ASSESSMENT OF CHANGES IN TOTAL PHOSPHORUS IN FRASER LAKE, B.C: A PALEOLIMNOLOGICAL ASSESSMENT (March 2001)

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List of Figures and Appendices:

BACKGROUND

Sediment cores were taken from the central and western basins of Fraser Lake during October 1999. Bruce Carmichael and Rick Nordin retrieved the cores with a modified K-B corer (internal diameter ~6.35 cm). On shore the core was sectioned into 0.5-cm intervals into 120-ml plastic containers. Every other sample was shipped on ice to Queen's University where they were stored in our coldroom at 4°C. The containers were weighed to determine the total wet weight of sediment prior to subsampling for ^{210}Pb analyses. Twenty intervals (every 2 cm) were subsampled for diatom and sixteen intervals for ^{210}Pb analysis. Prepared samples for ^{210}Pb analysis (see below) were sent to MYCORE Ltd.

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. Sixteen subsamples of wet sediment from each core were weighed and oven-dried (24 hr at 105°C) and reweighed to determine percent water and dry weight of the sediment. Samples that were submitted for ^{210}Pb analysis were ground to a fine dust by use of a pestle and redried overnight at 105°C. The weight of this dried sediment was recorded to four decimal places after it was put in a plastic digestion tube. This tube was shipped to MYCORE Ltd. for determination of ^{210}Pb activity.

Percent organic matter for each of the 16 ^{210}Pb samples was determined 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.

^{210}Pb activities were estimated from determination of ^{209}Po and a tracer of known activity by alpha spectroscopy. Unsupported ^{210}Pb is calculated by subtracting supported ^{210}Pb (the baseline activity determined from bottom samples of the core) 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 Appendices B and D for a summary of ^{210}Pb calculations (B-1, D-1) and output from the CRS model (B-2, D2) for the cores taken from the central and western basins.

Diatom Preparation and Enumeration

Slides for diatom analysis were prepared using standard techniques (Cumming, Wilson, Smol and Hall, 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 approx. 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).

Cluster Analysis

A depth-constrained cluster analysis was run on the diatom assemblages in the core to provide an unbiased assessment of changes in diatom assemblages through time. A squared chord distance was used as a measure of similarity between samples in the cluster analysis. Zones based on this clustering algorithm were placed on the diatom stratigraphy to represent zones of similar diatom assemblages (dashed lines on Figs. 2 and 4).

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 Wilson, Cumming & Smol (1996). 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, Hall & Smol (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 (Fig. 1E, 3E) were critically assessed to determine: 1) if they tracked the main direction of variation in the diatom species assemblages (Figs. 1D, 3D); and 2) to assess if the assemblages encountered in the core are well represented in the modern-day samples (Figs. 1F, 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 cores was determined from the first axis scores from a principal components analysis (PCA) ordination using non-transformed species abundance data. A PCA was chosen to represent the main direction of variation of the diatom assemblages in this core 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

Fraser L. - Central Core

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

The ^{210}Pb profile of the core from the central basin of Fraser Lake suggests that this core has the potential to provide a good record of environmental history of this basin over the past 150 years (Fig. 1A). With the exception of the uppermost 2 points, this core shows an exponential decay with core depth (Fig. 1A). Since the early 1900s, the ^{210}Pb activities suggest that sedimentation rates have increased (Fig. 1B). The variation in sedimentation rates prior to the 1900 has to be interpreted cautiously since these estimates are based on small changes in ^{210}Pb activities in comparison to changes towards the top of the cores (Fig. 1B). The post-1900 inferred increase in sedimentation rates is temporally consistent with the small increase in percent organic matter from ~8% to 9-10% (Fig. 1C). However, increases in sedimentation rates are best evaluated using multiple cores since sedimentation rates can vary widely between cores from the same lake.

Diatom Assemblage Changes and Analyses

Only subtle changes in diatom assemblages have occurred in the central basin of Fraser Lake over the past 200 years. The inferred changes in TP are related to the main direction of variation in the diatom assemblages (the coefficient of determination between the PCA axis 1 scores (Fig. 1D) and the log TP inferences (Fig. 1E) is 0.72), and the diatom assemblages in this core are well represented in the modern day samples (Fig. 1F). Based on the above, the TP inferences provided from the diatom assemblages are likely reliable.

In total, 99 diatom taxa were encounter in this core (Appendix C-1). However, *Aulacoseira subarctica*, a eutrophic taxon, dominates throughout the core. None-the-less, there are variations in the subdominant taxa. Cluster analysis of the diatom assemblages suggests the changes in diatom assemblages through time can be divided into three primary zones (Fig. 2). Prior to c. 1820 (Fig. 2, Zone C), taxa such as *Stephanodiscus parvus* and *Stephanodiscus minutulus*, *Fragilaria crotonensis*, and *Stephanodiscus niagarae* are found in their highest relative abundance. Between c. 1820 and 1975 (Zone B), *A. subarctica* dominates, although it peaks between c. 1850-1890 (Fig. 2). The high abundance of this taxon is associated with the highest inferred TP values over the past 200 years (Fig. 1E). The post-1975 diatom assemblages are similar to those in Zone C, with the exception of increases in two additional taxa, *Fragilaria capucina* v. *gracilis* and *Tabellaria flocculosa*. In summary, the floristic changes in this core suggest that the lake has always been mesotrophic, and that TP values have varied between the ~20 to 30 ug/L (Fig. 1E). The estimates of changes in sedimentation rates and slight increases in organic matter (Figs. 1B,C) do not correspond to the times of the most productive periods as indicated by the diatoms. It is possible that our modern analogs have overestimated the preference of *Aulacoseira* with respect to total phosphorus. That said, assemblages prior to 1820 are common to assemblages today, suggesting that conditions are not so different today as they have been in the recent past. In summary, there do not appear to any recent unprecedented changes in diatom assemblages in this lake.

Fraser Lake - Western Core

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

The ^{210}Pb profile from the core from the western basin of Fraser Lake is much more complex in comparison to the core from the central basin. Additionally, the total ^{210}Pb activity in the core from the western basin is approximately half the amount found in the core from the central basin. Lower ^{210}Pb activities are associated with lakes that have higher rates of sedimentation and/or erosion of materials low in ^{210}Pb activity from the watershed. As expected, the CRS model estimates show large increases in the rates of sedimentation since the early 1900s. An alternative explanation for the complex ^{210}Pb profile in this core is sediment mixing in specific intervals. Given the distinct changes in diatom assemblages as well as in organic matter, it is unlikely that the sediment mixing is a satisfactory explanation. The highest estimated sedimentation rates (Fig. 3B) correspond with decreases in organic matter (Fig. 3C), possibly suggesting increased erosion from the watershed. Pre-1900 rates of sedimentation are difficult to estimate accurately because of the low ^{210}Pb activity in this core in comparison to the core from the central basin. In summary, the core from the western basin is much more difficult to interpret in comparison to the core from the central basin. Additionally, because of the much higher sedimentation rates in the western basin, in conjunction with analyses at every 2 cm in both cores, the record from the western basin provides a much more detailed record of the post-1900 changes in comparison to the core from the central basin.

Diatom Assemblage Changes and Analyses

The changes in the core from the west basin exhibit broadly similar patterns to those found in the central core. The inferred changes in TP are related to the main direction of variation in the diatom assemblages (the coefficient of determination between the PCA axis 1 scores (Fig. 3D) and the log TP inferences (Fig. 3E) is 0.71), and the diatom assemblages in this core are well represented in the modern day samples (Fig. 3F). Based on the above, the TP inferences provided from the diatom assemblages are likely reliable.

In total, 162 diatom taxa were encounter in this core (Appendix F-1). As in the central core, *A. subarctica*, a eutrophic taxon, dominates throughout. None-the-less, there are variations in the subdominant taxa. Cluster analysis of the diatom assemblages suggests the changes in diatom assemblages through time can be divided into three primary zones (Fig. 2). Prior to c. 1950 (Fig. 4, Zone C), *A. subarctica* dominates, although it peaks somewhere in the mid-to-late 1800s (corresponds to Zone B of the central core). The high abundance of this taxon is associated with the highest inferred TP values in this core (Fig. 3E). The precise time of this event is difficult to define in this core because of the low ^{210}Pb activity in this core. Given the high sedimentation rates inferred in this core, it is likely that it doesn't cover as long a time period as the core from the central basin (i.e. the core from the western basin was not long enough to recover the period represented by Zone C in the core from the central basin). From c. 1950 to the early 1980s (Zone B, Fig. 4), there is a pronounced drop in the abundance of *A. subarctica*. At this time, there are progressive increases and declines of *S. parvus*, *Fragilaria capucina* and *Aulacoseira ambigua*. The increase in *F. capucina* is also evident in the core from the central basin at this time, but is not as pronounced, likely due to the lower temporal resolution in the core from the central basin. The post-1980 diatom assemblages (Zone A) initially show an increase in diatom taxa associated with lower levels of total phosphorus (e.g. *Fragilaria tenera*, *Fragilaria nanana* and *F. crotonensis* and *F. ambigua*), followed by a return in dominance by the more eutrophic *A. subarctica*.

In summary, the floristic changes in this core suggest that the lake has always been mesotrophic. Changes in inferred rates of sedimentation in combination with lower amounts of organic matter suggest that watershed activities may have caused unusual rates of sedimentation in the post-1950 period. However, it does not appear that these changes have caused changes in diatom assemblages, and indirectly water quality, that are unusual for this lake.

