

Working Papers

No. 14

THIRTY FOUR GALLOWAY LOCHS: BATHYMETRY, WATER QUALITY AND SURFACE SEDIMENT DIATOM ASSEMBLAGES

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ABSTRACT

- 1) Bathymetric descriptions of thirty four Galloway lochs are given together with water quality data for 1983-85.
- 2) Results of diatom analysis of surface sediment collected from each loch are presented in tabular form.
- 3) Lake water pH is generally lower in November samples than in samples collected in summer months. Cation exchange, following deposition of sea salts on peaty catchments, is suggested as a partial cause of pH depression in the winter period.
- 4) Where lakes are deep enough, summer thermal stratification usually occurs between 5 and 8 m depth.
- 5) Floristic diversity of the periphyton component of surface sediment diatom assemblages is shown to increase generally with pH.

INTRODUCTION

Diatoms in lake sediments can provide an historical record of water pH and have been used to show that several lakes in the uplands of Galloway, southwest Scotland, are recently acidified (Flower & Battarbee 1983, Battarbee et al. 1985). Historical pH values for the Galloway lakes were initially calculated using the Index B method of Renberg & Hellberg (1982) but calibration of the method (and of other multivariate methods, cf. Charles 1985, Davis & Anderson 1985) using a local modern water chemistry and diatom data set is to be preferred. Accordingly, a project was initiated to survey a range of lakes in Galloway and establish regression relationships between water quality, notably pH, and surface sediment diatom assemblages. These relationships should improve the accuracy with which historical pH values can be reconstructed from sediment cores collected from lakes within the surface sediment data set. This report provides basic descriptive information about 34 Galloway lakes (Fig 1) and includes bathymetric and water quality results. The floristic composition of the diatom assemblage in surface sediment at each site is also given. Results of regression analysis of measured lake water pH with surface sediment diatom assemblages are reported elsewhere (Flower 1987).

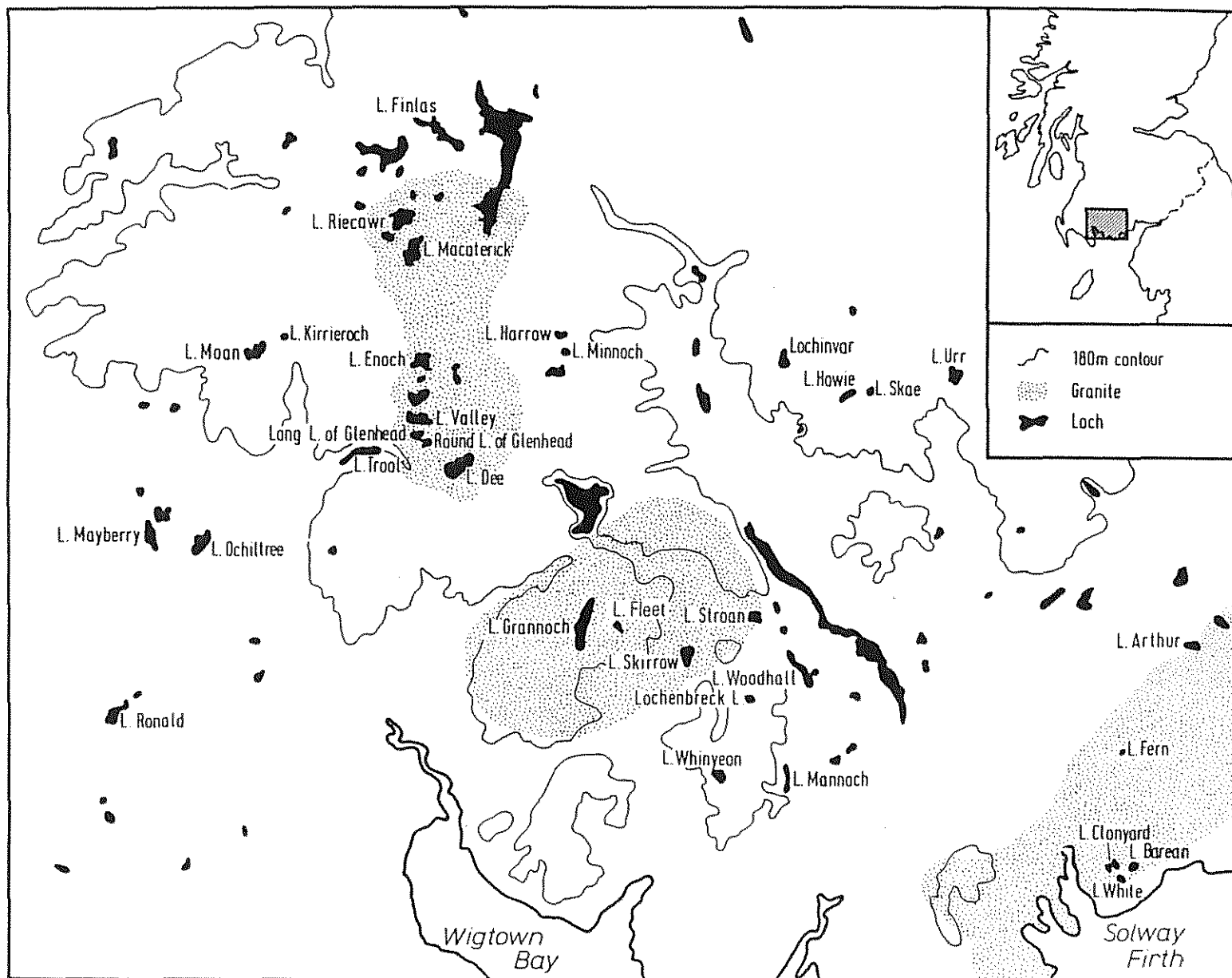


FIGURE 1. Location map of the thirty four sample sites in Galloway, southwest Scotland.

LAKE BATHYMETRIES.

A bathymetric survey of each lake was carried out to establish the deepest point for surface sediment sampling. The method of survey usually consisted of making several transects along the longest axes of the lake and reading the depth at regular intervals using an electronic echo-sounder. At two sites however, Loch Dee and the Round Loch of Glenhead, more detailed measurements were made using point depth measurements located by two shore-based plane tables with polar alidades. Loch Enoch and Loch Valley were incompletely surveyed but further survey work (Lyle, in prep.) should remedy this lack of information. Several sites had been surveyed earlier this century (cf. Murray & Pullar 1910) and although the bathymetry of Loch Dee was found by us to be markedly different from that previously described, those of other sites (Loch Grannoch and Loch Skirrow) were not. For these latter two lakes, point depths were digitized from Murray & Pullar (1910) and contoured using MAPICS (1985) software. Similarly, bathymetries of Loch Dee and the Round Loch of Glenhead are computer drawn, while all other bathymetries are constructed by hand.

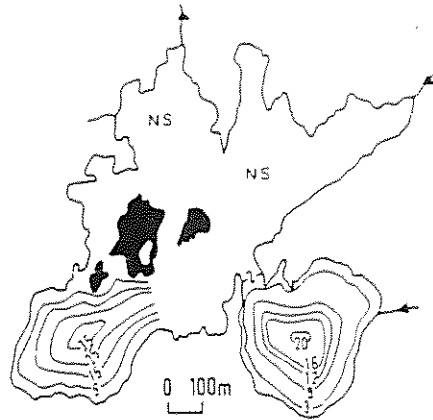
Bathymetries of all 34 lakes are shown in Figs 2-7 and physical characteristics are given in Table 1. It is difficult to assess the accuracy of depth measurements but field results indicate that it should be better than $\pm 0.2\text{m}$. The location

Table 1. Some characteristics of the thirty four sample lochs and their catchments. Shoreline development is calculated according to Hutchinson (1957). Sites are ordered according to mean summer pH (see Flower 1987).

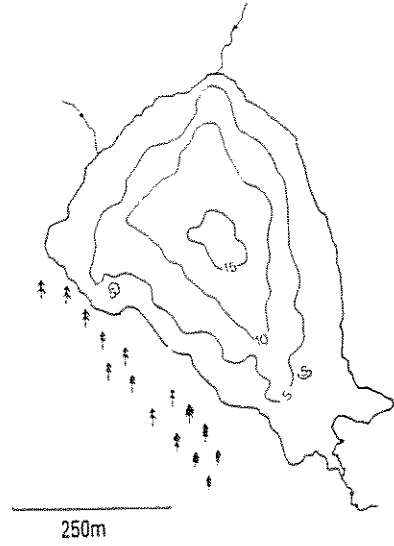
Site	Altitude (m)	Max. depth (m)	Area (ha)	Max. length dimensions (km)	Shoreline length (km)	Shoreline development	Afforested shoreline (%)
Loch Enoch	493	36.0	50.1	1.30	5.7	2.3	-
Loch Fleet	340	16.5	17.1	0.61	2.0	1.4	20*
Loch Valley	320	16.5	34.7	1.35	4.8	2.3	-
Loch Grannoch	210	20.5	114.3	3.25	7.4	2.0	70*
Long Loch of Glenhead	298	11.5	8.8	0.65	1.9	1.8	-
Round Loch of Glenhead	295	13.5	12.6	0.50	1.5	1.2	-
Loch Trool	75	17.0	60.0	2.70	6.5	2.4	60
Loch Macaterick	286	12.5	54.5	1.90	6.0	2.3	50
Loch Kierriereoch	213	3.5	8.0	0.42	1.1	1.1	75
Loch Dee	225	14.5	100.0	1.80	6.2	1.8	20*
Loch Stroan	70	12.5	22.7	0.80	2.2	1.3	70
Loch Harrow	247	9.0	15.5	0.68	1.7	1.2	60
Loch Riecawr	284	9.0	92.0	1.60	5.4	1.6	100
Loch Howie	232	13.0	18.0	1.19	2.4	1.6	90
Loch Finlas	254	13.5	77.5	2.50	8.3	2.7	20
Loch Skirrow	127	10.0	50.7	1.13	3.3	1.3	55*
Loch Muck	290	8.0	10.5	0.68	1.8	1.6	10
Loch Minnock	272	7.0	6.1	0.45	1.4	1.6	100
Loch Ochiltree	104	9.5	62.0	1.43	3.8	1.4	10
Loch Moan	205	3.0	48.5	1.30	5.1	2.1	100
Loch Maberry	118	4.5	70.0	1.91	4.6	1.6	40
Loch Skae	263	11.0	8.0	0.42	1.3	1.3	100
Loch Urr	190	13.5	44.0	1.00	4.1	1.7	5
Loch Mannoeh	128	7.0	23.6	1.60	3.9	2.3	5
Loch Barean	38	11.0	9.7	0.95	2.0	1.8	60
Lochenbreck	198	7.5	15.5	0.68	1.9	1.4	70
Loch Ronald	101	17.5	37.4	1.10	2.9	1.3	40
Lochninvar	227	5.5	33.1	1.15	3.5	1.7	5
Loch Woodhall	53	16.5	67.0	2.88	5.7	2.0	50
Loch Whinyeon	216	13.0	41.0	0.90	2.8	1.2	30
Loch Fern	78	2.5	5.3	0.30	0.9	1.1	20
Loch Clonyard	34	8.5	4.8	0.40	0.9	1.2	10
Loch White	32	13.5	10.6	0.55	1.4	1.2	60
Loch Arthur	73	13.5	31.0	1.01	2.6	1.3	50

* refers to % of catchment afforested

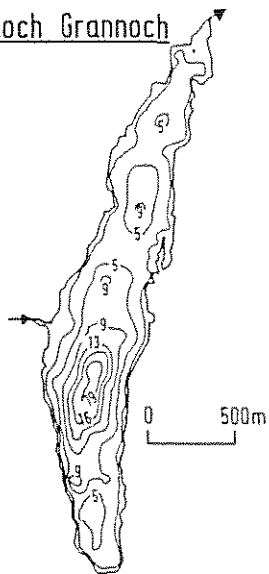
Loch Enoch



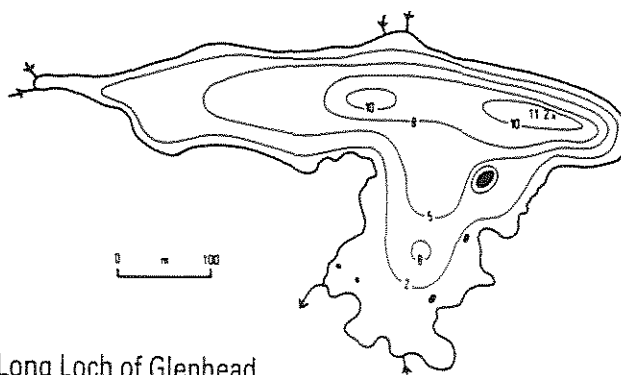
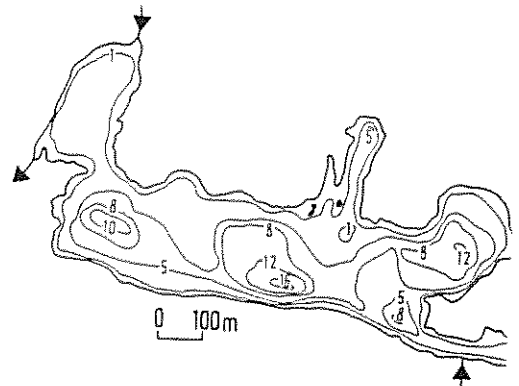
Loch Fleet



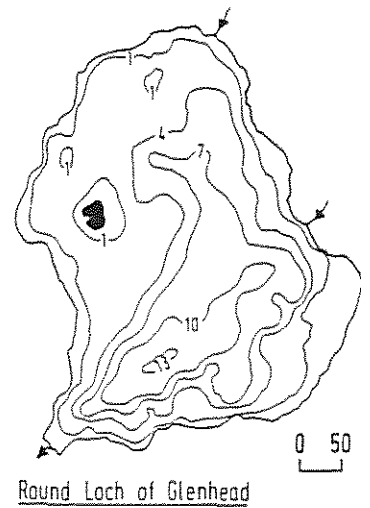
Loch Grannoch



Loch Valley

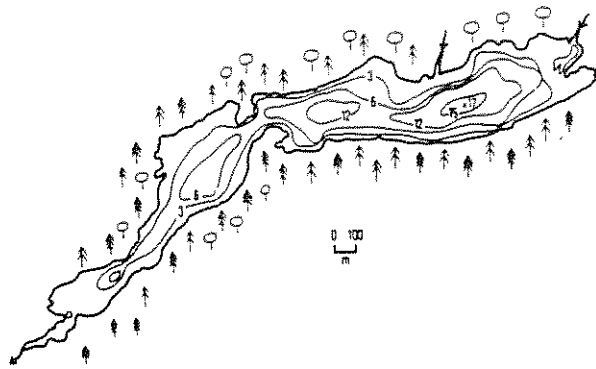


Long Loch of Glenhead

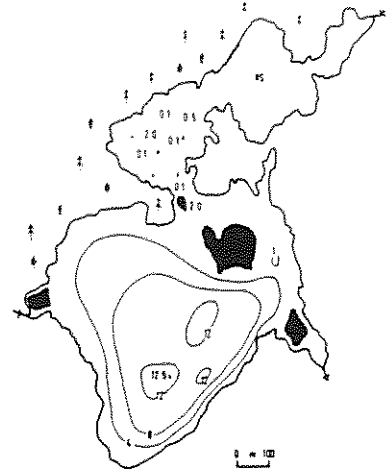


Round Loch of Glenhead

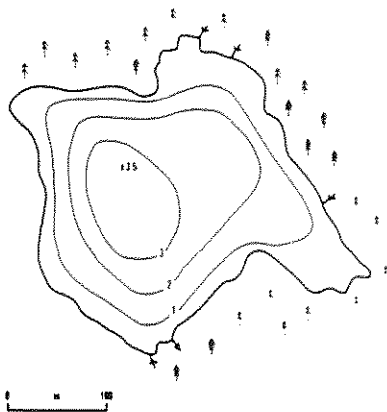
FIGURE 2. Bathymetric maps for Loch Enoch, Loch Fleet, Loch Grannoch, Loch Valley, Long Loch of Glenhead, and the Round Loch of Glenhead. Depths are in metres and islands are in black.



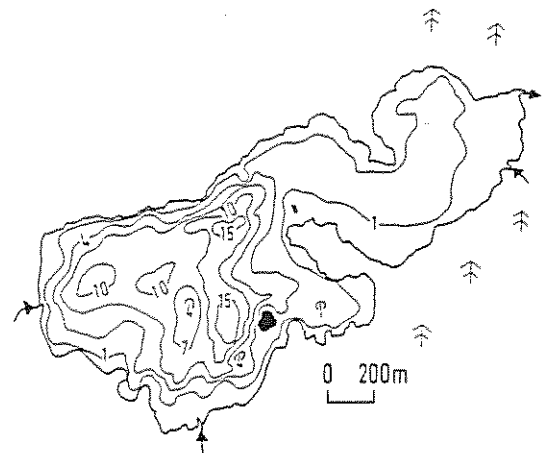
Loch Trool



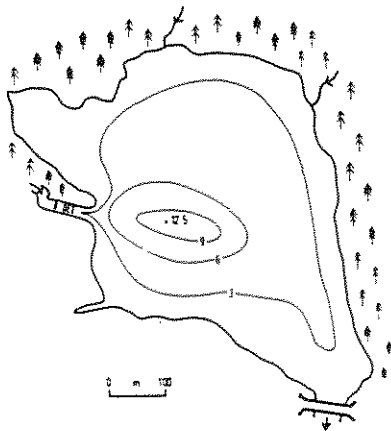
Loch Macaterick



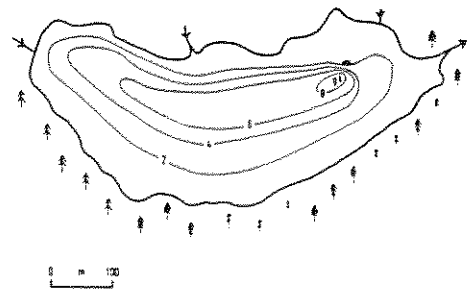
Loch Kirriereoch



Loch Dee

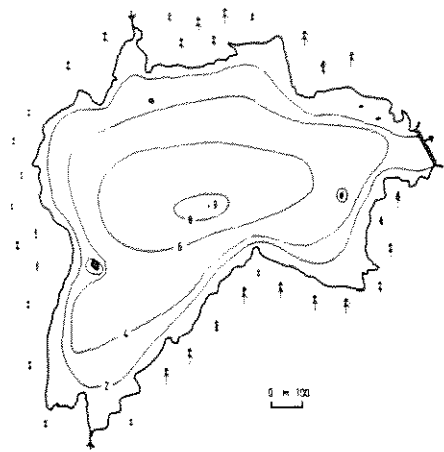


Loch Stroan

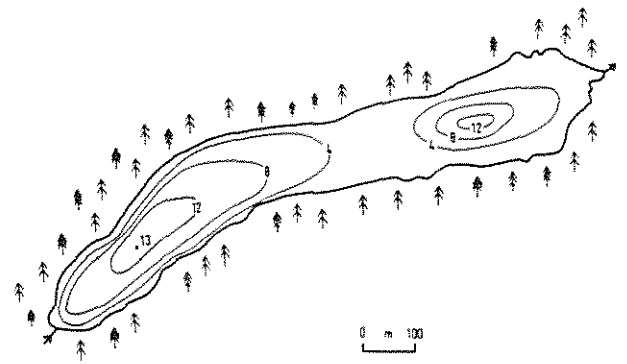


Loch Harrow

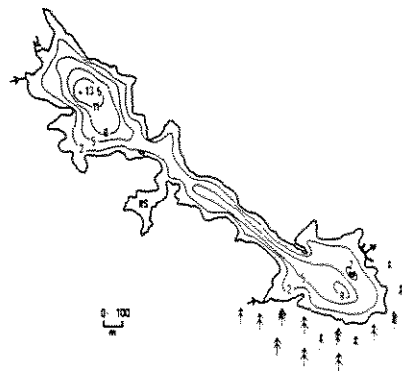
FIGURE 3. Bathymetric maps for Loch Trool, Loch Macaterick, Loch Kirriereoch, Loch Dee, Loch Stroan, and Loch Harrow. Depths are in metres and islands are in black.



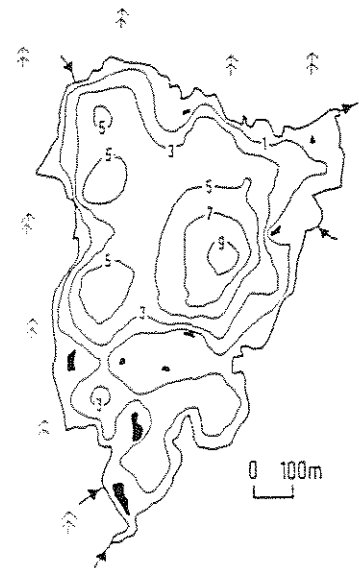
Loch Riecowr



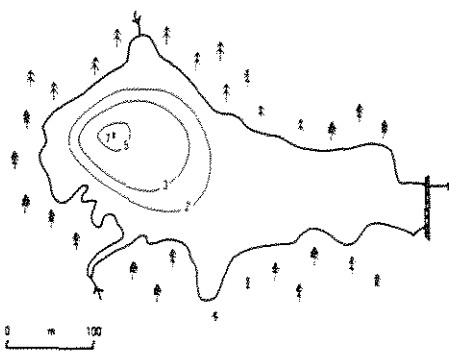
Loch Howie



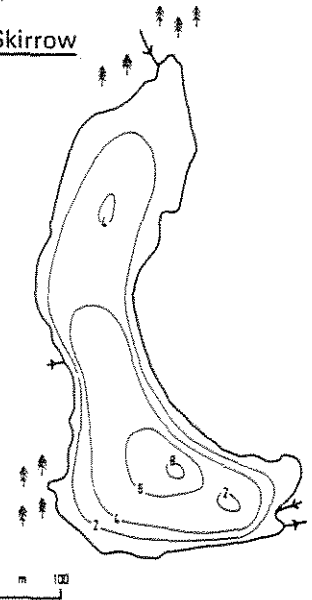
Loch Finlas



Loch Skirrow

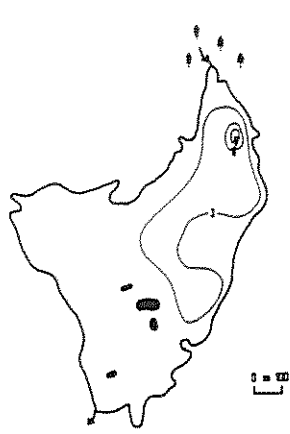


Loch Minnoch



Loch Muck

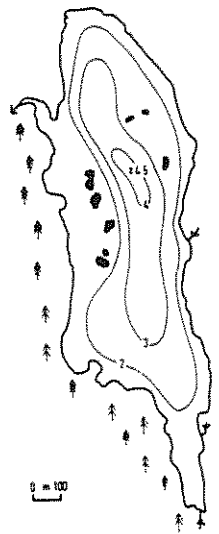
FIGURE 4. Bathymetric maps for Loch Riecowr, Loch Howie, Loch Finlas, Loch Skirrow, Loch Minnoch, and Loch Muck. Depths are in metres and islands are in black.



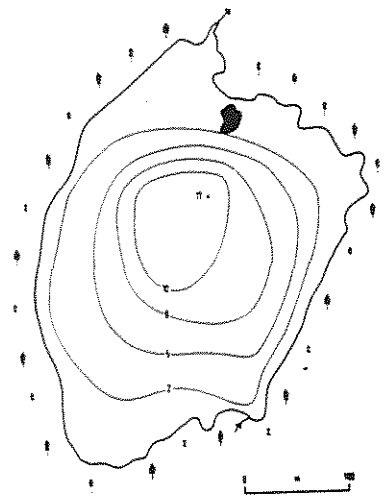
Loch Ochiltree



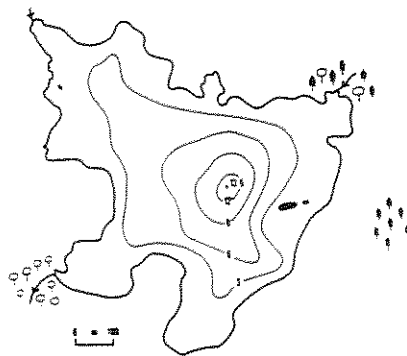
Loch Moan



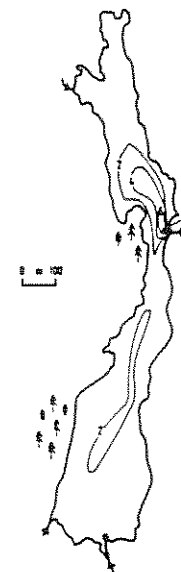
Loch Mayberry



Loch Skae



Loch Urr



Loch Mannoch

FIGURE 5. Bathymetric maps for Loch Ochiltree, Loch Moan, Loch Mayberry, Loch Skae, Loch Urr, and Loch Mannoch. Depths are in metres and islands are in black.

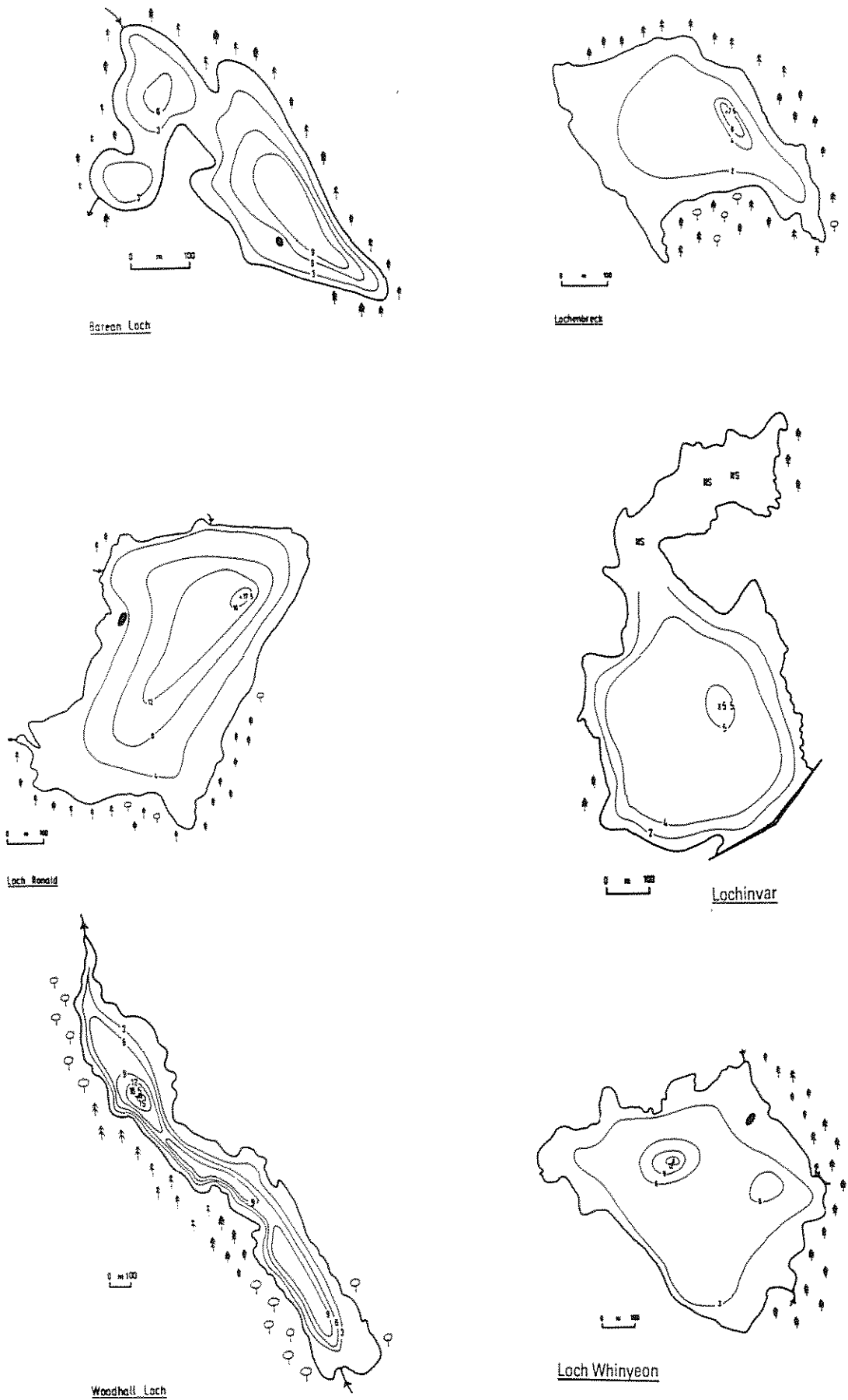
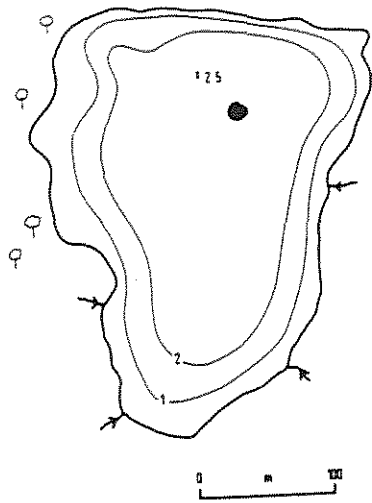
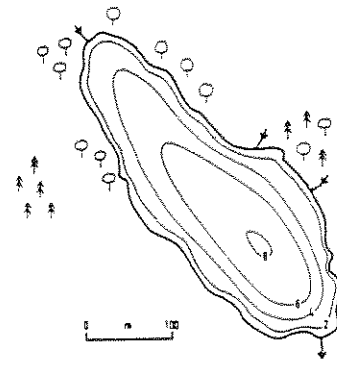


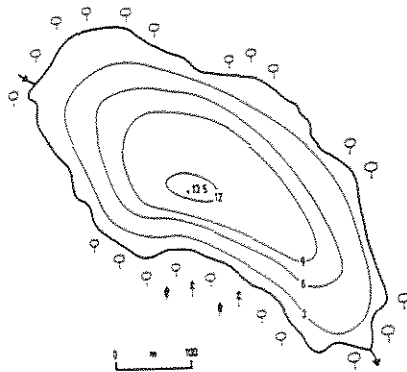
FIGURE 6. Bathymetric maps for Borean Loch, Lochbreck, Loch Ronald, Lochinvar, Woodhall Loch, and Loch Whinyeon. Depths are in metres and islands are in black.



