ASSESSMENT OF CHANGES IN TOTAL PHOSPHORUS IN LAKELSE LAKE, B.C: A PALEOLIMNOLOGICAL ASSESSMENT (March 2002)

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BACKGROUND

Sediment cores were retrieved from the North and South basins from Lakelse Lake with a modified K-B corer (internal diameter ~6.35 cm) on February 25, 2002. A 35-cm core was retrieved from the North basin from a depth of approximately 30 meters. A 30-cm core was retrieved from the South basin from a depth of approximately 9 meters. Samples were shipped to Queen's University where they were stored in our coldroom at 4 °C. All the samples and containers were weighed to determine the total wet weight of sediment prior to subsampling for ^{210}Pb analyses. Twenty intervals for the North and South basins were subsampled for diatoms starting at the 0.0-1.0 cm interval and every one cm to the 9.0-10.0 cm interval, then every two cm to the 29.0-30.0 cm interval. Twenty-two intervals from the North basin and twenty intervals from the South basin, spaced at 1-cm intervals for the top 10 cm, and at 2 cm for the rest of the core, were prepared for ^{210}Pb analysis (see below) and then counted on the gamma counter facilities at PEARL, Queen's University.

METHODS

210-Pb Dating and Percent Organic Matter

The wet weight of the sediment was determined for all the subsections of the core that were shipped to Queen's. Twenty-two subsamples for the North basin and twenty subsamples for the South basin were dried in the freeze drier at PEARL (24 hr. cycle). Dry weight of the sediment and percent water was determined. Approximately 1.5 grams of the dry sediment was precisely weighed into a plastic tube to be used in the gamma counter machine. These samples were then sealed with epoxy and allowed to sit for three weeks in order for ^{214}Bi to equalize for determination of supported ^{210}Pb used in estimating core dates. Activities of ^{210}Pb, ^{137}Cs and supported ^{210}Pb (via ^{214}Bi) were determined for each sample using gamma spectroscopy. These spectra were then used to estimate the chronology of the two cores.

The activities (in disintegrations per minute/gram) of ^{210}Pb, ^{137}Cs and ^{214}Bi were determined using the procedures outlined in Schelske et al. (199?). These values were converted into picoCuries/gram for use in the Binford program (see below). Unsupported ^{210}Pb was calculated by subtracting supported ^{210}Pb (as determined by the average ^{214}Bi counts from all samples within each of the cores) from the total activity at each level. The sediment chronology and sedimentation rates were calculated using the constant rate of supply (CRS) model (Appleby and Oldfield, 1978) from the estimates of ^{210}Pb activities and estimates of cumulative dry mass (Binford, 1990). See Appendix B for a summary of ^{210}Pb calculations (B-1), and the dating output file from the CRS model (B-2).

Percent organic matter was determined for all samples that were ^{210}Pb dated (twenty-two for the North basin and twenty for the South basin, Appendix A) using standard loss-on-ignition methods (Dean, 1974). A known quantity of dried sediment (recorded to four decimal places) was heated to 550°C for 2 hours. The difference between the dry weight of the sediment and the weight of sediment remaining after ignition was used to estimate the percent of organic matter in each sediment sample.

Diatom Preparation and Enumeration

Slides for diatom analysis were prepared using standard techniques (Cumming, et al. 1995). Briefly, a small amount of wet sediment was suspended in a 50:50 (molar) mixture of sulfuric and nitric acid in a 20-ml glass vial for 24 hr. prior to being submersed at 70°C in a hot water bath for 5 hr. The remaining sediment material was settled for a period of 24 hr, at which time the acid above the sample was removed. The sample was rinsed with distilled water and allowed to settle once again for 24 hrs. The procedure was repeated approximately 10 times until the sample was acid free (litmus test). The samples were settled onto coverslips in a series of four 100% dilutions, which when dry, were mounted onto glass slides using a high-resolution mounting media called Naphrax®. For each sample, at least 400 diatom taxa were enumerated with a Leica DMRB microscope equipped with DIC optics at 1000X magnification (Numerical Aperature of objective = 1.3). These analyses were based on the references of Krammer and Lange-Bertalot (1986, 1988, 1991a,b), Patrick and Reimer (1966, 1975) and Cumming et al. (1995).

Diatom-based Reconstructions of Total Phosphorus

Inferences of total phosphorus from the diatom assemblages in the core are based on a phosphorus model developed from 111 freshwater lakes from the 219 lakes sampled by Bradbury et al. (2002). This model is based on estimates of the optima of taxa from weighted-averaging regression on non-transformed relative percentage data. The coefficient of determination (r^2) of this model is 0.66, and the jackknifed r^2 is 0.47. This model is superior to the earlier models developed by Reavie et al. (1995) for several reasons including its better predictive ability and the larger number of samples which provide more analogs for downcore reconstructions.

The total phosphorus inferences (Figs. 1E and 3E) were critically assessed to determine: 1) if they tracked the main direction of variation in the diatom species assemblages (Figs. 1D and 3D); and 2) to assess if the assemblages encountered in the core are well represented in the modern-day samples (Figs. 1F and 3F). If the diatom-based phosphorus reconstructions match the main direction of variation in the diatom assemblages in the core, then we can be fairly confident that the diatoms are tracking changes that are related to phosphorus. If the correlation between the main direction of variation and the diatom-inferred phosphorus values is weak or nonexistent, then other environmental variables (e.g. pH, conductivity, turbulence, etc), or interactions between environmental variables, are likely responsible for the observed changes in diatom assemblages.

Determination of the Main Direction of Variation

The main direction of variation in the diatom assemblages in the core was determined from the first axis scores from a principal components analysis (PCA) ordination using non-transformed species abundance data (Figs. 1D and 3D). A PCA was chosen to represent the main direction of variation of the diatom assemblages in these cores based on the small gradient length (< 1.5 standard deviation units) obtained in an initial detrended correspondence analysis (DCA) ordination.

Analog Analysis of Diatom Assemblages

The reliability of the total phosphorus inferences in the core assumes that the diatom assemblages encountered downcore are well represented in our modern diatom assemblages. To determine if appropriate analogs existed for the core samples, we determined which samples in our present-day dataset of 111 lakes most resembled each of the downcore samples. This determination was based on a squared chord dissimilarity coefficient between all species found in each of the core samples. The best match between downcore and modern samples was compared with the distribution of best match between modern samples. Any downcore samples that were more dissimilar than 80% of the modern distribution were deemed to be a 'poor analog'. Similarly, any downcore samples that were more dissimilar than 95% of the modern distribution were deemed to have 'no analog' in our present-day dataset. If the downcore assemblages have good representation in modern samples, more confidence can be placed in the reconstruction. If modern analogs do not exist or are poor, then caution must be placed in reconstructions from these downcore samples.

RESULTS AND DISCUSSION

^{210}Pb Profile, Sedimentation Rates and Organic Matter

The ^{210}Pb profile from the South basin of Lakelse Lake shows the expected ~exponential decay with core depth (Fig. 1A), whereas the ^{210}Pb profile from the North basin has a number of diversions from the ideal profile (Fig. 3A). The steepness of the North basin likely makes this basin susceptible to slides and turbidites and may be the reason for the diversions in the ^{210}Pb profile, whereas the relative flatness of the South basin would make this basin less susceptible to such events. The diffuse ^{137}Cs peak of the North basin also suggests that some mixing occurred in this core, whereas the discrete ^{137}Cs peak in the South basin suggests the core was not disturbed (Fig. 5). A distinct peak in ^{137}Cs is a marker for 1963, since 1963 corresponds to the peak in atmospheric testing of nuclear weapons, and consequently fallout of isotopes such as ^{137}Cs. In the South basin, the ^{137}Cs peak at 11-12 cm closely matches the ^{210}Pb profile, with an interpolated estimate of 1962 at the 10-11cm interval. In the North basin, the ^{210}Pb estimates that 14-15 cm represents 1962, whereas the ^{137}Cs peak is at 21-22 cm, although this peak is very diffuse. Due to this miss match between ^{210}Pb and ^{137}Cs there is less certainty in the estimated dates from the North basin.

Results from the CRS model suggest that sedimentation rates increased after 1950 in both basins (Figs. 1B and 3B). In the South basin estimated sedimentation rates were highest between approximately 1967 to 1972 and from 1981 to 1984 (Fig. 1B). In the North basin sedimentation rates have steadily increased since 1950, peaking in 1991, with much reduced rates after this time (Fig. 3B). Analyses of organic matter from both the South and North basin cores indicates highly inorganic sediments and thus very organic poor sediments (Figs. 1C and 3C). Both cores show relatively stable and low percentages of approximately 8 to 9% organic matter until the mid- to late-1990s, when in both basins it increases to approximately 13%. Increases in organic matter can be attributed to several factors including increased in-lake production of organic matter, increased inwash of organic matter, or decreases in the load of inorganic matter to the lake. There are no systematic increases in diatom-inferred phosphorus levels (see below) since the mid- to late-1990s, suggesting that in-lake production has not increased substantially. As a consequence, the increase in organic matter is likely due to changes in the inwash to the lake.

Diatom Assemblage Changes and Analyses

Over 200 diatom taxa (253 in the South basin and 227 in the North basin) were documented in the cores from Lakelse Lake. Most of these taxa were rare (< 3% maximum abundance) or extremely rare (< 1%) (Appendix C). In both basins the dominant taxa were *Cyclotella stelligera* (oligotrophic planktonic taxon), *Achnanthes minutissima* (mesotrophic epiphytic taxon) and *Fragilaria pinnata* (mesotrophic benthic taxon). Although present in both basins, there were several sub-dominant taxa that were more abundant in the North basin such as *Aulacosiera distans*, *Cyclotella michiganiana*, *Brachysira vitrea* and *Fragilaria nanana*.

In both the South and North basin cores, there has been little change in the diatom taxa for the last several hundred years (Figs. 2 and 4). Cluster analysis does indicate some changes, however, these changes are small given the low total sum of squares for both cluster analyses. In the South basin there are small decreases in *Cylcotella stelligera* after approximately 1957 (Zone A), and small increases in the eutrophic *Fragilaria capucina*, as well as small increases in other *Fragilaria* and *Gomphonema* species (Fig. 2). These changes, however, are not large enough to result in large increases in estimated phosphorus levels (Fig. 1E). Similarly, the North basin core suggests some small changes in the diatom flora (Fig. 4), but again these changes are not large enough to substantially influence the estimated phosphorus levels (Fig. 3E). In Zone B *Cyclotella stelligera* is of slightly higher abundance than in either Zones A or C. As in the South basin, there are slight decreases in *Cyclotella stelligera* in Zone A of the North basin and increases in more mesotrophic taxa, such as *Cyclotella michiganiana*, *Fragilaria nanana* and other *Fragilaria* species.

Diatom-inferred total phosphorus (TP) estimates indicate that over the past several hundred years the lake has had relatively oligotrophic conditions (TP ranging from ~ 4 to 8 μgL^{-1}, being slightly higher in the more shallow Southern basin) (Figs. 1E and 3E). The correlation between the main direction of variation in taxa (i.e. PCA axis 1 scores) (Figs. 1D and 3D) and the log TP inferences is very high for both basins ($r = 0.93$ for the South basin and 0.89 for the North basin) suggesting that the changes seen in the diatom assemblages, although small, are consistent with changes in inferred TP. Analog analysis suggests that all samples had extremely good analogs in the calibration set of modern diatom assemblages (Figs. 1F and 3F) providing evidence that the TP inferences are reliable. Nevertheless changes in the diatom assemblages have been small in both basins, with the assemblage being dominated primarily by *Cyclotella stelligera*, *Achnanthes minutissima* and *Fragilaria pinnata* throughout the core. These small changes are evident from the small range in inferred TP values.

Summary

In summary, Lakelse Lake appears to have been oligotrophic to slightly mesotrophic throughout the past several hundred years. This is evident from the dominance of the oligotrophic planktonic taxon *Cyclotella stelligera* throughout the cores. The recent small increases in percent organic matter, without increased sedimentation rates nor inferred increases in phosphorus levels, suggests that inwash into the lake has changed recently (either increases in organic matter, or decreases in inwash of inorganic material).

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FIGURE CAPTIONS

Figure 1. Summary diagram for the South basin sediment core from Lakelse Lake showing: A) total ^{210}Pb activity; B) the sediment accumulation rate; C) the change in the percent of organic matter in the core; D) the main direction of variation in the diatom assemblage data; E) diatom-based estimated late-summer total phosphorus; and F) analog analysis showing the dissimilarity between present-day and downcore samples (any sample that has a squared chord distance > 0.8 was determined to be a poor analog, whereas any sample with a squared chord distance greater than 1.1 was determined to have no analog in the modern dataset).

Figure 2. Stratigraphy of the most abundant diatom taxa found in the South basin sediment core from Lakelse Lake, B.C. (see Appendix C-1 for a complete list of taxa and the relative percentage data). The diatom taxa are arranged in order of increasing late-summer total phosphorus (TP) optima.

Figure 3. Summary diagram for the North basin sediment core from Lakelse Lake showing: A) total ^{210}Pb activity; B) the sediment accumulation rate; C) the change in the percent of organic matter in the core; D) the main direction of variation in the diatom assemblage data; E) diatom-based estimated late-summer total phosphorus; and F) analog analysis showing the dissimilarity between present-day and downcore samples.

Figure 4. Stratigraphy of the most abundant diatom taxa found in the North basin sediment core from Lakelse Lake, B.C. (see Appendix C-2 for a complete list of taxa and the relative percentage data). The diatom taxa are arranged in order of increasing late-summer total phosphorus (TP) optima.

Figure 5. ^{210}Pb profiles and ^{137}Cs profiles for the South basin (A and B respectively) and North basin (C and D).

