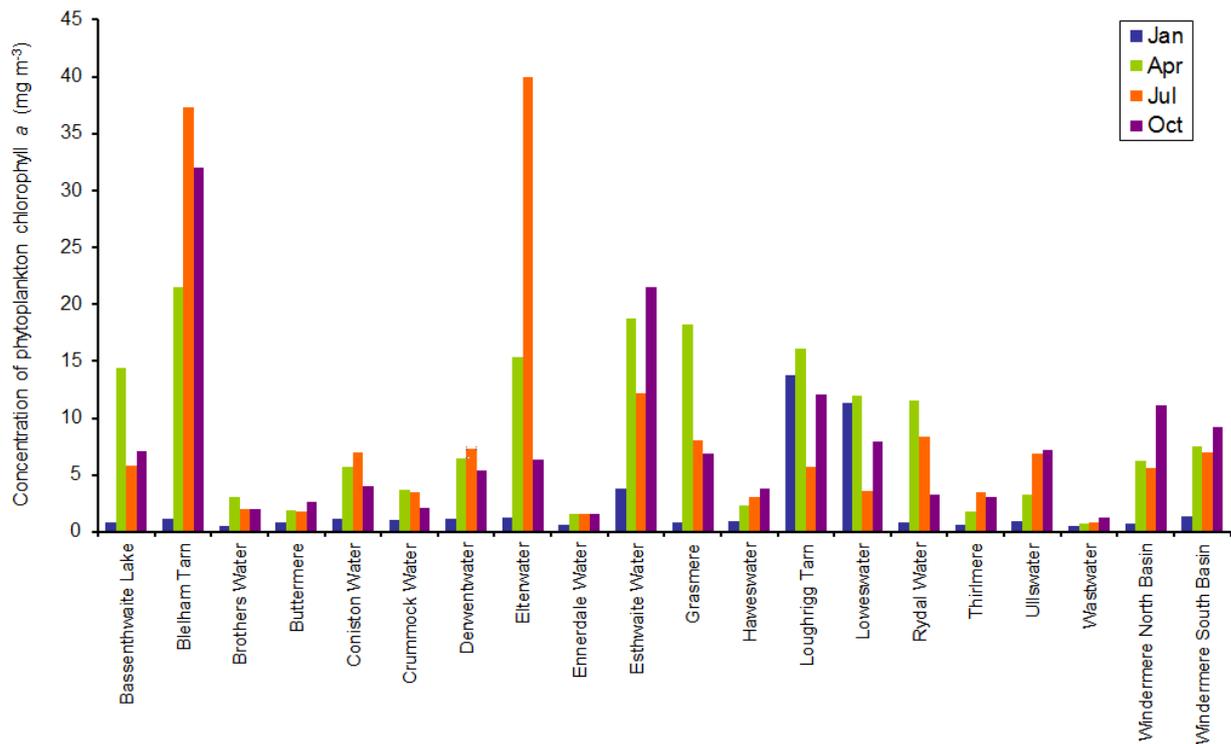


Figure 3.14. Seasonal changes in the concentration of phytoplankton chlorophyll a in the 20 lake basins during 2015.

3.2.6 Phytoplankton species composition

The phytoplankton are a sensitive and responsive component of the biology of a lake and one of the key ecological characteristics used by the Water Framework Directive to assess the ecological status of a lake. The raw data on phytoplankton species composition are recorded in Appendix 5.

Over all 80 samples, 173 taxa were recorded, comprising 73 green algae, 33 diatoms, 26 cyanobacteria (blue-green algae), 21 chrysophytes, 11 dinoflagellates, 5 euglenoids, 3 cryptophytes, 1 haptophyte and one raphidophyte. The most common genera were *Chlorella*, *Cryptomonas*, *Rhodomonas* and *Asterionella*. Species number was lowest in January (69 taxa) and highest in July (155 taxa). As an average over the year, the percentage diversity of

cyanobacteria was greatest in the more productive lakes such as the South and North Basins of Windermere, and Loughrigg tarn and least in the less productive lakes such as Brothers Water, Ennerdale Water and Wastwater. An exception to this pattern between percent cyanobacteria taxa and productivity was Haweswater which had a relatively high cyanobacterial diversity considering its productivity; the reason for this is not currently clear although a high diversity does not necessarily result in a high biovolume. Overall, species number was positively correlated with lake productivity assessed as the annual mean concentration of total phosphorus (line regression, Number of taxa = $17.1 + 0.62 * \text{TP concentration (mg m}^{-3}\text{)}$; $R^2 = 0.26$, $P < 0.05$).

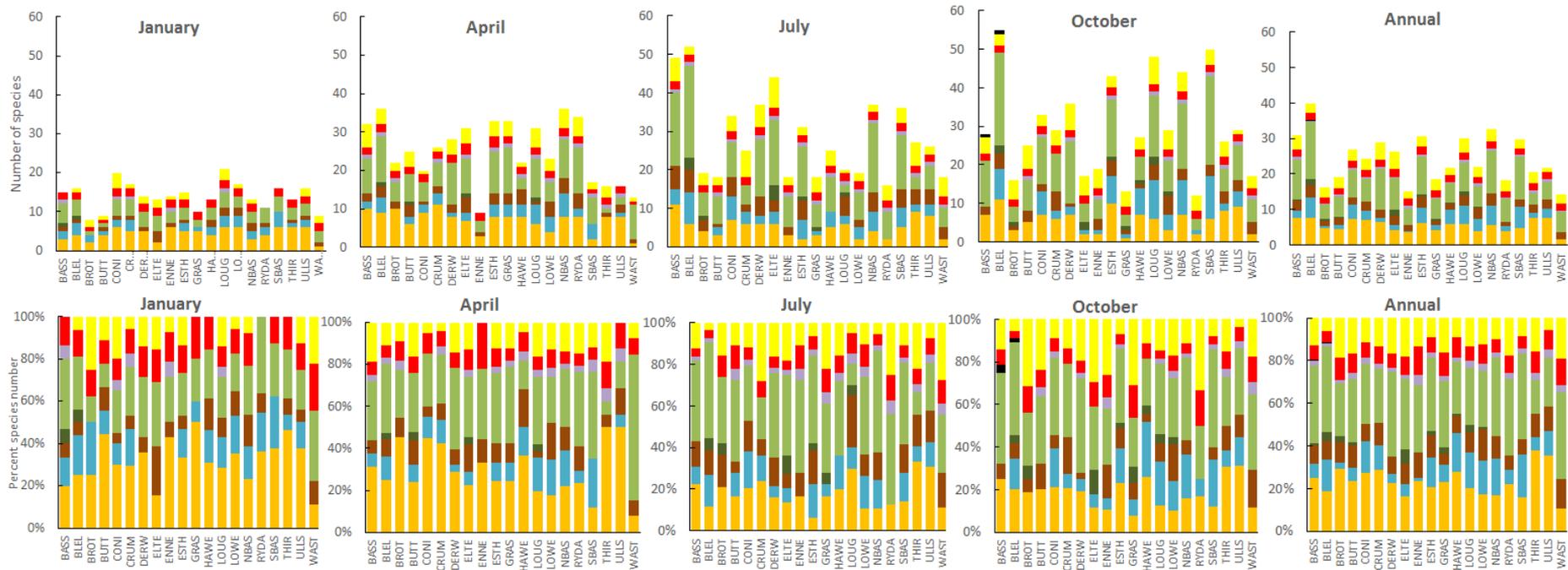


Figure 3.15. Composition of the major groups of phytoplankton in terms of number of taxa (top row) and percentage number of taxa (bottom row) in the 20 lake basins during 2015. Diatoms (gold); cyanobacteria (blue); dinoflagellates (brown); euglenophytes (dark green); chlorophytes (green); haptophytes (lilac); raphidophytes (black); cryptophytes (red); and chrysophytes (yellow).

3.2.7 Zooplankton populations

Total crustacean zooplankton abundance varied greatly among lakes and seasons, ranging between 0.02 and 6.5 individuals dm^{-3} (Figure 3.16). Total abundances were generally lowest during the winter sampling period (mean abundance 0.46 individuals dm^{-3}) and highest during the summer (mean abundance 2.16 individuals dm^{-3}). During the spring, the greatest zooplankton abundances were supported by Esthwaite Water and Loughrigg Tarn, while in summer Bassenthwaite Lake, Brothers Water, Grasmere, Loughrigg Tarn and Rydal Water supported the highest abundances. Wastwater supported very low zooplankton abundances throughout the year.

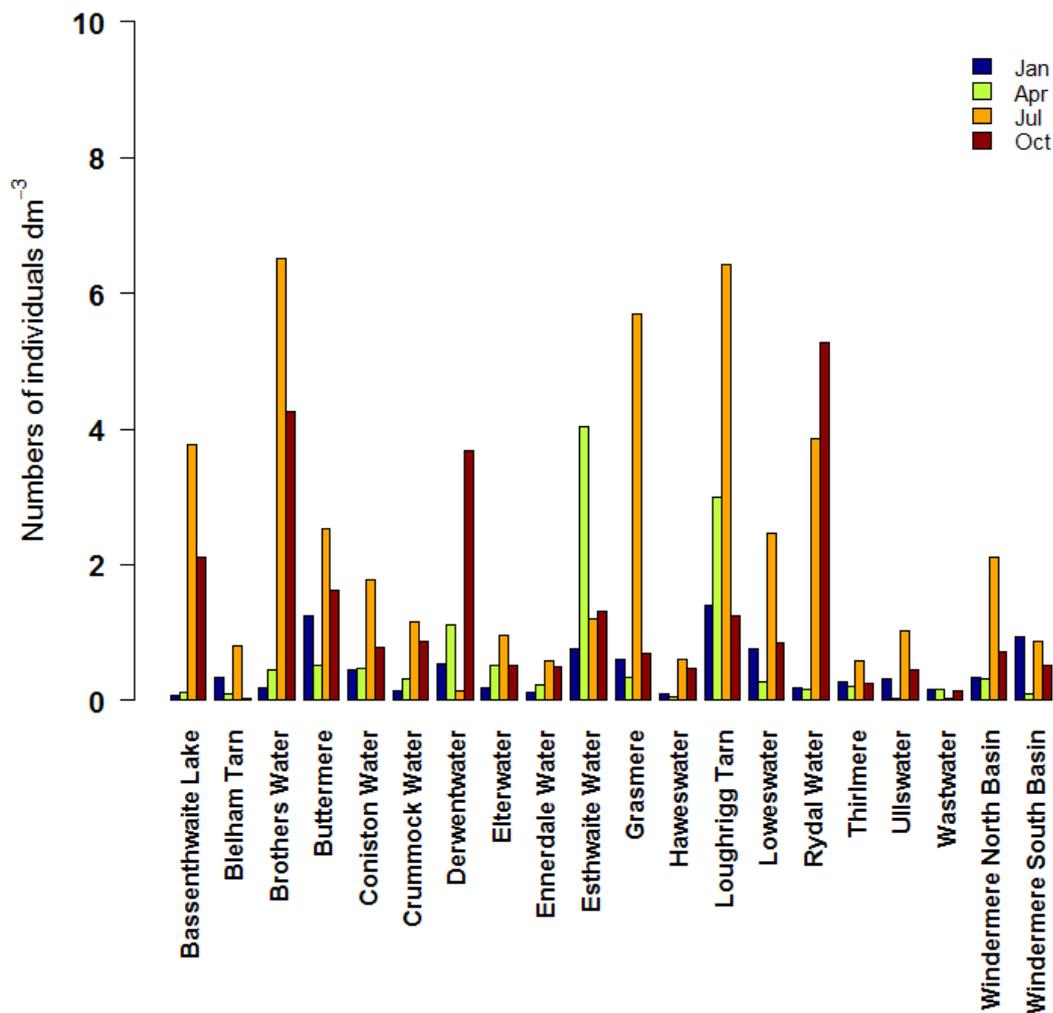


Figure 3.16. Total crustacean zooplankton abundance in winter, spring, summer and autumn 2015.

A total of 15 crustacean zooplankton genera were represented in samples collected from the open water of the Lakes Tour lakes. These included representatives of the cladocera (*Bosmina*, *Bythotrephes*, *Ceriodaphnia*, *Daphnia*, *Diaphanosoma*, *Holopedium*, *Leptodora*, *Sida*), calanoid copepods (*Arctodiaptomus*, *Eudiaptomus*) and cyclopoid copepods (*Cyclops*, *Diacyclops*, *Eucyclops*, *Mesocyclops*, *Megacyclops*). Some of these genera are typically closely associated with littoral or benthic, rather than pelagic, habitats (*Sida*, *Eucyclops*, *Megacyclops*) and are likely to have been caught by “chance” in the open water net tows. The

taxonomic composition of the zooplankton varied markedly among lakes and seasons (Figure 3.17). The calanoid *Eudiaptomus* was widespread among the lakes and dominated winter communities. *Daphnia* and *Cyclops* became more dominant in most lakes later in the year, especially in the summer. At genus level, diversity generally increased in the summer and autumn, with greater abundances of *Ceriodaphnia*, *Diaphanosoma* and *Mesocyclops* being found in some lakes. However, the contribution of these taxa to the total zooplankton community was vary variable at this time suggesting a decreasing similarity between communities in different lakes compared to the winter sampling period.

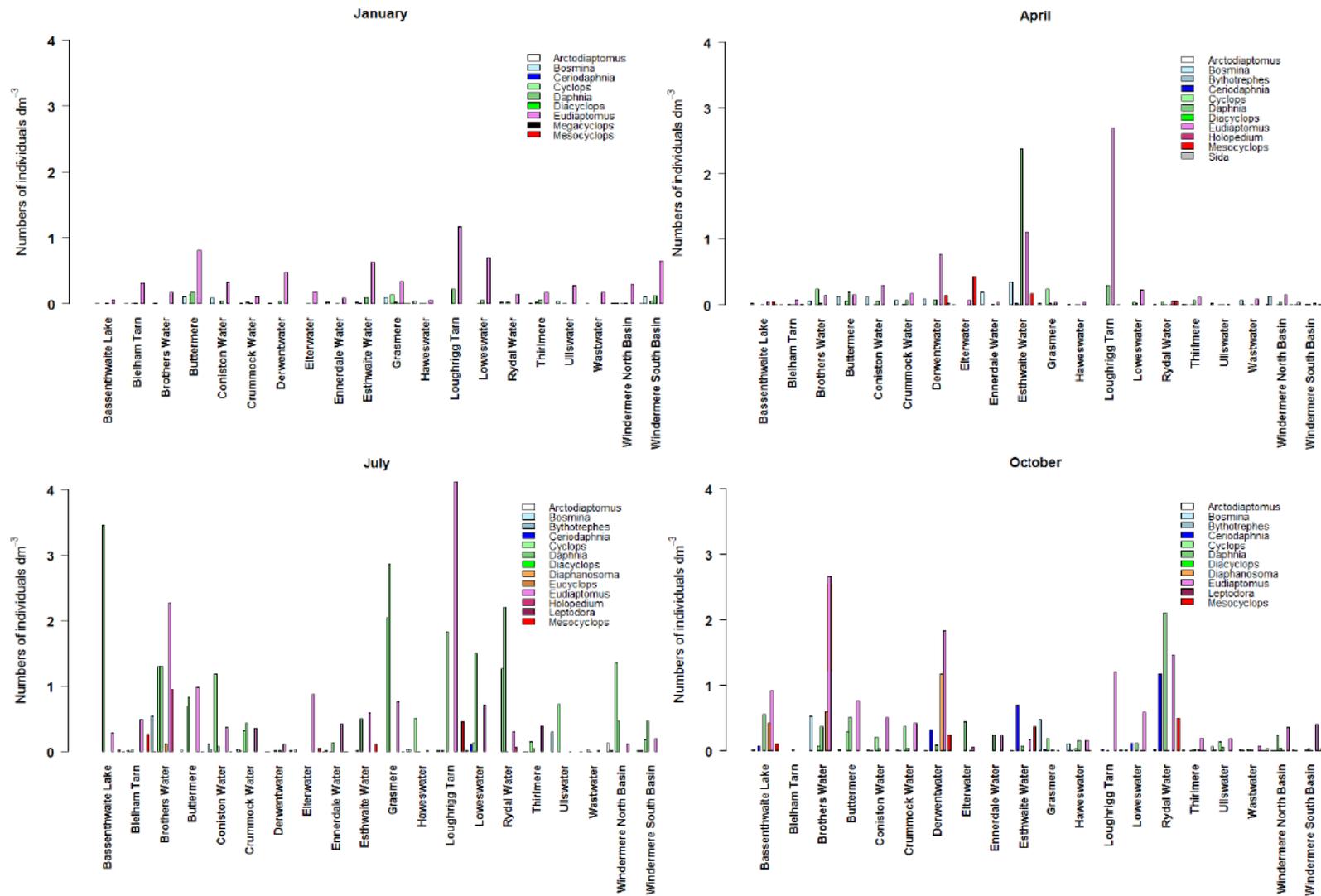


Figure 3.17. The taxonomic composition of crustacean zooplankton in winter, spring, summer and autumn 2015. Abundances are given at genus, rather than species, level.

3.2.8 A review of fish population for Lakes Tour 2015

Introduction

Fish community surveys were not feasible for all of the 20 lakes covered by Lakes Tour 2015 and so, following the approach taken for the first time in Lakes Tour 2010, relevant information is collated here from a range of recent fish projects undertaken by the Centre for Ecology & Hydrology and from other sources. The common and scientific names of all fish species mentioned in this review are given in Table 3.2.

A substantial number of lakes has been surveyed in 2015 and other recent years, with effort ranging in frequency between monthly and single surveys. Various sampling techniques have been used including hydroacoustics, gill netting, trapping, fyke netting, entrapment and the analysis of fishery data and so as a result the information produced varies considerably between lakes in its extent, timing and quality. With respect to timing, although some of the recent information collated here was not gathered during 2015 the relatively great longevities of fish (frequently in excess of 5 years) mean that such data usually remain indicative of fish community characteristics for several years. Where a lake has not been subjected to any recent relevant scientific study, a brief and conservative account of its fish community is given based on earlier scientific studies and/or current information available on reputable angling websites.

Table 3.3 presents a summary of the fish species present in each of the 20 lakes and of the extent of knowledge based on the sampling effort undertaken. Given the number of fish surveys undertaken over the last 5 years, Table 3.3 represents a considerable advance over the equivalent table produced for Lakes Tour 2010. Note that this table also contains some

occurrences of fish species for which few lake-specific details are available and so may not be mentioned within the appropriate lake-specific account.

The detailed information on fish communities at each lake is presented in Sections 3.3.1 to 3.3.20.

Table 3.2. Common and scientific names of all fish species mentioned in this review.

Common name	Scientific name
Arctic charr	<i>Salvelinus alpinus</i>
Atlantic salmon	<i>Salmo salar</i>
Brown trout	<i>Salmo trutta</i>
Bullhead	<i>Cottus gobio</i>
Common bream	<i>Abramis brama</i>
Crucian carp	<i>Carassius carassius</i>
Dace	<i>Leuciscus leuciscus</i>
Eel	<i>Anguilla anguilla</i>
Minnow	<i>Phoxinus phoxinus</i>
Perch	<i>Perca fluviatilis</i>
Pike	<i>Esox lucius</i>
Rainbow trout	<i>Oncorhynchus mykiss</i>
Roach	<i>Rutilus rutilus</i>
Ruffe	<i>Gymnocephalus cernuus</i>
Schelly	<i>Coregonus lavaretus</i>
Stone loach	<i>Barbatula barbatula</i>
Tench	<i>Tinca tinca</i>
Three-spined stickleback	<i>Gasterosteus aculeatus</i>
Vendace	<i>Coregonus albula</i>

Table 3.3. Summary of the distribution of fish species in the 20 lakes of Lakes Tour 2015 indicated as present (P), present in the past but now presumed locally extinct (E) and present in at least one tributary but not necessarily also in the lake itself (T). Note that sampling effort has varied significantly between lakes in terms of both its nature and its degree and so the extent of knowledge on the fish populations of each lake is categorised as high (H), moderate (M) or low (L). More detailed information is given for each lake in the main text.

Lake	Arctic charr	Atlantic salmon	Brown trout	Bullhead	Common bream	Crucian carp	Dace	Eel	Minnow	Perch	Pike	Rainbow trout	Roach	Ruffe	Schelly	Stone loach	Tench	Three-spined stickleback	Vendace	Extent of knowledge
Bassenthwaite Lake		P	P				P	P	P	P	P		P	P					P	H
Blelham Tarn			P							P	P		P							L
Brothers Water			P						P	P					P			P		M
Buttermere	P	P	P						P	P	P									M
Coniston Water	P	P	P						P	P	P		P							M
Crummock Water	P	P	P						P	P										H
Derwent Water		P	P				P	P	P	P	P		P	P					P	H
Elterwater			P							P	P					T				L
Ennerdale Water	P	P	P															P		M
Esthwaite Water			P		P			T	T	P	P	E	P				T			M
Grasmere			P	T	P					P	P		P				T			L
Haweswater	P		P					P	P	P	E				P					H
Lougrigg Tarn			P				P	P		P	P		P				P			L
Loweswater		T	P					T	P	P	P									M
Rydal Water			P			P		P		P	P		P	P			T			L
Thirlmere	P		P							P	P			P						M
Ullswater	E	P	P					P	P	P			P		P				P	M
Wastwater	P	P	P						P										P	M
Windermere North Basin	P	P	P	P	P			P		P	P		P						P	H
Windermere South Basin	P	P	P		P			P		P	P		P				P			H

3.2.9 Heavy metals

Heavy metals were measured in the Lakes Tour for the first time in 2010 and repeated in 2015. The data collected serve to determine the current concentrations of metals in the lakes and also to serve as a baseline for future studies; the results from 2015 are briefly compared to those from 2010. Both filterable and total metal concentrations are presented.

Aluminium

Concentrations for filterable aluminium ranged from less than the level of detection (10 mg m^{-3}) to 41.6 mg m^{-3} in Thirlmere in January (Table 3.4). Total aluminium ranged from below the limit of detection in some sites to 156 mg m^{-3} (Bassenthwaite Lake in January). Bassenthwaite Lake, Blelham Tarn and Thirlmere had the highest annual mean concentrations of total aluminium (Fig. 3.18).

Cadmium

All samples for cadmium, filtered and total, were below the limit of detection which was 0.1 mg m^{-3} (Table 3.4, Fig. 3.18) apart from a sample in Bassenthwaite Lake in January, Crummock Water and Thirlmere in April and Wastwater in October, but these are likely to be spurious results around the limit of detection since the maximum concentration recorded was 0.17 mg m^{-3} .

Chromium

All samples filtered and total samples were below the limit of detection at 0.5 mg m^{-3} (Table 3.4; Fig. 3.18).

Copper

Concentrations of filtered copper ranged between less than the limit of detection (1 mg m^{-3}) to a maximum of 2.89 mg m^{-3} in Coniston Water in January (Table 3.4). The highest mean concentrations were present in Coniston Water, with known copper mines in the catchment and where the majority of the copper was in the filterable fraction. Filterable copper was not detectable in twelve of the study lakes (Fig. 3.18d), but in Bassenthwaite Lake, Blelham Tarn, Coniston Water, Crummock Water, Rydal Water, Thirlmere, Ullswater and the two basins of Windermere where it was, it exceeded the WFD UKTAG (UKTAG 2012) proposed annual maximum concentration for low alkalinity lakes, like the ones here, of 1 mg m^{-3} since this is also the limit of detection.

Nickel

Nickel was below detection limit (1 mg m^{-3}) in all samples (Table 3.4; Fig. 3.18). All concentrations were below the Environmental Quality Standard for nickel of 20 mg m^{-3} (UKTAG, 2010).

Lead

Total lead was below the limit of detection (2 mg m^{-3}) in nine of the twenty lakes including Ullswater which is notable since lead mining occurred locally in the past. (Table 3.4, Fig. 3.18). Excluding one very high value for Wastwater in July, highest concentrations of total lead were found in Bassenthwaite Lake, Loughrigg Tarn and Grasmere. Filterable lead was only detected in Bassenthwaite Lake in January (2.47 mg m^{-3}) and Thirlmere in October (2.08 mg m^{-3}). Both concentrations are below the Environmental Quality Standard for lead of 7.2 mg m^{-3} (UKTAG, 2010).

Zinc

Concentrations of total zinc varied from below the limit of detection of 5 mg m^{-3} to 64.5 mg m^{-3} in Haweswater in October. It was undetectable in most of the lakes in the Windermere catchment: Blelham Tarn, Elterwater, Esthwaite Water, Grasmere, Loughrigg and the two basins of Windermere and also in Loweswater and Thirlmere (Table 3.4, Fig. 3.18g). Total mean concentrations were highest in Haweswater, where the annual concentration (22.75 mg m^{-3}) exceeded the proposed annual maximum concentration for low alkalinity lakes like the ones here of 8 mg m^{-3} (UKTAG, 2010) as it did in Bassenthwaite Lake, Buttermere, Crummock Water and Ullswater. However, a consultation document (UKTAG 2010a) suggest a much lower concentration threshold for filterable zinc of 0.5 mg m^{-3} which is hard to assess since the limit of detection is 10-times greater than this concentration.

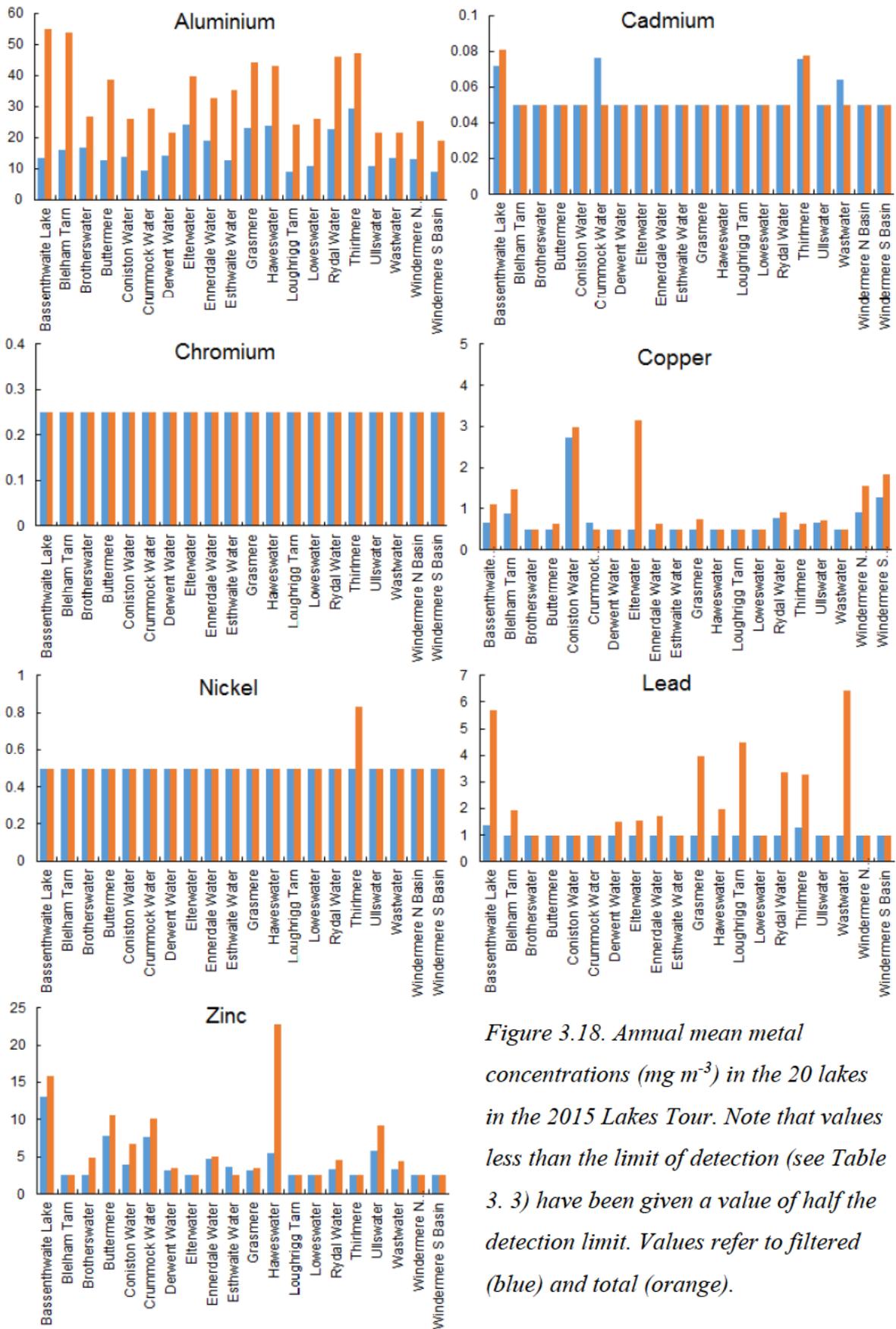


Figure 3.18. Annual mean metal concentrations (mg m^{-3}) in the 20 lakes in the 2015 Lakes Tour. Note that values less than the limit of detection (see Table 3. 3) have been given a value of half the detection limit. Values refer to filtered (blue) and total (orange).

Table 3.4. Heavy metals concentration (mg m^{-3}) in the Lakes Tour samples in 2015. The 4-figure number below each determinand is the E A method code. Filt = Filtered, Tot = Total.

Lake	Date	Aluminium		Cadmium		Chromium		Copper		Nickel		Lead		Zinc	
		Filt 6037	Tot 6057	Filt 0106	Tot 0108	Filt 3409	Tot 3164	Filt 6450	Tot 6452	Filt 3410	Tot 6462	Filt 0052	Tot 0050	Filt 3408	Tot 6455
Bassenthwaite Lake	22/01/2015	31.7	156	0.138	0.174	<.5	<.5	1.15	1.86	<1	<1	2.47	16.7	20.1	23.6
Bassenthwaite Lake	16/04/2015	11.9	31.5	<.1	<.1	<.5	<.5	<1	<1	<1	<1	<2	4.11	13.5	17.3
Bassenthwaite Lake	09/07/2015	<10	14.4	<.1	<.1	<.5	<.5	<1	<1	<1	<1	<2	<2	10.5	11.7
Bassenthwaite Lake	15/10/2015	<10	17.5	<.1	<.1	<.5	<.5	<1	1.56	<1	<1	<2	<2	8.38	10.6
Blelham Tarn	19/01/2015	36.4	104	<.1	<.1	<.5	<.5	1.35	1.96	<1	<1	<2	3	<5	<5
Blelham Tarn	13/04/2015	17.3	68.4	<.1	<.1	<.5	<.5	<1	1.04	<1	<1	<2	2.78	<5	<5
Blelham Tarn	06/07/2015	<10	21.6	<.1	<.1	<.5	<.5	<1	1.03	<1	<1	<2	<2	<5	<5
Blelham Tarn	12/10/2015	<10	21.5	<.1	<.1	<.5	<.5	1.25	1.91	<1	<1	<2	<2	<5	<5
Brotherswater	19/01/2015	28.4	42.8	<.1	<.1	<.5	<.5	<1	<1	<1	<1	<2	<2	<5	12.1
Brotherswater	13/04/2015	14.3	25.7	<.1	<.1	<.5	<.5	<1	<1	<1	<1	<2	<2	<5	<5
Brotherswater	06/07/2015	13.3	19.9	<.1	<.1	<.5	<.5	<1	<1	<1	<1	<2	<2	<5	<5
Brotherswater	12/10/2015	10.8	18.9	<.1	<.1	<.5	<.5	<1	<1	<1	<1	<2	<2	<5	<5
Buttermere	22/01/2015	18.7	70.2	<.1	<.1	<.5	<.5	<1	<1	<1	<1	<2	<2	6.94	12
Buttermere	16/04/2015	15.4	43.2	<.1	<.1	<.5	<.5	<1	<1	<1	<1	<2	<2	10.6	13.6
Buttermere	09/07/2015	12.1	21.3	<.1	<.1	<.5	<.5	<1	1	<1	<1	<2	<2	6.26	8.78
Buttermere	15/10/2015	<10	19	<.1	<.1	<.5	<.5	<1	<1	<1	<1	<2	<2	7.15	7.94
Coniston Water	20/01/2015	23.1	33.8	<.1	<.1	<.5	<.5	2.89	2.99	<1	<1	<2	<2	5.69	6.23
Coniston Water	14/04/2015	12.9	28.2	<.1	<.1	<.5	<.5	2.55	2.84	<1	<1	<2	<2	5.35	8.73
Coniston Water	08/07/2015	14.3	29.7	<.1	<.1	<.5	<.5	2.76	3.08	<1	<1	<2	<2	<5	9.7
Coniston Water	14/10/2015	<10	12.8	<.1	<.1	<.5	<.5	2.73	2.97	<1	<1	<2	<2	<5	<5
Crummock Water	22/01/2015	15.8	59.4	<.1	<.1	<.5	<.5	<1	<1	<1	<1	<2	<2	7.85	13.7
Crummock Water	16/04/2015	11.5	27.6	0.156	<.1	<.5	<.5	1.13	<1	<1	<1	<2	<2	8.36	10.3
Crummock Water	09/07/2015	<10	14.5	<.1	<.1	<.5	<.5	<1	<1	<1	<1	<2	<2	7.08	9.9
Crummock Water	15/10/2015	<10	16.1	<.1	<.1	<.5	<.5	<1	<1	<1	<1	<2	<2	7.61	6.89
Derwent Water	22/01/2015	28.6	<.1	<.1	<.5	<.5	<.5	<1	<1	<1	<1	<2	<2	5.16	<.5
Derwent Water	16/04/2015	11.7	28.6	<.1	<.1	<.5	<.5	<1	<1	<1	<1	<2	2.46	<.5	5.48
Derwent Water	09/07/2015	<10	16.8	<.1	<.1	<.5	<.5	<1	<1	<1	<1	<2	<2	<.5	<.5
Derwent Water	14/10/2015	11.6	18.9	<.1	<.1	<.5	<.5	<1	<1	<1	<1	<2	<2	<.5	<.5
Elterwater	15/01/2015	36.5	61.1	<.1	<.1	<.5	<.5	<1	<1	<1	<1	<2	<2	<.5	<.5
Elterwater	09/04/2015	22.2	41.2	<.1	<.1	<.5	<.5	<1	<1	<1	<1	<2	3.14	<.5	<.5
Elterwater	02/07/2015	14.5	25.5	<.1	<.1	<.5	<.5	<1	<1	<1	<1	<2	<2	<.5	<.5
Elterwater	08/10/2015	23.5	31.1	<.1	<.1	<.5	<.5	<1	11.1	<1	<1	<2	<2	<.5	<.5
Ennerdale Water	21/01/2015	21.7	41.5	<.1	<.1	<.5	<.5	<1	1.07	<1	<1	<2	2.57	11.2	12.8
Ennerdale Water	15/04/2015	17.8	32.5	<.1	<.1	<.5	<.5	<1	<1	<1	<1	<2	2.35	<.5	<.5
Ennerdale Water	08/07/2015	16.4	26.8	<.1	<.1	<.5	<.5	<1	<1	<1	<1	<2	<2	<.5	<.5
Ennerdale Water	14/10/2015	20.1	30.5	<.1	<.1	<.5	<.5	<1	<1	<1	<1	<2	<2	<.5	<.5
Esthwaite Water	20/01/2015	28.7	63.9	<.1	<.1	<.5	<.5	<1	<1	<1	<1	<2	<2	<.5	<.5
Esthwaite Water	14/04/2015	12.5	33.1	<.1	<.1	<.5	<.5	<1	<1	<1	<1	<2	<2	<.5	<.5
Esthwaite Water	07/07/2015	<10	24.8	<.1	<.1	<.5	<.5	<1	<1	<1	<1	<2	<2	<.5	<.5
Esthwaite Water	13/10/2015	<10	19.7	<.1	<.1	<.5	<.5	<1	<1	<1	<1	<2	<2	6.97	<.5
Grasmere	19/01/2015	35.1	82.2	<.1	<.1	<.5	<.5	<1	1.44	<1	<1	<2	7.83	5.03	6.69
Grasmere	13/04/2015	16.1	32.2	<.1	<.1	<.5	<.5	<1	<1	<1	<1	<2	2.73	<.5	<.5
Grasmere	06/07/2015	21.8	33.5	<.1	<.1	<.5	<.5	<1	<1	<1	<1	<2	<2	<.5	<.5
Grasmere	12/10/2015	18.4	28.8	<.1	<.1	<.5	<.5	<1	<1	<1	<1	<2	4.36	<.5	<.5
Haweswater	19/01/2015	36.4	63.6	<.1	<.1	<.5	<.5	<1	<1	<1	<1	<2	<2	<.5	<.5
Haweswater	08/04/2015	22.7	48.4	<.1	<.1	<.5	<.5	<1	<1	<1	<1	<2	<2	8.9	13.1
Haweswater	01/07/2015	20.4	29.8	<.1	<.1	<.5	<.5	<1	<1	<1	<1	<2	<2	8.22	10.9
Haweswater	07/10/2015	15.8	30.1	<.1	<.1	<.5	<.5	<1	<1	<1	<1	<2	4.93	<.5	64.5
Loughrigg Tarn	15/01/2015	16.3	52.7	<.1	<.1	<.5	<.5	<1	<1	<1	<1	<2	<2	<.5	<.5
Loughrigg Tarn	09/04/2015	<10	14.5	<.1	<.1	<.5	<.5	<1	<1	<1	<1	<2	3.38	<.5	<.5
Loughrigg Tarn	02/07/2015	10.1	16.8	<.1	<.1	<.5	<.5	<1	<1	<1	<1	<2	5.45	<.5	<.5
Loughrigg Tarn	08/10/2015	<10	12.5	<.1	<.1	<.5	<.5	<1	<1	<1	<1	<2	8.09	<.5	<.5
Loweswater	19/01/2015	22.2	74.7	<.1	<.1	<.5	<.5	<1	<1	<1	<1	<2	<2	<.5	<.5
Loweswater	10/04/2015	<10	19.6	<.1	<.1	<.5	<.5	<1	<1	<1	<1	<2	<2	<.5	<.5
Loweswater	03/07/2015	10.3	<10	<.1	<.1	<.5	<.5	<1	<1	<1	<1	<2	<2	<.5	<.5
Loweswater	09/10/2015	<10	<10	<.1	<.1	<.5	<.5	<1	<1	<1	<1	<2	<2	<.5	<.5
Rydal Water	19/01/2015	40.1	102	<.1	<.1	<.5	<.5	1.57	2.21	<1	<1	<2	8.07	6.13	10.9
Rydal Water	09/04/2015	16.8	33.2	<.1	<.1	<.5	<.5	<1	<1	<1	<1	<2	3.32	<.5	<.5
Rydal Water	02/07/2015	21	29.2	<.1	<.1	<.5	<.5	<1	<1	<1	<1	<2	<2	<.5	<.5
Rydal Water	08/10/2015	13.3	19.6	<.1	<.1	<.5	<.5	<1	<1	<1	<1	<2	<2	<.5	<.5
Thirlmere	16/01/2015	41.6	68	<.1	<.1	<.5	<.5	<1	1.03	<1	<1	<2	2.77	<.5	<.5
Thirlmere	10/04/2015	30.6	39.9	0.152	0.16	<.5	<.5	<1	<1	<1	<1	<2	<2	<.5	<.5
Thirlmere	03/07/2015	22.7	47.9	<.1	<.1	<.5	<.5	<1	<1	<1	1.83	<2	2.61	<.5	<.5
Thirlmere	09/10/2015	22	32.3	<.1	<.1	<.5	<.5	<1	<1	<1	<1	2.08	6.74	<.5	<.5
Ullswater	20/01/2015	23.5	44.8	<.1	<.1	<.5	<.5	<1	<1	<1	<1	<2	<2	7.33	9.57
Ullswater	14/04/2015	10	23.8	<.1	<.1	<.5	<.5	<1	<1	<1	<1	<2	<2	7.8	13.9
Ullswater	07/07/2015	<10	<10	<.1	<.1	<.5	<.5	<1	<1	<1	<1	<2	<2	<.5	6.04
Ullswater	13/10/2015	<10	12.2	<.1	<.1	<.5	<.5	1.17	1.36	<1	<1	<2	<2	5.66	7.58
Wastwater	21/01/2015	14.1	30	<.1	<.1	<.5	<.5	<1	<1	<1	<1	<2	<2	<.5	5.36
Wastwater	09/04/2015	11	17.6	<.1	<.1	<.5	<.5	<1	<1	<1	<1	<2	<2	<.5	<.5
Wastwater	02/07/2015	14.5	17.3	<.1	<.1	<.5	<.5	<1	<1	<1	<1	<2	22.8	5.75	<.5
Wastwater	08/10/2015	14.4	21.5	0.105	<.1	<.5	<.5	<1	<1	<1	<1	<2	<2	<.5	7.06
Windermere N Basin	20/01/2015	29.3	48.6	<.1	<.1	<.5	<.5	<1	2.12	<1	<1	<2	<2	<.5	<.5
Windermere N Basin	14/04/2015	13.1	23.5	<.1	<.1	<.5	<.5	1.5	1.64	<1	<1	<2	<2	<.5	<.5
Windermere N Basin	07/07/2015	<10	14.7	<.1	<.1	<.5	<.5	1.21	1.24	<1	<1	<2	<2	<.5	<.5
Windermere N Basin	13/10/2015	<10	13.7	<.1	<.1	<.5	<.5	<1	1.18	<1	<1	<2	<2	<.5	<.5
Windermere S Basin	20/01/2015	21.2	36.4	<.1	<.1	<.5	<.5	1	2.26	<1	<1	<2	<2	<.5	<.5
Windermere S Basin	14/04/2015	<10	17.7	<.1	<.1	<.5	<.5	1.09	1.63	<1	<1	<2	<2	<.5	<.5
Windermere S Basin	07/07/2015	<10	16.9	<.1	<.1	<.5	<.5	1.72	1.97	<1	<1	<2	<2	<.5	<.5
Windermere S Basin	13/10/2015	<10	<10	<.1	<.1	<.5	<.5	1.25	1.48	<1	<1	<2	<2	<.5	<.5

3.2.10 Micro-organic pollutants

As for the heavy metals, the 2015 Lakes Tour was the second time that a consistent set of micro-organic compounds were analysed. The 69 compounds analysed and their limits of detection are listed in Table 3.5. Only five compounds gave readings above the limit of detection.

Phenoxy acetic acid (PAA)

This compound is one of a family of herbicides and was detected in 39 of the 78 samples analysed with a maximum concentration of 0.386 mg m^{-3} in Windermere South Basin in July (Tables 3.5 to 3.7). In 2010 a similar maximum was found in Hawewater, also in July.

4-Chloro-2-methylphenoxyacetic acid (MCPA)

MCPA is a powerful, selective, widely-used phenoxy herbicide. The detection limit was exceeded on eleven out of 78 sampling occasions, but the maximum concentration recorded (0.432 mg m^{-3} in Loughrigg Tarn in October) is at least 28-times below the suggested maximum annual mean concentrations (Tables 3.5 to 3.7).

3,6-dichloro-2-pyridinecarboxylic acid (Clopyralid)

Clopyralid is a selective herbicide used for control of broadleaf weeds, especially thistles and clovers. It was detected on four occasions in 2010 but was not detected in 2015 (Table 3.5).

Table 3.5 Micro-organic compounds (mg m^{-3}) analysed in 2015, their EA methods code, the limit(s) of detection (LOD), the number of values above the LOD, the maximum concentration recorded, and allowable mean concentration from UKTAG Annex VIII substances. Values in parentheses are results from 2010.

EA Code	Description	LOD	Number > LOD	Max concentration	Allowable concentration
6671	Phenoxyacetic acid (PAA)	0.05/0.5	39 (50)	0.386	-
0723	Diazinon	0.001	38 (27)	0.0235	0.01
3548	4-Chloro-2-methylphenoxyacetic acid (MCPA)	0.005/0.05/0.5	11 (8)	0.432	12-80*
3545	2,4-Dichlorophenoxyacetic acid (2,4-D)	0.005/0.05/0.5	2 (1)	0.00977	0.3
3555	Triclopyr	0.005/0.05/0.5	1 (1)	0.00551	-
0503	Chlorfenvinphos	0.01	0.0	<LOD	-
0507	Dichlorvos	0.004	0.0	<LOD	-
0535	Malathion	0.002	0.0	<LOD	-
0543	Parathion-ethyl :- {Parathion}	0.004	0.0	<LOD	-
0547	Phorate	0.02	0.0	<LOD	-
1118	Fenthion	0.008	0.0	<LOD	-
1119	Parathion-methyl	0.005	0.0	<LOD	-
3001	Simazine	0.003	0.0	<LOD	-
3002	Atrazine	0.003	0.0	<LOD	-
3009	Terbutryn	0.004	0.0	<LOD	-
3546	2,4,5-T :- {2,4,5-Trichlorophenoxyacetic acid}	0.005/0.05/0.5	0.0	<LOD	-
3547	4-Chlorophenoxyacetic acid	0.005/0.05/0.5	0 (2)	<LOD	-
3549	Mecoprop	0.005/0.05/0.5	0 (3)	<LOD	18
3550	Dicamba	0.04/0.4/4	0.0	<LOD	-
3551	Dichlorprop :- {2,4-DP}	0.005/0.05/0.5	0.0	<LOD	-
3552	Fenoprop	0.005/0.05/0.5	0.0	<LOD	-
3790	MCPB :- {4-Chloro-2-methylphenoxybutyric acid}	0.005/0.05/0.5	0 (1)	<LOD	-
3791	2,4-DB :- {4-(2,4-dichlorophenoxy)butyric acid}	0.005/0.05/0.5	0 (1)	<LOD	-
3792	Benazolin	0.005/0.05/0.5	0.0	<LOD	-
4064	Fluroxypyr	0.005/0.05/0.5	0.0	<LOD	-
4065	Bentazone	0.005/0.05/0.5	0 (1)	<LOD	500
5563	Prometryn	0.005	0.0	<LOD	-
6447	Dimethoate	0.006	0.0	<LOD	-
6448	Propyzamide	0.005	0 (1)	<LOD	100
6449	Bromoxynil	0.005/0.05/.5	0 (1)	<LOD	100
6487	Triazophos	0.005	0.0	<LOD	-
6620	Clopyralid	0.01/0.1/1	0 (4)	<LOD	-
6628	Cyanazine	0.006	0.0	<LOD	-
6635	Desmetryn	0.005	0.0	<LOD	-
6640	Fenclorphan :- {Ronnel}	0.005	0.0	<LOD	-
6649	Iprodione	0.008	0.0	<LOD	-
6672	Phenoxybutyric acid :- {PBA}	0.005/0.05	0.0	<LOD	-
6673	Phenoxypropionic acid :- {PPA}	0.005/0.05/.5	0.0	<LOD	-
6776	Fenpropimorph	0.007/0.1	0.0	<LOD	-
6976	Napropamide	0.005	0.0	<LOD	-
7071	Prochloraz	0.007	0.0	<LOD	-
7154	Ethofumesate	0.005	0.0	<LOD	-
7159	Fonofos	0.001	0.0	<LOD	-
7181	Chlorpyrifos-methyl	0.001	0.0	<LOD	-
7726	2,3,6-TBA :- {2,3,6-Trichlorobenzoic acid}	0.04/0.4/4	0 (1)	<LOD	-
8804	Atrazine-desethyl :- {Atrazine-de-ethyl}	0.02	0.0	<LOD	-
8997	Atrazine-desisopropyl :- {Atrazine de-isopropyl}	0.02	0.0	<LOD	-
8998	Pirimiphos-ethyl	0.005	0.0	<LOD	-
8999	Irgarol 1051	0.005	0.0	<LOD	-
9000	Iodofenphos	0.001	0 (1)	<LOD	-
9002	Metazachlor	0.005	0.0	<LOD	-
9068	Ioxynil	0.005/.05/.5	0.0	<LOD	-
9338	Bendiocarb	0.005	0.0	<LOD	-
9474	Coumaphos	0.005	0.0	<LOD	-
9479	Mevinphos	0.008	0.0	<LOD	-
9519	Carbophenothion	0.005	0.0	<LOD	-
9586	Propetamphos	0.005	0.0	<LOD	-
9606	Bupirimate	0.005	0.0	<LOD	-
9634	Propazine	0.002	0.0	<LOD	-
9715	Azinphos-methyl	0.003	0.0	<LOD	-
9716	Fenitrothion	0.001	0.0	<LOD	-
9851	Pirimiphos-methyl	0.003	0.0	<LOD	-
9860	Metalaxyl	0.008	0.0	<LOD	-
9863	Azinphos-ethyl	0.006	0.0	<LOD	-
9883	Picloram	0.01/.1	0 (1)	<LOD	-
9911	Trietazine	0.002	0.0	<LOD	-
9959	Pirimicarb	0.004	0.0	<LOD	-
9978	Chlorpyrifos-ethyl	0.002	0.0	<LOD	-
9979	Ethion	0.005	0.0	<LOD	-

* Lower value if pH<7, higher value if pH>7.

Table 3.6. Mean concentration of the five detectable micro-organic compounds in the twenty lakes in 2015 (mg m⁻³).

'- ' indicates less than the limit of detection.

EA Code	6671	0723	3548	3545	3555
Lake	Phenoxyacetic acid (PAA)	Diazinon	4-Chloro-2-methylphenoxyacetic acid (MCPA)	2,4-Dichlorophenoxyacetic acid (2,4-D)	Triclopyr
Bassenthwaite Lake	0.0200	0.0041	0.0274	-	-
Blelham Tarn	0.0101	0.0130	0.1039	0.0087	0.0089
Brotherswater	-	-	-	-	-
Buttermere	0.0146	0.0053	-	-	-
Coniston Water	0.0124	0.0011	-	-	-
Crummock Water	0.0076	0.0021	-	-	-
Derwent Water	-	0.0232	-	-	-
Elterwater	0.0137	0.0052	0.0200	-	-
Ennerdale Water	0.0381	-	-	-	-
Esthwaite Water	0.0156	0.0021	0.0103	0.0098	-
Grasmere	0.0137	0.0103	-	-	-
Haweswater	0.0103	-	-	-	-
Loughrigg Tarn	0.0061	0.0014	0.4320	-	-
Loweswater	0.0055	0.0028	-	-	-
Rydal Water	0.0204	0.0057	-	-	-
Thirlmere	0.0078	0.0014	-	-	-
Ullswater	0.0091	0.0020	0.0052	-	-
Wastwater	0.0088	-	-	-	-
Windermere N Basin	0.0406	0.0021	0.0199	-	-
Windermere S Basin	0.1979	0.0015	0.0076	-	-

Diazinon

Diazinon (O,O-Diethyl O-[4-methyl-6-(propan-2-yl)pyrimidin-2-yl] phosphorothioate) is a contact organophosphorus acaricide, miticide or insecticide. It was detected on 38 out of the 77 samples analysed and above detection limits in 16 out of the 20 lakes (Tables 3.5 and 3.6). The only lakes where Diazinon was not found were Brotherswater, Ennerdale Water, Haweswater and Wastwater. Diazinon was found on all four sampling occasions in Buttermere, (annual mean 0.005 mg m^{-3}) Crummock Water (annual mean 0.002 mg m^{-3}), Ullswater (annual mean 0.002 mg m^{-3}) and the North Basin of Windermere (annual mean 0.002 mg m^{-3}). These are the same lakes identified as having high concentrations of Diazinon in 2010. The maximum recorded concentration of 0.024 mg m^{-3} was recorded at Blelham Tarn in January which is lower than the annual maximum allowable mean concentration of 0.01 mg m^{-3} (Tables 3.5 and 3.6) Concentrations in 2015 were lower than in 2010 in three of these four lakes: Buttermere (0.016 vs 0.005 mg m^{-3}) in Crummock Water (0.008 vs 0.002 mg m^{-3}) and in Ullswater (0.004 to 0.002 mg m^{-3}) but were unchanged in the North Basin of Windermere (0.002 mg m^{-3}). Assuming that the high concentrations in Buttermere, in particular, enter the lake via specific streams there is a likelihood that concentrations in those streams will be much higher and possibly causing ecological damage.

Mecoprop

Methylchlorophenoxypropionic acid (MCPA) is a common general use herbicide found in many household weed killers and "weed-and-feed" type lawn fertilizers. It was detected three times in 2010 but was not detected in 2015 (Table 3.5).

4-CAA

4-Chlorophenoxyacetic acid (4-CAA) is an artificial plant hormone (an analogue of auxin) and is presumably active as a herbicide. It was detected twice in 2010 but was not detected in 2015 (Table 3.5).

2,4-D (2,4-Dichlorophenoxyacetic acid)

2,4-D is an industrial intermediate and likely to enter watercourses via wastewater treatment works. It was detected once in 2010 but twice in 2015, at Esthwaite Water in July and Blelham Tarn in October (Tables 3.5 and 3.6). The concentration at both sites was 0.01 mg m^{-3} but there do not appear to be a maximum allowable concentrations with which to compare this.

Triclopyr

Is a herbicide designed to kill broadleaved weeds rather than grasses. It was detected once, at Blelham Tarn in July, at a concentration of 0.0055 mg m^{-3} , marginally above the limit of detection of 0.005 mg m^{-3} (Tables 3.5, 3.6). It was not detected in 2010.

3.3 Current status of the English Lakes and evidence for change

This section assesses the current status of each of the 20 lakes basins surveyed in 2015 on a lake-by-lake basis. In addition to a general assessment, each lake is categorised according to its trophic state and likely ecological status in the terms of the EC Water Framework Directive. The OECD (1982) boundaries for trophic state based on concentration of total phosphorus and chlorophyll *a* and Secchi depth are shown in Table 3.7.

Table 3.7. OECD (1982) boundaries for lake trophic status.

Trophic category	Mean annual TP (mg m ⁻³)	Mean annual Chl <i>a</i> (mg m ⁻³)	Max Chl <i>a</i> (mg m ⁻³)	Mean annual Secchi (m)	Min Secchi (m)
Ultra-oligotrophic	≤ 4	≤ 1	≤ 2.5	≥ 12	≥ 6
Oligotrophic	4 < 10	1 < 2.5	2.5 < 8	12 > 6	6 > 3
Mesotrophic	10 < 35	2.5 < 8	8 < 25	6 > 3	3 ≤ 1.5
Eutrophic	35 < 100	8 < 25	25 < 75	3 > 1.5	1.5 ≤ 0.7
Hypertrophic	≥ 100	≥ 25	≥ 75	≤ 1.5	≤ 0.7

A legislative framework for the classification of lakes is provided by the European Union Water Framework Directive (WFD; 2000/60/EC). This requires lakes and other surface waters to be maintained or returned to Good Ecological Status by 2015 wherever feasible. Boundaries for ecological status of different Biological Quality Elements or Supporting-elements are set depending on the type of lake. Two features are relevant here for lake type: alkalinity and mean depth. Low alkalinity lakes have an annual mean alkalinity less than 200 mequiv m⁻³, moderate alkalinity 200 to less than 1000 mequiv m⁻³ and high alkalinity more than 1000 mequiv m⁻³ (does not apply to any of the major Lake District lakes). The depth

categories relate to mean depth and are very shallow, less than 3 m; shallow, 3 to 15 m; and deep, more than 15 m. Table 3.8 gives the WFD categories for each of the 20 lakes.

Table 3.8. Site-specific annual mean total phosphorus concentrations (mg m^{-3}) for different lake types (LAS low alkalinity shallow; LAD low alkalinity deep; LAVS low alkalinity very shallow; MAS medium alkalinity shallow; MAD medium alkalinity deep. Ecological quality designated as reference state (Ref) and boundaries for High:Good (H:G), Good:Moderate (G:M), Moderate:Poor (M:P) and Poor:Bad (P:B).

Lake	Type	Ref	H:G	G:M	M:P	P:B
Bassenthwaite Lake	MAS	<7.2	9.6	14.5	28.9	57.8
Blelham Tarn	MAS	<8.0	11.0	16.0	32.0	64.0
Brothers Water	LAS	<5.0	7.0	10.0	20.0	40.0
Buttermere	LAD	<3.9	5.2	8.2	16.3	32.7
Coniston Water	LAD	<5.1	7.0	11.0	22.1	44.1
Crummock Water	LAD	<3.5	5.0	8.0	16.0	32.0
Derwent Water	LAS	<6.2	8.2	12.4	24.8	49.5
Elterwater	LAVS	<7.9	10.5	15.7	31.3	62.6
Ennerdale Water	LAD	<3.7	5.1	8.0	16.0	32.0
Esthwaite Water	MAS	<8.3	11.0	16.4	32.8	65.7
Grasmere	LAS	<6.2	8.3	12.5	25.0	50.0
Haweswater	MAD	<4.5	6.1	9.7	19.3	38.7
Loughrigg Tarn*	MAS	<8.0	11.0	16.0	32.0	64.0
Loweswater	LAS	<6.0	8.1	12.2	24.5	48.9
Rydal Water*	LAS	<5.0	7.0	10.0	20.0	40.0
Thirlmere	LAD	<4.0	5.4	8.4	16.7	33.5
Ullswater	MAD	<4.9	6.7	10.6	21.3	42.5
Wastwater	LAD	<3.4	5.0	8.0	16.0	32.0
Windermere North Basin	MAD	<5.9	7.9	12.5	24.9	49.8
Windermere South Basin	MAD	<5.9	7.9	12.5	24.9	49.8

* Not a WFD lake.

Table 3.9. Site-specific annual geometric mean concentrations of phytoplankton chlorophyll a (mg m⁻³) at reference state (Ref) and the High:Good (H:G), Good:Moderate (G:M), Moderate:Poor (M:P) and Poor:Bad (P:B) boundaries.

Lake	Ref	H:G	G:M	M:P	P:B
Bassenthwaite Lake	<2.7	5.5	8.3	16.6	50.3
Blelham Tarn	<3.1	6.1	9.3	18.6	56.2
Brothers Water	<1.8	3.6	6.3	12.6	38.1
Buttermere	<1.6	3.2	4.9	9.8	29.8
Coniston Water	<2.0	4.0	6.0	12.0	36.4
Crummock Water	<1.5	3.0	4.6	9.2	27.8
Derwent Water	<2.3	4.6	7.9	15.8	47.9
Elterwater	<3.0	4.8	9.1	18.2	55.3
Ennerdale Water	<1.6	3.2	4.8	9.5	28.9
Esthwaite Water	<3.2	6.3	9.6	19.2	58.3
Grasmere	<2.3	4.6	7.9	15.9	48.1
Haweswater	<1.8	3.6	5.5	10.9	33.1
Loughrigg Tarn*	<3.1	6.1	9.3	18.6	56.2
Loweswater	<2.2	4.5	7.7	15.5	46.9
Rydal Water*	<1.8	3.6	6.3	12.6	38.1
Thirlmere	<1.7	3.3	5.0	10.0	30.4
Ullswater	<1.9	3.9	5.8	11.7	35.4
Wastwater	<1.5	3.0	4.5	9.0	27.3
Windermere North Basin	<2.2	4.4	6.6	13.3	40.3
Windermere South Basin	<2.2	4.4	6.6	13.3	40.3

* Not a WFD lake.

The appropriate measured concentrations to compare the values in Tables 3.8 and 3.9 against are the annual mean concentration for total phosphorus and the ‘observed chlorophyll concentration’ for chlorophyll. The latter is calculated from the annual geometric mean (the

mean of the Log10 chlorophyll concentrations converted back to unlogged concentrations), corrected for the effect of the geometric calculation using the following formula:

$$\text{Observed Chla} = GM_{\text{chlorophyll}} \times e^{0.5 \times (2.323 \times SD_g)^2}$$

Where: $GM_{\text{chlorophyll}}$ is the geometric mean of the measured chlorophyll concentrations; and SD_g is the standard deviation from a population of UK lakes, which for the lakes in the English Lake District considered here (alkalinity < 1 mequiv m⁻³) has a value of 0.345 (UKTAG 2008). Note that the methodology requires monthly values for TP and chlorophyll *a* while four samples are available for analysis here, albeit spaced seasonally, so this may introduce some inaccuracy. Furthermore, while the boundary values are the currently accepted values, they have not yet been officially agreed and so may change subsequently. Finally, for WFD, assessments are made as a three- year mean rather than as an annual mean as here.

In this section, records from the 2015 Lakes Tour are assessed for the current status of the lakes and also compared to those in 1991, 1995 and 2000, 2005, 2010 and, where possible, 1984, to assess the extent of any change in these lakes. For all the correlations, especially for chlorophyll *a* and Secchi depth where values were not recorded in 1984, there are a lower number of degrees of freedom compared to the other variables and so some changes may be real even though they are not statistically significant. The major changes are reported on a lake-by-lake basis. Although results for SRP and NH₄-N are presented, they are not analysed in detail as many of the concentrations were below the detection limit. The overall statistical analyses of change for the twenty lakes are presented below in Table 3.10 and then discussed for each lake in the context of their current state.

Table 3.10 Correlation coefficient of mean annual change in nutrient chemistry for the 20 lake basins between 1984 and 2015. Significant correlations are shown in bold and shaded green when $P < 0.05$, yellow when $P < 0.01$ and orange when $P < 0.001$. NB. A declining concentration of H^+ is equivalent to an increase in pH.

Lake	TP	SRP	NO ₃ -N	NH ₄ -N	SiO ₂	Chla	SD	H ⁺	Alk	SO ₄	Cl	Ca	Mg	Na	K	Cond
Bassenthwaite Lake	-0.47	-0.11	-0.75	0.73	0.09	-0.02	0.38	-0.73	0.87	-0.90	-0.68	-0.69	-0.84	-0.64	-0.80	-0.74
Blelham Tarn	-0.26	0.12	-0.95	-0.72	-0.28	0.86	0.23	0.51	0.41	-0.95	-0.49	-0.73	-0.52	-0.51	-0.90	-0.84
Brotherswater	-0.13	-0.43	-0.48	0.30	0.08	0.29	-0.64	-0.70	0.90	-0.94	-0.64	-0.58	-0.79	-0.58	-0.88	-0.73
Buttermere	0.08	0.09	0.31	0.69	-0.91	0.38	-0.67	-0.81	0.86	-0.98	-0.65	-0.86	-0.88	-0.77	-0.77	-0.82
Coniston Water	0.35	0.24	-0.38	0.48	0.57	0.31	-0.86	-0.77	0.84	-0.99	-0.54	-0.94	-0.83	-0.61	-0.60	-0.89
Crummock Water	-0.14	0.24	0.33	0.75	-0.20	0.18	-0.74	-0.80	0.77	-0.98	-0.56	-0.81	-0.88	-0.66	-0.79	-0.79
Derwentwater	0.25	0.07	-0.86	0.58	-0.94	0.65	-0.57	-0.78	0.93	-0.98	-0.70	-0.83	-0.81	-0.74	-0.81	-0.89
Elterwater	-0.31	-0.21	-0.26	-0.56	-0.43	0.14	0.18	-0.52	0.61	-0.94	-0.55	0.28	0.17	-0.63	-0.65	-0.55
Ennerdale Water	0.36	-0.21	-0.92	0.85	-0.67	0.52	-0.90	-0.68	0.93	-0.97	-0.62	-0.88	-0.87	-0.68	-0.83	-0.82
Esthwaite Water	-0.37	-0.28	-0.93	-0.70	0.63	-0.71	0.92	-0.70	0.74	-0.96	-0.58	-0.69	-0.69	-0.41	-0.75	-0.71
Grasmere	-0.54	-0.09	0.21	0.03	-0.38	0.46	-0.07	-0.60	0.89	-0.96	-0.73	-0.77	-0.84	-0.74	-0.93	-0.81
Haweswater	-0.12	-0.12	-0.89	0.38	-0.21	-0.45	-0.54	-0.68	0.70	-0.94	-0.77	-0.87	-0.92	-0.79	-0.85	-0.86
Loughrigg Tarn	-0.66	-0.86	0.18	-0.52	-0.31	-0.07	0.33	-0.66	0.48	-0.98	-0.67	-0.86	-0.54	-0.69	-0.60	-0.81
Loweswater	0.06	0.08	-0.94	0.55	0.23	0.56	-0.24	-0.71	0.69	-0.97	-0.61	-0.96	-0.75	-0.72	-0.65	-0.91
Rydal Water	-0.01	-0.06	-0.04	0.34	-0.63	0.21	-0.41	-0.77	0.86	-0.98	-0.77	-0.80	-0.86	-0.78	-0.85	-0.86
Thirlmere	0.35	-0.16	-0.77	0.43	-0.88	0.67	-0.86	-0.79	0.79	-0.97	-0.78	-0.96	-0.92	-0.80	-0.86	-0.92
Ullswater	-0.20	-0.03	-0.65	0.62	0.80	-0.74	-0.55	-0.68	0.58	-0.98	-0.64	-0.90	-0.87	-0.69	-0.88	-0.84
Wastwater	0.04	0.19	-0.36	0.69	0.30	0.19	-0.76	-0.76	0.72	-0.94	-0.68	-0.36	-0.83	-0.75	-0.86	-0.68
Windermere North Basin	-0.81	-0.26	-0.54	0.13	-0.12	0.40	-0.67	-0.53	0.89	-0.97	-0.67	-0.87	-0.74	-0.75	-0.52	-0.76
Windermere South Basin	-0.83	-0.52	0.01	0.16	0.14	-0.50	-0.51	-0.52	0.80	-0.98	-0.65	-0.95	-0.79	-0.73	-0.58	-0.67

3.3.1 Bassenthwaite Lake

Bassenthwaite Lake is a large shallow lake in the north-west of the English Lake District (Fig. 2.1). It has a very short mean retention time for a lake of this size because it has a large catchment area (Table 2.1). Derwent Water and Thirlmere lie within its catchment. Key limnological features in 2015 are shown in



Bassenthwaite Lake from Winlatter Pass. (Photo: M.M. De Ville).

Table 3.11. A comprehensive review of the ecology of Bassenthwaite Lake has been published (Thackeray *et al.*, 2006).

Table 3.11. Summary of limnological conditions and trophic and Water Framework

Directive classifications at Bassenthwaite Lake in 2015.

Characteristic	Value	Trophic	WFD
Mean alkalinity (mequiv m ⁻³)	222		
Mean pH (geometric mean)	7.0		
Mean total phosphorus (mg m ⁻³)	11.0	Mesotrophic	Good
Mean soluble reactive phosphorus (mg m ⁻³)	1.7		
Mean nitrate-nitrogen (mg m ⁻³)	251		
Mean silica (mg m ⁻³)	1362		
Mean phytoplankton chlorophyll <i>a</i> (mg m ⁻³)	7	Mesotrophic	
Maximum phytoplankton chlorophyll <i>a</i> (mg m ⁻³)	14	Mesotrophic	
Arithmetic Observed chlorophyll <i>a</i> (mg m ⁻³)	6.6		Good
Mean Secchi depth (m)	3.2	Eutrophic	
Minimum Secchi depth (m)	2.1	Mesotrophic	
Minimum oxygen concentration (g m ⁻³)	3.7		

The water quality in Bassenthwaite Lake has improved over the last decade and the lake is now mesotrophic on most measures with the exception of secchi depth which probably

relates more to sediment load than to phytoplankton (Table 3.11). In terms of the current WFD classification boundaries, Bassenthwaite Lake is categorised as being in a Good ecological state for TP and for phytoplankton chlorophyll *a*; an improvement from Moderate in the 2010 Lakes Tour.

There are no statistically significant changes in the main nutrients in Bassenthwaite Lake over the whole record (Table 3.10) but there are encouraging signs of declining concentrations of TP, chlorophyll *a* and improving Secchi depth since around 2000 (Fig. 3.19). Of the major ions, alkalinity has increased, while sulphate, magnesium and potassium have decreased (Table 3.10).

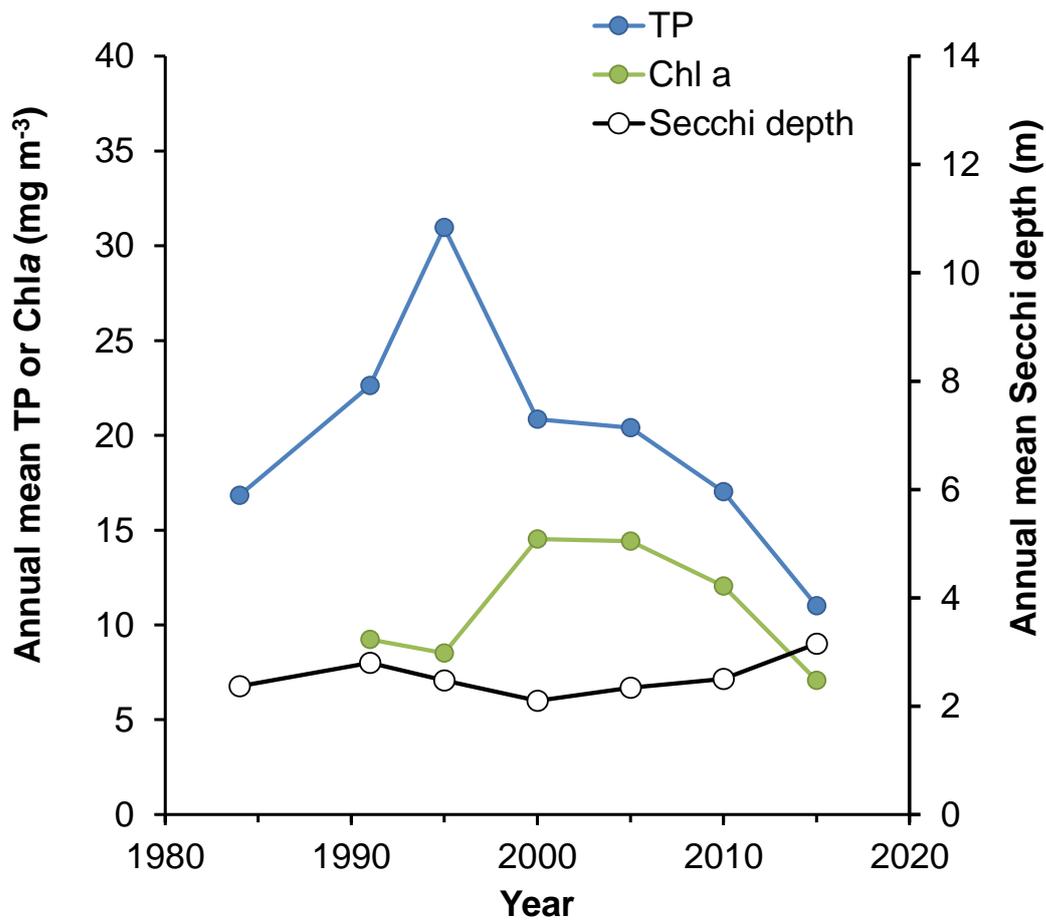


Figure 3.19. Long term changes in annual concentration of total phosphorus, phytoplankton chlorophyll *a* and Secchi depth in Bassenthwaite Lake.

The fish community at Bassenthwaite Lake

The fish community of Bassenthwaite Lake has been studied extensively since the early 1990s, as reviewed in part by Winfield *et al.* (2012a) and references therein. A gill-net and night-time hydroacoustics monitoring programme conducted since 1995 has documented the development of introduced roach, ruffe and dace together with the temporary loss of the rare vendace, for which no specimens were recorded in annual surveys between 2001 and 2012. Reasons for this loss are thought to include eutrophication, sedimentation and species introductions and it is fortunate that prior to its local extinction, a refuge population was successfully established in Loch Skeen (or Skene) in south-west Scotland (Winfield *et al.*, 2012a). However, the 2013 fish community survey of Bassenthwaite Lake unexpectedly recorded a single underyearling vendace which was followed in 2014 by the recording of two adults (Winfield *et al.*, in press). Monitoring in 2015 produced a sample of 611 fish of six species comprising 3 brown trout, 456 perch, 4 pike, 30 roach, 117 ruffe and 1 vendace, with total fish population density peaking in September at 565.0 fish ha⁻¹ (geometric mean with lower and upper 95% confidence limits of 234.7 and 401.4 fish ha⁻¹) (Winfield *et al.*, in prep. a). There are three possible origins for the 2013, 2014 and 2015 vendace records. First, vendace may have actually survived locally at very low abundance below the limit of detection and may now be increasing in abundance. Second, the fish may have arrived in Bassenthwaite Lake by moving down the River Derwent from Derwent Water. Third, such downstream movement may have happened some time ago and the individuals are the locally-spawned offspring of such recolonisers. The latter appears to be the most likely explanation for the observed 'reappearance', particularly given the relatively old age of one of the individuals sampled in 2014. In this context, recent DNA analysis of the single underyearling vendace of 2013 is inconclusive but suggests a Derwent Water origin (Winfield *et al.*, in press).

Bassenthwaite Lake is studied fortnightly as part of the CEH long-term monitoring programme that started in 1990 on this lake and CEH has an Automatic Water Quality Monitoring Station (AWQMS) on the lake. The fish populations are assessed regularly by CEH.

3.3.2 *Blelham Tarn*

Blelham Tarn is a small lake that drains into the North Basin of Windermere (Table 2.1, Fig. 2.1). In 2015 it had the highest annual mean alkalinity, concentration of magnesium and the highest concentration of phytoplankton chlorophyll *a* and shallowest Secchi depth of any of the 20 lakes (Table 3.31).



Blelham Tarn (Photo: S.C. Maberly)

Table 3.12. Summary of limnological conditions and trophic and Water Framework

Directive classifications at Blelham Tarn in 2015.

Characteristic	Value	Trophic	WFD
Mean alkalinity (mequiv m ⁻³)	450		
Mean pH (geometric mean)	7.2		
Mean total phosphorus (mg m ⁻³)	24.5	Mesotrophic	Moderate
Mean soluble reactive phosphorus (mg m ⁻³)	2.3		
Mean nitrate-nitrogen (mg m ⁻³)	293		
Mean silica (mg m ⁻³)	1247		
Mean phytoplankton chlorophyll <i>a</i> (mg m ⁻³)	23	Eutrophic	
Maximum phytoplankton chlorophyll <i>a</i> (mg m ⁻³)	37	Eutrophic	
Arithmetic Observed chlorophyll <i>a</i> (mg m ⁻³)	18.1		Moderate
Mean Secchi depth (m)	2.0	Eutrophic	
Minimum Secchi depth (m)	1.8	Mesotrophic	
Minimum oxygen concentration (g m ⁻³)	0.0		

Blelham Tarn appears to be on the meso-eutrophic boundary (Table 3.12) but it suffers severe oxygen depletion at depth during summer. The ecological state in terms of WFD classification is Moderate for total phosphorus and chlorophyll *a*, and it would fail oxygen concentration targets.

There has been a statistically significant increase in the concentration of phytoplankton chlorophyll *a* (Fig. 3.20) and a decrease in the concentration of nitrate in Blelham Tarn (Table 3.10). . Of the major ions, alkalinity has increased and sulphate and potassium have decreased (Table 3.10). Overall, the lake is showing signs of further deterioration in water quality. Gasca *et al.* (2015) found that agriculture contributes about two-thirds of the phosphorus load to the Tarn and 15% of the annual P-budget may derive from internal load from the sediments.

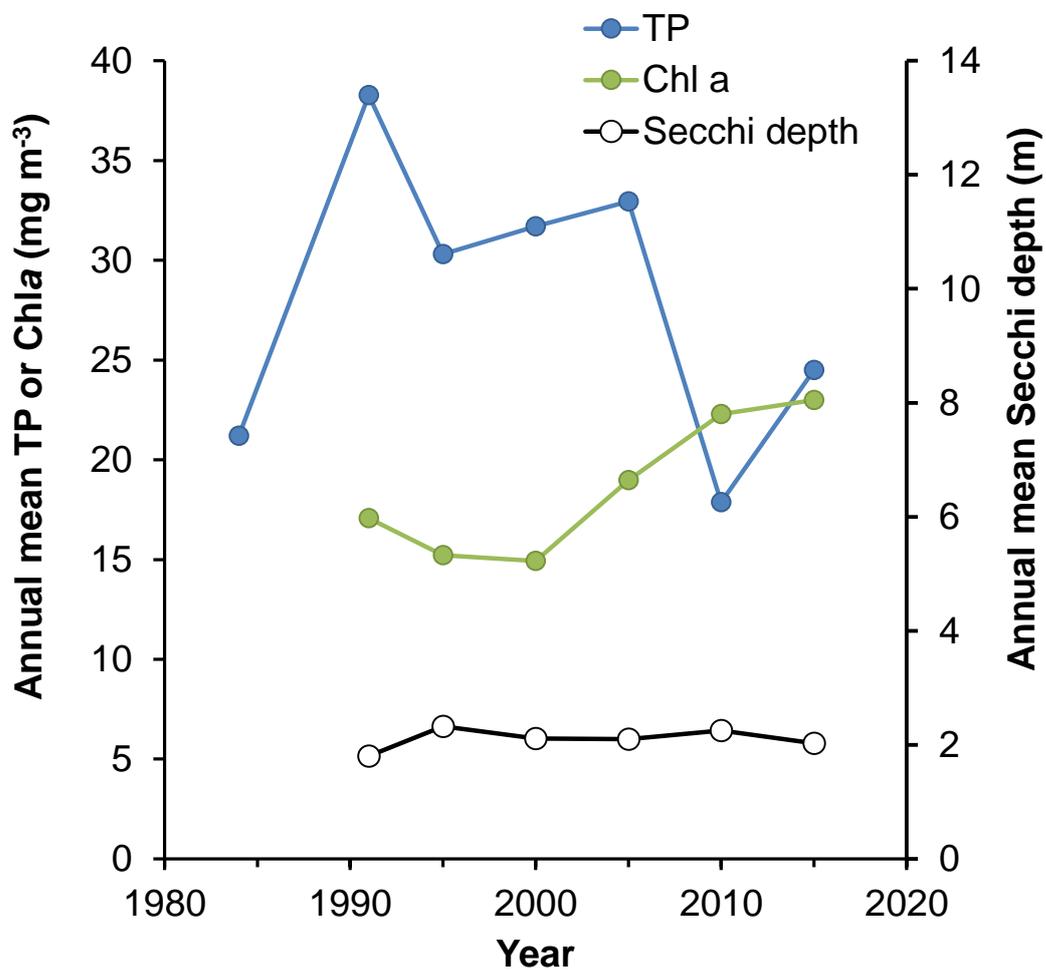


Figure 3.20. Long term changes in annual concentration of total phosphorus, phytoplankton chlorophyll *a* and Secchi depth in Blelham Tarn.

The fish community at Blelham Tarn

The fish community of Blelham Tarn has never been subjected to thorough scientific study, although Le Cren (1955) and Smyly (1978) make reference to its perch population and Frost (1989) notes that brown trout and pike are also present. Angling information suggests that the lake now holds mainly pike, perch and roach, with all three species reaching relatively large sizes and the former attaining individual weights in excess of 9 kg (WADAA, 2016). In a review of fish species introductions in the Lake District, Winfield *et al.* (2010a) concluded that the roach population of Blelham Tarn was likely to have been introduced in relatively recent times. No scientific fish sampling has been undertaken at this lake since Lakes Tour 2010.

Blelham Tarn is studied fortnightly as part of the CEH long-term monitoring programme that was started by the Freshwater Biological Association in 1945 and continued by CEH since 1989. There is a CEH AWQMS on the lake.

3.3.3 Brothers Water

Brothers Water is a small lake that drains into the southern end of Ullswater and has a fairly high-altitude catchment (Table 2.1). Of the 20 lakes in the Lakes Tour it had the fourth highest annual mean concentration of silica and the fourth deepest Secchi depth (Table 3.31).



Brothers Water from Kirkstone Pass (Photo: M.M. De Ville).

Table 3.13. Summary of limnological conditions and trophic and Water Framework Directive classifications at Brothers Water in 2010.

Characteristic	Value	Trophic	WFD
Mean alkalinity (mequiv m ⁻³)	192		
Mean pH (geometric mean)	7.0		
Mean total phosphorus (mg m ⁻³)	5.4	Oligotrophic	High
Mean soluble reactive phosphorus (mg m ⁻³)	0.6		
Mean nitrate-nitrogen (mg m ⁻³)	197		
Mean silica (mg m ⁻³)	1463		
Mean phytoplankton chlorophyll <i>a</i> (mg m ⁻³)	2	Oligotrophic	
Maximum phytoplankton chlorophyll <i>a</i> (mg m ⁻³)	3	Oligotrophic	
Arithmetic Observed chlorophyll <i>a</i> (mg m ⁻³)	2.2		High
Mean Secchi depth (m)	5.4	Mesotrophic	
Minimum Secchi depth (m)	4.5	Oligotrophic	
Minimum oxygen concentration (g m ⁻³)	0.4		

Brothers Water is close to the mesotrophic-oligotrophic boundary. Surprisingly for such a lake, there is quite a substantial oxygen depletion at depth (Table 3.13) but mainly in the bottom water (Fig. 3.3) which may reflect the fact that the water at depth is isolated in a fairly small volume because of the lake bathymetry (see section 4.1). Nevertheless when

mapping onto the WFD classification it is classified as being at High status (Table 3.13) although it would fail oxygen concentration targets.

There have been no changes in the nutrient chemistry of Brothers Water (Table 3.10). There has been a significant increase in alkalinity in Brothers Water, associated with declines in concentrations of sulphate, magnesium and potassium. There have been no significant changes in chlorophyll *a* or Secchi depth.

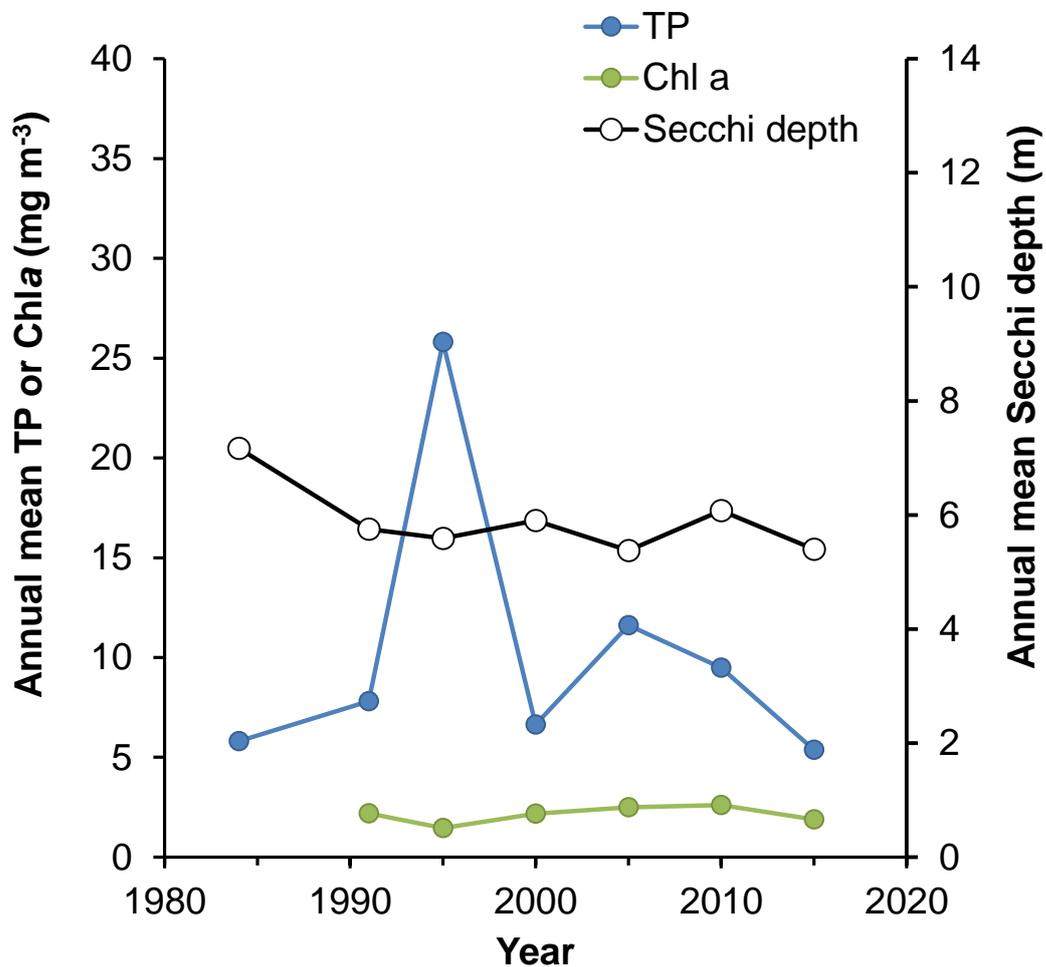


Figure 3.21. Long term changes in annual concentration of total phosphorus, phytoplankton chlorophyll *a* and Secchi depth in Brothers Water.