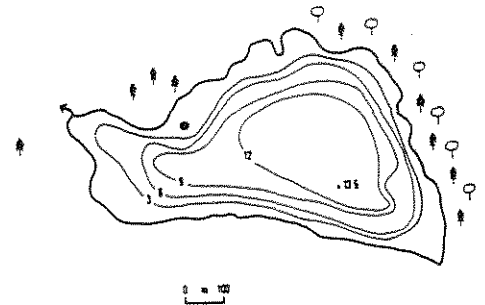
Loch Fern



Clonyard Loch



Loch White



Loch Arthur

FIGURE 7. Bathymetric maps for Loch Fern, Clonyard Loch, Loch White, and Loch Arthur. Depths are in metres and islands are in black.

of depths is only approximate, excepting those sites where shore stations were used. It should be emphasised that all bathymetric data relate to the time of survey (May 1983 and July 1984 for most sites) and that considerable fluctuations in water level can occur. Following periods of heavy rain the water levels may rise by over a metre, especially at sites with relatively large catchments and small outflows e.g. Loch Dee, Loch Clonyard and Loch Stroan. At sites where the outflow is regulated, large water level changes can occur depending on water extraction as well as rainfall e.g. Loch Riecawr, Loch Finlas, Loch Minnoch, Loch Mannoeh, Loch Whinyeon, Lochinvar and Loch Fern.

Table 1 shows that Loch Enoch has both the highest altitude and the greatest water depth of all the sites surveyed whilst Loch Grannoch has the largest area. A shore-line development (cf. Hutchinson 1957) index greater than 2 indicates a very irregular elongated lake outline of which Loch Finlas is a good example. Many of the sites are surrounded, to varying degrees, by trees, mostly conifers planted within the last 30 years. Deciduous woodland is, however, well established at several lowland sites (Loch White and Loch Trool) and on islands in Loch Maberry and Loch Ochiltree.

WATER QUALITY

Chemical methods: Water samples for the surface water quality

data set were analysed mainly by AutoAnalyser. Using known standards, the standard deviation of cation determinations were all approximately 2% and for the anion determinations, chloride was 5.1%, nitrate was 5.4% and sulphate was 2.9%. However, after sample analysis the standard deviation of anion analyses using standards had deteriorated to 8.2% for chloride, 5.6% for nitrate and 3.8% for sulphate. None of the above figures include bias or systematic error. Alkalinities were determined by acid titration to an end point of pH 4.5. For the chemical profiles, determinations of iron, manganese, aluminium and phosphorus were made using standard spectrophotometric methods. The depth of light penetration was estimated using a Secchi disc.

Surface water quality: Water samples were collected for measurement of pH and conductivity on several occasions, May 1983, July 1984, November 1984, and July 1985. Samples for more detailed chemical analysis were collected on the latter two occasions only. Sampling in summers 1983 and 1984 followed periods of dry fine weather but wetter conditions preceded sampling in July 1985. Winter sampling in November 1984 occurred following and during very wet stormy weather and lake levels at many sites were up to a metre above summer levels.

The pH and conductivity measured on each sampling occasion are shown in Table 2 together with total alkalinity and water colour measured in November 1984 and July 1985. In this table the sites are arranged according to the mean value of the

Table 2. Values for pH, total alkalinity and water colour measured in the thirty four sample lochs during July 1983 or May 1984 (A), November 1984 (B) and July 1985 (C).

Site	pH			Conductivity (μ S(25°C)cm ⁻¹)			Total Alkalinity (mg CaCO ₃)			Colour (absorbance 250 nm)		
	A	B	C	A	B	C	A	B	C	A	B	C
Loch Enoch	4.5	4.5	4.5	31	45	36	-	0.0	1.0	-	0.04	0.09
Loch Fleet	4.6	4.5	-	50	56	-	-	0.0	-	-	0.11	-
Loch Valley	4.7	4.6	4.7	34	45	33	-	0.0	2.6	-	0.08	0.08
Loch Grannoch	4.8	4.4	4.6	39	65	46	-	0.0	2.0	-	0.17	0.18
Long Loch of Glenhead	4.7	4.7	4.8	51	45	30	-	0.4	2.6	-	0.14	0.18
Round Loch of Glenhead	4.7	4.7	4.7	44	47	32	-	0.2	2.5	-	0.09	0.12
Loch Trool	5.3	4.9	5.1	40	48	31	-	0.8	2.6	-	0.10	0.13
Loch Macaterick	5.1	4.8	5.2	48	45	29	-	1.0	3.0	-	0.29	0.20
Loch Kirrieroch	5.1 ¹	5.0	5.3	53	54	42	-	1.1	3.1	-	0.15	0.24
Loch Dee *	6.7	5.5	6.6	50	41	32	-	1.5	5.6	-	0.11	0.24
Loch Stroan	5.6 ¹	4.4	5.2	49	80	48	-	0.0	3.3	-	0.25	0.33
Loch Harrow	5.5 ¹	4.7	5.4	39	40	30	-	0.5	3.1	-	0.08	0.06
Loch Riecamr	5.3	4.9	5.8	54	50	36	-	2.4	3.8	-	0.24	0.18
Loch Howie	5.4	5.6	6.1	71	74	68	-	1.7	3.8	-	0.04	0.04
Loch Finlas	5.7	5.5	6.2	61	59	42	-	3.0	5.0	-	-	0.17
Loch Skirrow	5.5	4.7	5.9	57	68	49	-	1.2	4.5	-	0.22	0.27
Loch Muck	5.7	5.0	5.8	83	59	55	-	2.2	5.0	-	-	0.56
Loch Minnoch	6.0 ¹	5.0	5.6	47	44	33	-	-	3.6	-	0.09	0.10
Loch Ochiltree	6.4 ¹	6.0	5.8	75	91	59	-	2.2	6.6	-	-	0.34
Loch Moan	5.9 ¹	4.7	5.3	63	72	54	-	0.9	2.8	-	0.31	0.32
Loch Maberry	7.1	4.8	5.6	119	99	55	-	0.5	3.8	-	-	0.72
Loch Skae	5.5	6.1	6.5	67	66	59	-	3.4	5.2	-	0.10	0.11
Loch Urr	6.0	6.4	7.0	65	67	58	-	4.8	10.7	-	0.37	0.41
Loch Mannoch	6.5	6.1	6.7	92	100	73	-	5.5	13.5	-	0.25	0.39
Loch Barean	-	6.8	6.8	-	104	163	-	14.8	15.3	-	0.21	0.23
Lochenbreck	7.0 ¹	6.3	6.8	75	84	72	-	3.5	7.5	-	0.10	0.09
Loch Ronald	7.3	6.2	6.7	87	116	92	-	5.3	11.0	-	-	0.17
Lochinvar	7.1	6.3	6.7	74	74	83	-	3.4	9.0	-	0.26	0.26
Loch Woodhall	6.9 ¹	6.6	6.9	96	103	98	-	11.5	18.5	-	0.28	0.24
Loch Whinyeon	6.7	7.0	7.1	68	90	82	-	14.9	17.8	-	0.17	0.19
Loch Fern	7.1 ¹	6.7	6.9	116	136	125	-	7.9	24.6	-	0.44	0.37
Loch Clonyard	7.1 ¹	6.8	6.9	125	158	162	-	18.9	19.2	-	0.22	0.22
Loch White	7.1 ¹	7.0	7.0	122	158	182	-	22.2	21.3	-	0.22	0.23
Loch Arthur	7.6 ¹	6.8	7.2	119	171	105	-	15.8	17.9	-	0.09	0.09

* limed since 1981/2

¹ measured May 1983

summer pH (cf Flower 1987). The results show that the most acid sites (which are also the highest altitude sites) have lowest conductivity and alkalinity values, while water colour is very variable, with the two clearest water lakes occurring at either end of the pH range. The seasonal data show that lowest pH and alkalinities occur in the winter period when conductivity values are highest. Although less marked, water colour is often lower in winter. The cation concentrations shown in Table 3 approximately correspond with conductivity values. Conductivity calculated from the measured cation and anion analyses is approximately equal to that measured in the lakes, indicating that the ion analyses are accurate. Sodium concentration is considerably higher in lakes near the sea (cf. Fig. 1) and calcium is usually below 1mg l^{-1} in the most acid sites. Calcium concentration increases considerably in the circumneutral lakes indicating an increasing contribution of ions supplied by catchment weathering over those supplied by atmospheric deposition. Common anion and silica concentrations are given in Table 4 and trace metal concentrations are given in Table 5.

Dissolved oxygen, temperature, and chemical profiles in the water column: These were measured on two sampling occasions, 24-29 July 1983 and 3-10 May 1984. Some sites were sampled twice but two sites, Loch Enoch and Loch Valley, were not sampled. Oxygen and temperature profiles were measured at most sites and chemical data, including total phosphorus, total

Table 3. Concentrations (mg l^{-1}) of the major cations measured in the thirty four sample loch sites on two occasions, November 1984(A) and July 1985(B).

Site	Na		K		Ca		Mg	
	A	B	A	B	A	B	A	B
Loch Enoch	4.02	3.67	0.26	0.25	0.28	0.46	0.46	0.45
Loch Fleet	4.99	-	0.23	-	0.85	-	0.70	-
Loch Valley	4.31	3.56	0.28	0.28	0.46	0.54	0.58	0.49
Loch Grannoch	5.49	4.71	0.22	0.19	0.96	1.00	0.70	0.59
Long Loch of Glenhead	4.46	3.31	0.32	0.22	0.69	0.72	0.61	0.47
Round Loch of Glenhead	4.64	3.54	0.30	0.18	0.60	0.59	0.61	0.49
Loch Trool	4.66	3.22	0.36	0.27	0.74	0.72	0.60	0.50
Loch Macaterick	5.01	3.33	0.36	0.25	0.76	0.68	0.66	0.54
Loch Kirrieroch	5.65	4.72	0.28	0.19	0.70	0.79	0.80	0.77
Loch Dee *	4.20	4.57	0.33	0.92	0.95	1.71	0.71	0.70
Loch Stroan	7.80	4.55	0.27	0.17	1.52	1.64	0.99	0.67
Loch Harrow	4.07	3.11	0.23	0.14	0.67	0.90	0.49	0.51
Loch Riecawr	4.86	3.90	0.26	0.22	0.90	1.06	0.79	0.76
Loch Howie	6.86	5.98	0.30	0.31	2.54	3.23	1.29	1.18
Loch Finlas	5.70	7.83	0.33	0.88	1.41	1.80	0.92	0.82
Loch Skirrow	7.16	4.96	0.33	0.20	1.77	2.52	1.11	0.85
Loch Muck	6.11	5.76	0.22	0.24	1.33	2.13	1.10	1.30
Loch Minnoch	4.41	3.43	0.31	0.26	0.77	1.04	0.59	0.61
Loch Ochiltree	7.50	5.97	0.56	0.55	2.71	2.80	1.87	1.81
Loch Moan	7.32	5.28	0.24	0.19	1.45	1.70	1.17	1.08
Loch Maberry	7.88	6.04	0.39	0.33	2.04	2.07	1.83	1.44
Loch Skae	6.23	5.05	0.18	0.12	2.71	3.14	1.26	1.12
Loch Urr	5.15	4.29	0.47	0.39	2.99	3.86	1.70	1.65
Loch Mannoeh	10.14	5.94	0.59	1.06	3.93	5.66	2.06	1.83
Loch Barean	-	14.55	1.28	1.20	6.24	7.04	3.77	3.87
Lochenbreck	5.23	6.82	0.21	0.18	3.30	4.28	1.51	1.33
Loch Ronald	8.97	10.84	0.96	0.81	4.45	5.44	2.06	2.20
Lochinvar	5.53	4.67	0.39	0.38	3.34	3.92	1.79	1.60
Loch Woodhall	8.94	7.22	0.69	0.54	5.83	6.54	2.84	2.62
Loch Whinyeon	6.86	5.94	0.34	0.87	5.89	6.78	1.46	1.36
Loch Fern	10.56	8.37	2.20	2.50	6.36	8.80	3.02	3.04
Loch Clonyard	14.84	16.50	1.71	1.47	7.21	8.09	3.96	3.76
Loch White	17.60	17.85	1.36	1.28	8.02	10.38	4.13	4.33
Loch Arthur	6.72	8.46	1.09	0.97	6.67	7.92	1.95	2.00

* lined since 1981/82.

Table 4. Concentrations (mg l^{-1}) of the major anions, silicate (SiO_2) and total nitrogen (NO_3^-) measured in the thirty four sample lochs on two occasions, November 1984 (A) and July 1985 (B).

Site	Cl^-		SO_4^{--}		SiO_2		NO_3^-	
	A	B	A	B	A	B	A	B
Loch Enoch	10.2	3.8	2.6	3.6	1.0	0.8	0.05	0.16
Loch Fleet	10.4	-	6.5	-	1.4	-	0.15	-
Loch Valley	11.2	7.8	4.0	4.2	1.4	1.3	0.10	0.13
Loch Grannoch	11.6	8.8	5.3	5.8	3.6	2.9	0.13	0.14
Long Loch of Glenhead	9.2	6.8	3.5	3.9	1.9	1.5	0.06	0.08
Round Loch of Glenhead	10.8	8.0	3.6	4.1	1.6	1.5	0.06	0.07
Loch Trool	11.8	6.8	4.0	4.1	2.9	2.2	0.05	0.05
Loch Macaterick	9.8	6.2	3.0	3.4	2.0	1.2	0.02	0.01
Loch Kirriereoch	13.2	11.0	4.2	3.4	0.9	0.3	0.07	0.02
Loch Dee *	10.0	6.2	3.7	4.2	2.6	2.3	0.06	<0.01
Loch Stroan	15.0	8.2	7.0	5.7	5.6	3.8	0.13	0.02
Loch Harrow	7.6	6.0	3.4	4.8	3.2	2.6	0.13	0.15
Loch Riecawr	10.4	8.0	4.5	4.3	2.7	0.3	<0.01	<0.01
Loch Howie	15.8	13.0	7.7	9.0	3.3	3.1	0.52	0.36
Loch Finlas	11.0	9.0	5.5	5.1	2.3	1.2	0.06	0.02
Loch Skirrow	15.2	10.0	7.2	5.6	2.8	<0.1	0.07	<0.01
Loch Muck	11.2	11.2	5.6	5.4	3.6	1.3	0.02	<0.01
Loch Minnoch	7.8	6.8	4.5	4.6	3.1	3.0	0.09	0.08
Loch Ochiltree	19.2	13.4	9.8	6.5	2.0	0.6	0.05	0.03
Loch Moan	15.6	10.8	8.1	7.4	3.5	1.0	0.14	0.03
Loch Maberry	-	12.4	9.0	5.9	3.8	2.0	0.07	0.09
Loch Skae	12.2	11.0	7.8	8.7	1.9	0.2	0.01	0.08
Loch Urr	12.6	7.8	8.4	6.3	3.4	0.1	0.24	0.13
Loch Mannoeh	19.6	10.8	9.9	8.3	5.7	2.6	0.47	0.20
Loch Banean	32.0	31.8	16.4	15.4	6.2	4.0	0.26	0.18
Lochenbreck	16.6	14.4	9.9	8.2	2.8	0.3	0.34	0.09
Loch Ronald	22.4	20.0	8.6	9.0	3.2	0.7	0.12	0.10
Lochinvar	11.6	9.6	11.4	7.6	3.1	1.1	0.16	0.16
Loch Woodhall	16.8	14.4	11.8	5.6	5.1	1.8	1.11	0.44
Loch Whinyean	13.4	12.4	6.7	6.8	1.9	0.3	0.05	0.12
Loch Fern	21.2	18.8	16.2	5.0	5.9	8.1	2.40	0.17
Loch Clonyard	29.2	31.0	17.2	13.6	4.4	1.3	0.37	<0.01
Loch White	32.8	35.0	15.1	14.2	4.2	0.9	0.09	0.03
Loch Arthur	16.0	17.0	11.7	10.6	2.9	0.4	0.46	0.25

* lised since 1981/2.

Table 5. Concentrations (Zn, Mn, & Fe in mg l^{-1} , total Al in ug l^{-1}) of cations measured in the thirty four sample lochs in

November 1984 (A) and July 1985. (B)

Site	Total Zn		Total Mn		Total Fe		Total Al	
	A	B	A	B	A	B	A	B
Loch Enoch	10	11	11	13	82	39	180	70
Loch Fleet	22	-	277	-	117	-	280	-
Loch Valley	11	11	36	32	75	58	240	250
Loch Grannoch	20	15	218	184	150	137	350	510
Long Loch of Glenhead	11	9	41	23	100	113	190	140
Round Loch of Glenhead	14	9	49	31	67	54	250	190
Loch Trool	12	8	34	30	77	127	250	280
Loch Macaterick	8	5	166	56	305	225	210	230
Loch Kirrieroch	6	5	64	174	198	441	127	380
Loch Dee *	12	2	12	7	72	90	200	200
Loch Stroan	20	10	238	136	159	269	430	590
Loch Harrow	14	9	38	31	56	41	320	420
Loch Riecawr	-	3	-	44	-	153	-	300
Loch Howie	20	16	40	15	34	15	222	320
Loch Finlas	-	2	-	45	-	87	-	230
Loch Skirrow	15	5	105	56	106	143	230	360
Loch Muck	-	8	-	51	-	443	-	340
Loch Minnoch	-	11	-	87	-	419	-	540
Loch Ochiltree	-	8	-	22	-	224	-	320
Loch Moan	19	10	196	218	507	640	230	360
Loch Maberry	-	11	-	36	-	768	-	260
Loch Skae	15	10	8	5	31	28	140	270
Loch Urr	13	4	16	38	139	126	240	320
Loch Mannoeh	12	4	36	66	119	288	220	320
Loch Barean	7	1	119	54	126	44	230	140
Lochenbreck	17	10	15	19	45	315	170	300
Loch Ronald	-	5	-	41	-	53	-	130
Lochinvar	16	5	209	109	195	216	200	140
Loch Woodhall	13	2	30	66	112	110	180	180
Loch Whinyeon	7	1	16	15	49	28	200	230
Loch Fern	10	3	111	1092	250	1395	190	270
Loch Clonyard	4	2	5	242	123	109	160	270
Loch White	5	2	32	190	146	124	160	270
Loch Arthur	6	1	4	41	24	8	140	230

* Lined since 1981/82

iron, total manganese, acid soluble aluminium and pH, were obtained for Loch Grannoch, Loch Dee, Loch Minnoch, Loch Harrow, and Loch Moan (see Appendix 1).

The temperature profiles show that where lakes are deep enough summer stratification usually occurs with a thermocline developing between 5 and 8m depth. The summer of 1983 was warm and fine as was the period before sampling in 1984, so conditions were favourable for thermal stratification. There is some oxygen depletion at depth in all the thermally stratified lakes and also in some of the shallower non-stratified sites. Oxygen depletion is particularly strong in some of the lowland lakes, e.g. Loch Arthur, Loch Woodhall, Loch Fern and Loch Clonyard, suggesting meso- to eutrophic conditions. However, where oxygen depletion occurs in clearly oligotrophic sites (as indicated by low total phosphorus and chlorophyll a concentrations) in mainly granite catchments eg. Round Loch of Glenhead, Loch Macaterick, Loch Dee and Loch Stroan, it is likely caused by oxidation of inwashed allochthonous organic material (mainly peat and Molinia debris). Loch Stroan is interesting as the oxygen profile shows two zones of low concentration, between 3 and 4m depth and below 8m depth. These minima might be associated with the substantial Blackwater of Dee inflow discharging pulses of organic detritus into the lake.

Where measured, iron, and particularly manganese, show higher concentrations where oxygen levels are low and release of iron

and manganese from sediments under low and zero concentrations is likely. Total phosphorus values above about 0.3 μM indicate meso-trophic conditions and none of the lakes for which measurements are available appear to be strongly oligotrophic. Relatively high values of iron, manganese and phosphorus occurred in Loch Moan, a site best described as dystrophic, and scavenging of these metal species by humic material could account for the concentrations observed here.

SURFACE SEDIMENT DIATOMS

Sampling: Surface sediment samples were collected from seven lochs, Loch Enoch, Round Loch of Glenhead, Loch Valley Loch Dee, Loch Grannoch, Loch Fleet and Loch Skirrow using a mini-Mackereth corer (Mackereth 1968) during the summers of 1981/2. The remaining sites were sampled in the summers of 1983/84 using a Kajak corer and in most cases samples were taken from the deepest point in each loch. At two sites, Loch Stroan and Loch Harrow, the surface sediment at the deepest point was too compacted and minerogenic for successful sampling. Samples were, however, obtained from nearby locations about 1m less in depth. At the former site a large inflow, the Blackwater of Dee, enters the lake about 100m from the deepest point (cf. Fig. 3) and either deposits coarse clastic material during spates or causes lake-bed scouring, exposing late glacial gravels. On the other hand the

gritty/silty sediment in Loch Harrow seems to result from inwashed mineral soil focused into the deepest area of the lake following catchment pre-afforestation ploughing (sampling before ploughing showed the surface sediment to be organic gyttja, Flower unpubl.). For this study only the top 1cm of sediment was used for microfossil analysis.

Methods: Oven dried sediment samples were prepared for diatom analysis by cleaning with hydrogen peroxide and acid before mounting on cover glasses in Mikrops for microscopical examination. Diatoms were identified using standard floras and taxonomic conventions follow Flower, Battarbee & Appleby (1987). The following comments on the taxonomy are also pertinent to diatoms found in Galloway. The most common planktonic diatom in surface sediment from circumneutral lakes is Cyclotella kutzingiana and the nature of the central processes and flecked appearance of the valve central area suggest the variety planetophora. The Galloway specimens are, however, smaller (diameter usually < 12µm) than the variety planetophora described by Hustedt (1930) and should be described as C. kutzingiana var. planetophora forma minor. This might indicate that the Galloway form is genetically different or that the small size reflects local water quality characteristics. In several samples a variety of T. flocculosa was found with elongated, twisted and weakly silicified valves, features indicating a planktonic habit. This taxon can probably be included in the variety asterionelloides but loss of colony morphology in the sediment

precludes definite identification. Hence, following Koppen (1975), the epithet T. flocculosa strain IIIp is used here. Despite the illuminating paper by Camburn & Kingston (1986) on the taxonomy of Melosira, the genus remains problematic for several species and here Melosira perglabra is not separated from the variety florinae, although the two taxa are quite possibly separate species. The taxonomy of the acidobiontic species Navicula subtilissima and N. hofleri is currently under review (Howarth, in prep.) and the former species is likely to be Navicula madurmensis. Two forms of Tabellaria binalis are known (Flower 1986) but they have not been separated in this study since both are characteristic of strongly acid water.

Approximately 500 diatom valves were counted in each sample. However, where the planktonic component was large the total count was increased to enable a minimum of about 300 periphyton valves to be included. The basic count data (Table 6) shows that planktonic diatoms are rare in the most acid lakes. Interestingly, the overall floristic diversity, or ratio of taxa to valves counted, of the samples shows no consistent relationship with the sites ordered according to acidity (Table 1). Floristic diversity does, however, increase with pH if the plankton component is excluded. This effect is caused by the planktonic component, which can exceed 30% in less acid lakes being composed of very few species. At several sites, e.g. Loch Kirriereoch, and

Table 6. The number of diatom taxa identified and total valves counted in each surface sediment sample. The number of planktonic taxa and valve counts are also given. Floristic diversity, with and without the planktonic component, is expressed as the ratio of taxa to total valves counted. Parentheses indicate % planktonic valves in the total count.

Site	Total no. of taxa	No. of planktonic taxa	Total no. of valves	No. of planktonic valves	Floristic diversity	Floristic diversity (ex. planktonic taxa)
Loch Enoch	60	0	594	0	0.10	0.10
Loch Fleet	46	1	400	1 ((1)	0.11	0.11
Loch Valley	57	0	541	0	0.11	0.11
Loch Grannoch	47	0	499	0	0.09	0.09
Long Loch of Glenhead	64	2	550	6 (1)	0.12	0.11
Round Loch of Glenhead	54	2	517	3 ((1)	0.10	0.10
Loch Macaterick	75	1	511	2 ((1)	0.15	0.15
Loch Trool	50	2	485	3 ((1)	0.10	0.10
Loch Kirriereoch	33	0	464	0	0.07	0.07
Loch Dee	82	3	514	10 (2)	0.16	0.16
Loch Moan	54	1	520	2 ((1)	0.10	0.10
Loch Stroan	80	3	603	4	0.13	0.13
Loch Harrow	69	0	513	0	0.13	0.13
Loch Riecawr	97	3	550	10 (2)	0.18	0.17
Loch Howie	75	4	908	438 (54)	0.09	0.19
Loch Muck	74	2	536	2 ((1)	0.14	0.14
Loch Skirrow	64	2	494	10 (2)	0.13	0.13
Loch Minnoch	73	2	536	10 (2)	0.14	0.13
Loch Skae	74	3	501	5 (1)	0.15	0.14
Loch Finlas	77	5	513	26 (5)	0.17	0.15
Loch Maberry	76	4	511	25 (5)	0.15	0.15
Loch Ochiltree	92	4	497	10 (2)	0.19	0.18
Loch Urr	76	10	567	254 (45)	0.13	0.21
Loch Mannoeh	73	4	509	7 (1)	0.14	0.14
Loch Barean	70	9	505	170 (34)	0.14	0.18
Lochenbreck	49	2	495	52 (11)	0.10	0.11
Loch Ronald	91	10	538	180 (33)	0.17	0.23
Lochinvar	82	8	502	159 (32)	0.16	0.22
Loch Woodhall	92	9	638	234 (37)	0.15	0.21
Loch Whinveon	52	6	686	469 (69)	0.08	0.17
Loch Fern	57	7	528	332 (63)	0.11	0.26
Loch Clonvard	69	9	575	139 (24)	0.12	0.14
Loch White	63	10	576	242 (42)	0.11	0.16
Loch Arthur	83	12	699	311 (44)	0.12	0.18

Lochenbreck, low floristic diversity is unrelated to the plankton component. At these sites virtually all of the bottom sediment lies within the photic zone and the diatom assemblages are thought to be dominated by a few epipelagic species living in situ on the sampled surface sediment.

Diatom assemblages: Diatom taxa lists and percentage abundances for each of the 34 surface sediment samples are given in Appendix 2 where those taxa with less than 0.4% abundance are indicated by + . Genus names followed by cf. species name indicate that the observed form closely but not exactly corresponded to the type description. For example Navicula cf. digitula (common in Loch Urr) mainly differs from Hustedt's description in that the striae are finer than 30 in 10 μ m. Because of time constraints, species of any particular genus that could not be identified were grouped together, for example as Navicula sp.

The relationship between the floristic composition of the surface sediment diatom assemblages and water quality in the 34 sites is examined elsewhere (cf Flower 1987). The main points concerning the distribution of diatoms at these sites are clear from inspection of the species lists and water chemistry tables. First, diatom assemblages in the most acid lakes (summer pH <5) are dominated by Tabellaria quadriseptata, Eunotia veneris and Frustulia rhomboides and its variety saxonica. In slightly less acid sites Tabellaria

floculosa replaces T. quadrisepitata and Anomeoneis vitrea becomes common at lake pH values above 5.5. The circumneutral lakes tend to have a significant plankton component but Fragilaria virescens and F. construens and Achnanthes microcephala and A. minutissima are usually the dominant periphytic species present. Only Loch Kirriereoch seems to be anomalous with regard to surface sediment diatom composition since the usually rather uncommon Navicula sohrensis predominates at this site. The reasons for the occurrence of this species are unknown but are presumably related to water quality. The loch is unusual in that, possibly as a result of a water level change, large quantities of shoreline blanket peat are currently eroding (1983/4) into the lake. At another site, Loch Grannoch, the relatively high abundance of Pinnularia hilseana in the surface sediment is also unusual.

