Appendix G

Supporting Data

2011 Regional Stations

Sediment Conditions

Appendix G.1

Constituents and method detection limits (MDL) used for the analysis of sediments collected as part of the 2009–2011 regional surveys.

Parameter	MDL 2009–2010	MDL 2011	Parameter	MDL 2009–2010	MDL 2011
Organic Indicators					
Total Nitrogen (TN, % wt.)	0.005	0.005	Total Sulfides (ppm)	0.14	0.14
Total Organic Carbon (TOC, % wt.)	0.01	0.01	Total Volatile Solids (TVS, % wt.)	0.11	0.11
Metals (ppm)					
Aluminum (Al)	2	2	Lead (Pb)	0.8	0.8
Antimony (Sb)	0.3	0.3	Manganese (Mn)	0.08	0.08
Arsenic (As)	0.33	0.33	Mercury (Hg)	0.003	0.003, 0.004[a]
Barium (Ba)	0.02	0.02	Nickel (Ni)	0.1	0.1
Beryllium (Be)	0.01	0.01	Selenium (Se)	0.24	0.24
Cadmium (Cd)	0.06	0.06	Silver (Ag)	0.04	0.04
Chromium (Cr)	0.1	0.1	Thallium (Ti)	0.5	0.5
Copper (Cu)	0.2	0.2	Tin (Sn)	0.3	0.3
Iron (Fe)	9	9	Zinc (Zn)	0.25	0.25
Chlorinated Pesticides (ppt)					
Hexachlorocyclohexane (HCH)					
HCH, Alpha isomer	e	150	HCH, Delta isomer	e	700
HCH, Beta isomer	e	310	HCH, Gamma isomer	e	260
Total Chlordane					
Alpha (cis) Chlordane	e	240	Heptachlor epoxide	e	120
Cis Nonachlor	e	240	Methoxychlor	e	1100
Gamma (trans) Chlordane	e	350	Oxychlordane	e	240
Heptachlor	e	1200	Trans Nonachlor	e	250
Total Dichlorodiphenyltrichloroethane (DDT)					
o,p-DDD	e	830	p,p-DDE	e	260
o,p-DDE	e	720	p,-p-DDMU[b]	e	—
o,p-DDT	e	800	p,p-DDT	e	800
p,p-DDD	e	470			
Miscellaneous Pesticides					
Aldrin	e	430	Endrin	e	830
Alpha Endosulfan	e	240	Endrin aldehyde	e	830
Beta Endosulfan	e	350	Hexachlorobenzene	e	470
Dieldrin	e	310	Mirex	e	500
Endosulfan Sulfate	e	260			

[a] methods changed between Jan & Jul; [b] No MDL available for this parameter; e = values estimated regardless of MDL

Appendix G.1 *continued*

Parameter	MDL 2009–2010	MDL 2011	Parameter	MDL 2009–2010	MDL 2011
Polychlorinated Biphenyl Congeners (PCBs) (ppt)					
PCB 18	e	540	PCB 126	e	720
PCB 28	e	700	PCB 128	e	570
PCB 37	e	700	PCB 138	e	590
PCB 44	e	700	PCB 149	e	500
PCB 49	e	700	PCB 151	e	640
PCB 52	e	700	PCB 153/168	e	600
PCB 66	e	700	PCB 156	e	620
PCB 70	e	700	PCB 157	e	700
PCB 74	e	700	PCB 158	e	510
PCB 77	e	700	PCB 167	e	620
PCB 81	e	700	PCB 169	e	610
PCB 87	e	700	PCB 170	e	570
PCB 99	e	700	PCB 177	e	650
PCB 101	e	430	PCB 180	e	530
PCB 105	e	720	PCB 183	e	530
PCB 110	e	640	PCB 187	e	470
PCB 114	e	700	PCB 189	e	620
PCB 118	e	830	PCB 194	e	420
PCB 119	e	560	PCB 201	e	530
PCB 123	e	660	PCB 206	e	510
Polycyclic Aromatic Hydrocarbons (PAHs) (ppb)					
1-methylnaphthalene	e	20	Benzo[G,H,I]perylene	e	20
1-methylphenanthrene	e	20	Benzo[K]fluoranthene	e	20
2,3,5-trimethylnaphthalene	e	20	Biphenyl	e	30
2,6-dimethylnaphthalene	e	20	Chrysene	e	40
2-methylnaphthalene	e	20	Dibenzo(A,H)anthracene	e	20
3,4-benzo(B)fluoranthene	e	20	Fluoranthene	e	20
Acenaphthene	e	20	Fluorene	e	20
Acenaphthylene	e	30	Indeno(1,2,3-CD)pyrene	e	20
Anthracene	e	20	Naphthalene	e	30
Benzo[A]anthracene	e	20	Perylene	e	30
Benzo[A]pyrene	e	20	Phenanthrene	e	30
Benzo[e]pyrene	e	20	Pyrene	e	20

e = values estimated regardless of MDL

Appendix G.2

Summary of the constituents that make up total DDT, total PCB and total PAH in each sediment sample collected as part of the 2011 regional survey.