The fish community at Brotherswater

The fish community of Brotherswater has been subjected to relatively little scientific study (Winfield *et al.*, 2013). Frost (1989) mentioned the ‘possible’ occurrence of the rare schelly and Ellison (1966) noted a single schelly found dead on the lake’s shoreline in 1963. Winfield *et al.* (1993) surveyed the fish community in August 1992 using survey gill nets and recorded 5 brown trout, 11 perch and 27 schelly and considered that the population of the latter showed signs of poor recruitment. Night-time hydroacoustic surveys of Brotherswater were subsequently undertaken by the Environment Agency in August 1996 and August 2000 (Hateley, 2000). Mean single target density estimates with 95% confidence limits were 1.91 ± 0.60 fish 1000 m^{-3} and 2.45 ± 1.25 fish 1000 m^{-3} for 1996 and 2000, respectively. A second biological scientific sampling of the fish community of Brotherswater was undertaken by the Environment Agency using survey gill nets in July 2008 as part of a wider study collecting material for genetic and morphometric analysis (A. R. D. Gowans, Environment Agency, unpublished data). Although net placement was directed towards obtaining schelly and so purposefully under-sampled habitats where perch may have been expected, the exercise resulted in the capture of 16 brown trout, 2 perch and 19 schelly. Subsequently, a combined hydroacoustic and gill-netting survey was carried out in August 2015 and recorded a geometric mean fish abundance of $31.8 \text{ fish ha}^{-1}$ (with lower and upper 95% confidence limits of 7.7 and $131.9 \text{ fish ha}^{-1}$, respectively), together with 198 fish of five species comprising 39 brown trout, 33 minnow, 73 perch, 23 schelly and 30 three-spined stickleback (Winfield *et al.*, in prep. b). Although robust trends in schelly abundance cannot be determined from 1992 to 2015 due to changes in sampling effort, it clearly can be concluded that the schelly population persists.

3.3.4 Buttermere

Buttermere is a moderate-sized lake in the north-west of the English Lake District that drains into Crummock Water (Fig. 2.2).



Buttermere (Photo R. Groben).

Table 3.14. Summary of limnological conditions and trophic and Water Framework Directive classifications at Buttermere in 2015.

Characteristic	Value	Trophic	WFD
Mean alkalinity (mequiv m ⁻³)	65		
Mean pH (geometric mean)	6.7		
Mean total phosphorus (mg m ⁻³)	4.4	Oligotrophic	High
Mean soluble reactive phosphorus (mg m ⁻³)	0.8		
Mean nitrate-nitrogen (mg m ⁻³)	193		
Mean silica (mg m ⁻³)	1381		
Mean phytoplankton chlorophyll <i>a</i> (mg m ⁻³)	2	Oligotrophic	
Maximum phytoplankton chlorophyll <i>a</i> (mg m ⁻³)	3	Oligotrophic	
Arithmetic Observed chlorophyll <i>a</i> (mg m ⁻³)	2.3		High
Mean Secchi depth (m)	6.7	Oligotrophic	
Minimum Secchi depth (m)	5.6	Oligotrophic	
Minimum oxygen concentration (g m ⁻³)	6.9		

The Secchi depth is surprisingly variable (Fig. 3.4) with relatively low transparency in April despite phytoplankton chlorophyll *a* also being low. This suggests input of particulate or dissolved coloured material during heavy rainfall or disturbance of sediment during high winds, but nevertheless Buttermere has the second deepest Secchi depth on average. It had

the third lowest concentration of TP of any of the lakes in the Lakes Tour (after Wastwater and Ennerdale Water) and low concentrations of alkalinity and major ions (Table 3.31).

All the measures suggest that Buttermere is oligotrophic (Table 3.14). This is also reflected in the limited oxygen depletion at depth. In terms of the WFD, Buttermere is classified as being at High ecological status.

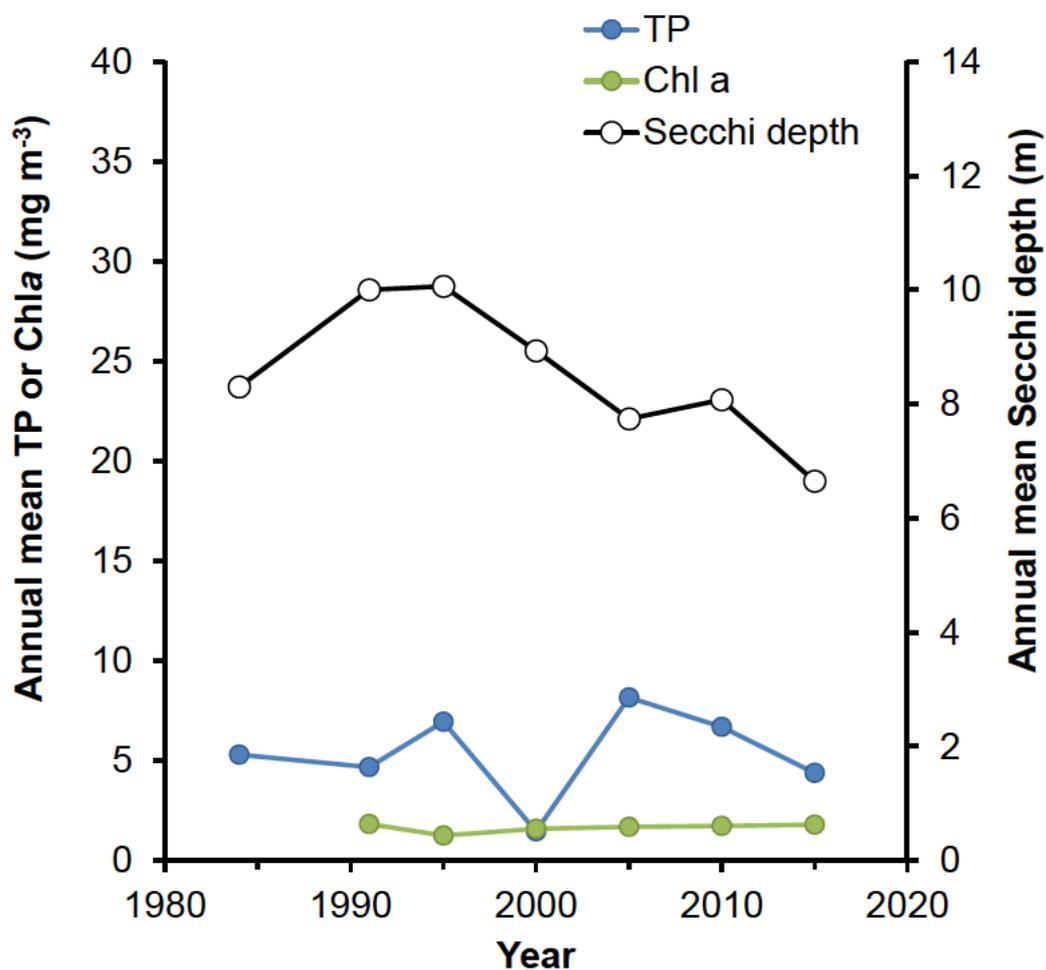


Figure 3.22. Long term changes in annual concentration of total phosphorus, phytoplankton chlorophyll a and Secchi depth in Buttermere.

There have been no significant changes in nutrient concentrations in Buttermere apart from a decline in silica (Table 3.10) which could possibly result from slight nutrient enrichment, especially as it is associated with a steady reduction in Secchi depth (Table 3.10, Fig. 3.22) and so this lake should be monitored closely even though phytoplankton chlorophyll *a* has not changed. There has been a statistically significant increase in pH and alkalinity (Table 3.10). Concentrations of sulphate, calcium, magnesium and potassium have all declined. The altered major ions are probably caused by reduced sulphur deposition causing a reversal of acidification in some poorly buffered lakes and streams in Cumbria (Tipping *et al.*, 1998).

The fish community at Buttermere

The fish community of Buttermere has received relatively little scientific attention but was surveyed using gill nets and hydroacoustics in July 2010 and August 2015 as part of assessments of its Arctic charr population by Winfield *et al.* (2011a) and Winfield *et al.* (in prep. b), respectively. In 2010, the gill nets produced a sample of 108 fish of five species comprising 1 Arctic charr, 11 brown trout, 4 minnow, 90 perch and 2 pike, with a total fish night-time population density of 1.4 fish ha⁻¹ (geometric mean with lower and upper 95% confidence limits of 0.7 and 3.1 fish ha⁻¹). In 2015, the gill nets produced a sample of 142 fish of four species comprising 15 Arctic charr, 10 brown trout, 5 minnow and 112 perch, with a total fish night-time population density of 4.5 fish ha⁻¹ (geometric mean with lower and upper 95% confidence limits of 1.6 and 13.0 fish ha⁻¹). Given that sampling nature and effort were identical in this two surveys it can be concluded that the Arctic charr population has recently increased in abundance, while other species have remained relatively unchanged.

3.3.5 Coniston Water

Coniston Water is the fifth largest lake in the study in terms of area and the fourth largest in terms of volume (Table 2.1).



Coniston Water (Photo I.J. Winfield).

Table 3.15. Summary of limnological conditions and trophic and Water Framework Directive classifications at Coniston Water in 2015.

Characteristic	Value	Trophic	WFD
Mean alkalinity (mequiv m ⁻³)	209		
Mean pH (geometric mean)	7.2		
Mean total phosphorus (mg m ⁻³)	8.6	Oligotrophic	Good
Mean soluble reactive phosphorus (mg m ⁻³)	1.1		
Mean nitrate-nitrogen (mg m ⁻³)	353		
Mean silica (mg m ⁻³)	784		
Mean phytoplankton chlorophyll <i>a</i> (mg m ⁻³)	4	Mesotrophic	
Maximum phytoplankton chlorophyll <i>a</i> (mg m ⁻³)	7	Oligotrophic	
Arithmetic Observed chlorophyll <i>a</i> (mg m ⁻³)	5.1		Good
Mean Secchi depth (m)	5.1	Mesotrophic	
Minimum Secchi depth (m)	3.75	Oligotrophic	
Minimum oxygen concentration (g m ⁻³)	4.5		

Various measures suggest that Coniston Water is or oligo-mesotrophic and this is reflected in the slight oxygen depletion at depth (Table 3.15). In terms of the WFD, the ecological status is Good in terms of TP and chlorophyll *a*. A review of the ecology of Coniston Water was carried out by Dent *et al.* (2001) and Maberly *et al.* (2003).

The nutrient chemistry of Coniston Water is relatively stable. There have been no significant trends in nutrient chemistry or phytoplankton chlorophyll *a* or Secchi depth in recent years, although over the longer term Secchi depth has decreased (Table 3.10, Fig. 3.23). As in many lakes, pH and alkalinity have increased while sulphate, calcium and magnesium have decreased.

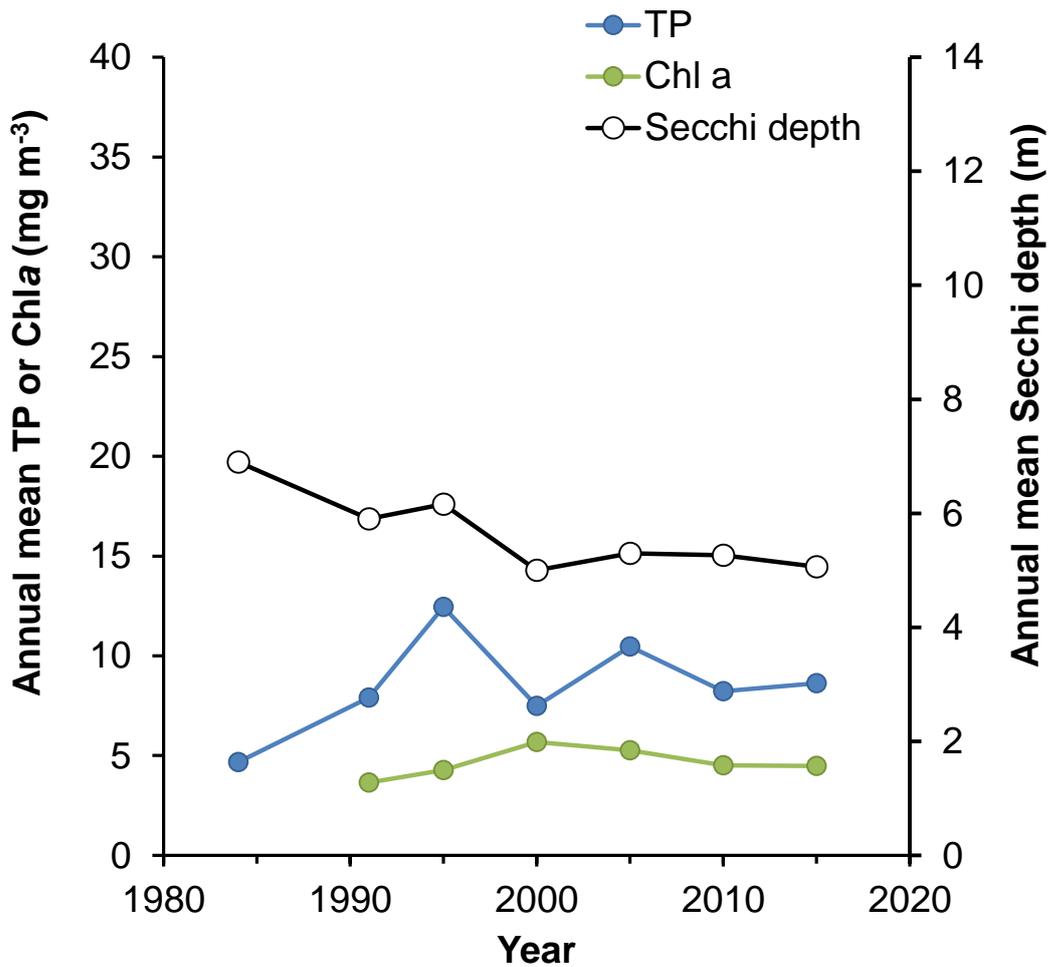


Figure 3.23. Long term changes in annual concentration of total phosphorus, phytoplankton chlorophyll *a* and Secchi depth in Coniston Water.

The fish community at Coniston Water

The fish community of Coniston Water has been subjected to relatively little scientific study, although such study as had been undertaken at the time was reviewed and the community assessed using gill nets and hydroacoustics in 2003 by Winfield *et al.* (2004a), after which its Arctic charr and brown trout populations were specifically assessed in 2004 by Winfield *et al.* (2005a). In 2003, the gill nets produced a sample of 403 fish of six species comprising Arctic charr, Atlantic salmon, brown trout, minnow, perch and pike, with total fish population density peaking in October at 1244.9 fish ha⁻¹ (geometric mean with lower and upper 95% confidence limits of 898.6 and 1724.6 fish ha⁻¹) (Winfield *et al.*, 2004a). Although a marked decline was observed in the catch-per-unit-effort of the local Arctic charr fishery from 1990 to 2003 (Winfield *et al.*, 2004a), this trend was temporarily reversed in 2004 (Winfield *et al.*, 2005a), before being subsequently resumed up to 2008 (Winfield *et al.*, 2010b) and then remaining at low levels in 2009 and 2010, falling further in 2011 and 2012 and then recovering to pre-2000 general levels for the last 3 years (Centre for Ecology & Hydrology, unpublished data). In 2009, the first record of roach in Coniston Water was reported by an angler fishing off Limestone Rock, a submerged limestone outcrop towards the north end of the lake (J. Carroll, Coniston & Torver District Angling Association, *pers. comm.*) although no further sightings have subsequently been reported. No scientific sampling of fish has been undertaken at this lake since Lakes Tour 2010.

The Coniston-Crake Partnership was set up to promote good water quality in Coniston Water (<http://www.scrt.co.uk/coniston-and-crake-partnership/coniston-and-crake-partnership>).

3.3.6 Crummock Water

Crummock Water receives water from Buttermere to the south and Loweswater to the north-west (Fig. 2.2). In 2015 it had the second lowest alkalinity and pH (Table 3.31) of the 20 lakes.



*Crummock Water, looking north-west.
(Photo: M.M. De Ville).*

Table 3.16. Summary of limnological conditions and trophic and Water Framework Directive classifications at Crummock Water in 2015.

Characteristic	Value	Trophic	WFD
Mean alkalinity (mequiv m ⁻³)	60		
Mean pH (geometric mean)	6.7		
Mean total phosphorus (mg m ⁻³)	2.5	Ultra-oligotrophic	High
Mean soluble reactive phosphorus (mg m ⁻³)	0.9		
Mean nitrate-nitrogen (mg m ⁻³)	221		
Mean silica (mg m ⁻³)	1055		
Mean phytoplankton chlorophyll <i>a</i> (mg m ⁻³)	3	Mesotrophic	
Maximum phytoplankton chlorophyll <i>a</i> (mg m ⁻³)	4	Oligotrophic	
Arithmetic Observed chlorophyll <i>a</i> (mg m ⁻³)	3.2		Good
Mean Secchi depth (m)	7.5	Oligotrophic	
Minimum Secchi depth (m)	5.5	Oligotrophic	
Minimum oxygen concentration (g m ⁻³)	3.6		

Its trophic status is essentially oligotrophic and it had the third lowest concentration of TP and chlorophyll *a* and the third deepest Secchi depth. The oxygen concentration at depth was much lower than recorded in 2010 (6.2 mg m⁻³) which is a slight cause for concern and this

aspect will need to be checked carefully in future years. Its ecological status in terms of the WFD is High for TP and Good for phytoplankton chlorophyll *a*.

There have been no statistically significant changes in nutrient chemistry or indications of change in trophic state (Table 3.10). The pattern of gradually increasing alkalinity and pH seen elsewhere is also present in Crummock Water (Table 3.10) but basically the lake appears to be in a stable state.

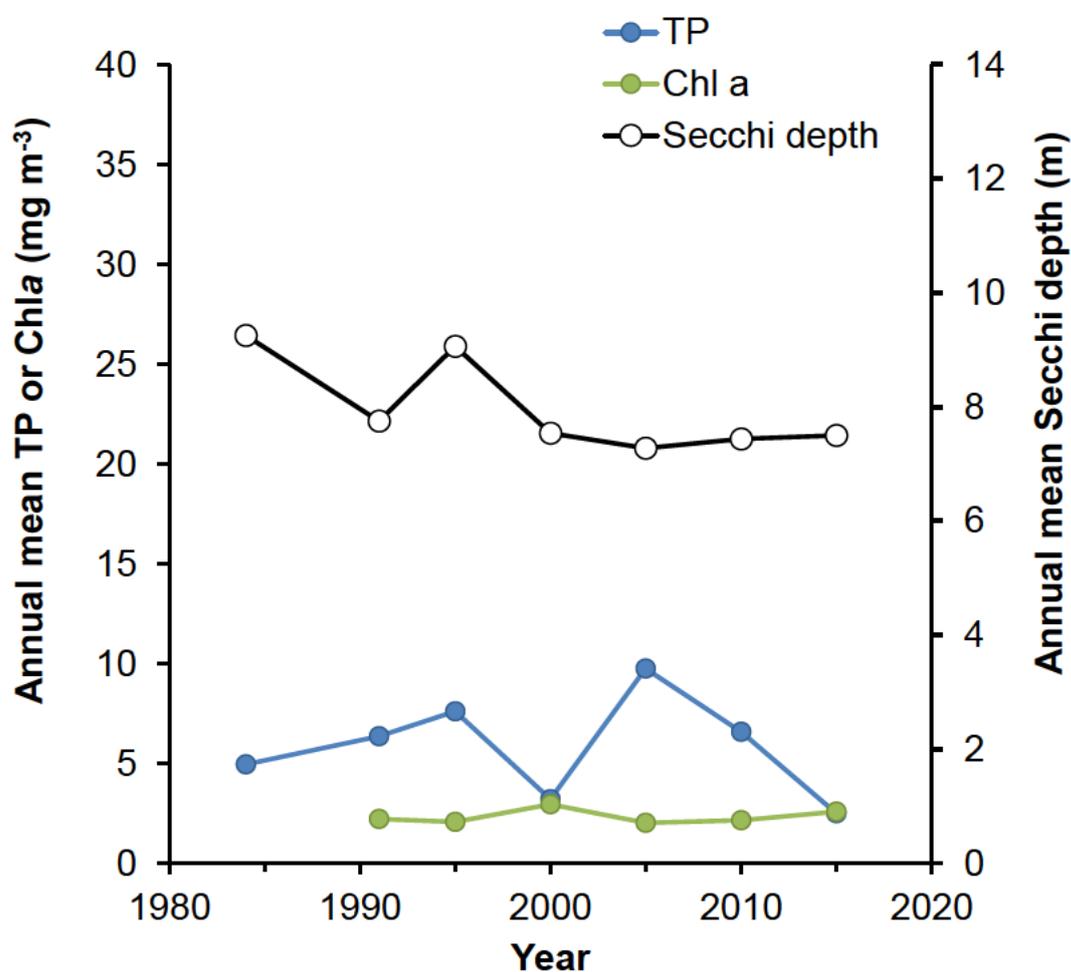


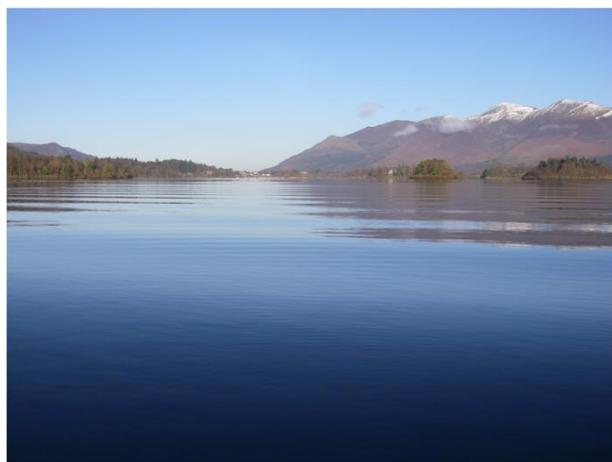
Figure 3.24. Long term changes in annual concentration of total phosphorus, phytoplankton chlorophyll *a* and Secchi depth in Crummock Water.

The fish community at Crummock Water

The fish community of Crummock Water historically received little scientific attention, but it was surveyed using gill nets and hydroacoustics in July 2010 as part of an assessment of its Arctic charr population by Winfield *et al.* (2011a). The gill nets produced a sample of 112 fish of three species comprising 41 Arctic charr, 10 brown trout and 61 perch, with a total fish night-time population density of 43.8 fish ha⁻¹ (geometric mean with lower and upper 95% confidence limits of 20.0 and 95.8 fish ha⁻¹). Identical sampling has subsequently been used in a planned 5 year programme of research also directed at its Arctic charr population, which has included an annual series of hydroacoustic surveys from 2012 onwards and a gill-net survey in 2013. Fish abundance has been relatively stable from 2012 to 2014 (2015 data are not yet fully analysed), with the figures for 2014 being 123.2 fish ha⁻¹ (geometric mean with lower and upper 95% confidence limits of 55.8 and 272.3 fish ha⁻¹) (Winfield *et al.*, 2015a). In 2013, gill nets produced a sample of 94 fish of four species comprising 48 Arctic charr, 9 brown trout, 1 minnow and 36 perch (Winfield *et al.*, 2015a). Both hydroacoustic and gill-net observations indicate that the Arctic charr population, and indeed the populations of other fish species in the lake, are relatively stable.

3.3.7 Derwent Water

Derwent Water lies in the north of the English Lake District within the catchment of Bassenthwaite Lake (Fig. 2.2). It is relatively shallow but has some deep water down to 22 m (Table 2.1). Of the 20 lakes in the Lakes Tour in 2015, Derwent Water had the lowest annual



Derwent Water (Photo: M.M. De Ville).

mean concentration of nitrate and sulphate and low concentrations of magnesium, but the third highest concentration of chloride (Table 3.31).

Table 3.17. Summary of limnological conditions and trophic and Water Framework Directive classifications at Derwent Water in 2015.

Characteristic	Value	Trophic	WFD
Mean alkalinity (mequiv m ⁻³)	109		
Mean pH (geometric mean)	6.8		
Mean total phosphorus (mg m ⁻³)	9.5	Oligotrophic	Good
Mean soluble reactive phosphorus (mg m ⁻³)	0.8		
Mean nitrate-nitrogen (mg m ⁻³)	104		
Mean silica (mg m ⁻³)	723		
Mean phytoplankton chlorophyll <i>a</i> (mg m ⁻³)	5	Mesotrophic	
Maximum phytoplankton chlorophyll <i>a</i> (mg m ⁻³)	7	Oligotrophic	
Arithmetic Observed chlorophyll <i>a</i> (mg m ⁻³)	5.7		Good
Mean Secchi depth (m)	4.2	Mesotrophic	
Minimum Secchi depth (m)	4	Oligotrophic	
Minimum oxygen concentration (g m ⁻³)	3.7		

The trophic status of Derwent Water is clearly mesotrophic (Table 3.17) but oxygen depletion in the deep water (Fig. 3.3) is moderate, although less than in 2010. The status in

terms of the WFD was ‘Good’ for the annual mean concentration of TP and phytoplankton chlorophyll *a*.

Derwent Water is basically stable with slight non-significant improvements in chlorophyll *a* and Secchi depth. Although concentrations of TP are stable (Table 3.10), concentrations of nitrate and silica have declined potentially indicating increased demand. The pattern of changing major ions is similar to that seen in many of the other lakes (Table 3.10).

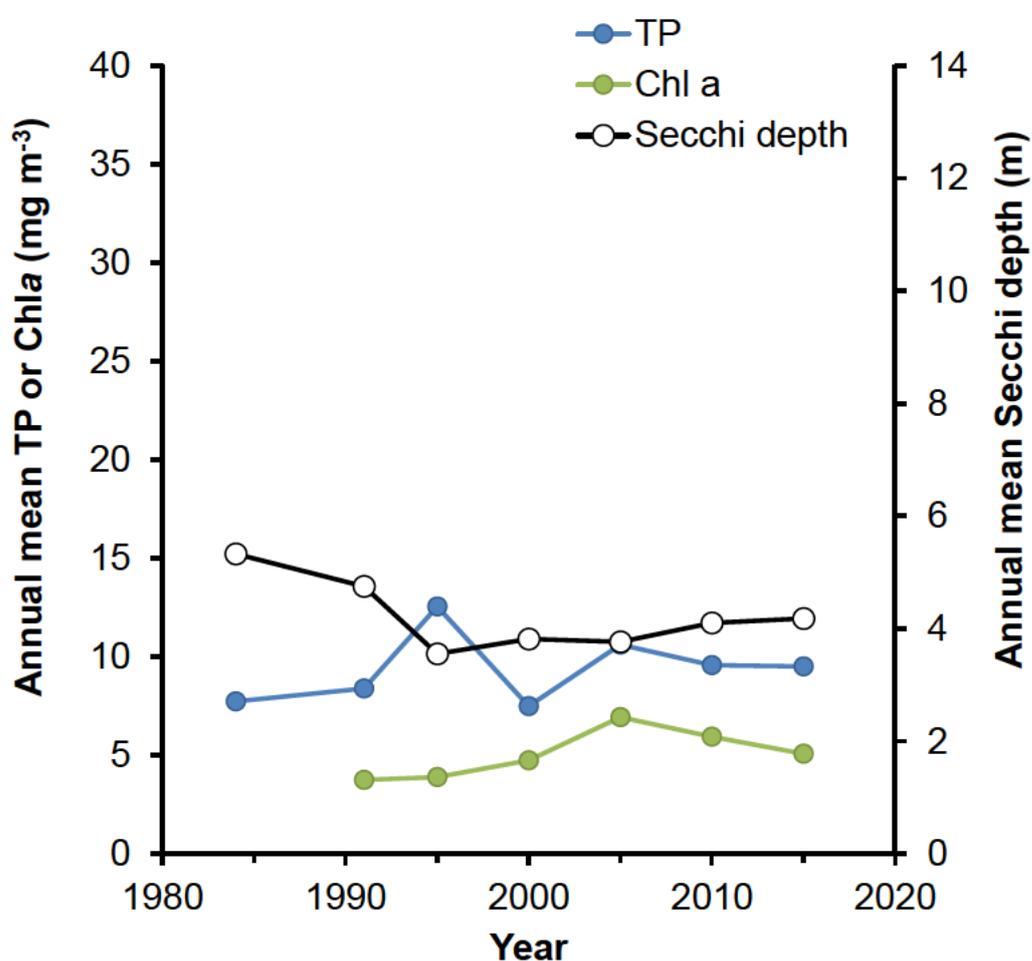


Figure 3.25. Long term changes in annual concentration of total phosphorus, phytoplankton chlorophyll *a* and Secchi depth in Derwent Water.

The fish community at Derwent Water

The fish community of Derwent Water has been studied extensively since the early 1990s, as reviewed in part by Winfield *et al.* (2012a) and references therein. A gill-net and night-time hydroacoustics monitoring programme conducted since 1998 has documented the development of introduced roach, ruffe and dace and the local persistence of the rare vendace. Given that before the recent ‘reappearance’ of vendace in Bassenthwaite Lake this was the last remaining native population of vendace in the U.K., attempts have been and continue to be made to establish refuge populations although with as yet no demonstrable success (Winfield *et al.*, 2012a). Monitoring in 2015 produced a sample of 408 fish of six species comprising 2 brown trout, 269 perch, 4 pike, 49 roach, 43 ruffe and 41 vendace, with total fish population density peaking in September at 877.5 fish ha⁻¹ (lower and upper 95% confidence limits of 368.4 and 2090.1 fish ha⁻¹) (Winfield *et al.*, in prep. a). The vendace population clearly remains abundant, although so do the introduced populations of roach and ruffe.

Derwent Water is studied fortnightly as part of the CEH long-term monitoring programme that began on this lake in 1990. A nutrient budget and modelling study has been carried out (Maberly, Elliott & Thackeray 2006). The fish populations are assessed regularly by CEH.

3.3.8 Elterwater

The inner basin of Elterwater is the smallest of the 20 lakes studied here in terms of area and volume and also has the second shortest mean retention time. In 2015, Elterwater had the highest mean concentration of TP and the third highest concentration of chlorophyll *a* and the third shallowest Secchi depth (Table 3.31).



Elterwater viewed from Loughrigg Fell (Photo: M.M. De Ville).

Table 3.18. Summary of limnological conditions and trophic and Water Framework Directive classifications at Elterwater in 2015.

Characteristic	Value	Trophic	WFD
Mean alkalinity (mequiv m ⁻³)	285		
Mean pH (geometric mean)	6.8		
Mean total phosphorus (mg m ⁻³)	18.3	Mesotrophic	Moderate
Mean soluble reactive phosphorus (mg m ⁻³)	2.0		
Mean nitrate-nitrogen (mg m ⁻³)	163		
Mean silica (mg m ⁻³)	1533		
Mean phytoplankton chlorophyll <i>a</i> (mg m ⁻³)	16	Eutrophic	
Maximum phytoplankton chlorophyll <i>a</i> (mg m ⁻³)	40	Eutrophic	
Arithmetic Observed chlorophyll <i>a</i> (mg m ⁻³)	11.5		Moderate
Mean Secchi depth (m)	2.9	Eutrophic	
Minimum Secchi depth (m)	2.1	Mesotrophic	
Minimum oxygen concentration (g m ⁻³)	0.0		

Elterwater can be allocated to a range of trophic categories depending on the feature used (Table 3.18). Thus it is classified as mesotrophic based on TP and its minimum Secchi depth but eutrophic based on mean chlorophyll *a* and mean Secchi depth. A trophic classification

of eutrophic is probably the fairest category and consistent with the complete oxygen depletion at depth. In terms of the WFD, Elterwater is categorised as Moderate for TP and phytoplankton chlorophyll *a*.

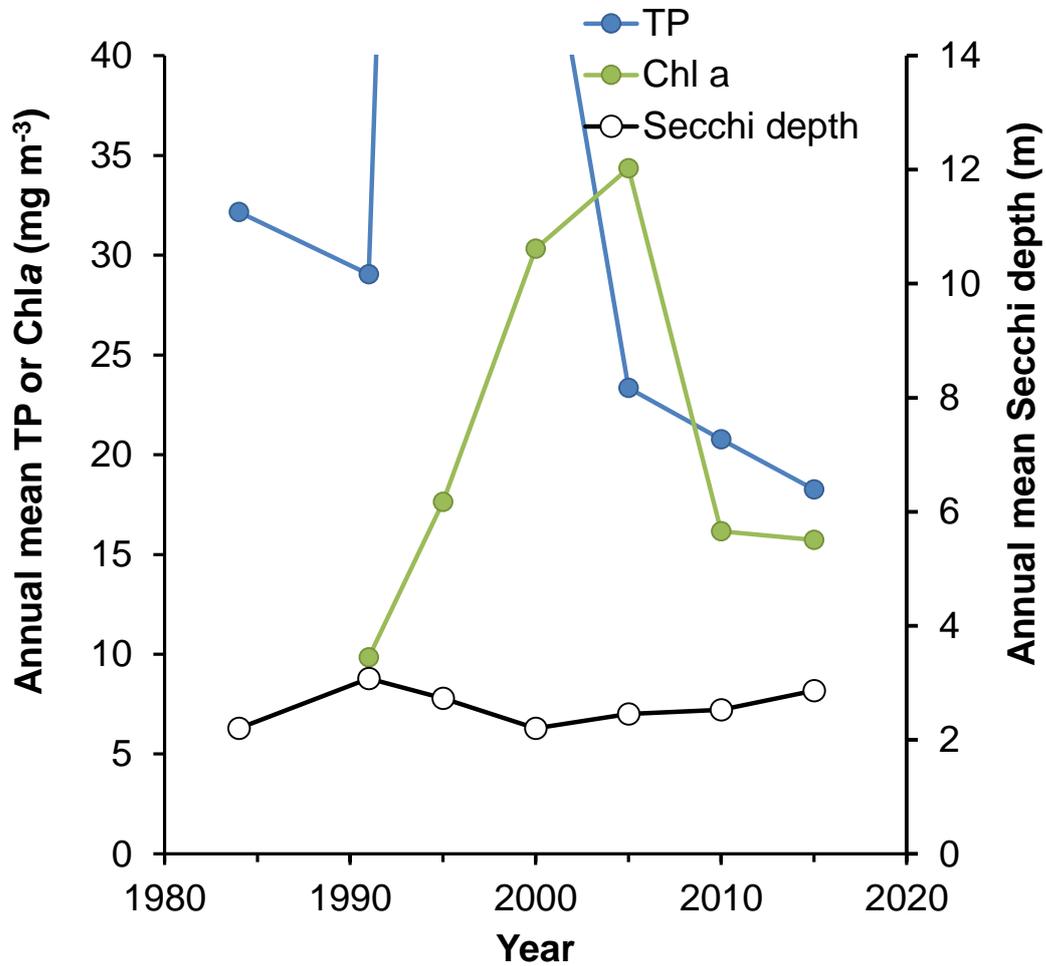


Figure 3.26. Long term changes in annual concentration of total phosphorus, phytoplankton chlorophyll *a* and Secchi depth in Elterwater. A high mean TP concentration in 1995 of 139 mg m⁻³ is not plotted for clarity.

There have been no statistically significant long-term changes in the nutrient concentrations in Elterwater (Table 3.10). However, it is clear from the long-term changes in annual mean concentration of TP that there has been a marked reduction in concentration since a peak in 1995 of 139 mg m⁻³: the concentration in 2015 is now lower than the first record in 1984 and

continues the downward trend noted in 2005 and 2010 (Fig. 3.26). This is also reflected in lower concentrations of phytoplankton chlorophyll *a* and a slightly increased Secchi depth. At least some of this improvement will have resulted from re-routing the sewage outfall from Elterwater to the River Brathay below the lake.

The fish community at Elterwater

The fish community of Elterwater has never been subjected to scientific study, although Smyly (1955) mentions a local stone loach population and Frost (1989) notes the local presence of brown trout, perch and pike.

More detailed work is currently being undertaken on Elterwater by the South Cumbrian Rivers Trust and CEH, funded by United Utilities, to determine the improvement brought about by re-routing Great Langdale Beck through this basin.

3.3.9 Ennerdale Water

Ennerdale Water is a moderate-sized lake in the west of the English Lake District (Fig. 2.2). It had the lowest alkalinity and concentration of calcium and potassium and the highest concentration of silica of any of the studied lakes (Figs 3.7, 3.13). It also had the second lowest concentration of



Ennerdale Water (Photo: S.C. Maberly).

TP after Wastwater, but the concentration of chlorophyll *a* was sixth lowest and the Secchi depth was fifth deepest (Table 3.31) and compared to 2005, both of these indicate a marked deterioration in water quality (see section 4.2).

Table 3.19. Summary of limnological conditions and trophic and Water Framework

Directive classifications at Ennerdale Water in 2015.

Characteristic	Value	Trophic	WFD
Mean alkalinity (mequiv m ⁻³)	51		
Mean pH (geometric mean)	6.6		
Mean total phosphorus (mg m ⁻³)	5.3	Oligotrophic	Good
Mean soluble reactive phosphorus (mg m ⁻³)	0.6		
Mean nitrate-nitrogen (mg m ⁻³)	238		
Mean silica (mg m ⁻³)	2206		
Mean phytoplankton chlorophyll <i>a</i> (mg m ⁻³)	1	Oligotrophic	
Maximum phytoplankton chlorophyll <i>a</i> (mg m ⁻³)	2	Ultra-oligotrophic	
Arithmetic Observed chlorophyll <i>a</i> (mg m ⁻³)	1.7		High
Mean Secchi depth (m)	7.8	Oligotrophic	
Minimum Secchi depth (m)	7.1	Ultra-oligotrophic	
Minimum oxygen concentration (g m ⁻³)	7.6		

Ennerdale Water is an unproductive lake, oligotrophic or even ultra-oligotrophic (Table 3.19). There is very little evidence for oxygen depletion at depth. In terms of the WFD it is categorised as Good for TP and High for phytoplankton chlorophyll *a*.

The recent increase in phytoplankton chlorophyll *a* and reduction in Secchi depth noted in the report on the 2010 Lakes Tour (Maberly et al. 2011) have begun to be reversed: arithmetic observed chlorophyll *a* declined from 2.4 mg m⁻³ in 2010 to 1.7 mg m⁻³ in 2015 and secchi depth increased from 5.9 m in 2010 to 7.8 m in 2015. Alkalinity has increased while many of the other major ions have decreased.

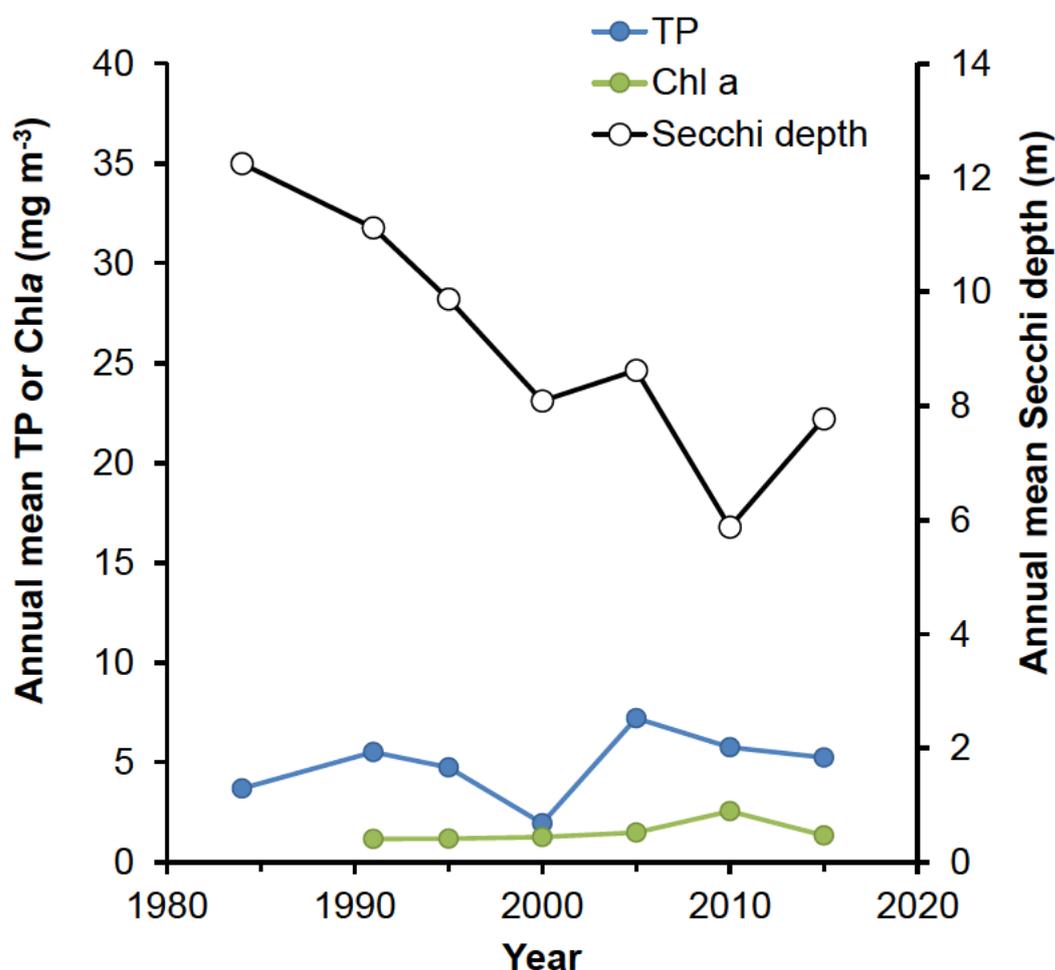


Figure 3.27. Long term changes in annual concentration of total phosphorus, phytoplankton chlorophyll *a* and Secchi depth in Ennerdale Water.

The relationship between Secchi depth and phytoplankton chlorophyll *a* established in the 2010 report still hold (Fig. 3.28) indicating the importance of phytoplankton in determining transparency in this lake.

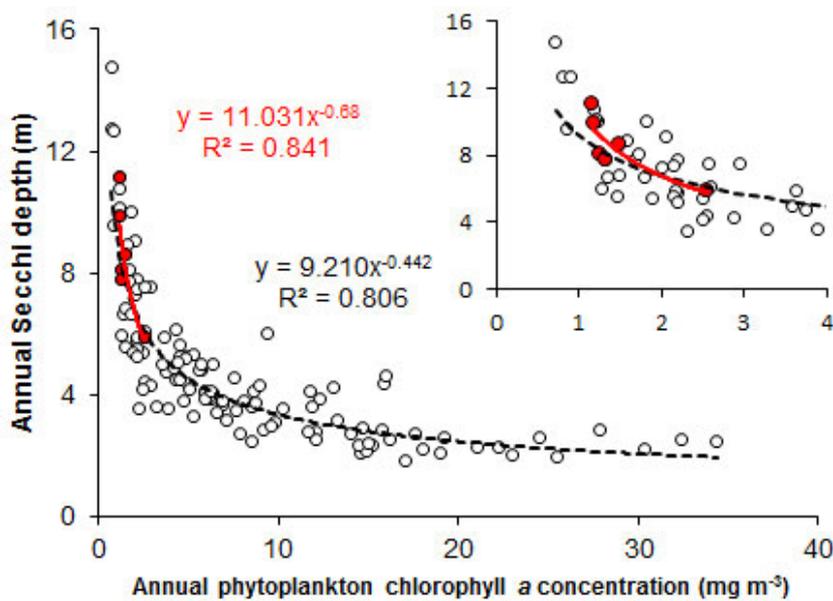


Figure 3.28 Relationship between annual mean Secchi depth and annual mean phytoplankton chlorophyll *a* from 1984 to 2015 for all lakes (open circles) and for Ennerdale Water (red circles). The fitted power curve is given for both data sets and the inset show the same data at low concentrations of phytoplankton chlorophyll *a*.

The fish community at Ennerdale Water

The fish community of Ennerdale Water has been subjected to a moderate amount of recent scientific study, with its population of Arctic charr having received particular attention since the late 1990s. This Arctic charr population is very unusual in a Lake District context because, in contrast to almost all other populations which spawn within their lakes, it lays its eggs apparently exclusively in the inflowing River Liza (Frost, 1965; McCubbing *et al.*, 1998; Winfield *et al.*, 2005b). In the 1990s. redd counts indicated that the numbers of spawning Arctic charr had declined dramatically (B. Bayliss, Environment Agency, *pers. comm.*). This led to the undertaking of a single hydroacoustic survey by the Environment

Agency in 1997 which was subsequently repeated in 2003 and thereafter at annual intervals to the present (J. Hateley, Environment Agency, *pers. comm.*). In addition, a review and assessment of the Arctic charr and brown trout stocks of the lake was undertaken by Winfield *et al.* (2005b) and identified pH-related problems on the riverine spawning grounds, with gill netting in 2004 producing a total of 40 fish of three species comprising 7 Arctic charr, 17 brown trout and 16 three-spined stickleback. This assessment led to a conservation programme being undertaken by the Environment Agency from 2007 to 2014, inclusive, in which adult Arctic charr were stripped of eggs and milt as they ascended the River Liza to spawn during the autumn (P. McCullough, Environment Agency, *pers. comm.*). Each year, the resulting fertilised eggs have been taken to a hatchery for safe incubation prior to their return to the lake as young fish during the following year. Although hydroacoustic monitoring had shown that the Arctic charr population had demonstrably declined between 1997 and 2008 (J. Hateley, Environment Agency, *pers. comm.*; Winfield *et al.*, 2010b), in 2010 the annual survey produced encouraging indications that this decline may have been reversed by the conservation initiative (Hateley, 2010). An analysis of intermittent fyke net catches made in 1992/1993, 2008 and 2010 also suggested an increase in the numbers of Arctic charr ascending the River Liza to spawn (J. Hateley, Environment Agency, *pers. comm.*). Both hydroacoustics and fyke netting have been continued since 2010 and although hydroacoustic results have not been particularly encouraging (J. Hateley, Environment Agency, *pers. comm.*), recent catches by the fyke nets have increased markedly (P. McCullough, Environment Agency, *pers. comm.*) and so give considerable grounds for optimism for this population of Arctic charr.

CEH has been undertaking a more detailed, monthly limnological survey of Ennerdale Water, funded by United Utilities.

3.3.10 Esthwaite Water

Esthwaite Water is a small to moderate sized lake that drains into the South Basin of Windermere via the Cunsey Beck. It was classified as the most productive lake in the English Lake District when



Esthwaite Water looking north. (Photo: Freshwater Biological Association).

Pearsall made his original trophic

classification (Pearsall, 1921), but that position has now been taken by Blelham Tarn. In 2015 Esthwaite had the highest mean pH and annual concentration of major ions, the second highest alkalinity and third highest concentration of SRP (Table 3.31).

Table 3.20. Summary of limnological conditions and trophic and Water Framework Directive classifications at Esthwaite Water in 2015.

Characteristic	Value	Trophic	WFD
Mean alkalinity (mequiv m ⁻³)	440		
Mean pH (geometric mean)	7.3		
Mean total phosphorus (mg m ⁻³)	17.5	Mesotrophic	Moderate
Mean soluble reactive phosphorus (mg m ⁻³)	2.6		
Mean nitrate-nitrogen (mg m ⁻³)	330		
Mean silica (mg m ⁻³)	1374		
Mean phytoplankton chlorophyll <i>a</i> (mg m ⁻³)	14	Eutrophic	
Maximum phytoplankton chlorophyll <i>a</i> (mg m ⁻³)	22	Mesotrophic	
Arithmetic Observed chlorophyll <i>a</i> (mg m ⁻³)	16.1		Moderate
Mean Secchi depth (m)	2.7	Eutrophic	
Minimum Secchi depth (m)	2	Mesotrophic	
Minimum oxygen concentration (g m ⁻³)	0.1		

Different ways of assessing trophic status give categories of mesotrophic or eutrophic, (Table 3.20) and Esthwaite is probably on the eutrophic-mesotrophic boundary following

the dramatic improvement in water quality in 2009 and 2010 (Maberly *et al.* 2011), although the pronounced oxygen depletion at depth (Table 3.20) still indicates a eutrophic lake. WFD criteria suggest that the lake is at Moderate ecological status. The attempt to remediate the lake with closure of the fish-farm and upgrades to the waste water handling and treatment (Maberly *et al.* 2011) is having some effect; the concentration of TP has continued to decline and secchi depth to improve very slightly (Fig. 3.29). However, the mean concentration of phytoplankton chlorophyll *a* in 2015 was 14 mg m⁻³ compared to 8 mg m⁻³ in 2010; most likely as a result of weather effects.

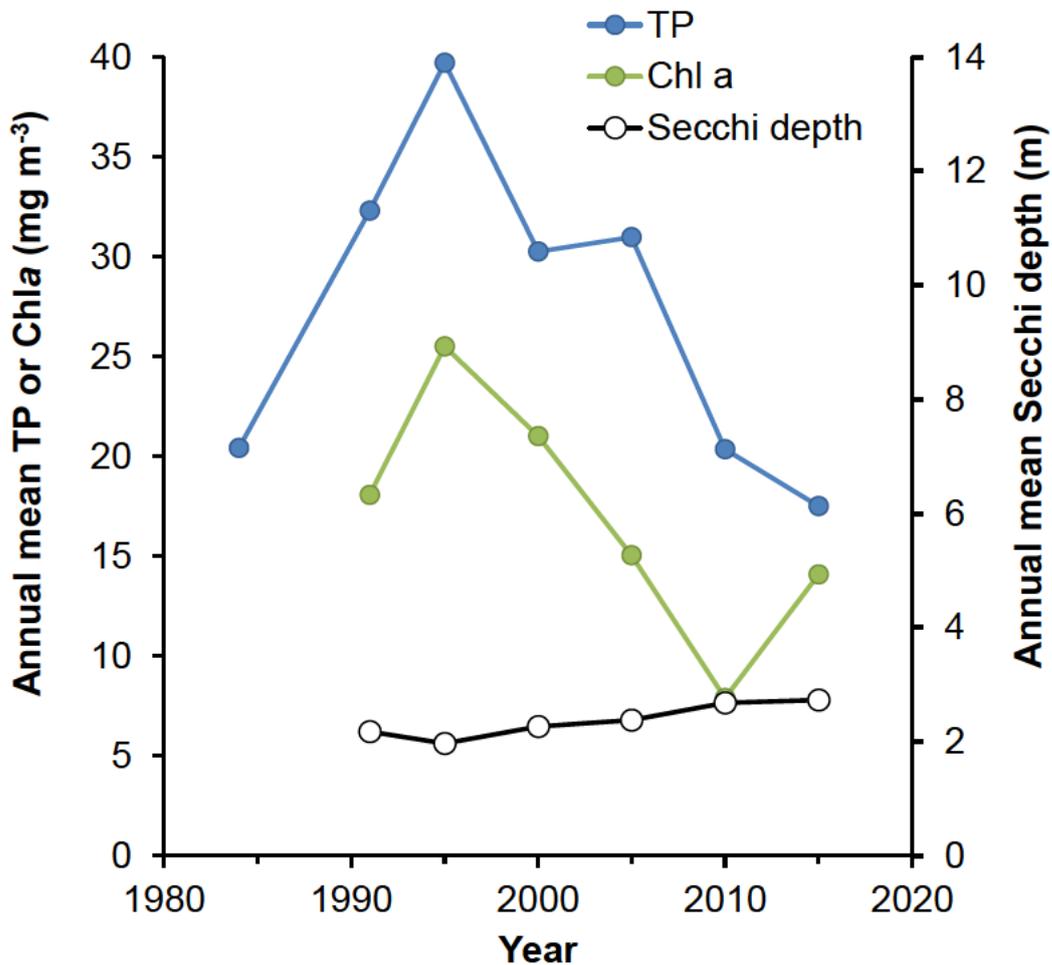


Figure 3.29. Long term changes in annual concentration of total phosphorus, phytoplankton chlorophyll *a* and Secchi depth in Esthwaite Water.

There has been little statistical change in the nutrient chemistry in Esthwaite Water apart from a marked decline in concentration of nitrate (Table 3.10) continuing the pattern seen in 2010. There has been a slight, non-significant increase in alkalinity but no change in the concentration of other major ions apart from the ubiquitous reduction in sulphate concentration (Table 3.10).

The fish community at Esthwaite Water

The fish community of Esthwaite Water has historically received relatively little scientific attention, but it has been surveyed several times in recent years. In September 2009, it was surveyed using gill nets which produced a total of 192 fish of four species comprising 6 brown trout, 124 perch, 6 rainbow trout and 56 roach (Environment Agency / Centre for Ecology & Hydrology, unpublished data). A near-simultaneous hydroacoustic survey by the Environment Agency was compromised by very high levels of weak echoes thought to originate from the lake's abundant plankton community (J. Hateley, Environment Agency, *pers. comm.*). A second gill-netting survey with an accompanying hydroacoustic survey using a lower sound frequency of 70 kHz was subsequently carried out in 2013 (Winfield *et al.*, 2014b). This second gill-netting survey, which had an increased sampling effort over that used in 2009, produced a total of 714 fish of five species comprising 26 brown trout, 1 common bream, 532 perch, 1 pike and 154 roach, while the hydroacoustic survey recorded a total fish population density of 31.1 fish ha⁻¹ (lower and upper 95% confidence limits of 5.5 and 175.8 fish ha⁻¹). The roach population is probably not native to the lake, with Le Cren *et al.* (1972) concluding that its long-standing presence may be related to the fact that the fisheries of Esthwaite Water were historically owned by monks, who have a long history of cyprinid cultivation and stocking, although somewhat in contrast Frost (1989) suggested that live-baiting activities by anglers fishing for pike may be responsible for the local

presence of this species. The origin of the non-native rainbow trout is clearly the stocking activities of the local fishery and cage fish farm, the latter of which operated between 1981 and 2009 when the cages were removed. Stocking of the lake with rainbow trout was discontinued after 2012 (D. Spiby, Environment Agency, *pers. comm.*) and it appears that by 2013 all of these stocked fish had died or been removed from the lake. Unpublished electrofishing surveys of the lake's streams carried out between 2005 and 2010 by the Environment Agency have recorded brown trout, eel, minnow, perch, pike, stone loach, rainbow trout and roach (B. Bayliss, Environment Agency, unpublished data).

Esthwaite Water is studied fortnightly as part of the CEH long-term monitoring programme that was started by the Freshwater Biological Association in 1945 and continued by CEH since 1989. There is a CEH AWQMS on the lake.

3.3.11 Grasmere

Grasmere is a fairly small lake at the northern end of the Windermere catchment with a short retention time (Fig. 3.2).



Grasmere from Loughrigg Terrace. (Photo: M.M. De Ville).

Table 3.21. Summary of limnological conditions and trophic and Water Framework Directive classifications at Grasmere in 2015.

Characteristic	Value	Trophic	WFD
Mean alkalinity (mequiv m ⁻³)	157		
Mean pH (geometric mean)	6.8		
Mean total phosphorus (mg m ⁻³)	21.5	Mesotrophic	Moderate
Mean soluble reactive phosphorus (mg m ⁻³)	4.2		
Mean nitrate-nitrogen (mg m ⁻³)	237		
Mean silica (mg m ⁻³)	1135		
Mean phytoplankton chlorophyll <i>a</i> (mg m ⁻³)	8	Meso/eutrophic	
Maximum phytoplankton chlorophyll <i>a</i> (mg m ⁻³)	18	Mesotrophic	
Arithmetic Observed chlorophyll <i>a</i> (mg m ⁻³)	7.3		Good
Mean Secchi depth (m)	3.6	Mesotrophic	
Minimum Secchi depth (m)	3.25	Mesotrophic	
Minimum oxygen concentration (g m ⁻³)	0.1		

Its trophic status is somewhere on the mesotrophic to eutrophic boundary but it experiences quite pronounced oxygen depletion at depth (Table 3.21). In terms of the WFD, its ecological

status is Moderate for TP and Good for phytoplankton chlorophyll *a*, probably aided by the high flushing rate.

Compared to 2010, Grasmere appears to have deteriorated slightly (Fig. 3.30). Annual mean concentrations of TP have increased, and Secchi depth declined, although the concentration of phytoplankton chlorophyll *a* has also declined quite substantially (mean from 13.1 to 8 mg m⁻³ and arithmetic observed mean from 10.3 to 7.3 mg m⁻³). These slight contradictory results highlight the effect of weather on lake responses and the need for high-frequency monitoring, such as the CEH fortnightly monitoring, in order to understand better how a lake is responding.

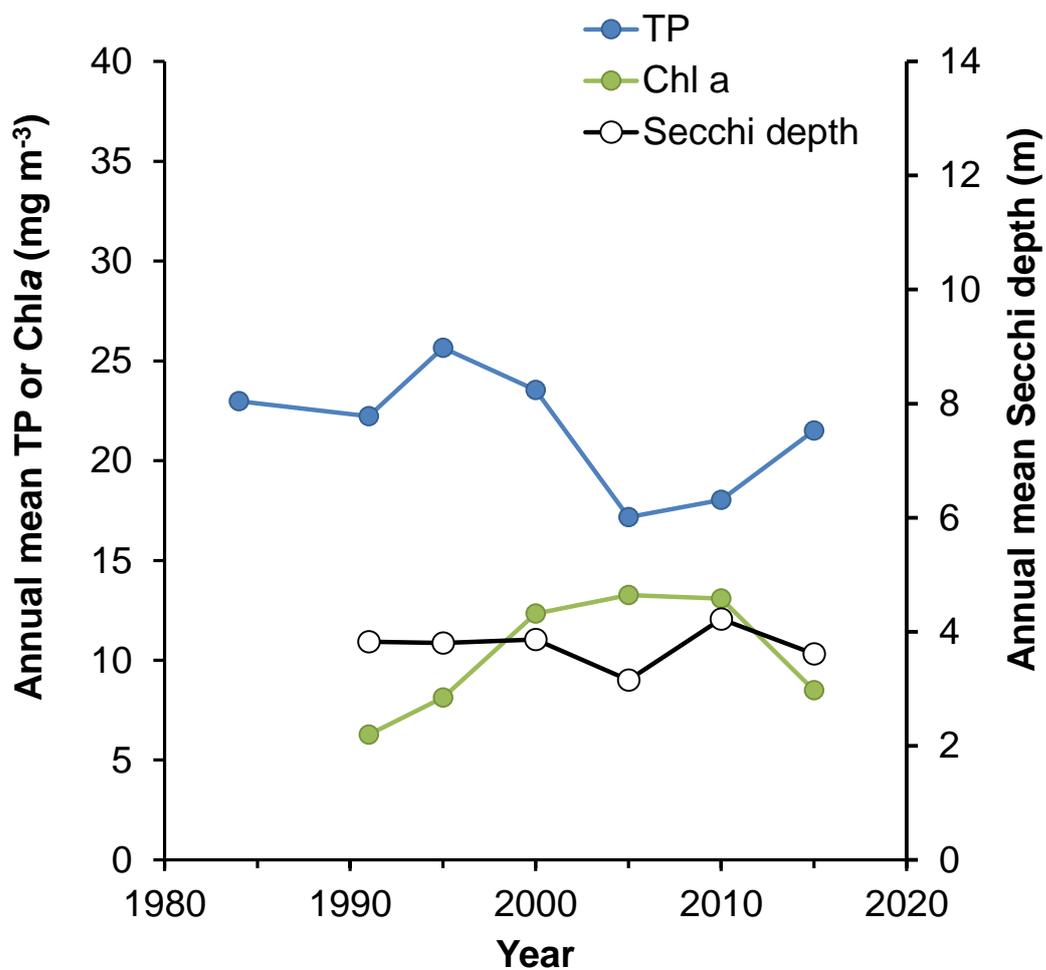


Figure 3.30. Long term changes in annual concentration of total phosphorus, phytoplankton chlorophyll *a* and Secchi depth in Grasmere.

The fish community at Grasmere

The fish community of Grasmere has never been subjected to thorough biological scientific study, although Smyly (1955) mentions a local stone loach population, Smyly (1957) refers to a local bullhead population and Frost (1989) notes the local presence of brown trout, perch and pike. Vertical and horizontal night-time hydroacoustic surveys were performed in October 2007 by the Environment Agency, during which the vertical survey (comparable with all other hydroacoustic surveys covered in this review) recorded a total fish population density of 299.4 fish ha⁻¹ (lower and upper 95% confidence limits of 240.3 and 358.5 fish ha⁻¹) (J. Hateley, Environment Agency, unpublished data). A second hydroacoustic survey was conducted in July 2009 within the EU project WISER (www.wiser.eu) but the resulting data have not been analysed (Centre for Ecology & Hydrology, unpublished data) and objections from local fisheries interests prevented a simultaneous gill-netting survey. The lake is considered to be one of the region's best natural coarse fisheries holding larger numbers of perch, pike and roach (WADAA, 2016). Perch of 1.4 kg are by no means unusual, pike over 13 kg have been caught in the past and 9 kg fish are caught every year, and the roach have a high mean size with 0.9 kg fish not uncommon. In a review of fish species introductions in the Lake District, Winfield *et al.* (2010a) concluded that the common bream, roach and possibly pike populations of Grasmere had been introduced.

Grasmere is studied fortnightly as part of the CEH long-term monitoring programme that was started by the Freshwater Biological Association in 1969 and continued by CEH since 1989. Recent reviews of Grasmere can be found in Reynolds *et al.* (2001, 2014).

3.3.12 Haweswater

Haweswater is the fifth largest lake in terms of volume and fourth deepest (Table 2.1). It is a reservoir and was greatly increased in size in about 1930 by the construction of a dam at the north-east end of the lake. As an annual mean it had the second lowest concentration of chloride and sodium of any of the 20 lakes in 2015 (Table 3.31).



Haweswater (Photo: M.M. De Ville).

Table 3.22. Summary of limnological conditions and trophic and Water Framework Directive classifications at Haweswater in 2015.

Characteristic	Value	Trophic	WFD
Mean alkalinity (mequiv m ⁻³)	186		
Mean pH (geometric mean)	7.1		
Mean total phosphorus (mg m ⁻³)	6.6	Oligotrophic	Good
Mean soluble reactive phosphorus (mg m ⁻³)	1.5		
Mean nitrate-nitrogen (mg m ⁻³)	208		
Mean silica (mg m ⁻³)	1484		
Mean phytoplankton chlorophyll <i>a</i> (mg m ⁻³)	2	Oligotrophic	
Maximum phytoplankton chlorophyll <i>a</i> (mg m ⁻³)	4	Oligotrophic	
Arithmetic Observed chlorophyll <i>a</i> (mg m ⁻³)	3.0		High
Mean Secchi depth (m)	4.2	Mesotrophic	
Minimum Secchi depth (m)	3.9	Oligotrophic	
Minimum oxygen concentration (g m ⁻³)	5.9		

The trophic status of Haweswater is essentially oligotrophic, which is consistent with the minimal oxygen depletion at depth (Table 3.22). In terms of the WFD, it has Good ecological status for TP and High ecological status for phytoplankton chlorophyll *a*.

Nutrient concentrations in Haweswater have not changed apart from a reduction in nitrate concentration (Table 3.10). There is a clear indication that the alkalinity and pH of Haweswater has increased since 1984 although the change is not statistically significant. Concentrations of sulphate, chloride, calcium, magnesium, sodium and potassium have all declined statistically significantly (Table 3.10). There have been no statistically significant changes in phytoplankton chlorophyll *a* or Secchi depth (Table 3.10; Fig. 3.31).

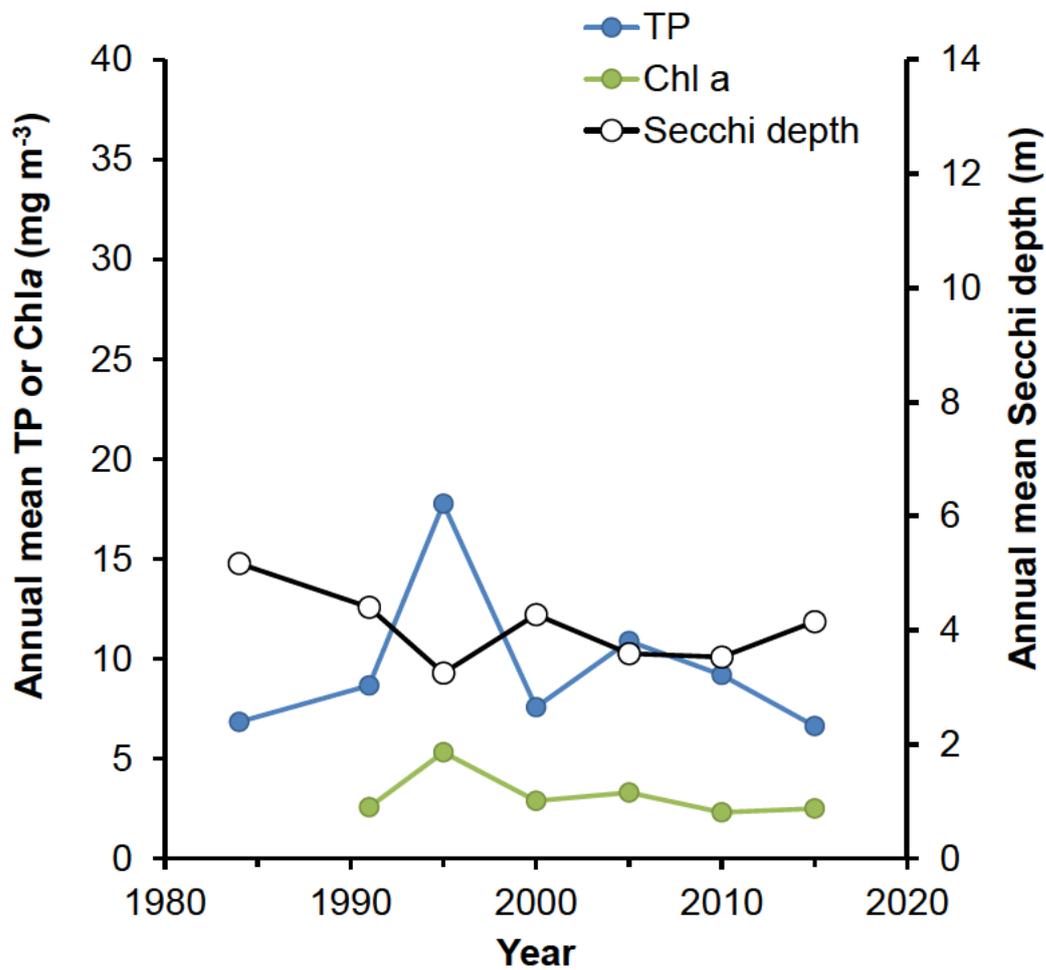


Figure 3.31. Long term changes in annual concentration of total phosphorus, phytoplankton chlorophyll *a* and Secchi depth in Haweswater.

The fish community at Haweswater

Frost (1989) noted that the fish community of Haweswater contains Arctic charr, brown trout, perch and the rare schelly, but also specifically commented on the local absence of pike. However, small numbers of pike were sampled from the lake several decades ago (L. Walton, formerly United Utilities, *pers. comm.*) although they have not been recorded since. Prior to the 1990s, the only substantial publications concerned with the fish of this reservoir were those of Swynnerton & Worthington (1940), Bagenal (1970) and Maitland (1985) addressing the schelly population before and after impoundment. A limited amount of further information on the schelly from the 1970s and 1980s is available in the unpublished theses of Broughton (1972) and Mubamba (1989), but the first survey of the lake's fish community as a whole was undertaken in 1991 by Winfield *et al.* (1994) and resulted in the capture of 64 fish of five species comprising 16 Arctic charr, 27 brown trout, 5 minnow, 12 perch and 4 schelly. Winfield *et al.* (1994) concluded that the schelly population was in poor condition and so substantial effort was subsequently directed towards understanding its local ecology (Winfield *et al.*, 1995), which identified in particular the historic negative impact of fluctuating water levels (Winfield *et al.*, 1998) and a subsequent impact of predation by a local cormorant breeding colony (Winfield *et al.*, 2004b). Several conservation measures were put in place in the 1990s (Winfield *et al.*, 2002), including the ultimately successful introductions of Haweswater schelly to nearby Blea Water and Small Water (Winfield *et al.*, 2011b; Winfield *et al.*, 2013), and monitoring of the schelly population began through a combination of limited occasional gill netting, hydroacoustics and the examination of fish entrapped in the reservoir's water abstraction system. The entrapment analysis, which also generates information on the Arctic charr population, continued to 2012 and showed some signs of recovery in the schelly population with the Arctic charr population also showing a positive overall trend (Winfield *et al.*, 2011b). Nevertheless, fish populations still remain

relatively low in abundance and an annual daytime hydroacoustic survey of Haweswater undertaken in July 2015 recorded a total fish abundance of 12.9 fish ha⁻¹ with lower and upper 95% confidence limits of 7.4 and 22.6 fish ha⁻¹ (Centre for Ecology & Hydrology, unpublished data) which is very similar to equivalent figures for 2010 of 10.1 fish ha⁻¹ with lower and upper 95% confidence limits of 4.7 and 21.6 fish ha⁻¹ (Winfield *et al.*, 2011b). Recently, Hewitt & Winfield (2013) mapped the locations of schelly spawning grounds around the shoreline of Haweswater by examining otter (*Lutra lutra*) spraints for the presence of schelly scales and other remains.

3.3.13 Loughrigg Tarn

Loughrigg Tarn is in the Windermere catchment. It is the second smallest lake studied here in terms of both area and volume. It has a relatively long retention time for a lake of its size (Table 2.1).



Loughrigg Tarn. (Photo: M.M. De Ville).

Table 3.23. Summary of limnological conditions and trophic and Water Framework Directive classifications at Loughrigg Tarn in 2015.

Characteristic	Value	Trophic	WFD
Mean alkalinity (mequiv m ⁻³)	293		
Mean pH (geometric mean)	7.2		
Mean total phosphorus (mg m ⁻³)	12.0	Mesotrophic	Good
Mean soluble reactive phosphorus (mg m ⁻³)	0.9		
Mean nitrate-nitrogen (mg m ⁻³)	250		
Mean silica (mg m ⁻³)	734		
Mean phytoplankton chlorophyll <i>a</i> (mg m ⁻³)	12	Eutrophic	
Maximum phytoplankton chlorophyll <i>a</i> (mg m ⁻³)	16	Mesotrophic	
Arithmetic Observed chlorophyll <i>a</i> (mg m ⁻³)	15.3		Moderate
Mean Secchi depth (m)	3.6	Mesotrophic	
Minimum Secchi depth (m)	3	Oligo/Mesotrophic	
Minimum oxygen concentration (g m ⁻³)	0.1		

Loughrigg Tarn has a range of trophic state assessments depending on which feature is used, but it appears now to be Mesotrophic despite slightly high mean chlorophyll *a* concentration (indicating eutrophic) and substantial oxygen depletion at depth (Table 3.23). The classification in terms of the WFD suggests that Loughrigg Tarn has Good ecological status in terms of TP but only Moderate ecological status for phytoplankton chlorophyll *a*. This

may result from the relatively long retention time that reduces hydraulic loss of phytoplankton populations. However the ecological status for TP and chlorophyll *a* have both improved by one category in 2015 compared to 2010 (Maberly *et al.* 2011). There has been a dramatic reduction in mean concentration of TP and chlorophyll *a* and improvement in Secchi depth (Fig. 3.32).

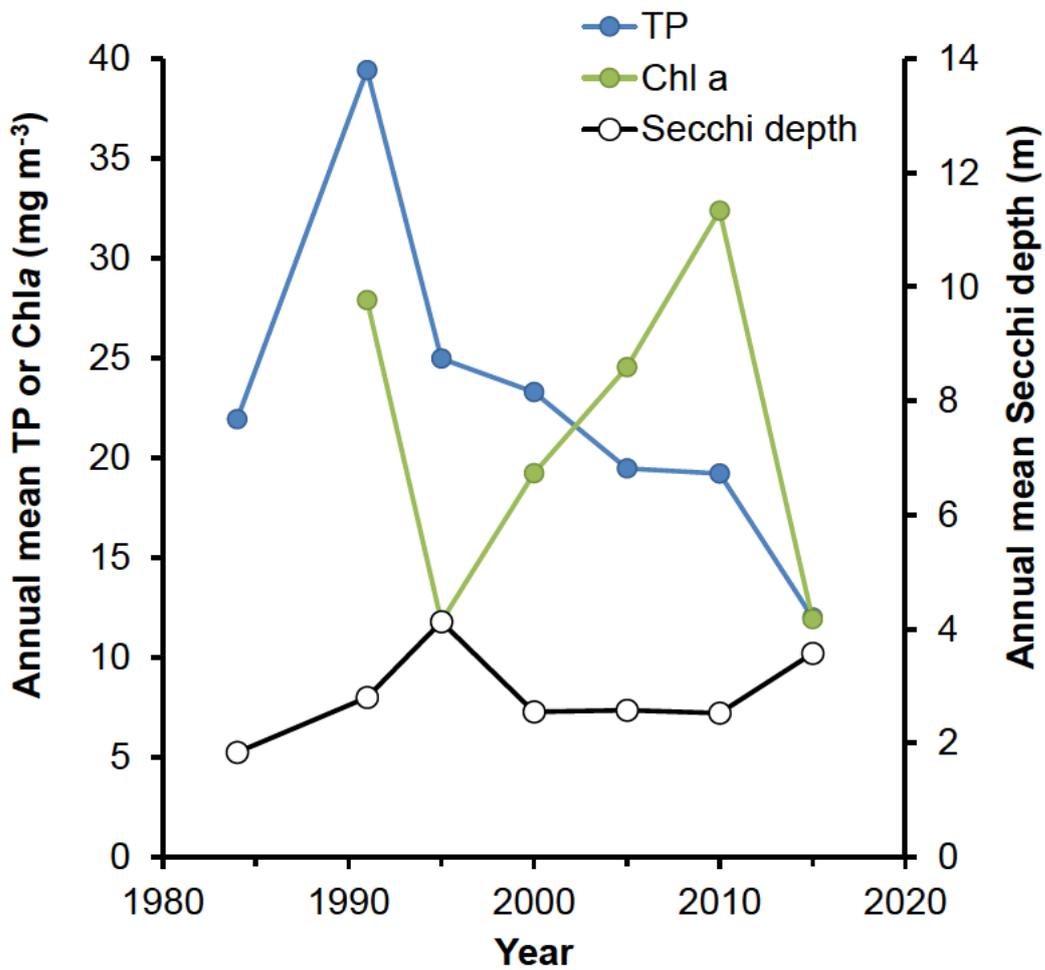


Figure 3.32. Long term changes in annual concentration of total phosphorus, phytoplankton chlorophyll *a* and Secchi depth in Loughrigg Tarn.

The nutrient chemistry in Loughrigg Tarn has otherwise been relatively stable (Table 3.10) but there has been a generally decreasing concentration of nitrate (Fig. 3.32). The major ions are little changed apart from a decrease in sulphate and calcium (Table 3.10).

The fish community at Loughrigg Tarn

The fish community of Loughrigg Tarn has never been subjected to scientific study, although online angling information sources (e.g. Lakelubbers.com, 2016) suggest that it holds brown trout, dace, eel, perch, pike, roach and tench.

3.3.14 Loweswater

Loweswater is a moderate to small lake in the north-west of the English Lake District that drains into Crummock Water (Fig. 2.1).

It has a relatively long retention time for a lake of its size (Table 2.1). As an annual mean for the 20 lakes in 2015, Loweswater



had the second highest concentration of sulphate, sodium, chloride and magnesium (Table 3.31). *Loweswater. (Photo M.M. De Ville).*

Table 3.24. Summary of limnological conditions and trophic and Water Framework Directive classifications at Loweswater in 2015.

Characteristic	Value	Trophic	WFD
Mean alkalinity (mequiv m ⁻³)	191		
Mean pH (geometric mean)	7.1		
Mean total phosphorus (mg m ⁻³)	9.6	Oligo/mesotrophic	Good
Mean soluble reactive phosphorus (mg m ⁻³)	0.7		
Mean nitrate-nitrogen (mg m ⁻³)	312		
Mean silica (mg m ⁻³)	640		
Mean phytoplankton chlorophyll <i>a</i> (mg m ⁻³)	9	Eutrophic	
Maximum phytoplankton chlorophyll <i>a</i> (mg m ⁻³)	12	Mesotrophic	
Arithmetic Observed chlorophyll <i>a</i> (mg m ⁻³)	10.9		Moderate
Mean Secchi depth (m)	3.8	Mesotrophic	
Minimum Secchi depth (m)	2.1	Mesotrophic	
Minimum oxygen concentration (g m ⁻³)	4.3		

Loweswater is close to the mesotrophic-eutrophic boundary, (Table 3.24). In terms of the WFD, Loweswater is classified as Good for TP and Moderate for phytoplankton chlorophyll *a*.

Loweswater shows clear evidence for recovery from nutrient enrichment. There has been a marked decline in mean concentration of TP and chlorophyll *a* and an increase in Secchi depth (Fig. 3.33). The minimum oxygen concentration at depth recorded in 2015 was 4.3 g m⁻³, substantially greater than 0.1 g m⁻³ recorded in 2010 (Maberly *et al.* 2011). There has been an a reduction in concentration of sulphate, calcium and magnesium (Table 3.10). Overall, Loweswater is showing very encouraging signs of recovery

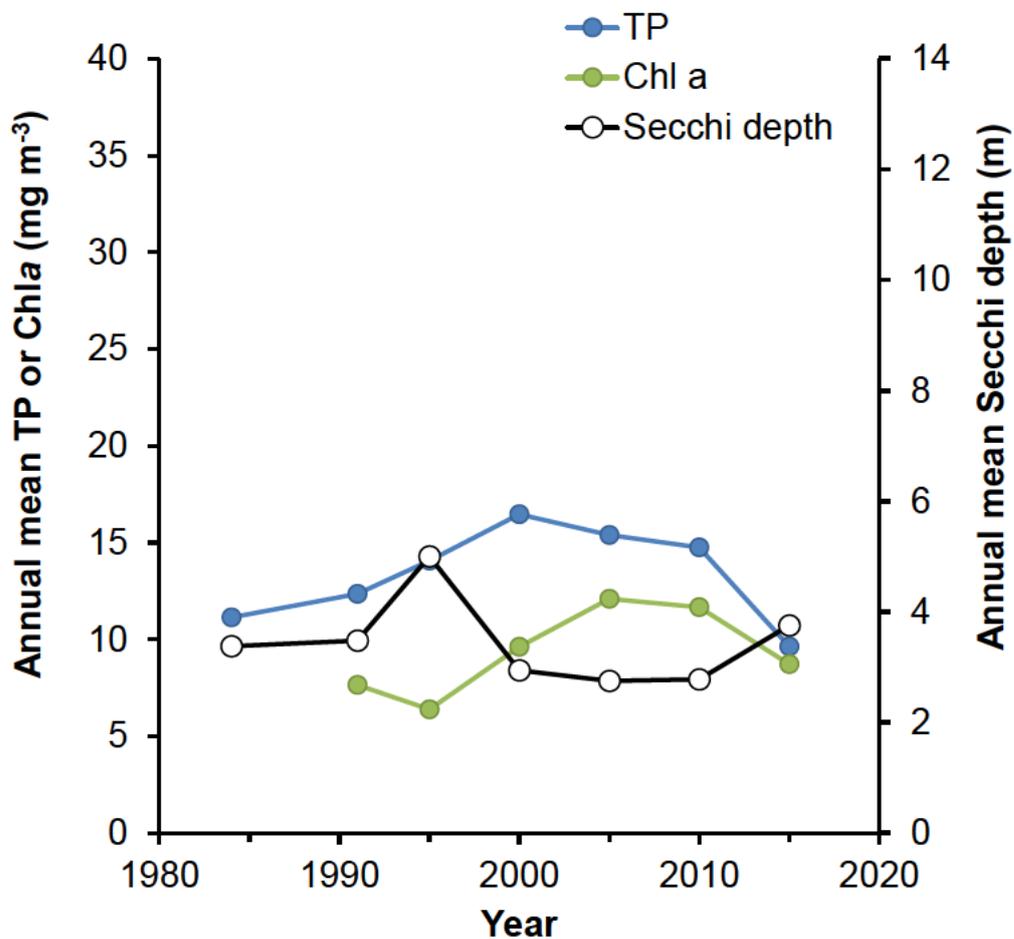


Figure 3.33. Long term changes in annual concentration of total phosphorus, phytoplankton chlorophyll *a* and Secchi depth in Loweswater.

The fish community at Loweswater

Before the 1990s, the fish community of Loweswater had never been subjected to

appreciable scientific study, although Le Cren (1955) makes brief reference to a local perch population, and Frost (1989) notes the presence of brown trout, perch and pike. Subsequently, unpublished electrofishing surveys of the lake's streams carried out between 1993 and 2006 by the Environment Agency have recorded Atlantic salmon, brown trout, eel and minnow (A. Gowans, Environment Agency, unpublished data). The fish community of the lake itself was first assessed using limited gill nets, fyke nets and hydroacoustics in June 2007 (Centre for Ecology & Hydrology, unpublished data). This sampling recorded a total of 85 fish of three species comprising 3 brown trout, 1 minnow and 81 perch and a total fish population density of 11.3 fish ha⁻¹ (lower and upper 95% confidence limits of 2.8 and 45.2 fish ha⁻¹), although analysis and interpretation of the hydroacoustic data were complicated by very high levels of weak echoes thought to originate from the lake's abundant *Chaoborus* population. Hydroacoustic surveys were repeated in June 2008 and August 2009, but the resulting data have not been analysed in a way directly comparable with that used in the survey of 2007 (Emmrich *et al.*, 2012; Centre for Ecology & Hydrology, unpublished data). The latter survey was accompanied by a very extensive gill-net survey within the EU project WISER (www.wiser.eu) which recorded a total of 831 fish of four species comprising 2 brown trout, 1 minnow, 825 perch and 3 pike (Brucet *et al.*, 2013; Centre for Ecology & Hydrology, unpublished data).

Loweswater has been the subject of a community-led catchment management project by CEH and Lancaster University. The results of a 12-month study of Loweswater are given in Maberly *et al.* (2006). Subsequently, the local community have been funded by a Defra Catchment Restoration Fund to continue the work of improving water quality in the lake (<http://westcumbriarivertrust.org/projects/the-loweswater-care-programme>).

3.3.15 Rydal Water

Rydal Water is a small lake that receives water from the slightly larger Grasmere less than 1 km upstream (Fig. 2.1). Rydal Water eventually flows into the River Rothay and thence into the North Basin of Windermere. Rydal Water has the shortest mean retention time of any of the lakes in the Lakes Tour (Table 2.1).