CONCLUDING COMMENTS

The 34 softwater lakes sampled in Galloway range in pH from very acid (pH 4.5) to mildly alkaline (pH 7.4). However, only a few measurements of pH have been made at each site so it is difficult to ascribe a single mean pH value to a particular lake, especially for circumneutral sites where the hydrogen ion concentration is likely to fluctuate widely both seasonally and daily. Water conductivity roughly co-varies with alkalinity and calcium but inversely with pH, water transparency was very variable and severe water colouration in

several lakes is due to dissolved humic material. Although measurements are few it is clear that pH values in the summer are higher than winter values and that for conductivity the opposite occurs with lowest values in the summer. Sodium and chloride concentrations are usually higher in winter suggesting that sea salt deposition following winter storms might cause pH depression in runoff water by cation exchange within catchment soils (cf Burns et al. 1984, Harriman & Wells 1985). The pH is likely to be elevated in summer by photosynthesis, but as most lakes in the data set are not eutrophic, the increase should be relatively small compared with pH decreases caused by proton release from catchment peats during periods of sea salt deposition. Nevertheless, those lakes which are always strongly acid in character (pH < ca. 5.0) the level of acidity is maintained by atmospheric pollution (Flower & Battarbee 1983, Battarbee et al. 1985).

Most of the lakes investigated showed some development of oxygen and temperature stratification in the water column with both variables typically declining towards the sediment surface. A clear thermocline structure was found in several lakes although a consideration of the bathymetries of these sites indicates that adverse weather during the summer could cause substantial erosion of the hypolimnion. Loch Fleet shows the most developed thermocline structure indicating good summer stratification. Between 10-13 °C the lowland lakes have characteristically much lower oxygen concentrations than

those in the uplands, indicating higher productivity at the former sites.

Species composition of the sediment diatom assemblages clearly corresponds closely with lake water pH and diatoms characteristic of strongly acid conditions occur most frequently in the upland lakes on granitic rocks with both afforested and unafforested catchments. By excluding the contribution of planktonic species it is shown that the floristic diversity of the periphyton component of surface sediment diatom assemblages generally increases with lake water pH. Although the surface sediment diatom samples, consisting of 1 cm slices, undoubtedly represent different time periods of accumulation and different diatom source areas, the implication is that floristic diversity of periphytic diatom communities is lowest at the most acid sites.

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Appendix 1

Water column variables measured at each site on specified dates and times.

(Loch Enoch not sampled.)

Loch Fleet sampled 3rd May 1984 (8.20 p.m.).

Depth m	Temperature °C	Oxygen %
0	12.6	105
1	12.5	106
2	12.0	106
3	11.8	105
4	10.7	104
5	9.2	105
6	6.9	103
7	6.4	101
8	6.2	101
9	6.1	100
10	6.0	100
11	6.0	99
12	5.9	98
13	5.8	97
14	5.8	96
15	5.8	96

Loch Grannoch sampled 25th July 1983 (12.20 p.m.)

Depth m	Temperature °C	Oxygen %	Total phosphorous µM	Total iron µM	Total manganese µM	pH
0	20.3	95				
1	20.2	94	0.631	1.696	5.583	5.0
2	20.2	93				
3	20.1	92	0.673	1.696	5.309	
4	17.4	75				
5	16.2	73	0.663	2.011	5.719	4.9
6	15.6	73				
7	15.1	70	0.471	2.759	5.670	
8	14.9	71				
9	14.2	67	0.856	4.512	5.608	4.9
10	13.7	59		4.885	4.016	

Loch Grannoch sampled 3rd May 1984 (5.10 p.m.)

Depth m	Temperature °C	Oxygen %	Soluble silica µM	Total phosphorous µM	Total iron µM	Total manganese µM	Acid soluble aluminium µM
0	11.8	103					
1	11.8	104	30.56	0.464	3.111	4.731	12.425
2	11.8	104	30.30	0.399	1.823	4.719	11.246
3	11.8	104	30.47	0.367	1.670	4.743	13.579
4	11.8	104	30.53	0.378	2.017	4.602	11.334
5	10.7	101					
6	10.3	101	30.10	0.356	2.064	4.802	11.109
7	10.2	100					
8	9.8	99	30.76	0.345	2.087	4.755	11.322
9	9.4	98	31.44				
10	8.7	95		0.572	2.205	5.225	11.447

Long Loch of Glenhead sampled 26th July 1983 (5.30 p.m.)

Depth m	Temperature °C	Oxygen %	pH
0	19.8	100	
1	19.8	100	4.1
2	19.7	99	
3	19.5	99	4.7
4	16.1	94	
5	13.9	84	4.5
6	13.4	77	
7	13.1	71	
8	13.0	67	4.7
9	12.9	63	
10	12.8	60	
11	12.6	54	4.7

Round Loch of Glenhead sampled 26th July 1983 (2.15 p.m.).

Depth m	Temperature °C	Oxygen %	Total phosphorous µM	Total iron µM	Total manganese µM	pH
0	19.2	96				
1	19.2	96	0.332	1.123	1.417	
2	19.2	96				
3	19.0	95	0.460	0.990	1.452	4.7
4	18.7	95				
5	15.5	95	0.406	0.990	1.392	4.6
6	14.3	91				
7	13.9	89				
8	13.5	85	0.267	0.990	1.307	4.8
9	12.8	73				
10	12.1	58				
11	11.6	47	0.342	12.647	2.094	4.7
12	11.4	37				
13	11.2	24	0.503	29.252	2.941	4.8

Loch Trool sampled 15th May 1984 (10.00 a.m.).

Depth m	Temperature °C	Oxygen %
0	13.0	95
1	13.0	93
2	13.0	92
3	13.0	92
4	13.0	92
5	12.5	91
6	12.0	91
7	11.5	90
8	10.0	88
9	9.0	88
10	8.0	89
11	7.0	82
12	7.0	80
13	7.0	77
14	7.0	74
15	7.0	69
16	7.0	63

Loch Macaterick sampled 8th May 1984.

Depth m	Temperature °C	Oxygen %
0	13.5	95
1	13.5	90
2	13.5	87
3	13.0	79
4	12.5	77
5	12.0	73
6	10.5	63
7	9.5	60
8	8.5	57
9	8.0	55
10	8.0	53

Loch Kirrieroch sampled 24th July 1983 (3.10 p.m.).

Depth m	Temperature °C	Oxygen %
0	21.1	99
1	21.0	99
2	20.0	97
2.9	18.6	61

Loch Dee sampled 24th July 1983 (11.05 a.m.).

Depth m	Temperature °C	Oxygen %	Total phosphorous µM	Total iron µM	Total manganese µM	pH
0	19.8	99				
1	19.8	99	0.299	0.977	2.101	6.7
2	19.8	99				
3	19.0	97	0.299	0.949	2.002	6.8
4	18.5	95				
5	16.2	88	0.481	1.207	3.059	6.4
6	14.6	80				
7	14.0	71				
8	13.8	69	0.342	2.069	6.155	
9	13.6	65				
10	13.5	57				
11	13.4	55	0.353	3.333	11.004	6.2
12	13.4	53				
13	13.4	52	0.578	3.965	12.159	6.3

Loch Dee sampled 3rd May 1984 (1.00 p.m.).

Depth m	Temperature °C	Oxygen %	Soluble silica µM	Total phosphorous µM	Total iron µM	Total manganese µM	Acid soluble aluminium µM
0	12.1	105					
1	12.1	102	21.94	0.259	0.953	1.213	2.580
2	12.1	101	22.00	0.324	1.076	1.095	3.332
3	12.0	100	21.79	0.259	0.718	1.036	3.433
4	11.9	99	21.82	0.210	0.583	1.036	2.567
5	11.5	100					
6	10.5	98	21.96	0.237	0.576	1.177	2.918
7	9.5	99					
7.5	8.7	97					
8	8.2	98	23.42	0.210	0.612	1.177	3.144
9	7.8	94					
10	7.7	94	23.67	0.195	0.471	1.212	3.320

Loch Stroan sampled 28th July 1983 (12.40 p.m.).

Depth m	Temperature °C	Oxygen %
0	19.9	94
1	19.9	94
2	19.9	92
3	17.8	28
3.5	15.4	3
4	15.0	17
4.5	13.9	18
5	13.5	30
6	12.9	23
7	11.8	28
8	11.4	23
9	11.0	6
10	10.8	3
11	10.8	2
12	10.8	1

Loch Harrow sampled 25th July 1983 (5.30 p.m.).

Depth #	Temperature °C	Oxygen %	Total phosphorous µM	Total iron µM	Total manganese µM	pH
0	20.5	95				
1	20.5	96	0.267	1.034	3.196	5.5
2	20.5	95				
3	19.9	95	0.364	1.178	3.121	5.4
4	18.9	94				
5	18.4	92	0.438	1.638	3.407	4.0
6	17.4	84				
7	15.7	78				

Loch Riecaur sampled 9th May 1984.

Depth m	Temperature °C	Oxygen %
0	12.0	84
1	12.0	79
2	12.0	75
3	12.0	71
4	12.0	64
5	12.0	60
6	11.2	50
7	9.5	33
8	9.0	29

Loch Howie sampled 12th May 1984.

Depth m	Temperature °C	Oxygen %
0	13.5	96
1	13.0	94
2	13.0	95
3	13.0	95
4	12.5	94
5	12.5	94
6	12.0	93
7	10.5	100
8	9.0	99
9	8.5	98
10	8.5	98
11	8.0	96
12	8.0	95

Loch Finlas sampled 8th May 1984 (2.25 p.m.).

Depth m	Temperature °C	Oxygen %
0	14.5	85
1	13.5	72
2	12.0	67
3	12.0	64
4	12.0	62
5	12.0	60
6	11.8	58
7	11.8	56
8	11.8	55
9	11.5	52
10	11.5	51
11	11.5	50
12	11.5	46
13	11.5	10

Loch Muck sampled 9th May 1984.

Depth m	Temperature °C	Oxygen %
0	12.8	88
1	12.8	85
2	12.8	85
3	12.8	84
4	12.8	81
5	12.8	83
6	12.8	81
7	12.8	81
7.5	9.0	47

Loch Minnoch sampled 25th July 1983 (7.30 p.m.).

Depth m	Temperature °C	Oxygen %	Total phosphorous µM	Total iron µM	Total manganese µM	pH
0	20.6	91				
1	18.7	44	-	49.038	12.684	6.3
2	17.5	51				
3	17.3	46	2.503	47.460	15.879	6.2
4	17.2	37				
5	17.1	34	2.299	36.070	19.037	6.3
6	16.9	27				

Loch Ochiltree sampled 24th July 1983 (8.00 p.m.).

Depth m	Temperature °C	Oxygen %
0	21.4	103
1	21.4	103
2	21.3	102
2.9	20.1	95

Loch Moan sampled 24th July 1983 (5.00 p.m.).

Depth m	Temperature °C	Oxygen %	Total phosphorous µM	Total iron µM	Total manganese µM	pH
0	22.0	96				
1	21.3	95	2.909	33.190	16.201	6.2
1.9	18.8	35				

Loch Maberry sampled 13th May 1984.

Depth m	Temperature °C	Oxygen %
0	15.5	101
1	14.0	97
2	13.5	96
3	13.0	95
4	13.0	90

Loch Skae sampled 12th May 1984.

Depth m	Temperature °C	Oxygen %
0	14.5	104
1	14.0	102
2	13.5	102
3	13.0	101
4	12.5	99
5	12.0	96
6	10.0	98
7	8.5	94
8	8.0	87
9	8.0	82
10	8.0	72

Loch Urr sampled 12th May 1984.

Depth m	Temperature °C	Oxygen %
0	13.0	93
1	12.5	86
2	12.5	90
3	12.5	89
4	12.0	86
5	12.0	86
6	12.0	84
7	12.0	82
8	11.5	81
9	9.5	68
10	8.5	64
11	8.5	59
12	8.0	52
13	8.0	47

Loch Mannoeh sampled 10th May 1984.

Depth m	Temperature °C	Oxygen %
0	13.5	147
1	13.5	147
2	13.5	147
3	13.5	147
4	13.5	145
5	13.5	135
6	9.0	53

Lochenbreck sampled 27th July 1983 (6.30 p.m.).

Depth m	Temperature °C	Oxygen %
0	21.7	100
1	21.7	100
2	21.7	100
3	21.7	99
4	21.1	92
5	19.1	48
6	18.5	36

Loch Ronald sampled 13th May 1984.

Depth m	Temperature °C	Oxygen %
0	15.0	104
1	15.0	103
2	15.0	102
3	14.5	101
4	14.5	101
5	14.0	100
6	11.0	90
7	9.0	84
8	8.0	80
9	8.0	78
10	8.0	76
11	8.0	76
12	8.0	75
13	8.0	75
14	8.0	74
15	8.0	74
16	8.0	71

Lochinvar sampled 13th May 1984.

Depth m	Temperature °C	Oxygen %
0	13.0	108
1	13.0	108
2	13.0	108
3	13.0	108
4	13.0	106

Loch Woodhall sampled 27th July 1983 (3.45 p.m.).

Depth m	Temperature °C	Oxygen %
0	20.9	94
1	21.0	94
2	21.0	93
3	20.8	84
4	17.7	51
5	16.5	46
6	15.9	44
7	15.6	43
8	15.2	42
9	15.0	38
10	14.0	26
11	13.1	21
12	12.7	13
13	12.3	7
14	12.1	2

Loch Whinyeon sampled 10th May 1984.

Depth m	Temperature °C	Oxygen %
0	11.8	90
1	11.8	90
2	11.8	91
3	11.8	91
4	11.8	91
5	11.8	91
6	11.8	91
7	11.3	86
8	8.5	68
9	8.0	59
10	8.0	55
11	8.0	54

Loch Fern sampled 29th July 1983 (2.30 p.m.).

Depth m	Temperature °C	Oxygen %
0	20.9	87
1	20.9	85
2	20.3	54
2.5	18.2	4

Loch Clonyard sampled 28th July 1983 (4.00 p.m.).

Depth m	Temperature °C	Oxygen %
0	21.6	92
1	21.6	91
2	21.6	90
3	19.5	48
4	16.4	5
5	13.5	3
6	12.6	3
7	12.1	2

Loch Arthur sampled 28th July 1983 (4.30 p.m.).

Depth m	Temperature °C	Oxygen %
0	21.0	100
1	21.0	100
2	21.0	100
3	21.0	100
4	21.0	100
5	16.9	91
6	15.8	75
7	13.8	31
8	12.9	15
9	12.1	7
10	11.3	3
11	11.0	3
12	10.8	2

APPENDIX 2. Percentage composition of surface sediment diatom assemblages in the 34 study lakes. Taxa are listed in order of frequency abundance and + indicates an abundance of less than 0.4%.

LOCH ENOCH Taxon		%
TABELLARIA QUADRISEPTATA	KNUDSON	17.8
ACHNANTHES MARGINULATA	GRUN.	9.7
ANOMOEONEIS BRACHYSIRA v. THERMALIS	NOV. COMB.	6.5
NAVICULA HOFLEI	CHOLNOKY	6.0
EUNOTIA PECTINALIS v. MINOR	(KUTZ.) RABH.	5.8
EUNOTIA VENERIS	(KUTZ.) O. MULLER	4.8
FRUSTULIA RHOMBOIDES v. SAXONICA	(RABH.) DE TONI	4.5
TABELLARIA BINALIS	(EHR.) GRUN.	4.5
CYMBELLA HEBRIDICA	(GREGORY) GRUN.	4.2
EUNOTIA BACTRIANA	EHR.	2.7
FRUSTULIA RHOMBOIDES	(EHR.) DE TONI	2.3
EUNOTIA EXIGUA	(BREB.) RABH.	2.2
PINNULARIA BICEPS	GREGORY	2.0
TABELLARIA FLOCCULOSA	(ROTH) KUTZ.	2.0
EUNOTIA TENELLA	(GRUN.) HUST.	1.7
CYMBELLA PERPUSILLA	A. CLEVE	1.7
FRAGILARIA OLDENBURGIANA	HUST.	1.7
CYMBELLA GAEMANNI	MEISTER	1.7
EUNOTIA TRINACRIA	KRASSKE	1.5
NEIDIUM AFFINE v. LONGICEPS	(GREGORY) CLEVE	1.3
EUNOTIA IATRIAENSIS	FOGED	1.3
NAVICULA SUBTILISSIMA	CLEVE	1.2
ASTERIONELLA RALFSII	W. SMITH	1.2
FRAGILARIA VIRESCENS	RALFS	1.0
EUNOTIA MICROCEPHALA	KRASSKE EX HUST.	1.0
EUNOTIA sp.		0.8
EUNOTIA ALPINA	(HAEBELI) HUST.	0.7
CYMBELLA AEQUALIS	SMITH	0.7
EUNOTIA PECTINALIS v VENTRALIS	(EHR.) HUST.	0.5
NEIDIUM IRIDIS	(EHR.) CLEVE	0.5
ANOMOEONEIS SERIANS	(BREB.) CLEVE	0.5
PINNULARIA sp.		0.5
PINNULARIA ACORICOLA	HUST.	0.4
EUNOTIA PRAERUPTA-NANA	BERG	0.4
PINNULARIA VIRIDIS	(NITZSCH) EHR.	0.4
NEIDIUM AFFINE	(EHR.) CLEVE	0.4
EUNOTIA RHOMBOIDEA	HUST.	0.4
ANOMOEONEIS VITREA	(GRUN.) ROSS	0.4
PINNULARIA IRRORATA	(GRUN.) HUST.	+
TABELLARIA sp.		+
NAVICULA COCCONEIFORMIS	GREGORY	+
SEMIOBIS HEMICYCLUS	(EHR.) PATRICK	+
SURIRELLA DELICATISSIMA	LEWIS	+
EUNOTIA FABA	(EHR.) GRUN.	+
NITZSCHIA PERMINUTA	GRUN.	+
SURIRELLA BISERIATA	BREB.	+
EUNOTIA PECTINALIS	(KUTZ.) RABH.	+
EUNOTIA DENTICULATA	(BREB.) RABH.	+
EUNOTIA BIDENTULA	W. SMITH	+
STENOPTEROBIA INTERMEDIA	LEWIS	+
PINNULARIA CARMINATA	BARBER & CARTER	+
PINNULARIA ABAUJENSIS	(PANT.) ROSS	+
ACHNANTHES AUSTRIACA	HUST.	+
EUNOTIA GLACIALIS	MEIST.	+
CYMBELLA GRACILIS	(RABH.) CLEVE	+
PINNULARIA LEGUMEN	EHR.	+
ACHNANTHES RECURVATA	HUST.	+
CYMBELLA sp.		+
MELOSIRA PERGLABRA	OSTRUP	+
EUNOTIA DIODON	EHR.	+

LOCH FLEET

Taxon		%
EUNOTIA VENERIS	(KUTZ.) MULL.	22.5
TABELLARIA QUADRISEPTATA	KNUD.	17.5
FRUSTULIA RHOMBOIDES v. SAXONICA	(RABH.) DE TONI	8.0
ANOMOEONEIS BRACHYSIRA v. THERMALIS	NOV. COMB.	3.5
PERONIA FIBULA	(BREB. EX KUTZ) ROSS	3.5
EUNOTIA RHOMBOIDEA	HUST.	3.0
EUNOTIA PECTINALIS v. MINOR	(KUTZ.) RABH.	2.5
NAVICULA SUBTILISSIMA	HUST.	2.5
EUNOTIA PECTINALIS v. VENTRALIS	(EHR.) HUST.	2.0
FRAGILARIA VIRESCENS	RALFS	2.0
CYMBELLA PERPUSILLA	CLEVE	2.0
CYMBELLA HEBRIDICA	(BREB.) RABH.	2.0
MELOSIRA PERGLABRA	OSTRUP	2.0
TABELLARIA BINALIS	(EHR.) GRUN.	1.5
FRUSTULIA RHOMBOIDES	(EHR.) DE TONI	1.5
ACHNANTHES MARGINULATA	GRUN.	1.5
ANOMOEONEIS VITREA	(GRUN.) ROSS	1.5
CYMBELLA sp.		1.5
PINNULARIA BICEPS	GREG.	1.5
PINNULARIA IRRORATA	(GRUN.) HUST	1.5
PINNULARIA sp.		1.5
TABELLARIA FLOCCULOSA	(ROTH.) KUTZ.	1.0
EUNOTIA ALPINA	(NAEGLI) HUST.	1.0
EUNOTIA sp.		1.0
ACHNANTHES sp.		1.0
CYCLOTELLA KUTZINGIANA	THWAITES	1.0
GOMPHONEMA GRACILE	EHR.	1.0
NAVICULA HOFLEI	CHOLNOKY	1.0
EUNOTIA EXIGUA	(BREB.) RABH.	0.5
EUNOTIA PECTINALIS	(KUTZ.) RABH.	0.5
EUNOTIA PRAERUPTA	EHR.	0.5
EUNOTIA PRAERUPTA-NANA	BERG	+
EUNOTIA LUNARIS	(EHR.) GRUN.	+
EUNOTIA IATRIAENSIS	FOGED	+
EUNOTIA MICROCEPHALA v. TRIDENTATA	(MAY) HUST.	+
ACHNANTHES RECURVATA	HUST.	+
ANOMOEONEIS SERIANS	(BREB.) CLEVE	+
CYMBELLA OBTUSA	GREG.	+
CYMBELLA GRACILIS	(RABH.) CLEVE	+
MELOSIRA PERGLABRA v. FLORINAE	CAMBURN	+
NAVICULA SOHRENSIS	KRASSKE	+
NAVICULA sp.		+
NEIDIUM BISULCATUM	(LAGER.) CLEVE	+
NEIDIUM IRIDIS	(EHR.) CLEVE	+
PINNULARIA VIRIDIS	(NITZCH.) EHR.	+
TABELLARIA sp.		+

LOCH VALLEY

Taxon		7
TABELLARIA QUADRISEPTATA	KNUDSEN	15.9
FRUSTULIA RHOMBOIDES v. SAXONICA	(RABH.) DE TONI	8.3
EUNOTIA VENERIS	(KUTZ.) MULLER	6.5
ANOMOEONEIS BRACHYSIRA v. THERMALIS	NOV. COMB.	5.5
TABELLARIA BINALIS	(EHR.) GRUN.	4.8
NAVICULA SUBTILISSIMA	CLEVE	4.6
ACHNANTHES MARGINULATA	GRUN.	4.4
NAVICULA KOFLERI	CHOLNOKY	3.7
CYMBELLA AEQUALIS	SMITH	3.3
EUNOTIA PECTINALIS v. MINOR	(KUTZ.) RABH.	3.3
MELOSIRA PERGLABRA	OSTRUP	3.0
EUNOTIA PECTINALIS v. VENTRALIS	(EHR.) HUST.	2.6
EUNOTIA ALPINA	(NAEGELI) HUST.	2.6
FRAGILARIA VIRESCENS	RALFS	2.2
EUNOTIA DENTICULATA	(BREB.) RABH.	2.2
PERONIA FIBULA	(BREB. ex KUTZ.) ROSS	2.2
EUNOTIA BACTRIANA	EHR.	2.2
FRUSTULIA RHOMBOIDES	(EHR.) DE TONI	2.0
NAVICULA HEIMANSII	VAN DAM & KODY.	1.7
TABELLARIA FLOCCULOSA	(ROTH) KUTZ.	1.5
EUNOTIA TENELLA	(GRUN.) HUST.	1.5
EUNOTIA FABA	(EHR.) GRUN.	1.3
CYMBELLA PERPUSILLA	A. CLEVE	1.3
EUNOTIA EXIGUA	(BREB.) RABH.	1.3
CYMBELLA HEBRIDICA	(GREGORY) GRUN.	1.1
NAVICULA MEDIOCRIS	KRASSKE	0.7
FRAGILARIA OLENBURGIANA	HUST.	0.7
EUNOTIA PECTINALIS	(KUTZ.) RABH.	0.7
SURIRELLA DELICATISSIMA	LEWIS	0.6
ANOMOEONEIS SERIANS	(BREB.) CLEVE	0.6
PINNULARIA MICROSTAUROM	(EHR.) CLEVE	0.6
ANOMOEONEIS VITREA	(GRUN.) ROSS	0.6
PINNULARIA sp.		0.6
NEIDIUM BISULCATUM	(LAGERSTEDT) CLEVE	0.4
PINNULARIA MAIOR	KUTZ.	0.4
NAVICULA COCCONEIFORMIS	GREGORY	0.4
PINNULARIA BICEPS	GREGORY	0.4
PINNULARIA IRRODATA	(GRUN.) HUST.	0.4
ACHNANTHES AUSTRIACA	HUST.	0.4
EUNOTIA GLACIALIS	MEIST.	0.4
MELOSIRA DISTANS	(EHR.) KUTZ.	0.4
NAVICULA CONTENTA	GRUN.	+
EUNOTIA MEISTERI	HUST.	+
ACHNANTHES FLEXELLA	(KUTZ.) GRUN	+
NEIDIUM AFFINE	(EHR.) CLEVE	+
CYMBELLA GRACILIS	(RABH.) CLEVE	+
SEMIORBIS HEMICYCLUS	(EHR.) PATRICK	+
NEIDIUM IRIDIS	(EHR.) CLEVE	+
PINNULARIA HILSEANA	(JANISCH) MULL.	+
STAURONEIS PRODUCTA	GRUN.	+
TABELLARIA sp.		+
EUNOTIA FALLAX	CLEVE	+
ANOMOEONEIS BRACHYSIRA	(BREB.) GRUN.	+
EUNOTIA LUNARIS v. SUBARCUATA	(NAEGELI) GRUN.	+
EUNOTIA MONODON	EHR.	+
ACHNANTHES RECURVATA	HUST.	+
EUNOTIA RHOMBOIDEA	HUST.	+

LOCH GRANNOCH

Taxon

Z

EUNOTIA VENERIS	(KUTZ.) O. MULLER	15.2
TABELLARIA QUADRISEPTATA	KNUDSEN	12.8
ACHNANTHES MARGINULATA	GRUN.	12.6
TABELLARIA BINALIS	(EHR.) GRUN.	8.4
TABELLARIA FLOCCULOSA	(ROTH) KUTZ.	5.8
PINNULARIA HILSEANA	(JANISCH) MULL.	4.0
EUNOTIA PECTINALIS v. MINOR	(KUTZ.) RABH.	3.8
EUNOTIA EXIGUA	(BREB.) RABH.	3.6
FRUSTULIA RHOMBOIDES v. SAXONICA	(RABH.) DE TONI	3.6
PINNULARIA IRRORATA	(GRUN.) HUST.	3.2
ANOMOEONEIS BRACHYSIRA v. THERMALIS	NOY. COMB.	3.2
NAVICULA SUBTILISSIMA	CLEVE	3.0
EUNOTIA LUNARIS v. SUBARCUATA	(NAEGELI) GRUN.	1.6
EUNOTIA sp.		1.6
EUNOTIA ALPINA	(NAEGELI) HUST.	1.4
CYMBELLA PERPUSILLA	A. CLEVE	1.4
FRAGILARIA VIRESCENS	RALFS	1.0
EUNOTIA PRAERUPTA-NANA	BERG	1.0
MELOSIRA DISTANS	(EHR.) KUTZ.	1.0
EUNOTIA DENTICULATA	(BREB.) RABH.	0.8
PINNULARIA VIRIDIS	(NITZSCH) EHR.	0.8
ANOMOEONEIS VITREA	(GRUN.) ROSS	0.8
EUNOTIA IATRIAENSIS	FOGED	0.6
EUNOTIA BIDENTULA	W. SMITH	0.6
MELOSIRA PERGLABRA	OSTRUP	0.6
PINNULARIA BICEPS	GREGORY	0.6
NAVICULA HOFLEI	CHOLNOKY	0.6
PINNULARIA MICROSTAUROM	(EHR.) CLEVE	0.6
PERONIA FIDULA	(BREB. ex KUTZ.) ROSS	0.6
CYMBELLA GRACILIS	(RABH.) CLEVE	0.6
ACHNANTHES MICROCEPHALA	KUTZ.	0.4
PINNULARIA SUBCAPITATA	GREGORY	0.4
ACHNANTHES AUSTRIACA	HUST.	0.4
FRAGILARIA CONSTRUENS	(EHR.) GRUN.	0.4
CYMBELLA HEBRIDICA	(GREGORY) GRUN.	0.4
EUNOTIA RHOMBOIDEA	HUST.	+
NEIDIUM AFFINE v. AMPHIRHYNCHUS	(EHR.) CLEVE	+
NAVICULA SOHRENSIS	KRASSKE	+
SURIRELLA DELICATISSIMA	LEWIS	+
PINNULARIA sp.		+
ACHNANTHES SUBLAEVIS	HUST.	+
EUNOTIA MEISTERI	HUST.	+
EUNOTIA DIDDON	EHR.	+
STENOPTEROBIA INTERMEDIA	LEWIS	+
ACHNANTHES RECURVATA	HUST.	+
NEIDIUM sp.		+
GOMPHONEMA GRACILE	EHR.	+

