

2004 Marine Sediment, Shellfish, and Lobster Tissue Analysis

This draft report contains data on marine sediments, softshell clam (*Mya arenaria*), and lobster (*Homarus americanus*) hepatopancreas and muscle tissues collected in 2004.

The following sediment and clam sites were sampled in 2004: Mast Cove, Piscataqua River; Navy Pier, Harpswell, Middle Cove in Casco Bay; Squirrel Island, Boothbay Harbor; Upper St. George River, Warren; and Harris Cove, Eastport. All samples consisted of four replicate samples. Sites were sampled on the following dates:

Location	Date Sampled
Mast Cove, Piscataqua	11/09/04
Navy Pier, Harpswell	11/12/04
Squirrel Island, Boothbay Harbor	11/08/04
Upper St. George River, Warren	11/04/04
Harris Cove, Eastport	11/09/04

Sediment and clam tissue from Mast Cove, Piscataqua River; Navy Pier, Harpswell; Squirrel Island, Boothbay Harbor; and Harris Cove, Eastport were analyzed for: Mercury, heavy metals, and PAHs. Sediment and clam tissue from Upper St. George River, Warren, were analyzed for dioxin, furans, and coplanar PCBs.

Lobsters were collected as part of the National Coastal Assessment (NCA) on the eastern half of the Maine coast in 2004. Twelve stations were sampled over the eastern half of the coast, and DEP dissected lobsters into hepatopancreas, muscle, and offal tissues. Whenever possible, lobster samples were composites of five individual animals. EPA, as part of the NCA program, will analyze lobster muscle tissue for: Mercury, heavy metals, PAHs, pesticides, and PCBs. As part of the SWAT program, DEP analyzed the lobster muscle tissue for: Dioxins, furans, coplanar PCBs, and PBDEs. Also, as part of the SWAT program, DEP analyzed lobster hepatopancreas for: Mercury, heavy metals, PAHs, pesticides, PCBs, dioxins, furans, and coplanar PCBs. There was insufficient tissue collected in 2004 to allow analysis of hepatopancreas for PBDEs. DEP has still not received pesticides results for hepatopancreas tissue from the laboratory. These data will be presented later upon their receipt.

Table 1.1.1 HEAVY METALS AND MERCURY IN 2004 SEDIMENT

Field ID	Parameter	Units mg/kg Wet			
		Flag Rep 1	Flag Rep 2*	Flag Rep 3	Flag Rep 4
Navy Pier, Harpswell	Aluminum		2600		2100
Navy Pier, Harpswell	Cadmium	B	0.021	B	0.019 B
Navy Pier, Harpswell	Chromium		5.9		5.1
Navy Pier, Harpswell	Copper		3.4		7.1
Navy Pier, Harpswell	Iron		4300		6100
Navy Pier, Harpswell	Lead		1.4		1
Navy Pier, Harpswell	Mercury	B	0.0024	<	0.002 B
Navy Pier, Harpswell	Nickel		3.5		3.9
Navy Pier, Harpswell	Selenium	B	0.19	B	0.39 B
Navy Pier, Harpswell	Silver	<	0.017	<	0.017 <
Navy Pier, Harpswell	Zinc	B	11		7.4
Navy Pier, Harpswell	Percent Solids		82.8		83.4

*replicate 2 jar broken in shipping

Table 1.1.1 HEAVY METALS AND MERCURY IN 2004 SEDIMENT (CONTINUED)

Field ID	Parameter	Units mg/kg Wet				
		Flag Rep 1	Flag Rep 2	Flag Rep 3	Flag Rep 4	
Harris Cove, Eastport	Aluminum	6800	8300	11000	8700	
Harris Cove, Eastport	Cadmium	0.14	0.18	0.19	0.28	
Harris Cove, Eastport	Chromium	14	16	18	17	
Harris Cove, Eastport	Copper	13	9	11	13	
Harris Cove, Eastport	Iron	12000	14000	16000	15000	
Harris Cove, Eastport	Lead	13	17	19	24	
Harris Cove, Eastport	Mercury	B	0.014	0.016	0.082	0.021
Harris Cove, Eastport	Nickel		14	14	15	15
Harris Cove, Eastport	Selenium	B	0.55 B	0.61	0.92	1.1
Harris Cove, Eastport	Silver	B	0.026 B	0.029 B	0.042 B	0.048
Harris Cove, Eastport	Zinc		41	46	55	61
Harris Cove, Eastport	Percent Solids		72	68.1	63.5	56.8

Table 1.1.1 HEAVY METALS AND MERCURY IN 2004 SEDIMENT (CONTINUED)

Field ID	Parameter	Units mg/kg Wet				
		Flag Rep 1	Flag Rep 2	Flag Rep 3	Flag Rep 4	
Squirrel Island, Boothbay Harbor	Aluminum		2000	2500	1800	2100
Squirrel Island, Boothbay Harbor	Cadmium	B	0.061 B	0.057 B	0.027 B	0.055
Squirrel Island, Boothbay Harbor	Chromium		5.5	7.4	5.1	5.7
Squirrel Island, Boothbay Harbor	Copper		3.3	3.7	4.6	23
Squirrel Island, Boothbay Harbor	Iron		2600	3200	2300	3900
Squirrel Island, Boothbay Harbor	Lead		5.1	4.8	3.5	33
Squirrel Island, Boothbay Harbor	Mercury	B	0.0055 B	0.0071 B	0.0037 B	0.0045
Squirrel Island, Boothbay Harbor	Nickel		3.8	4	2.7	4.5
Squirrel Island, Boothbay Harbor	Selenium	B	0.32 B	0.33 B	0.29 B	0.34
Squirrel Island, Boothbay Harbor	Silver	<	0.017 <	0.016 <	0.016 <	0.016
Squirrel Island, Boothbay Harbor	Zinc		14	12	10	15
Squirrel Island, Boothbay Harbor	Percent Solids		79	82.6	86	84.7

Table 1.1.1 HEAVY METALS AND MERCURY IN 2004 SEDIMENT (CONTINUED)

