APPENDIX A: Sample Collection Information

TABLE A.1 2008 Gulfwatch sample identification numbers, replicates, species and collection dates.

Gulfwatch Sample ID	Sample Type	Date Sampled	Organism Collected
MABI	Site composite	16/Oct/08	Mytilus edulis
MAME	Site composite	14/Oct/08	Mytilus edulis
MASN	Site composite	12/Oct/08	Mytilus edulis
MASN DUP	Analytical duplicate	12/Oct/08	Mytilus edulis
MANR	Site composite	13/Oct/08	Mytilus edulis
NHHS-COMP	Site composite	22/Sep/08	Mytilus edulis
NHHS-1N	Site replicate	22/Sep/08	Mytilus edulis
NHHS-1N DUP	Analytical duplicate	22/Sep/08	Mytilus edulis
NHHS-2N	Site replicate	22/Sep/08	Mytilus edulis
NHHS-3N	Site replicate	22/Sep/08	Mytilus edulis
NHDP-COMP	Site composite	22/Sep/08	Mytilus edulis
NHDP-1N	Site replicate	22/Sep/08	Mytilus edulis
NHDP-2N	Site replicate	22/Sep/08	Mytilus edulis
NHDP-3N	Site replicate	22/Sep/08	Mytilus edulis
MECC-COMP	Site composite	22/Sep/08	Mytilus edulis
MECC-1N	Site replicate	22/Sep/08	Mytilus edulis
MECC-2N	Site replicate	22/Sep/08	Mytilus edulis
MECC-3N	Site replicate	22/Sep/08	Mytilus edulis
NHFP	Site composite	22/Sep/08	Mytilus edulis
NHSS	Site composite	22/Sep/08	Mytilus edulis
NHNM	Site composite	17/Sep/08	*Mya arenaria*
NHWC	Site composite	19/Sep/08	*Mya arenaria*
NHWC DUP	Analytical duplicate	19/Sep/08	*Mya arenaria*
MEPH	Site composite	23/Sep/08	Mytilus edulis
MEKN	Site composite	11/Sep/08	Mytilus edulis
MEDM	Site composite	9/Sep/08	Mytilus edulis
MEBB	Site composite	9/Sep/08	Mytilus edulis
MEMR	Site composite	8/Oct/08	Mytilus edulis
MECK	Site composite	8/Oct/08	Mytilus edulis
Thomaston	Site composite	10/Oct/08	*Mya arenaria*
Thomaston DUP	Analytical duplicate	10/Oct/08	*Mya arenaria*
Harraseeket River	Site composite	10/Oct/08	*Mya arenaria*
NBTC	Site composite	8/Oct/08	Mytilus edulis
NBSC	Site composite	7/Oct/08	Mytilus edulis
NSDI	Site composite	21/Oct/08	Mytilus edulis
NSAR	Site composite	6/Oct/08	Mytilus edulis
NSFI	Site composite	9/Oct/08	Mytilus edulis
NSYR	Site composite	15/Oct/08	Mytilus edulis

Table A.2. Latitude and longitude for Gulfwatch 2008 stations, expressed in decimal degrees and in degrees, minutes, seconds.

SITE	LOCATION	Site type	Lat	Long	Latitude	Longitude
Massachusetts			**decimal degrees**		**Degrees minutes seconds**	
MASN	Sandwich	Trend (**Benchmark**)	41.75000	70.4000	41° 45' 0"	70° 24' 0"
MANR	Neponset River	Occasional	42.2977	71.0443	42° 17' 51.7194"	71° 2' 39.48"
MABI	Brewster Island	Rotational (6 yr)	42.34250	70.8780	42° 20' 33"	70° 52' 40.8"
MAME	Merrimack River	Trend	42.80833	70.8233	42° 48' 29.987"	70° 49' 23.987"
New Hampshire						
NHHS	Hampton/Seabrook Harbor	Trend (multi-yr)	42.89717	70.8163	42° 53' 49.812"	70° 48' 58.787"
NHNM	North Mill Pond	Rotational-Occasional	43.07500	70.7600	43° 4' 30"	70° 45' 36"
MECC	Clark Cove	Trend (**Benchmark**)	43.07740	70.7244	43° 4' 38.6394"	70° 43' 27.84"
NHSS	Schiller Station	Rotational (6 yr)	43.10167	70.7883	43° 6' 6.0114"	70° 47' 17.88"
NHDP	Dover Point	Trend (multi-yr)	43.11960	70.8267	43° 7' 10.5594"	70° 49' 36.12"
NHFP	Fox Point	Rotational-Occasional	43.12015	70.8589	43° 7' 12.54"	70° 51' 32.04"
NHWC	Woodman Cove	Rotational-Occasional	43.07547	70.84114	43° 4' 31.692"	70° 50' 28.103"
Maine						
METS	Thomaston	Occasional	44.06601	69.17073	44° 3' 57.64"	70° 05' 45.82"
MEHR	Brunswick	Occasional	43.83921	70.09606	43° 50' 21.15"	69° 10' 14.62"
MEPH	Portland Harbor	Trend (multi-yr)	43.63917	70.2590	43° 38' 21.012"	70° 15' 32.4"
MEKN	Kennebec River	Trend (**Benchmark**)	43.78500	69.7845	43° 47' 5.9994"	69° 47' 4.1994"
MEBB	Boothbay Harbor	Trend (multi-yr)	43.85067	69.6727	43° 51' 2.412"	69° 40' 21.72"
MEDM	Damariscotta	Spatial	43.93834	69.5817	43° 56' 18.023"	69° 34' 54.119"
MEMR	Machais River	Rotational (6 yr)	44.71367	67.4035	44° 42' 49.212"	44° 54' 16.199"
MECK	Cobscook Bay	Spatial	44.90450	67.0543	44° 54' 16.199"	67° 3' 15.479"
New Brunswick						
NBSC	St. Croix River	Trend (multi-yr)	45.16750	67.1638	45° 10' 2.999"	67° 9' 49.679"
NBTC	Tin Can Beach	Trend (multi-yr)	45.26250	66.0570	45° 15' 45"	66° 3' 25.2"
Nova Scotia						
NSYR	Yarmouth	Trend (multi-yr)	43.81767	66.1448	43° 49' 3.611"	66° 8' 41.387"
NSDI	Digby	Trend (**Benchmark**)	44.61700	65.7523	44° 37' 1.199"	65° 45' 8.28"
NSFI	Five Islands	Spatial	45.39750	64.0660	45° 23' 51"	64° 3' 57.6"
NSAR	Apple River	Trend (multi-yr)	45.47000	64.8350	45° 28' 11.999"	64° 50' 5.999"

MEMORANDUM

TO: Dr. Stephen Jones, UNH

FROM: Phil Trowbridge, NHDES

RE: 2008 Gulfwatch Samples

DATE: December 31, 2008

The purpose of this memorandum is to document the sample collection activities for Gulfwatch 2008. On 9/22/08, NHDES managed the collection of mussel samples from 5 sites. These sites are summarized in the following table. In the table, the coordinates for the replicates are listed in the order of replicate number, where applicable. Maps showing the location of each site are provided in Appendix A.

Date / Time	Station	Latitude	Longitude (Decimal degrees)	Water Temp	Water	Personnel
		(Decimal degrees)		(deg C)	Salinity (ppt)	
9/22/08 1030	MECC – Clarks Cove, Kittery, ME	43.07745	-212.172	14.3	29.6	P. Trowbridge K. Edwardson D. Mucciarone
		43.07747				
		43.07752				
9/22/08 1050	NHHS - Hampton/ Seabrook Harbor, Hampton, NH	42.89725	-212.449	15.2	27.8	T. Walsh C. Dolan J. Devoid
		42.89726				P. Trowbridge
		42.89736				
9/22/08 1230	NHDP – Dover Point, Dover, NH	43.11969	-212.481	15.9	26.4	K. Edwardson D. Mucciarone T. Walsh
		43.11964				J. Devoid
		43.11952				
9/22/08 1150	NHSS – Schiller Station, Newington, NH	43.09481	-212.34	15.6	24.4	S. Jones E. Jones T. Noyes
		43.09473				
		43.09468				
9/22/08 1235	NHFP – Fox Point, Newington, NH	43.1204	-212.579	16.3	23.9	S. Jones E. Jones T. Noyes
		43.12049				
		43.12047				

Sample collection and processing was conducted following NH Gulfwatch SOPs (Appendix B). Samples were processed and frozen at the UNH Jackson Estuarine Laboratory within 36 hours of collection. Physical data on the mussels were transferred from hard copy datasheets to Excel spreadsheets. Data entry was checked twice for transcription errors following NHDES protocols. The physical data for the samples

is provided in Appendix C. The original datasheets will be kept on file at NHDES. If you have any questions about this report, please contact me at (603) 271-8872 or Philip.Trowbridge@des.nh.gov.

GULFWATCH STATION INFORMATION

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The following are notes from the 2008 sampling effort in Maine:

Station	Notes
MEPH	Very soft substrate with abundant mussels Site must be accessed at low tide < 1hr
MEKN	Easy picking on downstream side of island. Very few green crabs.
MEBB	Town Cove is a busy harbor. The sampling site is just inshore of heavy boat traffic and has mixed residential and light commercial development in the upland which is densely settled.
MEDM	Very little for pollution sources near site. Site 6 miles south of Newcastle/Damariscotta and 500m North of University Lab Dock. Many green crabs and few small mussels.

APPENDIX B: 2008 Reported Methods Detection Limits

For organic analysis, method detection limits (MDL) are estimated following the U.S Environmental Protection Agency's procedure for the determination of method detection limits described in the US Federal Register (40 CFR part 136 appendix B). Briefly, this method uses the standard deviation of replicate analyses of low level spiked mussel tissue. Analyte MDLs are calculated at a 95% confidence level, rather than the 99% confidence level specified in 40 CFR part 136 Appendix B. Tables B-1 and B-2 list the MDLs for the respective contaminants monitored for 2008, which included additional alkyl-substituted polycyclic aromatic hydrocarbon (PAH) analytes.

Table B.1. Reported method detection limits for the organic target analytes.

PAHs		PCBs		Pesticides	
Analyte	**Detection Limit (ng/g)**	**Analyte (congener #)**	**Detection Limit (ng/g)**	**Analyte**	**Detection Limit (ng/g)**
Naphthalene	<10	8;5	<2.8	α–BHC	<2.0
C1-Naphthalenes	<8	18;15	<2.7	HCB	<2.4
Biphenyl	<10	29	<2.2	γ-HCH(Lindane)	<1.5
C2-Naphthalene	<8	50	<2.4	Heptachlor	<2
Acenaphthylene	<11	28	<2.4	Aldrin	<1.5
Acenaphthene	<8	52	<2	Heptachlor Epoxide	<1.8
C-3 Naphthalene	<7	44	<2.3	γ-Chlordane	<1.5
Fluorene	<7	66;95	<2.2	o,p'-DDE	<1.0
C1- Fluorene	<7	101;90	<2.2	a-Endosulfan	<1.5
C2-Fluorene	<7	87	<1.9	cis-Chlordane	<1.2
C3- Fluorene	<7	77	<2.3	t-Nonachlor	<1.4
C4-Naphthalene	<7	118	<2	p,p'_DDE	<1.8
Dibenzothiophene	<10	153;132	<2.1	Dieldrin	<1.4
C4- Fluorene	<10	105	<1.4	o,p'-DDD	<4.0
C1-Dibenzothiophene	<10	138	<2	Endrin	<2.2
C2- Dibenzothiophene	<10	126	<1.9	b-Endosulfan	<3.4
C3-Dibenzothiophene	<10	187	<1.9	p,p'-DDD	<2
Phenanthrene	<6	128	<1.9	o,p'-DDT	<2.8
Anthracene	<10	180	<1.7	p,p'-DDT	<2.5
C1-Phenanthrene	<12	169	<1.7	Metoxychlor	<3.1
C2-Phenanthrene	<6	170;190	<1.8	Mirex	<1.5
Fluoranthene	<14	195;208	<1.8		
Pyrene	<9	206	<1.7		
C1-FP	<9	209	<1.7		
C3-Phenanthrene	<6				
C2-FP	<9				
C4-Phenanthrene	<6				
Benzo(a)Anthracene	<6				
Chrysene	<6				
C1-Chrysene	<6				
C2-Chrysene	<6				
C3-Chrysene	<6				
C4-Chrysene	<6				
Benzo(b)Fluoranthene	<6				
Benzo(k)Fluoranthene	<4				
Benzo(e)Pyrene	<7				
Benzo(a)Pyrene	<4				
Perylene	<5				
Indeno(1,2,3 cd)Pyrene	<7				
Dibenz(a,h)Anthracene	<11				
Benzo(ghi)Perylene	<15				

Table B.2. Reported laboratory method detection limits and reporting limits[1] for elemental target analytes.

Element	MDL[2] (µg/g)	RL[3] (µg/g)
Hg	**0.0065**	**0.02**
Ag	**0.004**	**0.01**
Cd	**0.002**	**0.006**
Pb	**0.004**	**0.01**
Al	**0.4**	**1**
Cr	**0.04**	**0.1**
Cu	**0.04**	**0.1**
Fe	**0.3**	**1**
Ni	**0.07**	**0.2**
Zn	**0.07**	**0.2**

[1]Reporting limit = 3.18*MDL (Federal Register, 40 CFR Part 136, Appendix B)
[2]MDL = method detection limit
[3]RL = reporting limit

APPENDIX C: Summary of Trace Metal Analysis Quality Assurance/Quality Control for 2008

C.1 ACCURACY

C.1.1 Standard Reference Materials

Accuracy refers to the agreement between the amount of a component measured by the test method and the amount actually present. The quality assurance protocol for the Gulfwatch project sets the accuracy criteria of ±25% for trace metals of the certified value of a standard reference material (SRM). Certified values are reported by the NRC (National Research Council) or NIST (National Institute of Standards and Technology). Standard reference materials with values >10 times the detection limits were used to verify the accuracy of the analytical methods. The NRC standard, DORM-2 (dogfish muscle and liver tissue), and NIST standard 2976 (blue mussel tissue) were used to certify accuracy in the metals analysis. Overall mean SRM recoveries for the metals analyzed ranged from 99-130% (Table C.1.1). Only one sample recovery fell outside of the targeted data quality objectives (Dorm_2 012309 R2, for Pb).

Table C.1.1 Analyses of standard reference materials for trace elements associated with analyses performed by Battelle, MSL Sequim, WA for the 2008 Gulfwatch Program.