LONG LOCH OF GLENHEAD

Taxon		%
TABELLARIA QUADRISEPTATA	KNUDSEN	12.7
FRUSTULIA RHOMBOIDES v. SAXONICA	(RABH.) DE TONI	11.5
EUNOTIA VENERIS	(KUTZ.) O. MULLER	10.4
FRAGILARIA VIRESCENS	RALFS	7.5
ANOMOEONEIS BRACHYSIRA v. THERMALIS	NOV. COMB.	5.8
TABELLARIA FLOCCULOSA	(ROTH) KUTZ.	5.8
ANOMOEONEIS VITREA	(GRUN.) ROSS	5.6
FRUSTULIA RHOMBOIDES	(EHR.) DE TONI	4.9
EUNOTIA PECTINALIS v. MINOR	(KUTZ.) RABH.	3.8
PERONIA FIBULA	(BREB. ex KUTZ.) ROSS	3.1
EUNOTIA FABA	(EHR.) GRUN.	2.5
MELOSIRA PERGLABRA	OSTRUP	2.4
EUNOTIA ALPINA	(HAEGELI) HUST.	2.4
CYMBELLA GRACILIS	(RABH.) CLEVE	2.4
NAVICULA HEIMANSII	VAN DAM & KOOP.	1.6
EUNOTIA DENTICULATA	(BREB.) RABH.	1.1
EUNOTIA TENELLA	(GRUN.) HUST.	1.1
CYMBELLA PERPUSILLA	A. CLEVE	0.9
CYMBELLA HEBRIDICA	(GREGORY) GRUN.	0.9
CYCLOTELLA KUTZINGIANA	THWAITES	0.7
NAVICULA ANGSTA	GRUN.	0.7
ANOMOEONEIS BRACHYSIRA	(BREB.) GRUN.	0.5
FRAGILARIA OLDENBURGIANA	HUST.	0.5
ACHNANTHES MARGINULATA	GRUN.	0.5
MELOSIRA DISTANS	(EHR.) KUTZ.	0.5
EUNOTIA PECTINALIS v. MINOR f. IMPRESSA	(EHR.) HUST.	0.5
EUNOTIA DIODON	EHR.	0.5
STAURONEIS ANCEPS f. GRACILIS	(EHR.) CLEVE	0.4
PINNULARIA VIRIDIS	(NITZSCH) EHR.	0.4
ACHNANTHES DEPRESSA	(CLEVE) HUST.	0.4
GOMPHONEMA GRACILE	EHR.	0.4
PINNULARIA sp.		0.4
CYCLOTELLA ARENTII	KOLBE	0.4
TABELLARIA BINALIS	(EHR.) GRUN.	0.4
NAVICULA SUBTILISSIMA	CLEVE	0.4
ANOMOEONEIS SERIANS	(BREB.) CLEVE	0.4
NAVICULA COCCONEIFORMIS	GREGORY	0.4
PINNULARIA BICEPS	GREGORY	0.4
EUNOTIA PECTINALIS v. VENTRALIS	(EHR.) HUST.	0.4
EUNOTIA GLACIALIS	MEIST.	+
FRAGILARIA CONSTRICTA	EHR.	+
NITZSCHIA FONTICOLA	GRUN.	+
EUNOTIA FALLAX	CLEVE	+
EUNOTIA ROBUSTA	RALFS	+
EUNOTIA LUNARIS	(EHR.) GRUN.	+
PINNULARIA MAIOR	KUTZ.	+
EUNOTIA FLEXUOSA	KUTZ.	+
STAURONEIS PHOENICENTERON	(NITZSCH) EHR.	+
EUNOTIA IATRIAENSIS	FOGED	+
ACHNANTHES MICROCEPHALA	KUTZ.	+
PINNULARIA HILSEANA	(JANISCH) MULL.	+
SURIRELLA DELICATISSIMA	LEWIS	+
GOMPHONEMA ACUMINATUM v. CORONATA	(EHR.) W. SMITH	+
SURIRELLA BISERIATA	BREB.	+
CYMBELLA sp.		+
PINNULARIA MICROSTAURON	(EHR.) CLEVE	+
NAVICULA MEDIOCRIS	KRASSKE	+
EUNOTIA ARCUS	EHR.	+
EUNOTIA RHOMBOIDEA	HUST.	+
NAVICULA cf. DIGITULUS		+
ACHNANTHES SUBLAEVIS	HUST.	+
EUNOTIA PECTINALIS	(KUTZ.) RABH.	+
EUNOTIA EXIGUA	(BREB.) RABH.	+
NITZSCHIA ROMANA	GRUN.	+

ROUND LOCH OF GLENHEAD

Taxon		Z
EUNDTIA VENERIS	(KUTZ.) O. MULLER	16.1
TABELLARIA QUADRISEPTATA	KNUDSEN	11.8
FRUSTULIA RHOMBOIDES v. SAXONICA	(RABH.) DE TONI	10.3
PERONIA FIBULA	(BREB. ex KUTZ.) ROSS	3.5
TABELLARIA sp.		3.5
MELOSIRA DISTANS	(EHR.) KUTZ.	3.5
FRAGILARIA VIRESCENS	RALFS	3.5
NAVICULA HOFLERI	CHOLNOKY	3.3
EUNDTIA FABA	(EHR.) GRUN.	3.1
NAVICULA HEIMANSII	VAN DAM & KIDDY.	2.7
EUNDTIA DENTICULATA	(BREB.) RABH.	2.5
ACHNANTHES MARGINULATA	GRUN.	2.5
TABELLARIA BINALIS	(EHR.) GRUN.	2.5
ANOMOEONEIS BRACHYSIRA v. THERMALIS	NOV. COMB.	2.5
EUNDTIA PECTINALIS v. MINOR	(KUTZ.) RABH.	2.1
EUNDTIA BACTRIANA	EHR.	1.7
EUNDTIA ALPINA	(NAEGELI) HUST.	1.6
ANOMOEONEIS VITREA	(GRUN.) ROSS	1.6
TABELLARIA FLOCCULOSA	(ROTH) KUTZ.	1.6
EUNDTIA TENELLA	(GRUN.) HUST.	1.4
CYMBELLA AEQUALIS	SMITH	1.4
MELOSIRA PERGLABRA	OSTRUP	1.4
ANOMOEONEIS SERIANS	(BREB.) CLEVE	1.4
CYMBELLA PERPUSILLA	A. CLEVE	1.0
CYMBELLA VENTRICOSA	KUTZ.	1.0
NAVICULA PUPULA	KUTZ.	1.0
CYMBELLA HEBRIDICA	(GREGORY) GRUN.	0.8
PINNULARIA DIVERGENS	W. SMITH	0.8
NAVICULA MEDIOCRIS	KRASSKE	0.8
STENOPTEROBIA INTERMEDIA	LEWIS	0.8
GOMPHONEMA GRACILE	EHR.	0.8
CYMBELLA GRACILIS	(RABH.) CLEVE	0.8
EUNDTIA PECTINALIS v. VENTRALIS	(EHR.) HUST.	0.8
PINNULARIA MAIOR	KUTZ.	0.8
PINNULARIA MICROSTAURON	(EHR.) CLEVE	0.6
STAURONEIS ANCEPS f. GRACILIS	(EHR.) CLEVE	0.6
PINNULARIA IRRORATA	(GRUN.) HUST.	0.4
EUNDTIA EXIGUA	(BREB.) RABH.	0.4
NAVICULA SEMINULUM	GRUN.	0.4
CYCLOTELLA KUTZINGIANA v. PLANETOPHORA	FRICKE	0.4
EUNDTIA SUDETICA	(O. MULLER) HUST.	0.4
NAVICULA SUBTILISSIMA	CLEVE	0.4
NAVICULA PHYLLEPTA	KUTZ.	+
PINNULARIA BICEPS	GREGORY	+
NAVICULA COCCONEIFORMIS	GREGORY	+
NAVICULA ACCEPTATA	HUST.	+
EUNDTIA PECTINALIS	(KUTZ.) RABH.	+
NITZSCHIA PERMINUTA	GRUN.	+
ANOMOEONEIS BRACHYSIRA	(BREB.) GRUN.	+
CYCLOTELLA ARENTII	KOLBE	+
ACHNANTHES AUSTRIACA	HUST.	+
CYMBELLA GAEUMANNI	MEISTER	+
FRAGILARIA OLDENBURGIANA	HUST.	+

LOCH TROOL

Taxon		Z
TABELLARIA FLOCCULOSA	(ROTH) KUTZ.	23.7
EUNOTIA VENERIS	(KUTZ.) O. MULLER	22.7
ANOMOEONEIS BRACHYSIRA v. THERMALIS	NOV. COMB.	4.9
TABELLARIA QUADRISEPTATA	KNUDSEN	4.7
ACHNANTHES MARGINULATA	GRUN.	4.1
PERONIA FIDULA	(BREB. ex KUTZ.) ROSS	3.9
EUNOTIA EXIGUA	(BREB.) RABH.	3.5
EUNOTIA PECTINALIS v. MINOR	(KUTZ.) RABH.	2.9
EUNOTIA ALPINA	(NAEGELI) HUST.	2.9
FRUSTULIA RHOMBOIDES	(EHR.) DE TONI	2.9
CYMBELLA AEQUALIS	SMITH	2.3
FRUSTULIA RHOMBOIDES v. SAXONICA	(RABH.) DE TONI	2.1
NAVICULA HEIMANSII	VAN DAM & KOOP.	1.6
TABELLARIA BINALIS	(EHR.) GRUN.	1.4
EUNOTIA TENELLA	(GRUN.) HUST.	1.4
ACHNANTHES MINUTISSIMA	KUTZ.	1.2
EUNOTIA LUNARIS	(EHR.) GRUN.	1.2
TABELLARIA sp.		1.0
CYMBELLA PERPUSILLA	A. CLEVE	0.8
FRAGILARIA VIRESCENS	RALFS	0.8
EUNOTIA DENTICULATA	(BREB.) RABH.	0.6
EUNOTIA PRAERUPTA-NANA	BERG	0.6
ANOMOEONEIS VITREA	(GRUN.) ROSS	0.6
CYMBELLA HEBRIDICA	(GREGORY) GRUN.	0.4
EUNOTIA BIDENTULA	W. SMITH	0.4
CYMBELLA BIPARTITA	MAYER	0.4
EUNOTIA LUNARIS v. SUBARCUATA	(NAEGELI) GRUN.	0.4
TABELLARIA FLOCCULOSA v. FLOCCULOSA IIIP	KOPPEN	0.4
FRAGILARIA OLDENBURGIANA	HUST.	0.4
NAVICULA SUBTILISSIMA	CLEVE	0.4
ACHNANTHES AUSTRIACA	HUST.	0.4
EUNOTIA BACTRIANA	EHR.	0.4
GOMPHONEMA ANGUSTATUM	(KUTZ.) RABH.	0.4
PINNULARIA BICEPS	GREGORY	+
ACHNANTHES FLEXELLA	(KUTZ.) GRUN	+
EUNOTIA GLACIALIS	MEIST.	+
ACHNANTHES sp.		+
PINNULARIA HILSEANA	(JANISCH) MULL.	+
MELOSIRA PERGLABRA	OSTRUP	+
CYMBELLA GRACILIS	(RABH.) CLEVE	+
GOMPHONEMA GRACILE	EHR.	+
ANOMOEONEIS STYRIACA	(GRUN.) HUST.	+
NAVICULA SUBATOMOIDES	HUST.	+
NAVICULA sp.		+
CYCLOTELLA KUTZINGIANA v. PLANETOPHORA	FRICKE	+
CYMBELLA HILLIARDI	MANGUIN	+
ANOMOEONEIS SERIANS	(BREB.) CLEVE	+
SYNEDRA MINUSCULA	GRUN.	+
EUNOTIA FALLAX	CLEVE	+
PINNULARIA sp.		+

LOCH MACATERICK

Taxon

Z

EUNOTIA VENERIS	(KUTZ.) O. MULLER	12.1
TABELLARIA FLOCCULOSA	(ROTH) KUTZ.	11.5
ANOMOEONEIS VITREA	(GRUN.) ROSS	8.8
EUNOTIA PECTINALIS v. MINOR	(KUTZ.) RABH.	6.7
FRUSTULIA RHOMBOIDES	(EHR.) DE' TONI	6.3
FRUSTULIA RHOMBOIDES v. SAXONICA	(RABH.) DE TONI	6.1
CYMBELLA PERPUSILLA	A. CLEVE	4.5
FRAGILARIA VIRESCENS	RALFS	3.3
ANOMOEONEIS BRACHYSIRA v. THERMALIS	NOV. COMB.	2.9
ACHNANTHES MICROCEPHALA	KUTZ.	2.9
CYMBELLA GRACILIS	(RABH.) CLEVE	2.9
GOMPHONEMA GRACILE	EHR.	1.4
ASTERIONELLA RALFSII	W. SMITH	1.4
TABELLARIA QUADRISEPTATA	KNUDSEN	1.2
ACHNANTHES MINUTISSIMA	KUTZ.	1.2
EUNOTIA FABA	(EHR.) GRUN.	1.2
EUNOTIA PECTINALIS v. VENTRALIS	(EHR.) HUST.	1.2
PERONIA FIBULA	(BREB. ex KUTZ.) ROSS	1.2
NAVICULA COCCONEIFORMIS	GREGORY	1.0
NAVICULA HEIMANSII	VAN DAM & KOOP.	1.0
ACHNANTHES RECURVATA	HUST.	1.0
TABELLARIA sp.		1.0
ACHNANTHES AUSTRIACA	HUST.	1.0
NAVICULA ANGUSTA	GRUN.	1.0
CYMBELLA HEBRIDICA	(GREGORY) GRUN.	0.8
EUNOTIA ALPINA	(NAEGELI) HUST.	0.8
PINNULARIA IRRORATA	(GRUN.) HUST.	0.8
NITZSCHIA PERMINUTA	GRUN.	0.6
NAVICULA sp.		0.6
NAVICULA MINIMA	GRUN.	0.6
CYMBELLA CESATII	(RABH.) GRUN.	0.6
PINNULARIA MICROSTAUON	(EHR.) CLEVE	0.6
ACHNANTHES LINEARIS f. CURTA	H.L. SMITH	0.6
EUNOTIA LUNARIS	(EHR.) GRUN.	0.6
NAVICULA SUBTILISSIMA	CLEVE	0.6
EUNOTIA DIDDON	EHR.	0.6
FRAGILARIA sp.		0.4
PINNULARIA DIVERGENS	W. SMITH	0.4
EUNOTIA HEISTERI	HUST.	0.4
PINNULARIA UNDULATA	GREGORY	0.4
CYCLOTHELLA KUTZINGIANA v. PLANETOPHORA	FRICKE	0.4
EUNOTIA EXIGUA	(BREB.) RABH.	0.4
EUNOTIA DENTICULATA	(BREB.) RABH.	0.4
PINNULARIA sp.		0.4
STAURONEIS PHOENICENTERON	(NITZSCH) EHR.	0.4
EUNOTIA ARCUS	EHR.	0.4
EUNOTIA TENELLA	(GRUN.) HUST.	0.4
TABELLARIA BINALIS	(EHR.) GRUN.	+
EUNOTIA IATRIAENSIS	FOGED	+
PINNULARIA ABAUJENSIS	(PANT.) ROSS	+
NAVICULA MEDIOCRIS	KRASSKE	+
NAVICULA PHYLLEPTA	KUTZ.	+
EUNOTIA SUDETICA	(O. MULLER) HUST.	+
EUNOTIA FALLAX	CLEVE	+
NEIDIUM BISULCATUM	(LAGERSTEDT) CLEVE	+
STAURONEIS PRODUCTA	GRUN.	+
GOMPHONEMA sp.		+
NEIDIUM sp.		+
EUNOTIA sp.		+
ACHNANTHES PSEUDOSHAZI	CARTER	+
MELOSIRA PERGLABRA	OSTRUP	+
EUNOTIA BIDENTULA	W. SMITH	+
PINNULARIA SUBCAPITATA	GREGORY	+
SYNEDRA MINUSCULA	GRUN.	+
CYMBELLA sp.		+
NAVICULA PUPULA	KUTZ.	+
NAVICULA JARNEFELTII	HUST.	+
NEIDIUM IRIDIS	(EHR.) CLEVE	+
CYMBELLA AEQUALIS	SMITH	+
PINNULARIA MAIOR	KUTZ.	+
EUNOTIA PECTINALIS	(KUTZ.) RABH.	+
EUNOTIA PRAERUPTA-NANA	BERG	+
SYNEDRA sp.		+
NAVICULA HOFLERI	CHOLNOKY	+
ANOMOEONEIS SERIANS	(BREB.) CLEVE	+

LOCH RONALD
Taxon

7

ACHNANTHES MINUTISSIMA	KUTZ.	16.7
CYCLOTELLA COMTA	(EHR.) KUTZ.	13.2
FRAGILARIA CONSTRUENS	(EHR.) GRUN.	4.8
CYCLOTELLA KUTTINGIANA v. PLANETOPHORA	FRICKE	4.6
CYMBELLA VENTRICOSA	KUTZ.	4.1
ASTERIONELLA FORMOSA	HASSALL	3.9
FRAGILARIA BREVISTRIATA	GRUN.	3.7
TABELLARIA FLOCCULOSA v. FLOCCULOSA IIIP	KOPPEN	3.5
MELOSIRA ISLANDICA	MULLER	2.8
FRAGILARIA VIRESCENS	RALFS	2.4
GOMPHONEMA INTRICATUM	KUTZ.	2.2
CYCLOTELLA KUTTINGIANA	TINWATTES	2.2
COCCONEIS PLACENTULA	EHR.	2.0
CYCLOTELLA PSEUDOSTELLIGERA	HUST.	2.0
ACHNANTHES LINEARIS	W. SMITH	2.0
ANOMOEONEIS VITREA	(GRUN.) ROSS	1.5
NITZSCHIA FRUSTULUM	KUTZ.	1.3
TABELLARIA FLOCCULOSA- NAVICULA sp.	(ROTH) KUTZ.	1.1
STEPHANODISCUS MINUTULA	(KUTZ.) ROUND	1.1
CYMBELLA GRACILIS	(RABH.) CLEVE	0.9
ACHNANTHES LINEARIS f. CURTA	H.L. SMITH	0.9
FRAGILARIA VAUCHERIAE	(KUTZ.) BOYE PETERSON	0.9
EUNOTIA VENERIS	(KUTZ.) O. MULLER	0.6
GOMPHONEMA sp.		0.6
AMPHORA OVALIS v. PEDICULUS	KUTZ.	0.6
ACHNANTHES SUCHLANDTII	HUST.	0.6
CYMBELLA sp.		0.6
DIATOMA TENUE v. ELONGATUM	LYNGB.	0.6
GOMPHONEMA PARVULUM	KUTZ.	0.6
DENTICULA TENUIS	KUTZ.	0.6
GOMPHONEMA CONSTRICTUM	EHR.	0.6
NAVICULA RADIOSA	KUTZ.	0.6
NITZSCHIA ANGUSTATA v. ACUTA	GRUN.	0.6
PINNULARIA sp.		0.6
ACHNANTHES sp.		0.4
NAVICULA MINIMA	GRUN.	0.4
FRUSTULIA RHOMBOIDES v. SAXONICA	(RABH.) DE TONI	0.4
CALONEIS BACILLUM	(GRUN.) MERESCHOWSKY	0.4
NAVICULA COCCONEIFORMIS	GREGORY	0.4
EPITHEMIA sp.		0.4
NITZSCHIA FONTICOLA	GRUN.	0.4
SYNEDRA PARASITICA	W. SMITH	0.4
CYCLOTELLA COMENSIS	GRUN.	0.4
NAVICULA CRYPTOCEPHALA	KUTZ.	0.4
FRAGILARIA PINNATA	EHR.	0.4
EUNOTIA PECTINALIS	(KUTZ.) RABH.	0.4
GOMPHONEMA ACUMINATUM v. CORONATA	(EHR.) W. SMITH	0.4
NAVICULA SEMINULUM	GRUN.	0.4
GOMPHONEMA GRACILE	EHR.	0.4
CYMBELLA OBTUSA	GREGORY	0.4
NITZSCHIA ROMANA	GRUN.	0.4
PINNULARIA TENUIS	GREGORY	0.4
ACHNANTHES UMARA	CARTER	+
DIPLONEIS OVALIS	(HILSE) CLEVE	+
NAVICULA INDIFFERENS	HUST.	+
STAURONEIS PHOENICENTERON	(NITZSCH) EHR.	+
DIPLONEIS OCLATA	(RABH.) CLEVE	+
NITZSCHIA PALEA	(KUTZ.) W. SMITH	+
RHOPALODIA GIBBA	(EHR.) O. MULLER	+
EUNOTIA ROBUSTA	RALFS	+
ACHNANTHES MICROCEPHALA	KUTZ.	+
NITZSCHIA DISSIPATA	(KUTZ.) GRUN.	+
PINNULARIA MAIOR	KUTZ.	+
EUNOTIA PECTINALIS v. MINOR f. IMPRESSA	(EHR.) HUST.	+
EUNOTIA ARCUS	EHR.	+
FRAGILARIA ELLIPTICA	SCHUM.	+
NITZSCHIA AMPHIBIA	GRUN.	+
SYNEDRA TENERA	W. SMITH	+
CYMBELLA CESATII	(RABH.) GRUN.	+
FRUSTULIA VULGARIS	TINWATTES	+
NAVICULA cf. SCHADEI	OCHILTREE (RJF)	+
FRAGILARIA LAPONICA	GRUN.	+
FRAGILARIA INFLATA	(HEIDEN) HUST.	+
FRUSTULIA RHOMBOIDES	(EHR.) DE TONI	+
NAVICULA cf. DIGITULUS	LOCH URR (RJF)	+
NAVICULA PHYLLEPTA	KUTZ.	+
NAVICULA SUBCOSTULATA	HUST.	+
DIATOMA VULGARE	BOY	+

LOCH RONALD (CONT.)

ANOMOEONEIS BRACHYSIRA v. THERMALIS	NOV. COMB.	+
CYMBELLA AFFINIS	KUTZ.	+
SYNEDRA ACUS	KUTZ.	+
GYROSIGMA sp.		+
NAVICULA PSEUDOSCUITIFORMIS	HUST.	+
NITZSCHIA TERRESTRIS	(PETERSEN) HUST.	+
EUNDTIA FALLAX	CLEVE	+
OPEPHORA MARTYI	HERIBAUD	+
GOMPHONEMA ANGUSTATUM	(KUTZ.) RABH.	+
NAVICULA HASTIACA	KRASSKE	+
CYMBELLA NAVICULIFORMIS	AUERSWALD	+
NAVICULA IMPEYA	HUST.	+
CYMBELLA HILLIARDI	MANGUIN	+
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LOCHENBRECK

Taxon

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ANOMOEDNEIS VITREA	(GRUN.) ROSS	22.2
ACHNANTHES MINUTISSIMA	KUTZ.	16.2
NITZSCHIA sp. A	GRUN.	14.7
CYCLOTELLA KUTZINGIANA v. PLANETOPHORA	FRICKE	7.3
FRAGILARIA VIRESCENS	RALFS	6.3
CYCLOTELLA COMENSIS	GRUN.	3.2
NAVICULA LANCEDATA	(AGARDH) KUTZ.	2.8
NAVICULA MINIMA	GRUN.	2.6
NAVICULA sp.		2.4
CYMBELLA CESATII	(RABH.) GRUN.	2.1
ACHNANTHES BIASOLETTIANA	(KUTZ.) GRUN.	2.0
NAVICULA MEDIOCRIS	KRASSKE	1.4
CYMBELLA MICROCEPHALA	GRUN.	1.2
CYMBELLA ANGUSTATA	(W. SMITH) CLEVE	1.0
CYMBELLA GRACILIS	(RABH.) CLEVE	1.0
NAVICULA cf. DIGITULUS	LOCH URR (RJF)	0.8
NAVICULA PUPULA	KUTZ.	0.8
ACHNANTHES RECURVATA	HUST.	0.8
ACHNANTHES MICROCEPHALA	KUTZ.	0.6
ACHNANTHES FLEXELLA	(KUTZ.) GRUN	0.6
ANOMOEDNEIS BRACHYSIRA	(BREB.) GRUN.	0.6
NITZSCHIA FONTICOLA	GRUN.	0.6
ACHNANTHES SUBLAEVIS	HUST.	0.6
EUNDTIA ARCUS	EHR.	0.6
NAVICULA RADIOSA	KUTZ.	0.6
ACHNANTHES LINEARIS	W. SMITH	0.6
NAVICULA JARNEFELTII	HUST.	0.4
ACHNANTHES AUSTRIACA	HUST.	0.4
FRAGILARIA CONSTRUENS	(EHR.) GRUN.	0.4
EUNDTIA PECTINALIS v. MINOR	(KUTZ.) RABH.	0.4
CYMBELLA AFFINIS	KUTZ.	0.4
PINNULARIA MAIOR	KUTZ.	0.4
NAVICULA JAAGII	MEISTER	+
TABELLARIA FLOCCULOSA	(ROTH) KUTZ.	+
PERONIA FIBULA	(BREB. ex KUTZ.) ROSS	+
CALONEIS SILICULA	(EHR.) CLEVE	+
CALONEIS BACILLUM	(GRUN.) MERESCHKONSKY	+
CYMBELLA PERPUSILLA	A. CLEVE	+
ACHNANTHES LINEARIS f. CURTA	H.L. SMITH	+
NAVICULA PHYLLEPTA	KUTZ.	+
NAVICULA SEMINULUM	GRUN.	+
FRUSTULIA RHOMBOIDES v. SAXONICA	(RABH.) DE TONI	+
ACHNANTHES MARGINULATA	GRUN.	+
FRUSTULIA RHOMBOIDES	(EHR.) DE TONI	+
ANOMOEDNEIS STYRIACA	(GRUN.) HUST.	+
EUNDTIA VENERIS	(KUTZ.) O. MULLER	+
ACHNANTHES sp.		+
NAVICULA IMPEXA	HUST.	+
CYMBELLA sp.		+

ACHNANTHES MINUTISSIMA	KUTZ.	16.7
TABELLARIA FLOCCULOSA v. FLOCCULOSA IIIP	KOPPEN	13.7
CYCLOTELLA PSEUDOSTELLIGERA	HUST.	11.6
FRAGILARIA VAUCHERIAE	(KUTZ.) BOYE PETERSON	4.6
TABELLARIA FLOCCULOSA	(ROTH) KUTZ.	4.4
FRAGILARIA VIRESCENS	RAUFS	4.2
FRAGILARIA CONSTRUENS	(EHR.) GRUN.	2.8
ACHNANTHES LINEARIS	W. SMITH	2.8
ASTERIONELLA FORMOSA	HASSALL	2.8
FRAGILARIA ELLIPTICA	SCHUM.	2.0
CYMBELLA VENTRICOSA	KUTZ.	2.0
ACHNANTHES LINEARIS f. CURTA	H.L. SMITH	1.8
FRAGILARIA PINNATA	EHR.	1.6
ACHNANTHES AUSTRACA	HUST.	1.6
CYCLOTELLA COMENSIS	GRUN.	1.4
NAVICULA cf. DIGITULUS	LOCH URR (RJF)	1.2
NAVICULA INDIFFERENS	HUST.	1.2
NAVICULA SEMINULUM	GRUN.	1.2
DENTICULA TENUIS	KUTZ.	1.0
CYCLOTELLA KUTZINGIANA v. PLANETOPHORA	FRICKE	1.0
DIPLONEIS OVALIS.	(HILSE) CLEVE	0.8
NAVICULA sp.		0.8
NAVICULA MINIMA	GRUN.	0.8
STAURONEIS PRODUCTA	GRUN.	0.8
EUNOTIA VENERIS	(KUTZ.) O. MULLER	0.6
PINNULARIA sp.		0.6
GOMPHONEMA INTRICATUM	KUTZ.	0.6
GOMPHONEMA PARVULUM	KUTZ.	0.6
NAVICULA PUPULA	KUTZ.	0.6
PINNULARIA IRRODATA	(GRUN.) HUST.	0.6
CYCLOTELLA COMA	(EHR.) KUTZ.	0.4
EUNOTIA SUDETICA	(O. MULLER) HUST.	0.4
NAVICULA VIRIDULA	KUTZ.	0.4
CYCLOTELLA KUTZINGIANA	THWAITES	0.4
SYNEDRA MINUSCULA	GRUN.	0.4
DIPLONEIS OCLATA	(BREB.) CLEVE	0.4
NAVICULA PHYLLEPTA	KUTZ.	0.4
NAVICULA cf. SEMINULUM		0.4
CYMBELLA CUSPIDATA	KUTZ.	0.4
PINNULARIA SUBCAPITATA	GREGORY	0.4
SYNEDRA TENERA	W. SMITH	0.4
ACHNANTHES RECURVATA	HUST.	0.4
NAVICULA RHYNCHOCEPHALA	KUTZ.	0.4
CYMBELLA SP.		0.4
CYMBELLA HELVETICA	KUTZ.	0.4
NAVICULA PSEUDOSCUITIFORMIS	HUST.	0.4
EPITHEMIA sp.		+
PINNULARIA DIVERGENS	W. SMITH	+
CYMBELLA HEBRIDICA	(GREGORY) GRUN.	+
PINNULARIA DIVERGENTISSIMA	(GRUN.) CLEVE	+
ACHNANTHES LATEROSTRATA	HUST.	+
STAURONEIS LEGUMEN	EHR.	+
EUNOTIA MONODDI	EHR.	+
FRAGILARIA BREVISTRATA	GRUN.	+
CYMBELLA MICROCEPHALA	GRUN.	+
EUNOTIA TENELLA	(GRUN.) HUST.	+
NEIDIUM AFFINE v. AMPHIRHYNCHUS	(EHR.) CLEVE	+
NITZSCHIA TERRESTRIS	(PETERSEN) HUST.	+
CYMBELLA PERPUSILLA	A. CLEVE	+
GOMPHONEMA ACUMINATUM v. CORONATA	(EHR.) W. SMITH	+
ACHNANTHES UNARA	CARTER	+
EUNOTIA LUNARIS	(EHR.) GRUN.	+
ACHNANTHES ROSTRATA	OSTRUP	+
SYNEDRA ACUS	KUTZ.	+
ANOMOEONEIS VITREA	(GRUN.) ROSS	+
NAVICULA ANGUSTA	GRUN.	+
COCCONEIS PLACENTULA	EHR.	+
DIATOMA TENUE v. ELONGATUM	LYNGB.	+
ACHNANTHES SUECICLANDTII	HUST.	+
FRUSTULIA RHOMBOIDES	(EHR.) DE TONI	+
CALONEIS BACILLUM	(GRUN.) MERESCHKOWSKY	+
EUNOTIA PECTINALIS	(KUTZ.) RABH.	+
EUNOTIA PECTINALIS v. MINOR f. IMPRESSA	(EHR.) HUST.	+
EUNOTIA PECTINALIS v. MINOR	(KUTZ.) RABH.	+
SYNEDRA sp.		+
ANOMOEONEIS BRACHYSTRA v. THERMALIS	NOV. COMB.	+
TABELLARIA FEHSTRATA	(LYNGBYE) KUTZ.	+
SYNEDRA PARASITICA	W. SMITH	+
ACHNANTHES sp.		+
NAVICULA RADIOSA	KUTZ.	+
EUNOTIA PRAERUPTA-NANA	BERG	+
GYROSIGMA sp.		+
NAVICULA IMPEIA	HUST.	+