Field ID	Parameter	Units mg/kg Wet				
		Flag Rep 1	Flag Rep 2	Flag Rep 3	Flag Rep 4	
Mast Cove, Piscataqua River	Aluminum		3000	2400	3900	4000
Mast Cove, Piscataqua River	Cadmium	B	0.08 B	0.073 B	0.074 B	0.072
Mast Cove, Piscataqua River	Chromium		12	8.8	14	14
Mast Cove, Piscataqua River	Copper		3	2.7	5.2	4.5
Mast Cove, Piscataqua River	Iron		5700	4400	7800	7800
Mast Cove, Piscataqua River	Lead		5.3	4.5	5.8	5
Mast Cove, Piscataqua River	Mercury		0.018	0.017	0.021	0.017
Mast Cove, Piscataqua River	Nickel		6.7	4.5	8.1	7.9
Mast Cove, Piscataqua River	Selenium	B	0.41 B	0.36 B	0.46 B	0.42
Mast Cove, Piscataqua River	Silver	B	0.031 B	0.032 B	0.047 B	0.032
Mast Cove, Piscataqua River	Zinc		16	14	21	19
Mast Cove, Piscataqua River	Percent Solids		78.6	78.4	77.6	80.5

Table 1.1.2 HEAVY METALS AND MERCURY IN 2004 CLAM TISSUE

Field ID	Parameter	Rep 1		Rep 2		Rep 3		Rep 4	
		mg/kg Wet	mg/kg Dry	mg/kg Wet	mg/kg Dry	mg/kg Wet	mg/kg Dry	mg/kg Wet	mg/kg Dry
Navy Pier, Harpswell	Aluminum	86	581.08	74	500.00	190	1301.37	83	638.46
Navy Pier, Harpswell	Cadmium	0.12	0.81	0.12	0.81	0.11	0.75 B	0.089	0.68
Navy Pier, Harpswell	Chromium	1.8	12.16 B	0.65	4.39	2	13.70	1.5	11.54
Navy Pier, Harpswell	Copper	1.6	10.81	1.7	11.49	1.7	11.64	1.8	13.85
Navy Pier, Harpswell	Iron	310	2094.59	310	2094.59	580	3972.60	310	2384.62
Navy Pier, Harpswell	Lead	B 0.17	1.15 B	0.21	1.42 B	0.19	1.30 B	0.22	1.69
Navy Pier, Harpswell	Mercury	0.01	0.07	0.011	0.07 B	0.0097	0.07 B	0.0082	0.06
Navy Pier, Harpswell	Nickel	0.92	6.22	0.44	2.97	1.4	9.59	0.92	7.08
Navy Pier, Harpswell	Selenium	B 0.43	2.91 B	0.42	2.84 B	0.42	2.88 B	0.38	2.92
Navy Pier, Harpswell	Silver	B 0.093	0.63 B	0.16	1.08 B	0.15	1.03 B	0.089	0.68
Navy Pier, Harpswell	Zinc	9	60.81	8.6	58.11	8.4	57.53	8.7	66.92
Navy Pier, Harpswell	Percent Solids	14.8	0.15	14.8	0.15	14.6	0.15	13	0.13

Table 1.1.2 HEAVY METALS AND MERCURY IN 2004 CLAM TISSUE (CONTINUED)

Field ID	Parameter	Rep 1		Rep 2		Rep 3		Rep 4					
		Flag	mg/kg Wet Result	mg/kg Dry Calculated	Flag	mg/kg Wet Result	mg/kg Dry Calculated	Flag	mg/kg Wet Result	mg/kg Dry Calculated			
Harris Cove, Eastport	Aluminum		120	789.47		110	733.33		130	921.99		80	655.74
Harris Cove, Eastport	Cadmium	B	0.058	0.38	B	0.061	0.41	B	0.067	0.48	B	0.064	0.52
Harris Cove, Eastport	Chromium		1.5	9.87		2	13.33		1.9	13.48		1.1	9.02
Harris Cove, Eastport	Copper		1.3	8.55		1.6	10.67		2.3	16.31		1.2	9.84
Harris Cove, Eastport	Iron		340	2236.84		410	2733.33		420	2978.72		270	2213.11
Harris Cove, Eastport	Lead		0.61	4.01		0.87	5.80		0.87	6.17		0.71	5.82
Harris Cove, Eastport	Mercury	B	0.0095	0.06	B	0.0076	0.05	B	0.0072	0.05	B	0.007	0.06
Harris Cove, Eastport	Nickel		0.83	5.46		1.1	7.33		1.6	11.35		0.62	5.08
Harris Cove, Eastport	Selenium	B	0.41	2.70	B	0.44	2.93	B	0.4	2.84	B	0.39	3.20
Harris Cove, Eastport	Silver	B	0.026	0.17	B	0.027	0.18	<	0.02	0.14	<	0.02	0.16
Harris Cove, Eastport	Zinc		9.1	59.87		9.5	63.33		9.8	69.50		8.3	68.03
Harris Cove, Eastport	Percent Solids		15.2	0.15		15	0.15		14.1	0.14		12.2	0.12

Table 1.1.2 HEAVY METALS AND MERCURY IN 2004 CLAM TISSUE (CONTINUED)

Field ID	Parameter	Rep 1		Rep 2		Rep 3		Rep 4	
		Flag	mg/kg Wet mg/kg Dry Result Calculated	Flag	mg/kg Wet mg/kg Dry Result Calculated	Flag	mg/kg Wet mg/kg Dry Result Calculated	Flag	mg/kg Wet mg/kg Dry Result Calculated
Squirrel Island, Boothbay Harbor	Aluminum		68 459.46		85 454.55		110 614.53		110 723.68
Squirrel Island, Boothbay Harbor	Cadmium	B	0.046 0.31	B	0.056 0.30	B	0.056 0.31	B	0.049 0.32
Squirrel Island, Boothbay Harbor	Chromium		2.3 15.54		1 5.35		1.8 10.06		2 13.16
Squirrel Island, Boothbay Harbor	Copper		1.8 12.16		2 10.70		2.1 11.73		1.6 10.53
Squirrel Island, Boothbay Harbor	Iron		150 1013.51		190 1016.04		300 1675.98		270 1776.32
Squirrel Island, Boothbay Harbor	Lead		0.28 1.89		0.35 1.87		0.62 3.46		0.53 3.49
Squirrel Island, Boothbay Harbor	Mercury	B	0.01 0.07		0.013 0.07		0.011 0.06	B	0.0094 0.06
Squirrel Island, Boothbay Harbor	Nickel		1.2 8.11		0.63 3.37		0.99 5.53		1.1 7.24
Squirrel Island, Boothbay Harbor	Selenium	B	0.34 2.30	B	0.38 2.03	B	0.27 1.51	B	0.34 2.24
Squirrel Island, Boothbay Harbor	Silver	B	0.034 0.23	B	0.036 0.19	B	0.04 0.22	B	0.033 0.22
Squirrel Island, Boothbay Harbor	Zinc		8.9 60.14		9.4 50.27		9.2 51.40		9.5 62.50
Squirrel Island, Boothbay Harbor	Percent Solids		14.8 0.15		18.7 0.19		17.9 0.18		15.2 0.15