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FIGURE CAPTIONS

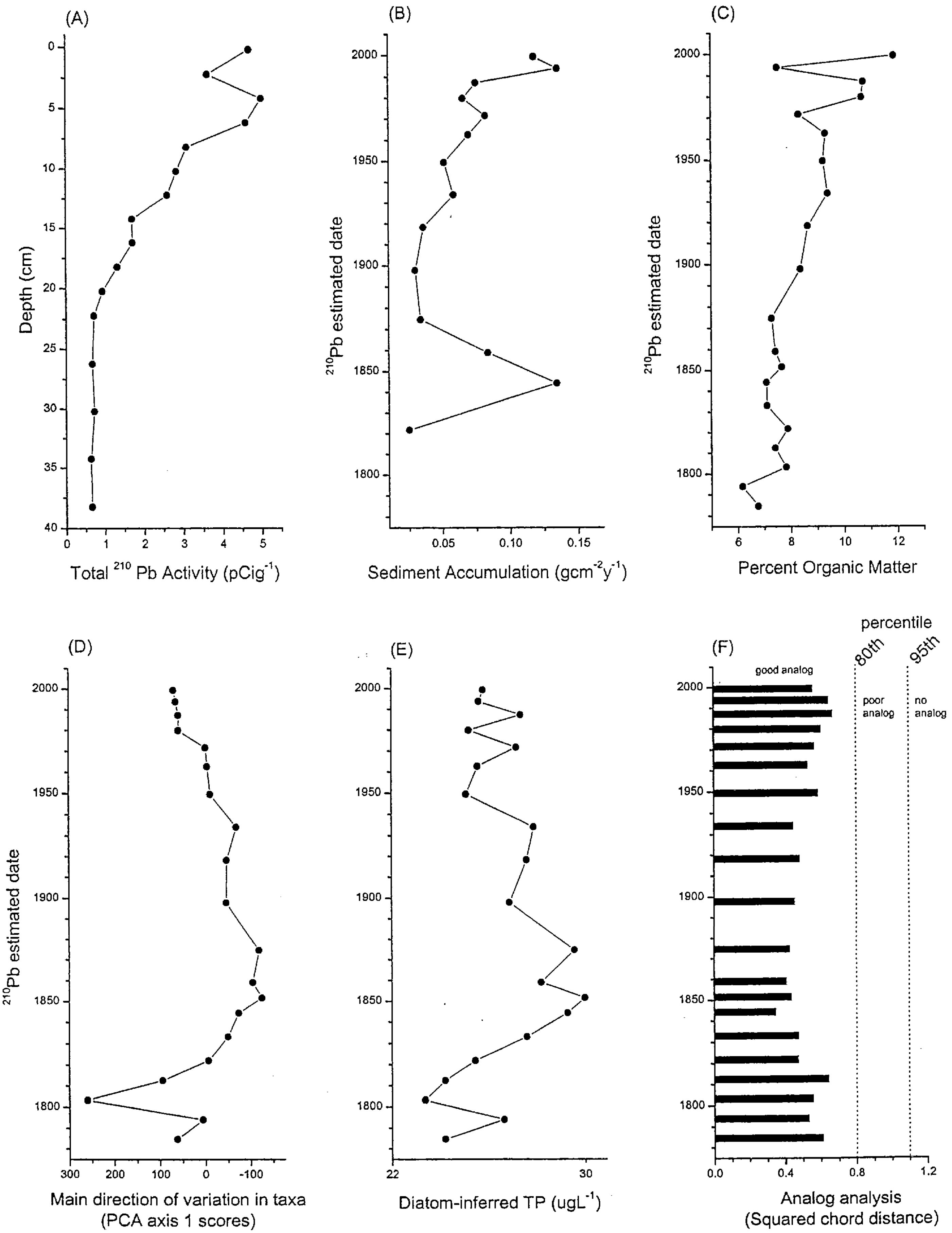
Figure 1. Summary diagram for the sediment core from Fraser Lake (central basin) showing: A) total ^{210}Pb activity from which the chronology of the core is based; B) the sediment accumulation rate; C) the change in the percent of organic matter in the core; D) the main direction of variation in the 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 sediment core from the central basin of Fraser Lake, B.C. (see Appendix C for a complete list of taxa and the relative percentage data). The diatom taxa are arranged in order of decreasing late-summer total phosphorus (TP) optima which is indicated in parentheses for those taxa with known optima. The dotted lines separate the stratigraphy into the zones that were identified by a cluster analysis on the diatom assemblage composition that was constrained to the depth of the core samples (see text for details).

Figure 3. Summary diagram for the sediment core from Fraser Lake (western basin) showing: A) total ^{210}Pb activity from which the chronology of the core is based; 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 4. Stratigraphy of the most abundant diatom taxa found in the sediment core from the central basin of Fraser Lake, B.C. (see Appendix F for a complete list of taxa and the relative percentage data). The diatom taxa are arranged in order of decreasing late-summer total phosphorus (TP) optima which is indicated in parentheses for those taxa with known optima. The dotted lines separate the stratigraphy into the zones that were identified by a cluster analysis on the diatom assemblage composition that was constrained to the depth of the core samples (see text for details).

Fraser Lake Central



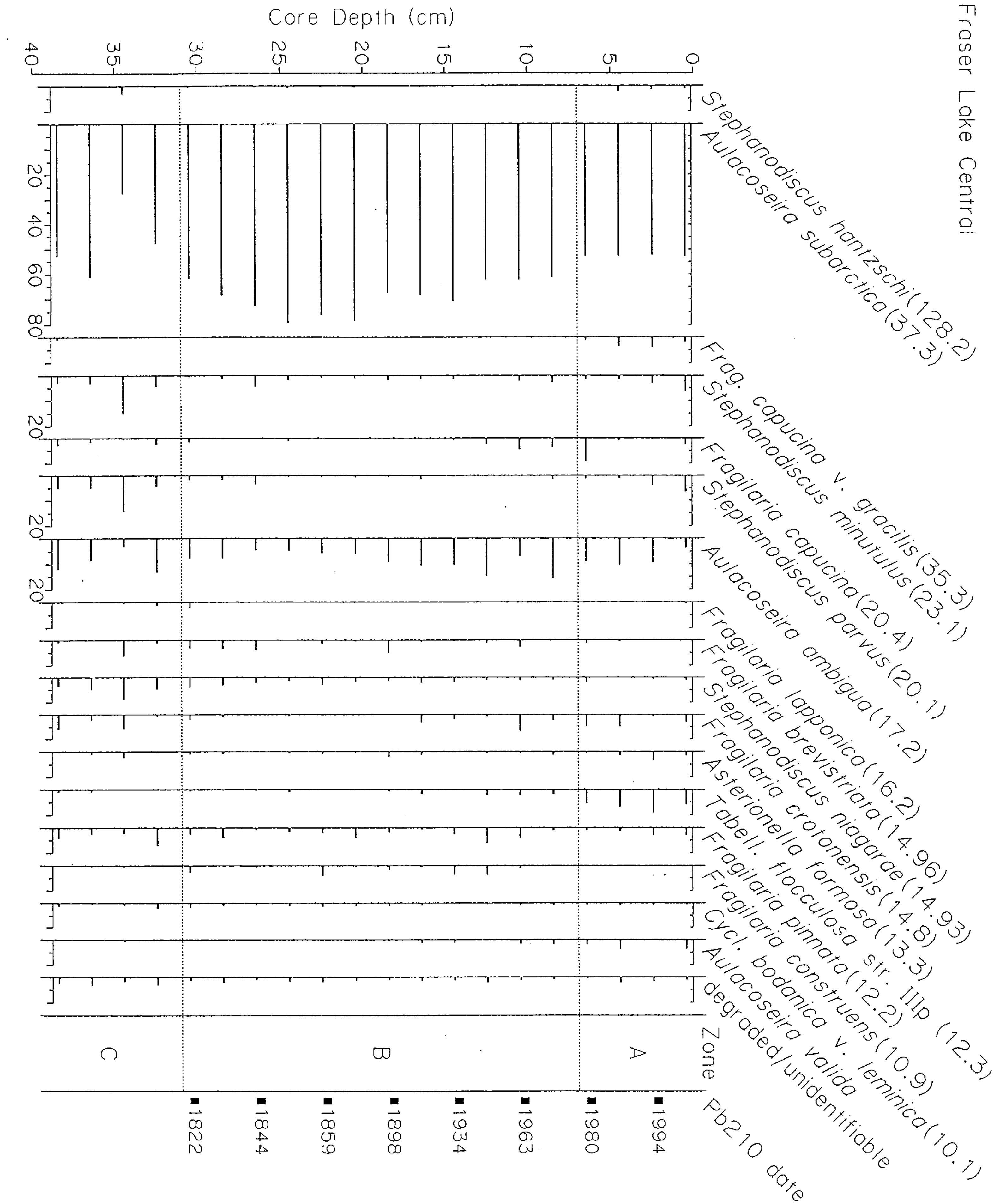
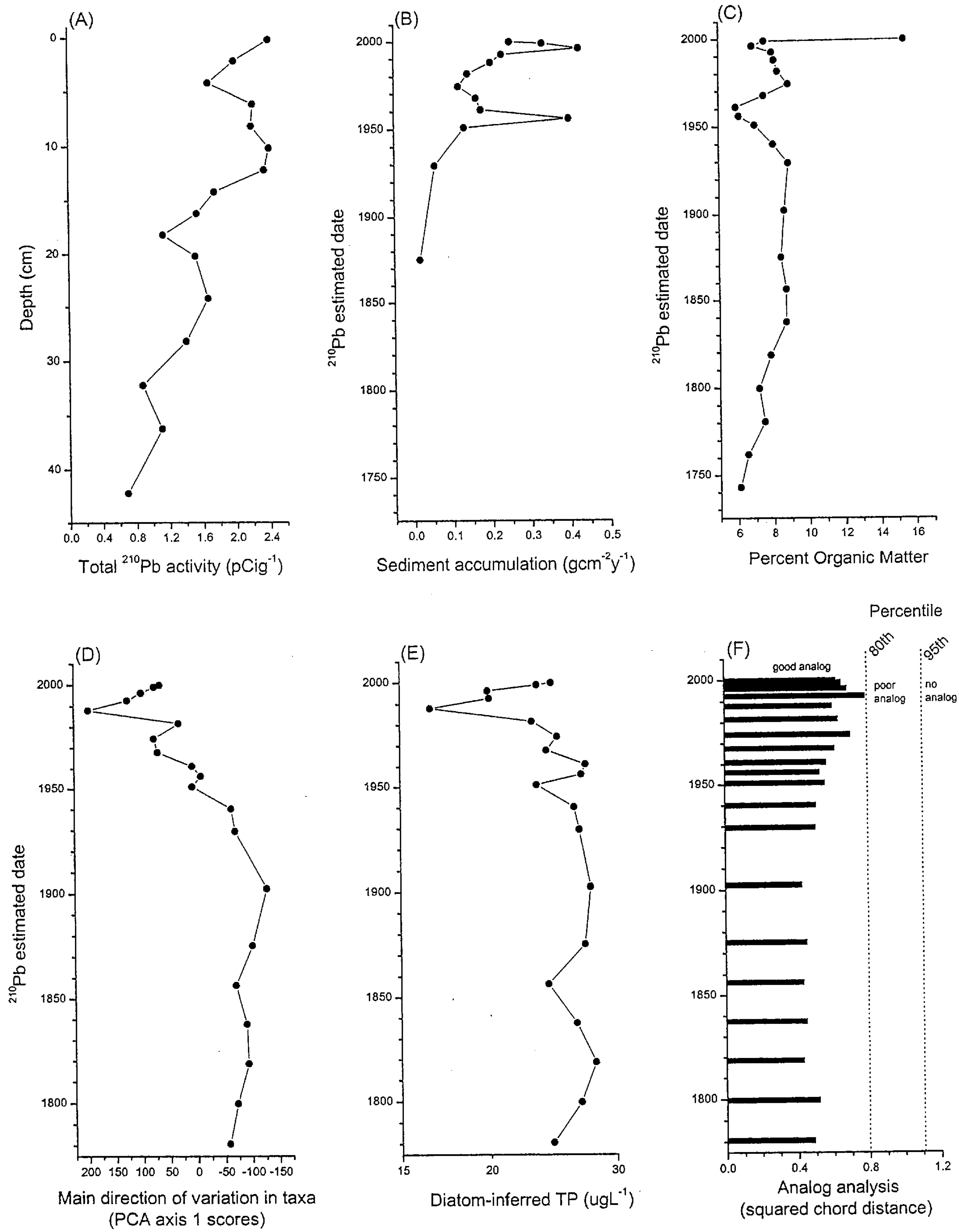
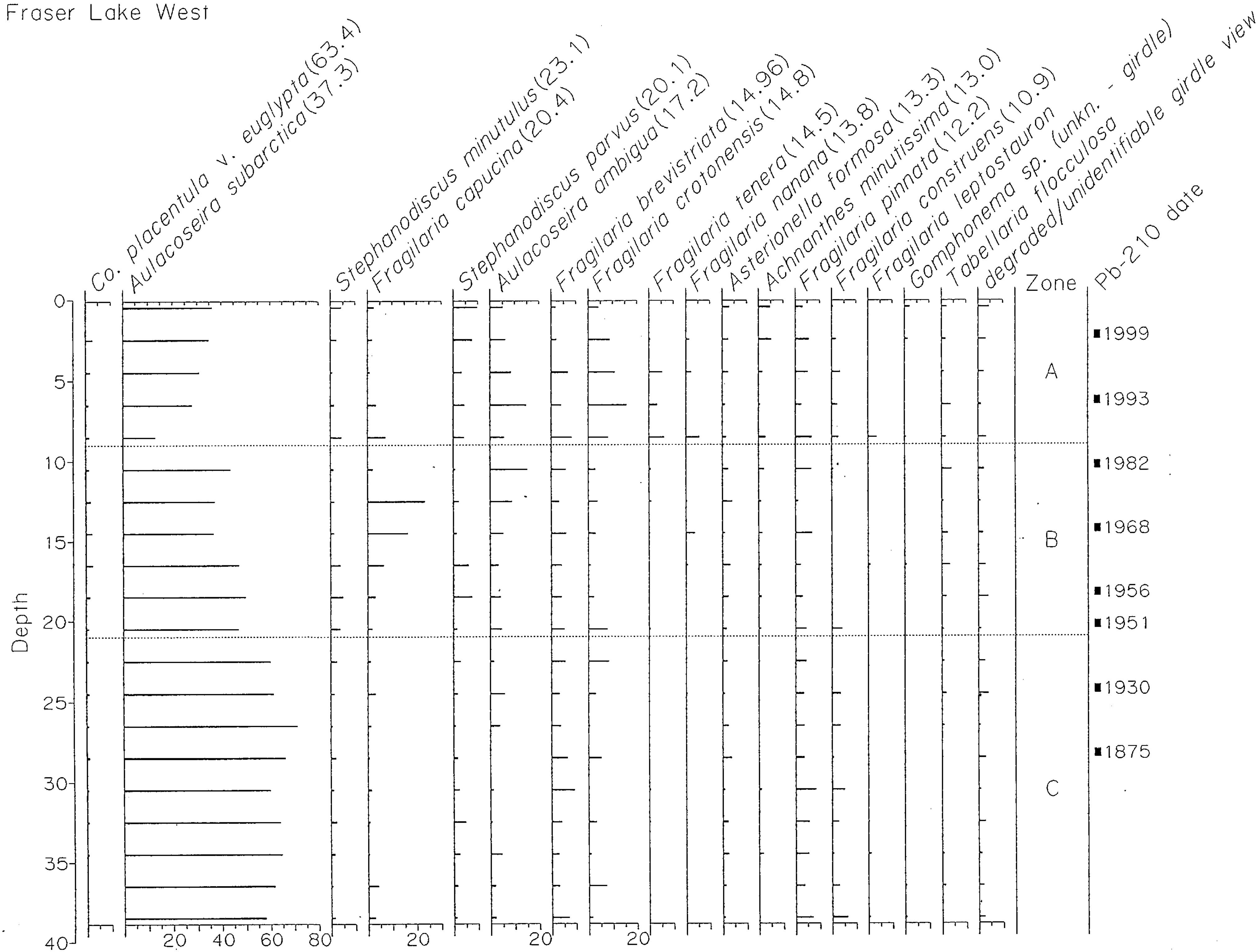