Station	Class	Constituent	Value	Units
8101	PAH	Indeno(1,2,3-CD)pyrene	21.2	ppb
8102	DDT	p,p-DDE	360	ppt
8102	PAH	Benzo[G,H,I]perylene	33.1	ppb
8102	PAH	Dibenzo(A,H)anthracene	28.1	ppb
8102	PAH	Indeno(1,2,3-CD)pyrene	27.9	ppb
8104	DDT	p,p-DDE	430	ppt
8104	PAH	Benzo[G,H,I]perylene	25.6	ppb
8104	PAH	Indeno(1,2,3-CD)pyrene	22.5	ppb
8105	DDT	p,p-DDE	590	ppt
8105	PAH	Benzo[G,H,I]perylene	27.3	ppb
8105	PAH	Dibenzo(A,H)anthracene	26.1	ppb
8105	PAH	Indeno(1,2,3-CD)pyrene	25.3	ppb
8106	DDT	p,p-DDE	660	ppt
8106	PAH	Benzo[G,H,I]perylene	27.7	ppb
8106	PAH	Dibenzo(A,H)anthracene	22.5	ppb
8106	PAH	Indeno(1,2,3-CD)pyrene	24.9	ppb
8107	DDT	p,p-DDE	550	ppt
8107	PAH	Benzo[G,H,I]perylene	22.9	ppb
8107	PAH	Indeno(1,2,3-CD)pyrene	20.6	ppb
8109	DDT	p,p-DDE	390	ppt
8110	DDT	p,p-DDE	500	ppt
8110	PAH	2,6-dimethylnaphthalene	32.1	ppb
8112	DDT	p,p-DDE	640	ppt
8112	PAH	2,6-dimethylnaphthalene	24.6	ppb
8113	DDT	p,p-DDE	610	ppt
8113	PAH	2,6-dimethylnaphthalene	20.5	ppb
8114	DDT	p,p-DDE	770	ppt
8114	PAH	2,6-dimethylnaphthalene	30.0	ppb
8119	DDT	p,p-DDE	470	ppt
8119	PAH	Anthracene	38.5	ppb
8119	PAH	Benzo[A]anthracene	45.0	ppb
8119	PAH	Benzo[A]pyrene	80.3	ppb
8119	PAH	Benzo[e]pyrene	46.0	ppb
8119	PAH	Benzo[G,H,I]perylene	42.8	ppb
8119	PAH	Chrysene	135.0	ppb
8119	PAH	Fluoranthene	25.1	ppb
8119	PAH	Indeno(1,2,3-CD)pyrene	35.6	ppb
8119	PAH	Pyrene	25.4	ppb
8119	PCB	PCB 101	840	ppt
8119	PCB	PCB 110	640	ppt

Appendix G.2 *continued*

Station	Class	Constituent	Value	Units
8119	PCB	PCB 118	830	ppt
8119	PCB	PCB 138	590	ppt
8119	PCB	PCB 149	500	ppt
8119	PCB	PCB 153/168	600	ppt
8119	PCB	PCB 180	530	ppt
8120	DDT	p,p-DDE	230	ppt
8122	DDT	p,p-DDE	410	ppt
8123	DDT	p,p-DDE	390	ppt
8125	DDT	p,p-DDE	380	ppt
8126	DDT	p,p-DDE	550	ppt
8126	PCB	PCB 101	730	ppt
8126	PCB	PCB 110	640	ppt
8126	PCB	PCB 138	590	ppt
8126	PCB	PCB 149	500	ppt
8126	PCB	PCB 52	1000	ppt
8130	DDT	p,p-DDE	450	ppt
8134	DDT	p,p-DDE	635	ppt
8141	DDT	p,p-DDE	1500	ppt
8150	PAH	2,6-dimethylnaphthalene	28.6	ppb
8151	DDT	p,p-DDE	1000	ppt
8153	DDT	p,p-DDE	1500	ppt
8154	DDT	p,p-DDE	690	ppt
8155	DDT	p,p-DDE	690	ppt

Appendix G.3

Summary of sediment grain size parameters for each regional station sampled during July 2011. Silt and clay fractions are indistinguishable for samples analyzed by sieve. SD = standard deviation; ST = sediment type (F = fines; Fs = fines with sand; Fc = fines with coarse; S = sand; Sf = sand with fines; Scf = sand with coarse and fines; Sc = sand with coarse; C = coarse; Cf = coarse with fines; Csf = coarse with sand and fines; Cs = coarse with sand). Visual observations are from sieved "grunge" (i.e., particles retained on 1-mm mesh screen and preserved with infauna for benthic community analysis); abbreviations are: Sh = shell hash; Pg = pea gravel; R = rock; Wt = worm tubes; Cs = coarse sand; Cbs = coarse black sand.

