

APPENDIX A: Sample Collection Information

TABLE A.1 2007 Gulfwatch sample identification numbers, replicates, species and collection dates.

Gulfwatch sample ID	Sample type	Collection date	Species
MAIH-comp	site composite	10/03/2007	<i>Mytilus edulis</i>
MAME-comp	site composite	10/02/2007	<i>Mytilus edulis</i>
MAMH-comp	site composite	09/30/2007	<i>Mytilus edulis</i>
MAMH-comp DUP	analytical duplicate	09/30/2007	<i>Mytilus edulis</i>
MASN-comp	site composite	10/05/2007	<i>Mytilus edulis</i>
NHBC-1N Mussel	site replicate	10/12/2007	<i>Mytilus edulis</i>
NHBC-1N Mussel DUP	analytical duplicate	10/12/2007	<i>Mytilus edulis</i>
NHBC-1N Mya arenaria	site replicate	10/10/2007	<i>Mya arenaria</i>
NHBC-2N Mussel	site replicate	10/12/2007	<i>Mytilus edulis</i>
NHBC-2N Mya arenaria	site replicate	10/10/2007	<i>Mya arenaria</i>
NHBC-2N Mya arenaria DUP	analytical duplicate	10/10/2007	<i>Mya arenaria</i>
NHDP-1N	site replicate	10/02/2007	<i>Mytilus edulis</i>
NHDP-2N	site replicate	10/02/2007	<i>Mytilus edulis</i>
NHDP-3N	site replicate	10/02/2007	<i>Mytilus edulis</i>
NHDP-comp	site composite	10/02/2007	<i>Mytilus edulis</i>
NHHS-1N	site replicate	10/02/2007	<i>Mytilus edulis</i>
NHHS-2N	site replicate	10/02/2007	<i>Mytilus edulis</i>
NHHS-3N	site replicate	10/02/2007	<i>Mytilus edulis</i>
NHHS-comp	site composite	10/02/2007	<i>Mytilus edulis</i>
NHLB-1N Mya arenaria	site replicate	10/31/2007	<i>Mya arenaria</i>
NHLB-2N Mya arenaria	site replicate	10/31/2007	<i>Mya arenaria</i>
NHLH-comp	site composite	10/18/2007	<i>Mytilus edulis</i>
NHMG-1N Mya arenaria	site replicate	10/11/2007	<i>Mya arenaria</i>

Table A.1 (cont'd).

Gulfwatch sample ID	Sample type	Collection date	Species
NHMG-2N <i>Mya arenaria</i>	site replicate	10/11/2007	<i>Mya arenaria</i>
NHNI-1N oysters	site replicate	10/11/2007	<i>Crassostrea virginica</i>
NHNI-2N oysters	site replicate	10/11/2007	<i>Mytilus edulis</i>
NHPI-comp	site composite	10/18/2007	<i>Mytilus edulis</i>
NHRH-comp	site composite	10/02/2007	<i>Mytilus edulis</i>
NHYC-1N <i>Mya arenaria</i>	site replicate	10/31/2007	<i>Mya arenaria</i>
NHYC-2N <i>Mya arenaria</i>	site replicate	10/31/2007	<i>Mya arenaria</i>
MEBB-comp	site composite	10/15/2007	<i>Mytilus edulis</i>
MECC-1N	site replicate	10/18/2007	<i>Mytilus edulis</i>
MECC-2N	site replicate	10/18/2007	<i>Mytilus edulis</i>
MECC-3N	site replicate	10/18/2007	<i>Mytilus edulis</i>
MECC-comp	site composite	10/18/2007	<i>Mytilus edulis</i>
MEKN-comp	site composite	10/15/2007	<i>Mytilus edulis</i>
MEPH-comp	site composite	10/04/2007	<i>Mytilus edulis</i>
MEPR-comp	site composite	10/04/2007	<i>Mytilus edulis</i>
MESA-comp	site composite	10/17/2007	<i>Mytilus edulis</i>
MEUR-comp	site composite	10/17/2007	<i>Mytilus edulis</i>
NBNR-comp	site composite	10/31/2007	<i>Mytilus edulis</i>
NBSC-comp	site composite	11/01/2007	<i>Mytilus edulis</i>
NBTC-comp	site composite	10/25/2007	<i>Mytilus edulis</i>
NSAG-1N	site replicate	10/17/2007	<i>Mytilus edulis</i>
NSAR-comp	site composite	10/04/2007	<i>Mytilus edulis</i>
NSDI-comp	site composite	10/04/2007	<i>Mytilus edulis</i>
NSDI-comp DUP	analytical duplicate	10/04/2007	<i>Mytilus edulis</i>
NSSC-comp	site composite	10/04/2007	<i>Mytilus edulis</i>
NSYR-comp	site composite	10/24/2007	<i>Mytilus edulis</i>

Table A.2. Latitude and longitude for Gulfwatch 2007 stations, expressed in decimal degrees and in degrees, minutes, seconds.

			Latitude	Longitude	Latitude	Longitude
Site Code	Site Name	Site type	decimal degrees		deg,min,sec	
Massachusetts						
MASN	Sandwich	trend (Benchmark)	41.75000	70.40000	41° 45' 0"	70° 24' 0"
MAIH	Boston Inner Harbor	Rotational (6-yr)	42.35900	71.04900	42°21'32.4"	71° 2'56.4"
MAMH	Marblehead	Rotational (6-yr)	42.49833	70.84833	42° 29' 53.988"	70° 50' 53.988"
MAME	Merrimack River	trend (multi-year)	42.80833	70.82333	42° 48' 29.9874"	70° 49' 23.9874"
New Hampshire						
NHYC	Yankee Coop (clams)	Occasional	42.89000	70.81944	42° 53' 24"	70° 49' 9.984"
NHMG	Middle Ground (clams)	Expanded (GW)	42.89225	70.72255	42° 53' 32.0994"	70° 43' 21.1794"
NHHS	Hampton/Seabrook Harbor	trend (multi-year)	42.89717	70.81633	42° 53' 49.812"	70° 48' 58.7874"
NHRH	Rye Harbor	Rotational (6-yr)	43.00000	70.74000	43° 0' 0"	70° 44' 23.9994"
NHLH	Little Harbor	Rotational (6-yr)	43.05810	70.7154	43° 3' 29.16"	70.7154
NHNI	Nannie Island (oysters)	Expanded (GW)	43.069775	70.86236	43° 4' 11.1894"	70° 51' 44.4954"
NHPI	Pierce Island	Rotational (6-yr)	43.07167	70.74333	43° 4' 18.0114"	70° 44' 35.988"
NHBC	Broad Cove	Occasional	43.11561	70.83622	43° 6' 56.1954"	70° 50' 10.3914"
NHBC	Broad Cove (clams)	Occasional	43.11561	70.83622	43° 6' 56.1954"	70° 50' 10.3914"
NHDP	Dover Point	trend (multi-year)	43.1196	70.8267	43° 7' 10.5594"	70° 49' 36.12"
NHLB	Little Bay (clams)	Occasional	43.12171	70.83470	43° 7' 18.156"	70° 50' 4.9194"
Maine						
MECC	Clark's Cove	trend (Benchmark)	43.07740	70.72440	43° 4' 38.6394"	70° 43' 27.84"
MESA	Saco River	Rotational (6-yr)	43.45983	70.3743	43° 27' 35.3874"	70° 22' 27.588"
MEPH	Portland Harbor	trend	43.63917	70.25900	43° 38' 21.012"	70° 15' 32.4"
MEPR	Presumpscott River	Rotational (6-yr)	43.69217	70.24733	43° 41' 31.8114"	70° 14' 50.388"
MEKN	Kennebec River	trend (Benchmark)	43.78500	69.78450	43° 47' 5.9994"	69° 47' 4.1994"
MEBB	Boothbay Harbor	trend (multi-year)	43.85067	69.67267	43° 51' 2.412"	69° 40' 21.6114"
MEUR	Union River	Rotational (6-yr)	44.5015	68.4322	44° 30' 5.4"	68° 25' 55.8114"

Table A.2. (cont'd)

			Latitude	Longitude	Latitude	Longitude
Site Code	Site Name	Site type	decimal degrees		deg,min,sec	
New Brunswick						
NBNR	Niger River (Niger reef)	trend (multi-year)	45.06633	67.06800	45° 3' 58.788"	67° 4' 4.7994"
NBSC	St. Croix River	trend (multi-year)	45.1675	67.1638	45° 10' 2.9994"	67° 9' 49.6794"
NBTC	Tin Can Beach	trend (multi-year)	45.2625	66.0570	45° 15' 45"	66° 3' 25.2"
Nova Scotia						
NSAR	Apple River	trend (multi-year)	45.47	64.835	45° 28' 11.9994"	64° 50' 5.9994"
NSDI	Digby	trend (Benchmark)	44.6170	65.7523	44° 37' 1.1994"	65° 45' 8.28"
NSSC	Spechts Cove	Rotational (6-yr)	44.51533	65.9078	44° 30' 55.1874"	65° 54' 28.188"
NSYR	Yarmouth	trend (multi-year)	43.81767	66.14483	43° 49' 3.6114"	66° 8' 41.3874"
NSAG	Argyle Sound	Rotational (6-yr)	43.699	65.81817	43° 41' 56.3994"	65° 49' 5.4114"

MEMORANDUM

TO: Dr. Stephen Jones, UNH

FROM: Phil Trowbrige, NHDES

RE: 2007 Gulfwatch Samples

DATE: December 7, 2007

The purpose of this memorandum is to document the sample collection activities for Gulfwatch 2007. Between 10/2/07 and 10/31/07, NHDES managed the collection of mussel samples from six sites, clam samples from four sites, and oyster samples from one site. These sites are summarized in the following tables. In the tables, 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.

Mussel Stations

Date / Time	Station	Latitude (Decimal degrees)	Longitude (Decimal degrees)	Water Temperature (deg C)	Water Salinity (ppt)	Personnel
10/02/07 1021	NHHS - Hampton/Seabrook Harbor, Hampton, NH	42.89722 42.89724 42.89727	- 212.44915	14.1	32.2	T. Walsh C. Martin J. Brochi N. Savage
10/02/07 1116	NHDP – Dover Point, Dover, NH	43.11914 43.11922 43.11953	- 212.48234	14.9	31	R. Livingston K. Diamond C. Wilkes
10/02/07 0944	NHRH – Rye Harbor, Rye, NH	42.9994 (all reps together)	-70.7474 (all reps together)	13.8	32.1	P. Trowbrige W. Ives J. Marcoux
10/18/07 1000	MECC – Clarks Cove, Kittery, ME	43.07742 43.07743 43.07746	- 212.17208	13.3	30.9	P. Trowbrige S. Gaughan J. Brochi
10/18/07 0945	NHPI – Pierce Island, Portsmouth, NH	43.07446 43.07465 43.07496	- 212.24678	13.1	29.9	T. Walsh C. Martin K. Lucey
10/18/08 0945	NHLH – Little Harbor, New Castle, NH	43.05831 43.05828 43.05819	- 212.14786	12.7	32	M. Foss M. Wood C. Wilkes

Clam Stations

Date / Time	Station	Latitude (Decimal degrees)	Longitude (Decimal degrees)	Water Temperature (deg C)	Water Salinity (ppt)	Personnel
10/10/07 0630	NHBC – Broad Cove, Newington, NH	43.11561 43.11552	-141.672	15.7	30.7	C. Nash
10/11/07	NHMG - Middle	42.8891	-141.645	14.5	31.4	C. Nash

0630	Ground, Seabrook, NH	42.8894				
10/31/07 0930	NHYC – Yankee Coop, Seabrook, NH	42.89000 42.88944	-141.639	11	31.8	M. Wood C. Wilkes
10/31/07 1000	NHLB – Little Bay at Boston Harbor Rd, Dover, NH	43.12171 (all reps together)	70.83470 (all reps together)	10.5 10.6 (rep)	28.6 28.8 (rep)	C. Nash P. Trowbridge

Oyster Stations

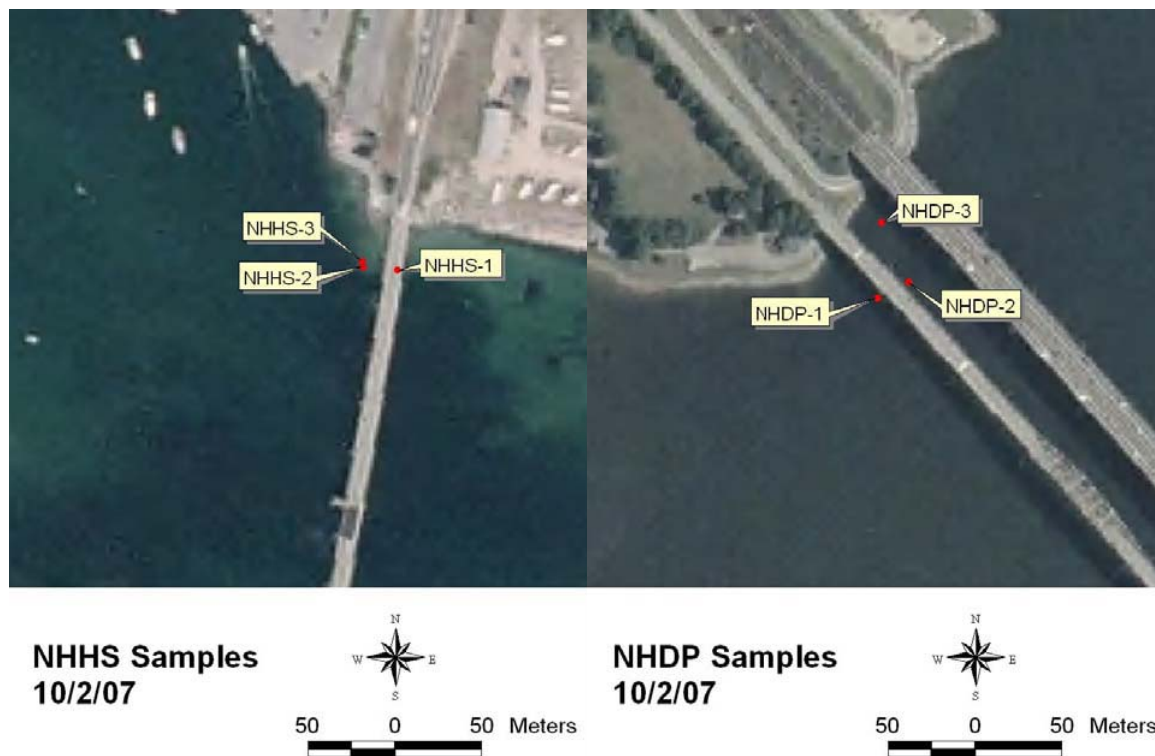
Date / Time	Station	Latitude (Decimal degrees)	Longitude (Decimal degrees)	Water Temperature (deg C)	Water Salinity (ppt)	Personnel
10/11/07 0904	NHNI - Nannie Island, Newington, NH	43.06970 43.06985	-141.725	15.7	30.3	M. Wood K. Lucey

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 are provided in Appendix C. The original datasheets will be kept on file at NHDES.