FIG. 1

Lakelse Lake - South Basin

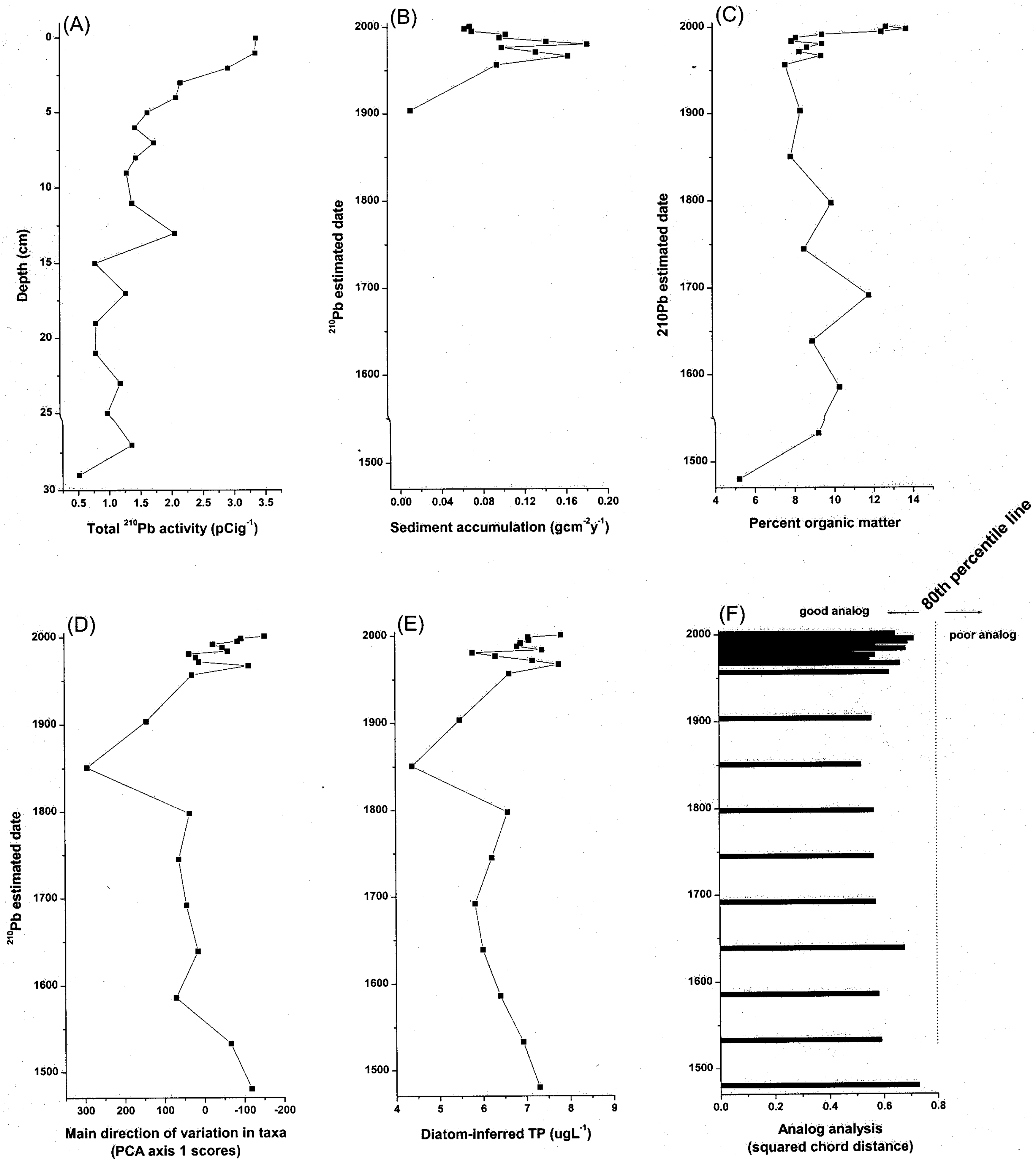
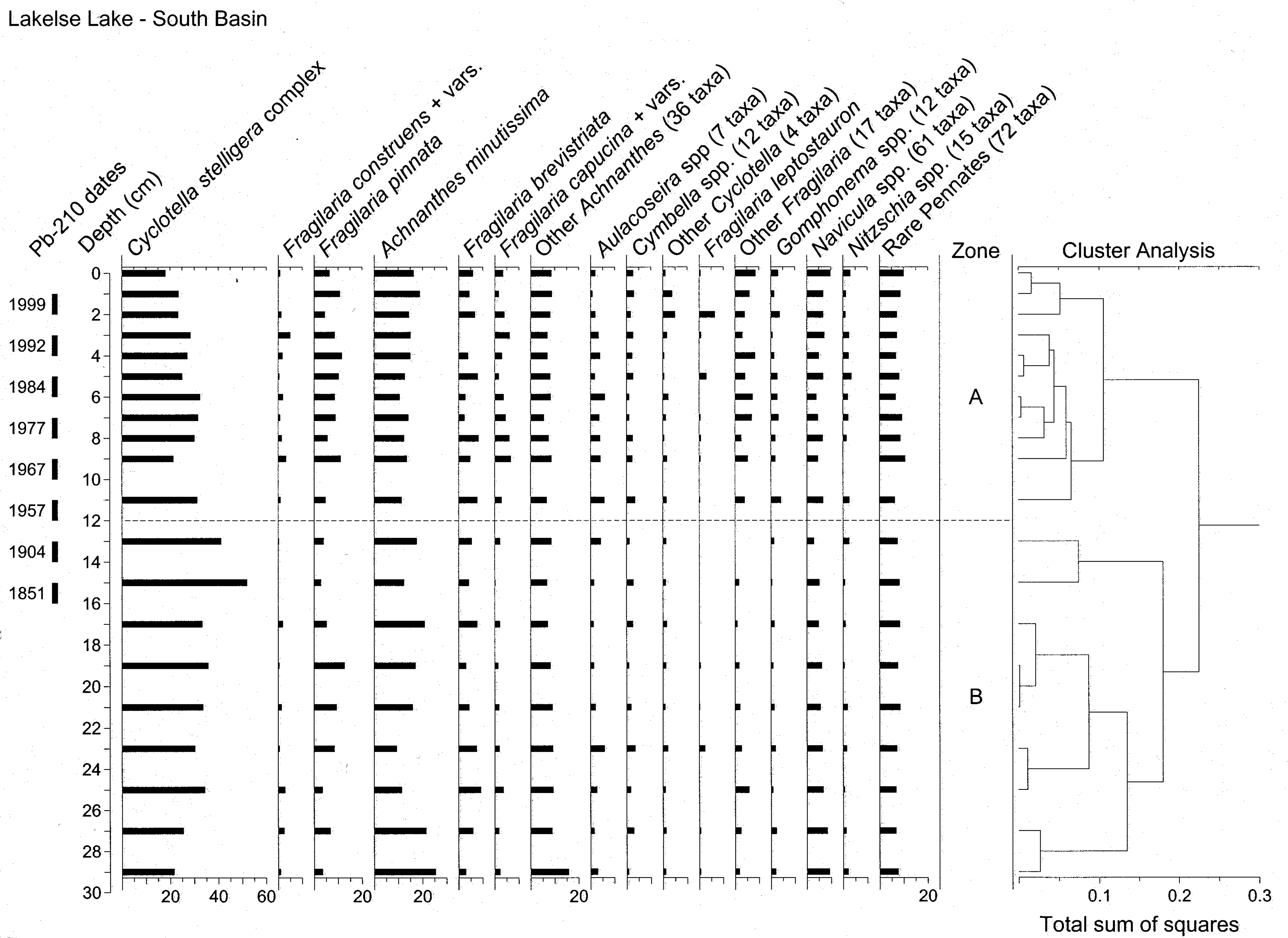
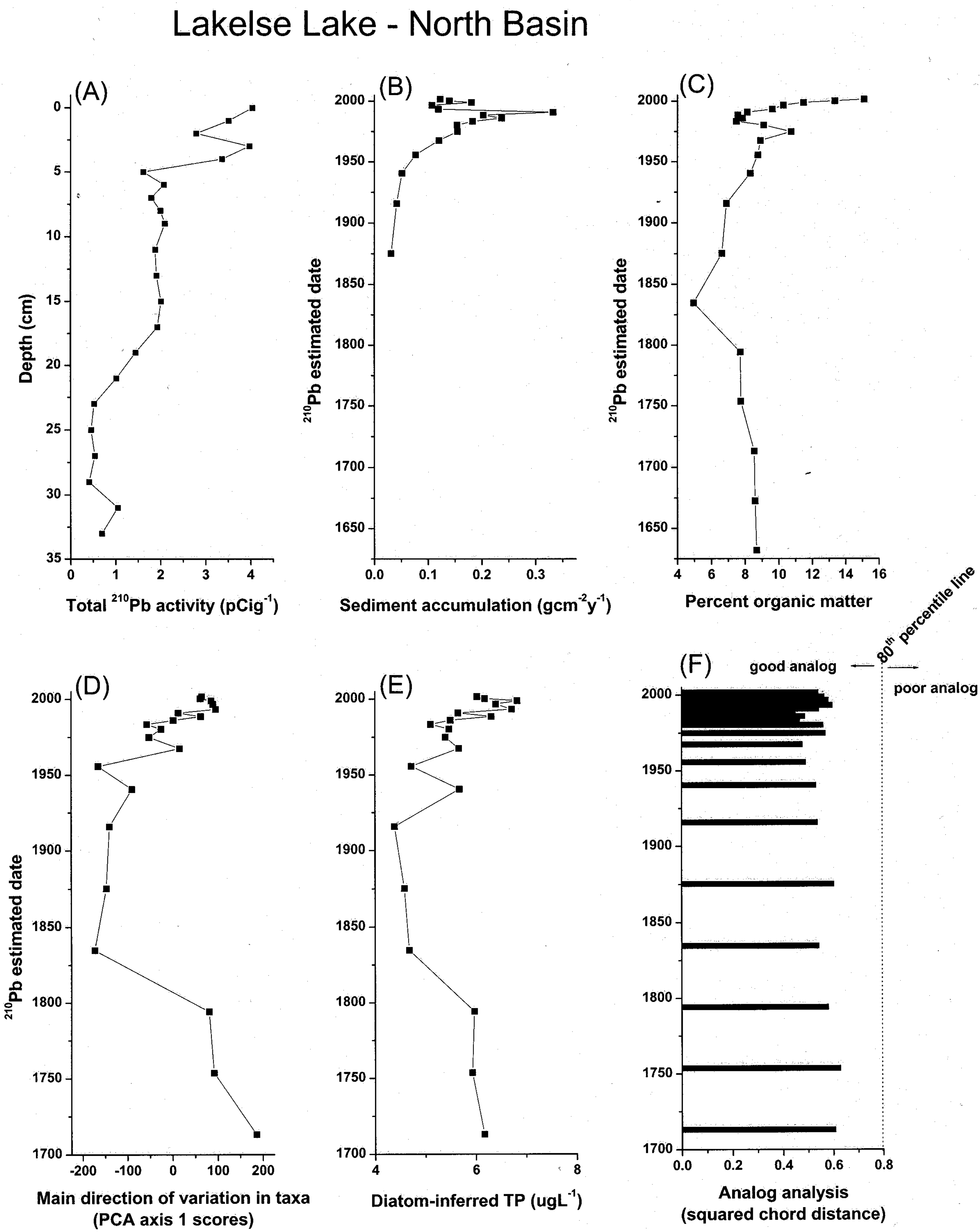


FIG. 2



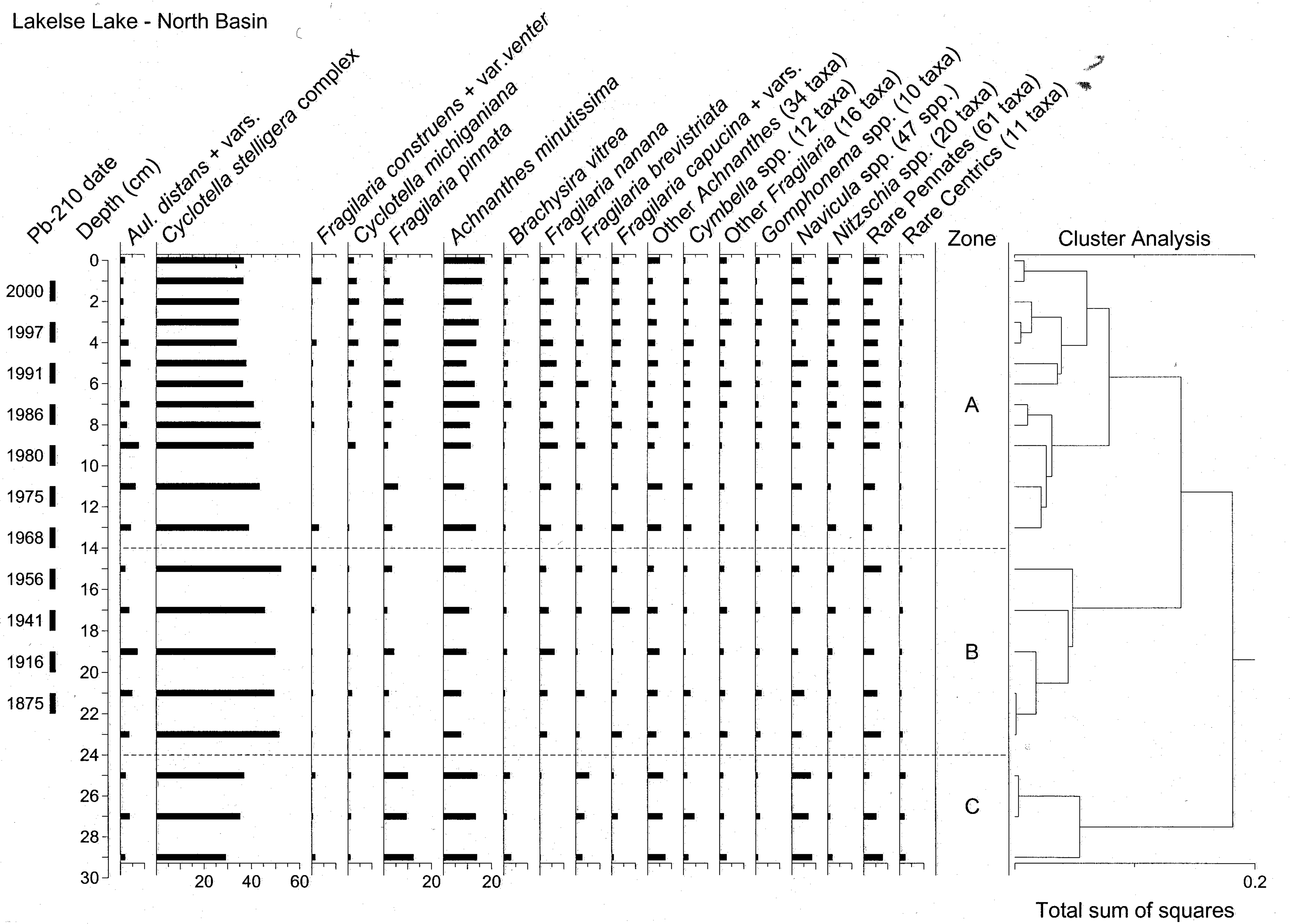
Lakelse Lake - South Basin
Pb-210 dates
Depth (cm)
Cyclotella stelligera complex
Fragilaria construens + vars.
Fragilaria pinnata
Achnanthes minutissima
Fragilaria brevistriata
Fragilaria capucina + vars.
Other Achnanthes (36 taxa)
Aulacoseira spp (7 taxa)
Cymbella spp. (12 taxa)
Other Cyclotella (4 taxa)
Fragilaria leptostauron
Other Fragilaria (17 taxa)
Gomphonema spp. (12 taxa)
Navicula spp. (61 taxa)
Nitzschia spp. (15 taxa)
Rare Pennates (72 taxa)
Zone
Cluster Analysis
1999
1992
1984
1977
1967
1957
1904
1851
A
B
Total sum of squares