	Station	Depth (m)	Mean (µm)	Mean (phi)	SD (phi)	Median (phi)	Coarse (%)	Sand (%)	Silt (%)	Clay (%)	Fines (%)	ST	Visual Observations
Inner Shelf	8116	10	333	1.9	0.9	2.0	4.0	95.9	0.1	0.0	0.1	S	Sh
	8134	10	127	3.3	1.0	3.3	0.0	87.0	12.7	0.2	12.9	Sf	—
	8103	12	407	1.6	0.9	1.7	5.2	94.8	0.0	0.0	0.0	Sc	Sh
	8135	13	123	3.4	1.2	3.0	0.0	81.4	18.2	0.4	18.6	Sf	Wt
	8117	16	135	3.2	1.1	3.0	0.0	87.9	11.9	0.2	12.1	Sf	—
	8170	16	74	4.2	1.2	4.0	0.0	54.0	44.7	1.3	46.0	Sf	—
	8115	19	373	1.7	0.9	1.7	3.8	96.2	0.0	0.0	0.0	S	Sh
	8101	20	143	3.0	0.9	3.0	0.0	94.3	5.6	0.1	5.7	S	—
	8127	20	117	3.3	0.9	3.3	0.0	91.5	8.4	0.1	8.5	S	Wt, Sh
	8128	20	117	3.3	0.9	3.3	0.0	91.4	8.4	0.2	8.6	S	—
	8108[s]	24	848	0.6	1.1	1.0	48.5	48.0	—	—	3.5	Cs	Pg, Sh
	8171	25	111	3.4	0.9	3.3	0.0	91.1	8.8	0.1	8.9	S	—
	8121	29	139	3.2	1.2	3.0	0.0	90.1	9.4	0.5	9.9	S	Sh
	8137	29	112	3.6	1.3	3.5	0.0	78.2	21.0	0.8	21.8	Sf	Wt
Mid-shelf	8126	32	97	3.8	1.3	3.5	0.0	74.8	24.1	1.2	25.2	Sf	Wt
	8125	36	89	3.9	1.3	3.7	0.0	73.2	25.6	1.2	26.8	Sf	—
	8132	40	500	1.3	1.1	1.2	5.6	91.3	3.0	0.0	3.0	Sc	Sh
	8131	58	170	3.4	2.0	2.3	0.0	73.2	24.4	2.4	26.8	Sf	—
	8110	62	65	4.5	1.5	4.0	0.0	50.5	46.4	3.1	49.5	Sf	—
	8114	72	66	4.5	1.5	4.0	0.0	52.0	45.4	2.6	48.0	Sf	—
	8113	75	59	4.7	1.5	4.2	0.0	46.3	50.6	3.0	53.7	Fs	—
	8105	78	59	4.7	1.6	4.2	0.0	45.0	51.1	3.9	55.0	Fs	—
	8106	80	55	4.8	1.5	4.5	0.0	41.7	54.7	3.6	58.3	Fs	—
	8107	84	56	4.8	1.5	4.4	0.0	42.5	54.0	3.5	57.5	Fs	Cbs, Pg
	8112	84	56	4.7	1.5	4.4	0.0	42.9	53.2	3.9	57.1	Fs	—
	8102	93	80	4.3	1.6	3.8	0.0	61.6	35.6	2.8	38.4	Sf	Sh
	8104	100	72	4.3	1.5	4.0	0.0	59.4	37.7	2.9	40.6	Sf	Cbs, Pg
	8122	101	70	4.8	2.0	4.2	0.0	48.0	43.9	8.1	52.0	Fs	Cs, Pg, Sh
Outer Shelf	8109	122	82	4.2	1.5	3.8	0.0	66.2	31.3	2.5	33.8	Sf	Sh
	8124	139	232	2.8	1.8	2.0	0.0	83.1	15.6	1.4	16.9	Sf	Cs, Pg, Sh
	8130	139	121	3.8	1.9	3.0	0.0	69.3	27.9	2.8	30.7	Sf	Cs, Pg, Sh
	8120	148	185	3.0	1.7	2.5	0.0	83.5	15.3	1.2	16.5	Sf	Cs, Pg, Sh
	8123[s]	161	350	2.3	1.3	3.0	10.8	83.7	—	—	5.6	Sc	Cs, Pg, Sh
	8141	165	56	4.9	1.6	4.4	0.0	43.4	52.4	4.3	56.6	Fs	—
	8119[s]	193	203	3.3	1.3	4.0	7.2	31.5	—	—	61.3	Fc	Cs, Pg, Sh
Upper Slope	8154	249	40	5.4	1.6	5.2	0.0	23.2	72.0	4.9	76.8	Fs	Wt
	8151	286	49	5.1	1.7	5.0	0.0	35.0	60.1	4.9	65.0	Fs	Wt
	8155	312	106	4.3	2.1	3.7	0.0	54.5	42.1	3.4	45.5	Fs	Pg, R
	8153	339	48	5.2	1.7	5.0	0.0	32.8	62.5	4.7	67.2	Fs	Wt
	8152	393	42	5.3	1.6	5.2	0.0	28.4	67.1	4.6	71.6	Fs	Wt, Sh
	8150	427	38	5.6	1.6	5.6	0.0	20.7	74.4	4.9	79.3	Fs	Wt, Sh

[s] measured by sieve (not Horiba)

