GEOCHEMICAL DATA FROM ANALYSES OF SEDIMENTS AND PORE WATERS OBTAINED FROM CORES COLLECTED IN HALIFAX INLET, C.S.S. NAVICULA CRUISE 90-010

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ABSTRACT

Geochemical data are compiled for sediment and pore water analyses for 2 box cores and 3 Lehigh cores collected from the seabed of Halifax inlet, Nova Scotia. These cores were collected from the C.S.S. NAVICULA (Cruise 90-010) during June 1990. Core station locations were chosen to be representative of different sedimentary and depositional environments, to supplement earlier sampling programs, and to obtain a series of cores that would provide high resolution of the upper 100 cm of sediment.

Sediment analyses included sediment texture, water content, organic carbon, $CaCO_3$ and total metals (Si, Al, Mg, K, Fe, Mn, Ca, Cu, Zn, Ni, Cr, Pb, Li, Cd and Hg). Chemical leach techniques were used to determine the potential labile metal partitioning (Fe, Mn, Ca, Cu, Zn, Ni, Cr and Pb) in these sediments and included sequential leach analyses for: (1) weak acid leachable metal, (2) easily reducible metals, (3) moderately reducible metals, and (4) residual metals. In addition, separate analyses for organically bound metals were performed using H_2O_2 as an oxidant. Metals analyzed after this treatment included Fe, Mn, Cu, Zn, Ni, Cr and Pb.

Pore water analyses included ammonium, hydrogen sulphide, silica, sulphate, total alkalinity, Na, Mg, K, Ca, Fe, Mn, pH and free electrons ($p\epsilon$).

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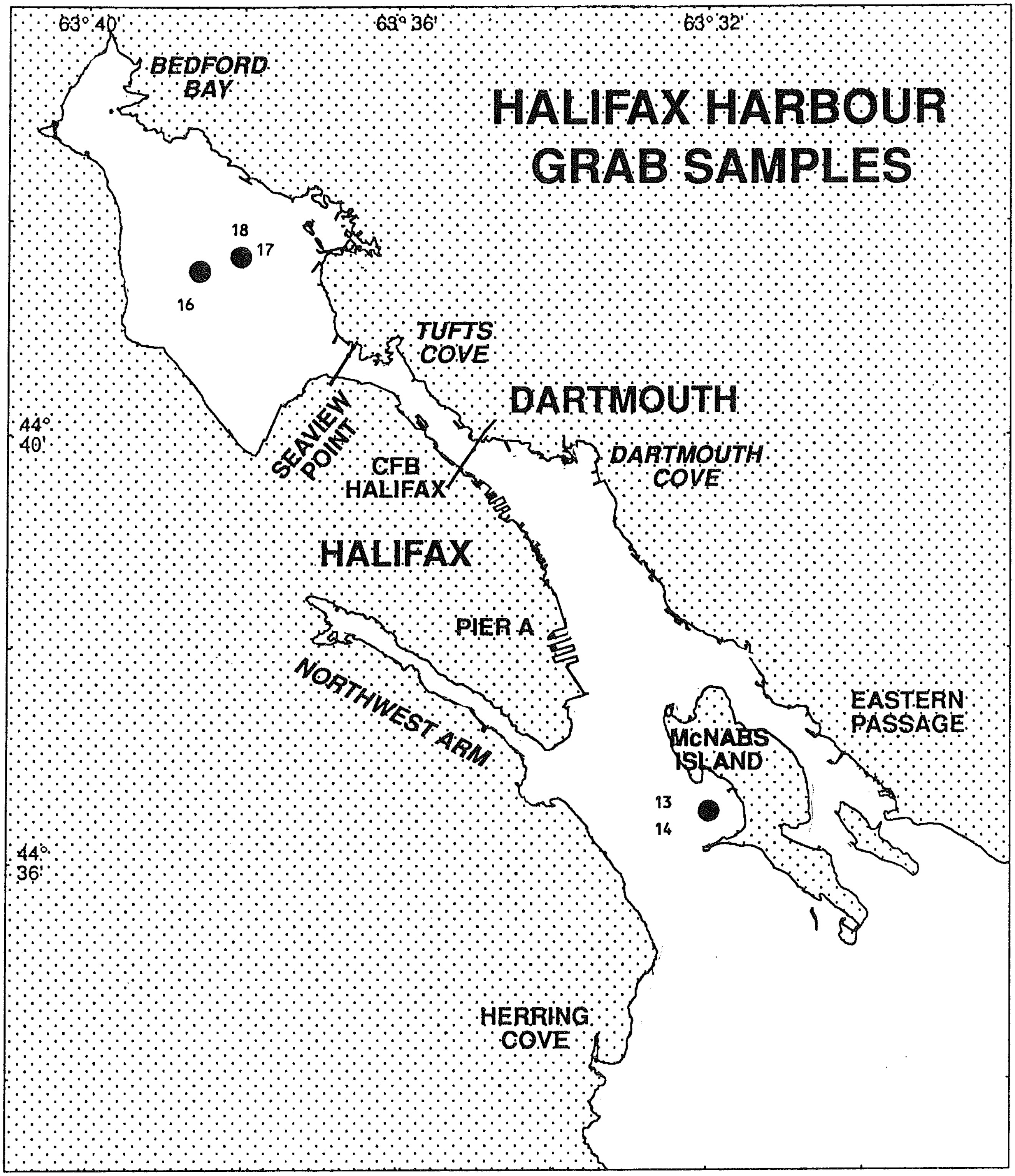


Figure 1. Station locations in Halifax inlet for core samples. Cores 14, 16 and 18 were LeHigh gravity cores and cores 13 and 17 were Eckman-style box cores.

INTRODUCTION

Three Lehigh gravity cores and 2 Eckman-style box cores from Halifax Inlet, Nova Scotia, (Fig. 1) have been analyzed for a number of geological and geochemical parameters. Core samples were collected from the Bedford Institute of Oceanography vessels CSS Navicula (Cruise 90-010) during June 1990 (Fader and Miller, 1991). This report contains analytical results for both sediment and pore water subsamples. Core station locations were chosen to be representative of different sedimentary and depositional environments, and to obtain a series of cores that would supplement high resolution information obtained from previous cruises (Buckley et al., 1991; LeBlanc et al., 1991; and Winters et al., 1991).

METHODS

Sampling

The AGC Lehigh gravity coring system had a capacity of obtaining up to 1.5 m long, 10 cm in diameter cores from fine-grained sediments. Box coring was done using a specially designed and modified Eckman-style corer 30 cm wide. Push cores 10 cm in diameter were sub-cores taken from these box cores for geochemical testing. Cores were vertically extruded and sampled at selected 2 cm intervals for the Lehigh cores and 1 cm intervals for the sub-cores of the box cores.

Sediment pH and pϵ analyses were conducted on the freshly exposed surfaces of the extruded cores prior to subsampling. Sediment pH was determined using a combination pH electrode that was standardized with Palitsch buffer at pH 8.2 (Whitfield, 1969). A precision of ±0.05 pH units was achieved routinely within a 2 minute time period. A combination platinum electrode, standardized in Zobell solution, was used to determine the redox potential as pϵ (Whitfield, 1969). Voltage was recorded for 90 s to account for electrode drift. Redox potential was calculated from the potential difference relative to the standard hydrogen electrode. Precision was estimated to be ± 0.2 pϵ units.

Subsamples from the cores were taken immediately after redox measurements had been completed. Approximately 50 cm^3 of mud was obtained by inserting a modified plastic syringe piston-subsampler into the sediment. This subsampling was performed in an open atmosphere. It was assumed that oxygen effects were minimal for short exposure times. Sediment subsamples were placed in 50 mL plastic centrifuge tubes, sealed and refrigerated at 4 to 10 °C until the pore water could be extracted.

Pore water was extracted from the sediment subsamples by centrifugation at 3000 rpm for 30 minutes in a Sorvall[R] RT600B refrigerated centrifuge. Between 5 and 20 mL of pore water were obtained from most samples. After centrifugation, pore water was decanted from the centrifuge tubes and filtered through 0.4 μm Nuclepore filters. Pore water subsamples were immediately analyzed for pH, total alkalinity, ammonium, phosphate and silica. The remaining pore water was acidified (pH 2) with HCl and stored for later metal analyses for Fe and Mn. The sediment remaining in the centrifuge tube was sealed and placed in refrigerated storage for later analyses for total and extractable metals, grain size, total carbon and organic carbon. Samples were also classified by their hydrogen sulphide gas odor. A strong odor was denote as 2, a slight odor as 1 and no odor as 0.

Pore Water Analyses

Dissolved ammonia (NH_4^+) in pore water was determined by colorimetric absorbance of the oxidized nitrogen complex in a ferrocyanide solution, as described by Solorzano (1969). Absorbance was measured at 640 nm.

Dissolved sulphide (S^{2-}) in pore water was determined using a colorimetric method described in Cline (1969).

Dissolved silica (SiO_2) in pore water was determined by colorimetric analysis of the reduced silicomolybdate complex. This method was adapted from Strickland and Parsons (1968), as described by Mann and Gieskes (1975). A Varian model 634 light spectrometer was used to measure absorbance of this complex at a wavelength of 812nm.

Dissolved sulphate (SO_4^{2-}) in pore water was determined by an indirect atomic absorption spectrophotometry method. A 0.1 mL aliquot of 0.3 M barium chloride was added to a 1 mL sample of pore water. This provided an excess of barium for the precipitation of sulphate as barium sulphate. This precipitate was removed from solution by centrifuging. The excess barium concentration left in solution was determined by flame atomic absorption spectrophotometry and was used to calculate the initial concentration of sulphate in the sample. The precision for dissolved sulphate concentrations was ±1 mM.

Total alkalinity (ALK_{pw}) was determined on a 1 mL pore water sample. A potentiometric titration was completed for each sample with an automatic titrator. A microelectrode was used to measure the pore water pH during titration with 0.008 N HCl in 0.6 N NaCl. Alkalinity precision was ± 0.04 mN (Edmonds, 1970).

Total Fe_{pw} and Mn_{pw} in pore water were determined by direct flameless atomic absorption spectrophotometry. Aqueous samples (pH = 1.5-2.0) were injected directly into the atomization chamber of a Varian 975 with a GTA 95 graphite furnace. Standards were prepared in seawater containing negligible amounts of these metals compared to the concentrations in the samples. All instrumental parameters followed the manufacturers recommendations.

Sediment Analyses

Water content (WATER, as % of total wet weight) was determined by measuring weight loss of samples after drying at 60 °C for 48 hours.

Sediment grain size analyses were conducted on wet samples using a 0.063 mm sieve. The sediment mass > 0.063 mm was classed as sand. Sediment < 0.063 mm was classed as silt and clay (mud). A Coulter Counter Model TAII[R] was used to determine the silt and clay % fraction in the mud component using 30 and 200 μm apertures. Subsamples for Coulter Counter analyses were disaggregated in a 5 % solution of sodium metaphosphate in an ultrasonic bath. Sediment < 0.063 mm and > 0.004 mm was classed as silt and sediment < 0.004 mm was classed as clay. Gravel size particles were not included in the analyses. The mean grain size for the mud fraction (silt and clay) are reported along with the standard deviation, kurtosis, and skewness.

The sediment was freeze dried and lightly disaggregated with an agate mortar and pestle and used for analyses of total carbon, organic carbon, leachable and total metals.

Total carbon (C_T in % of dry weight) was determined from washed and dried samples using a Leco carbon analyzer.

Organic carbon (C_{org} in % of dry weight) was determined in a similar manner to total carbon except, that the inorganic carbon was removed by 1 N HCl treatment prior to determining the carbon content. The precision was ±0.2 % for both the C_T and C_{org}.

$CaCO_3$ was computed from the difference between C_T and C_{org}.

The sequential leach analyses (Fitzgerald et al, 1987) include:

(1) Weak acid leachable metal (Fe_{WA}, Mn_{WA}, Ca_{WA}, Cu_{WA}, Zn_{WA}, Ni_{WA}, Cr_{WA} and Pb_{WA}) in 25 % acetic acid, pH 2 for 16 h, as described in Chester and Hughes (1967).

(2) Hydroxylamine leachable metal (Fe_{HA}, Mn_{HA}, Ca_{HA}, Cu_{HA}, Zn_{HA}, Ni_{HA}, Cr_{HA} and Pb_{HA}) in 1 M NH_2OH-HCl for 16 h, as described in Chester and Hughes (1967).

(3) Heated hydroxylamine leachable metal (Fe_{HHA}, Mn_{HHA}, Ca_{HHA}, Cu_{HHA}, Zn_{HHA}, Ni_{HHA}, Cr_{HHA} and Pb_{HHA}) in 0.04 M NH_2OH-HCl, pH 2, at 80 °C for 16 h, as described in Tessier et al (1979).

(4) Leach residue metals with concentrations computed relative to the original mass (Si_R, Al_R, Mg_R, K_R, Fe_R, Mn_R, Ca_R, Cu_R, Zn_R, Ni_R, Cr_R and Pb_R) were determined using the Buckley and Cranston (1971) HF-H_3BO_3 total decomposition method.

The leach residue dry weight is reported as "Residue" in mg remaining of the initial 1000 mg of sample. The "weight loss" due to the sequential leaching can be computed as:

Weight Loss(%) = 100 (1 - Residue / 1000).

The sequential sum (Fe_{SUM}, Mn_{SUM}, Ca_{SUM}, Cu_{SUM}, Zn_{SUM}, Ni_{SUM}, Cr_{SUM} and Pb_{SUM}) was computed as the summation of the sequential leach analyses components (ie, $Fe_{SUM}=Fe_{WA}+Fe_{HA}+Fe_{HHA}+Fe_R$).

Metal concentrations which are leached by hydrogen peroxide are considered to be organically bound (MacIntosh et al, 1976). Disaggregated dry sediment (1 g) was leached with 10 % hydrogen peroxide (20 mL) and 25% acetic acid (pH 2) for 24 h. Finally the leachate was decanted into clean test tubes. The acetic acid was necessary to retard the hydrolysis of the metals as they were released from the organic matter. This leach fraction also contained the weak acid leachable metal fraction. The concentrations of metals, which were specifically released from the organic matter by the hydrogen peroxide, were determined as the difference between the results for this hydrogen peroxide leach at pH 2 and the weak acid leach at pH 2. This difference is reported as Fe_{org}, Mn_{org}, Cu_{org}, Zn_{org}, Ni_{org}, Pb_{org} and Cr_{org}.

Total metal concentration (Si_T, Al_T, Mg_T, K_T, Fe_T, Mn_T, Ca_T, Cu_T, Zn_T, Ni_T, Cr_T, Pb_T, Li_T and Cd_T) was determined using the Buckley and Cranston (1971) HF-H_3BO_3 total decomposition method.

An indication of the accuracy and precision of this total elemental analysis method is demonstrated by replicate analyses of standards. Results for the standard samples BCSS1 and MESS1 (NRC Canada) and MAG1 (USGS) are compared in Table 1. With the exception of the analyses for Ni, and one standard result for Cu, all of the replicate analyses for the 12 elements have a coefficient of variation (CV = standard deviation / mean x 100) of less than 10 %. The reason for the high CV for Ni has not been determined, so analytical results for this metal should be used with caution. The CV of 11.1 % for Cu in the BCSS1 standard is almost certainly due to the low level of Cu in this standard, therefore analytical results below 20 ppm should be used with caution.

Estimates of the relative accuracy error were obtained by comparing our analytically determined mean value with the preferred value published for the standard. Only those results which show relative accuracy error greater than 10 % require some comment. Our analytical method appears to produce Al results that are 10.7 to 14.2 % lower than the results published for the three standards. Our results for Mg content in the MESS1 standard are 16 % lower than the published value. This appears to be caused by the moderately low Mg content and possibly to an unusual matrix effect in this standard. Our results for K in BCSS1 and MESS1 are 15 and 16.1 % low respectively. The reason for these results is not readily apparent, although it is suspected to be a matrix effect. It should be noted that all of these relative accuracy errors in the analyses of the major elements produces an analytical result which has an absolute error of less than 1 %.

TABLE 1.

Results for replicate analyses of standard samples.

Standard Sample		Si_T %	Al_T %	Ca_T %	Mg_T %	K_T %	Fe_T %	Mn_T μgg^{-1}	Cu_T μgg^{-1}	Zn_T μgg^{-1}	Ni_T μgg^{-1}
BCSS1											
	N	9	9	6	8	8	9	8	8	8	8
	Mean	29.6	5.59	0.54	1.36	1.53	3.18	246	18	103	39
	StdDev	0.4	0.29	0.01	0.02	0.09	0.08	15	2	3	9
	% CV	1.4	5.2	1.9	1.5	5.9	2.5	6.1	11.1	2.9	23.1
	Present[1]	30.9	6.26	0.54	1.47	1.80	3.29	230	18.5	120	55
	% Error	-4.2	-10.7	0	-7.5	-15.0	-3.3	7.0	-2.7	-14.2	-29
MESS1											
	N	9	9	6	8	8	9	8	8	8	8
	Mean	29.6	5.01	0.44	0.73	1.55	2.86	533	24	172	19
	StdDev	0.5	0.31	0.02	0.03	0.10	0.06	20	2	6	10
	% CV	1.7	6.2	4.5	4.1	6.4	2.1	3.8	8.3	3.5	52.6
	Present[1]	31.6	5.84	0.48	0.87	1.86	3.05	510	25	190	30
	% Error	-6.3	-14.2	-8.3	-16.1	-16.7	-6.2	4.5	-4.0	-9.5	-37
MAG1											
	N	9	9	6	8	8	9	8	8	8	8
	Mean	23.2	7.73	0.91	1.73	2.92	4.71	795	27	130	40
	StdDev	0.4	0.53	0.02	0.14	0.12	0.10	19	2	2	11
	% CV	1.7	6.9	2.2	8.1	4.1	2.1	2.4	7.4	1.5	27.8
	Present[2]	23.9	8.7	0.99	1.89	3.09	4.88	770	27	135	54
	% Error	-2.9	-11.1	-8.1	-8.5	-5.5	-3.5	3.2	0	-3.7	-26

[1] Values from Berman (1981).
[2] Values from Manheim et al. (1976).

The relative accuracy error of -14.2 % for analyses of Zn in the BCSS1 standard is of unknown source. The large negative errors for results of Ni analyses (-29 %) in all standards reinforces the caution in the use of these results. No evaluation of the accuracy or precision of Pb analyses could be obtained because the published concentrations of Pb in the standards were all below the analytical detection limit (20 ppm) of our method.

TABLE 2.

Error for instrumental analyses.

Metal	Detection Limit	Concentration Range	Precision	Relative Error
	$\mu g \cdot mL^{-1}$	$\mu g \cdot mL^{-1}$	$\mu g \cdot mL^{-1}$	%
Fe	10	10 - 1400	±5	
		4000 - 17000	±140	2
		29000 - 47000	±800	2
Mn	0.6	0.6 - 11	±0.3	
		9 - 100	±1	2
		250 - 800	±18	4
Ca	16	16 - 450	±8	
		500 - 900	±20	3
		4000 - 9000	±150	3
Cu	1.2	2 - 180	±0.6	
		30 - 180	±0.6	2
Zn	0.4	0.4 - 35	±0.2	
		6 - 35	±0.4	3
		50 - 300	±6	5
Ni	1	1 - 25	±0.5	
		6 - 30	±0.5	2
Pb	0.6	0.6 - 8	±0.3	
		3 - 20	±0.4	5
		70 - 130	±1	2
Cr	0.8	1 - 25	±0.4	
		7 - 40	±0.4	1
Si		23 - 30 %	±0.5 %	2
Al		5 - 8 %	±0.4 %	6
Mg		0.7 - 1.7 %	±0.05 %	5
K		1.5 - 2.9 %	±0.1 %	5

Average precision values, for the instrumental analyses for specific metals, were determination from duplicate analyses of solutions which were prepared for the total metal and leachable metal analyses. The precision values are reported in Table 2. In the low concentration ranges the precision can be used to evaluate the analytical detection limits. Under these conditions the analytical detection limit is approximately twice the value for precision. In the higher concentration ranges the average relative error determinations for these metals were used to evaluate the analytical results. As the detection limit is approached the relative error approaches 100 %. The relative error for a specific metal and sample was determined as the percent mean deviation relative to the sample mean. These results were then used to determine the average relative error for a specific metal and are reported in Table 2. Average precision values for the elements Si, Al, Mg and K were determined for narrow concentration ranges and we have not determined the detection limits.

In an earlier study (Buckley et al 1989) results were reported for analyses of replicate samples and subsamples. The concentrations were in the higher concentration ranges and the % coefficients of variation included variation due to repetitive sampling and sampling inhomogeneity. In the present study we report relative error which includes only the error resulting from duplicate instrumental analyses of sample solutions.

Total mercury (Hg_T) was determined using a flameless cold–vapour atomic absorption spectrometry method adapted from Brandenberg and Bader (1967) and MacIntosh et al (1976). The average precision varied significantly with concentration range: ±0.005 ppm for range 0.01 to 0.1 ppm, ±0.04 ppm for range 0.1 to 1 ppm, ±0.1 ppm for range 1 to 5 ppm, and ±0.7 ppm for range 5 to 11 ppm. In all concentration ranges the relative error varied from 6 % to 11 %.

Core	Depth cm	Fe_{WA} μgg^{-1}	Fe_{HA} μgg^{-1}	Fe_{HHA} μgg^{-1}	Fe_{R} μgg^{-1}	Fe_{SUM} μgg^{-1}	Fe_{T} μgg^{-1}	Fe_{ORG} μgg^{-1}	Mn_{WA} μgg^{-1}	Mn_{HA} μgg^{-1}	Mn_{HHA} μgg^{-1}	Mn_{R} μgg^{-1}	Mn_{SUM} μgg^{-1}	Mn_{T} μgg^{-1}	Mn_{ORG} μgg^{-1}	ID
13	0	8010	2368	8020	33624	52022	67500	22590	26	6.6	36	26	94	261	84	74480
	1	12940	3123	9450	32680	58193	87100	32260	27	7.4	36	39	110	310	104	74481
	2	12900	3183	11640	34629	62352	94600	38100	27	4.8	31	59	122	365	135	74482
	3	10060	3146	11380	31278	55864	83600	38040	29	4.7	34	33	101	288	133	74483
	5	11790	3123	9490	32102	56505	78300	37410	26	4.9	37	19	87	251	142	74484
14	0	1220	343	2000	17366	20929	34800	4480	13	9.9	43	15	81	702	42	74401
	2	570	183	1990	15725	18468	29400	3630	12	7.9	41	20	81	766	13	74402
	4	650	159	1990	14710	17509	30300	4350	16	7.9	42	65	131	650	0	74403
	6	620	188	2200	16452	19460	31900	4780	19	9.7	48	32	109	796	0	74404
	8	960	215	2200	18705	22080	29000	5540	16	8.9	45	27	97	572	0	74405
	10	880	217	2390	16040	19527	34000	5120	15	9.1	51	57	132	753	0	74406
	12	780	220	2320	20406	23726	31100	5820	17	11.1	50	44	122	617	0	74407
	14	680	186	2290	16891	20047	36100	6320	15	7.3	46	51	119	733	0	74408
	16	720	182	1980	17419	20301	33100	5880	15	8.3	42	66	131	762	33	74409
	18	840	159	2310	16661	19970	29600	6360	15	7.9	41	52	116	748	54	74410
	20	480	182	2210	18394	21266	36800	7320	15	8.6	45	43	111	783	59	74411
	22	400	149	2140	16871	19560	29700	6800	15	7.8	43	40	106	776	60	74412
	24	820	148	2300	15807	19075	29000	7280	19	8.0	44	66	137	796	72	74413
	26	750	102	1850	13427	16129	22500	5650	17	6.4	38	40	101	782	52	74414
	28	1170	196	2220	15916	19502	25600	9530	14	7.7	41	17	80	665	56	74415
	30	1190	196	2270	17366	21022	25300	7010	19	10.0	48	48	125	852	56	74416
	32	680	131	1980	13550	16341	23800	5820	15	7.2	39	77	138	933	52	74417
	34	560	133	1940	13456	16089	20900	4940	13	7.2	39	44	103	887	45	74418
	36	920	238	2270	15314	18742	22300	5880	19	10.4	44	15	88	704	60	74419
	38	440	143	1990	12078	14651	20600	5160	26	9.4	39	15	89	719	54	74420
	40	470	165	2050	36783	39468	22000	5230	20	10.0	42	3	75	824	64	74421
	42	710	152	2040	13553	16455	24000	5590	23	8.8	39	24	95	925	66	74422
	44	650	142	2240	13598	16630	25500	6750	23	10.0	41	34	108	958	74	74423
	46	600	169	2240	16178	19187	24400	7300	21	9.7	43	58	131	934	61	74424
16	0	4880	1995	5630	13439	25944	65800	18620	40	12.2	39	32	123	606	75	74425
	2	3690	1889	7000	30248	42827	64600	14710	35	11.0	36	16	98	580	62	74426
	4	4630	2241	5470	29529	41870	59600	22570	38	12.5	38	3	92	489	84	74427
	6	5540	2549	5720	26457	40266	67900	20460	27	11.3	36	22	97	559	88	74428
	8	4120	2022	4750	22264	33156	64400	17480	24	6.4	36	1	67	551	81	74429
	10	2970	1636	3950	24391	32947	56000	16830	27	8.4	40	4	80	514	78	74430
	12	2630	1466	3800	28653	36549	57900	18570	26	10.2	43	3	82	569	84	74431
	14	2180	1491	3560	26714	33945	59700	19220	21	8.3	42	12	84	550	76	74432
	16	2080	1629	3670	29185	36564	58400	18420	25	11.7	44	38	119	678	95	74433
	18	2000	1637	3700	24888	32225	54900	17400	27	9.9	42	42	121	653	126	74434
	20	3200	1759	3680	16307	24946	56300	12300	26	8.0	39	18	91	648	94	74435
	22	2770	1840	4200	18819	27629	54200	11730	26	8.2	41	1	77	603	83	74436
	24	3060	1886	5030	26003	35979	53200	13240	28	12.1	49	7	96	563	88	74437
	26	3210	2112	5580	23520	34422	52000	12890	25	10.6	47	3	85	530	67	74438
	28	3310	2157	5350	21784	32601	45600	12890	24	9.9	44	5	83	416	59	74439
	30	2610	1823	4270	19181	27884	55100	12790	19	6.9	41	5	72	492	56	74440

Core	Depth cm	Fe_{WA} μgg^{-1}	Fe_{HA} μgg^{-1}	Fe_{HHA} μgg^{-1}	Fe_{R} μgg^{-1}	Fe_{SUM} μgg^{-1}	Fe_{T} μgg^{-1}	Fe_{ORG} μgg^{-1}	Mn_{WA} μgg^{-1}	Mn_{HA} μgg^{-1}	Mn_{HHA} μgg^{-1}	Mn_{R} μgg^{-1}	Mn_{SUM} μgg^{-1}	Mn_{T} μgg^{-1}	Mn_{ORG} μgg^{-1}	ID
16	32	2240	1485	3350	16003	23078	54100	10160	16	7.2	38	2	63	521	60	74441
	34	2990	1861	4200	20320	29371	56200	12710	22	8.5	39	35	105	535	72	74442
	36	3020	1868	4830	20940	30658	52100	11880	24	10.8	43	36	113	463	70	74443
	38	2510	1634	3870	21778	29792	55700	10790	24	9.6	42	26	102	540	70	74444
	40	2680	1984	4370	20039	29073	53500	13620	25	10.6	48	27	111	514	80	74445
	42	2880	1772	3980	19440	28072	55700	11020	28	10.5	44	27	110	555	68	74446
	44	2640	1836	5140	26104	35720	52700	14160	35	13.4	51	34	134	518	83	74447
	46	2280	1577	4110	18777	26744	51800	9520	32	9.6	40	24	105	518	64	74448
	48	2590	1606	4520	19214	27930	55200	11610	39	13.1	44	32	128	587	91	74449
	50	1950	1462	4230	20775	28417	52600	11350	51	15.5	50	23	140	638	98	74450
	52	1090	1392	4430	21920	28832	41000	12510	55	19.8	55	5	135	288	127	74451
	54	1070	1248	4180	21450	27948	42400	12530	52	17.1	53	0	122	303	127	74452
	56	980	1286	4410	25792	32468	41700	13420	57	20.6	58	13	148	304	137	74453
17	0	7900	2554	7300	34560	52314	70800	24500	26	5.2	42	32	105	224	69	74485
	1	6050	2130	6190	35230	49600	65000	22650	25	5.8	44	14	89	186	72	74486
	3	6680	2361	6920	34966	50927	60400	24720	23	7.7	44	15	90	68	68	74487
	5	6110	2354	6070	36319	50853	59200	24390	34	7.7	45	19	106	135	85	74488
	7	4980	1807	4980	33466	45233	55500	17520	25	6.8	45	25	102	216	75	74489
18	0	3950	2106	6450	28067	40573	53300	14350	41	8.9	39	0	89	147	68	74454
	2	3510	2046	6320	28103	39979	50500	13290	50	11.2	39	0	100	172	79	74455
	4	2490	1676	4970	24948	34084	47400	10910	39	11.7	35	9	95	35	80	74456
	6	1740	1064	3830	23941	30575	37900	9960	22	12.7	43	19	96	0	46	74457
	8	2550	1494	5120	27584	36748	51100	11450	36	8.6	41	17	103	96	67	74458
	10	2460	1397	4070	30609	38536	54100	14540	58	41.3	53	25	177	1129	341	74459
	12	1940	790	3460	25258	31448	25400	6260	58	14.9	38	10	121	15	322	74460
	14	3710	1542	4400	27579	37231	37400	14590	47	13.2	45	24	130	60	138	74461
	16	1600	1281	4280	29138	36299	45500	17400	34	10.8	47	18	110	197	119	74462
	18	1090	1116	3920	28086	34212	47600	17910	28	7.4	47	25	107	239	111	74463
	20	1180	1147	3770	29786	35883	48000	21520	23	8.0	47	10	88	285	136	74464
	22	1370	1300	4070	30264	37004	48500	23630	34	9.1	48	18	109	284	137	74465
	24	1330	1271	4150	24197	30948	45000	15670	28	6.8	49	15	99	240	110	74466
	26	1490	1622	4790	29784	37686	47800	18810	21	8.1	53	6	88	205	106	74467
	28	1470	1414	4260	23933	31077	45200	15430	23	5.5	47	8	84	186	93	74468
	30	1690	1415	4660	24408	32173	44000	13310	25	9.5	45	4	84	185	103	74469
	32	1430	1520	4420	25632	33002	44900	15470	19	7.8	46	0	73	187	103	74470
	34	1290	1424	4350	26255	33319	43900	15910	25	9.8	47	0	82	199	112	74471
	36	1500	1500	4610	26075	33685	44500	14800	27	9.7	48	16	101	210	123	74472
	38	1550	1464	5100	29833	37947	46300	18050	25	10.5	56	6	97	254	140	74473
	40	2520	1958	5900	26650	37028	47800	16480	26	8.6	54	12	101	243	122	74474
	42	2250	1892	5390	22776	32308	46700	13650	28	10.1	47	16	101	233	120	74475
	44	1900	1802	5240	21472	30414	44600	13000	30	9.9	49	11	100	247	123	74476
	46	1800	1741	5290	22338	31169	46000	12900	34	10.1	52	9	106	266	125	74477
	48	2010	1789	5960	27197	36956	46400	15290	42	16.1	62	4	124	289	152	74478
	50	1950	1846	5850	27108	36754	46000	15150	42	17.1	62	27	148	310	152	74479

Core	Depth cm	Ca_{WA} μgg^{-1}	Ca_{HA} μgg^{-1}	Ca_{HHA} μgg^{-1}	Ca_{R} μgg^{-1}	Ca_{SUM} μgg^{-1}	Ca_{T} μgg^{-1}	Cu_{WA} μgg^{-1}	Cu_{HA} μgg^{-1}	Cu_{HHA} μgg^{-1}	Cu_{R} μgg^{-1}	Cu_{SUM} μgg^{-1}	Cu_{T} μgg^{-1}	Cu_{ORG} μgg^{-1}	ID
13	0	2010	1045	280	1139	4474	6000	10.2	0.9	4.7	108	124	136	104.1	74480
	1	2190	1163	280	1280	4913	5400	9.8	0.2	4.7	111	126	127	105.4	74481
	2	1560	1843	500	1214	5117	8300	9.6	0.5	3.2	116	130	138	106.3	74482
	3	1330	1914	610	1038	4892	9600	8.5	0.6	3.8	118	131	121	103.7	74483
	5	1640	1665	390	998	4693	6200	8.1	0.8	3.8	113	126	135	107.4	74484
14	0	640	367	310	731	2048	5600	0.5	0.0	0.9	13	14	16	16.8	74401
	2	390	310	200	740	1640	6400	0.0	0.1	0.7	5	5	13	11.4	74402
	4	470	279	220	652	1621	6700	0.1	0.1	0.6	6	6	17	12.6	74403
	6	700	329	240	823	2092	5800	0.0	0.0	0.5	7	8	18	11.0	74404
	8	960	406	260	908	2534	6200	0.0	0.0	0.9	9	10	18	14.2	74405
	10	620	330	260	160	1370	5300	0.0	0.0	1.1	12	13	19	14.3	74406
	12	1270	436	260	182	2148	7000	0.0	0.0	0.9	12	13	20	13.9	74407
	14	690	308	250	185	1433	8400	0.0	0.0	0.9	8	9	16	16.1	74408
	16	670	318	230	274	1492	6800	0.0	0.0	0.6	11	12	17	10.9	74409
	18	650	305	120	374	1449	4900	0.2	0.3	0.8	11	13	21	13.7	74410
	20	500	312	60	465	1337	7500	0.7	0.0	0.5	10	11	18	12.1	74411
	22	490	303	70	464	1327	6000	0.1	0.0	0.0	8	8	10	10.3	74412
	24	1250	356	60	460	2126	8100	0.2	0.0	0.1	6	6	14	11.7	74413
	26	1080	258	50	463	1851	8900	0.0	0.2	0.0	5	5	17	7.7	74414
	28	1570	366	60	92	2088	4100	0.3	0.0	0.0	6	7	11	13.5	74415
	30	1670	386	80	183	2319	4900	0.0	0.0	0.0	7	7	13	9.8	74416
	32	680	297	60	94	1131	7400	0.1	0.0	0.0	3	3	10	6.2	74417
	34	630	280	60	186	1156	3800	0.0	0.0	0.0	4	4	6	5.5	74418
	36	1370	494	210	92	2166	8600	0.0	0.2	0.1	6	6	10	8.9	74419
	38	3250	524	170	92	4036	8900	0.6	0.2	0.3	4	5	4	6.4	74420
	40	2100	539	150	92	2881	6400	0.0	0.0	0.0	98	98	11	6.7	74421
	42	1710	472	150	92	2424	9500	0.0	0.0	0.0	2	2	8	7.5	74422
	44	2230	600	170	0	3000	8100	0.0	0.0	0.0	5	5	9	8.3	74423
	46	1280	496	160	183	2119	8000	0.0	0.0	0.0	6	6	7	6.7	74424
16	0	2080	921	240	171	3412	8000	8.7	0.8	3.3	5	18	120	81.9	74425
	2	1720	1401	340	0	3461	6200	6.2	0.5	4.0	87	97	106	75.1	74426
	4	2000	1439	390	81	3910	6200	3.2	0.0	0.9	39	43	67	49.0	74427
	6	1730	1403	410	0	3543	6700	4.6	0.5	1.7	43	50	43	45.3	74428
	8	1700	1440	370	0	3510	6200	4.6	0.2	1.5	33	39	36	36.2	74429
	10	1580	1684	410	0	3674	7600	2.8	0.0	0.7	19	23	29	27.9	74430
	12	1760	1423	380	79	3642	6200	3.2	0.0	0.4	17	21	32	26.9	74431
	14	1340	1289	340	72	3041	7400	2.1	0.1	0.1	16	18	23	22.2	74432
	16	1740	1211	300	229	3480	7200	1.9	0.0	0.0	13	15	17	20.6	74433
	18	2220	1574	400	146	4340	6700	1.8	0.0	0.0	12	14	20	19.9	74434
	20	1790	1810	400	64	4064	8000	1.5	0.0	0.0	9	10	15	15.6	74435
	22	2570	1395	370	132	4467	8300	1.3	0.0	0.0	9	11	15	15.9	74436
	24	3820	1095	490	169	5574	9400	1.3	0.0	0.3	14	15	16	18.8	74437
	26	3400	880	330	169	4779	7600	1.2	0.0	0.0	12	13	20	17.4	74438
	28	2280	854	340	233	3707	5600	0.9	0.0	0.0	11	12	19	16.8	74439
	30	1260	828	310	135	2533	5300	0.8	0.0	0.0	9	10	13	11.8	74440

Core	Depth	Ca_{WA}	Ca_{HA}	Ca_{HHA}	Ca_{R}	Ca_{SUM}	Ca_{T}	Cu_{WA}	Cu_{HA}	Cu_{HHA}	Cu_{R}	Cu_{SUM}	Cu_{T}	Cu_{ORG}	ID
	cm	μgg^{-1}	μgg^{-1}	μgg^{-1}	μgg^{-1}	μgg^{-1}	μgg^{-1}	μgg^{-1}	μgg^{-1}	μgg^{-1}	μgg^{-1}	μgg^{-1}	μgg^{-1}	μgg^{-1}	
16	32	1070	679	270	54	2073	5800	0.2	0.0	0.0	5	6	9	9.2	74441
	34	1720	800	280	128	2928	5800	0.6	0.0	0.0	8	9	15	11.5	74442
	36	1900	1198	370	140	3608	6300	0.2	0.0	0.0	10	11	13	13.5	74443
	38	2500	1328	430	133	4391	7900	0.3	0.0	0.0	8	8	14	11.7	74444
	40	2740	1252	480	131	4603	7200	0.3	0.0	0.0	9	9	13	12.8	74445
	42	2920	1418	560	130	5028	8300	0.5	0.4	0.3	10	11	9	10.6	74446
	44	3690	1178	500	167	5535	8200	0.3	0.0	0.2	11	11	16	13.1	74447
	46	2710	1008	360	126	4204	7500	0.4	0.0	0.1	6	6	10	9.9	74448
	48	2960	1214	410	132	4716	9600	0.5	0.0	0.2	9	9	17	11.6	74449
	50	2650	1256	440	134	4480	8100	0.6	0.5	0.0	7	8	12	12.4	74450
	52	3260	1090	470	1571	6391	9800	1.4	0.1	0.4	22	24	11	11.7	74451
	54	3310	864	250	1716	6140	9500	1.0	0.0	0.2	19	21	9	12.0	74452
	56	2820	972	300	1854	5946	9400	1.1	0.0	0.4	21	22	11	13.5	74453
17	0	1760	1096	290	922	4068	6400	11.6	0.5	4.2	127	143	130	97.7	74485
	1	1370	1096	320	1009	3795	4400	8.9	0.7	3.5	120	133	128	96.1	74486
	3	1340	1088	390	941	3759	3300	8.3	1.1	4.2	108	122	125	108.8	74487
	5	1570	849	280	1063	3762	3800	8.7	0.9	3.6	105	118	126	107.1	74488
	7	1550	621	230	1647	4048	9600	9.2	0.6	3.7	96	110	122	99.9	74489
18	0	1510	710	110	1882	4212	6400	8.2	0.8	4.0	105	118	112	94.2	74454
	2	1360	755	130	1990	4235	6200	5.9	0.3	4.4	104	114	97	94.1	74455
	4	1110	578	80	1008	2776	4200	5.1	0.0	4.1	97	106	79	68.8	74456
	6	820	479	220	1157	2676	4500	4.2	0.0	2.9	72	79	52	44.9	74457
	8	1120	473	140	1196	2929	6500	4.4	0.0	2.8	77	84	55	55.0	74458
	10	1480	581	230	1454	3745	11600	3.3	0.0	1.8	65	70	62	44.3	74459
	12	1330	493	510	2365	4698	4500	1.8	0.0	2.6	48	53	20	118.6	74460
	14	2020	647	320	1305	4292	5300	2.0	0.4	1.3	51	55	34	43.7	74461
	16	1940	810	340	1193	4283	5400	1.4	0.0	1.2	47	49	26	32.4	74462
	18	1560	1099	410	1089	4158	6900	2.3	0.0	1.4	44	47	26	33.6	74463
	20	3040	693	290	1165	5188	6900	0.9	0.0	0.6	41	42	22	28.4	74464
	22	3020	1394	430	1089	5933	7000	0.6	0.0	0.3	37	37	18	23.9	74465
	24	2310	1044	510	1005	4869	7100	0.6	0.0	0.8	33	34	15	18.1	74466
	26	2630	1061	490	1061	5242	6500	0.5	0.0	0.4	30	31	18	18.3	74467
	28	1590	1457	610	918	4575	6500	0.2	0.0	0.4	24	25	12	13.8	74468
	30	1760	1579	750	1080	5169	6400	0.6	0.2	0.2	27	28	10	14.5	74469
	32	1040	1182	450	1139	3811	5000	0.7	0.0	0.1	25	26	12	14.5	74470
	34	2080	1904	640	1122	5746	6100	0.3	0.1	0.5	28	29	12	14.1	74471
	36	2350	1835	730	1267	6182	7900	0.5	0.0	0.1	27	27	14	14.8	74472
	38	3590	1074	510	1173	6347	8200	0.1	0.0	0.0	25	25	12	15.7	74473
	40	3520	1020	500	1394	6434	7800	0.5	0.1	0.0	26	27	14	15.2	74474
	42	2070	1710	670	1314	5764	7800	0.4	0.0	0.0	22	22	11	14.8	74475
	44	2320	1871	620	1351	6162	6200	0.2	0.0	0.3	18	18	11	14.8	74476
	46	3070	1532	610	1241	6453	7200	0.1	0.0	0.0	1	2	13	14.9	74477
	48	3490	1074	590	1431	6585	6200	1.1	0.0	0.2	1	2	13	15.2	74478
	50	3340	909	410	1244	5903	6500	0.6	0.0	0.3	22	23	14	14.9	74479

Core	Depth	Zn_{WA}	Zn_{HA}	Zn_{HHA}	Zn_{R}	Zn_{SUM}	Zn_{T}	Zn_{ORG}	Ni_{WA}	Ni_{HA}	Ni_{HHA}	Ni_{R}	Ni_{SUM}	Ni_{T}	Ni_{ORG}	ID
	cm	μgg^{-1}	μgg^{-1}	μgg^{-1}	μgg^{-1}	μgg^{-1}	μgg^{-1}	μgg^{-1}	μgg^{-1}	μgg^{-1}	μgg^{-1}	μgg^{-1}	μgg^{-1}	μgg^{-1}	μgg^{-1}	
13	0	167.6	32.3	46.2	96	342	562	149.4	6.6	1.1	8.3	22	38	10	14.3	74480
	1	147.8	30.5	44.4	96	319	520	148.2	5.8	1.1	7.1	37	51	22	15.7	74481
	2	133.3	26.2	42.9	90	292	592	167.7	5.4	0.0	6.5	27	39	3	14.1	74482
	3	127.5	25.4	41.5	93	288	412	149.5	5.4	0.6	7.0	46	59	31	13.4	74483
	5	127.7	28.8	44.5	177	378	433	175.3	5.8	0.0	7.7	48	61	33	15.6	74484
14	0	9.3	9.0	21.6	53	93	64	27.7	2.1	0.3	1.4	8	12	0	6.5	74401
	2	11.3	5.1	15.1	50	81	49	31.7	1.7	0.0	1.9	12	16	2	4.3	74402
	4	10.8	4.3	13.0	41	69	31	20.2	1.1	0.0	1.1	8	11	4	6.4	74403
	6	11.4	3.5	12.6	51	79	33	20.6	1.2	0.0	2.6	8	12	0	7.2	74404
	8	9.6	7.5	18.8	49	85	51	32.4	1.7	0.5	3.4	14	19	13	7.0	74405
	10	9.8	6.9	19.2	32	68	88	41.2	2.8	1.4	4.0	14	22	34	5.0	74406
	12	8.0	7.4	16.2	54	85	72	20.0	1.6	0.8	2.3	18	23	21	4.8	74407
	14	10.8	6.2	15.2	42	74	104	42.2	2.7	0.0	4.1	15	22	20	6.6	74408
	16	10.1	5.2	15.7	46	77	78	20.9	2.6	0.1	3.5	17	24	21	4.6	74409
	18	9.2	5.7	14.4	39	69	84	33.8	0.4	0.3	3.9	2	6	16	5.0	74410
	20	10.1	5.4	11.4	41	68	80	23.9	1.3	0.0	4.3	17	22	24	5.9	74411
	22	7.6	3.0	9.2	42	62	65	12.4	1.0	0.0	1.0	9	11	6	6.4	74412
	24	5.1	4.2	14.6	40	64	82	18.9	1.5	0.0	1.0	17	19	28	3.6	74413
	26	4.8	3.7	14.9	35	59	70	22.2	0.5	0.0	0.0	11	12	25	2.9	74414
	28	3.5	5.2	20.2	40	68	82	20.5	1.2	1.0	0.0	12	14	18	6.0	74415
	30	4.9	6.5	19.8	38	70	94	16.1	1.4	0.1	0.0	19	21	8	3.1	74416
	32	3.4	3.6	10.4	44	62	63	29.6	0.0	2.6	0.0	8	11	13	2.8	74417
	34	3.4	2.1	8.7	34	49	93	14.6	0.3	3.2	0.0	5	8	4	5.2	74418
	36	4.5	1.6	8.9	36	51	92	18.5	1.9	0.0	4.0	6	12	4	4.7	74419
	38	1.8	0.0	5.6	23	30	77	0.2	0.9	0.0	2.9	6	10	0	5.7	74420
	40	2.7	0.9	8.2	116	128	48	2.3	0.3	0.0	1.9	40	42	5	4.8	74421
	42	2.5	1.3	8.5	22	34	44	16.5	1.1	1.0	2.9	5	10	2	4.5	74422
	44	1.5	1.8	9.9	28	41	59	11.5	0.5	0.2	1.8	10	13	6	6.9	74423
	46	2.1	0.7	8.5	37	48	58	4.9	0.5	0.6	2.4	16	20	10	6.4	74424
16	0	130.8	33.2	48.9	32	245	429	161.2	3.0	1.8	5.1	9	19	60	18.6	74425
	2	113.8	29.3	39.6	107	290	412	123.2	1.4	1.0	6.7	17	26	49	15.9	74426
	4	59.7	14.0	25.8	99	198	321	87.3	0.0	0.5	5.4	14	20	39	15.3	74427
	6	62.8	17.2	27.3	103	211	298	63.2	1.0	2.4	3.3	14	21	31	10.0	74428
	8	47.0	7.9	20.7	71	146	237	73.0	2.0	0.3	3.8	8	15	35	10.2	74429
	10	26.6	5.4	19.0	77	128	198	42.4	0.0	0.4	4.9	15	20	33	12.3	74430
	12	22.2	4.4	20.3	80	127	207	31.8	0.0	0.9	4.2	13	18	36	14.7	74431
	14	11.3	3.3	16.9	72	104	172	29.7	0.0	0.2	3.8	7	11	39	13.0	74432
	16	9.8	4.2	16.6	67	98	97	27.2	0.0	0.0	5.2	21	26	30	13.2	74433
	18	7.2	3.1	17.1	63	90	123	37.8	0.0	1.4	4.6	20	26	36	12.5	74434
	20	5.9	2.3	16.9	51	76	119	32.1	0.0	0.0	4.0	15	19	32	10.3	74435
	22	6.7	2.4	15.7	52	77	135	37.3	0.0	1.2	3.1	19	23	23	11.0	74436
	24	9.2	9.3	14.5	81	114	132	10.8	6.1	0.7	5.9	25	38	31	6.0	74437
	26	6.6	8.3	11.2	67	94	142	2.4	2.2	0.1	4.0	26	32	36	10.4	74438
	28	6.5	9.2	9.4	65	90	121	0.0	0.0	0.8	4.0	19	23	40	10.1	74439
	30	4.0	8.9	6.2	59	78	108	0.0	0.0	0.2	3.7	11	15	31	8.5	74440