	Hg	**Ag**	**Cd**	**Pb**	**Al**	**Cr**	**Cu**	**Fe**	**Ni**	**Zn**
	(µg/g)	**(µg/g)**	**(µg/g)**	**(µg/g)**	**(µg/g)**	**(µg/g)**	**(µg/g)**	**(µg/g)**	**(µg/g)**	**(µg/g)**
SRM										
NIST 2976 012309 R1	0.0671	NA	0.807	1.20	163	0.457	3.53	170	0.714	150
NIST 2976 012309 R2	0.0659	NA	0.817	1.28	138	0.467	3.55	173	0.686	148
certified or reference value	0.061	NA	0.82	1.19	134	0.5	4.02	171	0.93	137
range	±0.0036	NA	±0.2	±0.18			±0.33	±4.9		±13
percent recovery, R1	**110%**	NA	**98%**	**101%**	**122%**	**91%**	**88%**	**99%**	**77%**	**109%**
percent recovery, R2	**108%**	NA	**100%**	**108%**	**103%**	**93%**	**88%**	**101%**	**74%**	**108%**
SRM										
DORM-2 012309 R1	4.05	0.0351	0.0427	0.0713	9.03	29.0	2.00	136	16.1	26.0
DORM-2 012309 R2	4.15	0.0287	0.0422	0.130	9.17	31.5	1.87	151	17.5	25.1
certified or reference value	4.64	0.041	0.043	0.065	10.9	34.7	2.34	142	19.4	25.6
range	±0.26	±0.013	±0.008	±0.007	±1.70	±5.5	±0.16	±10	±3.10	±2.3
percent recovery, R1	**87%**	**86%**	**99%**	**110%**	**83%**	**84%**	**85%**	**96%**	**83%**	**102%**
percent recovery, R2	**89%**	**70%**	**98%**	**200%**	**84%**	**91%**	**80%**	**106%**	**90%**	**98%**

C.1.2 Blank and Matrix Spikes

Blank and matrix spikes are another prescribed measurement of accuracy of the Gulfwatch Program. Matrix spikes recoveries between 75 -125% are considered as meeting the data quality objectives of the Program. Matrix spikes ranged from 64-110% and averaged 94.4 (± 10.2%) over all the batches. All of the matrix spike results except 1 (NHWC-1N for Fe) were within acceptable criteria (Table C.1.2.2).

Table C.1.2.1 Blank spike results reported by Battelle Marine Sciences Laboratory for the Gulfwatch 2008 elemental analyses.

	Hg	Ag	Cd	Pb	Al	Cr	Cu	Fe	Ni	Zn
	(µg/g)	(µg/g)	(µg/g)	(µg/g)	(µg/g)	(µg/g)	(µg/g)	(µg/g)	(µg/g)	(µg/g)
Blank Spike Results										
LCS1 012309 R1	1.88	1.95	1.99	1.98	27.4	1.96	1.85	24.9	1.93	2.02
Blank 012309 R1	0.0065	0.00699	0.002	0.004	1.05	0.04	0.04	0.3	0.07	0.07
Spike conc.	*2.0*	*2.0*	*2.0*	*2.0*	*25*	*2.0*	*2.0*	*25*	*2.0*	*2.0*
PERCENT RECOVERY, LCS	**94%**	**97%**	**100%**	**99%**	**105%**	**98%**	**93%**	**100%**	**97%**	**101%**
LCS1 012309 R2	1.93	1.92	2.00	2.05	26.9	1.94	1.75	24.7	1.95	2.01
Blank 012309 R2	0.0065	0.004	0.002	0.004	1.11	0.04	0.04	0.3	0.07	0.07
Spike conc.	*2.0*	*2.0*	*2.0*	*2.0*	*25*	*2.0*	*2.0*	*25*	*2.0*	*2.0*
PERCENT RECOVERY, LCS	**97%**	**96%**	**100%**	**103%**	**103%**	**97%**	**88%**	**99%**	**98%**	**101%**

Table C.1.2.2. Matrix spike results reported by Battelle Marine Sciences Laboratory for the Gulfwatch 2008 elemental analyses.

	Hg	Ag	Cd	Pb	Al	Cr	Cu	Fe	Ni	Zn
	(µg/g)	(µg/g)	(µg/g)	(µg/g)	(µg/g)	(µg/g)	(µg/g)	(µg/g)	(µg/g)	(µg/g)
MASN-comp										
Measured Conc.	2.00	2.10	3.65	13.0	316	9.62	14.4	387	9.55	298
Background Conc.	0.107	0.228	1.61	3.27	85.3	0.693	5.46	179	0.648	92.5
Spike concentration	2.02	2.02	2.02	10.0	211	10.0	10.0	211	10.0	211
% Recovery	**94%**	**93%**	**101%**	**97%**	**109%**	**89%**	**89%**	**99%**	**89%**	**97%**
NHWC-1N										
Measured Conc.	2.17	3.96	2.47	15.7	2095	15.3	27.2	4930	12.5	343
Background Conc.	0.243	2.05	0.492	9.12	1858	7.00	17.0	5368	3.15	121
Spike concentration	2.01	2.01	2.01	10.3	216	10.3	10.3	216	10.3	216
% Recovery	**96%**	**95%**	**98%**	**64%**	**110%**	**81%**	**99%**	**SL[1]**	**91%**	**103%**

[1]Background concentration was higher than the spiked concentration.

C.2 PRECISION

Precision refers to the reproducibility of a method when it is repeated under controlled conditions. For this assessment, the Gulfwatch Program uses the relative percent difference (RPD) of duplicate samples as a test of precision. The RPD of laboratory duplicates should be less than 25% for all metals. RPD is the absolute value (ABS) of the difference between the two replicates, divided by the mean value and multiplied by 100. Results of duplicate comparisons from 3 samples are listed in Tables C.2.1-2. The RPD between laboratory duplicates ranged from 1-13%, with a mean of 4.5 (±3.9)%. The RPDs of all duplicates were all within acceptable limits.

Table C.2.1. Duplicate metals analysis for Gulfwatch 2008 samples performed by Battelle Marine Sciences Laboratory.

	Hg	Ag	Cd	Pb	Al	Cr	Cu	Fe	Ni	Zn
	(µg/g)	(µg/g)	(µg/g)	(µg/g)	(µg/g)	(µg/g)	(µg/g)	(µg/g)	(µg/g)	(µg/g)
MAME	0.170	0.0543	2.29	3.61	169	1.52	6.78	405	1.03	121
MAME-dup	0.180	0.0621	2.45	3.77	170	1.60	7.18	416	1.13	127
MEAN	0.175	0.0582	2.37	3.69	170	1.56	6.98	411	1.08	124
RPD[1]	**6%**	**13%**	**7%**	**4%**	**1%**	**5%**	**6%**	**3%**	**9%**	**5%**
NHNM	0.311	2.06	2.34	8.49	943	3.26	17.9	2812	1.65	96.0
NHNM-dup	0.316	2.02	2.34	7.44	988	3.27	17.7	2744	1.55	96.5
MEAN	0.314	2.04	2.34	7.97	966	3.27	17.8	2778	1.60	96.3
RPD	**2%**	**2%**	**0%**	**13%**	**5%**	**0%**	**1%**	**2%**	**6%**	**1%**

[1]RPD = relative percent difference = [ABS(rep1-rep2)]/mean *100

C.3 BLANKS

Two digestion procedure blanks were reported for trace metal analysis and are reported in Table C.3.1.

Table C.3.1. Laboratory blanks reported by Battelle Marine Sciences Laboratory for Gulfwatch 2008 metals analysis.

	Hg	Ag	Cd	Pb	Al	Cr	Cu	Fe	Ni	Zn
	(µg/g)	(µg/g)	(µg/g)	(µg/g)	(µg/g)	(µg/g)	(µg/g)	(µg/g)	(µg/g)	(µg/g)
Procedural Blanks										
Blank 012309 R1	0.0065	0.00699	0.002	0.004	1.05	0.04	0.04	0.3	0.07	0.07
Blank 012309 R2	0.0065	0.004	0.002	0.004	1.11	0.04	0.04	0.3	0.07	0.07

C.4 COMPLETENESS

100% of samples collected (34 of 34 samples) were analyzed successfully. The analyses of SRMs met the data quality objectives of the Program. All matrix spikes were within control limits and all the RPDs for laboratory duplicates were within precision limits.

QA/QC NARRATIVE

PROJECT: Gulf of Maine 2009

PARAMETER: Metals (Ag, Al, Cd, Cr, Cu, Fe, Hg, Ni, Pb, and Zn)

LABORATORY: Battelle Marine Sciences Laboratory (MSL), Sequim, Washington

MATRIX: Tissue

SAMPLE CUSTODY AND PROCESSING:
Thirty-four tissue samples were received at MSL on 01/07/09. All samples were received in good condition (i.e., containers were intact and cooler temperature was acceptable). Select samples were collected in glass jars with metals lids. The optimal container for the analysis of metals in tissue samples is a pre-cleaned glass jar with a plastic lid or pre-cleaned plastic container. The samples are considered minimally impacted as no rust was noticed on the metal lids. A representative split of each sample was transferred to a pre-cleaned, tarred plastic jar to allow determination of percent moisture. The samples were assigned a Battelle Central File (CF) identification number (2986). All project information was entered into Battelle's laboratory information and sample tracking system.

Chemistry Lab IDs:	2986*1-34
Description	Tissue
Collection dates	2008
Laboratory arrival date	1/7/2009
Cooler temperatures, on arrival	2.0°C
Digestion (aqua regia)	1/23/2009
CVAA analysis (Hg)	2/5/2009
ICP-OES analysis (Al, Cr, Cu, Fe, Ni, and Zn)	2/10/2009
ICP-MS analysis (Ag, Cd, and Pb)	1/28/2009

QA/QC DATA QUALITY OBJECTIVES:						
	Analytical	Range of	SRM	Relative	Method Detection	Reporting Limit
Analyte	Method	Recovery	Accuracy	Precision	Limit (μ/g dry weight)(a)	(μg/g dry weight)
Silver	ICP-MS	75-125%	0.25%	0.25%	0.004	0.01
Aluminum	ICP-OES	75-125%	0.25%	0.25%	0.4	1
Cadmium	ICP-MS	75-125%	0.25%	0.25%	0.002	0.006
Chromium	ICP-OES	75-125%	0.25%	0.25%	0.04	0.1
Copper	ICP-OES	75-125%	0.25%	0.25%	0.04	0.1
Iron	ICP-OES	75-125%	0.25%	0.25%	0.3	1
Mercury	CVAA	75-125%	0.25%	0.25%	0.0065	0.02
Nickel	ICP-OES	75-125%	0.25%	0.25%	0.07	0.2
Lead	ICP-MS	75-125%	0.25%	0.25%	0.004	0.01
Zinc	ICP-OES	75-125%	0.25%	0.25%	0.07	0.2
(a) MDL determined annually using seven replicates of a tissue matrix spiked at an appropriate concentration.						
(b) RL determined as 3.18* MDL						

QA/QC NARRATIVE

METHODS: The samples were analyzed for ten metals including silver (Ag), aluminum (Al), cadmium (Cd), chromium (Cr), copper (Cu), iron (Fe), lead (Pb), mercury (Hg), nickel (Ni), and zinc (Zn). Tissue samples were digested according to Battelle SOP MSL-I-024, *Mixed Acid Tissue Digestion*. An approximately 500-mg aliquot of each dried, homogeneous sample was combined with nitric and hydrochloric acids (aqua regia) in a Teflon vessel and heated in an oven at 130ºC (±10ºC) for a minimum of eight hours. After heating and cooling, deionized water was added to the acid-digested tissue to achieve analysis volume and the digestates were submitted for analysis by three methods.

Digested samples were analyzed for Hg by cold-vapor atomic absorption spectroscopy (CVAA) according to Battelle SOP MSL-I-016, *Total Mercury in Tissues and Sediments by Cold Vapor Atomic Absorption*, which is based on EPA Method 245.6, *Determination of Mercury in Tissue by Cold Vapor Atomic Absorption Spectrometry*.

Digested samples were analyzed for Al, Cr, Cu, Fe, Ni, and Zn using inductively coupled plasma optical emissions spectroscopy (ICP-OES) according to Battelle SOP MSL-I-033, *Determination of Elements in Aqueous and Digestate Samples by ICPOES*. This procedure is based on two methods modified and adapted for analysis of low level samples: EPA Method 6010B and 200.7.

Digested samples were analyzed for Ag, Cd, and Pb using inductively coupled plasma/mass spectrometry (ICP-MS) according to Battelle SOP MSL-I-022, *Determination of Elements in Aqueous and Digestate Samples by ICP/MS*. This procedure is based on two methods modified and adapted for analysis of low-level solid sample digestates: EPA Method 1638, *Determination of Trace Elements in Ambient Waters by Inductively Coupled Plasma-Mass Spectrometry* and EPA Method 200.8, *Determination of Trace Elements in Water and Wastes by Inductively Coupled Plasma – Mass Spectrometry.*

All results were determined and reported in units of µg/g on a dry-weight basis.

HOLDING TIMES: Samples were archived frozen prior to arrival at MSL. The samples were freeze dried within 30 days of receipt and analyzed within six months.

DATA QUALIFIERS:

Sample concentrations were evaluated and flagged to the following criteria:
U Analyte not detected greater than the MDL, MDL reported with qualifier
J Analyte detected greater than the MDL, but less than the RL
* Duplicate analysis not within QC criterion of ≤25% relative percent difference.
N QC sample outside QC criterion of ±25% recovery
SL Insufficient spiking level relative to native sample concentration.

METHOD BLANK: One method blank was analyzed with every 20 field samples. Analytes were not detected above the RL.

LABORATORY CONTROL SAMPLE/BLANK SPIKE ACCURACY:

One blank spike/laboratory control sample (LCS) was analyzed with every 20 field samples. The LCS recoveries were within the QC acceptance criterion of 75-125% recovery for all metals.

MATRIX SPIKE ACCURACY:

One tissue sample was selected for a matrix spike in each batch of 20 field samples. One tissue sample contained high Fe concentrations resulting in a matrix spike concentration that was insufficient relative to the native sample concentration. This result was flagged SL and no impact to the data quality was observed as the LCS and standard reference material (SRM) for this metal recovered within the QC guidelines. The matrix spike recoveries were within the QC acceptance criterion of 75-125% recovery for all metals spiked at an appropriate level, except one spike for Pb (64%). All other measures of accuracy and potential interferences were within the QC criteria; therefore, the data are not considered impacted by this failure.

REPLICATE PRECISION:
One set of laboratory duplicates was analyzed for every 20 field samples. Precision was expressed as the relative percent difference (RPD) between replicate results. The RPD values were within the QC criterion of ≤25% for all metals.