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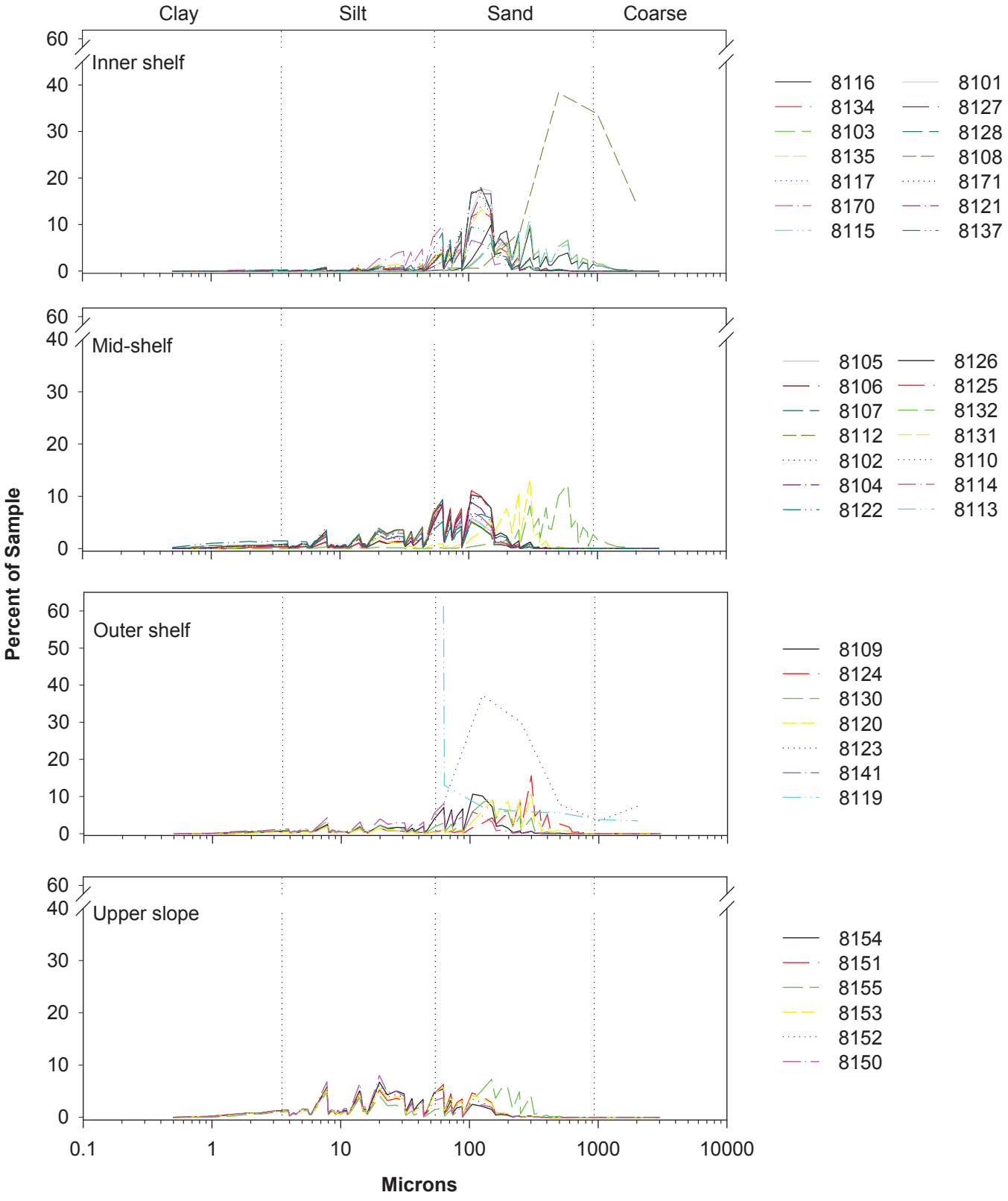

Appendix G.4

Plots illustrating sediment grain size composition for all 2011 regional stations within each major depth stratum.

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Appendix G.5

Concentrations of chemical analytes in sediments from the 2011 regional stations. ERL = Effects Range Low threshold value; ERM = Effects Range Median threshold value; see Appendix G.1 for MDLs, parameter abbreviations, and translation of periodic table symbols. Values that exceed ERL or ERM thresholds are highlighted in yellow.

	Station	Depth (m)	Sulfides (ppm)	TN (% weight)	TOC (% weight)	TVS (% weight)	tDDT (ppt)	tPCB (ppt)	tPAH (ppb)
Inner Shelf	8116	10	1.89	0.011	0.03	0.47	nd	nd	nd
	8134	10	85.20	0.019	0.08	0.90	635	nd	nd
	8103	12	1.08	0.015	0.06	0.48	nd	nd	nd
	8135	13	7.91	0.022	0.12	1.14	nd	nd	nd
	8117	16	8.50	0.016	0.14	0.87	nd	nd	nd
	8170	16	9.49	0.043	0.29	1.48	nd	nd	nd
	8115	19	1.12	0.012	0.04	0.44	nd	nd	nd
	8101	20	1.67	0.020	0.11	0.74	nd	nd	21
	8127	20	nd	0.016	0.08	0.69	nd	nd	nd
	8128	20	2.37	0.017	0.09	0.70	nd	nd	nd
	8108	24	7.66	0.173	2.31	0.98	nd	nd	nd
	8171	25	2.03	0.024	0.14	0.86	nd	nd	nd
	8121	29	6.19	0.030	0.19	1.22	nd	nd	nd
	8137	29	4.39	0.023	0.21	0.94	nd	nd	nd
Mid-shelf	8126	32	3.03	0.027	0.20	1.05	550	3460	nd
	8125	36	2.89	0.039	0.31	1.30	380	nd	nd
	8132	40	1.29	0.017	0.07	0.67	nd	nd	nd
	8131	58	0.78	0.019	0.10	0.63	nd	nd	nd
	8110	62	5.37	0.063	0.68	2.68	500	nd	32
	8114	72	9.29	0.268	0.77	2.84	770	nd	30
	8113	75	10.50	0.238	0.77	3.11	610	nd	21
	8105	78	5.58	0.097	0.78	3.11	590	nd	79
	8106	80	3.01	0.096	0.83	3.52	660	nd	75
	8107	84	10.00	0.082	0.75	3.24	550	nd	44
	8112	84	18.60	0.192	0.72	2.93	640	nd	25
	8102	93	9.68	0.068	0.54	2.60	360	nd	89
	8104	100	9.08	0.059	0.48	2.42	430	nd	48
	8122	101	7.92	0.048	0.43	2.87	410	nd	nd
Outer Shelf	8109	122	9.51	0.229	0.63	2.55	390	nd	nd
	8124	139	1.52	0.045	1.50	3.02	nd	nd	nd
	8130	139	12.10	0.091	4.71	4.49	450	nd	nd
	8120	148	2.48	0.034	1.02	2.01	230	nd	nd
	8123	161	8.18	0.043	2.35	2.43	390	nd	nd
	8141	165	13.10	0.071	0.65	4.20	1500	nd	nd
	8119	193	17.30	0.087	0.78	4.80	470	4530	474
Upper Slope	8154	249	3.07	0.200	2.42	7.03	690	nd	nd
	8151	286	15.05	0.159	1.58	5.39	1000	nd	nd
	8155	312	3.21	0.108	1.90	3.06	690	nd	nd
	8153	339	51.80	0.188	2.05	6.25	1500	nd	nd
	8152	393	11.00	0.184	1.92	6.32	nd	nd	nd
	8150	427	444.00	0.142	1.21	7.15	nd	nd	29
		[a] **ERL:**	na	na	na	na	1580	na	4022
		[a] **ERM:**	na	na	na	na	46,100	na	44,792