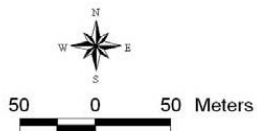
If you have any questions about this report, please contact me at (603) 271-8872 or ptrowbridge@des.state.nh.us.

Maps of Sampling Sites

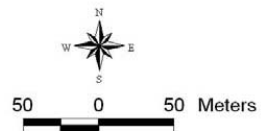




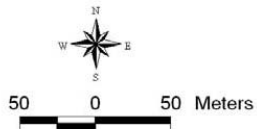
**NHRH Samples
10/2/07**



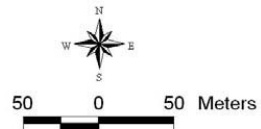
**MECC Samples
10/18/07**



**NHLH Samples
10/18/07**

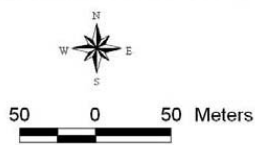


**NHPI Samples
10/18/07**

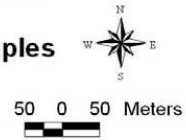




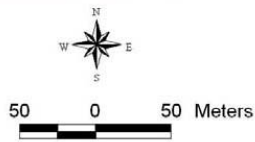
**NHBC Samples
10/11/07**



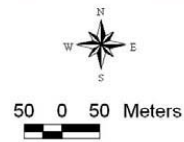
**NHMG and NHYC Samples
10/18/07 and 10/31/07**



**NHLB Samples
10/31/07**



**NHNI Samples
10/11/07**



Mussel Field Collection SOP

1. Navigate to station
2. In the general location of the station, identify 3 replicate mussel bed sites within a 50 m section of shoreline (low intertidal zone).
3. Complete field data sheet including measuring the latitude and longitude of each replicate site with a GPS unit.
4. Measure water temperature and salinity with YSI-30 meter and record values on field data sheet
5. Collect wash water in a large bottle or basin (2 gallons). Leave the wash water and basin on the shore in a convenient place to work.
6. Select the plastic baskets which are labeled with the site name and replicate number (e.g., NHDP-1, station NHDP, replicate #1).
7. Collect at least 60 mussels from each replicate site (must be 50-60 mm in length). Use the ruler to measure the mussels. Place the mussels from each replicate site in the correct plastic basket. When a basket is full, it will contain ~60 mussels.
8. Bring the full baskets to the wash basin. Fill the basin with water collected in Step 6.
9. Count out exactly 60 mussels from the basket onto a clean surface (spread out a plastic garbage bag), verifying that each mussel is not full of mud by trying to separate the two shells.
10. Return any extra mussels to the intertidal zone at the site
11. Use a brush and the wash water to clean the outside shell of the 60 mussels collected, placing each mussel back into the correct basket after it is cleaned. Do not pour all of the mussels into the cleaning basin. Dunk and clean each mussel separately.
12. Place the baskets of clean mussels upright in the cooler on ice.
13. Verify that field sheet is complete and that the baskets are correctly labeled.
14. Transport cooler to laboratory.

Clam / Oyster collection SOP

1. Navigate to station
2. In the general location of the station, identify 2 replicate sites 10 to 50 m apart.
3. Complete field data sheet including measuring the latitude and longitude of each replicate site with a GPS unit.
4. Measure water temperature and salinity and record it on field data sheet
5. Collect wash water in a large bottle (2 gallons).
6. Select the plastic baskets which are labeled with the site name and replicate number (e.g., NHDP-1, station NHDP, replicate #1).
7. Collect at least 50 shellfish from each replicate site (must be 50-100 mm in length for clams, 50-125 mm in length for oysters). Use the ruler to measure the shellfish. Place the shellfish from each replicate site in the correct plastic basket.
8. Count out exactly 50 shellfish from the basket onto a clean surface (spread out a plastic garbage bag), verifying that each mussel is not full of mud by trying to separate the two shells.
9. Fill the baskets with 50 shellfish each. Return any extra mussels to the intertidal zone at the site
10. Place the baskets of clean mussels upright in the cooler on ice.
11. Verify that field sheet is complete and that the baskets are correctly labeled.
12. Transport cooler to laboratory.

APPENDIX B: 2007 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 2007, 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	
	Detection		Detection		Detection
Analyte	Limit	Analyte	Limit	Analyte	Limit
	(ng/g)	(congener #)	(ng/g)		(ng/g)
Naphthalene	<10	8;5	<2.8	α -BHC	<2.0
C1-Naphthalenes	<10	18;15	<2.7	HCB	<2.4
Biphenyl	<5	29	<2.2	γ -HCH(Lindane)	<1.5
C2-Naphthalene	<5	50	<2.4	Heptachlor	<2
Acenaphthylene	<5	28	<2.4	Aldrin	<1.5
Acenaphthene	<5	52	<2	Heptachlor Epoxide	<1.8
C-3 Naphthalene	<5	44	<2.3	γ -Chlordane	<1.5
Fluorene	<5	66;95	<2.2	o,p'-DDE	<1.0
C1- Fluorene	<5	101;90	<2.2	a-Endosulfan	<1.5
C2-Fluorene	<6	87	<1.9	cis-Chlordane	<1.2
C3- Fluorene	<5	77	<2.3	t-Nonachlor	<1.4
C4-Naphthalene	<5	118	<2	p,p' DDE	<1.8
Dibenzothiophene	<20	153;132	<2.1	Dieldrin	<1.4
C4- Fluorene	<10	105	<1.4	o,p'-DDD	<4.0
C1-Dibenzothiophene	<6	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	<6	180	<1.7	p,p'-DDT	<2.5
C1-Phenanthrene	<5	169	<1.7	Metoxychlor	<3.1
C2-Phenanthrene	<5	170;190	<1.8	Mirex	<1.5
Fluoranthene	<5	195;208	<1.8		
Pyrene	<5	206	<1.7		
C1-FP	<5	209	<1.7		
C3-Phenanthrene	<8				
C2-FP	<5				
C4-Phenanthrene	<5				
Benzo(a)Anthracene	<5				
Chrysene	<6				
C1-Chrysene	<5				
C2-Chrysene	<5				
C3-Chrysene	<5				
C4-Chrysene	<5				
Benzo(b)Fluoranthene	<5				
Benzo(k)Fluoranthene	<4				
Benzo(e)Pyrene	<5				
Benzo(a)Pyrene	<5				
Perylene	<5				
Indeno(1,2,3-cd)Pyrene	<5				
Dibenz(a,h)Anthracene	<5				
Benzo(ghi)Perylene	<5				

Table B.2. Reported laboratory method detection limits and reporting limits¹ for elemental target analytes.

Element	MDL²	RL³
Hg	0.012	0.04
Ag	0.003	0.01
Cd	0.002	0.006
Pb	0.003	0.01
Al	0.5	2
Cr	0.05	0.2
Cu	0.1	0.3
Fe	1.5	5
Ni	0.03	0.1
Zn	0.2	0.6

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

APPENDIX C: Summary of Trace Metal Analysis Quality Assurance/Quality Control for 2007

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 $\pm 25\%$ 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 51 -125% (Table C.1.1). No SRM recoveries fell outside of the targeted data quality objectives.

Table C.1.1 Analyses of standard reference materials for trace elements (mg/g dry wt.) associated with analyses performed by Battelle, MSL Sequim, WA for the 2007 Gulfwatch Program.

	Hg	Ag	Cd	Pb	Al	Cr	Cu	Fe	Ni	Zn
SRM										
CRM 2976 r1	NA	NA	0.827	1.22	144	0.527	3.93	176	0.783	157
CRM 2976 r2	NA	NA	0.831	1.22	143	0.546	3.93	174	0.851	156
CRM 2976 r3	NA	NA	0.838	1.23	140	0.530	4.01	178	0.786	156
	NA	NA	0.82	1.19	134	0.5	4.02	171	0.93	137
			± 0.2	± 0.18			± 0.33	± 4.9		± 13
% recovery, R1	NA	NA	101%	103%	108%	105%	98%	103%	84%	115%
% recovery, R2	NA	NA	101%	102%	107%	109%	98%	102%	92%	114%
% recovery, R3	NA	NA	102%	103%	104%	106%	100%	104%	84%	114%
SRM										
DORM2 r1	4.49	0.0209	0.0496	NA	8.89	30.4	2.15	143	17.1	26.1
DORM2 r2	4.22	0.0308	0.0451	NA	13.6	33.6	2.18	156	18.6	28.8
DORM2 r3	4.43	0.0274	0.0496	NA	8.44	33.9	2.11	158	19.2	26.6
	4.64	0.041	0.043	NA	10.9	34.7	2.34	14	19.4	25.6
	± 0.26	± 0.013	± 0.008		± 1.7	± 5.5	± 0.16	± 10	± 3.1	± 2.3
% recovery, R1	97%	51%	115%	NA	82%	88%	92%	101%	88%	102%
% recovery, R2	91%	75%	105%	NA	125%	97%	93%	110%	96%	113%
% recovery, R3	95%	67%	115%	NA	77%	98%	90%	111%	99%	104%

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 91-163% and averaged 103 (+/- 4.7%) over all the batches. All of the matrix spike results 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 2007 elemental analyses.

	Hg	Ag	Cd	Pb	Al	Cr	Cu	Fe	Ni	Zn
Blank Spike Results										
LCS 033108 R1	2.26	2.00	2.09	2.06	28.1	2.13	2.11	26.2	2.11	26.4
Blank 033108 R1	0.0150	0.003	0.002	0.003	0.5	0.05	0.1	1.5	0.03	0.2
<i>Spike concentration</i>	2.0	2.0	2.0	2.0	25	2.0	2.0	25	2.0	25
% RECOVERY, LCS	112%	100%	104%	103%	112%	107%	106%	105%	106%	106%
LCS 033108 R2	2.07	2.19	2.13	2.07	27.7	2.04	2.05	26.8	2.02	26.1
Blank 033108 R2	0.012	0.003	0.002	0.003	0.5	0.05	0.1	1.5	0.0409	0.2
<i>Spike concentration</i>	2.0	2.0	2.0	2.0	25	2.0	2.0	25	2.0	25
% RECOVERY, LCS	104%	109%	107%	104%	111%	102%	103%	107%	99%	104%
LCS 033108 R3	2.13	2.10	2.23	2.14	28.0	25.7	25.2	26.4	26.6	26.4
Blank 033108 R3	0.012	0.003	0.002	0.003	0.5	0.05	0.1	1.5	0.03	0.2
<i>Spike concentration</i>	2.0	2.0	2.0	2.0	25	25	25	25	25	25
% RECOVERY, LCS	107%	105%	112%	107%	112%	103%	101%	106%	106%	105%

Table C.1.2.2. Matrix spike results reported by Battelle Marine Sciences Laboratory for the Gulfwatch 2007 elemental analyses.

Matrix Spike Results			Hg	Ag	Cd	Pb	Al	Cr	Cu	Fe	Ni	Zn
2872-6 MS	Spike conc.	Sample ID	2.04	1.97	11.4	11.9	649	3.38	17.0	656	3.13	291
2872-6	Background conc.	NSDI-comp	0.088	0.046	1.28	1.63	322	1.18	6.47	353	0.964	64.6
	<i>Spike conc., MS</i>		2.00	2.00	9.92	9.92	208	2.00	9.92	208	2.00	208
	% recovery MS		98%	96%	102%	103%	SL	110%	106%	SL¹	108%	109%
2872-29 MS	Spike conc.		2.36	1.99	11.8	12.0	631	4.35	19.3	751	11.6	330
2872-29	Background conc.	NHBC-2N	0.264	0.055	1.74	1.75	425	2.25	8.74	542	1.31	97.4
	<i>Spike conc., MS</i>		1.99	1.99	10.1	10.1	211	1.99	10.1	211	10.1	211
	% recovery MS		105%	97%	100%	102%	98%	106%	105%	99%	102%	110%
2872-40 MS	Spike conc.		2.12	2.63	2.62	12.4	1348	12.5	32.1	1578	11.7	314
2872-40	Background conc.	NHMG-1N	0.087	0.794	0.503	2.31	1022	2.40	21.9	1368	1.46	85.1
	<i>Spike conc., MS</i>		2.02	2.02	2.02	9.88	208	9.88	9.88	208	9.88	208
	% recovery MS		101%	91%	105%	102%	SL	102%	103%	101%	104%	110%

¹SL = insufficient spiking level relative to native metal concentrations.

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 near 0-19%, with a mean of 4 (+/- 5)%. The RPDs of all duplicates were all within acceptable limits.

Table C.2.1. Duplicate metals analysis (µg/g) for Gulfwatch 2007 samples performed by Battelle Marine Sciences Laboratory (MSL).