Core	Depth	Zn_{WA}	Zn_{HA}	Zn_{HHA}	Zn_{R}	Zn_{SUM}	Zn_{T}	Zn_{ORG}	Ni_{WA}	Ni_{HA}	Ni_{HHA}	Ni_{R}	Ni_{SUM}	Ni_{T}	Ni_{ORG}	ID
	cm	μgg^{-1}	μgg^{-1}	μgg^{-1}	μgg^{-1}	μgg^{-1}	μgg^{-1}	μgg^{-1}	μgg^{-1}	μgg^{-1}	μgg^{-1}	μgg^{-1}	μgg^{-1}	μgg^{-1}	μgg^{-1}	
16	32	2.7	5.4	5.0	45	58	104	9.3	0.0	0.0	3.6	12	15	28	7.7	74441
	34	4.1	0.0	6.7	56	67	79	13.9	0.0	1.0	2.1	20	23	33	8.6	74442
	36	4.1	0.4	5.6	54	65	55	6.9	0.0	1.5	3.3	21	26	27	10.5	74443
	38	4.9	0.6	5.4	54	65	87	0.0	0.0	0.0	2.7	15	18	24	9.9	74444
	40	4.0	0.0	7.7	50	62	95	11.0	0.0	0.9	4.7	22	28	49	12.1	74445
	42	5.2	2.5	11.8	53	73	74	22.8	2.2	2.0	4.9	27	36	44	6.1	74446
	44	6.1	2.2	13.3	68	90	93	10.9	1.9	1.5	6.0	34	44	44	9.3	74447
	46	4.8	0.0	12.6	55	73	14	24.2	2.0	2.9	3.2	20	28	34	6.7	74448
	48	4.8	0.0	10.4	56	71	0	11.2	2.6	1.4	4.9	21	30	29	9.3	74449
	50	4.4	0.0	11.4	59	75	0	30.6	1.3	2.2	5.5	20	29	39	6.3	74450
	52	5.1	2.7	12.4	49	69	131	17.9	3.4	0.3	5.3	32	41	0	8.3	74451
	54	5.5	2.0	11.5	59	78	139	17.5	3.1	1.1	4.6	33	42	0	9.1	74452
	56	6.3	3.3	11.2	52	73	145	15.7	3.0	0.6	4.6	31	39	1	10.1	74453
17	0	146.8	26.8	42.8	171	388	475	144.2	5.3	0.7	8.2	32	46	50	16.5	74485
	1	124.5	30.1	44.6	120	319	405	165.5	4.6	0.7	7.6	42	55	46	16.8	74486
	3	107.3	34.0	42.5	120	304	378	258.7	5.1	1.5	6.2	56	68	53	16.7	74487
	5	109.8	26.1	38.8	117	292	397	243.2	5.3	1.8	7.6	25	39	59	15.3	74488
	7	108.7	29.8	41.0	109	289	415	231.3	4.4	1.6	6.2	16	28	79	16.1	74489
18	0	126.8	22.2	34.6	110	293	357	134.2	2.9	1.4	5.7	25	35	21	12.6	74454
	2	96.7	20.5	32.2	112	261	295	149.3	1.9	1.3	5.4	6	14	0	12.5	74455
	4	58.7	13.8	21.9	119	214	464	111.3	4.6	0.2	5.3	90	100	52	10.8	74456
	6	46.4	11.3	20.3	108	186	213	86.6	3.8	0.9	4.2	79	88	44	11.1	74457
	8	55.4	11.6	24.7	112	204	224	106.6	3.7	0.3	6.2	90	100	37	9.9	74458
	10	36.9	13.9	27.1	74	152	343	98.1	4.3	1.0	5.8	74	85	36	8.8	74459
	12	32.0	6.3	17.2	62	118	124	64.0	3.6	2.3	8.0	69	83	33	9.6	74460
	14	32.2	9.7	24.2	55	121	175	75.8	3.4	1.4	6.2	78	89	42	9.9	74461
	16	20.1	4.8	18.2	54	97	167	40.9	3.8	2.0	5.7	73	85	39	9.7	74462
	18	13.2	3.2	14.8	72	103	124	38.8	2.2	0.3	5.3	66	74	30	12.4	74463
	20	9.3	3.4	14.8	77	105	116	30.7	3.2	2.5	5.0	68	79	32	11.5	74464
	22	8.4	2.4	14.3	69	94	97	27.6	3.6	1.8	5.8	0	11	48	10.0	74465
	24	6.5	1.3	13.3	59	80	103	20.5	2.9	1.5	5.1	6	15	26	10.0	74466
	26	7.1	0.9	13.5	43	65	114	23.9	3.1	0.0	4.0	0	7	40	11.5	74467
	28	5.7	1.3	13.8	41	62	92	16.3	2.0	0.0	4.5	8	14	35	10.1	74468
	30	4.4	2.3	13.3	45	65	98	22.6	1.0	0.6	5.4	0	7	42	11.4	74469
	32	4.4	1.9	13.0	53	73	81	24.6	1.6	0.6	5.8	0	8	50	11.4	74470
	34	4.3	2.1	13.5	49	69	78	24.7	1.0	1.4	5.4	11	19	46	11.3	74471
	36	5.5	2.5	12.9	61	82	91	27.5	2.0	1.3	5.7	14	23	59	10.5	74472
	38	4.2	2.4	15.6	65	87	148	25.8	1.3	1.1	6.1	3	11	49	11.5	74473
	40	4.3	1.7	14.0	68	88	59	15.7	1.7	1.5	6.4	32	42	25	10.3	74474
	42	5.2	1.6	14.3	50	71	30	11.8	0.7	2.6	6.6	23	33	2	11.0	74475
	44	4.9	2.3	14.2	58	79	62	22.1	1.6	1.8	5.8	16	26	9	10.2	74476
	46	3.3	2.9	14.0	82	102	10	24.7	1.0	0.5	5.3	20	27	7	10.3	74477
	48	4.2	1.4	16.3	76	98	41	30.8	1.0	0.3	8.9	29	39	11	13.6	74478
	50	3.6	1.5	16.1	60	81	38	24.4	0.5	0.0	6.1	15	22	15	13.9	74479

Core	Depth cm	Cr_{WA} μgg^{-1}	Cr_{HA} μgg^{-1}	Cr_{HHA} μgg^{-1}	Cr_{R} μgg^{-1}	Cr_{SUM} μgg^{-1}	Cr_{T} μgg^{-1}	Cr_{ORG} μgg^{-1}	Pb_{WA} μgg^{-1}	Pb_{HA} μgg^{-1}	Pb_{HHA} μgg^{-1}	Pb_{R} μgg^{-1}	Pb_{SUM} μgg^{-1}	Pb_{T} μgg^{-1}	Pb_{ORG} μgg^{-1}	ID
13	0	0.1	2.0	4.7	73	80	84	32.9	50.5	3.8	97.8	91	243	281	108.5	74480
	1	2.3	0.7	6.4	75	85	77	31.7	56.4	8.2	104.3	76	245	306	78.6	74481
	2	1.1	2.2	6.8	68	78	85	32.9	46.7	10.9	116.6	94	268	340	57.3	74482
	3	0.2	1.5	7.6	51	61	71	34.8	52.7	17.5	124.0	62	256	334	54.3	74483
	5	2.7	0.3	5.6	61	69	63	40.3	58.3	16.8	110.2	55	241	334	58.7	74484
14	0	3.2	1.2	4.4	66	75	79	6.8	4.6	0.9	13.1	0	19	8	19.4	74401
	2	5.7	0.9	4.3	47	58	104	1.3	7.1	1.3	7.4	0	16	0	10.9	74402
	4	5.0	1.2	3.8	52	62	71	3.0	2.3	2.1	7.3	0	12	2	15.7	74403
	6	4.5	2.4	5.3	79	91	73	5.5	1.4	4.6	8.2	0	14	0	16.6	74404
	8	3.6	2.6	5.2	69	80	94	7.4	4.7	5.1	15.8	0	26	0	15.3	74405
	10	5.0	1.0	4.6	26	36	10	6.0	0.2	2.3	4.1	0	7	31	19.8	74406
	12	6.3	1.4	6.4	21	35	6	5.7	2.5	4.6	4.7	0	12	29	20.5	74407
	14	5.7	1.5	5.0	21	33	0	7.3	8.6	6.9	2.2	0	18	33	16.4	74408
	16	6.3	2.2	4.0	25	37	0	5.7	8.6	3.5	9.8	0	22	28	14.4	74409
	18	1.6	0.7	4.1	28	34	19	7.4	6.7	5.3	12.7	0	25	28	25.3	74410
	20	2.5	0.9	5.3	17	25	9	7.5	6.4	2.8	8.8	0	18	7	15.6	74411
	22	2.6	0.8	4.4	32	40	0	6.4	5.4	3.5	6.3	0	15	20	11.6	74412
	24	1.8	1.1	3.7	34	41	24	9.2	5.6	2.9	15.2	0	24	34	23.4	74413
	26	1.7	0.3	1.6	19	23	6	5.3	7.0	5.8	29.8	9	52	93	84.0	74414
	28	2.4	1.0	2.6	63	69	47	9.6	1.2	1.8	20.1	13	36	64	48.8	74415
	30	3.3	1.0	1.5	20	26	21	4.7	2.7	2.4	17.4	0	23	125	39.3	74416
	32	3.8	1.9	2.9	6	14	0	6.2	2.5	0.2	7.4	0	10	33	19.5	74417
	34	3.1	1.7	2.4	10	17	25	7.9	1.3	0.0	3.7	0	5	0	13.7	74418
	36	0.0	1.8	2.5	50	55	18	9.0	1.0	1.6	4.3	0	7	15	18.0	74419
	38	0.0	0.3	2.1	44	46	0	8.0	1.1	0.6	0.3	0	2	0	11.9	74420
	40	0.0	0.0	4.1	73	77	13	7.0	0.0	2.9	3.7	79	85	25	15.0	74421
	42	0.0	2.5	3.0	40	45	14	10.0	0.3	1.6	0.0	0	2	32	15.7	74422
	44	0.0	1.3	5.4	67	73	30	12.0	0.6	1.5	0.2	0	2	15	15.4	74423
	46	0.0	2.1	3.7	52	58	30	13.0	2.5	1.2	0.0	9	13	0	0.0	74424
16	0	2.1	2.3	7.7	28	40	118	32.9	73.6	20.1	81.6	9	185	341	91.4	74425
	2	0.4	2.4	7.5	72	83	102	29.6	26.8	10.4	62.4	104	204	273	93.2	74426
	4	0.5	2.2	8.3	80	91	125	28.5	54.8	20.9	58.7	54	189	270	87.2	74427
	6	1.7	1.5	5.3	68	77	151	14.3	84.0	37.5	102.0	62	286	272	106.0	74428
	8	0.8	1.0	4.8	64	71	106	15.2	72.8	25.6	55.6	43	197	246	104.2	74429
	10	0.3	1.6	6.3	76	85	89	14.7	37.5	14.9	39.3	32	123	144	74.5	74430
	12	0.0	0.6	8.3	92	101	86	17.0	33.1	11.7	36.7	36	118	171	71.9	74431
	14	0.0	2.3	7.9	82	92	109	20.0	15.7	5.5	22.0	20	63	73	46.3	74432
	16	0.0	2.0	9.1	37	49	30	20.0	11.2	4.1	14.3	11	40	35	31.8	74433
	18	0.0	1.6	4.0	59	64	45	18.0	10.2	0.5	11.0	7	28	16	20.8	74434
	20	0.0	2.6	2.8	20	25	38	15.0	6.9	2.3	8.1	12	29	7	6.1	74435
	22	0.0	2.3	3.8	33	39	61	17.0	5.1	1.1	6.3	9	22	8	7.9	74436
	24	0.0	1.7	6.2	42	49	95	19.0	2.8	0.8	8.4	13	25	0	22.2	74437
	26	0.0	0.2	3.6	51	54	99	18.0	1.4	0.0	7.5	19	27	24	18.6	74438
	28	0.0	1.3	4.6	33	39	92	18.0	0.2	0.0	9.9	1	11	15	20.8	74439
	30	0.0	0.0	4.8	22	26	49	16.0	0.0	0.0	5.3	5	11	13	16.0	74440

Core	Depth	Cr_{WA}	Cr_{HA}	Cr_{HHA}	Cr_{R}	Cr_{SUM}	Cr_{T}	Cr_{ORG}	Pb_{WA}	Pb_{HA}	Pb_{HHA}	Pb_{R}	Pb_{SUM}	Pb_{T}	Pb_{ORG}	ID
	cm	μgg^{-1}	μgg^{-1}	μgg^{-1}	μgg^{-1}	μgg^{-1}	μgg^{-1}	μgg^{-1}	μgg^{-1}	μgg^{-1}	μgg^{-1}	μgg^{-1}	μgg^{-1}	μgg^{-1}	μgg^{-1}	
16	32	0.0	1.7	3.3	0	5	76	13.0	0.0	0.0	3.6	3	6	13	9.0	74441
	34	0.8	1.2	3.9	73	79	73	12.2	0.0	0.0	4.9	6	11	0	11.0	74442
	36	0.6	0.3	4.1	41	46	68	15.4	0.0	0.0	6.1	4	10	15	12.0	74443
	38	0.0	2.0	2.0	69	73	65	19.0	0.0	0.0	2.5	3	6	0	11.0	74444
	40	0.0	2.6	2.9	45	50	79	20.0	0.0	0.0	1.5	4	5	16	5.0	74445
	42	2.4	1.6	4.3	57	65	59	3.6	0.7	1.4	2.2	0	4	0	4.3	74446
	44	1.7	0.0	4.9	79	86	79	7.3	1.0	0.0	1.2	0	2	13	6.0	74447
	46	0.0	0.0	1.8	51	53	42	7.0	2.2	1.0	0.0	0	3	9	2.8	74448
	48	0.0	0.6	3.4	73	77	69	8.0	0.0	0.0	0.0	3	3	31	5.0	74449
	50	2.0	1.4	3.3	42	49	60	5.0	0.0	0.0	0.0	0	0	0	6.0	74450
	52	5.0	0.0	4.4	64	74	66	31.0	1.8	0.0	3.7	0	6	0	7.2	74451
	54	5.5	0.0	3.3	69	78	66	13.5	0.5	0.0	4.2	0	5	0	6.5	74452
	56	7.1	0.6	4.9	80	92	109	14.9	3.2	0.0	5.5	0	9	0	4.8	74453
17	0	0.9	1.2	4.7	57	64	84	36.1	76.1	21.5	100.3	50	248	333	98.9	74485
	1	0.1	1.5	5.9	46	53	95	36.9	85.7	22.6	105.2	71	285	341	70.3	74486
	3	3.7	2.7	6.2	54	67	81	30.3	69.0	23.0	112.1	47	251	342	85.0	74487
	5	3.4	1.9	5.3	52	63	64	31.6	79.7	27.3	108.5	51	266	362	91.3	74488
	7	3.0	2.7	6.0	51	63	55	25.0	73.8	21.1	97.6	51	244	277	116.2	74489
18	0	6.9	1.2	6.0	73	87	85	21.1	51.5	16.4	93.5	63	224	309	147.5	74454
	2	7.6	0.8	5.7	82	96	91	17.4	31.0	9.3	66.4	105	212	258	104.0	74455
	4	7.6	1.0	5.2	66	79	66	12.4	29.4	8.0	55.3	78	171	364	87.6	74456
	6	6.9	0.2	6.0	66	79	59	8.1	24.7	6.9	40.1	25	97	144	56.3	74457
	8	9.1	0.0	6.2	67	83	61	10.9	32.9	11.0	57.0	39	140	173	89.1	74458
	10	9.8	0.0	4.9	68	82	99	19.2	42.9	12.3	58.0	7	120	257	100.1	74459
	12	0.3	1.1	4.9	74	80	72	12.7	54.0	20.3	76.4	14	165	184	243.0	74460
	14	1.0	0.3	3.9	55	60	53	11.0	29.4	13.6	40.8	19	103	104	70.6	74461
	16	0.9	1.3	4.6	67	74	72	19.1	21.0	11.1	33.3	2	67	89	65.0	74462
	18	1.2	1.9	4.4	59	67	54	20.8	14.7	8.9	23.0	5	52	64	54.3	74463
	20	2.8	0.4	4.6	70	78	32	17.2	15.2	7.4	18.7	0	41	41	40.8	74464
	22	2.3	3.8	4.4	79	90	83	14.7	8.1	5.8	13.5	0	27	19	26.9	74465
	24	0.0	3.8	3.5	60	68	57	18.0	2.3	5.0	8.2	19	34	21	22.7	74466
	26	1.3	5.0	3.6	74	84	77	17.7	2.1	4.8	7.4	7	22	13	19.9	74467
	28	1.0	4.4	3.1	66	74	53	15.0	1.9	4.9	0.1	0	7	12	11.1	74468
	30	3.0	0.0	5.2	72	80	56	18.0	3.5	0.0	4.7	0	8	14	7.5	74469
	32	1.8	0.1	4.3	63	70	53	22.2	0.0	0.0	6.3	0	6	0	13.0	74470
	34	2.5	0.0	4.0	62	69	74	16.5	1.8	0.1	5.4	0	7	0	5.2	74471
	36	1.7	0.0	4.9	59	65	74	18.3	0.5	0.3	5.5	0	6	0	7.5	74472
	38	0.7	0.0	4.7	44	49	90	19.3	1.6	0.0	3.5	0	5	0	6.4	74473
	40	0.0	0.0	4.2	65	69	86	22.0	0.5	0.4	0.0	0	1	0	6.5	74474
	42	0.8	0.0	5.7	61	67	61	19.2	1.3	0.0	0.0	20	22	12	4.7	74475
	44	0.7	0.0	5.0	63	69	68	22.3	1.1	0.0	7.6	16	25	0	3.9	74476
	46	0.0	0.0	4.2	51	55	56	18.0	0.0	0.2	7.6	31	38	0	5.0	74477
	48	0.0	0.1	2.3	66	68	77	22.0	1.1	0.0	1.6	1	4	0	5.9	74478
	50	0.0	0.7	4.1	65	69	82	23.0	0.0	0.0	2.6	7	10	0	7.0	74479

Core	Depth cm	Si_R %	Si_T %	Al_R %	Al_T %	Mg_R %	Mg_T %	K_R %	K_T %	Li_T %	Cd_T μgg^{-1}	Hg_T μgg^{-1}	Residue mg	$CaCO_3$ %	C_{org} %	Water %	ID
13	0	15.51	21.08	3.67	5.16	0.01	0.92	2.64	7.67	62	0.73	1.40	759	4.33	5.48	72.7	74480
	1	15.02	18.64	4.36	5.17	0.03	0.96	3.04	2.96	62	0.67	1.19	753	4.17	5.13	74.4	74481
	2	14.79	17.95	3.85	5.18	0.00	0.95	3.05	2.35	59	0.64	1.52	714	2.00	5.34	77.7	74482
	3	17.74	16.10	3.76	4.96	0.01	0.91	2.42	3.18	65	0.59	1.77	692	3.00	5.44	79.2	74483
	5	17.64	18.65	4.75	4.86	0.04	0.97	2.48	2.71	68	0.62	1.72	768	1.50	5.42	77.9	74484
14	0	22.30	31.85	3.19	6.03	0.00	0.73	2.24	2.33	35	0.16	2.76	914	0.42	1.40	59.2	74401
	2	25.28	34.50	3.38	5.33	0.00	0.56	2.18	2.94	31	0.10	1.26	925	0.25	1.06	42.2	74402
	4	16.30	34.30	3.25	5.86	0.00	0.56	2.17	2.70	34	0.08	1.46	931	0.17	0.97	35.3	74403
	6	19.07	33.83	3.09	5.64	0.00	0.60	2.40	2.39	36	0.15	1.63	914	0.00	1.29	39.5	74404
	8	21.63	34.06	3.01	5.71	0.00	0.66	2.32	2.71	37	0.17	2.44	908	0.25	1.28	38.6	74405
	10	17.17	32.72	3.65	5.92	0.01	0.59	3.22	2.99	40	0.13	2.32	798	0.83	1.35	38.2	74406
	12	21.54	33.18	4.16	5.75	0.02	0.60	2.63	2.74	42	0.10	2.56	911	2.50	1.35	37.9	74407
	14	19.50	33.13	3.43	5.72	0.01	0.54	2.53	2.95	38	0.06	1.84	923	0.00	1.30	34.0	74408
	16	16.89	36.09	3.47	5.34	0.01	0.47	2.75	2.36	34	0.02	2.52	912	0.00	1.19	33.2	74409
	18	21.01	36.26	3.14	5.32	0.01	0.42	2.00	2.71	32	0.05	1.50	936	1.25	1.11	33.4	74410
	20	15.37	35.91	3.44	6.81	0.01	0.68	2.35	2.58	42	0.07	1.89	929	0.00	0.97	32.3	74411
	22	17.19	36.08	3.27	5.75	0.01	0.50	2.73	2.62	39	0.06	1.60	927	0.33	1.30	37.6	74412
	24	16.57	34.93	3.12	5.26	0.01	0.44	2.83	2.49	39	0.05	1.31	919	0.00	1.09	36.2	74413
	26	19.00	36.55	2.59	4.74	0.00	0.23	2.51	2.91	27	0.02	1.07	926	0.00	1.99	37.1	74414
	28	19.99	34.45	3.47	3.98	0.03	0.28	1.70	3.39	32	0.04	2.23	920	1.25	1.65	40.4	74415
	30	21.47	34.65	3.50	3.98	0.02	0.26	1.87	3.11	32	0.01	4.66	914	5.33	4.83	37.6	74416
	32	22.01	37.85	3.33	4.84	0.02	0.20	1.72	3.86	30	0.01	0.10	941	0.75	1.11	36.7	74417
	34	22.12	34.46	3.42	3.79	0.02	0.22	1.73	3.35	30	0.01	0.56	928	0.00	0.69	29.0	74418
	36	20.34	35.10	3.53	4.79	0.04	0.23	1.75	3.24	22	0.03	2.38	917	1.83	0.77	30.7	74419
	38	20.97	34.59	2.96	3.93	0.03	0.15	1.69	3.51	22	0.07	1.34	915	1.25	0.59	27.6	74420
	40	16.60	33.57	5.31	4.48	0.07	0.11	1.36	2.94	25	0.09	0.64	915	1.50	0.76	29.9	74421
	42	18.51	34.14	3.24	4.85	0.04	0.22	1.75	3.42	27	0.10	1.50	922	0.00	1.14	32.0	74422
	44	16.51	33.54	3.11	5.02	0.03	0.29	1.77	3.70	28	0.04	1.76	925	0.42	1.15	33.0	74423
	46	21.87	34.68	3.81	4.60	0.02	0.27	1.66	3.50	38	0.06	1.58	914	0.75	1.19	33.9	74424
16	0	21.01	26.78	3.42	7.79	0.03	0.99	1.61	3.39	66	1.01	1.40	856	2.42	5.78	68.2	74425
	2	16.79	25.50	4.90	7.20	0.04	0.83	1.65	3.73	56	0.87	1.15	796	1.67	5.43	71.4	74426
	4	16.89	23.05	4.93	6.82	0.06	0.80	1.35	4.31	66	0.61	1.58	809	0.00	4.61	64.3	74427
	6	13.59	22.63	4.69	7.52	0.06	1.01	1.20	4.23	52	0.35	1.97	717	3.50	5.83	75.0	74428
	8	11.45	22.95	4.05	7.69	0.04	1.07	1.30	3.04	52	0.31	1.51	605	0.17	5.82	72.7	74429
	10	13.58	24.66	4.48	6.86	0.05	0.94	1.50	3.21	52	0.20	0.86	689	5.92	3.81	61.3	74430
	12	14.79	24.25	5.31	7.48	0.05	1.09	1.66	3.31	59	0.18	0.85	785	3.50	4.91	71.1	74431
	14	11.41	23.63	4.71	7.73	0.06	1.18	1.47	3.62	56	0.21	0.42	722	2.75	4.70	69.6	74432
	16	8.95	24.54	4.69	9.53	0.03	1.17	1.57	3.47	59	0.20	0.24	764	2.33	4.30	71.8	74433
	18	15.88	22.57	4.55	8.66	0.03	1.21	1.25	2.97	53	0.20	0.19	732	2.58	4.30	72.5	74434
	20	11.44	22.98	3.33	8.55	0.02	1.22	1.36	2.90	47	0.14	0.20	637	3.08	4.42	71.4	74435
	22	12.11	23.13	3.86	8.80	0.03	1.25	1.09	3.27	47	0.13	0.18	658	2.75	4.27	73.9	74436
	24	13.61	23.96	5.03	9.04	0.04	1.32	1.36	3.71	58	0.19	0.22	847	2.17	4.32	73.1	74437
	26	16.30	22.82	5.07	9.04	0.03	1.36	1.74	2.99	60	0.14	0.15	843	2.58	4.20	71.1	74438
	28	13.93	19.49	4.45	7.97	0.03	1.03	1.49	2.62	60	0.16	0.12	778	2.92	4.32	70.6	74439
	30	11.71	23.66	3.78	9.76	0.03	1.22	1.16	3.72	45	0.15	0.09	673	2.75	4.26	71.5	74440

Core	Depth cm	Si_R %	Si_T %	Al_R %	Al_T %	Mg_R %	Mg_T %	K_R %	K_T %	Li_T %	Cd_T μgg^{-1}	Hg_T μgg^{-1}	Residue mg	$CaCO_3$ %	C_{org} %	Water %	ID
16	32	7.71	22.36	2.99	8.77	0.02	1.22	1.03	2.94	36	0.11	0.13	537	1.83	4.25	71.4	74441
	34	11.46	23.54	3.62	8.15	0.00	1.21	1.99	3.23	51	0.13	0.07	639	1.83	4.25	71.2	74442
	36	14.61	26.25	4.07	8.15	0.01	1.26	2.38	3.85	52	0.16	0.04	698	3.33	4.30	70.8	74443
	38	15.14	27.00	4.10	8.29	0.01	1.28	2.42	2.66	48	0.13	0.04	666	3.33	4.36	70.3	74444
	40	13.79	26.91	3.72	8.22	0.01	1.25	2.49	3.46	53	0.14	0.02	657	3.33	4.29	70.6	74445
	42	13.21	27.81	3.75	8.41	0.01	1.33	2.51	3.81	45	0.18	0.03	648	3.00	4.40	70.8	74446
	44	15.65	26.73	4.58	7.91	0.00	1.37	2.95	3.30	59	0.18	0.05	834	3.67	4.42	70.9	74447
	46	10.73	25.92	3.50	7.58	0.01	1.21	2.10	3.54	48	0.15	0.02	628	3.83	4.38	71.3	74448
	48	11.92	27.42	3.68	8.00	0.01	1.35	2.21	3.35	48	0.11	0.03	658	2.67	4.44	70.9	74449
	50	13.48	26.33	3.79	7.72	0.01	1.33	2.15	3.77	46	0.11	0.05	668	3.17	4.38	71.3	74450
	52	9.12	24.15	4.29	6.19	0.07	1.44	1.81	2.08	49	0.05	0.02	714	3.33	4.35	71.3	74451
	54	12.54	24.65	4.63	6.17	0.07	1.52	1.70	2.11	52	0.09	0.02	715	2.83	4.38	70.4	74452
	56	14.44	24.88	5.04	6.39	0.09	1.45	1.89	2.14	54	0.04	0.02	806	3.00	4.34	69.6	74453
17	0	17.18	19.43	4.51	6.11	0.02	1.18	3.17	2.60	71	0.46	1.37	768	2.58	5.33	75.1	74485
	1	14.95	20.82	4.29	5.76	0.03	1.01	2.11	2.84	71	0.40	1.72	776	4.00	5.44	70.8	74486
	3	14.60	20.00	4.68	5.84	0.02	1.05	2.74	3.10	71	0.46	1.75	784	0.92	4.85	70.2	74487
	5	11.60	20.02	4.78	5.46	0.00	0.99	2.81	3.19	74	0.51	1.94	818	2.08	5.01	70.7	74488
	7	15.36	24.33	4.69	5.28	0.00	1.36	2.87	3.23	69	0.48	1.46	867	3.25	5.30	72.4	74489
18	0	11.91	20.53	5.05	6.54	0.06	1.16	2.17	1.70	66	0.55	1.79	784	0.00	9.60	66.5	74454
	2	12.82	21.26	4.86	6.07	0.06	1.11	2.00	2.30	70	0.45	1.34	829	0.00	16.15	56.0	74455
	4	12.10	20.66	4.34	5.40	0.00	0.77	2.48	1.77	84	0.34	0.83	840	0.00	14.70	56.3	74456
	6	17.27	27.06	4.08	4.92	0.00	0.47	1.87	2.12	73	0.45	0.73	890	0.00	14.20	52.9	74457
	8	15.53	28.54	4.42	5.78	0.00	0.89	2.24	2.15	60	0.28	1.18	854	5.00	11.10	51.0	74458
	10	17.23	23.73	4.81	5.96	0.00	1.09	2.04	1.61	67	0.25	1.23	855	0.00	5.33	60.3	74459
	12	24.91	35.05	3.62	1.66	0.00	0.48	2.91	2.27	41	0.23	0.54	946	2.75	2.96	48.6	74460
	14	15.44	31.33	2.96	3.43	0.00	0.54	1.96	1.94	50	0.45	0.82	870	0.00	3.73	52.0	74461
	16	15.88	24.77	4.26	5.91	0.00	1.08	1.84	1.78	67	0.13	0.54	852	6.08	2.81	52.0	74462
	18	17.48	22.74	4.51	6.26	0.00	1.21	1.84	2.04	61	0.15	0.40	778	2.92	4.49	66.3	74463
	20	20.03	23.14	4.69	6.59	0.00	1.22	2.02	1.80	69	0.08	0.29	832	2.83	4.28	69.3	74464
	22	14.66	21.93	4.40	5.67	0.00	1.14	1.75	2.36	60	0.11	0.22	778	3.33	4.33	67.7	74465
	24	14.60	22.56	3.86	5.69	0.00	1.19	1.43	2.54	58	0.08	0.13	718	4.25	4.07	69.8	74466
	26	17.00	22.05	4.17	5.82	0.00	1.72	1.61	2.03	64	0.15	0.15	816	4.17	3.97	68.6	74467
	28	13.84	22.31	4.05	5.60	0.00	1.10	1.74	2.00	52	0.06	0.06	706	3.83	4.11	69.1	74468
	30	15.36	22.52	4.20	5.84	0.00	1.16	1.50	2.20	59	0.06	0.12	720	5.42	3.98	69.4	74469
	32	12.44	21.91	4.16	5.31	0.00	1.08	1.66	2.50	64	0.04	0.10	712	4.17	4.19	69.2	74470
	34	13.95	19.51	4.32	5.19	0.00	1.06	1.65	1.71	58	0.06	0.19	748	4.25	4.12	69.6	74471
	36	16.16	18.99	4.08	5.13	0.00	1.12	1.88	1.84	60	0.08	0.21	745	3.42	4.16	68.5	74472
	38	15.04	19.44	4.22	5.53	0.01	1.22	2.15	2.17	61	0.08	0.15	838	4.75	4.22	68.5	74473
	40	15.17	24.86	4.59	5.44	0.02	1.23	2.72	2.60	63	0.15	0.14	820	4.00	4.20	69.1	74474
	42	14.22	22.08	3.82	4.99	0.00	1.07	2.30	1.99	50	0.06	0.08	730	10.50	3.47	68.9	74475
	44	17.55	22.84	3.80	4.83	0.01	1.00	1.91	2.35	56	0.05	0.15	711	4.08	4.20	68.8	74476
	46	16.32	23.43	3.72	4.94	0.00	1.15	1.77	2.54	54	0.03	0.05	730	3.25	4.26	68.8	74477
	48	19.22	23.18	4.43	4.71	0.00	0.97	3.03	3.64	58	0.05	0.07	842	2.67	4.44	69.6	74478
	50	22.81	23.12	4.29	4.79	0.01	1.02	2.50	2.74	59	0.03	0.06	829	4.83	4.12	69.9	74479

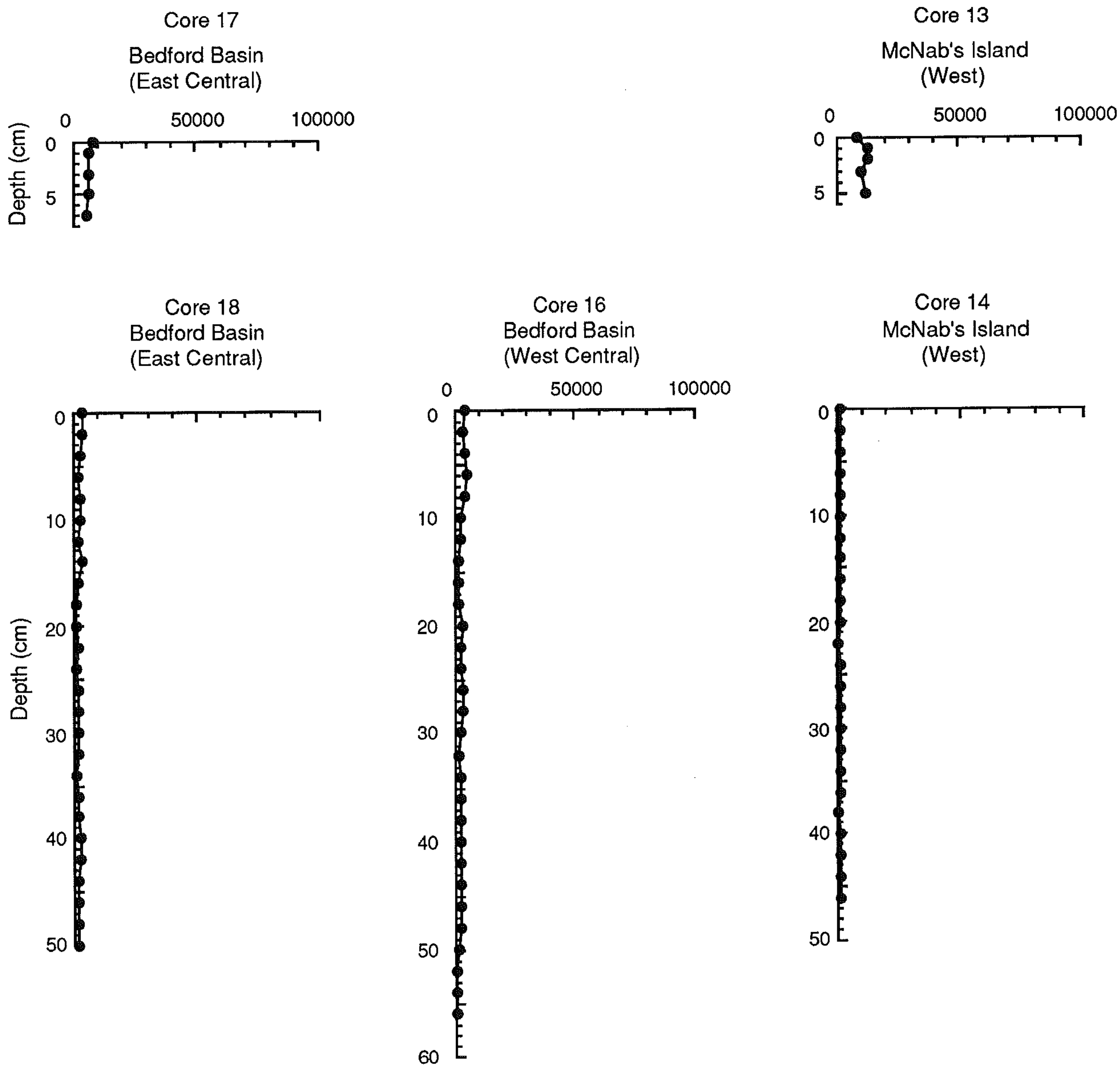
Core	Depth	pH_{pw}	pH_{sed}	$p\epsilon_{pw}$	NH_4^+	S^{2-}	H_2S	SiO_{2PW}	SO_4^{2-}	Alk_{pw}	Fe_{pw}	Mn_{pw}	Na_{pw}	Mg_{pw}	K_{pw}	Ca_{pw}	ID
	cm	-lg N	-lg N	-lg M	mM	µM	odor	µM	mM	mN	µM	µM	mM	mM	mM	mM	
13	0	7.56	6.94	3.97	0.3	0.01	0	110	25	4.6	12.8	2.1	453	53.8	9.4	13.6	74480
	1	7.51	6.84	1.25	0.1	0.01	0	83	26	3.8	7.1	1.7	456	60.4	9.6	15.5	74481
	2	7.84	7.05	0.69	0.2	0.01	1	97	26	4.9	8.6	1.2	355	59.4	8.4	13.9	74482
	3	7.62	7.26	0.08	0.1	0.01	1	83	25	3.8	6.6	2.1	453	60.5	10.0	15.2	74483
	5	7.73	7.23	-1.98	0.2	0.01	0	100	27	4.0	8.2	1.4	503	59.6	10.1	16.4	74484
14	0	7.00	6.32	1.71	0.4	0.01	0	355	23	4.8	66.0	5.3	468	45.5	10.6	10.5	74401
	2	7.23	6.26	2.70	0.4	0.01	0	420	26	5.0	31.7	3.4	470	25.9	9.1	4.7	74402
	4	7.68	6.61	2.01	0.5	0.01	0	442	26	6.7	11.9	2.0	439	24.3	10.4	5.1	74403
	6	7.62	6.64	3.58	0.6	0.01	0	420	26	7.4	6.3	0.5	448	38.5	7.3	9.4	74404
	8	7.73	6.84	1.05	0.8	0.01	0	382	25	9.3	5.2	0.1	485	39.0	11.4	9.4	74405
	10	7.79	6.98	0.95	0.9	0.01	0	415	25	10.5	6.1	0.3	472	29.9	9.5	5.3	74406
	12	7.79	7.13	0.02	0.9	0.01	2	567	24	12.2	3.8	0.0	464	34.0	8.2	7.0	74407
	14	7.84	7.16	-0.02	1.1	0.01	2	589	21	15.2	3.9	0.6	448	22.4	8.0	3.9	74408
	16	7.84	7.18	-0.54	1.2	0.01	2	464	21	16.6	3.7	0.1	455	32.2	9.9	4.8	74409
	18	7.96	7.22	-0.29	1.3	0.01	2	644	19	17.5	11.9	2.0	493	36.6	12.4	6.9	74410
	20	8.01	7.23	-0.61	1.4	0.01	2	622	19	18.9	7.8	1.2	535	41.9	11.9	9.5	74411
	22	7.96	7.18	-0.35	1.4	0.14	2	698	20	20.9	7.4	1.5	519	39.7	9.7	9.1	74412
	24	7.90	7.31	-0.68	1.5	0.46	2	762	19	24.4	5.1	1.7	505	34.2	11.3	6.9	74413
	26	8.24	7.24	-0.85	1.8	0.01	2	635	19	25.2	5.8	1.0	535	30.8	10.4	7.1	74414
	28	8.01	7.20	-0.69	1.6	0.50	2	735	16	28.6	11.4	1.6	505	32.3	10.5	8.4	74415
	30	8.01	7.26	-1.03	1.7	0.01	2	753	15	28.8	16.3	1.3	511	33.3	8.8	8.8	74416
	32	7.96	7.21	-1.89	1.8	0.39	2	720	16	30.2	11.8	1.3	487	42.5	9.2	11.2	74417
	34	8.41	7.18	-1.59	1.8	0.18	2	545	17	30.8	11.9	1.3	528	45.5	11.8	12.2	74418
	36	8.13	7.18	-0.74	2.0	0.01	2	753	16	32.2			528	45.9	10.1	12.1	74419
	38	8.24	7.23	-0.85	2.1	0.07	2	698	9	32.2			515	44.3	10.8	10.4	74420
	40	8.07	7.22	-1.34	2.1	0.01	2	513	13	32.2			477	43.6	11.2	11.1	74421
	42	7.96	6.90	-1.42	1.9	0.01	2	742		32.4			496	31.5	10.1	8.1	74422
	44	8.01	7.09	-1.49	1.9	0.32	2	753	12	34.4	22.3	0.7	415	44.3	9.7	11.0	74423
	46	8.07	7.21	-1.01	2.0	0.18	2	731	12	34.2	22.9	0.4	487	45.3	9.6	11.8	74424
16	0	7.68	6.98	2.47	0.4	0.01	0	221	25	7.5	15.3	1.8	520	50.4	9.2	11.8	74425
	2	7.56	7.17	1.42	0.3	0.01	0	288	26	7.1	27.2	2.0	487	54.3	10.3	12.9	74426
	4	7.84	7.24	1.06	0.6	0.25	2	292	23	12.6	14.5	0.7	499	52.6	8.1	12.5	74427
	6	8.18	7.35	-0.59	0.7	0.01	2	284	23	13.0	18.1	1.3	502	35.4	10.4	9.0	74428
	8	8.01	7.34	-0.98	0.7	0.14	2	320	22	14.2	6.7	0.8	530	55.5	8.2	13.9	74429
	10	8.07	7.29	-1.10	0.8	0.39	2	336	19	21.0	7.6	0.8	488	52.8	7.9	10.5	74430
	12	8.07	7.41	-1.37	1.0	0.32	2	372	6	26.9	1.7	0.8	522	50.6	7.6	11.2	74431
	14	8.13	7.43	-1.32	1.2	0.16	2	360	1	32.8	5.6	0.9	496	51.1	7.7	11.4	74432
	16	8.13	7.51	-1.86	0.9	0.29	2	392	0	40.1	8.8	1.6	451	41.7	7.2	9.7	74433
	18	8.13	7.42	-1.32	0.9	0.39	2	486	0	44.9	2.7	1.0	479	43.2	9.0	8.6	74434
	20	8.18	7.40	-2.18	1.2	0.27	2	712	0	46.4	3.5	1.2	451	44.9	8.8	10.6	74435
	22	8.18	7.45	-1.05	1.3	0.32	2	760	0	46.4	5.0	1.0	477	48.1	8.2	10.6	74436
	24	8.13	7.42	-1.49	1.8	0.04	2	670	0	44.2	13.5	1.1	478	44.2	8.8	10.5	74437
	26	8.24	7.49	-1.37	1.6	0.32	2	780	0	47.3	10.0	0.9	454	47.2	7.9	10.5	74438
	28	8.13	7.45	-1.83	2.0	0.14	2	710	0	47.1	8.2	0.4	471	38.4	8.8	8.9	74439
	30	8.24	7.55	-1.77	2.1	0.14	2	760	0	49.5	9.5	0.4	465	49.5	9.4	9.7	74440

Core	Depth	pH_{pw}	pH_{sed}	$p\epsilon_{pw}$	NH_4^+	S^{2-}	H_2S	SiO_{2PW}	SO_4^{2-}	Alk_{pw}	Fe_{pw}	Mn_{pw}	Na_{pw}	Mg_{pw}	K_{pw}	Ca_{pw}	ID
	cm	-lg N	-lg N	-lg M	mM	µM	odor	µM	mM	mN	µM	µM	mM	mM	mM	mM	
16	32	8.13	7.52	-1.86	1.9	0.29	2	810	0	52.0	7.4	0.6	553	51.3	7.1	13.1	74441
	34	8.18	7.56	-1.55	2.1	0.11	2	710	0	52.0	8.1	0.7	486	44.5	7.4	8.8	74442
	36	8.07	7.58	-1.84	2.3	0.21	2	670	0	54.0	8.4	0.6	518	50.0	9.1	10.5	74443
	38	8.01	7.53	-1.83	2.5	0.25	2	780	0	55.4	5.6	0.3	538	52.0	9.2	11.9	74444
	40	8.07	7.61	-1.47	2.7	0.01	2	760	0	55.8	8.2	1.0	461	50.6	8.6	10.0	74445
	42	8.07	7.69	-1.89	3.0	0.01	2	780	0	56.4	13.1	1.6	504	50.3	11.4	9.7	74446
	44	8.07	7.60	-1.64	3.3	0.01	2	760	0	58.4	12.0	0.9	547	53.0	11.1	11.3	74447
	46	8.18	7.61	-1.61	3.6	0.01	2	900	0	60.6	9.0	0.8	442	35.9	9.5	6.7	74448
	48	8.18	7.59	-1.35	3.9	0.01	2	850	0	60.4	9.2	0.6	527	54.9	10.6	11.3	74449
	50	8.13	7.58	-0.90	4.2	0.01	2	670	0	61.8	13.8	0.5	541	54.3	11.7	10.4	74450
	52	8.01	7.70	-0.81	4.5	0.01	2	760	0	64.8	16.6	2.4	479	53.1	8.6	9.1	74451
	54	8.07	7.57	-0.52	4.7	0.01	2	780	0	67.3	12.0	1.1	438	55.2	10.4	9.5	74452
	56	8.07	7.55	-0.64	5.0	0.01	2	760	0	66.5	10.5	1.2	445	51.0	8.8	7.9	74453
17	0	7.39	6.48	2.06	0.2	0.01	1	90	26	4.3	11.6	1.7	348	53.4	9.0	12.8	74485
	1	7.34	6.98	0.07	0.2	0.01	1	83	26	4.4	11.7	2.6	390	56.7	7.1	13.8	74486
	3	7.39	6.96	0.79	0.2	0.01	1	100	26	4.4	14.5	2.0	457	56.6	8.4	12.5	74487
	5	7.51	6.92	0.34	0.3	0.01	0	110	26	4.3	16.0	2.4	321	53.1	8.5	11.0	74488
	7	7.51	7.11	-0.44	0.2	0.01	0	90	26	4.4	13.3	2.9	440	53.6	8.7	12.2	74489
18	0	7.20	6.98	2.65	0.0	0.01	0	150	27	3.6	77.3	3.0	495	53.1	9.2	12.3	74454
	2	7.11	7.01	0.91	0.0	0.01	0	150	27	2.9	66.8	2.9	465	52.7	10.3	11.4	74455
	4	7.11	7.00	-0.25	0.0	0.01	0	140	27	2.9	68.5	3.3	426	51.6	9.3	10.7	74456
	6	7.17	7.13	0.19	0.0	0.01	0	180	27	3.2	104.0	3.4	366	52.2	10.3	10.6	74457
	8	7.23	6.98	-1.12	0.0	0.01	0	150	27	3.1	100.5	3.9	483	50.8	10.1	11.6	74458
	10	7.17	6.97	0.12	0.0	0.01	0	120	27	2.9	78.4	4.6	397	54.6	8.9	11.8	74459
	12	7.23	6.89	1.12	0.1	0.01	0	190	26	3.7	45.6	6.7	493	52.1	10.3	11.0	74460
	14	7.62	6.82	0.07	0.3	0.01	0	270	24	6.5	10.8	6.6	496	53.7	9.6	11.8	74461
	16	7.79	7.02	0.29	0.6	0.01	1	340	23	10.7	7.9	5.0	508	54.6	9.5	12.0	74462
	18	7.84	7.19	0.57	0.7	0.01	1	350	22	10.8	6.0	4.4	427	46.0	8.6	10.0	74463
	20	7.90	7.38	-0.20	0.8	0.01	2	490	20	17.3	5.9	2.1	472	51.7	9.4	11.8	74464
	22	8.07	7.35	-0.83	1.1	0.01	2	570	16	23.1	8.8	1.3	371	54.6	8.6	11.3	74465
	24	8.01	7.44	-1.39	1.2	0.01	2	680	13	29.0	8.7	0.0	377	59.6	8.8	11.9	74466
	26	8.13	7.45	-0.25	1.6	0.01	2	740	5	35.2	8.6	0.1	332	53.4	9.2	10.7	74467
	28	8.13	7.49	-1.34	1.6	0.01	2	770	5	39.8	12.6	0.5	408	51.7	9.7	9.8	74468
	30	8.07	7.53	-1.66	1.6	0.01	2	790	2	41.8	9.2	0.9	384	50.3	8.9	10.6	74469
	32	8.13	7.60	-2.03	1.7	0.01	2	900	0	46.4	7.1	0.7	465	50.6	7.7	10.7	74470
	34	8.13	7.60	-1.96	1.9	0.01	2	790	0	45.1	12.0	0.3	355	55.6	10.5	10.9	74471
	36	8.13	7.45	-1.89	2.0	0.01	2	840	0	46.8	8.8	0.4	361	54.8	10.0	11.3	74472
	38	8.07	7.57	-1.89	2.3	0.01	2	820	0	47.5	12.0	0.4	351	54.9	7.9	10.5	74473
	40	8.13	7.51	-1.64	2.4	0.01	2	840	0	48.4	8.7	0.0	496	53.6	9.4	11.8	74474
	42	8.18	7.54	-1.34	2.6	0.01	2	770	0	49.4	7.5	0.4	379	55.9	8.9	11.6	74475
	44	8.18	7.51	-1.59	2.7	0.01	2	790	0	50.0	6.4	0.0	336	54.8	8.6	10.6	74476
	46	8.18	7.53	-1.57	2.7	0.01	2	900	0	53.2	6.2	0.4	481	54.8	9.3	11.4	74477
	48	8.29	7.60	-1.40	3.0	0.01	2	900	0	53.3	10.1	1.1	329	52.8	9.3	9.7	74478
	50	8.13	7.49	-1.12	3.2	0.01	2	820	0	53.8	9.7	0.2	413	52.8	8.0	11.5	74479