nd = not detected; na = not available; [a] from Long et al. 1995

Appendix G.5 *continued*

	Station	Depth (m)	Metals (ppm)								
			Al	Sb	As	Ba	Be	Cd	Cr	Cu	Fe
Inner Shelf	8116	10	1360	nd	1.4	7.3	0.034	0.16	2.8	1.4	2070
	8134	10	4190	nd	1.8	39.4	0.023	nd	7.9	2.3	5730
	8103	12	1840	0.39	2.1	35.9	0.063	0.45	5.4	1.4	3550
	8135	13	4770	nd	2.1	41.1	0.085	nd	8.8	4.2	6800
	8117	16	3420	nd	2.2	21.8	0.058	nd	6.2	2.6	4470
	8170	16	6970	0.50	4.2	51.3	0.212	0.13	22.2	8.6	12,300
	8115	19	1160	nd	2.1	6.4	0.021	nd	2.8	1.2	2170
	8101	20	3350	0.38	3.0	27.7	0.050	0.07	8.7	2.6	4870
	8127	20	3180	nd	1.5	21.3	0.060	nd	7.1	2.8	3760
	8128	20	2820	nd	1.3	19.1	0.055	nd	6.3	1.4	2890
	8108	24	2630	nd	5.2	25.5	0.029	0.08	6.2	1.8	5320
	8171	25	5190	nd	3.0	30.8	0.075	nd	8.4	2.1	5050
	8121	29	3260	nd	2.0	21.2	0.059	nd	5.8	4.1	4890
	8137	29	4470	nd	2.5	26.2	0.101	nd	10.2	3.7	6480
Mid-shelf	8126	32	5310	nd	2.3	35.7	0.104	0.06	10.5	5.8	6940
	8125	36	5430	nd	2.2	34.1	0.108	0.08	10.4	5.1	6660
	8132	40	791	nd	5.8	2.4	0.045	nd	10.3	0.2	5130
	8131	58	924	nd	2.3	3.2	0.043	nd	4.5	0.3	3260
	8110	62	11,400	0.61	5.7	56.8	0.187	0.23	20.2	9.9	14,100
	8114	72	7570	0.63	5.7	53.1	0.191	0.42	17.0	9.5	11,700
	8113	75	7990	0.53	5.5	54.1	0.174	0.19	18.4	10.2	12,600
	8105	78	9190	0.72	5.1	52.7	0.185	0.16	21.2	9.2	14,500
	8106	80	12,200	0.75	5.9	57.2	0.209	0.14	24.3	11.6	17,000
	8107	84	11,300	0.86	5.6	53.3	0.200	0.14	23.7	10.5	16,400
	8112	84	14,500	0.60	5.4	57.7	0.219	0.16	23.2	11.6	16,100
	8102	93	6210	0.48	4.6	42.2	0.142	0.22	14.8	5.9	10,800
	8104	100	7500	0.56	3.9	38.2	0.152	0.16	17.0	6.4	11,100
	8122	101	6720	0.51	4.5	83.0	0.237	0.10	12.5	10.2	11,000
Outer Shelf	8109	122	7030	0.46	3.6	29.3	0.143	0.15	15.7	6.4	10,100
	8124	139	2260	0.36	7.0	9.2	0.167	0.17	13.9	5.3	8430
	8130	139	4840	0.58	8.9	58.7	0.297	0.21	24.6	7.7	15,000
	8120	148	2610	0.41	5.3	10.6	0.162	0.11	14.5	2.5	7550
	8123	161	2830	0.46	4.8	20.0	0.143	0.15	13.8	4.1	8330
	8141	165	7540	0.58	4.0	47.0	0.187	0.17	19.4	13.0	12,000
	8119	193	7970	0.50	5.0	61.0	0.224	0.17	19.8	20.3	12,600
Upper Slope	8154	249	17,000	0.73	4.9	74.3	0.258	0.26	29.9	20.0	18,100
	8151	286	14,300	0.73	5.3	64.8	0.259	0.51	26.9	15.0	17,600
	8155	312	7650	0.43	5.2	51.2	0.116	0.09	12.5	5.0	9310
	8153	339	13,200	0.72	5.0	90.8	0.278	0.41	29.7	15.7	18,000
	8152	393	13,500	0.71	5.0	73.8	0.247	0.39	27.0	15.1	16,000
	8150	427	17,000	0.77	10.5	97.6	0.308	0.61	30.4	20.4	23,200
		[a]ERL:	na	na	8.2	na	na	1.2	81	34	na
		[a]ERM:	na	na	70.0	na	na	9.6	370	270	na