FIG. 3



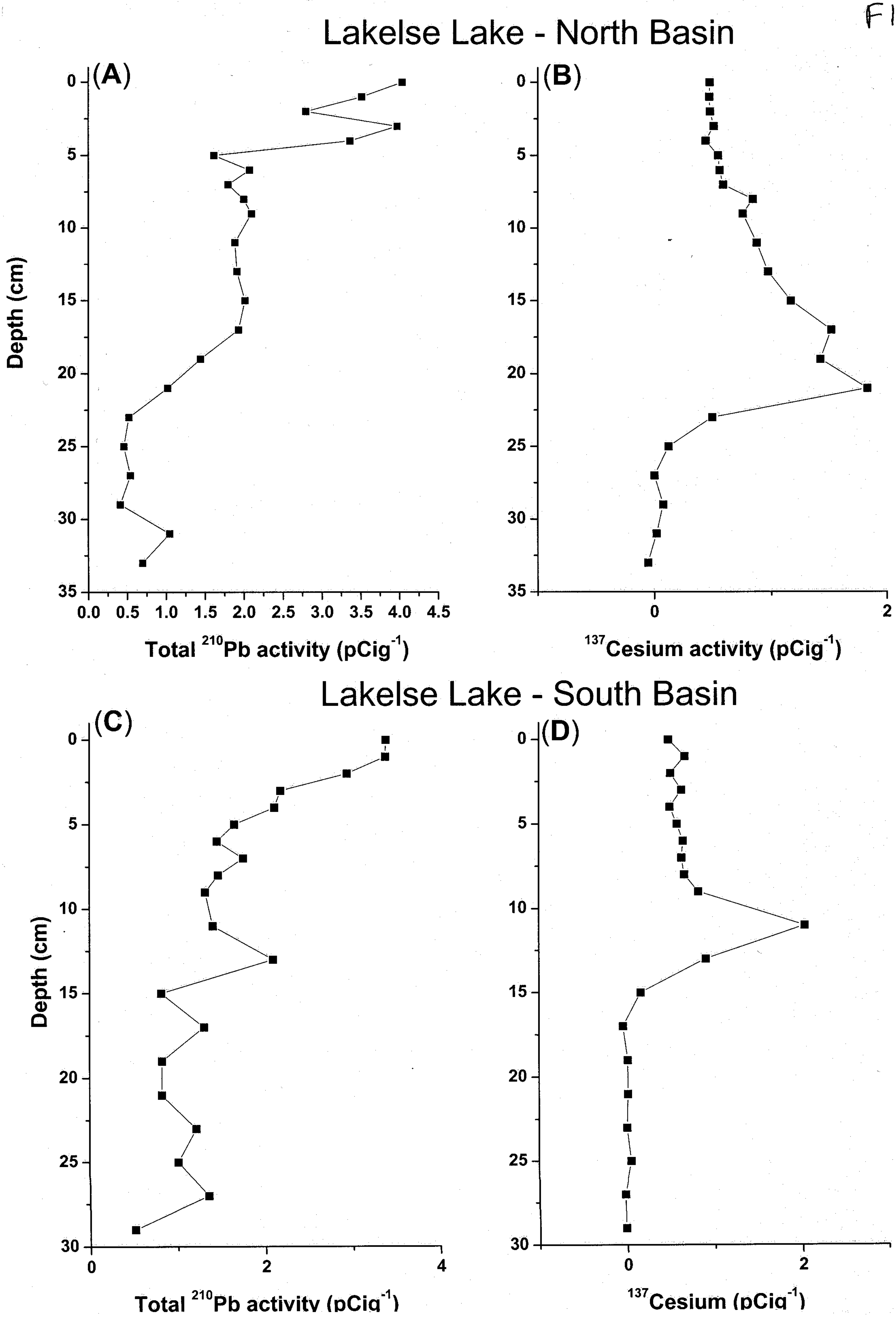
Lakelse Lake - North Basin
(A)
Depth (cm)
Total 210Pb activity (pCig-1)
(B)
210Pb estimated date
Sediment accumulation (gcm-2y-1)
(C)
210Pb estimated date
Percent organic matter
(D)
210Pb estimated date
Main direction of variation in taxa
(PCA axis 1 scores)
(E)
Diatom-inferred TP (ugL-1)
(F)
good analog
80th percentile line
poor analog
Analog analysis
(squared chord distance)

FIG. 4



Lakelse Lake - North Basin
Pb-210 date
Depth (cm)
Aul. distans + vars.
Cyclotella stelligera complex
Fragilaria construens + var. venter
Cyclotella michiganiana
Fragilaria pinnata
Achnanthes minutissima
Brachysira vitrea
Fragilaria nanana
Fragilaria brevistriata
Fragilaria capucina + vars.
Other Achnanthes (34 taxa)
Cymbella spp. (12 taxa)
Other Fragilaria (16 taxa)
Gomphonema spp. (10 taxa)
Navicula spp. (47 spp.)
Nitzschia spp. (20 taxa)
Rare Pennates (61 taxa)
Rare Centrics (11 taxa)
Zone
Cluster Analysis
2000
1997
1991
1986
1980
1975
1968
1956
1941
1916
1875
0
2
4
6
8
10
12
14
16
18
20
22
24
26
28
30
A
B
C
20
40
60
20
20
0.2
Total sum of squares

FIG.5


Lakelse Lake - North Basin
(A)
Depth (cm)
Total 210Pb activity (pCig-1)
(B)
137Cesium activity (pCig-1)
Lakelse Lake - South Basin
(C)
Depth (cm)
Total 210Pb activity (pCig-1)
(D)
137Cesium (pCig-1)

APPENDIX A-1

Summary File Lake Else South

Pb210 and LOI summary

* = extrapoloted dates

INTTOP (cm)	INTBOT (cm)	Pb210Act (pCi/g)	estimated AD date	**137Cs** (pCig-1)	SEDRATE (g/cm2/yr)	LOI(550C) %organic
0	1	3.3881	2001.0	0.4788	0.0693	12.75
1	2	3.3792	1998.5	0.6660	0.0643	13.78
2	3	2.9418	1995.3	0.5020	0.0713	12.53
3	4	2.1821	1991.9	0.6275	0.1041	9.52
4	5	2.1110	1988.0	0.4950	0.0981	8.19
5	6	1.6534	1983.9	0.5756	0.1433	7.97
6	7	1.4566	1980.9	0.6454	0.1828	9.51
7	8	1.7565	1976.8	0.6291	0.1002	8.76
8	9	1.4706	1971.6	0.6607	0.1332	8.37
9	10	1.3215	1967.1	0.8206	0.1642	9.46
11	12	1.4082	1956.7	2.0343	0.0955	7.66
13	14	2.0941	1903.7	0.9040	0.0121	8.42
15	16	0.8184	1850.8*	0.1624		7.93
17	18	1.3076	1797.8*	-0.0388		9.98
19	20	0.8283	1744.8*	0.0146		8.61
21	22	0.8243	1691.9*	0.0175		11.89
23	24	1.2190	1638.9*	0.0059		9.02
25	26	1.0117	1586.0*	0.0515		10.40
27	28	1.3570	1533.0*	-0.0171		9.19
29	30	0.5135	1480.1*	-0.0138		5.21

Diatom analyses

Depth (cm) TOP	Depth (cm BOTTOM	estimated AD date	log TP	TP	PCA Axis 1	ANALOG min. sq.chord
0	1	2001.0	0.893	7.816	-154	0.6468
1	2	1998.5	0.849	7.063	-95	0.5900
2	3	1995.3	0.850	7.079	-86	0.7156
3	4	1991.9	0.838	6.887	-24	0.6936
4	5	1988.0	0.833	6.808	-48	0.5737
5	6	1983.9	0.868	7.379	-61	0.6854
6	7	1980.9	0.762	5.781	36	0.4895
7	8	1976.8	0.800	6.310	19	0.5727
8	9	1971.6	0.855	7.161	11	0.5510
9	10	1967.1	0.890	7.762	-113	0.6655
11	12	1956.7	0.821	6.622	29	0.6245
13	14	1903.7	0.739	5.483	144	0.5584
15	16	1850.8	0.642	4.385	294	0.5199
17	18	1797.8	0.818	6.577	36	0.5663
19	20	1744.8	0.793	6.209	64	0.5655
21	22	1691.9	0.765	5.821	45	0.5735
23	24	1638.9	0.778	5.998	16	0.6799
25	26	1586.0	0.806	6.397	71	0.5825
27	28	1533.0	0.840	6.918	-66	0.5922
29	30	1480.1	0.863	7.295	-118	0.7303

APPENDIX A-2

Summary File Lake Else North

Pb210 and LOI summary

* = extrapoloted dates

INTTOP (cm)	INTBOT (cm)	Pb210Act (pCi/g)	estimated AD date	**137Cs** (pCig-1)	SEDRATE (g/cm2/yr)	LOI(550C) %organic
0	1	4.0355	2001.7	0.4709	0.1223	15.10
1	2	3.5133	2000.3	0.4679	0.1395	13.35
2	3	2.7950	1999.0	0.4749	0.1807	11.48
3	4	3.9703	1996.7	0.5057	0.107	10.27
4	5	3.3632	1993.4	0.4374	0.1191	9.61
5	6	1.6161	1991.0	0.5438	0.3324	8.13
6	7	2.0731	1988.6	0.5564	0.2025	7.56
7	8	1.7963	1986.1	0.5863	0.2366	7.84
8	9	1.9972	1983.4	0.8413	0.1826	7.48
9	10	2.0971	1980.4	0.7544	0.1536	9.09
11	12	1.8838	1975.0	0.8732	0.1545	10.73
13	14	1.9107	1967.6	0.9709	0.12	8.90
15	16	2.0127	1955.8	1.1673	0.0765	8.75
17	18	1.9302	1940.6	1.5152	0.0513	8.30
19	20	1.4438	1915.9	1.4219	0.0415	6.90
21	22	1.0197	1875.3	1.8289	0.0311	6.62
23	24	0.5240	1834.8*	0.4927		4.95
25	26	0.4570	1794.2*	0.1204		7.72
27	28	0.5428	1753.7*	-0.0004		7.75
29	30	0.4110	1713.2*	0.0739		8.54
31	32	1.0473	1672.6*	0.0175		8.59
33	34	0.6963	1632.1*	-0.0552		8.68

Diatom analyses

Depth (cm TOP	Depth (cm BOTTOM	estimated AD date	log TP	TP	PCA Axis 1	ANALOG min. sq.chord
0	1	2001.7	0.780	6.026	65	0.5399
1	2	2000.3	0.791	6.180	62	0.5159
2	3	1999.0	0.834	6.823	86	0.5641
3	4	1996.7	0.806	6.397	90	0.5810
4	5	1993.4	0.827	6.714	96	0.5967
5	6	1991.0	0.752	5.649	13	0.5416
6	7	1988.6	0.800	6.310	63	0.4491
7	8	1986.1	0.740	5.495	2	0.4867
8	9	1983.4	0.708	5.105	-57	0.4666
9	10	1980.4	0.738	5.470	-25	0.5594
11	12	1975.0	0.732	5.395	-52	0.5683
13	14	1967.6	0.753	5.662	16	0.4768
15	16	1955.8	0.674	4.721	-165	0.4901
17	18	1940.6	0.754	5.675	-90	0.5311
19	20	1915.9	0.642	4.385	-140	0.5366
21	22	1875.3	0.661	4.581	-147	0.6033
23	24	1834.8	0.670	4.677	-173	0.5433
25	26	1794.2	0.776	5.970	81	0.5807
27	28	1753.7	0.773	5.929	92	0.6278
29	30	1713.2	0.790	6.166	186	0.6082

APPENDIX B-1a

Lake Else South. - Pb210

BINFORD FILE INPUTS FOR CALCULATIONS OF DATES AND SEDIMENTATION RATES

CALCULATIONS FOR INPUT INTO BINFORD PROGRAM

INTTOP (cm)	INTBOT (cm)	Back calculated to coring Pb-210 (Bq/g) activity	Std dev (Bg/g)	214Bi (dps/g)	**137Cs** (dps/g)	**137Cs** (pCig-1)	Pb210 activity (pCig-1)	Std dev (pCig-1)	214Bi (pCig-1)	Rho (g cm-3)
0	1	0.125359	0.005497	0.040643	0.017717	0.4788	3.3881	0.1486	1.0985	0.174596
1	2	0.125029	0.005509	0.039068	0.024643	0.6660	3.3792	0.1489	1.0559	0.163716
2	3	0.108846	0.005053	0.035625	0.018573	0.5020	2.9418	0.1366	0.9628	0.262764
3	4	0.080737	0.004385	0.028828	0.023218	0.6275	2.1821	0.1185	0.7791	0.323992
4	5	0.078106	0.004199	0.037378	0.018314	0.4950	2.1110	0.1135	1.0102	0.459976
5	6	0.061177	0.003637	0.03557	0.021297	0.5756	1.6534	0.0983	0.9613	0.509251
6	7	0.053893	0.003531	0.034231	0.02388	0.6454	1.4566	0.0954	0.9252	0.429312
7	8	0.06499	0.003588	0.041918	0.023277	0.6291	1.7565	0.0970	1.1329	0.592318
8	9	0.054411	0.003498	0.041097	0.024445	0.6607	1.4706	0.0945	1.1107	0.587292
9	10	0.048896	0.003382	0.037145	0.03036	0.8206	1.3215	0.0914	1.0039	0.751028
11	12	0.052103	0.003377	0.031304	0.075271	2.0343	1.4082	0.0913	0.8461	0.571714
13	14	0.077481	0.004034	0.037768	0.033448	0.9040	2.0941	0.1090	1.0208	0.625533
15	16	0.030282	0.002524	0.035907	0.00601	0.1624	0.8184	0.0682	0.9705	0.678062
17	18	0.048379	0.003054	0.035511	-0.00144	-0.0388	1.3076	0.0825	0.9598	0.630542
19	20	0.030646	0.002563	0.032418	0.000541	0.0146	0.8283	0.0693	0.8762	0.817498
21	22	0.030498	0.002606	0.033002	0.000647	0.0175	0.8243	0.0704	0.8919	0.665437
23	24	0.045102	0.003127	0.0445	0.000219	0.0059	1.2190	0.0845	1.2027	0.730982
25	26	0.037434	0.00283	0.042395	0.001905	0.0515	1.0117	0.0765	1.1458	0.527525
27	28	0.050209	0.003355	0.033316	-0.00063	-0.0171	1.3570	0.0907	0.9004	0.664198
29	30	0.018998	0.001742	0.015819	-0.00051	-0.0138	0.5135	0.0471	0.4275	0.975064
							0.5135		0.964111	0.166698
									supported and stds	