Table 1.1.2 HEAVY METALS AND MERCURY IN 2004 CLAM TISSUE (CONTINUED)

Field ID	Parameter	Rep 1		Rep 2		Rep 3		Rep 4	
		Flag	mg/kg Wet mg/kg Dry Result Calculated	Flag	mg/kg Wet mg/kg Dry Result Calculated	Flag	mg/kg Wet mg/kg Dry Result Calculated	Flag	mg/kg Wet mg/kg Dry Result Calculated
Mast Cove, Piscataqua River	Aluminum		110 728.48		110 718.95		140 858.90		140 909.09
Mast Cove, Piscataqua River	Cadmium	B	0.057 0.38	B	0.048 0.31	B	0.067 0.41	B	0.054 0.35
Mast Cove, Piscataqua River	Chromium		1.6 10.60		2 13.07		2.5 15.34		2.2 14.29
Mast Cove, Piscataqua River	Copper		1.9 12.58		1.9 12.42		1.8 11.04		2.5 16.23
Mast Cove, Piscataqua River	Iron		430 2847.68		640 4183.01		910 5582.82		960 6233.77
Mast Cove, Piscataqua River	Lead		0.65 4.30		0.48 3.14		0.68 4.17		0.58 3.77
Mast Cove, Piscataqua River	Mercury		0.047 0.31		0.049 0.32		0.036 0.22		0.041 0.27
Mast Cove, Piscataqua River	Nickel		1.6 10.60		1 6.54		1.4 8.59		2 12.99
Mast Cove, Piscataqua River	Selenium	B	0.38 2.52	B	0.39 2.55	B	0.38 2.33	B	0.4 2.60
Mast Cove, Piscataqua River	Silver		0.34 2.25		0.48 3.14	B	0.16 0.98		0.3 1.95
Mast Cove, Piscataqua River	Zinc		9.8 64.90		11 71.90		10 61.35		12 77.92
Mast Cove, Piscataqua River	Percent Solids		15.1 0.15		15.3 0.15		16.3 0.16		15.4 0.15

Table 1.1.3 PAHS IN 2004 SEDIMENT

SAMPLE ID		Navy Pier, Harpswell		Navy Pier, Harpswell		Navy Pier, Harpswell		Navy Pier, Harpswell	
REPLICATE		1		2		3		4	
	Units		Qual		Qual		Qual		Qual
Semi-Volatile Organics by 8270 - SIM									
Naphthalene	µg/Kg	1.4				1.0	J	1.3	
2-Methylnaphthalene	µg/Kg	0.47	J			0.46	J	0.43	J
1-Methylnaphthalene	µg/Kg	0.35	J			0.31	J	0.25	J
Biphenyl	µg/Kg	0.63	J			0.68	J	0.61	J
2,6-Dimethylnaphthalene	µg/Kg	0.56	J			0.22	J	0.22	J
Acenaphthylene	µg/Kg	1.5				1.7		3.1	
Acenaphthene	µg/Kg	1.1	U			1.1	U	1.1	U
Fluorene	µg/Kg	1.1	U			0.26	J	0.28	J
2,3,5-Trimethylnaphthalene	µg/Kg	1.1	U			1.1	U	1.1	U
Phenanthrene	µg/Kg	0.61	JB			0.42	JB	0.50	JB
Anthracene	µg/Kg	0.63	J			0.65	J	1.2	
1-Methylphenanthrene	µg/Kg	0.73	J			0.12	J	1.1	U
Fluoranthene	µg/Kg	1.3				0.47	J	0.63	J
Pyrene	µg/Kg	1.7				0.36	J	0.54	J
Benz[a]anthracene	µg/Kg	1.1				0.24	J	0.45	J
Chrysene	µg/Kg	1.7	B			0.36	JB	0.76	JB
Benzo[b]fluoranthene	µg/Kg	4.9				0.80	J	1.7	
Benzo[k]fluoranthene	µg/Kg	2.9				0.87	J	1.5	
Benzo[e]pyrene	µg/Kg	1.2				0.81	J	1.9	
Benzo[a]pyrene	µg/Kg	1.2	B			0.48	JB	0.94	JB
Perylene	µg/Kg	1.1	U			0.23	J	0.38	J
Indeno[1,2,3-cd]pyrene	µg/Kg	0.79	JB			0.67	JB	1.9	B
Dibenz[a,h]anthracene	µg/Kg	1.1	U			1.1	U	1.1	U
Benzo[g,h,i]perylene	µg/Kg	1.1	B			1.1	U	3.2	B

*Sample jar broken in shipping

Table 1.1.3 PAHS IN 2004 SEDIMENT (CONTINUED)