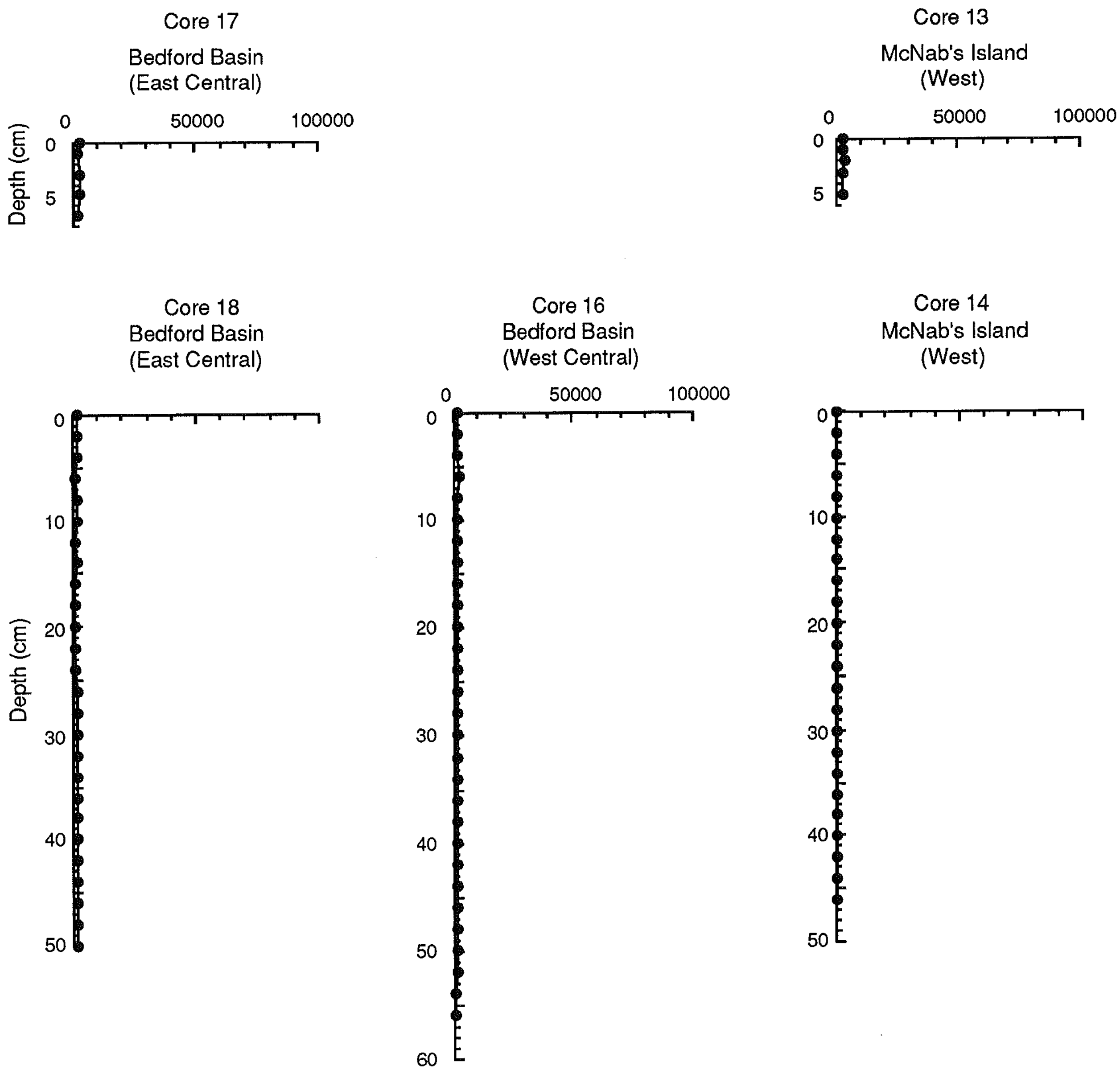
Core	Depth cm	Sand %	Silt %	Clay %	Mud %	Mean-grain-size µm	phi	Kurt -osis	Skew -ness	ID
13	0	0.46	62.84	36.70	99.54	5.60	7.48 ±1.58	2.43	0.07	74480
	1	0.14	58.71	41.15	99.86	4.74	7.72 ±1.52	2.41	0.10	74481
	2	0.15	56.50	43.35	99.85	4.61	7.76 ±1.54	2.41	0.01	74482
	3	0.49	62.99	36.52	99.51	5.52	7.50 ±1.53	2.54	0.08	74483
	5	1.05	60.20	38.75	98.95	5.34	7.55 ±1.56	2.54	-0.01	74484
14	0	0.95	72.07	26.98	99.05	8.26	6.92 ±1.82	2.45	0.58	74401
	2	3.02	79.68	17.30	96.98	12.34	6.34 ±1.67	2.93	0.78	74402
	4	1.67	79.81	18.53	98.33	10.90	6.52 ±1.67	2.97	0.81	74403
	6	5.32	81.65	13.03	94.68	15.73	5.99 ±1.64	3.20	0.90	74404
	8	0.16	67.76	32.09	99.84	7.04	7.15 ±1.74	2.16	0.31	74405
	10	0.41	76.45	23.14	99.59	9.04	6.79 ±1.67	2.55	0.49	74406
	12	0.47	77.48	22.05	99.53	9.29	6.75 ±1.63	2.62	0.59	74407
	14	0.28	77.14	22.58	99.72	8.67	6.85 ±1.56	2.70	0.62	74408
	16	0.69	78.40	20.92	99.31	9.62	6.70 ±1.59	2.73	0.61	74409
	18	0.27	73.26	26.47	99.73	7.44	7.07 ±1.58	2.57	0.49	74410
	20	2.98	79.34	17.67	97.02	12.01	6.38 ±1.64	2.73	0.62	74411
	22	2.22	83.51	14.28	97.78	13.05	6.26 ±1.54	3.17	0.80	74412
	24	1.06	83.40	15.54	98.94	12.60	6.31 ±1.54	3.11	0.85	74413
	26	1.36	84.38	14.25	98.64	14.48	6.11 ±1.56	3.36	1.02	74414
	28	2.17	85.73	12.09	97.83	15.63	6.00 ±1.50	3.66	1.07	74415
	30	0.93	85.90	13.17	99.07	14.08	6.15 ±1.50	3.51	1.01	74416
	32	3.66	83.17	13.18	96.34	16.86	5.89 ±1.62	3.48	1.09	74417
	34	3.86	89.34	6.80	96.14	21.64	5.53 ±1.33	5.62	1.57	74418
	36	1.86	89.99	8.16	98.14	19.10	5.71 ±1.35	5.18	1.49	74419
	38	2.23	91.23	6.54	97.77	20.19	5.63 ±1.26	6.34	1.69	74420
	40	3.30	87.66	9.04	96.70	17.95	5.80 ±1.41	4.55	1.28	74421
	42	5.50	83.55	10.95	94.50	19.10	5.71 ±1.58	4.05	1.27	74422
	44	1.26	82.99	15.75	98.74	13.42	6.22 ±1.61	3.23	0.97	74423
	46	1.64	82.30	16.05	98.36	11.84	6.40 ±1.56	3.12	0.77	74424
16	0	0.19	65.25	34.57	99.81	5.80	7.43 ±1.53	2.53	0.17	74425
	2	1.84	62.99	35.17	98.16	6.30	7.31 ±1.72	2.36	-0.03	74426
	4	1.90	58.71	39.39	98.10	6.17	7.34 ±1.86	2.02	-0.06	74427
	6	1.90	54.48	43.62	98.10	5.15	7.60 ±1.74	2.41	-0.27	74428
	8	4.46	67.36	28.17	95.54	8.73	6.84 ±1.86	2.09	0.09	74429
	10	3.46	66.69	29.85	96.54	7.76	7.01 ±1.78	2.27	0.01	74430
	12	1.55	58.18	40.27	98.45	5.76	7.44 ±1.80	2.22	-0.18	74431
	14	2.08	66.63	31.29	97.92	6.99	7.16 ±1.69	2.43	0.03	74432
	16	6.50	71.43	22.07	93.50	11.84	6.40 ±1.89	2.08	0.39	74433
	18	4.37	71.86	23.77	95.63	10.17	6.62 ±1.82	2.17	0.29	74434
	20	0.21	63.34	36.45	99.79	5.26	7.57 ±1.44	2.67	0.14	74435
	22	2.21	69.04	28.75	97.79	7.98	6.97 ±1.74	2.27	0.09	74436
	24	1.93	58.96	39.11	98.07	6.48	7.27 ±1.90	1.95	-0.08	74437
	26	0.73	52.28	46.98	99.27	4.46	7.81 ±1.60	2.61	-0.28	74438
	28	1.10	63.76	35.14	98.90	6.30	7.31 ±1.69	2.33	0.00	74439
	30	2.82	62.91	34.27	97.18	6.80	7.20 ±1.81	2.21	-0.05	74440

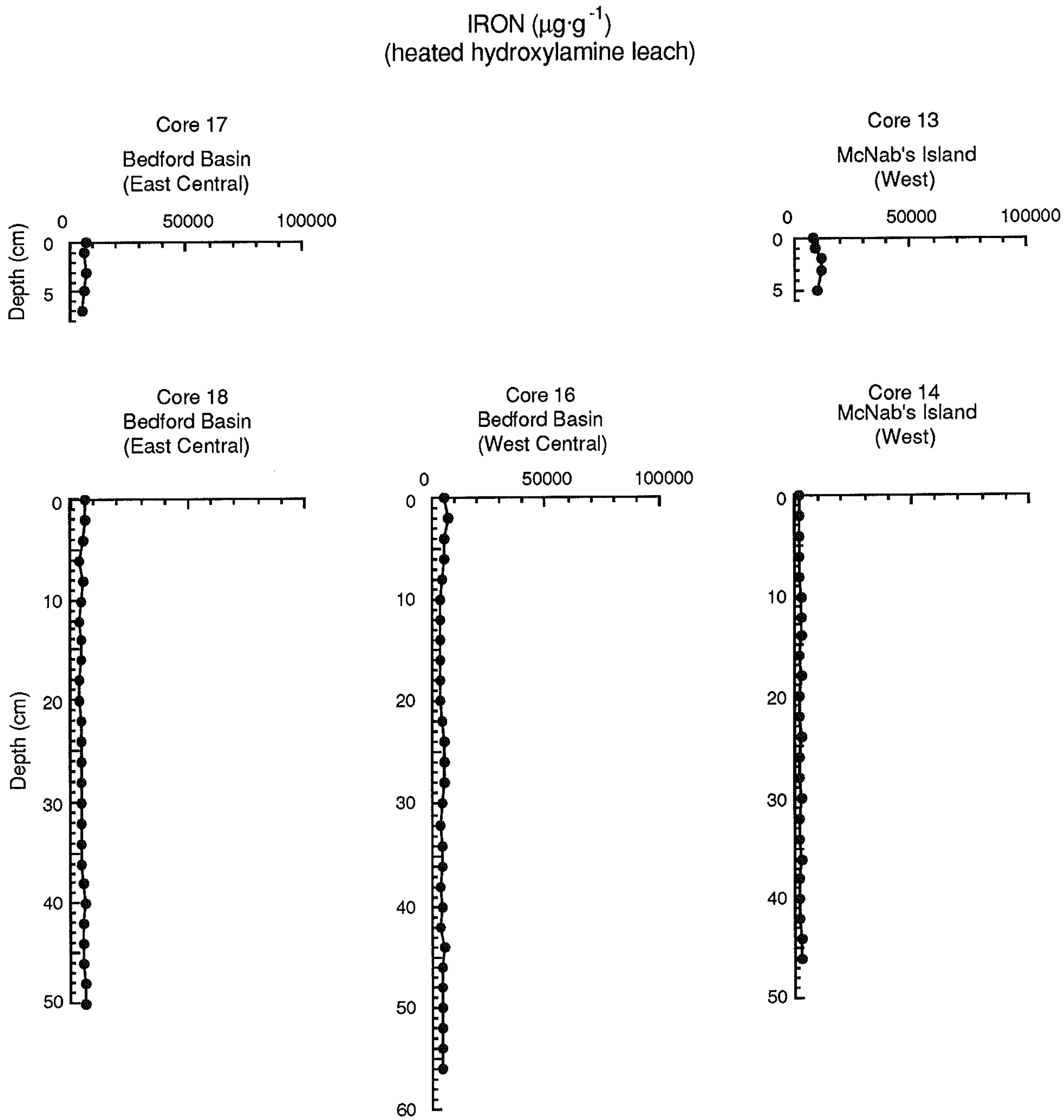
Core	Depth cm	Sand %	Silt %	Clay %	Mud %	Mean-grain-size µm	phi	Kurt -osis	Skew -ness	ID
16	32	3.01	75.43	21.56	96.99	10.38	6.59 ±1.73	2.32	0.32	74441
	34	2.22	71.20	26.58	97.78	8.20	6.93 ±1.70	2.36	0.16	74442
	36	2.58	71.64	25.78	97.42	8.67	6.85 ±1.72	2.30	0.16	74443
	38	1.26	70.05	28.69	98.74	7.14	7.13 ±1.64	2.50	0.10	74444
	40	1.35	71.60	27.05	98.65	8.14	6.94 ±1.69	2.29	0.13	74445
	42	1.20	72.91	25.89	98.80	8.14	6.94 ±1.63	2.41	0.19	74446
	44	2.50	56.52	40.98	97.50	6.43	7.28 ±1.94	1.90	-0.15	74447
	46	0.51	62.14	37.36	99.49	5.15	7.60 ±1.43	2.81	0.07	74448
	48	0.18	57.97	41.84	99.82	4.55	7.78 ±1.38	2.73	0.09	74449
	50	2.09	71.07	26.84	97.91	7.98	6.97 ±1.66	2.42	0.12	74450
	52	1.51	71.09	27.40	98.49	7.65	7.03 ±1.62	2.47	0.11	74451
	54	0.17	64.18	35.65	99.83	5.49	7.51 ±1.46	2.63	0.12	74452
	56	0.15	61.99	37.86	99.85	5.26	7.57 ±1.49	2.53	0.09	74453
17	0	0.14	57.54	42.32	99.86	4.81	7.70 ±1.50	2.46	-0.01	74485
	1	0.75	62.55	36.69	99.25	5.52	7.50 ±1.53	2.54	0.08	74486
	3	0.85	54.66	44.49	99.15	4.91	7.67 ±1.65	2.37	-0.19	74487
	5	0.45	59.79	39.75	99.55	5.23	7.58 ±1.57	2.46	-0.03	74488
	7	0.84	59.01	40.15	99.16	5.34	7.55 ±1.62	2.41	-0.10	74489
18	0	0.43	58.20	41.36	99.57	5.23	7.58 ±1.63	2.29	-0.06	74454
	2	2.33	62.76	34.91	97.67	6.75	7.21 ±1.81	2.14	0.01	74455
	4	1.18	58.63	40.18	98.82	5.72	7.45 ±1.75	2.16	-0.07	74456
	6	0.79	58.27	40.94	99.21	5.41	7.53 ±1.72	2.19	-0.06	74457
	8	1.70	60.91	37.39	98.30	6.52	7.26 ±1.80	2.07	-0.05	74458
	10	0.76	55.51	43.74	99.24	4.98	7.65 ±1.69	2.31	-0.18	74459
	12	0.75	54.30	44.94	99.25	4.58	7.77 ±1.58	2.47	-0.16	74460
	14	0.49	49.98	49.53	99.51	4.16	7.91 ±1.59	2.48	-0.24	74461
	16	0.13	49.26	50.61	99.87	3.93	7.99 ±1.54	2.41	-0.17	74462
	18	0.14	54.15	45.70	99.86	4.33	7.85 ±1.47	2.58	-0.09	74463
	20	0.16	59.93	39.91	99.84	4.78	7.71 ±1.41	2.75	0.12	74464
	22	0.55	53.29	46.16	99.45	4.39	7.83 ±1.54	2.74	-0.21	74465
	24	0.14	51.71	48.14	99.86	4.16	7.91 ±1.51	2.69	-0.23	74466
	26	0.51	53.62	45.88	99.49	4.46	7.81 ±1.58	2.53	-0.12	74467
	28									74468
	30	0.13	47.98	51.88	99.87	3.64	8.10 ±1.44	2.52	-0.14	74469
	32	0.77	60.21	39.02	99.23	5.30	7.56 ±1.58	2.64	-0.12	74470
	34	0.86	67.17	31.98	99.14	5.96	7.39 ±1.48	2.82	0.14	74471
	36	1.25	74.09	24.66	98.75	7.70	7.02 ±1.53	2.77	0.24	74472
	38	1.10	66.71	32.19	98.90	6.22	7.33 ±1.62	2.61	0.12	74473
	40	0.77	66.29	32.94	99.23	6.05	7.37 ±1.56	2.61	0.09	74474
	42	0.02	72.13	27.85	99.98	6.75	7.21 ±1.46	2.69	0.32	74475
	44	0.17	72.55	27.28	99.83	6.85	7.19 ±1.46	2.76	0.32	74476
	46	1.27	67.47	31.26	98.73	6.17	7.34 ±1.48	2.86	0.09	74477
	48	0.45	70.24	29.30	99.55	7.04	7.15 ±1.60	2.50	0.10	74478
	50	2.55	73.98	23.47	97.45	8.67	6.85 ±1.63	2.54	0.20	74479

IRON ($\mu g \cdot g^{-1}$)
(weak acid leach)

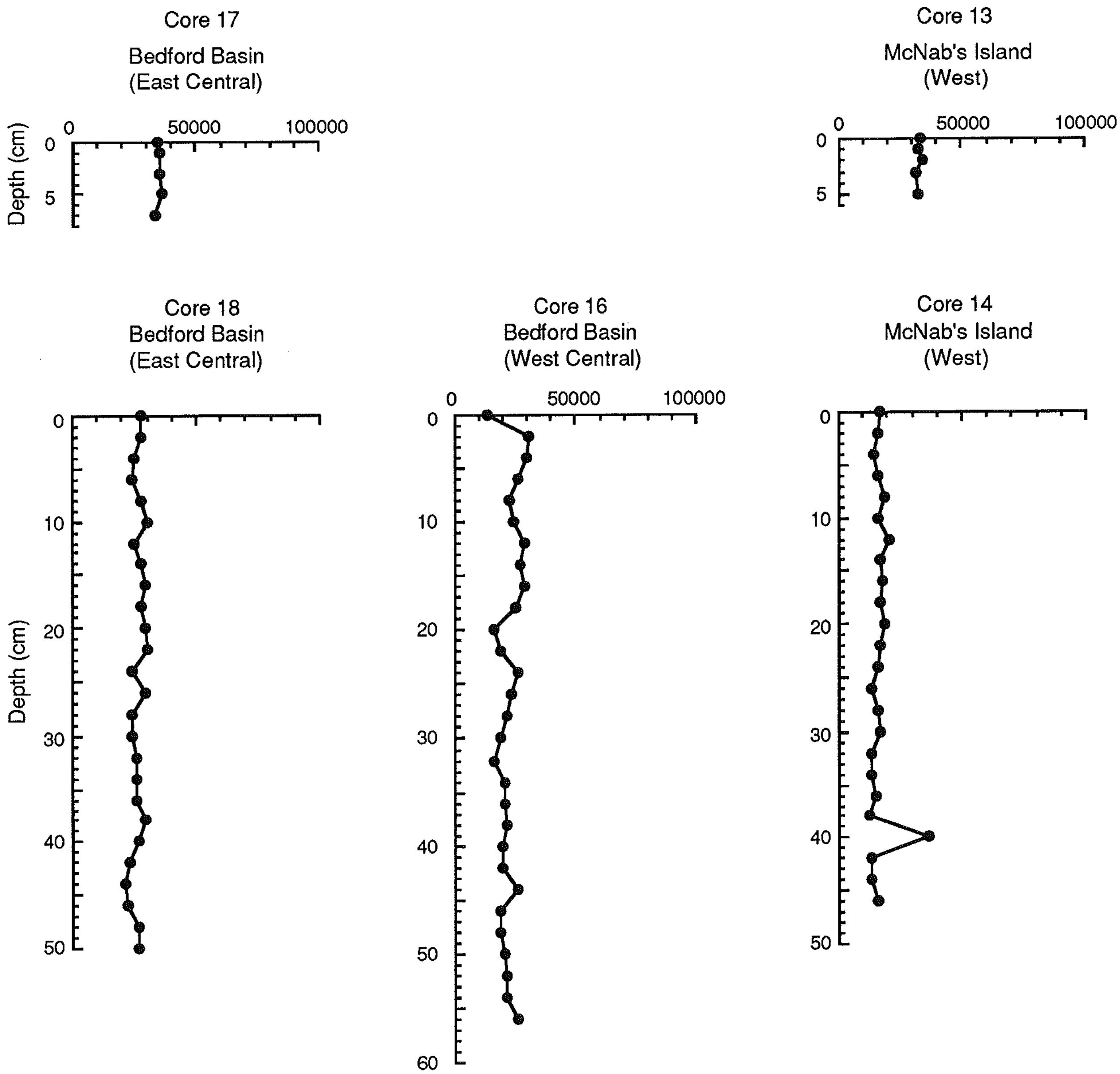


IRON ($\mu g \cdot g^{-1}$)
(hydroxylamine leach)

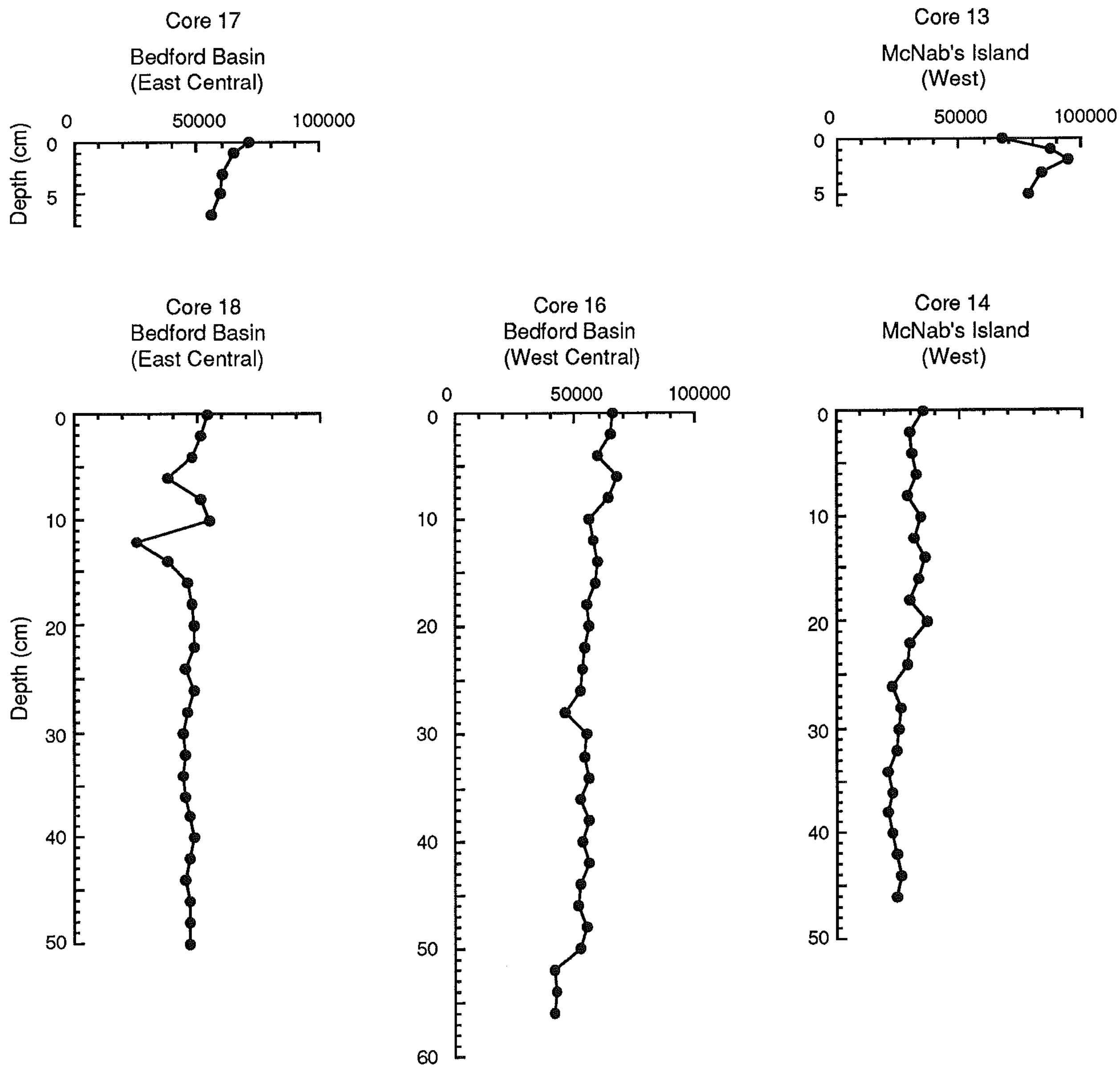



IRON (µg·g-1)
(heated hydroxylamine leach)
Core 17
Bedford Basin
(East Central)
Core 13
McNab's Island
(West)
Core 18
Bedford Basin
(East Central)
Core 16
Bedford Basin
(West Central)
Core 14
McNab's Island
(West)
0
50000
100000
Depth (cm)
5
10
20
30
40
50
60

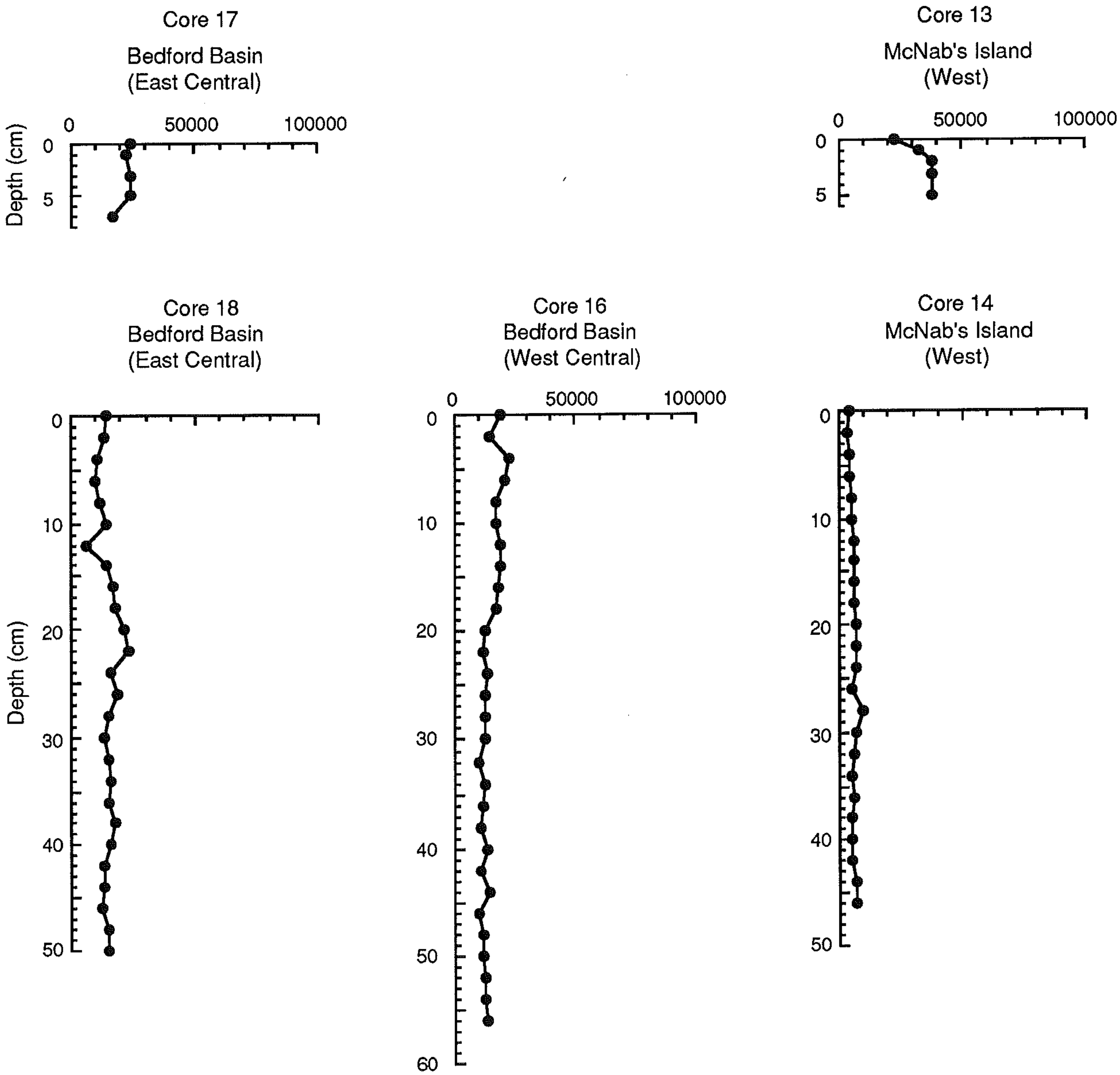
IRON ($\mu g \cdot g^{-1}$)
(residual)



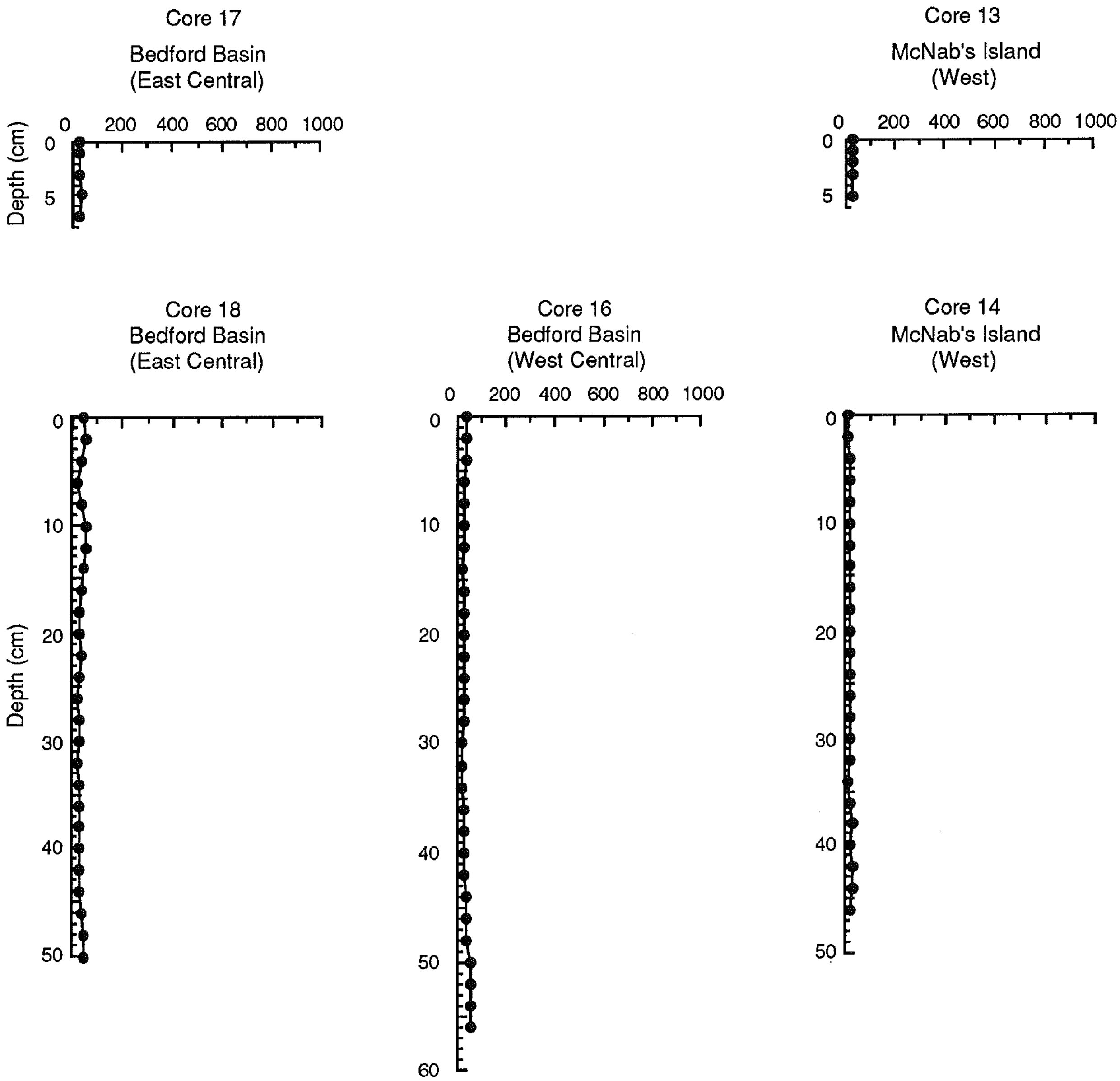
IRON ($\mu g \cdot g^{-1}$)
(total)



IRON ($\mu g \cdot g^{-1}$)
(organically bound)

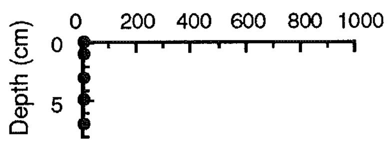


MANGANESE ($\mu g \cdot g^{-1}$)
(weak acid leach)

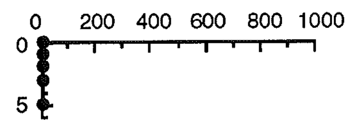


MANGANESE ($\mu g \cdot g^{-1}$)
(hydroxylamine leach)

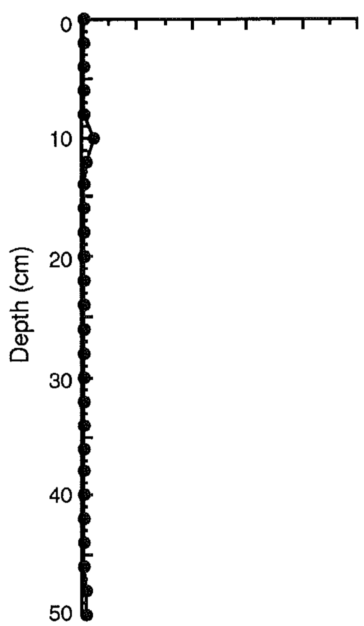
Core 17
Bedford Basin
(East Central)



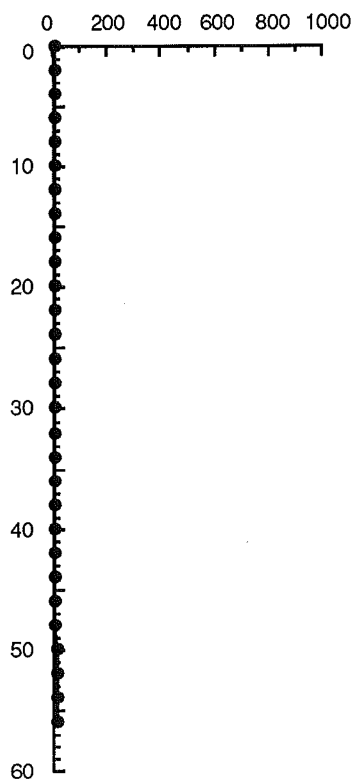
Core 13
McNab's Island
(West)



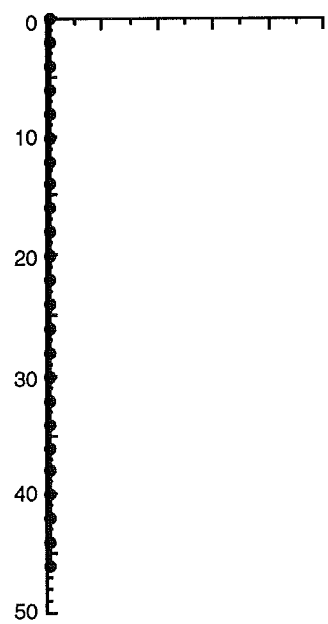
Core 18
Bedford Basin
(East Central)



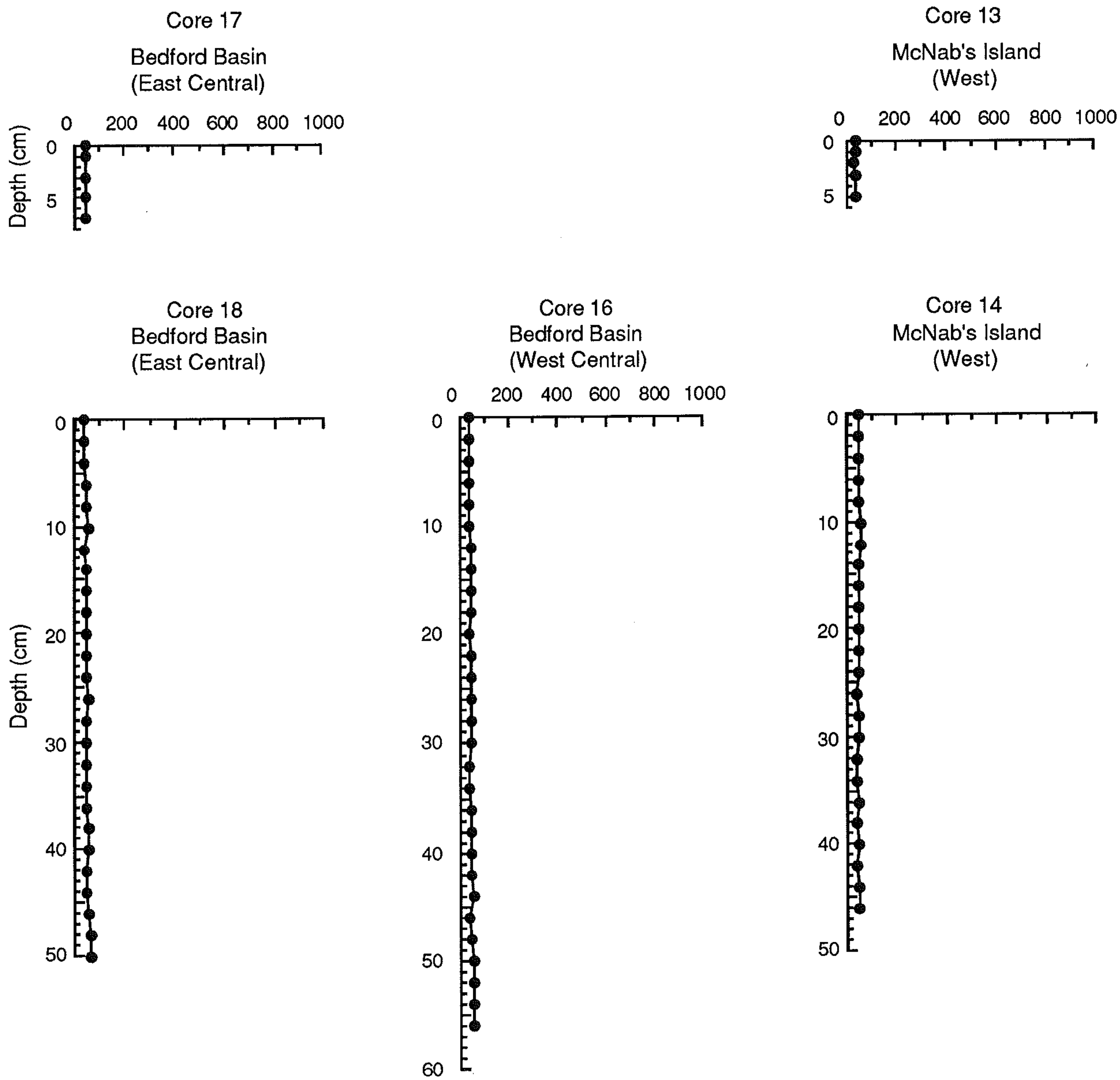
Core 16
Bedford Basin
(West Central)



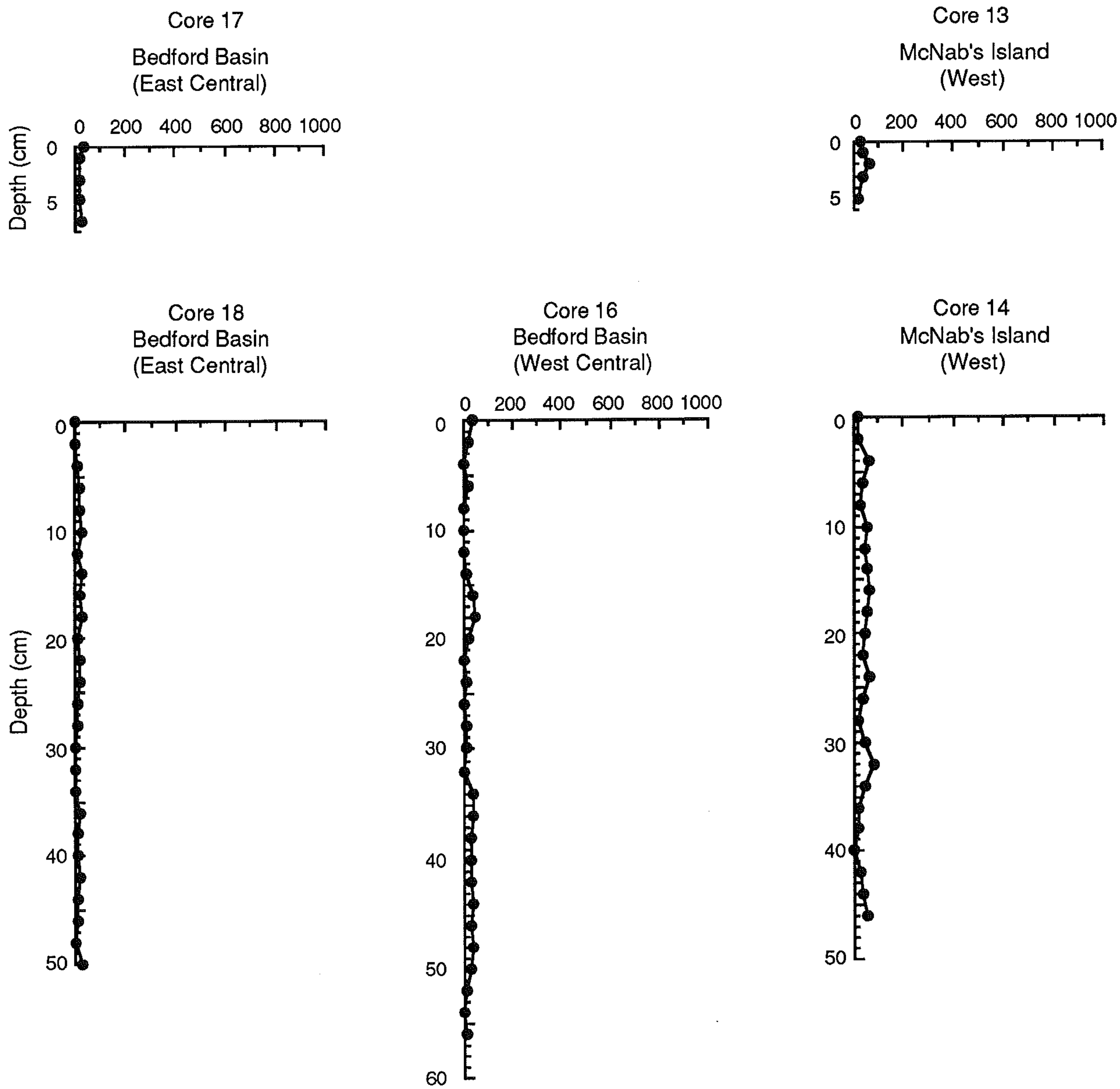
Core 14
McNab's Island
(West)



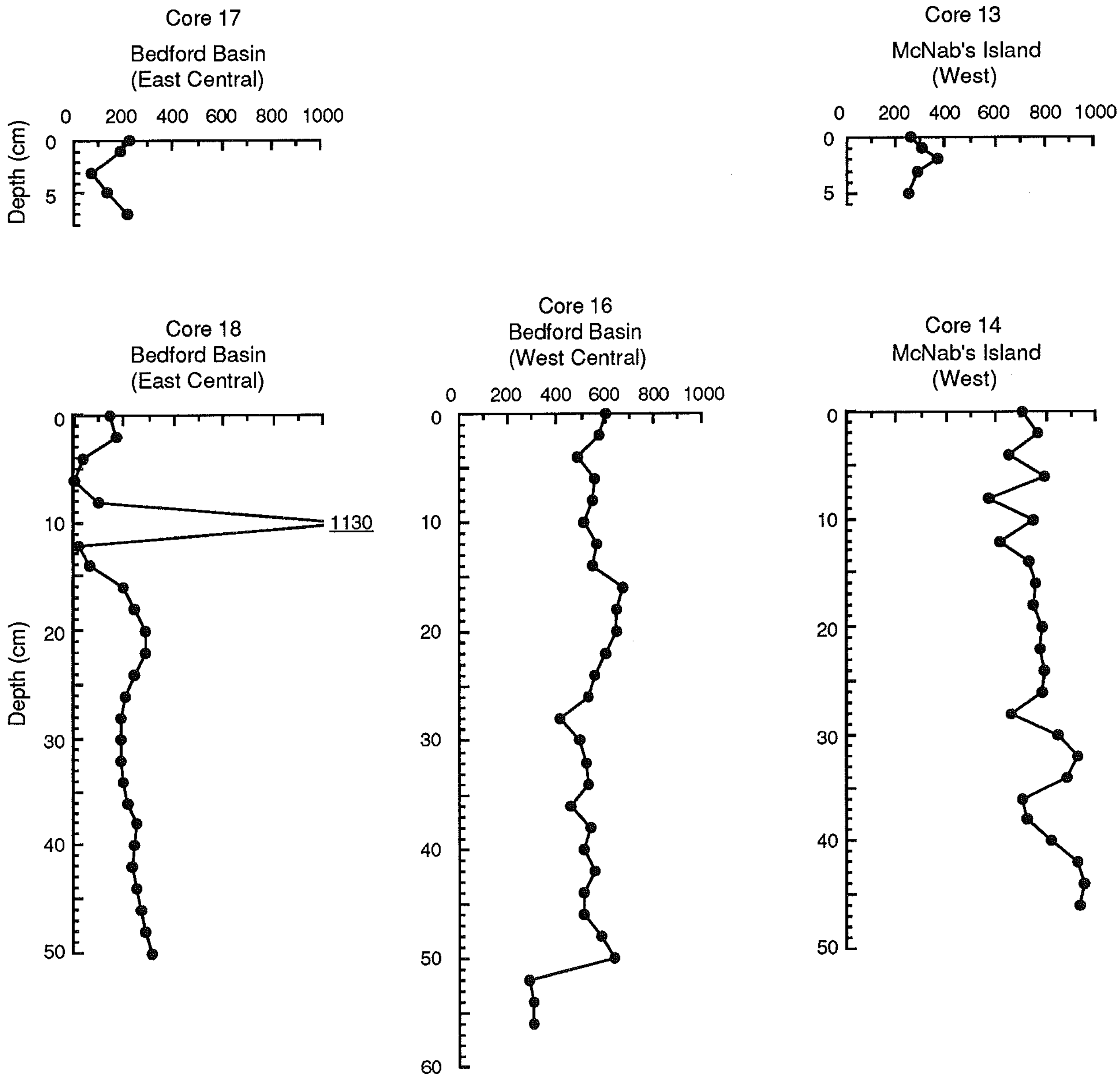
MANGANESE ($\mu g \cdot g^{-1}$)
(heated hydroxylamine leach)