STANDARD REFERENCE MATERIAL ACCURACY:
Standard reference material (SRM) accuracy was expressed as the percent recovery between the measured and certified concentrations. Reference values are provided for evaluation purposes only.

SRM 2976 Mussel Tissue and SRM DORM-2 Dogfish Tissue were digested and analyzed with this set of samples. Multiple SRMs were selected because no single SRM is certified for all metals of interest at appropriate concentration ranges.

The SRM 2976 is certified at appropriate levels for Hg, Cd, Pb, Cu, Fe, and Zn and reference values are provided for Al, Cr, and Ni. The percent recoveries were within the QC acceptance criterion of 75-125% recovery for all certified metals.

The percent recoveries for SRM DORM-2 were within the QC acceptance criterion for all metals except one replicates for Ag and Pb. The SRM is certified less than 10 times the RL for these metals and not appropriate for evaluating data set accuracy. Other measures of accuracy and precision were within the QC criteria for Ag and Pb.

NOTES: The data for the 2008 samples was added into the spreadsheet with the other years of data analyzed by MSL. The following trends were noted for the 2008 data relative to all previous years.
1. The Hg, Ag, Cd, Al, Fe, Ni, and Zn concentration for MABI increased at least one standard deviation above previous years.
2. The concentrations of Hg, Cd, and Pb at MAME increased at least one standard deviation above previous years, while Ag, Al, and Zn decreased.
3. The concentration of Cd, at MASN increased at least one standard deviation above previous years, while Al, Cr, Fe, and Ni decreased.
4. The concentrations of Ag, Cd, Al, Cr, Fe, and Ni at MEBB increased at least one standard deviation above previous years, while Hg, Pb, Cu, and Zn decreased.
5. The concentrations of Hg and Cd at MECK increased at least one standard deviation above previous years, while Ag, Al, Cr, Fe, and Ni decreased.
6. The concentrations of Hg, Pb, Cu, and Zn at MEDM increased at least one standard deviation above previous years, while Ag, Cd, Al, Cr, Fe, and Ni decreased.
7. The concentrations of Hg, Cd, Pb, Ni, and Zn at MEKN increased at least one standard deviation above previous years, while Al, Cr, and Fe decreased.
8. The concentrations of Hg, Al, and Fe at MEMR increased at least one standard deviation above previous years, while Ag and Zn decreased.
9. The concentrations of Hg, Ag, and Pb at MEPH decreased at least one standard deviation relative to previous years.
10. The concentrations of Hg, Cd, Pb, Cr, Fe, Ni, and Zn at NBTC increased at least one standard deviation above previous years.
11. The concentrations of Hg, Ag, Pb, Al, and Cr at NHDP decreased at least one standard deviation relative to previous years.
12. The concentrations of Ag, Cd, Pb, Al, Cr, Fe, and Ni at NHNM increased at least one standard deviation above previous years, while Hg decreased. The significant increase in Ag, Al, and Fe may indicate sedimentary material in the gut.
13. The concentrations of all metals except Cu at NHSS decreased at least one standard deviation relative to previous years.
14. The concentrations of Al, Cr, Cu, Fe, and Ni at NSAR decreased at least one standard deviation relative to previous years.
15. The concentrations of Cr, Ni, and Zn at NSDI decreased at least one standard deviation relative to previous years.

APPENDIX D: Summary of 2008 Organic Contaminant Analysis Quality Assurance/Quality Control

D.1 ACCURACY

The quality assurance protocol for the Gulfwatch project sets the accuracy criteria of ± 30% for organic contaminants certified value of a standard reference material (SRM). Certified values are reported by the NIST (National Institute of Standards and Technology). Standard reference materials with values >10 times the detection limits were used to verify the accuracy of the analytical methods.

D.1.2 Matrix Spikes

The acceptable range for matrix spike recovery is 40-120%. The matrix spikes of organic compounds monitored by Gulfwatch are summarized in Table D.1.2.1-3 for PAHs, PCBs, and chlorinate pesticides, respectively. Recoveries for PAHs ranged from 46% - 209% with an overall mean recovery of 88 ± 18%. Those values that fell outside the range are highlighted in Table 1.2.1 and are due to matrix interference in the instrumental analysis. Recoveries for PCBs ranged from 71%-107% with a mean recovery over all congeners of 96 ± 7.5%. For chlorinated pesticides, there were interferences that led to recoveries of certain analytes that were outside of the limits established by the Gulfwatch project (indicated in color). Despite these, recoveries ranged from 59%-223%, with a mean recovery of 96 ± 28%.

TABLE D.1.2.1. Percent recoveries of PAHs from matrix spikes for the 2008 Gulfwatch Monitoring Program.

Spiked Mussel Tissue (2.0g dry weight)		SP081118	XSP081118	SP081203	XSP81203	SP081209	XSP81209
	Conc.	Recoveries (%)					
PAH	(ng/g)						
Naphthalene	25.00	61%	66%	74%	79%	80%	79%
C1-Naphthalenes	50.00	80%	74%	74%	79%	75%	81%
Biphenyl	25.00	81%	80%	83%	76%	84%	80%
C2-Naphthalene	25.00	77%	80%	56%	78%	46%	80%
Acenaphthylene	25.00	80%	75%	79%	75%	74%	73%
Acenaphthene	25.00	83%	71%	83%	70%	80%	69%
C-3 Naphthalene	25.00	-	85%	80%	86%	74%	86%
Fluorene	25.00	97%	91%	92%	85%	85%	82%
C1- Fluorene	125.00	-	92%	-	84%	-	85%
C2-Fluorene	62.50	-	177%	-	202%	-	209%
C3- Fluorene	31.25	-	96%	-	99%	-	100%
C4-Naphthalene	62.50	-	93%	-	101%	-	98%
Dibenzothiophene	93.75	-	89%	-	94%	-	94%
C4- Fluorene	31.25	-	98%	-	102%	-	104%
C1-Dibenzothiophene	81.25	-	90%	-	99%	-	103%
C2- Dibenzothiophene	62.50	-	95%	-	111%	-	124%
C3-Dibenzothiophene	62.50	-	96%		105%	-	109%

Table D.1.2.1 (cont'd).

		SP081118	XSP081118	SP081203	XSP81203	SP081209	XSP81209
	Conc.	Recoveries (%)					
	(ng/g)						
Phenanthrene	25.00	86%	82%	91%	85%	83%	78%
Anthracene	25.00	87%	78%	90%	81%	89%	82%
C1-Phenanthrene	25.00	-	97%	91%	102%	86%	102%
C2-Phenanthrene	62.50	-	90%	-	113%	-	114%
Fluoranthene	25.00	90%	82%	99%	88%	91%	84%
Pyrene	25.00	90%	81%	95%	85%	89%	82%
C1-FP	93.75	-	95%	-	104%	-	107%
C3-Phenanthrene	62.50	-	105%	-	105%	-	107%
C2-FP	31.25	-	99%	-	103%	-	106%
C4-Phenanthrene	31.25	-	95%	-	102%	-	104%
Benzo(a)Anthracene	25.00	95%	83%	99%	88%	85%	79%
Chrysene	25.00	94%	80%	98%	87%	88%	82%
C1-Chrysene	187.50	-	93%	-	98%	-	100%
C2-Chrysene	31.25	-	96%	-	104%	-	102%
C3-Chrysene	31.25	-	97%	-	104%	-	105%
C4-Chrysene	31.25	-	98%	-	106%		106%
Benzo(b)Fluoranthene	25.00	85%	81%	93%	89%	91%	89%
Benzo(k)Fluoranthene	25.00	97%	73%	99%	82%	90%	76%
Benzo(e)Pyrene	25.00	109%	-	113%	-	106%	-
Benzo(a)Pyrene	25.00	90%	77%	93%	78%	85%	75%
Perylene	25.00	91%	-	87%	-	87%	-
Indeno(1,2,3-cd)Pyrene	25.00	92%	82%	109%	96%	90%	86%
Dibenz(a,h)Anthracene	25.00	92%	80%	106%	94%	91%	82%
Benzo(ghi)Perylene	25.00	85%	77%	74%	64%	82%	76%
Surrogate Recovery							
Napthalene-d8	24.00	58%	54%	61%	60%	-	67%
Acenaphthene-d10	24.00	69%	66%	68%	66%	-	77%
Phenanthrene-d10	24.00	75%	72%	80%	78%	-	84%
Fluoranthene-d10	24.00	77%	74%	81%	80%	-	84%
Chrysene-d12	24.00	76%	73%	80%	79%	-	83%
Benzo(a)pyrene-d12	24.00	74%	72%	79%	77%	-	86%
Benzo(g,h,i)perylene-d12	24.00	79%	78%	73%	70%		
Interference	NA = not applicable						
No Surrogate Spiked in SP081209.							

TABLE D.1.2.2. Percent recoveries of PCBs from matrix spikes for the 2008 Gulfwatch Monitoring Program.

Spiked Mussel Tissue				
(2.0g dry weight)		**SP081118**	**SP081203**	**SP081209**
PCB	**Concentration**	**Recovery (%)**		
	(ng/g)			
#8,5	20.84	71%	81%	85%
#18,15	20.84	87%	89%	85%
#29	20.84	88%	85%	80%
#50	20.84	82%	92%	95%
#28	20.84	84%	100%	99%
#52	20.84	104%	105%	88%
#44	20.84	95%	95%	97%
#66,95	20.84	98%	93%	87%
#101,90	20.84	98%	92%	89%
#87	20.84	96%	96%	90%
#77	20.84	91%	100%	104%
#118	20.84	103%	106%	99%
#153,132	20.84	104%	107%	102%
#105	20.84	87%	98%	101%
#138	20.84	104%	106%	105%
#126	20.84	101%	102%	99%
#187	20.84	101%	105%	100%
#128	20.84	97%	101%	97%
#180	20.84	101%	105%	87%
#169	20.84	96%	101%	87%
#170,190	20.84	97%	105%	96%
#195,208	20.84	98%	104%	93%
#206	20.84	92%	101%	96%
#209	20.84	93%	100%	94%
Surrogate Recovery				
103	10.06	92%	87%	-
198	9.91	90%	87%	-
No Surrogate Spiked in SP081209.				

TABLE D.1.2.3. Percent recoveries of pesticides from matrix spikes for the 2008 Gulfwatch Monitoring Program.

Spiked Mussel Tissue				
(2.0g dry weight)				
Pesticide	**Conc.**	**SP081118**	**SP081203**	**SP081209**
	(ng/g)	**%**	**%**	**%**
α-BHC	10.42	223%	122%	109%
HCB	10.42	74%	86%	90%
γ-HCH(Lindane)	10.42	69%	111%	100%
Heptachlor	10.42	61%	64%	66%
Aldrin	10.42	93%	94%	93%
Heptachlor Epoxide	10.42	75%	88%	86%
γ-Chlordane	10.42	60%	129%	113%
o,p'-DDE	10.42	66%	82%	88%
α-Endosulfan	10.42	68%	89%	91%
cis-Chlordane	10.42	59%	132%	91%
t-Nonachlor	10.42	67%	102%	98%
p,p'_DDE	10.42	98%	120%	113%
Dieldrin	10.42	60%	110%	90%
o,p'-DDD	10.42	171%	93%	84%
Endrin	10.42	68%	92%	89%
β-Endosulfan	10.42	71%	101%	88%
p,p'-DDD	10.42	71%	110%	93%
o,p'-DDT	10.42	76%	106%	101%
p,p'-DDT	10.42	94%	120%	97%
Metoxychlor	10.42	162%	106%	137%
Mirex	10.42	93%	82%	94%
Surrogate Recovery				
g-Chlordene	9.92	72%	58%	-
b-BHC	10.00	INT	69%	-
Interference found on both signals				
SP081118 B : Large Interference with IS in SIGNAL 1. Report SIG2 for FRB				
No Surrogate Spiked in SP081209.				

D.1.3 Surrogate Recoveries

Recoveries of added surrogate compounds are presented in Tables D.1.3.1 – D.1.3.2. Surrogate compounds are added to each sample at a known level, and provide an internal quality control check to the structurally similar (or identical) target analytes. Recoveries outside of QA/QC criteria are highlighted in yellow.

TABLE D.1.3.1. Percent recoveries of spiked surrogates[1] added to 2008 Gulfwatch samples as part of the PAH analysis.

Samples	NAP-d_8	ACE-d_{10}	PHEN-d_{10}	FLU-d_{10}	CHRY-d_{12}	BAP-d_{12}	BGHIP-d_{12}
MABI	52%	65%	79%	80%	79%	78%	65%
MAME	55%	63%	77%	77%	77%	77%	66%
MASN	55%	69%	81%	82%	81%	79%	68%
MASN DU	50%	61%	76%	78%	76%	77%	68%
MANR	58%	74%	80%	82%	80%	79%	75%
NHHS-COMP	55%	65%	77%	77%	76%	76%	84%
NHHS-1N	53%	63%	72%	75%	74%	74%	74%
NHHS-1N DUP	48%	64%	71%	74%	72%	71%	71%
NHHS-2N	53%	65%	73%	77%	74%	73%	70%
NHHS-3N	46%	61%	69%	71%	70%	69%	60%
NHDP-COMP	49%	64%	74%	75%	74%	74%	61%
NHDP-1N	54%	63%	75%	78%	76%	75%	54%
NHDP-2N	52%	66%	75%	78%	76%	75%	48%
NHDP-3N	48%	58%	73%	75%	74%	73%	39%
MECC-COMP	53%	61%	74%	77%	78%	74%	35%
MECC-1N	51%	59%	75%	77%	76%	75%	32%
MECC-2N	54%	60%	78%	79%	80%	77%	27%
MECC-3N	51%	60%	74%	74%	76%	66%	19%
NHFP	56%	72%	80%	81%	81%	79%	68%
NHSS	55%	67%	81%	83%	82%	78%	68%
NHNM	51%	56%	69%	79%	81%	80%	77%
NHWC	57%	60%	74%	83%	83%	84%	77%
NHWC DUP	55%	58%	72%	81%	81%	85%	78%
MEPH	59%	69%	79%	81%	83%	78%	66%
MEKN	57%	69%	81%	83%	82%	78%	72%
MEDM	64%	78%	90%	94%	94%	94%	82%
MEBB	62%	75%	81%	70%	82%	79%	77%
MEMR	56%	61%	77%	79%	79%	74%	66%
MECK	65%	71%	81%	80%	81%	77%	69%
METS	54%	59%	72%	82%	81%	83%	78%
METS DUP	51%	59%	72%	82%	83%	83%	82%

Table D. 1.3.1 (cont'd).