nd = not detected; na = not available; [a] from Long et al. 1995

Appendix G.5 *continued*

	Station	Depth (m)	Metals (ppm)								
			Pb	Mn	Hg	Ni	Se	Ag	Tl	Sn	Zn
Inner Shelf	8116	10	1.09	19.9	0.008	0.85	nd	nd	nd	nd	7.0
	8134	10	2.24	56.6	0.037	nd	nd	nd	nd	0.45	15.0
	8103	12	1.27	57.5	nd	2.33	nd	nd	nd	0.57	10.4
	8135	13	3.01	62.8	0.014	3.64	nd	nd	nd	0.58	18.5
	8117	16	2.65	42.8	0.009	2.27	nd	nd	nd	0.39	13.3
	8170	16	5.48	52.7	0.017	9.12	nd	nd	nd	0.93	27.4
	8115	19	1.19	19.8	0.015	0.83	nd	nd	nd	nd	5.0
	8101	20	1.91	56.1	0.006	3.08	nd	nd	nd	0.63	12.8
	8127	20	2.03	36.1	nd	2.04	nd	nd	nd	0.43	11.2
	8128	20	1.58	30.1	nd	1.91	nd	nd	nd	0.37	8.2
	8108	24	3.19	75.7	nd	2.50	nd	nd	nd	0.66	16.2
	8171	25	2.52	53.8	nd	2.72	nd	nd	nd	0.57	12.7
	8121	29	3.81	46.3	0.016	2.24	nd	nd	nd	0.58	13.6
	8137	29	3.18	46.3	0.012	3.42	nd	nd	nd	0.60	15.3
Mid-shelf	8126	32	3.78	57.8	0.011	4.43	nd	nd	nd	0.72	18.6
	8125	36	3.88	60.3	0.015	4.74	nd	nd	nd	0.61	18.5
	8132	40	2.91	10.4	nd	nd	nd	nd	nd	nd	6.0
	8131	58	1.49	13.1	nd	nd	nd	nd	nd	nd	5.4
	8110	62	8.68	128.0	0.051	9.04	nd	nd	nd	1.86	37.4
	8114	72	7.95	114.0	0.051	8.49	nd	nd	nd	1.53	33.7
	8113	75	8.36	118.0	0.060	9.09	nd	nd	nd	1.70	35.5
	8105	78	7.90	116.0	0.037	9.44	nd	nd	nd	1.59	35.2
	8106	80	10.10	132.0	0.048	11.10	nd	nd	nd	2.02	42.0
	8107	84	9.45	128.0	0.041	10.80	nd	nd	nd	1.68	39.9
	8112	84	10.50	139.0	0.045	11.30	nd	0.08	nd	1.90	42.4
	8102	93	5.59	89.1	0.022	6.43	nd	nd	nd	0.93	26.9
	8104	100	5.58	88.6	0.025	7.37	nd	nd	nd	1.58	26.9
	8122	101	6.46	86.5	0.045	6.55	nd	nd	nd	0.99	28.6
Outer Shelf	8109	122	5.44	73.2	0.028	7.08	nd	nd	nd	1.02	25.1
	8124	139	5.39	18.2	0.013	4.79	nd	nd	nd	0.42	19.8
	8130	139	6.23	70.0	0.021	9.27	nd	nd	nd	0.78	32.0
	8120	148	2.97	21.6	0.009	3.96	nd	nd	nd	0.37	14.3
	8123	161	3.42	40.9	0.014	4.89	nd	nd	nd	0.57	17.5
	8141	165	7.43	97.1	0.060	11.60	nd	nd	nd	1.42	35.6
	8119	193	10.30	115.0	0.124	11.60	nd	nd	nd	1.50	41.1
Upper Slope	8154	249	11.10	144.0	0.110	20.40	0.31	nd	nd	1.84	53.0
	8151	286	10.60	134.0	0.060	14.30	0.27	nd	nd	1.64	48.2
	8155	312	4.76	94.0	0.028	5.04	nd	nd	nd	0.88	28.0
	8153	339	9.21	125.0	0.058	16.50	0.3	nd	nd	1.26	48.5
	8152	393	8.02	125.0	0.043	16.40	0.6	nd	nd	1.17	47.1
	8150	427	12.50	201.0	0.065	16.20	0.38	0.05	nd	1.87	64.0
		[a]ERL:	46.7	na	0.15	20.9	na	1.0	na	na	150
		[a]ERM:	218	na	0.71	51.6	na	3.7	na	na	410