Duplicates		Hg	Ag	Cd	Pb	Al	Cr	Cu	Fe	Ni	Zn
2872-6	NSDI-comp	0.088	0.0461	1.28	1.63	322	1.18	6.47	353	0.964	64.6
2872-6DUP	NSDI-comp DUP	0.089	0.0439	1.29	1.75	296	1.16	6.58	416	0.979	66.1
	MEAN	0.088	0.0450	1.29	1.69	309	1.17	6.53	385	0.972	65.4
	RPD¹	1%	5%	0%	7%	8%	2%	2%	16%	2%	2%
2872-10	MAMH-comp	0.172	0.0295	0.759	6.26	108	2.34	8.70	202	1.23	75.0
2872-10DUP	MAMH-comp DUP	0.173	0.0306	0.753	6.11	119	2.45	8.71	212	1.16	75.2
	MEAN	0.172	0.0301	0.76	6.18	114	2.40	8.70	207	1.19	75.1
	RPD	1%	4%	1%	3%	10%	5%	0%	5%	6%	0%
2872-28	NHBC-1N Mussel	0.282	0.0368	1.55	1.50	318	2.17	6.41	518	1.22	91.6
2872-28DUP	NHBC-1N Mussel DUP	0.273	0.0384	1.59	1.55	363	2.21	6.65	550	1.21	93.9
	MEAN	0.278	0.0376	1.57	1.52	340	2.19	6.53	534	1.21	92.8
	RPD	3%	4%	2%	3%	13%	2%	4%	6%	1%	2%
2872-37	NHBC-2N Oyster	0.230	0.698	0.480	5.70	2435	7.08	17.3	7501	4.94	90.9
2872-37DUP	NHBC-2N Oyster DUP	0.214	0.665	0.443	5.17	2110	5.83	16.0	6627	2.89	85.8
	MEAN	0.222	0.682	0.461	5.43	2272	6.45	16.6	7064	3.92	88.4
	RPD	7%	5%	8%	10%	14%	19%	8%	12%	52%	6%

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

C.3 BLANKS

Seven 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 (MSL) for Gulfwatch 2007 metals analysis.

Procedural Blanks	Hg	Ag	Cd	Pb	Al	Cr	Cu	Fe	Ni	Zn
Blank 033108 R1	0.015	0.003	0.002	0.003	0.5	0.05	0.1	1.5	0.03	0.2
Blank 033108 R2	0.012	0.003	0.002	0.003	0.5	0.05	0.1	1.5	0.041	0.2
Blank 033108 R3	0.012	0.003	0.002	0.003	0.5	0.05	0.1	1.5	0.03	0.2

C.4 COMPLETENESS

100% of samples collected (45 of 45 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.

C.5 BATTELLE QUALITY ASSURANCE/QUALITY CONTROL NARRATIVE FOR 2007 SAMPLES

QA/QC NARRATIVE

PROJECT: Gulf of Maine 2008

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: Forty-five tissue samples were received at MSL on 03/11/08. 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 (2872). All project information was entered into Battelle's laboratory information and sample tracking system.

Chemistry Lab IDs:	2565*1-63
Description	Tissue
Collection dates	2001 (see table for dates)
Laboratory arrival date	5/5/2006
Cooler temperatures, on arrival	-15°C
Digestion (aqua regia)	6/7/2006
CVAA analysis (Hg)	06/14/06 and 06/16/06
ICP-OES analysis (Al, Cr, Cu, Fe, Ni, and Zn)	06/19/06 and 06/20/06
ICP-MS analysis (Ag, Cd, and Pb)	06/14/06 and 06/15/06

QA/QC Data Quality Objectives						
	Analytical	Range of	SRM	Relative	Method Detection	
Analyte	Method	Recovery	Accuracy	Precision	Limit	Reporting Limit
					(µg/g dry weight)(a)	(µg/g dry weight)(b)
Silver	ICP-MS	75-125%	≤25%	≤25%	0.01	0.03
Aluminum	ICP-OES	75-125%	≤25%	≤25%	0.5	2
Cadmium	ICP-MS	75-125%	≤25%	≤25%	0.01	0.03
Chromium	ICP-OES	75-125%	≤25%	≤25%	0.05	0.2
Copper	ICP-OES	75-125%	≤25%	≤25%	0.1	0.3
Iron	ICP-OES	75-125%	≤25%	≤25%	1.5	5
Mercury	CVAA	75-125%	≤25%	≤25%	0.005	0.02
Nickel	ICP-OES	75-125%	≤25%	≤25%	0.05	0.2
Lead	ICP-MS	75-125%	≤25%	≤25%	0.02	0.06
Zinc	ICP-OES	75-125%	≤25%	≤25%	0.3	1

(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 nine metals including silver (Ag), aluminum (Al), cadmium (Cd), chromium (Cr), copper (Cu), 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 130°C (±10°C) 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 processed with a matrix spike in each batch of 20 field samples. Matrix spike recoveries were within the QC acceptance criterion of 75-125% recovery for all metals except two matrix spikes for Al and Fe. The spiking level for Al and Fe was insufficient relative to native sample concentrations to be used for evaluating accuracy. Acceptable accuracy was demonstrated in the LCS and SRM quality control samples.

REPLICATE PRECISION: One set of laboratory duplicates was analyzed for every 20 field samples. Precision was expressed as the relative standard difference (RPD) between replicate results. The RPD values were within the QC criterion of $\leq 25\%$ 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. 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. SRM 2976 is certified for Cd, Cu, Fe, Hg, Pb, and Zn. The percent recoveries were within QC acceptance criterion of 75-125% recovery for all metals. The metals in SRM DORM-2 certified greater than the RL are Ag, Al, Cd, Cr, Cu, Fe, Hg, Ni, and Zn. The percent recoveries were within the QC acceptance criterion for all metals except one replicate for Al (72%). All other measures of accuracy and precision were within the QC criteria.

APPENDIX D: Summary of 2007 Organic Contaminant Analysis Quality Assurance/Quality Control

D.1 ACCURACY

The quality assurance protocol for the Gulfwatch project sets the accuracy criteria of $\pm 30\%$ 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 chlorinated pesticides, respectively. Recoveries for PAHs ranged from 31% - 127% with an overall mean recovery of $88 \pm 17\%$. Recoveries for PCBs ranged from 50%-110% with a mean recovery over all congeners of $\pm 6.8\%$. 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 46%-236%, with a mean recovery of $84 \pm 24\%$.

The following abbreviations are used in the tables below for PAH analytes:

Nap = naphthalene, Bip = biphenyl, Ace = acenaphthene, Acey = acenaphthylene, Flu = fluorine, Dbt = dibenzothiophene, Phen = phenanthrene, Ant = anthracene, Fluo = fluoranthene, Pyr = pyrene, FP = fluoranthene/pyrene (no distinction made between alkyl-substituted fluoranthenes and pyrenes), B(a)A = benz(a)anthracene, Chry = chrysene, B(b)F = benzo(b)fluoranthene, B(k)F = benzo(k)fluoranthene, B(e)P = benzo(e)pyrene, B(a)P = benzo(a)pyrene, Per = perylene, Ind(1,2,3)P = indeno (1,2,3,c,d) pyrene, Db(a,h)A = dibenz (a,h) anthracene, and B(g,h,i)P = benzo(g,h,i)perylene

TABLE D.1.2.1. Percent recoveries of PAHs from matrix spikes for the 2007 Gulfwatch Monitoring Program.

Spiked Mussel Tissue		SP080227	aSP080227	SP080508	aSP080508	SP080513	aSP080513
(2.0 g dry)		% Recoveries					
Analytes	Conc.	%	%	%	%	%	%
	(ng/g)						
Nap	25.00	118%	70%	52%	70%	76%	63%
C1-Nap	50.00	102%	88%	57%	66%	92%	86%
Bip	25.00	86%	88%	85%	97%	92%	94%
C2-Nap	25.00	94%	97%	67%	93%	84%	90%
Ace	25.00	89%	92%	62%	75%	67%	72%
Acey	25.00	90%	83%	62%	69%	69%	68%
C-3 Nap	25.00	125%	97%	98%	99%	105%	97%
Flu	25.00	50%	88%	79%	90%	83%	85%
C1- Flu	125.00	NA ¹	111%	NA	113%	NA	112%
C2-Flu	62.50	NA	95%	NA	117%	NA	120%
C3- Flu	31.25	NA	102%	NA	116%	NA	118%
C4-Nap	62.50	NA	104%	NA	116%	NA	112%
Dbt	93.75	NA	98%	NA	108%	NA	109%
C4- Flu	31.25	NA	INT ²	NA	119%	NA	INT
C1-Dbt	81.25	NA	104%	NA	114%	NA	114%
C2- Dbt	62.50	NA	71%	NA	127%	NA	115%
C3-Dbt	62.50	NA	105%	NA	124%	NA	116%
Phen	25.00	68%	76%	71%	83%	85%	87%
Ant	25.00	72%	78%	77%	84%	81%	88%
C1-Phen	25.00	105%	98%	92%	107%	88%	108%
C2-Phen	62.50	NA	97%	NA	112%	NA	118%
Fluo	25.00	67%	70%	81%	85%	90%	90%
Pyr	25.00	68%	62%	77%	83%	75%	84%
C1-FP	93.75	NA	95%	NA	109%	NA	111%
C3-Phen	62.50	NA	127%	NA	124%	NA	116%
C2-FP	31.25	NA	INT	NA	112%	NA	113%
C4-Phen	31.25	NA	82%	NA	112%	NA	113%
B(a)A	25.00	79%	84%	83%	91%	80%	88%
Chry	25.00	89%	92%	80%	89%	79%	90%
C1-Chry	187.50	NA	100%	NA	108%	NA	109%
C2-Chry	31.25	NA	102%	NA	112%	NA	111%
C3-Chry	31.25	NA	105%	NA	114%	NA	109%
C4-Chry	31.25	NA	114%	NA	123%	NA	121%
B(b)F	25.00	80%	94%	84%	93%	81%	88%
B(k)F	25.00	82%	76%	80%	80%	79%	85%
B(e)P	25.00	81%	NA	88%	NA	83%	NA
B(a)P	25.00	79%	81%	76%	78%	75%	81%
Per	25.00	77%	NA	77%	NA	75%	NA
Ind(1,2,3)P	25.00	63%	75%	64%	82%	74%	87%
Db(a,h)A	25.00	57%	74%	56%	74%	79%	87%
B(ghi)P	25.00	68%	79%	65%	70%	75%	79%

Table D.1.2.1 (cont'd)

Spiked Mussel Tissue (2.0 g)	Conc.	SP080520	aSP080520	SP080526	SP080717
PAH Analytes	(ng/g)	%	%	%	%
Nap	25.00	102%	61%	70%	31%
C1-Nap	50.00	105%	88%	89%	78%
Bip	25.00	98%	99%	93%	86%
C2-Nap	25.00	96%	98%	80%	88%
Ace	25.00	71%	77%	70%	72%
Acey	25.00	72%	73%	69%	73%
C-3 Nap	25.00	111%	105%	105%	117%
Flu	25.00	92%	99%	83%	88%
C1- Flu	125.00	NA	116%	NA	NA
C2-Flu	62.50	NA	120%	NA	NA
C3- Flu	31.25	NA	123%	NA	NA
C4-Nap	62.50	NA	120%	NA	NA
Dbt	93.75	NA	111%	NA	NA
C4- Flu	31.25	NA	120%	NA	NA
C1-Dbt	81.25	NA	117%	NA	NA
C2- Dbt	62.50	NA	Int	NA	NA
C3-Dbt	62.50	NA	124%	NA	NA
Phen	25.00	76%	81%	73%	74%
Ant	25.00	82%	83%	81%	87%
C1-Phen	25.00	94%	107%	90%	79%
C2-Phen	62.50	NA	119%	NA	NA
Fluo	25.00	83%	82%	78%	79%
Pyr	25.00	80%	80%	75%	77%
C1-FP	93.75	NA	106%	NA	NA
C3-Phen	62.50	NA	120%	NA	NA
C2-FP	31.25	NA	108%	NA	NA
C4-Phen	31.25	NA	106%	NA	NA
B(a)A	25.00	79%	82%	78%	82%
Chry	25.00	77%	82%	73%	74%
C1-Chry	187.50	NA	106%	NA	NA
C2-Chry	31.25	NA	111%	NA	NA
C3-Chry	31.25	NA	117%	NA	NA
C4-Chry	31.25	NA	INT	NA	NA
B(b)F	25.00	77%	91%	75%	75%
B(k)F	25.00	76%	81%	77%	86%
B(e)P	25.00	82%	NA	79%	80%
B(a)P	25.00	78%	86%	78%	79%
Per	25.00	81%	NA	72%	73%
Ind(1,2,3)P	25.00	81%	89%	79%	80%
Db(a,h)A	25.00	79%	89%	79%	77%
B(ghi)P	25.00	81%	71%	79%	75%

¹NA = not analyzed, marked by purple color. ²INT = interference, marked by olive color. Those values exceeding QA/QC limits are marked in yellow.

TABLE D.1.2.2. Percent recoveries of PCBs from matrix spikes, for the 2007 Gulfwatch Monitoring Program.

Spiked Mussel Tissue (2.0g dry weight)		SP080227	SP080508	SP080513	SP080520	SP080526	SP080717
PCB		Recovery					
congener ¹	Conc. (ng/g)	%	%	%	%	%	%
#8,5	20.84	77%	81%	66%	78%	71%	50%
#18,15	20.84	85%	77%	74%	86%	86%	61%
#29	20.84	85%	78%	74%	86%	83%	63%
#50	20.84	83%	89%	72%	89%	82%	59%
#28	20.84	85%	90%	74%	91%	83%	60%
#52	20.84	94%	99%	101%	110%	102%	84%
#44	20.84	90%	84%	82%	91%	88%	77%
#66,95	20.84	85%	83%	84%	94%	92%	75%
#101,90	20.84	92%	84%	79%	93%	92%	71%
#87	20.84	90%	85%	81%	92%	90%	73%
#77	20.84	87%	97%	81%	90%	85%	65%
#118	20.84	98%	88%	92%	106%	97%	78%
#153,132	20.84	94%	88%	85%	98%	93%	79%
#105	20.84	91%	85%	82%	92%	89%	78%
#138	20.84	97%	95%	93%	102%	96%	80%
#126	20.84	89%	86%	85%	91%	88%	74%
#187	20.84	92%	87%	85%	95%	90%	74%
#128	20.84	92%	85%	84%	91%	89%	73%
#180	20.84	89%	84%	84%	93%	90%	69%
#169	20.84	86%	84%	83%	94%	89%	72%
#170,190	20.84	87%	83%	82%	93%	92%	75%
#195,208	20.84	86%	83%	82%	91%	88%	72%
#206	20.84	82%	83%	77%	86%	86%	73%
#209	20.84	85%	83%	81%	89%	89%	72%

¹congener numbers follow IUPAC conventions. Two numbers on the same line indicate coelution of congeners on the GC column.