Samples	NAP-d_8	ACE-d_{10}	PHEN-d_{10}	FLU-d_{10}	CHRY-d_{12}	BAP-d_{12}	BGHIP-d_{12}
MEHR	46%	55%	69%	82%	80%	81%	79%
NBTC	62%	64%	76%	82%	82%	85%	79%
NBSC	65%	63%	75%	83%	85%	84%	80%
NSDI	66%	65%	74%	80%	83%	82%	78%
NSAR	66%	65%	72%	81%	76%	81%	80%
NSFI	64%	62%	69%	80%	79%	81%	79%
NSYR	65%	64%	74%	82%	83%	82%	78%

[1]Deuterated surrogate abbreviations: NAP = naphthalene, ACE = acenaphthene, FLU = fluorine, CHRY = chrysene and BGJHIP = benzo[g,h,i]perylene.

TABLE D.1.3.2. Percent recoveries of spiked surrogates added to 2008 Gulfwatch samples as part of the analyses for PCBs and chlorinated pesticides.

GOM Stations	PCBs		Pesticides	
	103	198	γ-Chlordene	β-BHC
MABI	56%	49%	56%	50%
MAME	82%	77%	60%	61%
MASN	82%	84%	70%	64%
MASN DU	80%	78%	64%	53%
MANR	INT[1]	78%	79%	86%
NHHS-COMP	83%	85%	68%	63%
NHHS-1N	82%	81%	68%	59%
NHHS-1N DU	77%	76%	69%	64%
NHHS-2N	83%	85%	63%	63%
NHHS-3N	77%	81%	60%	48%
NHDP-COMP	78%	87%	76%	72%
NHDP-1N	88%	84%	75%	79%
NHDP-2N	88%	83%	71%	67%
NHDP-3N	89%	83%	71%	74%
MECC-COMP	78%	81%	72%	65%
MECC-1N	89%	82%	71%	73%
MECC-2N	77%	80%	71%	71%
MECC-3N	88%	79%	79%	84%
NHFP	75%	74%	63%	58%
NHSS	69%	72%	56%	66%
NHNM	77%	75%	77%	71%
NHWC	81%	79%	78%	73%
NHWC DU	71%	70%	62%	75%
MEPH	80%	71%	70%	49%
MEKN	81%	86%	67%	71%
MEDM	69%	67%	65%	71%
MEBB	59%	63%	67%	61%
MEMR	79%	75%	53%	72%
MECK	78%	82%	71%	75%
METS	78%	80%	67%	75%
METS DU	90%	91%	60%	76%
MEHR	79%	84%	66%	70%
NBTC	82%	72%	57%	67%
NBSC	80%	69%	62%	70%
NSDI	78%	81%	74%	72%
NSAR	74%	73%	73%	75%
NSFI	85%	82%	61%	70%
NSYR	66%	69%	72%	69%

[1]INT = interference

Accuracy Summary for Surrogate spikes:

PAH: In general, surrogates recoveries means all met the data quality objectives of the program (19-94%) with the exception of 5 samples which had low recoveries of benzo(g,h,i)perylene-d_{12} (indicated in color in Table D.1.3), although adequate recoveries of the other surrogates.

PCB: Recovery of matrix spikes ranged from 49-91% for all surrogate spikes with an average recovery of 78 $\pm$ 7.7% (Table D.1.2.2).

Chlorinated Pesticides: Recovery of matrix spikes and surrogates ranged from 48 - 86% with an average recovery (+ standard deviation) of 68 $\pm$ 7.7 % (Table D.1.2.3).

D.2 PRECISION

The relative percent differences (RPD) of duplicate samples for organic analytes are presented in Tables D.2.1 – D.2.3. As mentioned above, the RPD of laboratory duplicates should be less than 25% for all analytes. RPD is the absolute value (ABS) of the difference between the two replicates, divided by the average value and multiplied by 100. The RPD between laboratory duplicates ranged from near 0-61%, with a mean of 15 ($\pm$19)%. RPDs that fell outside of the criteria are highlighted in yellow.

PAHs: Three of the four duplicate analyses of station replicates met the data quality objectives (relative percent difference $\leq$ 25%) of the Program (Table D.2.1). The duplicate analysis is sensitive to individual compounds that may be near the level of detection and result in greater RPD for samples with low level contamination.

PCBs: The RPD of duplicate analyses ranged from 0 -61% (Table D.2.2). Three of the four duplicate analyses of station replicates met the data quality objectives, however two of those duplicates had no detectable PCB concentrations. The duplicate analysis is sensitive to individual congeners that may be near the level of detection and result in greater RPD for samples with low level contamination.

Chlorinated Pesticides: The RPD of duplicate analyses ranged from 0 -34% (Table D.2.3). As with the PCBs, three of the four duplicate analyses of station replicates met the data quality objectives, with two samples having non-detectable pesticide concentrations.

D.3 BLANKS

Blank analyses should ideally recover no detectable amounts of target compounds. For 2008 no discernible analytical signal was observed for PAHs, PCBs, and PEST.

D.4 COMPLETENESS

100% of the samples collected in (25 of 25 sampling sites; 38 individual replicates) were collected, analyzed and are reported here.

Table D.2.1. Duplicate PAH analysis for Gulfwatch 2008 samples.

PAH analytes	MASN	MASN DUP	NHHS-1N	NHHS-1N DUP	NHWC	NHWC DUP	METS	METS DUP
	(ng/g)	(ng/g)	(ng/g)	(ng/g)	(ng/g)	(ng/g)	(ng/g)	(ng/g)
Naphthalene	14.0	12.4	0.0	11.1	28.2	17.6	21.1	23.0
C1-Naphthalenes	18.5	15.0	4.0	14.4	18.8	11.9	14.7	16.0
Biphenyl	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
C2-Naphthalene	13.9	11.2	0.0	0.0	0.0	0.0	<8	<8
Acenaphthylene	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Acenaphthene	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
C-3 Naphthalene	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Fluorene	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
C1- Fluorene	16.2	11.0	18.8	15.5	0.0	0.0	0.0	0.0
C2-Fluorene	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
C3- Fluorene	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
C4-Naphthalene	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dibenzothiophene	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
C4- Fluorene	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
C1-Dibenzothiophene	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
C2- Dibenzothiophene	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
C3-Dibenzothiophene	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phenanthrene	10.4	8.2	7.3	8.3	9.2	7.7	14.6	13.5
Anthracene	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
C1-Phenanthrene	13.4	0.0	0.0	0.0	12.3	12.1	0.0	0.0
C2-Phenanthrene	13.8	11.8	13.2	13.0	13.4	12.9	7.4	7.2
Fluoranthene	0.0	0.0	15.3	14.9	34.4	31.7	27.9	26.3
Pyrene	0.0	0.0	11.6	11.7	31.7	30.1	25.8	24.3
C1-FP	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
C3-Phenanthrene	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
C2-FP	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
C4-Phenanthrene	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Benzo(a)Anthracene	0.0	0.0	0.0	0.0	13.4	12.7	7.9	6.9
Chrysene	0.0	0.0	0.0	0.0	22.0	20.5	9.6	8.9
C1-Chrysene	0.0	0.0	0.0	0.0	24.8	22.9	16.1	15.6
C2-Chrysene	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
C3-Chrysene	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
C4-Chrysene	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Benzo(b)Fluoranthene	0.0	0.0	0.0	0.0	15.7	14.1	7.9	7.2
Benzo(k)Fluoranthene	0.0	0.0	0.0	0.0	15.2	13.9	8.1	7.2
Benzo(e)Pyrene	0.0	0.0	0.0	0.0	29.6	27.8	9.2	8.8
Benzo(a)Pyrene	0.0	0.0	0.0	0.0	11.4	10.9	7.1	6.2
Perylene	0.0	0.0	0.0	0.0	13.5	12.5	12.1	12.9
Indeno(1,2,3-cd)Pyrene	0.0	0.0	0.0	0.0	11.0	10.4	0.0	0.0
Dibenz(a,h)Anthracene	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Benzo(ghi)Perylene	0.0	0.0	0.0	0.0	23.9	21.5	0.0	0.0
ΣPAH40	**100.35**	**69.55**	**70.23**	**88.90**	**328.47**	**291.49**	**189.50**	**184.08**
Average	**84.95**		**79.56**		**309.98**		**186.79**	
% RPD[1]	**36.3**		**23.5**		**11.9**		**2.9**	

[1]RPD = the relative % difference = absolute value of [(rep1-rep2)/average(rep1:rep2)]*100

Table D.2.2. Duplicate PCB analysis for Gulfwatch 2008 samples.

PCB Congeners	MASN	MASN DUP	NHHS-1N	NHHS-1N DU	NHWC	NHWC DUP	METS	METS_DUP
	(ng/g)	(ng/g)	(ng/g)	(ng/g)	(ng/g)	(ng/g)	(ng/g)	(ng/g)
8;5	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8
18;15	<2.7	<2.7	<2.7	<2.7	<2.7	<2.7	<2.7	<2.7
29	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2
50	<2.4	<2.4	<2.4	<2.4	<2.4	<2.4	<2.4	<2.4
28	<2.3	<2.3	<2.3	<2.3	<2.3	<2.3	<2.3	<2.3
52	<2	<2	<2	<2	<2	<2	<2	<2
44	<2.3	<2.3	<2.3	<2.3	<2.3	<2.3	<2.3	<2.3
66;95	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2
101;90	4.1	2.3	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2
87	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9
77	<2.3	<2.3	<2.3	<2.3	<2.3	<2.3	<2.3	<2.3
118	4.9	<2	<2	<2	<2	<2	<2	<2
153;132	8.6	5.2	3.2	3.0	<2.1	<2.1	<2.1	<2.1
105	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4
138	6.8	4.2	2.8	2.6	<2	<2	<2	<2
126	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9
187	2.8	2.8	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9
128	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9
180	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7
169	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7
170;190	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8
195;208	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8
206	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7
209	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7
ΣPCB24	27.25	14.59	5.98	5.61	0	0	0	0
Average	**20.92**		**5.80**		**0.00**		**0.00**	
% RPD[1]	**60.5**		**6.5**		**0.0**		**0.0**	

[1]RPD = the relative % difference = absolute value of [(rep1-rep2) / average(rep1:rep2)]*100

Table D.2.3. Duplicate chlorinated pesticide analysis for Gulfwatch 2008 samples.

Pesticides	MASN	MASN DUP	NHHS-1N	NHHS-1N DUP	NHWC	NHWC DUP	METS	METS DUP
	(ng/g)	(ng/g)	(ng/g)	(ng/g)	(ng/g)	(ng/g)	(ng/g)	(ng/g)
α-BHC	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
HCB	<2.4	<2.4	<2.4	<2.4	<2.4	<2.4	<2.4	<2.4
γ-HCH(Lindane)	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5
Heptachlor	<2	<2	<2	<2	<2	<2	<2	<2
Aldrin	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5
Heptachlor Epoxide	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8
γ-Chlordane	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5
o,p'-DDE	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
a-Endosulfan	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5
cis-Chlordane	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2
τ-Nonachlor	2.63	1.91	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4
p,p'_DDE	9.48	8.15	3.57	3.24	2.87	2.45	2.1	2.3
Dieldrin	2.05	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4
o,p'-DDD	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0
Endrin	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2
β-Endosulfan	<3.4	<3.4	<3.4	<3.4	<3.4	<3.4	<3.4	<3.4
p,p'-DDD	<2	<2	<2	<2	<2	<2	<2	<2
o,p'-DDT	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8
p,p'-DDT	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5
Metoxychlor	<3.1	<3.1	<3.1	<3.1	<3.1	<3.1	<3.1	<3.1
Mirex	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5
$\Sigma PEST_{21}$	14.16	10.05	3.57	3.24	2.87	2.45	2.11	2.27
Average	**12.11**		**3.41**		**2.66**		**2.19**	
% RPD[1]	**33.9**		**9.4**		**0.0**		**0.0**	

[1]RPD = the relative % difference = absolute value of [(rep1-rep2) / average(rep1:rep2)]*100

APPENDIX E: 2008 Trace Metal (and % water) Data for Gulfwatch Mussel Samples

TABLES E. Metals concentration (μg/g dry wt.) and % water content observed in blue mussel tissue collected by Gulfwatch, 2008. Tables E.2 and E.3 contain individual site replaces (3 stations). Replicates are compared with the composite samples also taken at the same time.

Table E.1 Metals concentrations for site composite samples, Gulfwatch 2008.

GOM Stations	Moisture	Ag	Cd	Cr	Cu	Fe	Ni	Pb	Zn	Al	Hg
	%	(ng/g)	(ng/g)	(ng/g)	(ng/g)	(ng/g)	(ng/g)	(ng/g)	(ng/g)	(ng/g)	(ng/g)
MASN	81.1	0.228	1.610	0.693	5.460	179	0.648	3.27	92.5	85.3	0.107
MANR	87.3	0.248	1.770	1.780	10.400	486	0.879	6.80	119	277	0.169
MABI	80.6	0.146	1.770	2.040	6.500	410	1.08	3.12	124	367	0.327
MAME	89.3	0.054	2.290	1.520	6.780	405	1.03	3.61	121	169	0.170
NHHS	88.2	0.036	2.05	1.11	6.35	288	0.908	1.92	127	201	0.135
NHDP	88.7	0.033	2.13	1.72	6.06	319	1.22	1.48	83.3	155	0.223
NHFP	83.7	0.032	1.84	1.53	5.49	402	1.06	1.36	92.3	300	0.2070
NHSS	85.8	0.031	1.50	1.66	6.37	361	1.51	1.67	101	222	0.2640
MECC	88.2	0.037	1.65	1.71	6.47	436	1.30	3.59	123	295	0.2370
MEPH	83.5	0.024	1.48	1.40	8.08	606	1.06	5.16	139	483	0.1960
MEKN	86.5	0.077	3.58	1.31	6.84	371	1.53	1.56	74.2	163	0.2000
MEBB	84.1	0.030	1.12	0.844	8.71	276	0.611	10.4	132	133	0.2010
MEDM	82.1	0.070	1.70	1.36	5.55	527	1.55	2.09	76.1	402	0.1490
MEMR	88.6	0.040	1.78	1.36	5.70	630	1.16	1.12	51.5	403	0.2810
MECK	83.1	0.013	1.61	0.709	10.6	289	0.747	1.10	77.3	286	0.0856
NBSC	85.5	0.050	2.26	1.34	5.45	465	1.22	1.19	83.1	291	0.1540
NBTC	91.3	0.022	2.88	3.27	6.74	1490	3.25	3.00	87.8	1196	0.3990
NSAR	88.1	0.035	3.44	1.82	6.26	688	2.04	1.57	80.4	757	0.2340
NSFI	88.5	0.020	2.27	2.32	5.75	1198	2.05	1.56	64.1	1465	0.1410
NSDI	80.5	0.039	1.28	1.06	5.40	471	0.976	2.36	68.5	410	0.0920
NSYR	83.3	0.076	1.75	1.41	6.24	631	1.47	2.75	102	494	0.1650

Table E.2. Tissue concentrations of metals in mussels collected in 2008 from Dover Point, NH (NHDP).