SAMPLE ID		Harris Cove, Eastport		Harris Cove, Eastport		Harris Cove, Eastport		Harris Cove, Eastport	
REPLICATE		1		2		3		4	
	Units		Qual		Qual		Qual		Qual
Semi-Volatile Organics by 8270 - SIM									
Naphthalene	µg/Kg	7.5		6.8		8.4		13	
2-Methylnaphthalene	µg/Kg	4.3		3.7		5.9		8.9	
1-Methylnaphthalene	µg/Kg	4.2		1.9		3.5		5.4	
Biphenyl	µg/Kg	2.4		2.3		2.5		3.2	
2,6-Dimethylnaphthalene	µg/Kg	5.3		3.4		7.1		45	
Acenaphthylene	µg/Kg	33		34		39		100	
Acenaphthene	µg/Kg	6.3		3.1		5.1		12	
Fluorene	µg/Kg	15		6.0		9.1		20	
2,3,5-Trimethylnaphthalene	µg/Kg	0.70	J	1.8		2.2		5.1	
Phenanthrene	µg/Kg	160	B	87	B	140	B	260	B
Anthracene	µg/Kg	25		25		33		80	
1-Methylphenanthrene	µg/Kg	14		13		18		48	
Fluoranthene	µg/Kg	290		240		350		840	
Pyrene	µg/Kg	270		210		280		680	
Benz[a]anthracene	µg/Kg	93		100		130		350	
Chrysene	µg/Kg	120	B	130	B	170	B	400	B
Benzo[b]fluoranthene	µg/Kg	99		120		140		310	
Benzo[k]fluoranthene	µg/Kg	120		110		140		340	
Benzo[e]pyrene	µg/Kg	76		79		98		220	
Benzo[a]pyrene	µg/Kg	100	B	110	B	140	B	350	B
Perylene	µg/Kg	25		29		37		88	
Indeno[1,2,3-cd]pyrene	µg/Kg	69	B	80	B	99	B	240	B
Dibenz[a,h]anthracene	µg/Kg	19	B	26	B	34	B	82	B
Benzo[g,h,i]perylene	µg/Kg	74	B	83	B	100	B	230	B

Table 1.1.3 PAHS IN 2004 SEDIMENT (CONTINUED)

SAMPLE ID		Squirrel I., Boothbay H		Squirrel I., Boothbay H		Squirrel I., Boothbay H		Squirrel I., Boothbay H	
REPLICATE		1	Qual	2	Qual	3	Qual	4	Qual
	Units		Qual		Qual		Qual		Qual
Semi-Volatile Organics by 8270 - SIM									
Naphthalene	µg/Kg	4.4		1.0	J	0.86	J	0.85	J
2-Methylnaphthalene	µg/Kg	0.69	J	0.33	J	0.29	J	0.25	J
1-Methylnaphthalene	µg/Kg	0.24	J	0.22	J	0.17	J	0.15	J
Biphenyl	µg/Kg	0.38	J	0.34	J	0.34	J	0.34	J
2,6-Dimethylnaphthalene	µg/Kg	0.47	J	1.2	U	0.55	J	0.33	J
Acenaphthylene	µg/Kg	0.32	J	0.18	J	1.1	U	1.2	U
Acenaphthene	µg/Kg	0.18	J	0.24	J	1.1	U	1.2	U
Fluorene	µg/Kg	0.43	J	0.28	J	0.24	J	0.19	J
2,3,5-Trimethylnaphthalene	µg/Kg	1.2	U	1.2	U	1.1	U	1.2	U
Phenanthrene	µg/Kg	1.4	B	1.4	B	0.30	JB	0.73	JB
Anthracene	µg/Kg	0.33	J	0.24	J	1.1	U	0.17	J
1-Methylphenanthrene	µg/Kg	0.13	J	0.41	J	1.1	U	0.14	J
Fluoranthene	µg/Kg	3.0		1.6		1.1	J	0.98	J
Pyrene	µg/Kg	2.7		1.3		1.1	J	0.52	J
Benz[a]anthracene	µg/Kg	2.0		1.2	J	1.4		1.2	U
Chrysene	µg/Kg	1.8	B	0.93	JB	2.6	B	1.2	U
Benzo[b]fluoranthene	µg/Kg	6.6		1.2	U	1.1	U	0.65	J
Benzo[k]fluoranthene	µg/Kg	5.4		1.2	U	1.1	U	0.35	J
Benzo[e]pyrene	µg/Kg	4.5		1.2		1.1	U	1.2	U
Benzo[a]pyrene	µg/Kg	1.4	B	0.87	JB	1.1	U	1.2	U
Perylene	µg/Kg	1.2	U	1.2	U	1.1	U	1.2	U
Indeno[1,2,3-cd]pyrene	µg/Kg	4.1		1.2	U	1.1	U	1.2	U
Dibenz[a,h]anthracene	µg/Kg	2.0		1.2	U	1.1	U	1.2	U
Benzo[g,h,i]perylene	µg/Kg	5.0		1.2	U	1.1	U	1.2	U

Table 1.1.3 PAHS IN 2004 SEDIMENT (CONTINUED)

SAMPLE ID		Mast C., Piscataqua R		Mast C., Piscataqua R		Mast C., Piscataqua R		Mast C., Piscataqua R	
REPLICATE		1	Qual	2	Qual	3	Qual	4	Qual
	Units		Qual		Qual		Qual		Qual
Semi-Volatile Organics by 8270 - SIM									
Naphthalene	µg/Kg	1.7		2.4		2.0		1.9	
2-Methylnaphthalene	µg/Kg	0.57	J	0.98	J	1.1	J	1.2	
1-Methylnaphthalene	µg/Kg	0.30	J	0.76	J	0.61	J	0.37	J
Biphenyl	µg/Kg	0.45	J	0.52	J	0.60	J	0.61	J
2,6-Dimethylnaphthalene	µg/Kg	6.3		2.4		1.6		1.2	
Acenaphthylene	µg/Kg	1.3		3.9		3.1		2.4	
Acenaphthene	µg/Kg	1.2	U	0.62	J	0.43	J	0.33	J
Fluorene	µg/Kg	1.2	U	1.3		1.2	J	0.51	J
2,3,5-Trimethylnaphthalene	µg/Kg	1.2	U	0.43	J	1.2	U	1.1	U
Phenanthrene	µg/Kg	3.4	B	3.7	B	7.8	B	5.2	B
Anthracene	µg/Kg	0.69	J	3.5		1.9		2.0	
1-Methylphenanthrene	µg/Kg	0.45	J	2.3		1.1	J	0.81	J
Fluoranthene	µg/Kg	8.1		29		21		13	
Pyrene	µg/Kg	9.1		31		23		13	
Benz[a]anthracene	µg/Kg	2.9		17		9.5		6.1	
Chrysene	µg/Kg	4.8	B	20	B	15	B	10	B
Benzo[b]fluoranthene	µg/Kg	7.2		20		16		10	
Benzo[k]fluoranthene	µg/Kg	5.7		17		15		11	
Benzo[e]pyrene	µg/Kg	4.4		14		12		7.6	
Benzo[a]pyrene	µg/Kg	4.4	B	20	B	14	B	8.8	B
Perylene	µg/Kg	2.8		6.0		5.5		4.0	
Indeno[1,2,3-cd]pyrene	µg/Kg	4.1	B	11	B	9.8	B	8.4	B
Dibenz[a,h]anthracene	µg/Kg	1.2	JB	3.6	B	2.7	B	2.8	B
Benzo[g,h,i]perylene	µg/Kg	4.1	B	11	B	9.9	B	9.1	B