LOCH MINNOCH

Taxon

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ANOMOEONEIS VITREA	(GRUN.) ROSS	15.9
FRUSTULIA RHOMBOIDES v. SAXONICA	(RABH.) DE TO	9.5
ANOMOEONEIS BRACHYSTRA v. THERMALIS	NOV. COMB.	8.2
ACHNANTHES MICROCEPHALA	KUTZ.	6.0
NAVICULA ANGUSTA	GRUN.	5.6
EUNOTIA VENERIS	(KUTZ.) O. MULLER	5.2
FRAGILARIA VIRESCENS	RALFS	5.2
CYMBELLA GRACILIS	(RABH.) CLEVE	3.7
TABELLARIA FLOCCULOSA	(ROTH) KUTZ.	2.6
MELOSIRA DISTANS	(EHR.) KUTZ.	2.2
PERONIA FIBULA	(BREB. ex KUTZ.) ROSS	2.2
GOMPHONEMA GRACILE	EHR.	1.7
NITZSCHIA FONTICOLA	GRUN.	1.7
EUNOTIA PECTINALIS v. VENTRALIS	(EHR.) HUST.	1.3
NAVICULA RADIOSA	KUTZ.	1.3
MELOSIRA PERGLABRA	OSTRUP	1.3
CYCLOTELLA KUTZINGIANA v. PLANETOPHORA	FRICKE	1.3
CYMBELLA CESATII	(RABH.) GRUN.	1.3
ACHNANTHES MARGINULATA	GRUN.	1.3
FRUSTULIA RHOMBOIDES	(EHR.) DE TONI	1.1
CYMBELLA MICROCEPHALA	GRUN.	0.9
CYMBELLA ANGUSTATA	(W. SMITH) CLEVE	0.9
TABELLARIA QUADRISEPTATA	KNUDSEN	0.9
NAVICULA COCCONEIFORMIS	GREGORY	0.7
EUNOTIA PECTINALIS v. MINOR	(KUTZ.) RABH.	0.7
EUNOTIA EXIGUA	(BREB.) RABH.	0.7
TABELLARIA sp.		0.7
GOMPHONEMA ACUMINATUM v. CORONATA	(EHR.) W. SMITH	0.7
EUNOTIA MICROCEPHALA	KRASSKE EX HUST.	0.7
CYCLOTELLA ARENTII	KOLBE	0.6
CYMBELLA HELVETICA	KUTZ.	0.6
EUNOTIA PECTINALIS v. MINOR f. IMPRESSA	(EHR.) HUST.	0.6
CYMBELLA VENTRICOSA	KUTZ.	0.6
STAURONEIS PRODUCTA	GRUN.	0.6
CYMBELLA PERPUSILLA	A. CLEVE	0.6
EUNOTIA SUDETICA	(O. MULLER) HUST.	0.6
ACHNANTHES RECURVATA	HUST.	0.6
EUNOTIA ROBUSTA	RALFS	0.4
HANNAEA ARCUS	(EHR.) PATRICK	0.4
CYMBELLA sp.		0.4
EUNOTIA GLACIALIS	WEIST.	0.4
EUNOTIA PECTINALIS	(KUTZ.) RABH.	0.4
NAVICULA HOFLERI	CHOLNOKY	0.4
PINNULARIA sp.		0.4
ANOMOEONEIS SERIANS	(BREB.) CLEVE	0.4
ANOMOEONEIS FOLLIS	(EHR.) CLEVE	0.4
PINNULARIA ABRAJENSIS	(PANT.) ROSS	0.4
STAURONEIS PHOENICENTERON	(NITZSCH) EHR.	0.4
FRAGILARIA OLDENBURGIANA	HUST.	0.4
EUNOTIA LUNARIS	(EHR.) GRUN.	0.4
NAVICULA FESTIVA	KRASSKE	0.4
PINNULARIA DIVERGENTISSIMA	(GRUN.) CLEVE	+
STAURONEIS ANCEPS f. GRACILIS	(EHR.) CLEVE	+
NAVICULA SEMINULUM v. INTERMEDIA	HUST.	+
PINNULARIA MICROSTAURON	(EHR.) CLEVE	+
NAVICULA sp.		+
CYMBELLA LEPTOCERAS	(EHR.) GRUN.	+
FRAGILARIA CONSTRUENS	(EHR.) GRUN.	+
NEIDIUM BISULCATUM	(LAGERSTEDT) CLEVE	+
EUNOTIA PRAERUPTA	EHR.	+
NAVICULA SUBTILISSIMA	CLEVE	+
STENOPTERODIA INTERMEDIA	LEWIS	+
NEIDIUM sp.		+
PINNULARIA DIVERGENS	W. SMITH	+
ACHNANTHES UMARA	CARTER	+
EUNOTIA sp.		+
NAVICULA JARNEFELTII	HUST.	+
NITZSCHIA PERMINUTA	GRUN.	+
PINNULARIA MAIOR	KUTZ.	+
GOMPHONEMA INTRICATUM	KUTZ.	+
EUNOTIA TENELLA	(GRUN.) HUST.	+
ACHNANTHES MINUTISSIMA	KUTZ.	+
CYMBELLA HEBRIDICA	(GREGORY) GRUN.	+
NAVICULA PSEUDOSCUITIFORMIS	HUST.	+

LOCH SKAE

Taxon

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ACHNANTHES MINUTISSIMA	KUTZ.	34.9
EUNOTIA VENERIS	(KUTZ.) O. MULLER	5.6
FRAGILARIA VIRESCENS	RALFS	5.6
NITZSCHIA FONTICOLA	GRUN.	4.4
ANOMOEONEIS VITREA	(GRUN.) ROSS	4.4
ACHNANTHES LINEARIS v. CURTA	H. L. SMITH	3.4
CYMBELLA MICROCEPHALA	GRUN.	3.0
TABELLARIA FLOCCULOSA	(ROTH) KUTZ.	3.0
GOMPHONEMA GRACILE	EHR.	2.8
ACHNANTHES LINEARIS	W. SMITH	2.4
EUNOTIA PECTINALIS v. MINOR	(KUTZ.) RABH.	2.2
FRUSTULIA RHOMBOIDES v. SAXONICA	(RABH.) DE TONI	2.2
MELOSIRA DISTANS	(EHR.) KUTZ.	2.0
CYMBELLA GRACILIS	(RABH.) CLEVE	2.0
EUNOTIA PECTINALIS	(KUTZ.) RABH.	1.4
FRAGILARIA VAUCHERIAE	(KUTZ.) BOYE PETERSON	1.2
NITZSCHIA ROMANA	GRUN.	1.0
CYMBELLA CESATTI	(RABH.) GRUN.	0.8
PINNULARIA NODOSA	EHR.	0.8
NAVICULA sp.		0.8
FRAGILARIA CONSTRUENS	(EHR.) GRUN.	0.8
CYMBELLA VENTRICOSA	KUTZ.	0.6
EUNOTIA ARCUS	EHR.	0.6
ACHNANTHES RECURVATA	HUST.	0.6
ACHNANTHES PSEUDOSNAZI	CARTER	0.6
PERONIA FIBULA	(BREB. ex KUTZ.) ROSS	0.6
TABELLARIA QUADRISEPTATA	KNUDSEN	0.4
DIPLONEIS OCULATA	(BREB.) CLEVE	0.4
CYMBELLA HEBRIDICA	(GREGORY) GRUN.	0.4
ANOMOEONEIS BRACHYSIRA v. THERMALIS	NOV. COMB.	0.4
NAVICULA BRYOPHILA	PETERSEN	0.4
NAVICULA RADIOSA	KUTZ.	0.4
NAVICULA cf. DIGITULUS	LOCH URR (RJF)	0.4
NAVICULA COCCONEIFORMIS	GREGORY	0.4
EUNOTIA TENELLA	(GRUN.) HUST.	0.4
NAVICULA ANGUSTA	GRUN.	0.4
CYCLOTELLA KUTZINGIANA	THWAITES	0.4
SYNEDRA TENERA	W. SMITH	0.4
CYMBELLA ANGUSTATA	(W. SMITH) CLEVE	0.4
EUNOTIA MAJOR v. BIDENS	(W. SMITH) RABH.	+
GOMPHONEMA ACUMINATUM v. CORONATA	(EHR.) W. SMITH	+
ACHNANTHES LANCEOLATA	BREB.	+
ACHNANTHES UMARA	CARTER	+
EUNOTIA sp.		+
PINNULARIA VIRIDIS	(NITZSCH) EHR.	+
CYMBELLA GAEUMANNI	MEISTER	+
FRAGILARIA BREVISTRIATA	GRUN.	+
CYCLOTELLA COMTA	(EHR.) KUTZ.	+
PINNULARIA MAJOR	KUTZ.	+
NITZSCHIA AMPHIBIA	GRUN.	+
CALONEIS BACILLUM	(GRUN.) HERESCHIKOWSKY	+
EUNOTIA EXIGUA	(BREB.) RABH.	+
ACHNANTHES FLEXELLA	(KUTZ.) GRUN	+
EUNOTIA ROBUSTA	RALFS	+
FRAGILARIA ELLIPTICA	SCHUM.	+
NAVICULA PHYLLEPTA	KUTZ.	+
NAVICULA PSEUDOSCUITIFORMIS	HUST.	+
PINNULARIA sp.		+
ACHNANTHES DEPRESSA	(CLEVE) HUST.	+
EUNOTIA FABA	(EHR.) GRUN.	+
CYMBELLA TURGIDA	GREGORY	+
PINNULARIA TENUIS	GREGORY	+
EUNOTIA PRAERUPTA-NANA	BERG	+
NAVICULA MEDIOCRIS	KRASSKE	+
PINNULARIA ABAUJENSIS	(PANT.) ROSS	+
NITZSCHIA sp.		+
DENTICULA TENUIS	KUTZ.	+
FRAGILARIA PINNATA	EHR.	+
NAVICULA RHYNCHOCEPHALA	KUTZ.	+
EUNOTIA MEISTERI	HUST.	+
STAURONEIS PHOENICENTERON	(NITZSCH) EHR.	+
ACHNANTHES SUBLAEVIS	HUST.	+
DIPLONEIS OVALIS	(HILSE) CLEVE	+
SURIARELLA LINEARIS	W. SMITH	+
CYMBELLA sp.		+

CYCLOTELLA KUTZINGIANA v. PLANETOPHORA	FRICKE	15.7
CYCLOTELLA COMENSIS	GRUN.	12.3
ACHNANTHES MINUTISSIMA	KUTZ.	11.3
MELOSIRA ITALICA v. SUBARCTICA	O. MULLER	5.3
CYCLOTELLA COMA	(EHR.) KUTZ.	4.6
ASTERIONELLA FORMOSA	HASSALL	3.5
ACHNANTHES MICROCEPHALA	KUTZ.	3.0
SYNEDRA MINISCUA	GRUN.	2.8
FRAGILARIA PINNATA	EHR.	2.8
CYCLOTELLA KUTZINGIANA	THWAITES	2.5
FRAGILARIA CONSTRUENS	(EHR.) GRUN.	2.3
FRAGILARIA ELLIPTICA	SCHUM.	2.3
TABELLARIA FLOCCULOSA	(ROTH) KUTZ.	2.3
NAVICULA cf. DIGITULUS	LOCH URR (RJF)	1.9
FRAGILARIA VIRESCENS	RALFS	1.8
NAVICULA CRYPTOCEPHALA	KUTZ.	1.6
NAVICULA INDIFFERENS	HUST.	1.6
NAVICULA IMPEXA	HUST.	1.4
GOMPHONEMA PARVULUM	KUTZ.	1.4
ACHNANTHES LINEARIS	W. SMITH	1.1
ANOMOEONEIS VITREA	(GRUN.) ROSS	1.1
PINNULARIA IRRODATA	(GRUN.) HUST.	0.9
GOMPHONEMA sp.		0.7
NAVICULA sp.		0.7
FRAGILARIA VAUCHERIAE	(KUTZ.) BOYE PETERSON	0.7
GOMPHONEMA INTRICATUM	KUTZ.	0.7
NAVICULA SUBATMOIDES	HUST.	0.5
NAVICULA MINIMA	GRUN.	0.5
DIPLONEIS PETERSEMI	HUST.	0.5
ACHNANTHES SAXONICA	KRASSKE	0.5
ACHNANTHES RECURVATA	HUST.	0.5
DIPLONEIS OVALIS	(HILSE) CLEVE	0.5
EUNOTIA EXIGUA	(BEB.) RABH.	0.5
NAVICULA SEMINULUM	GRUN.	0.5
ACHNANTHES AUSTRIACA	HUST.	0.4
EUNOTIA PECTINALIS v. MINOR	(KUTZ.) RABH.	0.4
CYMBELLA CESATII	(RABH.) GRUN.	0.4
CALONEIS BACILLUM	(GRUN.) MERESCHKOWSKY	0.4
ACHNANTHES CONSPICUA	A. MAYER	0.4
ACHNANTHES sp.		0.4
SYNEDRA TENERA	W. SMITH	0.4
NAVICULA RHYNCHOCEPHALA	KUTZ.	0.4
MELOSIRA DISTANS	(EHR.) KUTZ.	0.4
PINNULARIA sp.		0.4
MERIDION CIRCULARE	AGARDH	0.4
NAVICULA POPULA	KUTZ.	0.4
GOMPHONEMA CONSTRICTUM	EHR.	+
SYNEDRA sp.		+
ACHNANTHES SUBLAEVIS	HUST.	+
COCCONEIS PLACENTULA	HUST.	+
STAURONEIS LEGUMEN	EHR.	+
EUNOTIA MONODON	EHR.	+
FRAGILARIA BREVISTRIATA	GRUN.	+
CYMBELLA MICROCEPHALA	GRUN.	+
EUNOTIA TENELLA	(GRUN.) HUST.	+
NEIDIUM AFFINE v. AMPHIRHYNCHUS	(EHR.) CLEVE	+
NITZSCHIA TERRESTRIS	(PETERSEN) HUST.	+
CYMBELLA PERPUSILLA	A. CLEVE	+
GOMPHONEMA ACUMINATUM v. CORONATA	(EHR.) W. SMITH	+
ACHNANTHES UMARA	CARTER	+
EUNOTIA LUNARIS	(EHR.) GRUN.	+
ACHNANTHES ROSTRATA	OSTRUP	+
SYNEDRA ACUS	KUTZ.	+
ANOMOEONEIS VITREA	(GRUN.) ROSS	+
NAVICULA ANGUSTA	GRUN.	+
COCCONEIS PLACENTULA	EHR.	+
DIATOMA TENUE v. ELONGATUM	LYNGB.	+
ACHNANTHES SUCHLANDTII	HUST.	+
FRUSTULIA RHOMBOIDES	(EHR.) DE TONI	+
CALONEIS BACILLUM	(GRUN.) MERESCHKOWSKY	+
EUNOTIA PECTINALIS	(KUTZ.) RABH.	+
EUNOTIA PECTINALIS v. MINOR f. IMPRESSA	(EHR.) HUST.	+
EUNOTIA PECTINALIS v. MINOR	(KUTZ.) RABH.	+
SYNEDRA sp.		+
ANOMOEONEIS BRACHYSIRA v. THERMALIS	NOV. COMB.	+
TABELLARIA FENESTRATA	(LYNGBYE) KUTZ.	+
SYNEDRA PARASITICA	W. SMITH	+
ACHNANTHES sp.		+

LOCH SKIRROW

Taxon		%
FRAGILARIA VIRESCENS	RALFS	28.3
ANDMOEONEIS VITREA	(GRUN.) ROSS	7.5
FRUSTULIA RHOMBOIDES v. SAXONICA	(RABH.) DE TONI	6.1
CYMBELLA PERPUSILLA	A. CLEVE	4.3
ASTERIONELLA sp.		3.6
ANDMOEONEIS BRACHYSIRA v. THERMALIS	NOV. COMB.	3.2
FRUSTULIA RHOMBOIDES	(EHR.) DE TONI	3.2
EUNOTIA VENERIS	(KUTZ.) O. MULLER	2.6
EUNOTIA ARCUS	EHR.	2.6
TABELLARIA FLOCCULOSA	(ROTH) KUTZ.	2.4
FRAGILARIA ELLIPTICA	SCHUM.	2.0
CYMBELLA GRACILIS	(RABH.) CLEVE	2.0
EUNOTIA PECTINALIS v. MINOR	(KUTZ.) RABH.	1.8
CYCLOTELLA KUTZINGIANA v. PLANETOPHORA	FRICKE	1.8
NAVICULA MEDIOCRIS	KRASSKE	1.8
NITZSCHIA PERMINUTA	GRUN.	1.8
MELOSIRA DISTANS	(EHR.) KUTZ.	1.4
NAVICULA BRYOPHILA	PETERSEN	1.4
NAVICULA HEIMANSII	VAN DAM & KOBY.	1.4
NAVICULA sp.		1.2
ACHNANTHES MICROCEPHALA	KUTZ.	1.2
EUNOTIA sp.		1.0
ACHNANTHES PSEUDOSWAZI	CARTER	0.8
EUNOTIA PECTINALIS v. VENTRALIS	(EHR.) HUST.	0.8
CYMBELLA GAEUMANNI	MEISTER	0.8
PINNULARIA BICEPS	GREGORY	0.8
ACHNANTHES RECURVATA	HUST.	0.8
NAVICULA ANGUSTA	GRUN.	0.8
NAVICULA COCCONEIFORMIS	GREGORY	0.6
NAVICULA PHYLLEPTA	KUTZ.	0.6
NAVICULA IMPEXA	HUST.	0.6
MELOSIRA LIRATA v. PERGLABRA	(OSTRUP) M.-B. FLORIN	0.4
CYMBELLA sp.		0.4
NAVICULA cf. DIGITULUS		0.4
CYMBELLA HEBRIDICA	(GREGORY) GRUN.	0.4
NITZSCHIA FONTICOLA	GRUN.	0.4
STAURONEIS ANCEPS f. GRACILIS	(EHR.) CLEVE	0.4
EUNOTIA EXIGUA	(BREB.) RABH.	0.4
PINNULARIA IRRORATA	(GRUN.) HUST.	0.4
CYCLOTELLA ARENTII	KOLBE	0.4
ACHNANTHES MARGINULATA	GRUN.	0.4
PINNULARIA HILSEANA	(JANISCH) MULL.	0.4
NAVICULA HOFLEI	CHOLNOKY	0.4
CYMBELLA MICROCEPHALA	GRUN.	0.4
PINNULARIA UNDULATA	GREGORY	0.4
CALONEIS BACILLUM	(GRUN.) MERESCHKOWSKY	0.4
EUNOTIA DIODON	EHR.	0.4
PERONIA FIBULA	(BREB. ex KUTZ.) ROSS	0.4
TABELLARIA sp.		+
ANDMOEONEIS SERIANS	(BREB.) CLEVE	+
SYNEDRA sp.		+
NEIDIUM IRIDIS	(EHR.) CLEVE	+
PINNULARIA DIVERGENTISSIMA	(GRUN.) CLEVE	+
CYCLOTELLA COMENSIS	GRUN.	+
CYCLOTELLA STELLIGERA	CLEVE ET GRUN.	+
EUNOTIA DENTICULATA	(BREB.) RABH.	+
EUNOTIA ALPINA	(NAEGLI) HUST.	+
HANNAEA ARCUS	(EHR.) PATRICK	+
ACHNANTHES cf. LAPIDOSA		+
STAURONEIS sp.		+
CYMBELLA CESATII	(RABH.) GRUN.	+
GOMPHONEMA GRACILE	EHR.	+
PINNULARIA DIVERGENS	W. SMITH	+
ACHNANTHES sp.		+
EUNOTIA TENELLA	(GRUN.) HUST.	+

LOCH MUCK

Taxon		?
TABELLARIA FLOCCULOSA	(ROTH) KUTZ.	12.5
EUNOTIA PECTINALIS v. MINOR	(KUTZ.) RABH.	9.5
EUNOTIA VENERIS	(KUTZ.) O. MULLER	9.1
ACHNANTHES MINUTISSIMA	KUTZ.	5.5
FRUSTULIA RHOMBOIDES	(EHR.) DE TONI	5.1
GOMPHONEMA GRACILE	EHR.	4.2
FRAGILARIA VIRESCENS	RALFS	4.2
FRAGILARIA CONSTRICTA	EHR.	3.4
FRAGILARIA CONSTRUENS	(EHR.) GRUN.	3.4
ANOMOEONEIS VITREA	(GRUN.) ROSS	3.2
CYMBELLA GRACILIS	(RABH.) CLEVE	2.3
ACHNANTHES LINEARIS	W. SMITH	2.1
PINNULARIA IRRODATA	(GRUN.) HUST.	2.1
NAVICULA PHYLLEPTA	KUTZ.	1.7
NAVICULA DRYOPHILA	PETERSEN	1.5
NAVICULA cf. SEMINULUM		1.3
TABELLARIA QUADRISEPTATA	KNUDSEN	1.3
EUNOTIA PECTINALIS v. VENTRALIS	(EHR.) HUST.	1.1
FRUSTULIA RHOMBOIDES v. SAXONICA	(RABH.) DE TONI	1.1
ACHNANTHES LINEARIS v. CURTA	H.L. SMITH	1.1
ACHNANTHES sp.		1.0
ACHNANTHES CONSPICUA	A. MAYER	1.0
GOMPHONEMA ANGUSTATUM	(KUTZ.) RABH.	1.0
EUNOTIA FORMICA	EHR.	0.8
EUNOTIA PECTINALIS v. MINOR v. IMPRESSA	(EHR.) HUST.	0.8
PINNULARIA sp.		0.8
SYNEDRA MINUSCULA	GRUN.	0.8
PINNULARIA SUBCAPITATA	GREGORY	0.8
NAVICULA HEIMANSII	VAN DAM & KODY.	0.8
EUNOTIA EXIGUA	(BREB.) RABH.	0.8
ACHNANTHES MARGINULATA	GRUN.	0.8
NAVICULA MINIMA	GRUN.	0.8
ACHNANTHES UNARA	CARTER	0.8
NAVICULA IMPEXA	HUST.	0.6
CALONEIS DACTYLUM	(GRUN.) MERESCHKOWSKY	0.6
EUNOTIA MEISTERI	HUST.	0.6
EUNOTIA PECTINALIS	(KUTZ.) RABH.	0.6
NITZSCHIA ROMANA	GRUN.	0.6
ACHNANTHES RECURVATA	HUST.	0.6
CYMBELLA sp.		0.6
EUNOTIA PRAERUPTA-NANA	BERG	0.6
NAVICULA INDIFFERENS	HUST.	0.4
ACHNANTHES SUBLAEVIS	HUST.	0.4
ACHNANTHES AUSTRIACA	HUST.	0.4
CYMBELLA HEBRIDICA	(GREGORY) GRUN.	0.4
NAVICULA SEMINULUM	GRUN.	0.4
STAURONEIS ANCEPS f. GRACILIS	(EHR.) CLEVE	0.4
NAVICULA JARNEFELTII	HUST.	0.4
NEIDIUM sp.		0.4
NAVICULA sp.		0.4
NAVICULA COCCONEIFORMIS	GREGORY	0.4
ASTERIONELLA FORMOSA	HASSALL	0.4
ACHNANTHES LANCEOLATA	BREB.	0.4
CYCLOTELLA KUTZINGIANA v. PLANETOPHORA	FRICKE	+
SYNEDRA TENERA	W. SMITH	+
PINNULARIA ACUMINATA	SMITH	+
TABELLARIA sp.		+
NAVICULA RHYNCHOCEPHALA	KUTZ.	+
PINNULARIA HILSEANA	(JANISCH) MULL.	+
EUNOTIA ROBUSTA	RALFS	+
CYMBELLA VENTRICOSA	KUTZ.	+
NITZSCHIA sp.		+
HANNAEA ARCUS	(EHR.) PATRICK	+
ANOMOEONEIS BRACHYSIRA v. THERMALIS	NOV. COMB.	+
NAVICULA cf. DIGITULUS	LOCH URR (RJF)	+
PINNULARIA MAIOR	KUTZ.	+
CYMBELLA NAVICULIFORMIS	AUERSWALD	+
NAVICULA MEDIOCRIS	KRASSKE	+
CYMBELLA PERPUSILLA	A. CLEVE	+
EUNOTIA SUDETICA	(O. MULLER) HUST.	+
SYNEDRA sp.		+
EUNOTIA TRINACRIA	KRASSKE	+
PINNULARIA BICEPS	GREGORY	+
NAVICULA SUBATOMOIDES	HUST.	+
NITZSCHIA TERRESTRIS	(PETERSEN) HUST.	+