Metals	NHDP 1N (µg/g)	NHDP 2N (µg/g)	NHDP 3N (µg/g)	NHDP COMP (µg/g)
Ag	0.0326	0.0268	0.0228	0.0325
Cd	2.14	1.94	1.93	2.13
Cr	1.86	1.64	1.47	1.72
Cu	6.08	7.17	6.43	6.06
Fe	331	282	337	319
Ni	1.09	1.20	1.41	1.22
Pb	1.56	1.36	1.50	1.48
Zn	102	91.5	106	83.3
Al	181	149	218	155
Hg	0.235	0.219	0.217	0.223
% Moisture	88.1	87.8	88.7	87.8

Table E.3. Tissue concentrations of metals in mussels collected in 2008 from Hampton/Seabrook Harbor, NH (NHHS).

Metals	NHHS 1N (µg/g)	NHHS 2N (µg/g)	NHHS 3N (µg/g)	NHHS COMP (µg/g)
Ag	0.0353	0.0424	0.0276	0.0355
Cd	1.87	2.01	1.79	2.05
Cr	0.815	1.01	1.24	1.11
Cu	5.82	5.89	6.12	6.35
Fe	228	344	339	288
Ni	0.689	0.773	0.912	0.908
Pb	1.71	1.74	2.29	1.92
Zn	119	102	116	127
Al	144	314	259	201
Hg	0.122	0.127	0.129	0.135
% Moisture	84.8	85.0	88.2	88.5

Table E.4. Tissue concentrations of metals in mussels collected in 2008 from Clark's Cove, ME (MECC).

Metals	MECC 1N (μg/g)	MECC 2N (μg/g)	MECC 3N (μg/g)	MECC COMP (μg/g)
Ag	0.0425	0.0637	0.0373	0.0373
Cd	1.94	1.87	1.79	1.65
Cr	2.26	1.91	1.52	1.71
Cu	6.80	7.68	5.86	6.47
Fe	566	480	387	436
Ni	1.35	1.30	1.19	1.30
Pb	3.47	4.38	2.47	3.59
Zn	126	137	108	123
Al	418	331	262	295
Hg	0.265	0.263	0.230	0.237
% Moisture	87.5	86.3	87.9	88.2

Table E.5. Tissue concentrations of metals in soft shell clams from site replicates and composites collected in New Hampshire and Maine during the 2008 Gulfwatch Monitoring Program.

GOM Stations	Moisture %	Ag (ng/g)	Cd (ng/g)	Cr (ng/g)	Cu (ng/g)	Fe (ng/g)	Ni (ng/g)	Pb (ng/g)	Zn (ng/g)	Al (ng/g)	Hg (ng/g)
NHNM-1N	85.2	2.06	2.34	3.26	17.9	2812	1.65	8.49	96.0	943	0.311
NHNM-2N	85.2	2.02	2.34	3.27	17.7	2744	1.55	7.44	96.5	988	0.316
NHWC	84.8	2.05	0.492	7.00	17.0	5368	3.15	9.12	121	1858	0.243
METS	84.2	0.713	0.376	2.60	12.2	10469	1.86	6.26	82.8	1447	0.122
MEHR	82.8	0.473	0.400	5.22	10.4	16213	2.95	6.19	86.5	2779	0.125

APPENDIX F: Organic Contaminants (and % Lipids Content) Data for 2008 Gulfwatch Mussel Samples

Table F.1. Tissue concentrations of PAHs in composite samples collected from sites in Massachusetts in 2008.

PAH Abbrev.	MABI (ng/g)	MAME (ng/g)	MASN (ng/g)	MASN DUP (ng/g)	MANR (ng/g)
NAP	<10	<10	14.0	12.4	12.3
C1-NAP	<8	<8	18.5	15.0	10.9
C2-NAP	<8	<8	13.9	11.2	<8
C3-NAP	<7	<7	<7	<7	<7
C4-NAP	<7	<7	<7	<7	18.3
BIP	<10	<10	<10	<10	<10
ACE	<11	<11	<11	<11	<11
ACEY	<8	<8	<8	<8	<8
FLU	<7	<7	<7	<7	<7
C1-FLU	17.0	17.3	16.2	11.0	20.3
C2-FLU	<7	<7	<7	<7	<7
C3-FLU	<7	<7	<7	<7	<7
C4-FLU	<10	<10	<10	<10	<10
DBT	<10	<10	<10	<10	<10
C1-DBT	<10	<10	<10	<10	<10
C2-DBT	<10	<10	<10	<10	<10
C3-DBT	<10	<10	<10	<10	<10
PHEN	8.2	12.7	10.4	8.2	14.8
ANTH	<10	<10	<10	<10	<10
C1-PHEN	12.2	15.6	13.4	<12	40.1
C2-PHEN	16.4	15.4	13.8	11.8	86.5
C3-PHEN	<6	<6	<6	<6	<6
C4-PHEN	<6	<6	<6	<6	<6
FLUO	31.8	37.9	<14	<14	209.6
PYR	26.8	37.1	<9	<9	241.3
C1-FP	17.5	25.6	<9	<9	133.3
C2-FP	<9	<9	<9	<9	<9
BAA	6.2	17.3	<6	<6	77.7
CHRY	13.6	29.2	<6	<6	159.0
C1-CHRY	10.0	23.9	<6	<6	148.9
C2-CHRY	<6	<6	<6	<6	<6
C3-CHRY	<6	<6	<6	<6	<6
C4-CHRY	<6	<6	<6	<6	<6
BBF	8.7	28.2	<6	<6	145.3
BKF	7.5	24.7	<4	<4	112.0
BEP	16.0	32.3	<7	<7	179.1
BAP	4.5	12.7	<4	<4	47.4
PER	<5	15.7	<5	<5	20.5

Table F.1. (cont'd)

PAH Abbrev.	MABI (ng/g)	MAME (ng/g)	MASN (ng/g)	MASN DUP (ng/g)	MANR (ng/g)
IND	<7	13.4	<7	<7	38.6
DBAHA	<11	<11	<11	<11	<11
BGHIP	<15	<15	<15	<15	42.5
Surrogate Recovery					
NAPH-d8	52%	55%	55%	50%	58%
ACE-d10	65%	63%	69%	61%	74%
PHEN-d10	79%	77%	81%	76%	80%
FLUO-d10	80%	77%	82%	78%	82%
CHRY-d12	79%	77%	81%	76%	80%
BAP-d12	78%	77%	79%	77%	79%
BGHIP-d12	65%	66%	68%	68%	75%
% Lipids	5.76%	6.26%	4.47%	7.73%	6.45%

NAP = naphthalene, BIP = biphenyl, ACE = acenaphthene ACEY = acenaphthylene, FLU = fluorine, DBT = dibenzothiophene, PHEN = phenanthrene, ANTH = anthracene, FLUO = fluoranthene, PYR = pyrene, FP = fluoranthenes/pyrenes, BAA = benzo[a]anthracene, CHRY = chrysene, BBF = benzo[b] fluoranthene, BKF = benzo[k]fluoranthene, BEP = benzo[e]pyrene, BAP = Benzo[a]pyrene, PER = perylene, IND = indeno(1,2,3,c,d)pyrene, DBAHA = Dibenz[a,h]anthracene, BGHIP = Benzo[g,h,i]perylene.

Table F.2. Tissue concentrations of PAHs in composite samples collected from sites in New Hampshire in 2008.

PAH Abbrev.	NHHS (ng/g)	NHDP (ng/g)	NHFP (ng/g)	NHSS (ng/g)
NAPH	<10	<10	10.79	12.42
C1-NAPH	<8	11.4	10.96	11.29
C2-NAPH	<8	<8	9.12	<8
C3-NAPH	<7	<7	<7	<7
C4-NAPH	<7	<7	7.22	<7
BIP	<10	<10	<10	<10
ACE	<11	<11	<11	<11
ACEY	<8	<8	<8	<8
FLU	<7	<7	<7	<7
C1-FLU	15.0	16.3	19.32	12.82
C2-FLU	<7	<7	<7	<7
C3-FLU	<7	<7	<7	<7
C4-FLU	<10	<10	<10	<10
DBT	<10	<10	<10	<10
C1-DBT	<10	<10	<10	<10
C2-DBT	<10	<10	<10	<10
C3-DBT	<10	<10	<10	<10
PHEN	7.4	11.5	10.13	10.88
ANTH	<10	<10	<10	<10
C1-PHEN	<12	27.3	30.13	21.32
C2-PHEN	15.3	49.4	43.27	26.88
C3-PHEN	<6	7.6	17.76	9.16
C4-PHEN	<6	<6	<6	<6
FLUO	16.8	68.8	96.75	53.08
PYR	12.1	93.4	121.29	62.90
C1-FP	<9	22.9	<9	<9
C2-FP	<9	<9	<9	<9
BAA	<6	30.7	29.38	18.51
CHRY	6.4	41.9	46.51	29.43
C1-CHRY	<6	41.9	58.98	31.19
C2-CHRY	<6	<6	<6	<6
C3-CHRY	<6	<6	<6	<6
C4-CHRY	<6	<6	<6	<6
BBF	<6	38.4	41.08	23.05
BKF	<4	34.4	34.15	20.86
BEP	7.1	50.2	57.79	33.65
BAP	<4	15.0	13.59	8.96
PER	<5	23.0	35.90	15.32
IND	<7	11.6	12.05	8.99
DBAHA	<11	<11	<11	<11
BGHIP	<15	<15	<15	<15

Table F.2 (cont'd)

PAH Abbrev.	NHHS (ng/g)	NHDP (ng/g)	NHFP (ng/g)	NHSS (ng/g)
Surrogate Recovery				
NAPH-d8	55%	49%	56%	55%
ACE-d10	65%	64%	72%	67%
PHEN-d10	77%	74%	80%	81%
FLUO-d10	77%	75%	81%	83%
CHRY-d12	76%	74%	81%	82%
BAP-d12	76%	74%	79%	78%
BGHIP-d12	84%	61%	68%	68%
% Lipids	5.54%	6.80%	7.59%	5.32%

PAH abbreviations are listed in Table F.1.

Table F.3. Tissue concentrations of PAHs in composite samples collected from sites in Maine in 2008.

PAH Abbrev.	MECC (ng/g)	MEPH (ng/g)	MEKN (ng/g)	MEDM (ng/g)	MEBB (ng/g)	MEMR (ng/g)	MECK (ng/g)
NAPH	<10	11.2	15.8	13.0	12.8	63.5	25.2
C1-NAPH	8.5	10.0	13.3	12.5	11.9	59.3	17.1
C2-NAPH	<8	<8	<8	11.1	10.3	21.7	<8
C3-NAPH	<7	<7	<7	<7	8.3	<7	<7
C4-NAPH	<7	9.6	<7	<7	14.9	<7	<7
BIP	<10	<10	<10	<10	<10	<10	<10
ACE	<11	<11	<11	<11	<11	<11	<11
ACEY	<8	<8	<8	<8	<8	<8	<8
FLU	<7	<7	<7	<7	<7	<7	<7
C1-FLU	<7	18.0	16.2	13.7	23.6	38.5	16.9
C2-FLU	<7	<7	<7	<7	7.2	<7	<7
C3-FLU	<7	<7	<7	<7	<7	<7	<7
C4-FLU	<10	<10	<10	<10	<10	<10	<10
DBT	<10	<10	<10	<10	<10	<10	<10
C1-DBT	<10	<10	<10	<10	10.9	<10	<10
C2-DBT	<10	<10	<10	<10	<10	<10	<10
C3-DBT	<10	<10	<10	<10	<10	<10	<10
PHEN	10.1	30.0	6.3	6.1	19.5	15.3	<6
ANTH	<10	10.8	<10	<10	<10	<10	<10
C1-PHEN	18.1	47.0	<12	<12	62.2	<12	<12
C2-PHEN	28.2	50.3	17.1	11.2	<6	10.1	6.6
C3-PHEN	6.8	<6	11.9	<6	<6	8.7	<6
C4-PHEN	<6	<6	<6	<6	<6	<6	<6
FLUO	43.5	202.1	22.7	<14	153.6	21.6	<14
PYR	52.0	192.0	25.8	<9	257.2	20.2	<9
C1-FP	15.1	<9	<9	<9	<9	<9	<9
C2-FP	<9	<9	<9	<9	<9	<9	<9
BAA	14.2	31.9	<6	<6	46.4	<6	<6

Table F.3 (cont'd).

PAH Abbrev.	MECC (ng/g)	MEPH (ng/g)	MEKN (ng/g)	MEDM (ng/g)	MEBB (ng/g)	MEMR (ng/g)	MECK (ng/g)
CHRY	22.3	76.3	13.0	<6	94.1	7.8	<6
C1-CHRY	20.4	56.0	16.5	11.6	108.7	8.5	<6
C2-CHRY	<6	<6	<6	<6	<6	<6	<6
C3-CHRY	<6	<6	<6	<6	<6	<6	<6
C4-CHRY	<6	<6	<6	<6	<6	<6	<6
BBF	22.2	51.6	9.1	<6	128.0	8.4	<6
BKF	19.3	46.3	7.4	<4	108.5	6.8	<4
BEP	28.4	82.8	14.5	<7	168.7	8.5	<7
BAP	8.5	16.4	<4	<4	29.7	<4	<4
PER	12.4	16.2	20.3	<5	14.7	21.2	<5
IND	9.5	19.4	<7	<7	44.4	<7	<7
DBAHA	<11	<11	<11	<11	<11	<11	<11
BGHIP	<15	18.1	<15	<15	40.6	<15	<15
Surrogate Recovery							
NAPH-d8	53%	59%	57%	64%	62%	56%	65%
ACE-d10	61%	69%	69%	78%	75%	61%	71%
PHEN-d10	74%	79%	81%	90%	81%	77%	81%
FLUO-d10	77%	81%	83%	94%	70%	79%	80%
CHRY-d12	78%	83%	82%	94%	82%	79%	81%
BAP-d12	74%	78%	78%	94%	79%	74%	77%
BGHIP-d12	35%	66%	72%	82%	77%	66%	69%
% Lipids	6.09%	5.01%	6.69%	5.38%	5.73%	4.29%	6.84%

PAH abbreviations are listed in Table F.1.