Fraser Lake Central
Core Depth (cm)
Stephanodiscus hantzschi(128.2)
Aulacoseira subarctica(37.3)
Frag. capucina v. gracilis(35.3)
Stephanodiscus minutulus(23.1)
Fragilaria capucina(20.4)
Stephanodiscus parvus(20.1)
Aulacoseira ambigua(17.2)
Fragilaria lapponica(16.2)
Fragilaria brevistriata(14.96)
Stephanodiscus niagarae(14.93)
Fragilaria crotonensis(14.8)
Asterionella formosa(13.3)
Tabell. flocculosa str. IIIp (12.3)
Fragilaria pinnata(12.2)
Fragilaria construens(10.9)
Cycl. bodanica v. leminica(10.1)
Aulacoseira valida
degraded/unidentifiable
Zone
A
B
C
Pb210 date
1994
1980
1963
1934
1898
1859
1844
1822

FIG 3

Fraser Lake West




Fraser Lake West
Co. placentula v. euglypta(63.4)
Aulacoseira subarctica(37.3)
Stephanodiscus minutulus(23.1)
Fragilaria capucina(20.4)
Stephanodiscus parvus(20.1)
Aulacoseira ambigua(17.2)
Fragilaria brevistriata(14.96)
Fragilaria crotonensis(14.8)
Fragilaria tenera(14.5)
Fragilaria nanana(13.8)
Asterionella formosa(13.3)
Achnanthes minutissima(13.0)
Fragilaria pinnata(12.2)
Fragilaria construens(10.9)
Fragilaria leptostauron
Gomphonema sp. (unkn. - girdle)
Tabellaria flocculosa
degraded/unidentifiable girdle view
Zone
Pb-210 date
Depth
0
5
10
15
20
25
30
35
40
20
40
60
80
A
B
C
1999
1993
1982
1968
1956
1951
1930
1875

Summary File Fraser Lake

Central
Pb210 and LOI summary
* = extrapolated dates

INTTOP (cm)	INTBOT (cm)	Total Pb210Act (pCi/g)	estimated AD date	SEDRATE (g/cm2/yr)	Depth interval	LOI(550C) %organic
0	0.5	4.6854	1999	0.118	0~0.5	11.87
2	2.5	3.6238	1994	0.1349	2~2.5	7.51
4	4.5	4.9923	1987	0.075	4~4.5	10.73
6	6.5	4.6059	1980	0.0655	6~6.5	10.67
8	8.5	3.0998	1972	0.0822	8~8.5	8.31
10	10.5	2.8315	1963	0.0695	10~10.5	9.31
12	12.5	2.6036	1949	0.0517	12~12.5	9.23
14	14.5	1.7087	1934	0.0586	14~14.5	9.41
16	16.5	1.7097	1918	0.036	16~16.5	8.66
18	18.5	1.3265	1898	0.0298	18~18.5	8.38
20	20.5	0.9396	1875	0.0337	20~20.5	7.29
22	22.5	0.7188	1859	0.0837	22~22.5	7.43
26	26.5	0.6751	1844	0.1343	24~24.5	7.67
30	30.5	0.7224	1822	0.0251	26~26.5	7.09
34	34.5	0.6354	*1803		28~28.5	7.10
38	38.5	0.6580	*1785		30~30.5	7.89
					32~32.5	7.41
					34~34.5	7.83
					36~36.5	6.17
					38~38.5	6.76

Diatom analyses

Depth (cm TOP	Depth (cm BOTTOM	estimated AD date	log TP	TP	PCA Axis 1	ANALOG min. sq.chord
0	0.5	1999.3	1.407	25.53	68	0.558
2	2.5	1993.8	1.404	25.35	63	0.647
4	4.5	1987.1	1.433	27.10	57	0.670
6	6.5	1979.8	1.397	24.95	57	0.606
8	8.5	1971.6	1.43	26.92	-2	0.568
10	10.5	1962.6	1.403	25.29	-6	0.531
12	12.5	1949.5	1.395	24.83	-12	0.589
14	14.5	1933.9	1.442	27.67	-70	0.450
16	16.5	1918.2	1.437	27.35	-48	0.486
18	18.5	1897.8	1.425	26.61	-47	0.457
20	20.5	1874.7	1.47	29.51	-119	0.428
22	22.5	1859.0	1.447	27.99	-105	0.410
24	24.5	1851.6	1.477	29.99	-125	0.439
26	26.5	1844.2	1.465	29.17	-74	0.350
28	28.5	1833.0	1.437	27.35	-50	0.476
30	30.5	1821.8	1.401	25.18	-7	0.474
32	32.5	1812.5	1.38	23.99	94	0.644
34	34.5	1803.2	1.366	23.23	260	0.557
36	36.5	1793.9	1.421	26.36	6	0.532
38	38.5	1784.6	1.38	23.99	62	0.612