LOCH HOWIE
Taxon

Taxon		%
CYCLOTELLA KUTZINGIANA v. PLANETOPHORA	FRICKE	36.7
ACHNANTHES MINUTISSIMA	KUTZ.	14.9
CYCLOTELLA KUTZINGIANA	THWAITES	9.6
ANOMOEONEIS VITREA	(GRUN.) ROSS	6.8
CYCLOTELLA COMENSIS	GRUN.	5.8
FRAGILARIA VIRESCENS	RALFS	2.2
ACHNANTHES MICROCEPHALA	KUTZ.	1.6
PERONIA FIBULA	(BREB. ex KUTZ.) ROSS	1.4
EUNOTIA PECTINALIS v. MINOR	(KUTZ.) RABH.	1.4
EUNOTIA VENERIS	(KUTZ.) O. MULLER	1.4
CYMBELLA MICROCEPHALA	GRUN.	1.0
TABELLARIA FLOCCULOSA	(ROTH) KUTZ.	0.9
CYMBELLA GRACILIS	(RABH.) CLEVE	0.7
ACHNANTHES LINEARIS	W. SMITH	0.7
GOMPHONEMA ANGUSTATUM	(KUTZ.) RABH.	0.7
FRAGILARIA CONSTRUENS	(EHR.) GRUN.	0.7
CYMBELLA PERPUSILLA	A. CLEVE	0.6
GOMPHONEMA GRACILE	EHR.	0.6
SYNEDRA MINUSCULA	GRUN.	0.5
FRUSTULIA RHOMBOIDES	(EHR.) DE TONI	0.5
SYNEDRA TENERA	W. SMITH	0.5
NITZSCHIA FONTICOLA	GRUN.	0.5
GOMPHONEMA INTRICATUM	KUTZ.	0.4
NAVICULA RADIOSA	KUTZ.	0.4
EUNOTIA PECTINALIS v. MINOR f. IMPRESSA	(EHR.) HUST.	0.4
NITZSCHIA FRUSTULUM	KUTZ.	0.4
FRAGILARIA VAUCHERIAE	(KUTZ.) BOYE PETERSON	0.4
ACHNANTHES SUBLAEVIS	HUST.	0.4
NAVICULA MINIMA	GRUN.	0.4
NAVICULA IMPEXA	HUST.	+
FRUSTULIA RHOMBOIDES v. SAXONICA	(RABH.) DE TONI	+
NAVICULA PHYLLEPTA	KUTZ.	+
ACHNANTHES RECURVATA	HUST.	+
ACHNANTHES sp.		+
NITZSCHIA ROMANA	GRUN.	+
CYMBELLA VENTRICOSA	KUTZ.	+
NAVICULA ANGUSTA	GRUN.	+
NAVICULA COCCONEIFORMIS	GREGORY	+
ACHNANTHES LINEARIS f. CURTA	H.L. SMITH	+
ACHNANTHES AUSTRIACA	HUST.	+
MELOSIRA PERGLABRA	OSTRUP	+
PINNULARIA DIVERGENTISSIMA	(GRUN.) CLEVE	+
NAVICULA MEDIOCRIS	KRASSKE	+
EUNOTIA PRAERUPTA-NANA	BERG	+
EUNOTIA PECTINALIS	(KUTZ.) RABH.	+
PINNULARIA HILSEANA	(JANISCH) MULL.	+
NAVICULA SEMINULUM v. INTERMEDIA	HUST.	+
EUNOTIA PRAERUPTA	EHR.	+
EUNOTIA MEISTERI	HUST.	+
EUNOTIA MONODON	EHR.	+
NAVICULA INDIFFERENS	HUST.	+
CYMBELLA AEGUALIS	SMITH	+
EUNOTIA EXIGUA	(BREB.) RABH.	+
NAVICULA FESTIVA	KRASSKE	+
STENOPTEROBIA INTERMEDIA	LEWIS	+
MELOSIRA DISTANS	(EHR.) KUTZ.	+
STAURONEIS ANCEPS v. GRACILIS	(EHR.) CLEVE	+
ACHNANTHES CLEVEI	GRUN.	+
HANNAEA ARCUS	(EHR.) PATRICK	+
GOMPHONEMA sp.		+
DIATOMA TENUE v. ELONGATUM	LYNGB.	+
NEIDIUM sp.		+
ACHNANTHES UMARA	CARTER	+
NAVICULA SUBATMOIDES	HUST.	+
AMPHORA OVALIS v. PEDICULUS	KUTZ.	+
ACHNANTHES SUCHLANDTII	HUST.	+
CYMBELLA CESATII	(RABH.) GRUN.	+
SYNEDRA sp.		+
ACHNANTHES PSEUDOSWAZI	CARTER	+
PINNULARIA IRRORATA	(GRUN.) HUST.	+
FRAGILARIA PINNATA	EHR.	+
NAVICULA sp.		+
NAVICULA RHYNCHOCEPHALA	KUTZ.	+
GOMPHONEMA ACUMINATUM v. CORONATA	(EHR.) W. SMITH	+
NAVICULA CRYPTOCEPHALA	KUTZ.	+
CYMBELLA sp.		+

LOCH FINLAS

Taxon		Z
FRAGILARIA VIRESCENS	RALFS	15.6
TABELLARIA FLOCCULOSA	(ROTH) KUTZ.	11.3
ANOMOEONEIS VITREA	(GRUN.) ROSS	7.6
PERONIA FIBULA	(BREB. ex KUTZ.) ROSS	7.0
EUNOTIA PECTINALIS v. MINOR	(KUTZ.) RABH.	4.9
ACHNANTHES MINUTISSIMA	KUTZ.	4.5
EUNOTIA EXIGUA	(BREB.) RABH.	3.7
FRUSTULIA RHOMBOIDES v. SAXONICA	(RABH.) DE TONI	3.5
ASTERIONELLA FORMOSA	HASSALL	3.1
EUNOTIA DENTICULATA	(BREB.) RABH.	2.9
CYMBELLA AEGUALIS	SMITH	2.5
FRUSTULIA RHOMBOIDES	(EHR.) DE TONI	2.5
ACHNANTHES MICROCEPHALA	KUTZ.	1.9
PINNULARIA sp.		1.8
ANOMOEONEIS BRACHYSIRA v. THERMALIS	NOV. COMB.	1.8
CYMBELLA sp.		1.8
CYCLOTELLA KUTZINGIANA v. PLANETOPHORA	FRICKE	1.2
NAVICULA sp.		1.2
ACHNANTHES LINEARIS v. CURTA	H.L. SMITH	1.2
CYMBELLA CESATII	(RABH.) GRUN.	1.0
CYMBELLA HEBRIDICA	(GREGORY) GRUN.	1.0
ACHNANTHES LINEARIS	W. SMITH	0.8
NAVICULA PHYLLEPTA	KUTZ.	0.8
PINNULARIA UNDULATA	GREGORY	0.8
EUNOTIA PECTINALIS v. MINOR f. IMPRESSA	(EHR.) HUST.	0.8
PINNULARIA IRRORATA	(GRUN.) HUST.	0.6
PINNULARIA HILSEANA	(JANISCH) MULL.	0.6
NAVICULA BRYOPHILA	PETERSEN	0.6
GOMPHONEMA GRACILE	EHR.	0.6
NAVICULA ANGUSTA	GRUN.	0.6
EUNOTIA LUNARIS	(EHR.) GRUN.	0.6
CYMBELLA BIPARTITA	MAYER	0.4
PINNULARIA DIVERGENS	W. SMITH	0.4
NAVICULA COCCONEIFORMIS	GREGORY	0.4
ACHNANTHES RECURVATA	HUST.	0.4
NAVICULA PUPULA	KUTZ.	0.4
STAURONEIS sp.		0.4
STAURONEIS ALPINA	HUST.	0.4
FRAGILARIA CONSTRICTA	EHR.	0.4
TABELLARIA FLOCCULOSA v. FLOCCULOSA IIIP	KOPPEN	0.4
NAVICULA cf. DIGITULUS		0.4
GOMPHONEMA sp.		0.4
CYMBELLA MICROCEPHALA	GRUN.	0.4
NITZSCHIA ROMANA	GRUN.	0.4
CYMBELLA PERPUSILLA	A. CLEVE	0.4
EUNOTIA PRAERUPTA-NANA	BERG	+
PINNULARIA ABAUJENSIS	(PANT.) ROSS	+
NAVICULA MEDIOCRIS	KRASSKE	+
FRAGILARIA CONSTRUENS	(EHR.) GRUN.	+
EUNOTIA PECTINALIS	(KUTZ.) RABH.	+
NITZSCHIA PERMINUTA	GRUN.	+
NAVICULA MINIMA	GRUN.	+
EUNOTIA DIODON	EHR.	+
CYMBELLA GAEUMANNI	MEISTER	+
NAVICULA HEIMANSII	VAN DAM & KOOP.	+
EUNOTIA TENELLA	(GRUN.) HUST.	+
SURIPELLA BISERIATA	BREB.	+
GOMPHONEMA ANGUSTATUM	(KUTZ.) RABH.	+
STENOPTEROBIA INTERMEDIA	LEWIS	+
PINNULARIA MICROSTAURON	(EHR.) CLEVE	+
NEIDIUM sp.		+
CYCLOTELLA PSEUDOSTELLIGERA	HUST.	+
EUNOTIA sp.		+
EUNOTIA BIDENTULA	W. SMITH	+
EUNOTIA FABA	(EHR.) GRUN.	+
ACHNANTHES PSEUDOSMAZI	CARTER	+
CYCLOTELLA KUTZINGIANA	THWAITES	+
GOMPHONEMA ACUMINATUM v. CORONATA	(EHR.) W. SMITH	+
ACHNANTHES sp.		+
FRAGILARIA VAUCHERIAE	(KUTZ.) BOYE PETERSON	+
STAURONEIS PHOENICENTERON	(NITZSCH) EHR.	+
STAURONEIS ANCEPS f. GRACILIS	(EHR.) CLEVE	+
EUNOTIA LUNARIS v. SUBARCUATA	(NAEGELI) GRUN.	+
NAVICULA JARNEFELTII	HUST.	+
CYMBELLA GRACILIS	(RABH.) CLEVE	+
CYMBELLA AFFINIS	KUTZ.	+

LOCH REICAWR

Taxon		?
TABELLARIA FLOCCULOSA	(ROTH) KUTZ.	12.2
FRAGILARIA VITRESCENS	RALFS	11.0
ANOMOEONEIS VITREA	(GRUN.) ROSS	6.0
EUNOTIA VENERIS	(KUTZ.) O. MULLER	4.4
FRUSTULIA RHOMBOIDES v. SAXONICA	(RABH.) DE TONI	4.2
FRAGILARIA CONSTRUENS	(EHR.) GRUN.	3.8
ACHNANTHES MICROCEPHALA	KUTZ.	3.6
ASTERIONELLA RALFSII	W. SMITH	3.3
EUNOTIA PECTINALIS v. MINOR	(KUTZ.) RABH.	3.1
ACHNANTHES MINUTISSIMA	KUTZ.	2.5
CYMBELLA PERPUSILLA	A. CLEVE	2.5
CYMBELLA GRACILIS	(RABH.) CLEVE	2.4
NAVICULA PHYLLEPTA	KUTZ.	1.8
MELOSIRA DISTANS	(EHR.) KUTZ.	1.8
FRUSTULIA RHOMBOIDES	(EHR.) DE TONI	1.6
FRAGILARIA CONSTRICTA	EHR.	1.6
CYMBELLA GAEUMANNI	MEISTER	1.3
ANOMOEONEIS BRACHYSIRA	(BREB.) GRUN.	1.1
NITZSCHIA ROMANA	GRUN.	0.9
GOMPHONEMA ANGUSTATUM	(KUTZ.) RABH.	0.9
NAVICULA cf. DIGITULUS	LOCH URR (RJF)	0.9
EUNOTIA FABA	(EHR.) GRUN.	0.9
CYMBELLA HERRIDICA	(GREGORY) GRUN.	0.9
NAVICULA MINIMA	GRUN.	0.9
MELOSIRA PERGLABRA	OSTRUP	0.7
TABELLARIA FLOCCULOSA v FLOCCULOSA IIIP	KOPPEN	0.7
NAVICULA ANGUSTA	GRUN.	0.7
GOMPHONEMA ACUMINATUM v. CORONATA	(EHR.) W. SMITH	0.7
EUNOTIA EXIGUA	(BREB.) RABH.	0.7
NAVICULA SEMINULUM	GRUN.	0.7
NITZSCHIA FONTICOLA	GRUN.	0.7
MELOSIRA AMBIGUA	(GRUN.) O. MULLER	0.5
CALONEIS BACILLUM	(GRUN.) MERSCHKEWSKY	0.5
NAVICULA PUPULA	KUTZ.	0.5
NAVICULA MEDIOCRIS	KRASSKE	0.5
ACHNANTHES UMARA	CARTER	0.5
NEIDIUM AFFINE	(EHR.) CLEVE	0.5
GOMPHONEMA sp.		0.5
STAURONEIS ANCEPS f. GRACILIS	(EHR.) CLEVE	0.5
MELOSIRA ISLANDICA v. HELVETICA	O. MULLER	0.5
EUNOTIA MEISTERI	HUST.	0.5
ACHNANTHES LINEARIS	W. SMITH	0.5
PERONIA FIBULA	(BREB. ex KUTZ.) ROSS	0.5
SYNEDRA MINUSCULA	GRUN.	0.5
PINNULARIA IRRODATA	(GRUN.) HUST.	0.5
GOMPHONEMA PARVULUM	KUTZ.	0.4
PINNULARIA ABUJENSIS	(PANT.) ROSS	0.4
ACHNANTHES RECURVATA	HUST.	0.4
EUNOTIA TENELLA	(GRUN.) HUST.	0.4
EUNOTIA PECTINALIS v. MINOR f. IMPRESSA	(EHR.) HUST.	0.4
NAVICULA PSEUDOSCUITIFORMIS	HUST.	0.4
ACHNANTHES FLEXELLA	(KUTZ.) GRUN	0.4
NAVICULA BRYOPHILA	PETERSEN	0.4
EUNOTIA RHOMBOIDEA	HUST.	0.4
EUNOTIA ARCUS	EHR.	0.4
EUNOTIA LUNARIS v. SUBARCUATA	(NAEGELI) GRUN.	0.4
NAVICULA COCCONEIFORMIS	GREGORY	0.4
NITZSCHIA sp.		0.4
EUNOTIA SUDETICA	(O. MULLER) HUST.	0.4
ACHNANTHES MARGINULATA	GRUN.	0.4
FRAGILARIA PINNATA	EHR.	0.4
EUNOTIA FLEXUOSA	KUTZ.	0.4
PINNULARIA UNDULATA	GREGORY	+
EUNOTIA MICROCEPHALA	KRASSKE EX HUST.	+
NAVICULA SUBATOMOIDES	HUST.	+
PINNULARIA sp.		+
EUNOTIA PRAERUPTA-NANA	BERG	+
NAVICULA HASSIACA	KRASSKE	+
PINNULARIA LEGUMEN	EHR.	+
PINNULARIA DICEPS	GREGORY	+
RHO PALODIA GIBBA	(EHR.) O. MULLER	+
NAVICULA RADIOSA	KUTZ.	+
PINNULARIA DIVERGENS	W. SMITH	+
FRAGILARIA OLDENBURGIANA	HUST.	+
CYMBELLA NAVICULIFORMIS	AUERSWALD	+
NAVICULA SUBTILISSIMA	CLEVE	+
PINNULARIA ACUMINATA	SMITH	+
ACHNANTHES SAXONICA	KRASSKE	+

LOCH REICAWR (CONT.)

GOMPHONEMA GRACILE	EHR.	+
EUNOTIA LUNARIS	(EHR.) GRUN.	+
EUNOTIA DIDDON	EHR.	+
NAVICULA JARNEFELTII	HUST.	+
CYMBELLA ANGUSTATA	(W. SMITH) CLEVE	+
SYNEDRA sp.		+
EUNOTIA PECTINALIS v. VENTRALIS	(EHR.) HUST.	+
NAVICULA sp.		+
NAVICULA HOFLERI	CHOLNOKY	+
NAVICULA IMPEXA	HUST.	+
STAURONEIS PHOENICENTERON	(H) EHR.	+
NAVICULA HEINANSII	VAN DAM & KOBY.	+
NAVICULA cf. SEMINULUM		+
CYMBELLA AEQUALIS	SMITH	+
NITZSCHIA PERMINUTA	GRUN.	+
EUNOTIA sp.		+
CYMBELLA MICROCEPHALA	GRUN.	+
ACHNANTHES AUSTRIACA	HUST.	+
CYMBELLA AFFINIS	KUTZ.	+

LOREN STROGAN

Taxon		I
TABELLARIA FLOCCULOSA	(ROTH) KUTZ.	19.9
EUNOTIA VENERIS	(KUTZ.) O. MULLER	12.6
EUNOTIA PECTINALIS v. MINOR	(KUTZ.) RABH.	9.8
ACHNANTHES AUSTRIACA	HUST.	4.8
PINNULARIA HILSEANA	(JANISCH) MULL.	4.5
ANOMOEONEIS VITREA	(GRUN.) ROSS	3.6
FRUSTULIA RHOMBOIDES v. SAXONICA	(RABH.) DE TONI	3.3
FRAGILARIA VIRESCENS	RALFS	2.7
CYMBELLA PERPUSILLA	A. CLEVE	2.5
ACHNANTHES RECURVATA	HUST.	2.3
SYNEDRA MINUSCULA	GRUN.	2.2
PERONIA FIBULA	(BREB. ex KUTZ.) ROSS	1.8
GOMPHONEMA GRACILE	EHR.	1.7
EUNOTIA PECTINALIS v. VENTRALIS	(EHR.) HUST.	1.5
PINNULARIA IRROGATA	(GRUN.) HUST.	1.5
FRUSTULIA RHOMBOIDES	(EHR.) DE TONI	1.3
EUNOTIA PECTINALIS	(KUTZ.) RABH.	1.2
ANOMOEONEIS BRACHYSIRA v. THERMALIS	NOV. COMB.	1.2
EUNOTIA EXIGUA	(BREB.) RABH.	1.2
ACHNANTHES MICROCEPHALA	KUTZ.	1.0
NEIDIUM AFFINE	(EHR.) CLEVE	0.8
ACHNANTHES MINUTISSIMA	KUTZ.	0.8
FRAGILARIA OLDENBURGIANA	HUST.	0.8
EUNOTIA FABA	(EHR.) GRUN.	0.7
TABELLARIA QUADRISEPTATA	KNUDSEN	0.7
NAVICULA ACCEPTATA	HUST.	0.7
ACHNANTHES MARGINULATA	GRUN.	0.7
EUNOTIA LUNARIS v. SUBARCUATA	(NAEGELI) GRUN.	0.7
PINNULARIA ABAUJENSIS	(PANT.) ROSS	0.7
PINNULARIA SUBCAPITATA	GREGORY	0.7
NAVICULA PUPULA	KUTZ.	0.5
MELOSIRA ISLANDICA v. HELVETICA	O. MULLER	0.5
NITZSCHIA PERMINUTA	GRUN.	0.5
EUNOTIA LUNARIS	(EHR.) GRUN.	0.5
NAVICULA sp.		0.5
ASTERIONELLA FORMOSA	HASSALL	0.5
EUNOTIA ALPINA	(NAEGELI) HUST.	0.5
GOMPHONEMA AUGUR	EHR.	0.5
PINNULARIA sp.		0.3
SYNEDRA sp.		0.3
SURIRELLA LINEARIS	W. SMITH	0.3
EUNOTIA PECTINALIS v. MINOR f. IMPRESSA	(EHR.) HUST.	0.3
NAVICULA HEIMANSII	VAN DAM & KOBY.	0.3
PINNULARIA MICROSTAURON	(EHR.) CLEVE	0.3
PINNULARIA VIRIDIS	(NITZSCH) EHR.	0.3
EUNOTIA MEISTERI	HUST.	0.3
STAURONEIS ANCEPS f. GRACILIS	(EHR.) CLEVE	+
CYMBELLA sp.		+
CYMBELLA GRACILIS	(RABH.) CLEVE	+
NITZSCHIA FONTICOLA	GRUN.	+
GOMPHONEMA INTRICATUM	KUTZ.	+
CYMBELLA CESATII	(RABH.) GRUN.	+
EUNOTIA FALLAX	CLEVE	+
CYMBELLA HEBRIDICA	(GREGORY) GRUN.	+
NAVICULA MEDIOCRIS	KRASSKE	+
CYMBELLA AFFINIS	KUTZ.	+
MERIDION CIRCULARE	AGARDH	+
SURIRELLA DELICATISSIMA	LEWIS	+
MELOSIRA BISTANS	(EHR.) KUTZ.	+
NAVICULA FESTIVA	KRASSKE	+
PINNULARIA BICEPS	GREGORY	+
NAVICULA INDIFFERENS	HUST.	+
EUNOTIA TRINACRIA	KRASSKE	+
ANOMOEONEIS STYRIACA	(GRUN.) HUST.	+
NAVICULA ANGUSTA	GRUN.	+
EUNOTIA ROBUSTA	RALFS	+
NAVICULA SUBTILISSIMA	CLEVE	+
NAVICULA HOFLERI	CHOLNOKY	+
PINNULARIA CARMINATA	BARBER & CARTER	+
SYNEDRA RUMFENS	KUTZ.	+
CYMBELLA VENTRICOSA	KUTZ.	+
DIATOMA VULGARE	BORY	+
FRAGILARIA CONSTRICTA	EHR.	+
NAVICULA JARNEFELTII	HUST.	+
GOMPHONEMA ACUMINATUM v. CORONATA	(EHR.) W. SMITH	+
ACHNANTHES sp.		+
STAURONEIS PHOENICENTERON	(NITZSCH) EHR.	+
EUNOTIA IATRIAENSIS	FOGED	+
NITZSCHIA sp.		+
NEIDIUM BISULCATUM	(LAGERSTEDT) CLEVE	+
DIATOMA TENUE v. ELONGATUM	LYGB.	+

LOCH HARROW

Taxon		Z
ANOMOEONEIS VITREA	(GRUN.) ROSS	12.7
FRUSTULIA RHOMBOIDES v. SAXONICA	(RABH.) DE TONI	8.6
EUNOTIA VENERIS	(KUTZ.) O. MULLER	8.0
PERONIA FIBULA	(BREB. ex KUTZ.) ROSS	7.6
NAVICULA HEIMANSTII	VAN DAM & KOOY.	5.1
EUNOTIA EXIGUA	(BREB.) RABH.	3.7
ACHNANTHES MARGINULATA	GRUN.	3.1
CYMBELLA PERPUSILLA	A. CLEVE	2.9
TABELLARIA FLOCCULOSA	(ROTH) KUTZ.	2.7
ACHNANTHES MINUTISSIMA	KUTZ.	2.5
CYMBELLA AEQUALIS	SMITH	2.5
ANOMOEONEIS BRACHYSIRA v. THERMALIS	NOV. COMB.	2.5
CYMBELLA GRACILIS	(RABH.) CLEVE	2.1
ACHNANTHES MICROCEPHALA	KUTZ.	1.8
CYMBELLA HEBRIDICA	(GREGORY) GRUN.	1.8
EUNOTIA PECTINALIS v. MINOR	(KUTZ.) RABH.	1.6
FRUSTULIA RHOMBOIDES	(EHR.) DE TONI	1.6
FRAGILARIA VIRESCENS	RALFS	1.6
ACHNANTHES AUSTRIACA	HUST.	1.4
EUNOTIA DENTICULATA	(BREB.) RABH.	1.4
NITZSCHIA PERMINUTA	GRUN.	1.4
NAVICULA MEDIOCRIS	KRASSKE	1.4
CYMBELLA sp.		1.2
NITZSCHIA ROMANA	GRUN.	1.2
NAVICULA HOFLEI	CHOLNOKY	1.2
PINNULARIA BICEPS	GREGORY	1.2
NAVICULA SUBTILISSIMA	CLEVE	1.0
EUNOTIA ALPINA	(NAEGELI) HUST.	1.0
ACHNANTHES SUBLAEVIS	HUST.	1.0
ACHNANTHES RECURVATA	HUST.	0.8
NAVICULA ANGUSTA	GRUN.	0.8
EUNOTIA PECTINALIS	(KUTZ.) RABH.	0.8
NAVICULA COCCONEIFORMIS	GREGORY	0.8
NEIDIUM BISULCATUM	(LAGERSTEDT) CLEVE	0.8
NAVICULA PHYLLIPTA	KUTZ.	0.6
EUNOTIA LUNARIS v. SUBARCUATA	(NAEGELI) GRUN.	0.6
EUNOTIA ARCUS	EHR.	0.6
FRAGILARIA CONSTRICTA	EHR.	0.6
PINNULARIA MICROSTAUROM	(EHR.) CLEVE	0.6
NAVICULA BREMENSIS	HUST.	0.4
ACHNANTHES sp.		0.4
RHOPALODIA GIBBA	(EHR.) O. MULLER	0.4
GOMPHONEMA GRACILE	EHR.	0.4
PINNULARIA VIRIDIS	(NITZSCH) EHR.	0.4
NAVICULA PUPULA	KUTZ.	0.4
NAVICULA sp.		0.4
EUNOTIA FABA	(EHR.) GRUN.	0.4
NEIDIUM AFFINE	(EHR.) CLEVE	0.4
ANOMOEONEIS SERTANS	(BREB.) CLEVE	+
STAURONEIS PHOENICENTERON	(NITZSCH) EHR.	+
NAVICULA RADIOSA	KUTZ.	+
SURIRELLA DELICATISSIMA	LEWIS	+
NEIDIUM sp.		+
STENOPTEROBIA INTERMEDIA	LEWIS	+
EUNOTIA DIODON	EHR.	+
EUNOTIA PECTINALIS v. VENTRALIS	(EHR.) HUST.	+
CYMBELLA CESATII	(RABH.) GRUN.	+
ACHNANTHES LINEARIS f. CURTA	H.L. SMITH	+
CYMBELLA GRAEMANNI	MEISTER	+
STAURONEIS ANCEPS f. GRACILIS	(EHR.) CLEVE	+
MELOSIRA PERGLABRA	OSTRUP	+
SYNEDRA sp.		+
NAVICULA CONTENTA	GRUN.	+
EUNOTIA FLEXUOSA	KUTZ.	+
TABELLARIA QUADRISEPTATA	KNUDSEN	+
FRAGILARIA OLDENBURGTANA	HUST.	+
NAVICULA DRYOPHILA	PETERSEN	+
EUNOTIA MEISTERI	HUST.	+
STAURONEIS PRODUCTA	GRUN.	+
MELOSIRA DISTANS	(EHR.) KUTZ.	+

LOCH KIRRIERECH

Taxon		Z
NAVICULA SOHRENSIS	KRASSKE	24.6
CYMBELLA PERPUSILLA	A. CLEVE	19.4
FRUSTULIA RHOMBOIDES	(EHR.) DE TONI	17.9
EUNOTIA VENERIS	(KUTZ.) O. MULLER	13.8
FRUSTULIA RHOMBOIDES v. SAXONICA	(RABH.) DE TONI	3.0
PINNULARIA IRRORATA	(GRUN.) HUST.	2.4
NEIDIUM AFFINE v. LONGICEPS	(GREGORY) CLEVE	2.4
NEIDIUM AFFINE	(EHR.) CLEVE	2.2
PINNULARIA BICEPS	GREGORY	1.3
FRAGILARIA VIRESCENS	RALFS	1.3
NAVICULA INDIFFERENS	HUST.	1.1
EUNOTIA EXIGUA	(BREB.) RABH.	1.1
NEIDIUM sp.		1.1
STAURONEIS PHOENICENTERON	(NITZSCH) EHR.	0.9
NAVICULA sp.		0.9
NITZSCHIA sp.		0.9
ASTERIONELLA RALFSII	W. SMITH	0.6
EUNOTIA PECTINALIS v. MINOR	(KUTZ.) RABH.	0.6
FRAGILARIA CONSTRUENS	(EHR.) GRUN.	0.6
EUNOTIA ROBUSTA	RALFS	0.6
EUNOTIA sp.		0.4
NAVICULA cf. DIGITULUS		0.4
ACHNANTHES AUSTRIACA	HUST.	0.4
TABELLARIA FLOCCULOSA	(RDTH) KUTZ.	+
NAVICULA SUBTILISSIMA	CLEVE	+
PINNULARIA sp.		+
EUNOTIA RHOMBOIDEA	HUST.	+
NAVICULA MEDIOCRIS	KRASSKE	+
PINNULARIA ABAUJENSIS	(PANT.) ROSS	+
CYMBELLA sp.		+
EUNOTIA PRAERUPTA-NANA	BERG	+
EUNOTIA ALPINA	(NAEGLI) HUST.	+
PERONIA FIBULA	(BREB. ex KUTZ.) ROSS	+