Rydal Water. (Photo: I.J. Winfield).

Table 3.25. Summary of limnological conditions and trophic and Water Framework

Directive classifications at Rydal Water in 2015.

Characteristic	Value	Trophic	WFD
Mean alkalinity (mequiv m ⁻³)	165		
Mean pH (geometric mean)	6.9		
Mean total phosphorus (mg m ⁻³)	13.8	Mesotrophic	Moderate
Mean soluble reactive phosphorus (mg m ⁻³)	2.2		
Mean nitrate-nitrogen (mg m ⁻³)	246		
Mean silica (mg m ⁻³)	1058		
Mean phytoplankton chlorophyll <i>a</i> (mg m ⁻³)	6	Mesotrophic	
Maximum phytoplankton chlorophyll <i>a</i> (mg m ⁻³)	12	Mesotrophic	
Arithmetic Observed chlorophyll <i>a</i> (mg m ⁻³)	5.5		Good
Mean Secchi depth (m)	4.0	Mesotrophic	
Minimum Secchi depth (m)	3.5	Oligotrophic	
Minimum oxygen concentration (g m ⁻³)	0.0		

Rydal Water appears to be mesotrophic. In terms of the WFD, the mean concentration of TP is Moderate and for phytoplankton chlorophyll *a* is Good, the higher category it probably the result of the high hydraulic flushing at this lake.

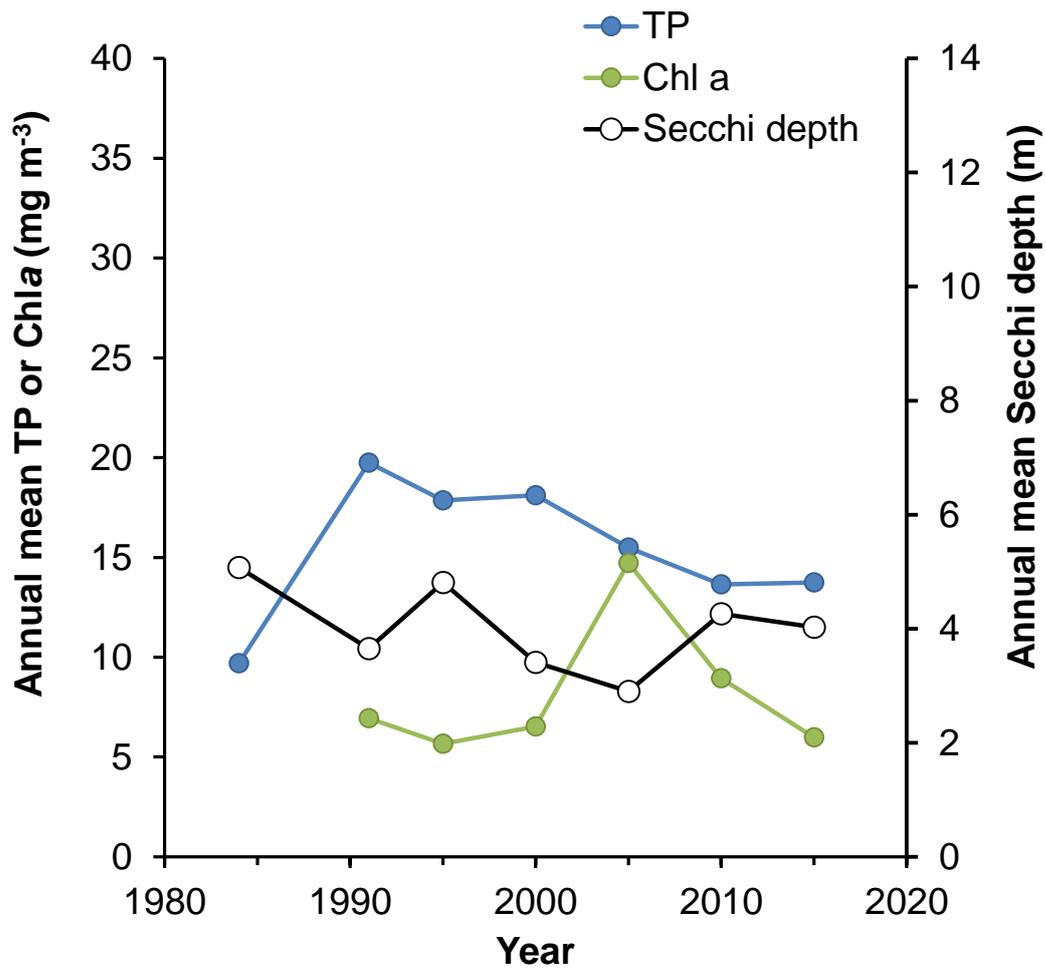


Figure 3.34. Long term changes in annual concentration of total phosphorus, phytoplankton chlorophyll *a* and Secchi depth in Rydal Water.

Rydal Water shows signs of slow recovery from nutrient enrichment (Fig. 3.34). Mean concentrations of TP were lower in 2010 and 2015 than in the previous decade and the mean concentration of phytoplankton chlorophyll *a* in 2015 was lower than any other year apart from 1995. Secchi depth was marginally worse in 2015 than in 2010 but better than in 2000 and 2005. The short retention time of this lake will make it sensitive to changes in rainfall and identifying the causes of changes in Rydal Water is more difficult than in many of the other lakes because it is highly influenced by changes in the larger Grasmere immediately upstream.

The fish community at Rydal Water

The fish community of Rydal Water has never been subjected to significant scientific study, although Smyly (1955) mentions a local stone loach population and Frost (1989) notes the local presence of brown trout, perch and pike. Angling information indicates that the main species are eel, perch, pike and roach (WADAA, 2016). The pike are present in substantial numbers, with individual weights commonly over 9 kg and the local record being an individual in excess of 14 kg. In a review of fish species introductions in the Lake District, (Winfield *et al.*, 2010a) presented evidence to suggest that the crucian carp, roach and ruffe populations of Rydal Water had been introduced.

3.3.16 Thirlmere

Thirlmere is a moderate sized lake in the centre of the English Lake District and is part of the Bassenthwaite catchment (Fig. 2.1). It is dammed at its northern end to form a reservoir and as a result experiences quite marked changes in water level. As an annual mean in 2015, Thirlmere had the lowest concentration of



Thirlmere (Photo: M.M. De Ville).

magnesium and the second lowest concentration of chloride, sodium and magnesium (Table 3.31).

Table 3.26. Summary of limnological conditions and trophic and Water Framework Directive classifications at Thirlmere in 2015.

Characteristic	Value	Trophic	WFD
Mean alkalinity (mequiv m ⁻³)	65		
Mean pH (geometric mean)	6.7		
Mean total phosphorus (mg m ⁻³)	7.1	Oligotrophic	Good
Mean soluble reactive phosphorus (mg m ⁻³)	1.0		
Mean nitrate-nitrogen (mg m ⁻³)	181		
Mean silica (mg m ⁻³)	1117		
Mean phytoplankton chlorophyll <i>a</i> (mg m ⁻³)	2	Mesotrophic	
Maximum phytoplankton chlorophyll <i>a</i> (mg m ⁻³)	3	Oligotrophic	
Arithmetic Observed chlorophyll <i>a</i> (mg m ⁻³)	2.5		High
Mean Secchi depth (m)	5.3	Mesotrophic	
Minimum Secchi depth (m)	4.5	Oligotrophic	
Minimum oxygen concentration (g m ⁻³)	5.7		

Thirlmere lies on the oligotrophic-mesotrophic boundary with little oxygen depletion at depth (Table 3.26). The ecological status in terms of the Water Framework Directive suggests that Thirlmere is in a Good ecological state for TP and High for phytoplankton chlorophyll *a* (Table 3.26) a large improvement on the 2010 assessment when it was on Moderate for chlorophyll *a* (Maberly *et al.* 2011). The trend reported in Maberly *et al.* (2011) of increasing chlorophyll *a* and declining Secchi depth has been arrested and slightly reversed although water quality is worse than at the start of the record.

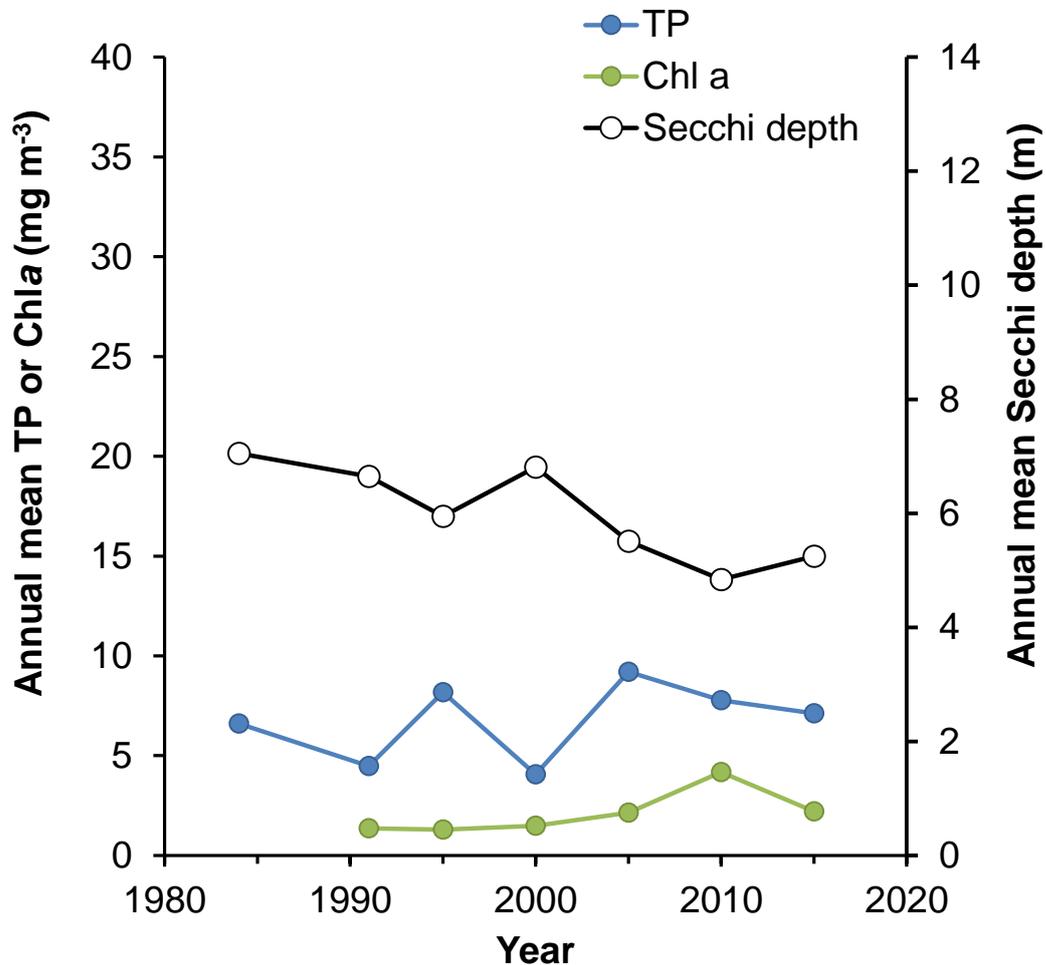


Figure 3.35. Long term changes in annual concentration of total phosphorus, phytoplankton chlorophyll *a* and Secchi depth in Thirlmere.

There have been no significant changes in nutrient concentrations in Thirlmere between 1984 and 2015 apart from a reduction in concentration in nitrate and silica (Table 3.10). This is probably linked to the evident long-term nutrient enrichment (Table 3.10; Fig. 3.35). Alkalinity and pH has increased and the concentration of sulphate, and all the other ions have decreased, but this is a fairly common pattern in several lakes (Table 3.10).

The fish community at Thirlmere

Historically, the fish community of Thirlmere was never subjected to appreciable scientific study although Le Cren (1955) makes brief reference to a local perch population, Frost (1977) comments on its Arctic charr population and Frost (1989) notes the local presence of Arctic charr, brown trout, perch and pike. Current angling information notes the same species, observing that the brown trout are relatively numerous and mean around 0.2 kg in weight with frequent larger fish and a few ferox (a large piscivorous form of brown trout) in excess of 4 kg, but the pike are relatively scarce and rarely exceed 6 kg (WADAA, 2016). A combined hydroacoustic and gill-netting survey was carried out in July 2011 and recorded a geometric mean fish abundance of 4.3 fish ha⁻¹ (with lower and upper 95% confidence limits of 2.1 and 9.0 fish ha⁻¹, respectively), together with 169 fish of four species comprising 1 Arctic charr, 4 brown trout, 148 perch and 16 ruffe, with the latter species apparently relatively recently introduced to the lake (Winfield *et al.*, 2012b). These findings indicate the Arctic charr to be present only at very low abundance, although temporal trends cannot be determined due to the lack of previous surveys. The new recording of ruffe in 2011 is also a cause for concern because of its potential impact on native fish communities (Winfield *et al.*, 2007) and seems likely to have arrived in Thirlmere as a result of pike anglers using it as a live bait as appears to have been the case in other Lake District locations (Winfield & Durie, 2004).

3.3.17 Ullswater

Ullswater is the second largest lake in the English Lake District after Windermere in terms of area and volume and the largest if Windermere is separated into two basins. It is situated in the north-east of the English Lake District and drains eventually into the River Eden (Fig. 2.1).



Ullswater (Photo I.J. Winfield).

Table 3.27. Summary of limnological conditions and trophic and Water Framework Directive classifications at Ullswater in 2015.

Characteristic	Value	Trophic	WFD
Mean alkalinity (mequiv m ⁻³)	227		
Mean pH (geometric mean)	7.2		
Mean total phosphorus (mg m ⁻³)	7.5	Oligotrophic	Good
Mean soluble reactive phosphorus (mg m ⁻³)	1.9		
Mean nitrate-nitrogen (mg m ⁻³)	199		
Mean silica (mg m ⁻³)	1259		
Mean phytoplankton chlorophyll <i>a</i> (mg m ⁻³)	5	Mesotrophic	
Maximum phytoplankton chlorophyll <i>a</i> (mg m ⁻³)	7	Oligotrophic	
Arithmetic Observed chlorophyll <i>a</i> (mg m ⁻³)	4.9		Good
Mean Secchi depth (m)	5.6	Mesotrophic	
Minimum Secchi depth (m)	4	Oligotrophic	
Minimum oxygen concentration (g m ⁻³)	2.6		

Ullswater is on the mesotrophic-oligotrophic boundary (Table 3.27). In terms of the WFD, the lake has a Good ecological status for TP and phytoplankton chlorophyll *a*.

There is no evidence for changing nutrient status in Ullswater apart from an increase in silica that could represent a slight decline in productivity (Table 3.10). This is supported by a tendency for declining phytoplankton chlorophyll *a* (Table 3.10; Fig. 3.36) and, in recent years, increasing Secchi depth. Major ions show the same patterns noted for many of the other lakes of decreasing concentrations of sulphate, calcium, magnesium and potassium (Table 3.10).

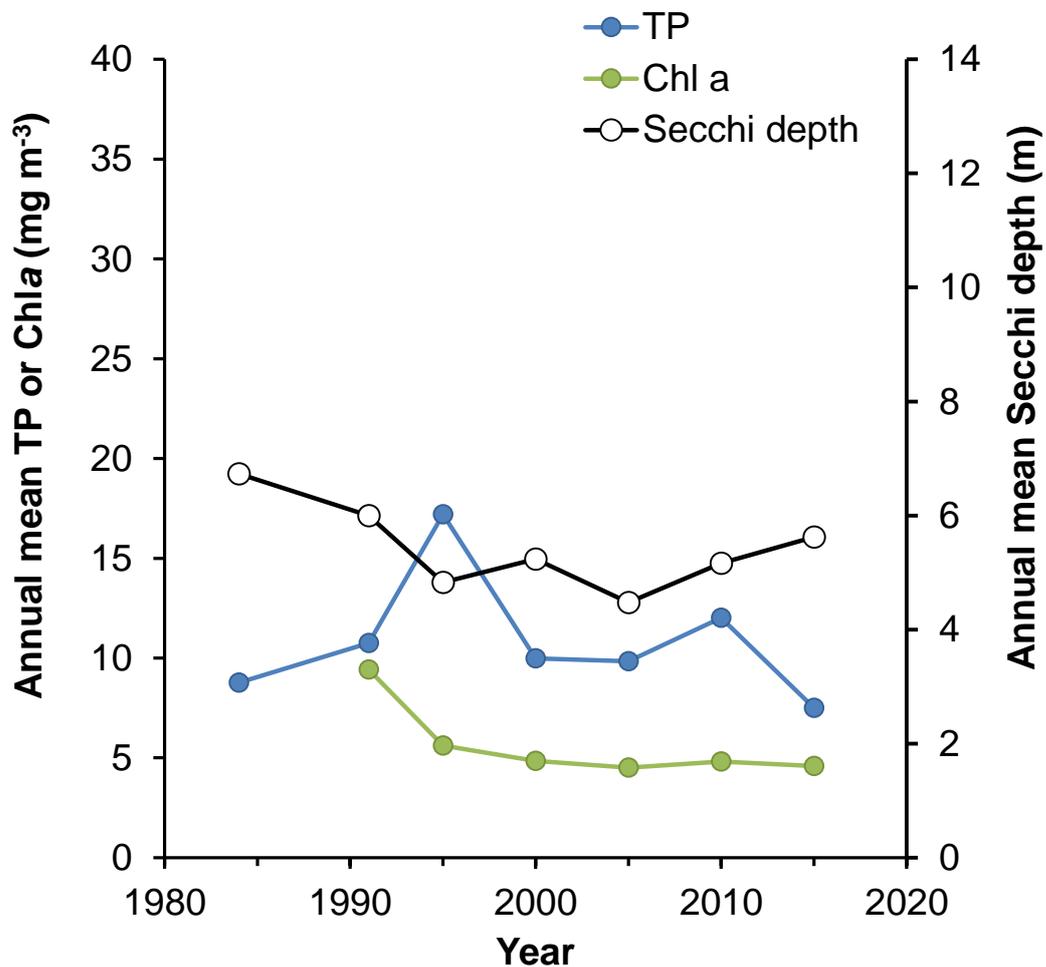


Figure 3.36. Long term changes in annual concentration of total phosphorus, phytoplankton chlorophyll *a* and Secchi depth in Ullswater.

The fish community at Ullswater

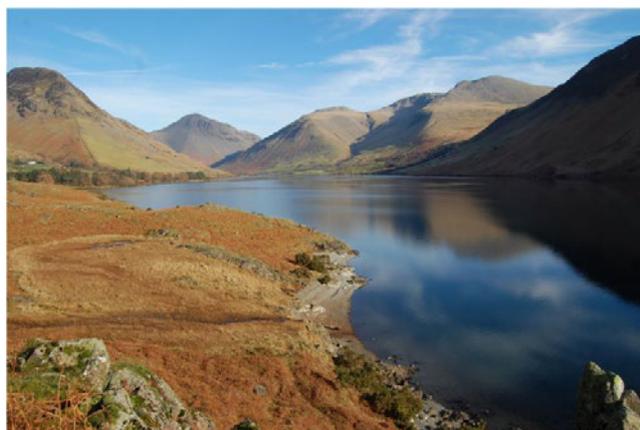
Frost (1989) noted that the fish community of Ullswater contains brown trout, perch and the rare schelly, but also specifically commented on the local absence of pike and Arctic charr. While there is no evidence to suggest that pike were ever recorded from this lake, there are definite local historical records of Arctic charr which appears to have been lost during the mid-nineteenth century. Although the reason or reasons behind this demise are uncertain, it has been suggested that it was the result of lead ore washings in the Glenridding Beck where the population was known to spawn. An assessment of the lake's tributaries as possible Arctic charr spawning grounds was undertaken in January 2014 by Winfield *et al.* (2014a) as part of a feasibility study of the possible reintroduction of this species and found extensive areas of suitable habitat. Studies of the lake's perch population were made by Le Cren (1955), McCormack (1965) and Kelso & Bagenal (1977), with the first study of its schelly population being undertaken by Bagenal (1970) and followed with less intensity by Mubamba (1989). The first survey of the lake's fish community as a whole was undertaken in 1991 by Winfield *et al.* (1994) and resulted in the capture of 156 fish of six species comprising 11 brown trout, 1 eel, 10 minnow, 80 perch, 49 schelly and 5 three-spined stickleback. The most recent biological scientific sampling of the fish community of Ullswater was undertaken by the Environment Agency using survey gill nets in August and September 2008 as part of a wider study collecting material for genetic and morphometric analysis and resulted in the capture of 859 fish of three species comprising 9 brown trout, 821 perch and 29 schelly (A. Gowans, Environment Agency, unpublished data). A night-time hydroacoustic survey of Ullswater was subsequently undertaken by the Environment Agency in October 2008 and recorded a total fish abundance of 95.7 fish ha⁻¹ with lower and upper 95% confidence limits of 60.1 and 116.5 fish ha⁻¹ (J. Hateley, Environment Agency, unpublished data). In addition, Hewitt & Winfield (2013) mapped the locations of schelly

spawning grounds around the shoreline of Ullswater by examining otter (*Lutra lutra*) spraints for the presence of schelly scales and other remains. Finally, the most recent development concerning the fish community is that in the summer of 2013 members of the public reported several sightings of adult roach in Ullswater (A. R. D. Gowans, Environment Agency, pers. comm.). This represents the first reported observations of this cyprinid in this lake given that extensive sampling in the early 1990s by Winfield *et al.* (1994) failed to record any specimens. Moreover, subsequent enquiries revealed the existence of an anecdotal reference on an angling forum (www.fishingmagic.com/forums/coarse-fishing/29075-ullswater.html) to adult roach being taken at Ullswater by angling in 2007 (P. Greaves, Eden Rivers Trust, pers. comm.).

A nutrient budget and modelling study has been carried out (Maberly, Elliott & Thackeray 2006) and Gasca *et al.* (2015) performed a nutrient budget for the lake.

3.3.18 Wastwater

Wastwater is the third largest lake in the English Lake District in terms of volume, but only the tenth largest in terms of area. The difference results from the greatest mean depth (40 m) and maximum depth (76 m; Table 2.1) of any lake in the English Lake District.



Wastwater. (Photo: I.J. Winfield).

Table 3.28. Summary of limnological conditions and trophic and Water Framework Directive classifications at Wastwater in 2015.

Characteristic	Value	Trophic	WFD
Mean alkalinity (mequiv m ⁻³)	70		
Mean pH (geometric mean)	6.8		
Mean total phosphorus (mg m ⁻³)	2.5	Ultra-oligotrophic	High
Mean soluble reactive phosphorus (mg m ⁻³)	0.6		
Mean nitrate-nitrogen (mg m ⁻³)	329		
Mean silica (mg m ⁻³)	2241		
Mean phytoplankton chlorophyll <i>a</i> (mg m ⁻³)	0.8	Ultra-oligotrophic	
Maximum phytoplankton chlorophyll <i>a</i> (mg m ⁻³)	1	Ultra-oligotrophic	
Arithmetic Observed chlorophyll <i>a</i> (mg m ⁻³)	1.1		Ref
Mean Secchi depth (m)	9.6	Oligotrophic	
Minimum Secchi depth (m)	6.1	Ultra/Oligotrophic	
Minimum oxygen concentration (g m ⁻³)	9.8		

Wastwater is also the prime example of an unproductive lake in the region and was the most unproductive lake in the lake series devised by Pearsall (1921). As an annual mean in 2015, Wastwater had the lowest concentration of TP, chlorophyll *a* and the greatest Secchi depth and oxygen concentration at depth. (Table 3.31). It is ultra-oligotrophic or oligotrophic in

terms of its trophic state and both TP and phytoplankton chlorophyll *a* indicate it is in a High or Reference ecological state in terms of the WFD (Table 3.28).

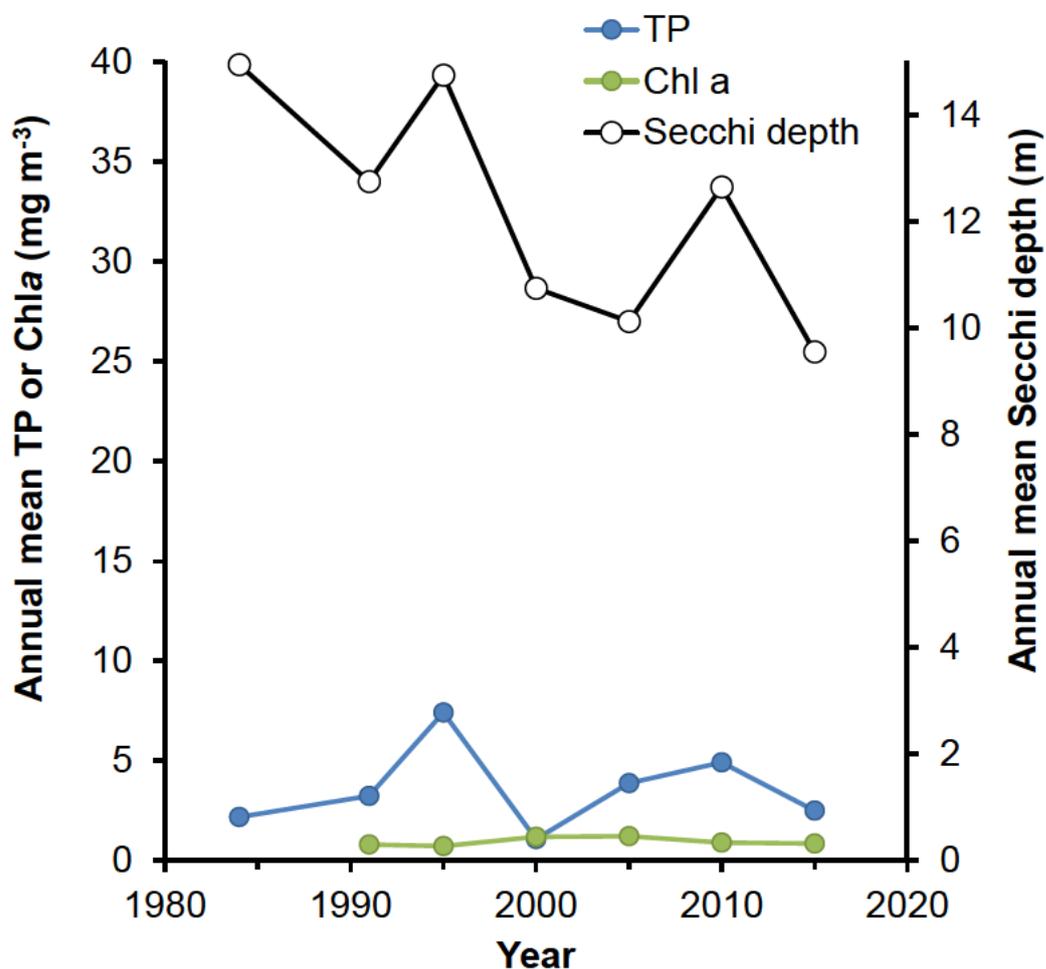


Figure 3.37. Long term changes in annual concentration of total phosphorus, phytoplankton chlorophyll *a* and Secchi depth in Wastwater.

Wastwater appears to be relatively stable. There have been no changes in concentration of nutrients and a slight increase in pH. Alkalinity has increased, but not significantly (Table 3.10; Fig. 3.37). There has been a decline in concentrations of sulphate, magnesium and potassium but this is quite a common pattern across all the lakes. The only slightly worrying response is the evidence for a declining Secchi depth although this is not quite statistically significant (Table 3.10). However, there have been some substantial reductions in Secchi

depth of more than 10 m in summer that may be caused by sediment input (Simon Webb, Natural England, pers. Comm.) or other material. Nevertheless, this warrants further investigation since Wastwater is the premier oligotrophic lake in the region.

The fish community at Wastwater

The fish community of Wastwater has historically received relatively little scientific attention but was surveyed consistently using gill nets and hydroacoustics in August 2005 (Winfield *et al.*, 2006), August 2010 (Winfield *et al.*, 2011a) and finally using gill nets alone in August 2015 when adverse weather conditions precluded an accompanying hydroacoustic survey (Winfield *et al.*, in prep. b). In 2005, the gill nets produced 53 fish of four species comprising 19 Arctic charr, 18 brown trout, 3 minnow and 13 three-spined stickleback, with a total fish night-time population density of 11.2 fish ha⁻¹ (geometric mean with lower and upper 95% confidence limits of 5.6 and 22.6 fish ha⁻¹). In 2010, the gill nets produced 52 fish of four species comprising 4 Arctic charr, 26 brown trout, 4 minnow and 18 three-spined stickleback, with a total fish night-time population density of 15.9 fish ha⁻¹ (geometric mean with lower and upper 95% confidence limits of 7.0 and 35.9 fish ha⁻¹). Between 2010 and 2015, the Arctic charr population had reduced in its length and weight ranges, its contribution to the sampled fish community had declined by approximately 80% and its absolute abundance had declined by approximately 50% (Winfield *et al.*, 2011a). Most recently in 2015, the gill nets produced 72 fish of four species comprising 4 Arctic charr, 60 brown trout, 7 minnow and 1 three-spined stickleback. Given that sampling nature and effort were identical in all three gill-net surveys, even though a hydroacoustic survey was not possible in 2015 it can be tentatively concluded that Arctic charr abundance has stabilised at a reduced level while that of brown trout has substantially increased.

3.3.19 Windermere North Basin

Windermere is the largest lake in the English Lake District and the largest natural lake in England. Limnologically it is divided into a larger North Basin and a slightly smaller South Basin, separated by shallow water and islands. The North Basin has the second-largest maximum and mean depth, area and volume of any of the lakes studied.



The North Basin of Windermere (Photo: M.M. De Ville).

Table 3.29. Summary of limnological conditions and trophic and Water Framework Directive classifications at the North Basin of Windermere in 2015.

Characteristic	Value	Trophic	WFD
Mean alkalinity (mequiv m ⁻³)	236		
Mean pH (geometric mean)	7.2		
Mean total phosphorus (mg m ⁻³)	11.5	Mesotrophic	Good
Mean soluble reactive phosphorus (mg m ⁻³)	2.3		
Mean nitrate-nitrogen (mg m ⁻³)	291		
Mean silica (mg m ⁻³)	985		
Mean phytoplankton chlorophyll <i>a</i> (mg m ⁻³)	6	Mesotrophic	
Maximum phytoplankton chlorophyll <i>a</i> (mg m ⁻³)	11	Mesotrophic	
Arithmetic Observed chlorophyll <i>a</i> (mg m ⁻³)	5.7		Good
Mean Secchi depth (m)	3.9	Mesotrophic	
Minimum Secchi depth (m)	3.5	Oligo/Mesotrophic	
Minimum oxygen concentration (g m ⁻³)	5.3		

The North Basin is mesotrophic (Table 3.29). There is relatively modest oxygen depletion at depth, consistent with its mesotrophic status. In terms of the WFD, Windermere North

Basin is categorised as Good for annual mean concentration of TP and phytoplankton chlorophyll *a*, which is an improvement over 2010 and there has been a marked reduction in chlorophyll *a* although this has not been reflected in Secchi depth which is the shallowest in this record.

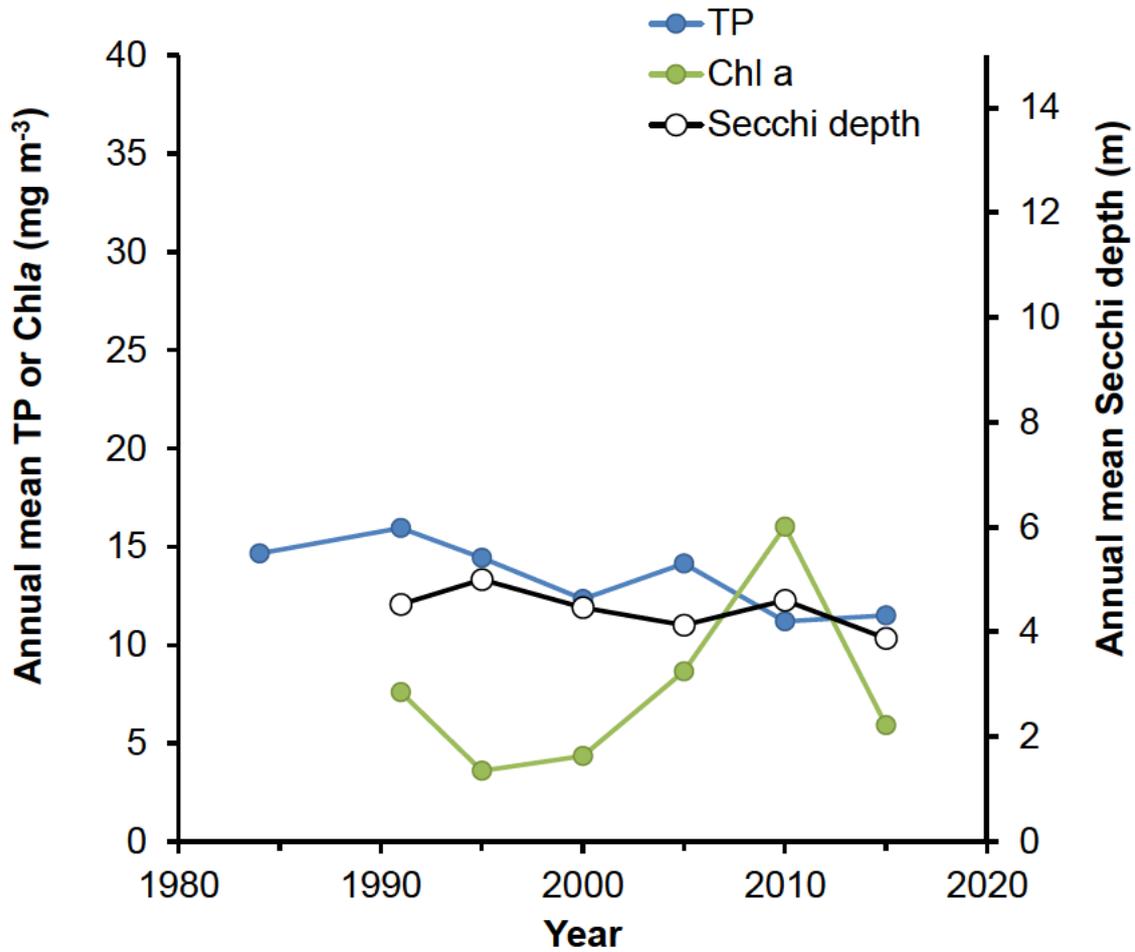


Figure 3.38. Long term changes in annual concentration of total phosphorus, phytoplankton chlorophyll *a* and Secchi depth in the North Basin of Windermere.

Windermere North Basin shows no indication for changes in nutrient concentrations based on Lakes Tour data apart from an encouraging downward trend in TP (Table 3.10; Fig. 3.38).

Of the major ions the only significant change is an increase in alkalinity and a reduction in concentration of sulphate and calcium (Table 3.10).

The fish community at Windermere North Basin

The fish community of Windermere comprises at least 16 species, but it is dominated by Arctic charr, perch, pike and, in recent years, roach (Winfield *et al.*, 2008a). This is without doubt the best studied standing water fish community in the U.K., although historically attention was strongly focussed on only its Arctic charr, perch and pike populations rather than including investigations of the full community. Much of the resulting extensive literature of the previous century was reviewed by Le Cren (2001), with many of the more recent studies being reviewed and extended by Winfield *et al.* (2008a) and Winfield *et al.* (2008b) which focussed on its Arctic charr and pike populations, respectively. In addition, Winfield *et al.* (2010a) and Winfield *et al.* (2011c) have reviewed the history of fish species introductions to the lake, among which the principal species of concern are common bream and particularly roach. The lake fish community has been monitored using hydroacoustics, gill nets and fishery statistics since 1995 and will be reported for 2015 by Winfield *et al.* (in prep. c). Taking the findings of these investigations together, the overall picture for the North Basin is one of a declining Arctic charr population and an expanding roach population. Notably, the habitat quality of Arctic charr spawning grounds has deteriorated in recent decades although this change has been less marked in the North Basin than in the South Basin (Miller *et al.*, 2015; Winfield *et al.*, 2015b). In recent decades pike abundance and condition have tended to be higher in the North Basin than in the South Basin, but the magnitudes of these inter-basin differences have declined in recent years (Winfield *et al.*, 2008b). The composition of pike diet reflects the changes observed in the relative abundance of the major fish species, with Arctic charr declining and roach increasing in importance

(Winfield *et al.*, 2012c). Perch abundance has varied considerably, although with no noticeable inter-basin differences, and population size structure has tended to become more diverse in recent years. Common bream abundance remains very low in the North Basin. In 2015, total fish population density in the North Basin as recorded by night-time hydroacoustic surveys peaked in July at 1608.3 fish ha⁻¹ (Winfield *et al.*, in prep. c).

The North Basin of Windermere is studied fortnightly as part of the CEH long-term monitoring programme that was started by the Freshwater Biological Association in 1945 and continued by CEH since 1989. Monthly day and night echo-sounding assessment of fish abundance are undertaken monthly. A recent nutrient budget and assessment of long-term change are given in Maberly (2008, 2009) and Maberly *et al.* (2008) respectively. It was the subject of a CEH project studying the impacts on water quality of species invasion and climate change (<http://www.windermere-science.org.uk/home>) that investigated, among other things, the causes of the changed productivity in the lake.

3.3.20 Windermere South Basin

The South Basin of Windermere is about half the volume and 80% of the area of the North Basin. In addition to receiving water from the North Basin, Esthwaite Water flows into the South Basin via Cunsey Beck.



South Basin of Windermere. (Photo: M.M. De Ville).

Table 3.30. Summary of limnological conditions and trophic and Water Framework Directive classifications at the South Basin of Windermere in 2015.

Characteristic	Value	Trophic	WFD
Mean alkalinity (mequiv m ⁻³)	265		
Mean pH (geometric mean)	7.3		
Mean total phosphorus (mg m ⁻³)	12.5	Mesotrophic	Moderate
Mean soluble reactive phosphorus (mg m ⁻³)	4.0		
Mean nitrate-nitrogen (mg m ⁻³)	386		
Mean silica (mg m ⁻³)	934		
Mean phytoplankton chlorophyll <i>a</i> (mg m ⁻³)	6	Mesotrophic	
Maximum phytoplankton chlorophyll <i>a</i> (mg m ⁻³)	9	Mesotrophic	
Arithmetic Observed chlorophyll <i>a</i> (mg m ⁻³)	7.0		Moderate
Mean Secchi depth (m)	4.1	Mesotrophic	
Minimum Secchi depth (m)	3.7	Meso/Oligotrophic	
Minimum oxygen concentration (g m ⁻³)	0.4		

The South Basin of Windermere is generally slightly more productive than the North Basin but is also categorised as being mesotrophic. However, in terms of the WFD, the status of the South Basin of Windermere is Moderate for TP and for phytoplankton chlorophyll *a* (Table 3.30).

There has been a large and statistically significant reduction in TP in the South Basin of Windermere as a consequence of P-removal in 1992 from the WWTWs that discharge to the lake, but no changes in the concentration of other nutrients (Table 3.10; Fig. 3.39). However, the more detailed fortnightly data do reveal subtle long-term changes (Maberly *et al.*, 2005, 2008). Like the North Basin, alkalinity has increased significantly and concentrations of sulphate, calcium and mahnesium have declined (Table 3.10). There have been no statistically significant changes in phytoplankton chlorophyll *a* or Secchi depth (Table 3.10; Fig. 3.39), but there is a slight, but encouraging trend, for improvement in Secchi depth.

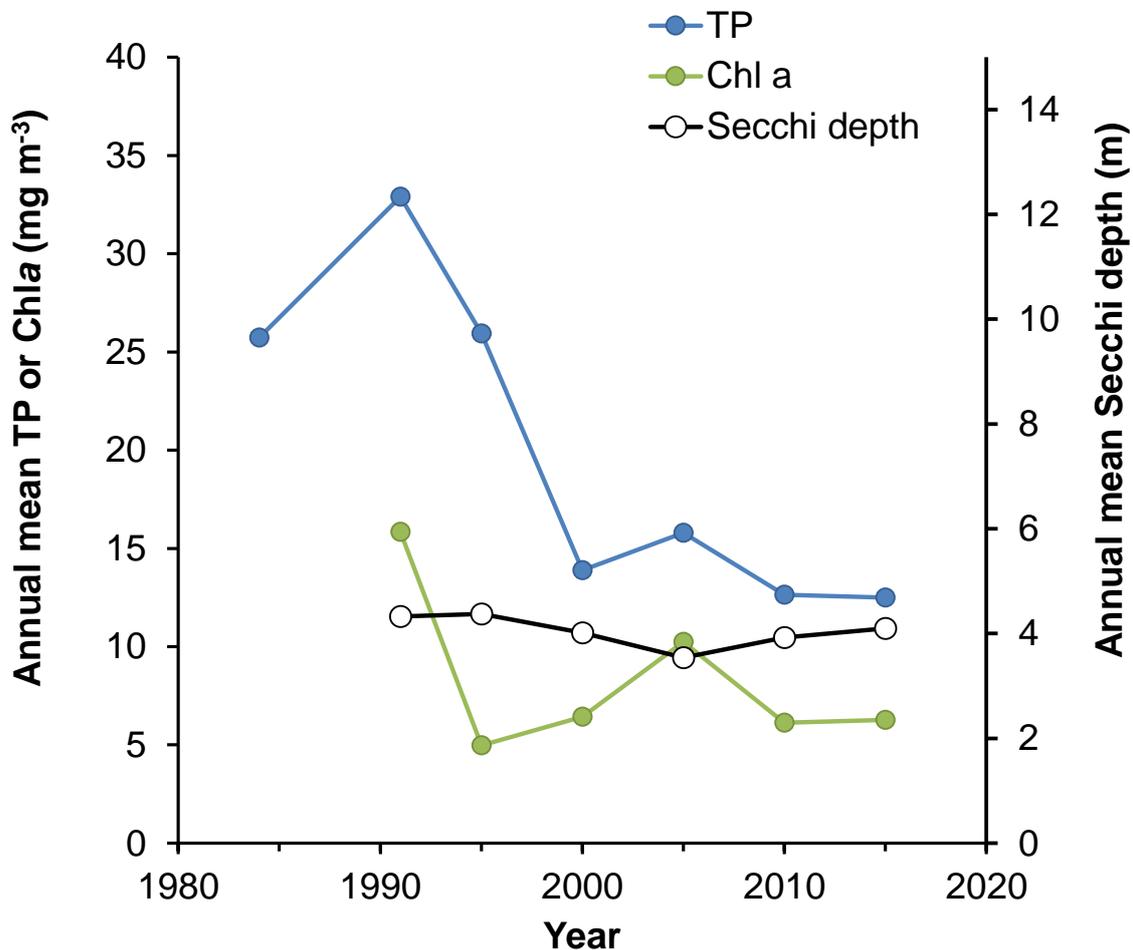


Figure 3.39. Long term changes in annual concentration of total phosphorus, phytoplankton chlorophyll *a* and Secchi depth in the South Basin of Windermere.

The fish community at Windermere South Basin

Much of the general information given above for Windermere North Basin also applies to Windermere South Basin, with fish movements between these areas known to be extensive and Winfield *et al.* (2008a), Winfield *et al.* (2008b), Winfield *et al.* (2010a), Winfield *et al.* (2011c), Miller *et al.* (2015) and Winfield *et al.* (in prep. c) also addressing the South Basin. Taking the findings of these investigations together, as for the North Basin the overall picture for the South Basin is one of a markedly declining Arctic charr population and an expanding roach population, with both of these trends being more marked and beginning earlier than in the North Basin although roach abundance has stopped increasing in recent years in the South Basin. In recent decades pike abundance and condition have tended to be lower in the South Basin, but the magnitudes of these inter-basin differences have also declined in recent years. The composition of pike diet reflects the changes observed in the relative abundance of the major fish species, with Arctic charr declining and roach increasing in importance (Winfield *et al.*, 2012c). Perch abundance has varied considerably, although with no noticeable inter-basin differences, and population size structure has tended to become more diverse in recent years. Common bream abundance remains low in the South Basin, but is increasing and this apparently introduced cyprinid is now consistently caught more frequently in this basin than it is in the North Basin. In 2015, total fish population density in the South Basin as recorded by night-time hydroacoustic surveys peaked in July at 2787.7 fish ha⁻¹ (Winfield *et al.*, in prep. c).

The South Basin of Windermere is studied fortnightly as part of the CEH long-term monitoring programme that was started by the Freshwater Biological Association in 1945 and continued by CEH since 1989. Monthly day and night echo-sounding assessment of fish abundance are undertaken monthly. There is a CEH AWQMS on the lake. A recent nutrient

budget and assessment of long-term change are given in Maberly (2008, 2009) and Maberly *et al.* (2009) respectively. It was the subject of a CEH project studying the impacts on water quality of species invasion and climate change (<http://www.windermere-science.org.uk/home>).

3.3.21 Summary of the lakes in 2015.

The annual mean (for oxygen minimum at depth) values for each lake in 2010 are summarised in Table 3.31. Raw values are given in the appendices.

Table 3.31. Annual mean (oxygen minimum at depth) for the 20 lakes of the Lakes Tour in 2015. Note: pH was calculated as the geometric mean.

Lake	TP (mg m ⁻³)	SRP (mg m ⁻³)	NO ₃ -N (mg m ⁻³)	SiO ₂ (g m ⁻³)	Chl (mg m ⁻³)	<i>a</i> (m)	Secchi	Min O ₂ (g m ⁻³)	pH	Alk (mequiv m ⁻³)	Cl (mequiv m ⁻³)	SO ₄ (mequiv m ⁻³)	Na (mequiv m ⁻³)	K (mequiv m ⁻³)	Ca (mequiv m ⁻³)	Mg (mequiv m ⁻³)
Bassenthwaite Lake	11	1.71	251	1.362	7.1	3.15	3.67	7.0	222	292	72.8	240	12.8	247	84.5	
Blelham Tarn	24.5	2.26	293	1.247	23.0	2.03	0	7.2	450	294	72.8	249	19.2	461	120.2	
Brothers Water	5.4	0.61	197	1.463	1.9	5.40	0.36	7.0	192	214	57.0	189	5.8	225	61.4	
Buttermere	4.4	0.77	193	1.381	1.8	6.65	6.86	6.7	65.3	200	47.7	156	4.4	103	53.2	
Coniston Water	8.6	1.09	353	0.784	4.5	5.06	4.46	7.2	209	280	78.9	233	12.3	266	81.0	
Crummock Water	2.5	0.86	221	1.055	2.6	7.50	3.56	6.7	60.3	231	55.5	180	6.3	101	65.5	
Derwent Water	9.5	0.75	104	0.723	5.1	4.18	3.66	6.8	109	293	40.5	212	5.5	178	54.6	
Elterwater	18.3	2.02	163	1.533	15.7	2.86	0.04	6.8	285	225	47.0	199	9.4	293	73.2	
Ennerdale Water	5.3	0.56	238	2.206	1.3	7.78	7.62	6.6	51.0	227	50.8	188	5.9	83	64.2	
Esthwaite Water	17.5	2.60	330	1.374	14.1	2.73	0.05	7.3	440	351	87.5	290	19.8	479	105.2	
Grasmere	21.5	4.17	237	1.135	8.5	3.61	0.07	6.8	157	202	53.9	183	7.7	192	55.6	
Haweswater	6.6	1.49	208	1.484	2.5	4.15	5.89	7.1	186	173	51.6	152	7.9	209	72.1	
Loughrigg Tarn	12	0.88	250	0.734	11.9	3.58	0.08	7.2	293	233	53.2	193	12.6	306	96.3	
Loweswater	9.6	0.75	312	0.640	8.7	3.75	4.27	7.1	191	321	87.2	252	15.0	242	113.8	
Rydal Water	13.8	2.23	246	1.058	6.0	4.03	0.01	6.9	165	197	51.7	182	7.6	190	56.2	
Thirlmere	7.1	1.03	181	1.118	2.2	5.25	5.7	6.7	64.8	173	42.2	150	5.1	104	40.4	
Ullswater	7.5	1.90	199	1.259	4.6	5.63	2.61	7.2	227	203	57.7	172	9.4	250	80.3	
Wastwater	2.5	0.65	329	2.241	0.85	9.55	9.8	6.8	70.0	196	49.1	167	5.8	103	58.3	
Windermere N Basin	11.5	2.32	291	0.985	5.9	3.88	5.25	7.2	236	235	60.8	201	11.6	268	73.4	
Windermere S Basin	12.5	3.96	386	0.934	6.3	4.10	0.35	7.3	265	267	69.8	223	14.3	309	81.1	

4. PATTERNS OF RESPONSE ACROSS ALL THE LAKES

4.1 Patterns to elucidate environmental drivers of lake response

The English Lake District is unusual in having a large range of lake types in terms of depth, size, hydrology, basic water chemistry and trophic state within a small geographic area. This results essentially from the varied geology in the catchments (Fig. 3.5) but also from the varied land-use in the catchments and the altitude and morphology of individual lakes. Furthermore it is extremely fortunate that these 20 lakes have been studied in a reasonably consistent way since 1984, and some for much longer, so that comparisons can be made across years as well as lake-types. This gives an excellent opportunity to analyse and illustrate the inter-relationships among various limnological variables to help understand how lakes function and respond to environmental perturbation at scales ranging from local to global.

An example of the importance of the local catchment in determining the ecology of the lake is shown in Figure 4.1 where concentrations of potassium, alkalinity, total phosphorus and nitrate all decline with mean catchment elevation; all the correlations are significant at $P < 0.001$. Elevation is not likely to be the direct cause of the relationship but is probably correlated with: i) erodability of rock, ii) accumulation of ions because the water has travelled through more geology and soil and iii) changes in land-use and soil types. Water chemistry has been shown to be closely linked to land-use in small upland tarns (Maberly *et al.*, 2003) and it likely that this is a key factor in these larger lakes as well.

Although nitrogen may be an equally important limiting nutrient in certain types of lakes, including upland tarns in the Lake District (Maberly *et al.* 2002; James *et al.*, 2003) in the large lowland lakes of the English Lake District studied here, phosphorus is the key nutrient limiting phytoplankton production. This is apparent from Figure 4.2 where concentrations of phytoplankton chlorophyll *a* are closely linked to the concentration of total phosphorus.

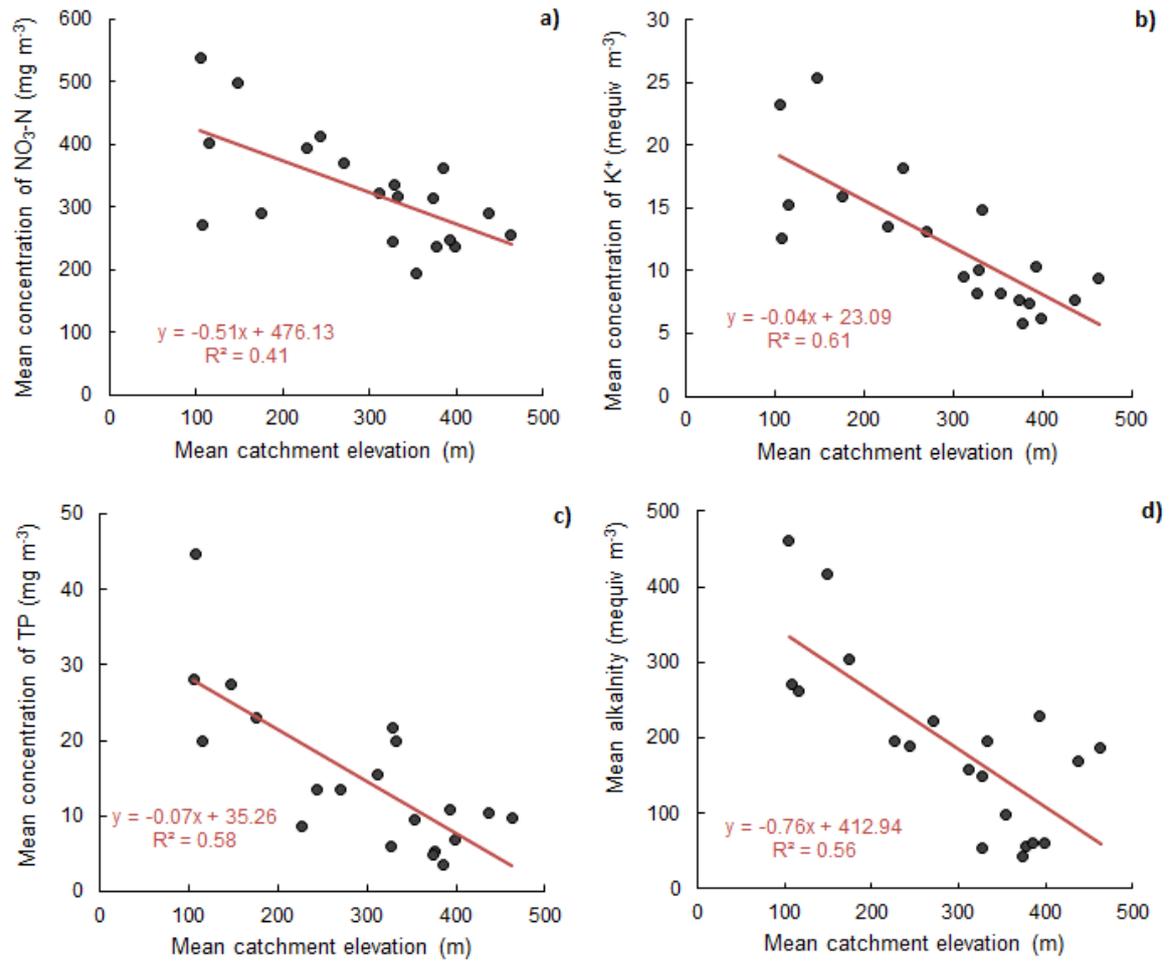


Figure 4.1. Relationships between annual mean concentrations of two major ions (a) potassium; (b) alkalinity) and two nutrients (c) total phosphorus and (d) nitrate-nitrogen) and mean catchment elevation. Data are mean from Lakes Tours in 1984, 1991, 1995, 2000, 2005, 2010 and 2015.

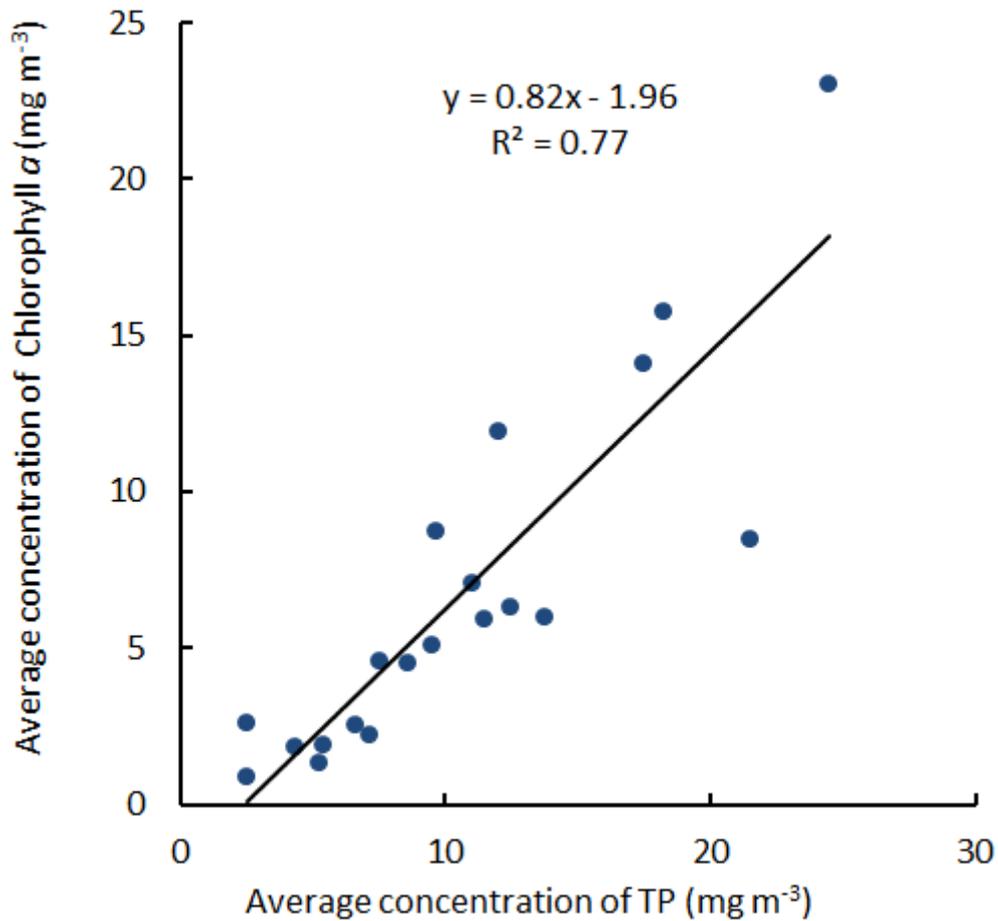


Figure 4.2. Relationship between site mean concentration of phytoplankton chlorophyll a and total phosphorus plotted. Data from 1991, 1995, 2000, 2005, 2010 and 2015 Lakes Tours.

The greater the productivity of lake, the greater effect the biology has on the seasonal dynamics of a lake. Figure 4.3 shows how in productive lakes, with high concentrations of TP, such as Esthwaite Water and Blelham Tarn, seasonal changes in concentrations of nitrate and silica are great, but in unproductive lakes, such as Wastwater and Ennerdale Water, there is very little seasonal change in these two other nutrients. Analysing seasonal changes in concentrations of nitrate and silica is, therefore, a useful additional method to describe the productivity of a lake. They have the advantage of being more conservative than soluble

reactive phosphorus and being closer to an available nutrient than TP which often shows relatively little seasonal change.

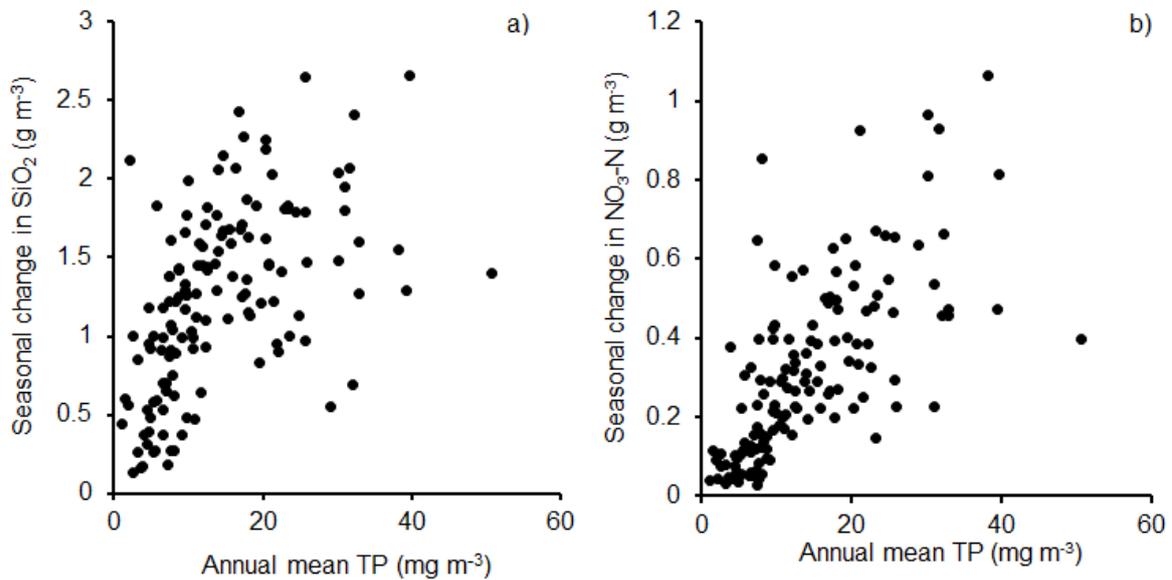


Figure 4.3. Seasonal change (annual maximum minus annual minimum) in concentration of: a) silica and b) nitrate as a function of annual mean TP for the 20 lakes in 1984, 1991, 1995, 2000, 2005, 2010 and 2015.

The greater productivity of these types of lakes is expressed in the amount of phytoplankton chlorophyll *a* (Fig. 4.2). This in turn has a number of consequences for the limnology of a lake. An obvious consequence is that a large population of phytoplankton reduces water clarity. Figure 4.4 show this relationship for data between 1991 and 2015 categorised per month. The responses in April, July and October are very similar and clearly dominated by the phytoplankton with the proportion of the variance accounted for (R^2) ranging from 0.61 to 0.79. There was a slightly different response in January: Secchi depth tended to be lower for the same concentration of phytoplankton chlorophyll *a* and the proportion of the variance accounted for (R^2) was lower at 0.30. This is probably the result of non-phytoplankton material such as suspended solids, being relatively more important in January than in the three other months, because phytoplankton populations are generally at their lowest and

winter rains will bring in suspended solids, and possibly coloured dissolved organic carbon, from the catchment.

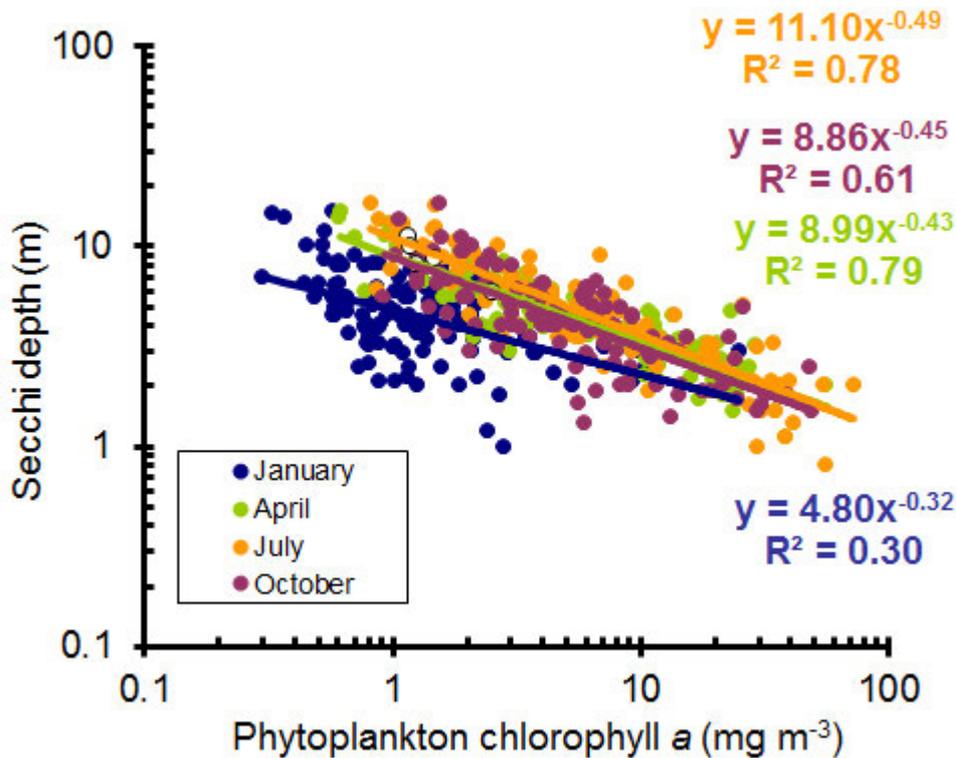


Figure 4.4. Relationship between Secchi depth and concentration of phytoplankton chlorophyll a (both on log scales) in the 20 lake basins and four sampling occasions in the 1991, 1995, 2000, 2005, 2010 and 2015 Lakes Tours. The best-fit line is shown with equation and proportion of the variance accounted for (R^2).

Another consequence of increased phytoplankton productivity is the depletion of oxygen at depth in the summer. This has a number of potentially undesirable consequences. First, oxygen depletion changes the redox potential at the sediment surface converting iron from ferric (Fe^{3+}) which is able to bind phosphorus to ferrous (Fe^{2+}) which does not, and as a result phosphorus bound in the sediment may be released into the water column, causing a positive feedback that increases nutrient enrichment.

Secondly, low oxygen concentrations at depth will limit the ability of fish to exploit these depths and this, in turn, may have negative consequences, especially for fish, such as the Arctic charr, which avoid the low concentrations of oxygen in the hypolimnion (Jones *et al.* 2008). It is important to note that the peak oxygen depletion in the lakes of the English Lake District typically occurs between the end of August and the start of October, depending on when exactly stratification breaks down. Therefore the oxygen minimum measured in the Lakes Tour, which generally occurred in July, but occasionally in October, will probably be an underestimate of the true extent of oxygen depletion. Furthermore, a number of factors other than productivity will influence the extent of oxygen depletion such as the ratio of volume of water in the epilimnion to the volume of water in the hypolimnion. Nevertheless, the data show a clear negative relationship between oxygen concentration at depth and phytoplankton chlorophyll *a* (Fig. 4.3). Lakes with very little phytoplankton have oxygen minima which approach those at air-equilibrium and lakes where the annual mean concentration of phytoplankton *a* exceeds about 10 mg m^{-3} have complete oxygen depletion at depth (Fig. 4.5). The six points highlighted enclosed in an ellipse are from Brothers Water where oxygen depletion is much more substantial than predicted from the concentration of phytoplankton chlorophyll *a*. This may result in part from the bathymetry of the lake with steep sloping shores down to about 12 m and then a large sediment area down to 16.7 m (Haworth *et al.* 2003) or from input of labile organic matter from the catchment that is oxidised within the lake, or both.

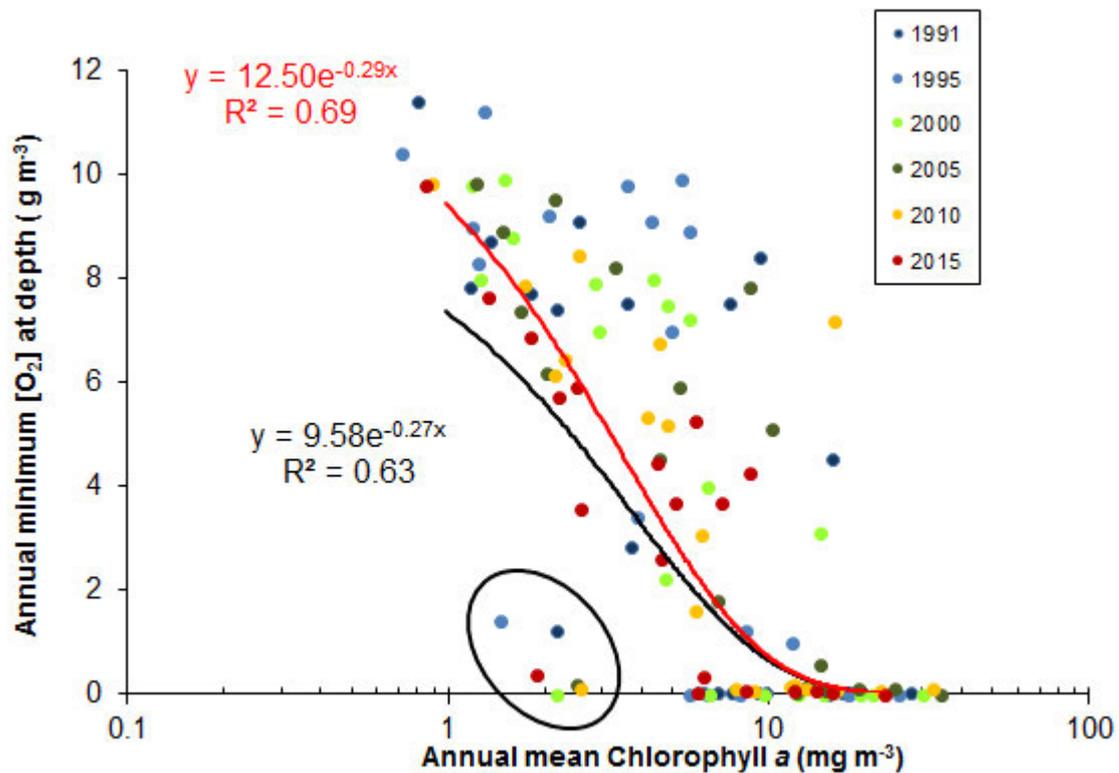


Figure 4.5. Data for from 1991 to 2015 showing the relationship between annual minimum concentration of oxygen at depth and the annual mean phytoplankton chlorophyll a (on a log scale). The data for 2015 are highlighted in red. The five points falling outside the main cluster and highlighted with an ellipse are for Brothers Water- see text. The black line shows the trendline for all the data and the red line shows the trendline excluding Brothers Water.

Finally, there is a strong link between alkalinity (acid neutralising capacity) and the concentration of sulphate. There is a baseline concentration of sulphate derived from weathering the rocks in the catchment and from input in rainfall derived from sea-salts. However, in recent years a large amount of sulphate was deposited in ‘acid rain’ derived from burning fossil fuels, acidifying the catchment and the fresh waters. This deposition is now declining and this can be seen in the lower concentrations of sulphate in recent years (Fig. 4.6a). At the same time, the mean alkalinity has increased as the acidifying effect of sulphate has declined (Fig. 4.6a) and there has been an approximately equimolar relationship

between decreasing sulphate concentrations and increasing alkalinity (Fig. 4.6b). In recent years, while concentrations of sulphate have continued to decline, the increase in alkalinity has ceased. The reason for this is not known.

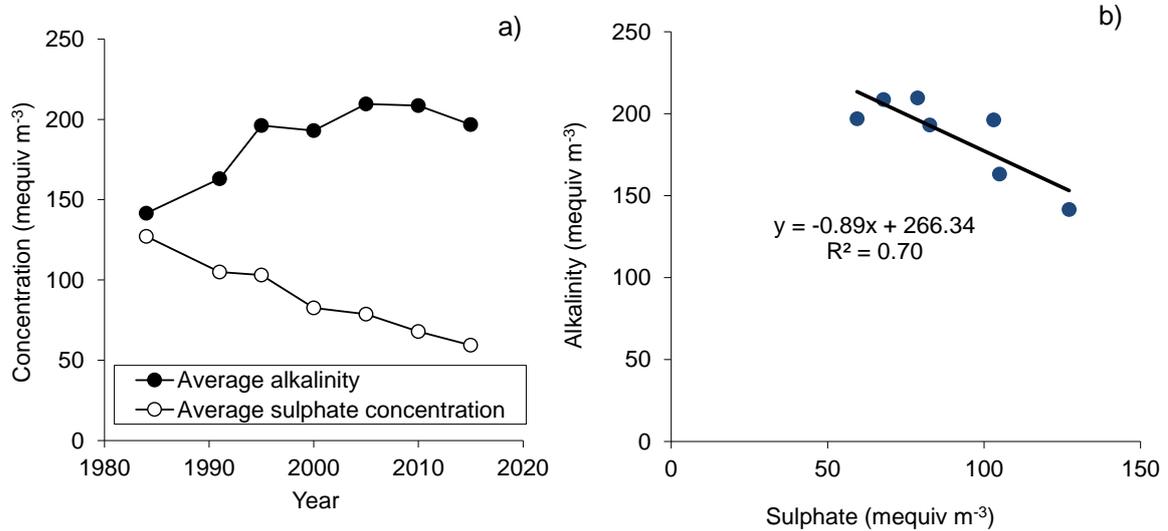


Figure 4.6. Relationship between annual mean alkalinity and concentration of sulphate for the 20 lakes in the Lakes Tour as (a) a time-course, and (b) a scatter-plot.

The overall annual mean changes for the 20 lakes in the Lakes Tour are shown in Figure 4.7. These have not been analysed statistically, but there is a slight indication that the concentration of chlorophyll *a*, and TP have declined since 2005 but that the Secchi depth is not yet starting to recover. However this possible slight improvement is set against a larger deterioration in previous years and conditions in 2015 are worse than the mean at the start of the data-set.

The increasing alkalinity and decreasing sulphate concentration are large obvious patterns in the concentration of major ions. The increase in pH corresponds to the increase in alkalinity. The reduction in concentration of the cations: calcium, magnesium, sodium and potassium, also results from the reduced input of acid on the catchment soils. Protons

(hydrogen ions) bind to the soil, releasing other cations, such as calcium, that can then enter the water. As acid rain decreases, the concentration of these cations tends to decline. A second factor that introduces variability into the data is the deposition of sea-salt, largely from winter storms. Storminess was high in the early 1990s and part of the decline in sodium, and the decline in chloride, is probably caused by that.

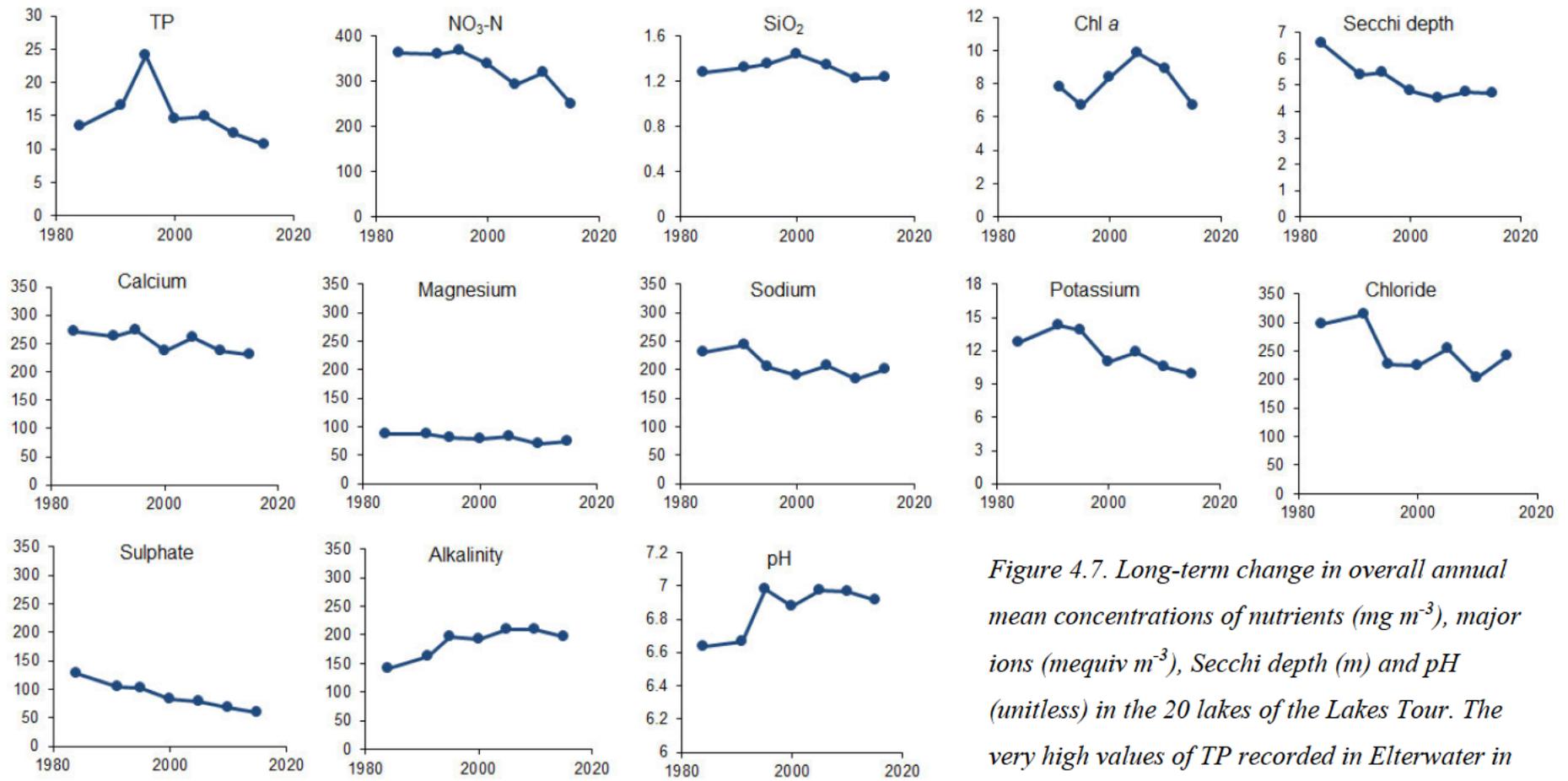


Figure 4.7. Long-term change in overall annual mean concentrations of nutrients (mg m^{-3}), major ions (mequiv m^{-3}), Secchi depth (m) and pH (unitless) in the 20 lakes of the Lakes Tour. The very high values of TP recorded in Elterwater in 2005 have been excluded.

4.2 Summary of ecological status of the lakes under the WFD

Figure 4.8 summarises the ecological status of the 20 lakes based on TP and phytoplankton chlorophyll *a* based on the results presented in Tables 3.11 to 3.30. It is important to note again that the ecological boundaries are still being fine-tuned and the ones used here were correct at the date of writing but may change slightly in the future. As mentioned, they are not equivalent to the Environment Agency assessments that are based on monthly data over three years. They are however, internally consistent and so can be used to determine change.

The critical ecological boundary for the Water Framework is the Good:Moderate boundary, because measures will need to be put in place to improve ecological status at lakes that are only Moderate or worse. In 2015, six out of the 20 lakes were at Moderate ecological status or worse for TP and chlorophyll *a*. However, on the principle of ‘one-out-all-out’, seven lakes were below Good ecological status. Of these, Loughrigg Tarn is not a WFD site.

Compared to 2005 and 2010, there was a decrease in lakes failing Good ecological status in 2015 for both TP and for phytoplankton chlorophyll *a*. In contrast to previous surveys, none of the lakes was in Poor status so there are some small encouraging signs of improvement.

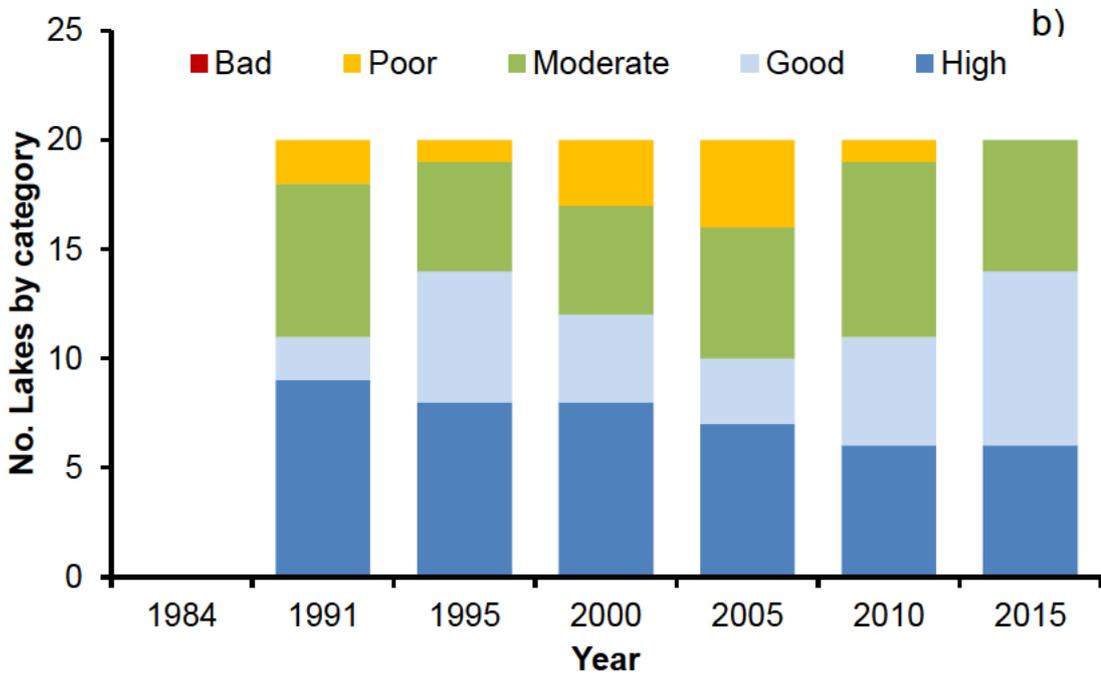
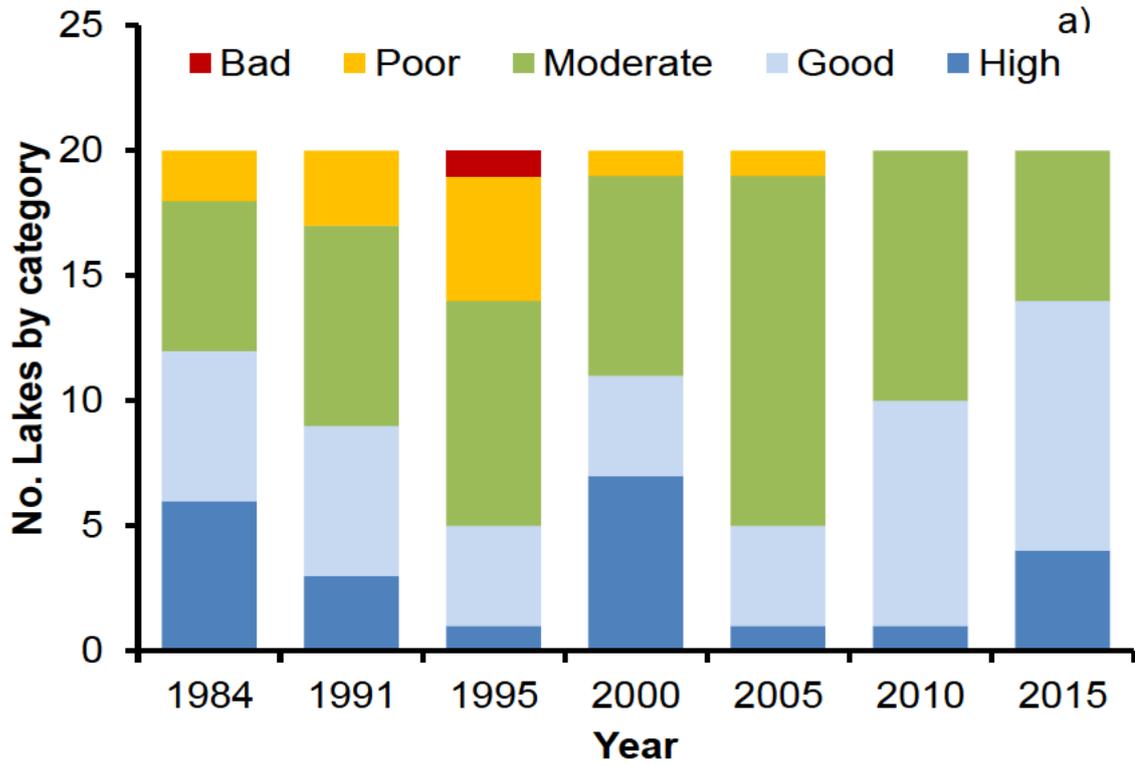


Figure 4.8 Summary of overall ecological status for the 20 lakes according to (a) TP or (b) phytoplankton chlorophyll a between 1984 and 2015.

4.3 Suggestions for further work

The current scheme for assessing ecological status based on phytoplankton chlorophyll *a* suggests that Blelham Tarn, Esthwaite Water, Elterwater, Loweswater, Loughrigg Tarn and the South Basin of Windermere are not at good ecological status and so require more research to understand the reasons why this is the case. In the case of Blelham Tarn, Esthwaite Water and the South Basin of Windermere, the appropriate long-term data exist to produce a good understanding of the trajectories and reasons for change.