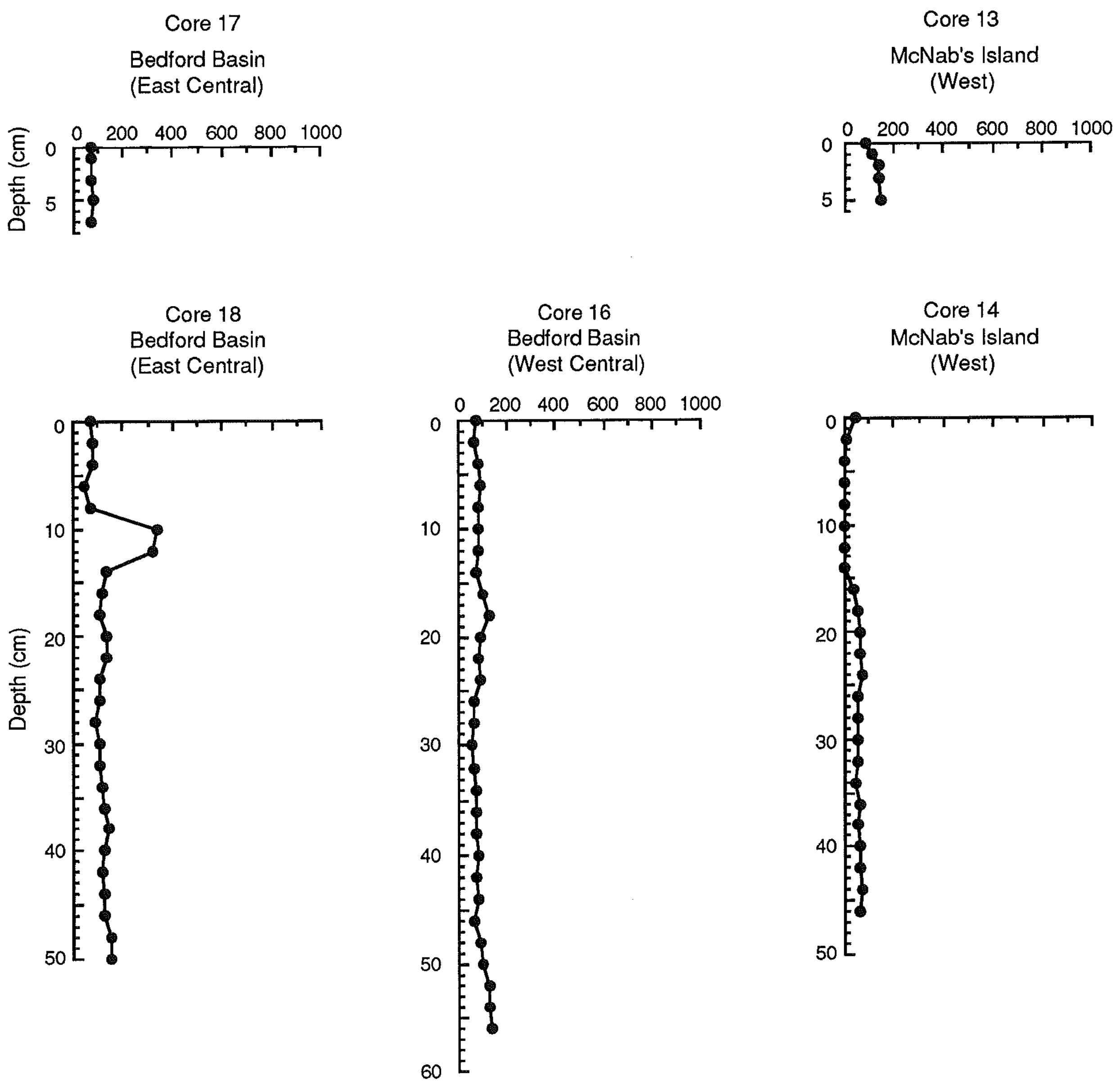
MANGANESE ($\mu g \cdot g^{-1}$)
(residual)

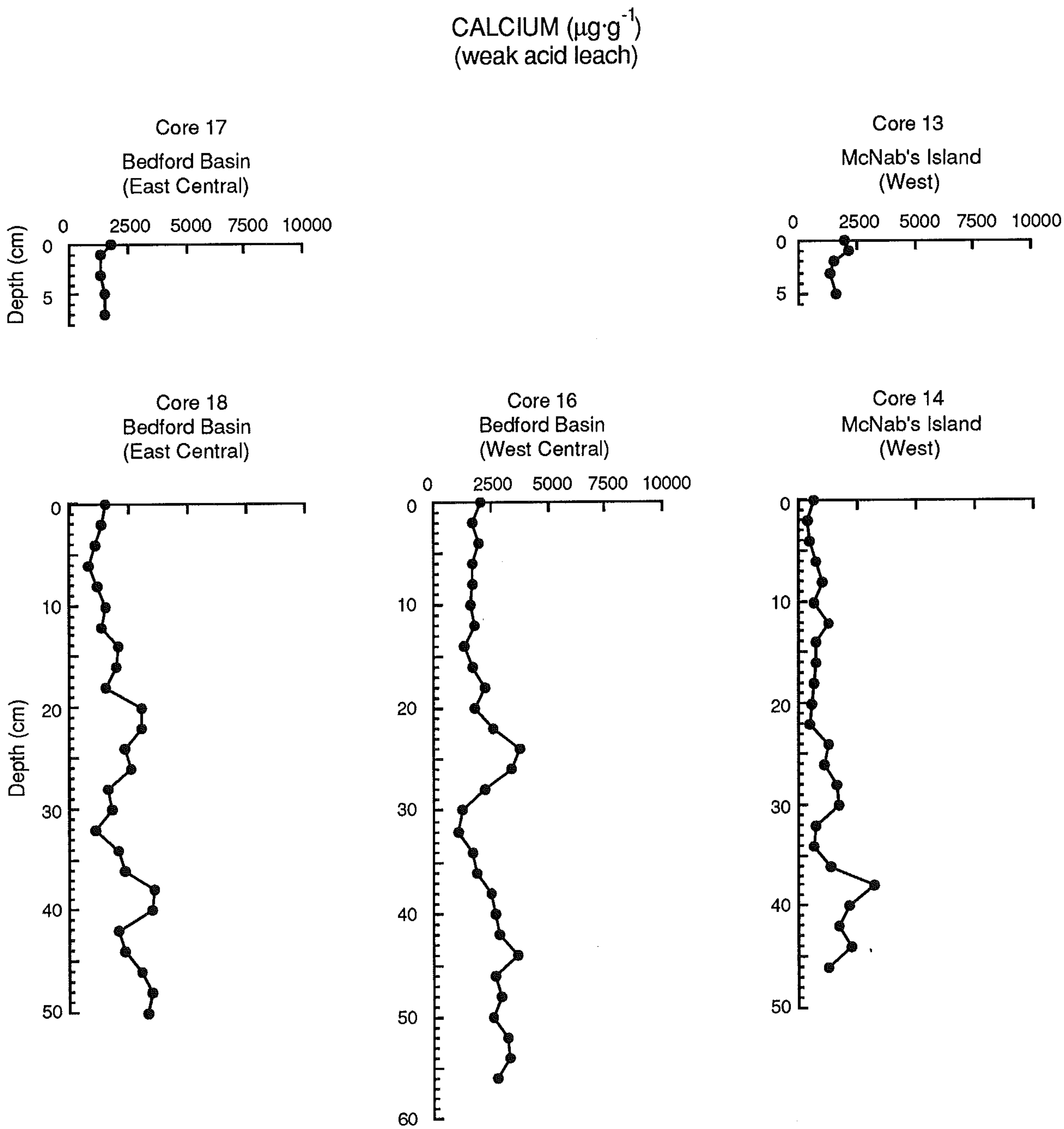


MANGANESE ($\mu g \cdot g^{-1}$)
(total)

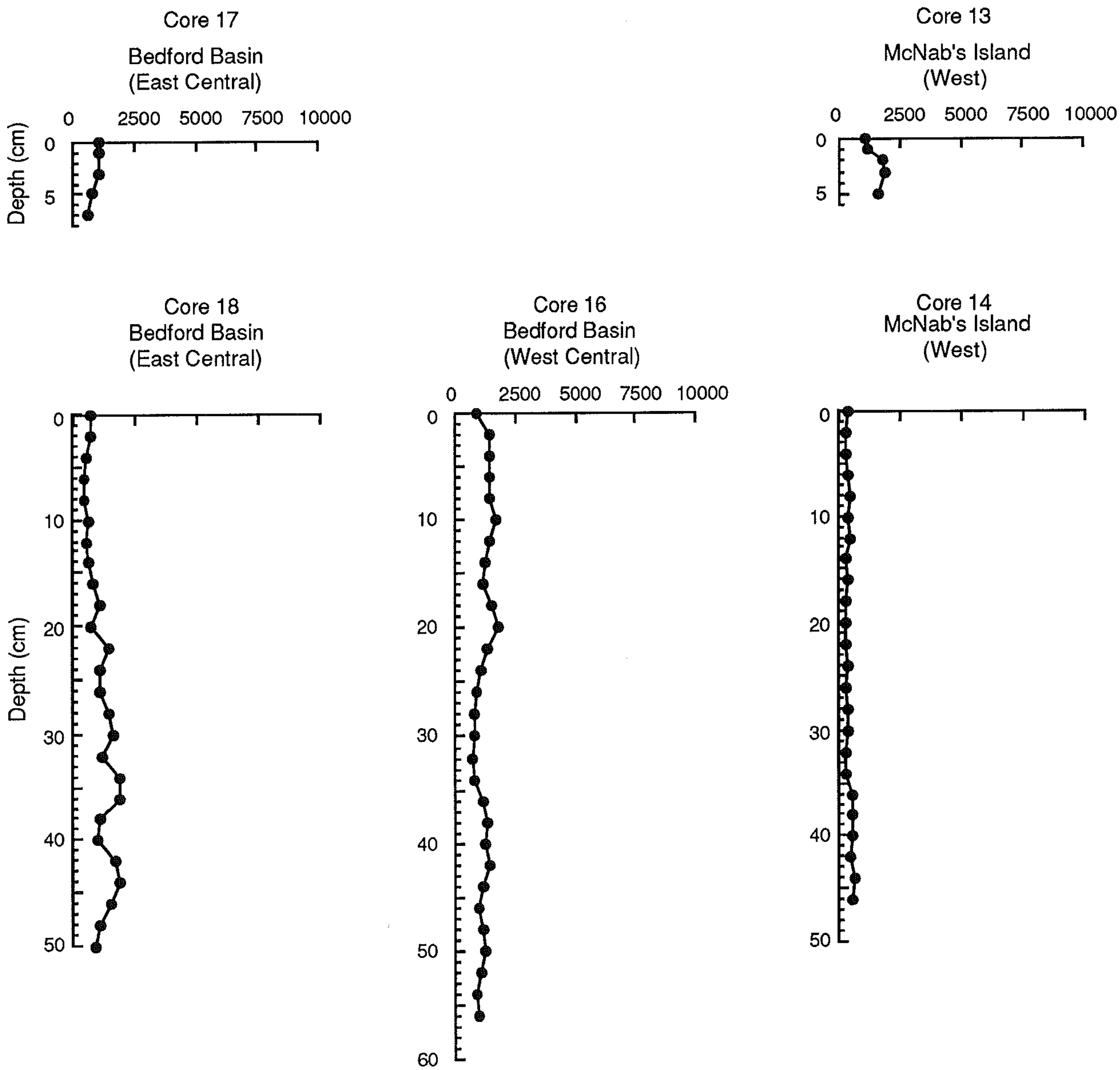


MANGANESE ($\mu g \cdot g^{-1}$)
(organically bound)

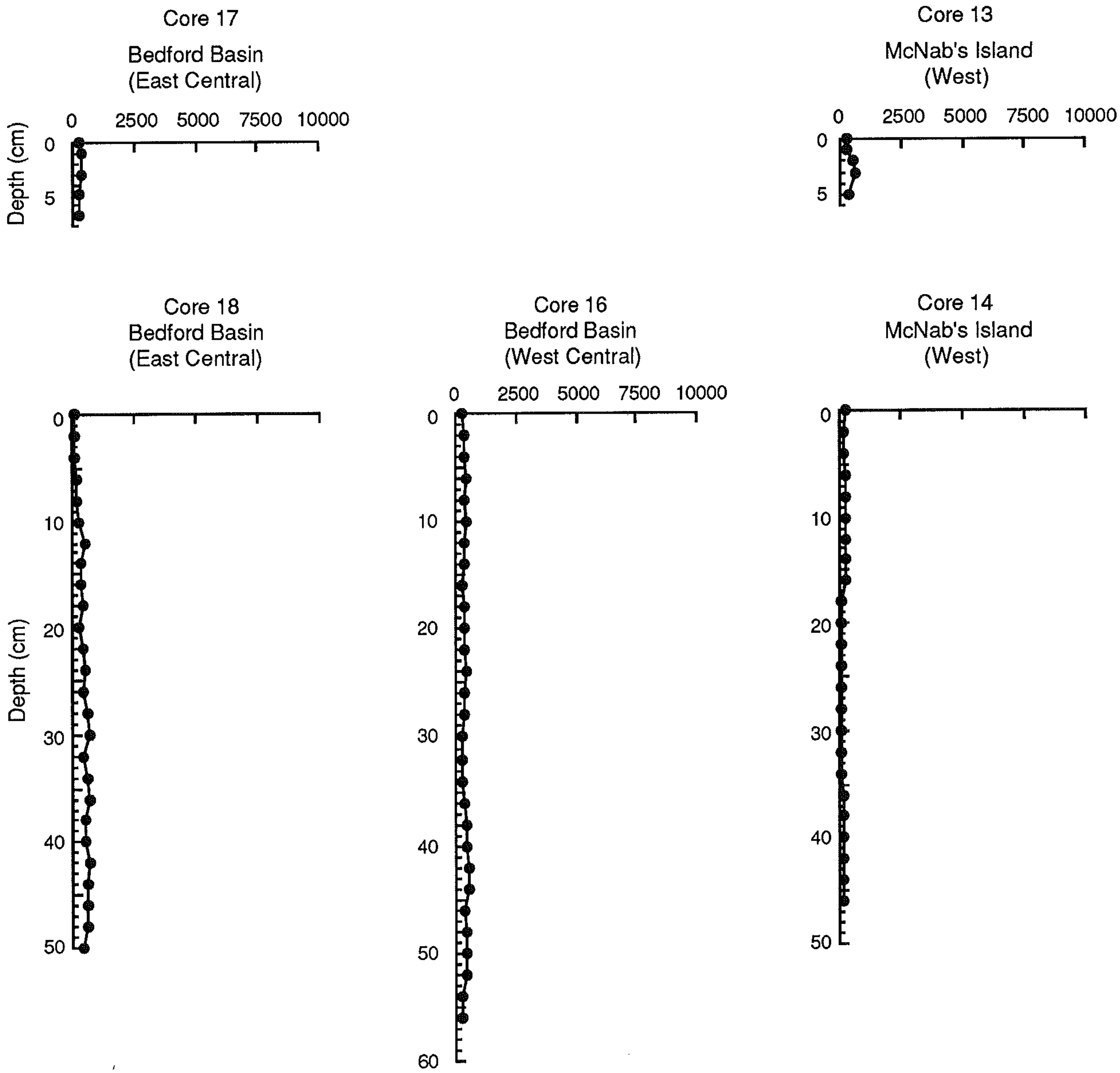



CALCIUM (µg·g-1)
(weak acid leach)
Core 17
Bedford Basin
(East Central)
Core 13
McNab's Island
(West)
Core 18
Bedford Basin
(East Central)
Core 16
Bedford Basin
(West Central)
Core 14
McNab's Island
(West)
0
2500
5000
7500
10000
Depth (cm)
0
5
10
20
30
40
50
60

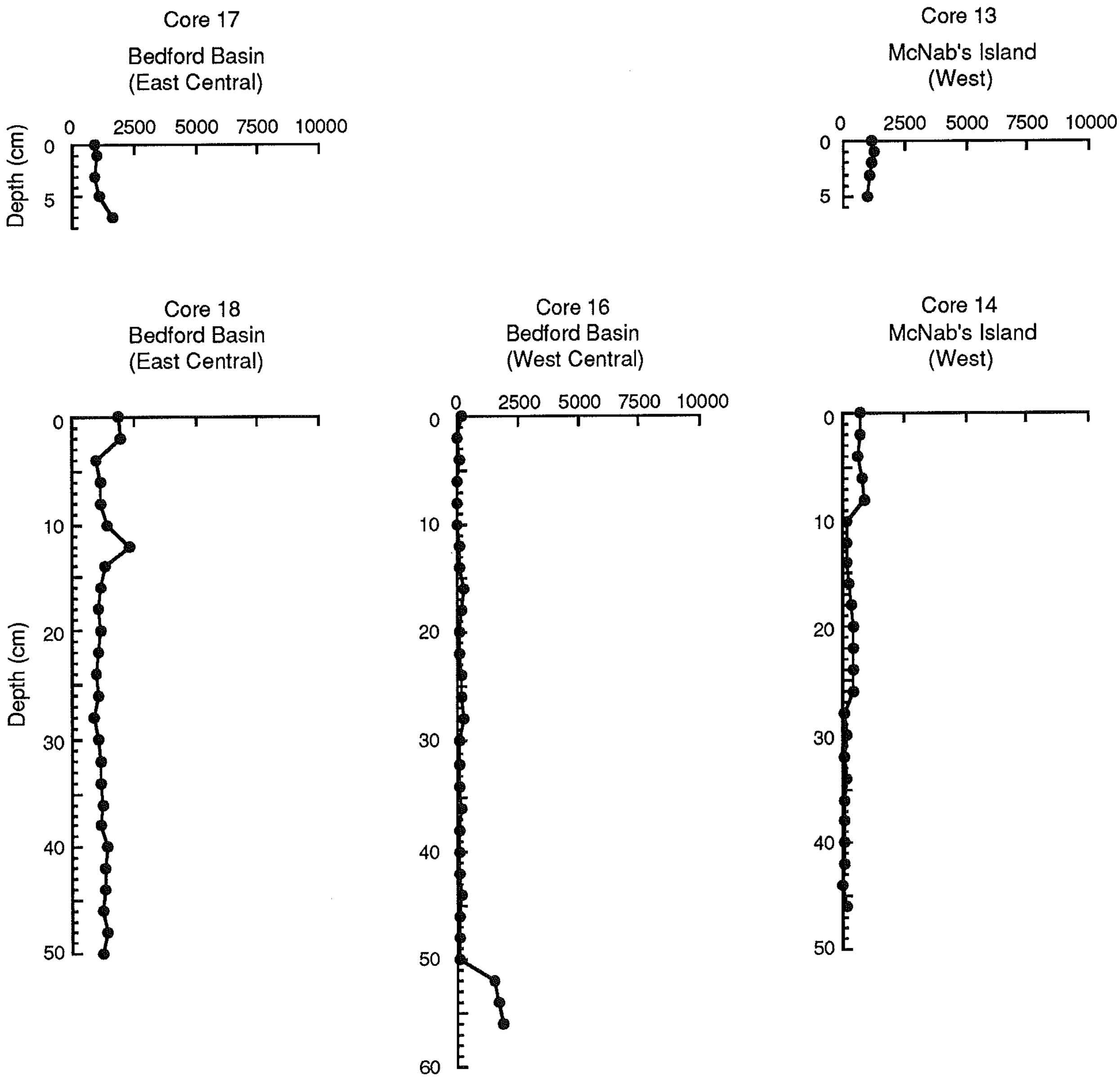
CALCIUM ($\mu g \cdot g^{-1}$)
(hydroxylamine leach)



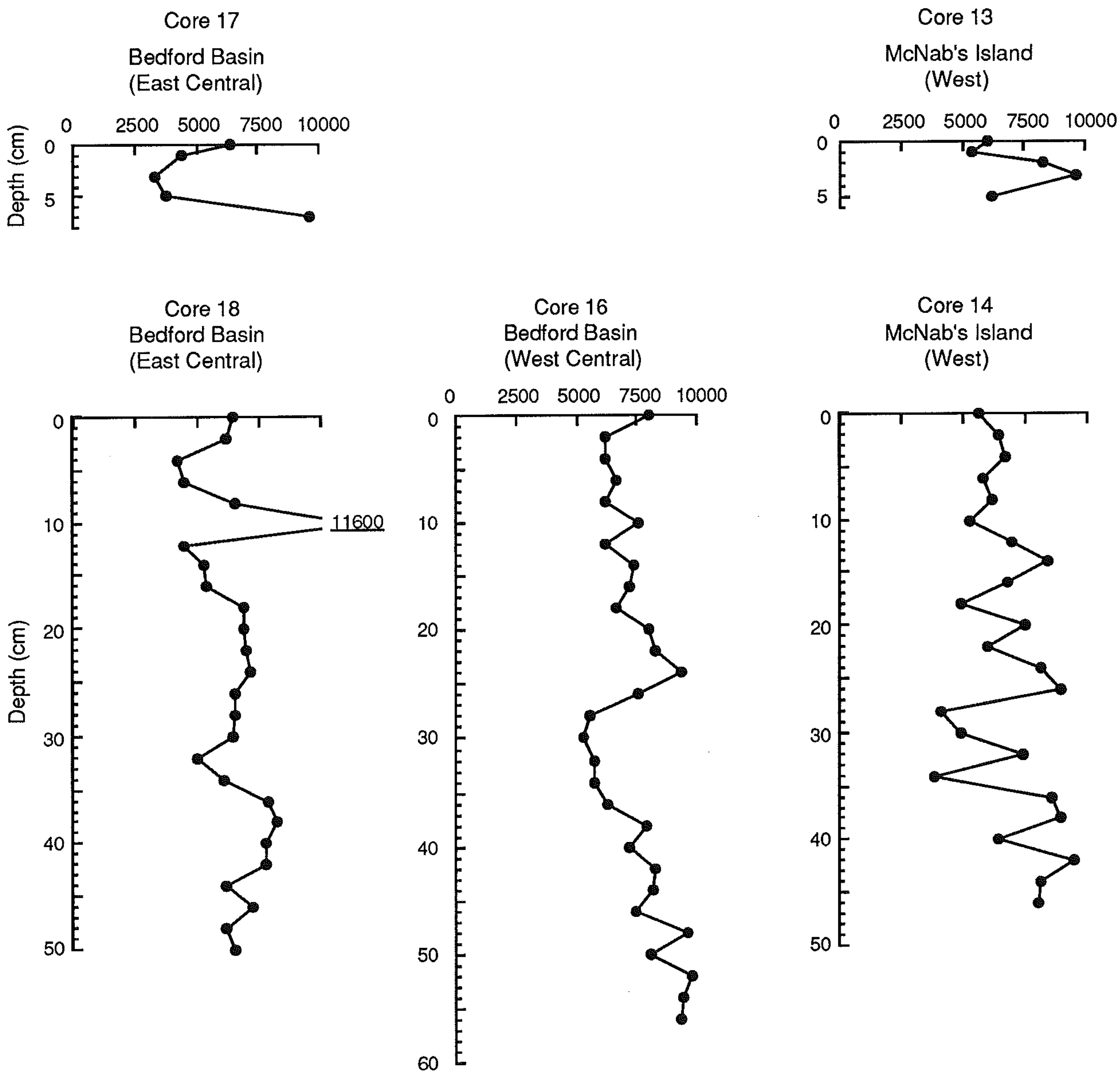
CALCIUM ($\mu g \cdot g^{-1}$)
(heated hydroxylamine leach)



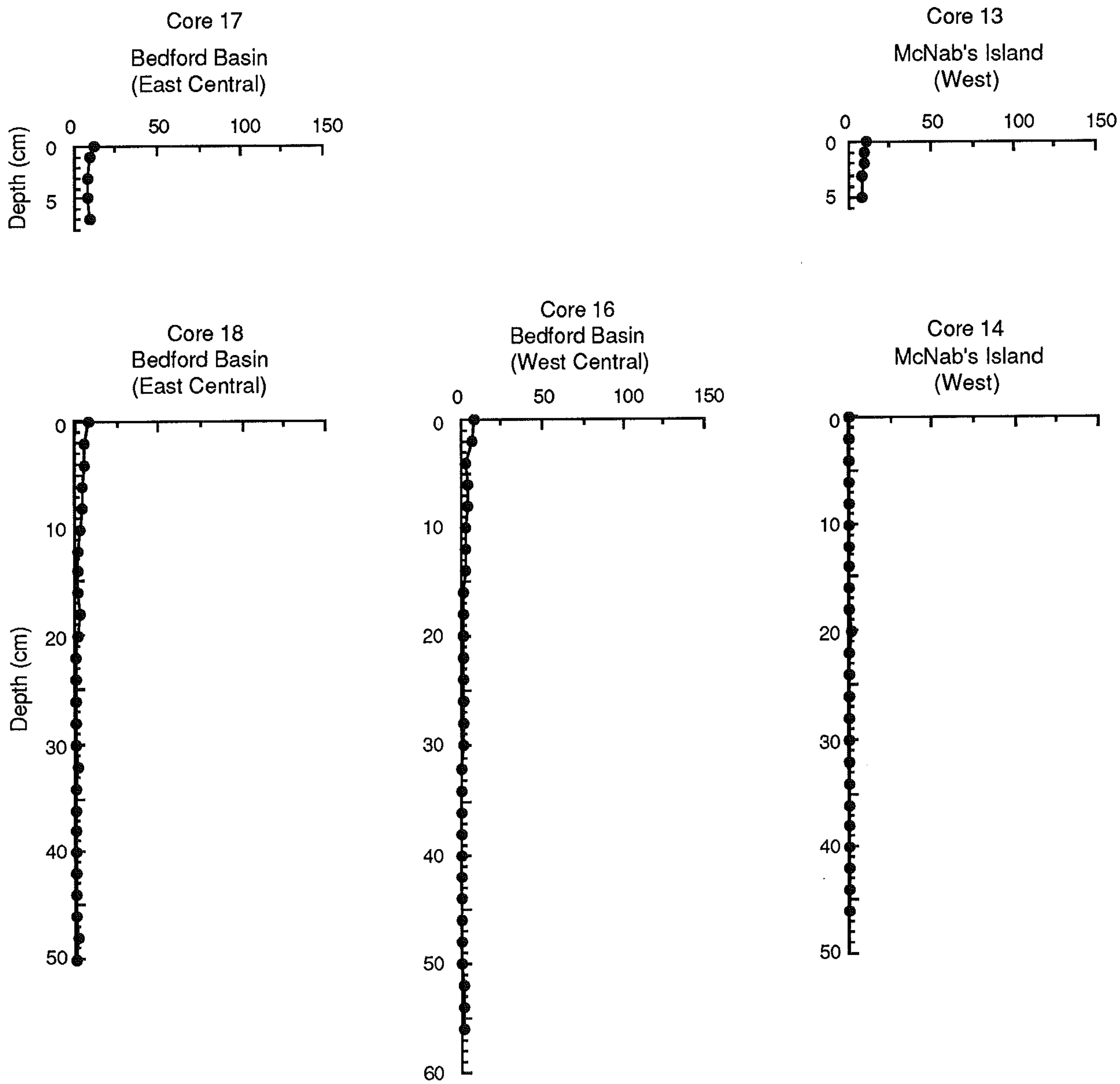
CALCIUM ($\mu g \cdot g^{-1}$)
(residual)



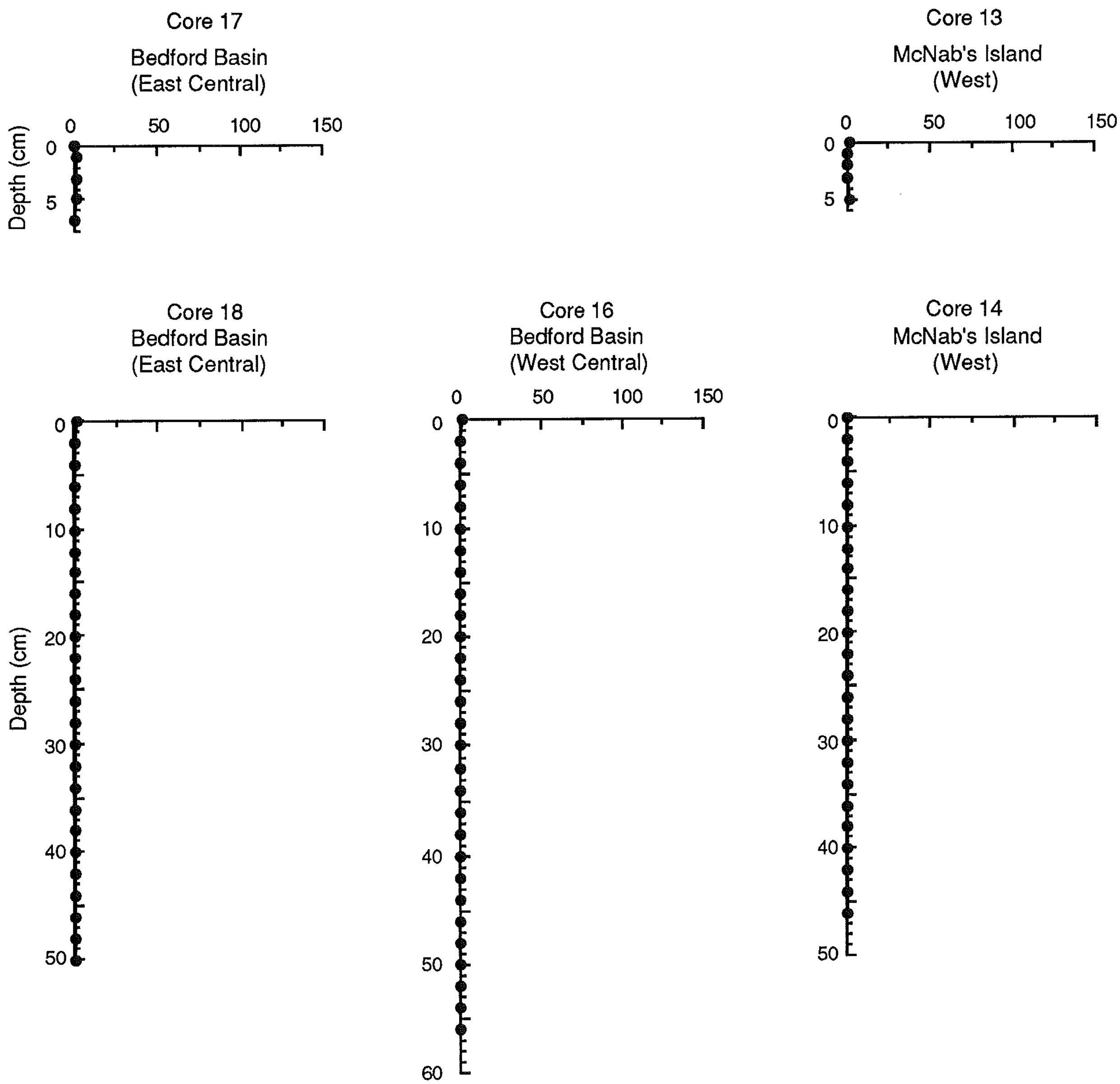
CALCIUM ($\mu g \cdot g^{-1}$)
(total)



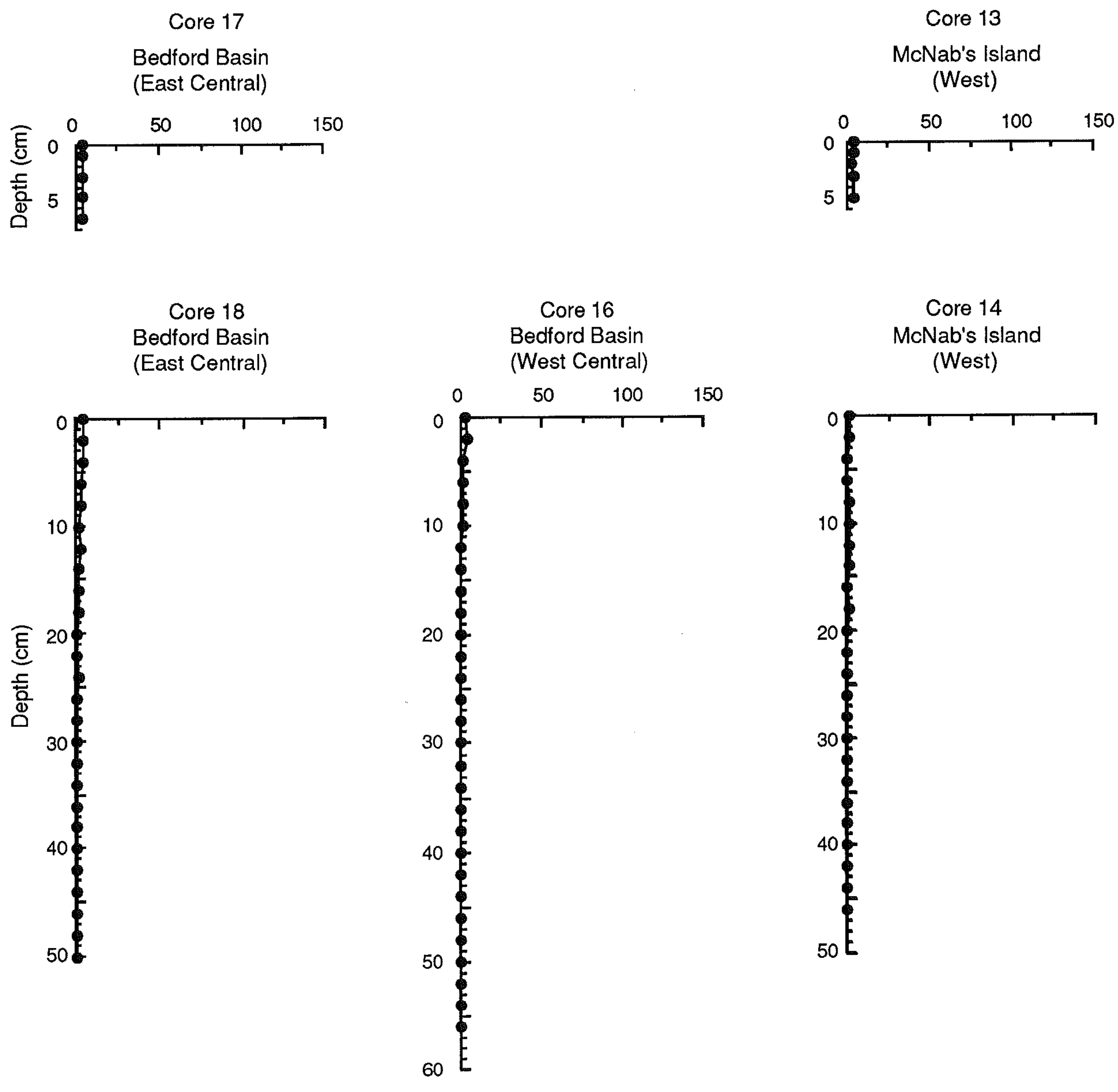
COPPER ($\mu g \cdot g^{-1}$)
(weak acid leach)



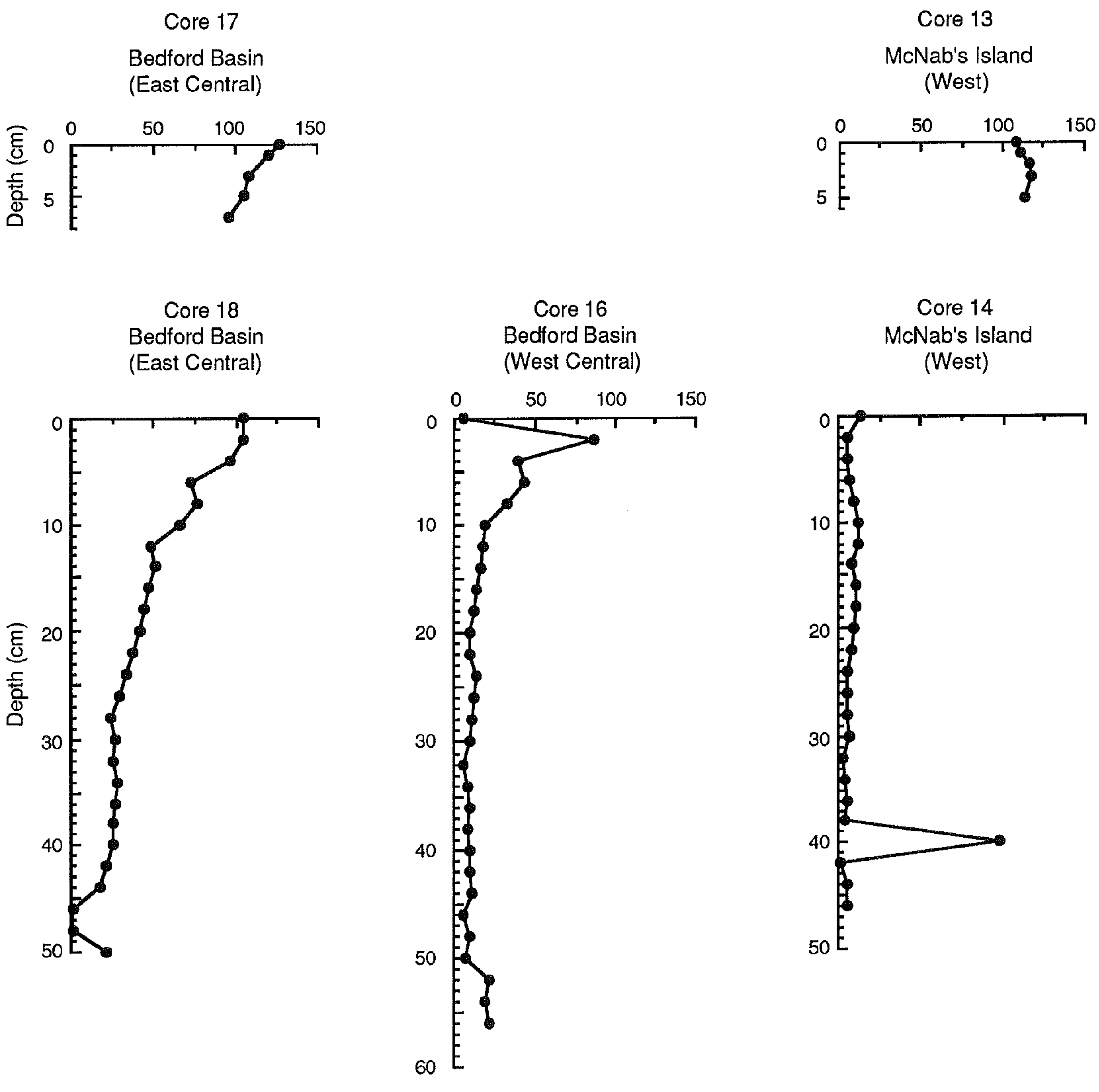
COPPER ($\mu g \cdot g^{-1}$)
(hydroxylamine leach)



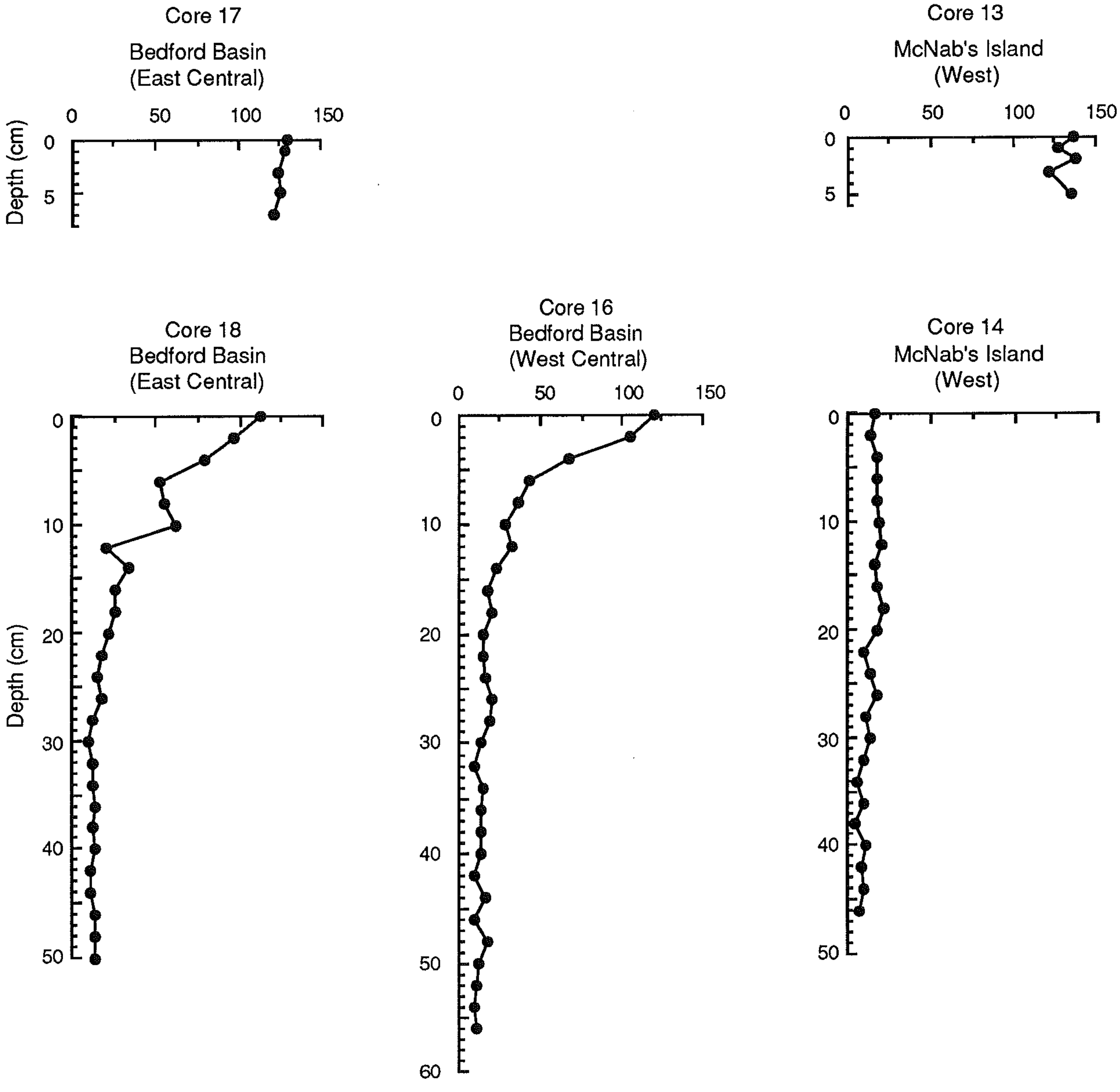
COPPER ($\mu g{\cdot}g^{-1}$)
(heated hydroxylamine leach)



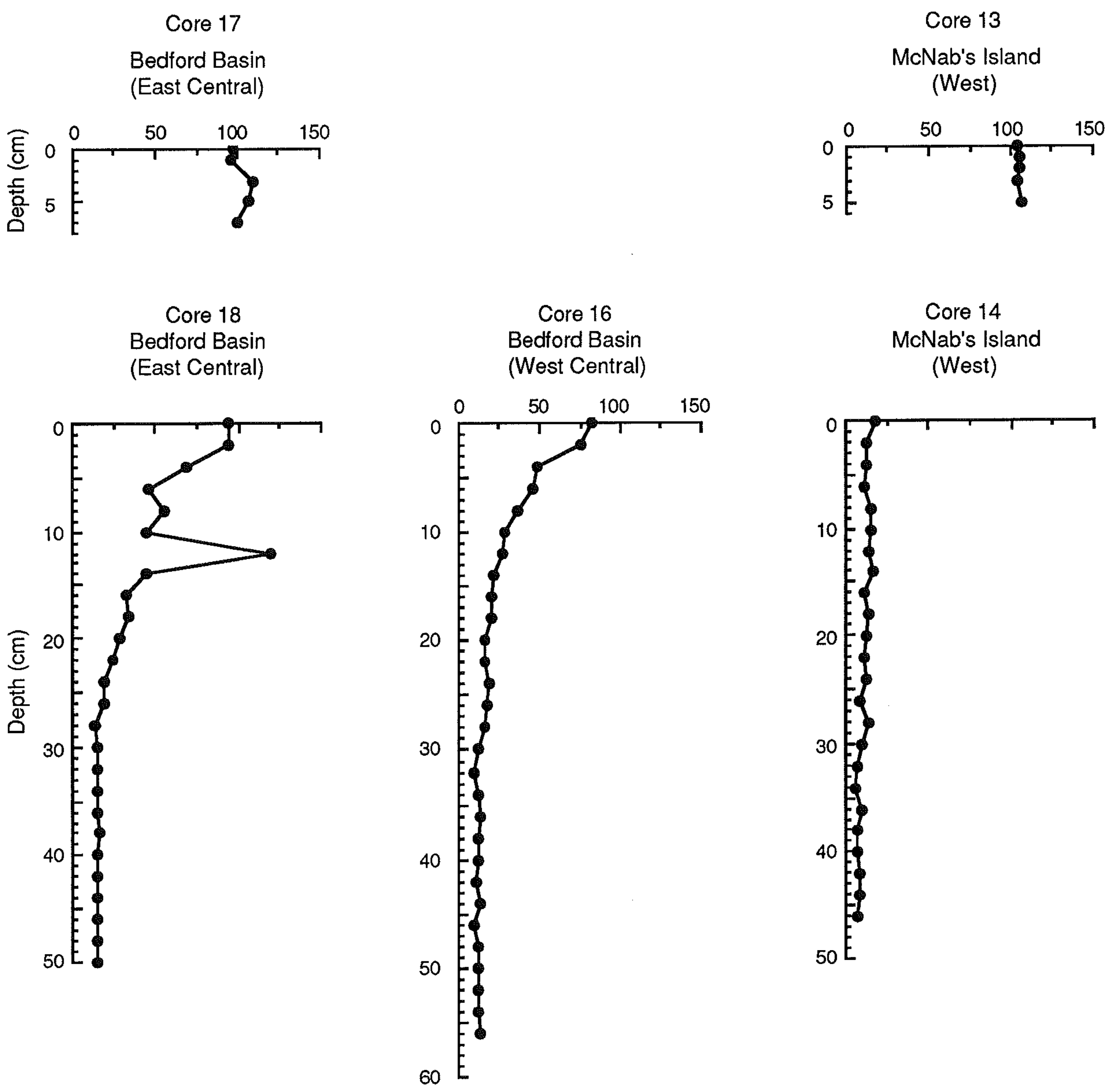
COPPER ($\mu g \cdot g^{-1}$)
(residual)



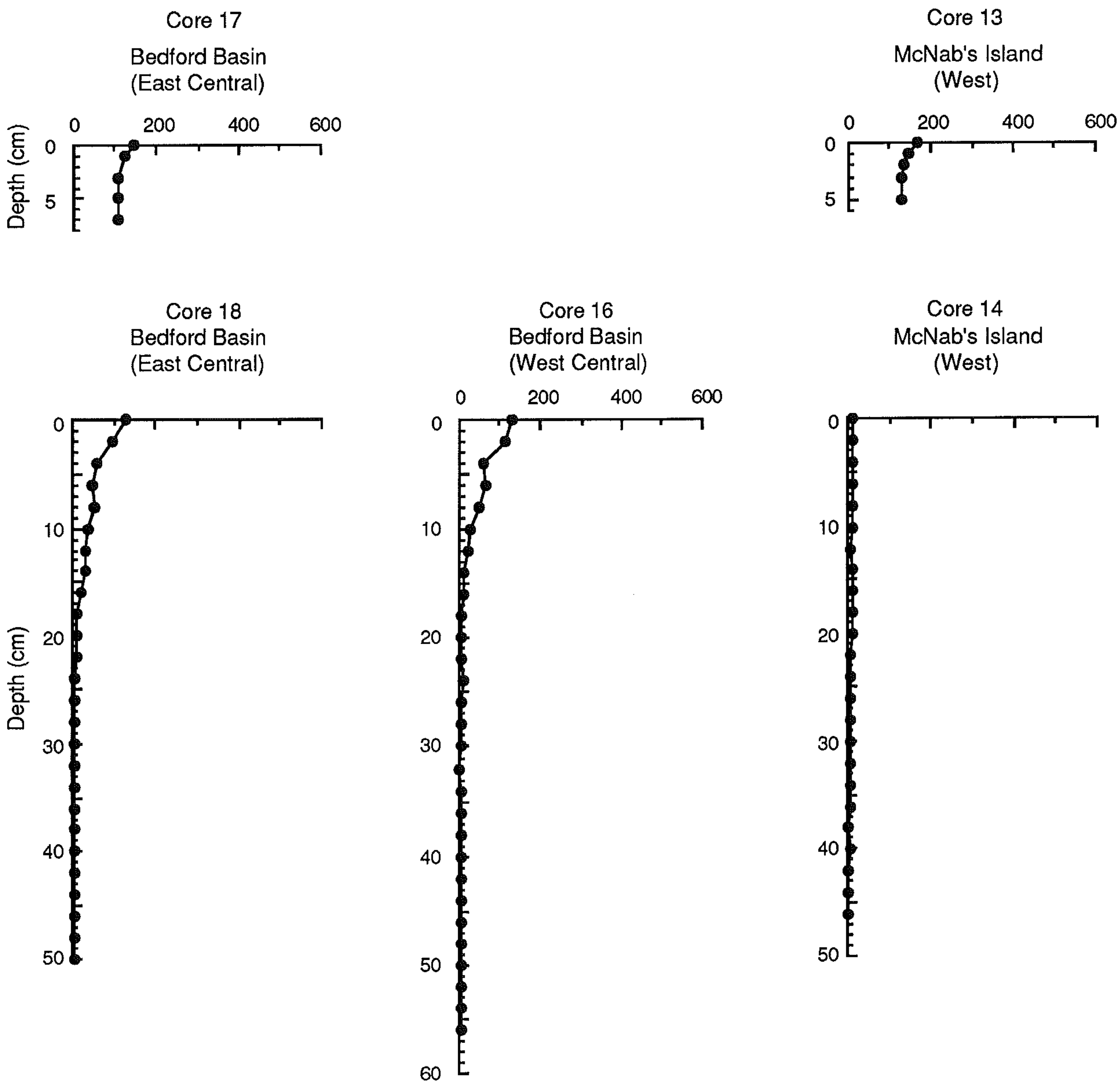
COPPER (ppm)
(total)