LakeElseS
C1
20.00
0.166698

INTTOP (cm)	INTBOT (cm)	Pb210 Total (pCig-1)	Pb210 Unsup. (pCig-1)	Rho (g cm-3)	OM proportion	CUMTOP (g cm-2)	CUMBOT (g cm-2)	std Pb210 (pCig-1)
0.0000	1.0000	3.3881	2.4240	0.1746	0.1275	0.0000	0.1746	0.1486
1.0000	2.0000	3.3792	2.4150	0.1637	0.1378	0.1746	0.3383	0.1489
2.0000	3.0000	2.9418	1.9777	0.2628	0.1253	0.3383	0.6011	0.1366
3.0000	4.0000	2.1821	1.2180	0.3240	0.0952	0.6011	0.9251	0.1185
4.0000	5.0000	2.1110	1.1469	0.4600	0.0819	0.9251	1.3850	0.1135
5.0000	6.0000	1.6534	0.6893	0.5093	0.0797	1.3850	1.8943	0.0983
6.0000	7.0000	1.4566	0.4925	0.4293	0.0951	1.8943	2.3236	0.0954
7.0000	8.0000	1.7565	0.7924	0.5923	0.0876	2.3236	2.9159	0.0970
8.0000	9.0000	1.4706	0.5065	0.5873	0.0837	2.9159	3.5032	0.0945
9.0000	10.0000	1.3215	0.3574	0.7510	0.0946	3.5032	4.2542	0.0914
11.0000	12.0000	1.4082	0.4441	0.5717	0.0766	5.0469	5.6186	0.0913
13.0000	14.0000	2.0941	1.1300	0.6255	0.0842	6.1415	6.7671	0.1090
15.0000	16.0000	0.8184	0.0000	0.6781	0.0793	7.4309	8.1090	0.0682
17.0000	18.0000	1.3076	0.0000	0.6305	0.0998	8.7208	9.3513	0.0825
19.0000	20.0000	0.8283	0.0000	0.8175	0.0861	10.0021	10.8196	0.0693
21.0000	22.0000	0.8243	0.0000	0.6654	0.1189	11.3693	12.0348	0.0704
23.0000	24.0000	1.2190	0.0000	0.7310	0.0902	12.5685	13.2995	0.0845
25.0000	26.0000	1.0117	0.0000	0.5275	0.1040	13.8527	14.3803	0.0765
27.0000	28.0000	1.3570	0.0000	0.6642	0.0919	15.1217	15.7859	0.0907
29.0000	30.0000	0.5135	0.0000	0.9751	0.0521	16.6322	17.6073	0.0471

OUTPUT FROM BINFORD PROGRAM

INTTOP	INTBOT	MIDPT	TTOP	SDTTOP	TBOT	SDTBOT	SEDRATE	SDSEDRT	SUMTOP
0	1	0.5	0	4.2	2.52	4.37	0.0693	0.0171	5.6081
1	2	1.5	2.52	4.37	5.07	4.56	0.0643	0.0168	5.1849
2	3	2.5	5.07	4.56	8.76	4.87	0.0713	0.019	4.7896
3	4	3.5	8.76	4.87	11.87	5.15	0.1041	0.0265	4.2698
4	5	4.5	11.87	5.15	16.57	5.64	0.0981	0.0268	3.8752
5	6	5.5	16.57	5.64	20.13	6.03	0.1433	0.0387	3.3476
6	7	6.5	20.13	6.03	22.48	6.31	0.1828	0.0499	2.9966
7	8	7.5	22.48	6.31	28.4	7.15	0.1002	0.0319	2.7851
8	9	8.5	28.4	7.15	32.82	7.83	0.1332	0.0436	2.3158
9	10	9.5	32.82	7.83	37.4	8.48	0.1642	0.0563	2.0183
11	12	11.5	42.59	9.6	48.59	11.04	0.0955	0.0409	1.4888
13	14	13.5	62.84	16.5	134.25	142.61	0.0121	0.0191	0.7926

APPENDIX B-16

LAKELSE SOUTH BASIN

Samples epoxied on Oct. 1, 2002

Gamma counts													
Interval Top (cm)	Interval Bottom (cr	Live count (s)	Mass g dry wt.	Tube heigl mm	Gross bkgr ROI1	210-Pb ROI2	bkgr ROI3	bkgr ROI4	226-Ra ROI5	bkgr ROI6	bkgr ROI7	137-Cs ROI8	bkgr ROI9
0	1	85610	1.5134	25.62	484	1456	452	118	539	135	122	455	109
1	2	90969	1.4436	27.4	504	1514	495	162	601	160	122	553	122
2	3	87220	1.4907	24.34	457	1369	448	142	515	111	109	481	133
3	4	81318	1.5237	22.58	468	1242	435	134	482	134	75	464	99
4	5	85647	1.5184	22.32	440	1229	443	115	522	131	124	468	103
5	6	86969	1.5129	20.82	445	1178	450	148	548	128	119	524	117
6	7	84317	1.5007	24.22	465	1119	421	151	519	121	96	512	117
7	8	98535	1.5125	23.77	545	1419	546	141	621	137	130	606	131
8	9	84973	1.512	22.98	459	1168	467	131	547	123	98	521	108
9	10	81029	1.5002	22.46	484	1126	433	121	495	117	110	570	88
11	12	86217	1.5124	22.23	442	1146	466	147	513	125	129	1224	105
13	14	93102	1.5181	23.28	495	1324	460	171	620	149	123	724	129
15	16	85334	1.5226	23.15	471	1088	473	148	539	126	114	313	120
17	18	99214	1.5156	24.03	550	1285	484	179	626	145	136	265	149
19	20	83469	1.5218	22.68	481	1078	454	134	507	133	110	218	100
21	22	81883	1.5115	23.93	471	1026	418	139	492	118	106	212	97
23	24	84628	1.5178	21.01	431	1065	426	132	576	126	115	226	107
25	26	87049	1.5133	23.76	470	1112	467	125	569	138	104	244	114
27	28	83194	1.5212	21.85	442	1097	431	122	515	147	120	217	104
29	30	97729	1.5352	15.53	506	1124	499	169	495	148	130	263	140

APPENDIX B-2a

Lake Else North. - Pb210

BINFORD FILE INPUTS FOR CALCULATIONS OF DATES AND SEDIMENTATION RATES

CALCULATIONS FOR INPUT INTO BINFORD PROGRAM

INTTOP (cm)	INTBOT (cm)	Back calculated to coring Pb-210 (Bq/g) activity	Std dev (Bg/g)	214Bi (dps/g)	**137Cs** (dps/g)	**137Cs** (pCig-1)	Pb210 activity (pCig-1)	Std dev (pCig-1)	214Bi (pCig-1)	Rho (g cm-3)
0	1	0.149314	0.006221	0.034136	0.017423	0.4709	4.0355	0.1681	0.9226	0.138279
1	2	0.129994	0.005891	0.022077	0.017314	0.4679	3.5133	0.1592	0.5967	0.216299
2	3	0.103417	0.005184	0.026508	0.017572	0.4749	2.7950	0.1401	0.7164	0.20647
3	4	0.1469	0.005688	0.02399	0.018713	0.5057	3.9703	0.1537	0.6484	0.362251
4	5	0.124437	0.005441	0.036211	0.016184	0.4374	3.3632	0.1471	0.9787	0.378622
5	6	0.059796	0.003458	0.026072	0.02012	0.5438	1.6161	0.0935	0.7047	0.590694
6	7	0.076706	0.003988	0.022659	0.020585	0.5564	2.0731	0.1078	0.6124	0.581805
7	8	0.066464	0.004023	0.025648	0.021695	0.5863	1.7963	0.1087	0.6932	0.51322
8	9	0.073896	0.004238	0.024412	0.031129	0.8413	1.9972	0.1145	0.6598	0.587171
9	10	0.077593	0.004331	0.025743	0.027913	0.7544	2.0971	0.1170	0.6958	0.448324
11	12	0.069699	0.004079	0.030576	0.032307	0.8732	1.8838	0.1102	0.8264	0.373569
13	14	0.070696	0.003952	0.033517	0.035923	0.9709	1.9107	0.1068	0.9059	0.638807
15	16	0.074471	0.004112	0.029117	0.043191	1.1673	2.0127	0.1111	0.7870	0.499612
17	18	0.071416	0.004069	0.023171	0.056061	1.5152	1.9302	0.1100	0.6263	0.448406
19	20	0.05342	0.003522	0.027407	0.052612	1.4219	1.4438	0.0952	0.7407	0.70745
21	22	0.037731	0.002812	0.027735	0.067669	1.8289	1.0197	0.0760	0.7496	0.699317
23	24	0.01939	0.001901	0.01843	0.018231	0.4927	0.5240	0.0514	0.4981	0.618728
25	26	0.016907	0.001708	0.03207	0.004457	0.1204	0.4570	0.0462	0.8667	0.623422
27	28	0.020082	0.001924	0.030114	-1.5E-05	-0.0004	0.5428	0.0520	0.8139	0.709805
29	30	0.015207	0.001744	0.035474	0.002735	0.0739	0.4110	0.0471	0.9588	0.582432
31	32	0.038752	0.002981	0.030747	0.000649	0.0175	1.0473	0.0806	0.8310	0.693017
33	34	0.025764	0.002268	0.024946	-0.00204	-0.0552	0.6963	0.0613	0.6742	0.668562
							0.61307342		0.750317	0.123632
							0.23391974		supported and stds	

LakeElseN
C1
22.00
0.123632

INTTOP (cm)	INTBOT (cm)	Pb210 Total (pCig-1)	Pb210 Unsup. (pCig-1)	Rho (g cm-3)	OM proportion	CUMTOP (g cm-2)	CUMBOT (g cm-2)	std Pb210 (pCig-1)
0.0000	1.0000	4.0355	3.0714	0.1383	0.1510	0.0000	0.1383	0.1681
1.0000	2.0000	3.5133	2.5492	0.2163	0.1335	0.1383	0.3546	0.1592
2.0000	3.0000	2.7950	1.8309	0.2065	0.1148	0.3546	0.5610	0.1401
3.0000	4.0000	3.9703	3.0062	0.3623	0.1027	0.5610	0.9233	0.1537
4.0000	5.0000	3.3632	2.3990	0.3786	0.0961	0.9233	1.3019	0.1471
5.0000	6.0000	1.6161	0.6520	0.5907	0.0813	1.3019	1.8926	0.0935
6.0000	7.0000	2.0731	1.1090	0.5818	0.0756	1.8926	2.4744	0.1078
7.0000	8.0000	1.7963	0.8322	0.5132	0.0784	2.4744	2.9876	0.1087
8.0000	9.0000	1.9972	1.0331	0.5872	0.0748	2.9876	3.5748	0.1145
9.0000	10.0000	2.0971	1.1330	0.4483	0.0909	3.5748	4.0231	0.1170
11.0000	12.0000	1.8838	0.9196	0.3736	0.1073	4.3711	4.7447	0.1102
13.0000	14.0000	1.9107	0.9466	0.6388	0.0890	5.1888	5.8276	0.1068
15.0000	16.0000	2.0127	1.0486	0.4996	0.0875	6.3448	6.8444	0.1111
17.0000	18.0000	1.9302	0.9661	0.4484	0.0830	7.4094	7.8578	0.1100
19.0000	20.0000	1.4438	0.4797	0.7075	0.0690	8.4095	9.1169	0.0952
21.0000	22.0000	1.0197	0.0556	0.6993	0.0662	9.8083	10.5076	0.0760
23.0000	24.0000	0.5240	0.0000	0.6187	0.0495	11.0697	11.6884	0.0514
25.0000	26.0000	0.4570	0.0000	0.6234	0.0772	12.3405	12.9639	0.0462
27.0000	28.0000	0.5428	0.0000	0.7098	0.0775	13.6273	14.3371	0.0520
29.0000	30.0000	0.4110	0.0000	0.5824	0.0854	15.1088	15.6912	0.0471
31.0000	32.0000	1.0473	0.0000	0.6930	0.0859	16.2245	16.9175	0.0806
33.0000	34.0000	0.6963	0.0000	0.6686	0.0868	17.5358	18.2043	0.0613

OUTPUT FROM BINFORD PROGRAM

INTTOP	INTBOT	MIDPT	TTOP	SDTTOP	TBOT	SDTBOT	SEDRATE	SDSEDR1	SUMTOP
0	1	0.5	0	1.47	1.13	1.49	0.1223	0.0166	13.1265
1	2	1.5	1.13	1.49	2.68	1.53	0.1395	0.0189	12.6722
2	3	2.5	2.68	1.53	3.83	1.55	0.1807	0.0237	12.0745
3	4	3.5	3.83	1.55	7.21	1.64	0.107	0.0158	11.6523
4	5	4.5	7.21	1.64	10.4	1.72	0.1191	0.018	10.4857
5	6	5.5	10.4	1.72	12.17	1.76	0.3324	0.0442	9.4965
6	7	6.5	12.17	1.76	15.05	1.83	0.2025	0.0294	8.985
7	8	7.5	15.05	1.83	17.22	1.88	0.2366	0.0354	8.2154
8	9	8.5	17.22	1.88	20.44	1.97	0.1826	0.0293	7.6786
9	10	9.5	20.44	1.97	23.36	2.07	0.1536	0.0261	6.9465
11	12	11.5	26.04	2.19	28.46	2.3	0.1545	0.0281	5.8344
13	14	13.5	32.02	2.48	37.35	2.73	0.12	0.0252	4.8434
15	16	15.5	43.21	3.15	49.77	3.66	0.0765	0.0206	3.4176
17	18	17.5	57.24	4.48	66.03	5.65	0.0513	0.0188	2.2085
19	20	19.5	77.64	7.83	95.1	12.36	0.0415	0.0232	1.1698
21	22	21.5	115.18	22.06	138.65	41.81	0.0311	0.0338	0.3634

APPENDIX B-2b

LAKELSE NORTH BASIN

Samples epoxied on Oct. 1, 2002

Interval Top (cm)	Gamma counts Interval Bottom (cr	Live count (s)	Mass g dry wt.	Tube heigl mm	Gross bkgr ROI1	210-Pb ROI2	bkgr ROI3	bkgr ROI4	226-Ra ROI5	bkgr ROI6	bkgr ROI7	137-Cs ROI8	bkgr ROI9
0	1	83032	1.511	28.07	441	1431	414	131	493	126	115	421	99
1	2	80313	1.4866	27.09	407	1250	356	135	431	131	89	390	103
2	3	84285	1.4922	29.4	436	1234	400	146	468	128	106	415	103
3	4	95699	1.5266	27.31	501	1603	435	155	518	151	119	502	122
4	5	86349	1.5217	25.67	455	1384	406	135	538	139	135	465	123
5	6	97401	1.5239	24.57	559	1336	478	163	543	146	117	523	112
6	7	96424	1.5221	25.28	533	1356	453	145	504	151	131	528	102
7	8	80285	1.5231	24.24	437	1129	419	107	421	123	99	462	101
8	9	80106	1.5214	23.33	415	1125	406	141	437	111	93	577	106
9	10	80787	1.5245	23.49	430	1158	407	139	446	113	94	549	113
11	12	85683	1.5113	26.94	429	1163	442	137	497	134	109	611	102
13	14	89790	1.5296	25.39	474	1279	485	142	542	140	112	716	124
15	16	88023	1.5257	25.55	507	1265	430	139	485	118	118	815	134
17	18	84363	1.5279	24.17	452	1157	397	147	451	117	105	921	104
19	20	80128	1.5247	21.4	383	1023	410	135	469	129	97	834	84
21	22	85434	1.5345	21.18	430	1057	447	171	516	123	84	1082	95
23	24	85079	1.5524	18.88	399	940	437	156	461	136	102	450	96
25	26	93942	1.5203	22.52	509	1097	490	182	577	127	118	324	141
27	28	90343	1.5262	22.14	488	1047	450	146	526	133	134	253	118
29	30	80039	1.5263	23.93	445	975	454	117	504	142	105	232	93
31	32	81089	1.5273	23.98	403	1013	441	137	452	93	119	219	91
33	34	88445	1.5249	23.85	462	1021	430	146	507	154	118	209	117