Wastwater is the premier oligotrophic lake in England. It is clearly still at good condition with High or Reference ecological status. However, the signs that water quality is deteriorating, albeit slightly that were noted in the previous Lake Tour report (Maberly et al. 2011) have continued. Of particular concern, Secchi depth is getting shallower and in all seasons (Table 3.10) and in summer Secchi depth has fallen by 10 m from a maximum of 16.5 m in 1995 to 6.1 m in 2015. There has not been a comprehensive limnological survey of Wastwater, and this combined with signs of change in the lake requires this lake to be investigated as a matter of urgency.

A similar, but less dramatic decline in Secchi depth has been noted in Buttermere, with a reduction from an annual peak of 10 m in the 1990s to 6.7 m in 2015. The causes for this also need to be investigated.

Crummock Water appears to be stable apart from the noted decline in oxygen concentration at depth which is an indication of nutrient enrichment or an input in labile organic matter

from the catchment. The oxygen concentration in 2015, 3.6 g m^{-3} , is substantially lower than the 9.2 mg m^{-3} noted in 1995 and this is cause for concern given that Arctic charr are present in the lake.

Surprisingly little is known about the fish populations in several lakes. Five critical lakes that require an assessment of their fish populations are Elterwater- where diversion to Great Langdale Beck have just been made, Blelham Tarn- despite this having one of the best long-term records for other variables in the world and where concentrations of phytoplankton chlorophyll *a* continue to rise, Grasmere which also has good long-term records for other variables, Loughrigg Tarn and Rydal Water.

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7. APPENDICES

7.1 APPENDIX 1. Temperature and oxygen depth profiles in 2015

Bassenthwaite Lake 2015

Depth (m)	Temperature (°C)				Oxygen concentration (mg m ⁻³)			
	Jan	Apr	Jul	Oct	Jan	Apr	Jul	Oct
0	3.9	10.5	18.2	13.4	14.52	11.17	8.72	10.83
1	3.9	10.1	18	13.4	14.5	11.22	8.63	10.8
2	3.8	9.9	17.9	13.3	14.48	11.16	8.53	10.77
3	3.8	9.9	17.9	13.3	14.46	11.12	8.47	10.76
4	3.8	9.9	17.8	13.3	14.44	11.04	8.39	10.76
5	3.8	9.8	17.8	13.3	14.41	11	8.4	10.75
6	3.8	9.8	17.8	13.3	14.38	10.95	8.41	10.75
7	3.9	9.8	17.8	13.3	14.36	10.91	8.4	10.73
8	3.8	9.8	17.8	13.3	14.34	10.86	8.38	10.73
9	3.8	9.8	17.8	13.3	14.32	10.79	8.35	10.71
10	3.8	9.7	17.7	13.2	14.3	10.73	8.18	10.71
12	3.8	9.7	17.4	13.2	14.27	10.69	7.69	10.71
13			17.1				7.4	
13.5			16.6				6.75	
14	3.8	9.7	15.3	13.1	14.23	10.61	5.12	10.69
14.5			14.3				4.61	
15			13.9				4.38	
16	3.8	9.7	13.7	13.1	14.2	10.52	4.04	10.68
18	3.8	9.7	13.6	13	14.18	10.45	3.88	10.69
20	3.8	9.7	13.6	13	14.15	10.43	3.75	10.65
20.5		9.7	13.6	13		10.43	3.67	10.65
21	3.7				14.16			

Blelham Tarn 2015

Depth (m)	Temperature (°C)				Oxygen concentration (mg m ⁻³)			
	Jan	Apr	Jul	Oct	Jan	Apr	Jul	Oct
0	4.9	9.1	19.5	13.7	13.66	11.45	9.26	9.02
1	4.9	9	19.4	13.5	13.62	11.41	9.25	8.71
2	4.9	9	19.2	13.4	13.6	11.36	8.99	8.54
2.5			18.4				8.57	
3	4.9	8.9	17	13.4	13.58	11.34	8.9	8.35
3.5			15.9				9.64	
4	4.8	8.7	14.8	13.4	13.57	11.25	10.36	8.15
4.5		8.5	13.7			11.16	3.23	
5	4.8	8	12.7	13.3	13.55	10.86	1.28	8.19
5.5		7.9	11.9			10.89	0.13	
6	4.8	7.3	11.4	13.1	13.53	10.44	0.07	7.96
6.5			11	12.5			0.06	2.02
7	4.8	6.8	10.5	11.4	13.51	9.64	0.06	0.02
7.5			10	10.9			0.06	0.02
8	4.8	6.7	9.4	10.2	13.49	9.51	0.07	0.01
9	4.8	6.7	9	9.8	13.48	9.49	0.074	0.01
10	4.8	6.7	9	9.7	13.45	9.49	0.07	0
11			8.9				0.08	
12	4.8	6.6	8.9	9.6	13.41	9.47	0.08	0
13			8.9				0.08	
13.5			8.9				0.08	
14	4.8	6.6		9.5	13.39	9.45		0

Brothers Water 2015

Depth (m)	Temperature (°C)				Oxygen concentration (mg m ⁻³)			
	Jan	Apr	Jul	Oct	Jan	Apr	Jul	Oct
0	3.99	7.54	16.82	11.24	12.18	12.08	9.46	9.63
0.5			16.83				9.45	
1	4	7.54	16.83	11.24	12.17	12.07	9.43	9.61
1.5			16.83				9.43	
2	4.01	7.54	16.83	11.24	12.15	12.05	9.42	9.58
2.5			16.83				9.4	
3	4	7.54	16.83	11.24	12.18	12.04	9.4	9.56
3.5			16.78				9.39	
4	4.01	7.54	15.98	11.24	12.16	12.03	9.33	9.52
4.5			14.96				9.35	
5	4.01	7.54	14.43	11.24	12.13	12	9.31	9.39
5.5			14.02				8.12	
6	4.01	7.53	11.4	11.2	12.15	12.01	8.93	9.4
6.5			11.06	11.18			9.12	9.38
7	4.01	7.19	10.58	11.16	12.15	12.02	8.58	9.3
7.5				11.14				9.19
8	4.01	7.03	10.24	11.1	12.11	11.99	8.38	8.98
8.5				11.08				8.78
9	4.01	6.88	9.93	11.06	12.11	11.95	7.2	8.66
9.5				11.05				8.68
10	4.01	6.43	9.77	11.04	12.09	11.94	6.99	8.51
10.5				10.98				7.68
11				10.95				6.95
11.5				10.7				3.87
12	4	5.64	9.49	10.08	12.09	11.62	6.11	0.36
12.5				9.77				0.41
13				9.63				0.39
13.5				9.56				0.4
14	4.01	5.44	9.34	9.52	12.11	11.39	6.49	0.57

Buttermere 2015

Depth (m)	Temperature (°C)				Oxygen concentration (mg m ⁻³)			
	Jan	Apr	Jul	Oct	Jan	Apr	Jul	Oct
0	5.23	7.23	15.13	12.71	10.77	12.44	9.79	9.98
0.5			15.13				9.79	
1	5.23	7.21	15.11	12.71	10.77	12.42	9.78	9.97
2	5.22	7.19	15.05	12.71	10.77	12.42	9.77	9.96
3	5.22	7.18	15	12.71	10.78	12.42	9.75	9.95
4	5.23	7.16	14.97	12.71	10.77	12.41	9.74	9.94
5	5.23	7.15	14.92	12.71	10.76	12.4	9.72	9.92
6	5.23	7.15	14.9	12.71	10.76	12.38	9.72	9.9
7	5.22	7.15	14.85	12.71	10.77	12.38	9.71	9.9
8	5.22	7.13	14.73	12.71	10.75	12.37	9.73	9.88
9	5.22	7.13	14.49	12.7	10.75	12.36	9.76	9.86
10	5.22	7.13	14.14	12.7	10.29	12.34	9.75	9.82
10.5			14.04				9.77	
11			14				9.77	
11.5			13.62				9.74	
12	5.22	7.12	13.28	12.7	10.76	12.31	9.73	9.77
12.5			12.95				9.68	
13			12.78				9.73	
13.5			12.61				9.65	
14	5.22	7.11	11.65	12.7	10.72	12.3	9.64	9.77
14.5			11.42				9.56	
15			11.24				9.55	
15.5			11.07				9.44	
16	5.22	7.1	10.99	12.7	10.72	12.28	9.12	9.75
18	5.22	7.09	10.74	12.66	10.72	12.25	8.93	9.7
20	5.22	7.09	10.63	12.65	10.71	12.22	8.78	9.64
22	5.22	7.07	10.54	12.65	10.69	12.19	8.66	9.56
24	5.22	7	10.5	12.64	10.66	12.17	8.45	9.33
25				12.61				8.98
26	5.22	6.97	10.42	12.18	10.64	12.18	8.43	6.86

Coniston Water 2015

Depth (m)	Temperature (°C)				Oxygen concentration (mg m ⁻³)			
	Jan	Apr	Jul	Oct	Jan	Apr	Jul	Oct
0	6.51	6.74	16.12	13.96	11.42	12.71	9.85	9.72
1	6.51	6.75	16.12	13.91	10.97	12.7	9.85	9.69
2	6.5	6.72	16.12	13.86	10.63	12.67	9.84	9.7
3	6.5	6.72	16.11	13.84	10.64	12.68	9.83	9.66
4	6.49	6.71	16.06	13.83	10.65	12.66	9.81	9.65
5	6.49	6.71	15.7	13.82	10.66	12.65	9.8	9.64
6	6.49	6.69	15.59	13.82	10.65	12.64	9.8	9.61
7	6.49	6.7	15.48	13.82	10.64	12.63	9.79	9.59
8	6.49	6.71	15.44	13.81	10.67	12.62	9.79	9.56
8.5			14.43				9.76	
9	6.48	6.63	15	13.81	10.2	12.6	9.71	9.53
9.5			13.92				9.68	
10	6.48	6.64	13.29	13.81	10.67	12.59	9.66	9.51
10.5			12.87				9.64	
11			12.21				9.64	
11.5			11.93				9.61	
12	6.48	6.61	11.77	13.81	10.68	12.57	9.6	9.36
12.5			11.5				9.59	
13			11.33				9.56	
13.5			11.11				9.55	
14	6.48	6.56	11	13.79	10.68	12.56	9.48	8.83
14.5			10.78				9.3	
15			10.42				9.41	

15.5			10.37				9.43	
16	6.48	6.52	10.28	13.73	10.68	12.53	9.39	8.75
16.5				13.22				8.05
17				12.41				6.56
17.5				11.9				6.44
18	6.48	6.44	10.12	11.47	10.72	12.52	9.35	6.48
18.5				11.13				6.59
19				10.86				6.61
20	6.48	6.42	9.95	10.62	10.69	12.5	9.33	6.79
22	6.48	6.41	9.87	10.25	10.74	12.44	9.28	7.07
24	6.47	6.42	9.81	10.03	10.7	12.45	9.27	7.14
26	6.46	6.41	9.59	9.81	10.77	12.43	9.24	7.17
28	6.47	6.35	9.56	9.62	10.76	12.42	9.22	7.08
30	6.47	6.32	9.49	9.54	10.74	12.39	9.19	6.97
32	6.47	6.32	9.43	9.46	10.75	12.37	9.13	6.8
34	6.47	6.31	9.35	9.42	10.76	12.35	9.11	6.71
36	6.47	6.31	9.32	9.37	10.84	12.32	9.06	6.57
38	6.47	6.2	9.27	9.33	10.83	12.28	9	6.36
40	6.45	6.16	9.22	9.32	10.85	12.25	9	6.25
42	6.43	6.05	9.21	9.3	10.92	12.19	8.93	6.13
44	6.41	5.99	9.19	9.28	10.96	12.14	8.94	5.85
46	6.39	5.98	9.19	9.24	11.06	12.07	8.91	5.27
48	6.35	5.99	9.17	9.22	11.13	11.88	8.85	5.15
50	6.33	5.93	9.16	9.17	11.22	11.72	8.93	4.46
50.5				9.19				4.49
52	6.33		9.16		11.33		8.93	

Crummock Water 2015

Depth (m)	Temperature (°C)				Oxygen concentration (mg m ⁻³)			
	Jan	Apr	Jul	Oct	Jan	Apr	Jul	Oct
0	5.95	7.42	15.71	13.1	10.84	12.57	9.82	10.1
0.5			15.71				9.82	
1	5.96	6.92	15.65	13	10.85	12.64	9.81	10.07
2	5.95	6.81	15.45	12.98	10.85	12.63	9.82	10.04
3	5.95	6.78	15.3	12.97	10.88	12.64	9.81	10.04
4	5.96	6.76	15.25	12.96	10.85	12.61	9.81	10.03
5	5.95	6.75	15.22	12.95	10.86	12.6	9.79	10.02
6	5.95	6.75	15.19	12.95	10.87	12.59	9.79	10
7	5.95	6.74	15.16	12.94	10.93	12.58	9.77	9.99
8	5.95	6.74	15.15	12.94	10.93	12.528	9.77	9.97
9	5.95	6.74	15.13	12.93	10.93	12.55	9.77	9.96
10	5.95	6.73	15.11	12.92	10.91	12.5	9.76	9.93
10.5			15.1				9.76	
11			14.94				9.81	
11.5			14.7				9.83	
12	5.95	6.72	12.99	12.9	10.96	12.51	9.92	9.89
12.5			11.98				9.91	
13			11.76				9.98	
13.5			11.29				9.97	
14	5.95	6.7	10.43	12.89	10.95	12.5	9.9	9.84
16	5.95	6.7	9.99	12.88	11	12.47	9.84	9.78
18	5.95	6.69	9.9	12.86	11.03	12.45	9.79	9.48
20	5.95	6.65	9.83	12.79	11.06	12.44	9.71	9.5
22	5.95	6.61	9.73	12.37	11.12	12.4	9.65	9
23				12.12				8.51
23.5				11.45				8.15
24	5.95	6.55	9.68	10.47	11.14	12.41	9.5	7.86
24.5				10.11				7.91
25				9.88				8
26	5.94	6.51	9.61	9.63	11.21	12.39	9.51	8.11
28	5.94	6.47	9.57	9.54	11.27	12.36	9.44	8
30	5.94	6.43	9.54	9.47	11.27	12.34	9.31	8.07
32	5.94	6.42	9.51	9.39	11.3	12.29	9.2	7.65
34	5.95	6.39	9.46	9.33	11.31	12.27	9.05	7.08
36	5.94	6.37	9.41	9.25	11.33	12.23	8.85	6.11
38	5.93	6.34	9.32	9.14	11.33	12.1	8.62	4.74
40	5.87	6.31	9.21	9.01	11.35	11.9	8.43	3.59
41				8.96				3.56
42			9.2				8.7	

Derwent Water 2015

Depth (m)	Temperature (°C)				Oxygen concentration (mg m ⁻³)			
	Jan	Apr	Jul	Oct	Jan	Apr	Jul	Oct
0	3.6	9.6	17.7	13.4	14.45	11.29	9.01	11.01
1	3.9	9.5	17.5	13.4	14.49	11.28	8.97	10.99
2	4.1	9.5	17.5	13.4	14.44	11.27	8.94	10.97
3	4.1	9.5	17.5	13.4	14.42	11.26	8.93	10.963
4	4.1	9.4	17.4	13.4	14.39	11.24	8.91	10.95
5	4.1	9.4	17.3	13.3	14.38	11.22	8.87	10.94
6	4.1	9.4	17.3	13.3	14.36	11.2	8.82	10.93
7	4.1	9.4	17	13.3	14.34	11.19	8.71	10.93
8	4.1	9.4	16.6	13.2	14.32	11.18	8.91	10.91
9	4.1	9.3	16.6	13.2	14.32	11.16	8.87	10.9
10	4	9.3	16.4	13.1	14.3	11.14	8.7	10.91
11			16.3				8.49	
12	4	9.2	16.1	13.1	14.26	11.05	8.94	10.91
12.5			15.8				8.28	
13			15.5				8	
13.5			15				7.36	
14	4	9.1	13.6	13	14.23	11.01	6.22	10.92
14.5			13.1				6.04	
15			12.8				5.87	
16	4	9	12.6	12.9	14.19	10.98	5.37	10.93
18	4	8.9	12.4	12.8	14.16	10.94	4.35	10.94
20	4	8.9	12.4	12.7	14.06	10.9	3.66	10.97
20.5	4				14.05			

Elterwater 2015

Depth (m)	Temperature (°C)				Oxygen concentration (mg m ⁻³)			
	Jan	Apr	Jul	Oct	Jan	Apr	Jul	Oct
0	5	12.3	21.4	13.2	13.57	11.69	9.23	8.02
0.5		12.1	21.3			11.73	9.22	
1	5	10.8	19.4	13	13.56	11.91	10.24	7.75
1.5		9.8	18.4			13.26	10.34	
2	5	8.7	16.8	13	13.54	13.26	10.52	7.45
2.5		8.1	15.2			13.09	10.71	
3	5	7.4	13.5	12.9	13.53	12.08	10.16	6.89
3.5			12.2				3.4	
4	5	7.1	11.4	12.8	13.51	10.89	0.06	5.76
4.5			10.9				0.04	
5	5	6.9	10.7	12.5	13.5	9.97	0.04	1.63
5.5			10.5	12.2			0.05	0.84
6	5	6.9	10.5	11.8	13.48	9.27	0.06	0.12
6.5	5	7			13.48	6.58		

Ennerdale Water 2015

Depth (m)	Temperature (°C)				Oxygen concentration (mg m ⁻³)			
	Jan	Apr	Jul	Oct	Jan	Apr	Jul	Oct
0	5.5	7.2	15.6	13.3	12.06	12.15	9.87	10.27
1	5.5	7.2	15.6	13.2	12.02	12.11	9.84	10.27
2	5.5	7.2	15.6	13.1	12	12.07	9.84	10.24
3	5.5	7.2	15.6	13	11.98	12.07	9.82	10.23
4	5.5	7.2	15.6	13	11.96	12.05	9.8	10.2
5	5.5	7.2	15.5	12.9	11.94	12.03	9.8	10.2
6	5.5	7.2	15.5	12.9	11.92	12.02	9.79	10.18
7	5.5	7.1	15.5	12.9	11.9	12.03	9.76	10.15
8	5.5	7.1	15.5	12.9	11.87	12	9.75	10.12
9	5.5	7.1	15.4	12.9	11.86	11.97	9.76	10.1
10	5.5	7.1	15.4	12.9	11.83	11.96	9.75	10.08
10.5			15.3				9.78	
11			14.8				9.94	
11.5			14.4				10.04	
12	5.5	7.1	14.1	12.9	11.79	11.93	10.07	10.04
12.5			13.7				10.09	
13			13.1				10.16	
13.5			12.9				10.16	
14	5.5	7.1	12.6	12.8	11.76	11.88	10.25	10.01
14.5			12.3				10.28	
15			12				10.3	
15.5			11.9				10.25	
16	5.5	7	11.3	12.8	11.72	11.86	10.37	9.97
17			10.9				10.35	
18	5.5	6.9	10.7	12.8	11.68	11.83	10.37	9.91
20	5.5	6.8	10.4	12.7	11.64	11.82	10.27	9.81
21				12.4				9.55
22	5.5	6.6	10.1	12	11.61	11.76	10.16	9.3
23				11.7				9.11
23.5				11.5				9.06
24	5.5	6.4	9.8	11	11.57	11.73	10	8.88
24.5				10.9				8.79
25				10.4				8.74
26	5.5	6.1	9.6	9.9	11.53	11.71	9.93	8.39
28	5.5	6	9.3	9.6	11.5	11.65	9.8	8.28
30	5.5	6	9.2	9.5	11.46	11.6	9.7	8.18
32	5.5	5.9	9.1	9.4	11.43	11.58	9.62	7.96
34	5.5	5.9	9	9.3	11.39	11.53	9.55	7.86
36	5.5	5.9	8.9	9.3	11.36	11.47	9.41	7.74
38	5.4	5.8	8.9	9.3	11.35	11.42	9.31	7.62
38.5	5.4	5.8			11.34	11.44		

Esthwaite Water 2015

Depth (m)	Temperature (°C)				Oxygen concentration (mg m ⁻³)			
	Jan	Apr	Jul	Oct	Jan	Apr	Jul	Oct
0	4.7	9.7	19.2	14.2	13.87	11.71	8.87	9.78
1	4.8	9.7	19.2	14.2	13.81	11.7	8.85	9.76
2	4.8	9.7	19.2	14.2	13.78	11.7	8.82	9.62
3	4.8	9.6	19.1	14.2	13.76	11.69	8.8	9.62
4	4.8	9.6	19	14.2	13.74	11.68	8.76	9.66
4.5			18.8				8.63	
5	4.8	9.6	15.4	14.1	13.72	11.66	5.37	9.56
5.5			14.4				3.83	
6	4.8	9.5	14	14.1	13.71	11.66	2.67	9.56
6.5		9.3	13.4			11.6	2.21	
7	4.8	8.5	12.7	14.1	13.7	11.24	1.22	9.65
7.5		7.9	12.3			11.06	0.81	
8	4.8	7.6	12	13.8	13.69	11.05	0.52	9.07
8.5			11.6	13.7			0.23	7.17
9	4.8	7.5	11.3	13.4	13.68	10.94	0.1	5.52
9.5			11.2	12.5			0.07	0.08
10	4.8	7.4	10.7	11.7	13.67	10.87	0.06	0.07
11			10.3	11.2			0.05	0.06
12	4.7	7.3	10	10.7	13.64	10.59	0.05	0.06
14	4.5	7.2	9.8	10.4	13.6	9.96	0.05	0.06
14.5				10.4				0.06
15	4.1	7.2	9.8		13.47	9.8	0.05	

Grasmere 2015

Depth (m)	Temperature (°C)				Oxygen concentration (mg m ⁻³)			
	Jan	Apr	Jul	Oct	Jan	Apr	Jul	Oct
0	4.6	9.2	18.5	13.1	14.24	11.89	9.78	9.81
1	4.6	9.1	18.4	13.1	14.21	11.85	9.78	9.74
2	4.6	9	18.3	13.1	14.2	11.72	9.58	9.71
2.5			18.1				9.57	
3	4.6	8.9	17	13.1	14.18	11.58	9.46	9.68
3.5			16.1				9.13	
4	4.6	8.9	14.6	13.1	14.17	11.52	7.95	9.65
4.5		8.8	14			11.44	7.58	
5	4.6	8.4	13.1	13	14.14	11.34	6.99	9.51
5.5		8.2	11.9			11.23	6.19	
6	4.6	7.7	11.2	12.9	14.13	11.04	5.66	8.7
7	4.6	7.3	10.8	12.6	14.11	10.82	5.67	5.73
8	4.6	7.1	10.3	12	14.1	10.74	5.39	1.73
8.5			10	11.03			5.07	0.1
9	4.6	7	9.5	10.2	14.08	10.64	5.08	0.08
9.5				9.9				0.07
10	4.6	6.8	9	9.3	14.06	10.47	5	0.09
10.5			8.6				4.55	
11			8.2	8.9			3.9	0.11
12	4.6	6.7	7.8	8.4	14.02	10.39	2.64	0.11
14	4.6	6.6	7.6	8.1	13.99	10.25	2.34	0.11
16	4.6	6.5	7.5	8	13.95	10.17	1.8	0.1
18	4.5	6.5	7.4	7.9	13.9	9.97	1.36	0.1
18.5		6.5	7.4			9.95	1.16	
19	4.6			7.9	13.86			0.1

Haweswater 2015

Depth (m)	Temperature (°C)				Oxygen concentration (mg m ⁻³)			
	Jan	Apr	Jul	Oct	Jan	Apr	Jul	Oct
0	5.16	7.84	15.12	13.4	11.38	12.62	10.25	9.62
0.5			15.12				10.26	
1	5.16	6.01	15.09	13.4	10.99	12.78	10.28	9.6
2	5.16	5.72	14.95	13.4	10.83	12.74	10.3	9.59
3	5.16	5.34	14.77	13.4	10.75	12.74	10.32	9.56
4	5.16	5.27	14.4	13.4	10.72	12.63	10.36	9.54
5	5.16	5.05	14.36	13.4	10.63	12.74	10.4	9.52
6	5.16	4.98	14.1	13.4	10.61	12.71	10.45	9.5
7	5.16	4.95	13.76	13.4	10.59	12.7	10.37	9.48
8	5.16	4.93	13.4	13.4	10.57	12.69	10.46	9.46
9	5.16	4.91	12.59	13.4	10.54	12.67	10.63	9.44
10	5.16	4.85	12.14	13.4	10.53	12.63	10.69	9.43
12	5.16	4.62	11.88	13.4	10.48	12.64	10.72	9.36
12.5			11.77				10.75	
13			11.62				10.763	
13.5			11.29				10.78	
14	5.16	4.56	10.97	13.4	10.48	12.63	10.77	9.34
14.5			10.56				10.81	
15			10.4				10.82	
15.5			10.37				10.86	
16	5.16	4.55	9.58	13.4	10.48	12.61	10.8	9.26
18	5.16	4.54	9.19	13.4	10.44	12.59	10.77	9.2
20	5.16	4.53	9.01	13.3	10.45	12.55	10.76	9.1
22	5.16	4.53	8.81	13.2	10.47	12.55	10.77	9
24	5.16	4.52	8.68	13.1	10.48	12.54	10.76	8.8
26	5.16	4.52	8.46	12.9	10.42	12.52	10.75	8.49
27				12.7				8.41
27.5				12.4				8.15
28	5.16	4.52	8.26	11.7	10.43	12.5	10.74	7.77
28.5				11.2				7.6
29				10.9				7.73
29.5				10.8				7.75
30	5.17	4.52	8.08	10.6	10.43	12.49	10.74	7.44

32	5.17	4.51	7.98	10.4	10.42	12.47	10.67	7.31
34	5.17	4.51	7.83	10.2	10.38	12.45	10.71	7.06
36	5.17	4.5	7.78	10.2	10.33	12.43	10.7	6.92
38	5.17	4.5	7.61	10.1	10.3	12.11	10.68	6.84
40	5.16	4.49	7.55	10.1	10.26	12.38	10.66	6.7
42	5.16	4.49	7.49	10.1	10.18	12.35	10.63	6.51
44	5.16	4.48	7.42	10.1	10.11	12.33	10.58	6.16
46	5.15	4.48	7.39	10	9.99	12.34	10.59	5.89
47				10				5.9
48	5.15		7.36		9.87		10.58	
50	5.14		7.33		9.82		10.55	
52	5.14		7.26		9.79		10.54	
54			7.25				10.52	
56			7.24				10.51	
58			7.23				10.5	
60			7.22				10.47	
62			7.2				10.45	
64			7.19				10.43	
66			7.17				10.38	
68			7.13				10.38	
70			7.1				10.32	
72			7.09				10.28	
74			7.09				10.31	

Loughrigg Tarn 2015

Depth (m)	Temperature (°C)				Oxygen concentration (mg m ⁻³)			
	Jan	Apr	Jul	Oct	Jan	Apr	Jul	Oct
0	5.4	11.3	20.3	14.2	13.95	11.58	9.01	10
0.5		11.1	20.2			11.59	9.03	
1	5.4	10.9	19.6	14.1	13.92	11.6	9.85	10.07
1.5		10.7	18.8			11.49	10.53	
2	5.4	8.9	18.2	14	13.89	13.09	10.04	10.08
2.5		8.7	17.8			12.72	9.81	
3	5.4	7.4	17.2	14	13.89	12.75	9.28	10.03
3.5			16.4				9.42	
4	5.4	7	15.4	14	13.87	12.53	10.13	10
4.5			13.8	14			11.25	10
5	5.4	6.8	12.7	13.9	13.85	12.11	12.22	9.8
5.5			11.3	13.8			12.33	9.4
6	5.4	6.7	10.2	13.6	13.83	11.7	10.53	8.05
6.5			9.3	12.8			1.74	0.15
7	5.4	6.6	8.7	11.6	13.82	10.36	0.08	0.1
7.5			8.5	10.6			0.08	0.1
8	5.4	6.7	8.5	10.1	13.8	9.35	0.09	0.13
8.5	5.4				13.79			
9		6.7				8.78		
9.5		6.7				8.64		

Loweswater 2015

Depth (m)	Temperature (°C)				Oxygen concentration (mg m ⁻³)			
	Jan	Apr	Jul	Oct	Jan	Apr	Jul	Oct
0	4.87	9.39	17.6	13.52	12.79	12.9	9.79	9.17
1	4.87	9.36	17.52	13.52	12.74	12.93	9.76	9.16
2	4.85	8.98	17.41	13.51	12.82	12.94	9.72	9.12
3	4.88	8.33	17.38	13.5	12.94	13.01	9.68	9.1
4	4.88	7.92	17.2	13.49	13.02	12.53	9.64	9.09
4.5			17.04				9.6	
5	4.88	7.34	16.17	13.49	13.04	12.81	9.52	9.07
5.5			15.82				9.51	
6	4.88	7.24	15.47	13.49	13.08	12.67	9.21	9.05
6.5			15.37				9.09	
7	4.88	6.87	15.18	13.49	13.14	12.37	8.82	9.01
7.5			14.61				8.47	
8	4.88	6.55	14.37	13.48	13.14	12.19	7.84	9
8.5			14.08				7.6	
9	4.89	6.33	13.28	13.48	13.16	11.94	7.01	8.97
9.5			13.11				6.93	
10	4.89	6.28	12.83	13.47	13.23	11.74	6.75	8.93
10.5			12.58				6.45	
11			12.17	13.47			4.82	8.88
12	4.88	6.11		13.44	13.27	11.5		8.74
13			11.77	13.34			4.27	8.57
14	4.9	6.09		13.29	13.34	11.37		8.56
14.5				13.26				8.53
15			11.45				4.94	
16	4.89				13.27			

Rydal Water 2015

Depth (m)	Temperature (°C)				Oxygen concentration (mg m ⁻³)			
	Jan	Apr	Jul	Oct	Jan	Apr	Jul	Oct
0	4.4	9.9	20	13.5	14.31	12.27	9.28	9.76
0.5			19.9				9.3	
1	4.4	9.8	19.6	13.5	14.3	12.23	9.32	9.65
1.5			17.7				9.22	
2	4.4	9.7	17.1	13.5	14.27	12.23	9.2	9.57
2.5			16.7				9.02	
3	4.4	8.5	15.9	13.5	14.25	12.75	8.58	9.65
3.5			15.1				8	
4	4.4	7.5	14.9	13.4	14.24	12.63	8.05	9.46
4.5			14				8.03	
5	4.5	6.9	13.1	13.4	14.21	11.96	7.71	9.47
5.5			12.7				7.72	
6	4.5	6.5	12.3	13.3	14.19	11.45	7.58	9.44
6.5			11.7	13.3			6.9	9.4
7	4.4	6.3	11	12.9	14.18	11.25	6.44	7.15
7.5			10.3	12.2			5.84	4.77
8	4.4	6.3	9.4	10.8	14.17	11.25	5.31	0.11
8.5			8.8	9.6			5.15	0.09
9	4.4	6.2	8.3	8.8	14.15	11.16	4.98	0.08
9.5			7.9	8.4			5.07	0.09
10	4.4	6.2	7.5	8.1	14.14	11.15	4.86	0.09
11		6.2	7	7.6		11.12	4.63	0.01
12	4.4	6.2	6.8	7.3	14.1	10.91	3.71	0.01
13		6.1				10.82		
14	4.4	6.1	6.6	7.2	14.08	10.69	1.7	0.14
15		6.1		7.2		10.69		0.16
16	4.3		6.5		14.06		1.03	
17	4.3		6.5		14.07		0.79	

Thirlmere 2015

Depth (m)	Temperature (°C)				Oxygen concentration (mg m ⁻³)			
	Jan	Apr	Jul	Oct	Jan	Apr	Jul	Oct
0	5.5	7.4	16	13.4	11.95	11.86	10.38	9.78
1	5.5	7.3	15.9	13.4	11.93	11.86	10.39	9.76
2	5.5	7.3	15.8	13.4	11.91	11.85	10.38	9.74
3	5.5	7.3	15.7	13.4	11.89	11.85	10.37	9.73
4	5.5	7.3	15.5	13.4	11.87	11.85	10.35	9.71
5	5.5	7.3	15.4	13.4	11.87	11.85	10.34	9.7
6	5.5	7.3	15.3	13.4	11.81	11.85	10.31	9.67
7	5.5	7.3	15.3	13.4	11.8	11.85	10.31	9.66
7.5			15.2				10.31	
8	5.5	7.3	15	13.4	11.79	11.85	10.3	9.64
8.5			14.6				10.29	
9	5.5	7.2	14.3	13.3	11.77	11.85	10.3	9.63
9.5			14.1				10.3	
10	5.5	7	13.8	13.3	11.73	11.85	10.27	9.61
10.5			13.2				10.19	
11			12.7				10.18	
11.5			12.5				10.14	
12	5.5	6.9	12	13.3	11.71	11.84	10.16	9.57
12.5			11.5				10.13	
13		6.5	11.3			11.78	10.08	
14	5.5	6	10.9	13.3	11.67	11.8	10.12	9.52
16	5.5	5.7	10.6	13.3	11.63	11.74	10.09	9.46
18	5.5	5.7	10.4	13.2	11.6	11.7	10.1	9.31
19				13				9.15
20	5.5	5.6	10.2	12.5	11.55	11.66	10.15	8.96
20.5				12.1				8.6
21				11				8.38
21.5				10.2				8.38
22	5.5	5.6	10.1	9.7	11.52	11.63	10.13	8.19
24	5.5	5.6	10	9.2	11.48	11.61	10.08	7.82
26	5.5	5.6	9.7	8.8	11.45	11.58	10.05	7.72
26.5			9.5				10.06	
27			9.3				10.04	
27.5			8.9				10.06	
28	5.5	5.6	8.6	8.3	11.41	11.55	10.03	7.32
29			8.2				9.85	
30	5.5	5.6	8	8	11.36	11.5	9.69	6.89
32	5.5		7.7	7.9	11.33		9.5	6.34
34	5.5		7.6	7.8	11.29		9.36	5.95
36	5.5		7.6	7.8	11.26		9.2	5.79
38	5.5		7.6	7.8	11.22		9.09	5.7
40	5.5				11.17			
42	5.5				11.15			
44	5.5				11.11			
46	5.5				11.07			
48	5.5				11.02			
49	5.5				10.97			

Ullswater 2015

Depth (m)	Temperature (°C)				Oxygen concentration (mg m ⁻³)			
	Jan	Apr	Jul	Oct	Jan	Apr	Jul	Oct
0	5.75	5.46	14.23	13.04	10.8	12.69	10.08	9.74
1	5.76	5.46	14.23	13.03	10.86	12.69	10.08	9.73
2	5.77	5.46	14.23	13.03	10.75	12.69	10.07	9.71
3	5.77	5.45	14.16	13.03	10.7	12.69	10.06	9.69
4	5.77	5.45	14.19	13.03	10.72	12.67	10.05	9.67
5	5.77	5.45	14.15	13.03	10.7	12.66	10.05	9.65
6	5.76	5.45	14.12	13.03	10.61	12.64	10.03	9.63
7	5.76	5.45	14.11	13.03	10.69	12.63	9.99	9.58
8	5.76	5.45	13.87	13.03	10.74	12.62	9.96	9.57
8.5			13.55				9.94	
9	5.76	5.45	13.15	13.03	10.74	12.59	9.92	9.55
10	5.76	5.45	13.1	13.02	10.75	12.58	9.9	9.52
10.5			13.06				9.89	
11			12.84				9.83	
11.5			12.48				9.83	
12	5.75	5.45	12.25	13.02	10.77	12.58	9.7	9.47
14	5.75	5.44	11.77	13.01	10.73	12.56	9.72	9.42
16	5.75	5.45	11.57	13.01	10.76	12.543	9.58	9.36
16.5			11.47				9.62	
17			10.68				9.65	
17.5			10.48				9.64	
18	5.75	5.44	10.36	12.99	10.8	12.53	9.62	9.03
18.5			10.19				9.59	
19			9.84				9.6	
19.5			9.78				9.59	
20	5.75	5.43	9.72	12.96	10.83	12.5	9.58	9.04
21				12.78				8.64
21.5				12.49				8.28

22	5.75	5.44	9.47	12.28	10.84	12.49	9.57	7.59
22.5				11.59				6.83
23				11.34				6.73
23.5				10.62				6.74
24	5.73	5.44	9.11	10.16	10.82	12.48	9.57	6.84
25				9.77				6.89
25.5				10.16				6.84
26	5.73	5.41	9.04	9.58	10.84	12.45	9.55	6.94
28	5.73	5.39	8.92	9.22	10.85	12.44	9.54	7.03
30	5.73	5.35	8.85	9.12	10.88	12.42	9.54	7.07
32	5.72	5.35	8.75	8.96	10.89	12.41	9.46	7.08
34	5.71	5.34	8.63	8.89	10.81	12.4	9.5	7.06
36	5.71	5.35	8.61	8.81	10.86	12.38	9.48	6.93
38	5.71	5.34	8.6	8.68	10.65	12.37	9.46	6.66
40	5.7	5.33	8.59	8.55	10.63	12.36	9.42	6.32
42	5.69	5.33	8.55	8.5	10.65	12.31	9.34	6.02
44	5.69	5.33	8.51	8.45	10.66	12.31	9.26	5.64
46	5.68	5.33	8.49	8.42	10.66	12.3	9.16	5.28
48	5.66	5.33	8.47	8.39	10.98	12.29	9.06	4.97
50	5.65	5.31	8.46	8.38	10.97	12.26	8.96	4.14
52	5.65	5.29	8.42	8.36	11.09	12.23	8.78	4.14
54	5.63	5.29	8.39	8.33	10.99	12.21	8.59	3.6
56	5.57	5.28	8.38	8.31	10.98	12.16	8.41	3.11
58	5.56	5.28	8.35	8.29	11.02	11.77	8.27	2.61
60	5.56		8.36		11.25		8.59	

Wastwater 2015

Depth (m)	Temperature (°C)				Oxygen concentration (mg m ⁻³)			
	Jan	Apr	Jul	Oct	Jan	Apr	Jul	Oct
0	6.95	7.94	15.12	13.23	10.99	12.5	10.25	10.38
0.5			15.12				10.26	
1	6.95	7.86	15.09	13.22	10.66	12.48	10.28	10.32
2	6.95	7.64	14.95	13.21	10.61	12.51	10.3	10.35
3	6.95	7.51	14.77	13.21	10.56	12.51	10.32	10.35
4	6.95	7.31	14.4	13.2	10.56	12.53	10.36	10.34
5	6.95	7.22	14.36	13.2	10.58	12.52	10.4	10.31
6	6.94	6.91	14.1	13.19	10.59	12.53	10.45	10.31
7	6.94	6.87	13.76	13.17	10.61	12.51	10.37	10.29
8	6.94	6.67	13.4	13.16	10.61	12.5	10.46	10.28
9	6.94	6.6	12.59	13.15	10.63	12.53	10.63	10.26
10	6.93	6.52	12.14	13.15	10.63	12.5	10.69	10.26
12	6.94	6.28	11.88	13.14	10.64	12.48	10.72	10.23
12.5			11.77				10.75	
13			11.62				10.76	
13.5			11.29				10.78	
14	6.94	6.21	10.97	13.14	10.67	12.44	10.77	10.22
14.5			10.56				10.81	
15			10.4				10.82	
15.5			10.37				10.86	
16	6.93	6.07	9.58	13.12	10.73	12.44	10.8	10.19
18	6.93	6	9.19	13.11	10.69	12.4	10.77	10.18
20	6.93	5.97	9.01	13.09	10.73	12.38	10.76	10.12
21				13.02				10.15
22	6.93	5.96	8.81	12.9	10.73	12.36	10.77	10.15
22.5				12.7				10.16
23				12.37				10.24
23.5				12.12				10.26
24	6.93	5.95	8.68	11.76	10.73	12.34	10.76	10.27

24.5				11.59				10.31
25				10.81				10.44
25.5				10.53				10.42
26	6.94	5.95	8.46	9.35	10.74	12.32	10.75	10.64
27				8.9				10.72
28	6.94	5.93	8.26	8.68	10.71	12.3	10.74	10.75
30	6.94	5.93	8.08	8.3	10.72	12.28	10.74	10.76
32	6.94	5.93	7.98	8.12	10.75	12.28	10.67	10.74
34	6.94	5.93	7.83	8.03	10.68	12.27	10.71	10.73
36	6.94	5.92	7.78	7.89	10.67	12.25	10.7	10.71
38	6.94	5.92	7.61	7.8	10.77	12.23	10.68	10.7
40	6.94	5.92	7.55	7.72	10.71	12.22	10.66	10.69
42	6.94	5.92	7.49	7.6	10.73	12.21	10.63	10.57
44	6.94	5.92	7.42	7.57	10.76	12.19	10.58	10.59
46	6.94	5.92	7.39	7.5	10.76	12.17	10.59	10.57
48	6.94	5.92	7.36	7.49	10.76	12.15	10.58	10.55
50	6.94	5.91	7.33	7.47	10.8	12.09	10.55	10.49
52	6.94	5.91	7.26	7.43	10.8	12.09	10.54	10.44
54	6.94	5.91	7.25	7.41	10.78	12.1	10.52	10.43
56	6.93	5.91	7.24	7.39	10.73	12.08	10.51	10.45
58	6.94	5.91	7.23	7.38	10.75	12.06	10.5	10.43
60	6.94	5.91	7.22	7.37	10.7	12.04	10.47	10.43
62	6.94	5.91	7.2	7.36	10.74	12.02	10.43	10.41
64	6.93	5.91	7.19	7.33	10.72	12.02	10.43	10.33
66	6.92	5.91	7.17	7.31	10.73	12.01	10.38	10.25
68	6.91	5.91	7.13	7.28	10.73	11.99	10.38	10.14
70	6.89	5.91	7.1	7.24	10.74	12	10.32	9.99
72	6.89	5.91	7.09	7.22	10.74	11.92	10.28	9.8
73				7.2				9.8
74	6.91		7.09		10.78		10.31	

Windermere North Basin 2015

Depth (m)	Temperature (°C)				Oxygen concentration (mg m ⁻³)			
	Jan	Apr	Jul	Oct	Jan	Apr	Jul	Oct
0	6.3	7.9	18.4	13.9	11.6	12.5	9.84	9.8
1	6.3	7.9	18.4	13.9	11.57	12.46	9.81	9.77
2	6.3	7.9	18.3	13.9	11.56	12.45	9.81	9.75
3	6.3	7.8	18.3	13.9	11.55	12.45	9.78	9.72
4	6.3	7.8	18.2	13.9	11.52	12.42	9.76	9.69
5	6.3	7.8	18.1	13.9	11.51	12.41	9.77	9.62
6	6.3	7.8	17.9	13.8	11.5	12.38	9.73	9.57
6.5			17.7				9.7	
7	6.3	7.8	17.4	13.8	11.46	12.35	9.63	9.54
7.5			16.8				9.46	
8	6.3	7.8	13.9	13.8	11.44	12.32	9.11	9.47
8.5			13.7				9.07	
9	6.3	7.7	13.4	13.8	11.43	12.3	8.99	9.37
9.5			12.8				8.93	
10	6.3	7.7	12.6	13.8	11.4	12.29	8.94	9.32
10.5			12				8.92	
11			11.6				8.94	
12	6.3	7.6	11.4	13.8	11.36	12.21	8.95	9.19
12.5			11.4				8.95	
13			10.9				9.03	
14	6.3	7.5	10.5	13.6	11.34	12.11	9.05	8.43
14.5				12.9				7.18
15			10.2	12			9.1	6.06
15.5			10	11.4			9.14	5.96
16	6.3	7.3	9.8	11	11.29	12	9.18	5.9
16.5			9.7	10.7			9.17	6
17			9	10.5			9.34	6.13
17.5				9.9				6.28
18	6.3	6.9	8.6	9.4	11.26	11.94	9.41	6.63

19			8.1	9.1			9.48	6.8
20	6.3	6.6	7.6	8.7	11.23	11.87	9.74	7.03
21				8.2				7.16
22	6.3	6.3	7.2	7.8	11.18	11.82	9.84	7.38
24	6.3	6.2	7.1	7.5	11.14	11.78	9.82	7.78
26	6.3	6.1	7	7.2	11.12	11.68	9.71	7.83
28	6.3	6	6.9	7.1	11.07	11.64	9.77	7.86
30	6.3	6	6.8	7.1	11.04	11.59	9.74	7.75
32	6.3	6	6.8	7	11	11.53	9.67	7.73
34	6.3	6	6.8	7	10.97	11.53	9.57	7.68
36	6.3	5.9	6.7	6.9	10.93	11.51	9.54	7.64
38	6.2	5.9	6.7	6.9	10.93	11.43	9.5	7.6
40	6.2	5.9	6.7	6.9	10.88	11.42	9.43	7.54
42	6.2	5.9	6.7	6.9	10.85	11.37	9.42	7.58
44	6.2	5.9	6.6	6.9	10.81	11.34	9.38	7.48
46	6.2	5.8	6.6	6.9	10.79	11.31	9.32	7.35
48	6.2	5.8	6.6	6.9	10.74	11.26	9.27	7.26
50	6.2	5.8	6.6	6.9	10.72	11.19	9.31	7.21
52	6.2	5.8	6.6	6.9	10.69	11.14	9.23	6.95
54	6.2	5.8	6.6	6.9	10.66	11.09	9.13	6.76
56	6.1	5.8	6.6	6.8	10.66	11.03	8.98	6.71
58	6.1	5.8	6.6	6.8	10.61	10.93	8.9	6.53
60	6	5.8	6.6	6.8	10.61	10.87	8.82	6.3
62	6	5.8	6.6	6.8	10.58	10.82	8.77	5.48
62.5	6			6.8	10.58			5.25

Windermere South Basin 2015

Depth (m)	Temperature (°C)				Oxygen concentration (mg m ⁻³)			
	Jan	Apr	Jul	Oct	Jan	Apr	Jul	Oct
0	6.1	7.2	16.9	14.5	11.71	12.32	9.86	9.68
1	6.1	7.2	16.9	14.5	11.67	12.3	9.82	9.65
2	6.1	7.2	16.8	14.5	11.67	12.27	9.84	9.63
3	6.1	7.2	16.8	14.5	11.66	12.25	9.81	9.61
4	6.1	7.2	16.7	14.5	11.63	12.24	9.79	9.59
5	6.1	7.2	16.7	14.4	11.6	12.22	9.75	9.55
6	6.1	7.1	16.6	14.4	11.59	12.22	9.72	9.51
7	6.1	7.1	16.6	14.4	11.57	12.17	9.68	9.43
8	6.1	7.1	16.4	14.4	11.56	12.16	9.49	9.41
8.5			14.8				8.96	
9	6.1	7.1	12.7	14.4	11.5	12.11	8.62	9.39
9.5			12.6				8.62	
10	6.1	7.1	12.4	14.4	11.5	12.1	8.6	9.36
10.5			12.1				8.56	
11			11.8				8.56	
12	6.1	7	11.6	14.4	11.47	12.03	8.63	9.31
13			11.4				8.75	
14	6.1	6.9	11.3	14.3	11.43	11.96	8.74	9.28
15			11	14.3			8.83	9.2
15.5				14.3				8.92
16	6.1	6.9	10.9	13.9	11.4	11.9	8.82	7.98
16.5				12.9				5.12
17			10.6	11.7			8.8	4.91

17.5				11.4				4.92
18	6.1	6.9	10.2	10.7	11.35	11.85	8.66	5.13
19			9.9	10.4			8.62	5.13
20	6.1	6.9	9.6	9.9	11.3	11.8	8.48	4.98
22	6.1	6.8	9.4	9.7	11.28	11.79	8.35	4.73
24	6.1	6.8	9.3	9.6	11.25	11.71	8.19	4.44
26	6.1	6.7	9.3	9.5	11.22	11.62	8.17	4.16
28	6.1	6.6	9.3	9.5	11.16	11.57	8.05	3.87
30	6.1	6.4	9.2	9.5	11.13	11.46	8.01	3.61
32	6.1	6.3	9.2	9.5	11.1	11.41	7.97	3.32
34	6.1	6.3	9.2	9.4	11.07	11.37	7.86	2.77
36	6.1	6.2	9.2	9.4	11.03	11.32	7.74	1.96
38	6.1	6.2	9.2	9.4	10.99	11.27	7.64	1.22
40	6.1	6.2	9.2	9.3	10.96	11.21	7.46	0.35
41	6.1	6.2	9.2		10.95	11.15	7.32	

7.2 APPENDIX 2. Concentration of phytoplankton chlorophyll *a* and depth of Secchi disc in 2015.

Lake	Phytoplankton chlorophyll <i>a</i> (mg m ⁻³)				Secchi depth (m)			
	Jan	Apr	Jul	Oct	Jan	Apr	Jul	Oct
Bassenthwaite Lake	0.88	14.42	5.85	7.14	2.10	3.40	3.80	3.30
Blelham Tarn	1.17	21.48	37.28	32.04	2.50	1.80	2.00	1.80
Brothers Water	0.5	3.02	2.05	1.98	6.60	5.00	4.50	5.50
Buttermere	0.88	1.88	1.74	2.67	5.60	6.50	6.50	8.00
Coniston Water	1.16	5.73	7.01	4.01	5.50	3.75	5.50	5.50
Crummock Water	1.06	3.7	3.48	2.07	7.00	5.50	7.00	10.00
Derwentwater	1.12	6.47	7.28	5.44	4.00	4.70	4.00	4.00
Elterwater	1.26	15.33	39.99	6.34	3.70	2.90	2.10	2.75
Ennerdale Water	0.63	1.58	1.6	1.54	8.00	7.10	8.70	7.30
Esthwaite Water	3.82	18.8	12.17	21.5	2.90	2.60	3.40	2.00
Grasmere	0.79	18.24	8	6.92	3.30	3.25	3.90	4.00

Haweswater	0.89	2.29	3.05	3.75	3.90	4.00	4.20	4.50
Loughrigg Tarn	13.73	16.12	5.73	12.07	3.00	3.00	5.20	3.10
Loweswater	11.36	11.95	3.56	7.98	2.40	2.10	7.50	3.00
Rydal Water	0.81	11.51	8.35	3.29	3.50	3.90	4.80	3.90
Thirlmere	0.57	1.76	3.47	3.03	4.50	5.70	6.20	4.60
Ullswater	0.96	3.29	6.85	7.24	4.50	4.00	9.00	5.00
Wastwater	0.53	0.71	0.87	1.27	11.90	11.20	6.10	9.00
Windermere North Basin	0.77	6.22	5.57	11.13	3.90	3.60	4.50	3.50
Windermere South Basin	1.39	7.49	6.96	9.24	4.00	4.20	3.70	4.50

7.3. APPENDIX 3. Major ions (mequiv m⁻³), pH and conductivity (µS cm⁻¹) in 2015.

LAKE	DATE	pH	Alk	Cl	NO ₃ -N	SO ₄	Na	K	Ca	Mg	Cond
Bassenthwaite Lake	22/01/2015	6.76	150	299	26	65	249	15.0	209	79	64
Bassenthwaite Lake	16/04/2015	7.16	213	318	21	73	238	14.2	244	81	71
Bassenthwaite Lake	09/07/2015	7.16	250	280	13	79	238	11.4	263	89	73
Bassenthwaite Lake	15/10/2015	7.15	276	270	17	75	237	10.6	274	89	73
Blelham Tarn	19/01/2015	7.03	305	361	52	78	280	22.8	397	111	93
Blelham Tarn	13/04/2015	7.27	352	335	34	73	250	19.8	427	108	94
Blelham Tarn	06/07/2015	7.32	504	254	2	71	233	14.3	489	123	97
Blelham Tarn	12/10/2015	7.07	639	228	2	70	233	20.0	530	138	104
Brothers Water	19/01/2015	6.71	108	274	24	57	237	8.0	176	58	65
Brothers Water	13/04/2015	7.16	153	251	20	56	202	7.4	208	58	56
Brothers Water	06/07/2015	7.38	250	185	6	58	168	4.1	266	65	57
Brothers Water	12/10/2015	6.93	257	145	10	58	150	3.8	249	64	53
Buttermere	22/01/2015	6.51	54	198	17	49	160	6.9	97	54	42
Buttermere	16/04/2015	6.64	55	216	18	47	158	4.5	102	52	40
Buttermere	09/07/2015	6.89	68	195	13	46	154	3.0	101	53	39
Buttermere	15/10/2015	6.69	84	193	12	49	150	3.0	112	53	40
Coniston Water	20/01/2015	7.08	196	272	31	79	239	13.5	278	86	70
Coniston Water	14/04/2015	7.2	195	296	30	78	232	14.4	262	78	70

LAKE	DATE	pH	Alk	Cl	NO ₃ -N	SO ₄	Na	K	Ca	Mg	Cond
Coniston Water	08/07/2015	7.33	211	285	22	79	236	10.8	259	80	70
Coniston Water	14/10/2015	7.18	234	269	25	79	225	10.2	266	81	70
Crummock Water	22/01/2015	6.53	57	226	20	56	188	8.9	105	69	44
Crummock Water	16/04/2015	6.66	56	234	18	55	178	4.9	101	63	44
Crummock Water	09/07/2015	6.82	63	237	15	56	182	5.8	99	66	44
Crummock Water	15/10/2015	6.69	65	228	15	56	174	5.5	99	65	44
Derwent Water	22/01/2015	6.54	64	270	14	43	207	8.8	142	51	49
Derwent Water	16/04/2015	6.93	89	315	11	42	217	4.3	171	49	57
Derwent Water	09/07/2015	7.03	132	307	2	40	221	5.0	196	68	59
Derwent Water	15/10/2015	6.95	150	279	4	38	203	4.1	203	51	51
Elterwater	15/01/2015	6.67	149	280	22	53	230	11.9	224	69	62
Elterwater	09/04/2015	7.03	235	257	17	52	206	11.0	281	72	72
Elterwater	02/07/2015	6.8	325	190	2	41	183	6.1	303	71	67
Elterwater	08/10/2015	6.74	430	174	9	42	179	8.8	367	81	70
Ennerdale Water	21/01/2015	6.51	48	235	19	53	202	7.8	86	68	43
Ennerdale Water	15/04/2015	6.56	46	244	23	51	187	4.9	84	63	45
Ennerdale Water	08/07/2015	6.74	51	224	17	49	189	5.5	82	64	43
Ennerdale Water	14/10/2015	6.69	59	206	14	50	177	5.4	80	61	42
Esthwaite Water	20/01/2015	7.11	356	352	50	91	302	22.7	469	107	100

LAKE	DATE	pH	Alk	Cl	NO ₃ -N	SO ₄	Na	K	Ca	Mg	Cond
Esthwaite Water	14/04/2015	7.47	365	383	36	88	294	20.9	456	98	103
Esthwaite Water	07/07/2015	7.49	486	346	13	88	290	17.9	482	105	106
Esthwaite Water	13/10/2015	7.36	553	321	2	83	273	17.7	510	112	114
Grasmere	19/01/2015	6.53	82	246	27	54	199	10.1	156	54	51
Grasmere	13/04/2015	7.06	130	237	23	55	198	5.0	194	55	55
Grasmere	06/07/2015	7.18	177	170	7	52	167	5.6	194	55	50
Grasmere	12/10/2015	6.88	239	156	16	55	167	9.9	225	59	56
Haweswater	19/01/2015	7.03	170	175	18	53	157	9.1	208	73	53
Haweswater	08/04/2015	7.1	169	180	17	49	151	10.3	202	69	49
Haweswater	01/07/2015	7.22	185	169	15	49	152	6.3	203	71	49
Haweswater	07/10/2015	7.16	219	169	14	57	147	6.0	223	75	52
Loughrigg Tarn	15/01/2015	6.94	226	235	45	36	199	16.2	274	92	67
Loughrigg Tarn	09/04/2015	7.27	247	249	29	60	193	14.5	301	93	71
Loughrigg Tarn	02/07/2015	7.44	314	234	2	59	195	10.4	311	98	72
Loughrigg Tarn	08/10/2015	7.14	383	214	2	57	186	9.4	340	103	75
Loweswater	19/01/2015	6.99	168	327	41	91	264	17.1	245	118	78
Loweswater	10/04/2015	7.22	170	335	31	90	252	17.5	243	111	74
Loweswater	03/07/2015	7.38	196	315	16	86	251	13.3	238	113	74
Loweswater	09/10/2015	7.01	229	307	8	83	242	12.2	242	113	74

LAKE	DATE	pH	Alk	Cl	NO ₃ -N	SO ₄	Na	K	Ca	Mg	Cond
Rydal Water	20/01/2015	6.62	85	219	32	51	190	10.1	158	53	48
Rydal Water	14/04/2015	7.1	133	242	25	53	200	6.3	189	55	55
Rydal Water	07/07/2015	6.98	184	176	9	52	170	6.5	186	55	51
Rydal Water	13/10/2015	6.96	256	150	9	51	167	7.7	229	62	55
Thirlmere	19/01/2015	6.5	57	159	16	40	148	6.9	100	40	35
Thirlmere	09/04/2015	6.64	55	187	16	43	154	4.1	101	40	38
Thirlmere	02/07/2015	6.82	64	176	13	42	155	4.3	104	41	37
Thirlmere	08/10/2015	6.79	83	168	11	44	143	5.1	110	40	37
Ullswater	20/01/2015	7.06	199	204	22	57	177	11.4	240	80	58
Ullswater	14/04/2015	7.17	208	214	21	58	172	10.7	242	76	57
Ullswater	07/07/2015	7.36	247	203	8	57	176	8.7	254	82	59
Ullswater	13/10/2015	7.2	254	189	10	58	164	6.9	263	83	59
Wastwater	16/01/2015	6.67	66	196	29	50	171	8.2	105	60	43
Wastwater	10/04/2015	6.74	68	206	27	49	167	4.7	105	59	42
Wastwater	03/07/2015	6.81	67	196	24	47	170	5.0	101	58	41
Wastwater	09/10/2015	6.82	79	185	21	50	160	5.3	100	56	40
Windermere North Basin	20/01/2015	7	205	240	31	62	207	13.7	264	75	70
Windermere North Basin	14/04/2015	7.19	208	255	31	60	206	13.5	262	71	79
Windermere North Basin	07/07/2015	7.39	248	236	17	61	204	9.9	270	74	66

LAKE	DATE	pH	Alk	Cl	NO ₃ -N	SO ₄	Na	K	Ca	Mg	Cond
Windermere North Basin	13/10/2015	7.29	282	207	10	61	186	9.2	275	74	64
Windermere South Basin	21/01/2015	7.12	251	264	38	69	225	16.1	317	84	81
Windermere South Basin	09/04/2015	7.27	245	285	37	70	224	16.4	306	78	88
Windermere South Basin	02/07/2015	7.35	267	268	27	70	230	12.8	302	81	75
Windermere South Basin	08/10/2015	7.33	298	252	17	70	215	11.8	310	81	74

7.4 APPENDIX 4. Nutrients in 2015

Concentrations are mg m⁻³.

LAKE	DATE	Total P	PO ₄ -P	NO ₃ -N	NH ₄ -N	SiO ₂
Bassenthwaite Lake	22/01/2015	17	3.91	340	28	2019
Bassenthwaite Lake	16/04/2015	5	0.88	276	12	1200
Bassenthwaite Lake	09/07/2015	12	0.72	170	45	748
Bassenthwaite Lake	15/10/2015	10	1.33	219	35	1480
Blelham Tarn	19/01/2015	19	5.29	681	33	2028
Blelham Tarn	13/04/2015	19	0.80	444	26	1126
Blelham Tarn	06/07/2015	31	1.47	24	30	234
Blelham Tarn	12/10/2015	29	1.49	24	33	1601
Brothers Water	19/01/2015	6	0.81	307	35	1810
Brothers Water	13/04/2015	2.5	<0.6	263	12	1414
Brothers Water	06/07/2015	7	<0.6	84	12	812
Brothers Water	12/10/2015	6	1.01	134	30	1815
Buttermere	22/01/2015	2.5	<0.6	215	30	1622
Buttermere	16/04/2015	2.5	0.88	233	12	1421
Buttermere	09/07/2015	10	0.89	167	12	1089
Buttermere	15/10/2015	2.5	1.01	158	12	1393
Coniston Water	20/01/2015	7	1.84	406	12	1512
Coniston Water	14/04/2015	2.5	1.46	392	12	1318
Coniston Water	08/07/2015	10	<0.6	287	12	85
Coniston Water	14/10/2015	15	0.77	325	12	220
Crummock Water	22/01/2015	2.5	0.80	264	12	1649
Crummock Water	16/04/2015	2.5	1.05	233	30	1177
Crummock Water	09/07/2015	2.5	0.89	197	12	646
Crummock Water	15/10/2015	2.5	0.68	190	12	747
Derwent Water	22/01/2015	15	1.15	188	12	1374
Derwent Water	16/04/2015	5	0.72	149	12	942
Derwent Water	09/07/2015	13	<0.6	24	12	45
Derwent Water	15/10/2015	5	0.84	53	12	532
Elterwater	15/01/2015	23	3.82	292	31	1680
Elterwater	09/04/2015	10	0.64	223	12	1485

LAKE	DATE	Total P	PO ₄ -P	NO ₃ -N	NH ₄ -N	SiO ₂
Elterwater	02/07/2015	27	1.14	24	38	918
Elterwater	08/10/2015	13	2.46	111	150	2050
Ennerdale Water	21/01/2015	9	0.72	246	31	2281
Ennerdale Water	15/04/2015	2.5	<0.6	294	32	2523
Ennerdale Water	08/07/2015	7	<0.6	224	12	1944
Ennerdale Water	14/10/2015	2.5	0.93	186	12	2074
Esthwaite Water	20/01/2015	8	4.24	650	12	2641
Esthwaite Water	14/04/2015	21	1.95	469	12	1302
Esthwaite Water	07/07/2015	25	2.47	175	51	372
Esthwaite Water	13/10/2015	16	1.73	24	46	1180
Grasmere	19/01/2015	11	3.74	345	29	1650
Grasmere	13/04/2015	11	0.96	301	12	971
Grasmere	06/07/2015	24	1.81	97	44	427
Grasmere	12/10/2015	40	10.16	203	138	1493
Haweswater	19/01/2015	9	2.35	234	12	1824
Haweswater	08/04/2015	5	0.80	223	12	1741
Haweswater	01/07/2015	10	1.39	190	12	1125
Haweswater	07/10/2015	2.5	1.41	184	12	1244
Loughrigg Tarn	15/01/2015	15	1.75	579	85	1462
Loughrigg Tarn	09/04/2015	8	<0.6	373	12	17
Loughrigg Tarn	02/07/2015	12	<0.6	24	25	268
Loughrigg Tarn	08/10/2015	13	1.17	24	12	1188
Loweswater	19/01/2015	13	0.64	528	26	1679
Loweswater	10/04/2015	8	<0.6	404	12	17
Loweswater	03/07/2015	15	0.80	211	12	235
Loweswater	09/10/2015	2.5	1.25	104	48	630
Rydal Water	20/01/2015	15	3.56	411	33	1613
Rydal Water	14/04/2015	7	<0.6	330	47	1088
Rydal Water	07/07/2015	19	1.47	120	51	322
Rydal Water	13/10/2015	14	3.59	123	77	1209
Thirlmere	19/01/2015	9	0.80	203	12	1465
Thirlmere	09/04/2015	2.5	<0.6	208	12	1295
Thirlmere	02/07/2015	7	0.80	167	12	898

LAKE	DATE	Total P	PO ₄ -P	NO ₃ -N	NH ₄ -N	SiO ₂
Thirlmere	08/10/2015	10	2.22	144	12	811
Ullswater	20/01/2015	13	4.07	281	12	1964
Ullswater	14/04/2015	2.5	2.61	276	12	1788
Ullswater	07/07/2015	12	<0.6	107	12	587
Ullswater	13/10/2015	2.5	0.61	131	12	697
Wastwater	16/01/2015	2.5	1.06	383	12	2256
Wastwater	10/04/2015	2.5	<0.6	347	12	2322
Wastwater	03/07/2015	2.5	<0.6	312	27	2196
Wastwater	09/10/2015	2.5	0.92	275	12	2189
Windermere North Basin	20/01/2015	7	5.27	405	12	1813
Windermere North Basin	14/04/2015	19	2.44	404	12	1431
Windermere North Basin	07/07/2015	14	0.64	223	12	223
Windermere North Basin	13/10/2015	6	0.93	132	12	473
Windermere South Basin	21/01/2015	17	9.04	490	12	1921
Windermere South Basin	09/04/2015	9	4.74	478	12	1507
Windermere South Basin	02/07/2015	15	0.97	348	32	101
Windermere South Basin	08/10/2015	9	1.09	226	12	207

7.5 APPENDIX 5. Phytoplankton counts in 2015.

All values are numbers cm⁻³ apart from the 'LENG' form which is mm cm⁻³.

Date	Lake	Alga	Algal name	Form	Value cm ⁻³
22/01/2015	BASS	CRYP	Cryptomonas EHRENBERG 1838 spp.	CELL	3.8
22/01/2015	BASS	MONO	Monoraphidium contortum (THURET) KOMÁRKOVÁ-LEGNEROVÁ 1969	CELL	9.2
22/01/2015	BASS	PERS	Peridinium EHRENBERG 1832 sp. (small) (25um cbut, csre)	CELL	1.4
22/01/2015	BASS	KOLI	Koliella spiculiformis (VISCHER) HINDAK	CELL	2.7
22/01/2015	BASS	PENN	Pennate diatoms	CELL	0.3
22/01/2015	BASS	CHAC	Characium spp. - A.BRAUN	CELL	0.3
22/01/2015	BASS	TRAO	Trachelomonas volvocina EHRENBERG 1833	CELL	0.3
22/01/2015	BASS	ASTF	Asterionella formosa HASSALL 1855	COLO	5.1
22/01/2015	BASS	ASTF	Asterionella formosa HASSALL 1855	CELL	15
22/01/2015	BASS	ASTF	Asterionella formosa HASSALL 1855	DEAD	3.8
22/01/2015	BASS	AULS	Aulacoseira subarctica (O MÜLLER) E Y HAWORTH 1988	FILA	4.1
22/01/2015	BASS	AULS	Aulacoseira subarctica (O MÜLLER) E Y HAWORTH 1988	CELL	6.2
22/01/2015	BASS	AULS	Aulacoseira subarctica (O MÜLLER) E Y HAWORTH 1988	DEAD	6.5
22/01/2015	BASS	PEDB	Pediastrum boryanum (TURPIN) MENEGHINI 1840	COLO	0.3
22/01/2015	BASS	PEDB	Pediastrum boryanum (TURPIN) MENEGHINI 1840	CELL	5.5
22/01/2015	BASS	RHOD	Rhodomonas KARSTEN sp.	CELL	57.8
22/01/2015	BASS	CHRP	Chrysochromulina parva LACKEY 1939	CELL	5.3
22/01/2015	BASS	CHLO	Chlorella BEIJERINCK 1890 sp.	CELL	115.6
22/01/2015	BASS	PLAS	Planktothrix sp.	FILA	5.3
22/01/2015	BASS	PLAS	Planktothrix sp.	LENG	0.512
22/01/2015	BASS	PSEU	Pseudanabaena LAUTERBORN 1915 sp.	FILA	5.3
22/01/2015	BASS	PSEU	Pseudanabaena LAUTERBORN 1915 sp.	LENG	0.066
19/01/2015	BLEL	CRYP	Cryptomonas EHRENBERG 1838 spp.	CELL	5.6
19/01/2015	BLEL	MONO	Monoraphidium contortum (THURET) KOMÁRKOVÁ-LEGNEROVÁ 1969	CELL	0.5
19/01/2015	BLEL	EUGL	Euglena EHRENBERG 1830 sp.	CELL	0.2
19/01/2015	BLEL	GYMS	Gymnodinium STEIN 1878 sp. (small)	CELL	0.5
19/01/2015	BLEL	NISY	Nitzschia /Synedra (uncertain which)	CELL	0.5
19/01/2015	BLEL	ASTF	Asterionella formosa HASSALL 1855	COLO	3.2
19/01/2015	BLEL	ASTF	Asterionella formosa HASSALL 1855	CELL	0.7
19/01/2015	BLEL	ASTF	Asterionella formosa HASSALL 1855	DEAD	2.7
19/01/2015	BLEL	AULS	Aulacoseira subarctica (O MÜLLER) E Y HAWORTH 1988	FILA	2.4
19/01/2015	BLEL	AULS	Aulacoseira subarctica (O MÜLLER) E Y HAWORTH 1988	CELL	6.1
19/01/2015	BLEL	AULS	Aulacoseira subarctica (O MÜLLER) E Y HAWORTH 1988	DEAD	3.7
19/01/2015	BLEL	PLAS	Planktothrix sp.	FILA	1.2
19/01/2015	BLEL	PLAS	Planktothrix sp.	LENG	0.163
19/01/2015	BLEL	PSEL	Pseudanabaena limnetica (LEMMERMANN) KOMÁREK	FILA	0.7
19/01/2015	BLEL	PSEL	Pseudanabaena limnetica (LEMMERMANN) KOMÁREK	LENG	0.079
19/01/2015	BLEL	APHF	Aphanizomenon flos-aquae (LINNAEUS) RALFS	FILA	0.2
19/01/2015	BLEL	APHF	Aphanizomenon flos-aquae (LINNAEUS) RALFS	LENG	0.048
19/01/2015	BLEL	RHOD	Rhodomonas KARSTEN sp.	CELL	5.3
19/01/2015	BLEL	CHLA	Chlamydomonas EHRENBERG 1833 sp.	CELL	10.5
19/01/2015	BLEL	CHLO	Chlorella BEIJERINCK 1890 sp.	CELL	89.4
19/01/2015	BLEL	TETM	Tetraedron minimum (A.BRAUN) HANSGIRG	CELL	5.3
19/01/2015	BLEL	MALL	Mallomonas PERTY 1851 sp.	CELL	5.3
19/01/2015	BLEL	UROS	Urosolenia ROUND & CRAWFORD	CELL	5.3
19/01/2015	BROT	PENN	Pennate diatoms	CELL	1.7
19/01/2015	BROT	CRYP	Cryptomonas EHRENBERG 1838 spp.	CELL	0.7

Date	Lake	Alga	Algal name	Form	Value cm ⁻³
19/01/2015	BROT	PLAS	Planktothrix sp.	FILA	0.3
19/01/2015	BROT	PLAS	Planktothrix sp.	LENG	0.05
19/01/2015	BROT	PSEU	Pseudanabaena LAUTERBORN 1915 sp.	FILA	0.7
19/01/2015	BROT	PSEU	Pseudanabaena LAUTERBORN 1915 sp.	LENG	0.04
19/01/2015	BROT	CHLO	Chlorella BEIJERINCK 1890 sp.	CELL	220.8
19/01/2015	BROT	CHRS	Chrysococcus KLEBS 1892 sp.	CELL	26.3
19/01/2015	BROT	TABF	Tabellaria flocculosa (ROTH) KÜTZING 1844 var. flocculosa	CELL	5.3
19/01/2015	BROT	CHRO	Chroomonas HANSGIRG sp.	CELL	5.3
22/01/2015	BUTT	GYMS	Gymnodinium STEIN 1878 sp. (small)	CELL	0.6
22/01/2015	BUTT	PENN	Pennate diatoms	CELL	0.3
22/01/2015	BUTT	CYCC	Cyclotella comensis GRUNOW IN VAN HEURCK 1882	FILA	1.2
22/01/2015	BUTT	CYCC	Cyclotella comensis GRUNOW IN VAN HEURCK 1882	CELL	10.9
22/01/2015	BUTT	TABF	Tabellaria flocculosa (ROTH) KÜTZING 1844 var. flocculosa	COLO	0.3
22/01/2015	BUTT	TABF	Tabellaria flocculosa (ROTH) KÜTZING 1844 var. flocculosa	CELL	1.9
22/01/2015	BUTT	UNIG	Unidentified green colony	COLO	0.3
22/01/2015	BUTT	UNIG	Unidentified green colony	CELL	3.7
22/01/2015	BUTT	RHOD	Rhodomonas KARSTEN sp.	CELL	31.5
22/01/2015	BUTT	CHLO	Chlorella BEIJERINCK 1890 sp.	CELL	115.6
22/01/2015	BUTT	CHRS	Chrysococcus KLEBS 1892 sp.	CELL	15.8
22/01/2015	BUTT	SYNH	Synechococcus NÄGELI	CELL	42
20/01/2015	CONI	CRYP	Cryptomonas EHRENBERG 1838 spp.	CELL	3.8
20/01/2015	CONI	CYCT	Cyclotella KÜTZING EX BRÉBISSON 1838 sp.	CELL	0.7
20/01/2015	CONI	MONO	Monoraphidium contortum (THURET) KOMÁRKOVÁ-LEGNEROVÁ 1969	CELL	14.4
20/01/2015	CONI	PERS	Peridinium EHRENBERG 1832 sp. (small) (25um cbut, csre)	CELL	1
20/01/2015	CONI	PENN	Pennate diatoms	CELL	0.3
20/01/2015	CONI	MALC	Mallomonas caudata IVANOV 1899	CELL	0.7
20/01/2015	CONI	ASTF	Asterionella formosa HASSALL 1855	COLO	9.6
20/01/2015	CONI	ASTF	Asterionella formosa HASSALL 1855	CELL	48.6
20/01/2015	CONI	ASTF	Asterionella formosa HASSALL 1855	DEAD	10.6
20/01/2015	CONI	AULS	Aulacoseira subarctica (O MÜLLER) E Y HAWORTH 1988	FILA	6.8
20/01/2015	CONI	AULS	Aulacoseira subarctica (O MÜLLER) E Y HAWORTH 1988	CELL	35.8
20/01/2015	CONI	AULS	Aulacoseira subarctica (O MÜLLER) E Y HAWORTH 1988	DEAD	2.4
20/01/2015	CONI	TABV	Tabellaria flocculosa (ROTH) KÜTZING 1844 var. other than asterionelloides or flocculosa (mainly zig zag formation)	COLO	1.7
20/01/2015	CONI	TABV	Tabellaria flocculosa (ROTH) KÜTZING 1844 var. other than asterionelloides or flocculosa (mainly zig zag formation)	CELL	3.1
20/01/2015	CONI	TABV	Tabellaria flocculosa (ROTH) KÜTZING 1844 var. other than asterionelloides or flocculosa (mainly zig zag formation)	DEAD	1
20/01/2015	CONI	OOCY	Oocystis NÄGELI emend. FOTT sp.	COLO	0.3
20/01/2015	CONI	OOCY	Oocystis NÄGELI emend. FOTT sp.	CELL	0.7
20/01/2015	CONI	PLAS	Planktothrix sp.	FILA	0.7
20/01/2015	CONI	PLAS	Planktothrix sp.	LENG	0.369
20/01/2015	CONI	PSEL	Pseudanabaena limnetica (LEMMERMANN) KOMÁREK	FILA	1.4
20/01/2015	CONI	PSEL	Pseudanabaena limnetica (LEMMERMANN) KOMÁREK	LENG	0.107
20/01/2015	CONI	RHOD	Rhodomonas KARSTEN sp.	CELL	57.8
20/01/2015	CONI	CHRP	Chrysochromulina parva LACKEY 1939	CELL	10.5
20/01/2015	CONI	CHLO	Chlorella BEIJERINCK 1890 sp.	CELL	162.9
20/01/2015	CONI	CHRO	Chroomonas HANSGIRG sp.	CELL	10.5
20/01/2015	CONI	CHRS	Chrysococcus KLEBS 1892 sp.	CELL	15.8
20/01/2015	CONI	UROS	Urosolenia ROUND & CRAWFORD	CELL	10.5
20/01/2015	CONI	UROS	Urosolenia ROUND & CRAWFORD	DEAD	10.5
20/01/2015	CONI	CHRM	Chromulina CIENKOWSKI sp.	CELL	5.3
20/01/2015	CONI	KOLI	Koliella spiculiformis (VISCHER) HINDAK	CELL	5.3
22/01/2015	CRUM	ASTF	Asterionella formosa HASSALL 1855	COLO	5.9
22/01/2015	CRUM	ASTF	Asterionella formosa HASSALL 1855	CELL	28.3
22/01/2015	CRUM	ASTF	Asterionella formosa HASSALL 1855	DEAD	3

Date	Lake	Alga	Algal name	Form	Value cm ⁻³
22/01/2015	CRUM	AULS	Aulacoseira subarctica (O MÜLLER) E Y HAWORTH 1988	FILA	10.7
22/01/2015	CRUM	AULS	Aulacoseira subarctica (O MÜLLER) E Y HAWORTH 1988	CELL	74.3
22/01/2015	CRUM	AULS	Aulacoseira subarctica (O MÜLLER) E Y HAWORTH 1988	DEAD	13
22/01/2015	CRUM	CYCC	Cyclotella comensis GRUNOW IN VAN HEURCK 1882	FILA	2.3
22/01/2015	CRUM	CYCC	Cyclotella comensis GRUNOW IN VAN HEURCK 1882	CELL	8.7
22/01/2015	CRUM	NISY	Nitzschia /Synedra (uncertain which)	CELL	1.1
22/01/2015	CRUM	CYCT	Cyclotella KÜTZING EX BRÉBISSON 1838 sp.	CELL	1.4
22/01/2015	CRUM	CYCT	Cyclotella KÜTZING EX BRÉBISSON 1838 sp.	DEAD	0.2
22/01/2015	CRUM	CRYP	Cryptomonas EHRENBERG 1838 spp.	CELL	0.9
22/01/2015	CRUM	MALC	Mallomonas caudata IVANOV 1899	CELL	0.2
22/01/2015	CRUM	GYMS	Gymnodinium STEIN 1878 sp. (small)	CELL	0.5
22/01/2015	CRUM	MONO	Monoraphidium contortum (THURET) KOMÁRKOVÁ-LEGNEROVÁ 1969	CELL	1.4
22/01/2015	CRUM	KOLI	Koliella spiculiformis (VISCHER) HINDAK	CELL	0.2
22/01/2015	CRUM	WORN	Woronichinia naegeliana (UNGER) ELENKIN 1933	COLO	0.5
22/01/2015	CRUM	APHA	Aphanocapsa NÄGELI 1849 sp.	COLO	0.5
22/01/2015	CRUM	PLAS	Planktothrix sp.	FILA	0.5
22/01/2015	CRUM	PLAS	Planktothrix sp.	LENG	0.203
22/01/2015	CRUM	RHOD	Rhodomonas KARSTEN sp.	CELL	26.3
22/01/2015	CRUM	CHRP	Chrysochromulina parva LACKEY 1939	CELL	5.3
22/01/2015	CRUM	CHLA	Chlamydomonas EHRENBERG 1833 sp.	CELL	10.5
22/01/2015	CRUM	CHLO	Chlorella BEIJERINCK 1890 sp.	CELL	52.6
22/01/2015	DERW	CRYP	Cryptomonas EHRENBERG 1838 spp.	CELL	2.3
22/01/2015	DERW	MALC	Mallomonas caudata IVANOV 1899	CELL	0.9
22/01/2015	DERW	MONO	Monoraphidium contortum (THURET) KOMÁRKOVÁ-LEGNEROVÁ 1969	CELL	9.4
22/01/2015	DERW	PERS	Peridinium EHRENBERG 1832 sp. (small) (25um cbut, csre)	CELL	1.1
22/01/2015	DERW	KOLI	Koliella spiculiformis (VISCHER) HINDAK	CELL	3.7
22/01/2015	DERW	NISY	Nitzschia /Synedra (uncertain which)	CELL	0.6
22/01/2015	DERW	ASTF	Asterionella formosa HASSALL 1855	COLO	3.4
22/01/2015	DERW	ASTF	Asterionella formosa HASSALL 1855	CELL	17.4
22/01/2015	DERW	ASTF	Asterionella formosa HASSALL 1855	DEAD	1.4
22/01/2015	DERW	AULS	Aulacoseira subarctica (O MÜLLER) E Y HAWORTH 1988	FILA	0.9
22/01/2015	DERW	AULS	Aulacoseira subarctica (O MÜLLER) E Y HAWORTH 1988	CELL	5.1
22/01/2015	DERW	AULS	Aulacoseira subarctica (O MÜLLER) E Y HAWORTH 1988	DEAD	0.6
22/01/2015	DERW	TABV	Tabellaria flocculosa (ROTH) KÜTZING 1844 var. other than asterionelloides or flocculosa (mainly zig zag formation)	COLO	0.3
22/01/2015	DERW	TABV	Tabellaria flocculosa (ROTH) KÜTZING 1844 var. other than asterionelloides or flocculosa (mainly zig zag formation)	CELL	4
22/01/2015	DERW	TABV	Tabellaria flocculosa (ROTH) KÜTZING 1844 var. other than asterionelloides or flocculosa (mainly zig zag formation)	DEAD	0.3
22/01/2015	DERW	OOCY	Oocystis NÄGELI emend. FOTT sp.	COLO	0.6
22/01/2015	DERW	OOCY	Oocystis NÄGELI emend. FOTT sp.	CELL	2.3
22/01/2015	DERW	RHOD	Rhodomonas KARSTEN sp.	CELL	52.6
22/01/2015	DERW	CHLO	Chlorella BEIJERINCK 1890 sp.	CELL	268.1
22/01/2015	DERW	UROS	Urosolenia ROUND & CRAWFORD	CELL	10.5
22/01/2015	DERW	OCHR	Ochromonas WYSSOTSKI sp.	CELL	5.3
15/01/2015	ELTE	CRYP	Cryptomonas EHRENBERG 1838 spp.	CELL	3.4
15/01/2015	ELTE	PERM	Peridinium EHRENBERG 1832 sp. (medium)	CELL	0.3
15/01/2015	ELTE	PERS	Peridinium EHRENBERG 1832 sp. (small) (25um cbut, csre)	CELL	0.3
15/01/2015	ELTE	GYMS	Gymnodinium STEIN 1878 sp. (small)	CELL	0.6
15/01/2015	ELTE	KOLI	Koliella spiculiformis (VISCHER) HINDAK	CELL	0.6
15/01/2015	ELTE	SCEN	Scenedesmus MEYEN 1829 sp.	COLO	0.3
15/01/2015	ELTE	SCEN	Scenedesmus MEYEN 1829 sp.	CELL	1.1
15/01/2015	ELTE	PENN	Pennate diatoms	CELL	0.3
15/01/2015	ELTE	RHOD	Rhodomonas KARSTEN sp.	CELL	10.5
15/01/2015	ELTE	CHLA	Chlamydomonas EHRENBERG 1833 sp.	CELL	10.5
15/01/2015	ELTE	CHLO	Chlorella BEIJERINCK 1890 sp.	CELL	99.9