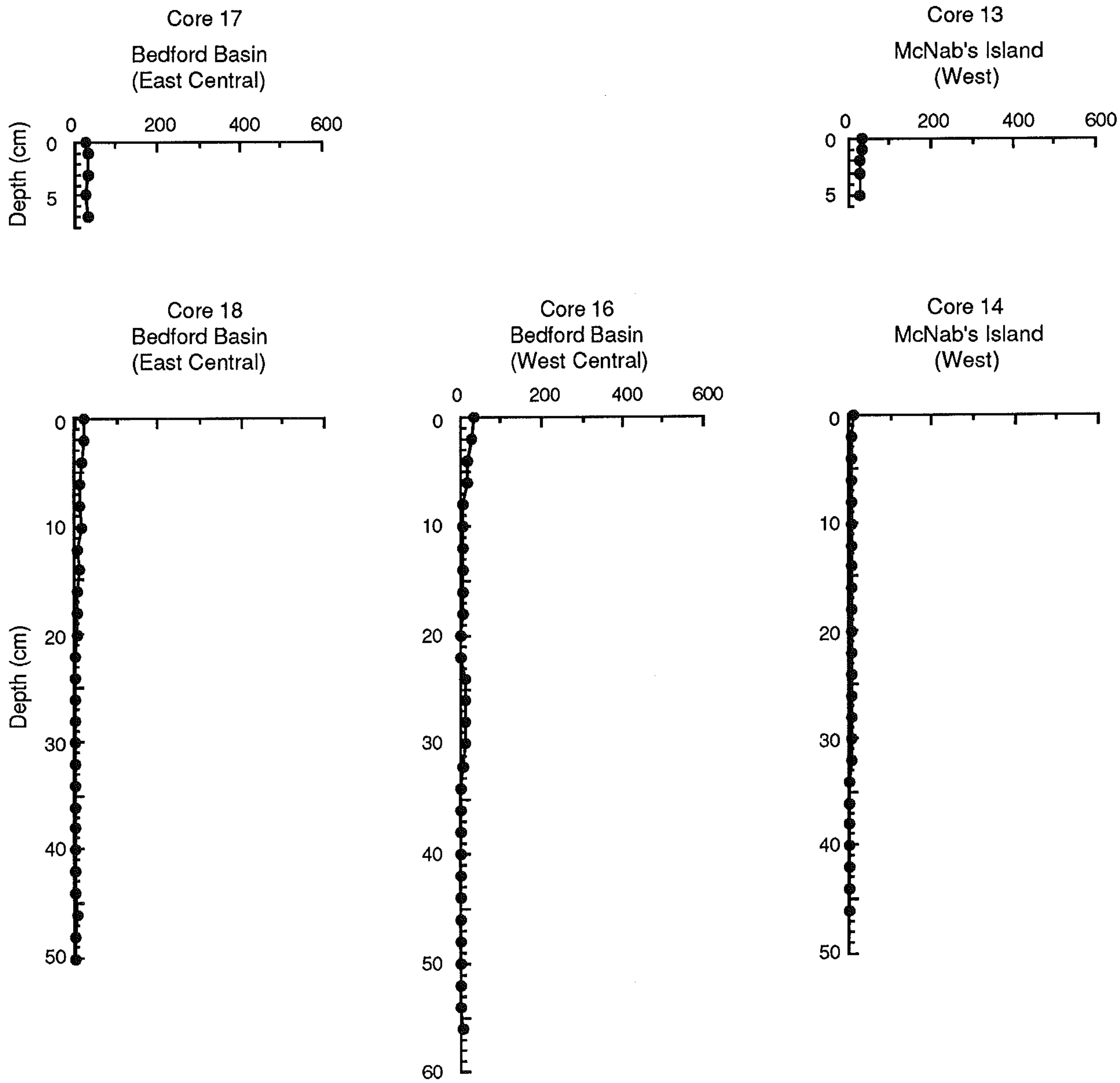
COPPER ($\mu g \cdot g^{-1}$)
(organically bound)



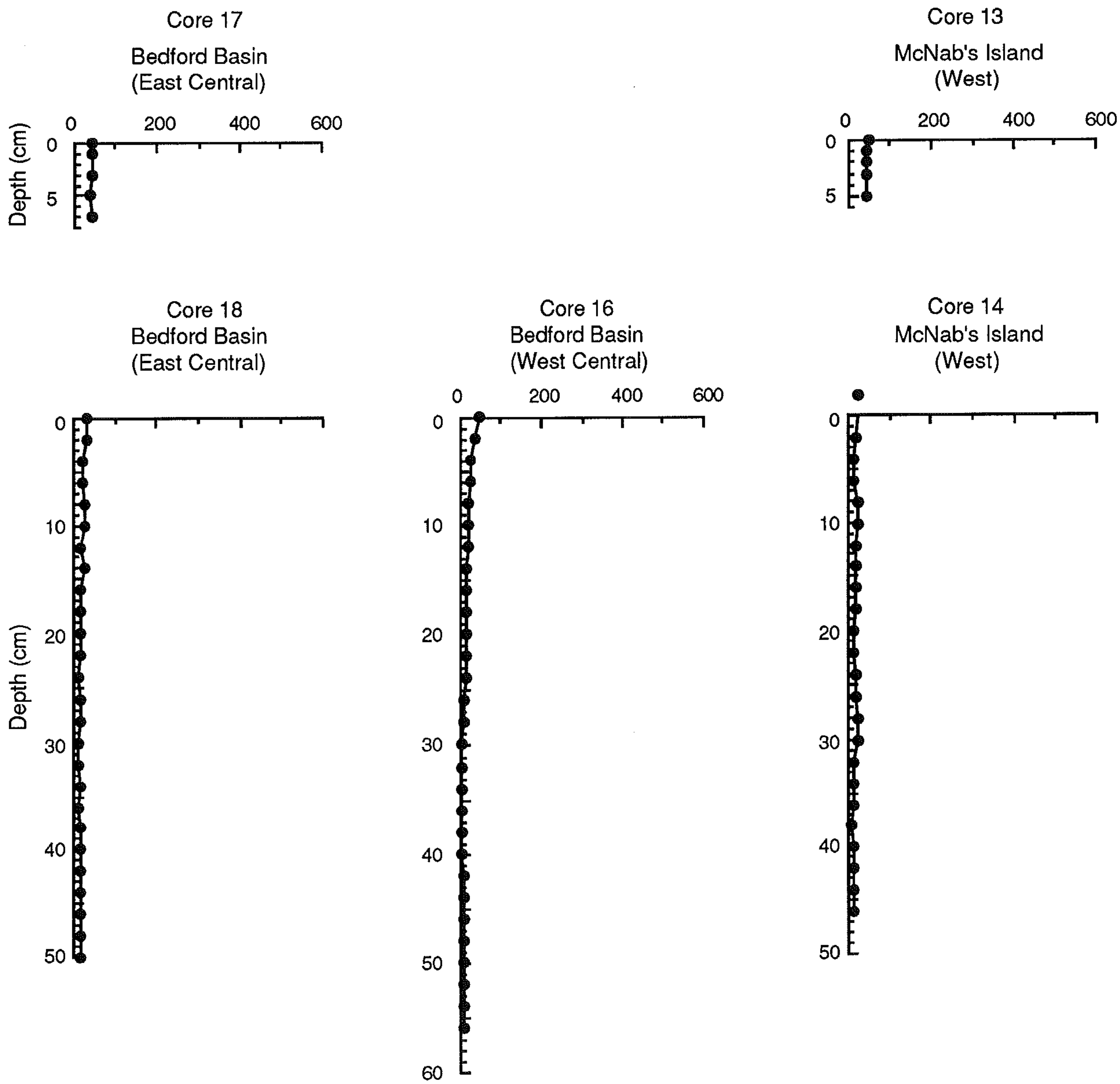
ZINC ($\mu g \cdot g^{-1}$)
(weak acid leach)



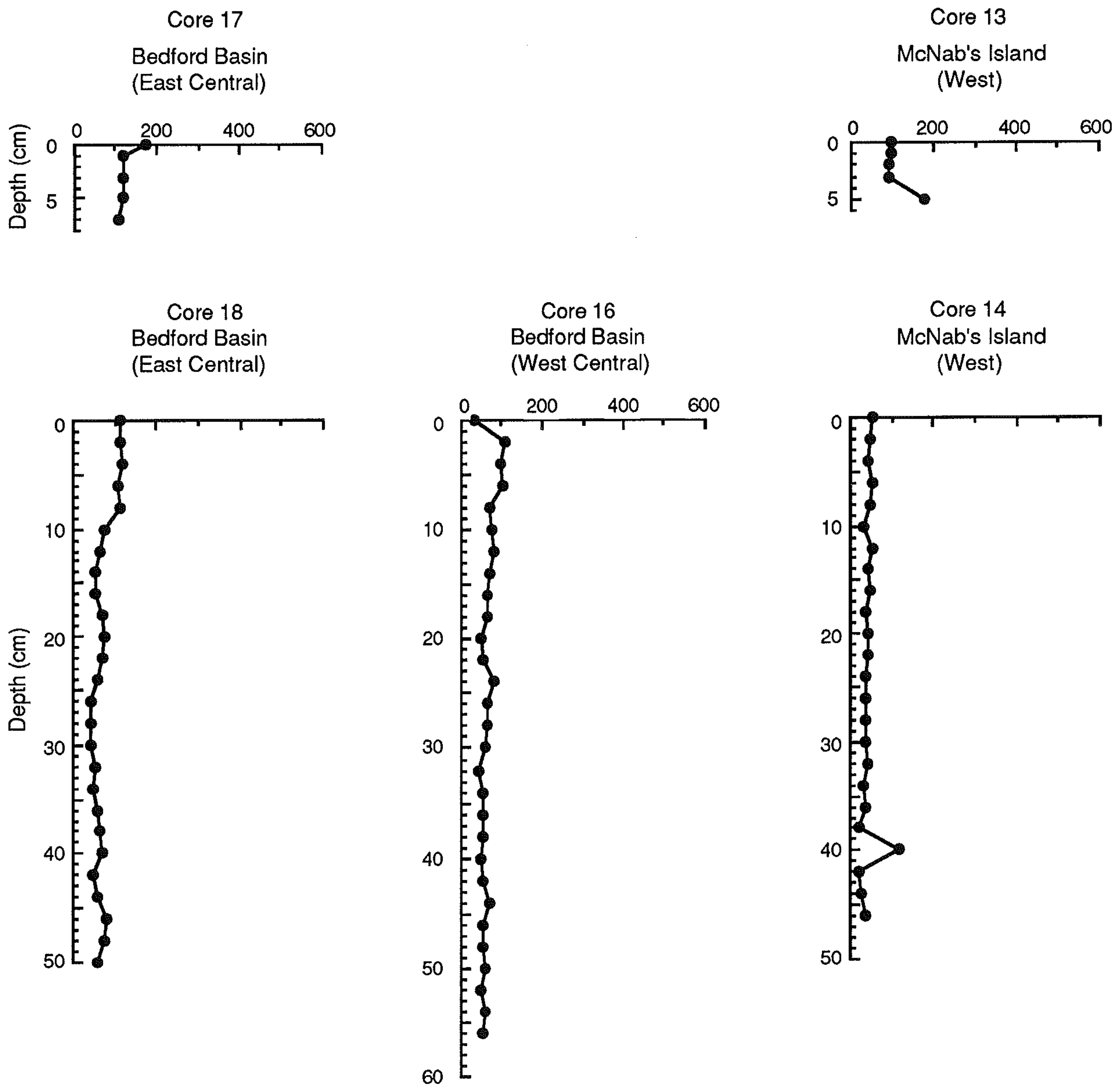
ZINC (μg·g^{-1})
(hydroxylamine leach)



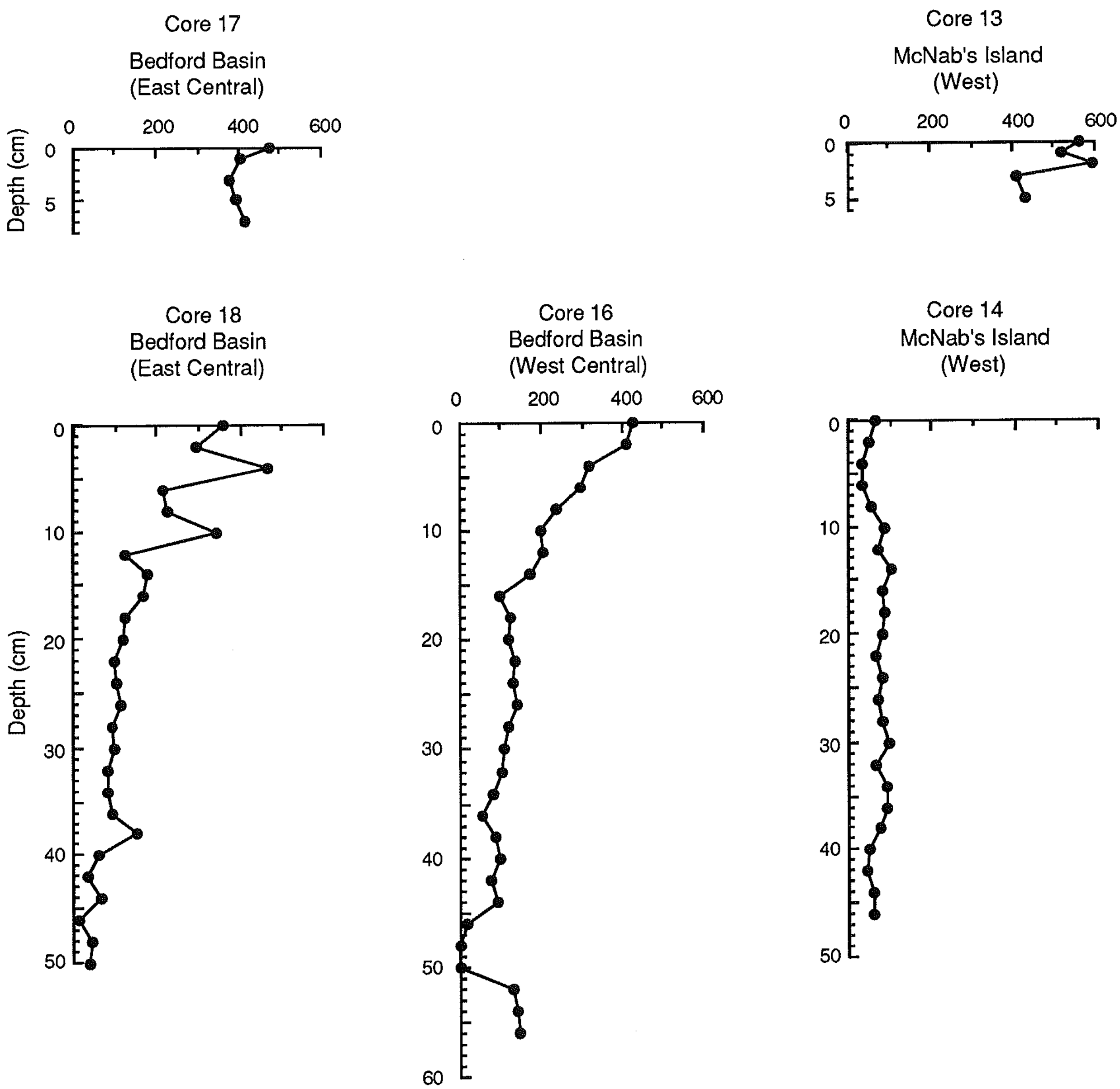
ZINC ($\mu g \cdot g^{-1}$)
(heated hydroxylamine leach)



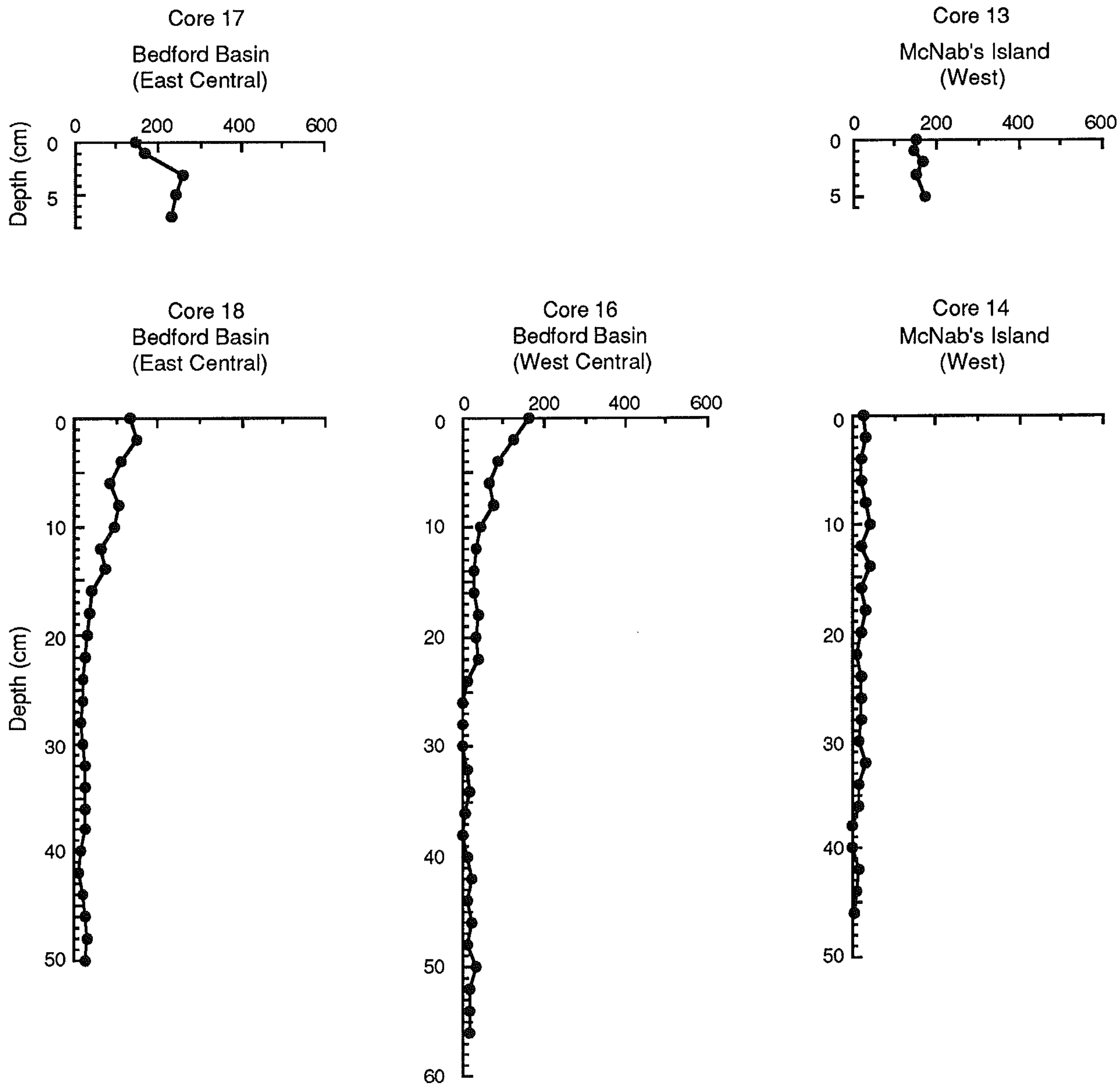
ZINC ($\mu g \cdot g^{-1}$)
(residual)



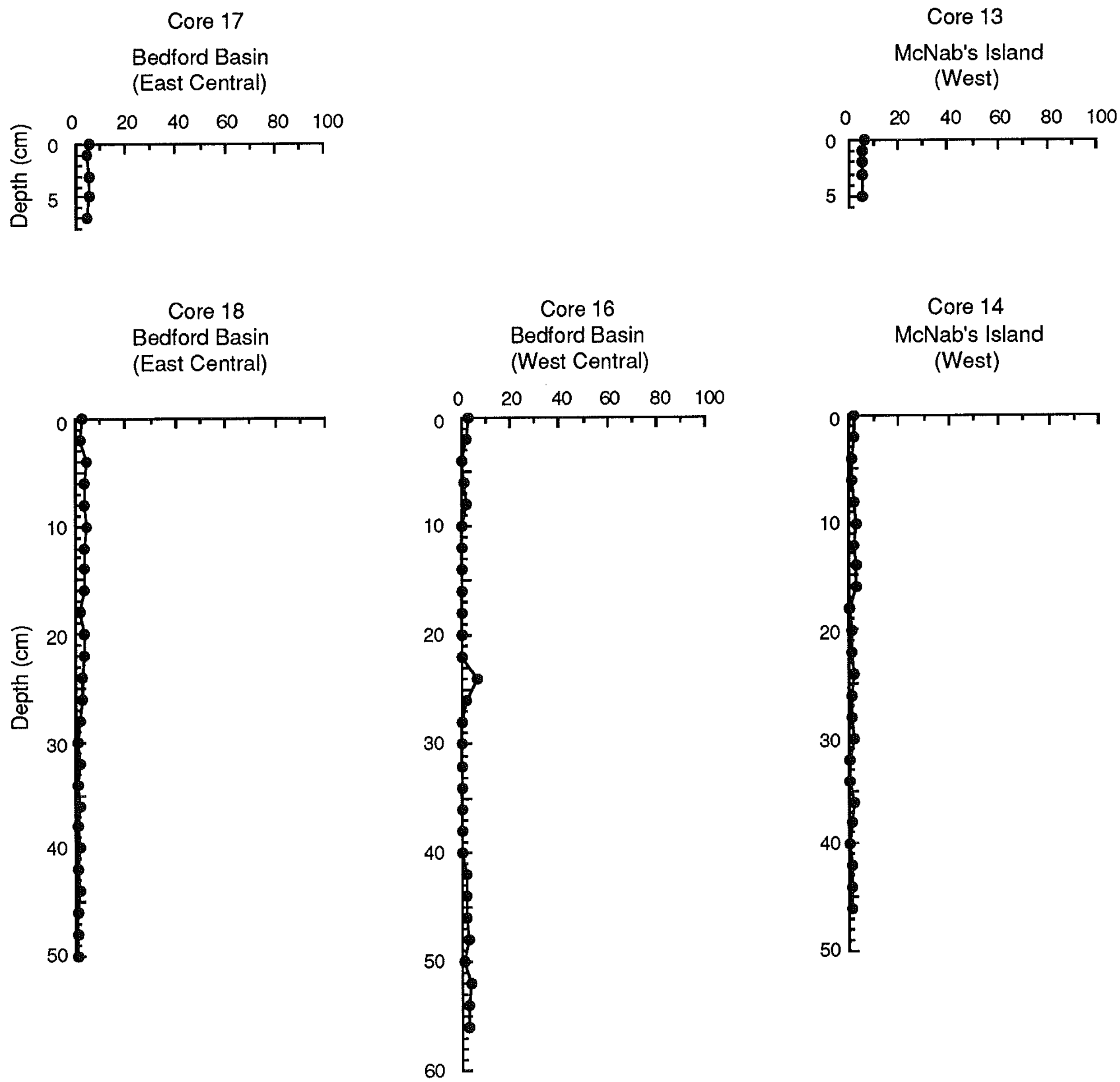
ZINC ($\mu g \cdot g^{-1}$)
(total)



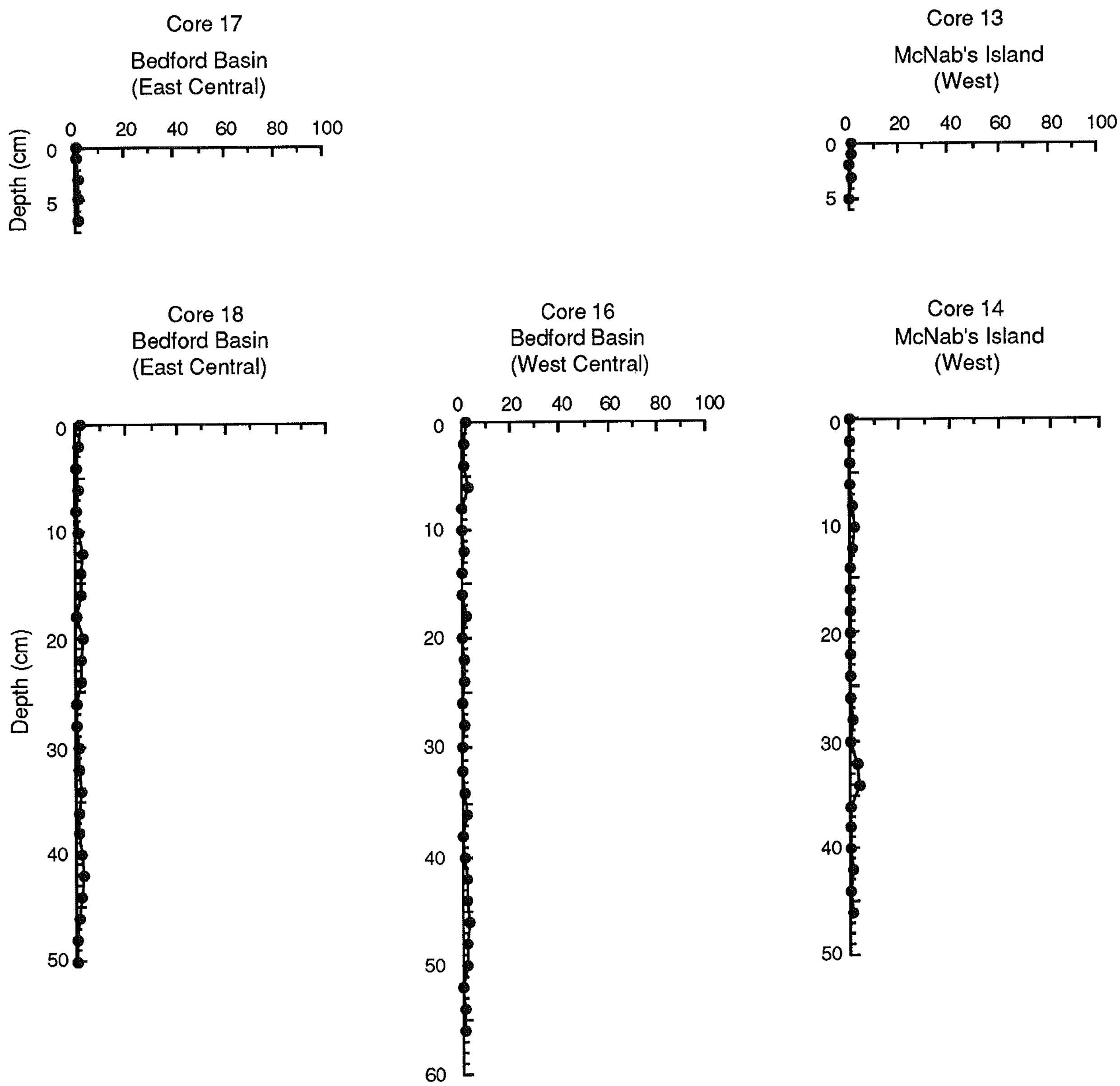
ZINC ($\mu g \cdot g^{-1}$)
(organically bound)



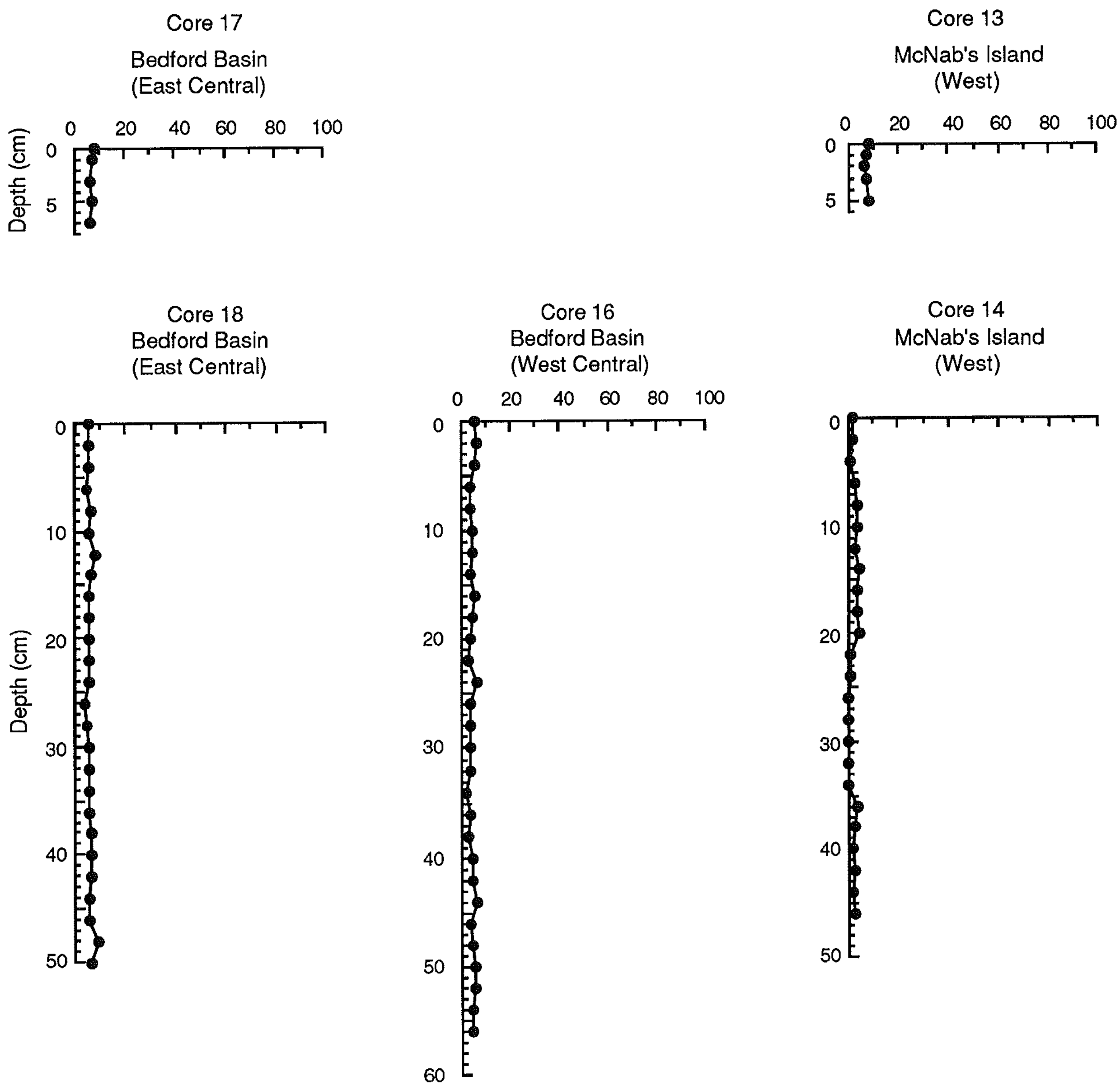
NICKEL ($\mu g \cdot g^{-1}$)
(weak acid leach)



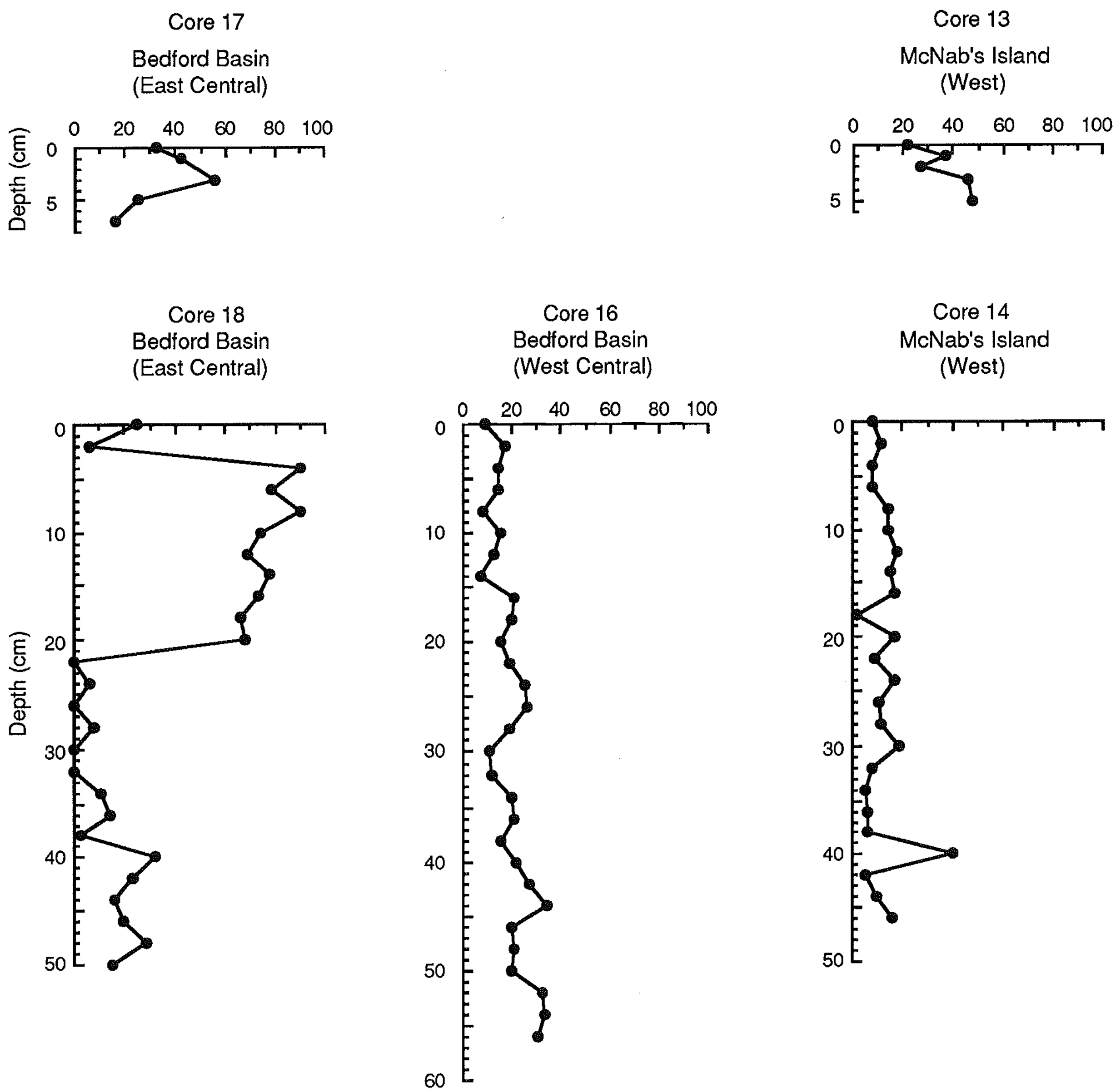
NICKEL ($\mu g \cdot g^{-1}$)
(hydroxylamine leach)



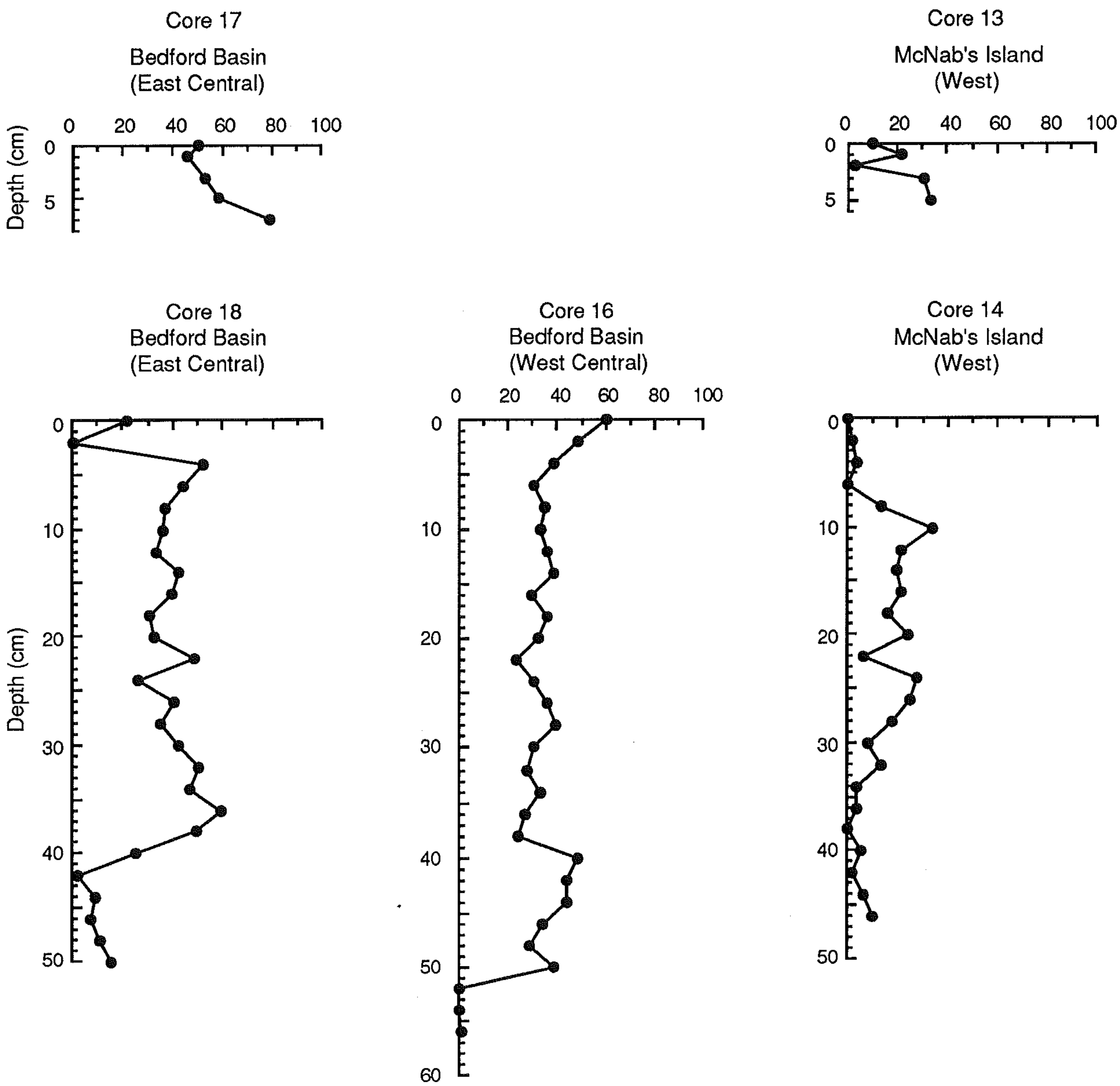
NICKEL ($\mu g \cdot g^{-1}$)
(heated hydroxylamine leach)



NICKEL ($\mu g \cdot g^{-1}$)
(residual)

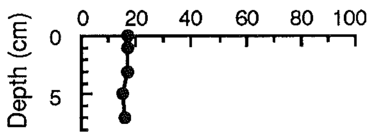


NICKEL ($\mu g \cdot g^{-1}$)
(total)

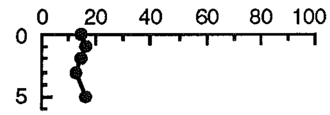


NICKEL ($\mu g \cdot g^{-1}$)
(organically bound)

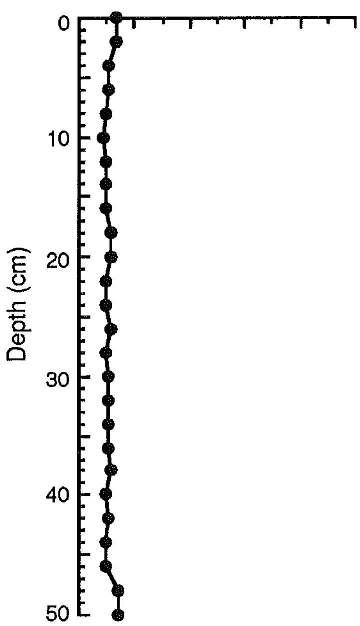
Core 17
Bedford Basin
(East Central)



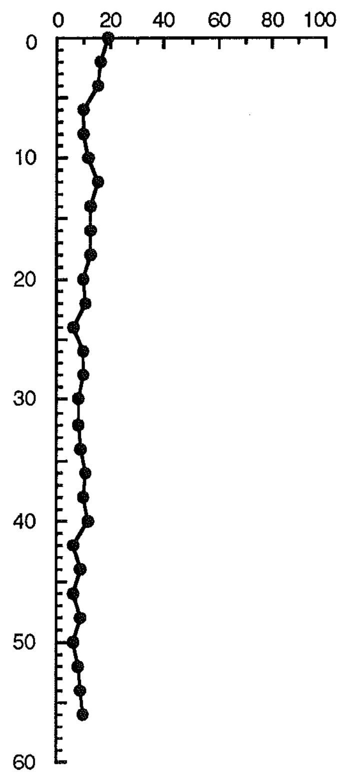
Core 13
McNab's Island
(West)



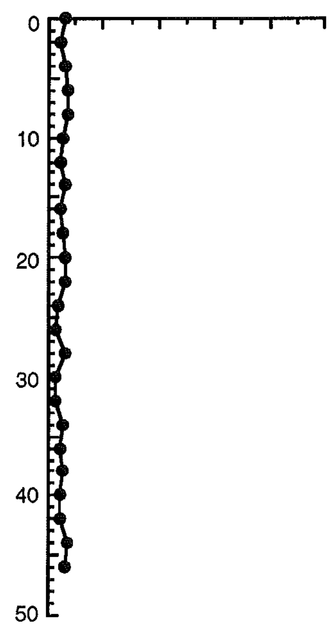
Core 18
Bedford Basin
(East Central)



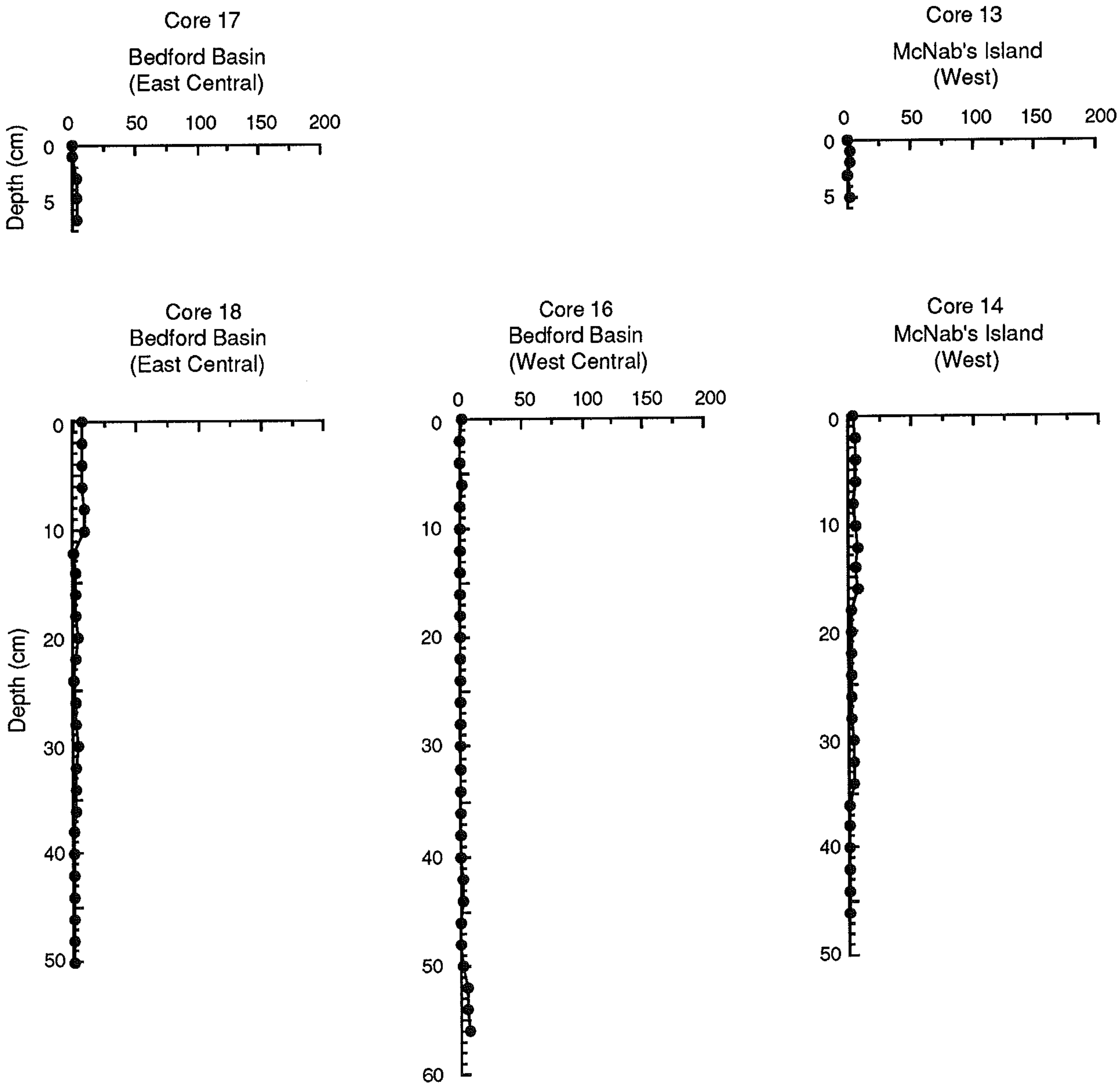
Core 16
Bedford Basin
(West Central)



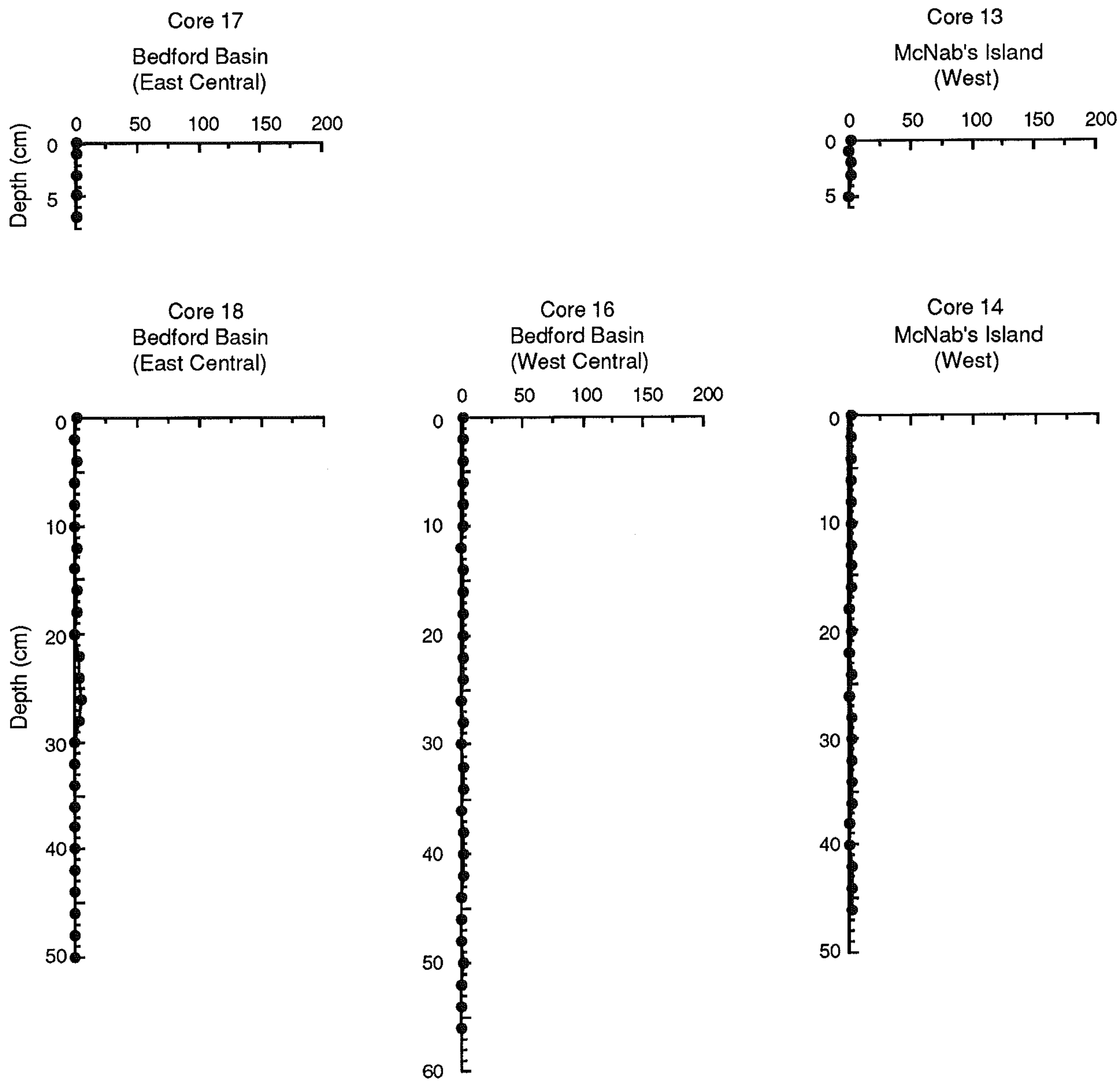
Core 14
McNab's Island
(West)