Table F.4. Tissue concentrations of PAHs in composite samples collected from sites in New Brunswick and Nova Scotia in 2008.

PAH Abbrev.	NBTC (ng/g)	NBSC (ng/g)	NSDI (ng/g)	NSAR (ng/g)	NSFI (ng/g)	NSYR (ng/g)
NAPH	45.72	28.52	22.4	28.2	16.8	31.4
C1-NAPH	30.69	19.07	15.2	20.1	11.5	19.5
C2-NAPH	8.86	<8	<8	<8	<8	<8
C3-NAPH	<7	<7	<7	<7	<7	<7
C4-NAPH	<7	<7	<7	<7	<7	<7
BIP	<10	<10	<10	<10	<10	<10
ACE	<11	<11	<11	<11	<11	<11
ACEY	<8	<8	<8	<8	<8	<8
FLU	<7	<7	<7	<7	<7	<7
C1-FLU	<7	<7	<7	<7	<7	<7
C2-FLU	<7	<7	<7	<7	<7	<7
C3-FLU	<7	<7	<7	<7	<7	<7
C4-FLU	<10	<10	<10	<10	<10	<10
DBT	<10	<10	<10	<10	<10	<10
C1-DBT	<10	<10	<10	<10	<10	<10

Table F.4 (cont'd).

PAH Abbrev.	NBTC (ng/g)	NBSC (ng/g)	NSDI (ng/g)	NSAR (ng/g)	NSFI (ng/g)	NSYR (ng/g)
C2-DBT	<10	<10	<10	<10	<10	<10
C3-DBT	<10	<10	<10	<10	<10	<10
PHEN	14.37	<6	9.4	<6	<6	<6
ANTH	<10	<10	<10	<10	<10	<10
C1-PHEN	15.38	<12	<12	<12	<12	<12
C2-PHEN	25.20	<6	9.4	6.9	<6	10.0
C3-PHEN	<6	<6	<6	<6	<6	<6
C4-PHEN	<6	<6	<6	<6	<6	<6
FLUO	34.12	<14	17.9	<14	<14	15.8
PYR	23.03	<9	9.8	<9	<9	<9
C1-FP	<9	<9	<9	<9	<9	<9
C2-FP	<9	<9	<9	<9	<9	<9
BAA	17.07	<6	<6	<6	<6	<6
CHRY	18.92	<6	<6	<6	<6	6.4
C1-CHRY	45.35	12.50	10.1	11.7	10.6	11.0
C2-CHRY	<6	<6	<6	<6	<6	<6
C3-CHRY	<6	<6	<6	<6	<6	<6
C4-CHRY	<6	<6	<6	<6	<6	<6
BBF	16.55	<6	<6	<6	<6	<6
BKF	14.01	4.30	4.0	<4	<4	4.3
BEP	12.64	<7	<7	<7	<7	<7
BAP	9.33	<4	<4	<4	<4	<4
PER	14.06	<5	<5	<5	5.4	<5
IND	<7	<7	<7	<7	<7	<7
DBAHA	<11	<11	<11	<11	<11	<11
BGHIP	<15	<15	<15	<15	<15	<15
Surrogate Recovery						
NAPH-d8	62%	65%	66%	66%	64%	65%
ACE-d10	64%	63%	65%	65%	62%	64%
PHEN-d10	76%	75%	74%	72%	69%	74%
FLUO-d10	82%	83%	80%	81%	80%	82%
CHRY-d12	82%	85%	83%	76%	79%	83%
BAP-d12	85%	84%	82%	81%	81%	82%
BGHIP-d12	79%	80%	78%	80%	79%	78%
% Lipids	**7.03%**	**5.17%**	**7.72%**	**5.71%**	**6.26%**	**5.22%**

PAH abbreviations are listed in Table F.1.

Table F.5. Tissue concentrations of PAHs in mussels collected from Dover Point, NH (NHDP).

PAH Abbrev.	NHDP 1N (ng/g)	NHDP 2N (ng/g)	NHDP 3N (ng/g)	NHDP Comp (ng/g)
NAPH	11.5	21.2	16.5	<10
C1-NAPH	12.5	25.2	17.8	11.4
C2-NAPH	<8	11.3	8.6	<8
C3-NAPH	<7	<7	<7	<7
C4-NAPH	<7	<7	<7	<7
BIP	<10	<10	<10	<10
ACE	<11	<11	<11	<11
ACEY	<8	<8	<8	<8
FLU	<7	<7	<7	<7
C1-FLU	21.8	26.8	18.7	16.3
C2-FLU	<7	<7	<7	<7
C3-FLU	<7	<7	<7	<7
C4-FLU	<10	<10	<10	<10
DBT	<10	<10	<10	<10
C1-DBT	<10	<10	<10	<10
C2-DBT	<10	<10	<10	<10
C3-DBT	<10	<10	<10	<10
PHEN	10.1	11.5	10.0	11.5
ANTH	<10	<10	<10	<10
C1-PHEN	24.7	23.5	21.4	27.3
C2-PHEN	36.4	42.5	30.0	49.4
C3-PHEN	7.8	7.9	<6	7.6
C4-PHEN	<6	<6	<6	<6
FLUO	63.9	61.3	54.2	68.8
PYR	86.3	79.7	70.9	93.4
C1-FP	27.1	21.8	19.8	22.9
C2-FP	<9	<9	<9	<9
BAA	33.8	27.2	26.5	30.7
CHRY	44.2	39.6	36.7	41.9
C1-CHRY	50.6	41.8	38.9	41.9
C2-CHRY	<6	<6	<6	<6
C3-CHRY	<6	<6	<6	<6
C4-CHRY	<6	<6	<6	<6
BBF	47.3	40.3	35.8	38.4
BKF	42.4	34.2	32.9	34.4
BEP	50.8	46.8	40.2	50.2
BAP	18.9	15.5	14.5	15.0
PER	25.0	20.6	17.6	23.0
IND	13.8	12.9	12.2	11.6
DBAHA	<11	<11	<11	<11
BGHIP	<15	<15	<15	<15

Table F.5 (cont'd).

PAH Abbrev.	NHDP 1N (ng/g)	NHDP 2N (ng/g)	NHDP 3N (ng/g)	NHDP Comp (ng/g)
Surrogate Recovery				
NAPH-d8	54%	52%	48%	49%
ACE-d10	63%	66%	58%	64%
PHEN-d10	75%	75%	73%	74%
FLUO-d10	78%	78%	75%	75%
CHRY-d12	76%	76%	74%	74%
BAP-d12	75%	75%	73%	74%
BGHIP-d12	54%	48%	39%	61%
% Lipids	**6.71%**	**5.91%**	**5.26%**	**6.80%**

PAH abbreviations are listed in Table F.1.

Table F.6. Tissue concentrations of PAHs in mussels collected from Hampton/Seabrook Harbor, NH (NHHS).

PAH Abbrev.	NHHS 1N (ng/g)	NHHS 1N DUP (ng/g)	NHHS 2N (ng/g)	NHHS 3N (ng/g)	NHHS Comp (ng/g)
NAPH	<10	11.1	10.3	<10	<10
C1-NAPH	<8	14.4	12.0	11.2	<8
C2-NAPH	<8	<8	<8	<8	<8
C3-NAPH	<7	<7	<7	<7	<7
C4-NAPH	<7	<7	<7	<7	<7
BIP	<10	<10	<10	<10	<10
ACE	<11	<11	<11	<11	<11
ACEY	<8	<8	<8	<8	<8
FLU	<7	<7	<7	<7	<7
C1-FLU	18.8	15.5	11.8	<7	15.0
C2-FLU	<7	<7	<7	<7	<7
C3-FLU	<7	<7	<7	<7	<7
C4-FLU	<10	<10	<10	<10	<10
DBT	<10	<10	<10	<10	<10
C1-DBT	<10	<10	<10	<10	<10
C2-DBT	<10	<10	<10	<10	<10
C3-DBT	<10	<10	<10	<10	<10
PHEN	7.3	8.3	6.5	6.9	7.4
ANTH	<10	<10	<10	<10	<10
C1-PHEN	<12	<12	<12	<12	<12
C2-PHEN	13.2	13.0	12.6	13.0	15.3
C3-PHEN	<6	<6	<6	<6	<6
C4-PHEN	<6	<6	<6	<6	<6
FLUO	15.3	14.9	14.4	15.9	16.8
PYR	11.6	11.7	10.4	11.4	12.1
C1-FP	<9	<9	<9	<9	<9

Table F.6 (cont'd).

PAH Abbrev.	NHHS 1N (ng/g)	NHHS 1N DUP (ng/g)	NHHS 2N (ng/g)	NHHS 3N (ng/g)	NHHS Comp (ng/g)
C2-FP	<9	<9	<9	<9	<9
BAA	<6	<6	<6	<6	<6
CHRY	<6	<6	<6	6.8	6.4
C1-CHRY	<6	<6	<6	<6	<6
C2-CHRY	<6	<6	<6	<6	<6
C3-CHRY	<6	<6	<6	<6	<6
C4-CHRY	<6	<6	<6	<6	<6
BBF	<6	<6	<6	<6	<6
BKF	<4	<4	<4	<4	<4
BEP	<7	<7	<7	<7	7.1
BAP	<4	<4	<4	<4	<4
PER	<5	<5	<5	<5	<5
IND	<7	<7	<7	<7	<7
DBAHA	<11	<11	<11	<11	<11
BGHIP	<15	<15	<15	<15	<15
Surrogate Recovery					
NAPH-d8	53%	48%	53%	46%	55%
ACE-d10	63%	64%	65%	61%	65%
PHEN-d10	72%	71%	73%	69%	77%
FLUO-d10	75%	74%	77%	71%	77%
CHRY-d12	74%	72%	74%	70%	76%
BAP-d12	74%	71%	73%	69%	76%
BGHIP-d12	74%	71%	70%	60%	84%
% Lipids	**6.47%**	**5.71%**	**5.64%**	**5.71%**	**5.54%**

PAH abbreviations are listed in Table F.1.

Table F.7. Tissue concentrations of PAHs in mussels collected from Clark's Cover, ME (MECC).

PAH Abbrev.	MECC 1N (ng/g)	MECC 2N (ng/g)	MECC 3N (ng/g)	MECC Comp (ng/g)
NAPH	10.5	11.2	10.5	<10
C1-NAPH	9.7	9.3	9.0	8.5
C2-NAPH	<8	<8	<8	<8
C3-NAPH	<7	<7	<7	<7
C4-NAPH	<7	<7	<7	<7
BIP	<10	<10	<10	<10
ACE	<11	<11	<11	<11
ACEY	<8	<8	<8	<8
FLU	<7	<7	<7	<7
C1-FLU	<7	<7	<7	<7
C2-FLU	<7	<7	<7	<7

Table F7 (cont'd).

PAH Abbrev.	MECC 1N (ng/g)	MECC 2N (ng/g)	MECC 3N (ng/g)	MECC Comp (ng/g)
C3-FLU	<7	<7	<7	<7
C4-FLU	<10	<10	<10	<10
DBT	<10	<10	<10	<10
C1-DBT	<10	<10	<10	<10
C2-DBT	<10	<10	<10	<10
C3-DBT	<10	<10	<10	<10
PHEN	8.7	9.7	8.8	10.1
ANTH	<10	<10	<10	<10
C1-PHEN	16.8	18.7	16.9	18.1
C2-PHEN	28.3	25.6	27.9	28.2
C3-PHEN	<6	6.2	<6	6.8
C4-PHEN	<6	<6	<6	<6
FLUO	40.0	45.1	38.0	43.5
PYR	46.6	54.1	45.2	52.0
C1-FP	12.9	14.5	13.7	15.1
C2-FP	<9	<9	<9	<9
BAA	15.4	18.6	13.8	14.2
CHRY	24.0	27.6	21.6	22.3
C1-CHRY	21.1	27.7	19.9	20.4
C2-CHRY	<6	<6	<6	<6
C3-CHRY	<6	<6	<6	<6
C4-CHRY	<6	<6	<6	<6
BBF	24.7	28.8	21.7	22.2
BKF	21.6	25.8	18.5	19.3
BEP	28.4	29.6	20.1	28.4
BAP	10.0	11.6	7.0	8.5
PER	12.7	12.2	8.0	12.4
IND	11.2	11.7	9.0	9.5
DBAHA	<11	<11	<11	<11
BGHIP	<15	<15	<15	<15
Surrogate Recovery				
NAPH-d8	51%	54%	51%	53%
ACE-d10	59%	60%	60%	61%
PHEN-d10	75%	78%	74%	74%
FLUO-d10	77%	79%	74%	77%
CHRY-d12	76%	80%	76%	78%
BAP-d12	75%	77%	66%	74%
BGHIP-d12	32%	27%	19%	35%
% Lipids	**5.82%**	**5.69%**	**5.90%**	**6.09%**

Table F.8. Tissue Concentrations of PCBs in composite samples collected from sites in Massachusetts in 2008.

Congener Number	MABI (ng/g)	MAME (ng/g)	MASN (ng/g)	MASN DU (ng/g)	MANR (ng/g)
8;5	<2.8	<2.8	<2.8	<2.8	<2.8
18;15	<2.7	<2.7	<2.7	<2.7	9.0
29	<2.2	<2.2	<2.2	<2.2	<2.2
50	<2.4	<2.4	<2.4	<2.4	<2.4
28	<2.3	<2.3	<2.3	<2.3	48.5
52	2.3	2.4	<2	<2	72.3
44	<2.3	<2.3	<2.3	<2.3	44.5
66;95	3.4	3.4	<2.2	<2.2	93.4
101;90	8.9	5.7	4.1	2.3	92.0
87	2.2	<1.9	<1.9	<1.9	45.3
77	<2.3	<2.3	<2.3	<2.3	12.2
118	11.8	5.4	4.9	<2	89.9
153;132	30.5	7.7	8.6	5.2	92.9
105	3.7	2.2	<1.4	<1.4	46.3
138	25.0	7.8	6.8	4.2	92.7
126	<1.9	<1.9	<1.9	<1.9	5.7
187	6.3	3.0	2.8	2.8	35.4
128	3.9	<1.9	<1.9	<1.9	16.2
180	1.7	<1.7	<1.7	<1.7	8.3
169	<1.7	<1.7	<1.7	<1.7	<1.7
170;190	<1.8	<1.8	<1.8	<1.8	2.4
195;208	<1.8	<1.8	<1.8	<1.8	<1.8
206	<1.7	<1.7	<1.7	<1.7	<1.7
209	<1.7	<1.7	<1.7	<1.7	<1.7
Surrogate Recovery					
103	56%	82%	82%	80%	**INT**[1]
198	49%	77%	84%	78%	78%

[1]INT = interference (with the instrumental analysis)

Table F.9. Tissue Concentrations of PCBs in composite samples collected from sites in New Hampshire in 2008.