CALCULATIONS FOR INPUT INTO BINFORD PROGRAM

Fraser L. Central - Pb210

INTTOP (cm)	INTBOT (cm)	Back calculated to coring Pb-210 (Bq/g) activity	Std dev (Bg/g)	Pb210 activity (pCig-1)	Std dev (pCig-1)	Rho (g cm-3)
0	0.5	0.173359	0.004117	4.6854	0.1113	0.2623
2	2.5	0.134079	0.003821	3.6238	0.1033	0.4543
4	4.5	0.184714	0.004854	4.9923	0.1312	0.2481
6	6.5	0.170418	0.004945	4.6059	0.1337	0.2678
8	8.5	0.114693	0.003642	3.0998	0.0984	0.3303
10	10.5	0.104767	0.004004	2.8315	0.1082	0.3580
12	12.5	0.096334	0.003989	2.6036	0.1078	0.4324
14	14.5	0.063223	0.002772	1.7087	0.0749	0.4131
16	16.5	0.063259	0.003963	1.7097	0.1071	0.3163
18	18.5	0.04908	0.003366	1.3265	0.0910	0.3595
20	20.5	0.034764	0.001924	0.9396	0.0520	0.3581
22	22.5	0.026597	0.000882	0.7188	0.0238	0.4112
26	26.5	0.02498	0.00126	0.6751	0.0340	0.3296
30	30.5	0.026729	0.002464	0.7224	0.0666	0.3050
34	34.5	0.023511	0.000956	0.6354	0.0258	0.2315
38	38.5	0.024345	0.000883	0.6580	0.0239	0.3010
			avg	0.646695	=supported	
			stds	0.015946	0.66264	

BINFORD FILE INPUTS FOR CALCULATIONS OF DATES AND SEDIMENTATION RATES

FraserC
C1
16.00
0.0159

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	0.5000	4.6854	4.0387	0.2623	0.1187	0.0000	0.1311	0.1113
2.0000	2.5000	3.6238	2.9771	0.4543	0.0751	0.4415	0.6686	0.1033
4.0000	4.5000	4.9923	4.3456	0.2481	0.1073	1.0714	1.1954	0.1312
6.0000	6.5000	4.6059	3.9592	0.2678	0.1067	1.4484	1.5823	0.1337
8.0000	8.5000	3.0998	2.4531	0.3303	0.0831	1.8657	2.0309	0.0984
10.0000	10.5000	2.8315	2.1849	0.3580	0.0931	2.3681	2.5471	0.1082
12.0000	12.5000	2.6036	1.9569	0.4324	0.0923	2.9237	3.1399	0.1078
14.0000	14.5000	1.7087	1.0620	0.4131	0.0941	3.5675	3.7740	0.0749
16.0000	16.5000	1.7097	1.0630	0.3163	0.0866	4.1629	4.3210	0.1071
18.0000	18.5000	1.3265	0.6798	0.3595	0.0838	4.6481	4.8278	0.0910
20.0000	20.5000	0.9396	0.2929	0.3581	0.0729	5.1870	5.3660	0.0520
22.0000	22.5000	0.7188	0.0721	0.4112	0.0743	5.7374	5.9430	0.0238
26.0000	26.5000	0.6751	0.0284	0.3296	0.0709	7.0118	7.1766	0.0340
30.0000	30.5000	0.7224	0.0757	0.3050	0.0789	8.0248	8.1773	0.0666
34.0000	34.5000	0.6354	0.0000	0.2315	0.0710	8.9740	9.0897	0.0258
38.0000	38.5000	0.6580	0.0000	0.3010	0.0676	9.9066	10.0571	0.0239

YOU ARE ANALYZING CORE C1 FROM LAKE FraserC

THE DATA ARE:

INTTOP	INTBOT	PB210ACT	UNSUPACT	RHO	PERCORG	CUMMASST	CUMMASSB	SDACT
0.0	0.5	4.68540	4.03870	0.26230	0.110	0.0000	0.1311	0.1113
2.0	2.5	3.62380	2.97710	0.45430	0.070	0.4415	0.6686	0.1033
4.0	4.5	4.99230	4.34560	0.24810	0.100	1.0714	1.1954	0.1312
6.0	6.5	4.60590	3.95920	0.26780	0.100	1.4484	1.5823	0.1337
8.0	8.5	3.09980	2.45310	0.33030	0.080	1.8657	2.0309	0.0984
10.0	10.5	2.83150	2.18490	0.35800	0.090	2.3681	2.5471	0.1082
12.0	12.5	2.60360	1.95690	0.43240	0.090	2.9237	3.1399	0.1078
14.0	14.5	1.70870	1.06200	0.41310	0.090	3.5675	3.7740	0.0749
16.0	16.5	1.70970	1.06300	0.31630	0.080	4.1629	4.3210	0.1071
18.0	18.5	1.32650	0.67980	0.35950	0.080	4.6481	4.8278	0.0910
20.0	20.5	0.93960	0.29290	0.35810	0.070	5.1870	5.3660	0.0520
22.0	22.5	0.71880	0.07210	0.41120	0.070	5.7374	5.9430	0.0238
26.0	26.5	0.67510	0.02840	0.32960	0.070	7.0118	7.1766	0.0340
30.0	30.5	0.72240	0.07570	0.30500	0.070	8.0248	8.1773	0.0666
34.0	34.5	0.63540	0.00000	0.23150	0.070	8.9740	9.0897	0.0258
38.0	38.5	0.65800	0.00000	0.30100	0.060	9.9066	10.0570	0.0239

STANDARD DEVIATION OF SUPPORTED PB-210 = 0.0159

Pb-210 dates for Lake FraserC core C1

INTTOP	INTBOT	MIDINT	TTOP	SDTTOP	TBOT	SDTBOT	SEDRATE	SDSEDRT	SUMTOP
0.0	0.5	0.2	0.00	0.27	1.11	0.27	0.1180	0.0103	15.5628
2.0	2.5	2.2	5.21	0.29	6.89	0.29	0.1349	0.0124	13.2332
4.0	4.5	4.2	11.91	0.31	13.56	0.32	0.0750	0.0087	10.7417
6.0	6.5	6.2	19.05	0.35	21.09	0.36	0.0655	0.0086	8.5989
8.0	8.5	8.2	27.19	0.41	29.20	0.42	0.0822	0.0105	6.6742
10.0	10.5	10.2	35.99	0.49	38.56	0.50	0.0695	0.0108	5.0749
12.0	12.5	12.2	48.26	0.62	52.44	0.66	0.0517	0.0100	3.4632
14.0	14.5	14.2	64.17	0.87	67.70	0.92	0.0586	0.0122	2.1096
16.0	16.5	16.2	79.41	1.24	83.82	1.34	0.0360	0.0114	1.3125
18.0	18.5	18.2	99.03	1.98	105.07	2.21	0.0298	0.0123	0.7126
20.0	20.5	20.2	122.51	3.54	127.84	4.04	0.0337	0.0157	0.3430
22.0	22.5	22.2	139.64	5.67	142.09	6.03	0.0837	0.0343	0.2012
26.0	26.5	26.2	154.97	8.14	156.20	8.30	0.1343	0.0757	0.1248
30.0	30.5	30.2	175.00	10.86	181.08	11.64	0.0251	0.0288	0.0669

Execution terminated : 0

C:\PB210>

Fraser Lake - Central Analyst: Joe Bennett (Feb. 2001)

Diatom Relative Abundances (%)