LOCH DEE

Taxon		Z
ANOMOEONEIS VITREA	(GRUN.) ROSS	20.0
TABELLARIA FLOCCULOSA	(ROTH) KUTZ.	8.6
EUNOTIA VENERIS	(KUTZ.) O. MULLER	7.8
ACHNANTHES MARGINULATA	GRUN.	5.8
FRAGILARIA VIRESCENS	RALFS	3.5
EUNOTIA ALPINA	(NAEGELI) HUST.	3.3
FRUSTULIA RHOMBOIDES v. SAXONICA	(RABH.) DE TONI	2.9
ANOMOEONEIS BRACHYSIRA v. THERMALIS	NOV. COMB.	2.9
ACHNANTHES MICROCEPHALA	KUTZ.	2.7
CYMBELLA PERPUSILLA	A. CLEVE	2.7
PERONIA FIDULA	(BREB. ex KUTZ.) ROSS	2.5
EUNOTIA EXIGUA	(BREB.) RABH.	2.5
FRUSTULIA RHOMBOIDES	(EHR.) DE TONI	2.1
NAVICULA HEIMANSII	VAN DAM & KOGY.	1.9
EUNOTIA TENELLA	(GRUN.) HUST.	1.9
ACHNANTHES RECURVATA	HUST.	1.6
NITZSCHIA PERMINUTA	GRUN.	1.6
ACHNANTHES AUSTRIACA	HUST.	1.4
EUNOTIA sp.		1.4
GOMPHONEMA GRACILE	EHR.	1.2
CYCLOTELLA KUTZINGIANA v. PLANETOPHORA	FRICKE	1.0
EUNOTIA PECTINALIS v. MINOR	(KUTZ.) RABH.	1.0
EUNOTIA PRAERUPTA	EHR.	1.0
NAVICULA ANGUSTA	GRUN.	1.0
ACHNANTHES MINUTISSIMA	KUTZ.	0.8
EUNOTIA BACTRIANA	EHR.	0.8
NITZSCHIA FONTICOLA	GRUN.	0.6
PINNULARIA IRRODATA	(GRUN.) HUST.	0.6
GOMPHONEMA sp.		0.6
ANOMOEONEIS STYRIACA	(GRUN.) HUST.	0.6
SYNEDRA MINUSCULA	GRUN.	0.6
CYMBELLA GRACILIS	(RABH.) CLEVE	0.6
EUNOTIA PECTINALIS v. MINOR f. IMPRESSA	(EHR.) HUST.	0.6
EUNOTIA PECTINALIS v. VENTRALIS	(EHR.) HUST.	0.6
PINNULARIA sp.		0.6
EUNOTIA IATRIAENSIS	FOGED	0.6
EUNOTIA ARCUS	EHR.	0.4
NAVICULA BRYOPHILA	PETERSEN	0.4
ACHNANTHES LINEARIS	W. SMITH	0.4
STAURONEIS ALPINA	HUST.	0.4
NAVICULA COCCONEIFORMIS	GREGORY	0.4
ACHNANTHES SAXONICA	KRASSKE	0.4
EUNOTIA DENTICULATA	(BREB.) RABH.	0.4
NAVICULA SUBTILISSIMA	CLEVE	0.4
PINNULARIA BICEPS	GREGORY	0.4
STAURONEIS sp.		0.4
EUNOTIA LUNARIS	(EHR.) GRUN.	0.4
ACHNANTHES UMARA	CARTER	0.4
PINNULARIA DIVERGENS	W. SMITH	0.4
HEIDIUM BISULCATUM	(LAGERSTEDT) CLEVE	0.4
ANOMOEONEIS BRACHYSIRA	(BREB.) GRUN.	0.4
EUNOTIA LUNARIS v. SUBARCUATA	(NAEGELI) GRUN.	0.4
STENOPTEROBIA INTERMEDIA	LEWIS	+
NAVICULA FESTIVA	KRASSKE	+
SURIRELLA LINEARIS	W. SMITH	+
CYCLOTELLA KUTZINGIANA	THWAITES	+
PINNULARIA HILSEANA	(JANISCH) MULL.	+
NAVICULA JARNEFELTII	HUST.	+
SYNEDRA TENERA	W. SMITH	+
EUNOTIA ROBUSTA	RALFS	+
NAVICULA IMPEXA	HUST.	+
HEIDIUM AFFINE	(EHR.) CLEVE	+
GOMPHONEMA ACUMINATUM v. CORONATA	(EHR.) W. SMITH	+
CYMBELLA HEBRIDICA	(GREGORY) GRUN.	+
CYMBELLA sp.		+
EUNOTIA FABIA	(EHR.) GRUN.	+
NAVICULA HOFLERI	CHOLNOKY	+
SURIRELLA DELICATISSIMA	LEWIS	+
MELOSIRA DISTANS	(EHR.) KUTZ.	+
CYMBELLA CESATII	(RABH.) GRUN.	+
NAVICULA RADIOSA	KUTZ.	+
CYMBELLA AEGUALIS	SMITH	+
NAVICULA MEDIOCRIS	KRASSKE	+

LOCH WOODHALL
Taxon

2

ACHNANTHES MINUTISSIMA	KUTZ.	16.5
ASTERIONELLA FORMOSA	HASSALL	14.1
MELOSIRA ITALICA v. SUBARCTICA	O. MULLER	8.3
TABELLARIA FLOCCULOSA v FLOCCULOSA IIIIP	KOPPEN	5.0
CYCLOTELLA PSEUDOSTELLIGERA	HUST.	4.9
FRAGILARIA CONSTRUENS	(EHR.) GRUN.	3.0
CYCLOTELLA COMTA	(EHR.) KUTZ.	2.8
SYNEDRA TENERA	W. SMITH	2.5
FRAGILARIA VAUCHERIAE	(KUTZ.) BOYE PETERSON	1.9
GOMPHONEMA INTRICATUM	KUTZ.	1.7
FRAGILARIA VIRESCENS	RALFS	1.6
ANOMOEONEIS VITREA	(GRUN.) ROSS	1.6
FRAGILARIA PINNATA	EHR.	1.4
GOMPHONEMA GRACILE	EHR.	1.3
SYNEDRA MINUSCULA	GRUN.	1.3
COCCONEIS PLACENTULA	EHR.	1.3
CYMBELLA MICROCEPHALA	GRUN.	1.3
ACHNANTHES LINEARIS	W. SMITH	1.3
FRAGILARIA ELLIPTICA	SCHUM.	1.1
CYMBELLA VENTRICOSA	KUTZ.	1.1
TABELLARIA FLOCCULOSA	(ROTH) KUTZ.	1.1
NITZSCHIA FONTICOLA	GRUN.	0.9
ACHNANTHES LINEARIS f. CURTA	H.L. SMITH	0.9
PINNULARIA IRORATA	(GRUN.) HUST.	0.9
EUNOTIA VENERIS	(KUTZ.) O. MULLER	0.9
TABELLARIA FENESTRATA	(LYNGBYE) KUTZ.	0.8
ACHNANTHES sp.		0.8
NAVICULA cf. DIGITULUS	LOCH URR (RIF)	0.8
EUNOTIA LUNARIS	(EHR.) GRUN.	0.6
DENTICULA TENUIS	KUTZ.	0.6
CYCLOTELLA MENECHINIANA	KUTZ.	0.6
NAVICULA BRYOPHILA	PETERSEN	0.6
NAVICULA RHYNCHOCEPHALA	KUTZ.	0.6
GOMPHONEMA ANGUSTATUM	(KUTZ.) RABH.	0.6
NAVICULA sp.		0.5
CYMBELLA GRACILIS	(RABH.) CLEVE	0.5
NAVICULA CRYPTOCEPHALA	KUTZ.	0.5
CYCLOTELLA KUTZINGIANA	THWAITES	0.5
GOMPHONEMA CONSTRICTUM	EHR.	0.5
TABELLARIA sp.		0.5
NITZSCHIA ROMANA	GRUN.	0.5
NAVICULA IMPEXA	HUST.	0.5
NAVICULA JARNEFELTII	HUST.	0.4
NAVICULA PSEUDOSCTIFORMIS	HUST.	0.4
NAVICULA SEMINULUM v. INTERMEDIA	HUST.	0.4
SYNEDRA ULNA	(NITZSCH) EHR.	0.4
NAVICULA SEMINULUM	GRUN.	0.4
FRAGILARIA INFLATA	(HEIDEN) HUST.	0.4
CYMBELLA CESATII	(RABH.) GRUN.	0.4
FRAGILARIA CROTONENSIS	KITTON	0.4
CYCLOTELLA KUTZINGIANA v. PLANETOPHORA	FRICKE	0.4
EUNOTIA PECTINALIS v. MINOR	(KUTZ.) RABH.	0.4
SYNEDRA PULCHELLA	KUTZ.	0.4
MELOSIRA GRANULATA	(EHR.) RALFS	0.4
DIPLOEIS OCOLATA	(BREB.) CLEVE	0.4
NITZSCHIA PALEA	(KUTZ.) W. SMITH	0.4
MELOSIRA DISTANS	(EHR.) KUTZ.	0.4
CYMBELLA BIPARTITA	MAYER	0.4
FRAGILARIA BREVISTRATA	GRUN.	0.4
ACHNANTHES AUSTRACA	HUST.	0.4
CYMBELLA sp.		0.4
EUNOTIA PECTINALIS v. MINOR f. IMPRESSA	(EHR.) HUST.	+
ACHNANTHES SUCHLANDTII	HUST.	+
NAVICULA LANCEOLATA	(RGAARD) EHR.	+
NAVICULA BREMENSIS	HUST.	+
GYROSISMA sp.		+
EPITHEMIA sp.		+
AMPHORA OVALIS v. PEDICULUS	KUTZ.	+
HANNAEA ARCUS	(EHR.) PATRICK	+
ACHNANTHES PERAGALLI	GRUN ET HERIBAUD	+
ACHNANTHES RECURVATA	HUST.	+
EUNOTIA PRAERUPTA	EHR.	+
ACHNANTHES UMARA	CARTER	+
NITZSCHIA DISSIPATA	(KUTZ.) GRUN.	+
SYNEDRA PARASITICA	W. SMITH	+
NAVICULA HUNGARICA	GRUN.	+
HEIDIUM IRIDIS	(EHR.) CLEVE	+
NAVICULA TRIVIALIS	LANGE-BERTALOT	+
GOMPHONEMA PARVULUM	KUTZ.	+

LOCH WOODHALL (CONT.)

EUNOTIA ARCUS	EHR.	†
OPEPHORA MARTYI	HERIBAUD	†
NAVICULA GREGARIA	DONKIN	†
AMPHIPLEURA PELLUCIDA	KUTZ.	†
NAVICULA HEIMANSII	VAN DAM & KOOY.	†
ASTERIONELLA GRACILLIMA	(HANTZSCH) HEIBERG	†
NAVICULA POPULA	KUTZ.	†
SURIRELLA OVALIS	BREB.	†
NAVICULA EXILIS	KUTZ.	†
AMPHORA VENETA	KUTZ.	†
PINNULARIA UNDULATA	GREGORY	†
NAVICULA RADIOSA	KUTZ.	†
STAURONEIS LEGUMEN	EHR.	†
ANOMOEONEIS BRACHYSIRA v. THERMALIS	NOV. COMB.	†
STAURONEIS PRODUCTA	GRUN.	†
MERIDIUM CIRCULARE	AGARDH	†
NITZSCHIA FRUSTULUM	KUTZ.	†
DIPLONEIS OVALIS	(HILSE) CLEVE	†

LOCH WHINYEON		
Taxon		%
CYCLOTELLA COMENSIS	GRUN.	18.6
CYCLOTELLA KUTZINGIANA v. PLANETOPHORA	FRICKE	17.3
CYCLOTELLA COMA	(EHR.) KUTZ.	15.1
ACHNANTHES MINUTISSIMA	KUTZ.	11.7
CYCLOTELLA PSEUDOSTELLIGERA	HUST.	5.6
SYNEDRA TENERA	W. SMITH	4.2
ASTERIONELLA FORMOSA	HASSALL	3.4
ANGMOEDNEIS VITREA	(GRUN.) ROSS	2.0
FRAGILARIA VAUCHERIAE	(KUTZ.) BOYE PETERSON	1.6
DIATOMA TENUE v. ELONGATUM	LYNGB.	1.6
CYMBELLA MICROCEPHALA	GRUN.	1.3
ACHNANTHES MICROCEPHALA	KUTZ.	1.3
FRAGILARIA VIRESCENS	RALFS	1.0
ACHNANTHES LINEARIS f. CURTA	H.L. SMITH	1.0
GOMPHONEMA CONSTRICTUM	EHR.	1.0
FRAGILARIA CONSTRUENS	(EHR.) GRUN.	1.0
ACHNANTHES SUCHLANDTII	HUST.	0.9
FRAGILARIA PINNATA	EHR.	0.9
ACHNANTHES LINEARIS	W. SMITH	0.7
NAVICULA COCCONEIFORMIS	GREGORY	0.6
PINNULARIA IRRORATA	(GRUN.) HUST.	0.6
COCCONEIS PLACENTULA	EHR.	0.6
ACHNANTHES AUSTRIACA	HUST.	0.6
CYMBELLA CESATII	(RABH.) GRUN.	0.6
STAURONEIS ANCEPS f. GRACILIS	(EHR.) CLEVE	0.6
TABELLARIA FLOCCULOSA	(ROTH) KUTZ.	0.6
AMPHORA OVALIS v. PEDICULUS	KUTZ.	0.4
EUNOTIA VENERIS	(KUTZ.) O. MULLER	0.4
GOMPHONEMA PARVULUM	KUTZ.	0.4
NAVICULA CRYPTOCEPHALA	KUTZ.	0.4
CYMBELLA VENTRICOSA	KUTZ.	0.4
NAVICULA PUPULA	KUTZ.	0.4
NAVICULA sp.		0.4
CYMBELLA AFFINIS	KUTZ.	0.4
GOMPHONEMA sp.		0.4
NAVICULA RADIOSA	KUTZ.	0.4
CYMBELLA THUMENSIS	(MAYER) HUST.	+
GOMPHONEMA INTRICATUM	KUTZ.	+
ACHNANTHES sp.		+
ACHNANTHES PSEUDOSHAZI	CARTER	+
EUNOTIA PECTINALIS v. MINOR	(KUTZ.) RABH.	+
FRAGILARIA ELLIPTICA	SCHUM.	+
EUNOTIA PECTINALIS v. MINOR f. IMPRESSA	(EHR.) HUST.	+
EUNOTIA ARCUS	EHR.	+
CALONEIS BACILLUM	(GRUN.) MERESCHKOWSKY	+
STAURONEIS PRODUCTA	GRUN.	+
CYMBELLA PERPUSILLA	A. CLEVE	+
ACHNANTHES FLEXELLA	(KUTZ.) GRUN	+
CYMBELLA sp.		+
CYMBELLA OBTUSA	GREGORY	+
NAVICULA PSEUDOSCUITIFORMIS	HUST.	+
CYMBELLA CUSPIDATA	KUTZ.	+

LOCH FERN

Taxon		%
CYCLOTELLA PSEUDOSTELLIGERA	HUST.	25.6
MELOSIRA ITALICA v. SUBARCTICA	O. MULLER	18.8
DIATOMA TENUE v. ELONGATUM	LYNGB.	7.6
CYCLOTELLA MENEHINIANA	KUTZ.	5.1
ASTERIONELLA FORMOSA	HASSALL	4.5
COCCONEIS PLACENTULA	EHR.	3.2
FRAGILARIA CONSTRUENS	(EHR.) GRUN.	2.8
SYNEDRA MINUSCULA	GRUN.	2.5
FRAGILARIA VIRESCENS	RALFS	1.9
FRAGILARIA VAUCHERIAE	(KUTZ.) BOYE PETERSON	1.9
NAVICULA RHYNCHOCEPHALA	KUTZ.	1.9
ACHNANTHES MINUTISSIMA	KUTZ.	1.7
FRAGILARIA ELLIPTICA	SCHUM.	1.5
NAVICULA sp.		1.1
FRAGILARIA PINNATA	EHR.	1.1
EUNOTIA VENERIS	(KUTZ.) O. MULLER	1.1
CYMBELLA VENTRICOSA	KUTZ.	0.9
GOMPHONEMA INTRICATUM	KUTZ.	0.9
TABELLARIA FLOCCULOSA	(ROTH) KUTZ.	0.9
GOMPHONEMA ACUMINATUM v. CORONATA	(EHR.) W. SMITH	0.8
GOMPHONEMA APICATUM	EHR.	0.8
EUNOTIA FORMICA	EHR.	0.8
SYNEDRA sp.		0.8
GOMPHONEMA sp.		0.8
ACHNANTHES LANCEOLATA	BREB.	0.8
FRAGILARIA CONSTRICTA	EHR.	0.8
PINNULARIA ABAUJENSIS	(PANT.) ROSS	0.6
NITZSCHIA TERRESTRIS	(PETERSEN) HUST.	0.6
NITZSCHIA PALEA	(KUTZ.) W. SMITH	0.6
GOMPHONEMA PARVULUM	KUTZ.	0.6
SYNEDRA PULCHELLA	KUTZ.	0.4
PINNULARIA sp		0.4
NAVICULA RADIOSA	KUTZ.	0.4
STEPHANODISCUS MINUTULA	(KUTZ.) ROUND	0.4
ACHNANTHES LINEARIS	W. SMITH	0.4
NAVICULA PUPULA	KUTZ.	0.4
ACHNANTHES RECURVATA	HUST.	0.4
ACHNANTHES sp.		0.4
FRAGILARIA CAPUCINA v. MESOLEPTA	(RABH.) GRUN.	0.4
EUNOTIA PECTINALIS v. MINOR	(KUTZ.) RABH.	0.4
NAVICULA SUBATOMOIDES	HUST.	0.4
EUNOTIA PRAERUPTA	EHR.	+
EUNOTIA MONODON	EHR.	+
NAVICULA cf. SEMINULUM		+
EUNOTIA LUNARIS	(EHR.) GRUN.	+
PINNULARIA VIRIDIS	(NITZSCH) EHR.	+
NAVICULA PSEUDOSCUITIFORMIS	HUST.	+
NITZSCHIA FRUSTULUM	KUTZ.	+
PINNULARIA SUBCAPITATA	GREGORY	+
DIPLONEIS OVALIS	(HILSE) CLEVE	+
TETRACYCLUS LACUSTRIS	RALFS	+
STAURONEIS PHOENICENTERON	(NITZSCH) EHR.	+
MERIDION CIRCULARE	AGARDH	+
ACHNANTHES MICROCEPHALA	KUTZ.	+
STAURONEIS sp. A		+
CYMBELLA sp.		+
SYNEDRA ULNA	(NITZSCH) EHR.	+

LOCH CLONYARD

Taxon

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ACHNANTHES MINUTISSIMA	KUTZ.	14.8
FRAGILARIA VIRESCENS	RALFS	11.0
CYCLOTELLA COMTA	(EHR.) KUTZ.	7.8
FRAGILARIA VAUCHERIAE	(KUTZ.) BOYE PETERSON	7.7
ACHNANTHES MICROCEPHALA	KUTZ.	7.0
CYCLOTELLA KUTZINGIANA v. PLANETOPHORA	FRICKE	6.4
ASTERIONELLA FORMOSA	HASSALL	6.3
ACHNANTHES LINEARIS	W. SMITH	3.0
ANOMONEIS VITREA	(GRUN.) ROSS	2.3
CYCLOTELLA STELLIGERA	CLEVE ET GRUN.	2.1
FRAGILARIA CONSTRUENS	(EHR.) GRUN.	2.1
TABELLARIA FLOCCULOSA	(ROTH) KUTZ.	1.6
FRAGILARIA ELLIPTICA	SCHUM.	1.4
NITZSCHIA FONTICOLA	GRUN.	1.4
SYNEDRA TENERA	W. SMITH	1.2
FRAGILARIA PINNATA	EHR.	1.2
NAVICULA sp.		1.0
NAVICULA SEMINULUM	GRUN.	1.0
COCCONEIS PLACENTULA	EHR.	1.0
TABELLARIA sp.		0.9
EUNOTIA VENERIS	(KUTZ.) O. MULLER	0.9
AMPHORA OVALIS v. PEDICULUS	KUTZ.	0.9
GOMPHONEMA INTRICATUM	KUTZ.	0.9
STEPHANODISCUS MINUTULA	(KUTZ.) ROUND	0.9
ACHNANTHES LANCEOLATA	BREB.	0.7
NAVICULA PUPULA	KUTZ.	0.7
CYMBELLA MICROCEPHALA	GRUN.	0.7
NAVICULA MINIMA	GRUN.	0.7
NAVICULA VENETA	KUTZ.	0.7
CYMBELLA sp.		0.5
ACHNANTHES RECURVATA	HUST.	0.5
FRAGILARIA sp.		0.5
PINNULARIA sp.		0.5
CYCLOTELLA PSEUDOSTELLIGERA	HUST.	0.5
DIATOMA TENUE v. ELONGATUM	LYNGB.	0.5
DENTICULA TENUIS	KUTZ.	0.5
CYCLOTELLA COMENSIS	GRUN.	0.5
NAVICULA CRYPTOCEPHALA	KUTZ.	0.5
FRUSTULIA RHOMBOIDES v. SAXONICA	(RABH.) DE TONI	0.4
CYMBELLA VENTRICOSA	KUTZ.	0.4
SYNEDRA PARASITICA	W. SMITH	0.4
CYCLOTELLA ARENTII	KOLBE	0.4
SYNEDRA sp.		0.4
SYNEDRA ACUS	KUTZ.	0.4
NAVICULA SEMINULUM v. INTERMEDIA	HUST.	0.4
GOMPHONEMA GRACILE	EHR.	0.4
CYMBELLA GRACILIS	(RABH.) CLEVE	0.4
NAVICULA SUBATOMOIDES	HUST.	0.4
EUNOTIA sp.		+
TABELLARIA FENESTRATA	(LYNGBYE) KUTZ.	+
NAVICULA RADIOSA	KUTZ.	+
CYMBELLA AMPHICEPHALA	NAEBELI	+
KRASSKEELLA KRIEGERANA	(KRASSKE) ROSS & SIMS	+
AMPHIPEURA PELLUCIDA	KUTZ.	+
CYMBELLA THUMENSIS	(MAYER) HUST.	+
NAVICULA SURCOSTULATA	HUST.	+
GOMPHONEMA ACUMINATUM v. CORONATA	(EHR.) W. SMITH	+
ACHNANTHES DEPRESSA	(CLEVE) HUST.	+
ACHNANTHES sp.		+
NAVICULA HEIMANSII	VAN DAM & KOOP.	+
NITZSCHIA PALEA	(KUTZ.) W. SMITH	+
GYROSIGMA sp.		+
ACHNANTHES SUBLAEVIS	HUST.	+
PINNULARIA BICEPS	GREGORY	+
CYCLOTELLA MENEHINTIANA	KUTZ.	+
FRAGILARIA CROTONENSIS	KITTON	+
NAVICULA RHYNCHOCEPHALA	KUTZ.	+
EUNOTIA PECTINALIS v. MINOR f. IMPRESSA	(EHR.) HUST.	+
NAVICULA GREGARIA	DONKIN	+
DIPLONEIS OVALIS	(HILSE) CLEVE	+

LOCH ARTHUR

Taxon

ACHNANTHES MINUTISSIMA	KUTZ.	15.2
TABELLARIA FLOCCULOSA v. FLOCCULOSA IIIP	KOPPEN	10.7
STEPHANODISCUS PARVUS	STOERMER & HANSSON	0.4
MELOSIRA ITALICA v. SUBARCTICA	O. MULLER	7.3
ASTERIONELLA FORMOSA	HASSALL	6.9
FRAGILARIA CONSTRUENS	(EHR.) GRUN.	5.0
CYCLOTELLA COMTA	(EHR.) KUTZ.	4.6
ANOMOEONEIS VITREA	(GRUN.) ROSS	3.4
CYCLOTELLA KUTZINGIANA	THWAITES	2.4
CYCLOTELLA KUTZINGIANA v. PLANETOPHORA	FRICKE	2.3
FRAGILARIA VIRESCENS	RALFS	2.1
FRUSTULIA RHOMBOIDES v. SAXONICA	(RABH.) DE TONI	2.0
COCCONEIS PLACENTULA	EHR.	1.3
TABELLARIA FLOCCULOSA	(ROTH) KUTZ.	1.1
FRAGILARIA ELLIPTICA	GRUN.	1.1
CYMBELLA VENTRICOSA	KUTZ.	1.1
NAVICULA CRYPTOCEPHALA	KUTZ.	1.1
CYMBELLA MICROCEPHALA	GRUN.	1.1
ANOMOEONEIS BRACHYSIRA v. THERMALIS	NOV. COMB.	1.0
DENTICULA TENUIS	KUTZ.	1.0
EUNOTIA PECTINALIS v. MINOR	(KUTZ.) RABH.	1.0
NITZSCHIA sp.		0.9
FRAGILARIA VAUCHERIAE	(KUTZ.) BOYE PETERSON	0.9
NITZSCHIA FONTICOLA	GRUN.	0.9
GOMPHONEMA INTRICATUM	KUTZ.	0.9
AMPHORA OVALIS v. PEDICULUS	KUTZ.	0.9
PERONIA FIBULA	(BREB. ex KUTZ.) ROSS	0.7
NAVICULA cf. SEMINULUM		0.7
NAVICULA RADIOSA	KUTZ.	0.7
EUNOTIA VENERIS	(KUTZ.) O. MULLER	0.6
ACHNANTHES MICROCEPHALA	KUTZ.	0.4
EUNOTIA LUNARIS	(EHR.) GRUN.	0.4
GOMPHONEMA GRACILE	EHR.	0.4
EUNOTIA PECTINALIS	(KUTZ.) RABH.	0.4
EUNOTIA FABA	(EHR.) GRUN.	0.4
NITZSCHIA ANGUSTATA v. ACUTA	GRUN.	0.4
FRAGILARIA sp.		0.4
ACHNANTHES LINEARIS	W. SMITH	0.4
PINNULARIA sp.		0.4
EUNOTIA ARCUS	EHR.	0.4
ACHNANTHES DEPRESSA	(CLEVE) HUST.	0.4
GOMPHONEMA SUBTILE	EHR.	0.4
EUNOTIA EXIGUA	(BREB.) RABH.	0.4
FRAGILARIA PINNATA	EHR.	0.4
DIPLONEIS OVALIS	(INFUSE) CLEVE	0.4
CYMBELLA CESatii	(RABH.) GRUN.	0.4
SYNEDRA MINUSCULA	GRUN.	0.4
CYMBELLA GRACILIS	(RABH.) CLEVE	0.4
NAVICULA GREGARIA	DONKIN	0.4
CYMBELLA HELVETICA	KUTZ.	0.4
GOMPHONEMA ACUMINATUM v. CORONATA	(EHR.) W. SMITH	0.4
CYCLOTELLA STELLIGERA	CLEVE ET GRUN.	0.4
ACHNANTHES LANCEOLATA	BREB.	0.4
SYNEDRA TENERA	W. SMITH	0.4
NITZSCHIA ROMANA	GRUN.	+
EUNOTIA PECTINALIS v. MINOR f. IMPRESSA	(EHR.) HUST.	+
CYMBELLA ANGUSTATA	(W. SMITH) CLEVE	+
NITZSCHIA PALEA	(KUTZ.) W. SMITH	+
MERIDIUM CIRCULARE	AGARDH	+
EUNOTIA sp.		+
STEPHANODISCUS MINUTULA	(KUTZ.) ROUND	+
SYNEDRA RUMPENS	KUTZ.	+
CYCLOTELLA COMENSIS	GRUN.	+
ACHNANTHES sp.		+
KRASSKIELLA KRIEGERIANA	(KRASSKE) ROSS & SIMS	+
ACHNANTHES PSEUDOSWAZII	CARTER	+
SURILELLA BIRGSTRATA	HUST.	+
NAVICULA RHYNCHOCEPHALA	KUTZ.	+
OPEPHORA MARTYI	HERIBAUD	+
NITZSCHIA DISSIPATA	(KUTZ.) GRUN.	+
SYNEDRA sp.		+
CALONEIS BACILLUM	(GRUN.) MERESCHOWSKY	+
NAVICULA EXILIS	KUTZ.	+
GOMPHONEMA OLIVACEUM	(LYNDBYE) KUTZ.	+
NAVICULA EXIGUA	(GREGORY) O. MULLER	+
NAVICULA sp.		+
NITZSCHIA FRUSTULUM	KUTZ.	+
GOMPHONEMA CONSTRICTUM	EHR.	+
NAVICULA SUBROTUNDATA	HUST.	+
STEPHANODISCUS HANTZSCHII	GRUN.	+
PINNULARIA VIRIDIS	(NITZSCH) EHR.	+
NAVICULA ACCEPTATA	HUST.	+
NAVICULA ANGUSTA	GRUN.	+
NAVICULA SUBATOMOIDES	HUST.	+
NAVICULA COCCONEIFORMIS	GREGORY	+

LOCH WHITE
Taxon

1

ACHNANTHES MINUTISSIMA	KUTZ.	16.5
ASTERIONELLA FORMOSA	HASSALL	14.1
MELOSIRA ITALICA v. SUBARCTICA	O. MULLER	8.3
TABELLARIA FLOCCULOSA v. FLOCCULOSA 'IIIP	KOPPEN	5.0
CYCLOTELLA PSEUDOSTELLIGERA	HUST.	4.9
FRAGILARIA CONSTRUENS	(EHR.) GRUN.	3.0
CYCLOTELLA COMTA	(EHR.) KUTZ.	2.8
SYNEDRA TENERA	M. SMITH	2.5
FRAGILARIA VAUCHERIAE	(KUTZ.) BOYE PETERSON	1.9
GOMPHONEMA INTRICATUM	KUTZ.	1.7
FRAGILARIA VIRESCENS	RALFS	1.6
ACHNOEONEIS VITREA	(GRUN.) ROSS	1.6
FRAGILARIA PINNATA	EHR.	1.4
GOMPHONEMA GRACILE	EHR.	1.3
SYNEDRA MINUSCULA	GRUN.	1.3
COCCONEIS PLACENTULA	EHR.	1.3
CYMBELLA MICROCEPHALA	GRUN.	1.3
ACHNANTHES LINEARIS	M. SMITH	1.3
FRAGILARIA ELLIPTICA	SCHUM.	1.1
CYMBELLA VENTRICOSA	KUTZ.	1.1
TABELLARIA FLOCCULOSA	(ROTH) KUTZ.	1.1
NITZSCHIA FONTICOLA	GRUN.	0.9
ACHNANTHES LINEARIS f. CURTA	H.L. SMITH	0.9
PINNULARIA IRRODATA	(GRUN.) HUST.	0.9
EUNOTIA VENERIS	(KUTZ.) O. MULLER	0.9
TABELLARIA FENESTRATA	(LYNGBYE) KUTZ.	0.8
ACHNANTHES sp.		0.8
NAVICULA cf. DIBITULUS	LOCH URR (R.J.F)	0.8
EUNOTIA LUNARIS	(EHR.) GRUN.	0.6
DENTICULA TENUIS	KUTZ.	0.6
CYCLOTELLA MENEZESIANA	KUTZ.	0.6
NAVICULA BRYOPHILA	PETERSEN	0.6
NAVICULA RHYNCHOCEPHALA	KUTZ.	0.6
GOMPHONEMA ANGUSTATUM	(KUTZ.) RABH.	0.6
NAVICULA sp.		0.5
CYMBELLA GRACILIS	(RABH.) CLEVE	0.5
NAVICULA CRYPTOCEPHALA	KUTZ.	0.5
CYCLOTELLA KUTZINGIANA	THWAITES	0.5
GOMPHONEMA CONSTRICTUM	EHR.	0.5
TABELLARIA sp.		0.5
NITZSCHIA ROMANA	GRUN.	0.5
NAVICULA IMPEXA	HUST.	0.5
NAVICULA JARNEFELTII	HUST.	0.4
NAVICULA PSEUDOSCUITIFORMIS	HUST.	0.4
NAVICULA SEMINULUM v. INTERMEDIA	HUST.	0.4
SYNEDRA ULNA	(NITZSCH) EHR.	0.4
NAVICULA SEMINULUM	GRUN.	0.4
FRAGILARIA INFLATA	(HEIDEM) HUST.	0.4
CYMBELLA CESATII	(RABH.) GRUN.	0.4
FRAGILARIA CROTONENSIS	KITTON	0.4
CYCLOTELLA KUTZINGIANA v. PLANETOPHORA	FRICKE	0.4
EUNOTIA PECTINALIS v. MINOR	(KUTZ.) RABH.	0.4
SYNEDRA PULCHELLA	KUTZ.	0.4
MELOSIRA GRANULATA	(EHR.) RALFS	0.4
DIPLOEIS DECULATA	(BORB.) CLEVE	0.4
NITZSCHIA PALEA	(KUTZ.) M. SMITH	0.4
MELOSIRA DISTANS	(EHR.) KUTZ.	0.4
CYMBELLA DIPARTITA	MAYER	0.4
FRAGILARIA BREVISTRIGATA	GRUN.	0.4
ACHNANTHES AUSTRIACA	HUST.	0.4
CYMBELLA sp.		0.4
EUNOTIA PECTINALIS v. MINOR f. IMPRESSA	(EHR.) HUST.	+
ACHNANTHES SUCHLANDTII	HUST.	+
NAVICULA LANCEOLATA	(AGARDH) EHR.	+
NAVICULA BREMENENSIS	HUST.	+
GYROSIGMA sp.		+
EPITHEMIA sp.		+
AMPHORA OVALIS v. PEDICULUS	KUTZ.	+
HANNAEA ARCUS	(EHR.) PATRICK	+
ACHNANTHES PERASALLI	BRUN ET HERIBAUD	+
ACHNANTHES RECURVATA	HUST.	+
EUNOTIA PRAERUPTA	EHR.	+
ACHNANTHES UMARA	CARTER	+
NITZSCHIA DISSIPATA	(KUTZ.) GRUN.	+
SYNEDRA PARASITICA	M. SMITH	+
NAVICULA HUNGARICA	GRUN.	+
NEIDIUM IRIDIS	(EHR.) CLEVE	+
NAVICULA TRIVIALIS	LANGE-FERTALOT	+

LOCH WHITE (CONT.)