TABLE D.1.2.3. Percent recoveries of pesticides from matrix spikes, for the 2007 Gulfwatch Monitoring Program.

Spiked Mussel Tissue (2.0g dry weight)		SP080227	SP080508	SP080513	SP080520	SP080526	SP080717
		Recovery					
Pesticide	Conc. (ng/g)	%	%	%	%	%	%
α -BHC	10.42	81%	66%	79%	86%	80%	68%
HCB	10.42	80%	67%	67%	77%	73%	54%
γ -HCH(Lindane)	10.42	81%	58%	69%	88%	82%	71%
Heptachlor	10.42	61%	53%	66%	55%	56%	46%
Aldrin	10.42	84%	76%	76%	81%	78%	66%
Heptachlor Epoxide	10.42	78%	75%	69%	72%	72%	56%
γ -Chlordane	10.42	73%	87%	68%	67%	81%	67%
o,p'-DDE	10.42	100%	73%	98%	80%	76%	60%
α -Endosulfan	10.42	92%	93%	80%	109%	108%	73%
cis-Chlordane	10.42	94%	88%	72%	81%	80%	66%
τ -Nonachlor	10.42	105%	96%	88%	82%	86%	67%
p,p'-DDE	10.42	106%	100%	96%	105%	98%	82%
Dieldrin	10.42	100%	80%	89%	121%	107%	84%
o,p'-DDD	10.42	236%	93%	105%	123%	121%	97%
Endrin	10.42	67%	75%	66%	92%	86%	71%
β -Endosulfan	10.42	69%	63%	65%	75%	78%	59%
p,p'-DDD	10.42	92%	77%	83%	69%	83%	73%
o,p'-DDT	10.42	101%	90%	83%	96%	91%	74%
p,p'-DDT	10.42	110%	94%	91%	92%	96%	94%
Metoxychlor	10.42	88%	85%	97%	203%	142%	85%
Mirex	10.42	75%	72%	67%	75%	74%	64%

D.1.3 Surrogate Recoveries

Recoveries of added surrogate compounds are presented in Tables D.1.3.1 – D.1.3.3. Colored cells are outside the criteria.

TABLE D.1.3.1. Percent recoveries of spiked surrogates added to 2007 Gulfwatch samples as part of the PAH analysis.

GOM samples	Recoveries (%)		PHEN- d ₁₀	FLU- d ₁₀	CHRY- d ₁₂	BAP- d ₁₂	BGHIP- d ₁₂
	NAP- d ₈	ACENAP- d ₁₀					
MASN	94%	82%	90%	92%	89%	83%	95%
MAIH	97%	81%	90%	94%	93%	93%	98%
MAME	93%	79%	96%	98%	95%	94%	105%
MAMH	100%	85%	89%	95%	89%	88%	98%
MAMH	82%	73%	85%	91%	84%	81%	92%
NHRH	63%	53%	64%	71%	68%	82%	79%
NHRH	97%	80%	90%	93%	91%	90%	95%
NHLH	84%	71%	79%	85%	78%	98%	90%
NHPI	94%	75%	85%	91%	86%	108%	98%
NHPI DU	83%	71%	82%	88%	84%	104%	96%
NHDP 1N	70%	77%	65%	69%	72%	74%	71%
NHDP 2N	85%	92%	81%	83%	83%	87%	57%
NHDP 3N	82%	98%	92%	96%	95%	97%	92%
NHDP 3N	85%	75%	86%	93%	91%	86%	94%
NHDP 4N	87%	96%	90%	92%	92%	93%	88%
NHHS 1N	72%	85%	82%	85%	83%	83%	83%
NHHS 2N	81%	89%	84%	86%	85%	83%	85%
NHHS 3N	99%	103%	89%	92%	94%	97%	84%
NHHS 4N	83%	95%	91%	93%	92%	93%	90%
NHHS 4N DU	67%	84%	80%	83%	81%	80%	84%
NHBC 1N	83%	72%	90%	93%	92%	91%	90%
NHBC 2N	81%	73%	87%	91%	91%	88%	97%
NHBC 2N DU	83%	73%	89%	91%	91%	88%	88%
NHBC 1N (CLAMS)	79%	66%	82%	90%	89%	86%	90%
NHBC 2N (CLAMS)	85%	70%	87%	94%	92%	89%	94%
NHNI 1N	93%	77%	90%	92%	90%	87%	103%
NHNI 2N	86%	76%	87%	92%	91%	84%	101%
NHMG 1N	75%	67%	80%	87%	84%	79%	88%
NHMG 2N	1%	0%	8%	73%	87%	84%	101%
NHMG 2N	72%	64%	76%	76%	69%	69%	79%
NHLB 1N	82%	72%	87%	96%	93%	91%	88%
NHLB 2N	81%	67%	83%	83%	87%	84%	85%
NHYC 1N	85%	68%	83%	90%	87%	84%	86%
NHYC 2N	83%	69%	82%	89%	88%	83%	86%
MECC 1N	95%	83%	90%	95%	93%	90%	97%
MECC 2N	99%	83%	98%	105%	104%	103%	106%
MECC 3N	89%	73%	86%	92%	89%	85%	93%

TABLE D.1.3.1 (cont'd)

GOM Stations	NAP	ACENAP	PHEN	FLU-	CHRY	BAP	BGHIP
	d₈	d₁₀	d₁₀	d₁₀	d₁₂	d₁₂	d₁₂
MECC 4N	91%	76%	91%	95%	93%	90%	99%
MEPR	90%	77%	88%	93%	91%	89%	96%
MEPH	88%	73%	89%	92%	91%	91%	104%
MEKN	95%	79%	93%	96%	93%	87%	100%
MESA	88%	75%	88%	91%	88%	84%	106%
MEBB	96%	78%	88%	93%	91%	91%	96%
MEUR	90%	75%	86%	91%	87%	84%	111%
MEUR DU	93%	78%	95%	98%	91%	89%	118%
NBTC	88%	104%	93%	93%	93%	95%	105%
NBNR	90%	94%	87%	89%	88%	86%	93%
NBSC	99%	108%	99%	100%	99%	100%	111%
NSDI	89%	73%	84%	90%	86%	106%	94%
NSSC	83%	71%	82%	87%	82%	101%	89%
NSYR	87%	69%	82%	88%	84%	104%	90%
NSAR	85%	71%	80%	84%	79%	97%	89%
NSAG	84%	70%	86%	93%	89%	110%	96%
Mean	85%	77%	85%	90%	88%	90%	93%
Standard Dev.	14.3%	15.2%	12.5%	6.8%	6.5%	8.4%	10.2%

Deuterated surrogate abbreviations: NAP = naphthalene, ACENAP = acenaphthylene, FLU = fluorine, CHRY = chrysene and BGJIP = benzo[g,h,i]perylene.

Table D.1.3.2. Percent recoveries of spiked surrogates added to 2007 Gulfwatch samples as part of the analysis for PCBs and pesticides.

GOM Stations	PCBs		Pesticides	
	103	198	γ -Chlordene	β -BHC
MASN	82%	83%	66%	56%
MAIH	110%	87%	75%	42%
MAME	100%	85%	76%	50%
MAMH	99%	93%	78%	77%
MAMH	88%	82%	69%	80%
NHRH	66%	68%	54%	66%
NHRH	76%	79%	70%	74%
NHLH	87%	85%	71%	71%
NHPI	82%	82%	72%	75%
NHPI DU	89%	90%	74%	75%
NHDP 1N	63%	58%	70%	80%
NHDP 2N	76%	73%	69%	77%
NHDP 3N	83%	85%	68%	91%
NHDP 4N	74%	75%	68%	98%
NHHS 1N	76%	79%	70%	89%
NHHS 2N	86%	84%	63%	86%
NHHS 3N	84%	87%	83%	80%
NHHS 4N	86%	88%	78%	91%
NHHS 4N DU	64%	58%	79%	83%
NHBC 1N	86%	89%	76%	68%
NHBC 2N	76%	80%	69%	73%
NHBC 2N DU	83%	87%	77%	80%
NHBC 1N (CLAMS)	78%	87%	72%	84%
NHBC 2N (CLAMS)	80%	92%	73%	89%
NHNI 1N	82%	76%	72%	74%
NHNI 2N	80%	84%	73%	92%
NHMG 1N	82%	89%	74%	87%
NHMG 2N	57%	81%	8%	68%
NHMG 2N ¹	64%	66%	58%	63%
NHLB 1N	81%	88%	73%	93%
NHLB 2N	70%	85%	68%	76%
NHYC 1N	80%	85%	73%	79%
NHYC 2N	77%	82%	72%	79%
MECC 1N	91%	94%	81%	65%
MECC 2N	89%	96%	75%	74%
MECC 3N	85%	88%	75%	62%
MECC 4N	89%	92%	75%	64%
MEPR	68%	67%	61%	95%
MEPH	93%	93%	71%	66%
MEKN	89%	85%	69%	85%
MESA	88%	90%	69%	59%
MEBB	71%	77%	70%	79%

Table D.1.3.2 (cont'd)

GOM Stations	PCBs		Pesticides	
	103	198	γ -Chlordene	β -BHC
MEUR	86%	86%	62%	73%
MEUR DU	81%	78%	67%	78%
NBTC	72%	73%	82%	95%
NBNR	70%	68%	91%	91%
NBSC	62%	60%	66%	70%
NSDI	65%	87%	72%	73%
NSSC	59%	86%	73%	70%
NSYR	72%	91%	67%	75%
NSAR	72%	79%	65%	70%
NSAG	68%	79%	58%	79%
Mean	79%	82%	70%	76%
Standard Deviation	10.9%	9.1%	10.9%	11.7%

¹Sample was re-extracted due to low surrogate recovery (indicated in blue)

Accuracy Summary for Surrogate spikes:

PAH: In general, surrogates recoveries means all met the data quality objectives of the program (63-118%) with the exception of one sample (NHMG 2N) which had near zero recovery of 3 surrogates (as shown in Table D.1.2.1.). This sample was re-extracted and the re-extracted values used in all calculations.

PCB: Recovery of matrix spikes ranged from 8-110% for all surrogate spikes. The low surrogate recovery was from sample NHMG2N, which was re-extracted, and had acceptable recoveries. Surrogate spike recoveries means all met targeted performance criteria of 40-120% (Table D.1.2.2).

Chlorinated Pesticides: Recovery of matrix spikes and surrogates ranged from 53 - 98% (Table D.1.2.3). Only 4 individual analyses (~3%, highlighted in yellow) where outside the targeted performance criteria of 40-120% and these were all above the 120% criteria.

D.2 PRECISION

The relative percent difference (RPD) of duplicate samples for organic analytes is 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 mean value and multiplied by 100. The RPD between laboratory duplicates ranged from near 0-19%, with a mean of 4 (+/- 5)%. The RPDs of duplicates were all within acceptable limits except where indicated (in yellow).

Table D.2.1. Duplicate (DUP) PAH analysis (ng/g) for Gulfwatch 2007 samples.

GOM Sites	MAMH	MAMH DUP	NHRH	NHRH DUP	NHPI	NHPI DUP	NHHS 4N	NHHS 4N DUP	NHBC 2N	NHBC DUP	MEUR	MEUR DUP
PAH	(ng/g)	(ng/g)	(ng/g)	(ng/g)	(ng/g)	(ng/g)	(ng/g)	(ng/g)	(ng/g)	(ng/g)	(ng/g)	(ng/g)
Nap	21.8	<10	<10	20.4	<10	<10	26.2	12.2	<10	<10	17.3	28.0
C1-Nap	28.7	24.6	<10	26.1	<10	<10	22.6	13.4	<10	<10	15.0	22.9
Bip	14.8	22.1	8.4	10.0	10.9	8.1	11.8	9.3	6.5	7.1	<5	5.8
C2-Nap	8.2	10.7	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Acey	5.4	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Ace	<5	<5	<5	<5	<5	<5	6.5	<5	<5	<5	<5	<5
C-3 Nap	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Flu	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
C1- Flu	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
C2-Flu	14.5	26.3	<5	<5	<5	<5	<5	<5	10.3	9.3	<5	<5
C3- Flu	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6
C4-Naph	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Dbt	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
C4- Flu	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
C1-Dbt	<6	9.8	<6	<6	<6	<6	<6	<6	<6	6.2	<6	<6
C2- Dbt	27.1	30.7	<10	<10	<10	<10	<10	<10	11.8	12.1	<10	<10
C3-Dbt	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Phen	13.1	14.5	6.8	8.9	11.2	10.7	9.2	7.0	8.8	9.5	<6	<6
Ant	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6
C1-Phen	60.6	61.6	12.1	16.5	27.6	26.3	9.8	8.5	26.5	23.8	7.3	7.8
C2-Phen	187.3	193.3	18.2	30.8	41.9	39.6	14.6	14.9	46.0	45.1	19.0	18.8
Fluo	24.2	39.0	<8	<8	<8	<8	<8	<8	8.7	9.3	<8	<8
Pyr	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
C1-FP	42.5	41.8	16.0	23.2	50.4	46.5	15.6	12.3	55.6	53.5	13.1	12.9
C3-Phen	37.5	36.6	12.0	18.2	50.9	46.4	10.9	8.3	57.2	55.4	11.6	10.8
C2-FP	13.8	15.1	9.9	12.5	35.8	32.6	13.0	8.4	38.4	38.3	6.1	5.6
C4-Phen	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Baa	5.5	6.7	<5	6.0	15.8	13.3	<5	<5	13.9	13.3	<5	<5
Chry	20.1	19.9	7.4	11.7	27.0	24.5	6.7	<6	28.0	27.3	<6	<6
C1-Chry	13.3	22.7	6.1	7.7	24.4	19.4	<5	<5	24.8	23.1	<5	<5
C2-Chry	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
C3-Chry	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
C4-Chry	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
B(b)F	10.8	11.3	<5	7.2	21.8	18.0	<5	<5	20.7	19.2	<5	<5
B(k)F	9.0	9.8	4.9	7.3	21.0	17.7	4.2	<4	19.9	18.8	<4	<4
B(e)P	21.7	19.2	6.2	9.0	32.5	28.4	5.2	<5	32.7	32.6	5.2	<5
B(a)P	<5	<5	<5	5.2	10.7	7.9	<5	<5	9.7	8.6	<5	<5
Per	<5	<5	<5	7.4	9.5	8.5	<5	<5	15.8	13.8	5.6	7.0

Table D.2.1 (cont'd)

GOM Sites	MAMH	MAMH DUP	NHRH	NHRH DUP	NHPI	NHPI DUP	NHHS 4N	NHHS 4N DUP	NHBC 2N	NHBC 2N DUP	MEUR	MEUR DUP
	(ng/g)	(ng/g)	(ng/g)	(ng/g)	(ng/g)	(ng/g)	(ng/g)	(ng/g)	(ng/g)	(ng/g)	(ng/g)	(ng/g)
Ind	6.6	7.1	11.4	7.7	17.5	17.2	<5	<5	12.8	11.3	<5	<5
Db(a,h)A	<5	<5	11.1	<5	11.5	13.5	<5	<5	<5	<5	<5	<5
B(ghi)P	8.4	9.5	11.3	8.3	18.5	18.3	<5	<5	15.7	12.8	<5	<5
Total (PAH ₄₀)	595	632	142	244	439	397	156	94	464	450	100	120
Mean	614		193		418		125		457		110	
% RPD	6.1		53.0		10.0		49.4		2.9		17.7	

Nap = naphthalene, Bip = biphenyl, Ace = acenaphthene, Acey = acenaphthylene, Flu = fluorine, Dbt = dibenzothiophene, Phen = phenanthrene, Ant = anthracene, Fluo = fluoranthene, Pyr = pyrene, FP = fluoranthenes/pyrenes, Baa = benzo[a]anthracene, Chry = chrysene, B(b)F = benzo[b] fluoranthene, B(k)F = benzo[k]fluoranthene, B(e)P = benzo[e]pyrene, B(a)P = Benzo[a]pyrene, Per = perylene, Ind = indeno(1,2,3,c,d)pyrene, Db(a,h)A = Dibenz[a,h]anthracene, B(g,h,i)P = Benzo[g,h,i]perylene.