Table 1.1.4 PAHS IN 2004 CLAM TISSUE

SAMPLE ID	REPLICATE	Squirrel I., Boothbay Harbor			Squirrel I., Boothbay Harbor			Squirrel I., Boothbay Harbor			Squirrel I., Boothbay Harbor		
		1	2	3	4	5	6	7	8	9	10	11	12
	Units	wet	Qual	dry	wet	Qual	dry	wet	Qual	dry	wet	Qual	dry
Semi-Volatile Organics by 8270 - SIM													
Naphthalene	µg/Kg	1.1	U	7.43	0.57	JB	3.05	0.63	JB	3.52	0.65	JB	4.28
2-Methylnaphthalene	µg/Kg	0.64	JB	4.32	2.2	B	11.76	0.90	JB	5.03	0.85	JB	5.59
1-Methylnaphthalene	µg/Kg	0.57	J	3.85	1.7		9.09	0.68	J	3.80	0.60	J	3.95
Biphenyl	µg/Kg	0.46	J	3.11	0.50	J	2.67	0.29	J	1.62	0.36	J	2.37
2,6-Dimethylnaphthalene	µg/Kg	2.4		16.22	3.3		17.65	4.3		24.02	7.3		48.03
Acenaphthylene	µg/Kg	1.1	U	7.43	1.0	U	5.35	1.0	U	5.59	1.1	U	7.24
Acenaphthene	µg/Kg	1.1	U	7.43	1.0	U	5.35	0.55	J	3.07	1.1	U	7.24
Fluorene	µg/Kg	1.1	U	7.43	1.0	U	5.35	1.0	U	5.59	0.55	J	3.62
2,3,5-Trimethylnaphthalene	µg/Kg	1.1	U	7.43	1.0	U	5.35	1.0	U	5.59	1.1	U	7.24
Phenanthrene	µg/Kg	1.1	JB	7.43	1.8	B	9.63	1.7	B	9.50	1.7	B	11.18
Anthracene	µg/Kg	0.89	J	6.01	1.3		6.95	1.2		6.70	0.91	J	5.99
1-Methylphenanthrene	µg/Kg	1.1	U	7.43	1.0	U	5.35	1.0	U	5.59	1.1	U	7.24
Fluoranthene	µg/Kg	1.1	U	7.43	1.1		5.88	1.0	U	5.59	1.1	U	7.24
Pyrene	µg/Kg	1.1	U	7.43	1.6		8.56	1.0	U	5.59	1.1	U	7.24
Benz[a]anthracene	µg/Kg	1.1	U	7.43	1.0	U	5.35	1.0	U	5.59	1.1	U	7.24
Chrysene	µg/Kg	1.1	U	7.43	1.0	U	5.35	1.0	U	5.59	1.1	U	7.24
Benzo[b]fluoranthene	µg/Kg	1.1	U	7.43	1.0	U	5.35	1.0	U	5.59	5.3		34.87
Benzo[k]fluoranthene	µg/Kg	1.1	U	7.43	1.0	U	5.35	1.0	U	5.59	1.1	U	7.24
Benzo[e]pyrene	µg/Kg	1.9		12.84	3.9		20.86	5.6		31.28	3.2		21.05
Benzo[a]pyrene	µg/Kg	1.1	U	7.43	29		155.08	38		212.29	1.1	U	7.24
Perylene	µg/Kg	1.1	U	7.43	1.0	U	5.35	1.0	U	5.59	20		131.58
Indeno[1,2,3-cd]pyrene	µg/Kg	1.1	U	7.43	1.0	U	5.35	1.0	U	5.59	1.1	U	7.24
Dibenz[a,h]anthracene	µg/Kg	1.1	U	7.43	1.0	U	5.35	1.0	U	5.59	1.1	U	7.24
Benzo[g,h,i]perylene	µg/Kg	1.1	U	7.43	1.0	U	5.35	1.0	U	5.59	1.1	U	7.24
Inorganics													
Percent Solids	%	14.8	0.148		18.7	0.187		17.9	0.179		15.2	0.152	
Percent Lipids	%	0.44			0.62			0.82			0.69		

Table 1.1.4 PAHS IN 2004 CLAM TISSUE (CONTINUED)