Congener Number	NHHS (ng/g)	NHDP (ng/g)	NHFP (ng/g)	NHSS (ng/g)
8;5	<2.8	<2.8	<2.8	<2.8
18;15	<2.7	<2.7	<2.7	<2.7
29	<2.2	<2.2	<2.2	<2.2
50	<2.4	<2.4	<2.4	<2.4
28	<2.3	<2.3	<2.3	<2.3
52	<2	2.12	<2	<2
44	<2.3	<2.3	<2.3	<2.3
66;95	<2.2	<2.2	2.3	<2.2
101;90	<2.2	7.64	6.9	4.4
87	<1.9	<1.9	<1.9	<1.9
77	<2.3	<2.3	<2.3	<2.3
118	<2	7.51	7.2	3.6
153;132	3.51	13.50	12.3	6.9
105	<1.4	1.98	2.2	<1.4
138	2.84	<4.2	10.6	6.2
126	<1.9	<1.9	<1.9	<1.9
187	<1.9	5.12	4.6	2.8
128	<1.9	<1.9	2.0	<1.9
180	<1.7	<1.7	<1.7	<1.7
169	<1.7	<1.7	<1.7	<1.7
170;190	<1.8	<1.8	<1.8	<1.8
195;208	<1.8	<1.8	<1.8	<1.8
206	<1.7	<1.7	<1.7	<1.7
209	<1.7	<1.7	<1.7	<1.7
Surrogate Recovery				
103	83%	78%	75%	69%
198	85%	87%	74%	72%

Table F.10. Tissue Concentrations of PCBs in composite samples collected from sites in Maine in 2008.

Congener Number	MECC (ng/g)	MEPH (ng/g)	MEKN (ng/g)	MEDM (ng/g)	MEBB (ng/g)	MEMR (ng/g)	MECK (ng/g)
8;5	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8
18;15	<2.7	<2.7	<2.7	<2.7	<2.7	<2.7	<2.7
29	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2
50	<2.4	<2.4	<2.4	<2.4	<2.4	<2.4	<2.4
28	<2.3	<2.3	<2.3	<2.3	<2.3	<2.3	<2.3
52	<2	2.4	<2	<2	<2	<2	<2
44	<2.3	<2.3	<2.3	<2.3	<2.3	<2.3	<2.3
66;95	<2.2	2.3	<2.2	<2.2	<2.2	<2.2	<2.2
101;90	5.71	9.2	<2.2	5.5	<2.2	<2.2	3.5
87	<1.9	2.1	<1.9	<1.9	<1.9	<1.9	<1.9
77	<2.3	<2.3	<2.3	<2.3	<2.3	<2.3	<2.3
118	4.84	6.6	<2	4.4	<2	<2	4.2
153;132	10.41	12.7	2.91	7.7	<2.1	2.4	7.7
105	1.44	2.8	<1.4	1.9	<1.4	<1.4	<1.4
138	<2	11.6	<2	6.6	<2	2.3	6.2
126	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9
187	4.32	6.7	<1.9	3.9	<1.9	<1.9	2.5
128	<1.9	2.3	<1.9	<1.9	<1.9	<1.9	<1.9
180	<1.7	2.3	<1.7	<1.7	<1.7	<1.7	<1.7
169	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7
170;190	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8
195;208	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8
206	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7
209	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7
Surrogate Recovery							
103	78%	80%	81%	69%	59%	79%	78%
198	81%	71%	86%	67%	63%	75%	82%

Table F.11. Tissue Concentrations of PCBs in composite samples collected from sites in New Brunswick and Nova Scotia in 2008.

Congener Number	NBTC (ng/g)	NBSC (ng/g)	NSDI (ng/g)	NSAR (ng/g)	NSFI (ng/g)	NSYR (ng/g)
8;5	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8
18;15	<2.7	<2.7	<2.7	<2.7	<2.7	<2.7
29	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2
50	<2.4	<2.4	<2.4	<2.4	<2.4	<2.4
28	<2.3	<2.3	<2.3	<2.3	<2.3	<2.3
52	<2	<2	<2	<2	<2	<2
44	<2.3	<2.3	<2.3	<2.3	<2.3	<2.3
66;95	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2
101;90	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2
87	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9
77	<2.3	<2.3	<2.3	<2.3	<2.3	<2.3
118	<2	<2	<2	<2	<2	<2
153;132	3.3	4.1	<2.1	<2.1	<2.1	<2.1
105	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4
138	2.6	3.1	<2	<2	<2	<2
126	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9
187	<1.9	2.0	<1.9	<1.9	<1.9	<1.9
128	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9
180	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7
169	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7
170;190	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8
195;208	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8
206	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7
209	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7
Surrogate Recovery						
103	82%	80%	78%	74%	85%	66%
198	72%	69%	81%	73%	82%	69%

Table F.12. Tissue concentrations of PCBs in mussels collected from Dover Point, NH (NHDP).

Congener Number	NHDP 1N (ng/g)	NHDP 2N (ng/g)	NHDP 3N (ng/g)	NHDP Comp (ng/g)
8;5	<2.8	<2.8	<2.8	<2.8
18;15	<2.7	<2.7	<2.7	<2.7
29	<2.2	<2.2	<2.2	<2.2
50	<2.4	<2.4	<2.4	<2.4
28	<2.3	<2.3	<2.3	<2.3
52	<2	<2	<2	2.12
44	<2.3	<2.3	<2.3	<2.3
66;95	<2.2	<2.2	<2.2	<2.2
101;90	5.7	6.1	5.54	7.64
87	<1.9	<1.9	<1.9	<1.9
77	<2.3	<2.3	<2.3	<2.3
118	5.5	5.8	5.53	7.51
153;132	10.9	11.3	10.41	13.50
105	1.6	1.6	1.50	1.98
138	<2	<2	<2	<4.2
126	<1.9	<1.9	<1.9	<1.9
187	4.2	4.4	3.96	5.12
128	<1.9	<1.9	<1.9	<1.9
180	<1.7	<1.7	<1.7	<1.7
169	<1.7	<1.7	<1.7	<1.7
170;190	<1.8	<1.8	<1.8	<1.8
195;208	<1.8	<1.8	<1.8	<1.8
206	<1.7	<1.7	<1.7	<1.7
209	<1.7	<1.7	<1.7	<1.7
Surrogate Recovery				
103	88%	88%	89%	78%
198	84%	83%	83%	87%

Table F.13. Tissue concentrations of PCBs in mussels collected from Hampton/Seabrook Harbor, NH (NHHS).

Congener Number	NHHS 1N (ng/g)	NHHS 1N DUP (ng/g)	NHHS 2N (ng/g)	NHHS 3N (ng/g)	NHHS Comp (ng/g)
8;5	<2.8	<2.8	<2.8	<2.8	<2.8
18;15	<2.7	<2.7	<2.7	<2.7	<2.7
29	<2.2	<2.2	<2.2	<2.2	<2.2
50	<2.4	<2.4	<2.4	<2.4	<2.4
28	<2.3	<2.3	<2.3	<2.3	<2.3
52	<2	<2	<2	<2	<2
44	<2.3	<2.3	<2.3	<2.3	<2.3
66;95	<2.2	<2.2	<2.2	<2.2	<2.2
101;90	<2.2	<2.2	<2.2	<2.2	<2.2
87	<1.9	<1.9	<1.9	<1.9	<1.9
77	<2.3	<2.3	<2.3	<2.3	<2.3
118	<2	<2	<2	<2	<2
153;132	3.2	3.0	3.1	3.3	3.51
105	<1.4	<1.4	<1.4	<1.4	<1.4
138	2.8	2.6	2.7	2.9	2.84
126	<1.9	<1.9	<1.9	<1.9	<1.9
187	<1.9	<1.9	<1.9	<1.9	<1.9
128	<1.9	<1.9	<1.9	<1.9	<1.9
180	<1.7	<1.7	<1.7	<1.7	<1.7
169	<1.7	<1.7	<1.7	<1.7	<1.7
170;190	<1.8	<1.8	<1.8	<1.8	<1.8
195;208	<1.8	<1.8	<1.8	<1.8	<1.8
206	<1.7	<1.7	<1.7	<1.7	<1.7
209	<1.7	<1.7	<1.7	<1.7	<1.7
Surrogate Recovery					
103	82%	77%	83%	77%	83%
198	81%	76%	85%	81%	85%

Table F.14. Tissue concentrations of PCBs in mussels collected from Clark's Cover, ME (MECC).

Congener Number	MECC 1N (ng/g)	MECC 2N (ng/g)	MECC 3N (ng/g)	MECC Comp (ng/g)
8;5	<2.8	<2.8	<2.8	<2.8
18;15	<2.7	<2.7	<2.7	<2.7
29	<2.2	<2.2	<2.2	<2.2
50	<2.4	<2.4	<2.4	<2.4
28	<2.3	<2.3	<2.3	<2.3
52	<2	<2	<2	<2
44	<2.3	<2.3	<2.3	<2.3
66;95	<2.2	<2.2	<2.2	<2.2
101;90	5.01	5.44	5.37	5.71
87	<1.9	<1.9	<1.9	<1.9
77	<2.3	<2.3	<2.3	<2.3
118	4.47	4.71	4.67	4.84
153;132	10.35	10.40	10.35	10.41
105	<1.4	<1.4	1.42	1.44
138	<2	<2	<2	<2
126	<1.9	<1.9	<1.9	<1.9
187	4.33	4.27	4.27	4.32
128	<1.9	<1.9	<1.9	<1.9
180	<1.7	<1.7	<1.7	<1.7
169	<1.7	<1.7	<1.7	<1.7
170;190	<1.8	<1.8	<1.8	<1.8
195;208	<1.8	<1.8	<1.8	<1.8
206	<1.7	<1.7	<1.7	<1.7
209	<1.7	<1.7	<1.7	<1.7
Surrogate Recovery				
103	89%	77%	88%	78%
198	82%	80%	79%	81%

Table F.15. Tissue Concentrations of pesticides in composite samples collected from sites in Massachusetts in 2008.

Pesticide	MABI	MAME	MASN	MASN DU	MANR
	(ng/g)	(ng/g)	(ng/g)	(ng/g)	(ng/g)
α–BHC	<2.0	<2.0	<2.0	<2.0	<2.0
HCB	<2.4	<2.4	<2.4	<2.4	<2.4
γ-HCH(Lindane)	<1.5	<1.5	<1.5	<1.5	<1.5
Heptachlor	<2	<2	<2	<2	<2
Aldrin	<1.5	<1.5	<1.5	<1.5	<1.5
Heptachlor Epoxide	<1.8	<1.8	<1.8	<1.8	<1.8
γ-Chlordane	<1.5	<1.5	<1.5	<1.5	<1.5
o,p'-DDE	<1.0	<1.0	<1.0	<1.0	<1.0
α-Endosulfan	<1.5	<1.5	<1.5	<1.5	<1.5
cis-Chlordane	<1.2	<1.2	<1.2	<1.2	7.2
τ-Nonachlor	2.45	2.89	2.63	1.91	11.9
p,p'_DDE	6.72	5.95	9.48	8.15	25.7
Dieldrin	1.61	1.74	2.05	<1.4	3.1
o,p'-DDD	<4.0	<4.0	<4.0	<4.0	21.5
Endrin	<2.2	<2.2	<2.2	<2.2	<2.2
β-Endosulfan	<3.4	<3.4	<3.4	<3.4	<3.4
p,p'-DDD	<2	<2	<2	<2	<2
o,p'-DDT	<2.8	<2.8	<2.8	<2.8	<2.8
p,p'-DDT	<2.5	<2.5	<2.5	<2.5	<2.5
Metoxychlor	<3.1	<3.1	<3.1	<3.1	<3.1
Mirex	<1.5	<1.5	<1.5	<1.5	<1.5
Surrogate Recovery %					
γ-Chlordene	56%	60%	70%	64%	79%
β-BHC	50%	61%	64%	53%	86%

Table F.16. Tissue Concentrations of pesticides in composite samples collected from sites in New Hampshire in 2008.

Pesticide	NHHS (ng/g)	NHDP (ng/g)	NHFP (ng/g)	NHSS (ng/g)
α–BHC	<2.0	<2.0	<2.0	<2.0
HCB	<2.4	<2.4	<2.4	<2.4
γ-HCH(Lindane)	<1.5	<1.5	<1.5	<1.5
Heptachlor	<2	<2	<2	<2
Aldrin	<1.5	<1.5	<1.5	<1.5
Heptachlor Epoxide	<1.8	<1.8	<1.8	<1.8
γ-Chlordane	<1.5	<1.5	<1.5	<1.5
o,p'-DDE	<1.0	<1.0	<1.0	<1.0
α-Endosulfan	<1.5	<1.5	<1.5	<1.5
cis-Chlordane	<1.2	1.88	<1.2	<1.2
τ-Nonachlor	<1.4	<1.4	2.81	<1.4
p,p'_DDE	3.52	9.14	10.33	4.02
Dieldrin	<1.4	<1.4	<1.4	<1.4
o,p'-DDD	<4.0	<4.0	<4.0	<4.0
Endrin	<2.2	<2.2	<2.2	<2.2
β-Endosulfan	<3.4	<3.4	<3.4	<3.4
p,p'-DDD	<2	3.49	<2	<2
o,p'-DDT	<2.8	<2.8	<2.8	<2.8
p,p'-DDT	<2.5	<2.5	<2.5	<2.5
Metoxychlor	<3.1	<3.1	<3.1	<3.1
Mirex	<1.5	<1.5	<1.5	<1.5
Surrogate Recovery %				
γ-Chlordene	68%	76%	63%	56%
β-BHC	63%	72%	58%	66%

Table F.17. Tissue Concentrations of pesticides in composite samples collected from sites in Maine in 2008.