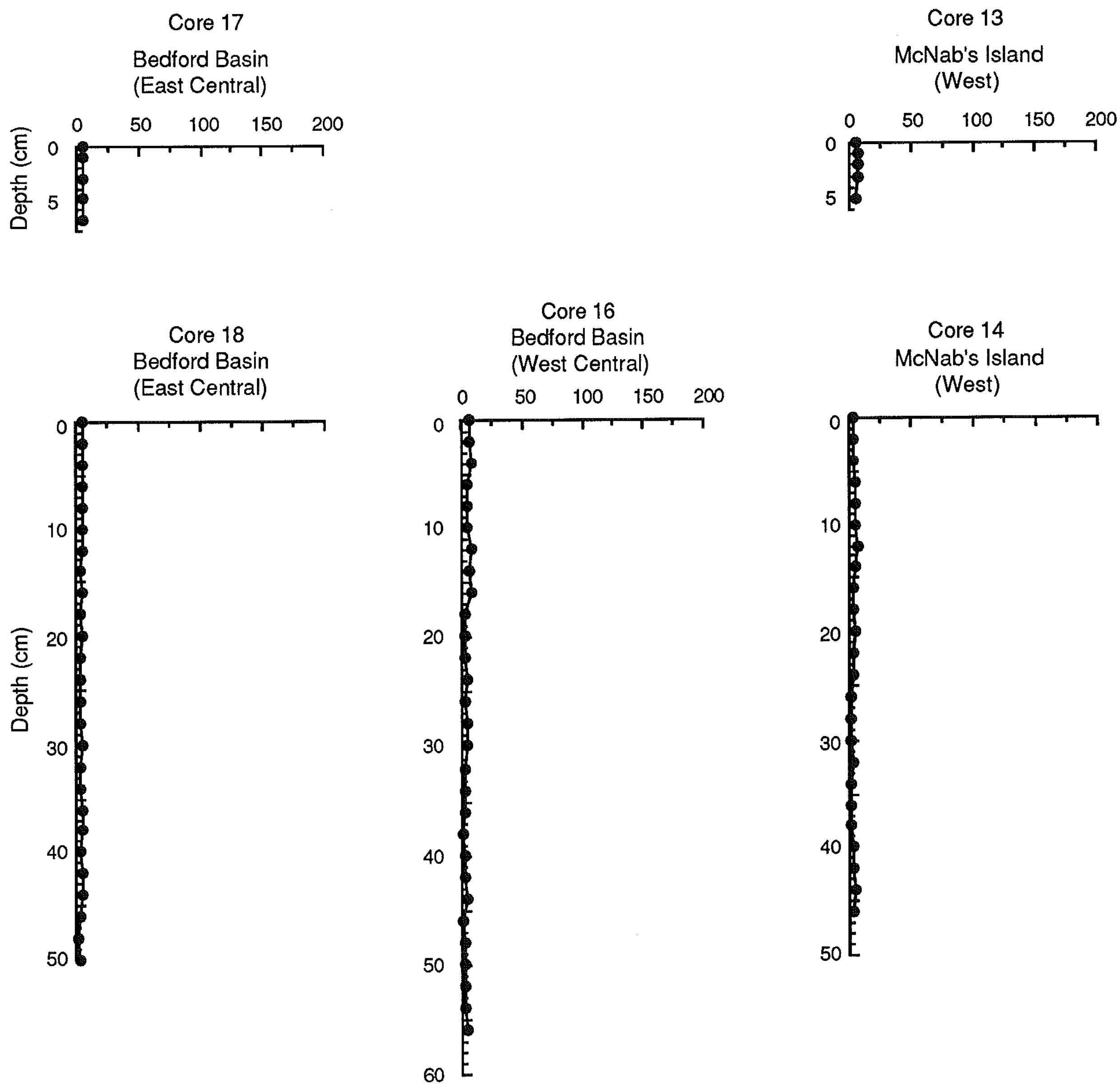
CHROMIUM (µg·g^{-1})
(weak acid leach)



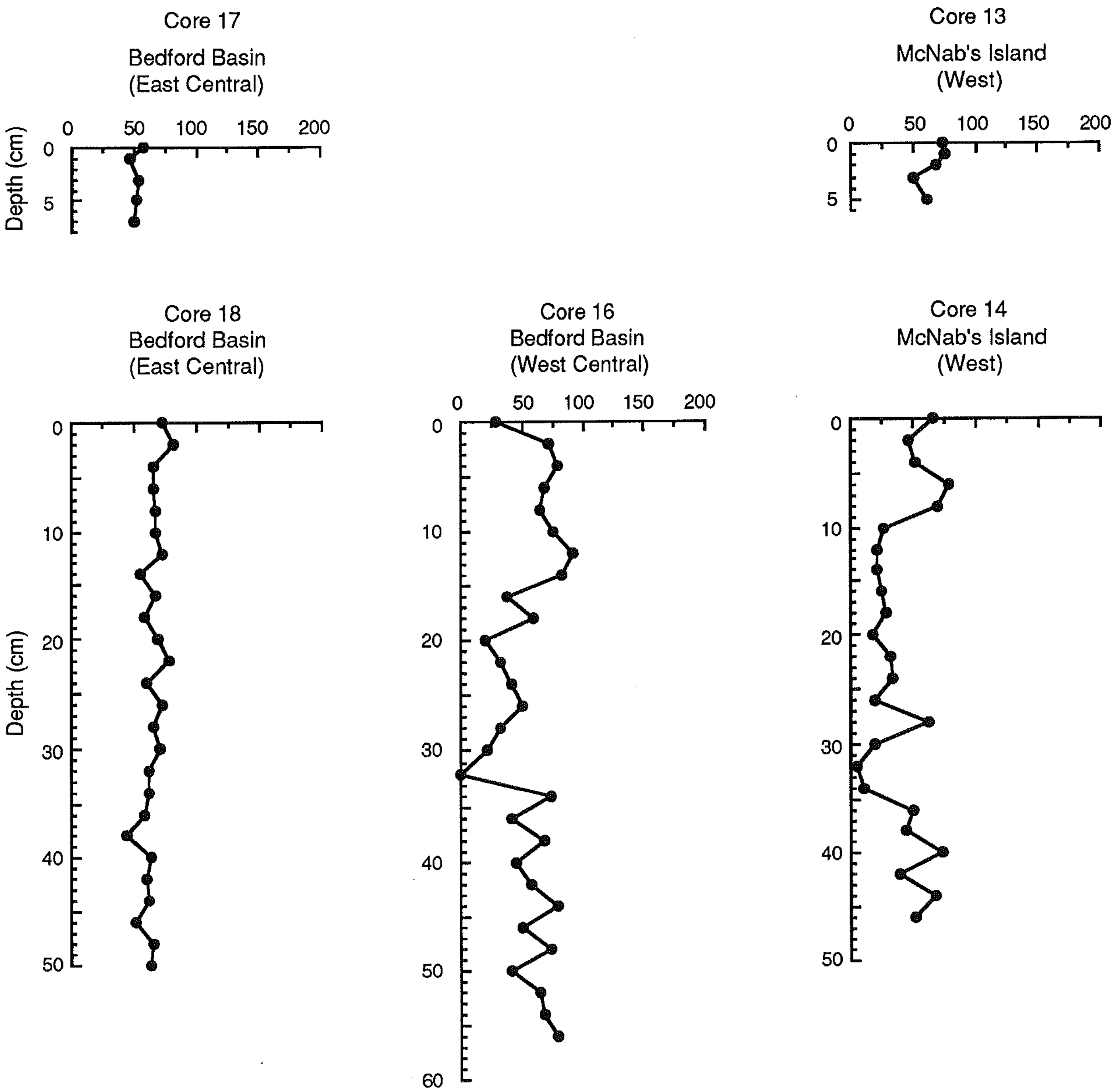
CHROMIUM ($\mu g \cdot g^{-1}$)
(hydroxylamine leach)



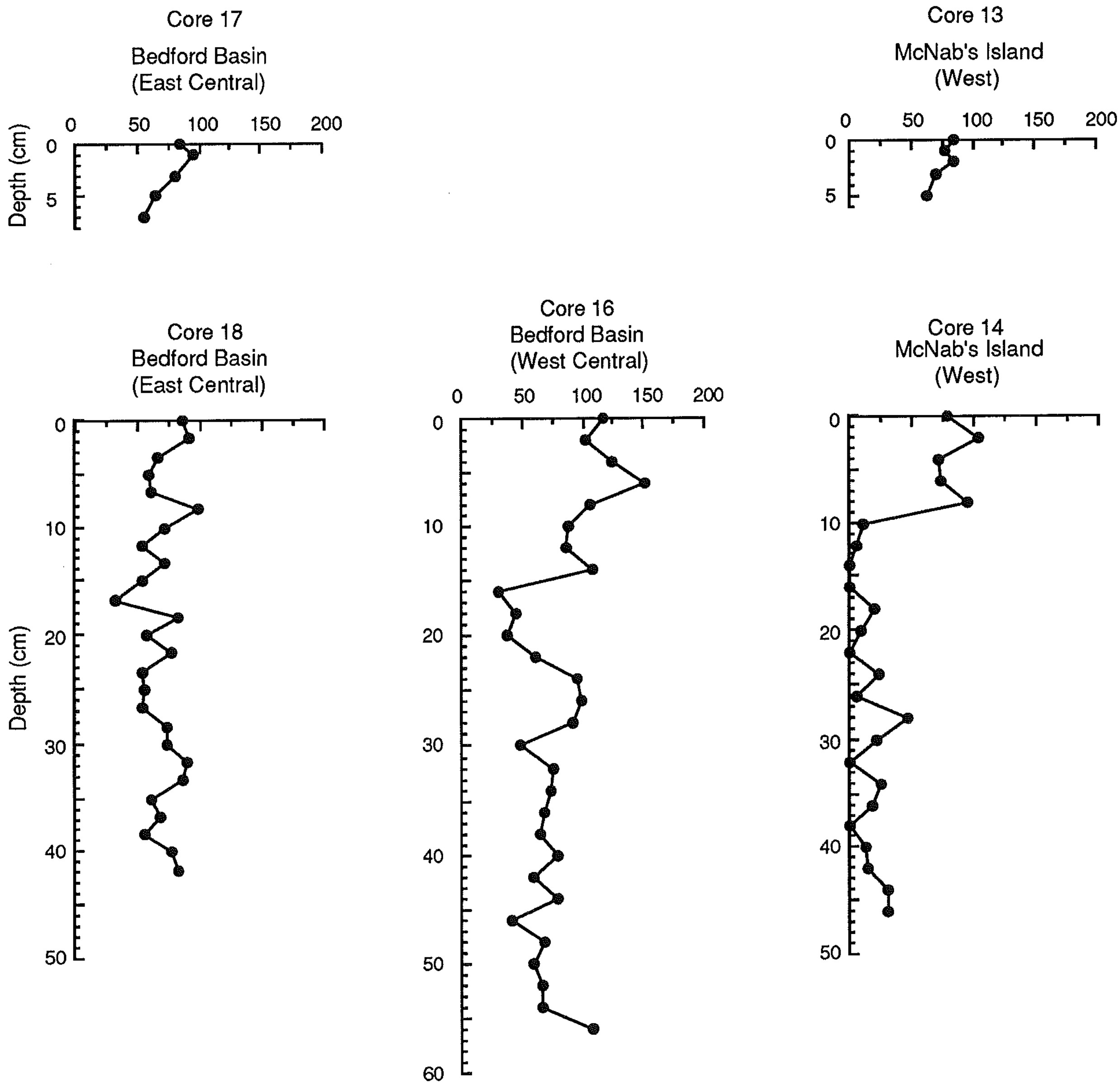
CHROMIUM ($\mu g \cdot g^{-1}$)
(heated hydroxylamine leach)



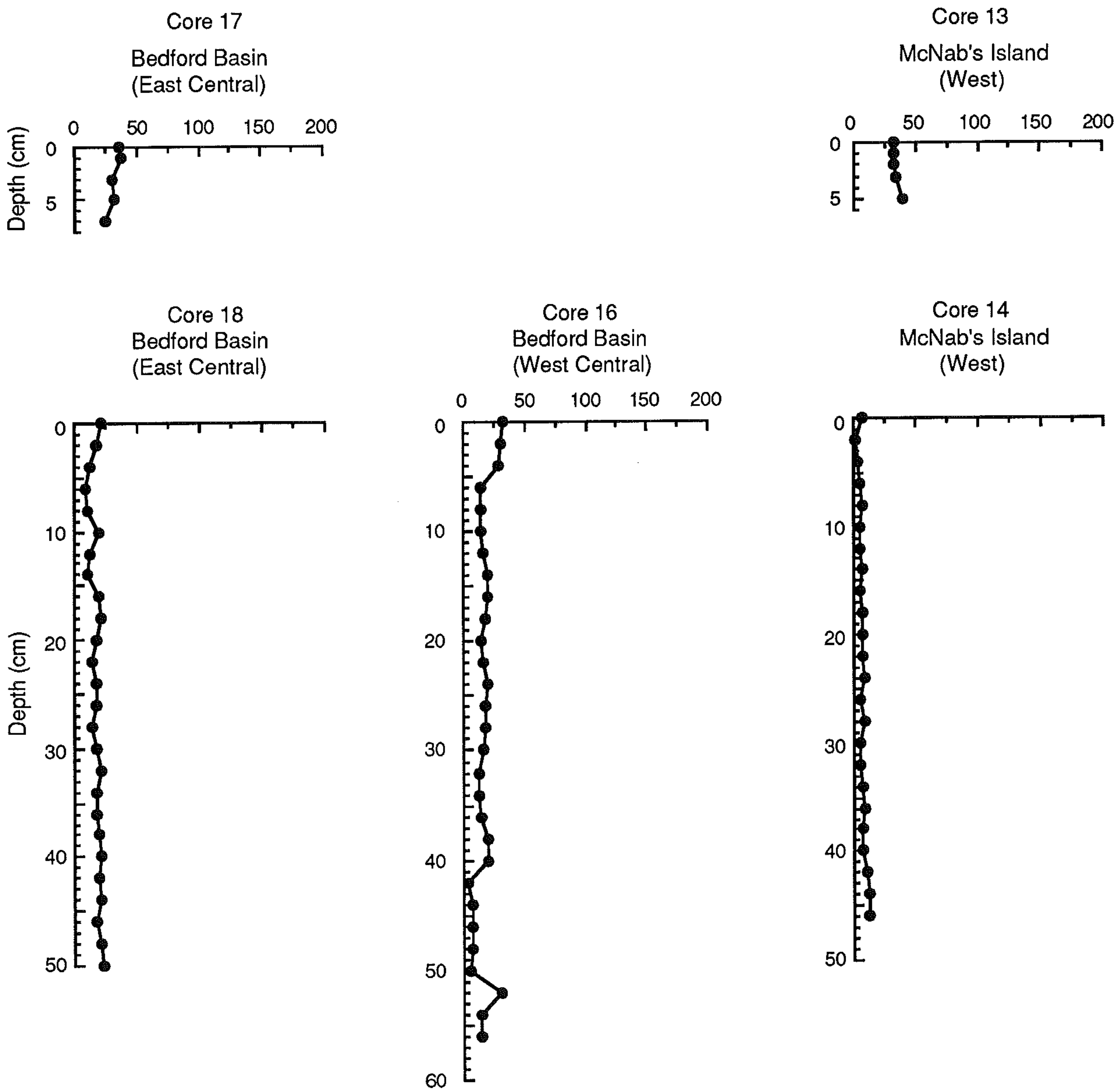
CHROMIUM ($\mu g \cdot g^{-1}$)
(residual)



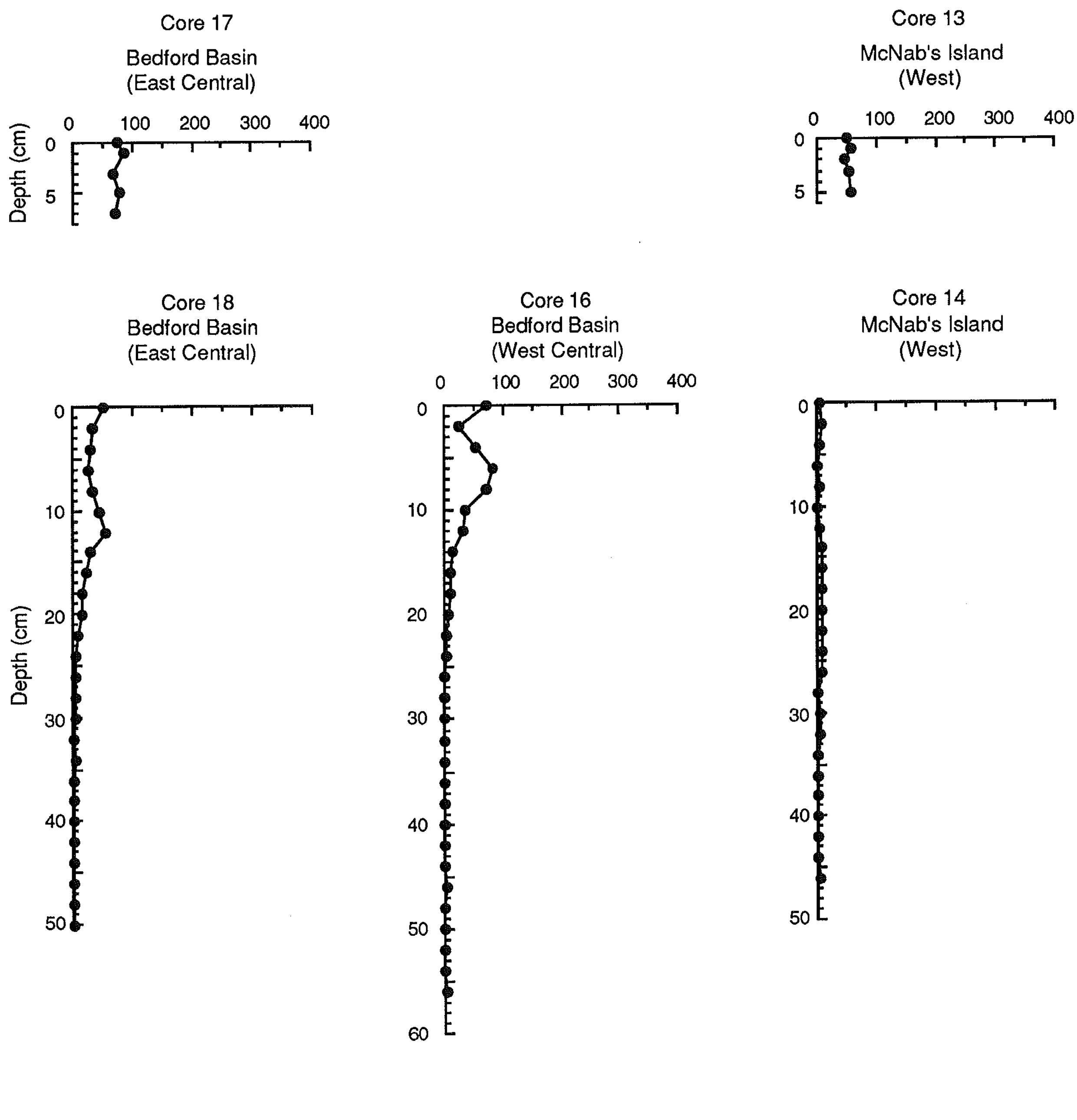
CHROMIUM (ppm)
(total)



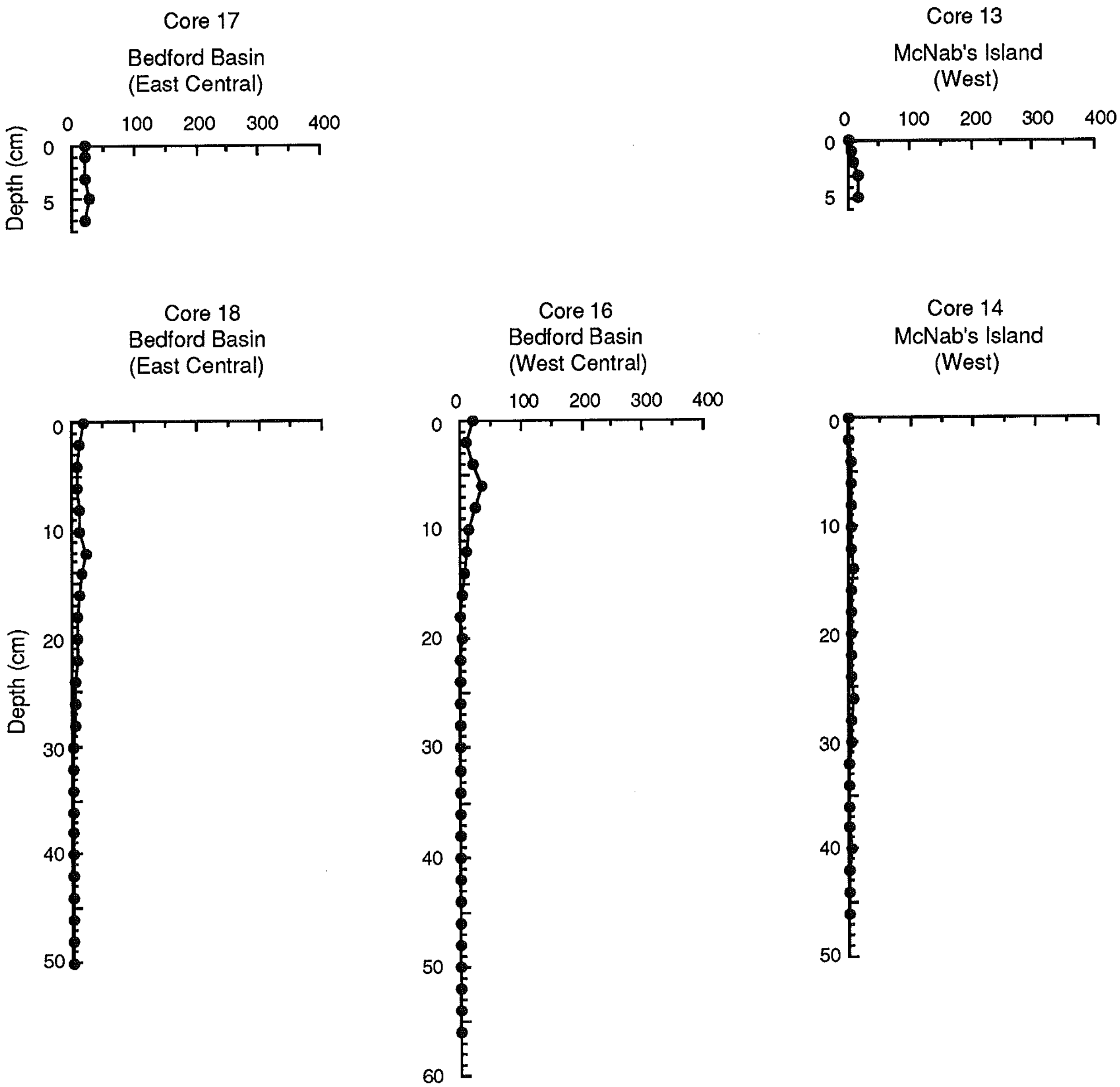
CHROMIUM ($\mu g \cdot g^{-1}$)
(organically bound)



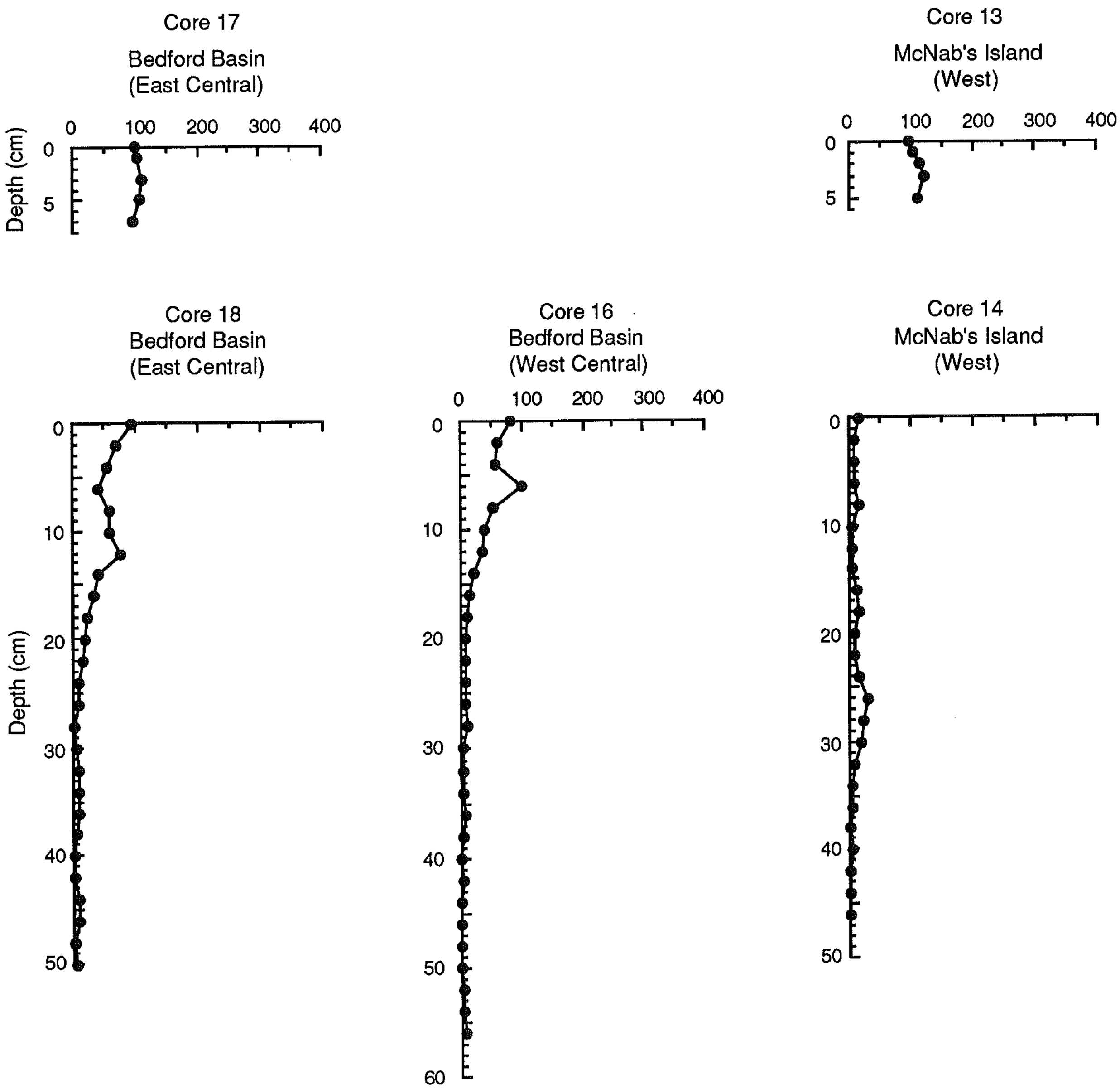
LEAD ($\mu g \cdot g^{-1}$)
(weak acid leach)



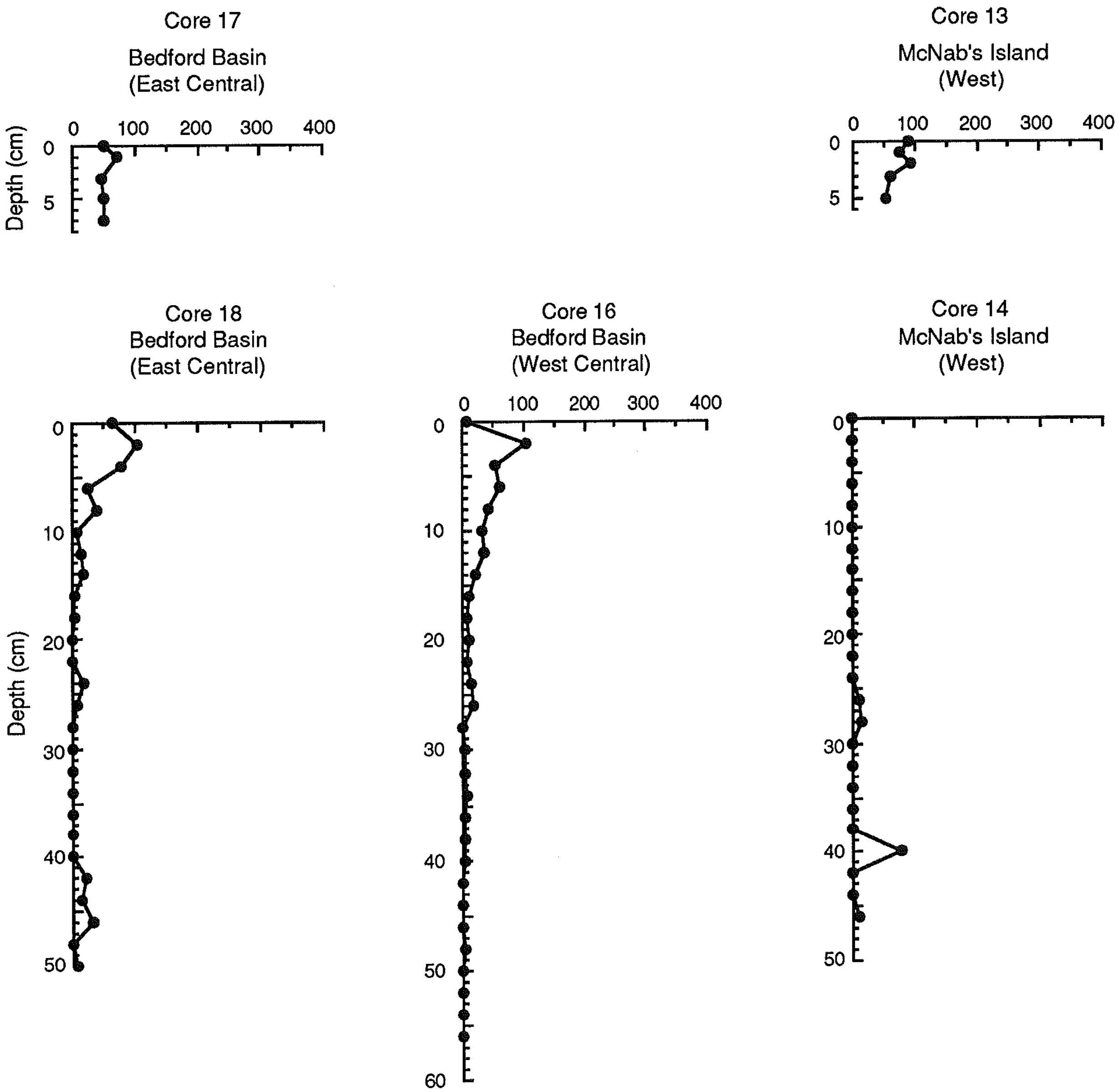
LEAD ($\mu g \cdot g^{-1}$)
(hydroxylamine leach)

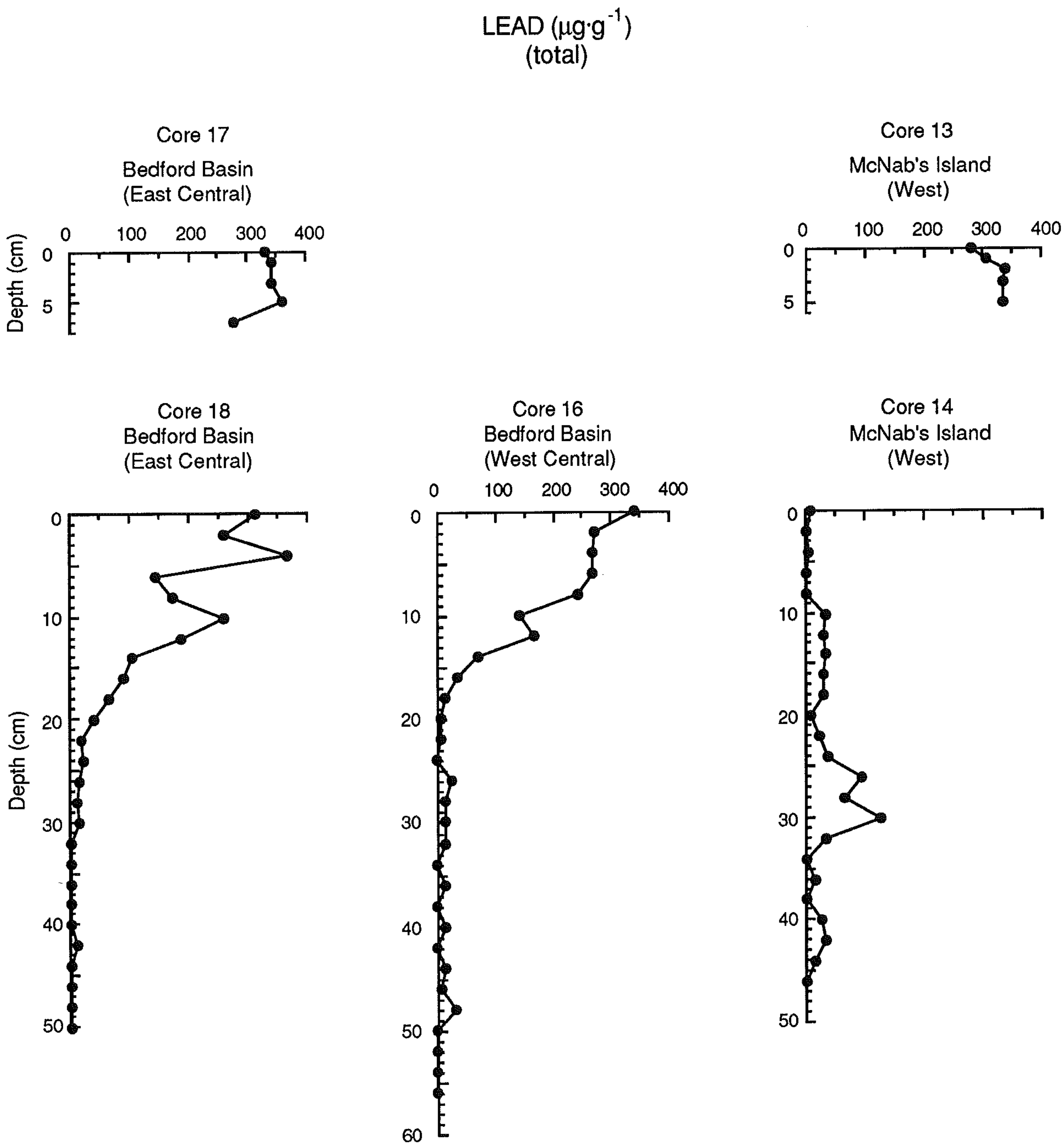


LEAD ($\mu g \cdot g^{-1}$)
(heated hydroxylamine leach)

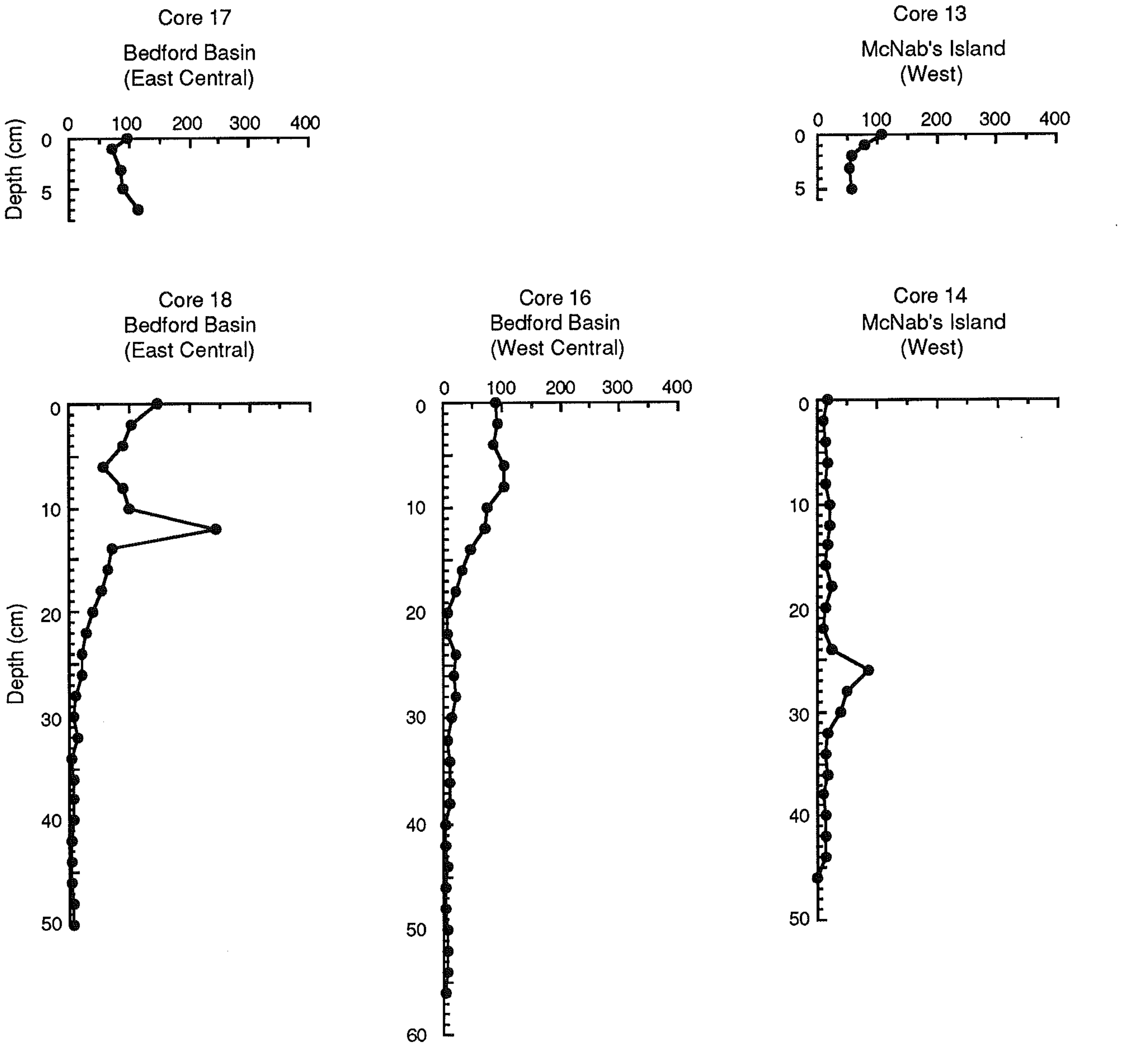


LEAD (µg·g^{-1})
(residual)

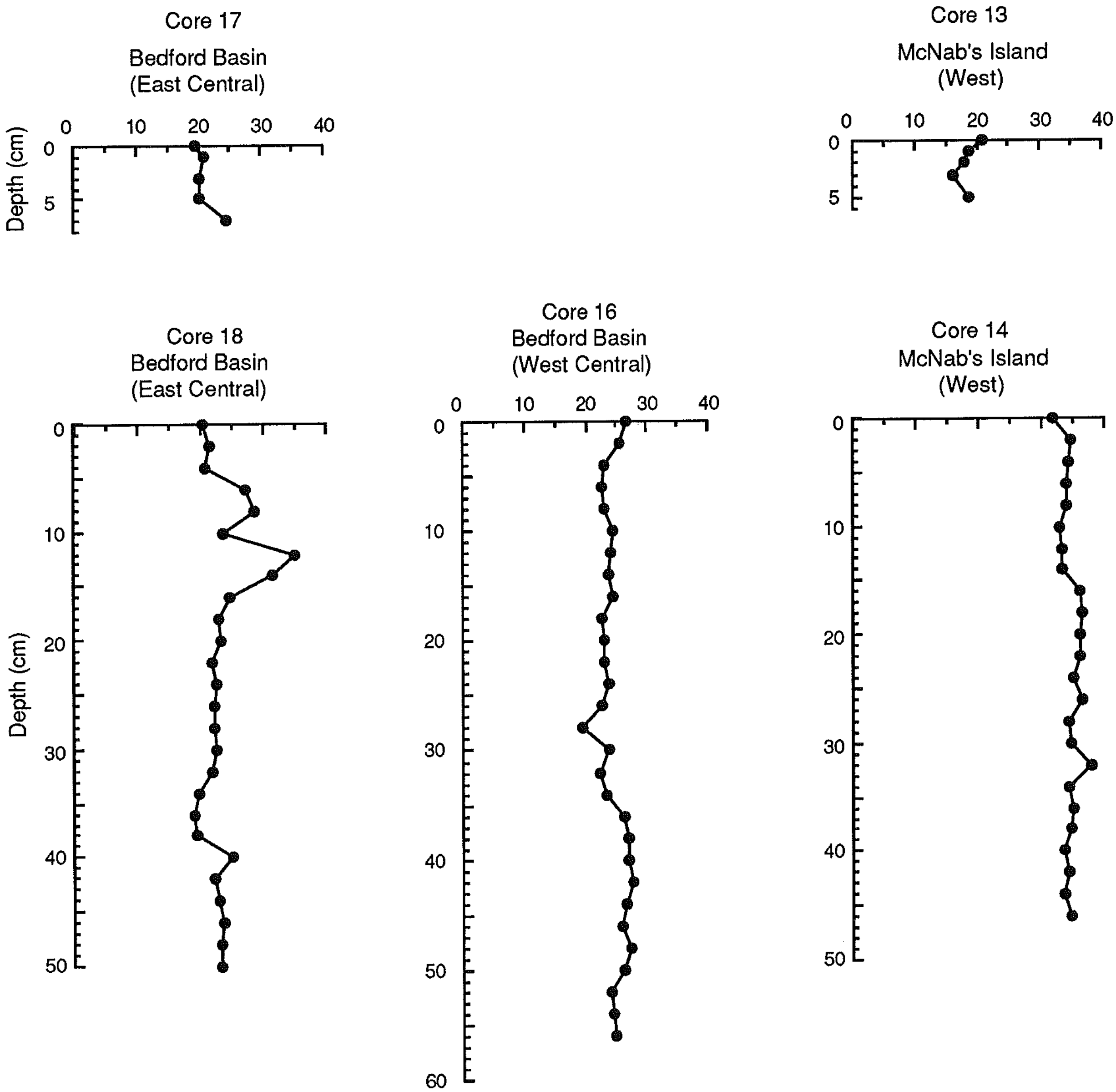



LEAD (µg·g-1)
(total)
Core 17
Bedford Basin
(East Central)
Core 13
McNab's Island
(West)
Core 18
Bedford Basin
(East Central)
Core 16
Bedford Basin
(West Central)
Core 14
McNab's Island
(West)
0 100 200 300 400
Depth (cm)
0 5 10 20 30 40 50 60

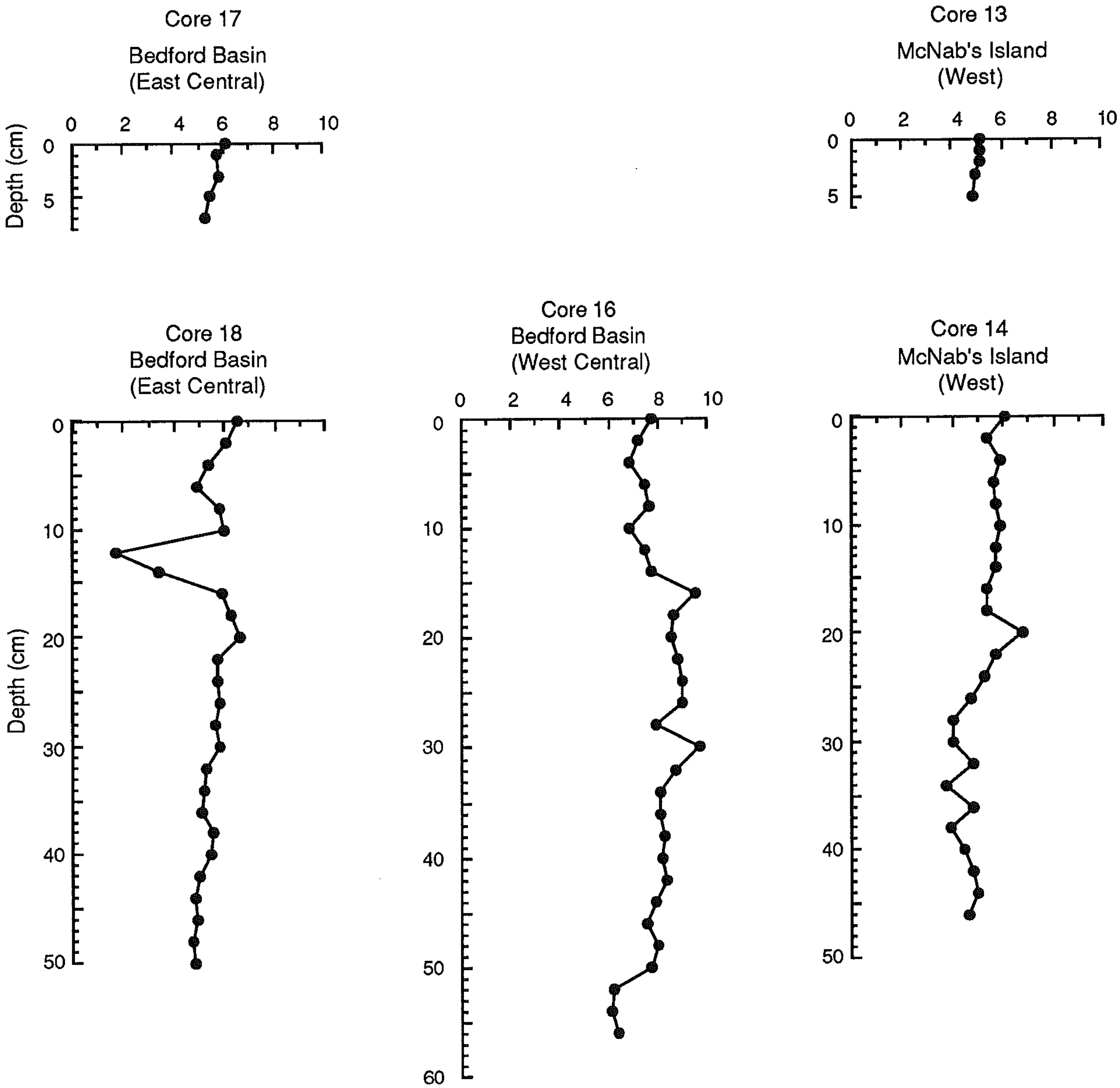
LEAD ($\mu g \cdot g^{-1}$)
(organically bound)



SILICON (%)
(total)

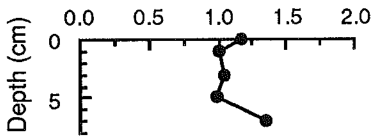


ALUMINUM (%)
(total)

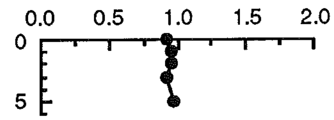


MAGNESIUM (%)
(total)