SAMPLE ID	REPLICATE	Harris Cove, Eastport			Harris Cove, Eastport			Harris Cove, Eastport			Harris Cove, Eastport		
		1	Qual	dry	2	Qual	dry	3	Qual	dry	4	Qual	dry
	Units	wet			wet			wet			wet		
Semi-Volatile Organics by 8270 - SIM													
Naphthalene	µg/Kg	0.52	JB	3.42	38	B	253.33	0.38	JB	2.70	0.40	JB	3.28
2-Methylnaphthalene	µg/Kg	0.88	JB	5.79	10	B	66.67	0.65	JB	4.61	1.1	JB	9.02
1-Methylnaphthalene	µg/Kg	0.57	J	3.75	8.5		56.67	0.52	J	3.69	0.48	J	3.93
Biphenyl	µg/Kg	0.37	J	2.43	6.1		40.67	0.49	J	3.48	2.9		23.77
2,6-Dimethylnaphthalene	µg/Kg	1.8		11.84	28		186.67	1.2		8.51	0.98	J	8.03
Acenaphthylene	µg/Kg	1.1	U	7.24	190		1266.67	0.51	J	3.62	0.92	J	7.54
Acenaphthene	µg/Kg	1.1	U	7.24	36		240.00	1.1	U	7.80	1.1	U	9.02
Fluorene	µg/Kg	1.1	U	7.24	120		800.00	0.12	J	0.85	1.1	U	9.02
2,3,5-Trimethylnaphthalene	µg/Kg	1.1	U	7.24	30		200.00	1.1	U	7.80	1.1	U	9.02
Phenanthrene	µg/Kg	0.93	JB	6.12	1100	B	7333.33	1.0	JB	7.09	1.4	B	11.48
Anthracene	µg/Kg	1.5		9.87	710		4733.33	1.2		8.51	1.3		10.66
1-Methylphenanthrene	µg/Kg	1.1	U	7.24	280		1866.67	1.1	U	7.80	1.1	U	9.02
Fluoranthene	µg/Kg	3.1		20.39	2300	E	15333.33	4.6		32.62	4.9		40.16
Pyrene	µg/Kg	2.0		13.16	1300		8666.67	5.0		35.46	5.5		45.08
Benz[a]anthracene	µg/Kg	3.4		22.37	940		6266.67	3.2		22.70	2.6		21.31
Chrysene	µg/Kg	9.7	B	63.82	990	B	6600.00	3.2	B	22.70	3.7	B	30.33
Benzo[b]fluoranthene	µg/Kg	1.1	U	7.24	1300		8666.67	4.5		31.91	8.0		65.57
Benzo[k]fluoranthene	µg/Kg	1.1	U	7.24	240		1600.00	2.4		17.02	2.1		17.21
Benzo[e]pyrene	µg/Kg	1.1	U	7.24	360		2400.00	4.3		30.50	4.4		36.07
Benzo[a]pyrene	µg/Kg	1.1	U	7.24	1000		6666.67	4.2		29.79	3.2		26.23
Perylene	µg/Kg	20		131.58	220		1466.67	18		127.66	25		204.92
Indeno[1,2,3-cd]pyrene	µg/Kg	1.1	U	7.24	310	B	2066.67	1.1	U	7.80	1.1	U	9.02
Dibenz[a,h]anthracene	µg/Kg	1.1	U	7.24	150		1000.00	1.1	U	7.80	1.1	U	9.02
Benzo[g,h,i]perylene	µg/Kg	1.1	U	7.24	66	B	440.00	1.1	U	7.80	1.1	U	9.02
Inorganics													
Percent Solids	%	15.2	0.152		15	0.150		14.1	0.141		12.2	0.122	
Percent Lipids	%	0.67			0.68			0.62			0.43		

Table 1.1.4 PAHS IN 2004 CLAM TISSUE (CONTINUED)

SAMPLE ID	REPLICATE	Navy Pier, Harpswell			Navy Pier, Harpswell			Navy Pier, Harpswell			Navy Pier, Harpswell		
		1	Qual	dry	2	Qual	dry	3	Qual	dry	4	Qual	dry
	Units	wet			wet			wet			wet		
Semi-Volatile Organics by 8270 - SIM													
Naphthalene	µg/Kg	0.64	JB	4.32	1.1	U	7.43	0.71	JB	4.86	1.1	U	8.46
2-Methylnaphthalene	µg/Kg	1.1	U	7.43	0.67	JB	4.53	1.0	U	6.85	1.1	U	8.46
1-Methylnaphthalene	µg/Kg	1.1	U	7.43	1.2		8.11	1.0	U	6.85	1.1	U	8.46
Biphenyl	µg/Kg	0.62	J	4.19	0.35	J	2.36	0.38	J	2.60	0.53	J	4.08
2,6-Dimethylnaphthalene	µg/Kg	16		108.11	6.4		43.24	9.9		67.81	7.3		56.15
Acenaphthylene	µg/Kg	1.1	U	7.43	1.1	U	7.43	1.0	U	6.85	1.1	U	8.46
Acenaphthene	µg/Kg	1.1	U	7.43	1.1	U	7.43	1.0	U	6.85	1.1	U	8.46
Fluorene	µg/Kg	1.1	U	7.43	1.1	U	7.43	0.18	J	1.23	1.1	U	8.46
2,3,5-Trimethylnaphthalene	µg/Kg	1.1	U	7.43	1.1	U	7.43	1.0	U	6.85	1.1	U	8.46
Phenanthrene	µg/Kg	1.1	U	7.43	0.47	JB	3.18	1.0	U	6.85	0.60	JB	4.62
Anthracene	µg/Kg	1.1	U	7.43	1.1	U	7.43	1.0	U	6.85	1.1	U	8.46
1-Methylphenanthrene	µg/Kg	1.1	U	7.43	1.1	U	7.43	1.0	U	6.85	1.1	U	8.46
Fluoranthene	µg/Kg	1.1	U	7.43	1.1	U	7.43	1.0	U	6.85	1.1	U	8.46
Pyrene	µg/Kg	1.1	U	7.43	1.1	U	7.43	1.0	U	6.85	1.1	U	8.46
Benz[a]anthracene	µg/Kg	1.1	U	7.43	1.1	U	7.43	1.0	U	6.85	1.1	U	8.46
Chrysene	µg/Kg	1.1	U	7.43	1.1	U	7.43	1.0	U	6.85	1.1	U	8.46
Benzo[b]fluoranthene	µg/Kg	1.1	U	7.43	1.1	U	7.43	1.0	U	6.85	1.1	U	8.46
Benzo[k]fluoranthene	µg/Kg	1.1	U	7.43	1.1	U	7.43	1.0	U	6.85	1.1	U	8.46
Benzo[e]pyrene	µg/Kg	1.1	U	7.43	1.1	U	7.43	1.0	U	6.85	1.1	U	8.46
Benzo[a]pyrene	µg/Kg	1.1	U	7.43	1.1	U	7.43	54		369.86	1.1	U	8.46
Perylene	µg/Kg	1.1	U	7.43	1.1	U	7.43	5.4		36.99	1.1	U	8.46
Indeno[1,2,3-cd]pyrene	µg/Kg	1.1	U	7.43	1.1	U	7.43	1.0	U	6.85	1.1	U	8.46
Dibenz[a,h]anthracene	µg/Kg	1.1	U	7.43	1.1	U	7.43	1.0	U	6.85	1.1	U	8.46
Benzo[g,h,i]perylene	µg/Kg	1.1	U	7.43	1.1	U	7.43	1.0	U	6.85	1.1	U	8.46
Inorganics													
Percent Solids	%	14.8	0.148		14.8	0.148		14.6	0.146		13	0.130	
Percent Lipids	%	0.76			0.62			0.69			0.49		