Table D.2.2. Duplicate (DUP) PCB analysis (ng/g) for Gulfwatch 2007 samples.

	MAMH	MAMH DUP	NHRH	NHRH DUP	NHPI	NHPI DUP	NHHS 4N	NHHS 4N DUP	NHBC 2N	NHBC 2N DUP	MEUR	MEUR DUP
PCBs	(ng/g)	(ng/g)	(ng/g)	(ng/g)	(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	<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	<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	<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	<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	<2.3	<2.3	<2.3	<2.3
52	2.6	2.7	<2	<2	<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	<2.3	<2.3	<2.3	<2.3
66;95	6.7	<2.2	<2.2	<2.2	2.3	2.7	<2.2	<2.2	2.8	3.0	<2.2	<2.2
101;90	15.4	14.3	<2.2	2.4	5.1	5.2	<2.2	<2.2	5.8	6.1	<2.2	<2.2
87	3.3	3.0	<1.9	<1.9	<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	<2.3	<2.3	<2.3	<2.3
118	13.6	13.1	<2	<2	4.6	4.7	<2	<2	5.2	5.3	<2	<2
153;132	23.3	21.5	3.12	3.3	8.8	9.2	3.30	3.30	9.3	9.6	<2.1	<2.1
105	4.6	4.1	<1.4	<1.4	1.6	1.4	<1.4	<1.4	<1.4	1.4	<1.4	<1.4
138	23.7	22.0	3.28	3.4	7.8	8.2	3.01	3.04	8.0	8.3	<2	<2
126	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9
187	6.5	6.2	<1.9	<1.9	3.0	3.4	<1.9	<1.9	3.9	4.2	<1.9	<1.9
128	4.7	4.2	<1.9	<1.9	<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	<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	<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	<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	<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	<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	<1.7	<1.7	<1.7	<1.7
Total (PCB₂₄)	104.5	91.0	6.4	9.1	33.3	34.8	6.3	6.3	35.1	38.0	0.0	0.0
Mean	98		8		34		6		37		0	
% RPD	14		35		4		0		8		0	

Table D.2.3. Duplicate (DUP) chlorinated pesticide analysis (ng/g) for Gulfwatch 2007 samples.

	MAMH	MAMH DUP	NHRH	NHRH DUP	NHPI	NHPI DUP	NHHS 4N	NHHS 4N DUP	NHBC 2N	NHBC 2N DUP	NHBC 2N	NHBC 2N DUP	MEUR	MEUR DUP
Pesticide	(ng/g)	(ng/g)	(ng/g)	(ng/g)	(ng/g)	(ng/g)	(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	<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	<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	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5
Heptachlor	<2	<2	<2	<2	<2	<2	<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	<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	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8
γ -Chlordane	3.14	5.16	<1.5	<1.5	<1.5	<1.5	1.96	2.35	<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	<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	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5
cis- Chlordane	6.40	6.93	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2
τ -Nonachlor	5.97	5.14	1.57	<1.4	<1.4	1.52	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4
p,p'-DDE	24.15	21.97	3.02	3.12	4.85	5.13	3.57	3.82	6.50	6.80	6.50	6.80	1.82	1.82
Dieldrin	1.60	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	2.29	<1.4	2.29	<1.4	<1.4	<1.4
o,p'-DDD	11.89	12.57	<4.0	<4.0	<4.0	<4.0	<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	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2
b- Endosulfan	<3.4	<3.4	<3.4	<3.4	<3.4	<3.4	<3.4	<3.4	<3.4	<3.4	<3.4	<3.4	<3.4	<3.4
p,p'-DDD	40.19	39.14	<2	<2	<2	<2	2.15	<2	3.43	3.30	3.43	3.30	<2	<2
o,p'-DDT	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<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	<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	<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	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5
Total	93.34	90.91	4.59	3.12	4.85	6.65	7.68	6.17	12.22	10.09	12.22	10.09	1.82	1.82
Mean	92.1		3.9		5.8		6.9		11.2		11.2		1.8	
RPD (%)	2.6		38.0		31.2		21.7		19.0		19.0		0.0	

Precision (analysis of duplicates) Summary:

PAHs: All but two of the six 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 -35% (Table D.2.2). All of the six duplicate analyses of station replicates met the data quality objectives (relative percent difference $\leq 25\%$) of the Program. 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 -38% (Table D.2.3). Two of the six duplicate analyses of station replicates met the data quality objectives (relative percent difference $\leq 25\%$) of the Program.

D.3 BLANKS

Blank analyses should ideally recover no detectable amounts of target compounds. For 2007 no discernible analytical signal was observed for PAHs, PCBs, and PEST.

D.4 COMPLETENESS

100% of the samples collected in (29 of 29 sampling sites; 50 individual replicates) were collected, analyzed and are reported here.

APPENDIX E: 2007 Trace Metal (and % water) Data for Gulfwatch Mussel Samples

TABLES E. Metals concentration ($\mu\text{g/g}$ dry wt.) and % water content observed in blue mussel tissue collected by Gulfwatch, 2007. 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 2007.

Station code	% water	Hg ($\mu\text{g/g}$)	Ag ($\mu\text{g/g}$)	Cd ($\mu\text{g/g}$)	Pb ($\mu\text{g/g}$)	Al ($\mu\text{g/g}$)	Cr ($\mu\text{g/g}$)	Cu ($\mu\text{g/g}$)	Fe ($\mu\text{g/g}$)	Ni ($\mu\text{g/g}$)	Zn ($\mu\text{g/g}$)
MAIH-comp	83.2	0.137	0.024	1.26	9.06	194	1.38	10.2	374	1.30	150
MAME-comp	85.9	0.151	0.079	1.64	2.37	201	1.55	8.76	364	1.34	90.1
MAMH-comp	83.2	0.172	0.030	0.759	6.26	108	2.34	8.70	202	1.23	75.0
MASN-comp	82.1	0.0928	0.146	0.974	1.68	108	0.610	6.87	173	0.978	83.8
NHDP-comp	86.1	0.250	0.035	2.04	2.30	266	2.03	7.26	381	1.32	104
NHHS-comp	85.1	0.136	0.042	2.01	1.38	232	1.19	7.59	333	1.03	112
NHLH-comp	86.2	0.281	0.047	2.12	2.54	164	1.50	7.43	350	1.30	126
NHPI-comp	85.6	0.302	0.039	1.97	2.96	297	2.43	8.25	538	1.31	121
NHRH-comp	86.6	0.256	0.020	1.56	1.95	300	1.68	7.75	466	1.59	126
MEBB-comp	82.7	0.205	0.012	0.916	8.08	144	0.905	9.29	254	0.592	119
MECC-comp	87.1	0.223	0.027	1.79	2.94	269	1.79	8.29	449	1.22	113
MEKN-comp	86.2	0.174	0.062	2.39	1.40	127	1.25	5.37	303	0.830	78.9
MEPH-comp	85.7	0.202	0.019	1.39	4.34	250	1.17	7.61	444	0.948	146
MEPR-comp	85.6	0.212	0.064	1.20	2.92	417	1.38	8.30	524	1.11	93.5
MESA-comp	84.4	0.112	0.049	1.81	1.18	142	1.25	5.91	267	0.767	66.4
MEUR-comp	88.4	0.110	0.034	1.62	1.18	142	0.927	5.15	384	0.913	64.6
NBNR-comp	86.8	0.0923	0.033	1.20	0.830	411	0.933	5.37	410	0.845	79.8
NBSC-comp	88.6	0.168	0.027	1.71	1.44	544	1.69	5.94	704	1.46	85.6
NBTC-comp	90.3	0.332	0.020	2.46	2.40	1541	3.34	8.03	1430	2.91	81.7
NSAG-1N	87.0	0.132	0.016	1.21	2.65	291	1.20	6.46	428	1.21	74.3
NSAR-comp	86.5	0.207	0.038	2.97	1.42	979	2.08	6.66	872	2.27	86.2
NSDI-comp	82.4	0.0875	0.046	1.28	1.63	322	1.18	6.47	353	0.964	64.6
NSSC-comp	82.6	0.102	0.054	1.38	1.10	193	1.00	5.76	374	1.26	61.1
NSYR-comp	85.1	0.152	0.073	1.21	1.86	325	1.31	6.64	441	1.21	95.9

Table E.2. Tissue concentrations of metals in mussels collected in 2007 from Dover Point, NH (NHDP).

NHDP Replicate	1N	2N	3N	Composite
Element	(µg/g)	(µg/g)	(µg/g)	(µg/g)
Hg	0.259	0.266	0.284	0.250
Ag	0.039	0.037	0.045	0.035
Cd	2.08	2.14	2.40	2.04
Pb	3.30	1.94	2.08	2.30
Al	262	131	301	266
Cr	1.87	1.61	2.05	2.03
Cu	7.24	6.76	8.09	7.26
Fe	340	243	387	381
Ni	1.36	1.19	1.45	1.32
Zn	127	93.5	146	104
% water	86.0	85.9	86.5	86.1

Table E.3. Tissue concentrations from mussels collected in 2007 from Hampton/Seabrook Harbor, NH (NHHS).

NHHS Replicate	1N	2N	3N	Composite
	(µg/g)	(µg/g)	(µg/g)	(µg/g)
Hg	0.115	0.142	0.131	0.136
Ag	0.038	0.044	0.033	0.041
Cd	2.14	1.90	1.83	2.01
Pb	1.48	1.63	1.68	1.38
Al	230	210	293	232
Cr	1.17	1.18	1.24	1.19
Cu	7.40	7.19	7.48	7.59
Fe	272	283	376	333
Ni	0.891	1.01	1.04	1.03
% water	83.5	86.5	85.3	85.1

Table E.4. Tissue concentrations from mussels collected in 2007 from Clark's Cove, ME (MECC).

NHHS Replicate	1N	2N	3N	Composite
	(µg/g)	(µg/g)	(µg/g)	(µg/g)
Hg	0.299	0.257	0.248	0.223
Ag	0.035	0.030	0.029	0.027
Cd	2.04	1.75	2.03	1.79
Pb	3.63	2.60	3.17	2.94
Al	328	311	359	269
Cr	2.40	2.15	2.34	1.79
Cu	9.77	9.23	8.89	8.29
Fe	563	480	582	449
Ni	1.51	1.30	1.62	1.22
Zn	107	110	103	113
% water	87.4	86.4	86.5	87.1

Table E.5. Tissue concentrations of target metals in softshell clams and oysters (Station NHNI only) from site replicates collected in New Hampshire during the Gulfwatch 2007 Monitoring Program.

GOM site code	Percent Water	Ag	Cd	Cr	Cu	Fe	Ni	Pb	Zn	Al	Hg
	(%)	(µg/g)	(µg/g)	(µg/g)	(µg/g)	(µg/g)	(µg/g)	(µg/g)	(µg/g)	(µg/g)	(µg/g)
NHBC-1N	83.1	1.28	0.605	5.50	17.9	5741	2.69	4.76	91.9	2128	0.262
NHBC-2N	83.4	0.698	0.480	7.08	17.3	7501	4.94	5.70	90.9	2435	0.230
NHBC-2N DUP	83.4	0.665	0.443	5.83	16.0	6627	2.89	5.17	85.8	2110	0.214
NHLB-1N	83.8	2.07	0.366	5.43	18.4	6565	2.08	8.38	81.2	2233	0.257
NHLB-2N	82.3	0.915	0.352	4.34	16.1	3901	1.64	5.17	82.8	1721	0.203
NHMG-1N	84.0	0.794	0.503	2.40	21.9	1368	1.46	2.31	85.1	1022	0.087
NHMG-2N	84.1	0.355	0.563	2.37	16.4	2500	1.55	2.91	83.9	1086	0.106
NHYC-1N	82.7	0.289	0.675	3.64	20.0	1962	1.65	4.31	83.7	1334	0.128
NHYC-2N	83.5	0.359	0.683	3.25	18.0	1929	1.57	3.49	88.6	1385	0.159
NHNI-1N	87.5	7.14	3.23	0.724	179	235	2.32	0.501	6718	166	0.251
NHNI-2N	87.1	7.66	3.46	1.41	175	514	2.46	0.876	7057	449	0.274

APPENDIX F: Organic Contaminants (and % Lipids Content) Data for 2007 Gulfwatch Mussel Samples

Table F.1. Tissue concentrations of PAH analytes and % lipids in site composite samples from Massachusetts analyzed for Gulfwatch, 2007.