APPENDIX C-1a

Lake Else South
Analyst: KR Laird, Oct. 2002

	Diatom relative abundance																			
Taxa	0-1 cm	1-2 cm	2-3 cm	3-4 cm	4-5 cm	5-6 cm	6-7 cm	7-8 cm	8-9 cm	9-10 cm	11-12 cm	13-14 cm	15-16 cm	17-18 cm	19-20 cm	21-22 cm	23-24 cm	25-26 cm	27-28 cm	29-30 cm
Achnanthes altaica	0.24	0.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.24	0.00	0.00
Achnanthes cf. bioretti	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.47	0.23	0.00	0.00	0.47	0.47	0.00	0.00	0.00	0.00	0.50	0.49
Achnanthes chlidanos	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.47	0.50	0.00	0.00	0.00	0.68	1.19	0.00	0.00	2.21
Achnanthes clevei	0.00	0.00	0.25	0.00	0.00	0.00	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.23	0.00	0.00	0.00	0.00	0.00	0.00
Achnanthes conspicua	0.00	0.00	0.00	0.00	0.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.24	0.00	0.00
Achnanthes curtissima	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.23	0.00	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.50	0.74
Achnanthes daonensis	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.92	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.49
Achnanthes delicatula	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.98
Achnanthes didyma	0.24	0.23	0.99	0.00	0.68	1.24	0.49	0.00	0.70	0.46	0.93	0.50	0.00	0.93	0.24	0.00	0.48	0.24	0.99	0.00
Achnanthes flexella	0.00	0.93	1.74	0.00	0.68	0.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.47	0.00	0.00	0.24	0.00	0.00	0.00
Achnanthes grana	0.00	0.00	0.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Achnanthes impexa	0.00	0.00	0.00	0.00	0.23	0.25	0.00	0.00	0.23	0.23	0.00	0.00	0.23	0.00	0.24	0.00	0.24	0.48	0.00	0.00
Achnanthes joursacense	0.00	0.00	0.00	0.00	0.00	0.00	0.49	0.00	0.00	0.00	0.00	0.00	0.00	0.23	0.00	0.00	0.00	0.00	0.00	0.00
Achnanthes kriegeri	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.16	1.41	0.46	0.95	1.69	1.49	0.74
Achnanthes lacus-vulcani	0.00	0.00	0.00	0.24	0.00	0.50	0.49	0.24	0.00	0.46	0.00	0.50	0.94	0.93	1.88	0.91	0.71	1.21	0.25	0.49
Achnanthes laevis	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Achnanthes lanceolata	0.00	0.00	0.25	0.00	0.23	0.00	0.00	0.96	0.00	0.23	0.00	0.00	0.00	0.00	0.00	0.46	1.19	0.00	0.00	0.25
Achnanthes lanceolata var. dubia	0.00	0.00	0.00	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.99	0.00	0.00	0.24	0.00	0.95	0.00	0.50	0.00
Achnanthes laterostrata	0.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.49
Achnanthes levanderi	0.24	1.17	0.50	0.48	0.23	0.74	0.00	0.48	0.47	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Achnanthes linearis	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25
Achnanthes nodosa	0.73	0.47	0.25	0.24	0.00	0.00	0.25	0.00	0.70	0.92	0.70	0.00	0.00	0.93	0.24	0.46	0.00	0.24	0.99	2.21
Achnanthes cf. marginulata	0.00	0.00	0.00	0.00	0.45	0.00	0.25	0.00	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.46	0.00	0.72	0.00	0.00
Achnanthes minutissima	16.38	18.88	14.39	15.07	14.97	12.66	10.57	14.11	12.38	13.53	11.40	17.57	12.41	20.93	17.18	15.98	9.29	11.35	21.53	25.31
Achnanthes oblongella	0.00	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Achnanthes oestrupii	0.00	0.23	0.74	1.44	0.00	0.00	0.00	0.48	0.00	0.00	0.47	0.00	0.70	0.00	0.71	0.46	0.00	0.48	0.50	1.72
Achnanthes peragalli	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Achnanthes petersenii	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.94	0.00	0.00	0.00	0.00	0.00
Achnanthes pusilla	0.98	0.70	0.00	0.72	0.68	0.50	2.21	0.72	0.70	2.06	1.40	1.73	1.17	0.70	0.00	1.60	1.90	0.97	0.50	0.25
Achnanthes rosenstockil	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.23	0.00	0.00	0.00	0.00
Achnanthes rossii	0.49	0.47	0.25	0.00	0.91	0.25	0.25	0.48	0.00	0.46	0.23	0.25	0.00	0.00	0.00	0.46	0.00	0.00	0.25	0.25
Achnanthes rupestris	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Achnanthes saccula	0.00	0.47	0.50	1.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Achnanthes scotica	0.98	0.00	0.25	0.48	0.00	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Achnanthes subatomoides	2.44	2.10	0.99	0.72	1.36	0.50	3.19	1.20	2.34	1.38	0.70	1.24	1.64	0.70	1.65	1.83	0.95	1.93	2.23	2.95
Achnanthes suchlandtii	0.24	0.00	0.00	0.00	0.00	0.25	0.00	0.00	0.23	0.00	0.23	0.50	0.00	0.00	0.00	0.23	0.48	0.24	0.25	0.25
Achnanthes ventralis	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.46	0.00	0.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Achnanthes spp.	1.22	1.40	0.99	0.48	1.13	2.98	0.49	0.72	1.17	0.69	1.40	1.49	1.17	0.47	0.71	0.91	0.00	0.72	0.00	0.98
Amphipleura cf. kriegeriana	0.00	0.00	0.00	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Amphipleura pellucida	0.00	0.23	0.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.23	0.00	0.00	0.23	0.24	0.23	0.00	0.24	0.00	0.00
Amphora fogediana	0.00	0.00	0.00	0.00	0.00	0.99	0.00	0.00	0.00	0.46	0.00	0.00	0.94	0.00	0.24	0.46	0.00	0.48	0.74	0.00
Amphora inariensis	0.00	0.00	0.00	0.00	0.23	0.00	0.25	1.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Amphora libyca	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.23	0.00	0.00	0.00	0.48	0.00	0.00
Amphora ovalis	0.98	0.47	0.50	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Amphora pediculus	0.00	0.00	1.49	0.48	0.00	0.25	0.00	0.00	0.00	0.00	0.00	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Amphora spp.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Asterionella formosa	0.24	0.00	0.00	0.00	0.00	0.00	0.74	0.00	0.23	0.00	0.00	0.00	0.00	0.23	0.00	0.00	0.00	0.00	0.00	0.00
Aulacoseira ambigua	0.00	0.00	0.00	0.72	0.45	0.00	1.97	1.20	0.00	1.15	0.23	0.50	0.23	0.00	0.00	0.00	1.19	0.72	0.00	0.49
Aulacoseira crassipunctata	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Aulacoseira distans	0.00	0.00	0.50	1.67	2.27	1.49	2.95	1.67	1.40	1.83	2.56	1.49	0.94	0.47	1.18	1.14	2.86	0.72	0.50	1.47
Aulacoseira distans var. humilis	0.00	0.47	1.49	0.72	0.91	0.00	0.25	0.48	0.00	0.69	0.00	0.25	0.00	0.00	0.00	0.91	1.67	0.97	0.50	0.74
Aulacoseira distans var. nivaloides	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Aulacoseira distans var. tenella	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.40	0.00	2.56	1.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Aulacoseira spp.	1.71	0.23	0.00	0.24	0.23	0.25	0.74	0.24	1.17	0.46	0.47	0.00	0.23	0.70	0.24	0.00	0.00	0.24	0.50	0.25
Brachysira brebissonnii	0.00	0.00	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Brachysira vitrea	2.20	1.86	0.25	0.72	0.91	0.74	0.00	0.96	0.70	0.00	0.23	0.50	2.58	1.16	1.88	1.60	1.43	1.21	1.24	0.74
Brachysira spp.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Caloneis bacillum	0.00	0.00	0.00	0.00	0.00	0.00	0.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Caloneis branderii	0.00	0.00	0.00	0.00	0.00	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Caloneis hyalina	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Caloneis schumanniana	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.48	0.00	0.49
Caloneis silicula	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.49
Caloneis undulata	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.24	0.46	0.00	0.24	0.00	0.00
Caloneis spp.	0.00	0.00	0.00	0.00	0.23	0.00	0.00	0.00	0.23	0.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cocconeis neodiminuta	0.00	0.00	0.00	0.00	0.45	0.00	0.49	0.00	0.00	0.00	0.23	0.25	0.00	0.00	0.24	0.00	0.24	0.00	0.00	0.00
Cocconeis placentula var. euglypta	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.23	0.00	0.00	0.00	0.00	0.00	0.24	0.46	0.00	0.00	0.00	0.00
Cocconeis placentula var. linearis	0.49	0.00	0.74	0.00	0.00	0.25	0.00	0.00	0.47	0.00	0.00	0.74	0.00	0.00	0.24	0.00	0.00	0.00	0.00	0.00
Cocconeis spp.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.00
Cymbella cesatii	0.98	0.00	0.00	0.24	0.45	0.25	0.25	0.00	0.70	0.69	0.00	0.00	0.23	0.47	0.00	0.00	1.19	0.72	0.74	0.00
Cymbella cistula	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cymbella descripta	0.00	0.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.47	0.00	0.00	0.00	0.00	0.00	0.00	0.24	0.00	0.00
Cymbella cf. falaisensis	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.47	0.00	0.00	0.00	0.00	0.00	0.00
Cymbella gracilis	0.00	0.00	0.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.16	0.00	0.00	0.00	0.00	0.00	0.24	0.00	0.00	0.00
Cymbella microcephala	0.24	1.40	0.00	0.00	0.45	0.00	0.00	0.00	0.00	0.46	0.70	0.00	0.70	0.23	0.00	0.23	0.00	0.00	0.50	0.25
Cymbella minuta	0.00	0.00	0.00	1.44	1.13	1.74	0.74	0.00	0.70	0.23	0.00	0.25	0.47	0.00	0.24	0.23	1.19	0.00	0.74	0.25
Cymbella naviculiformis	0.73	0.00	0.00	0.48	0.00	0.25	0.00	0.00	0.00	0.00	0.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cymbella proxima	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.46	0.00	0.00	0.00	0.00
Cymbella silesiaca	0.24	0.47	1.24	0.00	0.00	0.00	0.00	0.72	0.00	0.46	0.00	0.00	0.00	0.00	0.71	0.46	0.48	0.00	0.25	0.00
Cymbella sinuata	0.00	0.47	0.00	0.00	0.00	0.00	0.00	0.24	0.23	0.46	0.70	0.50	0.70	0.70	0.00	0.23	0.24	0.24	0.00	0.25
Cymbella spp.	0.49	0.23	0.00	0.48	0.23	0.50	0.00	0.00	0.47	0.00	0.00	0.50	0.70	0.70	0.00	0.23	0.24	0.48	0.74	0.00
Cyclotella bodanica var. lemanica	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25
Cyclotella michiganiana	0.98	3.50	4.96	1.20	0.23	0.00	1.23	0.24	0.47	1.15	0.47	0.00	0.70	0.70	0.47	0.23	0.48	0.48	0.00	0.25
Cyclotella cf. ocellata	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cyclotella pseudostelligera	0.00	0.00	0.00	0.00	0.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cyclotella radiosa	0.00	0.23	0.00	0.48	0.23	0.50	0.98	0.48	0.00	0.46	0.93	1.24	0.47	0.93	0.71	0.68	1.43	0.48	1.24	0.49
Cyclotella stelligera complex	18.09	23.54	23.33	28.47	26.76	25.06	32.43	31.58	30.14	21.33	31.16	41.09	51.99	33.26	35.76	33.56	30.24	34.30	25.50	21.62
Denticula valida	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Denticula spp	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.48	0.00	0.00
Diatoma mesodon	0.49	0.00	0.00	0.24	0.23	1.24	0.00	0.24	1.17	0.23	0.23	0.00	0.47	0.23	0.47	0.00	0.00	0.00	0.00	0.49
Diatoma tenue	0.00	0.23	0.00	0.00	0.00	0.00	0.25	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Diatoma tenue var. elongatum	0.00	0.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Diploneis cf. boldtiana	0.00	0.00	0.00	0.00	0.45	0.00	0.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Diploneis elliptica	0.00	0.00	0.00	0.48	0.23	0.00	0.00	0.00	0.00	0.23	0.00	0.00	0.23	0.23	0.00	0.68	0.00	0.24	0.50	0.25
Diploneis finnica	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.00
Diploneis marginestriata	0.00	0.00	0.00	0.00	0.00	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Diploneis modica	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.47	0.00	0.00	0.00	0.00	0.00	0.71	0.00	0.00	0.00	0.00	0.00
Diploneis oculata	0.00	0.00	0.50	1.44	0.23	0.99	0.00	0.00	0.00	0.46	0.70	0.25	0.94	0.47	0.00	0.46	0.00	0.97	0.00	0.00
Diploneis parma	0.49	0.00	0.50	0.00	0.00	0.00	0.00	0.00	0.00	0.46	0.47	0.25	0.23	0.00	0.00	0.23	0.48	0.00	0.00	0.00
Diploneis subovalis	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25
Diploneis spp.	0.00	0.00	0.00	0.00	0.45	0.00	0.49	0.48	0.00	0.23	0.00	0.00	0.00	0.00	0.24	0.46	0.00	0.00	0.50	0.74
Entomoneis ornata	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Eunotia bilunaris	0.00	0.00	0.00	0.00	0.00	0.25	0.00	0.00	0.00	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.24	0.00	0.25	0.00
Eunotia flexuosa	0.00	0.00	0.00	0.00	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Eunotia incisa	0.24	0.23	0.00	0.24	0.45	0.00	0.00	0.24	0.70	0.00	0.00	0.50	0.00	0.47	0.00	0.46	0.00	0.00	0.00	0.49
Eunotia muscicola var. tridentula	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.24	0.00	0.00	0.00
Eunotia naegelii	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.23	0.00	0.00	0.00	0.00
Eunotia paludosa	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.24	0.00	0.00
Eunotia spp.	0.49	0.47	1.24	0.96	1.13	0.25	0.98	1.44	0.23	1.38	1.40	0.74	0.47	0.70	0.71	0.23	0.24	0.24	0.99	1.23
Epithemia spp.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fragilaria arcus	0.73	0.23	0.50	0.00	0.45	0.74	0.00	0.24	1.17	1.15	0.47	0.00	0.00	0.70	0.47	0.46	1.19	0.00	0.74	0.98
Fragilaria berolinensis	0.24	0.00	0.00	0.00	0.00	0.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.00
Fragilaria bicapitata	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.96	0.00	0.46	0.00	0.00	0.70	0.00	0.00	0.00	0.00	0.00	0.25	0.00
Fragilaria brevistriata	5.87	4.43	6.70	0.00	3.85	7.94	2.70	2.39	8.18	4.82	7.67	5.45	4.22	7.67	3.06	4.34	7.38	9.18	5.94	2.95
Fragilaria capucina	2.93	0.23	3.47	4.55	2.72	1.24	3.69	3.59	3.74	5.50	0.93	1.73	0.23	0.93	0.24	0.46	1.43	3.38	1.49	1.97
Fragilaria capucina fo. gracilis	0.24	0.47	0.00	0.96	0.23	0.50	0.00	0.96	2.34	1.15	1.86	0.50	0.00	1.16	1.18	1.37	0.48	0.24	0.25	0.25
Fragilaria capucina (cf.) var. rumpens	0.24	0.93	0.50	0.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fragilaria construens	0.49	0.00	0.50	0.00	0.91	0.50	1.47	0.48	0.93	2.29	0.93	0.25	0.00	1.86	0.47	0.00	0.48	2.90	2.48	0.98
Fragilaria construens fo. binodis	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fragilaria construens var. venter	0.24	0.00	0.74	5.02	0.91	0.00	0.25	0.24	0.47	0.92	0.00	0.00	0.00	0.00	0.00	1.37	0.00	0.00	0.00	0.00
Fragilaria crotonensis	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.91	0.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.45	0.00	0.00
Fragilaria delicatissima	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.24	0.00	0.00	0.00
Fragilaria exigua	0.00	0.47	0.00	0.24	1.36	0.00	1.72	0.24	0.23	0.00	0.23	0.00	0.23	0.23	0.00	0.46	0.00	0.00	0.25	0.25
Fragilaria lapponica	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.23	0.00	0.00	0.00	0.00
Fragilaria leptostauron	0.49	0.00	6.45	0.72	0.00	2.98	0.00	0.48	0.70	0.46	0.23	0.00	0.00	0.00	0.47	0.23	2.38	0.00	0.50	0.49
Fragilaria nanana	2.20	1.63	0.99	1.20	2.49	1.99	1.23	2.39	0.23	0.92	1.63	0.00	0.23	0.00	0.00	0.00	0.00	0.00	0.50	0.00
Fragilaria cf. neoproducta	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.90	0.00	0.00
Fragilaria parasitica	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.47	0.00	0.00	0.00	0.24	0.00	0.00	0.00