GOMPHONEMA PARVULUM	KUTZ.	+
EUNOTIA ARCUS	EHR.	+
OPEPHORA HARTYI	HERIBAUD	+
NAVICULA GREGARIA	DONKIN	+
AMPHIPLEURA PELLUCIDA	KUTZ.	+
NAVICULA HEIMANSII	VAN DAM & KOBY.	+
ASTERIONELLA GRACILLIMA	(HANTZSCH) HEIBERG	+
NAVICULA PUPULA	KUTZ.	+
SURIRELLA OVALIS	BREB.	+
NAVICULA EXILIS	KUTZ.	+
AMPHORA VENETA	KUTZ.	+
PINNULARIA UNDULATA	GREGORY	+
NAVICULA RADIOSA	KUTZ.	+
STAURONEIS LEGUMEN	EHR.	+
ANOMODNEIS BRACHYSIRA v. THERMALIS	NOV. COMB.	+
STAURONEIS PRODUCTA	GRUN.	+
MERIDION CIRCULARE	AGARDH	+
NITZSCHIA FRUSTULUM	KUTZ.	+
DIPLONEIS OVALIS	(HILSE) CLEVE	+

LOCH MOAN
Taxon

Taxon		%
FRAGILARIA VIRESCENS	RALFS	30.0
FRAGILARIA CONSTRUENS	(EHR.) GRUN.	29.0
NAVICULA MINIMA	GRUN.	3.7
FRAGILARIA ELLIPTICA	SCHUK.	3.7
FRAGILARIA PINNATA	EHR.	3.3
MELOSIRA DISTANS	(EHR.) KUTZ	2.9
EUNOTIA VENERIS	(KUTZ.) O. MULLER	1.9
NAVICULA INDIFFERENS	HUST.	1.9
CYMBELLA VENTRICOSA	KUTZ.	1.7
NAVICULA sp.		1.5
TABELLARIA FLOCCULOSA	(ROTH) KUTZ.	1.3
EUNOTIA PECTINALIS v. MINOR	(KUTZ.) RABH.	1.2
NAVICULA SUBATOMOIDES	HUST.	1.2
PINNULARIA IRRODATA	(GRUN.) HUST.	1.2
PINNULARIA sp.		1.0
NAVICULA PUPULA	KUTZ.	1.0
CYMBELLA sp.		0.8
FRAGILARIA CONSTRUENS v. EXIGUA	(W. SMITH) SCHULZ	0.8
FRUSTULIA RHOMBOIDES v. SAXONICA	(RABH.) DE TONI	0.6
PINNULARIA VIRIDIS	(NITZSCH) EHR.	0.6
EUNOTIA EXIGUA	(BREB.) RABH.	0.6
ACHNANTHES AUSTRIACA	HUST.	0.6
NEIDIUM sp.		0.6
NEIDIUM AFFINE	(EHR.) CLEVE	0.6
EUNOTIA TRINACRIA	KRASSKE	0.6
MELOSIRA PERGLABRA	OSTRUP	0.6
EUNOTIA PRAERUPTA-NANA	BERG	0.4
ACHNANTHES CONSPICUA	A. MAYER	0.4
ASTERIONELLA FORMOSA	HASSALL	0.4
ANOMOEOONEIS VITREA	(GRUN.) ROSS	0.4
NAVICULA JAAGII	MEISTER	0.4
CYMBELLA PERPUSILLA	A. CLEVE	0.4
ACHNANTHES RECURVATA	HUST.	0.4
FRAGILARIA CONSTRICTA	EHR.	0.4
STAURONEIS ANCEPS f. GRACILIS	(EHR.) CLEVE	0.4
NEIDIUM AFFINE v. LONGICEPS	(GREGORY) CLEVE	0.4
PINNULARIA SUBCAPITATA	GREGORY	0.4
NAVICULA DIFFICULTISSIMA	HUST.	+
EUNOTIA LUNARIS	(EHR.) GRUN.	+
CYMBELLA HEBRIDICA	(GREGORY) GRUN.	+
GOMPHONEMA GRACILE	EHR.	+
NAVICULA BRYOPHILA	PETERSEN	+
STAURONEIS LEGUMEN	EHR.	+
EUNOTIA FABA	(EHR.) GRUN.	+
NAVICULA PSEUDOSCUITIFORMIS	HUST.	+
NAVICULA ANGUSTA	GRUN.	+
NITZSCHIA sp.		+
NAVICULA RADIOSA	KUTZ.	+
ACHNANTHES LINEARIS	W. SMITH	+
ACHNANTHES sp.		+
MERIDIUM CIRCULARE	AGARDH	+
GOMPHONEMA sp.		+
ACHNANTHES MINUTISSIMA	KUTZ.	+
EUNOTIA MICROCEPHALA	KRASSKE EX HUST.	+
NAVICULA cf. DIGITULUS		+

LOCH MAYBERRY

Taxon

Z

FRAGILARIA CONSTRUENS	(EHR.) GRUN.	31.5
EUNOTIA VENERIS	(KUTZ.) O. MULLER	7.8
NAVICULA IMPEXA	HUST.	5.1
GOMPHONEMA ANGUSTATUM	(KUTZ.) RABH.	3.9
TABELLARIA FLOCCULOSA	(ROTH) KUTZ.	3.3
FRUSTULIA RHOMBOIDES	(EHR.) DE TONI	3.3
FRAGILARIA PINNATA	EHR.	3.1
FRAGILARIA BREVISTRIATA	GRUN.	2.5
NAVICULA SEMINULUM	GRUN.	2.2
ANOMOEONEIS VITREA	(GRUN.) ROSS	2.0
MELOSIRA DISTANS	(EHR.) KUTZ.	2.0
ACHNANTHES MINUTISSIMA	KUTZ.	2.0
ASTERIONELLA FORMOSA	HASSALL	1.8
CYCLOTELLA STELLIGERA	CLEVE ET GRUN.	1.6
MELOSIRA PERGLABRA	OSTRUP	1.6
EUNOTIA PECTINALIS v. MINOR	(KUTZ.) RABH.	1.4
NAVICULA INDIFFERENS	HUST.	1.4
ANOMOEONEIS BRACHYSIRA v. THERMALIS	NOV. COMB.	1.2
ACHNANTHES AUSTRIACA	HUST.	1.2
NAVICULA cf. DIGITULA		1.2
NAVICULA sp.		1.2
NAVICULA PHYLLEPTA	KUTZ.	1.0
PINNULARIA sp.		1.0
FRUSTULIA RHOMBOIDES v. SAXONICA	(RABH.) DE TONI	1.0
MELOSIRA AMBIGUA	(GRUN.) O. MULLER	1.0
CYMBELLA GRACILIS	(RABH.) CLEVE	0.8
NAVICULA COCCONEIFORMIS	GREGORY	0.6
EUNOTIA PECTINALIS	(KUTZ.) RABH.	0.6
PINNULARIA ADAUJENSIS	(PANT.) ROSS	0.6
CYCLOTELLA COMTA	(EHR.) KUTZ.	0.6
EUNOTIA LUNARIS	(EHR.) GRUN.	0.6
FRAGILARIA CONSTRUENS v. EXIGUA	(W. SMITH) SCHULZ	0.4
NAVICULA RHYNCHOCEPHALA	KUTZ.	0.4
ACHNANTHES RECURVATA	HUST.	0.4
STAURONEIS ANCEPS f. GRACILIS	(EHR.) CLEVE	0.4
EUNOTIA EXIGUA	(BREB.) RABH.	0.4
ACHNANTHES MARGINULATA	GRUN.	0.4
NAVICULA MEDIOCRIS	KRASSKE	0.4
PINNULARIA APPENDICULATA	(AGARDH) CLEVE	0.4
EUNOTIA PRAERUPTA-NANA	BERG	0.4
CYMBELLA sp.		0.4
NAVICULA SUBATOMOIDES	HUST.	0.4
PERONIA FIBULA	(BREB. ex KUTZ.) ROSS	0.4
DIPLONEIS OVALIS	(HILSE) CLEVE	+
EUNOTIA ARCUS	EHR.	+
STAURONEIS PHOENICENTERON	(NITZSCH) EHR.	+
PINNULARIA HILSEANA	(JANISCH) MULL.	+
NAVICULA SUBTILISSIMA	CLEVE	+
ACHNANTHES LINEARIS	W. SMITH	+
EUNOTIA PECTINALIS v. VENTRALIS	(EHR.) HUST.	+
NAVICULA MINIMA	GRUN.	+
NAVICULA ANGUSTA	GRUN.	+
EUNOTIA ROBUSTA	RALFS	+
EUNOTIA MONODON	EHR.	+
EUNOTIA GLACIALIS	MEIST.	+
NAVICULA HEIMANSII	VAN DAM & KOOP.	+
ACHNANTHES MICROCEPHALA	KUTZ.	+
CYMBELLA CESATII	(RABH.) GRUN.	+
PINNULARIA DIVERGENTISSIMA	(GRUN.) CLEVE	+
STAURONEIS sp.		+
MERIDION CIRCULARE	AGARDH	+
CYMBELLA VENTRICOSA	KUTZ.	+
STAURONEIS LEGUMEN	EHR.	+
NAVICULA RADIOSA	KUTZ.	+
GOMPHONEMA INTRICATUM	KUTZ.	+
NEIDIUM AFFINE v. AMPHIRHYNCHUS	(EHR.) CLEVE	+
ACHNANTHES sp.		+
NAVICULA BRYOPHILA	PETERSEN	+
NAVICULA PSEUDOScutIFORMIS	HUST.	+
EUNOTIA SUBETICA	(O. MULLER) HUST.	+
FRAGILARIA VAUCHERIAE	(KUTZ.) BOYE PETERSON	+
ACHNANTHES SUBLAEVIS	HUST.	+
NAVICULA DIFFICULTISSIMA	HUST.	+
NAVICULA PUPULA	KUTZ.	+
GOMPHONEMA ACUMINATUM v. CORDATA	(EHR.) W. SMITH	+
PINNULARIA IRORATA	(GRUN.) HUST.	+
GOMPHONEMA GRACILE	EHR.	+

LOCH OCHILTREE

Taxon

I

FRAGILARIA VIRESCENS	RALFS	15.1
ACHNANTHES MINUTISSIMA	KUTZ.	10.9
FRAGILARIA CONSTRUENS	(EHR.) GRUN.	9.3
EUNOTIA VENERIS	(KUTZ.) O. MULLER	6.6
CYMBELLA GRACILIS	(RABH.) CLEVE	3.6
ANOMOEONEIS VITREA	(GRUN.) ROSS	3.4
NAVICULA IMPETA	HUST.	3.0
EUNOTIA PECTINALIS v. MINOR	(KUTZ.) RABH.	3.0
FRUSTULIA RHOMBOIDES	(EHR.) DE TONI	2.2
GOMPHONEMA ANGUSTATUM	(KUTZ.) RABH.	2.2
NAVICULA BRYOPHILA	PETERSEN	2.2
CYCLOTELLA COMTA	(EHR.) KUTZ.	1.4
FRUSTULIA RHOMBOIDES v. SAXONICA	(RABH.) DE TONI	1.2
GOMPHONEMA GRACILE	EHR.	1.2
MELOSIRA ITALICA v. SUBARCTICA	O. MULLER	1.2
NAVICULA CRYPTOCEPHALA	KUTZ.	1.2
TABELLARIA FLOCCULOSA	(ROTH) KUTZ.	1.2
ASTERIONELLA FORMOSA	HASSALL	1.0
NAVICULA MINIMA	GRUN.	1.0
NAVICULA cf. DIGITULUS	LOCH URR (RJF)	1.0
PINNULARIA sp.		0.8
ANOMOEONEIS BRACHYSIRA v. THERMALIS	NOV. COHR.	0.8
CALONEIS BACILLUM	(GRUN.) MERESCHKOWSKY	0.8
CYMBELLA sp.		0.8
NAVICULA sp.		0.8
AMPHORA OVALIS v. LIBYCA	(EHR.) CLEVE	0.6
NAVICULA VENETA	KUTZ.	0.6
NAVICULA RADIOSA	KUTZ.	0.6
NAVICULA SEMINULUM	GRUN.	0.6
NAVICULA RHYNCHOCEPHALA	KUTZ.	0.6
MELOSIRA PERGLABRA	OSTRUP	0.6
EUNOTIA FABA	(EHR.) GRUN.	0.6
STAURONEIS PHOENICENTERON	(NITZSCH) EHR.	0.6
PERONIA FIRULA	(BREB. ex KUTZ.) ROSS	0.6
NAVICULA cf. SCHADEI	OCHILTREE (RJF)	0.6
STAURONEIS ANCEPS f. GRACILIS	(EHR.) CLEVE	0.6
FRAGILARIA PINNATA	EHR.	0.6
CYCLOTELLA PSEUDOSTELLIGERA	HUST.	0.6
ACHNANTHES LINEARIS	W. SMITH	0.6
CYMBELLA PERPUSILLA	A. CLEVE	0.6
NAVICULA PUPULA	KUTZ.	0.4
ACHNANTHES RECURVATA	HUST.	0.4
PINNULARIA ACUMINATA	SMITH SYN. P1003A	0.4
PINNULARIA BICEPS	GREGORY	0.4
ACHNANTHES CLEVEI	GRUN.	0.4
EUNOTIA LUNARIS	(EHR.) GRUN.	0.4
PINNULARIA ADAUJENSIS	(PANT.) ROSS	0.4
EUNOTIA sp.		0.4
NAVICULA INDIFFERENS	HUST.	0.4
NAVICULA ANGUSTA	GRUN.	0.4
PINNULARIA TRORATA	(GRUN.) HUST.	0.4
NAVICULA MURALIS	GRUN.	0.4
MELOSIRA ISLANDICA	MULLER	0.4
NITZSCHIA sp.		0.4
EUNOTIA EXIGUA	(BREB.) RABH.	0.4
NEIDIUM sp.		0.4
MELOSIRA DISTANS	(EHR.) KUTZ.	0.4
ACHNANTHES MARGINULATA	GRUN.	0.4
CYMBELLA HILLIARDI	MANGUIN	0.4
DIPLONEIS OVALIS	(HILSE) CLEVE	0.4
ACHNANTHES LINEARIS v. CURTA	H.L. SMITH	0.4
NAVICULA SUBTILISSIMA	CLEVE	+
EUNOTIA PECTINALIS v. MINOR f. IMPRESSA	(EHR.) HUST.	+
EUNOTIA ROBUSTA	RALFS	+
EUNOTIA PRAERUPTA	EHR.	+
EUNOTIA PECTINALIS	(KUTZ.) RABH.	+
ANOMOEONEIS STYRIACA	(GRUN.) HUST.	+
SURIRELLA LINEARIS	W. SMITH	+
NAVICULA FESTIVA	KRASSKE	+
STAURONEIS PRODUCTA	GRUN.	+
PINNULARIA STOMATOPHORA	GRUN.	+
NITZSCHIA MICROCEPHALA	GRUN.	+
NAVICULA JAAGII	MEISTER	+
FRAGILARIA CONSTRICTA	EHR.	+
GOMPHONEMA ACUMINATUM v. CORONATA	(EHR.) W. SMITH	+
EUNOTIA ARCUS	EHR.	+
ACHNANTHES sp.		+
PINNULARIA HAIDR	KUTZ.	+
EUNOTIA SUDETICA	(O. MULLER) HUST.	+
PINNULARIA UNDULATA	GREGORY	+

LOCH SCHILTREE (CONT.)

FRAGILARIA VAUCHERIAE	(KUTZ.) BOYE PETERSON	†
FRAGILARIA ELLIPTICA	SCHUM.	†
ACHNANTHES PSEUDOSWAZI	CARTER	†
CYMBELLA MICROCEPHALA	GRUN.	†
CYMBELLA VENTRICOSA	KUTZ.	†
GOMPHONEMA CONSTRICTUM	EHR.	†
PINNULARIA VIRIDIS	(NITZSCH) EHR.	†
ACHNANTHES CONSPICUA	A. MAYER	†
EUNOTIA HEISTERI	HUST.	†
EUNOTIA FORNICA	EHR.	†
AMPHORA OVALIS v. PEDICULUS	KUTZ.	†
NAVICULA cf. SEMINULUM		†
EUNOTIA MAJOR v. BIDENS	(W. SMITH) RABH.	†

LOCH MANNOCH
Taxon

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ACHNANTHES MINUTISSIMA	KUTZ.	44.6
FRAGILARIA PINNATA	EHR.	4.3
GOMPHONEMA PARVULUM	KUTZ.	4.1
FRAGILARIA VAUCHERIAE	(KUTZ.) BOYE PETERSON	3.9
SYNEDRA MINUSCULA	GRUN.	3.5
TABELLARIA FLOCCULOSA	(ROTH) KUTZ	2.9
DIATOMA VULGARE	BORY	2.8
FRAGILARIA CONSTRUENS	(EHR.) GRUN	2.2
ANOMOEONEIS VITREA	(GRUN.) ROSS	2.0
CYMBELLA VENTRICOSA	KUTZ.	2.0
ACHNANTHES LINEARIS	W. SMITH	1.6
PINNULARIA IRRORATA	(GRUN.) HUST.	1.4
ACHNANTHES UMARA	CARTER	1.2
FRAGILARIA VIRESCENS	RALFS	1.2
EUNDTIA PECTINALIS v. MINOR	(KUTZ.) RABH.	1.2
ACHNANTHES SUBLAEVIS	HUST.	1.2
HANNAEA ARCUS	(EHR.) PATRICK	1.2
ACHNANTHES sp.		1.0
COCCONEIS PLACENTULA	EHR.	1.0
CYMBELLA AFFINIS	KUTZ.	0.8
NITZSCHIA PALEA	(KUTZ.) W. SMITH	0.8
NAVICULA CRYPTOCEPHALA	KUTZ.	0.6
NAVICULA MINIMA	GRUN.	0.6
NAVICULA PUPULA	KUTZ.	0.6
DIATOMA TENUE v. ELONGATUM	LYNGB.	0.6
GOMPHONEMA ACUMINATUM v. CORONATA	(EHR.) W. SMITH	0.4
CYCLOTELLA KUTZINGIANA v. PLANETOPHORA	FRICKE	0.4
ACHNANTHES MICROCEPHALA	KUTZ.	0.4
CYMBELLA sp.		0.4
ACHNANTHES DEPRESSA	(CLEVE) HUST.	0.4
SYNEDRA TENERA	W. SMITH	0.4
MERIDIUM CIRCULARE	AGARDH	0.4
NITZSCHIA FONTICOLA	GRUN.	0.4
EUNDTIA LUNARIS	(EHR.) GRUN.	0.4
GOMPHONEMA ANGUSTATUM	(KUTZ.) RABH.	0.4
GOMPHONEMA sp.		0.4
NAVICULA SEMINULUM v. INTERMEDIA	HUST.	0.4
NAVICULA PSEUDOSCUITIFORMIS	HUST.	0.4
CYMBELLA MICROCEPHALA	GRUN.	0.4
ACHNANTHES FLEXELLA	(KUTZ.) GRUN	0.4
NAVICULA RHYNCHOCEPHALA	KUTZ.	0.4
SYNEDRA PULCHELLA	KUTZ.	0.4
NAVICULA LANCEOLATA	(AGARDH) KUTZ.	+
ACHNANTHES AUSTRIACA	HUST.	+
CYMBELLA CESatii	(RABH.) GRUN.	+
ACHNANTHES LINEARIS f. CURTA	H.L. SMITH	+
PINNULARIA BOREALIS	EHR.	+
NAVICULA BRYOPHILA	PETERSEN	+
ACHNANTHES AFFINIS	GRUN.	+
CYMBELLA GRACILIS	(RABH.) CLEVE	+
PINNULARIA VIRIDIS	(NITZSCH) EHR.	+
NITZSCHIA TERRESTRIS	(PETERSEN) HUST.	+
GOMPHONEMA INTRICATUM	KUTZ.	+
STAURONEIS PRODUCTA	GRUN.	+
EUNDTIA EXIGUA	(BREB.) RABH.	+
PINNULARIA SUBCAPITATA	GREGORY	+
NAVICULA sp.		+
AMPHIPLEURA PELLUCIDA	KUTZ.	+
NEIDIUM DISULCATUM	(LAGERSTEDT) CLEVE	+
DIPLONEIS OCLATA	(BREB.) CLEVE	+
CYMBELLA ANGUSTATA	(W. SMITH) CLEVE	+
NAVICULA cf. DIGITULUS	LOCH URR (RJF)	+
PINNULARIA HILSEANA	(JANISCH) MULL.	+
SURIARELLA OVALIS	BREB.	+
EUNDTIA PRAERUPTA-NANA	BERG	+
SYNEDRA ULNA	(NITZSCH) EHR.	+
FRUSTULIA RHOMBOIDES	(EHR.) DE TONI	+
NITZSCHIA ROMANA	GRUN.	+
GOMPHONEMA CONSTRICTUM	EHR.	+
GYROSIEMA sp.		+
NITZSCHIA PERMINUTA	GRUN.	+
NAVICULA RADIOSA	KUTZ.	+
PINNULARIA TENUIS	GREGORY	+
NAVICULA cf. SEMINULUM		+

LOCH BAREAN

Taxon

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ACHNANTHES MINUTISSIMA	KUTZ.	18.8
CYCLOTELLA KUTZINGIANA v. PLANETOPHORA	FRICKE	18.6
ANOMOEONEIS VITREA	(GRUN.) ROSS	7.9
CYCLOTELLA COMTA	(EHR.) KUTZ.	7.2
FRAGILARIA VIRESCENS	RALFS	6.2
ACHNANTHES LINEARIS	W. SMITH	3.1
ASTERIONELLA FORMOSA	HASSALL	2.9
GOMPHONEMA INTRICATUM	KUTZ.	2.7
TABELARIA FLOCCULOSA	(ROTH) KUTZ.	2.1
ACHNANTHES MICROCEPHALA	KUTZ.	1.9
CYMBELLA GRACILIS	(RABH.) CLEVE	1.7
CYMBELLA CESATII	(RABH.) GRUN.	1.4
CYCLOTELLA KUTZINGIANA	THWAITES	1.4
CYCLOTELLA PSEUDOSTELLIGERA	HUST.	1.4
NITZSCHIA FONTICOLA	GRUN.	1.2
CYMBELLA MICROCEPHALA	GRUN.	1.2
CYCLOTELLA COMENSIS	GRUN.	1.0
FRAGILARIA sp.		1.0
SYNEDRA TENERA	W. SMITH	0.9
EUNOTIA PECTINALIS v. MINOR f. IMPRESSA	(EHR.) HUST.	0.7
NITZSCHIA sp.		0.7
EUNOTIA VENERIS	(KUTZ.) O. MULLER	0.7
NAVICULA sp.		0.7
STEPHANODISCUS MINUTULA	(KUTZ.) ROUND	0.7
NAVICULA INDIFFERENS	HUST.	0.7
NAVICULA RHYNCHOCEPHALA	KUTZ.	0.7
AMPHORA OVALIS v. LIBYCA	(EHR.) CLEVE	0.7
FRAGILARIA CONSTRUENS	(EHR.) GRUN.	0.5
ACHNANTHES sp.		0.5
FRUSTULIA RHOMBOIDES v. SAXONICA	(RABH.) DE TONI	0.5
FRAGILARIA VAUCHERIAE	(KUTZ.) BOYE PETERSON	0.5
NAVICULA IMPEXA	HUST.	0.5
GOMPHONEMA GRACILE	EHR.	0.4
EUNOTIA ARCUS	EHR.	0.4
CYMBELLA DELICATULA	(KUTZ.) HUST.	0.4
ANOMOEONEIS BRACHYSIRA v. THERMALIS	NOV. COMB.	0.4
SYNEDRA sp.		0.4
FRAGILARIA ELLIPTICA	SCHUM.	0.4
NAVICULA RADIOSA	KUTZ.	0.4
MELOSIRA DISTANS	(EHR.) KUTZ.	0.4
NITZSCHIA MICROCEPHALA	GRUN.	+
PINNULARIA HILSEANA	(JANISCH) MULL.	+
EUNOTIA TENELLA	(GRUN.) HUST.	+
PINNULARIA ABAUJENSIS	(PANT.) ROSS	+
DIPLONEIS OCVLATA	(BREB.) CLEVE	+
NAVICULA ACCEPTATA	HUST.	+
FRAGILARIA BREVISTRIATA	GRUN.	+
ACHNANTHES MARGINULATA	GRUN.	+
NITZSCHIA PERMINUTA	GRUN.	+
DIPLONEIS OVALIS	(HILSE) CLEVE	+
CYMBELLA TURGIDA	GREGORY	+
AMPHORA VENETA	KUTZ.	+
FRUSTULIA RHOMBOIDES	(EHR.) DE TONI	+
CYMBELLA VENTRICOSA	KUTZ.	+
EUNOTIA PECTINALIS v. MINOR	(KUTZ.) RABH.	+
SYNEDRA RUMPENS	KUTZ.	+
COCCONEIS PLACENTULA	EHR.	+
AMPHIPLEURA PELLUCIDA	KUTZ.	+
GOMPHONEMA ACUMINATUM v. CORONATA	(EHR.) W. SMITH	+
NAVICULA GREGARIA	DOBKIN	+
PINNULARIA sp.		+
NAVICULA MEDIOCRIS	KRASSKE	+
DIATOMA TENUE v. ELONGATUM	LYNGB.	+
EUNOTIA PECTINALIS	(KUTZ.) RABH.	+
CYMBELLA ANGUSTATA	(W. SMITH) CLEVE	+
SYNEDRA MINUSCULA	GRUN.	+
NAVICULA cf. SEMINULUM		+
ACHNANTHES FLEXELLA	(KUTZ.) GRUN	+
EUNOTIA LUNARIS	(EHR.) GRUN.	+
PINNULARIA TENUIS	GREGORY	+
NITZSCHIA PALEA	(KUTZ.) W. SMITH	+

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