Site Code	MASN	MAIH	MAME	MAMH	MAMH DUP
PAH abbrev.	(ng/g)	(ng/g)	(ng/g)	(ng/g)	(ng/g)
NAPH	16.2	15.2	13.6	21.8	<10
C1-NAPH	15.2	13.2	16.2	28.7	24.6
C2-NAPH	8.2	9.4	10.7	14.8	22.1
C3-NAPH	<5	10.0	<5	8.2	10.7
C4-NAPH	<5	<5	<5	5.4	<5
BIP	<5	<5	<5	<5	<5
ACE	<5	9.3	<5	<5	<5
ACEY	<5	5.7	<5	<5	<5
FLU	<5	7.1	<5	<5	<5
C1-FLU	<5	<5	<5	14.5	26.3
C2-FLU	<6	<6	<6	<6	<6
C3-FLU	<5	<5	<5	<5	<5
C4-FLU	<10	<10	<10	<10	<10
DBT	<20	<20	<20	<20	<20
C1-DBT	<6	15.3	<6	<6	9.8
C2-DBT	<10	<10	16.8	27.1	30.7
C3-DBT	<10	<10	<10	<10	<10
PHEN	8.4	33.7	13.2	13.1	14.5
ANT	<6	23.8	<6	<6	<6
C1-PHEN	9.9	79.0	25.9	60.6	61.6
C2-PHEN	11.0	197.1	40.2	187.3	193.3
C3-PHEN	<8	42.2	17.0	24.2	39.0
C4-PHEN	<5	<5	<5	<5	<5
FLUO	10.6	377.8	61.6	42.5	41.8
PYR	5.9	345.2	54.4	37.5	36.6
C1-FP	<5	196.8	41.6	13.8	15.1
C2-FP	<5	<5	<5	<5	<5
BAA	<5	79.3	15.8	5.5	6.7
CHRY	<6	170.3	32.0	20.1	19.9
C1-CHRY	<5	131.8	29.7	13.3	22.7
C2-CHRY	<5	9.8	<5	<5	<5
C3-CHRY	<5	<5	<5	<5	<5
C4-CHRY	<5	<5	<5	<5	<5
BBF	<5	120.5	22.1	10.8	11.3
BKF	<4	99.3	19.7	9.0	9.8
BEP	<5	158.6	34.8	21.7	19.2
BAP	<5	37.2	11.9	<5	<5
PER	<5	17.7	14.4	<5	<5
IND	<5	31.3	13.5	6.6	7.1
DBAHA	<5	9.3	5.0	<5	<5
BGHIP	<5	39.8	16.1	8.4	9.5

Table F.1 (cont'd)

PAH abbrev.	MASN	MAIH	MAME	MAMH	MAMH DUP
Surrogate recoveries (%)					
NAPH-d ₈	94	97	93	100	82
ACE-d ₁₀	82	81	79	85	73
PHEN-d ₁₀	90	90	96	89	85
FLUO-d ₁₀	92	94	98	95	91
CHRY-d ₁₂	89	93	95	89	84
BAP-d ₁₂	83	93	94	88	81
BGHIP-d ₁₂	95	98	105	98	92
% lipids	11.43	7.12	8.52	7.94	8.11

Nap = naphthalene, Bip = biphenyl, Ace = acenaphthene, Acey = acenaphthylene, Flu = fluorene, Dbt = dibenzothiophene, Phen = phenanthrene, Ant = anthracene, Fluo = fluoranthene, Pyr = pyrene, FP = fluoranthenes/pyrenes, Baa = benzo[a]anthracene, Chry = chrysene, B(b)F = benzo[b] fluoranthene, B(k)F = benzo[k]fluoranthene, B(e)P = benzo[e]pyrene, B(a)P = 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 PAH target analytes and % lipids in site composite samples from New Hampshire and analyzed for the 2007 Gulfwatch Program.

Site Code	NHRH	NHRH DUP	NHLH	NHPI	NHPI DUP	NHDP 4N	NHHS 4N	NHHS 4N DUP
PAH abbrev.	(ng/g)	(ng/g)	(ng/g)	(ng/g)	(ng/g)	(ng/g)	(ng/g)	(ng/g)
NAP	<10	20.4	<10	<10	<10	27.3	26.2	12.2
C1-NAP	<10	26.1	<10	<10	<10	19.4	22.6	13.4
C2-NAP	8.4	10.0	<5	10.9	8.1	11.3	11.8	9.3
C3-NAP	<5	<5	<5	<5	<5	<5	<5	<5
C4-NAP	<5	<5	<5	<5	<5	<5	<5	<5
BIP	<5	<5	<5	<5	<5	<5	6.5	<5
ACE	<5	<5	<5	<5	<5	5.2	<5	<5
ACEY	<5	<5	<5	<5	<5	<5	<5	<5
FLU	<5	<5	<5	<5	<5	<5	<5	<5
C1-FLU	<5	<5	<5	<5	<5	<5	<5	<5
C2-FLU	<6	<6	<6	<6	<6	<6	<6	<6
C3-FLU	<5	<5	<5	<5	<5	<5	<5	<5
C4-FLU	<10	<10	<10	<10	<10	<10	<10	<10
DBT	<20	<20	<20	<20	<20	<20	<20	<20
C1-DBT	<6	<6	<6	<6	<6	<6	<6	<6
C2-DBT	<10	<10	<10	<10	<10	24.4	<10	<10
C3-DBT	<10	<10	<10	<10	<10	<10	<10	<10
PHEN	6.8	8.9	<6	11.2	10.7	12.5	9.2	7.0
ANTH	<6	<6	<6	<6	<6	<6	<6	<6
C1-PHEN	12.1	16.5	13.4	27.6	26.3	28.8	9.8	8.5
C2-PHEN	18.2	30.8	19.3	41.9	39.6	54.6	14.6	14.9
C3-PHEN	<8	<8	<8	<8	<8	<8	<8	<8
C4-PHEN	<5	<5	<5	<5	<5	<5	<5	<5
FLUO	16.0	23.2	19.0	50.4	46.5	58.2	15.6	12.3
PYR	12.0	18.2	15.4	50.9	46.4	67.0	10.9	8.3
C1-FP	9.9	12.5	11.7	35.8	32.6	46.5	13.0	8.4
C2-FP	<5	<5	<5	<5	<5	<5	<5	<5
BAA	<5	6.0	<5	15.8	13.3	18.1	<5	<5
CHRY	7.4	11.7	7.9	27.0	24.5	31.0	6.7	<6
C1-CHRY	6.1	7.7	5.6	24.4	19.4	25.9	<5	<5
C2-CHRY	<5	<5	<5	<5	<5	<5	<5	<5
C3-CHRY	<5	<5	<5	<5	<5	<5	<5	<5
C4-CHRY	<5	<5	<5	<5	<5	<5	<5	<5
BBF	<5	7.2	5.2	21.8	18.0	21.6	<5	<5
BKF	4.9	7.3	5.1	21.0	17.7	20.7	4.2	<4
BEP	6.2	9.0	8.7	32.5	28.4	33.3	5.2	<5
BAP	<5	5.2	<5	10.7	7.9	9.2	<5	<5
PER	<5	7.4	<5	9.5	8.5	12.5	<5	<5
IND	11.4	7.7	10.5	17.5	17.2	9.2	<5	<5
DBAHA	11.1	<5	10.2	11.5	13.5	<5	<5	<5
BGHIP	11.3	8.3	10.7	18.5	18.3	12.0	<5	<5

Table F.2 (cont'd)

PAH abbrev.	NHRH	NHRH DU	NHLH	NHPI	NHPI DU	NHDP 4N	NHHS 4N	NHHS 4N DUP
Surrogate recoveries (%)								
NAPH-d ₈	63	97	84	94	83	87	83	67
ACE-d ₁₀	53	80	71	75	71	96	95	84
PHEN-d ₁₀	64	90	79	85	82	90	91	80
FLUO-d ₁₀	71	93	85	91	88	92	93	83
CHRY-d ₁₂	68	91	78	86	84	92	9	81
BAP-d ₁₂	82	90	98	108	104	93	93	80
BGHIP-d ₁₂	79	95	90	98	96	88	90	84
% lipids	6.41	5.50	4.90	6.25	5.94	5.12	5.97	5.75

Analyte abbreviations are listed in Table F.1.

Table F.3. Tissue Concentrations of PAH target analytes and % lipids in mussels collected from site replicates in Maine and analyzed for Gulfwatch 2007.

Site Code	MECC 4N	MEPR	MEPH	MEKN	MESA	MEBB	MEUR	MEUR DUP
PAH abbrev.	(ng/g)	(ng/g)	(ng/g)	(ng/g)	(ng/g)	(ng/g)	(ng/g)	(ng/g)
NAPH	11.2	20.0	10.8	14.1	11.7	16.0	17.3	28.0
C1-NAPH	11.6	18.4	11.6	11.6	<10	17.8	15.0	22.9
C2-NAPH	7.1	6.8	8.7	<5	<5	14.6	<5	5.8
C3-NAPH	<5	<5	<5	<5	<5	<5	<5	<5
C4-NAPH	<5	<5	<5	<5	<5	<5	<5	<5
BIP	<5	<5	<5	<5	<5	<5	<5	<5
ACE	<5	<5	6.6	<5	<5	9.6	<5	<5
ACEY	<5	<5	<5	<5	<5	<5	<5	<5
FLU	<5	<5	5.6	<5	<5	7.3	<5	<5
C1-FLU	9.6	9.3	14.4	<5	5.0	23.5	<5	<5
C2-FLU	<6	<6	<6	<6	<6	<6	<6	<6
C3-FLU	<5	<5	<5	<5	<5	<5	<5	<5
C4-FLU	<10	<10	<10	<10	<10	<10	<10	<10
DBT	<20	<20	<20	<20	<20	<20	<20	<20
C1-DBT	<6	<6	10.0	<6	<6	16.6	<6	<6
C2-DBT	14.0	20.5	<10	<10	<10	55.9	<10	<10
C3-DBT	<10	<10	<10	<10	<10	<10	<10	<10
PHEN	9.0	12.5	21.7	<6	<6	26.2	<6	<6
ANTH	<6	<6	11.7	<6	<6	11.6	<6	<6
C1-PHEN	19.9	25.8	54.5	6.6	8.7	77.8	7.3	7.8
C2-PHEN	46.6	56.0	123.9	15.1	9.3	276.2	19.0	18.8
C3-PHEN	<8	8.4	9.2	<8	<8	17.0	<8	<8
C4-PHEN	<5	<5	<5	<5	<5	<5	<5	<5
FLUO	33.6	74.8	201.2	11.5	13.1	199.6	13.1	12.9
PYR	34.1	50.7	151.7	12.4	11.0	234.9	11.6	10.8
C1-FP	23.6	30.5	95.0	8.1	6.4	109.4	6.1	5.6
C2-FP	<5	<5	<5	<5	<5	<5	<5	<5
BAA	10.4	8.3	24.5	<5	<5	30.5	<5	<5
CHRY	18.2	21.5	70.8	<6	<6	71.7	<6	<6
C1-CHRY	14.3	15.0	41.1	5.4	<5	61.9	<5	<5
C2-CHRY	<5	<5	<5	<5	<5	<5	<5	<5
C3-CHRY	<5	<5	<5	<5	<5	<5	<5	<5
C4-CHRY	<5	<5	<5	<5	<5	<5	<5	<5
BBF	13.5	11.3	39.2	<5	<5	66.9	<5	<5
BKF	13.7	10.0	34.8	<4	<4	56.7	<4	<4
BEP	19.3	17.3	67.2	6.0	7.3	99.0	5.2	<5
BAP	7.0	<5	10.9	<5	<5	18.9	<5	<5
PER	10.3	14.9	11.8	8.9	<5	9.9	5.6	7.0
IND	10.3	7.5	15.4	<5	<5	24.7	<5	<5
DBAHA	<5	<5	<5	<5	<5	6.4	<5	<5
BGHIP	12.1	8.6	19.4	<5	<5	28.9	<5	<5

Table F.3 (cont'd)

PAH abbrev.	MECC 4N	MEPR	MEPH	MEKN	MESA	MEBB	MEUR	MEUR DUP
Surrogate Recovery %								
NAPH-d ₈	91	90	88	95	88	96	90	93
ACE-d ₁₀	76	77	73	79	75	78	75	78
PHEN-d ₁₀	91	88	89	93	88	88	86	95
FLUO-d ₁₀	95	93	92	96	91	93	91	98
CHRY-d ₁₂	93	91	91	93	88	91	87	91
BAP-d ₁₂	90	89	91	87	84	91	84	89
BGHIP-d ₁₂	99	96	104	100	106	96	111	118
% lipids	5.72	7.06	6.40	7.30	6.39	7.86	7.71	6.95

Analyte abbreviations are listed in Table F.1.

Table F.4. Tissue concentrations of PAH target analytes and lipids in site composite samples collected from New Brunswick and Nova Scotia and analyzed for the 2007 Gulfwatch Program.