Lakelse South Cont.

APPENDIX C-1b

Fragilaria pinnata	6.36	10.72	4.47	8.61	11.56	10.17	8.60	8.85	5.61	11.01	4.65	3.96	2.81	5.12	12.71	9.36	8.33	3.38	6.68	3.44
Fragilaria robusta	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.48	0.00	0.00	0.00
Fragilaria tenera	1.22	1.63	1.49	0.24	0.91	0.25	1.97	0.24	0.47	0.23	0.47	0.00	0.00	0.00	0.47	0.46	0.48	0.48	0.25	0.00
Fragilaria ulna	0.49	0.00	0.00	0.00	0.45	0.00	0.00	0.00	0.00	0.00	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fragilaria ulna var. acus	0.24	0.00	0.00	0.24	0.00	0.00	0.00	0.00	0.00	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fragilaria cf. virescens	1.47	1.63	0.00	0.00	0.00	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fragilaria sp. 1 PISCES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.00
Fragilaria spp.	1.96	0.47	0.99	1.20	2.72	0.00	2.46	0.96	0.00	0.92	0.93	0.00	0.00	0.00	0.71	0.23	0.00	0.97	0.00	0.49
Frustulia rhomboides	0.00	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.69	0.00	0.25	0.23	0.23	0.47	0.23	0.24	0.00	0.00	0.00
Frustulia rhomboides var. amphipleuroides	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.24	0.00	0.00
Frustulia rhomboides var. viridula	0.00	0.00	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Gomphonema acuminatum	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Gomphonema angustum	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.50	0.25
Gomphonema angustatum	0.00	0.00	0.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.70	0.00	0.00	0.00	0.00	0.23	0.48	0.00	0.50	0.00
Gomphonema auritum	0.00	0.00	0.00	0.00	0.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Gomphonema clevei	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.23	0.47	0.00	0.00	0.00	0.24	0.00	0.00	0.00	0.00	0.00
Gomphonema cf. gracile	0.00	0.00	0.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Gomphonema cf. minutum	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.47	0.00	0.00	0.00	0.00	0.23	0.00	0.00	0.00	0.00	0.00	0.00
Gomphonema olivaceum	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.46	0.00	0.00	0.00	0.00
Gomphonema parvulum	0.00	0.00	0.00	0.00	0.00	0.50	0.00	0.00	0.47	0.23	0.47	0.00	0.23	0.47	0.24	0.00	0.00	0.00	0.50	0.74
Gomphonema subtile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Gomphonema sp. BC (PL44,12)	0.24	0.00	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.49
Gomphonema spp.	2.69	1.40	1.99	0.72	0.91	2.23	2.70	3.11	0.93	0.92	2.33	1.24	0.23	0.70	0.47	0.68	1.43	0.72	0.74	0.49
Gyrosigma acuminatum	0.00	0.00	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25
Meridion circulare	0.00	0.00	0.00	0.00	0.00	0.50	0.00	0.00	0.00	1.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Meridion circulare var. constrictum	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.24	0.23	0.00	0.00	0.00	0.23	0.23	0.00	0.00	0.00	0.00	0.00	0.00
Navicula cf. alpinum	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Navicula capitata	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.50	0.00
Navicula capitata var. hungarica	0.00	0.00	0.74	0.48	0.00	0.00	0.25	0.48	0.00	0.00	0.47	0.00	0.70	0.47	0.00	0.00	0.24	0.24	0.00	0.00
Navicula cf. capitoradiata	1.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Navicula cocconeiformis	0.00	0.00	0.00	0.24	0.45	0.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25
Navicula cocconeiformis fo. elliptica	0.49	0.00	0.50	0.00	0.00	0.00	0.00	0.48	0.00	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Navicula contenta	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.23	0.00	0.00	0.00	0.00	0.00	0.00
Navicula cryptocephala	0.49	0.47	0.00	0.48	0.45	0.50	0.00	0.00	0.47	0.46	1.40	0.00	0.00	0.70	0.47	0.00	0.48	0.00	0.00	0.25
Navicula cryptotenella	0.24	0.00	0.00	0.96	0.23	0.50	0.00	0.00	0.00	0.00	0.00	0.25	0.00	0.00	0.71	0.68	0.00	0.00	0.25	0.00
Navicula cryptotenella fo. 1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Navicula cf. detenta	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.94	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Navicula difficillima	0.00	0.00	0.25	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.24	0.00	0.00	0.00
Navicula cf. evanida	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.48	0.48	0.74	0.74
Navicula explanata	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.00	0.00	0.00	0.00	0.48	0.00	0.00	0.00
Navicula gallica var. laevissima	0.00	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Navicula gallica var. perpusilla	0.00	0.00	0.00	0.00	0.23	0.00	0.25	0.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.24	0.25
Navicula gerloffii	0.00	0.00	0.00	0.00	0.00	0.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Navicula glomus	0.00	0.00	0.00	0.00	0.00	0.00	0.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Navicula halophila fo.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Navicula cf. harderii	0.00	0.00	0.00	0.00	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Navicula indifferens	0.00	0.23	0.50	0.00	0.00	0.00	0.00	0.48	0.00	0.00	0.23	0.00	0.00	0.00	0.00	0.00	0.24	0.00	0.50	0.00
Navicula jaernefeltii	0.00	0.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.23	0.00	0.23	0.00	0.24	0.46	0.00	0.72	0.25	0.25
Navicula joubaudii	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.14	0.48	0.00	0.00	0.49
Navicula cf. kotschyi	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Navicula krasskei	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.00
Navicula cf. lenzii	0.00	0.00	0.00	0.00	0.00	0.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.49
Navicula leptostriata	0.00	0.47	0.00	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Navicula libonensis	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.24	0.00	0.00	0.00	0.00	0.00
Navicula mediocris	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.46	0.00	0.00	0.00	0.47	0.00	0.00	0.00	0.00	0.00	0.00
Navicula minima	0.00	1.40	0.25	0.00	0.00	0.00	0.00	0.00	1.17	0.46	0.47	0.00	0.00	1.16	1.41	0.46	0.00	1.21	0.74	1.23
Navicula aff. minima	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.47	0.00	0.00	0.00	0.00	0.00	0.49
Navicula cf. modica	0.00	0.00	0.00	0.00	0.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Navicula praeterita	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.00
Navicula pseudoanglica	0.00	0.00	0.00	0.00	0.00	0.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Navicula cf. pseudoarvensis	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Navicula pseudoscutiformis	0.00	0.00	0.25	0.24	0.45	0.50	0.25	0.00	0.47	0.00	0.23	0.00	0.00	0.00	0.24	0.68	0.48	0.00	0.00	0.74
Navicula pseudoventralis	0.00	0.00	0.00	0.00	0.45	0.00	0.00	0.00	0.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.48	0.00	0.00
Navicula pupula	0.00	0.47	0.50	0.00	0.45	0.00	0.00	0.48	1.40	0.46	0.47	0.00	0.23	0.00	0.00	0.00	0.00	0.00	0.25	0.00
Navicula radiosa	0.00	0.00	0.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.23	0.00	0.24	0.00	0.00	0.48	0.50	0.00
Navicula rotunda	0.00	0.00	0.00	0.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.50	0.00	0.00	0.00	0.00	0.00	0.97	0.50	0.49
Navicula rhynchocephala	0.00	0.00	0.50	0.00	0.00	0.25	0.25	0.48	0.00	0.00	0.00	0.99	0.00	0.00	0.00	0.00	0.00	0.48	0.00	0.00
Navicula schmasssmannii	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.23	0.00	0.00	0.46	0.00	0.00	0.25	0.00
Navicula schoenfeldii	0.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Navicula seminulum	0.00	0.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.24	0.46	0.00	0.00	0.00	0.00
Navicula seminuloides	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.23	0.47	0.00	0.00	0.00	0.00	0.00
Navicula soehrensis var. hassiaca	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.48	0.00	0.00	0.00
Navicula submuralis	1.71	0.00	0.00	0.00	0.00	0.50	0.74	0.00	0.00	0.46	0.93	0.00	0.70	1.16	0.00	0.46	0.48	0.72	0.25	1.23
Navicula cf. subrotundata	0.00	0.47	0.00	0.00	0.00	0.00	0.00	0.96	0.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Navicula subtilissima	0.00	0.00	0.00	0.00	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Navicula aff. tridentula	2.44	0.93	0.50	0.48	0.00	0.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Navicula cf. utermoehli	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Navicula cf. vandami	0.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Navicula cf. variostriata	0.00	0.00	0.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Navicula aff. veneta	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25
Navicula ventralis	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Navicula vitabunda	0.49	0.00	0.00	0.48	0.68	0.99	0.00	0.00	0.00	0.00	0.47	0.00	0.47	0.00	0.47	0.00	0.00	0.00	0.25	0.00
Navicula vitiosa	0.00	0.00	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.68	0.00	0.24	0.00	0.00
Navicula weinzierlii	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Navicula sp. Pl19, 13-14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.70	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Navicula sp. 'fine ovoid'	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.24	0.00	0.00	0.00
Navicula spp.	0.98	1.17	1.24	2.39	0.68	0.99	1.23	0.48	1.64	0.69	1.86	0.00	0.70	0.00	1.41	0.23	2.14	0.72	1.73	2.21
Neidium ampliatum	0.00	0.00	0.00	0.48	0.23	0.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.24	0.00	0.00	0.00	0.00	0.00
Nitzschia acicularis	0.00	0.00	0.00	0.24	0.00	0.00	0.49	0.24	0.47	0.00	0.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Nitzschia amphibia	0.49	0.00	0.00	0.00	0.00	0.74	0.00	0.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Nitzschia angustata	0.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Nitzschia cf. bacillum	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.23	0.00	0.00	0.50	0.47	0.00	0.00	0.46	0.71	0.00	0.00	0.98
Nitzschia dissapata var.med.	0.00	0.93	0.50	0.48	0.00	0.25	0.00	0.00	0.47	0.00	0.47	0.50	0.00	0.00	0.00	0.00	0.00	0.48	0.50	0.25
Nitzschia cf. fonticola	0.00	0.00	0.00	0.00	0.00	0.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.00
Nitzschia cf. gracilis	0.00	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Nitzschia liebetruthii	0.00	0.00	0.00	0.00	0.23	0.50	0.00	0.00	0.00	0.00	0.00	0.99	0.00	0.00	0.24	0.00	0.00	0.00	0.00	0.25
Nitzschia linearis	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.68	0.00	0.00	0.00	0.00
Nitzschia linearis var. subtilis	0.49	0.00	0.00	0.00	0.00	0.00	0.00	0.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.24	0.00	0.00	0.00
Nitzschia palea	0.49	0.00	0.00	0.48	0.68	0.00	1.23	0.00	0.00	0.00	0.47	0.00	0.00	0.00	0.24	0.00	0.24	0.00	0.00	0.00
Nitzschia perminuta	0.00	0.00	0.00	0.48	0.00	0.74	0.00	0.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.68	0.00	0.00	0.00	0.00
Nitzschia recta	0.00	0.00	0.00	0.00	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Nitzschia tubicola	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Nitzschia spp.	0.98	0.00	0.50	0.72	1.13	0.25	0.25	0.24	0.23	0.00	0.70	0.00	0.23	0.93	0.00	0.00	0.24	0.00	0.50	0.49
Opephora olsenii	0.00	0.00	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pinnularia viridis	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pinnularia spp.	0.00	0.00	0.00	0.00	0.00	0.00	0.49	0.00	0.00	0.46	0.00	0.00	0.70	0.00	0.94	0.00	0.00	0.00	0.00	0.25
Rhopalodia gibba	0.00	0.00	0.00	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Simonsenia delognei	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.48	1.40	0.69	0.47	0.74	0.00	0.70	0.24	0.23	0.00	0.00	0.25	0.00
Stauroneis anceps fo. gracilis	0.00	0.00	0.00	0.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25
Stauroneis lauenburgiana	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.47	0.00	0.00	0.00	0.00	0.00	0.00
Stauroneis phoenicenteron	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Stauroneis smithii	0.00	0.00	0.00	0.00	0.00	0.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Stauroneis spp.	0.00	0.00	0.00	0.00	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.24	0.00	0.00	0.00
Stephanodiscus minutulus	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.24	0.00	0.00	0.00	0.00	0.00
Stephanodiscus parvus	0.00	0.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Surirella angusta	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.48	0.00	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Surirella spp.	0.00	0.00	0.00	0.48	0.00	0.00	0.00	0.00	0.00	0.23	0.00	0.00	0.23	0.23	0.00	0.23	0.24	0.00	0.00	0.00
Tabellaria fenestrata	0.00	0.23	0.00	0.00	0.00	0.00	0.00	0.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tabellaria floc 3	0.24	0.00	0.00	0.24	0.45	0.50	0.00	1.44	1.17	0.23	0.93	0.00	0.23	0.00	0.24	0.23	0.24	0.24	0.00	0.00
Tabellaria floc 3p	0.73	0.93	0.25	0.00	0.23	0.00	0.74	0.00	0.00	0.46	0.00	0.00	0.00	0.47	0.00	0.00	0.24	0.00	0.74	0.00
Tabellaria floc 4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.24	0.00	0.00	0.23	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tabellaria floc var. linearis	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.24	0.00	0.00
Tabellaria spp.	0.00	1.40	0.00	0.24	0.45	0.50	0.49	0.00	0.70	0.46	0.47	0.00	0.00	0.47	0.00	0.23	0.71	0.00	0.00	0.00
Central area unknown	0.98	0.47	0.00	0.00	0.00	0.00	0.00	0.24	0.23	0.46	0.00	0.25	0.00	0.00	0.24	0.46	0.48	0.24	0.00	0.25
Pennate unknown	1.71	1.40	0.25	0.48	0.23	0.74	0.49	0.72	0.47	0.46	0.70	1.98	0.00	1.63	0.00	0.91	1.90	0.48	0.99	1.47
Centric unknown	0.24	0.00	0.00	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Lake Else North
Analyst: KR Laird, Nov. 2002