Depth (cm) - samples in 0.5 cm intervals

	code	0	2	4	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38
Achnanthes calcar	ac calc	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.42	0.00	0.00	0.00	0.00
Achnanthes clevi	ac clev	0.00	0.00	0.00	0.43	0.46	0.21	0.45	0.00	0.00	0.86	0.00	0.00	0.00	0.46	0.21	0.00	0.46	0.44	0.00	0.00
Achnanthes conspicua	AC CONS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.21
Achnanthes aff. grana	ac gran	0.00	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
Achnanthes juracense	ac jour	0.00	0.00	0.44	0.00	0.00	0.00	0.23	0.00	0.00	0.43	0.45	0.22	0.44	0.91	0.00	0.00	0.46	0.00	0.00	0.00
Achnanthes lanceolata var. dubia	ac la.d	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	0.00	0.00
Achnanthes lanceolata spp. frequentissima	AC LA.F	0.00	0.00	0.00	0.43	0.23	0.21	0.00	0.00	0.21	0.00	0.00	0.00	0.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Achnanthes minutissima	AC MINU	0.89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.45	0.00	0.00	0.23	0.00	1.05	0.00	0.88	0.00	0.00
Achnanthes petersenl	ac pete	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.42	0.00	0.00	0.00	0.00
Achnanthes rosenstockii	AC ROSE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Achnanthes cf. suchlandtii	ac afsc	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	0.00	0.00
Amphora libyca	AM LIBY	0.00	0.00	0.00	0.21	0.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.23	0.00	0.21	0.00	0.00	0.00	0.00
Amphora pediculus	AM PEDI	0.89	0.00	0.22	0.00	0.00	0.21	0.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.21	0.00	0.46	0.66	0.20	0.82
Amphora veneta	AM VENE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	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
Asterionella formosa	AS FORM	1.55	3.34	1.55	0.64	1.14	0.83	0.45	0.21	1.25	1.94	0.23	0.87	0.66	0.00	0.84	1.05	0.46	2.20	1.00	0.21
Aulacoseira ambigua	AU AMBI	3.55	9.35	10.18	9.01	15.72	6.89	14.84	10.28	10.60	9.27	5.87	5.66	4.62	4.57	7.53	7.53	13.07	3.08	8.57	11.93
Aulacoseira granulata	AU GRAN	0.00	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
Aulacoseira lirata	au lira	0.00	0.00	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	0.00	0.00
Aulacoseira subarctica	AU SUBA	52.77	52.34	52.65	52.79	61.28	62.00	61.94	70.88	68.19	67.46	78.33	76.03	79.34	72.60	68.41	61.72	47.71	27.53	61.16	52.88
Aulacoseira valida	au valid	3.55	0.00	3.54	1.93	1.59	1.46	0.00	1.07	1.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.66	0.00	0.00
Caloneis silicula	ca sila	0.00	0.00	0.00	0.00	0.00	0.00	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
Cocconeis neodiminuta	co neod	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
Cocconeis placentula	CO PLAC	0.44	0.67	0.44	0.64	0.23	0.00	0.23	0.43	0.00	0.43	0.00	0.22	0.00	0.00	0.42	0.00	0.23	0.00	0.00	0.00
Cocconeis placentula var. euglypta	CO PL.E	0.00	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	0.84	0.00	0.00	0.00	0.00
Cocconeis placentula var. lineata	CO PL.L	0.44	0.45	0.44	0.21	0.00	0.21	0.23	0.00	0.00	0.00	0.23	0.00	0.00	0.23	0.21	0.21	0.00	0.00	0.20	0.00
Cyclostephanos cf. invisitatus	CS INVI	0.00	0.00	0.44	0.00	0.00	0.00	0.00	0.00	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 bodanica var. leminica	CY BO.L	0.44	0.89	0.88	0.64	0.68	1.04	0.45	0.21	0.83	1.08	1.13	1.31	1.10	0.68	0.84	1.67	2.06	0.88	0.40	1.03
Cyclotella glomerata	CY GLOM	0.44	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
Cyclotella michiganiana	CY MICH	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cyclotella pseudostelligera	cy psle	0.00	0.89	0.00	0.00	0.00	0.42	0.00	0.00	0.00	0.00	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.22	0.00	0.00
Cyclotella rosii	cy rosi	0.22	0.00	0.00	0.00	0.46	0.83	0.00	0.21	0.00	0.00	0.23	0.00	0.00	0.23	0.21	0.00	0.00	0.00	0.00	0.00
Cyclotella stelligera	CY STEL	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	0.00	0.00	0.00
Cymbella cymbiformis var. nonpunctata	CM CY.N	0.00	0.00	0.00	0.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cymbella minuta	CM MINU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.20	0.00
Cymbella muelleri	CM MUEL	0.00	0.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.22	0.00	0.00	0.00	0.46	0.00	0.00	0.00	0.00	0.00	0.41
Cymbella naviculiformis	cm navi	0.00	0.00	0.00	0.00	0.00	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
Cymbella proxima	cm prox	0.00	0.00	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	0.00	0.21
Diploneis parma	dp parm	0.00	0.00	0.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Entomoneis paludosa	EN PALU	0.00	0.00	0.00	0.00	0.00	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
Epithemia adnata	EP ADNA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.22	0.00	0.46	0.00	0.00	0.00	0.00	0.00	0.00
Epithemia sorex	ep sore	0.00	0.00	0.00	0.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fragilaria 4 PIRLA	fr 4pir	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.44	0.00	0.00	0.00	0.00	0.66	0.00	0.00
Fragilaria brevistriata	FR BREV	0.00	0.00	0.22	1.07	0.00	2.51	1.13	0.21	0.62	4.96	0.23	1.31	0.00	3.88	3.35	3.14	1.15	6.17	0.00	0.82
Fragilaria capucina	FR CAPU	2.22	0.45	0.66	9.23	3.64	4.38	2.25	0.64	0.21	0.22	0.00	0.00	0.88	0.00	0.21	1.46	2.29	0.44	1.59	2.67
Fragilaria capucina var. gracilis	FR CA.G	1.77	3.79	3.54	0.86	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.82
Fragilaria construens	FR CONS	0.00	0.00	0.00	0.00	0.00	1.04	3.60	3.43	0.42	1.72	0.45	3.92	0.00	0.46	0.00	2.51	0.00	0.44	0.40	0.00
Fragilaria construens var. binodis	FR CO.B	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.62	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	FR CO.V	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	0.00	0.00
Fragilaria crotonensis	FR CROT	3.10	0.89	4.87	4.72	2.28	6.47	0.90	1.93	3.33	0.00	0.00	0.00	0.66	0.23	1.05	2.09	0.69	5.73	2.39	5.97
Fragilaria cyclopum	FR CYCL	0.00	0.00	0.00	0.43	0.00	0.00	0.00	0.00	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 fasciculata	FR FASC	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 lapponica	FR LAPP	0.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.09	1.38	0.44	0.00	0.00
Fragilaria leptostauron	fr lept	0.00	0.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fragilaria mazamiensis	fr mazz	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.40	0.00
Fragilaria nanana	FR NANA	0.44	0.00	0.44	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 parasitica	FR PARA	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	0.00	0.00	0.00	0.00	0.00
Fragilaria pinnata	FR PINN	2.88	2.90	1.33	0.86	1.14	3.76	6.08	2.57	0.62	1.94	3.84	1.96	1.54	0.68	3.77	2.51	7.11	2.20	2.39	4.12
Fragilaria tenera	FR TENE	0.44	0.67	1.11	0.00	0.00	0.00	0.00	0.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.21	0.46	0.66	0.00	0.00
Fragilaria ulna	FR ULNA	0.00	0.45	0.22	0.43	0.23	0.00	0.00	0.21	0.42	0.00	0.00	0.00	0.00	0.00	0.00	0.63	0.00	0.22	0.40	0.00
Fragilaria ulna var. acus	FR UL.A	0.00	0.00	0.00	0.00	0.00	0.00	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
Gomphonema acuminatum	GO ACUM	0.00	0.00	0.00	0.00	0.00	0.00	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
Gomphonema angustum	GO ANGL	0.00	0.00	0.44	0.00	0.00	0.00	0.45	0.21	0.00	0.00	0.00	0.00	0.00	0.00	0.63	0.00	0.00	0.44	0.00	0.00
Gomphonema sp. (#8-12, pl. 43)	GO SP.2	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	0.00	0.00
Gomphonema sp. (unkn. - girdle)	go sppp	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.84	0.00	0.00	0.00	0.00	0.41
Gyrosigma acuminatum	gy acum	0.00	0.00	0.22	0.00	0.00	0.00	0.00	0.00	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 capitata var. hungarica	NA CA.H	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.22	0.00	0.46	0.00	0.00	0.00	0.00	0.00	0.00
Navicula cryptocephala	NA CCEP	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	0.00	0.00	0.00	0.00	0.00
Navicula cryptotenella	NA CRYP	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.44	0.00	0.00	0.21	0.00	0.00	0.40	0.00
Navicula jaernefeltii	na jear	0.00	0.00	0.00	0.00	0.00	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
Navicula libonensis	NA LIBO	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	0.00	0.00
Navicula menisculus	na menu	0.00	0.00	0.00	0.00	0.00	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
Navicula minima	NA MINI	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.42	0.65	0.00	0.44	0.44	0.00	0.00	0.00	0.00	0.22	0.40	0.00
Navicula cf. minuscula	NA MINU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.43	0.00	0.00	0.00	0.00	0.00	0.00	0.46	0.00	0.00	0.00
Navicula porifera v. opportuna	na povo	0.00	0.00	0.00	0.00	0.00	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
Navicula pseudanglica	na psan	0.00	0.00	0.00	0.00	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	0.00	0.00
Navicula pupula	NA PUPU	0.22	0.00	0.22	0.00	0.00	0.00	0.00	0.21	0.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Navicula pygmea	na pygm	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Navicula radiosa	NA RADI	0.00	0.00	0.00	0.21	0.00	0.00	0.00	0.43	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 scutelloides	na scte	0.00	0.00	0.00	0.00	0.00	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
Navicula sp. 4PISCES	NA SP.4	0.00	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
Navicula submuralis	na sbmu	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.43	0.00	0.00	0.00	0.00	0.00	0.00	0.42	0.00	0.00	0.00	0.40	0.00
Navicula subminuscula	NA SUBM	0.00	0.00	0.00	0.00	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	0.00	0.00
Navicula veneta	NA VENE	0.00	0.00	0.00	0.43	0.46	0.00	0.00	0.00	0.00	0.00	0.00	0.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Nitzschia bacillum	NI BACI	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.44	0.00	0.00	0.00	0.42	0.00	0.00	0.00	0.00
Nitzschia dissipata var. media	ni dsvm	0.22	0.22	0.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.23	0.00	0.22	0.00	0.00	0.00	0.23	0.00	0.00	0.00
Nitzschia frustulum	NI FRUS	0.00	0.00	0.00	0.00	0.00	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
Nitzschia gracilis	NI GRAC	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	0.00	0.00	0.00
Nitzschia linearis var. tenuis	nl li.t	0.00	0.00	0.00	0.00	0.00	0.00	0.00	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
Rhopalodia gibba	RH GIBB	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.69	0.00	0.00	0.00
Stephanodiscus alpinus	st alpi	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.21
Stephanodiscus hantzschii	ST HANT	1.11	1.34	1.99	0.00	0.00	0.00	0.23	0.21	0.21	0.00	0.45	0.22	0.44	0.23	0.21	0.21	0.23	3.08	0.00	0.00
Stephanodiscus hantzschii fo. 1PISCES	ST HA.1	0.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.66	0.40	0.00
Stephanodiscus medius	ST MEDI	1.55	2.00	0.44	1.93	1.14	0.63	0.23	0.00	1.25	1.94	0.90	0.87	1.76	0.91	1.05	1.26	0.92	1.32	1.79	1.85
Stephanodiscus minutulus	ST MINU	6.21	2.90	1.55	1.50	2.73	2.09	0.00	1.50	1.46	1.72	1.13	1.09	1.76	4.11	1.26	0.42	4.36	14.98	3.19	2.88
Stephanodiscus niagarae	ST NIAG	0.89	0.45	0.00	1.93	0.68	1.04	0.90	1.93	2.08	1.51	1.58	2.61	1.32	2.05	2.93	3.77	4.59	8.81	4.78	3.29
Stephanodiscus parvus	ST PARV	6.43	4.01	1.11	1.29	1.37	0.00	0.45	0.43	1.46	0.43	0.68	0.44	0.44	3.42	1.67	1.67	4.36	14.32	4.98	4.94
Tabellaria flocculosa	ta floc	0.00	0.00	1.55	1.50	0.68	0.42	0.90	0.00	0.00	0.43	0.45	0.00	0.00	0.68	0.63	0.21	0.46	1.10	0.60	1.23
Tabellaria flocculosa str. IIIp	TA FL3P	5.76	9.13	6.86	5.36	1.82	2.09	2.03	0.00	1.66	0.65	0.00	0.00	0.88	0.23	0.21	0.42	0.00	0.00	0.80	0.82
degraded/unidentifiable girdle view	deg/grd	0.89	1.56	1.89	0.43	0.68	1.04	1.80	1.28	1.46	1.08	1.13	1.74	1.54	0.68	2.09	1.26	2.98	1.54	2.99	2.26