Pesticide	MECC	MEPH	MEKN	MEDM	MEBB	MEMR	MECK
	(ng/g)	(ng/g)	(ng/g)	(ng/g)	(ng/g)	(ng/g)	(ng/g)
α–BHC	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
HCB	<2.4	<2.4	<2.4	<2.4	<2.4	<2.4	<2.4
γ-HCH(Lindane)	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5
Heptachlor	<2	<2	<2	<2	<2	<2	<2
Aldrin	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5
Heptachlor Epoxide	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8
γ-Chlordane	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5
o,p'-DDE	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
α-Endosulfan	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5
cis-Chlordane	1.68	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2
τ-Nonachlor	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4
p,p'_DDE	5.79	9.16	2.74	2.11	3.90	<1.8	2.82
Dieldrin	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4
o,p'-DDD	<4.0	<4.0	<4.0	<4.0	6.67	<4.0	<4.0
Endrin	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2
β-Endosulfan	<3.4	<3.4	<3.4	<3.4	<3.4	<3.4	<3.4
p,p'-DDD	3.54	<2	<2	<2	<2	<2	<2
o,p'-DDT	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8
p,p'-DDT	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5
Metoxychlor	<3.1	<3.1	<3.1	<3.1	<3.1	<3.1	<3.1
Mirex	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5
Surrogate Recovery							
γ-Chlordene	72%	70%	67%	65%	67%	53%	71%
β-BHC	65%	49%	71%	71%	61%	72%	75%

Table F.18. Tissue Concentrations of pesticides in composite samples collected from sites in New Brunswick and Nova Scotia in 2008.

Pesticide	NBTC	NBSC	NSDI	NSAR	NSFI	NSYR
	(ng/g)	(ng/g)	(ng/g)	(ng/g)	(ng/g)	(ng/g)
α–BHC	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
HCB	<2.4	<2.4	<2.4	<2.4	<2.4	<2.4
γ-HCH(Lindane)	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5
Heptachlor	<2	<2	<2	<2	<2	<2
Aldrin	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5
Heptachlor Epoxide	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8
γ-Chlordane	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5
o,p'-DDE	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
α-Endosulfan	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5
cis-Chlordane	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2
τ-Nonachlor	<1.4	<1.4	<1.4	<1.4	1.7	<1.4
p,p'_DDE	8.55	1.96	<1.8	<1.8	2.4	<1.8
Dieldrin	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4
o,p'-DDD	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0
Endrin	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2
β-Endosulfan	<3.4	<3.4	<3.4	<3.4	<3.4	<3.4
p,p'-DDD	<2	<2	<2	<2	<2	<2
o,p'-DDT	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8
p,p'-DDT	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5
Metoxychlor	<3.1	<3.1	<3.1	<3.1	<3.1	<3.1
Mirex	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5
Surrogate Recovery						
γ-Chlordene	57%	62%	74%	73%	61%	72%
β-BHC	67%	70%	72%	75%	70%	69%

Table F.19. Tissue concentrations of pesticides in mussels collected from Dover Point, NH (NHDP).

Congener Number	NHDP 1N (ng/g)	NHDP 2N (ng/g)	NHDP 3N (ng/g)	NHDP Comp (ng/g)
α–BHC	<2.0	<2.0	<2.0	<2.0
HCB	<2.4	<2.4	<2.4	<2.4
γ-HCH(Lindane)	<1.5	<1.5	<1.5	<1.5
Heptachlor	<2	<2	<2	<2
Aldrin	<1.5	<1.5	<1.5	<1.5
Heptachlor Epoxide	<1.8	<1.8	<1.8	<1.8
γ-Chlordane	<1.5	<1.5	<1.5	<1.5
o,p'-DDE	<1.0	<1.0	<1.0	<1.0
α-Endosulfan	<1.5	<1.5	<1.5	<1.5
cis-Chlordane	1.82	1.75	1.71	1.88
τ-Nonachlor	<1.4	<1.4	<1.4	<1.4
p,p'_DDE	6.90	7.02	6.15	9.14
Dieldrin	<1.4	<1.4	<1.4	<1.4
o,p'-DDD	<4.0	<4.0	<4.0	<4.0
Endrin	<2.2	<2.2	<2.2	<2.2
β-Endosulfan	<3.4	<3.4	<3.4	<3.4
p,p'-DDD	3.16	2.67	3.19	3.49
o,p'-DDT	<2.8	<2.8	<2.8	<2.8
p,p'-DDT	<2.5	<2.5	<2.5	<2.5
Metoxychlor	<3.1	<3.1	<3.1	<3.1
Mirex	<1.5	<1.5	<1.5	<1.5
Surrogate Recovery %				
γ-Chlordene	75%	71%	71%	76%
β-BHC	79%	67%	74%	72%

Table F.20. Tissue concentrations of pesticides in mussels collected from Hampton/Seabrook Harbor, NH (NHHS).

Congener Number	NHHS 1N (ng/g)	NHHS 1N DUP (ng/g)	NHHS 2N (ng/g)	NHHS 3N (ng/g)	NHHS Comp (ng/g)
α–BHC	<2.0	<2.0	<2.0	<2.0	<2.0
HCB	<2.4	<2.4	<2.4	<2.4	<2.4
γ-HCH(Lindane)	<1.5	<1.5	<1.5	<1.5	<1.5
Heptachlor	<2	<2	<2	<2	<2
Aldrin	<1.5	<1.5	<1.5	<1.5	<1.5
Heptachlor Epoxide	<1.8	<1.8	<1.8	<1.8	<1.8
γ-Chlordane	<1.5	<1.5	<1.5	<1.5	<1.5
o,p'-DDE	<1.0	<1.0	<1.0	<1.0	<1.0
α-Endosulfan	<1.5	<1.5	<1.5	<1.5	<1.5
cis-Chlordane	<1.2	<1.2	<1.2	<1.2	<1.2
τ-Nonachlor	<1.4	<1.4	<1.4	<1.4	<1.4
p,p'_DDE	3.57	3.24	3.34	3.41	3.52
Dieldrin	<1.4	<1.4	<1.4	<1.4	<1.4
o,p'-DDD	<4.0	<4.0	<4.0	<4.0	<4.0
Endrin	<2.2	<2.2	<2.2	<2.2	<2.2
β-Endosulfan	<3.4	<3.4	<3.4	<3.4	<3.4
p,p'-DDD	<2	<2	<2	<2	<2
o,p'-DDT	<2.8	<2.8	<2.8	<2.8	<2.8
p,p'-DDT	<2.5	<2.5	<2.5	<2.5	<2.5
Metoxychlor	<3.1	<3.1	<3.1	<3.1	<3.1
Mirex	<1.5	<1.5	<1.5	<1.5	<1.5
Surrogate Recovery					
γ-Chlordene	68%	69%	63%	60%	68%
β-BHC	59%	64%	63%	48%	63%

Table F.21. Tissue concentrations of pesticides in mussels collected from Clark's Cover, ME (MECC).

Congener Number	MECC 1N (ng/g)	MECC 2N (ng/g)	MECC 3N (ng/g)	MECC Comp (ng/g)
α–BHC	<2.0	<2.0	<2.0	<2.0
HCB	<2.4	<2.4	<2.4	<2.4
γ-HCH(Lindane)	<1.5	<1.5	<1.5	<1.5
Heptachlor	<2	<2	<2	<2
Aldrin	<1.5	<1.5	<1.5	<1.5
Heptachlor Epoxide	<1.8	<1.8	<1.8	<1.8
γ-Chlordane	<1.5	<1.5	<1.5	<1.5
o,p'-DDE	<1.0	<1.0	<1.0	<1.0
α-Endosulfan	<1.5	<1.5	<1.5	<1.5
cis-Chlordane	1.65	1.74	1.41	1.68
τ-Nonachlor	<1.4	<1.4	<1.4	<1.4
p,p'_DDE	5.22	5.26	5.31	5.79
Dieldrin	<1.4	<1.4	<1.4	<1.4
o,p'-DDD	<4.0	<4.0	<4.0	<4.0
Endrin	<2.2	<2.2	<2.2	<2.2
β-Endosulfan	<3.4	<3.4	<3.4	<3.4
p,p'-DDD	3.56	2.91	3.11	3.54
o,p'-DDT	<2.8	<2.8	<2.8	<2.8
p,p'-DDT	<2.5	<2.5	<2.5	<2.5
Metoxychlor	<3.1	<3.1	<3.1	<3.1
Mirex	<1.5	<1.5	<1.5	<1.5
Surrogate Recovery				
γ-Chlordene	71%	71%	79%	72%
β-BHC	73%	71%	84%	65%

Table F.22. Tissue concentrations of PAHs in softshell clams from site replicates collected in New Hampshire and Maine during the 2008 Gulfwatch Program.

PAH Abbrev.	NHNM (ng/g)	NHWC (ng/g)	NHWC DU (ng/g)	METS (ng/g)	METS DU (ng/g)	MEHR (ng/g)
NAPH	21.2	28.2	17.6	21.1	23.0	19.26
C1-NAPH	16.1	18.8	11.9	14.7	16.0	13.98
C2-NAPH	8.5	<8	<8	<8	<8	<8
C3-NAPH	<7	<7	<7	<7	<7	<7
C4-NAPH	<7	<7	<7	<7	<7	<7
BIP	<10	<10	<10	<10	<10	<10
ACE	<11	<11	<11	<11	<11	<11
ACEY	<8	<8	<8	<8	<8	<8
FLU	<7	<7	<7	<7	<7	<7
C1-FLU	<7	<7	<7	<7	<7	<7
C2-FLU	<7	<7	<7	<7	<7	<7
C3-FLU	<7	<7	<7	<7	<7	<7
C4-FLU	<10	<10	<10	<10	<10	<10
DBT	<10	<10	<10	<10	<10	<10
C1-DBT	10.4	<10	<10	<10	<10	<10
C2-DBT	<10	<10	<10	<10	<10	<10
C3-DBT	<10	<10	<10	<10	<10	<10
PHEN	31.9	9.2	7.7	14.6	13.5	7.80
ANTH	<10	<10	<10	<10	<10	<10
C1-PHEN	37.0	12.3	12.1	<12	<12	<12
C2-PHEN	39.3	13.4	12.9	7.4	7.2	<6
C3-PHEN	<6	<6	<6	<6	<6	<6
C4-PHEN	<6	<6	<6	<6	<6	<6
FLUO	154.9	34.4	31.7	27.9	26.3	14.42
PYR	153.6	31.7	30.1	25.8	24.3	12.85
C1-FP	<9	<9	<9	<9	<9	<9
C2-FP	<9	<9	<9	<9	<9	<9
BAA	61.2	13.4	12.7	7.9	6.9	6.46
CHRY	123.4	22.0	20.5	9.6	8.9	7.61
C1-CHRY	88.6	24.8	22.9	16.1	15.6	17.17
C2-CHRY	<6	<6	<6	<6	<6	<6
C3-CHRY	<6	<6	<6	<6	<6	<6
C4-CHRY	<6	<6	<6	<6	<6	<6
BBF	94.0	15.7	14.1	7.9	7.2	7.30
BKF	89.2	15.2	13.9	8.1	7.2	7.50
BEP	156.5	29.6	27.8	9.2	8.8	8.83
BAP	57.0	11.4	10.9	7.1	6.2	6.88
PER	35.3	13.5	12.5	12.1	12.9	8.86
IND	54.2	11.0	10.4	<7	<7	<7
DBAHA	12.3	<11	<11	<11	<11	<11
BGHIP	110.8	23.9	21.5	<15	<15	<15

Table F.22 (cont'd).

PAH Abbrev.	NHNM (ng/g)	NHWC (ng/g)	NHWC DU (ng/g)	METS (ng/g)	METS DU (ng/g)	MEHR (ng/g)
Surrogate Recovery						
NAPH-d8	51%	57%	55%	54%	51%	46%
ACE-d10	56%	60%	58%	59%	59%	55%
PHEN-d10	69%	74%	72%	72%	72%	69%
FLUO-d10	79%	83%	81%	82%	82%	82%
CHRY-d12	81%	83%	81%	81%	83%	80%
BAP-d12	80%	84%	85%	83%	83%	81%
BGHIP-d12	77%	77%	78%	78%	82%	79%
% Lipids	3.48%	4.19%	3.85%	3.68%	4.21%	3.34%

Table F.23. Tissue concentrations of PCBs in softshell clams from site replicates collected in New Hampshire and Maine during the 2008 Gulfwatch Program.

Congener Number	NHNM (ng/g)	NHWC (ng/g)	NHWC DU (ng/g)	METS (ng/g)	METS DU (ng/g)	MEHR (ng/g)
8;5	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8
18;15	<2.7	<2.7	<2.7	<2.7	<2.7	<2.7
29	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2
50	<2.4	<2.4	<2.4	<2.4	<2.4	<2.4
28	<2.3	<2.3	<2.3	<2.3	<2.3	<2.3
52	<2	<2	<2	<2	<2	<2
44	<2.3	<2.3	<2.3	<2.3	<2.3	<2.3
66;95	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2
101;90	2.8	<2.2	<2.2	<2.2	<2.2	<2.2
87	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9
77	<2.3	<2.3	<2.3	<2.3	<2.3	<2.3
118	<2	<2	<2	<2	<2	<2
153;132	3.0	<2.1	<2.1	<2.1	<2.1	<2.1
105	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4
138	3.2	<2	<2	<2	<2	<2
126	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9
187	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9
128	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9
180	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7
169	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7
170;190	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8
195;208	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8
206	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7
209	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7
Surrogate Recovery %						
103	77%	81%	71%	78%	90%	79%
198	75%	79%	70%	80%	91%	84%

Table F.24. Tissue concentrations of pesticides in soft shell clams from site replicates collected in New Hampshire and Maine during the 2008 Gulfwatch Program.

Pesticide	NHNM	NHWC	NHWC DU	METS	METS DU	MEHR
	(ng/g)	(ng/g)	(ng/g)	(ng/g)	(ng/g)	(ng/g)
α–BHC	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
HCB	<2.4	<2.4	<2.4	<2.4	<2.4	<2.4
γ-HCH(Lindane)	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5
Heptachlor	<2	<2	<2	<2	<2	<2
Aldrin	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5
Heptachlor Epoxide	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8
γ-Chlordane	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5
o,p'-DDE	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
α-Endosulfan	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5
cis-Chlordane	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2
τ-Nonachlor	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4
p,p'_DDE	6.27	2.87	2.45	2.1	2.3	<1.8
Dieldrin	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4
o,p'-DDD	5.69	<4.0	<4.0	<4.0	<4.0	<4.0
Endrin	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2
β-Endosulfan	<3.4	<3.4	<3.4	<3.4	<3.4	<3.4
p,p'-DDD	<2	<2	<2	<2	<2	<2
o,p'-DDT	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8
p,p'-DDT	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5
Metoxychlor	<3.1	<3.1	<3.1	<3.1	<3.1	<3.1
Mirex	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5
Surrogate Recovery						
γ-Chlordene	77%	78%	62%	67%	60%	66%
β-BHC	71%	73%	75%	75%	76%	70%