Appendix C-2a

Diatom relative abundance

Taxa	0-1cm	1-2cm	2-3cm	3-4cm	4-5cm	5-6cm	6-7cm	7-8cm	8-9cm	9-10cm	11-12cm	13-14cm	15-16cm	17-18cm	19-20cm	21-22cm	23-24cm	25-26cm	27-28cm	29-30cm
Achnanthes altaica	0.00	0.00	0.00	0.93	0.49	0.25	0.49	0.00	0.00	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Achnanthes biasolettiana	0.00	0.00	0.00	0.00	0.00	0.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Achnanthes cf. bioretti	0.00	0.00	0.00	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Achnanthes calcar	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.43	0.00	0.00
Achnanthes chlidanos	0.48	0.00	0.00	0.00	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.00	0.43	0.00	0.72
Achnanthes clevei	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Achnanthes conspicua	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.43	0.00	0.00
Achnanthes daui	0.00	0.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Achnanthes delicatula	0.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Achnanthes didyma	0.00	0.21	0.24	0.00	0.00	0.00	0.49	0.00	0.00	0.48	0.00	0.25	0.71	0.94	0.00	0.00	0.00	0.00	1.49	0.00
Achnanthes flexella	0.00	0.00	0.47	0.46	0.25	0.50	0.00	0.00	0.74	0.00	0.49	1.23	0.00	0.00	0.00	0.00	0.25	0.85	0.00	0.00
Achnanthes flexella var. alpestris	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Achnanthes grana	0.00	0.00	0.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Achnanthes impexa	0.00	0.00	0.47	0.00	0.00	0.25	0.00	0.00	0.00	0.00	0.24	0.00	0.00	0.00	0.00	0.25	0.00	0.00	0.00	0.00
Achnanthes kriegeri	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.48	0.00	0.00	0.21	0.00	0.48
Achnanthes lacus-vulcani	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.50	0.25	0.00	0.25	0.00
Achnanthes laevis	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.24
Achnanthes lanceolata	0.00	0.00	0.00	0.46	0.00	0.00	0.00	0.00	0.25	0.00	0.49	0.00	0.60	0.00	0.00	0.00	0.00	0.21	0.25	0.00
Achnanthes lanceolata var. dubia	0.00	0.42	0.00	0.00	0.49	0.00	0.00	0.00	0.00	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Achnanthes lanceolata spp. freq.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.43	0.00	0.00
Achnanthes laterostrata	0.00	0.00	0.00	0.00	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.48
Achnanthes levanderi	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.42	0.00	0.00	0.00	0.00	0.00	0.23	0.00	0.00	0.25	0.00	0.00	0.00
Achnanthes linearis	0.00	0.00	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Achnanthes nodosa	0.48	0.00	0.24	0.00	0.49	0.00	0.00	0.42	0.25	0.24	0.98	0.00	0.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Achnanthes cf. marginulata	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.21	0.00	0.00
Achnanthes minutissima	17.03	15.92	11.56	14.62	13.55	9.45	12.96	14.85	10.92	11.30	8.54	13.55	9.29	10.77	9.52	7.43	7.37	14.07	13.40	13.84
Achnanthes oestrupii	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.73	0.00	0.00	0.47	0.00	0.00	0.00	0.00	0.50	0.48
Achnanthes petersenii	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.24
Achnanthes pusilla	0.96	0.42	0.94	0.23	0.74	1.24	1.47	0.21	2.23	0.00	1.71	0.74	0.00	1.17	1.19	0.74	1.97	0.43	0.50	1.91
Achnanthes rossii	0.00	0.00	0.00	0.00	0.25	0.00	0.00	0.00	0.00	0.48	0.00	0.00	0.00	0.47	0.24	0.00	0.00	0.43	0.50	0.24
Achnanthes saccula	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.50	0.00
Achnanthes subatomoides	0.00	0.00	0.00	0.00	0.00	1.24	0.49	0.42	0.74	0.96	0.00	2.96	0.71	0.70	0.95	0.00	0.00	0.00	0.25	1.67
Achnanthes suchlandtii	0.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.24	0.00	0.25	0.43	0.99	0.72
Achnanthes ventralis	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Achnanthes spp.	0.96	0.64	0.00	1.39	0.00	0.25	0.24	0.42	0.25	0.24	0.73	0.25	0.48	0.23	1.90	2.48	0.74	1.92	0.74	0.24
Amphipleura cf. kriegeriana	0.00	0.00	0.00	0.00	0.00	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Amphipleura pellucida	0.24	0.00	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.00	0.00	0.00	0.00	0.25	0.00	0.00	0.00
Amphora fogediana	0.00	1.06	0.00	0.00	0.99	0.00	0.00	0.00	0.50	0.00	0.00	0.00	0.00	0.00	0.24	0.00	0.00	0.00	0.00	0.00
Amphora inariensis	0.24	0.00	0.00	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.24	0.00	0.00	0.00	0.00	0.00
Amphora libyca	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.50	0.00	0.00	0.00	0.24
Amphora pediculus	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.24
Asterionella formosa	1.20	1.06	0.94	0.46	0.00	0.25	0.73	0.84	0.50	0.24	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Aulacoseira ambigua	0.00	0.00	0.47	0.23	0.00	0.25	0.24	0.00	0.25	0.00	0.49	0.00	0.24	0.00	0.00	0.00	0.00	0.21	0.74	0.48
Aulacoseira distans	1.92	0.64	0.47	1.62	3.45	4.23	0.49	3.35	2.48	7.21	4.88	3.69	0.71	1.17	3.10	1.24	1.47	1.28	1.99	0.48
Aulacoseira distans var. humilis	0.00	0.64	0.71	0.00	0.00	0.00	0.00	0.42	0.25	0.48	0.49	0.74	1.43	0.00	0.48	0.00	0.00	0.00	0.25	0.24
Aulacoseira distans var. tenella	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.98	0.00	0.00	2.58	3.57	3.71	2.21	0.85	1.49	1.19
Aulacoseira cf. lacustris	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.07	0.00	0.00
Aulacoseira perglabra	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Aulacoseira subartica	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Aulacoseira spp.	0.72	0.21	0.47	0.46	0.00	0.25	0.24	0.84	0.50	0.24	0.00	0.25	0.24	0.47	0.00	0.00	0.00	0.64	0.50	0.95
Brachysira brebissonnii	0.00	0.00	0.00	0.23	0.00	0.00	0.00	0.00	0.25	0.00	0.00	0.00	0.00	0.23	0.00	0.00	0.00	0.00	0.00	0.24
Brachysira vitrea	3.12	1.49	1.65	0.93	2.46	1.74	1.47	3.14	0.99	0.24	1.46	0.74	0.71	1.17	1.43	0.50	0.00	2.56	1.24	3.10
Caloneis bacillum	0.00	0.00	0.00	0.00	0.00	0.00	0.49	0.00	0.50	0.00	0.00	0.00	0.00	0.00	0.00	0.50	0.49	0.00	0.00	0.48
Caloneis hyalina	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.48	0.00	0.00	0.00	0.00	0.00
Caloneis spp.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.48	0.00	0.49	0.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Chaetoceros cyst	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.21	0.25	0.00
Cocconeis neodiminuta	0.00	0.00	0.24	0.46	0.00	0.00	0.00	0.00	0.25	0.00	0.00	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cocconeis placentula - raphid valve	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.00	0.24	0.00	0.24	0.00	0.00	0.00	0.00	0.00	0.25	0.00
Cocconeis placentula var. euglypta	0.00	0.21	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.21	0.00	0.24
Cocconeis placentula var. lineata	0.00	0.21	0.00	0.23	0.00	0.00	0.00	0.00	0.00	0.72	0.00	0.00	0.00	0.47	0.24	0.00	0.00	0.21	0.25	0.00
Cocconeis spp.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.24	0.25	0.00	0.00	0.25	0.24
Cymbella cesatii	0.00	0.42	0.47	0.46	0.99	0.25	0.98	0.42	0.00	0.00	0.98	0.49	0.00	0.00	0.00	0.25	0.00	0.00	0.99	0.48
Cymbella cymbiformis	0.00	0.00	0.00	0.00	0.49	0.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.47	0.00	0.00	0.00	0.00	0.00	0.00
Cymbella descripta	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.48	0.00	0.48	0.50	0.49	0.43	0.00	0.00
Cymbella gaeumannii	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cymbella gracilis	0.48	0.00	0.00	0.00	0.00	0.00	0.00	0.42	0.00	0.48	0.49	0.00	0.00	0.00	0.48	0.00	0.00	0.00	0.00	0.00
Cymbella incerta	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cymbella microcephala	0.00	0.42	0.00	0.00	0.99	0.00	0.00	0.42	0.00	0.00	0.24	0.49	0.00	0.00	0.00	0.00	0.00	0.21	0.25	0.24
Cymbella minuta	0.00	0.42	0.47	0.93	0.25	0.25	0.49	0.84	0.00	1.44	0.98	0.74	0.00	0.47	0.00	0.74	0.49	0.64	0.99	1.19
Cymbella naviculiformis	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.50	0.00	0.00	0.00	0.48	0.00	0.00	0.00	0.00	0.00	0.99	0.00
Cymbella silesiaca	0.00	0.00	0.00	0.23	0.74	0.00	0.49	0.42	0.50	0.24	0.49	0.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cymbella sinuata	0.24	0.21	0.71	0.00	0.25	0.75	0.24	0.21	0.99	0.00	0.00	0.49	0.00	0.00	0.00	0.00	0.00	0.21	0.25	0.00
Cymbella spp.	0.00	0.64	0.00	0.46	0.49	0.75	0.49	0.00	0.00	0.00	0.49	0.00	0.71	0.47	0.00	1.49	1.47	0.00	0.99	0.00
Cyclotella bodanica var. leminica	0.24	0.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cyclotella michiganiana	2.40	3.61	4.48	2.32	4.19	2.49	0.98	1.67	0.50	3.13	0.00	0.49	0.48	0.94	0.95	1.73	0.74	1.28	1.24	0.95
Cyclotella radiosa	0.00	0.21	0.00	0.70	0.74	0.25	0.00	0.42	0.25	0.24	0.24	0.74	0.00	0.94	0.71	0.74	1.23	0.43	0.74	0.95
Cyclotella stelligera complex	36.69	36.52	34.67	34.57	33.74	37.81	36.43	41.00	43.67	40.87	43.41	38.92	52.38	45.67	50.00	49.50	51.60	36.89	35.24	29.12
Cyclotella spp.	0.00	0.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Denticula kuetzingii	0.00	0.00	0.00	0.00	0.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Denticula spp	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.48
Diatoma anceps	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.00
Diatoma mesodon	0.48	1.70	0.94	0.93	0.74	0.50	0.98	0.42	0.74	0.72	0.00	0.74	0.48	0.23	0.95	0.25	0.00	0.21	0.00	0.24
Didymosphaenia geminata	0.00	0.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Diploneis cf. boldtiana	0.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Diploneis elliptica	0.00	0.00	0.24	0.00	0.49	0.50	0.00	0.00	0.50	0.48	0.24	0.00	0.00	0.47	0.00	0.00	0.00	0.00	0.00	0.24
Diploneis marginestriata	0.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Diploneis parma	0.24	0.00	0.00	0.00	0.00	0.25	0.00	0.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.00
Diploneis spp.	0.00	0.21	0.00	0.00	0.00	0.00	0.00	1.05	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.00	0.25	0.72
Eunotia bilunaris	0.00	0.00	0.00	0.23	0.00	0.25	0.00	0.21	0.00	0.00	0.24	0.00	0.71	0.23	0.00	0.25	0.00	0.21	0.00	0.00
Eunotia bilunaris var. mucophila	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Eunotia elegans	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.00	0.00	0.00
Eunotia incisa	0.00	0.00	0.47	0.00	0.00	0.50	1.22	0.21	0.00	0.24	0.73	0.00	0.00	0.00	0.24	0.00	0.74	0.21	0.25	0.48
Eunotia muscicola var. tridentula	0.00	0.00	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Eunotia naegelii	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.21	0.00	0.00	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Eunotia spp.	0.24	1.27	0.00	1.86	0.25	1.49	0.00	0.63	0.25	1.68	0.73	0.25	1.43	0.47	0.71	0.00	0.49	0.00	0.74	0.24
Fragilaria alpestris	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fragilaria arcus	1.68	1.27	0.94	1.62	0.49	1.00	0.98	0.42	0.74	0.48	0.24	0.00	0.48	0.70	0.24	0.99	0.74	0.64	0.74	0.48
Fragilaria bicapitata	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.50	0.00	0.21	0.50	0.00
Fragilaria brevistriata	2.16	5.31	1.65	1.62	3.20	1.99	5.13	1.26	1.24	3.85	1.71	2.71	2.62	2.34	0.71	3.47	1.47	5.54	3.47	2.63
Fragilaria capucina	0.96	1.06	1.65	1.62	1.48	0.75	1.47	1.67	3.23	1.92	0.73	2.46	1.90	3.75	0.00	0.99	1.47	0.85	2.23	0.72
Fragilaria capucina var. amphicephala	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fragilaria capucina fo. gracilis	0.24	1.91	1.42	1.86	2.22	1.74	0.24	0.84	0.99	0.48	1.71	2.46	0.24	3.75	0.48	0.50	2.70	0.00	0.25	0.00
Fragilaria capucina (cf.) var. rumpens	1.68	0.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.24	0.00	0.00	0.00	0.00	0.50	0.00	0.00	0.00	0.00
Fragilaria constricta fo. stricta	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fragilaria construens	0.00	3.82	0.24	0.00	1.97	0.50	0.24	0.84	0.99	0.00	0.00	2.96	1.90	0.94	0.00	0.50	0.25	1.49	0.00	1.43
Fragilaria construens var. venter	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.24	0.00	0.00	0.00	0.50	0.00
Fragilaria crotonensis	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.95	0.00	0.00	0.00	0.00	0.95
Fragilaria delicatissima	0.48	0.00	0.00	0.46	0.00	0.00	0.00	0.21	0.00	0.00	0.00	0.00	0.00	0.47	0.00	0.00	0.00	0.00	0.00	0.00
Fragilaria exigua	0.00	0.00	0.00	0.00	0.00	0.00	0.24	0.00	0.00	0.00	0.49	0.25	0.71	0.00	0.00	0.00	0.00	0.21	0.00	0.00
Fragilaria lapponica	0.00	0.00	0.00	0.23	0.00	0.00	0.00	0.21	0.00	0.00	0.73	0.00	0.00	0.47	0.00	0.00	0.00	0.00	0.00	0.00
Fragilaria leptostauron	0.00	0.42	0.00	0.23	0.00	0.00	1.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.49	0.43	0.00	1.19
Fragilaria aff. mazamaensis	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fragilaria nanana	3.84	3.40	5.66	4.64	5.42	6.97	5.38	2.72	5.46	7.45	4.63	4.68	2.62	3.75	6.19	3.22	2.95	0.64	0.00	0.24
Fragilaria pinnata	3.36	2.34	8.02	6.96	5.91	3.23	6.85	3.77	2.98	1.68	5.85	3.45	3.33	1.41	4.29	1.98	2.46	10.02	9.43	12.41
Fragilaria pulchella	0.00	0.00	0.00	0.00	0.00	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fragilaria tenera	0.00	0.85	0.47	0.70	0.25	0.50	1.47	1.26	0.00	0.00	0.24	0.99	0.48	0.00	0.00	0.00	1.47	0.00	0.50	0.00
Fragilaria ulna	0.00	0.00	0.24	0.00	0.00	0.00	0.00	0.21	0.00	0.00	0.00	0.00	0.00	0.47	0.00	0.00	0.00	0.00	0.00	0.00
Fragilaria ulna var. acus	0.24	0.00	0.00	0.00	0.00	0.00	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.00	0.00	0.00	0.00
Fragilaria sp. 1 PISCES	0.00	0.00	0.94	0.00	0.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fragilaria spp.	0.48	0.64	1.18	1.62	0.99	0.00	0.49	0.84	0.00	0.24	0.24	0.74	0.00	0.94	0.48	0.50	0.49	0.00	0.00	0.24
Frustulia rhomboides	0.00	0.21	0.00	0.00	0.00	0.00	0.24	0.00	0.25	0.00	0.24	0.00	0.00	0.00	0.00	0.25	0.00	0.00	0.50	0.24
Frustulia rhomboides var. amphipleuroides	0.24	0.00	0.00	0.00	0.00	0.00	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Gomphonema acuminatum	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.50	0.00
Gomphonema angustum	0.24	0.00	0.00	0.23	0.00	0.00	0.00	0.00	0.25	0.24	0.49	0.00	0.00	0.00	0.00	0.00	0.00	0.21	0.00	0.00
Gomphonema angustatum	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.49	0.00	0.00	0.00