nd = not detected; na = not available; [a] from Long et al. 1995

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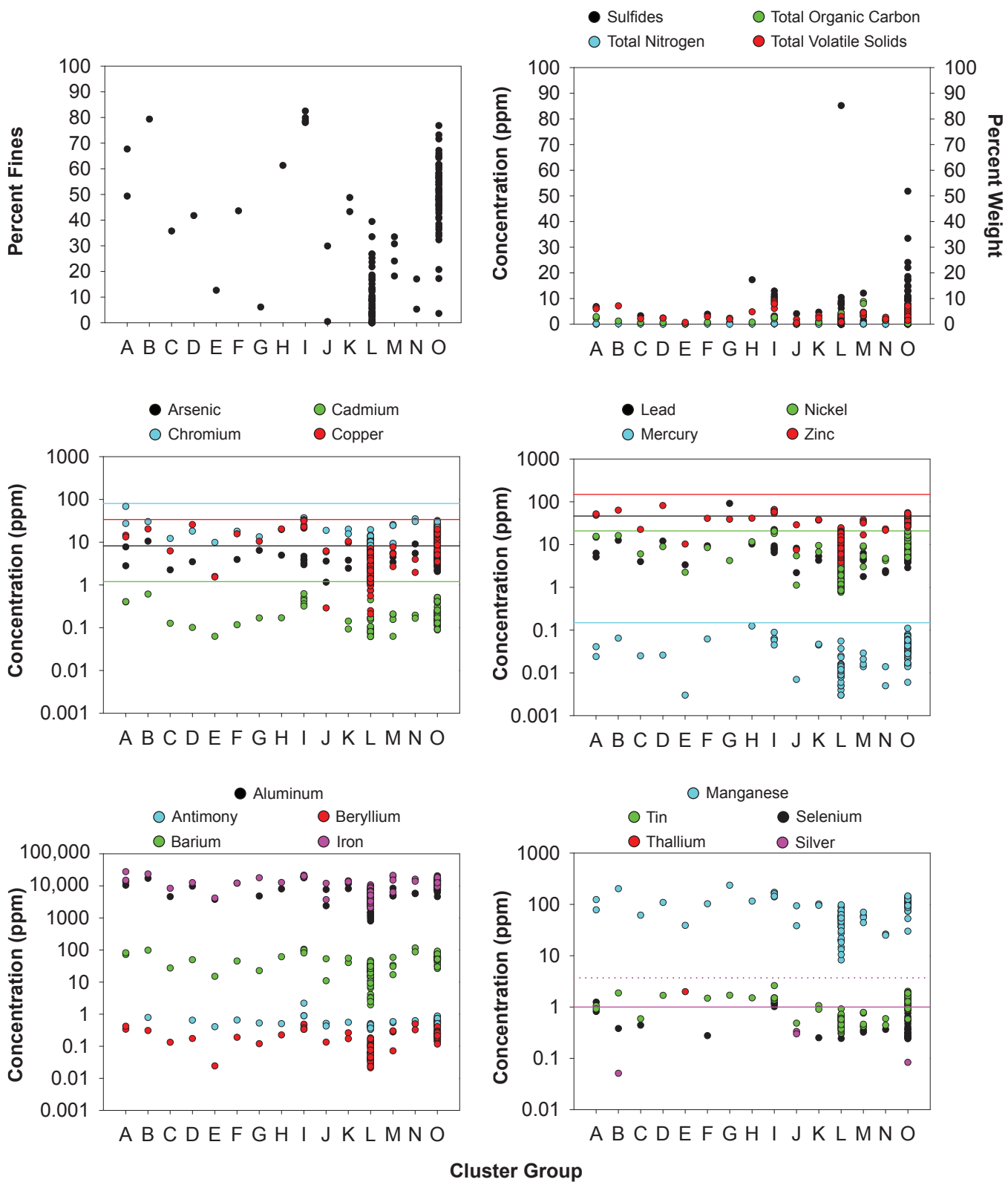
Appendix G.6

Description of cluster groups A−O (as defined in Figure 8.5). Data are expressed as the average percent or concentration of each parameter for each cluster group. For groups containing more than one site, bold indicates parameters that were considered most defining for each group according to SIMPER analysis.

	Cluster Groups						
	A	B	C	D	E	F	G
Organic Indicators							
Sulfides (ppm)	3.44	444.00	3.33	2.43	0.20	3.91	0.69
TN (% weight)	0.159	0.142	0.063	0.052	0.020	0.077	0.043
TOC (% weight)	2.59	1.21	0.65	0.66	0.13	0.74	2.31
TVS (% weight)	6.24	7.15	2.15	2.36	0.69	2.90	1.98
Trace Metals (ppm)							
Aluminum	11,900	17,000	4560	9690	3780	12,000	4750
Antimony	0	0.78	0	0.64	0.40	0.65	0.52
Arsenic	**5.28**	10.50	2.24	3.48	1.58	3.95	6.41
Barium	76.3	97.6	27.2	49.1	15.0	44.9	22.5
Beryllium	0.377	0.308	0.131	0.173	0.024	0.188	0.119
Cadmium	0.402	0.610	0.126	0.101	0.063	0.117	0.169
Chromium	**47.7**	30.4	12.2	18.1	9.8	18.0	13.3
Copper	13.80	20.40	6.26	25.80	1.53	15.70	10.40
Iron	21,200	23,200	8310	12,500	4130	12,100	17,700
Lead	5.69	12.50	4.01	12.10	3.35	9.36	91.60
Manganese	100.0	201.0	61.3	108.0	38.8	102.0	235.0
Mercury	0.033	0.065	0.025	0.026	0.003	0.062	0
Nickel	15.20	16.20	6.05	8.95	2.24	8.48	4.22
Selenium	1.020	0.380	0.440	0	0	0.276	0
Silver	0	0.051	0	0	0	0	0
Thallium	0	0	0	0	1.97	0	0
Tin	0.980	1.870	0.585	1.670	0	1.470	1.680
Zinc	50.4	64.0	22.6	81.8	10.3	40.9	39.0
Chlorinated Pesticides (ppt)							
Alpha (cis) chlordane	**660**	0	0	0	0	0	0
Gamma (trans) chlordane	885	0	0	0	0	0	0
HCH, beta isomer	**1000**	0	4800	0	0	0	0
HCH, delta isomer	**3300**	0	3700	0	0	0	0
HCH, gamma isomer	750	0	0	0	0	0	0
tDDT	855	0	3390	1950	0	75,920	0
HCB	105	0	0	330	0	0	0
Total PCB (ppt)	0	0	0	34,730	0	5572	0
Total PAH (ppb)	0	28.6	0	165.0	0	101.0	0