Summary File Fraser Lake

West
Pb210 and LOI summary
* = extrapolated dates

INTTOP (cm)	INTBOT (cm)	Total Pb210Act (pCi/g)	estimated AD date	SEDRATE (g/cm2/yr)	Depth interval	LOI(550C) %organic
0	0.5	2.4009	1999.8	0.2482	0~0.5	15.38
2	2.5	1.9894	1998.9	0.3317	2~2.5	7.56
4	4.5	1.6812	1996.1	0.4234	4~4.5	6.89
6	6.5	2.2095	1992.6	0.2272	6~6.5	7.99
8	8.5	2.1947	1987.9	0.1987	8~8.5	8.11
10	10.5	2.4045	1981.6	0.1405	10~10.5	8.31
12	12.5	2.3417	1974.3	0.1169	12~12.5	8.91
14	14.5	1.7471	1967.7	0.1611	14~14.5	7.52
16	16.5	1.5389	1961.0	0.1733	16~16.5	5.97
18	18.5	1.1342	1956.1	0.398	18~18.5	6.14
20	20.5	1.5184	1950.9	0.1306	20~20.5	7.01
24	24.5	1.6671	1929.5	0.0542	22~22.5	8.04
28	28.5	1.4040	1875.3	0.0156	24~24.5	8.88
32	32.5	0.8792	*1837.5		26~26.5	8.65
36	36.5	1.1086	*1799.7		28~28.5	8.45
42	42.5	0.6917	*1743.0		30~30.5	8.75
					32~32.5	8.73
					34~34.5	7.84
					36~36.5	7.18
					38~38.5	7.48
					40~40.5	6.55
					42~42.5	6.11

Diatom analyses

Depth (cm TOP	Depth (cm BOTTOM	estimated AD date	log TP	TP	PCA Axis 1	ANALOG min. sq.chord
0	0.5	1999.8	1.389	24.49	66	0.622
2	2.5	1998.9	1.369	23.39	76	0.653
4	4.5	1996.1	1.3	19.95	100	0.685
6	6.5	1992.6	1.302	20.04	126	0.788
8	8.5	1987.9	1.219	16.56	198	0.602
10	10.5	1981.6	1.362	23.01	31	0.633
12	12.5	1974.3	1.397	24.95	77	0.704
14	14.5	1967.7	1.382	24.10	70	0.614
16	16.5	1961.0	1.436	27.29	7	0.566
18	18.5	1956.1	1.43	26.92	-9	0.528
20	20.5	1950.9	1.368	23.33	7	0.558
22	22.5	1940.2	1.42	26.30	-64	0.508
24	24.5	1929.5	1.427	26.73	-71	0.503
26	26.5	1902.4	1.442	27.67	-128	0.426
28	28.5	1875.3	1.434	27.16	-101	0.452
30	30.5	1856.4	1.383	24.15	-71	0.434
32	32.5	1837.5	1.422	26.42	-90	0.451
34	34.5	1818.6	1.448	28.05	-93	0.431
36	36.5	1799.7	1.428	26.79	-73	0.520
38	38.5	1780.8	1.389	24.49	-58	0.488

CALCULATIONS FOR INPUT INTO BINFORD PROGRAM

Fraser L. West - Pb210

INTTOP (cm)	INTBOT (cm)	Back calculated to coring Pb-210 (Bq/g) activity	Std dev (Bg/g)	Pb210 activity (pCig-1)	Std dev (pCig-1)	Rho (g cm-3)
0.0	0.5	0.088835	0.003791	2.4009	0.1025	0.0155
2	2.5	0.073609	0.002224	1.9894	0.0601	0.4209
4	4.5	0.062203	0.002983	1.6812	0.0806	0.6358
6	6.5	0.08175	0.003674	2.2095	0.0993	0.4672
8	8.5	0.081205	0.003751	2.1947	0.1014	0.5241
10	10.5	0.088968	0.0043	2.4045	0.1162	0.5358
12	12.5	0.086643	0.003944	2.3417	0.1066	0.3985
14	14.5	0.064644	0.003277	1.7471	0.0886	0.5244
16	16.5	0.05694	0.001908	1.5389	0.0516	0.5879
18	18.5	0.041967	0.002844	1.1342	0.0769	0.6462
20	20.5	0.056179	0.001909	1.5184	0.0516	0.5092
24	24.5	0.061682	0.001941	1.6671	0.0525	0.4129
28	28.5	0.051947	0.003249	1.4040	0.0878	0.4507
32	32.5	0.03253	0.00174	0.8792	0.0470	0.3363
36	36.5	0.04102	0.002816	1.1086	0.0761	0.4748
42	42.5	0.025593	0.002563	0.6917	0.0693	0.4793
			avg	0.893182	= supported	
			stds	0.208814	1.101996	

BINFORD FILE INPUTS FOR CALCULATIONS OF DATES AND SEDIMENTATION RATES

FraserW
C1
16.00
0.2088

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	0.5000	2.4009	1.5078	0.0155	0.1538	0.0000	0.0077	0.1025
2.0000	2.5000	1.9894	1.0963	0.4209	0.0756	0.1246	0.3350	0.0601
4.0000	4.5000	1.6812	0.7880	0.6358	0.0689	0.8097	1.1276	0.0806
6.0000	6.5000	2.2095	1.3163	0.4672	0.0799	1.7212	1.9548	0.0993
8.0000	8.5000	2.1947	1.3016	0.5241	0.0811	2.4362	2.6983	0.1014
10.0000	10.5000	2.4045	1.5113	0.5358	0.0831	3.2253	3.4932	0.1162
12.0000	12.5000	2.3417	1.4485	0.3985	0.0891	3.9948	4.1940	0.1066
14.0000	14.5000	1.7471	0.8540	0.5244	0.0752	4.6240	4.8862	0.0886
16.0000	16.5000	1.5389	0.6457	0.5879	0.0597	5.4265	5.7204	0.0516
18.0000	18.5000	1.1342	0.2411	0.6462	0.0614	6.3229	6.6460	0.0769
20.0000	20.5000	1.5184	0.6252	0.5092	0.0701	7.2579	7.5125	0.0516
24.0000	24.5000	1.6671	0.7739	0.4129	0.0888	8.6565	8.8629	0.0525
28.0000	28.5000	1.4040	0.5108	0.4507	0.0845	9.8001	10.0254	0.0878
32.0000	32.5000	0.8792	0.0000	0.3363	0.0873	11.0312	11.1993	0.0470
36.0000	36.5000	1.1086	0.0000	0.4748	0.0718	12.2730	12.5104	0.0761
42.0000	42.5000	0.6917	0.0000	0.4793	0.0611	14.3292	14.5688	0.0693

YOU ARE ANALYZING CORE C1 FROM LAKE FraserW

THE DATA ARE:

INTTOP	INTBOT	PB210ACT	UNSUPACT	RHO	PERCORG	CUMMASST	CUMMASSB	SDACT
0.0	0.5	2.40090	1.50780	0.01550	0.150	0.0000	0.0077	0.1025
2.0	2.5	1.98940	1.09630	0.42090	0.070	0.1246	0.3350	0.0601
4.0	4.5	1.68120	0.78800	0.63580	0.060	0.8097	1.1276	0.0806
6.0	6.5	2.20950	1.31630	0.46720	0.070	1.7212	1.9548	0.0993
8.0	8.5	2.19470	1.30160	0.52410	0.080	2.4362	2.6983	0.1014
10.0	10.5	2.40450	1.51130	0.53580	0.080	3.2253	3.4932	0.1162
12.0	12.5	2.34170	1.44850	0.39850	0.080	3.9948	4.1940	0.1066
14.0	14.5	1.74710	0.85400	0.52440	0.070	4.6240	4.8862	0.0886
16.0	16.5	1.53890	0.64570	0.58790	0.050	5.4265	5.7204	0.0516
18.0	18.5	1.13420	0.24110	0.64620	0.060	6.3229	6.6460	0.0769
20.0	20.5	1.51840	0.62520	0.50920	0.070	7.2579	7.5125	0.0516
24.0	24.5	1.66710	0.77390	0.41290	0.080	8.6565	8.8629	0.0525
28.0	28.5	1.40400	0.51080	0.45070	0.080	9.8001	10.0250	0.0878
32.0	32.5	0.87920	0.00000	0.33630	0.080	11.0310	11.1990	0.0470
36.0	36.5	1.10860	0.00000	0.47480	0.070	12.2730	12.5100	0.0761
42.0	42.5	0.69170	0.00000	0.47930	0.060	14.3290	14.5680	0.0693

STANDARD DEVIATION OF SUPPORTED PB-210 = 0.2088

Pb-210 dates for Lake FraserW core C1

INTTOP	INTBOT	MIDINT	TTOP	SDTTOP	TBOT	SDTBOT	SEDRATE	SDSEDRT	SUMTOP
0.0	0.5	0.2	0.00	1.35	0.03	1.35	0.2482	0.0349	12.0246
2.0	2.5	2.2	0.63	1.36	1.26	1.36	0.3317	0.0457	11.7926
4.0	4.5	4.2	3.33	1.40	4.08	1.40	0.4234	0.0617	10.8405
6.0	6.5	6.2	6.71	1.45	7.74	1.46	0.2272	0.0359	9.7559
8.0	8.5	8.2	11.23	1.55	12.55	1.57	0.1987	0.0339	8.4764
10.0	10.5	10.2	17.29	1.70	19.19	1.75	0.1405	0.0272	7.0191
12.0	12.5	12.2	24.63	1.95	26.34	2.01	0.1169	0.0252	5.5838
14.0	14.5	14.2	31.35	2.25	32.97	2.30	0.1611	0.0375	4.5305
16.0	16.5	16.2	37.96	2.56	39.66	2.62	0.1733	0.0435	3.6874
18.0	18.5	18.2	43.32	2.80	44.13	2.76	0.3980	0.1078	3.1207
20.0	20.5	20.2	47.95	2.96	49.90	3.05	0.1306	0.0386	2.7015
24.0	24.5	24.2	68.46	4.46	72.28	4.87	0.0542	0.0235	1.4262
28.0	28.5	28.2	117.18	15.05	131.91	22.29	0.0156	0.0196	0.3128

Execution terminated : 0

C:\PB210>

Appendix

Fraser Lake - West Analyst: Joe Bennett (Feb. 2001)

Diatom Relative Abundances (%)