Lakelse North Cont.

Appendix C-2b

Gomphonema cf. clavatum	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.48
Gomphonema clevei	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.24	0.00	0.00	0.00	0.00	0.00
Gomphonema cf. gracile	0.00	0.00	0.00	0.00	0.00	0.00	0.49	0.21	0.00	0.00	0.49	0.00	0.00	0.23	0.00	0.00	0.00	0.21	0.00	0.00
Gomphonema olivaceum	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.42	0.50	0.24	0.00	0.49	0.71	0.70	0.00	0.50	0.00	0.00	0.00	0.00
Gomphonema parvulum	0.00	0.00	0.47	0.00	0.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.48	0.00	0.00	0.00	0.49	0.00	0.00	0.00
Gomphonema cf. pseudotenellum	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.48	0.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Gomphonema spp.	1.44	0.42	2.59	2.32	0.99	1.99	1.22	0.42	1.99	0.48	1.46	0.74	0.71	0.94	1.43	1.98	0.98	0.43	1.24	0.48
Meridion circulare	0.24	0.42	0.00	0.23	0.25	0.00	0.00	0.84	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.50	0.00	0.00	0.00	0.00
Meridion circulare var. constrictum	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Navicula absoluta	0.00	0.00	0.00	0.00	0.00	0.00	0.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Navicula angusta	0.00	0.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Navicula cf. arvensis	0.00	0.00	0.00	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Navicula cf. begerii	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.94	0.00	0.00	0.00	0.00	0.00	0.00
Navicula capitata var. hungarica	0.00	0.00	0.00	0.23	0.00	0.25	0.24	0.21	0.00	0.00	0.00	0.49	0.00	0.00	0.00	0.00	0.00	0.43	0.74	0.00
Navicula capitata var. lueneburgensis	0.00	0.00	0.00	0.00	0.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Navicula cocconeiformis	0.00	0.00	0.00	0.00	0.00	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.94	0.00	0.00	0.00	0.00	0.25	0.24
Navicula contenta	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Navicula cryptocephala	0.00	0.42	0.94	0.70	0.00	0.75	0.73	0.00	0.00	0.00	0.00	0.49	0.00	0.00	0.00	0.99	0.49	0.00	0.00	0.24
Navicula cryptotenella	0.00	0.00	0.24	0.00	0.25	0.00	0.00	0.00	0.00	0.48	0.49	0.00	0.00	0.00	0.00	0.50	0.49	0.00	0.25	0.00
Navicula cryptotenella fo. 1	0.00	0.00	0.47	0.00	0.00	0.00	0.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Navicula cf. detenta	0.00	0.00	0.00	0.00	0.49	0.00	0.00	0.00	0.00	0.00	0.24	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Navicula difficillima	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.00	0.24	0.00	0.00	0.00	0.24	0.25	0.00	0.00	0.00	0.00
Navicula cf. evanida	0.00	0.00	0.00	0.00	0.00	0.50	0.00	0.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.50	0.00
Navicula explanata	0.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Navicula gallica var. perpusilla	0.00	0.00	0.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.43	0.00	0.24
Navicula gerloffii	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Navicula cf. gregaria	0.00	0.42	0.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Navicula cf. harderii	0.00	0.00	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Navicula indifferens	0.48	0.21	0.24	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Navicula jaernefeltii	0.00	0.00	0.00	0.00	0.00	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Navicula joubaudii	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.72
Navicula laevissima	0.00	0.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.43	0.00	0.00
Navicula lapidosa	0.00	0.00	0.00	0.00	0.00	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Navicula medioconvexa	0.00	0.00	0.00	0.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.00	0.00	0.00	0.00
Navicula mediocris	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.50	0.00	0.00	0.00	0.00	0.00	0.48	0.00	0.00	0.00	0.00	0.00
Navicula minima	0.00	0.00	0.24	0.00	0.00	0.00	0.00	0.00	0.25	0.00	0.00	0.00	0.48	0.94	0.00	0.00	0.00	0.00	0.00	0.95
Navicula aff. minima	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.21	0.50	0.00
Navicula aff. mutica	0.00	0.00	0.00	0.00	0.00	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Navicula porifera	0.00	0.00	0.00	0.00	0.00	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.43	0.00	0.00
Navicula praeterita	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.50	0.00	0.00	0.00	0.00	0.00	0.48	0.50	0.49	0.00	0.00	0.00
Navicula pseudoscutiformis	0.00	0.42	0.00	0.00	0.00	0.50	0.00	0.00	0.25	0.00	0.24	0.25	0.00	0.00	0.00	0.00	0.00	0.85	0.00	0.48
Navicula pupula	0.72	0.00	0.24	0.00	0.00	0.00	0.73	0.21	0.50	0.48	0.00	0.25	1.19	0.00	0.48	0.00	0.74	0.43	0.25	0.00
Navicula radiosa	0.48	0.00	0.00	0.00	0.00	0.25	0.00	0.21	0.00	0.24	0.24	0.00	0.00	0.00	0.00	0.25	0.00	0.00	0.00	0.00
Navicula reinhardtii	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.00	0.21	0.00	0.00
Navicula rotunda	0.00	0.00	0.00	0.00	0.00	0.00	0.49	0.00	0.00	0.00	0.00	0.25	0.00	0.23	0.00	0.00	0.00	0.00	0.00	0.00
Navicula rhynchocephala	0.00	0.00	0.00	0.00	0.00	0.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.00	0.21	0.50	0.00
Navicula schmasssmannii	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.47	0.00	0.00	0.49	0.43	0.00	0.00
Navicula seminulum	0.48	0.00	0.00	0.00	0.00	0.00	0.00	0.42	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.50	0.00	0.00	0.00	0.00
Navicula submuralis	0.96	0.85	1.18	0.00	0.00	0.75	0.00	0.00	0.00	0.00	1.46	0.00	0.48	0.00	0.00	0.50	0.00	0.43	1.99	3.34
Navicula subtilissima	0.00	0.00	0.00	0.00	0.00	0.00	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Navicula cf. utermoehli	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.85	0.50	0.48
Navicula aff. veneta	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Navicula viridula var. linearis	0.00	0.00	0.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Navicula vitiosa	0.00	0.00	0.00	0.00	0.49	0.25	0.49	0.00	0.00	0.48	0.00	0.74	0.48	0.00	0.00	0.74	0.00	0.00	0.00	0.00
Navicula sp. 'fine ovoid'	0.00	0.00	0.00	0.00	0.00	0.50	0.00	0.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.21	0.00	0.48
Navicula spp.	0.48	2.12	1.42	0.93	0.00	1.24	0.00	0.63	0.50	1.44	0.49	0.49	0.48	0.00	0.95	0.25	0.98	2.35	1.49	1.19
Neidium ampliatum	0.24	0.00	0.00	0.00	0.25	0.00	0.00	0.00	0.25	0.00	0.00	0.00	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Neidium spp.	0.00	0.00	0.00	0.00	0.00	0.50	0.49	0.00	0.00	0.00	0.00	0.00	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.24
Nitzschia acicularis	2.16	0.85	1.89	0.46	0.99	0.50	1.71	1.26	0.99	0.48	0.00	1.23	0.95	0.47	0.00	0.00	0.49	0.00	0.00	0.00
Nitzschia amphibia	0.00	0.00	0.00	0.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Nitzschia cf. bacillum	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.49	0.43	0.25	0.00
Nitzschia cf. capitellata	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.47	0.00	0.00	0.00	0.00	0.00	0.00
Nitzschia dissapata var.med.	0.00	0.00	0.47	0.23	0.25	0.50	0.49	0.00	0.00	0.24	0.00	0.25	0.24	0.00	0.24	0.00	0.00	0.43	0.50	0.48
Nitzschia frustulum	0.00	0.00	0.00	0.46	0.00	0.00	0.00	0.00	0.00	0.00	0.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Nitzschia cf. gracilis	0.48	0.00	0.00	0.00	0.00	0.00	0.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Nitzschia liebetruthii	0.48	0.00	0.00	0.00	0.49	0.00	0.00	0.00	0.00	0.00	0.49	0.00	0.00	0.00	0.00	0.00	0.00	0.21	0.00	0.24
Nitzschia linearis	0.00	0.00	0.00	0.00	0.00	0.00	0.24	0.42	0.00	0.00	0.00	0.00	0.00	0.00	0.24	0.25	0.00	0.00	0.00	0.00
Nitzschia linearis var. subtilis	0.00	0.00	0.47	0.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Nitzschia lorenziana	0.00	0.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Nitzschia palea	0.48	0.42	0.94	0.00	0.49	0.50	0.49	0.42	0.74	0.24	0.00	0.25	0.48	0.47	0.00	0.00	0.25	0.00	0.00	0.00
Nitzschia palea var. tenuirostris	0.00	0.00	0.00	0.00	0.00	0.00	0.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Nitzschia paleaceae	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Nitzschia perminuta	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.70	0.48	0.00	0.00	0.64	0.25	0.24
Nitzschia cf. pseudofonticola	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Nitzschia recta	0.00	0.00	0.24	0.00	0.00	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Nitzschia tubicola	0.00	0.00	0.00	0.46	0.00	0.75	0.00	0.00	0.00	0.00	0.00	0.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Nitzschia cf. vermicularis	0.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Nitzschia spp.	0.24	0.00	0.94	2.32	0.49	1.49	0.49	1.67	2.48	1.68	0.24	1.23	0.48	1.17	0.95	0.99	0.49	0.00	0.00	0.95
Pinnularia gibba	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.48	0.00	0.00	0.00	0.00	0.00	0.25	0.00
Pinnularia ignobilis	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.24
Pinnularia interrupta	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.71	0.23	0.00	0.00	0.00	0.00	0.00	0.00
Pinnularia microstauron	0.48	0.00	0.00	0.23	0.00	0.00	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pinnularia schwabei	0.00	0.00	0.00	0.00	0.49	0.00	0.00	0.00	0.00	0.00	0.00	0.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pinnularia subcapitata	0.00	0.00	0.00	0.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.00
Pinnularia spp.	0.24	0.00	0.00	0.00	0.00	0.00	0.00	1.05	0.00	0.00	0.49	0.25	0.48	0.00	0.00	0.50	0.00	0.00	0.00	0.00
Pleurosigma spp.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Simonsenia delognei	0.24	0.00	0.00	0.00	0.00	0.50	0.00	0.00	0.00	0.00	0.24	0.00	0.00	0.00	0.00	0.00	0.25	0.00	0.00	0.00
Stauroneis phoenicenteron	0.00	0.00	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Stauroneis spp.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.49	0.00	0.00	0.24
Stenopterobia curvula	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.00	0.00	0.00
Stephanodiscus minutulus	0.00	0.00	0.00	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Stephanodiscus parvus	0.00	0.00	0.00	0.00	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Surirella spp.	0.00	0.00	0.24	0.23	0.00	0.25	0.73	0.00	0.00	0.24	0.00	0.00	0.71	0.00	0.00	0.50	0.49	0.21	0.00	0.00
Tabellaria fenestrata	0.00	0.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tabellaria floc 3	0.00	0.21	0.00	0.00	0.74	0.00	0.98	0.42	0.25	0.24	0.00	0.25	0.00	0.00	0.24	0.25	0.25	0.21	0.00	0.24
Tabellaria floc 3p	0.00	0.00	0.00	0.23	0.25	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.00	0.00	0.48
Tabellaria floc 4	0.72	0.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.24	0.23	0.24	0.25	0.00	0.00	0.00	0.00
Tabellaria floc var. linearis	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.00	0.25	0.00
Tabellaria spp.	0.00	0.00	0.00	0.23	0.00	0.25	0.49	0.63	0.25	0.72	0.24	0.00	0.48	0.00	0.24	0.74	0.74	0.21	0.25	0.00
Central area unknown	0.24	0.42	0.00	0.46	0.00	0.00	0.00	0.00	0.00	0.00	0.24	0.00	0.00	0.00	0.24	0.50	0.25	0.43	0.50	0.48
Pennate unknown	0.00	0.00	0.00	0.00	0.99	0.50	0.24	0.21	1.24	0.48	0.00	0.00	0.24	0.47	0.00	0.50	1.47	0.00	0.50	1.67
Centric unknown	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.24	0.00	0.00	0.00	0.00	0.00