Table 1.1.4 PAHS IN 2004 CLAM TISSUE (CONTINUED)

SAMPLE ID	REPLICATE	Mast C., Piscataqua R.			Mast C., Piscataqua R.			Mast C., Piscataqua R.			Mast C., Piscataqua R.			
		Units	wet	Qual	dry	wet	Qual	dry	wet	Qual	dry	wet	Qual	dry
Semi-Volatile Organics by 8270 - SIM														
Naphthalene		µg/Kg	1.1	U	7.28	0.54	JB	3.53	0.56	JB	3.44	1.1	U	7.14
2-Methylnaphthalene		µg/Kg	0.91	JB	6.03	0.57	JB	3.73	0.63	JB	3.87	0.72	JB	4.68
1-Methylnaphthalene		µg/Kg	1.2		7.95	1.0	J	6.54	0.98	J	6.01	0.29	J	1.88
Biphenyl		µg/Kg	0.81	J	5.36	0.65	J	4.25	0.79	J	4.85	0.50	J	3.25
2,6-Dimethylnaphthalene		µg/Kg	2.8		18.54	2.8		18.30	2.5		15.34	3.1		20.13
Acenaphthylene		µg/Kg	0.68	J	4.50	0.36	J	2.35	0.87	J	5.34	1.1	U	7.14
Acenaphthene		µg/Kg	1.1	U	7.28	1.1	U	7.19	1.1	U	6.75	1.1	U	7.14
Fluorene		µg/Kg	1.1	U	7.28	1.1	U	7.19	16		98.16	1.1	U	7.14
2,3,5-Trimethylnaphthalene		µg/Kg	1.1	U	7.28	1.1	U	7.19	1.1	U	6.75	1.1	U	7.14
Phenanthrene		µg/Kg	1.5	B	9.93	0.92	JB	6.01	1.3	B	7.98	1.4	B	9.09
Anthracene		µg/Kg	1.9		12.58	1.2		7.84	1.7		10.43	0.97	J	6.30
1-Methylphenanthrene		µg/Kg	1.1	U	7.28	1.1	U	7.19	1.1	U	6.75	1.1	U	7.14
Fluoranthene		µg/Kg	4.2		27.81	2.9		18.95	4.3		26.38	4.1		26.62
Pyrene		µg/Kg	6.5		43.05	3.2		20.92	4.6		28.22	5.2		33.77
Benz[a]anthracene		µg/Kg	2.4		15.89	1.4		9.15	1.6		9.82	2.0		12.99
Chrysene		µg/Kg	2.9	B	19.21	2.8	B	18.30	4.3	B	26.38	5.1	B	33.12
Benzo[b]fluoranthene		µg/Kg	11		72.85	8.3		54.25	11		67.48	1.1	U	7.14
Benzo[k]fluoranthene		µg/Kg	2.3		15.23	1.0	J	6.54	1.8		11.04	1.1	U	7.14
Benzo[e]pyrene		µg/Kg	6.4		42.38	2.3		15.03	3.2		19.63	4.2		27.27
Benzo[a]pyrene		µg/Kg	2.9		19.21	2.1		13.73	3.2		19.63	4.6		29.87
Perylene		µg/Kg	43		284.77	33		215.69	42		257.67	30		194.81
Indeno[1,2,3-cd]pyrene		µg/Kg	1.1	U	7.28	1.1	U	7.19	1.1	U	6.75	1.1	U	7.14
Dibenz[a,h]anthracene		µg/Kg	1.1	U	7.28	1.1	U	7.19	1.1	U	6.75	1.1	U	7.14
Benzo[g,h,i]perylene		µg/Kg	1.1	U	7.28	1.1	U	7.19	1.1	U	6.75	1.1	U	7.14
Inorganics														
Percent Solids		%	15.1	0.151		15.3	0.153		16.3	0.163		15.4	0.154	
Percent Lipids		%	0.52			0.45			0.50			0.31		

Table 1.1.5 DIOXIN AND FURAN IN 2004 SEDIMENT

DEP ID REPLICATE	UPPER ST GEORGE R. 1 ng/Kg	UPPER ST GEORGE R. 2 ng/Kg	UPPER ST GEORGE R. 3 ng/Kg	UPPER ST GEORGE I 4 ng/Kg
Compound				
2,3,7,8-TCDF	0.614	0.476	0.497	0.465
1,2,3,7,8-PeCDF	0.506	0.505	0.43	0.628
2,3,4,7,8-PeCDF	< 0.183	0.764	0.959	0.983
1,2,3,4,7,8-HxCDF	0.972	0.621	0.623	0.815
1,2,3,6,7,8-HxCDF	0.797	0.691	0.541	0.919
2,3,4,6,7,8-HxCDF	0.872	0.766	< 0.467	1.09
1,2,3,7,8,9-HxCDF	< 0.148	< 0.159	< 0.435	0.384
1,2,3,4,6,7,8-HpCDF	8.46	8.39	10.1	15.8
1,2,3,4,7,8,9-HpCDF	0.395	0.407	0.732	0.981
OCDF	12.8	12.2	76.9	103
2,3,7,8-TCDD	0.144	< 0.17	< 0.392	< 0.176
1,2,3,7,8-PeCDD	0.438	0.583	0.621	0.5
1,2,3,4,7,8-HxCDD	0.888	0.675	0.887	0.917
1,2,3,6,7,8-HxCDD	1.87	1.64	1.34	2.27
1,2,3,7,8,9-HxCDD	1.94	1.67	1.26	1.9
1,2,3,4,6,7,8-HpCDD	37	33.6	30.5	47.8
OCDD	695	625	629	845
Total TEQ (ND=0)	1.932	2.131	2.12	2.64
Total TEQ (ND=DL)	2.038	2.317	2.602	2.816
% Lipids	0	0	0	0
Sample weight (g)	23.5	26.9	23.2	19.5
% Solids	45.3	42.3	50.7	51.2