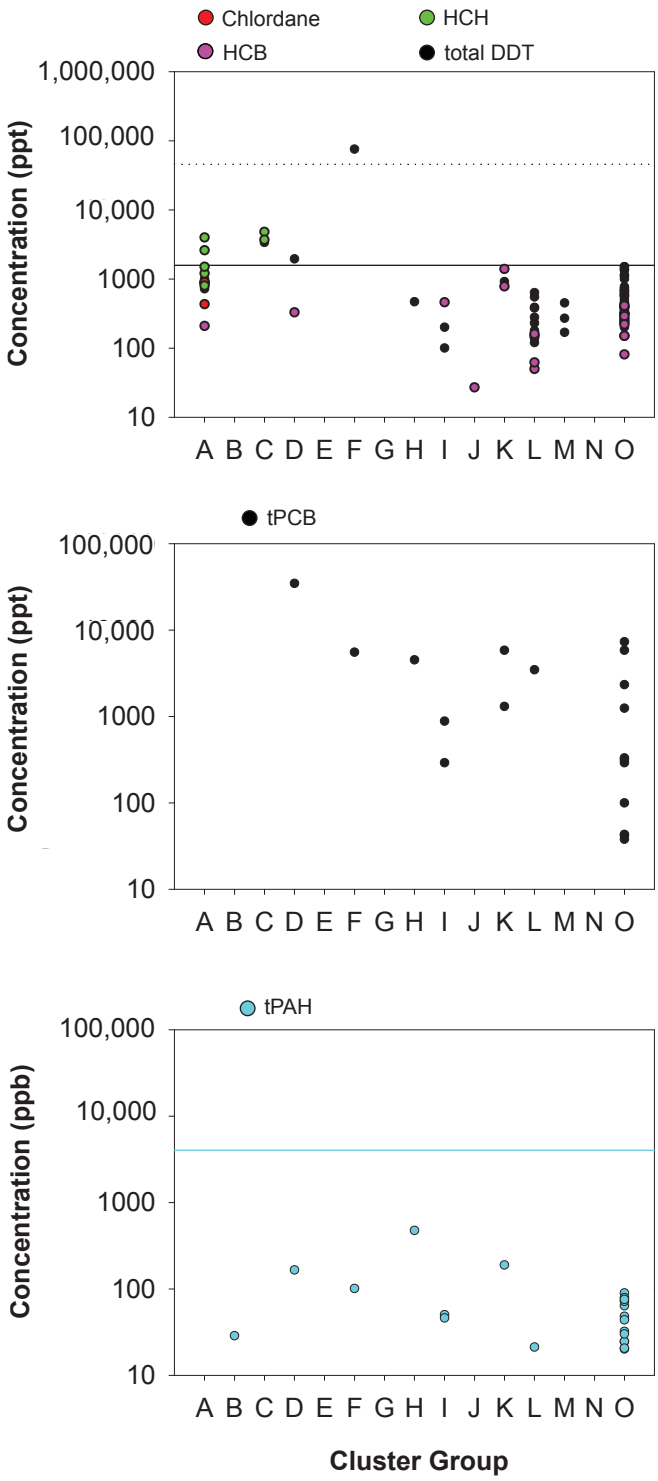
Appendix G.6 *continued*

	Cluster Groups							
	H	I	J	K	L	M	N	O
Organic Indicators								
Sulfides (ppm)	17.30	11.00	2.04	2.57	4.54	4.16	1.57	8.20
TN (% weight)	0.087	0.237	0.032	0.064	0.027	0.079	0.038	**0.104**
TOC (% weight)	0.78	2.75	0.27	0.97	**0.43**	**6.51**	1.47	1.07
TVS (% weight)	4.80	7.91	1.16	2.88	1.01	3.87	2.32	**3.52**
Trace Metals (ppm)								
Aluminum	7970	18,400	4990	9860	3390	5770	5730	10,200
Antimony	0.50	**0.79**	0.47	**0.28**	**0.11**	**0.28**	0.57	0.52
Arsenic	4.96	3.71	**2.38**	3.11	**2.73**	**5.55**	**7.24**	3.90
Barium	61.0	93.5	**31.8**	47.7	20.7	34.7	**101.0**	55.0
Beryllium	0.224	0.394	0.066	**0.215**	0.065	**0.233**	**0.406**	0.221
Cadmium	0.171	**0.446**	0	0.117	**0.047**	0.156	0.180	**0.227**
Chromium	19.8	34.3	**12.4**	17.9	8.6	21.1	**32.6**	20.6
Copper	20.30	**24.30**	3.27	10.00	2.82	5.30	2.95	10.50
Iron	12,600	20,000	**7790**	13,800	5650	**15,500**	14,800	14,300
Lead	10.30	7.88	5.22	4.79	2.42	4.23	2.32	6.31
Manganese	115.0	156.0	65.9	98.3	**46.7**	57.0	25.5	110.0
Mercury	0.124	0.064	0.004	0.046	0.008	0.020	0.010	**0.040**
Nickel	11.60	20.90	3.31	8.11	2.45	6.55	4.48	9.76
Selenium	0	1.180	0	0.125	0.021	0.269	**0.181**	0.209
Silver	0	0	0.314	0	0	0	0	**0.002**
Thallium	0	0	0	0	0	0	0	0
Tin	1.500	**1.690**	0.240	0.980	0.398	0.602	0.515	1.240
Zinc	41.1	60.4	**18.3**	37.7	12.9	30.3	22.4	38.0
Chlorinated Pesticides (ppt)								
Alpha (cis) chlordane	0	0	0	0	0	0	0	0
Gamma (trans) chlordane	0	0	0	0	0	0	0	0
HCH, beta isomer	0	0	0	0	0	0	0	0
HCH, delta isomer	0	0	0	0	0	0	0	0
HCH, gamma isomer	0	0	0	0	0	0	0	0
tDDT	470	60	0	460	65	223	0	457
HCB	0	**92**	14	**1090**	9	0	0	54
Total PCB (ppt)	4530	234	0	**3590**	77	0	0	345
Total PAH (ppb)	473.7	19.2	0	**93.9**	0.5	0	0	11.9



Appendix G.7

Particle size and sediment chemistry parameters by cluster group (see Figure 8.5). Solid lines are ERLs, dashed lines are ERM (see text).



Appendix G.7 *continued*