Depth (cm) - samples in 0.5 cm intervals

		0	2	4	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38
Achnanthes bioretii	ac bior	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	0.00
Achnanthes calcar	ac calc	0.00	0.00	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	0.22	0.46	0.48	0.00
Achnanthes clevi	ac clev	0.00	0.49	0.00	0.00	0.44	0.00	0.00	0.23	0.64	0.00	1.09	0.86	0.00	0.00	0.70	0.46	0.45	0.00	0.00	0.69
Achnanthes conspicua	AC CONS	0.00	0.00	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
Achnanthes delicatula	ac deli	0.00	0.00	0.43	0.00	0.00	0.00	0.00	0.00	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 exigua	AC EXIG	0.00	0.00	0.00	0.00	0.00	0.40	0.00	0.00	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 jouracense	ac jour	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.24	0.00	0.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Achnanthes laevis var. laevis	ac la.l	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	0.00
Achnanthes lanceolata var. dubia	ac la.d	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.48	0.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Achnanthes lanceolata ssp. frequentissima	AC LA.F	0.00	0.49	0.00	0.49	0.22	0.40	0.00	0.23	0.00	0.00	0.43	0.00	0.00	0.00	0.00	0.46	0.67	0.68	0.00	0.00
Achnanthes linearis	ac line	0.00	0.00	0.00	0.00	0.44	0.00	0.69	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
Achnanthes minutissima	AC MINU	4.62	5.10	1.51	0.49	2.86	2.22	0.92	1.41	1.07	0.95	0.87	0.43	0.00	0.00	0.00	0.92	0.00	1.59	0.00	0.23
Achnanthes oblongella	ac oblo	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Achnanthes oestrupii	ac oest	0.00	0.00	0.43	0.00	0.00	0.00	0.00	0.00	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 rosenstockii	AC ROSE	0.23	0.00	0.00	0.97	0.00	0.00	0.00	0.00	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	ap pell	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	0.23	0.00	0.00	0.00	0.00
Amphora inariensis	am inar	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.23
Amphora libyca	AM LIBY	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	0.45	0.00	0.00	0.00	0.00	0.00	0.23
Amphora pediculus	AM PEDI	0.46	0.00	0.43	0.49	1.10	0.40	0.00	0.23	0.00	0.00	1.52	0.00	0.00	0.00	0.00	0.00	0.00	0.46	0.00	0.00
Amphora thumensis	AM THUM	0.23	0.00	0.43	0.00	0.00	0.00	0.00	0.00	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 veneta	AM VENE	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	0.00	0.00	0.00	0.00	0.00	0.00
Asterionella formosa	AS FORM	2.77	2.43	2.37	0.97	1.54	2.42	3.93	0.94	3.22	2.39	1.52	1.94	0.70	2.28	3.74	0.69	2.25	2.28	1.19	0.69
Aulacoseira alpigena	au alpi	0.00	0.00	0.00	0.97	0.00	0.00	0.00	0.00	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 ambigua	AU AMBI	5.08	6.07	8.41	14.81	5.51	15.15	8.78	5.15	3.22	4.06	4.57	1.29	5.62	3.64	0.00	1.14	0.45	4.33	1.66	1.84
Aulacoseira distans	AU DIST	0.92	0.00	0.00	0.00	0.00	0.00	0.00	0.00	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 subarctica	AU SUBA	36.26	34.95	30.82	27.91	13.00	43.64	37.18	36.77	47.00	49.88	46.96	60.00	61.36	71.07	66.12	59.95	64.04	64.69	61.76	57.83
Aulacoseira valida	au vali	0.00	0.49	0.00	1.94	1.10	0.40	0.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.69	0.67	0.91	0.00	1.38
Caloneis silicula	ca sile	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
Cocconeis neothumensis	co neot	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	0.00
Cocconeis pediculus	CO PEDI	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.86	0.00	0.00	0.00	0.23	0.00	0.00	0.24	0.00
Cocconeis placentula	CO PLAC	0.00	0.49	0.65	0.00	0.00	0.00	0.00	0.47	0.21	0.24	0.00	0.00	0.00	0.00	0.00	0.69	0.45	0.68	0.24	0.69
Cocconeis placentula var. euglypta	CO PL.E	0.00	2.67	1.72	0.97	1.32	1.21	1.85	2.34	2.58	1.43	0.87	0.65	0.94	0.68	0.93	0.46	0.67	0.46	0.00	0.23
Cocconeis placentula var. lineata	CO PL.L	0.00	0.00	0.00	0.00	0.22	0.00	0.00	0.23	0.00	0.48	0.00	0.00	0.23	0.00	0.00	0.46	0.00	0.00	0.00	0.69
Cyclostephanos dubius	cs dubi	0.92	0.73	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cyclostephanos cf. invisitatus	CS INVI	0.69	0.73	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.24	0.00
Cyclostephanos cf. tholiformis	CS THOL	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.43	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cyclotella bodanica var. lemanica	CY BO.L	0.00	0.49	0.00	0.00	1.10	0.40	0.92	0.70	0.64	0.48	0.22	0.22	0.94	0.46	0.47	0.69	0.22	0.46	0.71	0.00
Cyclotella comensis	CY COME	0.00	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	0.00
Cyclotella glomerata	CY GLOM	0.92	0.00	0.22	0.00	1.32	0.20	0.00	0.00	0.21	0.00	0.22	0.00	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cyclotella meneghiniana	CY MENE	0.23	0.00	0.00	0.24	0.00	0.00	0.00	0.23	0.00	0.24	0.22	0.00	0.00	0.00	0.23	0.00	0.00	0.23	0.00	0.00
Cyclotella michiganiana	CY MICH	0.00	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
Cyclotella ocellata	cy ocel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.71	0.46
Cyclotella pseudostelligera	cy psla	0.00	0.00	0.00	0.00	0.00	0.20	0.00	0.70	0.43	0.24	0.87	0.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cyclotella rossi	cy rosi	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.21	0.00	0.22	0.00	0.47	0.23	0.00	0.23	0.00	0.00	0.00	0.00
Cymbella amphicephala	cm amph	0.00	0.00	0.00	0.00	0.00	0.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cymbella cf. falaisensis	cm falc	0.00	0.00	0.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cymbella cistula	CM CIST	0.00	0.00	0.00	0.00	0.00	0.00	0.00	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
Cymbella cymbiformis var. nonpunctata	CM CY.N	0.46	0.49	0.43	0.00	0.00	0.20	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 gracilis	cm grac	0.00	0.00	0.00	0.00	0.00	0.00	0.00	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
Cymbella helvetica	cm helv	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.45	0.48	0.00
Cymbella leptoceros	CM LEPT	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	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cymbella microcephala	CM MICR	0.23	0.00	0.22	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
Cymbella minuta	CM MINU	0.23	0.24	0.43	0.49	1.76	0.40	0.46	0.23	0.64	0.00	0.43	0.22	0.00	0.46	0.23	0.23	0.00	0.91	0.00	0.00
Cymbella muelleri	CM MUEL	0.00	0.00	0.00	0.00	0.00	0.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cymbella proxima	cm prox	0.00	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	0.00
Cymbella silesiaca	CM SILE	0.00	0.00	0.00	0.49	0.00	0.00	0.23	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
Denticula tenuis	de tenu	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	0.00	0.00
Diatoma moniliformis	di mono	0.00	0.00	0.00	0.00	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
Diatoma tenue var. elongatum	DI TE.E	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Diatoma tenue	DI TENU	0.00	0.24	0.00	0.00	0.22	0.00	0.00	0.00	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 oblongella	dp oblo	0.00	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Diploneis ovalis	dp oval	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Diploneis parma	dp parm	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	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Epithemia adnata	EP ADNA	0.00	0.97	0.22	0.00	0.44	0.40	0.00	0.00	0.00	0.00	0.43	0.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Epithemia argus	EP ARGU	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	0.00	0.00	0.00
Epithemia sorex	ep sore	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	0.46	0.00	0.00	0.00	0.00	0.00	0.00
Eunotia gracilis	eu grac	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	0.00
Fragilaria 4 PIRLA	fr 4pir	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.69
Fragilaria 6 PIRLA	fr 6pir	0.00	0.00	0.00	0.00	0.00	0.81	0.00	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
Fragilaria brevistriata	FR BREV	1.62	1.94	6.68	3.88	8.15	5.66	3.00	5.85	4.08	4.06	5.22	5.59	3.04	3.64	6.31	9.15	3.82	2.73	2.85	6.68
Fragilaria capucina	FR CAPU	2.54	1.70	0.86	3.40	7.27	2.02	23.33	16.16	6.44	3.10	1.74	1.08	3.04	1.14	0.47	1.37	0.67	0.45	4.04	2.76
Fragilaria capucina var. gracilis	FR CA.G	0.00	0.00	0.00	0.00	0.00	0.00	0.46	0.00	0.43	0.00	0.00	0.00	0.00	0.46	0.00	0.00	0.00	0.00	0.24	0.00
Fragilaria construens	FR CONS	0.23	1.70	3.23	2.18	2.64	0.40	0.00	0.00	0.00	0.00	4.13	0.00	3.51	3.19	0.47	5.03	2.70	0.46	2.85	6.22
Fragilaria crotonensis	FR CROT	4.16	8.74	10.78	15.78	8.15	2.83	3.70	2.81	0.86	2.15	7.83	8.39	2.81	0.46	5.14	0.00	3.15	0.91	7.13	1.38
Fragilaria cyclopum	FR CYCL	0.00	0.24	0.43	0.00	0.00	0.00	0.23	0.00	0.43	0.24	0.00	0.00	0.00	0.23	0.00	0.00	0.22	0.00	0.00	0.00
Fragilaria famelica	FR FAME	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fragilaria lapponica	FR LAPP	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	0.46	0.00	0.00	0.45	0.00	0.00	0.00
Fragilaria leptostauron	fr lept	0.00	0.00	0.00	0.00	3.52	0.00	0.00	0.00	0.86	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.22	0.91	0.00	0.46
Fragilaria nanana	FR NANA	0.23	1.46	2.16	0.24	5.51	0.00	0.46	3.51	0.64	0.00	0.00	0.00	0.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fragilaria parasitica	FR PARA	0.23	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	0.00
Fragilaria pinnata	FR PINN	3.00	5.58	5.17	2.43	6.83	6.46	0.92	6.79	1.93	2.86	4.35	4.30	3.28	3.42	3.50	8.24	5.39	5.24	3.56	6.91