Site Code	NBTC	NBNR	NBSC	NSDI	NSSC	NSYR	NSAR	NSAG
PAH abbrev.	(ng/g)	(ng/g)	(ng/g)	(ng/g)	(ng/g)	(ng/g)	(ng/g)	(ng/g)
NAPH	38.59	19.58	31.33	<10	<10	<10	<10	<10
C1-NAPH	26.04	13.38	21.24	<10	<10	<10	<10	<10
C2-NAPH	12.67	5.17	6.52	5.7	<5	6.9	<5	<5
C3-NAPH	<5	<5	<5	<5	<5	<5	<5	<5
C4-NAPH	<5	<5	<5	<5	<5	<5	<5	<5
BIP	5.23	<5	<5	<5	<5	<5	<5	<5
ACE	<5	<5	<5	<5	<5	<5	<5	<5
ACEY	<5	<5	<5	<5	<5	<5	<5	<5
FLU	11.05	<5	7.58	<5	<5	<5	<5	<5
C1-FLU	<5	<5	<5	<5	<5	<5	<5	<5
C2-FLU	<6	<6	<6	<6	<6	<6	<6	<6
C3-FLU	<5	<5	<5	<5	<5	<5	<5	<5
C4-FLU	<10	<10	<10	<10	<10	<10	<10	<10
DBT	<20	<20	<20	<20	<20	<20	<20	<20
C1-DBT	<6	<6	<6	<6	<6	<6	<6	<6
C2-DBT	<10	<10	<10	<10	<10	13.0	<10	<10
C3-DBT	<10	<10	<10	<10	<10	<10	<10	<10
PHEN	24.12	6.91	6.21	6.7	<6	13.8	<6	<6
ANTH	<6	<6	<6	<6	<6	<6	<6	<6
C1-PHEN	32.44	7.96	5.37	6.4	<5	15.8	<5	5.3
C2-PHEN	23.54	5.65	<5	19.0	29.4	24.9	<5	10.9
C3-PHEN	20.71	<8	<8	<8	<8	<8	<8	<8
C4-PHEN	<5	<5	<5	<5	<5	<5	<5	<5
FLUO	43.37	7.83	8.19	12.9	5.2	38.6	<5	9.2
PYR	29.23	<5	5.13	5.3	<5	19.7	<5	<5
C1-FP	25.77	<5	<5	<5	<5	<5	<5	<5
C2-FP	<5	<5	<5	<5	<5	<5	<5	<5
BAA	10.76	<5	<5	<5	<5	<5	<5	<5
CHRY	15.84	<6	<6	<6	<6	7.7	<6	<6
C1-CHRY	18.74	<5	<5	<5	<5	8.4	<5	<5
C2-CHRY	<5	<5	<5	<5	<5	<5	<5	<5
C3-CHRY	<5	<5	<5	<5	<5	<5	<5	<5
C4-CHRY	<5	<5	<5	<5	<5	<5	<5	<5
BBF	10.93	<5	<5	<5	<5	<5	<5	<5
BKF	9.45	<4	<4	<4	<4	<4	<4	<4
BEP	12.12	<5	<5	<5	<5	6.1	<5	<5
BAP	5.56	<5	<5	<5	<5	<5	<5	<5
PER	8.86	<5	<5	<5	<5	<5	<5	23.4
IND	5.74	<5	<5	7.4	8.1	9.1	8.5	9.3
DBAHA	<5	<5	<5	8.9	9.8	10.4	10.2	10.7
BGHIP	7.21	<5	<5	7.1	7.4	8.3	7.7	8.7

Table F.4 (cont'd)

PAH abbrev.	NBTC	NBNR	NBSC	NSDI	NSSC	NSYR	NSAR	NSAG
Surrogate recoveries (%)								
NAPH-d ₈	88	90	99	89	83	87	85	84
ACE-d ₁₀	104	94	108	73	71	69	71	70
PHEN-d ₁₀	93	87	99	84	82	82	80	86
FLUO-d ₁₀	93	89	100	90	87	88	84	93
CHRY-d ₁₂	93	88	99	86	82	84	79	89
BAP-d ₁₂	95	86	100	106	101	104	97	110
BGHIP-d ₁₂	105	93	111	94	89	90	89	96
% lipids	9.01	9.76	7.40	8.13	9.03	5.85	4.67	6.48

Analyte abbreviations are listed in Table F.1.

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

Site Code	NHDP 1N	NHDP 2N	NHDP 3N	NHDP Comp
PAH abbrev.	(ng/g)	(ng/g)	(ng/g)	(ng/g)
NAPH	26.7	24.0	21.2	27.3
C1-NAPH	21.2	17.2	16.9	19.4
C2-NAPH	15.3	11.5	13.1	11.3
C3-NAPH	<5	<5	<5	<5
C4-NAPH	<5	7.5	<5	<5
BIP	5.4	<5	<5	<5
ACE	<5	<5	5.6	5.2
ACEY	<5	<5	<5	<5
FLU	11.6	<5	6.6	<5
C1-FLU	46.5	32.9	<5	<5
C2-FLU	<6	<6	<6	<6
C3-FLU	<5	<5	<5	<5
C4-FLU	<10	<10	<10	<10
DBT	<20	<20	<20	<20
C1-DBT	31.7	<6	12.1	<6
C2-DBT	72.6	<10	<10	24.4
C3-DBT	26.5	<10	<10	<10
PHEN	16.1	9.1	11.1	12.5
ANTH	<6	<6	<6	<6
C1-PHEN	116.8	25.6	42.5	28.8
C2-PHEN	630.9	41.2	93.8	54.6
C3-PHEN	334.3	15.5	9.9	<8
C4-PHEN	10.8	<5	<5	<5
FLUOR	64.4	48.4	57.9	58.2
PYR	101.4	58.8	69.9	67.0
C1-FP	168.2	45.2	49.4	46.5
C2-FP	<5	<5	<5	<5
BAA	26.3	16.7	22.2	18.1
CHRY	66.2	29.5	35.0	31.0
C1-CHRY	173.3	35.6	35.2	25.9
C2-CHRY	10.4	<5	<5	<5
C3-CHRY	<5	<5	<5	<5
C4-CHRY	<5	<5	<5	<5
BBF	28.2	21.3	27.9	21.6
BKF	22.9	19.4	27.2	20.7
BEP	46.6	32.1	38.5	33.3
BAP	13.5	8.8	12.0	9.2
PER	15.5	11.4	14.7	12.5
IND	8.9	7.9	11.8	9.2
DBAHA	5.5	<5	5.0	<5
BGHIP	17.2	10.5	15.2	12.0

Table F.5 (cont'd).

PAH abbrev.	NHDP 1N	NHDP 2N	NHDP 3N	NHDP Comp
Surrogate Recoveries (%)				
NAPH-d ₈	70	85	82	87
ACE-d ₁₀	77	92	98	96
PHEN-d ₁₀	65	81	92	90
FLUOR-d ₁₂	69	83	96	92
CHRY-d ₁₂	72	83	95	92
BAP-d ₁₂	74	87	97	93
BGHIP-d ₁₂	71	57	92	88
% lipids	4.80	6.69	6.81	5.12

Analyte abbreviations are listed in Table F.1.

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

Site Code	NHHS 1N	NHHS 2N	NHHS 3N	NHHS Comp
PAH abbrev	(ng/g)	(ng/g)	(ng/g)	(ng/g)
NAPH	16.9	23.4	27.0	26.2
C1-NAPH	16.2	20.9	25.6	22.6
C2-NAPH	8.7	11.2	17.7	11.8
C3-NAPH	<5	<5	<5	<5
C4-NAPH	<5	<5	<5	<5
BIP	<5	<5	<5	6.5
ACE	<5	<5	<5	<5
ACEY	<5	<5	<5	<5
FLU	<5	<5	5.9	<5
C1-FLU	<5	<5	10.5	<5
C2-FLU	<6	<6	<6	<6
C3-FLU	<5	<5	<5	<5
C4-FLU	<10	<10	<10	<10
DBT	<20	<20	<20	<20
C1-DBT	<6	<6	<6	<6
C2-DBT	<10	<10	<10	<10
C3-DBT	<10	<10	<10	<10
PHEN	8.2	8.6	8.5	9.2
ANTH	<6	<6	<6	<6
C1-PHEN	9.3	8.7	11.7	9.8
C2-PHEN	12.1	13.6	<5	14.6
C3-PHEN	<8	<8	<8	<8
C4-PHEN	<5	<5	<5	<5
FLUOR	14.0	14.0	16.2	15.6
PYR	8.9	8.8	10.8	10.9
C1-FP	19.2	9.5	10.9	13.0
C2-FP	<5	<5	<5	<5
BAA	<5	<5	<5	<5
CHRY	<6	<6	8.5	6.7
C1-CHRY	<5	<5	<5	<5
C2-CHRY	<5	<5	<5	<5
C3-CHRY	<5	<5	<5	<5
C4-CHRY	<5	<5	<5	<5
BBF	<5	<5	<5	<5
BKF	<4	<4	<4	4.2
BEP	<5	<5	<5	5.2
BAP	<5	<5	<5	<5
PER	<5	<5	<5	<5
IND	<5	<5	<5	<5
DBAHA	<5	<5	<5	<5
BGHIP	<5	<5	<5	<5

Table F.6 (cont'd)

PAH abbrev.	NHHS 1N	NHHS 2N	NHHS 3N	NHHS Comp
Surrogate recoveries (%)				
NAPH-d ₈	72	81	99	83
ACE-d ₁₀	85	89	103	95
PHEN-d ₁₀	82	84	89	91
FLUOR-d ₁₂	85	86	92	93
CHRY-d ₁₂	83	85	94	92
BAP-d ₁₂	83	83	97	93
BGHIP-d ₁₂	83	85	84	90
% lipids	6.39	5.85	6.29	5.97

Analyte abbreviations are listed in Table F.1.

Table F.7. Tissue concentrations of PAHs in mussels collected from Broad Cove, NH (NHBC)

Site Code	NHBC 1N	NHBC 2N	NHBC 2N DUP
PAH abbrev.	(ng/g)	(ng/g)	(ng/g)
NAPH	<10	<10	<10
C1-NAPH	<10	<10	<10
C2-NAPH	8.6	6.5	7.1
C3-NAPH	<5	<5	<5
C4-NAPH	<5	<5	<5
BIP	<5	<5	<5
ACE	<5	<5	<5
ACEY	<5	<5	<5
FLU	<5	<5	<5
C1-FLU	16.6	10.3	9.3
C2-FLU	<6	<6	<6
C3-FLU	<5	<5	<5
C4-FLU	<10	<10	<10
DBT	<20	<20	<20
C1-DBT	6.8	<6	6.2
C2-DBT	15.8	11.8	12.1
C3-DBT	<10	<10	<10
PHEN	10.3	8.8	9.5
ANTH	6.1	<6	<6
C1-PHEN	31.6	26.5	23.8
C2-PHEN	46.2	46.0	45.1
C3-PHEN	10.4	8.7	9.3
C4-PHEN	<5	<5	<5
FLUOR	57.6	55.6	53.5
PYR	62.1	57.2	55.4
C1-FP	23.6	38.4	38.3
C2-FP	<5	<5	<5
BAA	15.0	13.9	13.3
CHRY	27.3	28.0	27.3
C1-CHRY	26.9	24.8	23.1
C2-CHRY	<5	<5	<5
C3-CHRY	<5	<5	<5
C4-CHRY	<5	<5	<5
BBF	21.9	20.7	19.2
BKF	21.6	19.9	18.8
BEP	34.7	32.7	32.6
BAP	10.8	9.7	8.6
PER	16.1	15.8	13.8
IND	12.9	12.8	11.3
DBAHA	5.4	<5	<5
BGHIP	15.9	15.7	12.8

Table F.7 (cont'd)

PAH abbrev.	NHBC 1N	NHBC 2N	NHBC 2N DUP
Surrogate Recoveries (%)			
NAPH-d ₈	83	81	83
ACE-d ₁₀	72	73	73
PHEN-d ₁₀	90	87	89
FLUOR-d ₁₂	93	91	91
CHRY-d ₁₂	92	91	91
BAP-d ₁₂	91	88	88
BGHIP-d ₁₂	90	97	88
% lipids	7.76	7.21	6.54

Analyte abbreviations are listed in Table F.1.

Table F.8. Tissue concentrations of PAHs in mussels collected from Clark's Cover, ME (MECC).

Site Code	MECC 1N	MECC 2N	MECC 3N	MECC Comp
PAH abbrev.	(ng/g)	(ng/g)	(ng/g)	(ng/g)
NAPH	10.3	15.3	14.9	11.2
C1-NAPH	11.3	15.7	15.8	11.6
C2-NAPH	6.0	8.3	9.2	7.1
C3-NAPH	<5	<5	<5	<5
C4-NAPH	<5	<5	<5	<5
BIP	<5	<5	<5	<5
ACE	<5	<5	<5	<5
ACEY	<5	<5	<5	<5
FLU	<5	<5	<5	<5
C1-FLU	<5	<5	11.8	9.6
C2-FLU	<6	<6	<6	<6
C3-FLU	<5	<5	<5	<5
C4-FLU	<10	<10	<10	<10
DBT	<20	<20	<20	<20
C1-DBT	<6	<6	<6	<6
C2-DBT	<10	13.7	10.1	14.0
C3-DBT	<10	<10	<10	<10
PHEN	9.4	10.3	9.5	9.0
ANTH	<6	<6	<6	<6
C1-PHEN	22.2	24.4	19.9	19.9
C2-PHEN	33.6	52.6	45.9	46.6
C3-PHEN	<8	<8	<8	<8
C4-PHEN	<5	<5	<5	<5
FLUOR	35.0	41.8	31.6	33.6
PYR	36.5	41.7	33.7	34.1
C1-FP	13.9	28.4	26.6	23.6
C2-FP	<5	<5	<5	<5
BAA	11.7	12.2	9.5	10.4
CHRY	19.8	21.8	17.5	18.2
C1-CHRY	17.8	16.7	16.3	14.3
C2-CHRY	<5	<5	<5	<5
C3-CHRY	<5	<5	<5	<5
C4-CHRY	<5	<5	<5	<5
BBF	15.9	15.8	12.5	13.5
BKF	15.8	16.2	12.8	13.7
BEP	21.0	24.6	17.3	19.3
BAP	8.4	9.0	6.6	7.0
PER	10.6	11.8	9.3	10.3
IND	11.4	11.9	9.5	10.3
DBAHA	<5	<5	<5	<5
BGHIP	13.0	14.3	11.0	12.1

Table F.8 (cont'd)

PAH abbrev.	MECC 1N	MECC 2N	MECC 3N	MECC Comp
Surrogate recoveries (%)				
NAPH-d ₈	95	99	89	91
ACE-d ₁₀	83	83	73	76
PHEN-d ₁₀	90	98	86	91
FLUOR-d ₁₂	95	105	92	95
CHRY-d ₁₂	93	104	89	93
BAP-d ₁₂	90	103	85	90
BGHIP-d ₁₂	97	106	93	99
% lipids	5.72	5.45	4.95	5.72

Analyte abbreviations are listed in Table F.1.

Table F9. Tissue concentrations of PCBs in site composite samples collected from Massachusetts and analyzed for Gulfwatch, 207.