Date	Lake	Alga	Algal name	Form	Value cm ⁻³
15/01/2015	ELTE	OCHR	Ochromonas WYSSOTSKI sp.	CELL	5.3
15/01/2015	ELTE	CHRS	Chrysococcus KLEBS 1892 sp.	CELL	5.3
15/01/2015	ELTE	UNMF	Unidentified small monoflagellates	CELL	10.5
21/01/2015	ENNE	CRYP	Cryptomonas EHRENBERG 1838 spp.	CELL	0.3
21/01/2015	ENNE	NISY	Nitzschia /Synedra (uncertain which)	CELL	0.3
21/01/2015	ENNE	CYCT	Cyclotella KÜTZING EX BRÉBISSON 1838 sp.	CELL	5.1
21/01/2015	ENNE	CYCT	Cyclotella KÜTZING EX BRÉBISSON 1838 sp.	DEAD	0.3
21/01/2015	ENNE	STAR	Staurodesmus TEILING sp.	CELL	0.3
21/01/2015	ENNE	COSM	Cosmarium CORDA EX RALFS 1848 sp.	CELL	0.3
21/01/2015	ENNE	TABF	Tabellaria flocculosa (ROTH) KÜTZING 1844 var. flocculosa	COLO	0.7
21/01/2015	ENNE	TABF	Tabellaria flocculosa (ROTH) KÜTZING 1844 var. flocculosa	CELL	1.4
21/01/2015	ENNE	TABF	Tabellaria flocculosa (ROTH) KÜTZING 1844 var. flocculosa	DEAD	0.3
21/01/2015	ENNE	CYCC	Cyclotella comensis GRUNOW IN VAN HEURCK 1882	FILA	1.7
21/01/2015	ENNE	CYCC	Cyclotella comensis GRUNOW IN VAN HEURCK 1882	CELL	10.6
21/01/2015	ENNE	PENN	Pennate diatoms	CELL	1.4
21/01/2015	ENNE	ASTF	Asterionella formosa HASSALL 1855	CELL	0.3
21/01/2015	ENNE	RHOD	Rhodomonas KARSTEN sp.	CELL	21
21/01/2015	ENNE	CHRP	Chrysochromulina parva LACKEY 1939	CELL	10.5
21/01/2015	ENNE	CHLO	Chlorella BEIJERINCK 1890 sp.	CELL	136.7
21/01/2015	ENNE	CHRS	Chrysococcus KLEBS 1892 sp.	CELL	5.3
21/01/2015	ENNE	GYMS	Gymnodinium STEIN 1878 sp. (small)	CELL	5.3
20/01/2015	ESTH	CRYP	Cryptomonas EHRENBERG 1838 spp.	CELL	2.4
20/01/2015	ESTH	KOLI	Koliella spiculiformis (VISCHER) HINDAK	CELL	0.3
20/01/2015	ESTH	PERS	Peridinium EHRENBERG 1832 sp. (small) (25um cbut, csre)	CELL	0.7
20/01/2015	ESTH	NISY	Nitzschia /Synedra (uncertain which)	CELL	1.4
20/01/2015	ESTH	AULS	Aulacoseira subarctica (O MÜLLER) E Y HAWORTH 1988	FILA	13.7
20/01/2015	ESTH	AULS	Aulacoseira subarctica (O MÜLLER) E Y HAWORTH 1988	CELL	64
20/01/2015	ESTH	AULS	Aulacoseira subarctica (O MÜLLER) E Y HAWORTH 1988	DEAD	19.5
20/01/2015	ESTH	AULM	Aulacoseira ambigua	FILA	0.7
20/01/2015	ESTH	AULM	Aulacoseira ambigua	CELL	4.8
20/01/2015	ESTH	AULM	Aulacoseira ambigua	DEAD	1.4
20/01/2015	ESTH	FRAC	Fragilaria crotonensis KITTON 1869 (var. crotonensis and var. prolongata until 1993 when var. prol coded ζ FRAT)	FILA	0.7
20/01/2015	ESTH	FRAC	Fragilaria crotonensis KITTON 1869 (var. crotonensis and var. prolongata until 1993 when var. prol coded ζ FRAT)	CELL	4.4
20/01/2015	ESTH	FRAC	Fragilaria crotonensis KITTON 1869 (var. crotonensis and var. prolongata until 1993 when var. prol coded ζ FRAT)	DEAD	3.4
20/01/2015	ESTH	PLAA	Planktothrix agardhii (GOMONT) ANAGNOSTIDIS & C845 1988	FILA	24.6
20/01/2015	ESTH	PLAA	Planktothrix agardhii (GOMONT) ANAGNOSTIDIS & C845 1988	LENG	12.029
20/01/2015	ESTH	APHF	Aphanizomenon flos-aquae (LINNAEUS) RALFS	FILA	6.5
20/01/2015	ESTH	APHF	Aphanizomenon flos-aquae (LINNAEUS) RALFS	LENG	1.136
20/01/2015	ESTH	ASTF	Asterionella formosa HASSALL 1855	COLO	3.1
20/01/2015	ESTH	ASTF	Asterionella formosa HASSALL 1855	CELL	2.1
20/01/2015	ESTH	ASTF	Asterionella formosa HASSALL 1855	DEAD	3.4
20/01/2015	ESTH	RHOD	Rhodomonas KARSTEN sp.	CELL	21
20/01/2015	ESTH	CHLA	Chlamydomonas EHRENBERG 1833 sp.	CELL	10.5
20/01/2015	ESTH	CHLO	Chlorella BEIJERINCK 1890 sp.	CELL	220.8
20/01/2015	ESTH	UROG	Uroglena EHRENBERG (1833) 1835 sp.	CELL	5.3
20/01/2015	ESTH	CHRS	Chrysococcus KLEBS 1892 sp.	CELL	5.3
19/01/2015	GRAS	CRYP	Cryptomonas EHRENBERG 1838 spp.	CELL	0.7
19/01/2015	GRAS	MONO	Monoraphidium contortum (THURET) KOMÁRKOVÁ-LEGNEROVÁ 1969	CELL	0.2
19/01/2015	GRAS	CYCT	Cyclotella KÜTZING EX BRÉBISSON 1838 sp.	CELL	0.2
19/01/2015	GRAS	PENN	Pennate diatoms	CELL	0.5
19/01/2015	GRAS	MERI	Meridion spp. AGARDH	CELL	0.2
19/01/2015	GRAS	AULS	Aulacoseira subarctica (O MÜLLER) E Y HAWORTH 1988	FILA	0.5
19/01/2015	GRAS	AULS	Aulacoseira subarctica (O MÜLLER) E Y HAWORTH 1988	CELL	0.9

Date	Lake	Alga	Algal name	Form	Value cm ⁻³
19/01/2015	GRAS	RHOD	Rhodomonas KARSTEN sp.	CELL	21
19/01/2015	GRAS	CHLO	Chlorella BEIJERINCK 1890 sp.	CELL	194.5
19/01/2015	GRAS	UNMF	Unidentified small monoflagellates	CELL	42
19/01/2015	GRAS	ANAB	Anabaena RABENHORST EX BORNET & FLAHAULT 1888 SENSU KOMÁREK & ETTL 1958 sp.	FILA	5.3
19/01/2015	GRAS	ANAB	Anabaena RABENHORST EX BORNET & FLAHAULT 1888 SENSU KOMÁREK & ETTL 1958 sp.	CELL	63.1
19/01/2015	HAWE	CRYP	Cryptomonas EHRENBERG 1838 spp.	CELL	1.7
19/01/2015	HAWE	MONO	Monoraphidium contortum (THURET) KOMÁRKOVÁ-LEGNEROVÁ 1969	CELL	0.3
19/01/2015	HAWE	CYCB	Cyclotella KÜTZING EX BRÉBISSON 1838 sp. (big)	CELL	2.7
19/01/2015	HAWE	CYCB	Cyclotella KÜTZING EX BRÉBISSON 1838 sp. (big)	DEAD	0.7
19/01/2015	HAWE	GYMS	Gymnodinium STEIN 1878 sp. (small)	CELL	1.4
19/01/2015	HAWE	STAI	Staurastrum cingulum (W & G.S.WEST) G.M.SMITH 1922	CELL	0.3
19/01/2015	HAWE	PERS	Peridinium EHRENBERG 1832 sp. (small) (25um cbut, csre)	CELL	0.3
19/01/2015	HAWE	SNOL	Snowella lacustris (CHODAT) KOMÁREK & HINDÁK 1988	COLO	0.3
19/01/2015	HAWE	AULS	Aulacoseira subarctica (O MÜLLER) E Y HAWORTH 1988	FILA	3.4
19/01/2015	HAWE	AULS	Aulacoseira subarctica (O MÜLLER) E Y HAWORTH 1988	CELL	7.5
19/01/2015	HAWE	AULS	Aulacoseira subarctica (O MÜLLER) E Y HAWORTH 1988	DEAD	3.1
19/01/2015	HAWE	TABA	Tabellaria flocculosa var. asterionelloides (GRUNOW) KNUDSON 1952	COLO	0.7
19/01/2015	HAWE	TABA	Tabellaria flocculosa var. asterionelloides (GRUNOW) KNUDSON 1952	CELL	5.5
19/01/2015	HAWE	ASTF	Asterionella formosa HASSALL 1855	COLO	1.4
19/01/2015	HAWE	ASTF	Asterionella formosa HASSALL 1855	CELL	7.2
19/01/2015	HAWE	PLAS	Planktothrix sp.	FILA	0.3
19/01/2015	HAWE	PLAS	Planktothrix sp.	LENG	0.235
19/01/2015	HAWE	RHOD	Rhodomonas KARSTEN sp.	CELL	47.3
19/01/2015	HAWE	CHLO	Chlorella BEIJERINCK 1890 sp.	CELL	110.4
15/01/2015	LOUG	AULS	Aulacoseira subarctica (O MÜLLER) E Y HAWORTH 1988	FILA	335.2
15/01/2015	LOUG	AULS	Aulacoseira subarctica (O MÜLLER) E Y HAWORTH 1988	CELL	2339.3
15/01/2015	LOUG	AULS	Aulacoseira subarctica (O MÜLLER) E Y HAWORTH 1988	DEAD	109.4
15/01/2015	LOUG	APHF	Aphanizomenon flos-aquae (LINNAEUS) RALFS	FILA	58.8
15/01/2015	LOUG	APHF	Aphanizomenon flos-aquae (LINNAEUS) RALFS	LENG	9.753
15/01/2015	LOUG	CRYP	Cryptomonas EHRENBERG 1838 spp.	CELL	7.9
15/01/2015	LOUG	NISY	Nitzschia /Synedra (uncertain which)	CELL	2.1
15/01/2015	LOUG	PERS	Peridinium EHRENBERG 1832 sp. (small) (25um cbut, csre)	CELL	1
15/01/2015	LOUG	GYMA	Gymnodinium helveticum forma achroum SKUJA 1948	CELL	0.7
15/01/2015	LOUG	MALC	Mallomonas caudata IVANOV 1899	CELL	0.3
15/01/2015	LOUG	ASTF	Asterionella formosa HASSALL 1855	COLO	27.4
15/01/2015	LOUG	ASTF	Asterionella formosa HASSALL 1855	CELL	67
15/01/2015	LOUG	ASTF	Asterionella formosa HASSALL 1855	DEAD	7.9
15/01/2015	LOUG	FRAC	Fragilaria crotonensis KITTON 1869 (var. crotonensis and var. prolongata until 1993 when var. prol coded $\dot{\iota}$ FRAT)	FILA	1.4
15/01/2015	LOUG	FRAC	Fragilaria crotonensis KITTON 1869 (var. crotonensis and var. prolongata until 1993 when var. prol coded $\dot{\iota}$ FRAT)	CELL	18.8
15/01/2015	LOUG	FRAC	Fragilaria crotonensis KITTON 1869 (var. crotonensis and var. prolongata until 1993 when var. prol coded $\dot{\iota}$ FRAT)	DEAD	7.2
15/01/2015	LOUG	TABF	Tabellaria flocculosa (ROTH) KÜTZING 1844 var. flocculosa	COLO	0.3
15/01/2015	LOUG	TABF	Tabellaria flocculosa (ROTH) KÜTZING 1844 var. flocculosa	CELL	4.8
15/01/2015	LOUG	PSEG	Pseudosphaerocystis sp.	COLO	0.3
15/01/2015	LOUG	PSEG	Pseudosphaerocystis sp.	CELL	1.4
15/01/2015	LOUG	PLAS	Planktothrix sp.	FILA	15
15/01/2015	LOUG	PLAS	Planktothrix sp.	LENG	3.539
15/01/2015	LOUG	RHOD	Rhodomonas KARSTEN sp.	CELL	47.3
15/01/2015	LOUG	CHRP	Chrysochromulina parva LACKEY 1939	CELL	5.3
15/01/2015	LOUG	CHLA	Chlamydomonas EHRENBERG 1833 sp.	CELL	10.5
15/01/2015	LOUG	CHLO	Chlorella BEIJERINCK 1890 sp.	CELL	357.4
15/01/2015	LOUG	UROS	Urosolenia ROUND & CRAWFORD	CELL	84.1
15/01/2015	LOUG	UROS	Urosolenia ROUND & CRAWFORD	DEAD	63.1

Date	Lake	Alga	Algal name	Form	Value cm ⁻³
15/01/2015	LOUG	UROG	Uroglena EHRENBERG (1833) 1835 sp.	CELL	10.5
15/01/2015	LOUG	OCHR	Ochromonas WYSSOTSKI sp.	CELL	5.3
15/01/2015	LOUG	COCC	Coccomyxa SCHMIDLE spp.	CELL	5.3
15/01/2015	LOUG	CRUT	Crucigenia tetrapedia (KIRCHNER) W & G.S WEST	COLO	5.3
15/01/2015	LOUG	CRUT	Crucigenia tetrapedia (KIRCHNER) W & G.S WEST	CELL	21
19/01/2015	LOWE	ASTF	Asterionella formosa HASSALL 1855	COLO	328.3
19/01/2015	LOWE	ASTF	Asterionella formosa HASSALL 1855	CELL	1402.2
19/01/2015	LOWE	ASTF	Asterionella formosa HASSALL 1855	DEAD	112.9
19/01/2015	LOWE	AULS	Aulacoseira subarctica (O MÜLLER) E Y HAWORTH 1988	FILA	91.5
19/01/2015	LOWE	AULS	Aulacoseira subarctica (O MÜLLER) E Y HAWORTH 1988	CELL	485.6
19/01/2015	LOWE	AULS	Aulacoseira subarctica (O MÜLLER) E Y HAWORTH 1988	DEAD	137.7
19/01/2015	LOWE	CRYP	Cryptomonas EHRENBERG 1838 spp.	CELL	1.4
19/01/2015	LOWE	MONO	Monoraphidium contortum (THURET) KOMÁRKOVÁ-LEGNEROVÁ 1969	CELL	25.3
19/01/2015	LOWE	NISY	Nitzschia /Synedra (uncertain which)	CELL	0.3
19/01/2015	LOWE	CYCT	Cyclotella KÜTZING EX BRÉBISSON 1838 sp.	CELL	7.9
19/01/2015	LOWE	CYCT	Cyclotella KÜTZING EX BRÉBISSON 1838 sp.	DEAD	4.8
19/01/2015	LOWE	MALC	Mallomonas caudata IVANOV 1899	CELL	1.7
19/01/2015	LOWE	PERS	Peridinium EHRENBERG 1832 sp. (small) (25um cbut, csre)	CELL	1
19/01/2015	LOWE	PERC	Peridinium cinctum (OF MÜLLER) EHRENBERG 1838	CELL	0.3
19/01/2015	LOWE	WORN	Woronichinia naegeliana (UNGER) ELENKIN 1933	COLO	2.4
19/01/2015	LOWE	ELAK	Elakatothrix WILLE sp.	COLO	0.3
19/01/2015	LOWE	ELAK	Elakatothrix WILLE sp.	CELL	0.7
19/01/2015	LOWE	PLAS	Planktothrix sp.	FILA	21.9
19/01/2015	LOWE	PLAS	Planktothrix sp.	LENG	8.386
19/01/2015	LOWE	APHF	Aphanizomenon flos-aquae (LINNAEUS) RALFS	FILA	25.3
19/01/2015	LOWE	APHF	Aphanizomenon flos-aquae (LINNAEUS) RALFS	LENG	4.716
19/01/2015	LOWE	RHOD	Rhodomonas KARSTEN sp.	CELL	47.3
19/01/2015	LOWE	CHLO	Chlorella BEIJERINCK 1890 sp.	CELL	341.7
19/01/2015	LOWE	UNMF	Unidentified small monoflagellates	CELL	15.8
19/01/2015	LOWE	UROS	Urosolenia ROUND & CRAWFORD	CELL	5.3
20/01/2015	NBAS	CRYP	Cryptomonas EHRENBERG 1838 spp.	CELL	1.2
20/01/2015	NBAS	MALC	Mallomonas caudata IVANOV 1899	CELL	0.2
20/01/2015	NBAS	GYMS	Gymnodinium STEIN 1878 sp. (small)	CELL	0.2
20/01/2015	NBAS	NISY	Nitzschia /Synedra (uncertain which)	CELL	0.5
20/01/2015	NBAS	STAI	Staurastrum cingulum (W & G.S.WEST) G.M.SMITH 1922	CELL	0.2
20/01/2015	NBAS	GYMA	Gymnodinium helveticum forma achroum SKUJA 1948	CELL	0.2
20/01/2015	NBAS	WORN	Woronichinia naegeliana (UNGER) ELENKIN 1933	COLO	0.2
20/01/2015	NBAS	TABV	Tabellaria flocculosa (ROTH) KÜTZING 1844 var. other than asterionelloides or flocculosa (mainly zig zag formation)	COLO	0.25
20/01/2015	NBAS	TABV	Tabellaria flocculosa (ROTH) KÜTZING 1844 var. other than asterionelloides or flocculosa (mainly zig zag formation)	CELL	2
20/01/2015	NBAS	AULS	Aulacoseira subarctica (O MÜLLER) E Y HAWORTH 1988	FILA	1.2
20/01/2015	NBAS	AULS	Aulacoseira subarctica (O MÜLLER) E Y HAWORTH 1988	CELL	4.9
20/01/2015	NBAS	AULS	Aulacoseira subarctica (O MÜLLER) E Y HAWORTH 1988	DEAD	0.7
20/01/2015	NBAS	APHF	Aphanizomenon flos-aquae (LINNAEUS) RALFS	FILA	0.2
20/01/2015	NBAS	APHF	Aphanizomenon flos-aquae (LINNAEUS) RALFS	LENG	0.043
20/01/2015	NBAS	RHOD	Rhodomonas KARSTEN sp.	CELL	5.3
20/01/2015	NBAS	CHLA	Chlamydomonas EHRENBERG 1833 sp.	CELL	5.3
20/01/2015	NBAS	CHLO	Chlorella BEIJERINCK 1890 sp.	CELL	283.8
19/01/2015	RYDA	ASTF	Asterionella formosa HASSALL 1855	COLO	0.3
19/01/2015	RYDA	ASTF	Asterionella formosa HASSALL 1855	CELL	2.7
19/01/2015	RYDA	KOLI	Koliella spiculiformis (VISCHER) HINDAK	CELL	0.3
19/01/2015	RYDA	PERS	Peridinium EHRENBERG 1832 sp. (small) (25um cbut, csre)	CELL	0.3
19/01/2015	RYDA	PSEL	Pseudanabaena limnetica (LEMMERMANN) KOMÁREK	FILA	0.3
19/01/2015	RYDA	PSEL	Pseudanabaena limnetica (LEMMERMANN) KOMÁREK	LENG	0.04
19/01/2015	RYDA	APHF	Aphanizomenon flos-aquae (LINNAEUS) RALFS	FILA	0.3

Date	Lake	Alga	Algal name	Form	Value cm ⁻³
19/01/2015	RYDA	APHF	Aphanizomenon flos-aquae (LINNAEUS) RALFS	LENG	0.034
19/01/2015	RYDA	UNMF	Unidentified small monoflagellates	CELL	78.8
19/01/2015	RYDA	CYCT	Cyclotella KÜTZING EX BRÉBISSON 1838 sp.	CELL	5.3
19/01/2015	RYDA	PENN	Pennate diatoms	CELL	5.3
19/01/2015	RYDA	MONY	Monoraphidium dybowskii (WOLASYNSKA) HINDAK & KOMARKOVA - LEGENEROVA	CELL	5.3
19/01/2015	RYDA	CHLA	Chlamydomonas EHRENBERG 1833 sp.	CELL	10.5
19/01/2015	RYDA	CHLO	Chlorella BEIJERINCK 1890 sp.	CELL	15.8
20/01/2015	SBAS	CRYP	Cryptomonas EHRENBERG 1838 spp.	CELL	2.1
20/01/2015	SBAS	NISY	Nitzschia /Synedra (uncertain which)	CELL	0.3
20/01/2015	SBAS	COSA	Cosmarium abbreviatum RACIBORSKI 1885	CELL	0.3
20/01/2015	SBAS	STAI	Staurastrum cingulum (W & G.S.WEST) G.M.SMITH 1922	CELL	0.3
20/01/2015	SBAS	WORN	Woronichinia naegeliana (UNGER) ELENKIN 1933	COLO	1.4
20/01/2015	SBAS	AULS	Aulacoseira subarctica (O MÜLLER) E Y HAWORTH 1988	FILA	4.1
20/01/2015	SBAS	AULS	Aulacoseira subarctica (O MÜLLER) E Y HAWORTH 1988	CELL	7.9
20/01/2015	SBAS	AULS	Aulacoseira subarctica (O MÜLLER) E Y HAWORTH 1988	DEAD	5.8
20/01/2015	SBAS	TABA	Tabellaria flocculosa var. asterionelloides (GRUNOW) KNUDSON 1952	COLO	0.3
20/01/2015	SBAS	TABA	Tabellaria flocculosa var. asterionelloides (GRUNOW) KNUDSON 1952	CELL	5.5
20/01/2015	SBAS	ASTF	Asterionella formosa HASSALL 1855	COLO	0.3
20/01/2015	SBAS	ASTF	Asterionella formosa HASSALL 1855	CELL	0.7
20/01/2015	SBAS	MELV	Melosira varians AGARDH 1827	FILA	0.3
20/01/2015	SBAS	MELV	Melosira varians AGARDH 1827	CELL	1
20/01/2015	SBAS	FRAC	Fragilaria crotonensis KITTON 1869 (var. crotonensis and var. prolongata until 1993 when var. prol coded ζ FRAT)	FILA	0.7
20/01/2015	SBAS	FRAC	Fragilaria crotonensis KITTON 1869 (var. crotonensis and var. prolongata until 1993 when var. prol coded ζ FRAT)	CELL	14
20/01/2015	SBAS	FRAC	Fragilaria crotonensis KITTON 1869 (var. crotonensis and var. prolongata until 1993 when var. prol coded ζ FRAT)	DEAD	0.7
20/01/2015	SBAS	PSEG	Pseudosphaerocystis sp.	COLO	0.3
20/01/2015	SBAS	PSEG	Pseudosphaerocystis sp.	CELL	1.4
20/01/2015	SBAS	PLAS	Planktothrix sp.	FILA	1.4
20/01/2015	SBAS	PLAS	Planktothrix sp.	LENG	0.302
20/01/2015	SBAS	APHF	Aphanizomenon flos-aquae (LINNAEUS) RALFS	FILA	0.7
20/01/2015	SBAS	APHF	Aphanizomenon flos-aquae (LINNAEUS) RALFS	LENG	0.05
20/01/2015	SBAS	PSEL	Pseudanabaena limnetica (LEMMERMANN) KOMÁREK	FILA	0.3
20/01/2015	SBAS	PSEL	Pseudanabaena limnetica (LEMMERMANN) KOMÁREK	LENG	0.023
20/01/2015	SBAS	RHOD	Rhodomonas KARSTEN sp.	CELL	31.5
20/01/2015	SBAS	CHLO	Chlorella BEIJERINCK 1890 sp.	CELL	704.3
16/01/2015	THIR	CRYP	Cryptomonas EHRENBERG 1838 spp.	CELL	2.4
16/01/2015	THIR	GYMS	Gymnodinium STEIN 1878 sp. (small)	CELL	0.3
16/01/2015	THIR	UROS	Urosolenia ROUND & CRAWFORD	CELL	0.3
16/01/2015	THIR	PENN	Pennate diatoms	CELL	0.7
16/01/2015	THIR	CYCT	Cyclotella KÜTZING EX BRÉBISSON 1838 sp.	CELL	2.4
16/01/2015	THIR	CYCT	Cyclotella KÜTZING EX BRÉBISSON 1838 sp.	DEAD	0.7
16/01/2015	THIR	CYCC	Cyclotella comensis GRUNOW IN VAN HEURCK 1882	FILA	2.1
16/01/2015	THIR	CYCC	Cyclotella comensis GRUNOW IN VAN HEURCK 1882	CELL	8.2
16/01/2015	THIR	TABA	Tabellaria flocculosa var. asterionelloides (GRUNOW) KNUDSON 1952	COLO	1.7
16/01/2015	THIR	TABA	Tabellaria flocculosa var. asterionelloides (GRUNOW) KNUDSON 1952	CELL	2.4
16/01/2015	THIR	TABA	Tabellaria flocculosa var. asterionelloides (GRUNOW) KNUDSON 1952	DEAD	1.7
16/01/2015	THIR	ASTF	Asterionella formosa HASSALL 1855	COLO	1
16/01/2015	THIR	ASTF	Asterionella formosa HASSALL 1855	CELL	9.9
16/01/2015	THIR	BOTB	Botryococcus braunii KÜTZING 1849	COLO	0.3
16/01/2015	THIR	PLAS	Planktothrix sp.	FILA	1.4
16/01/2015	THIR	PLAS	Planktothrix sp.	LENG	0.258
16/01/2015	THIR	RHOD	Rhodomonas KARSTEN sp.	CELL	15.8
16/01/2015	THIR	CHLA	Chlamydomonas EHRENBERG 1833 sp.	CELL	5.3
16/01/2015	THIR	CHLO	Chlorella BEIJERINCK 1890 sp.	CELL	147.2

Date	Lake	Alga	Algal name	Form	Value cm ⁻³
20/01/2015	ULLS	ASTF	Asterionella formosa HASSALL 1855	COLO	3.9
20/01/2015	ULLS	ASTF	Asterionella formosa HASSALL 1855	CELL	4.2
20/01/2015	ULLS	ASTF	Asterionella formosa HASSALL 1855	DEAD	5.8
20/01/2015	ULLS	AULS	Aulacoseira subarctica (O MÜLLER) E Y HAWORTH 1988	FILA	6.1
20/01/2015	ULLS	AULS	Aulacoseira subarctica (O MÜLLER) E Y HAWORTH 1988	CELL	21.3
20/01/2015	ULLS	AULS	Aulacoseira subarctica (O MÜLLER) E Y HAWORTH 1988	DEAD	6.1
20/01/2015	ULLS	TABA	Tabellaria flocculosa var. asterionelloides (GRUNOW) KNUDSON 1952	COLO	1.6
20/01/2015	ULLS	TABA	Tabellaria flocculosa var. asterionelloides (GRUNOW) KNUDSON 1952	CELL	3.7
20/01/2015	ULLS	TABA	Tabellaria flocculosa var. asterionelloides (GRUNOW) KNUDSON 1952	DEAD	2.9
20/01/2015	ULLS	TABV	Tabellaria flocculosa (ROTH) KÜTZING 1844 var. other than asterionelloides or flocculosa (mainly zig zag formation)	COLO	1.8
20/01/2015	ULLS	TABV	Tabellaria flocculosa (ROTH) KÜTZING 1844 var. other than asterionelloides or flocculosa (mainly zig zag formation)	CELL	6.1
20/01/2015	ULLS	TABV	Tabellaria flocculosa (ROTH) KÜTZING 1844 var. other than asterionelloides or flocculosa (mainly zig zag formation)	DEAD	1.6
20/01/2015	ULLS	CYCT	Cyclotella KÜTZING EX BRÉBISSON 1838 sp.	CELL	2.6
20/01/2015	ULLS	CYCT	Cyclotella KÜTZING EX BRÉBISSON 1838 sp.	DEAD	0.5
20/01/2015	ULLS	GYMA	Gymnodinium helveticum forma achroum SKUJA 1948	CELL	0.3
20/01/2015	ULLS	CRYP	Cryptomonas EHRENBERG 1838 spp.	CELL	2.4
20/01/2015	ULLS	MONO	Monoraphidium contortum (THURET) KOMÁRKOVÁ-LEGNEROVÁ 1969	CELL	1.6
20/01/2015	ULLS	NISY	Nitzschia /Synedra (uncertain which)	CELL	0.5
20/01/2015	ULLS	COEK	Coelosphaerium kutzingianum KÜTZING 1849	COLO	0.3
20/01/2015	ULLS	PLAS	Planktothrix sp.	FILA	3.9
20/01/2015	ULLS	PLAS	Planktothrix sp.	LENG	0.9
20/01/2015	ULLS	RHOD	Rhodomonas KARSTEN sp.	CELL	21
20/01/2015	ULLS	CHLA	Chlamydomonas EHRENBERG 1833 sp.	CELL	5.3
20/01/2015	ULLS	CHLO	Chlorella BEIJERINCK 1890 sp.	CELL	78.8
20/01/2015	ULLS	MALA	Mallomonas akrokomas RUTTNER IN PASCHER 1913	CELL	5.3
20/01/2015	ULLS	CHRS	Chrysococcus KLEBS 1892 sp.	CELL	5.3
21/01/2015	WAST	CRYP	Cryptomonas EHRENBERG 1838 spp.	CELL	0.8
21/01/2015	WAST	GYMS	Gymnodinium STEIN 1878 sp. (small)	CELL	0.3
21/01/2015	WAST	KOLI	Koliella spiculiformis (VISCHER) HINDAK	CELL	0.8
21/01/2015	WAST	CHRO	Chroomonas HANSGIRG sp.	CELL	0.5
21/01/2015	WAST	STAR	Staurodesmus TEILING sp.	CELL	0.3
21/01/2015	WAST	CYCC	Cyclotella comensis GRUNOW IN VAN HEURCK 1882	FILA	3.7
21/01/2015	WAST	CYCC	Cyclotella comensis GRUNOW IN VAN HEURCK 1882	CELL	7.1
21/01/2015	WAST	RHOD	Rhodomonas KARSTEN sp.	CELL	10.5
21/01/2015	WAST	CHLO	Chlorella BEIJERINCK 1890 sp.	CELL	31.5
21/01/2015	WAST	CHRS	Chrysococcus KLEBS 1892 sp.	CELL	5.3
16/04/2015	BASS	MONO	Monoraphidium contortum (THURET) KOMÁRKOVÁ-LEGNEROVÁ 1969	CELL	131.3
16/04/2015	BASS	AULS	Aulacoseira subarctica (O MÜLLER) E Y HAWORTH 1988	FILA	125.9
16/04/2015	BASS	AULS	Aulacoseira subarctica (O MÜLLER) E Y HAWORTH 1988	CELL	708.6
16/04/2015	BASS	AULS	Aulacoseira subarctica (O MÜLLER) E Y HAWORTH 1988	DEAD	9.6
16/04/2015	BASS	KOLI	Koliella spiculiformis (VISCHER) HINDAK	CELL	25.7
16/04/2015	BASS	NISY	Nitzschia /Synedra (uncertain which)	CELL	17.1
16/04/2015	BASS	CRYP	Cryptomonas EHRENBERG 1838 spp.	CELL	37.6
16/04/2015	BASS	CYCB	Cyclotella KÜTZING EX BRÉBISSON 1838 sp. (big)	CELL	5.1
16/04/2015	BASS	STAR	Staurodesmus TEILING sp.	CELL	0.7
16/04/2015	BASS	PERS	Peridinium EHRENBERG 1832 sp. (small) (25um cbut, csre)	CELL	3.1
16/04/2015	BASS	SYNL	Synedra ulna (NITZSCH) EHRENBERG 1836	CELL	1
16/04/2015	BASS	MALC	Mallomonas caudata IVANOV 1899	CELL	0.3
16/04/2015	BASS	GYML	Gymnodinium STEIN 1878 sp. (large)	CELL	0.3
16/04/2015	BASS	ASTF	Asterionella formosa HASSALL 1855	COLO	7.9
16/04/2015	BASS	ASTF	Asterionella formosa HASSALL 1855	CELL	32.8
16/04/2015	BASS	ASTF	Asterionella formosa HASSALL 1855	DEAD	3.8
16/04/2015	BASS	TABV	Tabellaria flocculosa (ROTH) KÜTZING 1844 var. other than asterionelloides or flocculosa (mainly zig zag formation)	COLO	6.5

Date	Lake	Alga	Algal name	Form	Value cm ⁻³
16/04/2015	BASS	TABV	Tabellaria flocculosa (ROTH) KÜTZING 1844 var. other than asterionelloides or flocculosa (mainly zig zag formation)	CELL	58.5
16/04/2015	BASS	TABF	Tabellaria flocculosa (ROTH) KÜTZING 1844 var. flocculosa	COLO	0.7
16/04/2015	BASS	TABF	Tabellaria flocculosa (ROTH) KÜTZING 1844 var. flocculosa	CELL	14.7
16/04/2015	BASS	FRAC	Fragilaria crotonensis KITTON 1869 (var. crotonensis and var. prolongata until 1993 when var. prol coded ; FRAT)	FILA	0.3
16/04/2015	BASS	FRAC	Fragilaria crotonensis KITTON 1869 (var. crotonensis and var. prolongata until 1993 when var. prol coded ; FRAT)	CELL	10.9
16/04/2015	BASS	FRAC	Fragilaria crotonensis KITTON 1869 (var. crotonensis and var. prolongata until 1993 when var. prol coded ; FRAT)	DEAD	0.3
16/04/2015	BASS	DINV	Dinobryon bavaricum IMHOF 1890	COLO	11.6
16/04/2015	BASS	DINV	Dinobryon bavaricum IMHOF 1890	CELL	57.1
16/04/2015	BASS	DINV	Dinobryon bavaricum IMHOF 1890	CYST	5.8
16/04/2015	BASS	DIND	Dinobryon divergens IMHOF 1887	COLO	3.4
16/04/2015	BASS	DIND	Dinobryon divergens IMHOF 1887	CELL	22.9
16/04/2015	BASS	SYNC	Syncrypta spp. EHRENBERG	COLO	18.1
16/04/2015	BASS	SYNC	Syncrypta spp. EHRENBERG	CELL	53.7
16/04/2015	BASS	PAUT	Paulschulzia tenera (KORSHIKOV) LUND 1960	COLO	1.4
16/04/2015	BASS	PAUT	Paulschulzia tenera (KORSHIKOV) LUND 1960	CELL	9.6
16/04/2015	BASS	COEF	Coenochloris fottii (HINDÁK) TSARENKO 1990	COLO	2.4
16/04/2015	BASS	COEF	Coenochloris fottii (HINDÁK) TSARENKO 1990	CELL	16.4
16/04/2015	BASS	ELAK	Elakatothrix WILLE sp.	COLO	2.4
16/04/2015	BASS	ELAK	Elakatothrix WILLE sp.	CELL	5.5
16/04/2015	BASS	SPON	Spondylosium BREBISSON sp.	FILA	0.3
16/04/2015	BASS	SPON	Spondylosium BREBISSON sp.	CELL	1.4
16/04/2015	BASS	ANCF	Anabaena circinalis &/or flos-aquae	FILA	0.3
16/04/2015	BASS	ANCF	Anabaena circinalis &/or flos-aquae	CELL	68.4
16/04/2015	BASS	GONS	Gonium sociale (DUJARDIN) WARMING	COLO	1
16/04/2015	BASS	GONS	Gonium sociale (DUJARDIN) WARMING	CELL	4.1
16/04/2015	BASS	RHOD	Rhodomonas KARSTEN sp.	CELL	236.5
16/04/2015	BASS	CHRP	Chrysochromulina parva LACKEY 1939	CELL	5.3
16/04/2015	BASS	CHLO	Chlorella BEIJERINCK 1890 sp.	CELL	599.2
16/04/2015	BASS	UROS	Urosolenia ROUND & CRAWFORD	CELL	57.8
16/04/2015	BASS	UROS	Urosolenia ROUND & CRAWFORD	DEAD	5.3
16/04/2015	BASS	CYCT	Cyclotella KÜTZING EX BRÉBISSON 1838 sp.	CELL	94.6
16/04/2015	BASS	UROG	Uroglena EHRENBERG (1833) 1835 sp.	CELL	21
16/04/2015	BASS	MALL	Mallomonas PERTY 1851 sp.	CELL	5.3
16/04/2015	BASS	MALA	Mallomonas akrokomas RUTTNER IN PASCHER 1913	CELL	257.6
13/04/2015	BLEL	SYNC	Syncrypta spp. EHRENBERG	COLO	299.3
13/04/2015	BLEL	SYNC	Syncrypta spp. EHRENBERG	CELL	572.9
13/04/2015	BLEL	MONO	Monoraphidium contortum (THURET) KOMÁRKOVÁ-LEGNEROVÁ 1969	CELL	66.7
13/04/2015	BLEL	ASTF	Asterionella formosa HASSALL 1855	COLO	120.6
13/04/2015	BLEL	ASTF	Asterionella formosa HASSALL 1855	CELL	351.4
13/04/2015	BLEL	ASTF	Asterionella formosa HASSALL 1855	DEAD	1.7
13/04/2015	BLEL	EUGL	Euglena EHRENBERG 1830 sp.	CELL	1
13/04/2015	BLEL	PERS	Peridinium EHRENBERG 1832 sp. (small) (25um cbut, csre)	CELL	2.7
13/04/2015	BLEL	KOLI	Koliella longiseta HINDÁK 1963	CELL	12.3
13/04/2015	BLEL	PERL	Peridinium EHRENBERG 1832 sp. (large)	CELL	0.3
13/04/2015	BLEL	CLST	Closterium (straight) cf AEIR Blelham	CELL	0.3
13/04/2015	BLEL	PERM	Peridinium EHRENBERG 1832 sp. (medium)	CELL	2.1
13/04/2015	BLEL	KOLI	Koliella spiculiformis (VISCHER) HINDAK	CELL	4.8
13/04/2015	BLEL	CYCT	Cyclotella KÜTZING EX BRÉBISSON 1838 sp.	CELL	4.8
13/04/2015	BLEL	CYCT	Cyclotella KÜTZING EX BRÉBISSON 1838 sp.	DEAD	1.4
13/04/2015	BLEL	CRYP	Cryptomonas EHRENBERG 1838 spp.	CELL	35.2
13/04/2015	BLEL	NISY	Nitzschia /Synedra (uncertain which)	CELL	11.3
13/04/2015	BLEL	SYNA	Synedra acus KÜTZING 1844	CELL	35.2
13/04/2015	BLEL	SYNA	Synedra acus KÜTZING 1844	DEAD	0.7

Date	Lake	Alga	Algal name	Form	Value cm ⁻³
13/04/2015	BLEL	SYNL	<i>Synedra ulna</i> (NITZSCH) EHRENBERG 1836	CELL	1.7
13/04/2015	BLEL	DIND	<i>Dinobryon divergens</i> IMHOF 1887	COLO	15.4
13/04/2015	BLEL	DIND	<i>Dinobryon divergens</i> IMHOF 1887	CELL	158
13/04/2015	BLEL	DINV	<i>Dinobryon bavaricum</i> IMHOF 1890	COLO	2.7
13/04/2015	BLEL	DINV	<i>Dinobryon bavaricum</i> IMHOF 1890	CELL	20.9
13/04/2015	BLEL	DIAT	<i>Diatoma DE CANDOLLE</i> 1805 sp.	COLO	15.7
13/04/2015	BLEL	DIAT	<i>Diatoma DE CANDOLLE</i> 1805 sp.	CELL	66
13/04/2015	BLEL	AULS	<i>Aulacoseira subarctica</i> (O MÜLLER) E Y HAWORTH 1988	FILA	4.4
13/04/2015	BLEL	AULS	<i>Aulacoseira subarctica</i> (O MÜLLER) E Y HAWORTH 1988	CELL	16.4
13/04/2015	BLEL	AULS	<i>Aulacoseira subarctica</i> (O MÜLLER) E Y HAWORTH 1988	DEAD	7.2
13/04/2015	BLEL	FRAC	<i>Fragilaria crotonensis</i> KITTON 1869 (var. <i>crotonensis</i> and var. <i>prolongata</i> until 1993 when var. <i>prol</i> coded \ddagger FRAT)	FILA	2.7
13/04/2015	BLEL	FRAC	<i>Fragilaria crotonensis</i> KITTON 1869 (var. <i>crotonensis</i> and var. <i>prolongata</i> until 1993 when var. <i>prol</i> coded \ddagger FRAT)	CELL	43.8
13/04/2015	BLEL	DICI	<i>Dictyosphaerium NÄGELI</i> sp.	COLO	19.2
13/04/2015	BLEL	DICI	<i>Dictyosphaerium NÄGELI</i> sp.	CELL	284.5
13/04/2015	BLEL	SCEN	<i>Scenedesmus MEYEN</i> 1829 sp.	COLO	0.3
13/04/2015	BLEL	SCEN	<i>Scenedesmus MEYEN</i> 1829 sp.	CELL	1.4
13/04/2015	BLEL	COEF	<i>Coenochloris fottii</i> (HINDÁK) TSARENKO 1990	COLO	0.3
13/04/2015	BLEL	COEF	<i>Coenochloris fottii</i> (HINDÁK) TSARENKO 1990	CELL	2.7
13/04/2015	BLEL	PSEG	<i>Pseudosphaerocystis</i> sp.	COLO	0.3
13/04/2015	BLEL	PSEG	<i>Pseudosphaerocystis</i> sp.	CELL	2.7
13/04/2015	BLEL	PSEL	<i>Pseudanabaena limnetica</i> (LEMMERMANN) KOMÁREK	FILA	7.5
13/04/2015	BLEL	PSEL	<i>Pseudanabaena limnetica</i> (LEMMERMANN) KOMÁREK	LENG	1.843
13/04/2015	BLEL	APHF	<i>Aphanizomenon flos-aquae</i> (LINNAEUS) RALFS	FILA	0.3
13/04/2015	BLEL	APHF	<i>Aphanizomenon flos-aquae</i> (LINNAEUS) RALFS	LENG	0.05
13/04/2015	BLEL	RHOD	<i>Rhodomonas KARSTEN</i> sp.	CELL	120.9
13/04/2015	BLEL	CHRP	<i>Chrysochromulina parva</i> LACKEY 1939	CELL	10.5
13/04/2015	BLEL	CHLA	<i>Chlamydomonas EHRENBERG</i> 1833 sp.	CELL	26.3
13/04/2015	BLEL	CHLO	<i>Chlorella BEIJERINCK</i> 1890 sp.	CELL	1513.8
13/04/2015	BLEL	UROS	<i>Urosolenia ROUND & CRAWFORD</i>	CELL	168.2
13/04/2015	BLEL	UROS	<i>Urosolenia ROUND & CRAWFORD</i>	DEAD	26.3
13/04/2015	BLEL	GOLR	<i>Golenkinia radiata</i>	CELL	26.3
13/04/2015	BLEL	CHRO	<i>Chroomonas HANSGIRG</i> sp.	CELL	5.3
13/04/2015	BLEL	TETM	<i>Tetraedron minimum</i> (A.BRAUN) HANSGIRG	CELL	199.7
13/04/2015	BLEL	MALL	<i>Mallomonas PERTY</i> 1851 sp.	CELL	5.3
13/04/2015	BLEL	COCC	<i>Coccomyxa SCHMIDLE</i> spp.	CELL	26.3
13/04/2015	BROT	DIND	<i>Dinobryon divergens</i> IMHOF 1887	COLO	3.4
13/04/2015	BROT	DIND	<i>Dinobryon divergens</i> IMHOF 1887	CELL	29.8
13/04/2015	BROT	DIND	<i>Dinobryon divergens</i> IMHOF 1887	CYST	0.3
13/04/2015	BROT	DINV	<i>Dinobryon bavaricum</i> IMHOF 1890	COLO	0.7
13/04/2015	BROT	DINV	<i>Dinobryon bavaricum</i> IMHOF 1890	CELL	2.4
13/04/2015	BROT	GYMS	<i>Gymnodinium STEIN</i> 1878 sp. (small)	CELL	13.7
13/04/2015	BROT	GYMN	<i>Gymnodinium STEIN</i> 1878 sp.	CELL	0.3
13/04/2015	BROT	STAR	<i>Staurodesmus TELLING</i> sp.	CELL	0.3
13/04/2015	BROT	MERI	<i>Meridion</i> spp. AGARDH	CELL	0.3
13/04/2015	BROT	PENN	Pennate diatoms	CELL	0.3
13/04/2015	BROT	CRYP	<i>Cryptomonas EHRENBERG</i> 1838 spp.	CELL	2.4
13/04/2015	BROT	NISY	<i>Nitzschia /Synedra</i> (uncertain which)	CELL	13.3
13/04/2015	BROT	MONO	<i>Monoraphidium contortum</i> (THURET) KOMÁRKOVÁ-LEGNEROVÁ 1969	CELL	0.3
13/04/2015	BROT	KOLI	<i>Koliella spiculiformis</i> (VISCHER) HINDAK	CELL	0.3
13/04/2015	BROT	TABF	<i>Tabellaria flocculosa</i> (ROTH) KÜTZING 1844 var. <i>flocculosa</i>	COLO	1.4
13/04/2015	BROT	TABF	<i>Tabellaria flocculosa</i> (ROTH) KÜTZING 1844 var. <i>flocculosa</i>	CELL	3.4
13/04/2015	BROT	TABF	<i>Tabellaria flocculosa</i> (ROTH) KÜTZING 1844 var. <i>flocculosa</i>	DEAD	1.4
13/04/2015	BROT	TABV	<i>Tabellaria flocculosa</i> (ROTH) KÜTZING 1844 var. other than <i>asterionelloides</i> or <i>flocculosa</i> (mainly zig zag formation)	COLO	0.3

Date	Lake	Alga	Algal name	Form	Value cm ⁻³
13/04/2015	BROT	TABV	Tabellaria flocculosa (ROTH) KÜTZING 1844 var. other than asterionelloides or flocculosa (mainly zig zag formation)	CELL	1.7
13/04/2015	BROT	RHOD	Rhodomonas KARSTEN sp.	CELL	105.1
13/04/2015	BROT	CHRP	Chrysochromulina parva LACKEY 1939	CELL	5.3
13/04/2015	BROT	CHLA	Chlamydomonas EHRENBERG 1833 sp.	CELL	5.3
13/04/2015	BROT	CHLO	Chlorella BEIJERINCK 1890 sp.	CELL	184
13/04/2015	BROT	CYCT	Cyclotella KÜTZING EX BRÉBISSON 1838 sp.	CELL	21
13/04/2015	BROT	UNCP	Unidentified cell	CELL	36.8
13/04/2015	BROT	UNMF	Unidentified small monoflagellates	CELL	15.8
13/04/2015	BROT	UROS	Urosolenia ROUND & CRAWFORD	CELL	5.3
13/04/2015	BROT	ACHN	Achnanthes BORY 1822 sp.	CELL	5.3
16/04/2015	BUTT	GYMS	Gymnodinium STEIN 1878 sp. (small)	CELL	1.5
16/04/2015	BUTT	GYML	Gymnodinium STEIN 1878 sp. (large)	CELL	0.3
16/04/2015	BUTT	NISY	Nitzschia /Synedra (uncertain which)	CELL	2.5
16/04/2015	BUTT	KOLL	Koliella longiseta HINDÁK 1963	CELL	1
16/04/2015	BUTT	CRYP	Cryptomonas EHRENBERG 1838 spp.	CELL	2.3
16/04/2015	BUTT	LEPC	Lepocinclis sp.	CELL	1.5
16/04/2015	BUTT	STAI	Staurastrum cingulum (W & G.S.WEST) G.M.SMITH 1922	CELL	1
16/04/2015	BUTT	XANT	Xanthidium EHRENBERG sp.	CELL	1.3
16/04/2015	BUTT	MERI	Meridion spp. AGARDH	CELL	0.3
16/04/2015	BUTT	PENN	Pennate diatoms	CELL	0.5
16/04/2015	BUTT	PERS	Peridinium EHRENBERG 1832 sp. (small) (25um cbut, csre)	CELL	0.8
16/04/2015	BUTT	CYCC	Cyclotella comensis GRUNOW IN VAN HEURCK 1882	FILA	18.2
16/04/2015	BUTT	CYCC	Cyclotella comensis GRUNOW IN VAN HEURCK 1882	CELL	61.6
16/04/2015	BUTT	CYCC	Cyclotella comensis GRUNOW IN VAN HEURCK 1882	DEAD	1
16/04/2015	BUTT	TABF	Tabellaria flocculosa (ROTH) KÜTZING 1844 var. flocculosa	COLO	0.8
16/04/2015	BUTT	TABF	Tabellaria flocculosa (ROTH) KÜTZING 1844 var. flocculosa	CELL	4.8
16/04/2015	BUTT	ELAK	Elakatothrix WILLE sp.	COLO	2.5
16/04/2015	BUTT	ELAK	Elakatothrix WILLE sp.	CELL	4.8
16/04/2015	BUTT	OOCY	Oocystis NÄGELI emend. FOTT sp.	COLO	0.3
16/04/2015	BUTT	OOCY	Oocystis NÄGELI emend. FOTT sp.	CELL	1
16/04/2015	BUTT	COEF	Coenochloris fottii (HINDÁK) TSARENKO 1990	COLO	0.3
16/04/2015	BUTT	COEF	Coenochloris fottii (HINDÁK) TSARENKO 1990	CELL	4.5
16/04/2015	BUTT	PLAA	Planktothrix agardhii (GOMONT) ANAGNOSTIDIS & C845 1988	FILA	0.3
16/04/2015	BUTT	PLAA	Planktothrix agardhii (GOMONT) ANAGNOSTIDIS & C845 1988	LENG	0.03
16/04/2015	BUTT	APHC	Aphanothece clathrata WEST & G.S.WEST 1906	COLO	0.8
16/04/2015	BUTT	UNBG	Unidentified blue-green	CELL	2123.5
16/04/2015	BUTT	RHOD	Rhodomonas KARSTEN sp.	CELL	26.3
16/04/2015	BUTT	CHLO	Chlorella BEIJERINCK 1890 sp.	CELL	304.9
16/04/2015	BUTT	UROG	Uroglena EHRENBERG (1833) 1835 sp.	CELL	5.3
16/04/2015	BUTT	MALA	Mallomonas akrokomas RUTTNER IN PASCHER 1913	CELL	26.3
16/04/2015	BUTT	MALL	Mallomonas PERTY 1851 sp.	CELL	5.3
16/04/2015	BUTT	CHRM	Chromulina CIENKOWSKI sp.	CELL	10.5
14/04/2015	CONI	ASTF	Asterionella formosa HASSALL 1855	COLO	344.3
14/04/2015	CONI	ASTF	Asterionella formosa HASSALL 1855	CELL	959.9
14/04/2015	CONI	ASTF	Asterionella formosa HASSALL 1855	DEAD	264.5
14/04/2015	CONI	AULS	Aulacoseira subarctica (O MÜLLER) E Y HAWORTH 1988	FILA	101.6
14/04/2015	CONI	AULS	Aulacoseira subarctica (O MÜLLER) E Y HAWORTH 1988	CELL	803.2
14/04/2015	CONI	AULS	Aulacoseira subarctica (O MÜLLER) E Y HAWORTH 1988	DEAD	28.3
14/04/2015	CONI	CRYP	Cryptomonas EHRENBERG 1838 spp.	CELL	10.6
14/04/2015	CONI	MONO	Monoraphidium contortum (THURET) KOMÁRKOVÁ-LEGNEROVÁ 1969	CELL	23.3
14/04/2015	CONI	NISY	Nitzschia /Synedra (uncertain which)	CELL	0.3
14/04/2015	CONI	PERS	Peridinium EHRENBERG 1832 sp. (small) (25um cbut, csre)	CELL	0.3
14/04/2015	CONI	CYCT	Cyclotella KÜTZING EX BRÉBISSON 1838 sp.	CELL	26
14/04/2015	CONI	CYCT	Cyclotella KÜTZING EX BRÉBISSON 1838 sp.	DEAD	12.3

Date	Lake	Alga	Algal name	Form	Value cm ⁻³
14/04/2015	CONI	CYCB	Cyclotella KÜTZING EX BRÉBISSON 1838 sp. (big)	CELL	2.4
14/04/2015	CONI	PENN	Pennate diatoms	CELL	0.3
14/04/2015	CONI	OOCY	Oocystis NÄGELI emend. FOTT sp.	COLO	0.3
14/04/2015	CONI	OOCY	Oocystis NÄGELI emend. FOTT sp.	CELL	1.4
14/04/2015	CONI	COEF	Coenochloris fottii (HINDÁK) TSARENKO 1990	COLO	1
14/04/2015	CONI	COEF	Coenochloris fottii (HINDÁK) TSARENKO 1990	CELL	9.6
14/04/2015	CONI	TABV	Tabellaria flocculosa (ROTH) KÜTZING 1844 var. other than asterionelloides or flocculosa (mainly zig zag formation)	COLO	2.1
14/04/2015	CONI	TABV	Tabellaria flocculosa (ROTH) KÜTZING 1844 var. other than asterionelloides or flocculosa (mainly zig zag formation)	CELL	22.9
14/04/2015	CONI	TABV	Tabellaria flocculosa (ROTH) KÜTZING 1844 var. other than asterionelloides or flocculosa (mainly zig zag formation)	DEAD	1.4
14/04/2015	CONI	CYCC	Cyclotella comensis GRUNOW IN VAN HEURCK 1882	FILA	1.7
14/04/2015	CONI	CYCC	Cyclotella comensis GRUNOW IN VAN HEURCK 1882	CELL	6.5
14/04/2015	CONI	PSEL	Pseudanabaena limnetica (LEMMERMANN) KOMÁREK	FILA	8.9
14/04/2015	CONI	PSEL	Pseudanabaena limnetica (LEMMERMANN) KOMÁREK	LENG	1.823
14/04/2015	CONI	PLAA	Planktothrix agardhii (GOMONT) ANAGNOSTIDIS & C845 1988	FILA	1.7
14/04/2015	CONI	PLAA	Planktothrix agardhii (GOMONT) ANAGNOSTIDIS & C845 1988	LENG	1.056
14/04/2015	CONI	RHOD	Rhodomonas KARSTEN sp.	CELL	131.4
14/04/2015	CONI	CHLA	Chlamydomonas EHRENBERG 1833 sp.	CELL	10.5
14/04/2015	CONI	CHLO	Chlorella BEIJERINCK 1890 sp.	CELL	268.5
14/04/2015	CONI	UROS	Urosolenia ROUND & CRAWFORD	CELL	57.8
14/04/2015	CONI	UROS	Urosolenia ROUND & CRAWFORD	DEAD	31.5
14/04/2015	CONI	UROG	Uroglena EHRENBERG (1833) 1835 sp.	CELL	5.3
16/04/2015	CRUM	ASTF	Asterionella formosa HASSALL 1855	COLO	150.5
16/04/2015	CRUM	ASTF	Asterionella formosa HASSALL 1855	CELL	647.1
16/04/2015	CRUM	ASTF	Asterionella formosa HASSALL 1855	DEAD	82.1
16/04/2015	CRUM	AULS	Aulacoseira subarctica (O MÜLLER) E Y HAWORTH 1988	FILA	31.5
16/04/2015	CRUM	AULS	Aulacoseira subarctica (O MÜLLER) E Y HAWORTH 1988	CELL	355.7
16/04/2015	CRUM	AULS	Aulacoseira subarctica (O MÜLLER) E Y HAWORTH 1988	DEAD	16.1
16/04/2015	CRUM	CYCC	Cyclotella comensis GRUNOW IN VAN HEURCK 1882	FILA	23.6
16/04/2015	CRUM	CYCC	Cyclotella comensis GRUNOW IN VAN HEURCK 1882	CELL	55.4
16/04/2015	CRUM	CYCC	Cyclotella comensis GRUNOW IN VAN HEURCK 1882	DEAD	1
16/04/2015	CRUM	TABV	Tabellaria flocculosa (ROTH) KÜTZING 1844 var. other than asterionelloides or flocculosa (mainly zig zag formation)	COLO	0.3
16/04/2015	CRUM	TABV	Tabellaria flocculosa (ROTH) KÜTZING 1844 var. other than asterionelloides or flocculosa (mainly zig zag formation)	CELL	1.4
16/04/2015	CRUM	TABF	Tabellaria flocculosa (ROTH) KÜTZING 1844 var. flocculosa	COLO	0.3
16/04/2015	CRUM	TABF	Tabellaria flocculosa (ROTH) KÜTZING 1844 var. flocculosa	CELL	0.7
16/04/2015	CRUM	TABF	Tabellaria flocculosa (ROTH) KÜTZING 1844 var. flocculosa	DEAD	0.3
16/04/2015	CRUM	CYCT	Cyclotella KÜTZING EX BRÉBISSON 1838 sp.	CELL	4.4
16/04/2015	CRUM	CYCT	Cyclotella KÜTZING EX BRÉBISSON 1838 sp.	DEAD	1.7
16/04/2015	CRUM	CYCB	Cyclotella KÜTZING EX BRÉBISSON 1838 sp. (big)	CELL	0.3
16/04/2015	CRUM	KOLL	Koliella longiseta HINDÁK 1963	CELL	2.7
16/04/2015	CRUM	NISY	Nitzschia /Synedra (uncertain which)	CELL	7.2
16/04/2015	CRUM	MONO	Monoraphidium contortum (THURET) KOMÁRKOVÁ-LEGNEROVÁ 1969	CELL	11.3
16/04/2015	CRUM	PENN	Pennate diatoms	CELL	0.7
16/04/2015	CRUM	PERS	Peridinium EHRENBERG 1832 sp. (small) (25um cbut, csre)	CELL	0.3
16/04/2015	CRUM	MALL	Mallomonas PERTY 1851 sp.	CELL	0.7
16/04/2015	CRUM	GYMS	Gymnodinium STEIN 1878 sp. (small)	CELL	0.7
16/04/2015	CRUM	CRYP	Cryptomonas EHRENBERG 1838 spp.	CELL	2.1
16/04/2015	CRUM	OOCY	Oocystis NÄGELI emend. FOTT sp.	COLO	0.3
16/04/2015	CRUM	OOCY	Oocystis NÄGELI emend. FOTT sp.	CELL	0.7
16/04/2015	CRUM	ELAK	Elakatothrix WILLE sp.	COLO	1
16/04/2015	CRUM	ELAK	Elakatothrix WILLE sp.	CELL	1.7
16/04/2015	CRUM	WORN	Woronichinia naegeliana (UNGER) ELENKIN 1933	COLO	0.3
16/04/2015	CRUM	SNOL	Snowella lacustris (CHODAT) KOMÁREK & HINDÁK 1988	COLO	0.3

Date	Lake	Alga	Algal name	Form	Value cm ⁻³
16/04/2015	CRUM	PLAA	Planktothrix agardhii (GOMONT) ANAGNOSTIDIS & C845 1988	FILA	3.1
16/04/2015	CRUM	PLAA	Planktothrix agardhii (GOMONT) ANAGNOSTIDIS & C845 1988	LENG	1.438
16/04/2015	CRUM	RHOD	Rhodomonas KARSTEN sp.	CELL	26.3
16/04/2015	CRUM	CHRP	Chrysochromulina parva LACKEY 1939	CELL	21
16/04/2015	CRUM	CHLA	Chlamydomonas EHRENBERG 1833 sp.	CELL	5.3
16/04/2015	CRUM	CHLO	Chlorella BEIJERINCK 1890 sp.	CELL	325.9
16/04/2015	CRUM	UROS	Urosolenia ROUND & CRAWFORD	CELL	63.1
16/04/2015	CRUM	UROS	Urosolenia ROUND & CRAWFORD	DEAD	10.5
16/04/2015	CRUM	UNBG	Unidentified blue-green	CELL	226.1
16/04/2015	DERW	MONO	Monoraphidium contortum (THURET) KOMÁRKOVÁ-LEGNEROVÁ 1969	CELL	112.9
16/04/2015	DERW	MONT	Monoraphidium arcuatum (KORSHIKOV) HINDÁK 1970	CELL	3.4
16/04/2015	DERW	CRYP	Cryptomonas EHRENBERG 1838 spp.	CELL	7.9
16/04/2015	DERW	KOLI	Koliella spiculiformis (VISCHER) HINDAK	CELL	9.9
16/04/2015	DERW	PENN	Pennate diatoms	CELL	1.4
16/04/2015	DERW	CYCB	Cyclotella KÜTZING EX BRÉBISSON 1838 sp. (big)	CELL	8.9
16/04/2015	DERW	CYCB	Cyclotella KÜTZING EX BRÉBISSON 1838 sp. (big)	DEAD	0.7
16/04/2015	DERW	XANT	Xanthidium EHRENBERG sp.	CELL	1.7
16/04/2015	DERW	PERS	Peridinium EHRENBERG 1832 sp. (small) (25um cbut, csre)	CELL	1.4
16/04/2015	DERW	GYMS	Gymnodinium STEIN 1878 sp. (small)	CELL	1.4
16/04/2015	DERW	NISY	Nitzschia /Synedra (uncertain which)	CELL	8.2
16/04/2015	DERW	NISY	Nitzschia /Synedra (uncertain which)	DEAD	1
16/04/2015	DERW	ASTF	Asterionella formosa HASSALL 1855	COLO	13
16/04/2015	DERW	ASTF	Asterionella formosa HASSALL 1855	CELL	55.4
16/04/2015	DERW	ASTF	Asterionella formosa HASSALL 1855	DEAD	16.4
16/04/2015	DERW	AULS	Aulacoseira subarctica (O MÜLLER) E Y HAWORTH 1988	FILA	5.1
16/04/2015	DERW	AULS	Aulacoseira subarctica (O MÜLLER) E Y HAWORTH 1988	CELL	93.4
16/04/2015	DERW	AULS	Aulacoseira subarctica (O MÜLLER) E Y HAWORTH 1988	DEAD	2.1
16/04/2015	DERW	TABV	Tabellaria flocculosa (ROTH) KÜTZING 1844 var. other than asterionelloides or flocculosa (mainly zig zag formation)	COLO	0.7
16/04/2015	DERW	TABV	Tabellaria flocculosa (ROTH) KÜTZING 1844 var. other than asterionelloides or flocculosa (mainly zig zag formation)	CELL	9.6
16/04/2015	DERW	TABF	Tabellaria flocculosa (ROTH) KÜTZING 1844 var. flocculosa	COLO	0.7
16/04/2015	DERW	TABF	Tabellaria flocculosa (ROTH) KÜTZING 1844 var. flocculosa	CELL	1.7
16/04/2015	DERW	TABF	Tabellaria flocculosa (ROTH) KÜTZING 1844 var. flocculosa	DEAD	0.7
16/04/2015	DERW	DINV	Dinobryon bavaricum IMHOF 1890	COLO	10.9
16/04/2015	DERW	DINV	Dinobryon bavaricum IMHOF 1890	CELL	174.9
16/04/2015	DERW	DINV	Dinobryon bavaricum IMHOF 1890	CYST	105.2
16/04/2015	DERW	DIND	Dinobryon divergens IMHOF 1887	COLO	3.4
16/04/2015	DERW	DIND	Dinobryon divergens IMHOF 1887	CELL	16.8
16/04/2015	DERW	PSEG	Pseudosphaerocystis sp.	COLO	6.5
16/04/2015	DERW	PSEG	Pseudosphaerocystis sp.	CELL	278.6
16/04/2015	DERW	ELAK	Elakatothrix WILLE sp.	COLO	2.1
16/04/2015	DERW	ELAK	Elakatothrix WILLE sp.	CELL	3.1
16/04/2015	DERW	DICI	Dictyosphaerium NÄGELI sp.	COLO	1
16/04/2015	DERW	DICI	Dictyosphaerium NÄGELI sp.	CELL	13.7
16/04/2015	DERW	COEF	Coenochloris fottii (HINDÁK) TSARENKO 1990	COLO	1
16/04/2015	DERW	COEF	Coenochloris fottii (HINDÁK) TSARENKO 1990	CELL	13.7
16/04/2015	DERW	SPON	Spondylosium BREBISSON sp.	FILA	0.3
16/04/2015	DERW	SPON	Spondylosium BREBISSON sp.	CELL	3.8
16/04/2015	DERW	RHOD	Rhodomonas KARSTEN sp.	CELL	99.9
16/04/2015	DERW	CHLA	Chlamydomonas EHRENBERG 1833 sp.	CELL	5.3
16/04/2015	DERW	CHLO	Chlorella BEIJERINCK 1890 sp.	CELL	522.4
16/04/2015	DERW	SYNC	Syncrypta spp. EHRENBERG	CELL	15.8
16/04/2015	DERW	KEPH	Kephyrion PASCHER 1911 sp.	CELL	36.8
16/04/2015	DERW	UROS	Urosolenia ROUND & CRAWFORD	CELL	42
16/04/2015	DERW	MALA	Mallomonas akrokomas RUTTNER IN PASCHER 1913	CELL	26.3

Date	Lake	Alga	Algal name	Form	Value cm ⁻³
09/04/2015	ELTE	CRYP	Cryptomonas EHRENBERG 1838 spp.	CELL	116.3
09/04/2015	ELTE	CRYL	Cryptomonas EHRENBERG 1838 spp. 'large' (C. curvirostrata ?)	CELL	5.9
09/04/2015	ELTE	PERM	Peridinium EHRENBERG 1832 sp. (medium)	CELL	11.3
09/04/2015	ELTE	PERS	Peridinium EHRENBERG 1832 sp. (small) (25um cbut, csre)	CELL	5.8
09/04/2015	ELTE	GYMS	Gymnodinium STEIN 1878 sp. (small)	CELL	1.7
09/04/2015	ELTE	GYML	Gymnodinium STEIN 1878 sp. (large)	CELL	2.1
09/04/2015	ELTE	SYNM	Synedra EHRENBERG 1830 sp. (medium)	CELL	25
09/04/2015	ELTE	NISY	Nitzschia /Synedra (uncertain which)	CELL	10.9
09/04/2015	ELTE	KOLI	Koliella spiculiformis (VISCHER) HINDAK	CELL	25
09/04/2015	ELTE	KOLL	Koliella longiseta HINDÁK 1963	CELL	5.8
09/04/2015	ELTE	TRAO	Trachelomonas volvocina EHRENBERG 1833	CELL	0.7
09/04/2015	ELTE	DIND	Dinobryon divergens IMHOF 1887	COLO	22.2
09/04/2015	ELTE	DIND	Dinobryon divergens IMHOF 1887	CELL	157
09/04/2015	ELTE	DIND	Dinobryon divergens IMHOF 1887	CYST	9.9
09/04/2015	ELTE	SYNC	Syncrypta spp. EHRENBERG	COLO	4.1
09/04/2015	ELTE	SYNC	Syncrypta spp. EHRENBERG	CELL	192.2
09/04/2015	ELTE	ASTF	Asterionella formosa HASSALL 1855	COLO	5.5
09/04/2015	ELTE	ASTF	Asterionella formosa HASSALL 1855	CELL	5.8
09/04/2015	ELTE	ASTF	Asterionella formosa HASSALL 1855	DEAD	2.1
09/04/2015	ELTE	DIAT	Diatoma DE CANDOLLE 1805 sp.	COLO	0.3
09/04/2015	ELTE	DIAT	Diatoma DE CANDOLLE 1805 sp.	CELL	1.4
09/04/2015	ELTE	CLOS	Closterium NITZSCH spp.	CELL	1.4
09/04/2015	ELTE	GONS	Gonium sociale (DUJARDIN) WARMING	COLO	1.4
09/04/2015	ELTE	GONS	Gonium sociale (DUJARDIN) WARMING	CELL	5.5
09/04/2015	ELTE	MERI	Meridion spp. AGARDH	CELL	0.3
09/04/2015	ELTE	SCEN	Scenedesmus MEYEN 1829 sp.	COLO	0.3
09/04/2015	ELTE	SCEN	Scenedesmus MEYEN 1829 sp.	CELL	1.4
09/04/2015	ELTE	PSEL	Pseudanabaena limnetica (LEMMERMANN) KOMÁREK	FILA	0.7
09/04/2015	ELTE	PSEL	Pseudanabaena limnetica (LEMMERMANN) KOMÁREK	LENG	0.127
09/04/2015	ELTE	RHOD	Rhodomonas KARSTEN sp.	CELL	89.4
09/04/2015	ELTE	CHRP	Chrysochromulina parva LACKEY 1939	CELL	10.5
09/04/2015	ELTE	CHLA	Chlamydomonas EHRENBERG 1833 sp.	CELL	5.3
09/04/2015	ELTE	CHLO	Chlorella BEIJERINCK 1890 sp.	CELL	525.6
09/04/2015	ELTE	CHRS	Chrysococcus KLEBS 1892 sp.	CELL	21
09/04/2015	ELTE	UROS	Urosolenia ROUND & CRAWFORD	CELL	141.9
09/04/2015	ELTE	UNCP	Unidentified cell	CELL	131.4
09/04/2015	ELTE	MONY	Monoraphidium dybowskii (WOLASYNSKA) HINDAK & KOMARKOVA - LEGENEROVA	CELL	5.3
09/04/2015	ELTE	TETM	Tetraedron minimum (A.BRAUN) HANSGIRG	CELL	5.3
09/04/2015	ELTE	SYNU	Synura EHRENBERG 1838 sp.	COLO	5.3
09/04/2015	ELTE	SYNU	Synura EHRENBERG 1838 sp.	CELL	84.1
09/04/2015	ELTE	DINV	Dinobryon bavaricum IMHOF 1890	COLO	10.5
09/04/2015	ELTE	DINV	Dinobryon bavaricum IMHOF 1890	CELL	78.8
15/04/2015	ENNE	CYCS	Cyclotella KÜTZING EX BRÉBISSON 1838 sp. (small)	CELL	15.7
15/04/2015	ENNE	CYCS	Cyclotella KÜTZING EX BRÉBISSON 1838 sp. (small)	DEAD	9.4
15/04/2015	ENNE	CYCC	Cyclotella comensis GRUNOW IN VAN HEURCK 1882	FILA	1.4
15/04/2015	ENNE	CYCC	Cyclotella comensis GRUNOW IN VAN HEURCK 1882	CELL	4.6
15/04/2015	ENNE	CHAC	Characium spp. - A.BRAUN	CELL	0.6
15/04/2015	ENNE	NISY	Nitzschia /Synedra (uncertain which)	CELL	1.4
15/04/2015	ENNE	GYMS	Gymnodinium STEIN 1878 sp. (small)	CELL	3.7
15/04/2015	ENNE	CRYP	Cryptomonas EHRENBERG 1838 spp.	CELL	0.3
15/04/2015	ENNE	RHOD	Rhodomonas KARSTEN sp.	CELL	5.3
15/04/2015	ENNE	CHLO	Chlorella BEIJERINCK 1890 sp.	CELL	105.1
15/04/2015	ENNE	MONY	Monoraphidium dybowskii (WOLASYNSKA) HINDAK & KOMARKOVA - LEGENEROVA	CELL	5.3
14/04/2015	ESTH	ASTF	Asterionella formosa HASSALL 1855	COLO	287.3

Date	Lake	Alga	Algal name	Form	Value cm ⁻³
14/04/2015	ESTH	ASTF	Asterionella formosa HASSALL 1855	CELL	916.6
14/04/2015	ESTH	ASTF	Asterionella formosa HASSALL 1855	DEAD	38.8
14/04/2015	ESTH	PLAS	Planktothrix sp.	FILA	162.5
14/04/2015	ESTH	PLAS	Planktothrix sp.	LENG	70.467
14/04/2015	ESTH	CRYP	Cryptomonas EHRENBERG 1838 spp.	CELL	18.5
14/04/2015	ESTH	CRYL	Cryptomonas EHRENBERG 1838 spp. 'large' (C. curvirostrata ?)	CELL	0.3
14/04/2015	ESTH	NISY	Nitzschia /Synedra (uncertain which)	CELL	6.2
14/04/2015	ESTH	PERS	Peridinium EHRENBERG 1832 sp. (small) (25um cbut, csre)	CELL	1.7
14/04/2015	ESTH	SYNA	Synedra acus KÜTZING 1844	CELL	2.1
14/04/2015	ESTH	MONO	Monoraphidium contortum (THURET) KOMÁRKOVÁ-LEGNEROVÁ 1969	CELL	1.4
14/04/2015	ESTH	GYMS	Gymnodinium STEIN 1878 sp. (small)	CELL	0.3
14/04/2015	ESTH	MALC	Mallomonas caudata IVANOV 1899	CELL	1.4
14/04/2015	ESTH	KOLI	Koliella spiculiformis (VISCHER) HINDAK	CELL	1.7
14/04/2015	ESTH	CERH	Ceratium hirundinella (OF MÜLLER) DUJARDIN 1846 (included C. furcoides until 1983-1984, check individual lakes)	CELL	0.7
14/04/2015	ESTH	AULS	Aulacoseira subarctica (O MÜLLER) E Y HAWORTH 1988	FILA	38.3
14/04/2015	ESTH	AULS	Aulacoseira subarctica (O MÜLLER) E Y HAWORTH 1988	CELL	240.1
14/04/2015	ESTH	AULS	Aulacoseira subarctica (O MÜLLER) E Y HAWORTH 1988	DEAD	13
14/04/2015	ESTH	FRAC	Fragilaria crotonensis KITTON 1869 (var. crotonensis and var. prolongata until 1993 when var. prol coded ě FRAT)	FILA	16.8
14/04/2015	ESTH	FRAC	Fragilaria crotonensis KITTON 1869 (var. crotonensis and var. prolongata until 1993 when var. prol coded ě FRAT)	CELL	161.4
14/04/2015	ESTH	FRAC	Fragilaria crotonensis KITTON 1869 (var. crotonensis and var. prolongata until 1993 when var. prol coded ě FRAT)	DEAD	9.6
14/04/2015	ESTH	PSEG	Pseudosphaerocystis sp.	COLO	1.7
14/04/2015	ESTH	PSEG	Pseudosphaerocystis sp.	CELL	32.8
14/04/2015	ESTH	GONS	Gonium sociale (DUJARDIN) WARMING	COLO	0.7
14/04/2015	ESTH	GONS	Gonium sociale (DUJARDIN) WARMING	CELL	2.7
14/04/2015	ESTH	COEF	Coenochloris fottii (HINDÁK) TSARENKO 1990	COLO	0.7
14/04/2015	ESTH	COEF	Coenochloris fottii (HINDÁK) TSARENKO 1990	CELL	4.1
14/04/2015	ESTH	DICI	Dictyosphaerium NÄGELI sp.	COLO	0.3
14/04/2015	ESTH	DICI	Dictyosphaerium NÄGELI sp.	CELL	5.5
14/04/2015	ESTH	MELV	Melosira varians AGARDH 1827	FILA	0.7
14/04/2015	ESTH	MELV	Melosira varians AGARDH 1827	CELL	15.4
14/04/2015	ESTH	MELV	Melosira varians AGARDH 1827	DEAD	0.7
14/04/2015	ESTH	AULM	Aulacoseira ambigua	FILA	1
14/04/2015	ESTH	AULM	Aulacoseira ambigua	CELL	9.2
14/04/2015	ESTH	AULM	Aulacoseira ambigua	DEAD	0.7
14/04/2015	ESTH	ELAK	Elakatothrix WILLE sp.	COLO	1.7
14/04/2015	ESTH	ELAK	Elakatothrix WILLE sp.	CELL	2.4
14/04/2015	ESTH	APHF	Aphanizomenon flos-aquae (LINNAEUS) RALFS	FILA	38.3
14/04/2015	ESTH	APHF	Aphanizomenon flos-aquae (LINNAEUS) RALFS	LENG	7.035
14/04/2015	ESTH	PSEU	Pseudanabaena LAUTERBORN 1915 sp.	FILA	0.3
14/04/2015	ESTH	PSEU	Pseudanabaena LAUTERBORN 1915 sp.	LENG	0.06
14/04/2015	ESTH	RHOD	Rhodomonas KARSTEN sp.	CELL	331.1
14/04/2015	ESTH	CHRP	Chrysochromulina parva LACKEY 1939	CELL	5.3
14/04/2015	ESTH	CHLA	Chlamydomonas EHRENBERG 1833 sp.	CELL	10.5
14/04/2015	ESTH	CHLO	Chlorella BEIJERINCK 1890 sp.	CELL	162.9
14/04/2015	ESTH	TETR	Tetraspora LINK sp.	COLO	5.3
14/04/2015	ESTH	TETR	Tetraspora LINK sp.	CELL	21
14/04/2015	ESTH	UROG	Uroglena EHRENBERG (1833) 1835 sp.	CELL	31.5
14/04/2015	ESTH	OCHR	Ochromonas WYSSOTSKI sp.	CELL	5.3
14/04/2015	ESTH	UROS	Urosolenia ROUND & CRAWFORD	CELL	10.5
14/04/2015	ESTH	MONY	Monoraphidium dybowskii (WOLASYNSKA) HINDAK & KOMARKOVA - LEGENEROVA	CELL	10.5
14/04/2015	ESTH	CHRS	Chrysococcus KLEBS 1892 sp.	CELL	5.3
13/04/2015	GRAS	ASTF	Asterionella formosa HASSALL 1855	COLO	126.5

Date	Lake	Alga	Algal name	Form	Value cm ⁻³
13/04/2015	GRAS	ASTF	Asterionella formosa HASSALL 1855	CELL	442.3
13/04/2015	GRAS	ASTF	Asterionella formosa HASSALL 1855	DEAD	17.1
13/04/2015	GRAS	CRYP	Cryptomonas EHRENBERG 1838 spp.	CELL	8.6
13/04/2015	GRAS	NISY	Nitzschia /Synedra (uncertain which)	CELL	37.3
13/04/2015	GRAS	KOLI	Koliella spiculiformis (VISCHER) HINDAK	CELL	38
13/04/2015	GRAS	KOLL	Koliella longiseta HINDÁK 1963	CELL	0.7
13/04/2015	GRAS	MONO	Monoraphidium contortum (THURET) KOMÁRKOVÁ-LEGNEROVÁ 1969	CELL	1.4
13/04/2015	GRAS	MONT	Monoraphidium arcuatum (KORSHIKOV) HINDÁK 1970	CELL	0.3
13/04/2015	GRAS	PERM	Peridinium EHRENBERG 1832 sp. (medium)	CELL	2.4
13/04/2015	GRAS	PERS	Peridinium EHRENBERG 1832 sp. (small) (25um cbut, csre)	CELL	2.1
13/04/2015	GRAS	CYCT	Cyclotella KÜTZING EX BRÉBISSON 1838 sp.	CELL	1.4
13/04/2015	GRAS	GYMS	Gymnodinium STEIN 1878 sp. (small)	CELL	0.3
13/04/2015	GRAS	AULS	Aulacoseira subarctica (O MÜLLER) E Y HAWORTH 1988	FILA	1
13/04/2015	GRAS	AULS	Aulacoseira subarctica (O MÜLLER) E Y HAWORTH 1988	CELL	4.4
13/04/2015	GRAS	DIND	Dinobryon divergens IMHOF 1887	COLO	16.4
13/04/2015	GRAS	DIND	Dinobryon divergens IMHOF 1887	CELL	160.4
13/04/2015	GRAS	PSEG	Pseudosphaerocystis sp.	COLO	0.7
13/04/2015	GRAS	PSEG	Pseudosphaerocystis sp.	CELL	10.9
13/04/2015	GRAS	TABV	Tabellaria flocculosa (ROTH) KÜTZING 1844 var. other than asterionelloides or flocculosa (mainly zig zag formation)	COLO	3.4
13/04/2015	GRAS	TABV	Tabellaria flocculosa (ROTH) KÜTZING 1844 var. other than asterionelloides or flocculosa (mainly zig zag formation)	CELL	19.8
13/04/2015	GRAS	SYNC	Syncrypta spp. EHRENBERG	COLO	0.3
13/04/2015	GRAS	SYNC	Syncrypta spp. EHRENBERG	CELL	5.5
13/04/2015	GRAS	SYNL	Synedra ulna (NITZSCH) EHRENBERG 1836	CELL	0.3
13/04/2015	GRAS	GONS	Gonium sociale (DUJARDIN) WARMING	COLO	1.4
13/04/2015	GRAS	GONS	Gonium sociale (DUJARDIN) WARMING	CELL	5.5
13/04/2015	GRAS	BASI	Basichlamys sacculifera	COLO	1
13/04/2015	GRAS	BASI	Basichlamys sacculifera	CELL	4.1
13/04/2015	GRAS	MERI	Meridion spp. AGARDH	CELL	0.3
13/04/2015	GRAS	PSEL	Pseudanabaena limnetica (LEMMERMANN) KOMÁREK	FILA	0.3
13/04/2015	GRAS	PSEL	Pseudanabaena limnetica (LEMMERMANN) KOMÁREK	LENG	0.134
13/04/2015	GRAS	PLAS	Planktothrix sp.	FILA	0.3
13/04/2015	GRAS	PLAS	Planktothrix sp.	LENG	0.02
13/04/2015	GRAS	RHOD	Rhodomonas KARSTEN sp.	CELL	283.8
13/04/2015	GRAS	CHRP	Chrysochromulina parva LACKEY 1939	CELL	5.3
13/04/2015	GRAS	CHLA	Chlamydomonas EHRENBERG 1833 sp.	CELL	52.6
13/04/2015	GRAS	CHLO	Chlorella BEIJERINCK 1890 sp.	CELL	615
13/04/2015	GRAS	OCHR	Ochromonas WYSSOTSKI sp.	CELL	10.5
13/04/2015	GRAS	UROS	Urosolenia ROUND & CRAWFORD	CELL	63.1
13/04/2015	GRAS	UROS	Urosolenia ROUND & CRAWFORD	DEAD	10.5
13/04/2015	GRAS	GOLR	Golenkinia radiata	CELL	10.5
13/04/2015	GRAS	MONY	Monoraphidium dybowskii (WOLASYNSKA) HINDAK & KOMARKOVA - LEGENEROVA	CELL	31.5
13/04/2015	GRAS	UROG	Uroglena EHRENBERG (1833) 1835 sp.	CELL	10.5
13/04/2015	GRAS	CHRM	Chromulina CIENKOWSKI sp.	CELL	5.3
13/04/2015	GRAS	SELG	Selenastrum gracile	CELL	16.8
08/04/2015	HAWE	CRYP	Cryptomonas EHRENBERG 1838 spp.	CELL	3.8
08/04/2015	HAWE	MONO	Monoraphidium contortum (THURET) KOMÁRKOVÁ-LEGNEROVÁ 1969	CELL	4.8
08/04/2015	HAWE	CYCB	Cyclotella KÜTZING EX BRÉBISSON 1838 sp. (big)	CELL	6.2
08/04/2015	HAWE	CYCB	Cyclotella KÜTZING EX BRÉBISSON 1838 sp. (big)	DEAD	1.7
08/04/2015	HAWE	SYNL	Synedra ulna (NITZSCH) EHRENBERG 1836	CELL	0.7
08/04/2015	HAWE	PERS	Peridinium EHRENBERG 1832 sp. (small) (25um cbut, csre)	CELL	0.3
08/04/2015	HAWE	PERS	Peridinium EHRENBERG 1832 sp. (small) (25um cbut, csre)	DEAD	0.3
08/04/2015	HAWE	PERM	Peridinium EHRENBERG 1832 sp. (medium)	CELL	0.3
08/04/2015	HAWE	PERM	Peridinium EHRENBERG 1832 sp. (medium)	DEAD	0.3