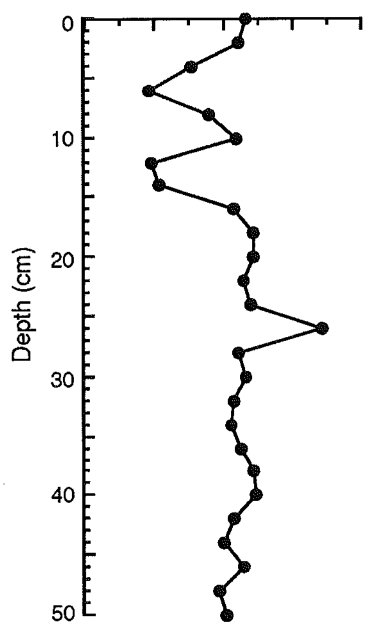
Core 17
Bedford Basin
(East Central)



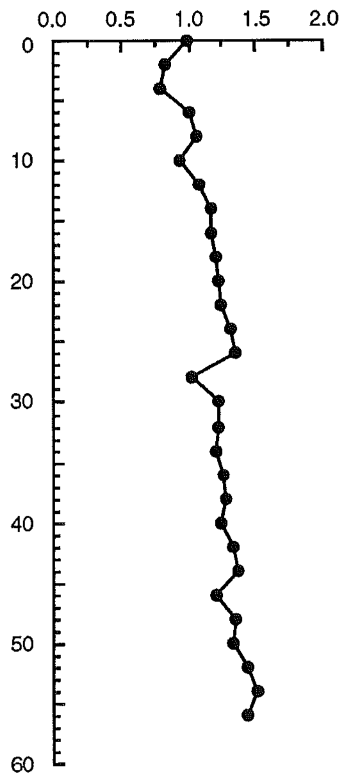
Core 13
McNab's Island
(West)



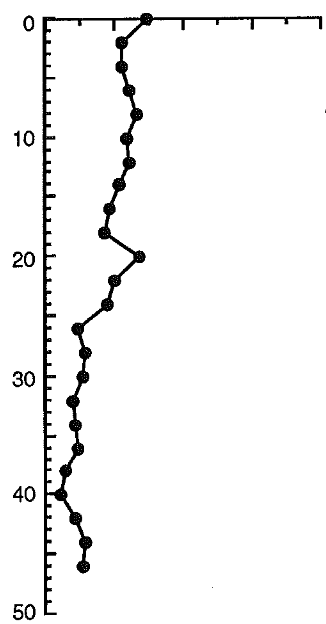
Core 18
Bedford Basin
(East Central)



Core 16
Bedford Basin
(West Central)

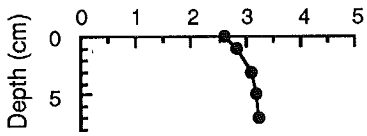


Core 14
McNab's Island
(West)

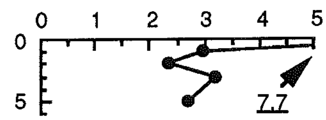


POTASSIUM (%)
(total)

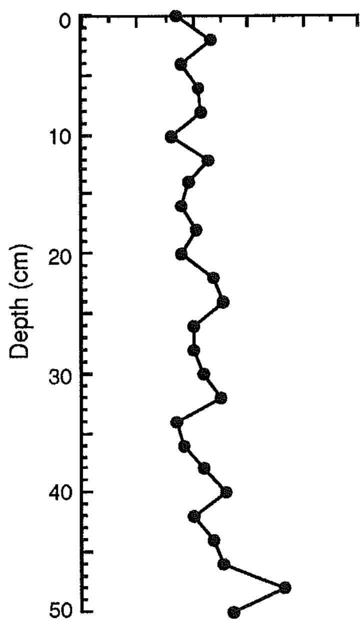
Core 17
Bedford Basin
(East Central)



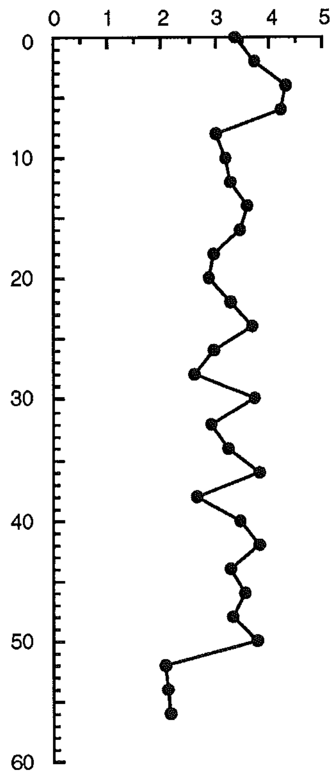
Core 13
McNab's Island
(West)



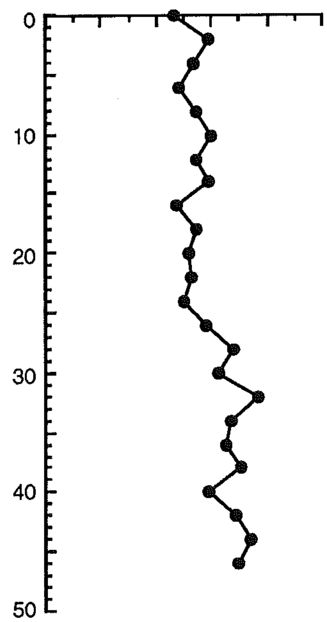
Core 18
Bedford Basin
(East Central)



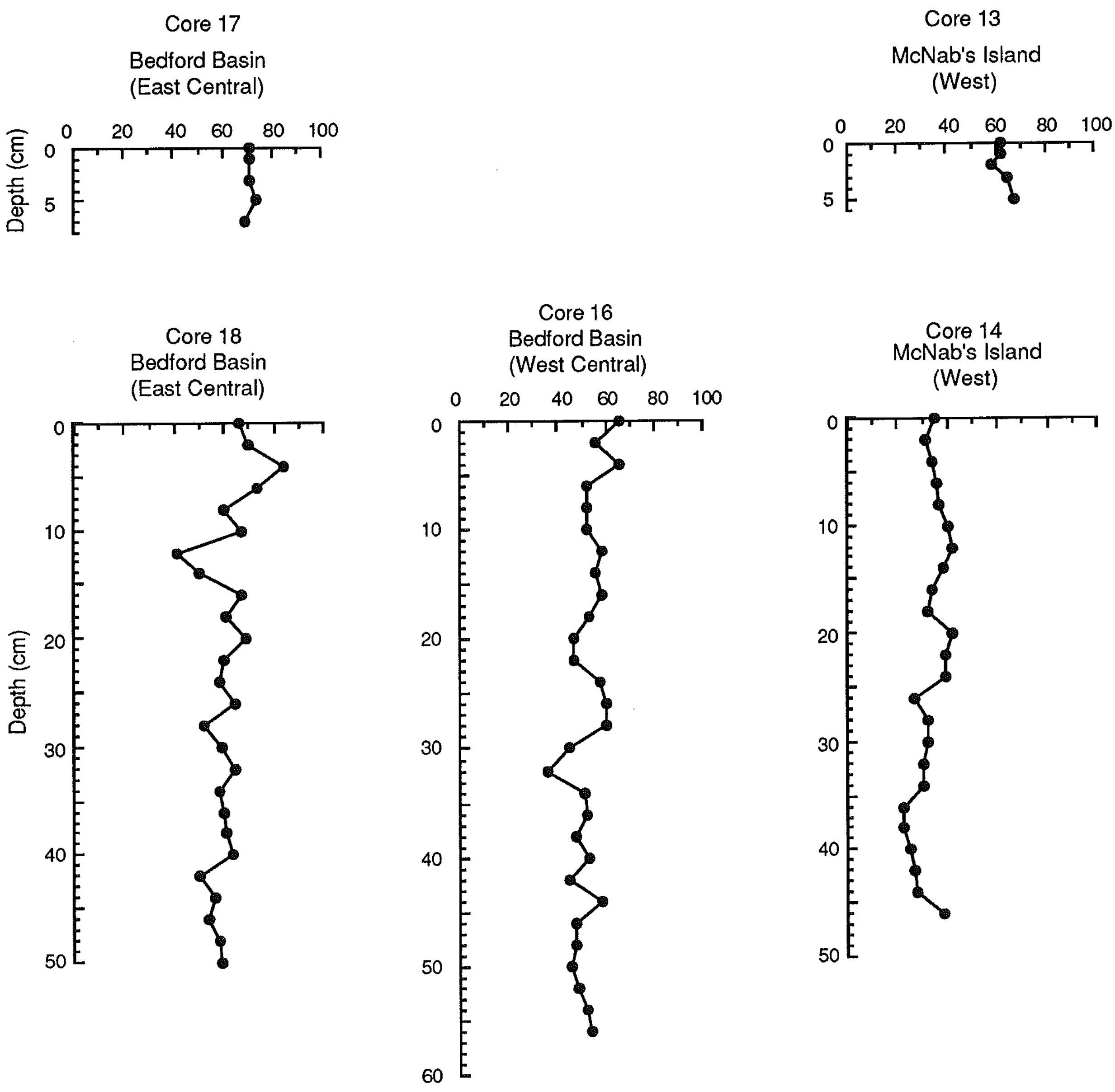
Core 16
Bedford Basin
(West Central)



Core 14
McNab's Island
(West)

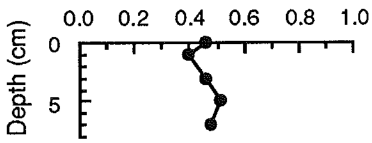


LITHIUM (ppm)
(total)

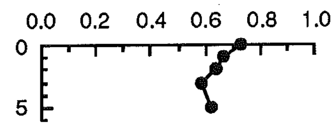


CADMIUM (ppm)
(total)

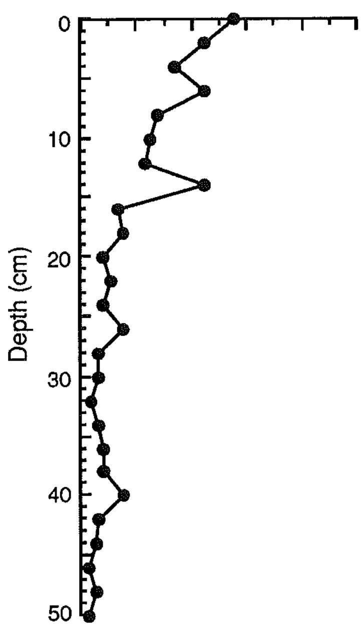
Core 17
Bedford Basin
(East Central)



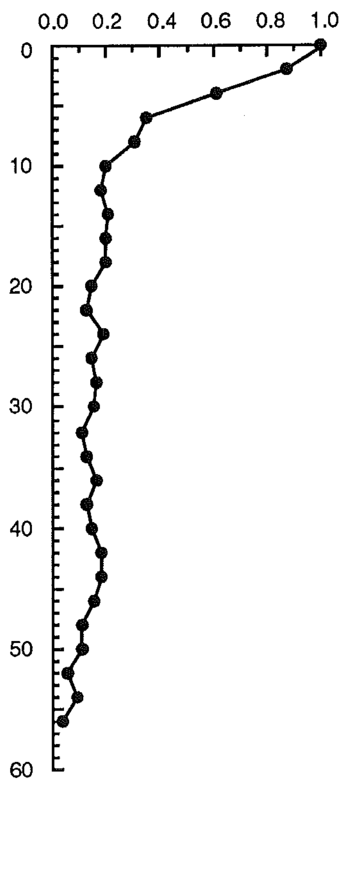
Core 13
McNab's Island
(West)



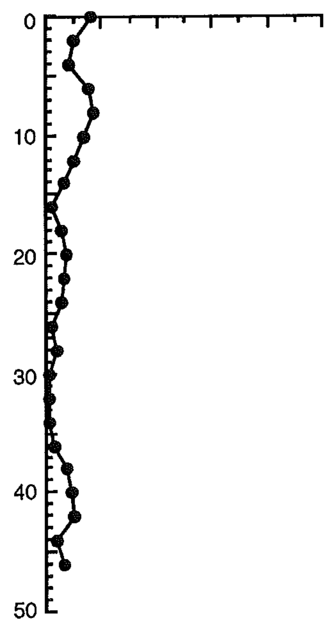
Core 18
Bedford Basin
(East Central)



Core 16
Bedford Basin
(West Central)

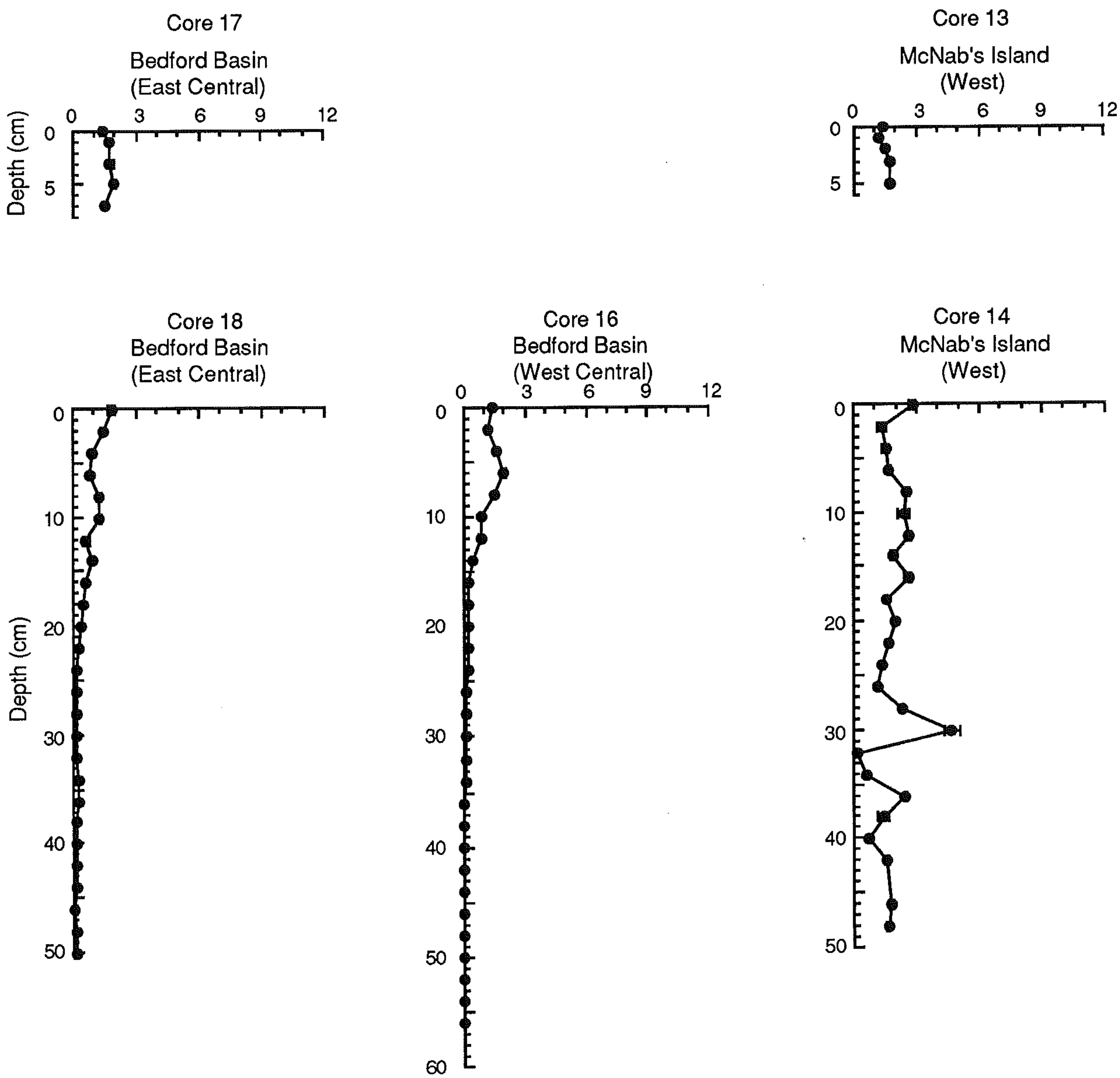


Core 14
McNab's Island
(West)

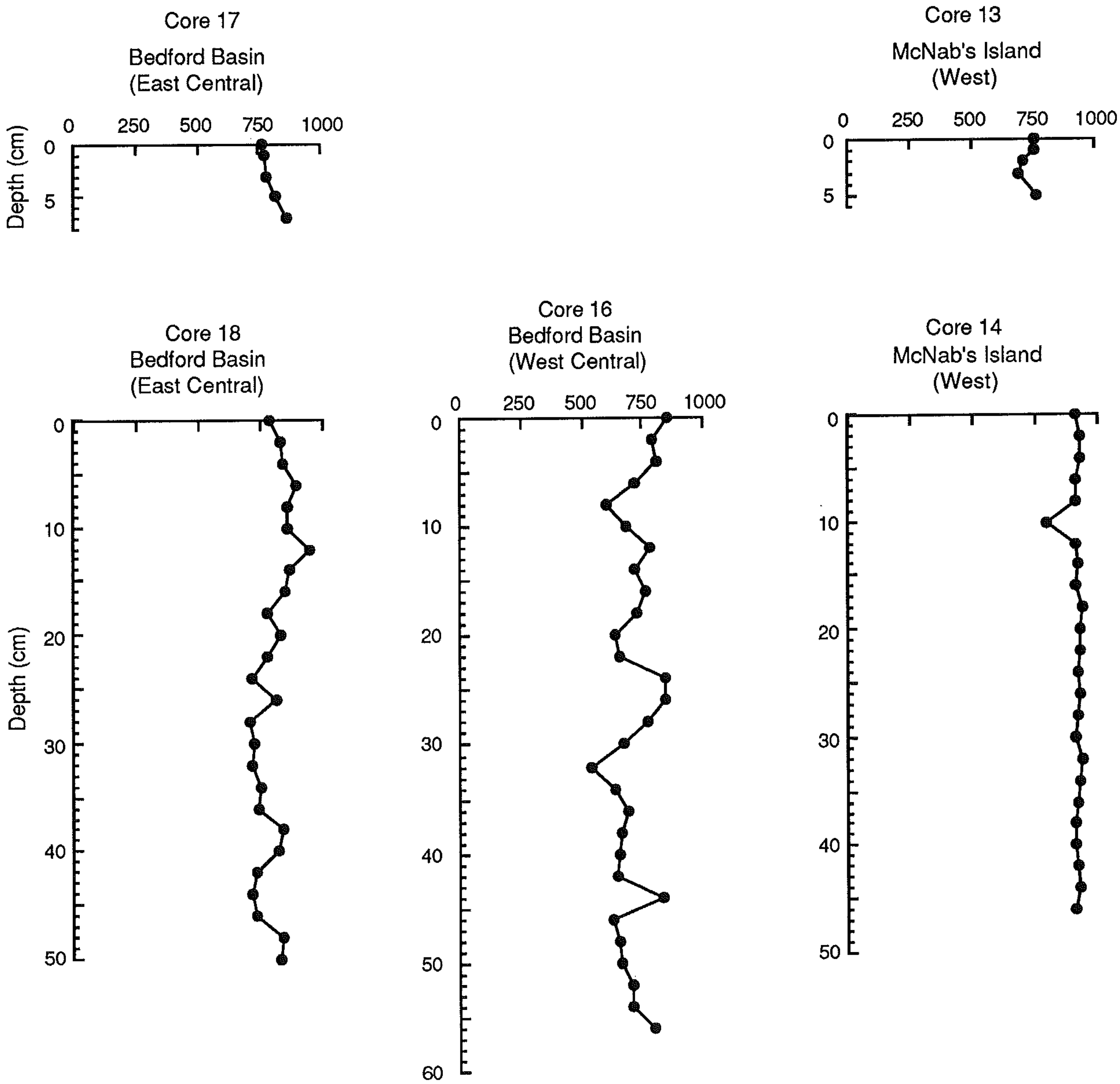


MERCURY (µg·g^{-1})
(total)

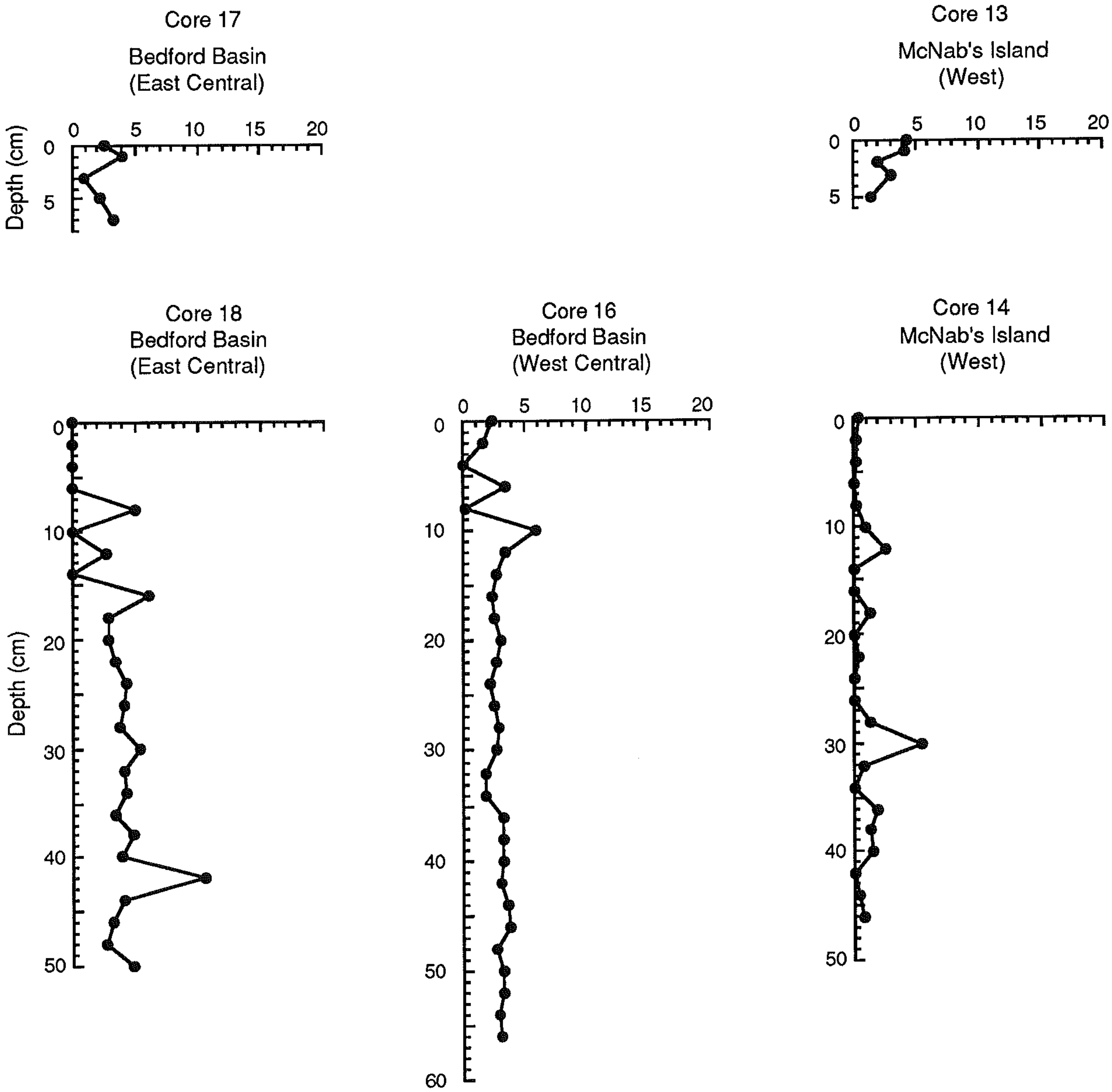
NAVICULA 90010



RESIDUE (mg)


Core 17
Bedford Basin
(East Central)
0
250
500
750
1000
Depth (cm)
0
5
Core 13
McNab's Island
(West)
0
250
500
750
1000
0
5
Core 18
Bedford Basin
(East Central)
0
10
20
30
40
50
Depth (cm)
Core 16
Bedford Basin
(West Central)
0
250
500
750
1000
0
10
20
30
40
50
60
Core 14
McNab's Island
(West)
0
10
20
30
40
50

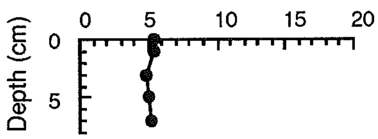
CALCIUM CARBONATE (%)



ORGANIC CARBON (%)

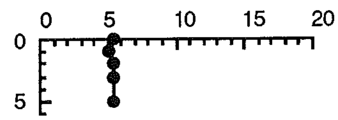
Core 17

Bedford Basin
(East Central)

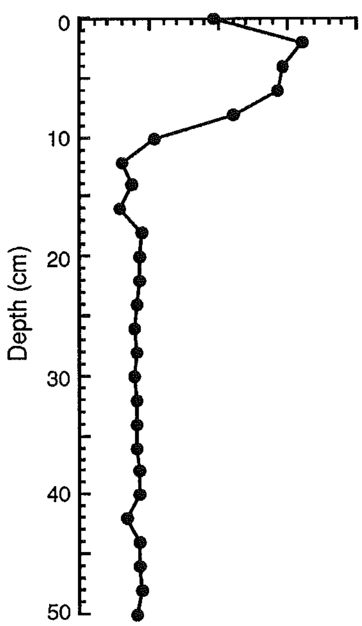


Core 13

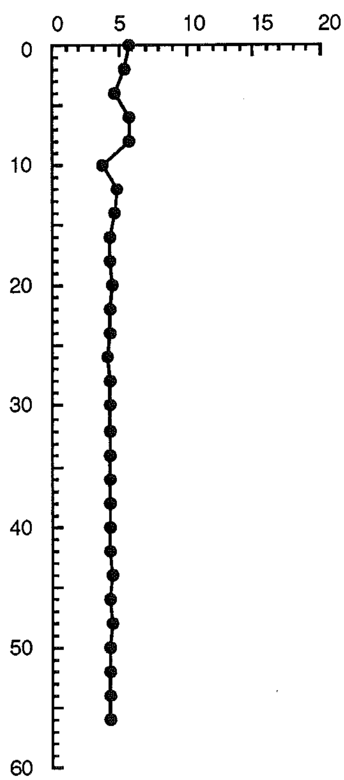
McNab's Island
(West)



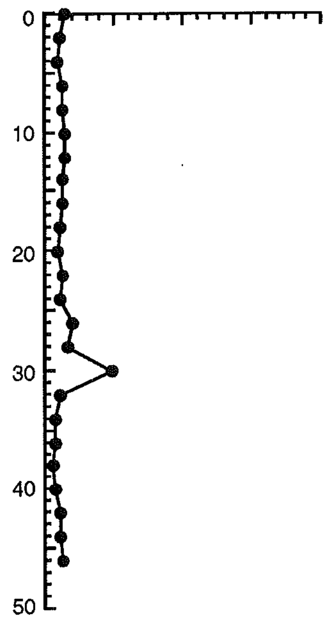
Core 18
Bedford Basin
(East Central)



Core 16
Bedford Basin
(West Central)

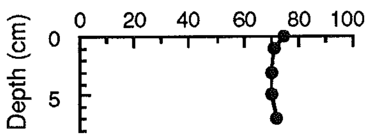


Core 14
McNab's Island
(West)

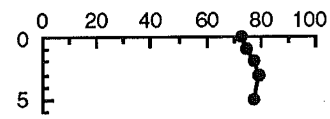


WATER CONTENT (%)

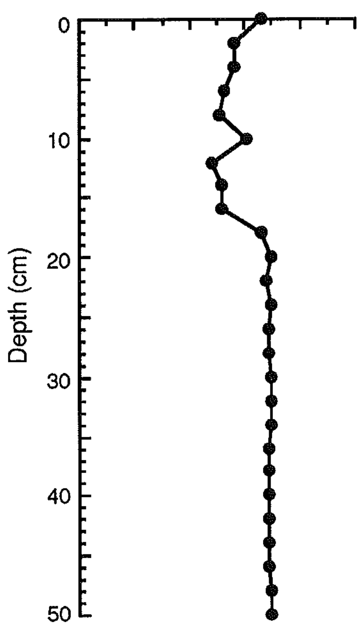
Core 17
Bedford Basin
(East Central)



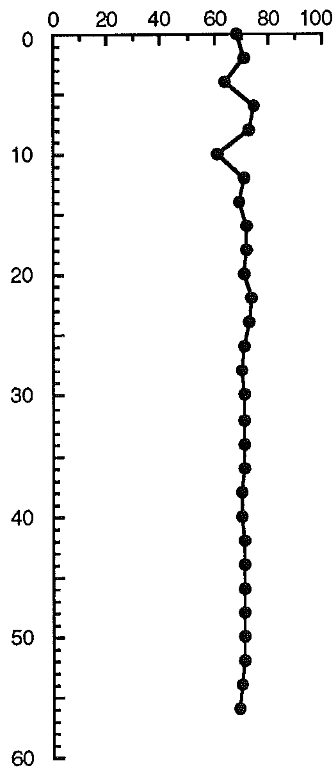
Core 13
McNab's Island
(West)



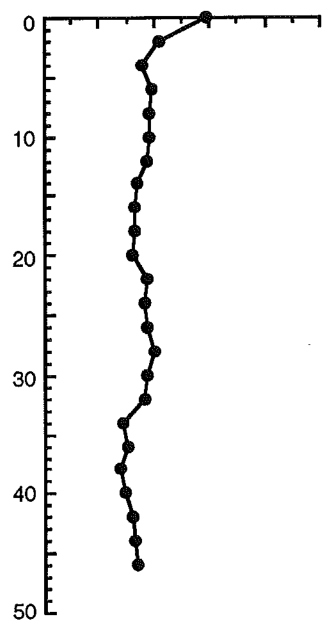
Core 18
Bedford Basin
(East Central)



Core 16
Bedford Basin
(West Central)



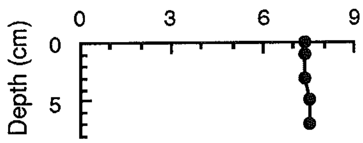
Core 14
McNab's Island
(West)



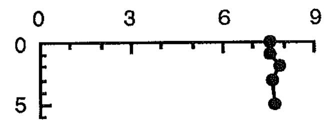
pH (- log [H^+])

(water)

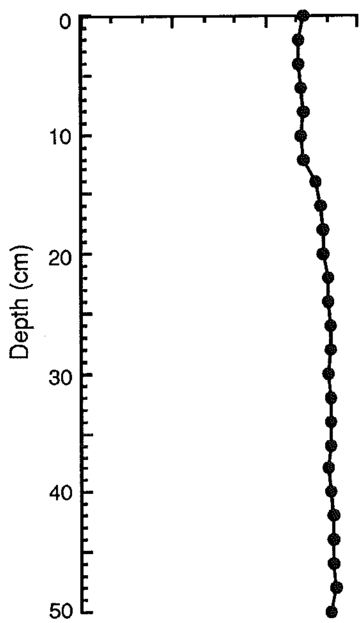
Core 17
Bedford Basin
(East Central)



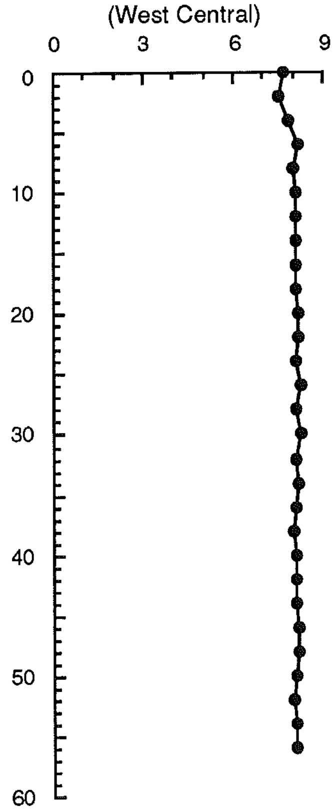
Core 13
McNab's Island
(West)



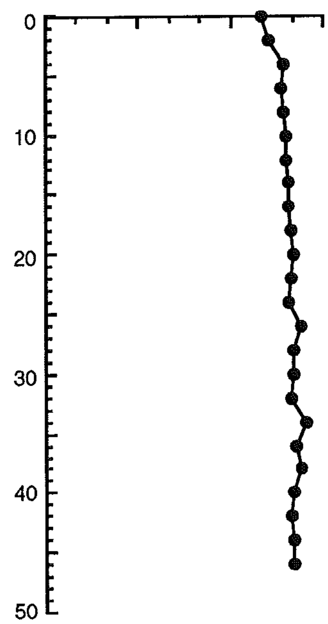
Core 18
Bedford Basin
(East Central)



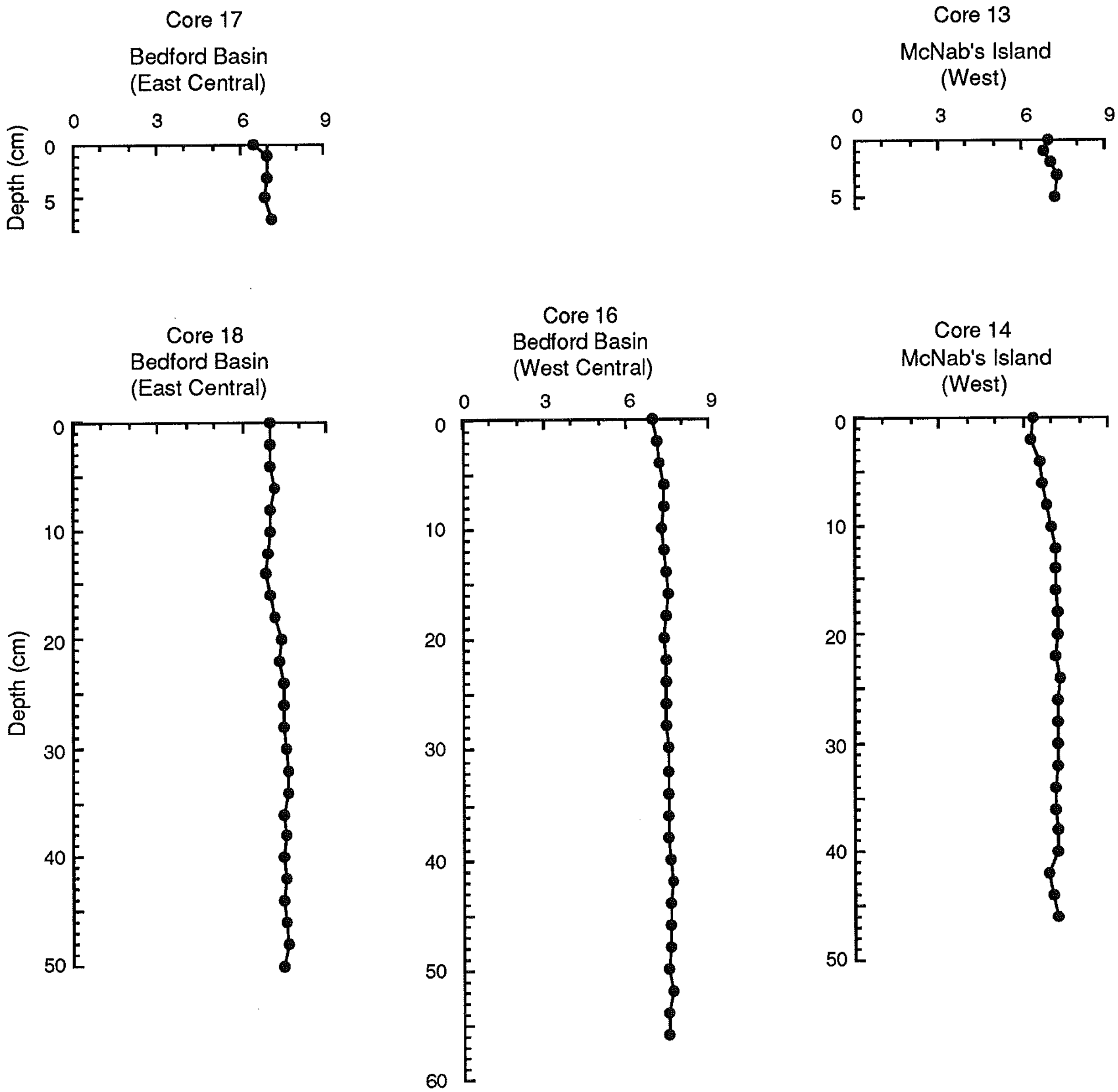
Core 16
Bedford Basin
(West Central)



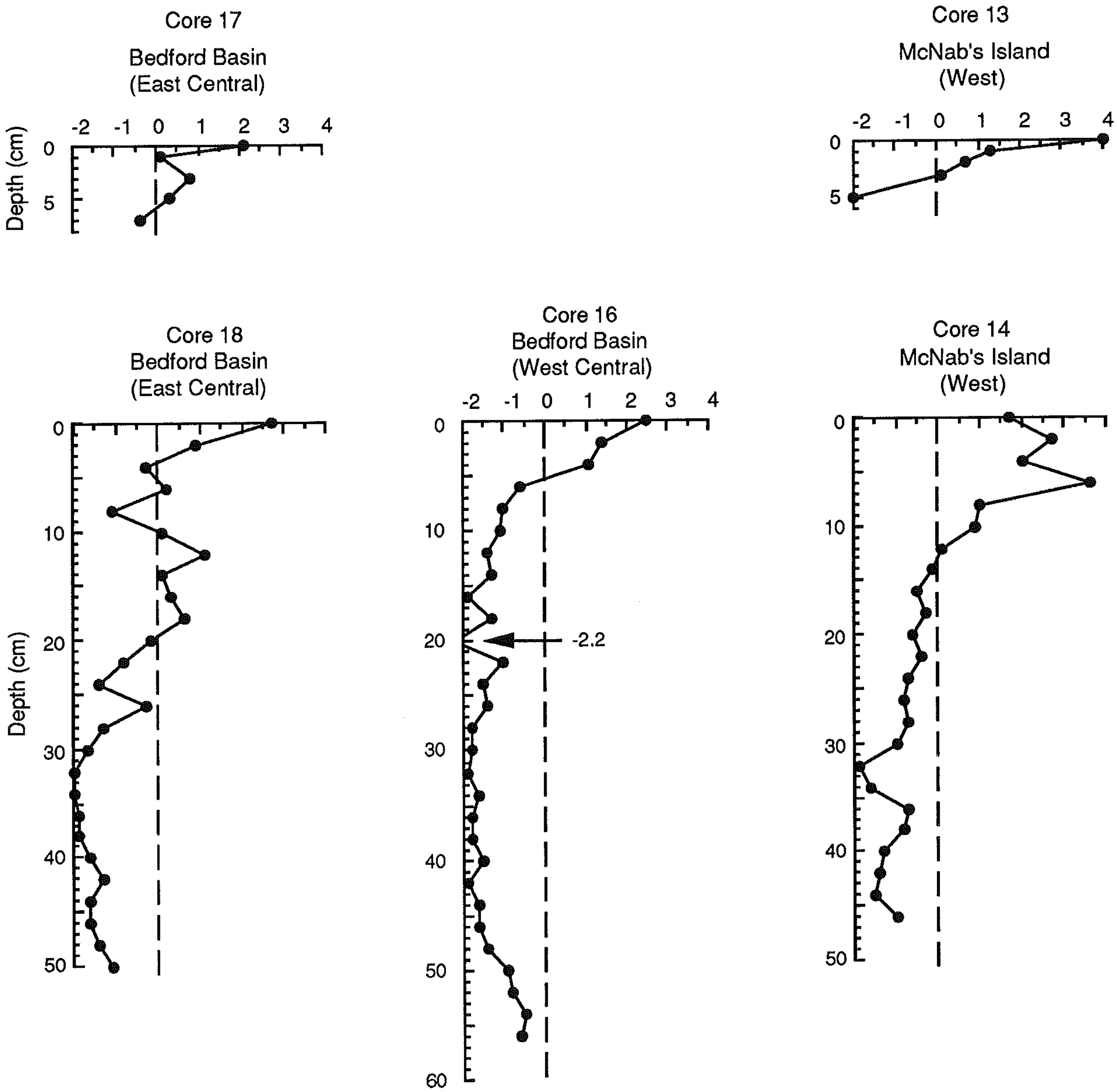
Core 14
McNab's Island
(West)



pH (- log [H^+])
(sediment)

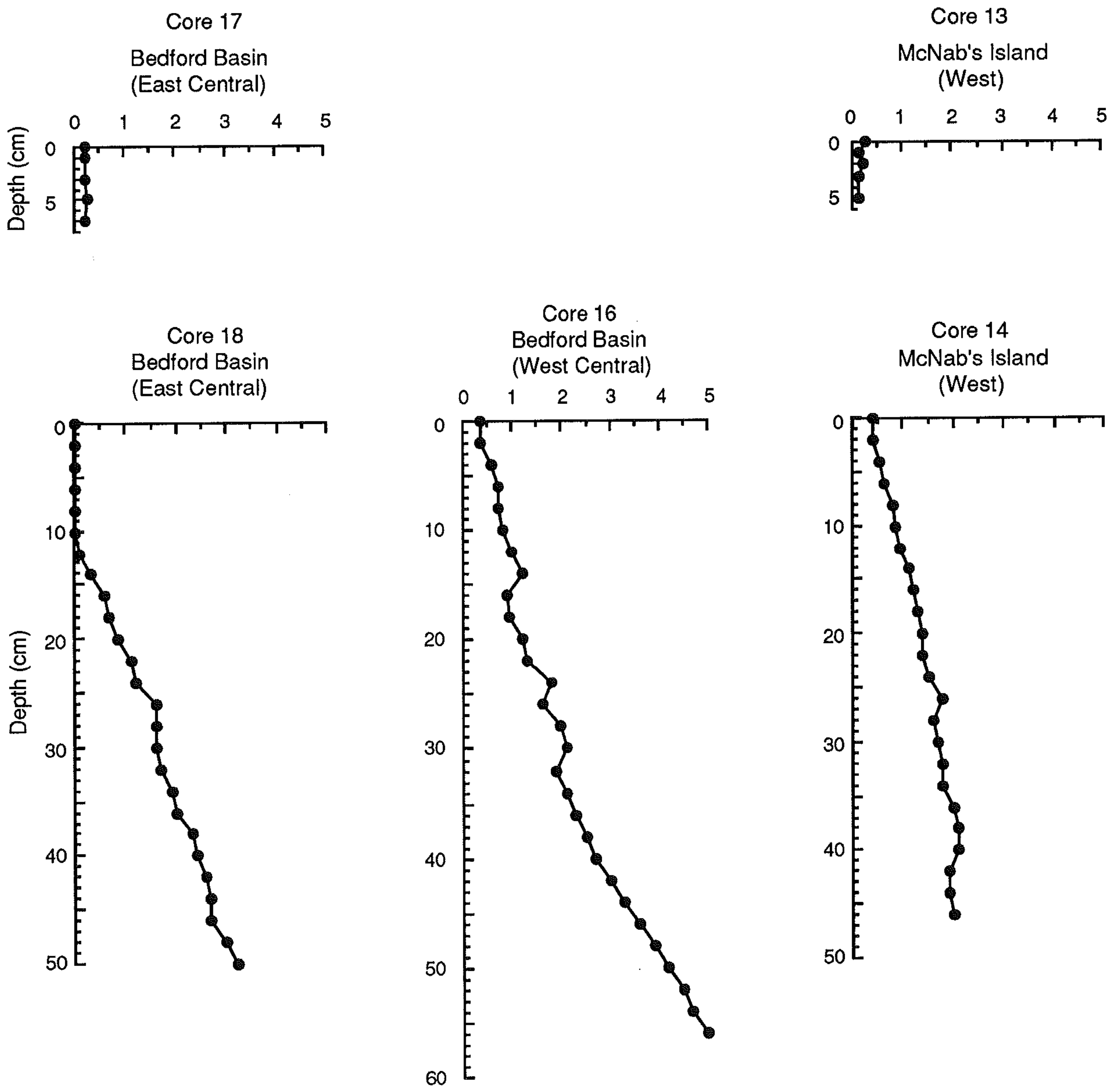


pε (-log [e⁻])



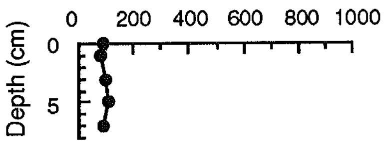
Core 17
Bedford Basin
(East Central)
Core 13
McNab's Island
(West)
Core 18
Bedford Basin
(East Central)
Core 16
Bedford Basin
(West Central)
Core 14
McNab's Island
(West)
Depth (cm)
-2.2

AMMONIA (NH_4^+)
(mM)

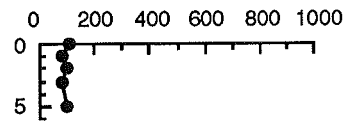


DISSOLVED SILICA (SiO_2)
(pore water) (µM)

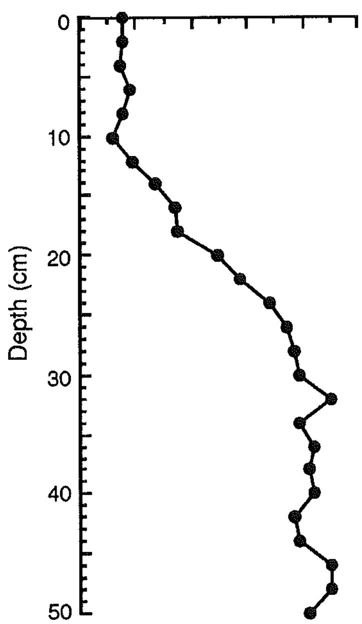
Core 17
Bedford Basin
(East Central)



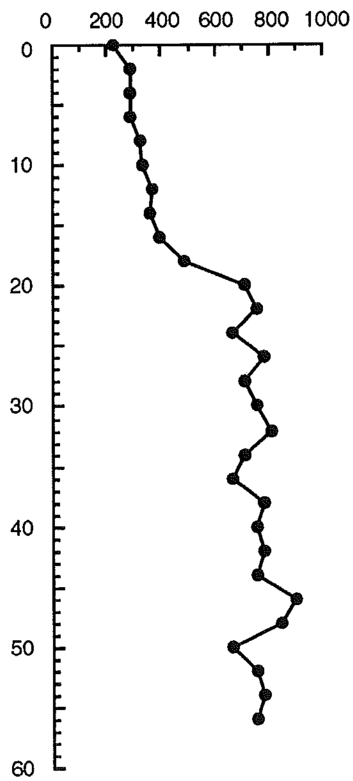
Core 13
McNab's Island
(West)



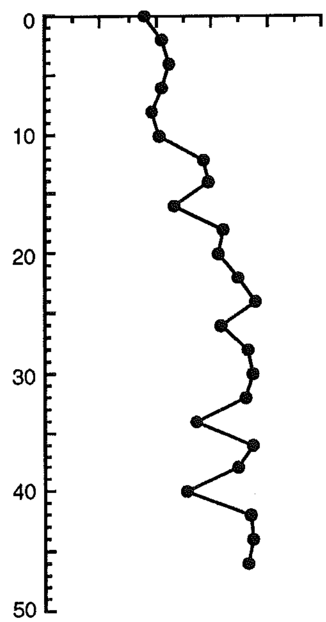
Core 18
Bedford Basin
(East Central)