Table 1.1.6 DIOXIN AND FURAN IN 2004 CLAM TISSUE

DEP ID REPLICATE	UPPER ST GEORGE R. 1 ng/Kg	UPPER ST GEORGE R. 2 ng/Kg	UPPER ST GEORGE R. 3 ng/Kg	UPPER ST GEORGE I 4 ng/Kg
Compound				
2,3,7,8-TCDF	0.112	<	0.0972	<
1,2,3,7,8-PeCDF	<	0.0987	<	0.0832
2,3,4,7,8-PeCDF	0.109	<	0.0985	<
1,2,3,4,7,8-HxCDF	<	0.0791	<	0.112
1,2,3,6,7,8-HxCDF	0.132	<	0.0643	<
2,3,4,6,7,8-HxCDF	0.0984		0.103	<
1,2,3,7,8,9-HxCDF	<	0.106	<	0.0598
1,2,3,4,6,7,8-HpCDF	0.202	<	0.0836	<
1,2,3,4,7,8,9-HpCDF	0.139	<	0.0895	<
OCDF	0.522		0.497	<
2,3,7,8-TCDD	<	0.0861	<	0.0798
1,2,3,7,8-PeCDD	<	0.102	<	0.0737
1,2,3,4,7,8-HxCDD	0.148	<	0.0909	<
1,2,3,6,7,8-HxCDD	0.0998		0.093	<
1,2,3,7,8,9-HxCDD	0.131	<	0.0721	<
1,2,3,4,6,7,8-HpCDD	<	0.112	0.724	0.424
OCDD	5.37		7.49	5.62
Total TEQ (ND=0)	0.1308	0.03877	0.01783	0.007211
Total TEQ (ND=DL)	0.344	0.2859	0.2865	0.2977
% Lipids	0.27	0.354	0.354	0.25
Sample weight (g)	26	25.7	25.7	26
% Solids	16.4	15	16.2	16.6

Table 1.1.7 COPLANAR PCBS IN 2004 SEDIMENT

WHO LIST, Van den Berg et al, 1998

REPLICATE			UPPER ST. GEORGE R. 1 ng/Kg		UPPER ST. GEORGE R. 2 ng/Kg		UPPER ST. GEORGE R. 3 ng/Kg		UPPER ST. GEORGE R. 4 ng/Kg
Compound									
3,3',4,4'-Tetrachlorobiphenyl	77	<	48.3	<	49.6		284		309
3,3',4,5-Tetrachlorobiphenyl	81	<	48.3	<	49.6	<	49.2	<	49.4
2,3,3',4,4'-Pentachlorobiphenyl	105		67.1		126		951		1140
2,3,4,4',5-Pentachlorobiphenyl	114	<	48.3	<	49.6		63.8		72.5
2,3',4,4',5-Pentachlorobiphenyl	118		153		293		1450		1740
2,3',4,4',5'-Pentachlorobiphenyl	123	<	48.3	<	49.6		53.2		61.1
3,3',4,4',5-Pentachlorobiphenyl	126	<	48.3	<	49.6	<	49.2	<	49.4
156/157		<	48.3	<	49.6		71.2		84.2
2,3',4,4',5,5'-Hexachlorobiphenyl	167	<	48.3	<	49.6	<	49.2	<	49.4
3,3',4,4',5,5'-Hexachlorobiphenyl	169	<	48.3	<	49.6	<	49.2	<	49.4
2,3,3',4,4',5,5'-Heptachlorobipheny	189	<	48.3	<	49.6	<	49.2	<	49.4
% Lipids			0		0		0		0
Sample weight (g)			22.9		23.8		20.1		19.8
% Solids			45.3		42.3		50.7		51.2

Table 1.1.8 COPLANAR PCBS IN 2004 CLAM TISSUE

WHO LIST, Van den Berg et al, 1998

DEP ID	UPPER ST. GEORGE R.			UPPER ST. GEORGE R.			UPPER ST. GEORGE R.			UPPER ST. GEORGE R.		
REPLICATE	1			2			3			4		
Compound	TEF	ng/Kg	I-TE	ng/Kg	I-TE	ng/Kg	I-TE	ng/Kg	I-TE	ng/Kg	I-TE	
3,3',4,4'-Tetrachlorobiphenyl	77	0.0001	<	19.5	<	19.9	<	19.6	<	19		
3,3',4,5-Tetrachlorobiphenyl	81	0.0001	<	19.5	<	19.9	<	19.6	<	19		
2,3,3',4,4'-Pentachlorobiphenyl	105	0.0001	<	19.5	<	19.9		22	0.0022	27.9	0.00279	
2,3,4,4',5-Pentachlorobiphenyl	114	0.0005	<	19.5	<	19.9	<	19.6	<	19		
2,3',4,4',5-Pentachlorobiphenyl	118	0.0001		29.2	0.00292	31.7	0.00317	44.2	0.00442	48.9	0.00489	
2,3',4,4',5'-Pentachlorobiphenyl	123	0.0001	<	19.5	<	19.9	<	19.6	<	19		
3,3',4,4',5-Pentachlorobiphenyl	126	0.1	<	19.5	<	19.9	<	19.6	<	19		
156/157		0.0005	<	19.5	<	19.9	<	19.6	<	19		
2,3',4,4',5,5'-Hexachlorobiphenyl	167	0.00001	<	19.5	<	19.9	<	19.6	<	19		
3,3',4,4',5,5'-Hexachlorobiphenyl	169	0.01	<	19.5	<	19.9	<	19.6	<	19		
2,3,3',4,4',5,5'-Heptachlorobiphenyl	189	0.0001	<	19.5	<	19.9	<	19.6	<	19		
CTEo			0.00292		0.00317		0.00662				0.00768	
% Lipids		0.27		0.354		0.35		0.251				
Sample weight (g)		25.6		25.2		25.6		26.3				
% Solids		16.4		15		16.2		16.6				