Date	Lake	Alga	Algal name	Form	Value cm ⁻³
08/04/2015	HAWE	GYMS	Gymnodinium STEIN 1878 sp. (small)	CELL	2.4
08/04/2015	HAWE	GYMA	Gymnodinium helveticum forma achroum SKUJA 1948	CELL	0.7
08/04/2015	HAWE	BOTB	Botryococcus braunii KÜTZING 1849	COLO	0.3
08/04/2015	HAWE	WORN	Woronichinia naegeliana (UNGER) ELENKIN 1933	COLO	0.3
08/04/2015	HAWE	AULS	Aulacoseira subarctica (O MÜLLER) E Y HAWORTH 1988	FILA	13
08/04/2015	HAWE	AULS	Aulacoseira subarctica (O MÜLLER) E Y HAWORTH 1988	CELL	107.4
08/04/2015	HAWE	AULS	Aulacoseira subarctica (O MÜLLER) E Y HAWORTH 1988	DEAD	4.4
08/04/2015	HAWE	ASTF	Asterionella formosa HASSALL 1855	COLO	6.5
08/04/2015	HAWE	ASTF	Asterionella formosa HASSALL 1855	CELL	39.7
08/04/2015	HAWE	ASTF	Asterionella formosa HASSALL 1855	DEAD	4.4
08/04/2015	HAWE	TABV	Tabellaria flocculosa (ROTH) KÜTZING 1844 var. other than asterionelloides or flocculosa (mainly zig zag formation)	COLO	1.7
08/04/2015	HAWE	TABV	Tabellaria flocculosa (ROTH) KÜTZING 1844 var. other than asterionelloides or flocculosa (mainly zig zag formation)	CELL	15
08/04/2015	HAWE	TABV	Tabellaria flocculosa (ROTH) KÜTZING 1844 var. other than asterionelloides or flocculosa (mainly zig zag formation)	DEAD	0.3
08/04/2015	HAWE	PLAS	Planktothrix sp.	FILA	0.3
08/04/2015	HAWE	PLAS	Planktothrix sp.	LENG	0.184
08/04/2015	HAWE	PSEL	Pseudanabaena limnetica (LEMMERMANN) KOMÁREK	FILA	0.3
08/04/2015	HAWE	PSEL	Pseudanabaena limnetica (LEMMERMANN) KOMÁREK	LENG	0.135
08/04/2015	HAWE	CYCC	Cyclotella comensis GRUNOW IN VAN HEURCK 1882	FILA	4.8
08/04/2015	HAWE	CYCC	Cyclotella comensis GRUNOW IN VAN HEURCK 1882	CELL	16.8
08/04/2015	HAWE	UROS	Urosolenia ROUND & CRAWFORD	CELL	0.3
08/04/2015	HAWE	RHOD	Rhodomonas KARSTEN sp.	CELL	389
08/04/2015	HAWE	CHRP	Chrysochromulina parva LACKEY 1939	CELL	10.5
08/04/2015	HAWE	CHLO	Chlorella BEIJERINCK 1890 sp.	CELL	851.5
08/04/2015	HAWE	CYCT	Cyclotella KÜTZING EX BRÉBISSON 1838 sp.	CELL	136.7
08/04/2015	HAWE	CYCT	Cyclotella KÜTZING EX BRÉBISSON 1838 sp.	CELL	26.3
08/04/2015	HAWE	OCHR	Ochromonas WYSSOTSKI sp.	CELL	10.5
09/04/2015	LOUG	ASTF	Asterionella formosa HASSALL 1855	COLO	855
09/04/2015	LOUG	ASTF	Asterionella formosa HASSALL 1855	CELL	1080.7
09/04/2015	LOUG	ASTF	Asterionella formosa HASSALL 1855	DEAD	718.2
09/04/2015	LOUG	PLAS	Planktothrix sp.	FILA	79
09/04/2015	LOUG	PLAS	Planktothrix sp.	LENG	30.052
09/04/2015	LOUG	CRYP	Cryptomonas EHRENBERG 1838 spp.	CELL	41.7
09/04/2015	LOUG	MONO	Monoraphidium contortum (THURET) KOMÁRKOVÁ-LEGNEROVÁ 1969	CELL	3.8
09/04/2015	LOUG	PERS	Peridinium EHRENBERG 1832 sp. (small) (25um cbut, csre)	CELL	10.3
09/04/2015	LOUG	PERS	Peridinium EHRENBERG 1832 sp. (small) (25um cbut, csre)	DEAD	0.3
09/04/2015	LOUG	KOLI	Koliella spiculiformis (VISCHER) HINDAK	CELL	0.7
09/04/2015	LOUG	MALL	Mallomonas PERTY 1851 sp.	CELL	0.7
09/04/2015	LOUG	MALC	Mallomonas caudata IVANOV 1899	CELL	0.3
09/04/2015	LOUG	CLST	Closterium (straight) cf AEIR Bleham	CELL	0.3
09/04/2015	LOUG	TRAO	Trachelomonas volvocina EHRENBERG 1833	CELL	1
09/04/2015	LOUG	NISY	Nitzschia /Synedra (uncertain which)	CELL	2.7
09/04/2015	LOUG	TETM	Tetraedron minimum (A.BRAUN) HANSGIRG	CELL	0.3
09/04/2015	LOUG	TETM	Tetraedron minimum (A.BRAUN) HANSGIRG	DEAD	0.7
09/04/2015	LOUG	SNOL	Snowella lacustris (CHODAT) KOMÁREK & HINDÁK 1988	COLO	0.3
09/04/2015	LOUG	BOTB	Botryococcus braunii KÜTZING 1849	COLO	0.3
09/04/2015	LOUG	TABF	Tabellaria flocculosa (ROTH) KÜTZING 1844 var. flocculosa	COLO	27.4
09/04/2015	LOUG	TABF	Tabellaria flocculosa (ROTH) KÜTZING 1844 var. flocculosa	CELL	235
09/04/2015	LOUG	TABF	Tabellaria flocculosa (ROTH) KÜTZING 1844 var. flocculosa	DEAD	4.1
09/04/2015	LOUG	FRAC	Fragilaria crotonensis KITTON 1869 (var. crotonensis and var. prolongata until 1993 when var. prol coded ; FRAT)	FILA	1.7
09/04/2015	LOUG	FRAC	Fragilaria crotonensis KITTON 1869 (var. crotonensis and var. prolongata until 1993 when var. prol coded ; FRAT)	CELL	27.4
09/04/2015	LOUG	FRAC	Fragilaria crotonensis KITTON 1869 (var. crotonensis and var. prolongata until 1993 when var. prol coded ; FRAT)	DEAD	1.7
09/04/2015	LOUG	AULS	Aulacoseira subarctica (O MÜLLER) E Y HAWORTH 1988	FILA	4.1

Date	Lake	Alga	Algal name	Form	Value cm ⁻³
09/04/2015	LOUG	AULS	Aulacoseira subarctica (O MÜLLER) E Y HAWORTH 1988	CELL	26.7
09/04/2015	LOUG	AULS	Aulacoseira subarctica (O MÜLLER) E Y HAWORTH 1988	DEAD	3.4
09/04/2015	LOUG	PSEG	Pseudosphaerocystis sp.	COLO	17.1
09/04/2015	LOUG	PSEG	Pseudosphaerocystis sp.	CELL	186
09/04/2015	LOUG	DIND	Dinobryon divergens IMHOF 1887	COLO	36.6
09/04/2015	LOUG	DIND	Dinobryon divergens IMHOF 1887	CELL	118.3
09/04/2015	LOUG	DIND	Dinobryon divergens IMHOF 1887	CYST	61.2
09/04/2015	LOUG	DINV	Dinobryon bavaricum IMHOF 1890	COLO	8.6
09/04/2015	LOUG	DINV	Dinobryon bavaricum IMHOF 1890	CELL	27
09/04/2015	LOUG	DINV	Dinobryon bavaricum IMHOF 1890	CYST	8.6
09/04/2015	LOUG	DICI	Dictyosphaerium NÄGELI sp.	COLO	4.4
09/04/2015	LOUG	DICI	Dictyosphaerium NÄGELI sp.	CELL	52
09/04/2015	LOUG	PAUT	Paulschulzia tenera (KORSHIKOV) LUND 1960	COLO	0.3
09/04/2015	LOUG	PAUT	Paulschulzia tenera (KORSHIKOV) LUND 1960	CELL	1.4
09/04/2015	LOUG	APHF	Aphanizomenon flos-aquae (LINNAEUS) RALFS	FILA	2.7
09/04/2015	LOUG	APHF	Aphanizomenon flos-aquae (LINNAEUS) RALFS	LENG	0.476
09/04/2015	LOUG	PSEL	Pseudanabaena limnetica (LEMMERMANN) KOMÁREK	FILA	0.3
09/04/2015	LOUG	PSEL	Pseudanabaena limnetica (LEMMERMANN) KOMÁREK	LENG	0.134
09/04/2015	LOUG	CYCT	Cyclotella KÜTZING EX BRÉBISSON 1838 sp.	CELL	2.7
09/04/2015	LOUG	CHLO	Chlorella BEIJERINCK 1890 sp.	CELL	3889.6
09/04/2015	LOUG	RHOD	Rhodomonas KARSTEN sp.	CELL	110.4
09/04/2015	LOUG	CHRP	Chrysochromulina parva LACKEY 1939	CELL	47.3
09/04/2015	LOUG	CHLA	Chlamydomonas EHRENBERG 1833 sp.	CELL	5.3
09/04/2015	LOUG	UROG	Uroglena EHRENBERG (1833) 1835 sp.	CELL	5.3
09/04/2015	LOUG	COCC	Coccomyxa SCHMIDLE spp.	CELL	36.8
10/04/2015	LOWE	ASTF	Asterionella formosa HASSALL 1855	COLO	2958.3
10/04/2015	LOWE	ASTF	Asterionella formosa HASSALL 1855	CELL	12089.7
10/04/2015	LOWE	ASTF	Asterionella formosa HASSALL 1855	DEAD	769.5
10/04/2015	LOWE	PLAS	Planktothrix sp.	FILA	47.4
10/04/2015	LOWE	PLAS	Planktothrix sp.	LENG	16.279
10/04/2015	LOWE	APHF	Aphanizomenon flos-aquae (LINNAEUS) RALFS	FILA	42.5
10/04/2015	LOWE	APHF	Aphanizomenon flos-aquae (LINNAEUS) RALFS	LENG	7.771
10/04/2015	LOWE	CRYP	Cryptomonas EHRENBERG 1838 spp.	CELL	31.8
10/04/2015	LOWE	MONO	Monoraphidium contortum (THURET) KOMÁRKOVÁ-LEGNEROVÁ 1969	CELL	31.1
10/04/2015	LOWE	MONT	Monoraphidium arcuatum (KORSHIKOV) HINDÁK 1970	CELL	3.4
10/04/2015	LOWE	CYCT	Cyclotella KÜTZING EX BRÉBISSON 1838 sp.	CELL	25
10/04/2015	LOWE	CYCT	Cyclotella KÜTZING EX BRÉBISSON 1838 sp.	DEAD	3.8
10/04/2015	LOWE	PERS	Peridinium EHRENBERG 1832 sp. (small) (25um cbut, csre)	CELL	1
10/04/2015	LOWE	PERM	Peridinium EHRENBERG 1832 sp. (medium)	CELL	0.3
10/04/2015	LOWE	GYMS	Gymnodinium STEIN 1878 sp. (small)	CELL	9.2
10/04/2015	LOWE	GYMA	Gymnodinium helveticum forma achroum SKUJA 1948	CELL	0.7
10/04/2015	LOWE	MALC	Mallomonas caudata IVANOV 1899	CELL	0.7
10/04/2015	LOWE	WORN	Woronichinia naegeliana (UNGER) ELENKIN 1933	COLO	1.4
10/04/2015	LOWE	DIND	Dinobryon divergens IMHOF 1887	COLO	6.2
10/04/2015	LOWE	DIND	Dinobryon divergens IMHOF 1887	CELL	119.7
10/04/2015	LOWE	ELAK	Elakatothrix WILLE sp.	COLO	1.4
10/04/2015	LOWE	ELAK	Elakatothrix WILLE sp.	CELL	2.4
10/04/2015	LOWE	AULS	Aulacoseira subarctica (O MÜLLER) E Y HAWORTH 1988	FILA	0.3
10/04/2015	LOWE	AULS	Aulacoseira subarctica (O MÜLLER) E Y HAWORTH 1988	CELL	2.4
10/04/2015	LOWE	AULS	Aulacoseira subarctica (O MÜLLER) E Y HAWORTH 1988	DEAD	1
10/04/2015	LOWE	PSEG	Pseudosphaerocystis sp.	COLO	0.7
10/04/2015	LOWE	PSEG	Pseudosphaerocystis sp.	CELL	2.7
10/04/2015	LOWE	RHOD	Rhodomonas KARSTEN sp.	CELL	283.8
10/04/2015	LOWE	CHRP	Chrysochromulina parva LACKEY 1939	CELL	110.4

Date	Lake	Alga	Algal name	Form	Value cm ⁻³
10/04/2015	LOWE	CHLO	Chlorella BEIJERINCK 1890 sp.	CELL	215.5
10/04/2015	LOWE	UROS	Urosolenia ROUND & CRAWFORD	CELL	15.8
10/04/2015	LOWE	UROS	Urosolenia ROUND & CRAWFORD	DEAD	10.5
10/04/2015	LOWE	UROG	Uroglena EHRENBERG (1833) 1835 sp.	CELL	15.8
10/04/2015	LOWE	COCC	Coccomyxa SCHMIDLE spp.	CELL	5.3
14/04/2015	NBAS	ASTF	Asterionella formosa HASSALL 1855	COLO	83.4
14/04/2015	NBAS	ASTF	Asterionella formosa HASSALL 1855	CELL	407.7
14/04/2015	NBAS	ASTF	Asterionella formosa HASSALL 1855	DEAD	79.3
14/04/2015	NBAS	AULS	Aulacoseira subarctica (O MÜLLER) E Y HAWORTH 1988	FILA	19.5
14/04/2015	NBAS	AULS	Aulacoseira subarctica (O MÜLLER) E Y HAWORTH 1988	CELL	101.2
14/04/2015	NBAS	AULS	Aulacoseira subarctica (O MÜLLER) E Y HAWORTH 1988	DEAD	14.4
14/04/2015	NBAS	AULM	Aulacoseira ambigua	FILA	3.8
14/04/2015	NBAS	AULM	Aulacoseira ambigua	CELL	27.7
14/04/2015	NBAS	AULM	Aulacoseira ambigua	DEAD	1.4
14/04/2015	NBAS	FRAC	Fragilaria crotonensis KITTON 1869 (var. crotonensis and var. prolongata until 1993 when var. prol coded ζ FRAT)	FILA	8.9
14/04/2015	NBAS	FRAC	Fragilaria crotonensis KITTON 1869 (var. crotonensis and var. prolongata until 1993 when var. prol coded ζ FRAT)	CELL	101.2
14/04/2015	NBAS	FRAC	Fragilaria crotonensis KITTON 1869 (var. crotonensis and var. prolongata until 1993 when var. prol coded ζ FRAT)	DEAD	11.3
14/04/2015	NBAS	DIND	Dinobryon divergens IMHOF 1887	COLO	1.7
14/04/2015	NBAS	DIND	Dinobryon divergens IMHOF 1887	CELL	15
14/04/2015	NBAS	CRYP	Cryptomonas EHRENBERG 1838 spp.	CELL	6.5
14/04/2015	NBAS	MALC	Mallomonas caudata IVANOV 1899	CELL	1.7
14/04/2015	NBAS	NISY	Nitzschia /Synedra (uncertain which)	CELL	10.6
14/04/2015	NBAS	KOLI	Koliella spiculiformis (VISCHER) HINDAK	CELL	12.3
14/04/2015	NBAS	KOLL	Koliella longiseta HINDÁK 1963	CELL	2.4
14/04/2015	NBAS	GYMA	Gymnodinium helveticum forma achroum SKUJA 1948	CELL	0.3
14/04/2015	NBAS	GYMS	Gymnodinium STEIN 1878 sp. (small)	CELL	0.3
14/04/2015	NBAS	MONO	Monoraphidium contortum (THURET) KOMÁRKOVÁ-LEGNEROVÁ 1969	CELL	1
14/04/2015	NBAS	PERM	Peridinium EHRENBERG 1832 sp. (medium)	CELL	1.7
14/04/2015	NBAS	PERS	Peridinium EHRENBERG 1832 sp. (small) (25um cbut, csre)	CELL	1.7
14/04/2015	NBAS	CLST	Closterium (straight) cf AEIR Blelham	CELL	0.3
14/04/2015	NBAS	SYNA	Synedra acus KÜTZING 1844	CELL	0.3
14/04/2015	NBAS	COSA	Cosmarium abbreviatum RACIBORSKI 1885	CELL	1
14/04/2015	NBAS	SYNC	Syncrypta spp. EHRENBERG	CELL	0.3
14/04/2015	NBAS	PSEG	Pseudosphaerocystis sp.	COLO	0.7
14/04/2015	NBAS	PSEG	Pseudosphaerocystis sp.	CELL	10.9
14/04/2015	NBAS	GONS	Gonium sociale (DUJARDIN) WARMING	COLO	0.3
14/04/2015	NBAS	GONS	Gonium sociale (DUJARDIN) WARMING	CELL	1.4
14/04/2015	NBAS	COEX	Coelosphaerium minutissimum	COLO	0.3
14/04/2015	NBAS	TABF	Tabellaria flocculosa (ROTH) KÜTZING 1844 var. flocculosa	COLO	0.7
14/04/2015	NBAS	TABF	Tabellaria flocculosa (ROTH) KÜTZING 1844 var. flocculosa	CELL	7.2
14/04/2015	NBAS	UROS	Urosolenia ROUND & CRAWFORD	CELL	0.7
14/04/2015	NBAS	PSEL	Pseudanabaena limnetica (LEMMERMANN) KOMÁREK	FILA	1.7
14/04/2015	NBAS	PSEL	Pseudanabaena limnetica (LEMMERMANN) KOMÁREK	LENG	0.355
14/04/2015	NBAS	PLAS	Planktothrix sp.	FILA	0.7
14/04/2015	NBAS	PLAS	Planktothrix sp.	LENG	0.302
14/04/2015	NBAS	LIMR	Limnothrix redekei (VAN GOOR) MEFFERT 1988	FILA	0.7
14/04/2015	NBAS	LIMR	Limnothrix redekei (VAN GOOR) MEFFERT 1988	LENG	0.295
14/04/2015	NBAS	PSEU	Pseudanabaena LAUTERBORN 1915 sp.	FILA	0.3
14/04/2015	NBAS	PSEU	Pseudanabaena LAUTERBORN 1915 sp.	LENG	0.047
14/04/2015	NBAS	RHOD	Rhodomonas KARSTEN sp.	CELL	331.1
14/04/2015	NBAS	CHRP	Chrysochromulina parva LACKEY 1939	CELL	52.6
14/04/2015	NBAS	CHLA	Chlamydomonas EHRENBERG 1833 sp.	CELL	63.1
14/04/2015	NBAS	CHLO	Chlorella BEIJERINCK 1890 sp.	CELL	783.2

Date	Lake	Alga	Algal name	Form	Value cm ⁻³
14/04/2015	NBAS	UROG	Uroglena EHRENBERG (1833) 1835 sp.	CELL	21
14/04/2015	NBAS	MALA	Mallomonas akrokomas RUTTNER IN PASCHER 1913	CELL	5.3
14/04/2015	NBAS	SYNU	Synura EHRENBERG 1838 sp.	CELL	5.3
14/04/2015	NBAS	GOLR	Golenkinia radiata	CELL	5.3
09/04/2015	RYDA	ASTF	Asterionella formosa HASSALL 1855	COLO	177.8
09/04/2015	RYDA	ASTF	Asterionella formosa HASSALL 1855	CELL	656.6
09/04/2015	RYDA	ASTF	Asterionella formosa HASSALL 1855	DEAD	8.6
09/04/2015	RYDA	KOLI	Koliella spiculiformis (VISCHER) HINDAK	CELL	89.8
09/04/2015	RYDA	KOLL	Koliella longiseta HINDÁK 1963	CELL	9.4
09/04/2015	RYDA	SYNM	Synedra EHRENBERG 1830 sp. (medium)	CELL	11.6
09/04/2015	RYDA	NISY	Nitzschia /Synedra (uncertain which)	CELL	19.5
09/04/2015	RYDA	CRYP	Cryptomonas EHRENBERG 1838 spp.	CELL	12.3
09/04/2015	RYDA	SYNL	Synedra ulna (NITZSCH) EHRENBERG 1836	CELL	3.4
09/04/2015	RYDA	GYMA	Gymnodinium helveticum forma achroum SKUJA 1948	CELL	0.3
09/04/2015	RYDA	GYML	Gymnodinium STEIN 1878 sp. (large)	CELL	1.4
09/04/2015	RYDA	MONO	Monoraphidium contortum (THURET) KOMÁRKOVÁ-LEGNEROVÁ 1969	CELL	0.3
09/04/2015	RYDA	PERS	Peridinium EHRENBERG 1832 sp. (small) (25um cbut, csre)	CELL	12.3
09/04/2015	RYDA	PERM	Peridinium EHRENBERG 1832 sp. (medium)	CELL	1.7
09/04/2015	RYDA	TABV	Tabellaria flocculosa (ROTH) KÜTZING 1844 var. other than asterionelloides or flocculosa (mainly zig zag formation)	COLO	2.7
09/04/2015	RYDA	TABV	Tabellaria flocculosa (ROTH) KÜTZING 1844 var. other than asterionelloides or flocculosa (mainly zig zag formation)	CELL	14.4
09/04/2015	RYDA	TABF	Tabellaria flocculosa (ROTH) KÜTZING 1844 var. flocculosa	COLO	0.7
09/04/2015	RYDA	TABF	Tabellaria flocculosa (ROTH) KÜTZING 1844 var. flocculosa	CELL	6.2
09/04/2015	RYDA	AULS	Aulacoseira subarctica (O MÜLLER) E Y HAWORTH 1988	FILA	1
09/04/2015	RYDA	AULS	Aulacoseira subarctica (O MÜLLER) E Y HAWORTH 1988	CELL	4.1
09/04/2015	RYDA	DIND	Dinobryon divergens IMHOF 1887	COLO	14.4
09/04/2015	RYDA	DIND	Dinobryon divergens IMHOF 1887	CELL	126.2
09/04/2015	RYDA	GONS	Gonium sociale (DUJARDIN) WARMING	COLO	6.2
09/04/2015	RYDA	GONS	Gonium sociale (DUJARDIN) WARMING	CELL	24.6
09/04/2015	RYDA	TETR	Tetraspora LINK sp.	COLO	0.3
09/04/2015	RYDA	TETR	Tetraspora LINK sp.	CELL	1.4
09/04/2015	RYDA	PSEL	Pseudanabaena limnetica (LEMMERMANN) KOMÁREK	FILA	0.3
09/04/2015	RYDA	PSEL	Pseudanabaena limnetica (LEMMERMANN) KOMÁREK	LENG	0.151
09/04/2015	RYDA	RHOD	Rhodomonas KARSTEN sp.	CELL	499.3
09/04/2015	RYDA	CHRP	Chrysochromulina parva LACKEY 1939	CELL	5.3
09/04/2015	RYDA	CHLA	Chlamydomonas EHRENBERG 1833 sp.	CELL	110.4
09/04/2015	RYDA	CHLO	Chlorella BEIJERINCK 1890 sp.	CELL	551.9
09/04/2015	RYDA	MONY	Monoraphidium dybowskii (WOLASYNSKA) HINDAK & KOMARKOVA - LEGENEROVA	CELL	42
09/04/2015	RYDA	CHRS	Chrysococcus KLEBS 1892 sp.	CELL	15.8
09/04/2015	RYDA	CHRM	Chromulina CIENKOWSKI sp.	CELL	10.5
09/04/2015	RYDA	UROS	Urosolenia ROUND & CRAWFORD	CELL	89.4
09/04/2015	RYDA	UROG	Uroglena EHRENBERG (1833) 1835 sp.	CELL	21
09/04/2015	RYDA	SYNC	Syncrypta spp. EHRENBERG	CELL	78.8
09/04/2015	RYDA	MICP	Micractinium FRESENIUS sp.	COLO	5.3
09/04/2015	RYDA	MICP	Micractinium FRESENIUS sp.	CELL	21
09/04/2015	RYDA	GOLR	Golenkinia radiata	CELL	42
09/04/2015	RYDA	CHAC	Characium spp. - A.BRAUN	CELL	5.3
09/04/2015	RYDA	MSOP	#N/A	CELL	15.8
09/04/2015	RYDA	MALL	Mallomonas PERTY 1851 sp.	CELL	5.3
09/04/2015	RYDA	SELG	Selenastrum gracile	CELL	5.3
14/04/2015	SBAS	WORN	Woronichinia naegeliana (UNGER) ELENKIN 1933	COLO	0.3
14/04/2015	SBAS	EUDS	Eudorina EHRENBERG 1832 sp.	COLO	0.3
14/04/2015	SBAS	EUDS	Eudorina EHRENBERG 1832 sp.	CELL	10.9
14/04/2015	SBAS	PSEG	Pseudosphaerocystis sp.	COLO	0.7

Date	Lake	Alga	Algal name	Form	Value cm ⁻³
14/04/2015	SBAS	PSEG	Pseudosphaerocystis sp.	CELL	10.9
14/04/2015	SBAS	DICP	Dictyosphaerium pulchellum WOOD 1874	COLO	0.7
14/04/2015	SBAS	DICP	Dictyosphaerium pulchellum WOOD 1874	CELL	16.4
14/04/2015	SBAS	ELAK	Elakatothrix WILLE sp.	COLO	0.3
14/04/2015	SBAS	ELAK	Elakatothrix WILLE sp.	CELL	0.7
14/04/2015	SBAS	PSEL	Pseudanabaena limnetica (LEMMERMANN) KOMÁREK	FILA	4.8
14/04/2015	SBAS	PSEL	Pseudanabaena limnetica (LEMMERMANN) KOMÁREK	LENG	0.794
14/04/2015	SBAS	PLAS	Planktothrix sp.	FILA	2.1
14/04/2015	SBAS	PLAS	Planktothrix sp.	LENG	0.848
14/04/2015	SBAS	LIMR	Limnothrix redekei (VAN GOOR) MEFFERT 1988	FILA	0.3
14/04/2015	SBAS	LIMR	Limnothrix redekei (VAN GOOR) MEFFERT 1988	LENG	0.218
14/04/2015	SBAS	RHOD	Rhodomonas KARSTEN sp.	CELL	99.9
14/04/2015	SBAS	CHRP	Chrysochromulina parva LACKEY 1939	CELL	120.9
14/04/2015	SBAS	CHLA	Chlamydomonas EHRENBERG 1833 sp.	CELL	10.5
14/04/2015	SBAS	CHLO	Chlorella BEIJERINCK 1890 sp.	CELL	147.2
14/04/2015	SBAS	CHRO	Chroomonas HANSGIRG sp.	CELL	5.3
14/04/2015	SBAS	CYCT	Cyclotella KÜTZING EX BRÉBISSON 1838 sp.	CELL	42
14/04/2015	SBAS	CYCT	Cyclotella KÜTZING EX BRÉBISSON 1838 sp.	DEAD	31.5
14/04/2015	SBAS	UROG	Uroglena EHRENBERG (1833) 1835 sp.	CELL	5.3
14/04/2015	SBAS	UROS	Urosolenia ROUND & CRAWFORD	CELL	15.8
14/04/2015	SBAS	PAST	Pascherina tetras	COLO	5.3
14/04/2015	SBAS	PAST	Pascherina tetras	CELL	21
10/04/2015	THIR	AULS	Aulacoseira subarctica (O MÜLLER) E Y HAWORTH 1988	FILA	11.3
10/04/2015	THIR	AULS	Aulacoseira subarctica (O MÜLLER) E Y HAWORTH 1988	CELL	49.9
10/04/2015	THIR	AULS	Aulacoseira subarctica (O MÜLLER) E Y HAWORTH 1988	DEAD	2.7
10/04/2015	THIR	ASTF	Asterionella formosa HASSALL 1855	COLO	3.8
10/04/2015	THIR	ASTF	Asterionella formosa HASSALL 1855	CELL	5.5
10/04/2015	THIR	ASTF	Asterionella formosa HASSALL 1855	DEAD	14
10/04/2015	THIR	TABV	Tabellaria flocculosa (ROTH) KÜTZING 1844 var. other than asterionelloides or flocculosa (mainly zig zag formation)	COLO	1.7
10/04/2015	THIR	TABV	Tabellaria flocculosa (ROTH) KÜTZING 1844 var. other than asterionelloides or flocculosa (mainly zig zag formation)	CELL	7.9
10/04/2015	THIR	TABF	Tabellaria flocculosa (ROTH) KÜTZING 1844 var. flocculosa	COLO	0.3
10/04/2015	THIR	TABF	Tabellaria flocculosa (ROTH) KÜTZING 1844 var. flocculosa	CELL	4.8
10/04/2015	THIR	TABA	Tabellaria flocculosa var. asterionelloides (GRUNOW) KNUDSON 1952	COLO	0.3
10/04/2015	THIR	TABA	Tabellaria flocculosa var. asterionelloides (GRUNOW) KNUDSON 1952	CELL	2.7
10/04/2015	THIR	CYCT	Cyclotella KÜTZING EX BRÉBISSON 1838 sp.	CELL	8.9
10/04/2015	THIR	CYCT	Cyclotella KÜTZING EX BRÉBISSON 1838 sp.	DEAD	0.3
10/04/2015	THIR	NISY	Nitzschia /Synedra (uncertain which)	CELL	25.7
10/04/2015	THIR	CRYP	Cryptomonas EHRENBERG 1838 spp.	CELL	4.1
10/04/2015	THIR	MALC	Mallomonas caudata IVANOV 1899	CELL	0.3
10/04/2015	THIR	GYMS	Gymnodinium STEIN 1878 sp. (small)	CELL	1.4
10/04/2015	THIR	RHOD	Rhodomonas KARSTEN sp.	CELL	215.5
10/04/2015	THIR	CHRP	Chrysochromulina parva LACKEY 1939	CELL	78.8
10/04/2015	THIR	CHLO	Chlorella BEIJERINCK 1890 sp.	CELL	262.8
10/04/2015	THIR	UROS	Urosolenia ROUND & CRAWFORD	CELL	10.5
10/04/2015	THIR	DIND	Dinobryon divergens IMHOF 1887	COLO	5.3
10/04/2015	THIR	DIND	Dinobryon divergens IMHOF 1887	CELL	26.3
10/04/2015	THIR	CHRS	Chrysococcus KLEBS 1892 sp.	CELL	15.8
14/04/2015	ULLS	ASTF	Asterionella formosa HASSALL 1855	COLO	9.2
14/04/2015	ULLS	ASTF	Asterionella formosa HASSALL 1855	CELL	29.1
14/04/2015	ULLS	ASTF	Asterionella formosa HASSALL 1855	DEAD	6.8
14/04/2015	ULLS	CYCB	Cyclotella KÜTZING EX BRÉBISSON 1838 sp. (big)	CELL	2.4
14/04/2015	ULLS	CYCB	Cyclotella KÜTZING EX BRÉBISSON 1838 sp. (big)	DEAD	0.7
14/04/2015	ULLS	NISY	Nitzschia /Synedra (uncertain which)	CELL	0.3
14/04/2015	ULLS	PENN	Pennate diatoms	CELL	0.3

Date	Lake	Alga	Algal name	Form	Value cm ⁻³
14/04/2015	ULLS	PERS	Peridinium EHRENBERG 1832 sp. (small) (25um cbut, csre)	CELL	0.3
14/04/2015	ULLS	CRYP	Cryptomonas EHRENBERG 1838 spp.	CELL	0.7
14/04/2015	ULLS	GYMA	Gymnodinium helveticum forma achroum SKUJA 1948	CELL	0.7
14/04/2015	ULLS	AULS	Aulacoseira subarctica (O MÜLLER) E Y HAWORTH 1988	FILA	19.5
14/04/2015	ULLS	AULS	Aulacoseira subarctica (O MÜLLER) E Y HAWORTH 1988	CELL	129.3
14/04/2015	ULLS	AULS	Aulacoseira subarctica (O MÜLLER) E Y HAWORTH 1988	DEAD	15.7
14/04/2015	ULLS	AULI	Aulacoseira islandica	FILA	1
14/04/2015	ULLS	AULI	Aulacoseira islandica	CELL	10.9
14/04/2015	ULLS	AULI	Aulacoseira islandica	DEAD	0.7
14/04/2015	ULLS	TABV	Tabellaria flocculosa (ROTH) KÜTZING 1844 var. other than asterionelloides or flocculosa (mainly zig zag formation)	COLO	5.8
14/04/2015	ULLS	TABV	Tabellaria flocculosa (ROTH) KÜTZING 1844 var. other than asterionelloides or flocculosa (mainly zig zag formation)	CELL	8.6
14/04/2015	ULLS	TABV	Tabellaria flocculosa (ROTH) KÜTZING 1844 var. other than asterionelloides or flocculosa (mainly zig zag formation)	DEAD	6.8
14/04/2015	ULLS	ELAK	Elakatothrix WILLE sp.	CELL	0.7
14/04/2015	ULLS	PLAS	Planktothrix sp.	FILA	4.4
14/04/2015	ULLS	PLAS	Planktothrix sp.	LENG	3.307
14/04/2015	ULLS	RHOD	Rhodomonas KARSTEN sp.	CELL	21
14/04/2015	ULLS	CHRP	Chrysochromulina parva LACKEY 1939	CELL	5.3
14/04/2015	ULLS	CHLO	Chlorella BEIJERINCK 1890 sp.	CELL	78.8
14/04/2015	ULLS	CYCT	Cyclotella KÜTZING EX BRÉBISSON 1838 sp.	CELL	10.5
14/04/2015	ULLS	CYCT	Cyclotella KÜTZING EX BRÉBISSON 1838 sp.	DEAD	5.3
09/04/2015	WAST	CRYP	Cryptomonas EHRENBERG 1838 spp.	CELL	0.7
09/04/2015	WAST	PERS	Peridinium EHRENBERG 1832 sp. (small) (25um cbut, csre)	CELL	0.7
09/04/2015	WAST	KOLL	Koliella longiseta HINDÁK 1963	CELL	0.3
09/04/2015	WAST	DIND	Dinobryon divergens IMHOF 1887	COLO	0.7
09/04/2015	WAST	DIND	Dinobryon divergens IMHOF 1887	CELL	5.1
09/04/2015	WAST	CYCC	Cyclotella comensis GRUNOW IN VAN HEURCK 1882	FILA	0.7
09/04/2015	WAST	CYCC	Cyclotella comensis GRUNOW IN VAN HEURCK 1882	CELL	3.4
09/04/2015	WAST	STAR	Staurodesmus TEILING sp.	CELL	0.7
09/04/2015	WAST	CHLO	Chlorella BEIJERINCK 1890 sp.	CELL	152.4
09/04/2015	WAST	GOLR	Golenkinia radiata	CELL	5.3
09/04/2015	WAST	TETM	Tetraedron minimum (A.BRAUN) HANSGIRG	CELL	10.5
09/04/2015	WAST	MONY	Monoraphidium dybowskii (WOLASYNSKA) HINDAK & KOMARKOVA - LEGENEROVA	CELL	5.3
09/04/2015	WAST	ELAK	Elakatothrix WILLE sp.	CELL	5.3
09/04/2015	WAST	KOLI	Koliella spiculiformis (VISCHER) HINDAK	CELL	5.3
09/04/2015	WAST	OOCY	Oocystis NÄGELI emend. FOTT sp.	COLO	5.3
09/04/2015	WAST	OOCY	Oocystis NÄGELI emend. FOTT sp.	CELL	10.5
09/07/2015	BASS	CRYP	Cryptomonas EHRENBERG 1838 spp.	CELL	39.7
09/07/2015	BASS	NISY	Nitzschia /Synedra (uncertain which)	CELL	9.9
09/07/2015	BASS	SYNM	Synedra EHRENBERG 1830 sp. (medium)	CELL	6.8
09/07/2015	BASS	CYCB	Cyclotella KÜTZING EX BRÉBISSON 1838 sp. (big)	CELL	10.9
09/07/2015	BASS	CYCB	Cyclotella KÜTZING EX BRÉBISSON 1838 sp. (big)	DEAD	0.3
09/07/2015	BASS	STAR	Staurodesmus TEILING sp.	CELL	1
09/07/2015	BASS	STAR	Staurodesmus TEILING sp.	DEAD	0.3
09/07/2015	BASS	STAL	Staurastrum lunatum RALFS 1848	CELL	1
09/07/2015	BASS	STAU	Staurastrum MEYEN EX RALFS 1848 spp	CELL	0.7
09/07/2015	BASS	GYML	Gymnodinium STEIN 1878 sp. (large)	CELL	1
09/07/2015	BASS	GYMS	Gymnodinium STEIN 1878 sp. (small)	CELL	1
09/07/2015	BASS	MALC	Mallomonas caudata IVANOV 1899	CELL	0.3
09/07/2015	BASS	MALL	Mallomonas PERTY 1851 sp.	CELL	0.3
09/07/2015	BASS	CERH	Ceratium hirundinella (OF MÜLLER) DUJARDIN 1846 (included C. furcoides until 1983-1984, check individual lakes)	CELL	0.7
09/07/2015	BASS	PENN	Pennate diatoms	CELL	0.7
09/07/2015	BASS	PERC	Peridinium cinctum (OF MÜLLER) EHRENBERG 1838	CELL	0.7

Date	Lake	Alga	Algal name	Form	Value cm ⁻³
09/07/2015	BASS	PERM	Peridinium EHRENBERG 1832 sp. (medium)	CELL	2.4
09/07/2015	BASS	PERM	Peridinium EHRENBERG 1832 sp. (medium)	DEAD	0.3
09/07/2015	BASS	PERS	Peridinium EHRENBERG 1832 sp. (small) (25um cbut, csre)	CELL	2.1
09/07/2015	BASS	PERS	Peridinium EHRENBERG 1832 sp. (small) (25um cbut, csre)	DEAD	0.3
09/07/2015	BASS	COSM	Cosmarium CORDA EX RALFS 1848 sp.	CELL	1
09/07/2015	BASS	KOLI	Koliella spiculiformis (VISCHER) HINDAK	CELL	11.6
09/07/2015	BASS	MONO	Monoraphidium contortum (THURET) KOMÁRKOVÁ-LEGNEROVÁ 1969	CELL	3.4
09/07/2015	BASS	UROS	Urosolenia ROUND & CRAWFORD	CELL	3.1
09/07/2015	BASS	ASTF	Asterionella formosa HASSALL 1855	COLO	6.2
09/07/2015	BASS	ASTF	Asterionella formosa HASSALL 1855	CELL	42.1
09/07/2015	BASS	ASTF	Asterionella formosa HASSALL 1855	DEAD	2.1
09/07/2015	BASS	AULS	Aulacoseira subarctica (O MÜLLER) E Y HAWORTH 1988	FILA	3.8
09/07/2015	BASS	AULS	Aulacoseira subarctica (O MÜLLER) E Y HAWORTH 1988	CELL	30.1
09/07/2015	BASS	AULS	Aulacoseira subarctica (O MÜLLER) E Y HAWORTH 1988	DEAD	7.5
09/07/2015	BASS	AULM	Aulacoseira ambigua	FILA	2.1
09/07/2015	BASS	AULM	Aulacoseira ambigua	CELL	14.7
09/07/2015	BASS	AULM	Aulacoseira ambigua	DEAD	3.1
09/07/2015	BASS	TABV	Tabellaria flocculosa (ROTH) KÜTZING 1844 var. other than asterionelloides or flocculosa (mainly zig zag formation)	COLO	1.7
09/07/2015	BASS	TABV	Tabellaria flocculosa (ROTH) KÜTZING 1844 var. other than asterionelloides or flocculosa (mainly zig zag formation)	CELL	3.8
09/07/2015	BASS	TABV	Tabellaria flocculosa (ROTH) KÜTZING 1844 var. other than asterionelloides or flocculosa (mainly zig zag formation)	DEAD	2.4
09/07/2015	BASS	TABF	Tabellaria flocculosa (ROTH) KÜTZING 1844 var. flocculosa	COLO	1
09/07/2015	BASS	TABF	Tabellaria flocculosa (ROTH) KÜTZING 1844 var. flocculosa	CELL	2.4
09/07/2015	BASS	TABF	Tabellaria flocculosa (ROTH) KÜTZING 1844 var. flocculosa	DEAD	2.1
09/07/2015	BASS	FRAG	Fragilaria LYNGBYE 1819 sp.	FILA	1
09/07/2015	BASS	FRAG	Fragilaria LYNGBYE 1819 sp.	CELL	6.2
09/07/2015	BASS	FRAG	Fragilaria LYNGBYE 1819 sp.	DEAD	4.8
09/07/2015	BASS	SCEN	Scenedesmus MEYEN 1829 sp.	COLO	1.4
09/07/2015	BASS	SCEN	Scenedesmus MEYEN 1829 sp.	CELL	5.5
09/07/2015	BASS	DIND	Dinobryon divergens IMHOF 1887	COLO	6.2
09/07/2015	BASS	DIND	Dinobryon divergens IMHOF 1887	CELL	68.4
09/07/2015	BASS	OOCY	Oocystis NÄGELI emend. FOTT sp.	COLO	1
09/07/2015	BASS	OOCY	Oocystis NÄGELI emend. FOTT sp.	CELL	1.7
09/07/2015	BASS	ELAK	Elakatothrix WILLE sp.	COLO	2.7
09/07/2015	BASS	ELAK	Elakatothrix WILLE sp.	CELL	8.9
09/07/2015	BASS	COEF	Coenochloris fottii (HINDÁK) TSARENKO 1990	COLO	0.7
09/07/2015	BASS	COEF	Coenochloris fottii (HINDÁK) TSARENKO 1990	CELL	5.5
09/07/2015	BASS	CHCL	Chlamydocapsa planctonica (W & GS WEST) FOTT 1972	COLO	1
09/07/2015	BASS	CHCL	Chlamydocapsa planctonica (W & GS WEST) FOTT 1972	CELL	8.2
09/07/2015	BASS	DICP	Dictyosphaerium pulchellum WOOD 1874	COLO	0.7
09/07/2015	BASS	DICP	Dictyosphaerium pulchellum WOOD 1874	CELL	27.4
09/07/2015	BASS	DICM	Dictyosphaerium subsolitarium VAN GOOR	COLO	0.7
09/07/2015	BASS	DICM	Dictyosphaerium subsolitarium VAN GOOR	CELL	2.7
09/07/2015	BASS	ANKU	Ankistrodesmus fusiformis CORDA	COLO	0.7
09/07/2015	BASS	ANKU	Ankistrodesmus fusiformis CORDA	CELL	2.7
09/07/2015	BASS	PAUP	Paulschulzia pseudovolvox (SCHULZ) SKUJA 1948	COLO	1.4
09/07/2015	BASS	PAUP	Paulschulzia pseudovolvox (SCHULZ) SKUJA 1948	CELL	16.4
09/07/2015	BASS	PAUT	Paulschulzia tenera (KORSHIKOV) LUND 1960	COLO	0.3
09/07/2015	BASS	PAUT	Paulschulzia tenera (KORSHIKOV) LUND 1960	CELL	4.1
09/07/2015	BASS	COPY	Coenochloris pyrenoidosa	COLO	3.1
09/07/2015	BASS	COPY	Coenochloris pyrenoidosa	CELL	13.7
09/07/2015	BASS	COEX	Coelosphaerium minutissimum	COLO	0.3
09/07/2015	BASS	PLAS	Planktothrix sp.	FILA	1
09/07/2015	BASS	PLAS	Planktothrix sp.	LENG	0.127

Date	Lake	Alga	Algal name	Form	Value cm ⁻³
09/07/2015	BASS	PSEL	Pseudanabaena limnetica (LEMMERMANN) KOMAREK	FILA	0.3
09/07/2015	BASS	PSEL	Pseudanabaena limnetica (LEMMERMANN) KOMÁREK	LENG	0.067
09/07/2015	BASS	ANCF	Anabaena circinalis &/or flos-aquae	FILA	2.4
09/07/2015	BASS	ANCF	Anabaena circinalis &/or flos-aquae	CELL	49.6
09/07/2015	BASS	RHOD	Rhodomonas KARSTEN sp.	CELL	446.8
09/07/2015	BASS	CHRP	Chrysochromulina parva LACKEY 1939	CELL	99.9
09/07/2015	BASS	CHLA	Chlamydomonas EHRENBERG 1833 sp.	CELL	10.5
09/07/2015	BASS	CHLO	Chlorella BEIJERINCK 1890 sp.	CELL	772.7
09/07/2015	BASS	BITR	Bitrichia chodatii (REVERDIN) CHODAT 1926	CELL	10.5
09/07/2015	BASS	OCHR	Ochromonas WYSSOTSKI sp.	CELL	10.5
09/07/2015	BASS	UROG	Uroglena EHRENBERG (1833) 1835 sp.	CELL	5.3
06/07/2015	BLEL	CRYP	Cryptomonas EHRENBERG 1838 spp.	CELL	345.4
06/07/2015	BLEL	PSEL	Pseudanabaena limnetica (LEMMERMANN) KOMÁREK	FILA	92.3
06/07/2015	BLEL	PSEL	Pseudanabaena limnetica (LEMMERMANN) KOMÁREK	LENG	16.339
06/07/2015	BLEL	SCEN	Scenedesmus MEYEN 1829 sp.	COLO	98.3
06/07/2015	BLEL	SCEN	Scenedesmus MEYEN 1829 sp.	CELL	376.2
06/07/2015	BLEL	SCEN	Scenedesmus MEYEN 1829 sp.	DEAD	8.6
06/07/2015	BLEL	MONO	Monoraphidium contortum (THURET) KOMÁRKOVÁ-LEGNEROVÁ 1969	CELL	18.8
06/07/2015	BLEL	CERH	Ceratium hirundinella (OF MÜLLER) DUJARDIN 1846 (included C. furcoides until 1983-1984, check individual lakes)	CELL	0.7
06/07/2015	BLEL	PERC	Peridinium cinctum (OF MÜLLER) EHRENBERG 1838	CELL	0.7
06/07/2015	BLEL	PERC	Peridinium cinctum (OF MÜLLER) EHRENBERG 1838	DEAD	0.3
06/07/2015	BLEL	PERM	Peridinium EHRENBERG 1832 sp. (medium)	CELL	6.8
06/07/2015	BLEL	PERM	Peridinium EHRENBERG 1832 sp. (medium)	DEAD	6.2
06/07/2015	BLEL	PERS	Peridinium EHRENBERG 1832 sp. (small) (25um cbut, csre)	CELL	7.2
06/07/2015	BLEL	PERS	Peridinium EHRENBERG 1832 sp. (small) (25um cbut, csre)	DEAD	3.4
06/07/2015	BLEL	GYMA	Gymnodinium helveticum forma achroum SKUJA 1948	CELL	1.7
06/07/2015	BLEL	GYML	Gymnodinium STEIN 1878 sp. (large)	CELL	0.3
06/07/2015	BLEL	CLST	Closterium (straight) cf AEIR Blelham	CELL	3.8
06/07/2015	BLEL	SYNA	Synedra acus KÜTZING 1844	CELL	2.1
06/07/2015	BLEL	SYNA	Synedra acus KÜTZING 1844	DEAD	0.7
06/07/2015	BLEL	TETM	Tetraedron minimum (A.BRAUN) HANSGIRG	CELL	2.1
06/07/2015	BLEL	TETM	Tetraedron minimum (A.BRAUN) HANSGIRG	DEAD	1
06/07/2015	BLEL	SYNM	Synedra EHRENBERG 1830 sp. (medium)	CELL	2.7
06/07/2015	BLEL	SYNM	Synedra EHRENBERG 1830 sp. (medium)	DEAD	0.7
06/07/2015	BLEL	NISY	Nitzschia /Synedra (uncertain which)	CELL	1
06/07/2015	BLEL	EUGL	Euglena EHRENBERG 1830 sp.	CELL	3.1
06/07/2015	BLEL	TRAO	Trachelomonas volvocina EHRENBERG 1833	CELL	4.4
06/07/2015	BLEL	TRAH	Trachelomonas hispida (PERTY) STEIN 1883	CELL	2.1
06/07/2015	BLEL	COSA	Cosmarium abbreviatum RACIBORSKI 1885	CELL	0.3
06/07/2015	BLEL	KOLL	Koliella longiseta HINDÁK 1963	CELL	6.5
06/07/2015	BLEL	KOLI	Koliella spiculiformis (VISCHER) HINDAK	CELL	0.3
06/07/2015	BLEL	APHC	Aphanothece clathrata WEST & G.S.WEST 1906	COLO	15.4
06/07/2015	BLEL	APHJ	Aphanocapsa incerta	COLO	5.1
06/07/2015	BLEL	SYNC	Syncrypta spp. EHRENBERG	COLO	0.3
06/07/2015	BLEL	SYNC	Syncrypta spp. EHRENBERG	CELL	56.1
06/07/2015	BLEL	CRUT	Crucigenia tetrapedia (KIRCHNER) W & G.S WEST	COLO	6.5
06/07/2015	BLEL	CRUT	Crucigenia tetrapedia (KIRCHNER) W & G.S WEST	CELL	25.3
06/07/2015	BLEL	CRUT	Crucigenia tetrapedia (KIRCHNER) W & G.S WEST	DEAD	0.7
06/07/2015	BLEL	PEDD	Pediastrum duplex MEYEN 1829	COLO	0.3
06/07/2015	BLEL	PEDD	Pediastrum duplex MEYEN 1829	CELL	10.9
06/07/2015	BLEL	GONS	Gonium sociale (DUJARDIN) WARMING	COLO	0.3
06/07/2015	BLEL	GONS	Gonium sociale (DUJARDIN) WARMING	CELL	1.4
06/07/2015	BLEL	EUDS	Eudorina EHRENBERG 1832 sp.	COLO	1
06/07/2015	BLEL	EUDS	Eudorina EHRENBERG 1832 sp.	CELL	13.7

Date	Lake	Alga	Algal name	Form	Value cm ⁻³
06/07/2015	BLEL	PEDT	Pediastrum tetras (EHRENBERG) RALFS 1844	COLO	8.2
06/07/2015	BLEL	PEDT	Pediastrum tetras (EHRENBERG) RALFS 1844	CELL	65.7
06/07/2015	BLEL	COEM	Coelastrum microporum NÄGELI IN A. BRAUN 1855	COLO	1.4
06/07/2015	BLEL	COEM	Coelastrum microporum NÄGELI IN A. BRAUN 1855	CELL	10.9
06/07/2015	BLEL	PAUP	Paulschulzia pseudovolvox (SCHULZ) SKUJA 1948	COLO	7.5
06/07/2015	BLEL	PAUP	Paulschulzia pseudovolvox (SCHULZ) SKUJA 1948	CELL	75.9
06/07/2015	BLEL	PAUT	Paulschulzia tenera (KORSHIKOV) LUND 1960	COLO	0.7
06/07/2015	BLEL	PAUT	Paulschulzia tenera (KORSHIKOV) LUND 1960	CELL	10.98
06/07/2015	BLEL	PSEG	Pseudosphaerocystis sp.	COLO	1.4
06/07/2015	BLEL	PSEG	Pseudosphaerocystis sp.	CELL	13.7
06/07/2015	BLEL	COEF	Coenochloris fottii (HINDÁK) TSARENKO 1990	COLO	0.7
06/07/2015	BLEL	COEF	Coenochloris fottii (HINDÁK) TSARENKO 1990	CELL	5.5
06/07/2015	BLEL	DICI	Dictyosphaerium NÄGELI sp.	COLO	1
06/07/2015	BLEL	DICI	Dictyosphaerium NÄGELI sp.	CELL	24.6
06/07/2015	BLEL	ANCF	Anabaena circinalis &/or flos-aquae	FILA	20.9
06/07/2015	BLEL	ANCF	Anabaena circinalis &/or flos-aquae	CELL	1133.4
06/07/2015	BLEL	ANAS	Anabaena solitaria KLEBAHN 1895	FILA	7.2
06/07/2015	BLEL	ANAS	Anabaena solitaria KLEBAHN 1895	LENG	3.063
06/07/2015	BLEL	PLAS	Planktothrix sp.	FILA	7.9
06/07/2015	BLEL	PLAS	Planktothrix sp.	LENG	2.956
06/07/2015	BLEL	APHF	Aphanizomenon flos-aquae (LINNAEUS) RALFS	FILA	51.6
06/07/2015	BLEL	APHF	Aphanizomenon flos-aquae (LINNAEUS) RALFS	LENG	8.781
06/07/2015	BLEL	FRAC	Fragilaria crotonensis KITTON 1869 (var. crotonensis and var. prolongata until 1993 when var. prol coded ; FRAT)	FILA	0.7
06/07/2015	BLEL	FRAC	Fragilaria crotonensis KITTON 1869 (var. crotonensis and var. prolongata until 1993 when var. prol coded ; FRAT)	CELL	8.6
06/07/2015	BLEL	RHOD	Rhodomonas KARSTEN sp.	CELL	431
06/07/2015	BLEL	CHRP	Chrysochromulina parva LACKEY 1939	CELL	42
06/07/2015	BLEL	CHLA	Chlamydomonas EHRENBERG 1833 sp.	CELL	52.6
06/07/2015	BLEL	CHLO	Chlorella BEIJERINCK 1890 sp.	CELL	441.5
06/07/2015	BLEL	CYCT	Cyclotella KÜTZING EX BRÉBISSON 1838 sp.	CELL	189.2
06/07/2015	BLEL	CYCT	Cyclotella KÜTZING EX BRÉBISSON 1838 sp.	DEAD	5.3
06/07/2015	BLEL	MONY	Monoraphidium dybowskii (WOLASYNSKA) HINDAK & KOMARKOVA - LEGENEROVA	CELL	425.7
06/07/2015	BLEL	UROS	Urosolenia ROUND & CRAWFORD	CELL	63.1
06/07/2015	BLEL	UROS	Urosolenia ROUND & CRAWFORD	DEAD	26.3
06/07/2015	BLEL	UROG	Uroglena EHRENBERG (1833) 1835 sp.	CELL	42
06/07/2015	BLEL	OCHR	Ochromonas WYSSOTSKI sp.	CELL	5.3
06/07/2015	BLEL	FRAN	Franceia ovalia	CELL	5.3
06/07/2015	BLEL	GOLR	Golenkinia radiata	CELL	5.3
06/07/2015	BLEL	LAGS	Lagerheimia subsalsa	CELL	5.3
06/07/2015	BROT	CRYP	Cryptomonas EHRENBERG 1838 spp.	CELL	20.5
06/07/2015	BROT	NISY	Nitzschia /Synedra (uncertain which)	CELL	2.4
06/07/2015	BROT	PERC	Peridinium cinctum (OF MÜLLER) EHRENBERG 1838	CELL	0.3
06/07/2015	BROT	CERH	Ceratium hirundinella (OF MÜLLER) DUJARDIN 1846 (included C. furcoides until 1983-1984, check individual lakes)	CELL	0.3
06/07/2015	BROT	MALC	Mallomonas caudata IVANOV 1899	CELL	0.3
06/07/2015	BROT	PENN	Pennate diatoms	CELL	0.3
06/07/2015	BROT	TRAO	Trachelomonas volvocina EHRENBERG 1833	CELL	0.3
06/07/2015	BROT	COEF	Coenochloris fottii (HINDÁK) TSARENKO 1990	COLO	2.4
06/07/2015	BROT	COEF	Coenochloris fottii (HINDÁK) TSARENKO 1990	CELL	24.6
06/07/2015	BROT	COEM	Coelastrum microporum NÄGELI IN A. BRAUN 1855	COLO	0.7
06/07/2015	BROT	COEM	Coelastrum microporum NÄGELI IN A. BRAUN 1855	CELL	10.9
06/07/2015	BROT	COCO	Coenochloris ovalis	COLO	0.3
06/07/2015	BROT	COCO	Coenochloris ovalis	CELL	2.7
06/07/2015	BROT	RHOD	Rhodomonas KARSTEN sp.	CELL	441.5
06/07/2015	BROT	CHLA	Chlamydomonas EHRENBERG 1833 sp.	CELL	21

Date	Lake	Alga	Algal name	Form	Value cm ⁻³
06/07/2015	BROT	CHLO	Chlorella BEIJERINCK 1890 sp.	CELL	599.2
06/07/2015	BROT	UNCP	Unidentified cell	CELL	78.8
06/07/2015	BROT	MONY	Monoraphidium dybowskii (WOLASYNSKA) HINDAK & KOMARKOVA - LEGENEROVA	CELL	336.4
06/07/2015	BROT	UNMF	Unidentified small monoflagellates	CELL	21
06/07/2015	BROT	MALA	Mallomonas akrokomas RUTTNER IN PASCHER 1913	CELL	10.5
06/07/2015	BROT	UROG	Uroglena EHRENBERG (1833) 1835 sp.	CELL	5.3
06/07/2015	BROT	GYMS	Gymnodinium STEIN 1878 sp. (small)	CELL	5.3
09/07/2015	BUTT	CRYP	Cryptomonas EHRENBERG 1838 spp.	CELL	13.7
09/07/2015	BUTT	STTR	Staurodesmus triangularis (LAGERHEIM) TEILING	CELL	1
09/07/2015	BUTT	KOLI	Koliella spiculiformis (VISCHER) HINDAK	CELL	2.1
09/07/2015	BUTT	GYMS	Gymnodinium STEIN 1878 sp. (small)	CELL	0.7
09/07/2015	BUTT	NISY	Nitzschia /Synedra (uncertain which)	CELL	0.7
09/07/2015	BUTT	QUAD	Quadrigula spp. PRINTZ	COLO	1.4
09/07/2015	BUTT	QUAD	Quadrigula spp. PRINTZ	CELL	12.3
09/07/2015	BUTT	OOCY	Oocystis NÄGELI emend. FOTT sp.	COLO	4.4
09/07/2015	BUTT	OOCY	Oocystis NÄGELI emend. FOTT sp.	CELL	19.5
09/07/2015	BUTT	DIND	Dinobryon divergens IMHOF 1887	COLO	0.3
09/07/2015	BUTT	DIND	Dinobryon divergens IMHOF 1887	CELL	5.5
09/07/2015	BUTT	ASTC	Asterococcus spp. SCHERFFEL	COLO	0.3
09/07/2015	BUTT	ASTC	Asterococcus spp. SCHERFFEL	CELL	1.4
09/07/2015	BUTT	UNCO	Unidentified colony	COLO	1
09/07/2015	BUTT	UNCO	Unidentified colony	CELL	19.2
09/07/2015	BUTT	STAI	Staurastrum cingulum (W & G.S.WEST) G.M.SMITH 1922	CELL	0.3
09/07/2015	BUTT	RHOD	Rhodomonas KARSTEN sp.	CELL	15.8
09/07/2015	BUTT	CHRP	Chrysochromulina parva LACKEY 1939	CELL	31.5
09/07/2015	BUTT	CHLO	Chlorella BEIJERINCK 1890 sp.	CELL	241.8
09/07/2015	BUTT	ACHN	Achnanthes BORY 1822 sp.	CELL	5.3
09/07/2015	BUTT	DINN	Dinobryon acuminatum RUTTNER	CELL	26.3
09/07/2015	BUTT	PSEU	Pseudanabaena LAUTERBORN 1915 sp.	FILA	5.3
09/07/2015	BUTT	PSEU	Pseudanabaena LAUTERBORN 1915 sp.	CELL	89.4
09/07/2015	BUTT	PSEU	Pseudanabaena LAUTERBORN 1915 sp.	LENG	0.329
09/07/2015	BUTT	APHA	Aphanocapsa NÄGELI 1849 sp.	COLO	15.8
08/07/2015	CONI	CRYP	Cryptomonas EHRENBERG 1838 spp.	CELL	79.3
08/07/2015	CONI	CYCB	Cyclotella KÜTZING EX BRÉBISSON 1838 sp. (big)	CELL	32.1
08/07/2015	CONI	CYCB	Cyclotella KÜTZING EX BRÉBISSON 1838 sp. (big)	DEAD	1.4
08/07/2015	CONI	CYCT	Cyclotella KÜTZING EX BRÉBISSON 1838 sp.	CELL	6.8
08/07/2015	CONI	CYCT	Cyclotella KÜTZING EX BRÉBISSON 1838 sp.	DEAD	0.3
08/07/2015	CONI	CYCC	Cyclotella comensis GRUNOW IN VAN HEURCK 1882	FILA	1.4
08/07/2015	CONI	CYCC	Cyclotella comensis GRUNOW IN VAN HEURCK 1882	CELL	6.2
08/07/2015	CONI	CERH	Ceratium hirundinella (OF MÜLLER) DUJARDIN 1846 (included C. furcoides until 1983-1984, check individual lakes)	CELL	1.7
08/07/2015	CONI	MONO	Monoraphidium contortum (THURET) KOMÁRKOVÁ-LEGNEROVÁ 1969	CELL	10.3
08/07/2015	CONI	GYML	Gymnodinium STEIN 1878 sp. (large)	CELL	1.4
08/07/2015	CONI	PERL	Peridinium EHRENBERG 1832 sp. (large)	CELL	0.3
08/07/2015	CONI	PERM	Peridinium EHRENBERG 1832 sp. (medium)	CELL	1.7
08/07/2015	CONI	PERS	Peridinium EHRENBERG 1832 sp. (small) (25um cbut, csre)	CELL	0.7
08/07/2015	CONI	STAI	Staurastrum cingulum (W & G.S.WEST) G.M.SMITH 1922	CELL	1.4
08/07/2015	CONI	STAS	Staurastrum pseudopelagicum W & G S WEST 1903	CELL	1
08/07/2015	CONI	WORN	Woronichinia naegeliana (UNGER) ELENKIN 1933	COLO	0.3
08/07/2015	CONI	APHC	Aphanothece clathrata WEST & G.S.WEST 1906	COLO	0.7
08/07/2015	CONI	TETR	Tetraspora LINK sp.	COLO	11.6
08/07/2015	CONI	TETR	Tetraspora LINK sp.	CELL	110.8
08/07/2015	CONI	DIND	Dinobryon divergens IMHOF 1887	COLO	0.7
08/07/2015	CONI	DIND	Dinobryon divergens IMHOF 1887	CELL	4.8
08/07/2015	CONI	COEF	Coenochloris fottii (HINDÁK) TSARENKO 1990	COLO	0.3

Date	Lake	Alga	Algal name	Form	Value cm ⁻³
08/07/2015	CONI	COEF	Coenochloris fottii (HINDAK) TSARENKO 1990	CELL	10.9
08/07/2015	CONI	DICI	Dictyosphaerium NÄGELI sp.	COLO	0.3
08/07/2015	CONI	DICI	Dictyosphaerium NÄGELI sp.	CELL	1.4
08/07/2015	CONI	OOCY	Oocystis NÄGELI emend. FOTT sp.	COLO	0.3
08/07/2015	CONI	OOCY	Oocystis NÄGELI emend. FOTT sp.	CELL	1.4
08/07/2015	CONI	TABV	Tabellaria flocculosa (ROTH) KÜTZING 1844 var. other than asterionelloides or flocculosa (mainly zig zag formation)	COLO	3.8
08/07/2015	CONI	TABV	Tabellaria flocculosa (ROTH) KÜTZING 1844 var. other than asterionelloides or flocculosa (mainly zig zag formation)	CELL	16.4
08/07/2015	CONI	TABV	Tabellaria flocculosa (ROTH) KÜTZING 1844 var. other than asterionelloides or flocculosa (mainly zig zag formation)	DEAD	1.7
08/07/2015	CONI	ASTF	Asterionella formosa HASSALL 1855	COLO	0.7
08/07/2015	CONI	ASTF	Asterionella formosa HASSALL 1855	CELL	1
08/07/2015	CONI	ASTF	Asterionella formosa HASSALL 1855	DEAD	1.4
08/07/2015	CONI	AULS	Aulacoseira subarctica (O MÜLLER) E Y HAWORTH 1988	FILA	0.3
08/07/2015	CONI	AULS	Aulacoseira subarctica (O MÜLLER) E Y HAWORTH 1988	CELL	1.4
08/07/2015	CONI	AULS	Aulacoseira subarctica (O MÜLLER) E Y HAWORTH 1988	DEAD	0.3
08/07/2015	CONI	PLAK	Planktothrix mougeotii (BORY EX GOMONT) ANAGNOSTIDIS ET KOMÁREK 1988	FILA	2.1
08/07/2015	CONI	PLAK	Planktothrix mougeotii (BORY EX GOMONT) ANAGNOSTIDIS ET KOMÁREK 1988	LENG	0.402
08/07/2015	CONI	PLAA	Planktothrix agardhii (GOMONT) ANAGNOSTIDIS & C845 1988	FILA	0.7
08/07/2015	CONI	PLAA	Planktothrix agardhii (GOMONT) ANAGNOSTIDIS & C845 1988	LENG	0.074
08/07/2015	CONI	PLAS	Planktothrix sp.	FILA	0.3
08/07/2015	CONI	PLAS	Planktothrix sp.	LENG	0.05
08/07/2015	CONI	PSEL	Pseudanabaena limnetica (LEMMERMANN) KOMÁREK	FILA	1
08/07/2015	CONI	PSEL	Pseudanabaena limnetica (LEMMERMANN) KOMÁREK	LENG	0.144
08/07/2015	CONI	RHOD	Rhodomonas KARSTEN sp.	CELL	578.2
08/07/2015	CONI	CHRP	Chrysochromulina parva LACKEY 1939	CELL	68.3
08/07/2015	CONI	CHLA	Chlamydomonas EHRENBERG 1833 sp.	CELL	5.3
08/07/2015	CONI	CHLO	Chlorella BEIJERINCK 1890 sp.	CELL	530.9
08/07/2015	CONI	UROS	Urosolenia ROUND & CRAWFORD	CELL	84.1
08/07/2015	CONI	UROS	Urosolenia ROUND & CRAWFORD	DEAD	10.5
08/07/2015	CONI	UROG	Uroglena EHRENBERG (1833) 1835 sp.	CELL	21
08/07/2015	CONI	MALL	Mallomonas PERTY 1851 sp.	CELL	10.5
08/07/2015	CONI	BITR	Bitrichia chodatii (REVERDIN) CHODAT 1926	CELL	5.3
09/07/2015	CRUM	CRYP	Cryptomonas EHRENBERG 1838 spp.	CELL	25.7
09/07/2015	CRUM	NISY	Nitzschia /Synedra (uncertain which)	CELL	1
09/07/2015	CRUM	CYCB	Cyclotella KÜTZING EX BRÉBISSON 1838 sp. (big)	CELL	3.8
09/07/2015	CRUM	CYCB	Cyclotella KÜTZING EX BRÉBISSON 1838 sp. (big)	DEAD	1.4
09/07/2015	CRUM	CYCT	Cyclotella KÜTZING EX BRÉBISSON 1838 sp.	CELL	2.1
09/07/2015	CRUM	CYCT	Cyclotella KÜTZING EX BRÉBISSON 1838 sp.	DEAD	0.7
09/07/2015	CRUM	CYCC	Cyclotella comensis GRUNOW IN VAN HEURCK 1882	FILA	1
09/07/2015	CRUM	CYCC	Cyclotella comensis GRUNOW IN VAN HEURCK 1882	CELL	6.8
09/07/2015	CRUM	GYML	Gymnodinium STEIN 1878 sp. (large)	CELL	1.7
09/07/2015	CRUM	GYMS	Gymnodinium STEIN 1878 sp. (small)	CELL	0.3
09/07/2015	CRUM	MALL	Mallomonas PERTY 1851 sp.	CELL	2.1
09/07/2015	CRUM	CHAC	Characium spp. - A.BRAUN	CELL	2.1
09/07/2015	CRUM	KOLI	Koliella spiculiformis (VISCHER) HINDAK	CELL	0.7
09/07/2015	CRUM	SPOI	Spondylosium planum (WOLLE) W & G.S.WEST 1912	FILA	0.3
09/07/2015	CRUM	SPOI	Spondylosium planum (WOLLE) W & G.S.WEST 1912	CELL	0.7
09/07/2015	CRUM	ELAK	Elakatothrix WILLE sp.	COLO	0.3
09/07/2015	CRUM	ELAK	Elakatothrix WILLE sp.	CELL	0.7
09/07/2015	CRUM	APHA	Aphanocapsa NÄGELI 1849 sp.	COLO	0.7
09/07/2015	CRUM	APST	Aphanocapsa stagnalis	COLO	0.7
09/07/2015	CRUM	ASTF	Asterionella formosa HASSALL 1855	COLO	8.2
09/07/2015	CRUM	ASTF	Asterionella formosa HASSALL 1855	CELL	7.9

Date	Lake	Alga	Algal name	Form	Value cm ⁻³
09/07/2015	CRUM	ASTF	<i>Asterionella formosa</i> HASSALL 1855	DEAD	36.3
09/07/2015	CRUM	PLAS	<i>Planktothrix</i> sp.	FILA	0.3
09/07/2015	CRUM	PLAS	<i>Planktothrix</i> sp.	LENG	0.05
09/07/2015	CRUM	RHOD	<i>Rhodomonas</i> KARSTEN sp.	CELL	73.6
09/07/2015	CRUM	CHLO	<i>Chlorella</i> BEIJERINCK 1890 sp.	CELL	325.9
09/07/2015	CRUM	CHRS	<i>Chrysococcus</i> KLEBS 1892 sp.	CELL	31.5
09/07/2015	CRUM	CHRK	<i>Chrysolykos</i> MACK	CELL	5.3
09/07/2015	CRUM	DINS	<i>Dinobryon</i> EHRENBERG sp.	CELL	21
09/07/2015	CRUM	UROG	<i>Uroglena</i> EHRENBERG (1833) 1835 sp.	CELL	5.3
09/07/2015	CRUM	UNCP	Unidentified cell	CELL	21
09/07/2015	CRUM	KEPH	<i>Kephyrion</i> PASCHER 1911 sp.	CELL	10.5
09/07/2015	CRUM	DIND	<i>Dinobryon divergens</i> IMHOF 1887	COLO	5.3
09/07/2015	CRUM	DIND	<i>Dinobryon divergens</i> IMHOF 1887	CELL	10.5
09/07/2015	DERW	CRYP	<i>Cryptomonas</i> EHRENBERG 1838 spp.	CELL	47.7
09/07/2015	DERW	PERS	<i>Peridinium</i> EHRENBERG 1832 sp. (small) (25um cbut, csre)	CELL	12.6
09/07/2015	DERW	PERS	<i>Peridinium</i> EHRENBERG 1832 sp. (small) (25um cbut, csre)	DEAD	0.4
09/07/2015	DERW	PERM	<i>Peridinium</i> EHRENBERG 1832 sp. (medium)	CELL	1.4
09/07/2015	DERW	STAR	<i>Staurodesmus</i> TEILING sp.	CELL	1.1
09/07/2015	DERW	MONO	<i>Monoraphidium contortum</i> (THURET) KOMÁRKOVÁ-LEGNEROVÁ 1969	CELL	2.9
09/07/2015	DERW	NISY	<i>Nitzschia</i> / <i>Synedra</i> (uncertain which)	CELL	4.3
09/07/2015	DERW	GYML	<i>Gymnodinium</i> STEIN 1878 sp. (large)	CELL	0.4
09/07/2015	DERW	CERH	<i>Ceratium hirundinella</i> (OF MÜLLER) DUJARDIN 1846 (included <i>C. furcoides</i> until 1983-1984, check individual lakes)	CELL	0.4
09/07/2015	DERW	KOLI	<i>Koliella spiculiformis</i> (VISCHER) HINDAK	CELL	2.5
09/07/2015	DERW	CYCT	<i>Cyclotella</i> KÜTZING EX BRÉBISSON 1838 sp.	CELL	2.9
09/07/2015	DERW	CYCT	<i>Cyclotella</i> KÜTZING EX BRÉBISSON 1838 sp.	DEAD	0.4
09/07/2015	DERW	MALC	<i>Mallomonas caudata</i> IVANOV 1899	CELL	1.8
09/07/2015	DERW	COSM	<i>Cosmarium</i> CORDA EX RALFS 1848 sp.	CELL	0.7
09/07/2015	DERW	GYMS	<i>Gymnodinium</i> STEIN 1878 sp. (small)	CELL	1.1
09/07/2015	DERW	DIND	<i>Dinobryon divergens</i> IMHOF 1887	COLO	5.7
09/07/2015	DERW	DIND	<i>Dinobryon divergens</i> IMHOF 1887	CELL	20.8
09/07/2015	DERW	TABV	<i>Tabellaria flocculosa</i> (ROTH) KÜTZING 1844 var. other than <i>asterionelloides</i> or <i>flocculosa</i> (mainly zig zag formation)	COLO	14
09/07/2015	DERW	TABV	<i>Tabellaria flocculosa</i> (ROTH) KÜTZING 1844 var. other than <i>asterionelloides</i> or <i>flocculosa</i> (mainly zig zag formation)	CELL	85.4
09/07/2015	DERW	TABV	<i>Tabellaria flocculosa</i> (ROTH) KÜTZING 1844 var. other than <i>asterionelloides</i> or <i>flocculosa</i> (mainly zig zag formation)	DEAD	2.2
09/07/2015	DERW	ASTF	<i>Asterionella formosa</i> HASSALL 1855	COLO	2.9
09/07/2015	DERW	ASTF	<i>Asterionella formosa</i> HASSALL 1855	CELL	14.4
09/07/2015	DERW	ASTF	<i>Asterionella formosa</i> HASSALL 1855	DEAD	1.1
09/07/2015	DERW	TABF	<i>Tabellaria flocculosa</i> (ROTH) KÜTZING 1844 var. <i>flocculosa</i>	COLO	0.4
09/07/2015	DERW	TABF	<i>Tabellaria flocculosa</i> (ROTH) KÜTZING 1844 var. <i>flocculosa</i>	CELL	3.2
09/07/2015	DERW	TABA	<i>Tabellaria flocculosa</i> var. <i>asterionelloides</i> (GRUNOW) KNUDSON 1952	COLO	0.4
09/07/2015	DERW	TABA	<i>Tabellaria flocculosa</i> var. <i>asterionelloides</i> (GRUNOW) KNUDSON 1952	CELL	3.2
09/07/2015	DERW	DICI	<i>Dictyosphaerium</i> NÄGELI sp.	COLO	1.1
09/07/2015	DERW	DICI	<i>Dictyosphaerium</i> NÄGELI sp.	CELL	10
09/07/2015	DERW	GONP	<i>Gonium pectorale</i> OF MÜLLER 1773	COLO	1.1
09/07/2015	DERW	GONP	<i>Gonium pectorale</i> OF MÜLLER 1773	CELL	17.2
09/07/2015	DERW	SCEN	<i>Scenedesmus</i> MEYEN 1829 sp.	COLO	1.1
09/07/2015	DERW	SCEN	<i>Scenedesmus</i> MEYEN 1829 sp.	CELL	4.3
09/07/2015	DERW	COEF	<i>Coenochloris fottii</i> (HINDÁK) TSARENKO 1990	COLO	0.7
09/07/2015	DERW	COEF	<i>Coenochloris fottii</i> (HINDÁK) TSARENKO 1990	CELL	8.6
09/07/2015	DERW	ELAK	<i>Elakatothrix</i> WILLE sp.	COLO	2.2
09/07/2015	DERW	ELAK	<i>Elakatothrix</i> WILLE sp.	CELL	15.1
09/07/2015	DERW	OOCY	<i>Oocystis</i> NÄGELI emend. FOTT sp.	COLO	0.7
09/07/2015	DERW	OOCY	<i>Oocystis</i> NÄGELI emend. FOTT sp.	CELL	2.9
09/07/2015	DERW	COEX	<i>Coelosphaerium minutissimum</i>	COLO	0.4

Date	Lake	Alga	Algal name	Form	Value cm ⁻³
09/07/2015	DERW	ANCF	Anabaena circinalis &/or flos-aquae	FILA	0.4
09/07/2015	DERW	ANCF	Anabaena circinalis &/or flos-aquae	CELL	14.4
09/07/2015	DERW	SPON	Spondylosium BREBISSON sp.	CELL	0.4
09/07/2015	DERW	RHOD	Rhodomonas KARSTEN sp.	CELL	167.9
09/07/2015	DERW	CHRP	Chrysochromulina parva LACKEY 1939	CELL	205.8
09/07/2015	DERW	CHLA	Chlamydomonas EHRENBERG 1833 sp.	CELL	10.8
09/07/2015	DERW	CHLO	Chlorella BEIJERINCK 1890 sp.	CELL	686.9
09/07/2015	DERW	BITI	Bitrichia WOLOSZNSKA sp.	CELL	10.8
09/07/2015	DERW	UROG	Uroglena EHRENBERG (1833) 1835 sp.	CELL	32.5
09/07/2015	DERW	MONY	Monoraphidium dybowskii (WOLASYNSKA) HINDAK & KOMARKOVA - LEGENEROVA	CELL	5.4
09/07/2015	DERW	MALA	Mallomonas akrokomas RUTTNER IN PASCHER 1913	CELL	5.4
09/07/2015	DERW	SYNU	Synura EHRENBERG 1838 sp.	COLO	5.4
09/07/2015	DERW	SYNU	Synura EHRENBERG 1838 sp.	CELL	86.6
09/07/2015	DERW	ASTC	Asterococcus spp. SCHERFFEL	COLO	5.4
09/07/2015	DERW	ASTC	Asterococcus spp. SCHERFFEL	CELL	21.7
02/07/2015	ELTE	PSEL	Pseudanabaena limnetica (LEMMERMANN) KOMÁREK	FILA	482.2
02/07/2015	ELTE	PSEL	Pseudanabaena limnetica (LEMMERMANN) KOMÁREK	LENG	64.686
02/07/2015	ELTE	MERP	Merismopedia punctata	COLO	241.7
02/07/2015	ELTE	MERP	Merismopedia punctata	CELL	3319.7
02/07/2015	ELTE	CRYP	Cryptomonas EHRENBERG 1838 spp.	CELL	218.9
02/07/2015	ELTE	KOLO	Koliella HINDÁK sp.	CELL	174.4
02/07/2015	ELTE	DICI	Dictyosphaerium NÄGELI sp.	COLO	90.6
02/07/2015	ELTE	DICI	Dictyosphaerium NÄGELI sp.	CELL	472
02/07/2015	ELTE	SYNA	Synedra acus KÜTZING 1844	CELL	90.6
02/07/2015	ELTE	PERS	Peridinium EHRENBERG 1832 sp. (small) (25um cbut, csre)	CELL	24.6
02/07/2015	ELTE	PERS	Peridinium EHRENBERG 1832 sp. (small) (25um cbut, csre)	DEAD	10.9
02/07/2015	ELTE	PERM	Peridinium EHRENBERG 1832 sp. (medium)	CELL	10.9
02/07/2015	ELTE	PERM	Peridinium EHRENBERG 1832 sp. (medium)	DEAD	1
02/07/2015	ELTE	MALC	Mallomonas caudata IVANOV 1899	CELL	1.7
02/07/2015	ELTE	MALL	Mallomonas PERTY 1851 sp.	CELL	1.4
02/07/2015	ELTE	GYML	Gymnodinium STEIN 1878 sp. (large)	CELL	0.3
02/07/2015	ELTE	PHAC	Phacus DUJARDIN 1841 sp.	CELL	0.3
02/07/2015	ELTE	EUGL	Euglena EHRENBERG 1830 sp.	CELL	7.2
02/07/2015	ELTE	TRAO	Trachelomonas volvocina EHRENBERG 1833	CELL	22.2
02/07/2015	ELTE	TRAH	Trachelomonas hispida (PERTY) STEIN 1883	CELL	1.7
02/07/2015	ELTE	STAR	Staurodesmus TEILING sp.	CELL	1.4
02/07/2015	ELTE	ASTF	Asterionella formosa HASSALL 1855	COLO	29.8
02/07/2015	ELTE	ASTF	Asterionella formosa HASSALL 1855	CELL	64
02/07/2015	ELTE	ASTF	Asterionella formosa HASSALL 1855	DEAD	1.4
02/07/2015	ELTE	PAUT	Paulschulzia tenera (KORSHIKOV) LUND 1960	COLO	4.1
02/07/2015	ELTE	PAUT	Paulschulzia tenera (KORSHIKOV) LUND 1960	CELL	21.2
02/07/2015	ELTE	DIND	Dinobryon divergens IMHOF 1887	COLO	3.8
02/07/2015	ELTE	DIND	Dinobryon divergens IMHOF 1887	CELL	23.9
02/07/2015	ELTE	DINV	Dinobryon bavaricum IMHOF 1890	COLO	7.2
02/07/2015	ELTE	DINV	Dinobryon bavaricum IMHOF 1890	CELL	23.9
02/07/2015	ELTE	ELAK	Elakatothrix WILLE sp.	COLO	1.7
02/07/2015	ELTE	ELAK	Elakatothrix WILLE sp.	CELL	3.8
02/07/2015	ELTE	OOCY	Oocystis NÄGELI emend. FOTT sp.	COLO	0.3
02/07/2015	ELTE	OOCY	Oocystis NÄGELI emend. FOTT sp.	CELL	1.4
02/07/2015	ELTE	SYNC	Syncrypta spp. EHRENBERG	COLO	2.1
02/07/2015	ELTE	SYNC	Syncrypta spp. EHRENBERG	CELL	47.2
02/07/2015	ELTE	SCEN	Scenedesmus MEYEN 1829 sp.	COLO	13
02/07/2015	ELTE	SCEN	Scenedesmus MEYEN 1829 sp.	CELL	46.5
02/07/2015	ELTE	COEF	Coenochloris fottii (HINDÁK) TSARENKO 1990	COLO	0.7