Fragilaria sp. 1 PISCES	FR SP.1	0.00	0.00	0.00	0.00	0.00	0.00	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
Fragilaria tenera	FR TENE	0.00	0.49	5.39	3.40	5.95	0.61	0.92	0.23	0.00	0.00	0.43	0.00	0.00	0.00	0.00	0.46	0.22	0.00	0.00	0.00
Fragilaria ulna	FR ULNA	0.69	0.00	1.08	0.97	0.00	0.40	0.69	0.70	0.00	0.95	0.00	0.00	0.00	0.00	0.00	0.23	0.00	0.00	0.24	0.00
Fragilaria ulna var. acus	FR UL.A	0.00	0.00	0.00	0.00	0.00	0.00	0.69	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.47	0.00	0.00	0.00	0.24	0.23
Gomphonema acuminatum	GO ACUM	0.00	0.00	0.00	0.00	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
Gomphonema angustum	GO ANGU	0.46	0.00	1.08	0.00	0.00	0.20	0.46	0.23	0.43	0.48	1.09	0.43	0.00	0.00	0.23	0.46	0.45	0.00	1.19	0.00
Gomphonema cf. squaemineralis	go aqui	0.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.21	0.00	0.00	0.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Gomphonema gracile	GO GRAC	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	0.00
Gomphonema cf. olivaceum	go oliv	0.00	0.00	0.43	0.00	0.00	0.00	0.00	0.00	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 parvulum	GO PARV	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	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Gomphonema sp. (#8-12, pl. 43)	GO SP.2	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	0.00
Gomphonema sp. (unkn. - girdle)	go spp	2.08	1.21	0.00	0.00	0.44	0.00	0.00	0.00	0.64	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.48	0.46
Gyrosigma acuminatum	gy acum	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.22	0.00	0.00	0.00	0.00	0.23	0.00	0.00	0.00	0.00
Meridion circulare	mr circ	0.46	0.00	0.43	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
Navicula aff. veneta	NA AFVE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.47	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 capitata var. capitata	NA CA.C	0.00	0.00	0.22	0.00	0.00	0.00	0.00	0.00	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 capitata var. hungarica	NA CA.H	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.47	0.00	0.00	0.00	0.43	0.47	0.00	0.00	0.00	0.00	0.23	0.00	0.46
Navicula cocconeiformis	na cocc	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	0.00
Navicula cryptocephala	NA CCEP	0.46	0.00	0.22	0.00	0.00	0.00	0.00	0.00	0.86	0.00	0.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.24	0.00
Navicula cryptotenella	NA CRYP	0.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Navicula digitoriata var. minima	NA DI.M	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 diluviana	NA DILU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.45	0.00	0.00	0.00
Navicula explanta	na expl	0.00	0.00	0.00	0.00	0.00	0.00	0.46	0.00	0.43	0.00	0.00	0.00	0.00	0.00	0.23	0.00	0.45	0.00	0.00	0.00
Navicula libonensis	NA LIBO	0.00	0.00	0.00	0.00	0.00	0.00	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	0.23
Navicula menisculus	na menu	0.00	0.00	0.00	0.00	0.00	0.00	0.00	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
Navicula minima	NA MINI	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	0.46	0.00	0.00	0.00	0.00	0.00	0.00
Navicula cf. minuscula	NA MINU	0.00	0.00	0.00	0.00	0.00	0.20	0.46	0.00	0.00	0.00	0.00	0.00	0.00	0.45	0.00	0.00	0.00	0.00	0.00	0.00
Navicula mutica	NA MUTI	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	0.00	0.00	0.00
Navicula oblonga	NA OBLO	0.00	0.00	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 porifera	na pori	0.00	0.00	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	0.00	0.00
Navicula pseudoscutiformis	na pscu	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.48	0.00	0.00	0.23	0.00	0.47	0.00	0.00	0.46	0.00	0.00
Navicula pupula	NA PUPU	0.00	0.00	0.43	0.00	0.66	0.00	0.23	0.47	0.21	0.00	0.00	0.00	0.00	0.00	0.00	0.92	0.00	0.46	0.24	0.00
Navicula radiosa	NA RADI	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.24	0.00
Navicula schaderi	na scha	0.00	0.00	0.43	0.00	0.00	0.00	0.00	0.00	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. schoenfeldi	na scho	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	0.46	0.00	0.00
Navicula seminulum	na semi	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	0.23	0.00	0.00	0.00	0.00
Navicula sp. 1PISCES	NA SP.1	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 sp. 3PISCES	na sp.3	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	0.00
Navicula sp. 4PISCES	NA SP.4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.46
Navicula sp. pl. 22	na pl22	0.00	0.00	0.00	0.00	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
Navicula sp. pl. 23	na pl23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.23
Navicula cf. sublucidula	na subl	0.00	0.00	0.00	0.00	0.44	0.00	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
Navicula submuralis	na sbmu	0.00	0.00	0.00	0.49	0.00	0.00	0.00	0.00	0.86	0.00	0.00	0.00	0.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Navicula subminuscula	NA SUBM	0.00	0.00	0.00	0.00	0.00	0.00	0.00	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
Navicula tenera	na tene	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.22	0.00	0.00	0.00
Navicula vitabunda	NA VITA	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	0.00
Neidium ampliatum	NE AMPL	0.00	0.00	0.00	0.00	0.22	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
Nitzschia amphibia	NI AMPH	0.00	0.00	0.00	0.00	0.22	0.00	0.00	0.47	0.00	0.00	0.00	0.00	0.00	0.46	0.00	0.00	0.00	0.00	0.00	0.00
Nitzschia bacillum	NI BACI	0.00	0.00	0.22	0.00	0.00	0.00	0.00	0.00	0.43	0.48	0.87	0.22	0.00	0.00	0.00	0.46	0.00	0.00	0.00	0.00
Nitzschia dissipata var. media	ni dsvm	1.15	0.97	0.43	0.00	0.44	0.20	0.46	0.00	0.00	0.00	0.00	0.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Nitzschia dravellensis	NI DRAV	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	0.00	0.00	0.00
Nitzschia frustulum	NI FRUS	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	0.46	0.00	0.00
Nitzschia gracilis	NI GRAC	0.46	0.00	0.22	0.73	0.22	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Nitzschia heufleriana	ni heuf	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
Nitzschia liebetruthii fo. 1 PISCES	NI LI.1	0.46	0.00	0.00	0.00	0.00	0.20	0.92	0.47	1.07	0.24	0.43	0.00	0.00	0.00	0.70	0.00	0.00	0.00	0.00	0.00
Nitzschia liebetruthii fo. 2 PISCES	NI LI.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.43	0.47	0.00	0.00	0.00	0.00	0.00	0.48	0.00
Nitzschia linearis var. subtilis	ni li.s	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	0.00	0.00	0.00
Nitzschia palea	NI PALE	0.46	0.49	0.86	0.00	0.22	0.00	0.00	0.00	0.00	0.00	0.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Nitzschia palea var. tenuirostris	NI PA.T	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	0.47	0.00	0.00	0.00	0.00	0.00
Nitzschia paleacea	NI PALC	0.46	0.00	0.22	0.00	0.44	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
Nitzschia perminuta	NI PERM	0.00	0.00	0.22	0.00	0.00	0.00	0.00	0.00	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 radicula	NI RADI	0.00	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	0.23	0.00	0.00
Nitzschia cf. sigmoides	ni sigm	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	0.00
Nitzschia solita	ni soli	0.00	0.00	0.00	0.00	0.00	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pinnularia microstauron	PI MICR	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	0.23	0.00	0.00	0.00	0.00	0.00
Pinnularia viridis	pi viri	0.00	0.49	0.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rhopalodia gibba	RH GIBB	0.00	0.00	0.00	0.49	0.44	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
Stauroneis lauenburgiana	st laue	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.46
Stauroneis smithii	st smit	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	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Stephanodiscus alpinus	st alpi	0.46	0.00	0.00	0.00	0.22	0.00	0.00	0.47	0.00	0.48	0.43	0.00	0.23	0.46	0.23	0.00	0.45	0.23	0.24	0.00
Stephanodiscus hantzschii	ST HANT	1.39	0.24	0.22	0.24	0.22	0.00	0.23	0.23	0.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Stephanodiscus medius	ST MEDI	0.92	0.73	1.29	0.24	0.44	1.21	0.46	0.94	1.07	0.00	0.43	0.86	0.47	0.00	0.00	0.23	0.45	0.00	0.24	1.61
Stephanodiscus minutulus	ST MINU	4.16	2.43	0.65	1.46	4.41	1.01	1.39	1.17	3.86	4.77	3.70	2.37	1.17	0.46	1.87	0.92	2.25	1.37	0.48	1.15
Stephanodiscus niagarae	ST NIAG	0.46	0.24	0.00	0.24	0.66	0.20	0.46	0.70	0.00	0.00	0.43	0.22	0.47	0.46	1.17	0.23	0.45	1.14	0.48	1.15
Stephanodiscus cf. oregonicus	ST OREG	0.00	0.00	0.00	0.00	0.00	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Stephanodiscus parvus	ST PARV	9.70	7.52	3.23	4.37	4.19	0.61	2.08	1.17	6.01	7.40	1.30	2.80	1.41	0.68	1.40	2.06	4.72	2.28	1.19	0.92
Surirella linearis var. constricta	su li.c	0.00	0.00	0.00	0.00	0.00	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Surirella cf. subsala	su subs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.22	0.00	0.00	0.00
Tabellaria flocculosa	ta floc	2.08	1.70	0.86	3.64	1.76	4.04	0.69	2.34	3.22	1.67	0.43	0.86	1.64	0.91	0.23	0.00	0.22	0.68	1.19	0.00
Tabellaria flocculosa str. IIIp	TA FL3P	0.00	0.24	0.86	1.21	0.22	0.81	0.46	0.23	1.29	0.48	0.87	0.65	0.47	0.68	0.93	0.00	0.00	0.23	0.00	0.00
degraded/unidentifiable girdle view	deg/grd	4.39	3.16	2.37	1.21	3.30	2.42	0.92	1.87	2.79	4.06	1.09	2.58	3.98	0.68	2.80	0.92	2.70	1.14	1.90	2.30