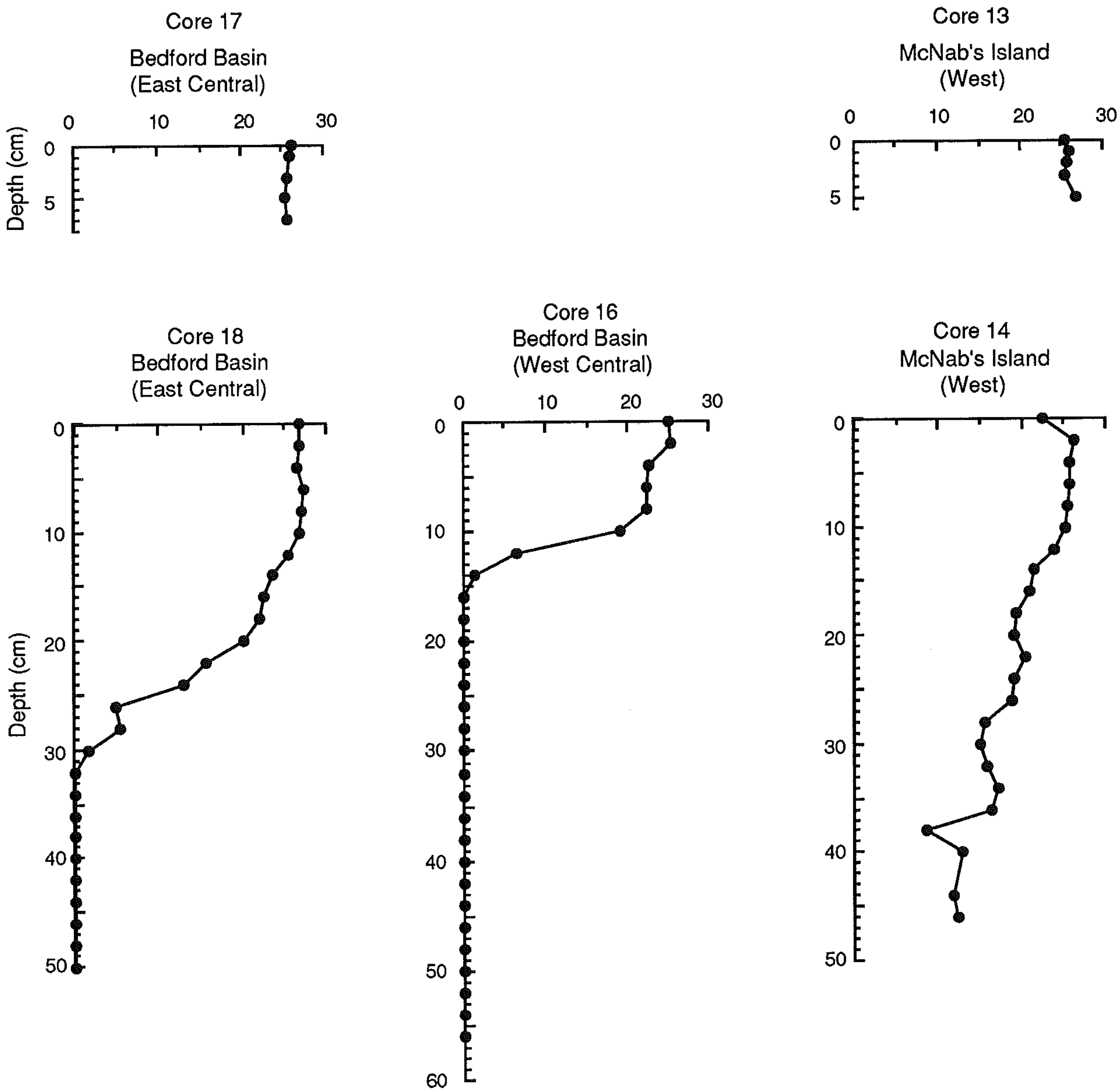
Core 16
Bedford Basin
(West Central)



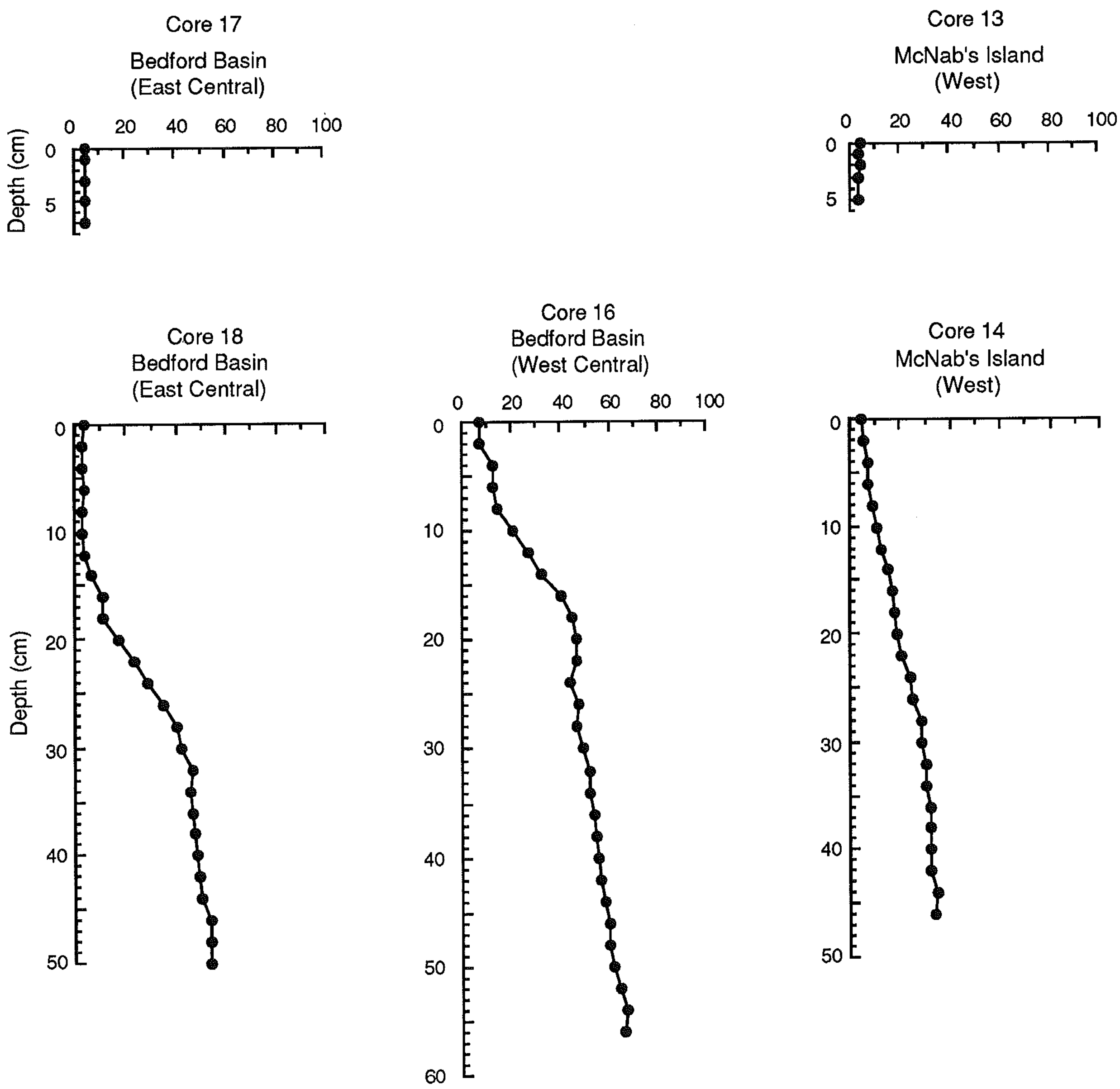
Core 14
McNab's Island
(West)



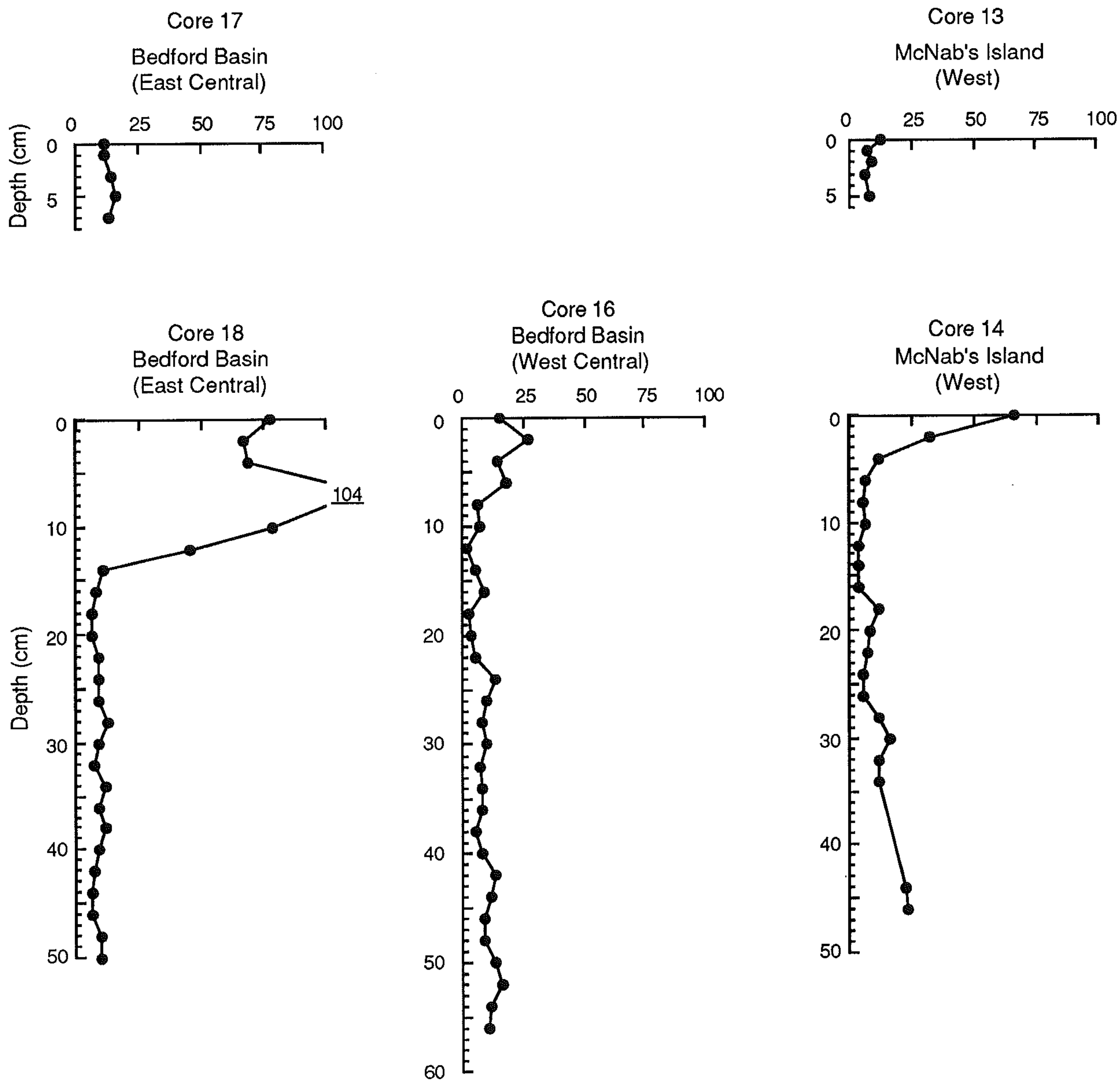
SULFATE ($SO_4^=$)
(pore water) (mM)



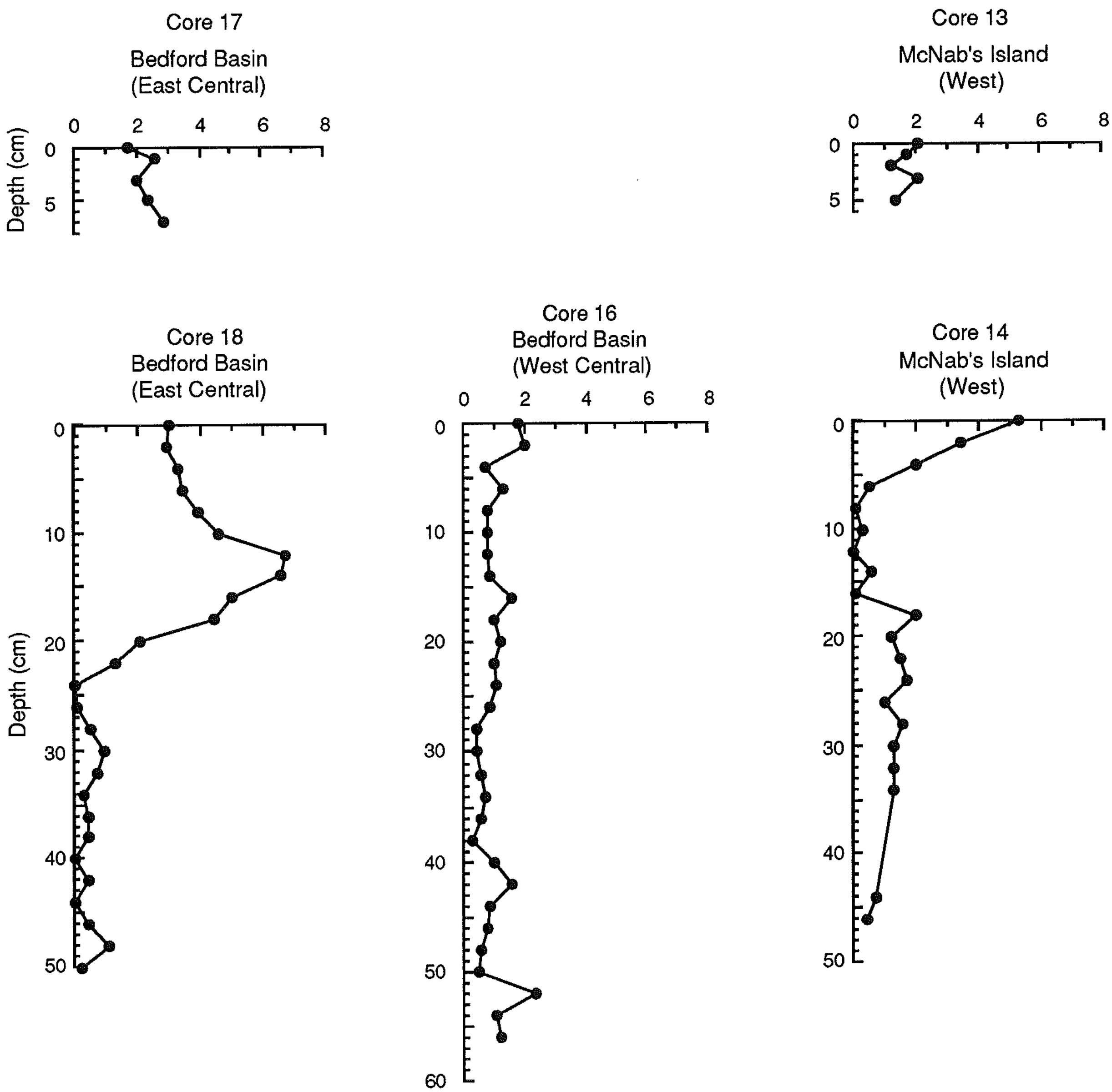
ALKALINITY (mN)
(pore water)



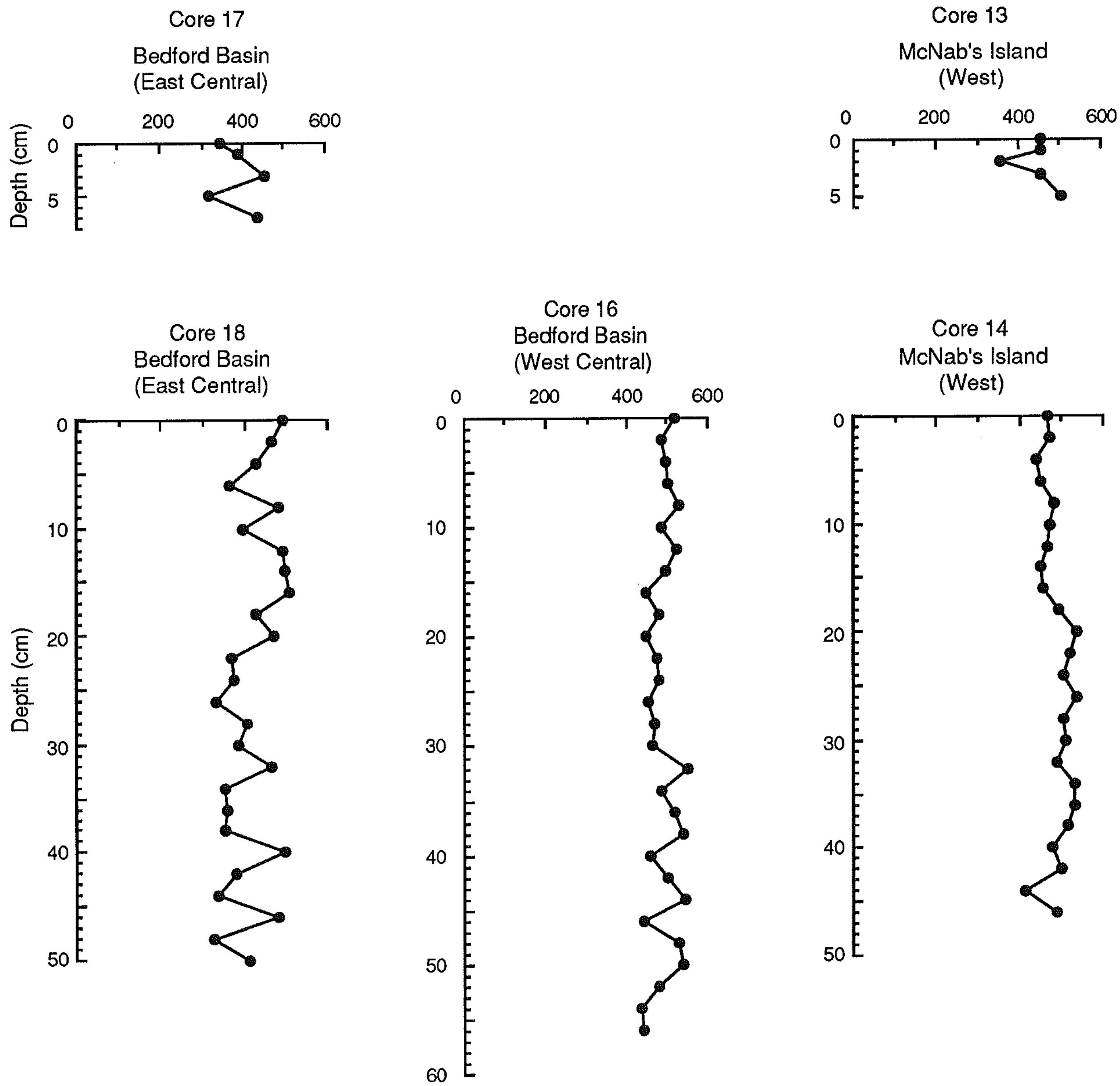
IRON (μM)
pore water



MANGANESE (µM)
(pore water)

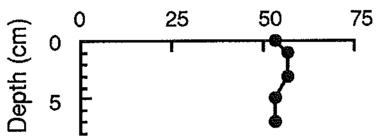


SODIUM (mM)
(pore water)

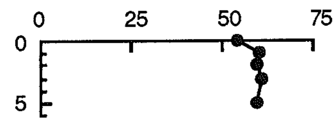


MAGNESIUM (mM)
(pore water)

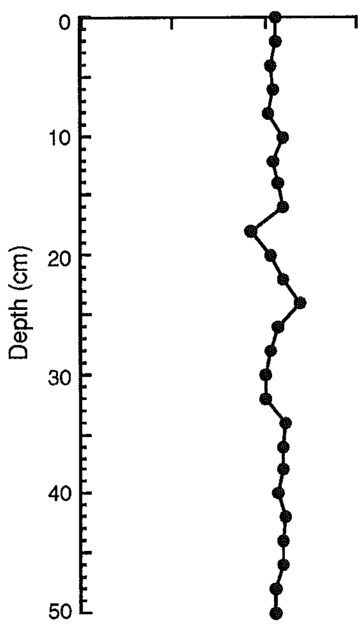
Core 17
Bedford Basin
(East Central)



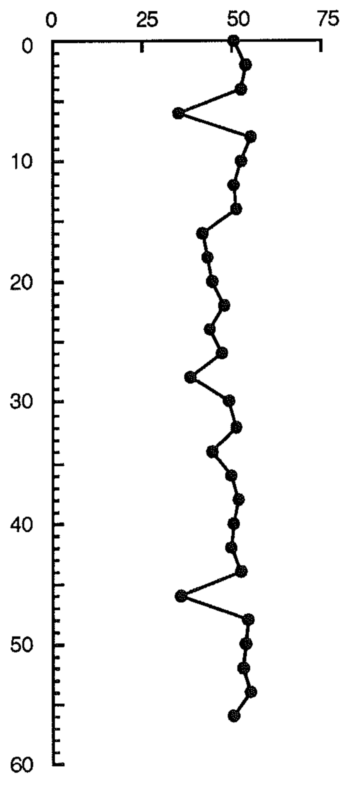
Core 13
McNab's Island
(West)



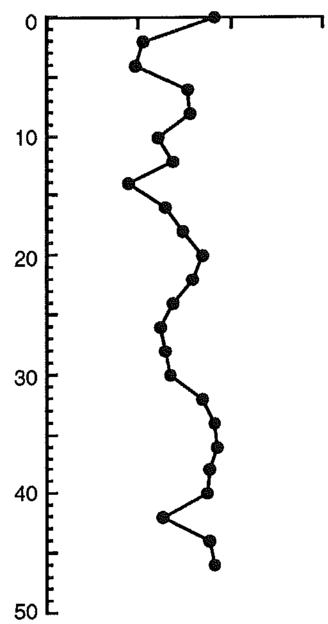
Core 18
Bedford Basin
(East Central)



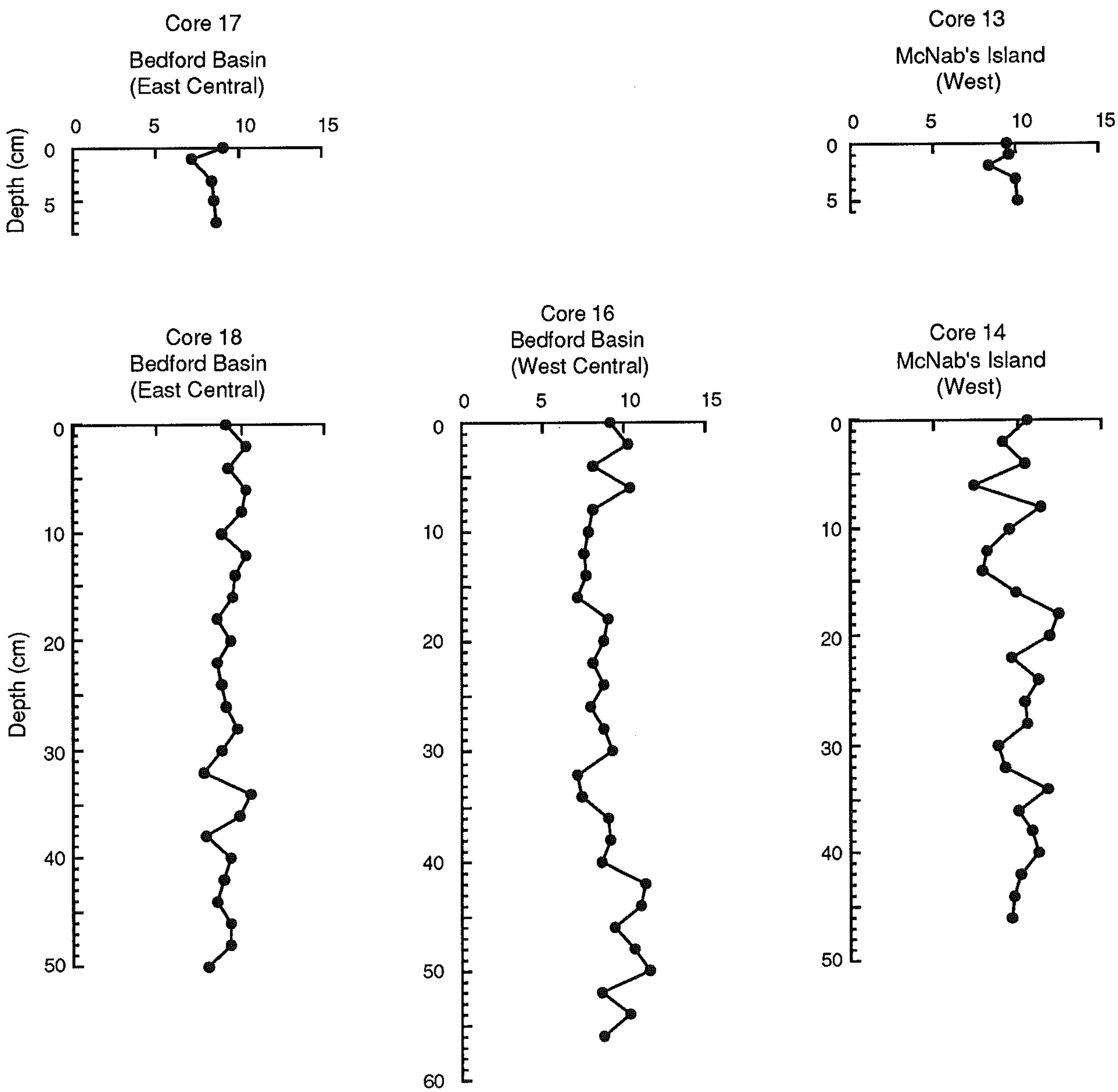
Core 16
Bedford Basin
(West Central)



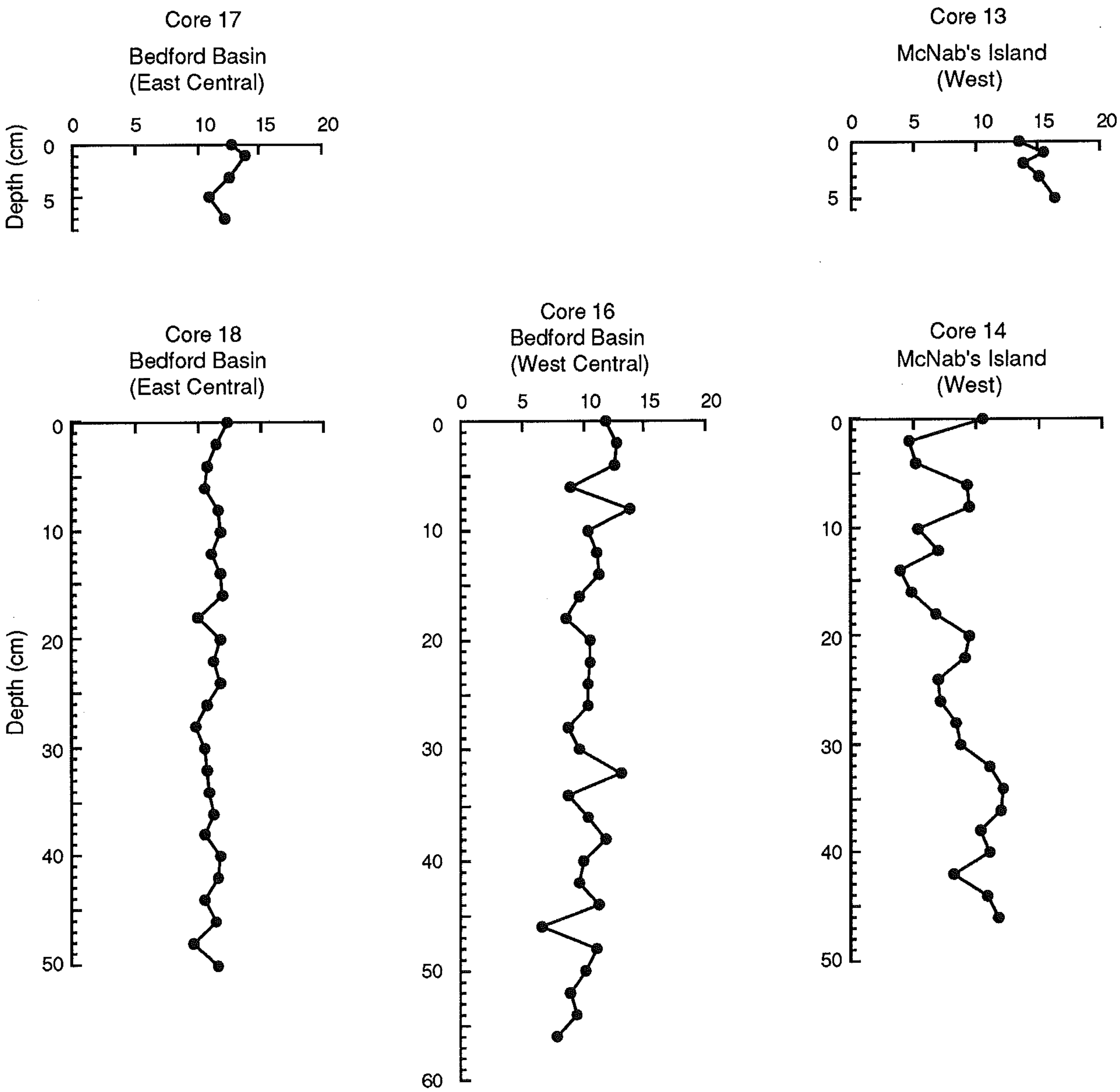
Core 14
McNab's Island
(West)



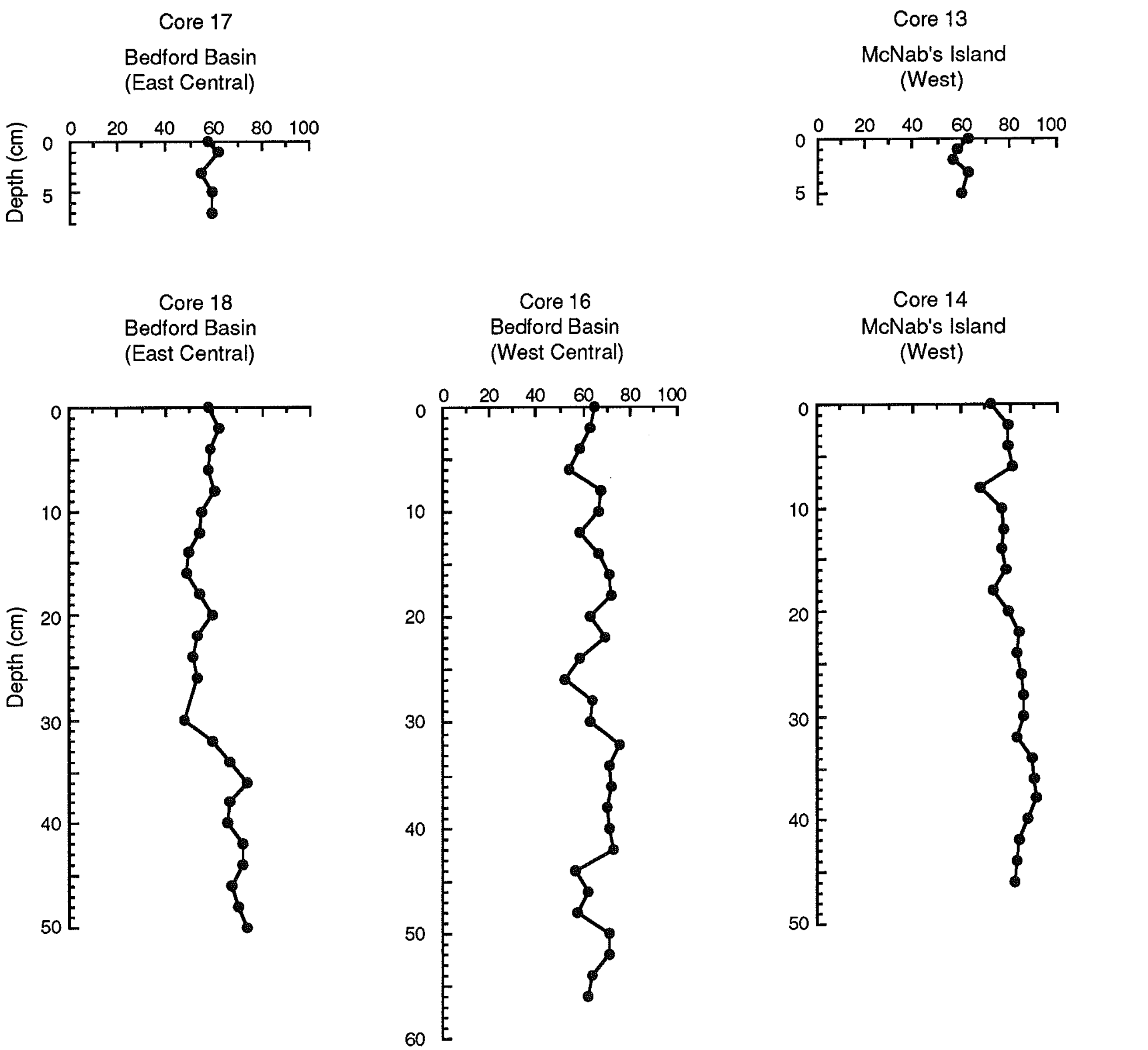
POTASSIUM (mM)
(pore water)



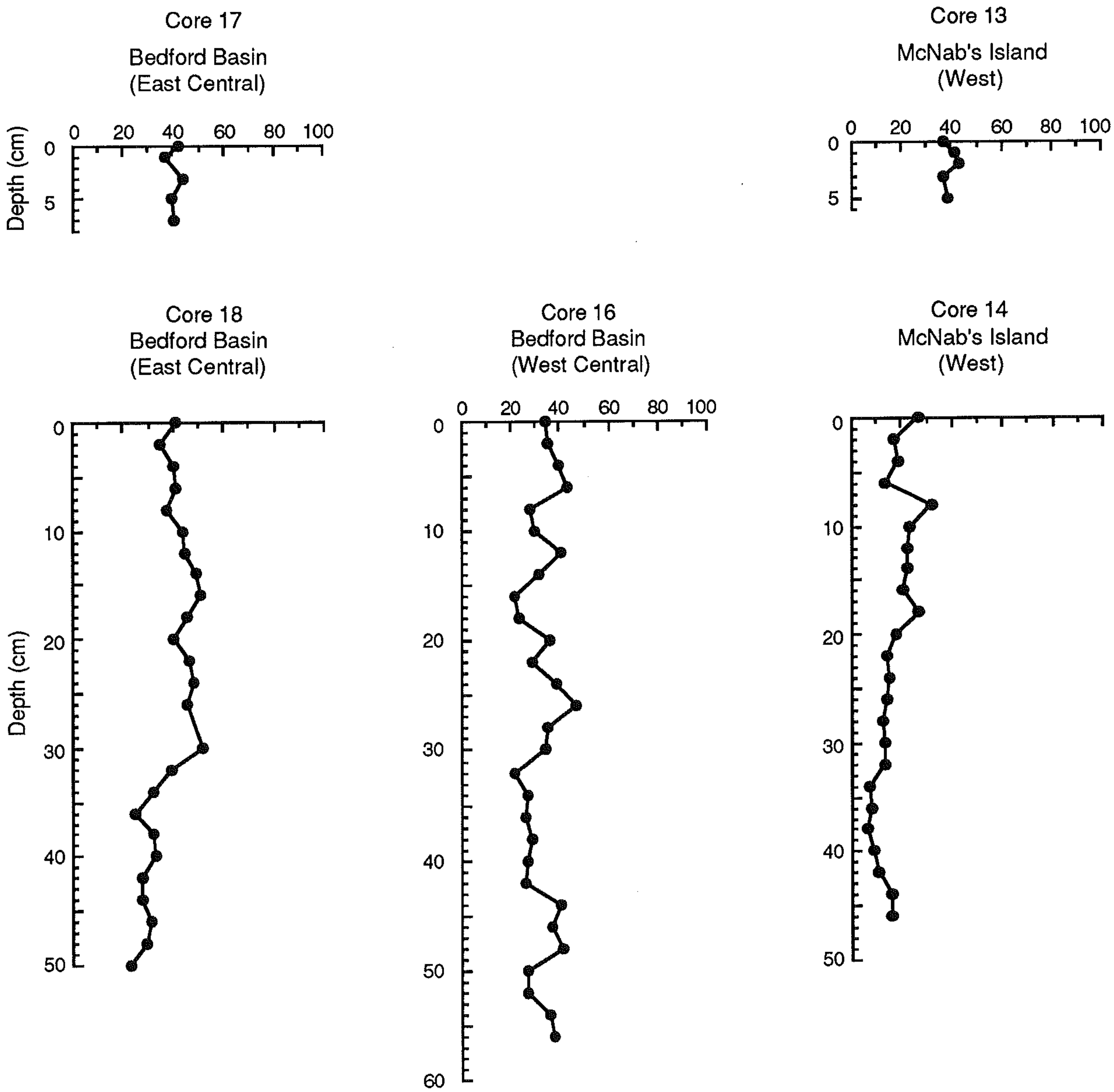
CALCIUM (mM)
(pore water)



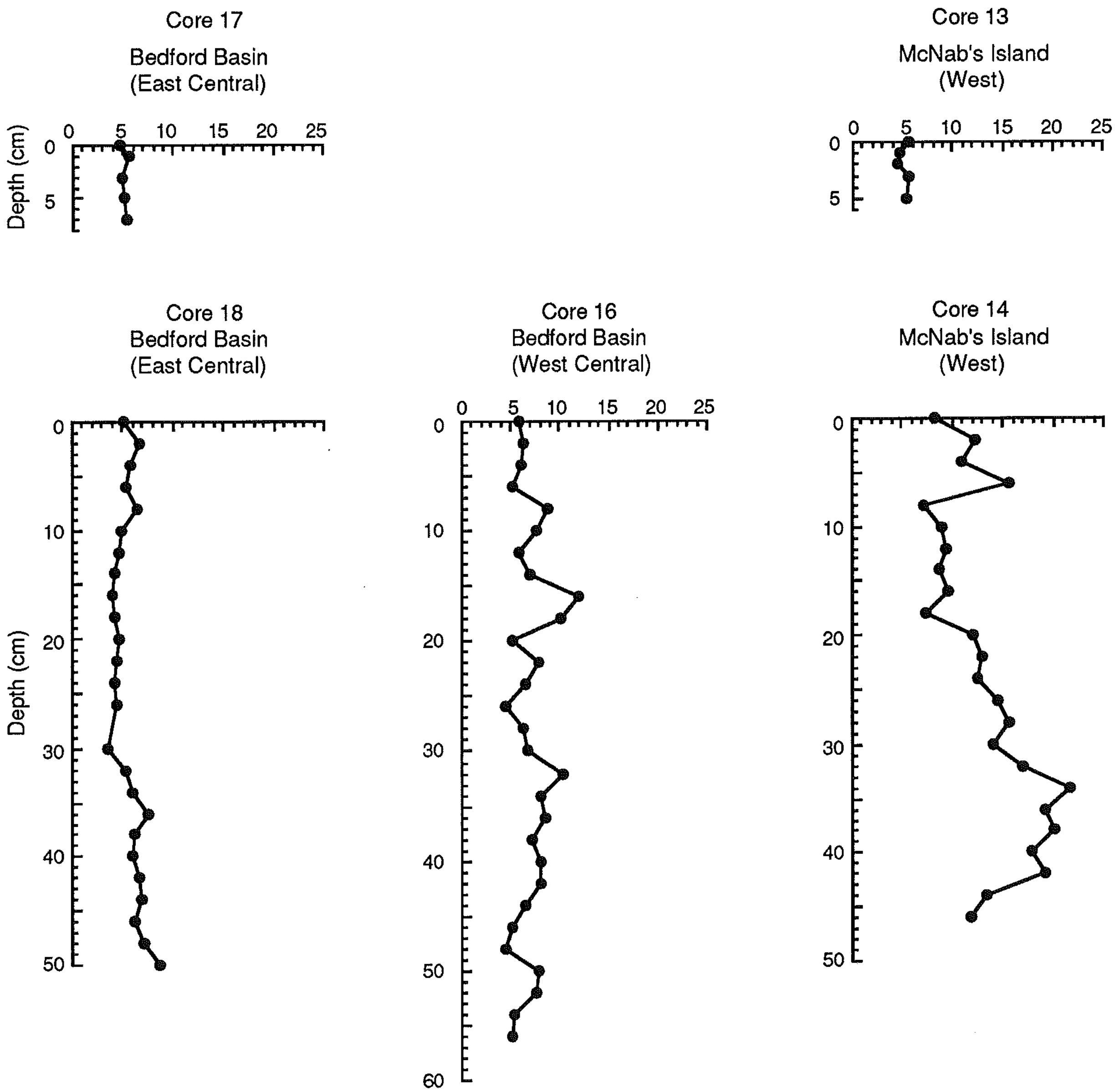
SILT (%)


Core 17
Bedford Basin
(East Central)
Core 13
McNab's Island
(West)
Core 18
Bedford Basin
(East Central)
Core 16
Bedford Basin
(West Central)
Core 14
McNab's Island
(West)
Depth (cm)
0 20 40 60 80 100

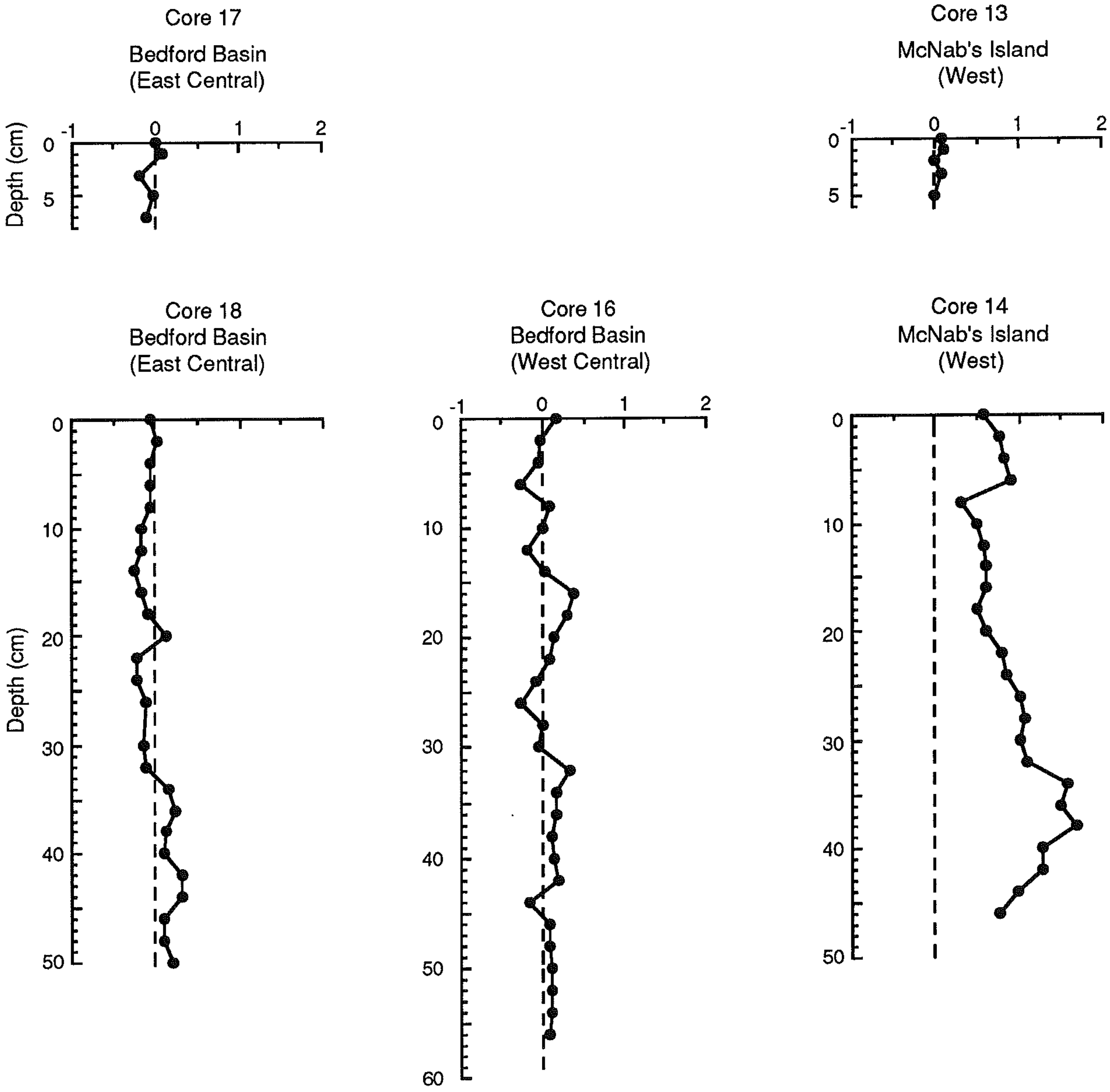
CLAY (%)


Core 17
Bedford Basin
(East Central)
Core 13
McNab's Island
(West)
Core 18
Bedford Basin
(East Central)
Core 16
Bedford Basin
(West Central)
Core 14
McNab's Island
(West)
0 20 40 60 80 100
Depth (cm)
0
5
10
20
30
40
50
60

MEAN GRAIN SIZE (µm)



SKEWNESS
(dimensionless)



ACKNOWLEDGEMENTS

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REFERENCES

Berman, S.S. 1981. Marine sediment reference materials, trace metals and inorganic constituents; Geostandards Newsletter, **5:** 218.

Buckley, D.E., and R.E. Cranston. 1971. Atomic absorption analyses of 18 elements from a single decomposition of aluminosilicates. Chem. Geol., **7:** 273-284.

Buckley, D.E., B.T. Hargrave, and P. Mudroch. 1989. Geochemical data from analyses of surface sediments obtained from Halifax Inlet. Geological Survey of Canada, Open File Report No. 2042, 24 pp.

Buckley, D.E.,R.A. Fitzgerald, G.V. Winters, K.W.G. LeBlanc and R.E. Cranston. 1991. Geochemical data from analyses of sediment and pore waters obtained from cores collected in Halifax Inlet, M.V. Frederick Creed Cruise 90 and Hudson Cruise 89-039('90). Geological Survey of Canada, 601 Booth St., Ottawa, Ontario, Canada (K1A 0E8), Open File Report 2410. 116 pp.

Brandenberg, H., and H. Bader. 1967. The determination of nanogram levels of Hg in solution by flameless atomic absorption technique. Atomic Absorption Newsletter, **6**: 101.

Chester, R., and M.J. Hughes. 1967. A chemical technique for the separation of ferro-manganese minerals, carbonates minerals and adsorbed trace elements from pelagic sediment. Chem. Geol., **2**: 249-262.

Cline, J.D. 1969. Spectrophotometric determination of hydrogen sulfide in natural waters. Limnol. Oceanogr., **14**: 454-458.

Edmonds, J.M. 1970. High precision determination of titration alkalinity and total carbon dioxide content of sea water by potentiometric titration. Deep Sea Res. **17**: 737-750.

Fader, G.B.J., and R.O. Miller. 1991.Cruise report Navicula 1990-010, Halifax Harbour May 22 - June 8, 1990. Geological Survey of Canada, 601 Booth St., Ottawa, Ontario, Canada (K1A 0E8), Open File Report, in press.

Fitzgerald, R.A., G.V. Winters and D.E. Buckley. 1987. Evaluation of a sequential leach procedure for the determination of metal partitioning in deep sea sediments. Geological Survey of Canada, 601 Booth St., Ottawa, Ontario, Canada (K1A 0E8), Open File Report 1701. 21 pp.

LeBlanc, K.W.G., R.A. Fitzgerald, G.V. Winters, D.E. Buckley and R.E. Cranston. 1991. Geochemical data from analyses of sediment and pore waters obtained from cores collected in Halifax Inlet, F.R.V. Navicula Cruise 89-009. Geological Survey of Canada, 601 Booth St., Ottawa, Ontario, Canada (K1A 0E8), Open File Report 2345. 116 pp.

MacIntosh, M., J.D. Willey and C. Courneya. 1976. A compendium of the sampling and analytical techniques used by the Environmental Marine Geology Subdivision, Atlantic Geoscience Centre, Bedford Institute of Oceanography, Dartmouth, Nova

Scotia. Geological Survey of Canada, 601 Booth St., Ottawa, Ontario, Canada (K1A 0E8), Open File Report 397. 66 pp.

Manheim, F.T., J.C. Hathaway, F.L. Flanigan and J.D. Fletcher. 1976. Marine mud MAG-1 from the Gulf of Maine; United States Geological Survey Professional Paper 840, 25-28.

Mann, R., and J.M. Gieskes. 1975. Interstitial water studies, Leg 28. Unpublished report. *In* Hayes, D.E., and L.A. Frakes, et al., Init. Repts. DSDP, 28: Washington (U.S. Govt. Printing Office), 805-814.

Solorzano, L. 1969. Determination of ammonia in natural waters by phenolhypochlorite method. Limnol. Oceanogr., **14**: 799-801.

Strickland J.D.H. and T.R. Parsons. 1968. A practical handbook of seawater analyses. Fisheries Research Board of Canada. 310 pp.

Tessier, A., P. Campbell and M. Bisson. 1979. Sequential extraction procedure for the speciation of particulate trace metals. Anal. Chem. **51**: 844-850.

Whitfield, M. 1969. Eh as an operational parameter in estuarine studies. Limnol. Oceanogr. **14**: 547-558.

Winters, G.V., D.E. Buckley, R.A. Fitzgerald and K.W.G. LeBlanc. 1991. Inorganic geochemical data for surface sediment from Halifax Inlet. Geological Survey of Canada, 601 Booth St., Ottawa, Ontario, Canada (K1A 0E8), Open File Report 2389. 64 pp.