Date	Lake	Alga	Algal name	Form	Value cm ⁻³
02/07/2015	ELTE	COEF	Coenochloris fottii (HINDAK) TSARENKO 1990	CELL	5.5
02/07/2015	ELTE	PSEG	Pseudosphaerocystis sp.	COLO	1
02/07/2015	ELTE	PSEG	Pseudosphaerocystis sp.	CELL	8.2
02/07/2015	ELTE	SPON	Spondylosium BREBISSON sp.	FILA	6.2
02/07/2015	ELTE	SPON	Spondylosium BREBISSON sp.	CELL	8.6
02/07/2015	ELTE	UNCO	Unidentified colony	COLO	2.4
02/07/2015	ELTE	UNCO	Unidentified colony	CELL	76.6
02/07/2015	ELTE	RHOD	Rhodomonas KARSTEN sp.	CELL	31.5
02/07/2015	ELTE	CHRP	Chrysochromulina parva LACKEY 1939	CELL	99.9
02/07/2015	ELTE	CHLA	Chlamydomonas EHRENBERG 1833 sp.	CELL	5.3
02/07/2015	ELTE	CHLO	Chlorella BEIJERINCK 1890 sp.	CELL	210.2
02/07/2015	ELTE	NISY	Nitzschia /Synedra (uncertain which)	CELL	68.3
02/07/2015	ELTE	NISY	Nitzschia /Synedra (uncertain which)	DEAD	15.8
02/07/2015	ELTE	MONO	Monoraphidium contortum (THURET) KOMÁRKOVÁ-LEGNEROVÁ 1969	CELL	5.3
02/07/2015	ELTE	UROS	Urosolenia ROUND & CRAWFORD	CELL	483.6
02/07/2015	ELTE	UROS	Urosolenia ROUND & CRAWFORD	DEAD	63.1
02/07/2015	ELTE	CYCT	Cyclotella KÜTZING EX BRÉBISSON 1838 sp.	CELL	42
02/07/2015	ELTE	CYCT	Cyclotella KÜTZING EX BRÉBISSON 1838 sp.	DEAD	21
02/07/2015	ELTE	MONY	Monoraphidium dybowskii (WOLASYNSKA) HINDAK & KOMARKOVA - LEGENEROVA	CELL	15.8
02/07/2015	ELTE	KEPC	Kephyrion cupuliforme CONRAD	CELL	15.8
02/07/2015	ELTE	KEPO	Kephyrion boreale SKUJA	CELL	21
02/07/2015	ELTE	KEPO	Kephyrion boreale SKUJA	DEAD	5.3
02/07/2015	ELTE	OCHR	Ochromonas WYSSOTSKI sp.	CELL	15.8
02/07/2015	ELTE	GOLR	Golenkinia radiata	CELL	26.3
02/07/2015	ELTE	UROG	Uroglena EHRENBERG (1833) 1835 sp.	CELL	73.6
02/07/2015	ELTE	GONS	Gonium sociale (DUJARDIN) WARMING	COLO	5.3
02/07/2015	ELTE	GONS	Gonium sociale (DUJARDIN) WARMING	CELL	21
02/07/2015	ELTE	TETM	Tetraedron minimum (A.BRAUN) HANSGIRG	CELL	5.3
08/07/2015	ENNE	CRYP	Cryptomonas EHRENBERG 1838 spp.	CELL	3.8
08/07/2015	ENNE	PERS	Peridinium EHRENBERG 1832 sp. (small) (25um cbut, csre)	CELL	8.9
08/07/2015	ENNE	PERS	Peridinium EHRENBERG 1832 sp. (small) (25um cbut, csre)	DEAD	4.8
08/07/2015	ENNE	CYCT	Cyclotella KÜTZING EX BRÉBISSON 1838 sp.	CELL	35.9
08/07/2015	ENNE	CYCT	Cyclotella KÜTZING EX BRÉBISSON 1838 sp.	DEAD	2.7
08/07/2015	ENNE	CYCC	Cyclotella comensis GRUNOW IN VAN HEURCK 1882	FILA	1.4
08/07/2015	ENNE	CYCC	Cyclotella comensis GRUNOW IN VAN HEURCK 1882	CELL	5.1
08/07/2015	ENNE	CYCC	Cyclotella comensis GRUNOW IN VAN HEURCK 1882	DEAD	0.7
08/07/2015	ENNE	STAR	Staurodesmus TEILING sp.	CELL	1.4
08/07/2015	ENNE	KOLI	Koliella spiculiformis (VISCHER) HINDAK	CELL	1.7
08/07/2015	ENNE	GYML	Gymnodinium STEIN 1878 sp. (large)	CELL	1
08/07/2015	ENNE	SCEN	Scenedesmus MEYEN 1829 sp.	COLO	0.3
08/07/2015	ENNE	SCEN	Scenedesmus MEYEN 1829 sp.	CELL	2.7
08/07/2015	ENNE	OOCY	Oocystis NÄGELI emend. FOTT sp.	COLO	2.1
08/07/2015	ENNE	OOCY	Oocystis NÄGELI emend. FOTT sp.	CELL	4.1
08/07/2015	ENNE	SPON	Spondylosium BREBISSON sp.	FILA	1
08/07/2015	ENNE	SPON	Spondylosium BREBISSON sp.	CELL	1.4
08/07/2015	ENNE	DIND	Dinobryon divergens IMHOF 1887	COLO	0.7
08/07/2015	ENNE	DIND	Dinobryon divergens IMHOF 1887	CELL	7.9
08/07/2015	ENNE	TABF	Tabellaria flocculosa (ROTH) KÜTZING 1844 var. flocculosa	COLO	0.3
08/07/2015	ENNE	TABF	Tabellaria flocculosa (ROTH) KÜTZING 1844 var. flocculosa	CELL	1
08/07/2015	ENNE	TABF	Tabellaria flocculosa (ROTH) KÜTZING 1844 var. flocculosa	DEAD	0.3
08/07/2015	ENNE	CRUR	Crucigenia rectangularis (NÄGELI) GAY	COLO	0.3
08/07/2015	ENNE	CRUR	Crucigenia rectangularis (NÄGELI) GAY	CELL	4.1
08/07/2015	ENNE	RHOD	Rhodomonas KARSTEN sp.	CELL	21
08/07/2015	ENNE	CHRP	Chrysochromulina parva LACKEY 1939	CELL	21

Date	Lake	Alga	Algal name	Form	Value cm ⁻³
08/07/2015	ENNE	CHLO	Chlorella BEIJERINCK 1890 sp.	CELL	220.8
08/07/2015	ENNE	BITR	Bitrichia chodatii (REVERDIN) CHODAT 1926	CELL	52.6
08/07/2015	ENNE	ELAK	Elakatothrix WILLE sp.	CELL	15.8
07/07/2015	ESTH	CRYP	Cryptomonas EHRENBERG 1838 spp.	CELL	29.1
07/07/2015	ESTH	NISY	Nitzschia /Synedra (uncertain which)	CELL	4.7
07/07/2015	ESTH	TRAO	Trachelomonas volvocina EHRENBERG 1833	CELL	7.2
07/07/2015	ESTH	CHAC	Characium spp. - A.BRAUN	CELL	3.2
07/07/2015	ESTH	KOLI	Koliella spiculiformis (VISCHER) HINDAK	CELL	1.1
07/07/2015	ESTH	MALC	Mallomonas caudata IVANOV 1899	CELL	0.7
07/07/2015	ESTH	GYML	Gymnodinium STEIN 1878 sp. (large)	CELL	0.7
07/07/2015	ESTH	PERC	Peridinium cinctum (OF MÜLLER) EHRENBERG 1838	CELL	0.4
07/07/2015	ESTH	PERM	Peridinium EHRENBERG 1832 sp. (medium)	CELL	8.3
07/07/2015	ESTH	PERS	Peridinium EHRENBERG 1832 sp. (small) (25um cbut, csre)	CELL	3.2
07/07/2015	ESTH	CERH	Ceratium hirundinella (OF MÜLLER) DUJARDIN 1846 (included C. furcoides until 1983-1984, check individual lakes)	CELL	0.7
07/07/2015	ESTH	WORN	Woronichinia naegeliana (UNGER) ELENKIN 1933	COLO	0.7
07/07/2015	ESTH	BOTB	Botryococcus braunii KÜTZING 1849	COLO	1.1
07/07/2015	ESTH	APHC	Aphanothece clathrata WEST & G.S.WEST 1906	COLO	0.7
07/07/2015	ESTH	COEF	Coenochloris fottii (HINDÁK) TSARENKO 1990	COLO	2.2
07/07/2015	ESTH	COEF	Coenochloris fottii (HINDÁK) TSARENKO 1990	CELL	28.7
07/07/2015	ESTH	PAUP	Paulschulzia pseudovolvox (SCHULZ) SKUJA 1948	COLO	6.1
07/07/2015	ESTH	PAUP	Paulschulzia pseudovolvox (SCHULZ) SKUJA 1948	CELL	51.7
07/07/2015	ESTH	EUDS	Eudorina EHRENBERG 1832 sp.	COLO	7.9
07/07/2015	ESTH	EUDS	Eudorina EHRENBERG 1832 sp.	CELL	223.9
07/07/2015	ESTH	GONP	Gonium pectorale OF MÜLLER 1773	COLO	0.4
07/07/2015	ESTH	GONP	Gonium pectorale OF MÜLLER 1773	CELL	5.7
07/07/2015	ESTH	PSEG	Pseudosphaerocystis sp.	COLO	20.1
07/07/2015	ESTH	PSEG	Pseudosphaerocystis sp.	CELL	267
07/07/2015	ESTH	OOCY	Oocystis NÄGELI emend. FOTT sp.	COLO	0.4
07/07/2015	ESTH	OOCY	Oocystis NÄGELI emend. FOTT sp.	CELL	0.7
07/07/2015	ESTH	OOCY	Oocystis NÄGELI emend. FOTT sp.	DEAD	2.2
07/07/2015	ESTH	DICI	Dictyosphaerium NÄGELI sp.	COLO	0.4
07/07/2015	ESTH	DICI	Dictyosphaerium NÄGELI sp.	CELL	11.5
07/07/2015	ESTH	ELAK	Elakatothrix WILLE sp.	COLO	0.4
07/07/2015	ESTH	ELAK	Elakatothrix WILLE sp.	CELL	0.7
07/07/2015	ESTH	ANCF	Anabaena circinalis &/or flos-aquae	FILA	22.6
07/07/2015	ESTH	ANCF	Anabaena circinalis &/or flos-aquae	CELL	453.9
07/07/2015	ESTH	PLAA	Planktothrix agardhii (GOMONT) ANAGNOSTIDIS & C845 1988	FILA	6.5
07/07/2015	ESTH	PLAA	Planktothrix agardhii (GOMONT) ANAGNOSTIDIS & C845 1988	LENG	1.881
07/07/2015	ESTH	APHF	Aphanizomenon flos-aquae (LINNAEUS) RALFS	FILA	1.1
07/07/2015	ESTH	APHF	Aphanizomenon flos-aquae (LINNAEUS) RALFS	LENG	0.102
07/07/2015	ESTH	AULS	Aulacoseira subarctica (O MÜLLER) E Y HAWORTH 1988	FILA	1.8
07/07/2015	ESTH	AULS	Aulacoseira subarctica (O MÜLLER) E Y HAWORTH 1988	CELL	10.4
07/07/2015	ESTH	AULS	Aulacoseira subarctica (O MÜLLER) E Y HAWORTH 1988	DEAD	2.5
07/07/2015	ESTH	RHOD	Rhodomonas KARSTEN sp.	CELL	184.1
07/07/2015	ESTH	CHRP	Chrysochromulina parva LACKEY 1939	CELL	162.5
07/07/2015	ESTH	CHLA	Chlamydomonas EHRENBERG 1833 sp.	CELL	27.1
07/07/2015	ESTH	CHLO	Chlorella BEIJERINCK 1890 sp.	CELL	254.5
07/07/2015	ESTH	UROG	Uroglena EHRENBERG (1833) 1835 sp.	CELL	70.4
06/07/2015	GRAS	CRYP	Cryptomonas EHRENBERG 1838 spp.	CELL	332.9
06/07/2015	GRAS	TRAO	Trachelomonas volvocina EHRENBERG 1833	CELL	1.4
06/07/2015	GRAS	STAC	Staurastrum chaetoceras (W & GS WEST) GM SMITH 1924	CELL	1
06/07/2015	GRAS	STAI	Staurastrum cingulum (W & G.S.WEST) G.M.SMITH 1922	CELL	0.3
06/07/2015	GRAS	NISY	Nitzschia /Synedra (uncertain which)	CELL	0.3
06/07/2015	GRAS	ASTF	Asterionella formosa HASSALL 1855	COLO	0.7

Date	Lake	Alga	Algal name	Form	Value cm ⁻³
06/07/2015	GRAS	ASTF	Asterionella formosa HASSALL 1855	CELL	5.5
06/07/2015	GRAS	ANCF	Anabaena circinalis &/or flos-aquae	FILA	4.4
06/07/2015	GRAS	ANCF	Anabaena circinalis &/or flos-aquae	CELL	31.1
06/07/2015	GRAS	COEF	Coenochloris fottii (HINDÁK) TSARENKO 1990	COLO	10.3
06/07/2015	GRAS	COEF	Coenochloris fottii (HINDÁK) TSARENKO 1990	CELL	87.6
06/07/2015	GRAS	DIND	Dinobryon divergens IMHOF 1887	COLO	1
06/07/2015	GRAS	DIND	Dinobryon divergens IMHOF 1887	CELL	3.4
06/07/2015	GRAS	RHOD	Rhodomonas KARSTEN sp.	CELL	993.4
06/07/2015	GRAS	CHRP	Chrysochromulina parva LACKEY 1939	CELL	73.6
06/07/2015	GRAS	CHLA	Chlamydomonas EHRENBERG 1833 sp.	CELL	5.3
06/07/2015	GRAS	CHLO	Chlorella BEIJERINCK 1890 sp.	CELL	273.3
06/07/2015	GRAS	MALA	Mallomonas akrokomas RUTTNER IN PASCHER 1913	CELL	78.8
06/07/2015	GRAS	MALL	Mallomonas PERTY 1851 sp.	CELL	5.3
06/07/2015	GRAS	ANKJ	Ankyra judayi (G.M.SMITH) FOTT 1957	CELL	131.4
06/07/2015	GRAS	UROG	Uroglena EHRENBERG (1833) 1835 sp.	CELL	26.3
06/07/2015	GRAS	UNCP	Unidentified cell	CELL	52.6
01/07/2015	HAWE	CRYP	Cryptomonas EHRENBERG 1838 spp.	CELL	13.7
01/07/2015	HAWE	MONO	Monoraphidium contortum (THURET) KOMÁRKOVÁ-LEGNEROVÁ 1969	CELL	35.2
01/07/2015	HAWE	MALC	Mallomonas caudata IVANOV 1899	CELL	0.7
01/07/2015	HAWE	NISY	Nitzschia /Synedra (uncertain which)	CELL	0.7
01/07/2015	HAWE	ASTF	Asterionella formosa HASSALL 1855	COLO	2.1
01/07/2015	HAWE	ASTF	Asterionella formosa HASSALL 1855	CELL	11.3
01/07/2015	HAWE	ASTF	Asterionella formosa HASSALL 1855	DEAD	2.4
01/07/2015	HAWE	CYCT	Cyclotella KÜTZING EX BRÉBISSON 1838 sp.	CELL	1
01/07/2015	HAWE	AULS	Aulacoseira subarctica (O MÜLLER) E Y HAWORTH 1988	FILA	4.8
01/07/2015	HAWE	AULS	Aulacoseira subarctica (O MÜLLER) E Y HAWORTH 1988	CELL	8.2
01/07/2015	HAWE	AULS	Aulacoseira subarctica (O MÜLLER) E Y HAWORTH 1988	DEAD	4.4
01/07/2015	HAWE	ASTC	Asterococcus spp. SCHERFFEL	CELL	1.4
01/07/2015	HAWE	ELAK	Elakatothrix WILLE sp.	COLO	0.7
01/07/2015	HAWE	ELAK	Elakatothrix WILLE sp.	CELL	6.8
01/07/2015	HAWE	COEF	Coenochloris fottii (HINDÁK) TSARENKO 1990	COLO	0.3
01/07/2015	HAWE	COEF	Coenochloris fottii (HINDÁK) TSARENKO 1990	CELL	2.7
01/07/2015	HAWE	OOCY	Oocystis NÄGELI emend. FOTT sp.	COLO	0.3
01/07/2015	HAWE	OOCY	Oocystis NÄGELI emend. FOTT sp.	CELL	1.4
01/07/2015	HAWE	OSCI	Oscillatoria agardhii var.isothrix SKUJA	FILA	2.7
01/07/2015	HAWE	OSCI	Oscillatoria agardhii var.isothrix SKUJA	LENG	0.677
01/07/2015	HAWE	PLAA	Planktothrix agardhii (GOMONT) ANAGNOSTIDIS & C845 1988	FILA	3.1
01/07/2015	HAWE	PLAA	Planktothrix agardhii (GOMONT) ANAGNOSTIDIS & C845 1988	LENG	0.456
01/07/2015	HAWE	WORN	Woronichinia naegeliana (UNGER) ELENKIN 1933	COLO	1.4
01/07/2015	HAWE	APHA	Aphanocapsa NÄGELI 1849 sp.	COLO	1.4
01/07/2015	HAWE	RHOD	Rhodomonas KARSTEN sp.	CELL	346.9
01/07/2015	HAWE	CHRP	Chrysochromulina parva LACKEY 1939	CELL	47.3
01/07/2015	HAWE	CHLO	Chlorella BEIJERINCK 1890 sp.	CELL	504.6
01/07/2015	HAWE	TETI	Tetraedron KÜTZING ex KORSHIKOV sp.	CELL	21
01/07/2015	HAWE	UROG	Uroglena EHRENBERG (1833) 1835 sp.	CELL	63.1
01/07/2015	HAWE	MALA	Mallomonas akrokomas RUTTNER IN PASCHER 1913	CELL	5.3
01/07/2015	HAWE	MALL	Mallomonas PERTY 1851 sp.	CELL	15.8
01/07/2015	HAWE	UROS	Urosolenia ROUND & CRAWFORD	CELL	5.3
01/07/2015	HAWE	MONY	Monoraphidium dybowskii (WOLASYNSKA) HINDAK & KOMARKOVA - LEGENEROVA	CELL	5.3
01/07/2015	HAWE	GOLR	Golenkinia radiata	CELL	5.3
02/07/2015	LOUG	CRYP	Cryptomonas EHRENBERG 1838 spp.	CELL	5.5
02/07/2015	LOUG	PERC	Peridinium cinctum (OF MÜLLER) EHRENBERG 1838	CELL	0.3
02/07/2015	LOUG	PERM	Peridinium EHRENBERG 1832 sp. (medium)	CELL	0.3
02/07/2015	LOUG	PERM	Peridinium EHRENBERG 1832 sp. (medium)	DEAD	0.3

Date	Lake	Alga	Algal name	Form	Value cm ⁻³
02/07/2015	LOUG	CERH	Ceratium hirundinella (OF MÜLLER) DUJARDIN 1846 (included C. furcoides until 1983-1984, check individual lakes)	CELL	2.4
02/07/2015	LOUG	GYML	Gymnodinium STEIN 1878 sp. (large)	CELL	2.7
02/07/2015	LOUG	GYMA	Gymnodinium helveticum forma achroum SKUJA 1948	CELL	0.7
02/07/2015	LOUG	TRAO	Trachelomonas volvocina EHRENBERG 1833	CELL	0.3
02/07/2015	LOUG	AULS	Aulacoseira subarctica (O MÜLLER) E Y HAWORTH 1988	FILA	0.7
02/07/2015	LOUG	AULS	Aulacoseira subarctica (O MÜLLER) E Y HAWORTH 1988	CELL	2.7
02/07/2015	LOUG	AULS	Aulacoseira subarctica (O MÜLLER) E Y HAWORTH 1988	DEAD	0.3
02/07/2015	LOUG	ASTF	Asterionella formosa HASSALL 1855	COLO	1
02/07/2015	LOUG	ASTF	Asterionella formosa HASSALL 1855	CELL	1
02/07/2015	LOUG	ASTF	Asterionella formosa HASSALL 1855	DEAD	0.3
02/07/2015	LOUG	TABV	Tabellaria flocculosa (ROTH) KÜTZING 1844 var. other than asterionelloides or flocculosa (mainly zig zag formation)	COLO	0.3
02/07/2015	LOUG	TABV	Tabellaria flocculosa (ROTH) KÜTZING 1844 var. other than asterionelloides or flocculosa (mainly zig zag formation)	CELL	2.4
02/07/2015	LOUG	TABV	Tabellaria flocculosa (ROTH) KÜTZING 1844 var. other than asterionelloides or flocculosa (mainly zig zag formation)	DEAD	0.7
02/07/2015	LOUG	PLAS	Planktothrix sp.	FILA	16.4
02/07/2015	LOUG	PLAS	Planktothrix sp.	LENG	4.689
02/07/2015	LOUG	ANCF	Anabaena circinalis &/or flos-aquae	FILA	0.3
02/07/2015	LOUG	ANCF	Anabaena circinalis &/or flos-aquae	CELL	61.6
02/07/2015	LOUG	UNID	Unidentified flagellate	CELL	4415.2
02/07/2015	LOUG	RHOD	Rhodomonas KARSTEN sp.	CELL	215.5
02/07/2015	LOUG	CHRP	Chrysochromulina parva LACKEY 1939	CELL	73.6
02/07/2015	LOUG	CHLO	Chlorella BEIJERINCK 1890 sp.	CELL	310.1
02/07/2015	LOUG	PENN	Pennate diatoms	CELL	5.3
02/07/2015	LOUG	CYCT	Cyclotella KÜTZING EX BRÉBISSON 1838 sp.	CELL	10.5
02/07/2015	LOUG	MONY	Monoraphidium dybowskii (WOLASYNSKA) HINDAK & KOMARKOVA - LEGENEROVA	CELL	10.5
02/07/2015	LOUG	UROG	Uroglena EHRENBERG (1833) 1835 sp.	CELL	5.3
03/07/2015	LOWE	CRYP	Cryptomonas EHRENBERG 1838 spp.	CELL	17.1
03/07/2015	LOWE	CERH	Ceratium hirundinella (OF MÜLLER) DUJARDIN 1846 (included C. furcoides until 1983-1984, check individual lakes)	CELL	5.1
03/07/2015	LOWE	PERC	Peridinium cinctum (OF MÜLLER) EHRENBERG 1838	CELL	4.4
03/07/2015	LOWE	PERC	Peridinium cinctum (OF MÜLLER) EHRENBERG 1838	DEAD	0.7
03/07/2015	LOWE	STAR	Staurodesmus TEILING sp.	CELL	0.7
03/07/2015	LOWE	CYCT	Cyclotella KÜTZING EX BRÉBISSON 1838 sp.	CELL	1
03/07/2015	LOWE	STAI	Staurastrum cingulum (W & G.S.WEST) G.M.SMITH 1922	CELL	3.1
03/07/2015	LOWE	MALC	Mallomonas caudata IVANOV 1899	CELL	3.1
03/07/2015	LOWE	BOTB	Botryococcus braunii KÜTZING 1849	COLO	0.3
03/07/2015	LOWE	WORN	Woronichinia naegeliana (UNGER) ELENKIN 1933	COLO	2.1
03/07/2015	LOWE	ASTF	Asterionella formosa HASSALL 1855	COLO	1.4
03/07/2015	LOWE	ASTF	Asterionella formosa HASSALL 1855	CELL	1.7
03/07/2015	LOWE	VOLA	Volvox aureus	COLO	0.3
03/07/2015	LOWE	ELAK	Elakatothrix WILLE sp.	COLO	0.3
03/07/2015	LOWE	ELAK	Elakatothrix WILLE sp.	CELL	0.7
03/07/2015	LOWE	PSEG	Pseudosphaerocystis sp.	COLO	0.3
03/07/2015	LOWE	PSEG	Pseudosphaerocystis sp.	CELL	5.5
03/07/2015	LOWE	PLAK	Planktothrix mougeotii (BORY EX GOMONT) ANAGNOSTIDIS ET KOMÁREK 1988	FILA	0.3
03/07/2015	LOWE	PLAK	Planktothrix mougeotii (BORY EX GOMONT) ANAGNOSTIDIS ET KOMÁREK 1988	LENG	0.172
03/07/2015	LOWE	PLAS	Planktothrix sp.	FILA	0.3
03/07/2015	LOWE	PLAS	Planktothrix sp.	LENG	0.026
03/07/2015	LOWE	RHOD	Rhodomonas KARSTEN sp.	CELL	1208.9
03/07/2015	LOWE	CHRP	Chrysochromulina parva LACKEY 1939	CELL	15.8
03/07/2015	LOWE	CHLO	Chlorella BEIJERINCK 1890 sp.	CELL	352.2
03/07/2015	LOWE	CHRS	Chrysococcus KLEBS 1892 sp.	CELL	5.3
07/07/2015	NBAS	CRYP	Cryptomonas EHRENBERG 1838 spp.	CELL	93

Date	Lake	Alga	Algal name	Form	Value cm ⁻³
07/07/2015	NBAS	KOLI	Koliella spiculiformis (VISCHER) HINDAK	CELL	3.8
07/07/2015	NBAS	KOLL	Koliella longiseta HINDÁK 1963	CELL	0.3
07/07/2015	NBAS	GYML	Gymnodinium STEIN 1878 sp. (large)	CELL	1.4
07/07/2015	NBAS	CERH	Ceratium hirundinella (OF MÜLLER) DUJARDIN 1846 (included C. furcoides until 1983-1984, check individual lakes)	CELL	3.3
07/07/2015	NBAS	CERH	Ceratium hirundinella (OF MÜLLER) DUJARDIN 1846 (included C. furcoides until 1983-1984, check individual lakes)	DEAD	0.3
07/07/2015	NBAS	PERI	Peridinium EHRENBERG 1832 sp. (a distinct species for JL)	CELL	2.7
07/07/2015	NBAS	PERM	Peridinium EHRENBERG 1832 sp. (medium)	CELL	1.6
07/07/2015	NBAS	PERS	Peridinium EHRENBERG 1832 sp. (small) (25um cbut, csre)	CELL	2.2
07/07/2015	NBAS	COSQ	Cosmarium phaseolus Brebisson	CELL	0.3
07/07/2015	NBAS	COSM	Cosmarium CORDA EX RALFS 1848 sp.	CELL	0.3
07/07/2015	NBAS	NISY	Nitzschia /Synedra (uncertain which)	CELL	1.6
07/07/2015	NBAS	CHAC	Characium spp. - A.BRAUN	CELL	0.8
07/07/2015	NBAS	ASTF	Asterionella formosa HASSALL 1855	CELL	0.3
07/07/2015	NBAS	TABA	Tabellaria flocculosa var. asterionelloides (GRUNOW) KNUDSON 1952	COLO	0.5
07/07/2015	NBAS	TABA	Tabellaria flocculosa var. asterionelloides (GRUNOW) KNUDSON 1952	CELL	4.1
07/07/2015	NBAS	TABV	Tabellaria flocculosa (ROTH) KÜTZING 1844 var. other than asterionelloides or flocculosa (mainly zig zag formation)	COLO	1.1
07/07/2015	NBAS	TABV	Tabellaria flocculosa (ROTH) KÜTZING 1844 var. other than asterionelloides or flocculosa (mainly zig zag formation)	CELL	8.2
07/07/2015	NBAS	TABV	Tabellaria flocculosa (ROTH) KÜTZING 1844 var. other than asterionelloides or flocculosa (mainly zig zag formation)	DEAD	0.5
07/07/2015	NBAS	SPON	Spondylosium BREBISSON sp.	FILA	0.5
07/07/2015	NBAS	SPON	Spondylosium BREBISSON sp.	CELL	2.2
07/07/2015	NBAS	ANAP	Anabaena spiroides KLEBAHN 1895	FILA	0.3
07/07/2015	NBAS	ANAP	Anabaena spiroides KLEBAHN 1895	CELL	2.2
07/07/2015	NBAS	ANCF	Anabaena circinalis &/or flos-aquae	FILA	3.8
07/07/2015	NBAS	ANCF	Anabaena circinalis &/or flos-aquae	CELL	66.2
07/07/2015	NBAS	WORN	Woronichinia naegeliana (UNGER) ELENKIN 1933	COLO	0.3
07/07/2015	NBAS	BOTB	Botryococcus braunii KÜTZING 1849	COLO	0.3
07/07/2015	NBAS	SCEN	Scenedesmus MEYEN 1829 sp.	COLO	0.5
07/07/2015	NBAS	SCEN	Scenedesmus MEYEN 1829 sp.	CELL	2.2
07/07/2015	NBAS	DIND	Dinobryon divergens IMHOF 1887	COLO	1.6
07/07/2015	NBAS	DIND	Dinobryon divergens IMHOF 1887	CELL	11.5
07/07/2015	NBAS	COEF	Coenochloris fottii (HINDÁK) TSARENKO 1990	COLO	1.4
07/07/2015	NBAS	COEF	Coenochloris fottii (HINDÁK) TSARENKO 1990	CELL	55.8
07/07/2015	NBAS	EUDS	Eudorina EHRENBERG 1832 sp.	COLO	1.1
07/07/2015	NBAS	EUDS	Eudorina EHRENBERG 1832 sp.	CELL	26.3
07/07/2015	NBAS	GONP	Gonium pectorale OF MÜLLER 1773	COLO	0.3
07/07/2015	NBAS	GONP	Gonium pectorale OF MÜLLER 1773	CELL	4.4
07/07/2015	NBAS	PAUP	Paulschulzia pseudovolvox (SCHULZ) SKUJA 1948	COLO	0.5
07/07/2015	NBAS	PAUP	Paulschulzia pseudovolvox (SCHULZ) SKUJA 1948	CELL	2.2
07/07/2015	NBAS	NEPH	Nephrocytium NÄGELI sp.	COLO	0.3
07/07/2015	NBAS	NEPH	Nephrocytium NÄGELI sp.	CELL	2.2
07/07/2015	NBAS	PLAS	Planktothrix sp.	FILA	0.5
07/07/2015	NBAS	PLAS	Planktothrix sp.	LENG	0.188
07/07/2015	NBAS	PSEL	Pseudanabaena limnetica (LEMMERMANN) KOMÁREK	FILA	0.3
07/07/2015	NBAS	PSEL	Pseudanabaena limnetica (LEMMERMANN) KOMÁREK	LENG	0.059
07/07/2015	NBAS	RHOD	Rhodomonas KARSTEN sp.	CELL	572.9
07/07/2015	NBAS	CHRP	Chrysochromulina parva LACKEY 1939	CELL	5.3
07/07/2015	NBAS	CHLO	Chlorella BEIJERINCK 1890 sp.	CELL	215.5
07/07/2015	NBAS	UROG	Uroglena EHRENBERG (1833) 1835 sp.	CELL	26.3
07/07/2015	NBAS	ANKJ	Ankyra judayi (G.M.SMITH) FOTT 1957	CELL	10.5
07/07/2015	NBAS	SELG	Selenastrum gracile	CELL	5.3
07/07/2015	NBAS	MONY	Monoraphidium dybowskii (WOLASYNSKA) HINDAK & KOMARKOVA - LEGENEROVA	CELL	5.3
07/07/2015	NBAS	MICP	Micractinium FRESENIUS sp.	COLO	5.3

Date	Lake	Alga	Algal name	Form	Value cm ⁻³
07/07/2015	NBAS	MICP	Micractinium FRESENIUS sp.	CELL	10.5
02/07/2015	RYDA	CRYP	Cryptomonas EHRENBERG 1838 spp.	CELL	193.2
02/07/2015	RYDA	COEF	Coenochloris fottii (HINDÁK) TSARENKO 1990	COLO	57
02/07/2015	RYDA	COEF	Coenochloris fottii (HINDÁK) TSARENKO 1990	CELL	551.8
02/07/2015	RYDA	SYNM	Synedra EHRENBERG 1830 sp. (medium)	CELL	0.3
02/07/2015	RYDA	DIND	Dinobryon divergens IMHOF 1887	COLO	0.3
02/07/2015	RYDA	DIND	Dinobryon divergens IMHOF 1887	CELL	1
02/07/2015	RYDA	SCEN	Scenedesmus MEYEN 1829 sp.	COLO	0.7
02/07/2015	RYDA	SCEN	Scenedesmus MEYEN 1829 sp.	CELL	2.4
02/07/2015	RYDA	SCEN	Scenedesmus MEYEN 1829 sp.	DEAD	0.3
02/07/2015	RYDA	SPIR	Spirogyra LINK 1820 sp.	FILA	0.7
02/07/2015	RYDA	SPIR	Spirogyra LINK 1820 sp.	CELL	8.9
02/07/2015	RYDA	ASTF	Asterionella formosa HASSALL 1855	COLO	0.3
02/07/2015	RYDA	ASTF	Asterionella formosa HASSALL 1855	CELL	3.8
02/07/2015	RYDA	ASTF	Asterionella formosa HASSALL 1855	DEAD	0.7
02/07/2015	RYDA	ELAK	Elakatothrix WILLE sp.	COLO	0.3
02/07/2015	RYDA	ELAK	Elakatothrix WILLE sp.	CELL	0.7
02/07/2015	RYDA	RHOD	Rhodomonas KARSTEN sp.	CELL	572.9
02/07/2015	RYDA	CHRP	Chrysochromulina parva LACKEY 1939	CELL	10.5
02/07/2015	RYDA	CHLO	Chlorella BEIJERINCK 1890 sp.	CELL	162.9
02/07/2015	RYDA	MALA	Mallomonas akrokomas RUTTNER IN PASCHER 1913	CELL	278.6
02/07/2015	RYDA	ANKJ	Ankyra judayi (G.M.SMITH) FOTT 1957	CELL	52.6
02/07/2015	RYDA	MALL	Mallomonas PERTY 1851 sp.	CELL	5.3
02/07/2015	RYDA	UROG	Uroglena EHRENBERG (1833) 1835 sp.	CELL	15.8
02/07/2015	RYDA	KOLI	Koliella spiculiformis (VISCHER) HINDAK	CELL	10.5
07/07/2015	SBAS	CRYP	Cryptomonas EHRENBERG 1838 spp.	CELL	105.2
07/07/2015	SBAS	STAR	Staurodesmus TEILING sp.	CELL	0.3
07/07/2015	SBAS	SYNM	Synedra EHRENBERG 1830 sp. (medium)	CELL	0.3
07/07/2015	SBAS	CERH	Ceratium hirundinella (OF MÜLLER) DUJARDIN 1846 (included C. furcoides until 1983-1984, check individual lakes)	CELL	2.1
07/07/2015	SBAS	CERH	Ceratium hirundinella (OF MÜLLER) DUJARDIN 1846 (included C. furcoides until 1983-1984, check individual lakes)	DEAD	0.3
07/07/2015	SBAS	PERI	Peridinium EHRENBERG 1832 sp. (a distinct species for JL)	CELL	2.7
07/07/2015	SBAS	PERM	Peridinium EHRENBERG 1832 sp. (medium)	CELL	1
07/07/2015	SBAS	PERS	Peridinium EHRENBERG 1832 sp. (small) (25um cbut, csre)	CELL	0.3
07/07/2015	SBAS	COSQ	Cosmarium phaseolus Brebisson	CELL	3.1
07/07/2015	SBAS	STAC	Staurostrum chaetoceras (W & GS WEST) GM SMITH 1924	CELL	0.3
07/07/2015	SBAS	GYMA	Gymnodinium helveticum forma achroum SKUJA 1948	CELL	0.3
07/07/2015	SBAS	MALC	Mallomonas caudata IVANOV 1899	CELL	0.3
07/07/2015	SBAS	DIND	Dinobryon divergens IMHOF 1887	COLO	2.1
07/07/2015	SBAS	DIND	Dinobryon divergens IMHOF 1887	CELL	41.4
07/07/2015	SBAS	DIND	Dinobryon divergens IMHOF 1887	CYST	1.4
07/07/2015	SBAS	WORN	Woronichinia naegeliana (UNGER) ELENKIN 1933	COLO	2.4
07/07/2015	SBAS	SNOL	Snowella lacustris (CHODAT) KOMÁREK & HINDÁK 1988	COLO	0.7
07/07/2015	SBAS	COEF	Coenochloris fottii (HINDÁK) TSARENKO 1990	COLO	2.4
07/07/2015	SBAS	COEF	Coenochloris fottii (HINDÁK) TSARENKO 1990	CELL	27.4
07/07/2015	SBAS	EUDS	Eudorina EHRENBERG 1832 sp.	COLO	4.1
07/07/2015	SBAS	EUDS	Eudorina EHRENBERG 1832 sp.	CELL	98.5
07/07/2015	SBAS	PANM	Pandorina morum (OF MÜLLER) BORY 1824	COLO	0.3
07/07/2015	SBAS	PANM	Pandorina morum (OF MÜLLER) BORY 1824	CELL	2.7
07/07/2015	SBAS	DICI	Dictyosphaerium NÄGELI sp.	COLO	0.7
07/07/2015	SBAS	DICI	Dictyosphaerium NÄGELI sp.	CELL	8.2
07/07/2015	SBAS	ASTC	Asterococcus spp. SCHERFFEL	COLO	0.3
07/07/2015	SBAS	ASTC	Asterococcus spp. SCHERFFEL	CELL	0.7
07/07/2015	SBAS	PAUT	Paulschulzia tenera (KORSHIKOV) LUND 1960	COLO	0.3
07/07/2015	SBAS	PAUT	Paulschulzia tenera (KORSHIKOV) LUND 1960	CELL	1.4

Date	Lake	Alga	Algal name	Form	Value cm ⁻³
07/07/2015	SBAS	TABV	Tabellaria flocculosa (ROTH) KÜTZING 1844 var. other than asterionelloides or flocculosa (mainly zig zag formation)	COLO	8.6
07/07/2015	SBAS	TABV	Tabellaria flocculosa (ROTH) KÜTZING 1844 var. other than asterionelloides or flocculosa (mainly zig zag formation)	CELL	86.9
07/07/2015	SBAS	TABV	Tabellaria flocculosa (ROTH) KÜTZING 1844 var. other than asterionelloides or flocculosa (mainly zig zag formation)	DEAD	5.8
07/07/2015	SBAS	TABA	Tabellaria flocculosa var. asterionelloides (GRUNOW) KNUDSON 1952	COLO	0.3
07/07/2015	SBAS	TABA	Tabellaria flocculosa var. asterionelloides (GRUNOW) KNUDSON 1952	CELL	1.4
07/07/2015	SBAS	TABA	Tabellaria flocculosa var. asterionelloides (GRUNOW) KNUDSON 1952	DEAD	0.7
07/07/2015	SBAS	FRAC	Fragilaria crotonensis KITTON 1869 (var. crotonensis and var. prolongata until 1993 when var. prol coded ζ FRAT)	FILA	1.4
07/07/2015	SBAS	FRAC	Fragilaria crotonensis KITTON 1869 (var. crotonensis and var. prolongata until 1993 when var. prol coded ζ FRAT)	CELL	21.9
07/07/2015	SBAS	FRAC	Fragilaria crotonensis KITTON 1869 (var. crotonensis and var. prolongata until 1993 when var. prol coded ζ FRAT)	DEAD	2.7
07/07/2015	SBAS	ANCF	Anabaena circinalis &/or flos-aquae	FILA	2.1
07/07/2015	SBAS	ANCF	Anabaena circinalis &/or flos-aquae	CELL	131
07/07/2015	SBAS	ANAP	Anabaena spiroides KLEBAHN 1895	FILA	0.7
07/07/2015	SBAS	ANAP	Anabaena spiroides KLEBAHN 1895	CELL	19.5
07/07/2015	SBAS	SPON	Spondylosium BREBISSON sp.	FILA	0.7
07/07/2015	SBAS	SPON	Spondylosium BREBISSON sp.	CELL	2.1
07/07/2015	SBAS	ULGE	Ulothrix KÜTZING 1833 sp/Geminella TURPIN 1828 sp. (uncertain which)	FILA	1
07/07/2015	SBAS	ULGE	Ulothrix KÜTZING 1833 sp/Geminella TURPIN 1828 sp. (uncertain which)	CELL	28.4
07/07/2015	SBAS	PLAS	Planktothrix sp.	FILA	1.7
07/07/2015	SBAS	PLAS	Planktothrix sp.	LENG	0.426
07/07/2015	SBAS	RHOD	Rhodomonas KARSTEN sp.	CELL	229.4
07/07/2015	SBAS	CHRP	Chrysochromulina parva LACKEY 1939	CELL	66.9
07/07/2015	SBAS	CHLO	Chlorella BEIJERINCK 1890 sp.	CELL	105.1
07/07/2015	SBAS	STAI	Staurostrum cingulum (W & G.S.WEST) G.M.SMITH 1922	CELL	4.8
07/07/2015	SBAS	ANKJ	Ankyra judayi (G.M.SMITH) FOTT 1957	CELL	9.6
07/07/2015	SBAS	UROG	Uroglena EHRENBERG (1833) 1835 sp.	CELL	4.8
07/07/2015	SBAS	KEPH	Kephyrion PASCHER 1911 sp.	CELL	9.6
07/07/2015	SBAS	CYCT	Cyclotella KÜTZING EX BRÉBISSON 1838 sp.	CELL	4.8
03/07/2015	THIR	CRYP	Cryptomonas EHRENBERG 1838 spp.	CELL	25
03/07/2015	THIR	PERM	Peridinium EHRENBERG 1832 sp. (medium)	CELL	0.7
03/07/2015	THIR	NISY	Nitzschia /Synedra (uncertain which)	CELL	0.7
03/07/2015	THIR	GYML	Gymnodinium STEIN 1878 sp. (large)	CELL	5.5
03/07/2015	THIR	GYMS	Gymnodinium STEIN 1878 sp. (small)	CELL	6.8
03/07/2015	THIR	CERH	Ceratium hirundinella (OF MÜLLER) DUJARDIN 1846 (included C. furcoides until 1983-1984, check individual lakes)	CELL	0.3
03/07/2015	THIR	MALL	Mallomonas PERTY 1851 sp.	CELL	0.7
03/07/2015	THIR	CYCT	Cyclotella KÜTZING EX BRÉBISSON 1838 sp.	CELL	14
03/07/2015	THIR	CYCB	Cyclotella KÜTZING EX BRÉBISSON 1838 sp. (big)	CELL	0.7
03/07/2015	THIR	CYCC	Cyclotella comensis GRUNOW IN VAN HEURCK 1882	FILA	16.8
03/07/2015	THIR	CYCC	Cyclotella comensis GRUNOW IN VAN HEURCK 1882	CELL	55.1
03/07/2015	THIR	CYCC	Cyclotella comensis GRUNOW IN VAN HEURCK 1882	DEAD	3.4
03/07/2015	THIR	TABV	Tabellaria flocculosa (ROTH) KÜTZING 1844 var. other than asterionelloides or flocculosa (mainly zig zag formation)	COLO	1.7
03/07/2015	THIR	TABV	Tabellaria flocculosa (ROTH) KÜTZING 1844 var. other than asterionelloides or flocculosa (mainly zig zag formation)	CELL	6.2
03/07/2015	THIR	ASTF	Asterionella formosa HASSALL 1855	COLO	1
03/07/2015	THIR	ASTF	Asterionella formosa HASSALL 1855	CELL	4.1
03/07/2015	THIR	ASTF	Asterionella formosa HASSALL 1855	DEAD	1.4
03/07/2015	THIR	DIND	Dinobryon divergens IMHOF 1887	COLO	1.4
03/07/2015	THIR	DIND	Dinobryon divergens IMHOF 1887	CELL	7.5
03/07/2015	THIR	COLG	Unidentified colonial green	COLO	1
03/07/2015	THIR	COLG	Unidentified colonial green	CELL	16.4
03/07/2015	THIR	ANCF	Anabaena circinalis &/or flos-aquae	FILA	0.3
03/07/2015	THIR	ANCF	Anabaena circinalis &/or flos-aquae	CELL	3.1

Date	Lake	Alga	Algal name	Form	Value cm ⁻³
03/07/2015	THIR	PLAS	Planktothrix sp.	FILA	1
03/07/2015	THIR	PLAS	Planktothrix sp.	LENG	0.282
03/07/2015	THIR	RHOD	Rhodomonas KARSTEN sp.	CELL	120.9
03/07/2015	THIR	CHRP	Chrysochromulina parva LACKEY 1939	CELL	247
03/07/2015	THIR	CHLA	Chlamydomonas EHRENBERG 1833 sp.	CELL	5.3
03/07/2015	THIR	CHLO	Chlorella BEIJERINCK 1890 sp.	CELL	252.3
03/07/2015	THIR	UROS	Urosolenia ROUND & CRAWFORD	CELL	73.6
03/07/2015	THIR	UROS	Urosolenia ROUND & CRAWFORD	DEAD	63.1
03/07/2015	THIR	CHSK	Chrysolykos skujae	CELL	15.8
03/07/2015	THIR	GOLR	Golenkinia radiata	CELL	5.3
03/07/2015	THIR	UROG	Uroglena EHRENBERG (1833) 1835 sp.	CELL	15.8
03/07/2015	THIR	KEPH	Kephyrion PASCHER 1911 sp.	CELL	10.5
03/07/2015	THIR	ACHN	Achnanthes BORY 1822 sp.	CELL	5.3
03/07/2015	THIR	DINB	Dinobryon borgei LEMMERMANN	CELL	42
07/07/2015	ULLS	ASTF	Asterionella formosa HASSALL 1855	COLO	352.3
07/07/2015	ULLS	ASTF	Asterionella formosa HASSALL 1855	CELL	1070.5
07/07/2015	ULLS	ASTF	Asterionella formosa HASSALL 1855	DEAD	266.8
07/07/2015	ULLS	PLAA	Planktothrix agardhii (GOMONT) ANAGNOSTIDIS & C845 1988	FILA	167.6
07/07/2015	ULLS	PLAA	Planktothrix agardhii (GOMONT) ANAGNOSTIDIS & C845 1988	LENG	31.455
07/07/2015	ULLS	MONO	Monoraphidium contortum (THURET) KOMÁRKOVÁ-LEGNEROVÁ 1969	CELL	73.9
07/07/2015	ULLS	CRYP	Cryptomonas EHRENBERG 1838 spp.	CELL	45.1
07/07/2015	ULLS	NISY	Nitzschia /Synedra (uncertain which)	CELL	20.2
07/07/2015	ULLS	CYCT	Cyclotella KÜTZING EX BRÉBISSON 1838 sp.	CELL	15.4
07/07/2015	ULLS	CYCT	Cyclotella KÜTZING EX BRÉBISSON 1838 sp.	DEAD	1
07/07/2015	ULLS	CYCB	Cyclotella KÜTZING EX BRÉBISSON 1838 sp. (big)	CELL	4.4
07/07/2015	ULLS	CYCB	Cyclotella KÜTZING EX BRÉBISSON 1838 sp. (big)	DEAD	0.7
07/07/2015	ULLS	MALL	Mallomonas PERTY 1851 sp.	CELL	0.7
07/07/2015	ULLS	CERH	Ceratium hirundinella (OF MÜLLER) DUJARDIN 1846 (included C. furcoides until 1983-1984, check individual lakes)	CELL	0.3
07/07/2015	ULLS	PERS	Peridinium EHRENBERG 1832 sp. (small) (25um cbut, csre)	CELL	1.7
07/07/2015	ULLS	PERM	Peridinium EHRENBERG 1832 sp. (medium)	CELL	0.7
07/07/2015	ULLS	GYMS	Gymnodinium STEIN 1878 sp. (small)	CELL	0.7
07/07/2015	ULLS	AULS	Aulacoseira subarctica (O MÜLLER) E Y HAWORTH 1988	FILA	1.4
07/07/2015	ULLS	AULS	Aulacoseira subarctica (O MÜLLER) E Y HAWORTH 1988	CELL	4.4
07/07/2015	ULLS	AULS	Aulacoseira subarctica (O MÜLLER) E Y HAWORTH 1988	DEAD	6.5
07/07/2015	ULLS	PSEG	Pseudosphaerocystis sp.	COLO	0.3
07/07/2015	ULLS	PSEG	Pseudosphaerocystis sp.	CELL	2.7
07/07/2015	ULLS	COEF	Coenochloris fottii (HINDÁK) TSARENKO 1990	COLO	0.7
07/07/2015	ULLS	COEF	Coenochloris fottii (HINDÁK) TSARENKO 1990	CELL	5.5
07/07/2015	ULLS	ELAK	Elakatothrix WILLE sp.	COLO	0.3
07/07/2015	ULLS	ELAK	Elakatothrix WILLE sp.	CELL	0.7
07/07/2015	ULLS	ANCF	Anabaena circinalis &/or flos-aquae	FILA	1.4
07/07/2015	ULLS	ANCF	Anabaena circinalis &/or flos-aquae	CELL	9.2
07/07/2015	ULLS	FRAC	Fragilaria crotonensis KITTON 1869 (var. crotonensis and var. prolongata until 1993 when var. prol coded ě FRAT)	FILA	0.7
07/07/2015	ULLS	FRAC	Fragilaria crotonensis KITTON 1869 (var. crotonensis and var. prolongata until 1993 when var. prol coded ě FRAT)	CELL	1.4
07/07/2015	ULLS	FRAC	Fragilaria crotonensis KITTON 1869 (var. crotonensis and var. prolongata until 1993 when var. prol coded ě FRAT)	DEAD	0.3
07/07/2015	ULLS	PSEL	Pseudanabaena limnetica (LEMMERMANN) KOMÁREK	FILA	2.4
07/07/2015	ULLS	PSEL	Pseudanabaena limnetica (LEMMERMANN) KOMÁREK	LENG	0.412
07/07/2015	ULLS	UROS	Urosolenia ROUND & CRAWFORD	CELL	2039.4
07/07/2015	ULLS	UROS	Urosolenia ROUND & CRAWFORD	DEAD	546.6
07/07/2015	ULLS	RHOD	Rhodomonas KARSTEN sp.	CELL	341.7
07/07/2015	ULLS	CHRP	Chrysochromulina parva LACKEY 1939	CELL	15.8
07/07/2015	ULLS	CHLO	Chlorella BEIJERINCK 1890 sp.	CELL	178.7
07/07/2015	ULLS	UROG	Uroglena EHRENBERG (1833) 1835 sp.	CELL	15.8

Date	Lake	Alga	Algal name	Form	Value cm ⁻³
07/07/2015	ULLS	ACHN	Achnanthes BORY 1822 sp.	CELL	5.3
07/07/2015	ULLS	MONY	Monoraphidium dybowskii (WOLASYNSKA) HINDAK & KOMARKOVA - LEGENEROVA	CELL	10.5
02/07/2015	WAST	GYML	Gymnodinium STEIN 1878 sp. (large)	CELL	0.2
02/07/2015	WAST	GYMS	Gymnodinium STEIN 1878 sp. (small)	CELL	4.3
02/07/2015	WAST	PERS	Peridinium EHRENBERG 1832 sp. (small) (25um cbut, csre)	CELL	0.7
02/07/2015	WAST	PERS	Peridinium EHRENBERG 1832 sp. (small) (25um cbut, csre)	DEAD	0.5
02/07/2015	WAST	KOLI	Koliella spiculiformis (VISCHER) HINDAK	CELL	0.5
02/07/2015	WAST	CRYP	Cryptomonas EHRENBERG 1838 spp.	CELL	1.1
02/07/2015	WAST	CYCC	Cyclotella comensis GRUNOW IN VAN HEURCK 1882	FILA	2.1
02/07/2015	WAST	CYCC	Cyclotella comensis GRUNOW IN VAN HEURCK 1882	CELL	7.5
02/07/2015	WAST	COEF	Coenochloris fottii (HINDÁK) TSARENKO 1990	COLO	0.5
02/07/2015	WAST	COEF	Coenochloris fottii (HINDÁK) TSARENKO 1990	CELL	7.3
02/07/2015	WAST	RHOD	Rhodomonas KARSTEN sp.	CELL	15.8
02/07/2015	WAST	CHRP	Chrysochromulina parva LACKEY 1939	CELL	73.6
02/07/2015	WAST	CHLO	Chlorella BEIJERINCK 1890 sp.	CELL	157.7
02/07/2015	WAST	UNCP	Unidentified cell	CELL	157.7
02/07/2015	WAST	MONY	Monoraphidium dybowskii (WOLASYNSKA) HINDAK & KOMARKOVA - LEGENEROVA	CELL	21
02/07/2015	WAST	KEPH	Kephyrion PASCHER 1911 sp.	CELL	15.8
02/07/2015	WAST	UROG	Uroglena EHRENBERG (1833) 1835 sp.	CELL	15.8
02/07/2015	WAST	ELAK	Elakatothrix WILLE sp.	CELL	15.8
02/07/2015	WAST	CHRO	Chroomonas HANSGIRG sp.	CELL	5.3
02/07/2015	WAST	CHRM	Chromulina CIENKOWSKI sp.	CELL	5.3
02/07/2015	WAST	BITI	Bitrichia WOLOSZNSKA sp.	CELL	21
15/10/2015	BASS	MONO	Monoraphidium contortum (THURET) KOMÁRKOVÁ-LEGNEROVÁ 1969	CELL	65.7
15/10/2015	BASS	MALC	Mallomonas caudata IVANOV 1899	CELL	42.1
15/10/2015	BASS	CRYP	Cryptomonas EHRENBERG 1838 spp.	CELL	29.8
15/10/2015	BASS	CYCT	Cyclotella KÜTZING EX BRÉBISSON 1838 sp.	CELL	6.5
15/10/2015	BASS	CYCT	Cyclotella KÜTZING EX BRÉBISSON 1838 sp.	DEAD	0.3
15/10/2015	BASS	STAI	Staurastrum cingulum (W & G.S.WEST) G.M.SMITH 1922	CELL	0.3
15/10/2015	BASS	COSQ	Cosmarium phaseolus Brebisson	CELL	1
15/10/2015	BASS	PERS	Peridinium EHRENBERG 1832 sp. (small) (25um cbut, csre)	CELL	3.1
15/10/2015	BASS	SYNM	Synedra EHRENBERG 1830 sp. (medium)	CELL	1
15/10/2015	BASS	GYML	Gymnodinium STEIN 1878 sp. (large)	CELL	0.3
15/10/2015	BASS	ASTF	Asterionella formosa HASSALL 1855	COLO	9.9
15/10/2015	BASS	ASTF	Asterionella formosa HASSALL 1855	CELL	62.2
15/10/2015	BASS	ASTF	Asterionella formosa HASSALL 1855	DEAD	10.6
15/10/2015	BASS	AULS	Aulacoseira subarctica (O MÜLLER) E Y HAWORTH 1988	FILA	14
15/10/2015	BASS	AULS	Aulacoseira subarctica (O MÜLLER) E Y HAWORTH 1988	CELL	66.7
15/10/2015	BASS	AULS	Aulacoseira subarctica (O MÜLLER) E Y HAWORTH 1988	DEAD	20.9
15/10/2015	BASS	FRAA	Fragilaria capucina DESMAZIERES 1825	FILA	0.7
15/10/2015	BASS	FRAA	Fragilaria capucina DESMAZIERES 1825	CELL	8.6
15/10/2015	BASS	TABV	Tabellaria flocculosa (ROTH) KÜTZING 1844 var. other than asterionelloides or flocculosa (mainly zig zag formation)	COLO	0.3
15/10/2015	BASS	TABV	Tabellaria flocculosa (ROTH) KÜTZING 1844 var. other than asterionelloides or flocculosa (mainly zig zag formation)	CELL	1
15/10/2015	BASS	DICI	Dictyosphaerium NÄGELI sp.	COLO	1.4
15/10/2015	BASS	DICI	Dictyosphaerium NÄGELI sp.	CELL	65.7
15/10/2015	BASS	DIND	Dinobryon divergens IMHOF 1887	COLO	0.3
15/10/2015	BASS	DIND	Dinobryon divergens IMHOF 1887	CELL	1.7
15/10/2015	BASS	COEF	Coenochloris fottii (HINDÁK) TSARENKO 1990	COLO	0.3
15/10/2015	BASS	COEF	Coenochloris fottii (HINDÁK) TSARENKO 1990	CELL	2.7
15/10/2015	BASS	ELAK	Elakatothrix WILLE sp.	COLO	2.4
15/10/2015	BASS	ELAK	Elakatothrix WILLE sp.	CELL	5.1
15/10/2015	BASS	ANKU	Ankistrodesmus fusiformis CORDA	COLO	0.3
15/10/2015	BASS	ANKU	Ankistrodesmus fusiformis CORDA	CELL	1.4

Date	Lake	Alga	Algal name	Form	Value cm ⁻³
15/10/2015	BASS	OOCY	Oocystis NÄGELI emend. FOTT sp.	COLO	0.3
15/10/2015	BASS	OOCY	Oocystis NÄGELI emend. FOTT sp.	CELL	0.7
15/10/2015	BASS	RHOD	Rhodomonas KARSTEN sp.	CELL	767.4
15/10/2015	BASS	CHLA	Chlamydomonas EHRENBERG 1833 sp.	CELL	5.3
15/10/2015	BASS	CHLO	Chlorella BEIJERINCK 1890 sp.	CELL	562.4
15/10/2015	BASS	UROS	Urosolenia ROUND & CRAWFORD	CELL	78.8
15/10/2015	BASS	UROS	Urosolenia ROUND & CRAWFORD	DEAD	15.8
15/10/2015	BASS	ANKJ	Ankyra judayi (G.M.SMITH) FOTT 1957	CELL	5.3
15/10/2015	BASS	UROG	Uroglena EHRENBERG (1833) 1835 sp.	CELL	42
15/10/2015	BASS	MALA	Mallomonas akrokomas RUTTNER IN PASCHER 1913	CELL	36.8
15/10/2015	BASS	GONY	Gonyostomum semen	CELL	5.3
15/10/2015	BASS	MONY	Monoraphidium dybowskii (WOLASYNSKA) HINDAK & KOMARKOVA - LEGENEROVA	CELL	15.8
12/10/2015	BLEL	CRYP	Cryptomonas EHRENBERG 1838 spp.	CELL	156.5
12/10/2015	BLEL	PSEL	Pseudanabaena limnetica (LEMMERMANN) KOMÁREK	FILA	140.7
12/10/2015	BLEL	PSEL	Pseudanabaena limnetica (LEMMERMANN) KOMÁREK	LENG	29.134
12/10/2015	BLEL	NISY	Nitzschia /Synedra (uncertain which)	CELL	82.5
12/10/2015	BLEL	TRAO	Trachelomonas volvocina EHRENBERG 1833	CELL	55.3
12/10/2015	BLEL	MALC	Mallomonas caudata IVANOV 1899	CELL	10
12/10/2015	BLEL	EUGL	Euglena EHRENBERG 1830 sp.	CELL	3.9
12/10/2015	BLEL	COSQ	Cosmarium phaseolus Brebisson	CELL	5.7
12/10/2015	BLEL	MONO	Monoraphidium contortum (THURET) KOMÁRKOVÁ-LEGNEROVÁ 1969	CELL	14.7
12/10/2015	BLEL	KOLI	Koliella spiculiformis (VISCHER) HINDAK	CELL	2.2
12/10/2015	BLEL	KOLL	Koliella longiseta HINDÁK 1963	CELL	0.4
12/10/2015	BLEL	CLST	Closterium (straight) cf AEIR Bleham	CELL	3.2
12/10/2015	BLEL	CLOA	Closterium acutum (LYNGBYE) BREBISSON	CELL	0.7
12/10/2015	BLEL	SYNA	Synedra acus KÜTZING 1844	CELL	2.9
12/10/2015	BLEL	SYNA	Synedra acus KÜTZING 1844	DEAD	1.1
12/10/2015	BLEL	TETM	Tetraedron minimum (A.BRAUN) HANSGIRG	CELL	1.4
12/10/2015	BLEL	TETM	Tetraedron minimum (A.BRAUN) HANSGIRG	DEAD	0.7
12/10/2015	BLEL	GOLR	Golenkinia radiata	CELL	0.4
12/10/2015	BLEL	GYMA	Gymnodinium helveticum forma achroum SKUJA 1948	CELL	2.2
12/10/2015	BLEL	GONY	Gonyostomum semen	CELL	0.4
12/10/2015	BLEL	PERC	Peridinium cinctum (OF MÜLLER) EHRENBERG 1838	CELL	0.7
12/10/2015	BLEL	PERM	Peridinium EHRENBERG 1832 sp. (medium)	CELL	3.9
12/10/2015	BLEL	PERM	Peridinium EHRENBERG 1832 sp. (medium)	DEAD	0.4
12/10/2015	BLEL	PERS	Peridinium EHRENBERG 1832 sp. (small) (25um cbut, csre)	CELL	1.8
12/10/2015	BLEL	WORN	Woronichinia naegeliana (UNGER) ELENKIN 1933	COLO	2.2
12/10/2015	BLEL	APHC	Aphanothece clathrata WEST & G.S.WEST 1906	COLO	1.4
12/10/2015	BLEL	CRUT	Crucigenia tetrapedia (KIRCHNER) W & G.S WEST	COLO	39.8
12/10/2015	BLEL	CRUT	Crucigenia tetrapedia (KIRCHNER) W & G.S WEST	CELL	159.3
12/10/2015	BLEL	SCEN	Scenedesmus MEYEN 1829 sp.	COLO	16.1
12/10/2015	BLEL	SCEN	Scenedesmus MEYEN 1829 sp.	CELL	64.6
12/10/2015	BLEL	SYNC	Syncrypta spp. EHRENBERG	COLO	1.4
12/10/2015	BLEL	SYNC	Syncrypta spp. EHRENBERG	CELL	63.5
12/10/2015	BLEL	KIRC	Kirchneriella SCHMIDLE sp.	COLO	0.4
12/10/2015	BLEL	KIRC	Kirchneriella SCHMIDLE sp.	CELL	1.4
12/10/2015	BLEL	PAUT	Paulschulzia tenera (KORSHIKOV) LUND 1960	COLO	5.7
12/10/2015	BLEL	PAUT	Paulschulzia tenera (KORSHIKOV) LUND 1960	CELL	23.7
12/10/2015	BLEL	GONS	Gonium sociale (DUJARDIN) WARMING	COLO	0.4
12/10/2015	BLEL	GONS	Gonium sociale (DUJARDIN) WARMING	CELL	1.4
12/10/2015	BLEL	PEDT	Pediastrum tetras (EHRENBERG) RALFS 1844	COLO	3.9
12/10/2015	BLEL	PEDT	Pediastrum tetras (EHRENBERG) RALFS 1844	CELL	31.6
12/10/2015	BLEL	PEDD	Pediastrum duplex MEYEN 1829	COLO	0.7
12/10/2015	BLEL	PEDD	Pediastrum duplex MEYEN 1829	CELL	8.6

Date	Lake	Alga	Algal name	Form	Value cm ⁻³
12/10/2015	BLEL	DICI	Dictyosphaerium NÄGELI sp.	COLO	1.1
12/10/2015	BLEL	DICI	Dictyosphaerium NÄGELI sp.	CELL	23
12/10/2015	BLEL	ELAK	Elakatothrix WILLE sp.	COLO	2.2
12/10/2015	BLEL	ELAK	Elakatothrix WILLE sp.	CELL	4.7
12/10/2015	BLEL	PSEG	Pseudosphaerocystis sp.	COLO	1.4
12/10/2015	BLEL	PSEG	Pseudosphaerocystis sp.	CELL	14.4
12/10/2015	BLEL	DIND	Dinobryon divergens IMHOF 1887	COLO	35.2
12/10/2015	BLEL	DIND	Dinobryon divergens IMHOF 1887	CELL	503.8
12/10/2015	BLEL	ASTF	Asterionella formosa HASSALL 1855	COLO	33.4
12/10/2015	BLEL	ASTF	Asterionella formosa HASSALL 1855	CELL	91.1
12/10/2015	BLEL	ASTF	Asterionella formosa HASSALL 1855	DEAD	8.3
12/10/2015	BLEL	TABV	Tabellaria flocculosa (ROTH) KÜTZING 1844 var. other than asterionelloides or flocculosa (mainly zig zag formation)	COLO	5
12/10/2015	BLEL	TABV	Tabellaria flocculosa (ROTH) KÜTZING 1844 var. other than asterionelloides or flocculosa (mainly zig zag formation)	CELL	39.8
12/10/2015	BLEL	TABF	Tabellaria flocculosa (ROTH) KÜTZING 1844 var. flocculosa	COLO	1.4
12/10/2015	BLEL	TABF	Tabellaria flocculosa (ROTH) KÜTZING 1844 var. flocculosa	CELL	1.8
12/10/2015	BLEL	TABF	Tabellaria flocculosa (ROTH) KÜTZING 1844 var. flocculosa	DEAD	0.7
12/10/2015	BLEL	TABA	Tabellaria flocculosa var. asterionelloides (GRUNOW) KNUDSON 1952	COLO	0.4
12/10/2015	BLEL	TABA	Tabellaria flocculosa var. asterionelloides (GRUNOW) KNUDSON 1952	CELL	2.9
12/10/2015	BLEL	FRAC	Fragilaria crotonensis KITTON 1869 (var. crotonensis and var. prolongata until 1993 when var. prol coded ζ FRAT)	FILA	1.1
12/10/2015	BLEL	FRAC	Fragilaria crotonensis KITTON 1869 (var. crotonensis and var. prolongata until 1993 when var. prol coded ζ FRAT)	CELL	15.1
12/10/2015	BLEL	FRAC	Fragilaria crotonensis KITTON 1869 (var. crotonensis and var. prolongata until 1993 when var. prol coded ζ FRAT)	DEAD	0.7
12/10/2015	BLEL	FRAG	Fragilaria LYNGBYE 1819 sp.	FILA	1.8
12/10/2015	BLEL	FRAG	Fragilaria LYNGBYE 1819 sp.	CELL	35.2
12/10/2015	BLEL	AULS	Aulacoseira subarctica (O MÜLLER) E Y HAWORTH 1988	FILA	3.9
12/10/2015	BLEL	AULS	Aulacoseira subarctica (O MÜLLER) E Y HAWORTH 1988	CELL	16.1
12/10/2015	BLEL	AULS	Aulacoseira subarctica (O MÜLLER) E Y HAWORTH 1988	DEAD	0.7
12/10/2015	BLEL	ANCF	Anabaena circinalis &/or flos-aquae	FILA	0.4
12/10/2015	BLEL	ANCF	Anabaena circinalis &/or flos-aquae	CELL	28.7
12/10/2015	BLEL	SPON	Spondylosium BREBISSON sp.	FILA	1.8
12/10/2015	BLEL	SPON	Spondylosium BREBISSON sp.	CELL	8.3
12/10/2015	BLEL	ULGE	Ulothrix KÜTZING 1833 sp/Geminella TURPIN 1828 sp. (uncertain which)	FILA	5
12/10/2015	BLEL	ULGE	Ulothrix KÜTZING 1833 sp/Geminella TURPIN 1828 sp. (uncertain which)	CELL	23.7
12/10/2015	BLEL	APHF	Aphanizomenon flos-aquae (LINNAEUS) RALFS	FILA	12.9
12/10/2015	BLEL	APHF	Aphanizomenon flos-aquae (LINNAEUS) RALFS	LENG	2.075
12/10/2015	BLEL	ANAS	Anabaena solitaria KLEBAHN 1895	FILA	9
12/10/2015	BLEL	ANAS	Anabaena solitaria KLEBAHN 1895	LENG	1.391
12/10/2015	BLEL	PLAS	Planktothrix sp.	FILA	1.8
12/10/2015	BLEL	PLAS	Planktothrix sp.	LENG	0.695
12/10/2015	BLEL	PSEL	Pseudanabaena limnetica (LEMMERMANN) KOMÁREK	FILA	0.4
12/10/2015	BLEL	PSEL	Pseudanabaena limnetica (LEMMERMANN) KOMÁREK	LENG	0.088
12/10/2015	BLEL	RHOD	Rhodomonas KARSTEN sp.	CELL	259.9
12/10/2015	BLEL	CHLA	Chlamydomonas EHRENBERG 1833 sp.	CELL	5.4
12/10/2015	BLEL	CHLO	Chlorella BEIJERINCK 1890 sp.	CELL	97.5
12/10/2015	BLEL	UROS	Urosolenia ROUND & CRAWFORD	CELL	422.4
12/10/2015	BLEL	UROS	Urosolenia ROUND & CRAWFORD	DEAD	97.5
12/10/2015	BLEL	MONY	Monoraphidium dybowskii (WOLASYNSKA) HINDAK & KOMARKOVA - LEGENEROVA	CELL	308.7
12/10/2015	BLEL	UROG	Uroglena EHRENBERG (1833) 1835 sp.	CELL	5.4
12/10/2015	BLEL	CYCT	Cyclotella KÜTZING EX BRÉBISSON 1838 sp.	CELL	92.1
12/10/2015	BLEL	MICP	Micractinium FRESENIUS sp.	COLO	10.8
12/10/2015	BLEL	MICP	Micractinium FRESENIUS sp.	CELL	86.6
12/10/2015	BROT	CRYP	Cryptomonas EHRENBERG 1838 spp.	CELL	23.9
12/10/2015	BROT	PERS	Peridinium EHRENBERG 1832 sp. (small) (25um cbut, csre)	CELL	0.3

Date	Lake	Alga	Algal name	Form	Value cm ⁻³
12/10/2015	BROT	TRAO	Trachelomonas volvocina EHRENBERG 1833	CELL	0.7
12/10/2015	BROT	SYNM	Synedra EHRENBERG 1830 sp. (medium)	CELL	3.1
12/10/2015	BROT	NISY	Nitzschia /Synedra (uncertain which)	CELL	1
12/10/2015	BROT	SCEN	Scenedesmus MEYEN 1829 sp.	COLO	0.7
12/10/2015	BROT	SCEN	Scenedesmus MEYEN 1829 sp.	CELL	2.7
12/10/2015	BROT	DIND	Dinobryon divergens IMHOF 1887	COLO	0.3
12/10/2015	BROT	DIND	Dinobryon divergens IMHOF 1887	CELL	8.9
12/10/2015	BROT	RHOD	Rhodomonas KARSTEN sp.	CELL	78.8
12/10/2015	BROT	CHLA	Chlamydomonas EHRENBERG 1833 sp.	CELL	5.3
12/10/2015	BROT	CHLO	Chlorella BEIJERINCK 1890 sp.	CELL	410
12/10/2015	BROT	OCHR	Ochromonas WYSSOTSKI sp.	CELL	5.3
12/10/2015	BROT	UROG	Uroglena EHRENBERG (1833) 1835 sp.	CELL	26.3
12/10/2015	BROT	UNMF	Unidentified small monoflagellates	CELL	10.5
12/10/2015	BROT	MALA	Mallomonas akrokomas RUTTNER IN PASCHER 1913	CELL	26.3
12/10/2015	BROT	MOSP	Monoraphidium KOMARKOVA-LEGENEROVA sp.	CELL	26.3
12/10/2015	BROT	KEPH	Kephyrion PASCHER 1911 sp.	CELL	5.3
15/10/2015	BUTT	CRYP	Cryptomonas EHRENBERG 1838 spp.	CELL	8.2
15/10/2015	BUTT	STAR	Staurodesmus TEILING sp.	CELL	6.2
15/10/2015	BUTT	MALL	Mallomonas PERTY 1851 sp.	CELL	2.4
15/10/2015	BUTT	STAI	Staurastrum cingulum (W & G.S.WEST) G.M.SMITH 1922	CELL	0.3
15/10/2015	BUTT	PERC	Peridinium cinctum (OF MÜLLER) EHRENBERG 1838	CELL	0.3
15/10/2015	BUTT	GYML	Gymnodinium STEIN 1878 sp. (large)	CELL	0.3
15/10/2015	BUTT	KOLI	Koliella spiculiformis (VISCHER) HINDAK	CELL	0.7
15/10/2015	BUTT	NISY	Nitzschia /Synedra (uncertain which)	CELL	0.3
15/10/2015	BUTT	PENN	Pennate diatoms	CELL	0.3
15/10/2015	BUTT	CYCT	Cyclotella KÜTZING EX BRÉBISSON 1838 sp.	CELL	1.4
15/10/2015	BUTT	CYCC	Cyclotella comensis GRUNOW IN VAN HEURCK 1882	FILA	5.1
15/10/2015	BUTT	CYCC	Cyclotella comensis GRUNOW IN VAN HEURCK 1882	CELL	33.9
15/10/2015	BUTT	DIND	Dinobryon divergens IMHOF 1887	COLO	0.7
15/10/2015	BUTT	DIND	Dinobryon divergens IMHOF 1887	CELL	5.8
15/10/2015	BUTT	QUAD	Quadrigula spp. PRINTZ	COLO	3
15/10/2015	BUTT	QUAD	Quadrigula spp. PRINTZ	CELL	16.4
15/10/2015	BUTT	ELAK	Elakatothrix WILLE sp.	COLO	5.5
15/10/2015	BUTT	ELAK	Elakatothrix WILLE sp.	CELL	12.7
15/10/2015	BUTT	TABF	Tabellaria flocculosa (ROTH) KÜTZING 1844 var. flocculosa	COLO	0.3
15/10/2015	BUTT	TABF	Tabellaria flocculosa (ROTH) KÜTZING 1844 var. flocculosa	CELL	1.4
15/10/2015	BUTT	TABF	Tabellaria flocculosa (ROTH) KÜTZING 1844 var. flocculosa	DEAD	0.7
15/10/2015	BUTT	OOCY	Oocystis NÄGELI emend. FOTT sp.	COLO	0.3
15/10/2015	BUTT	OOCY	Oocystis NÄGELI emend. FOTT sp.	CELL	1.4
15/10/2015	BUTT	COCO	Coenochloris ovalis	COLO	78.8
15/10/2015	BUTT	COCO	Coenochloris ovalis	CELL	648.5
15/10/2015	BUTT	CHRK	Chrysolykos MACK	CELL	8.7
15/10/2015	BUTT	BITI	Bitrichia WOLOSZNSKA sp.	CELL	8.7
15/10/2015	BUTT	DINN	Dinobryon acuminatum RUTTNER	CELL	4.4
15/10/2015	BUTT	GYMS	Gymnodinium STEIN 1878 sp. (small)	CELL	4.4
15/10/2015	BUTT	CHRS	Chrysococcus KLEBS 1892 sp.	CELL	4.4
15/10/2015	BUTT	RHOD	Rhodomonas KARSTEN sp.	CELL	39.4
15/10/2015	BUTT	CHRP	Chrysochromulina parva LACKEY 1939	CELL	8.7
15/10/2015	BUTT	CHLO	Chlorella BEIJERINCK 1890 sp.	CELL	197.1
14/10/2015	CONI	MONO	Monoraphidium contortum (THURET) KOMÁRKOVÁ-LEGNEROVÁ 1969	CELL	126.5
14/10/2015	CONI	CRYP	Cryptomonas EHRENBERG 1838 spp.	CELL	29.4
14/10/2015	CONI	NISY	Nitzschia /Synedra (uncertain which)	CELL	19.8
14/10/2015	CONI	MALC	Mallomonas caudata IVANOV 1899	CELL	0.3
14/10/2015	CONI	PERC	Peridinium cinctum (OF MÜLLER) EHRENBERG 1838	CELL	0.3

Date	Lake	Alga	Algal name	Form	Value cm ⁻³
14/10/2015	CONI	PERS	Peridinium EHRENBERG 1832 sp. (small) (25um cbut, csre)	CELL	0.3
14/10/2015	CONI	COSM	Cosmarium CORDA EX RALFS 1848 sp.	CELL	0.7
14/10/2015	CONI	STAI	Staurastrum cingulum (W & G.S.WEST) G.M.SMITH 1922	CELL	1.4
14/10/2015	CONI	WORN	Woronichinia naegeliana (UNGER) ELENKIN 1933	COLO	1.7
14/10/2015	CONI	BOTB	Botryococcus braunii KÜTZING 1849	COLO	0.7
14/10/2015	CONI	SNOL	Snowella lacustris (CHODAT) KOMÁREK & HINDÁK 1988	COLO	0.3
14/10/2015	CONI	APHC	Aphanothece clathrata WEST & G.S.WEST 1906	COLO	0.3
14/10/2015	CONI	ASTF	Asterionella formosa HASSALL 1855	COLO	3.4
14/10/2015	CONI	ASTF	Asterionella formosa HASSALL 1855	CELL	23.3
14/10/2015	CONI	ASTF	Asterionella formosa HASSALL 1855	DEAD	7.2
14/10/2015	CONI	CYCC	Cyclotella comensis GRUNOW IN VAN HEURCK 1882	FILA	9.9
14/10/2015	CONI	CYCC	Cyclotella comensis GRUNOW IN VAN HEURCK 1882	CELL	10
14/10/2015	CONI	CYCC	Cyclotella comensis GRUNOW IN VAN HEURCK 1882	DEAD	1.7
14/10/2015	CONI	FRAC	Fragilaria crotonensis KITTON 1869 (var. crotonensis and var. prolongata until 1993 when var. prol coded ζ FRAT)	FILA	0.3
14/10/2015	CONI	FRAC	Fragilaria crotonensis KITTON 1869 (var. crotonensis and var. prolongata until 1993 when var. prol coded ζ FRAT)	CELL	5.5
14/10/2015	CONI	FRAC	Fragilaria crotonensis KITTON 1869 (var. crotonensis and var. prolongata until 1993 when var. prol coded ζ FRAT)	DEAD	0.3
14/10/2015	CONI	SPON	Spondylosium BREBISSON sp.	FILA	0.3
14/10/2015	CONI	SPON	Spondylosium BREBISSON sp.	CELL	1
14/10/2015	CONI	SPON	Spondylosium BREBISSON sp.	DEAD	0.3
14/10/2015	CONI	TABV	Tabellaria flocculosa (ROTH) KÜTZING 1844 var. other than asterionelloides or flocculosa (mainly zig zag formation)	COLO	1
14/10/2015	CONI	TABV	Tabellaria flocculosa (ROTH) KÜTZING 1844 var. other than asterionelloides or flocculosa (mainly zig zag formation)	CELL	5.8
14/10/2015	CONI	TABV	Tabellaria flocculosa (ROTH) KÜTZING 1844 var. other than asterionelloides or flocculosa (mainly zig zag formation)	DEAD	1.4
14/10/2015	CONI	OOCY	Oocystis NÄGELI emend. FOTT sp.	COLO	0.7
14/10/2015	CONI	OOCY	Oocystis NÄGELI emend. FOTT sp.	CELL	3.4
14/10/2015	CONI	EUDS	Eudorina EHRENBERG 1832 sp.	COLO	0.3
14/10/2015	CONI	EUDS	Eudorina EHRENBERG 1832 sp.	CELL	10.9
14/10/2015	CONI	DIND	Dinobryon divergens IMHOF 1887	COLO	0.3
14/10/2015	CONI	DIND	Dinobryon divergens IMHOF 1887	CELL	4.8
14/10/2015	CONI	ELAK	Elakatothrix WILLE sp.	COLO	1
14/10/2015	CONI	ELAK	Elakatothrix WILLE sp.	CELL	1.4
14/10/2015	CONI	PLAS	Planktothrix sp.	FILA	0.7
14/10/2015	CONI	PLAS	Planktothrix sp.	LENG	0.131
14/10/2015	CONI	PSEL	Pseudanabaena limnetica (LEMMERMANN) KOMÁREK	FILA	0.7
14/10/2015	CONI	PSEL	Pseudanabaena limnetica (LEMMERMANN) KOMÁREK	LENG	0.077
14/10/2015	CONI	RHOD	Rhodomonas KARSTEN sp.	CELL	226
14/10/2015	CONI	CHRP	Chrysochromulina parva LACKEY 1939	CELL	47.3
14/10/2015	CONI	CHLA	Chlamydomonas EHRENBERG 1833 sp.	CELL	5.3
14/10/2015	CONI	CHLO	Chlorella BEIJERINCK 1890 sp.	CELL	320.6
14/10/2015	CONI	TETM	Tetraedron minimum (A.BRAUN) HANSGIRG	CELL	10.5
14/10/2015	CONI	MONY	Monoraphidium dybowskii (WOLASYNSKA) HINDAK & KOMARKOVA - LEGENEROVA	CELL	10.5
14/10/2015	CONI	COCC	Coccomyxa SCHMIDLE spp.	CELL	15.8
14/10/2015	CONI	UROS	Urosolenia ROUND & CRAWFORD	CELL	5.3
14/10/2015	CONI	UROG	Uroglena EHRENBERG (1833) 1835 sp.	CELL	21
14/10/2015	CONI	AULS	Aulacoseira subarctica (O MÜLLER) E Y HAWORTH 1988	FILA	5.3
14/10/2015	CONI	AULS	Aulacoseira subarctica (O MÜLLER) E Y HAWORTH 1988	CELL	10.5
15/10/2015	CRUM	CRYP	Cryptomonas EHRENBERG 1838 spp.	CELL	9.6
15/10/2015	CRUM	NISY	Nitzschia /Synedra (uncertain which)	CELL	2.1
15/10/2015	CRUM	CYCT	Cyclotella KÜTZING EX BRÉBISSON 1838 sp.	CELL	3.1
15/10/2015	CRUM	CYCT	Cyclotella KÜTZING EX BRÉBISSON 1838 sp.	DEAD	1
15/10/2015	CRUM	GYML	Gymnodinium STEIN 1878 sp. (large)	CELL	0.7
15/10/2015	CRUM	GYMA	Gymnodinium helveticum forma achroum SKUJA 1948	CELL	0.3

Date	Lake	Alga	Algal name	Form	Value cm ⁻³
15/10/2015	CRUM	GYMF	Gymnodinium fuscum (EHRENBERG) STEIN	CELL	0.3
15/10/2015	CRUM	STAR	Staurodesmus TEILING sp.	CELL	0.7
15/10/2015	CRUM	PERC	Peridinium cinctum (OF MÜLLER) EHRENBERG 1838	CELL	0.3
15/10/2015	CRUM	PERM	Peridinium EHRENBERG 1832 sp. (medium)	CELL	0.7
15/10/2015	CRUM	MONO	Monoraphidium contortum (THURET) KOMÁRKOVÁ-LEGNEROVÁ 1969	CELL	0.7
15/10/2015	CRUM	KOLI	Koliella spiculiformis (VISCHER) HINDAK	CELL	0.3
15/10/2015	CRUM	CYCC	Cyclotella comensis GRUNOW IN VAN HEURCK 1882	FILA	4.4
15/10/2015	CRUM	CYCC	Cyclotella comensis GRUNOW IN VAN HEURCK 1882	CELL	18.8
15/10/2015	CRUM	CYCC	Cyclotella comensis GRUNOW IN VAN HEURCK 1882	DEAD	1
15/10/2015	CRUM	DIND	Dinobryon divergens IMHOF 1887	COLO	2.1
15/10/2015	CRUM	DIND	Dinobryon divergens IMHOF 1887	CELL	23.9
15/10/2015	CRUM	ASTF	Asterionella formosa HASSALL 1855	COLO	2.4
15/10/2015	CRUM	ASTF	Asterionella formosa HASSALL 1855	CELL	10.6
15/10/2015	CRUM	ASTF	Asterionella formosa HASSALL 1855	DEAD	4.8
15/10/2015	CRUM	QUAD	Quadrigula spp. PRINTZ	COLO	0.3
15/10/2015	CRUM	QUAD	Quadrigula spp. PRINTZ	CELL	1.4
15/10/2015	CRUM	ELAK	Elakatothrix WILLE sp.	COLO	0.7
15/10/2015	CRUM	ELAK	Elakatothrix WILLE sp.	CELL	1.4
15/10/2015	CRUM	COCO	Coenochloris ovalis	COLO	0.3
15/10/2015	CRUM	COCO	Coenochloris ovalis	CELL	5.5
15/10/2015	CRUM	DICM	Dictyosphaerium subsolitarium VAN GOOR	COLO	0.3
15/10/2015	CRUM	DICM	Dictyosphaerium subsolitarium VAN GOOR	CELL	1.4
15/10/2015	CRUM	WORN	Woronichinia naegeliana (UNGER) ELENKIN 1933	COLO	0.7
15/10/2015	CRUM	BOTB	Botryococcus braunii KÜTZING 1849	COLO	0.7
15/10/2015	CRUM	APHC	Aphanothece clathrata WEST & G.S.WEST 1906	COLO	5.5
15/10/2015	CRUM	RHOD	Rhodomonas KARSTEN sp.	CELL	89.4
15/10/2015	CRUM	CHRO	Chroomonas HANSGIRG sp.	CELL	21
15/10/2015	CRUM	CHLA	Chlamydomonas EHRENBERG 1833 sp.	CELL	5.3
15/10/2015	CRUM	CHLO	Chlorella BEIJERINCK 1890 sp.	CELL	394.2
15/10/2015	CRUM	UROS	Urosolenia ROUND & CRAWFORD	CELL	21
15/10/2015	CRUM	UROS	Urosolenia ROUND & CRAWFORD	DEAD	5.3
15/10/2015	CRUM	UNRO	Unidentified rods	CELL	15.8
15/10/2015	CRUM	UROG	Uroglena EHRENBERG (1833) 1835 sp.	CELL	10.5
15/10/2015	CRUM	DINN	Dinobryon acuminatum RUTTNER	CELL	5.3
15/10/2015	DERW	ASTF	Asterionella formosa HASSALL 1855	COLO	104.8
15/10/2015	DERW	ASTF	Asterionella formosa HASSALL 1855	CELL	308.6
15/10/2015	DERW	ASTF	Asterionella formosa HASSALL 1855	DEAD	192.3
15/10/2015	DERW	CYCT	Cyclotella KÜTZING EX BRÉBISSON 1838 sp.	CELL	53.1
15/10/2015	DERW	CYCT	Cyclotella KÜTZING EX BRÉBISSON 1838 sp.	DEAD	2.2
15/10/2015	DERW	TABV	Tabellaria flocculosa (ROTH) KÜTZING 1844 var. other than asterionelloides or flocculosa (mainly zig zag formation)	COLO	5.4
15/10/2015	DERW	TABV	Tabellaria flocculosa (ROTH) KÜTZING 1844 var. other than asterionelloides or flocculosa (mainly zig zag formation)	CELL	7.9
15/10/2015	DERW	TABV	Tabellaria flocculosa (ROTH) KÜTZING 1844 var. other than asterionelloides or flocculosa (mainly zig zag formation)	DEAD	12.2
15/10/2015	DERW	CYCC	Cyclotella comensis GRUNOW IN VAN HEURCK 1882	FILA	4.7
15/10/2015	DERW	CYCC	Cyclotella comensis GRUNOW IN VAN HEURCK 1882	CELL	22
15/10/2015	DERW	CYCC	Cyclotella comensis GRUNOW IN VAN HEURCK 1882	DEAD	0.4
15/10/2015	DERW	AULS	Aulacoseira subarctica (O MÜLLER) E Y HAWORTH 1988	FILA	0.7
15/10/2015	DERW	AULS	Aulacoseira subarctica (O MÜLLER) E Y HAWORTH 1988	CELL	5
15/10/2015	DERW	AULS	Aulacoseira subarctica (O MÜLLER) E Y HAWORTH 1988	DEAD	1.8
15/10/2015	DERW	CRYP	Cryptomonas EHRENBERG 1838 spp.	CELL	30.2
15/10/2015	DERW	MALC	Mallomonas caudata IVANOV 1899	CELL	15.4
15/10/2015	DERW	STAR	Staurodesmus TEILING sp.	CELL	0.7
15/10/2015	DERW	STAR	Staurodesmus TEILING sp.	DEAD	0.4
15/10/2015	DERW	STAU	Staurastrum MEYEN EX RALFS 1848 spp	CELL	0.4

Date	Lake	Alga	Algal name	Form	Value cm ⁻³
15/10/2015	DERW	KOLI	Koliella spiculiformis (VISCHER) HINDAK	CELL	2.2
15/10/2015	DERW	PERS	Peridinium EHRENBERG 1832 sp. (small) (25um cbut, csre)	CELL	1.1
15/10/2015	DERW	DIND	Dinobryon divergens IMHOF 1887	COLO	2.5
15/10/2015	DERW	DIND	Dinobryon divergens IMHOF 1887	CELL	16.6
15/10/2015	DERW	OOCY	Oocystis NÄGELI emend. FOTT sp.	COLO	4.3
15/10/2015	DERW	OOCY	Oocystis NÄGELI emend. FOTT sp.	CELL	12.9
15/10/2015	DERW	SCEN	Scenedesmus MEYEN 1829 sp.	COLO	0.4
15/10/2015	DERW	SCEN	Scenedesmus MEYEN 1829 sp.	CELL	1.4
15/10/2015	DERW	ELAK	Elakatothrix WILLE sp.	COLO	0.7
15/10/2015	DERW	ELAK	Elakatothrix WILLE sp.	CELL	1.4
15/10/2015	DERW	QUAD	Quadrigula spp. PRINTZ	COLO	0.4
15/10/2015	DERW	QUAD	Quadrigula spp. PRINTZ	CELL	5.7
15/10/2015	DERW	DICI	Dictyosphaerium NÄGELI sp.	COLO	1.1
15/10/2015	DERW	DICI	Dictyosphaerium NÄGELI sp.	CELL	28.8
15/10/2015	DERW	GONP	Gonium pectorale OF MÜLLER 1773	COLO	0.7
15/10/2015	DERW	GONP	Gonium pectorale OF MÜLLER 1773	CELL	9
15/10/2015	DERW	PAUT	Paulschulzia tenera (KORSHIKOV) LUND 1960	COLO	0.7
15/10/2015	DERW	PAUT	Paulschulzia tenera (KORSHIKOV) LUND 1960	CELL	5.7
15/10/2015	DERW	COEF	Coenochloris fottii (HINDÁK) TSARENKO 1990	COLO	3.9
15/10/2015	DERW	COEF	Coenochloris fottii (HINDÁK) TSARENKO 1990	CELL	27.2
15/10/2015	DERW	ASTC	Asterococcus spp. SCHERFFEL	COLO	4.3
15/10/2015	DERW	ASTC	Asterococcus spp. SCHERFFEL	CELL	17.2
15/10/2015	DERW	SPON	Spondylosium BREBISSON sp.	FILA	1.4
15/10/2015	DERW	SPON	Spondylosium BREBISSON sp.	CELL	12.2
15/10/2015	DERW	ANCF	Anabaena circinalis &/or flos-aquae	FILA	0.4
15/10/2015	DERW	ANCF	Anabaena circinalis &/or flos-aquae	CELL	2.9
15/10/2015	DERW	RHOD	Rhodomonas KARSTEN sp.	CELL	157
15/10/2015	DERW	CHRP	Chrysochromulina parva LACKEY 1939	CELL	5.4
15/10/2015	DERW	CHLO	Chlorella BEIJERINCK 1890 sp.	CELL	292.4
15/10/2015	DERW	UROG	Uroglena EHRENBERG (1833) 1835 sp.	CELL	16.2
15/10/2015	DERW	MONY	Monoraphidium dybowskii (WOLASYNSKA) HINDAK & KOMARKOVA - LEGENEROVA	CELL	21.7
15/10/2015	DERW	MONO	Monoraphidium contortum (THURET) KOMÁRKOVÁ-LEGNEROVÁ 1969	CELL	5.4
15/10/2015	DERW	CHRS	Chrysococcus KLEBS 1892 sp.	CELL	10.8
15/10/2015	DERW	UROS	Urosolenia ROUND & CRAWFORD	CELL	54.2
15/10/2015	DERW	UROS	Urosolenia ROUND & CRAWFORD	DEAD	43.3
15/10/2015	DERW	OCHR	Ochromonas WYSSOTSKI sp.	CELL	5.4
15/10/2015	DERW	BITI	Bitrichia WOLOSZNSKA sp.	CELL	10.8
15/10/2015	DERW	MALL	Mallomonas PERTY 1851 sp.	CELL	5.4
15/10/2015	DERW	PSEU	Pseudanabaena LAUTERBORN 1915 sp.	FILA	5.4
15/10/2015	DERW	PSEU	Pseudanabaena LAUTERBORN 1915 sp.	LENG	1.324
15/10/2015	DERW	UNRO	Unidentified rods	CELL	16.2
08/10/2015	ELTE	CRYP	Cryptomonas EHRENBERG 1838 spp.	CELL	36.6
08/10/2015	ELTE	MALL	Mallomonas PERTY 1851 sp.	CELL	1
08/10/2015	ELTE	TRAO	Trachelomonas volvocina EHRENBERG 1833	CELL	10.9
08/10/2015	ELTE	MERI	Meridion spp. AGARDH	CELL	0.3
08/10/2015	ELTE	EUGL	Euglena EHRENBERG 1830 sp.	CELL	1.7
08/10/2015	ELTE	SCEN	Scenedesmus MEYEN 1829 sp.	COLO	0.3
08/10/2015	ELTE	SCEN	Scenedesmus MEYEN 1829 sp.	CELL	1.4
08/10/2015	ELTE	ASTF	Asterionella formosa HASSALL 1855	COLO	5.5
08/10/2015	ELTE	ASTF	Asterionella formosa HASSALL 1855	CELL	36.9
08/10/2015	ELTE	ASTF	Asterionella formosa HASSALL 1855	DEAD	0.3
08/10/2015	ELTE	DIND	Dinobryon divergens IMHOF 1887	COLO	10.6
08/10/2015	ELTE	DIND	Dinobryon divergens IMHOF 1887	CELL	137.5
08/10/2015	ELTE	DINV	Dinobryon bavaricum IMHOF 1890	COLO	9.2

Date	Lake	Alga	Algal name	Form	Value cm ⁻³
08/10/2015	ELTE	DINV	Dinobryon bavaricum IMHOF 1890	CELL	83.8
08/10/2015	ELTE	COEF	Coenochloris fottii (HINDÁK) TSARENKO 1990	COLO	0.3
08/10/2015	ELTE	COEF	Coenochloris fottii (HINDÁK) TSARENKO 1990	CELL	2.7
08/10/2015	ELTE	RHOD	Rhodomonas KARSTEN sp.	CELL	257.6
08/10/2015	ELTE	CHLA	Chlamydomonas EHRENBERG 1833 sp.	CELL	15.8
08/10/2015	ELTE	CHLO	Chlorella BEIJERINCK 1890 sp.	CELL	136.7
08/10/2015	ELTE	UROG	Uroglena EHRENBERG (1833) 1835 sp.	CELL	184
08/10/2015	ELTE	MONY	Monoraphidium dybowskii (WOLASYNSKA) HINDAK & KOMARKOVA - LEGENEROVA	CELL	5.3
08/10/2015	ELTE	MERS	Merismopedia spp. MEYEN	COLO	31.5
08/10/2015	ELTE	MERS	Merismopedia spp. MEYEN	CELL	462.5
08/10/2015	ELTE	MALA	Mallomonas akrokomas RUTTNER IN PASCHER 1913	CELL	21
14/10/2015	ENNE	CRYP	Cryptomonas EHRENBERG 1838 spp.	CELL	4.4
14/10/2015	ENNE	MALL	Mallomonas PERTY 1851 sp.	CELL	4.8
14/10/2015	ENNE	CYCT	Cyclotella KÜTZING EX BRÉBISSON 1838 sp.	CELL	3.8
14/10/2015	ENNE	CYCC	Cyclotella comensis GRUNOW IN VAN HEURCK 1882	FILA	0.7
14/10/2015	ENNE	CYCC	Cyclotella comensis GRUNOW IN VAN HEURCK 1882	CELL	4.1
14/10/2015	ENNE	PERI	Peridinium EHRENBERG 1832 sp. (a distinct species for JL)	CELL	1
14/10/2015	ENNE	GOLE	Golenkinia CHODAT sp.	CELL	0.7
14/10/2015	ENNE	GYML	Gymnodinium STEIN 1878 sp. (large)	CELL	0.7
14/10/2015	ENNE	GYMS	Gymnodinium STEIN 1878 sp. (small)	CELL	0.3
14/10/2015	ENNE	APHA	Aphanocapsa NÄGELI 1849 sp.	COLO	0.3
14/10/2015	ENNE	CRUR	Crucigenia rectangularis (NÄGELI) GAY	COLO	1.4
14/10/2015	ENNE	CRUR	Crucigenia rectangularis (NÄGELI) GAY	CELL	164
14/10/2015	ENNE	ELAK	Elakatothrix WILLE sp.	COLO	2.1
14/10/2015	ENNE	ELAK	Elakatothrix WILLE sp.	CELL	4.1
14/10/2015	ENNE	COEF	Coenochloris fottii (HINDÁK) TSARENKO 1990	COLO	0.7
14/10/2015	ENNE	COEF	Coenochloris fottii (HINDÁK) TSARENKO 1990	CELL	5.5
14/10/2015	ENNE	DIND	Dinobryon divergens IMHOF 1887	COLO	0.7
14/10/2015	ENNE	DIND	Dinobryon divergens IMHOF 1887	CELL	16.4
14/10/2015	ENNE	RHOD	Rhodomonas KARSTEN sp.	CELL	26.3
14/10/2015	ENNE	CHRP	Chrysochromulina parva LACKEY 1939	CELL	21
14/10/2015	ENNE	CHLO	Chlorella BEIJERINCK 1890 sp.	CELL	147.2
14/10/2015	ENNE	KEPC	Kephyrion cupuliforme CONRAD	CELL	26.3
14/10/2015	ENNE	DINB	Dinobryon borgei LEMMERMANN	CELL	10.5
14/10/2015	ENNE	CHSK	Chrysoykos skujae	CELL	5.3
13/10/2015	ESTH	APHF	Aphanizomenon flos-aquae (LINNAEUS) RALFS	FILA	188.4
13/10/2015	ESTH	APHF	Aphanizomenon flos-aquae (LINNAEUS) RALFS	LENG	36.235
13/10/2015	ESTH	CRYP	Cryptomonas EHRENBERG 1838 spp.	CELL	226.1
13/10/2015	ESTH	SYNC	Syncrypta spp. EHRENBERG	COLO	11.8
13/10/2015	ESTH	SYNC	Syncrypta spp. EHRENBERG	CELL	236.5
13/10/2015	ESTH	WORN	Woronichinia naegeliana (UNGER) ELENKIN 1933	COLO	1.8
13/10/2015	ESTH	SNOL	Snowella lacustris (CHODAT) KOMÁREK & HINDÁK 1988	COLO	0.4
13/10/2015	ESTH	MALC	Mallomonas caudata IVANOV 1899	CELL	2.2
13/10/2015	ESTH	MALL	Mallomonas PERTY 1851 sp.	CELL	0.7
13/10/2015	ESTH	MONO	Monoraphidium contortum (THURET) KOMÁRKOVÁ-LEGNEROVÁ 1969	CELL	0.4
13/10/2015	ESTH	TRAO	Trachelomonas volvocina EHRENBERG 1833	CELL	16.9
13/10/2015	ESTH	PERM	Peridinium EHRENBERG 1832 sp. (medium)	CELL	3.9
13/10/2015	ESTH	PERM	Peridinium EHRENBERG 1832 sp. (medium)	DEAD	0.7
13/10/2015	ESTH	PERS	Peridinium EHRENBERG 1832 sp. (small) (25um cbut, csre)	CELL	3.9
13/10/2015	ESTH	PERS	Peridinium EHRENBERG 1832 sp. (small) (25um cbut, csre)	DEAD	1.8
13/10/2015	ESTH	STAR	Staurodesmus TELLING sp.	CELL	2.5
13/10/2015	ESTH	SYNA	Synedra acus KÜTZING 1844	CELL	2.2
13/10/2015	ESTH	SYNA	Synedra acus KÜTZING 1844	DEAD	0.7
13/10/2015	ESTH	GYML	Gymnodinium STEIN 1878 sp. (large)	CELL	2.5

Date	Lake	Alga	Algal name	Form	Value cm ⁻³
13/10/2015	ESTH	GYMS	Gymnodinium STEIN 1878 sp. (small)	CELL	0.7
13/10/2015	ESTH	NISY	Nitzschia /Synedra (uncertain which)	CELL	24.4
13/10/2015	ESTH	TETM	Tetraedron minimum (A.BRAUN) HANSGIRG	CELL	0.4
13/10/2015	ESTH	COSM	Cosmarium CORDA EX RALFS 1848 sp.	CELL	0.4
13/10/2015	ESTH	ASTF	Asterionella formosa HASSALL 1855	COLO	24
13/10/2015	ESTH	ASTF	Asterionella formosa HASSALL 1855	CELL	112.7
13/10/2015	ESTH	ASTF	Asterionella formosa HASSALL 1855	DEAD	2.2
13/10/2015	ESTH	AULS	Aulacoseira subarctica (O MÜLLER) E Y HAWORTH 1988	FILA	27.2
13/10/2015	ESTH	AULS	Aulacoseira subarctica (O MÜLLER) E Y HAWORTH 1988	CELL	178.7
13/10/2015	ESTH	AULS	Aulacoseira subarctica (O MÜLLER) E Y HAWORTH 1988	DEAD	7.9
13/10/2015	ESTH	AULM	Aulacoseira ambigua	FILA	1.4
13/10/2015	ESTH	AULM	Aulacoseira ambigua	CELL	9.3
13/10/2015	ESTH	AULM	Aulacoseira ambigua	DEAD	3.2
13/10/2015	ESTH	AULG	Aulacoseira granulata var angustissima	FILA	0.4
13/10/2015	ESTH	AULG	Aulacoseira granulata var angustissima	CELL	2.9
13/10/2015	ESTH	FRAC	Fragilaria crotonensis KITTON 1869 (var. crotonensis and var. prolongata until 1993 when var. prol coded ζ FRAT)	FILA	1.8
13/10/2015	ESTH	FRAC	Fragilaria crotonensis KITTON 1869 (var. crotonensis and var. prolongata until 1993 when var. prol coded ζ FRAT)	CELL	22
13/10/2015	ESTH	FRAC	Fragilaria crotonensis KITTON 1869 (var. crotonensis and var. prolongata until 1993 when var. prol coded ζ FRAT)	DEAD	2.9
13/10/2015	ESTH	PAUT	Paulschulzia tenera (KORSHIKOV) LUND 1960	COLO	1.4
13/10/2015	ESTH	PAUT	Paulschulzia tenera (KORSHIKOV) LUND 1960	CELL	5.7
13/10/2015	ESTH	COEF	Coenochloris fottii (HINDÁK) TSARENKO 1990	COLO	1.4
13/10/2015	ESTH	COEF	Coenochloris fottii (HINDÁK) TSARENKO 1990	CELL	10
13/10/2015	ESTH	SCEN	Scenedesmus MEYEN 1829 sp.	COLO	12.2
13/10/2015	ESTH	SCEN	Scenedesmus MEYEN 1829 sp.	CELL	84.7
13/10/2015	ESTH	OOCY	Oocystis NÄGELI emend. FOTT sp.	COLO	0.4
13/10/2015	ESTH	OOCY	Oocystis NÄGELI emend. FOTT sp.	CELL	1.4
13/10/2015	ESTH	DIND	Dinobryon divergens IMHOF 1887	COLO	1.8
13/10/2015	ESTH	DIND	Dinobryon divergens IMHOF 1887	CELL	6.1
13/10/2015	ESTH	DICI	Dictyosphaerium NÄGELI sp.	COLO	3.9
13/10/2015	ESTH	DICI	Dictyosphaerium NÄGELI sp.	CELL	146.4
13/10/2015	ESTH	EUDS	Eudorina EHRENBERG 1832 sp.	COLO	0.7
13/10/2015	ESTH	EUDS	Eudorina EHRENBERG 1832 sp.	CELL	8.6
13/10/2015	ESTH	ASTC	Asterococcus spp. SCHERFFEL	COLO	1.4
13/10/2015	ESTH	ASTC	Asterococcus spp. SCHERFFEL	CELL	5
13/10/2015	ESTH	ELAK	Elakatothrix WILLE sp.	COLO	0.7
13/10/2015	ESTH	ELAK	Elakatothrix WILLE sp.	CELL	2.2
13/10/2015	ESTH	PLAS	Planktothrix sp.	FILA	0.7
13/10/2015	ESTH	PLAS	Planktothrix sp.	LENG	0.439
13/10/2015	ESTH	PSEL	Pseudanabaena limnetica (LEMMERMANN) KOMÁREK	FILA	0.7
13/10/2015	ESTH	PSEL	Pseudanabaena limnetica (LEMMERMANN) KOMÁREK	LENG	0.11
13/10/2015	ESTH	ANAS	Anabaena solitaria KLEBAHN 1895	FILA	0.4
13/10/2015	ESTH	ANAS	Anabaena solitaria KLEBAHN 1895	LENG	0.092
13/10/2015	ESTH	RHOD	Rhodomonas KARSTEN sp.	CELL	433.2
13/10/2015	ESTH	CHRP	Chrysochromulina parva LACKEY 1939	CELL	211.2
13/10/2015	ESTH	CHLA	Chlamydomonas EHRENBERG 1833 sp.	CELL	10.8
13/10/2015	ESTH	CHLO	Chlorella BEIJERINCK 1890 sp.	CELL	157
13/10/2015	ESTH	MONY	Monoraphidium dybowskii (WOLASYNSKA) HINDAK & KOMARKOVA - LEGENEROVA	CELL	75.8
13/10/2015	ESTH	UROS	Urosolenia ROUND & CRAWFORD	CELL	32.5
13/10/2015	ESTH	CYCT	Cyclotella KÜTZING EX BRÉBISSON 1838 sp.	CELL	5.4
13/10/2015	ESTH	UNMF	Unidentified small monoflagellates	CELL	10.8
12/10/2015	GRAS	CRYP	Cryptomonas EHRENBERG 1838 spp.	CELL	145
12/10/2015	GRAS	TRAO	Trachelomonas volvocina EHRENBERG 1833	CELL	3.1
12/10/2015	GRAS	NISY	Nitzschia /Synedra (uncertain which)	CELL	0.3

Date	Lake	Alga	Algal name	Form	Value cm ⁻³
12/10/2015	GRAS	DIND	Dinobryon divergens IMHOF 1887	COLO	1.4
12/10/2015	GRAS	DIND	Dinobryon divergens IMHOF 1887	CELL	54
12/10/2015	GRAS	SCEN	Scenedesmus MEYEN 1829 sp.	COLO	0.3
12/10/2015	GRAS	SCEN	Scenedesmus MEYEN 1829 sp.	CELL	1.4
12/10/2015	GRAS	PERS	Peridinium EHRENBERG 1832 sp. (small) (25um cbut, csre)	CELL	0.3
12/10/2015	GRAS	PSEL	Pseudanabaena limnetica (LEMMERMANN) KOMÁREK	FILA	0.3
12/10/2015	GRAS	PSEL	Pseudanabaena limnetica (LEMMERMANN) KOMÁREK	LENG	0.053
12/10/2015	GRAS	RHOD	Rhodomonas KARSTEN sp.	CELL	173.5
12/10/2015	GRAS	CHLO	Chlorella BEIJERINCK 1890 sp.	CELL	625.5
12/10/2015	GRAS	CHRO	Chroomonas HANSGIRG sp.	CELL	5.3
12/10/2015	GRAS	OCHR	Ochromonas WYSSOTSKI sp.	CELL	5.3
12/10/2015	GRAS	UROG	Uroglena EHRENBERG (1833) 1835 sp.	CELL	68.3
12/10/2015	GRAS	MONY	Monoraphidium dybowskii (WOLASYNSKA) HINDAK & KOMARKOVA - LEGENEROVA	CELL	10.5
07/10/2015	HAWE	CRYP	Cryptomonas EHRENBERG 1838 spp.	CELL	25.3
07/10/2015	HAWE	MONO	Monoraphidium contortum (THURET) KOMÁRKOVÁ-LEGNEROVÁ 1969	CELL	11.6
07/10/2015	HAWE	TRAO	Trachelomonas volvocina EHRENBERG 1833	CELL	0.7
07/10/2015	HAWE	CYCB	Cyclotella KÜTZING EX BRÉBISSON 1838 sp. (big)	CELL	1.4
07/10/2015	HAWE	KOLI	Koliella spiculiformis (VISCHER) HINDAK	CELL	0.3
07/10/2015	HAWE	NISY	Nitzschia /Synedra (uncertain which)	CELL	3.8
07/10/2015	HAWE	MALC	Mallomonas caudata IVANOV 1899	CELL	0.3
07/10/2015	HAWE	GYML	Gymnodinium STEIN 1878 sp. (large)	CELL	0.3
07/10/2015	HAWE	WORN	Woronichinia naegeliana (UNGER) ELENKIN 1933	COLO	5.5
07/10/2015	HAWE	APHC	Aphanothece clathrata WEST & G.S.WEST 1906	COLO	2.1
07/10/2015	HAWE	COEX	Coelosphaerium minutissimum	COLO	1
07/10/2015	HAWE	BOTB	Botryococcus braunii KÜTZING 1849	COLO	0.3
07/10/2015	HAWE	SNOL	Snowella lacustris (CHODAT) KOMÁREK & HINDÁK 1988	COLO	0.3
07/10/2015	HAWE	ASTF	Asterionella formosa HASSALL 1855	COLO	2.4
07/10/2015	HAWE	ASTF	Asterionella formosa HASSALL 1855	CELL	5.5
07/10/2015	HAWE	ASTF	Asterionella formosa HASSALL 1855	DEAD	4.4
07/10/2015	HAWE	AULS	Aulacoseira subarctica (O MÜLLER) E Y HAWORTH 1988	FILA	7.2
07/10/2015	HAWE	AULS	Aulacoseira subarctica (O MÜLLER) E Y HAWORTH 1988	CELL	31.1
07/10/2015	HAWE	AULS	Aulacoseira subarctica (O MÜLLER) E Y HAWORTH 1988	DEAD	3.8
07/10/2015	HAWE	FRAG	Fragilaria LYNGBYE 1819 sp.	FILA	0.7
07/10/2015	HAWE	FRAG	Fragilaria LYNGBYE 1819 sp.	CELL	9.6
07/10/2015	HAWE	FRAG	Fragilaria LYNGBYE 1819 sp.	DEAD	3.4
07/10/2015	HAWE	TABV	Tabellaria flocculosa (ROTH) KÜTZING 1844 var. other than asterionelloides or flocculosa (mainly zig zag formation)	COLO	0.3
07/10/2015	HAWE	TABV	Tabellaria flocculosa (ROTH) KÜTZING 1844 var. other than asterionelloides or flocculosa (mainly zig zag formation)	CELL	2.7
07/10/2015	HAWE	OOCY	Oocystis NÄGELI emend. FOTT sp.	COLO	0.7
07/10/2015	HAWE	OOCY	Oocystis NÄGELI emend. FOTT sp.	CELL	2.1
07/10/2015	HAWE	DIND	Dinobryon divergens IMHOF 1887	COLO	0.3
07/10/2015	HAWE	DIND	Dinobryon divergens IMHOF 1887	CELL	0.7
07/10/2015	HAWE	ANCF	Anabaena circinalis &/or flos-aquae	FILA	0.3
07/10/2015	HAWE	ANCF	Anabaena circinalis &/or flos-aquae	CELL	1
07/10/2015	HAWE	PSEL	Pseudanabaena limnetica (LEMMERMANN) KOMÁREK	FILA	10.9
07/10/2015	HAWE	PSEL	Pseudanabaena limnetica (LEMMERMANN) KOMÁREK	LENG	1.099
07/10/2015	HAWE	PLAS	Planktothrix sp.	FILA	0.7
07/10/2015	HAWE	PLAS	Planktothrix sp.	LENG	0.278
07/10/2015	HAWE	RHOD	Rhodomonas KARSTEN sp.	CELL	136.7
07/10/2015	HAWE	CHLA	Chlamydomonas EHRENBERG 1833 sp.	CELL	5.3
07/10/2015	HAWE	CHLO	Chlorella BEIJERINCK 1890 sp.	CELL	304.9
07/10/2015	HAWE	UROG	Uroglena EHRENBERG (1833) 1835 sp.	CELL	5.3
07/10/2015	HAWE	UROS	Urosolenia ROUND & CRAWFORD	CELL	21
07/10/2015	HAWE	UROS	Urosolenia ROUND & CRAWFORD	DEAD	5.3

Date	Lake	Alga	Algal name	Form	Value cm ⁻³
08/10/2015	LOUG	APHF	Aphanizomenon flos-aquae (LINNAEUS) RALFS	FILA	132.7
08/10/2015	LOUG	APHF	Aphanizomenon flos-aquae (LINNAEUS) RALFS	LENG	20.512
08/10/2015	LOUG	CRYP	Cryptomonas EHRENBERG 1838 spp.	CELL	42.4
08/10/2015	LOUG	NISY	Nitzschia /Synedra (uncertain which)	CELL	4.8
08/10/2015	LOUG	KOLI	Koliella spiculiformis (VISCHER) HINDAK	CELL	7.2
08/10/2015	LOUG	MONO	Monoraphidium contortum (THURET) KOMÁRKOVÁ-LEGNEROVÁ 1969	CELL	0.3
08/10/2015	LOUG	CLOA	Closterium acutum (LYNGBYE) BREBISSON	CELL	2.1
08/10/2015	LOUG	PERS	Peridinium EHRENBERG 1832 sp. (small) (25um cbut, csre)	CELL	3.8
08/10/2015	LOUG	PERS	Peridinium EHRENBERG 1832 sp. (small) (25um cbut, csre)	DEAD	0.3
08/10/2015	LOUG	PERM	Peridinium EHRENBERG 1832 sp. (medium)	CELL	2.1
08/10/2015	LOUG	GYMA	Gymnodinium helveticum forma achroum SKUJA 1948	CELL	0.7
08/10/2015	LOUG	GYMS	Gymnodinium STEIN 1878 sp. (small)	CELL	0.3
08/10/2015	LOUG	MALL	Mallomonas PERTY 1851 sp.	CELL	2.7
08/10/2015	LOUG	MALC	Mallomonas caudata IVANOV 1899	CELL	4.4
08/10/2015	LOUG	TRAO	Trachelomonas volvocina EHRENBERG 1833	CELL	2.1
08/10/2015	LOUG	EUGL	Euglena EHRENBERG 1830 sp.	CELL	0.3
08/10/2015	LOUG	WORN	Woronichinia naegeliana (UNGER) ELENKIN 1933	COLO	1.7
08/10/2015	LOUG	SNOL	Snowella lacustris (CHODAT) KOMÁREK & HINDÁK 1988	COLO	0.3
08/10/2015	LOUG	APHC	Aphanothece clathrata WEST & G.S.WEST 1906	COLO	0.3
08/10/2015	LOUG	APHJ	Aphanocapsa incerta	COLO	1
08/10/2015	LOUG	DIND	Dinobryon divergens IMHOF 1887	COLO	15.4
08/10/2015	LOUG	DIND	Dinobryon divergens IMHOF 1887	CELL	44.8
08/10/2015	LOUG	DINV	Dinobryon bavaricum IMHOF 1890	COLO	1.7
08/10/2015	LOUG	DINV	Dinobryon bavaricum IMHOF 1890	CELL	5.8
08/10/2015	LOUG	DINV	Dinobryon bavaricum IMHOF 1890	CYST	1
08/10/2015	LOUG	CRUT	Crucigenia tetrapedia (KIRCHNER) W & G.S WEST	COLO	0.3
08/10/2015	LOUG	CRUT	Crucigenia tetrapedia (KIRCHNER) W & G.S WEST	CELL	1.4
08/10/2015	LOUG	DICI	Dictyosphaerium NÄGELI sp.	COLO	1
08/10/2015	LOUG	DICI	Dictyosphaerium NÄGELI sp.	CELL	24.6
08/10/2015	LOUG	PSEG	Pseudosphaerocystis sp.	COLO	1.4
08/10/2015	LOUG	PSEG	Pseudosphaerocystis sp.	CELL	10.9
08/10/2015	LOUG	PAUT	Paulschulzia tenera (KORSHIKOV) LUND 1960	COLO	0.7
08/10/2015	LOUG	PAUT	Paulschulzia tenera (KORSHIKOV) LUND 1960	CELL	2.7
08/10/2015	LOUG	GONS	Gonium sociale (DUJARDIN) WARMING	COLO	0.3
08/10/2015	LOUG	GONS	Gonium sociale (DUJARDIN) WARMING	CELL	1.4
08/10/2015	LOUG	COEF	Coenochloris fottii (HINDÁK) TSARENKO 1990	COLO	6.2
08/10/2015	LOUG	COEF	Coenochloris fottii (HINDÁK) TSARENKO 1990	CELL	25.3
08/10/2015	LOUG	PEDB	Pediastrum boryanum (TURPIN) MENEGHINI 1840	COLO	0.3
08/10/2015	LOUG	PEDB	Pediastrum boryanum (TURPIN) MENEGHINI 1840	CELL	5.5
08/10/2015	LOUG	PEDD	Pediastrum duplex MEYEN 1829	COLO	0.3
08/10/2015	LOUG	PEDD	Pediastrum duplex MEYEN 1829	CELL	10.9
08/10/2015	LOUG	ASTF	Asterionella formosa HASSALL 1855	COLO	15.4
08/10/2015	LOUG	ASTF	Asterionella formosa HASSALL 1855	CELL	14.7
08/10/2015	LOUG	ASTF	Asterionella formosa HASSALL 1855	DEAD	12.3
08/10/2015	LOUG	AULS	Aulacoseira subarctica (O MÜLLER) E Y HAWORTH 1988	FILA	30.4
08/10/2015	LOUG	AULS	Aulacoseira subarctica (O MÜLLER) E Y HAWORTH 1988	CELL	184.7
08/10/2015	LOUG	AULS	Aulacoseira subarctica (O MÜLLER) E Y HAWORTH 1988	DEAD	15.7
08/10/2015	LOUG	FRAC	Fragilaria crotonensis KITTON 1869 (var. crotonensis and var. prolongata until 1993 when var. prol coded ; FRAT)	FILA	1.7
08/10/2015	LOUG	FRAC	Fragilaria crotonensis KITTON 1869 (var. crotonensis and var. prolongata until 1993 when var. prol coded ; FRAT)	CELL	16.4
08/10/2015	LOUG	FRAC	Fragilaria crotonensis KITTON 1869 (var. crotonensis and var. prolongata until 1993 when var. prol coded ; FRAT)	DEAD	1.4
08/10/2015	LOUG	ANAP	Anabaena spiroides KLEBAHN 1895	FILA	0.7
08/10/2015	LOUG	ANAP	Anabaena spiroides KLEBAHN 1895	CELL	13
08/10/2015	LOUG	PLAS	Planktothrix sp.	FILA	12.7

Date	Lake	Alga	Algal name	Form	Value cm ⁻³
08/10/2015	LOUG	PLAS	Planktothrix sp.	LENG	4.96
08/10/2015	LOUG	PSEL	Pseudanabaena limnetica (LEMMERMANN) KOMÁREK	FILA	0.3
08/10/2015	LOUG	PSEL	Pseudanabaena limnetica (LEMMERMANN) KOMÁREK	LENG	0.077
08/10/2015	LOUG	PSEU	Pseudanabaena LAUTERBORN 1915 sp.	FILA	0.3
08/10/2015	LOUG	PSEU	Pseudanabaena LAUTERBORN 1915 sp.	LENG	0.034
08/10/2015	LOUG	SCEN	Scenedesmus MEYEN 1829 sp.	COLO	3.4
08/10/2015	LOUG	SCEN	Scenedesmus MEYEN 1829 sp.	CELL	12.3
08/10/2015	LOUG	RHOD	Rhodomonas KARSTEN sp.	CELL	68.3
08/10/2015	LOUG	CHRP	Chrysochromulina parva LACKEY 1939	CELL	551.9
08/10/2015	LOUG	CHLA	Chlamydomonas EHRENBERG 1833 sp.	CELL	10.5
08/10/2015	LOUG	CHLO	Chlorella BEIJERINCK 1890 sp.	CELL	325.9
08/10/2015	LOUG	MALA	Mallomonas akrokomas RUTTNER IN PASCHER 1913	CELL	15.8
08/10/2015	LOUG	UNMF	Unidentified small monoflagellates	CELL	336.4
08/10/2015	LOUG	UROS	Urosolenia ROUND & CRAWFORD	CELL	115.6
08/10/2015	LOUG	UROS	Urosolenia ROUND & CRAWFORD	DEAD	68.3
08/10/2015	LOUG	TETM	Tetraedron minimum (A.BRAUN) HANSGIRG	CELL	10.5
08/10/2015	LOUG	TETM	Tetraedron minimum (A.BRAUN) HANSGIRG	DEAD	5.3
08/10/2015	LOUG	MONY	Monoraphidium dybowskii (WOLASYNSKA) HINDAK & KOMARKOVA - LEGENEROVA	CELL	5.3
08/10/2015	LOUG	UROG	Uroglena EHRENBERG (1833) 1835 sp.	CELL	31.5
08/10/2015	LOUG	OCHR	Ochromonas WYSSOTSKI sp.	CELL	5.3
08/10/2015	LOUG	MERS	Merismopedia spp. MEYEN	COLO	10.5
08/10/2015	LOUG	MERS	Merismopedia spp. MEYEN	CELL	126.1
09/10/2015	LOWE	CYCB	Cyclotella KÜTZING EX BRÉBISSON 1838 sp. (big)	CELL	146.6
09/10/2015	LOWE	CYCB	Cyclotella KÜTZING EX BRÉBISSON 1838 sp. (big)	DEAD	46.9
09/10/2015	LOWE	WORN	Woronichinia naegeliana (UNGER) ELENKIN 1933	COLO	54.1
09/10/2015	LOWE	BOTB	Botryococcus braunii KÜTZING 1849	COLO	2.3
09/10/2015	LOWE	SNOL	Snowella lacustris (CHODAT) KOMÁREK & HINDÁK 1988	COLO	1.7
09/10/2015	LOWE	CRYP	Cryptomonas EHRENBERG 1838 spp.	CELL	52.4
09/10/2015	LOWE	TRAO	Trachelomonas volvocina EHRENBERG 1833	CELL	6.2
09/10/2015	LOWE	STAI	Staurastrum cingulum (W & G.S.WEST) G.M.SMITH 1922	CELL	5.6
09/10/2015	LOWE	COSA	Cosmarium abbreviatum RACIBORSKI 1885	CELL	0.7
09/10/2015	LOWE	GYMS	Gymnodinium STEIN 1878 sp. (small)	CELL	0.7
09/10/2015	LOWE	GYMA	Gymnodinium helveticum forma achroum SKUJA 1948	CELL	4.5
09/10/2015	LOWE	CERH	Ceratium hirundinella (OF MÜLLER) DUJARDIN 1846 (included C. furcoides until 1983-1984, check individual lakes)	CELL	0.7
09/10/2015	LOWE	PERS	Peridinium EHRENBERG 1832 sp. (small) (25um cbut, csre)	CELL	0.7
09/10/2015	LOWE	PERC	Peridinium cinctum (OF MÜLLER) EHRENBERG 1838	CELL	0.7
09/10/2015	LOWE	MALC	Mallomonas caudata IVANOV 1899	CELL	0.7
09/10/2015	LOWE	MALL	Mallomonas PERTY 1851 sp.	CELL	2.3
09/10/2015	LOWE	NISY	Nitzschia /Synedra (uncertain which)	CELL	0.7
09/10/2015	LOWE	KOLI	Koliella spiculiformis (VISCHER) HINDAK	CELL	0.7
09/10/2015	LOWE	AULS	Aulacoseira subarctica (O MÜLLER) E Y HAWORTH 1988	FILA	2.8
09/10/2015	LOWE	AULS	Aulacoseira subarctica (O MÜLLER) E Y HAWORTH 1988	CELL	12.4
09/10/2015	LOWE	ANCF	Anabaena circinalis &/or flos-aquae	FILA	4.5
09/10/2015	LOWE	ANCF	Anabaena circinalis &/or flos-aquae	CELL	63.7
09/10/2015	LOWE	PSEG	Pseudosphaerocystis sp.	COLO	0.7
09/10/2015	LOWE	PSEG	Pseudosphaerocystis sp.	CELL	18
09/10/2015	LOWE	PLAS	Planktothrix sp.	FILA	0.7
09/10/2015	LOWE	PLAS	Planktothrix sp.	LENG	0.127
09/10/2015	LOWE	RHOD	Rhodomonas KARSTEN sp.	CELL	441.9
09/10/2015	LOWE	CHRP	Chrysochromulina parva LACKEY 1939	CELL	346.6
09/10/2015	LOWE	CHLO	Chlorella BEIJERINCK 1890 sp.	CELL	363.9
09/10/2015	LOWE	MALA	Mallomonas akrokomas RUTTNER IN PASCHER 1913	CELL	8.7
09/10/2015	LOWE	CHRO	Chroomonas HANSGIRG sp.	CELL	34.7

Date	Lake	Alga	Algal name	Form	Value cm ⁻³
09/10/2015	LOWE	MONY	Monoraphidium dybowskii (WOLASYNSKA) HINDAK & KOMARKOVA - LEGENEROVA	CELL	43.3
09/10/2015	LOWE	UROG	Uroglena EHRENBERG (1833) 1835 sp.	CELL	26
09/10/2015	LOWE	EUDS	Eudorina EHRENBERG 1832 sp.	COLO	8.7
09/10/2015	LOWE	EUDS	Eudorina EHRENBERG 1832 sp.	CELL	277.2
13/10/2015	NBAS	CRYP	Cryptomonas EHRENBERG 1838 spp.	CELL	63.3
13/10/2015	NBAS	MONO	Monoraphidium contortum (THURET) KOMÁRKOVÁ-LEGNEROVÁ 1969	CELL	13
13/10/2015	NBAS	KOLI	Koliella spiculiformis (VISCHER) HINDAK	CELL	6.5
13/10/2015	NBAS	NISY	Nitzschia /Synedra (uncertain which)	CELL	30.4
13/10/2015	NBAS	GYML	Gymnodinium STEIN 1878 sp. (large)	CELL	0.7
13/10/2015	NBAS	GYMA	Gymnodinium helveticum forma achroum SKUJA 1948	CELL	0.3
13/10/2015	NBAS	STAI	Staurastrum cingulum (W & G.S.WEST) G.M.SMITH 1922	CELL	0.7
13/10/2015	NBAS	MALC	Mallomonas caudata IVANOV 1899	CELL	2.4
13/10/2015	NBAS	MALL	Mallomonas PERTY 1851 sp.	CELL	0.7
13/10/2015	NBAS	PERS	Peridinium EHRENBERG 1832 sp. (small) (25um cbut, csre)	CELL	0.7
13/10/2015	NBAS	CYCB	Cyclotella KÜTZING EX BRÉBISSON 1838 sp. (big)	CELL	0.3
13/10/2015	NBAS	COEX	Coelosphaerium minutissimum	COLO	4.8
13/10/2015	NBAS	WORN	Woronichinia naegeliana (UNGER) ELENKIN 1933	COLO	1.7
13/10/2015	NBAS	APHA	Aphanocapsa NÄGELI 1849 sp.	COLO	3.4
13/10/2015	NBAS	SNOL	Snowella lacustris (CHODAT) KOMÁREK & HINDÁK 1988	COLO	0.3
13/10/2015	NBAS	ANCF	Anabaena circinalis &/or flos-aquae	FILA	41.4
13/10/2015	NBAS	ANCF	Anabaena circinalis &/or flos-aquae	CELL	841.3
13/10/2015	NBAS	MOUG	Mougeotia (AGARDH) WITTROCK 1872 sp.	FILA	2.1
13/10/2015	NBAS	MOUG	Mougeotia (AGARDH) WITTROCK 1872 sp.	CELL	84.5
13/10/2015	NBAS	TABV	Tabellaria flocculosa (ROTH) KÜTZING 1844 var. other than asterionelloides or flocculosa (mainly zig zag formation)	COLO	21.9
13/10/2015	NBAS	TABV	Tabellaria flocculosa (ROTH) KÜTZING 1844 var. other than asterionelloides or flocculosa (mainly zig zag formation)	CELL	71.8
13/10/2015	NBAS	TABV	Tabellaria flocculosa (ROTH) KÜTZING 1844 var. other than asterionelloides or flocculosa (mainly zig zag formation)	DEAD	40
13/10/2015	NBAS	AULS	Aulacoseira subarctica (O MÜLLER) E Y HAWORTH 1988	FILA	0.3
13/10/2015	NBAS	AULS	Aulacoseira subarctica (O MÜLLER) E Y HAWORTH 1988	CELL	1.4
13/10/2015	NBAS	AULS	Aulacoseira subarctica (O MÜLLER) E Y HAWORTH 1988	DEAD	1.7
13/10/2015	NBAS	FRAC	Fragilaria crotonensis KITTON 1869 (var. crotonensis and var. prolongata until 1993 when var. prol coded ζ FRAT)	FILA	0.7
13/10/2015	NBAS	FRAC	Fragilaria crotonensis KITTON 1869 (var. crotonensis and var. prolongata until 1993 when var. prol coded ζ FRAT)	CELL	9.2
13/10/2015	NBAS	FRAC	Fragilaria crotonensis KITTON 1869 (var. crotonensis and var. prolongata until 1993 when var. prol coded ζ FRAT)	DEAD	2.7
13/10/2015	NBAS	ASTF	Asterionella formosa HASSALL 1855	COLO	2.1
13/10/2015	NBAS	ASTF	Asterionella formosa HASSALL 1855	CELL	0.3
13/10/2015	NBAS	ASTF	Asterionella formosa HASSALL 1855	DEAD	6.8
13/10/2015	NBAS	DIND	Dinobryon divergens IMHOF 1887	COLO	1.4
13/10/2015	NBAS	DIND	Dinobryon divergens IMHOF 1887	CELL	19.2
13/10/2015	NBAS	DICI	Dictyosphaerium NÄGELI sp.	COLO	1.7
13/10/2015	NBAS	DICI	Dictyosphaerium NÄGELI sp.	CELL	98.5
13/10/2015	NBAS	DICS	Dictyosphaerium NÄGELI sp. (small cells)	COLO	0.7
13/10/2015	NBAS	DICS	Dictyosphaerium NÄGELI sp. (small cells)	CELL	2.7
13/10/2015	NBAS	ELAK	Elakatothrix WILLE sp.	COLO	1
13/10/2015	NBAS	ELAK	Elakatothrix WILLE sp.	CELL	2.7
13/10/2015	NBAS	PSEG	Pseudosphaerocystis sp.	COLO	1.4
13/10/2015	NBAS	PSEG	Pseudosphaerocystis sp.	CELL	30.1
13/10/2015	NBAS	SCEN	Scenedesmus MEYEN 1829 sp.	COLO	0.4
13/10/2015	NBAS	SCEN	Scenedesmus MEYEN 1829 sp.	CELL	1.4
13/10/2015	NBAS	COEF	Coenochloris fottii (HINDÁK) TSARENKO 1990	COLO	2.1
13/10/2015	NBAS	COEF	Coenochloris fottii (HINDÁK) TSARENKO 1990	CELL	17.8
13/10/2015	NBAS	TETN	Tetraspora lemmermannii	COLO	0.3
13/10/2015	NBAS	TETN	Tetraspora lemmermannii	CELL	10.9

Date	Lake	Alga	Algal name	Form	Value cm ⁻³
13/10/2015	NBAS	EUDS	Eudorina EHRENBERG 1832 sp.	COLO	0.3
13/10/2015	NBAS	EUDS	Eudorina EHRENBERG 1832 sp.	CELL	10.9
13/10/2015	NBAS	ASTC	Asterococcus spp. SCHERFFEL	CELL	0.3
13/10/2015	NBAS	PSEL	Pseudanabaena limnetica (LEMMERMANN) KOMÁREK	FILA	12.3
13/10/2015	NBAS	PSEL	Pseudanabaena limnetica (LEMMERMANN) KOMÁREK	LENG	1.733
13/10/2015	NBAS	APHF	Aphanizomenon flos-aquae (LINNAEUS) RALFS	FILA	0.7
13/10/2015	NBAS	APHF	Aphanizomenon flos-aquae (LINNAEUS) RALFS	LENG	0.067
13/10/2015	NBAS	PLAS	Planktothrix sp.	FILA	0.3
13/10/2015	NBAS	PLAS	Planktothrix sp.	LENG	0.168
13/10/2015	NBAS	RHOD	Rhodomonas KARSTEN sp.	CELL	94.6
13/10/2015	NBAS	CHRP	Chrysochromulina parva LACKEY 1939	CELL	84.1
13/10/2015	NBAS	CHLA	Chlamydomonas EHRENBERG 1833 sp.	CELL	26.3
13/10/2015	NBAS	CHLO	Chlorella BEIJERINCK 1890 sp.	CELL	131.4
13/10/2015	NBAS	UROS	Urosolenia ROUND & CRAWFORD	CELL	57.8
13/10/2015	NBAS	UROS	Urosolenia ROUND & CRAWFORD	DEAD	21
13/10/2015	NBAS	COCC	Coccomyxa SCHMIDLE spp.	CELL	5.3
13/10/2015	NBAS	UROG	Uroglena EHRENBERG (1833) 1835 sp.	CELL	21
13/10/2015	NBAS	CHRO	Chroomonas HANSGIRG sp.	CELL	5.3
13/10/2015	NBAS	COSM	Cosmarium CORDA EX RALFS 1848 sp.	CELL	10.5
13/10/2015	NBAS	PEDT	Pediastrum tetras (EHRENBERG) RALFS 1844	COLO	5.3
13/10/2015	NBAS	PEDT	Pediastrum tetras (EHRENBERG) RALFS 1844	CELL	21
08/10/2015	RYDA	CRYP	Cryptomonas EHRENBERG 1838 spp.	CELL	34.2
08/10/2015	RYDA	NISY	Nitzschia /Synedra (uncertain which)	CELL	0.7
08/10/2015	RYDA	MONO	Monoraphidium contortum (THURET) KOMÁRKOVÁ-LEGNEROVÁ 1969	CELL	0.3
08/10/2015	RYDA	MALL	Mallomonas PERTY 1851 sp.	CELL	1.4
08/10/2015	RYDA	ASTF	Asterionella formosa HASSALL 1855	COLO	0.3
08/10/2015	RYDA	ASTF	Asterionella formosa HASSALL 1855	CELL	1.4
08/10/2015	RYDA	DIND	Dinobryon divergens IMHOF 1887	COLO	0.7
08/10/2015	RYDA	DIND	Dinobryon divergens IMHOF 1887	CELL	5.1
08/10/2015	RYDA	RHOD	Rhodomonas KARSTEN sp.	CELL	152.4
08/10/2015	RYDA	CHLO	Chlorella BEIJERINCK 1890 sp.	CELL	310.1
08/10/2015	RYDA	UROG	Uroglena EHRENBERG (1833) 1835 sp.	CELL	36.8
08/10/2015	RYDA	CHRO	Chroomonas HANSGIRG sp.	CELL	5.3
08/10/2015	RYDA	SCEN	Scenedesmus MEYEN 1829 sp.	COLO	5.3
08/10/2015	RYDA	SCEN	Scenedesmus MEYEN 1829 sp.	CELL	21
08/10/2015	RYDA	PSEU	Pseudanabaena LAUTERBORN 1915 sp.	FILA	5.3
08/10/2015	RYDA	PSEU	Pseudanabaena LAUTERBORN 1915 sp.	LENG	0.184
13/10/2015	SBAS	CRYP	Cryptomonas EHRENBERG 1838 spp.	CELL	33.2
13/10/2015	SBAS	MONO	Monoraphidium contortum (THURET) KOMÁRKOVÁ-LEGNEROVÁ 1969	CELL	73.2
13/10/2015	SBAS	NISY	Nitzschia /Synedra (uncertain which)	CELL	50.3
13/10/2015	SBAS	SYNM	Synedra EHRENBERG 1830 sp. (medium)	CELL	0.3
13/10/2015	SBAS	MALC	Mallomonas caudata IVANOV 1899	CELL	1.4
13/10/2015	SBAS	MALL	Mallomonas PERTY 1851 sp.	CELL	0.3
13/10/2015	SBAS	STAL	Staurastrum lunatum RALFS 1848	CELL	0.3
13/10/2015	SBAS	STAI	Staurastrum cingulum (W & G.S.WEST) G.M.SMITH 1922	CELL	0.3
13/10/2015	SBAS	COSQ	Cosmarium phaseolus Brebisson	CELL	0.3
13/10/2015	SBAS	PERS	Peridinium EHRENBERG 1832 sp. (small) (25um cbut, csre)	CELL	1.4
13/10/2015	SBAS	GYMA	Gymnodinium helveticum forma achroum SKUJA 1948	CELL	0.7
13/10/2015	SBAS	GYML	Gymnodinium STEIN 1878 sp. (large)	CELL	0.3
13/10/2015	SBAS	CHAC	Characium spp. - A.BRAUN	CELL	0.7
13/10/2015	SBAS	KOLL	Koliella longiseta HINDÁK 1963	CELL	6.2
13/10/2015	SBAS	KOLI	Koliella spiculiformis (VISCHER) HINDAK	CELL	1
13/10/2015	SBAS	COEX	Coelosphaerium minutissimum	COLO	31.5
13/10/2015	SBAS	APHJ	Aphanocapsa incerta	COLO	1.7

Date	Lake	Alga	Algal name	Form	Value cm ⁻³
13/10/2015	SBAS	BOTB	Botryococcus braunii KÜTZING 1849	COLO	0.3
13/10/2015	SBAS	WORN	Woronichinia naegeliana (UNGER) ELENKIN 1933	COLO	5.1
13/10/2015	SBAS	SNOL	Snowella lacustris (CHODAT) KOMÁREK & HINDÁK 1988	COLO	0.3
13/10/2015	SBAS	APHA	Aphanocapsa NÄGELI 1849 sp.	COLO	4.1
13/10/2015	SBAS	MICR	Microcystis KÜTZING EX LEMMERMANN 1907 sp.	COLO	0.3
13/10/2015	SBAS	TABV	Tabellaria flocculosa (ROTH) KÜTZING 1844 var. other than asterionelloides or flocculosa (mainly zig zag formation)	COLO	9.9
13/10/2015	SBAS	TABV	Tabellaria flocculosa (ROTH) KÜTZING 1844 var. other than asterionelloides or flocculosa (mainly zig zag formation)	CELL	38.6
13/10/2015	SBAS	TABV	Tabellaria flocculosa (ROTH) KÜTZING 1844 var. other than asterionelloides or flocculosa (mainly zig zag formation)	DEAD	18.5
13/10/2015	SBAS	FRAC	Fragilaria crotonensis KITTON 1869 (var. crotonensis and var. prolongata until 1993 when var. prol coded ζ FRAT)	FILA	3.1
13/10/2015	SBAS	FRAC	Fragilaria crotonensis KITTON 1869 (var. crotonensis and var. prolongata until 1993 when var. prol coded ζ FRAT)	CELL	48.6
13/10/2015	SBAS	FRAC	Fragilaria crotonensis KITTON 1869 (var. crotonensis and var. prolongata until 1993 when var. prol coded ζ FRAT)	DEAD	18.8
13/10/2015	SBAS	AULM	Aulacoseira ambigua	FILA	0.7
13/10/2015	SBAS	AULM	Aulacoseira ambigua	CELL	4.8
13/10/2015	SBAS	AULM	Aulacoseira ambigua	DEAD	0.3
13/10/2015	SBAS	DICI	Dictyosphaerium NÄGELI sp.	COLO	5.8
13/10/2015	SBAS	DICI	Dictyosphaerium NÄGELI sp.	CELL	459.6
13/10/2015	SBAS	DICS	Dictyosphaerium NÄGELI sp. (small cells)	COLO	0.3
13/10/2015	SBAS	DICS	Dictyosphaerium NÄGELI sp. (small cells)	CELL	1.4
13/10/2015	SBAS	PSEG	Pseudosphaerocystis sp.	COLO	0.3
13/10/2015	SBAS	PSEG	Pseudosphaerocystis sp.	CELL	5.5
13/10/2015	SBAS	PAUT	Paulschulzia tenera (KORSHIKOV) LUND 1960	COLO	0.7
13/10/2015	SBAS	PAUT	Paulschulzia tenera (KORSHIKOV) LUND 1960	CELL	2.7
13/10/2015	SBAS	QUAD	Quadrigula spp. PRINTZ	COLO	0.3
13/10/2015	SBAS	QUAD	Quadrigula spp. PRINTZ	CELL	1.4
13/10/2015	SBAS	COEF	Coenochloris fottii (HINDÁK) TSARENKO 1990	COLO	0.7
13/10/2015	SBAS	COEF	Coenochloris fottii (HINDÁK) TSARENKO 1990	CELL	5.5
13/10/2015	SBAS	DIND	Dinobryon divergens IMHOF 1887	COLO	0.7
13/10/2015	SBAS	DIND	Dinobryon divergens IMHOF 1887	CELL	5.8
13/10/2015	SBAS	SCEN	Scenedesmus MEYEN 1829 sp.	COLO	0.7
13/10/2015	SBAS	SCEN	Scenedesmus MEYEN 1829 sp.	CELL	2.7
13/10/2015	SBAS	CRUT	Crucigenia tetrapedia (KIRCHNER) W & G.S WEST	COLO	0.3
13/10/2015	SBAS	CRUT	Crucigenia tetrapedia (KIRCHNER) W & G.S WEST	CELL	1.4
13/10/2015	SBAS	COCO	Coenochloris ovalis	COLO	0.3
13/10/2015	SBAS	COCO	Coenochloris ovalis	CELL	5.5
13/10/2015	SBAS	VOLA	Volvox aureus	COLO	1
13/10/2015	SBAS	MOUG	Mougeotia (AGARDH) WITTRÖCK 1872 sp.	FILA	1
13/10/2015	SBAS	MOUG	Mougeotia (AGARDH) WITTRÖCK 1872 sp.	CELL	28.4
13/10/2015	SBAS	ANAP	Anabaena spiroides KLEBAHN 1895	FILA	2.1
13/10/2015	SBAS	ANAP	Anabaena spiroides KLEBAHN 1895	CELL	57.5
13/10/2015	SBAS	ANCF	Anabaena circinalis &/or flos-aquae	FILA	0.7
13/10/2015	SBAS	ANCF	Anabaena circinalis &/or flos-aquae	CELL	35.9
13/10/2015	SBAS	PSEL	Pseudanabaena limnetica (LEMMERMANN) KOMÁREK	FILA	17.4
13/10/2015	SBAS	PSEL	Pseudanabaena limnetica (LEMMERMANN) KOMÁREK	LENG	3.435
13/10/2015	SBAS	APHF	Aphanizomenon flos-aquae (LINNAEUS) RALFS	FILA	1
13/10/2015	SBAS	APHF	Aphanizomenon flos-aquae (LINNAEUS) RALFS	LENG	0.107
13/10/2015	SBAS	PLAS	Planktothrix sp.	FILA	1
13/10/2015	SBAS	PLAS	Planktothrix sp.	LENG	0.174
13/10/2015	SBAS	RHOD	Rhodomonas KARSTEN sp.	CELL	131.4
13/10/2015	SBAS	CHRP	Chrysochromulina parva LACKEY 1939	CELL	36.8
13/10/2015	SBAS	CHLA	Chlamydomonas EHRENBERG 1833 sp.	CELL	15.8
13/10/2015	SBAS	CHLO	Chlorella BEIJERINCK 1890 sp.	CELL	278.6
13/10/2015	SBAS	UROS	Urosolenia ROUND & CRAWFORD	CELL	42

Date	Lake	Alga	Algal name	Form	Value cm ⁻³
13/10/2015	SBAS	UROG	Uroglena EHRENBERG (1833) 1835 sp.	CELL	10.5
13/10/2015	SBAS	MONY	Monoraphidium dybowskii (WOLASYNSKA) HINDAK & KOMARKOVA - LEGENEROVA	CELL	5.3
13/10/2015	SBAS	GONS	Gonium sociale (DUJARDIN) WARMING	COLO	5.3
13/10/2015	SBAS	GONS	Gonium sociale (DUJARDIN) WARMING	CELL	21
09/10/2015	THIR	CYCT	Cyclotella KÜTZING EX BRÉBISSON 1838 sp.	CELL	906
09/10/2015	THIR	CYCT	Cyclotella KÜTZING EX BRÉBISSON 1838 sp.	DEAD	12.8
09/10/2015	THIR	CRYP	Cryptomonas EHRENBERG 1838 spp.	CELL	9.2
09/10/2015	THIR	CYCB	Cyclotella KÜTZING EX BRÉBISSON 1838 sp. (big)	CELL	14.4
09/10/2015	THIR	CYCB	Cyclotella KÜTZING EX BRÉBISSON 1838 sp. (big)	DEAD	1.4
09/10/2015	THIR	NISY	Nitzschia /Synedra (uncertain which)	CELL	2.4
09/10/2015	THIR	MALL	Mallomonas PERTY 1851 sp.	CELL	1
09/10/2015	THIR	GYMS	Gymnodinium STEIN 1878 sp. (small)	CELL	3.1
09/10/2015	THIR	PERS	Peridinium EHRENBERG 1832 sp. (small) (25um cbut, csre)	CELL	1.7
09/10/2015	THIR	GYML	Gymnodinium STEIN 1878 sp. (large)	CELL	0.7
09/10/2015	THIR	TABF	Tabellaria flocculosa (ROTH) KÜTZING 1844 var. flocculosa	CELL	0.3
09/10/2015	THIR	CYCC	Cyclotella comensis GRUNOW IN VAN HEURCK 1882	FILA	8.9
09/10/2015	THIR	CYCC	Cyclotella comensis GRUNOW IN VAN HEURCK 1882	CELL	32.5
09/10/2015	THIR	CYCC	Cyclotella comensis GRUNOW IN VAN HEURCK 1882	DEAD	5.5
09/10/2015	THIR	TABV	Tabellaria flocculosa (ROTH) KÜTZING 1844 var. other than asterionelloides or flocculosa (mainly zig zag formation)	COLO	3.8
09/10/2015	THIR	TABV	Tabellaria flocculosa (ROTH) KÜTZING 1844 var. other than asterionelloides or flocculosa (mainly zig zag formation)	CELL	19.2
09/10/2015	THIR	COEX	Coelosphaerium minutissimum	COLO	0.7
09/10/2015	THIR	APHA	Aphanocapsa NÄGELI 1849 sp.	COLO	1.4
09/10/2015	THIR	SCEN	Scenedesmus MEYEN 1829 sp.	COLO	0.3
09/10/2015	THIR	SCEN	Scenedesmus MEYEN 1829 sp.	CELL	1.4
09/10/2015	THIR	NEPA	Nephrocystium agardhianum NÄGELI 1849	COLO	0.7
09/10/2015	THIR	NEPA	Nephrocystium agardhianum NÄGELI 1849	CELL	2.1
09/10/2015	THIR	STTR	Staurodesmus triangularis (LAGERHEIM) TEILING	CELL	0.3
09/10/2015	THIR	STTR	Staurodesmus triangularis (LAGERHEIM) TEILING	DEAD	0.3
09/10/2015	THIR	STAR	Staurodesmus TEILING sp.	CELL	0.3
09/10/2015	THIR	RHOD	Rhodomonas KARSTEN sp.	CELL	84.1
09/10/2015	THIR	CHRP	Chrysochromulina parva LACKEY 1939	CELL	10.5
09/10/2015	THIR	CHLA	Chlamydomonas EHRENBERG 1833 sp.	CELL	36.8
09/10/2015	THIR	CHLO	Chlorella BEIJERINCK 1890 sp.	CELL	336.4
09/10/2015	THIR	UROS	Urosolenia ROUND & CRAWFORD	CELL	452
09/10/2015	THIR	UROS	Urosolenia ROUND & CRAWFORD	DEAD	189.2
09/10/2015	THIR	UROG	Uroglena EHRENBERG (1833) 1835 sp.	CELL	5.3
09/10/2015	THIR	AULS	Aulacoseira subarctica (O MÜLLER) E Y HAWORTH 1988	FILA	5.3
09/10/2015	THIR	AULS	Aulacoseira subarctica (O MÜLLER) E Y HAWORTH 1988	CELL	31.5
09/10/2015	THIR	AULS	Aulacoseira subarctica (O MÜLLER) E Y HAWORTH 1988	DEAD	15.8
09/10/2015	THIR	CHRK	Chrysolynos MACK	CELL	5.3
09/10/2015	THIR	DIND	Dinobryon divergens IMHOF 1887	CELL	5.3
13/10/2015	ULLS	CRYP	Cryptomonas EHRENBERG 1838 spp.	CELL	28
13/10/2015	ULLS	MONO	Monoraphidium contortum (THURET) KOMÁRKOVÁ-LEGNEROVÁ 1969	CELL	8.2
13/10/2015	ULLS	CYCB	Cyclotella KÜTZING EX BRÉBISSON 1838 sp. (big)	CELL	1.4
13/10/2015	ULLS	CYCT	Cyclotella KÜTZING EX BRÉBISSON 1838 sp.	CELL	0.3
13/10/2015	ULLS	GYMA	Gymnodinium helveticum forma achroum SKUJA 1948	CELL	1
13/10/2015	ULLS	GYMS	Gymnodinium STEIN 1878 sp. (small)	CELL	0.7
13/10/2015	ULLS	STTR	Staurodesmus triangularis (LAGERHEIM) TEILING	CELL	0.7
13/10/2015	ULLS	PERS	Peridinium EHRENBERG 1832 sp. (small) (25um cbut, csre)	CELL	0.3
13/10/2015	ULLS	COEX	Coelosphaerium minutissimum	COLO	3.4
13/10/2015	ULLS	BOTB	Botryococcus braunii KÜTZING 1849	COLO	0.3
13/10/2015	ULLS	APHA	Aphanocapsa NÄGELI 1849 sp.	COLO	0.7
13/10/2015	ULLS	TABV	Tabellaria flocculosa (ROTH) KÜTZING 1844 var. other than asterionelloides or flocculosa (mainly zig zag formation)	COLO	21.9

Date	Lake	Alga	Algal name	Form	Value cm ⁻³
13/10/2015	ULLS	TABV	Tabellaria flocculosa (ROTH) KÜTZING 1844 var. other than asterionelloides or flocculosa (mainly zig zag formation)	CELL	91
13/10/2015	ULLS	TABV	Tabellaria flocculosa (ROTH) KÜTZING 1844 var. other than asterionelloides or flocculosa (mainly zig zag formation)	DEAD	21.5
13/10/2015	ULLS	TABA	Tabellaria flocculosa var. asterionelloides (GRUNOW) KNUDSON 1952	COLO	17.4
13/10/2015	ULLS	TABA	Tabellaria flocculosa var. asterionelloides (GRUNOW) KNUDSON 1952	CELL	55.7
13/10/2015	ULLS	TABA	Tabellaria flocculosa var. asterionelloides (GRUNOW) KNUDSON 1952	DEAD	31.8
13/10/2015	ULLS	FRAC	Fragilaria crotonensis KITTON 1869 (var. crotonensis and var. prolongata until 1993 when var. prol coded ě FRAT)	FILA	20.5
13/10/2015	ULLS	FRAC	Fragilaria crotonensis KITTON 1869 (var. crotonensis and var. prolongata until 1993 when var. prol coded ě FRAT)	CELL	400.5
13/10/2015	ULLS	FRAC	Fragilaria crotonensis KITTON 1869 (var. crotonensis and var. prolongata until 1993 when var. prol coded ě FRAT)	DEAD	60.2
13/10/2015	ULLS	FRAA	Fragilaria capucina DESMAZIERES 1825	FILA	0.3
13/10/2015	ULLS	FRAA	Fragilaria capucina DESMAZIERES 1825	CELL	21.9
13/10/2015	ULLS	FRAA	Fragilaria capucina DESMAZIERES 1825	DEAD	1.4
13/10/2015	ULLS	AULS	Aulacoseira subarctica (O MÜLLER) E Y HAWORTH 1988	FILA	9.2
13/10/2015	ULLS	AULS	Aulacoseira subarctica (O MÜLLER) E Y HAWORTH 1988	CELL	42.1
13/10/2015	ULLS	AULS	Aulacoseira subarctica (O MÜLLER) E Y HAWORTH 1988	DEAD	10.9
13/10/2015	ULLS	ASTF	Asterionella formosa HASSALL 1855	COLO	1.7
13/10/2015	ULLS	ASTF	Asterionella formosa HASSALL 1855	CELL	7.5
13/10/2015	ULLS	ASTF	Asterionella formosa HASSALL 1855	DEAD	1
13/10/2015	ULLS	DICI	Dictyosphaerium NÄGELI sp.	COLO	0.3
13/10/2015	ULLS	DICI	Dictyosphaerium NÄGELI sp.	CELL	21.9
13/10/2015	ULLS	ELAK	Elakatothrix WILLE sp.	COLO	0.3
13/10/2015	ULLS	ELAK	Elakatothrix WILLE sp.	CELL	0.7
13/10/2015	ULLS	COEF	Coenochloris fottii (HINDÁK) TSARENKO 1990	COLO	1
13/10/2015	ULLS	COEF	Coenochloris fottii (HINDÁK) TSARENKO 1990	CELL	27.4
13/10/2015	ULLS	EUDS	Eudorina EHRENBERG 1832 sp.	COLO	0.7
13/10/2015	ULLS	EUDS	Eudorina EHRENBERG 1832 sp.	CELL	10.9
13/10/2015	ULLS	PLAS	Planktothrix sp.	FILA	22.6
13/10/2015	ULLS	PLAS	Planktothrix sp.	LENG	9.103
13/10/2015	ULLS	PSEL	Pseudanabaena limnetica (LEMMERMANN) KOMÁREK	FILA	0.7
13/10/2015	ULLS	PSEL	Pseudanabaena limnetica (LEMMERMANN) KOMÁREK	LENG	0.084
13/10/2015	ULLS	RHOD	Rhodomonas KARSTEN sp.	CELL	126.1
13/10/2015	ULLS	CHRP	Chrysochromulina parva LACKEY 1939	CELL	5.3
13/10/2015	ULLS	CHLO	Chlorella BEIJERINCK 1890 sp.	CELL	194.5
13/10/2015	ULLS	MONY	Monoraphidium dybowskii (WOLASYNSKA) HINDAK & KOMARKOVA - LEGENEROVA	CELL	5.3
13/10/2015	ULLS	UROS	Urosolenia ROUND & CRAWFORD	CELL	15.8
13/10/2015	ULLS	UROS	Urosolenia ROUND & CRAWFORD	DEAD	5.3
13/10/2015	ULLS	UROG	Uroglena EHRENBERG (1833) 1835 sp.	CELL	15.8
08/10/2015	WAST	CRYP	Cryptomonas EHRENBERG 1838 spp.	CELL	3.4
08/10/2015	WAST	MONO	Monoraphidium contortum (THURET) KOMÁRKOVÁ-LEGNEROVÁ 1969	CELL	0.3
08/10/2015	WAST	KOLI	Koliella spiculiformis (VISCHER) HINDAK	CELL	13.7
08/10/2015	WAST	GYML	Gymnodinium STEIN 1878 sp. (large)	CELL	0.7
08/10/2015	WAST	GYMA	Gymnodinium helveticum forma achroum SKUJA 1948	CELL	0.3
08/10/2015	WAST	PERS	Peridinium EHRENBERG 1832 sp. (small) (25um cbut, csre)	CELL	0.7
08/10/2015	WAST	NISY	Nitzschia /Synedra (uncertain which)	CELL	0.7
08/10/2015	WAST	CYCB	Cyclotella KÜTZING EX BRÉBISSON 1838 sp. (big)	CELL	0.7
08/10/2015	WAST	ELAK	Elakatothrix WILLE sp.	COLO	0.7
08/10/2015	WAST	ELAK	Elakatothrix WILLE sp.	CELL	1
08/10/2015	WAST	RHOD	Rhodomonas KARSTEN sp.	CELL	21
08/10/2015	WAST	CHRP	Chrysochromulina parva LACKEY 1939	CELL	36.8
08/10/2015	WAST	CHLO	Chlorella BEIJERINCK 1890 sp.	CELL	199.7
08/10/2015	WAST	MONY	Monoraphidium dybowskii (WOLASYNSKA) HINDAK & KOMARKOVA - LEGENEROVA	CELL	52.6
08/10/2015	WAST	BITI	Bitrichia WOLOSZNSKA sp.	CELL	10.5

Date	Lake	Alga	Algal name	Form	Value cm⁻³
08/10/2015	WAST	TETM	Tetraedron minimum (A.BRAUN) HANSGIRG	CELL	5.3
08/10/2015	WAST	DINN	Dinobryon acuminatum RUTTNER	CELL	36.8
08/10/2015	WAST	KEPH	Kephyrion PASCHER 1911 sp.	CELL	5.3

7.6 APPENDIX 6. Zooplankton densities (number dm⁻³) in 2015.

Site	Month	<i>Arctodiaptomus</i>	<i>Bosmina</i>	<i>Bythotrephes</i>	<i>Ceriodaphnia</i>	<i>Cyclops</i>	<i>Daphnia</i>	<i>Diacyclops</i>	<i>Diaphanosoma</i>	<i>Eucyclops</i>	<i>Eudiaptomus</i>	<i>Holopedium</i>	<i>Leptodora</i>	<i>Megacyclops</i>	<i>Mesocyclops</i>	<i>Sida</i>
Bassenthwaite Lake	January	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.07	0.00	0.00	0.00	0.00	0.00
Blelham Tarn	January	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.32	0.00	0.00	0.00	0.00	0.00
Brothers Water	January	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.17	0.00	0.00	0.00	0.00	0.00
Buttermere	January	0.00	0.11	0.00	0.00	0.14	0.19	0.00	0.00	0.00	0.81	0.00	0.00	0.00	0.00	0.00
Coniston Water	January	0.00	0.09	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.33	0.00	0.00	0.00	0.00	0.00
Crummock Water	January	0.00	0.01	0.00	0.00	0.02	0.01	0.00	0.00	0.00	0.11	0.00	0.00	0.00	0.00	0.00
Derwentwater	January	0.00	0.01	0.00	0.00	0.00	0.04	0.00	0.00	0.00	0.48	0.00	0.00	0.00	0.00	0.00
Elterwater	January	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.18	0.00	0.00	0.00	0.00	0.00
Ennerdale Water	January	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.00	0.00	0.00	0.00	0.00
Esthwaite Water	January	0.00	0.02	0.00	0.01	0.00	0.10	0.00	0.00	0.00	0.64	0.00	0.00	0.00	0.00	0.00
Grasmere	January	0.00	0.10	0.00	0.00	0.14	0.02	0.00	0.00	0.00	0.34	0.00	0.00	0.00	0.00	0.00
Haweswater	January	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.00	0.00	0.00	0.00	0.00
Loughrigg Tarn	January	0.00	0.00	0.00	0.00	0.00	0.23	0.00	0.00	0.00	1.18	0.00	0.00	0.00	0.00	0.00
Loweswater	January	0.00	0.00	0.00	0.00	0.01	0.06	0.00	0.00	0.00	0.70	0.00	0.00	0.00	0.00	0.00
Rydal Water	January	0.00	0.02	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.15	0.00	0.00	0.00	0.00	0.00
Thirlmere	January	0.00	0.02	0.00	0.00	0.03	0.07	0.00	0.00	0.00	0.17	0.00	0.00	0.00	0.00	0.00
Ullswater	January	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.28	0.00	0.00	0.00	0.00	0.00
Wastwater	January	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.17	0.00	0.00	0.00	0.00	0.00
Windermere North Basin	January	0.01	0.02	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.30	0.00	0.00	0.00	0.00	0.00
Windermere South Basin	January	0.00	0.11	0.00	0.00	0.05	0.12	0.00	0.00	0.00	0.65	0.00	0.00	0.00	0.00	0.00
Bassenthwaite Lake	April	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.05	0.00
Blelham Tarn	April	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.08	0.00	0.00	0.00	0.01	0.00
Brothers Water	April	0.00	0.06	0.00	0.00	0.24	0.02	0.00	0.00	0.00	0.14	0.00	0.00	0.00	0.00	0.00

Site	Month	<i>Arctodiaptomus</i>	<i>Bosmina</i>	<i>Bythotrephes</i>	<i>Ceriodaphnia</i>	<i>Cyclops</i>	<i>Daphnia</i>	<i>Diacyclops</i>	<i>Diaphanosoma</i>	<i>Eucyclops</i>	<i>Eudiaptomus</i>	<i>Holopedium</i>	<i>Leptodora</i>	<i>Megacyclops</i>	<i>Mesocyclops</i>	<i>Sida</i>
Buttermere	April	0.00	0.13	0.00	0.00	0.06	0.19	0.00	0.00	0.00	0.15	0.00	0.00	0.00	0.00	0.00
Coniston Water	April	0.00	0.12	0.00	0.00	0.00	0.06	0.00	0.00	0.00	0.30	0.00	0.00	0.00	0.00	0.00
Crummock Water	April	0.00	0.07	0.00	0.00	0.01	0.07	0.00	0.00	0.00	0.17	0.00	0.00	0.00	0.00	0.00
Derwentwater	April	0.00	0.09	0.00	0.00	0.00	0.08	0.00	0.00	0.00	0.78	0.00	0.00	0.00	0.15	0.02
Elterwater	April	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.00	0.00	0.00	0.44	0.00
Ennerdale Water	April	0.00	0.19	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.00
Esthwaite Water	April	0.00	0.35	0.00	0.02	0.01	2.38	0.00	0.00	0.00	1.11	0.00	0.00	0.00	0.18	0.00
Grasmere	April	0.00	0.03	0.00	0.00	0.24	0.03	0.00	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.00
Haweswater	April	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.00
Loughrigg Tarn	April	0.00	0.00	0.00	0.00	0.00	0.30	0.00	0.00	0.00	2.70	0.00	0.00	0.00	0.00	0.00
Loweswater	April	0.00	0.00	0.00	0.00	0.04	0.02	0.00	0.00	0.00	0.22	0.00	0.00	0.00	0.00	0.00
Rydal Water	April	0.00	0.01	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.06	0.00	0.00	0.06	0.00
Thirlmere	April	0.00	0.01	0.00	0.00	0.00	0.07	0.00	0.00	0.00	0.12	0.00	0.00	0.00	0.00	0.00
Ullswater	April	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00
Wastwater	April	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.00	0.00	0.00	0.00	0.00
Windermere North Basin	April	0.01	0.13	0.00	0.00	0.00	0.04	0.00	0.00	0.00	0.15	0.00	0.00	0.00	0.01	0.00
Windermere South Basin	April	0.01	0.04	0.00	0.00	0.01	0.02	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.01	0.00
Bassenthwaite Lake	July	0.00	0.00	0.00	0.00	0.00	3.45	0.00	0.00	0.00	0.28	0.00	0.00	0.00	0.02	0.00
Blelham Tarn	July	0.00	0.00	0.00	0.01	0.00	0.03	0.00	0.00	0.00	0.49	0.00	0.00	0.00	0.27	0.00
Brothers Water	July	0.00	0.54	0.01	0.00	1.30	1.31	0.00	0.12	0.00	2.28	0.95	0.00	0.00	0.00	0.00
Buttermere	July	0.00	0.03	0.00	0.00	0.68	0.84	0.00	0.00	0.00	0.98	0.00	0.00	0.00	0.00	0.00
Coniston Water	July	0.00	0.12	0.02	0.00	1.18	0.08	0.00	0.00	0.00	0.38	0.00	0.00	0.00	0.00	0.00
Crummock Water	July	0.00	0.04	0.01	0.00	0.32	0.44	0.00	0.00	0.00	0.36	0.00	0.00	0.00	0.00	0.00
Derwentwater	July	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.00	0.11	0.00	0.00	0.00	0.01	0.00
Elterwater	July	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.88	0.00	0.00	0.00	0.06	0.00

Site	Month	<i>Arctodiaptomus</i>	<i>Bosmina</i>	<i>Bythotrephes</i>	<i>Ceriodaphnia</i>	<i>Cyclops</i>	<i>Daphnia</i>	<i>Diacyclops</i>	<i>Diaphanosoma</i>	<i>Eucyclops</i>	<i>Eudiaptomus</i>	<i>Holopedium</i>	<i>Leptodora</i>	<i>Megacyclops</i>	<i>Mesocyclops</i>	<i>Sida</i>
Ennerdale Water	July	0.00	0.00	0.01	0.00	0.00	0.14	0.00	0.00	0.00	0.43	0.00	0.00	0.00	0.00	0.00
Esthwaite Water	July	0.00	0.00	0.00	0.01	0.00	0.50	0.00	0.00	0.00	0.59	0.00	0.00	0.00	0.11	0.00
Grasmere	July	0.00	0.00	0.00	0.00	2.05	2.86	0.00	0.00	0.00	0.77	0.00	0.01	0.00	0.00	0.00
Haweswater	July	0.04	0.04	0.00	0.00	0.51	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00
Loughrigg Tarn	July	0.00	0.01	0.00	0.01	0.00	1.84	0.00	0.00	0.00	4.12	0.00	0.00	0.00	0.45	0.00
Loweswater	July	0.00	0.01	0.00	0.11	0.13	1.50	0.00	0.00	0.00	0.71	0.00	0.00	0.00	0.00	0.00
Rydal Water	July	0.00	0.00	0.00	0.00	1.27	2.20	0.01	0.00	0.00	0.31	0.07	0.00	0.00	0.00	0.00
Thirlmere	July	0.00	0.01	0.00	0.00	0.15	0.05	0.00	0.00	0.00	0.39	0.00	0.00	0.00	0.00	0.00
Ullswater	July	0.00	0.30	0.00	0.00	0.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Wastwater	July	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00
Windermere North Basin	July	0.13	0.01	0.02	0.00	1.36	0.46	0.00	0.00	0.00	0.12	0.00	0.00	0.00	0.00	0.00
Windermere South Basin	July	0.00	0.01	0.01	0.00	0.18	0.47	0.00	0.00	0.00	0.20	0.00	0.00	0.00	0.00	0.00
Bassenthwaite Lake	October	0.00	0.02	0.00	0.07	0.00	0.56	0.00	0.42	0.00	0.92	0.00	0.00	0.00	0.11	0.00
Blelham Tarn	October	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Brothers Water	October	0.00	0.53	0.00	0.00	0.08	0.38	0.00	0.60	0.00	2.66	0.00	0.00	0.00	0.00	0.00
Buttermere	October	0.00	0.02	0.00	0.00	0.30	0.52	0.00	0.00	0.00	0.77	0.00	0.00	0.00	0.00	0.00
Coniston Water	October	0.00	0.02	0.01	0.00	0.21	0.03	0.00	0.00	0.00	0.51	0.00	0.00	0.00	0.00	0.00
Crummock Water	October	0.00	0.02	0.01	0.00	0.38	0.05	0.00	0.00	0.00	0.42	0.00	0.00	0.00	0.00	0.00
Derwentwater	October	0.00	0.01	0.00	0.32	0.00	0.09	0.00	1.17	0.00	1.84	0.00	0.00	0.00	0.24	0.00
Elterwater	October	0.00	0.00	0.00	0.00	0.00	0.45	0.00	0.00	0.00	0.06	0.00	0.00	0.00	0.00	0.00
Ennerdale Water	October	0.00	0.00	0.00	0.00	0.00	0.25	0.00	0.00	0.00	0.24	0.00	0.00	0.00	0.00	0.00
Esthwaite Water	October	0.00	0.01	0.00	0.70	0.00	0.08	0.00	0.00	0.00	0.17	0.00	0.00	0.00	0.37	0.00
Grasmere	October	0.00	0.48	0.00	0.02	0.18	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Haweswater	October	0.00	0.11	0.00	0.00	0.03	0.17	0.00	0.00	0.00	0.16	0.00	0.01	0.00	0.00	0.00
Loughrigg Tarn	October	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	1.21	0.00	0.00	0.00	0.01	0.00

Site	Month	<i>Arctodiaptomus</i>	<i>Bosmina</i>	<i>Bythotrephes</i>	<i>Ceriodaphnia</i>	<i>Cyclops</i>	<i>Daphnia</i>	<i>Diacyclops</i>	<i>Diaphanosoma</i>	<i>Eucyclops</i>	<i>Eudiaptomus</i>	<i>Holopedium</i>	<i>Leptodora</i>	<i>Megacyclops</i>	<i>Mesocyclops</i>	<i>Sida</i>
Loweswater	October	0.00	0.01	0.00	0.12	0.00	0.12	0.00	0.00	0.00	0.59	0.00	0.00	0.00	0.00	0.00
Rydal Water	October	0.00	0.02	0.00	1.18	0.00	2.11	0.01	0.00	0.00	1.46	0.00	0.00	0.00	0.50	0.00
Thirlmere	October	0.00	0.01	0.00	0.00	0.00	0.03	0.00	0.02	0.00	0.19	0.00	0.00	0.00	0.00	0.00
Ullswater	October	0.00	0.06	0.01	0.00	0.14	0.06	0.00	0.00	0.00	0.18	0.00	0.00	0.00	0.00	0.00
Wastwater	October	0.00	0.03	0.00	0.00	0.02	0.01	0.00	0.00	0.00	0.08	0.00	0.00	0.00	0.00	0.00
Windermere North Basin	October	0.04	0.00	0.00	0.00	0.25	0.04	0.00	0.00	0.00	0.36	0.00	0.00	0.00	0.02	0.00
Windermere South Basin	October	0.01	0.00	0.00	0.00	0.02	0.04	0.00	0.00	0.00	0.41	0.00	0.00	0.00	0.04	0.00