Site Code	MASN	MAIH	MAME	MAMH	MAMH DUP
PCB Congener	(ng/g)	(ng/g)	(ng/g)	(ng/g)	(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	<2.4	4.5	3.9	<2.4	<2.4
52	<2	14.7	7.0	2.6	2.7
44	<2.3	7.5	4.8	<2.3	<2.3
66;95	2.3	30.3	12.0	6.7	<2.2
101;90	4.8	67.1	14.0	15.4	14.3
87	<1.9	12.2	3.5	3.3	3.0
77	<2.3	6.0	0.0	0.0	0.0
118	5.2	46.9	9.9	13.6	13.1
153;132	9.5	83.3	14.7	23.3	21.5
105	<1.4	15.9	4.3	4.6	4.1
138	7.5	74.6	14.9	23.7	22.0
126	<1.9	2.7	<1.9	<1.9	<1.9
187	3.0	30.9	6.2	6.5	6.2
128	<1.9	11.1	3.4	4.7	4.2
180	<1.7	9.0	2.5	<1.7	<1.7
169	<1.7	<1.7	<1.7	<1.7	<1.7
170;190	<1.8	3.0	<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 Recoveries (%)					
103	82	110	100	99	88
198	83	87	85	93	82

Congener numbers are according to IUPAC convention. Two congeners on the same line indicates co-elution by GC analysis and is quantified as one peak.

Table F10. Tissue concentrations of PCBs in site composite samples collected from New Hampshire and analyzed for Gulfwatch, 207.

Site Code	NHRH	NHRH	NHLH	NHPI	NHPI DUP
PCB Congener	(ng/g)	(ng/g)	(ng/g)	(ng/g)	(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	<2.4	<2.4	<2.4	<2.4	<2.4
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	2.3	2.7
101;90	<2.2	2.4	<2.2	5.1	5.2
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	4.6	4.7
153;132	3.12	3.3	4.7	8.8	9.2
105	<2.1	<2.1	<2.1	1.6	1.4
138	3.28	3.4	5.1	7.8	8.2
126	<1.9	<1.9	<1.9	<1.9	<1.9
187	<1.9	<1.9	<1.9	3.0	3.4
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 Recoveries (%)					
103	66	76	87	82	89
198	68	79	85	82	90

Congener numbers are according to IUPAC convention. Two congeners on the same line indicates co-elution by GC analysis is quantified as one peak.

Table F11. Tissue concentrations of PCBs in site composite samples collected from Maine and analyzed for Gulfwatch, 207.

Site code	MECC 4N	MEPR	MEPH	MEKN	MESA	MEBB	MEUR	MEUR DUP
PCB Congener	(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	<2.4	<2.4	<2.4	<2.4	<2.4	<2.4	<2.4	<2.4
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	1.1	2.3	6.6	<2.2	<2.2	3.7	<2.2	<2.2
101;90	4.1	4.3	11.5	2.7	3.3	8.2	<2.2	<2.2
87	<1.9	<1.9	2.2	<1.9	<1.9	<1.9	<1.9	<1.9
77	<2.3	5.6	<2.3	<2.3	<2.3	<2.3	<2.3	<2.3
118	3.6	3.1	9.3	0.0	3.1	6.1	<2	<2
153;132	10.9	6.4	17.8	5.1	4.7	10.9	<2.1	<2.1
105	1.7	<1.4	3.5	<1.4	1.8	2.4	<1.4	<1.4
138	7.6	6.1	16.3	4.0	4.6	9.4	<2	<2
126	<1.9	<1.9	2.7	<1.9	<1.9	<1.9	<1.9	<1.9
187	3.8	2.3	9.2	2.3	<1.9	5.6	<1.9	<1.9
128	<1.9	<1.9	3.4	<1.9	<1.9	2.4	<1.9	<1.9
180	<1.7	<1.7	2.5	<1.7	<1.7	<1.7	<1.7	<1.7
169	<1.7	<1.7	0.0	<1.7	<1.7	<1.7	<1.7	<1.7
170;190	<1.8	<1.8	0.0	<1.8	<1.8	<1.8	<1.8	<1.8
195;208	<1.8	<1.8	0.0	<1.8	<1.8	<1.8	<1.8	<1.8
206	<1.7	<1.7	0.0	<1.7	<1.7	<1.7	<1.7	<1.7
209	<1.7	<1.7	0.0	<1.7	<1.7	<1.7	<1.7	<1.7
Surrogate recoveries (%)								
103	89	68	93	89	88	71	86	81
198	92	67	93	85	90	77	86	78

Congener numbers are according to IUPAC convention. Two congeners on the same line indicate co-elution by GC analysis and are quantified as one peak.

Table F12. Tissue concentrations of PCBs in site composite samples collected from New Brunswick and Nova Scotia, and analyzed for Gulfwatch, 2007.

GOM Stations	NBTC	NBNR	NBSC	NSDI	NSSC	NSYR	NSAR	NSAG
PCB Congener	(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	<2.4	<2.4	<2.4	<2.4	<2.4	<2.4	<2.4	<2.4
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	3.5	<2.2	<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	2.1	0.0	<2	<2	<2	<2	<2	<2
153;132	4.6	2.5	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1
105	1.5	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4
138	4.4	2.1	<2	<2	<2	<2	<2	<2
126	<1.9	<1.9	<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	<1.9	<1.9
128	2.2	<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
Surrogate recoveries (%)								
103	72	70	62	65	59	72	72	68
198	73	68	60	87	86	91	79	79

Congener numbers are according to IUPAC convention. Two congeners on the same line indicate co-elution by GC analysis and are quantified as one peak.

Table F.13. Tissue concentrations of chlorinated pesticides in site composite samples collected from Massachusetts and analyzed for Gulfwatch 2007.

Site Code	MASN	MAIH	MAME	MAMH	MAMH DUP
Pesticide	(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	2.16	3.25	3.14	5.16
o,p'-DDE	<1.0	<1.0	<1.0	<1.0	<1.0
a-Endosulfan	<1.5	<1.5	<1.5	<1.5	<1.5
cis-Chlordane	2.94	4.55	3.08	6.40	6.93
t-Nonachlor	2.94	4.92	3.50	5.97	5.14
p,p'_DDE	9.15	15.65	10.18	24.15	21.97
Dieldrin	1.84	2.48	1.90	1.60	<1.4
o,p'-DDD	<4.0	4.24	<4.0	11.89	12.57
Endrin	<2.2	<2.2	<2.2	<2.2	<2.2
b-Endosulfan	<3.4	<3.4	<3.4	<3.4	<3.4
p,p'-DDD	2.79	10.30	3.76	40.19	39.14
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 Recoveries (%)					
γ -Chlordene	66	75	76	78	69
β -BHC	56	42	50	77	80

Table F14. Tissue concentrations of chlorinated pesticides in site composite samples collected from New Hampshire and analyzed for Gulfwatch, 207.

Site Code	NHRH	NHRH	NHLH	NHPI	NHPI DU	NHDP 4N	NHHS 4N	NHHS 4N DUP
Pesticide	(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	1.96	2.35
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
t-Nonachlor	1.57	<1.4	<1.4	<1.4	1.52	0.70	<1.4	<1.4
p,p'_ DDE	3.02	3.12	3.50	4.85	5.13	5.68	3.57	3.82
Dieldrin	<1.4	<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
b-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	3.43	2.15	<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
Surrogate Recoveries (%)								
γ -Chlordene	54	70	71	72	74	68	78	79
β -BHC	66	74	71	75	75	98	91	83

Table F15. Tissue concentrations of chlorinated pesticides in site composite samples collected from Maine and analyzed for Gulfwatch, 207.

Site Code	MECC 4N	MEPR	MEPH	MEKN	MESA	MEBB	MEUR	MEUR DUP
Pesticide	(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	0.0	0.0	2.69	1.83	<1.2	<1.2	<1.2	<1.2
t-Nonachlor	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4
p,p'_DDE	4.19	6.45	11.70	3.13	2.82	5.65	1.82	1.82
Dieldrin	<1.4	0.0	0.0	<1.4	<1.4	1.83	<1.4	<1.4
o,p'-DDD	<4.0	4.13	<4.0	<4.0	<4.0	8.59	<4.0	<4.0
Endrin	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2
b-Endosulfan	<3.4	<3.4	<3.4	<3.4	<3.4	<3.4	<3.4	<3.4
p,p'-DDD	<2	7.85	8.22	<2	<2	21.88	<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
Surrogate Recoveries (%)								
γ -Chlordene	75	61	71	69	69	70	62	67
β -BHC	64	95	66	85	59	79	73	78

Table F16. Tissue concentrations of chlorinated pesticides in site composite samples collected from New Brunswick and Nova Scotia and analyzed for Gulfwatch, 207.

Site Code	NBTC	NBNR	NBSC	NSDI	NSSC	NSYR	NSAR	NSAG
Pesticide	(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
t-Nonachlor	<1.4	<1.4	<1.4	1.46	1.61	<1.4	<1.4	<1.4
p,p'_ DDE	8.99	3.38	2.90	<1.8	2.14	2.07	<1.8	<1.8
Dieldrin	<1.4	<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
b-Endosulfan	<3.4	<3.4	<3.4	<3.4	<3.4	<3.4	<3.4	<3.4
p,p'-DDD	5.16	<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
Surrogate Recoveries (%)								
γ -Chlordene	82	91	66	72	73	67	65	58
β -BHC	95	91	70	73	70	75	70	79

Table F.17. Tissue concentrations of PCBs in mussels collected from Dover Point, NH in 2007.

Site replicate	NHDP 1N	NHDP 2N	NHDP 3N	NHDP 4N
PCB Congener	(ng/g)	(ng/g)	(ng/g)	(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	<2.4	<2.4	<2.4	<2.4
52	<2	<2	<2	<2
44	<2.3	<2.3	<2.3	<2.3
66;95	<2.2	<2.2	3.1	<2.2
101;90	4.25	5.6	5.4	6.04
87	<1.9	<1.9	<1.9	<1.9
77	<2.3	<2.3	<2.3	<2.3
118	3.98	5.1	4.8	5.34
153;132	6.15	9.3	9.1	8.95
105	<1.4	1.4	1.4	1.41
138	5.71	8.8	9.2	8.49
126	<1.9	<1.9	<1.9	<1.9
187	2.26	3.4	3.8	3.61
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 Recoveries (%)				
103	63	76	83	74
198	58	73	85	75

Congener numbers are according to IUPAC convention. Two congeners on the same line indicate co-elution by GC analysis and are quantified as one peak.

Table F.18. Tissue concentrations of PCBs in mussels collected from Hampton/Seabrook Harbor, NH (NHDP).

Site replicate	NHHS 1N	NHHS 2N	NHHS 3N	NHHS 4N
PCB Congener	(ng/g)	(ng/g)	(ng/g)	(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	<2.4	<2.4	<2.4	<2.4
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	<2.2	<2.2	<2.2	<2.2
87	<1.9	<1.9	<1.9	<1.9
77	<2.3	<2.3	<2.3	<2.3
118	<2	<2	<2	<2
153;132	2.49	2.72	3.15	3.30
105	<1.4	<1.4	<1.4	<1.4
138	2.48	2.55	3.20	3.01
126	<1.9	<1.9	<1.9	<1.9
187	<1.9	<1.9	<1.9	<1.9
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 Recoveries (%)				
103	76	86	84	86
198	79	84	87	88

Congener numbers are according to IUPAC convention. Two congeners on the same line indicates co-elution by GC analysis and is quantified as one peak.

Table F.19. Tissue concentrations of PCBs in mussels collected from Broad Cove, NH (NHBC)

Site replicate	NHBC 1N	NHBC 2N	NHBC 2N DUP
PCB Congener	(ng/g)	(ng/g)	(ng/g)
8;5	<2.8	<2.8	<2.8
18;15	<2.7	<2.7	<2.7
29	<2.2	<2.2	<2.2
50	<2.4	<2.4	<2.4
28	<2.4	<2.4	<2.4
52	<2	<2	<2
44	<2.3	<2.3	<2.3
66;95	<2.2	2.8	3.0
101;90	6.7	5.8	6.1
87	<1.9	<1.9	<1.9
77	<2.3	<2.3	<2.3
118	6.9	5.2	5.3
153;132	13.4	9.3	9.6
105	1.7	<1.4	1.4
138	11.2	8.0	8.3
126	<1.9	<1.9	<1.9
187	5.2	3.9	4.2
128	2.1	<1.9	<1.9
180	<1.7	<1.7	<1.7
169	<1.7	<1.7	<1.7
170;190	<1.8	<1.8	<1.8
195;208	<1.8	<1.8	<1.8
206	<1.7	<1.7	<1.7
209	<1.7	<1.7	<1.7
Surrogate Recoveries (%)			
103	86	76	83
198	89	80	87

Congener numbers are according to IUPAC convention. Two congeners on the same line indicate co-elution by GC analysis and are quantified as one peak.

Table F.20. Tissue concentrations of PCBs in mussels collected from Clark's Cove ME (MECC).

Site replicate	MECC 1N	MECC 2N	MECC 3N	MECC 4N
PCB Congener	(ng/g)	(ng/g)	(ng/g)	(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	<2.4	<2.4	<2.4	<2.4
52	<2	<2	<2	<2
44	<2.3	<2.3	<2.3	<2.3
66;95	2.4	2.3	1.1	1.1
101;90	4.6	4.5	4.2	4.1
87	<1.9	<1.9	<1.9	<1.9
77	<2.3	<2.3	<2.3	<2.3
118	4.3	4.3	3.7	3.6
153;132	9.8	9.4	8.4	10.9
105	0.7	1.7	1.5	1.7
138	8.7	8.4	7.2	7.6
126	<1.9	<1.9	<1.9	<1.9
187	4.1	4.2	3.6	3.8
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 Recoveries (%)				
103	91	89	85	89
198	94	96	88	92

Congener numbers are according to IUPAC convention. Two congeners on the same line indicate co-elution by GC analysis and are quantified as one peak.

Table F.21. Tissue concentrations of chlorinated pesticides in mussels collected from Dover Point, NH (NHDP).

Site Replicate	NHDP 1N	NHDP 2N	NHDP 3N	NHDP 4N
Pesticide	(ng/g)	(ng/g)	(ng/g)	(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
a-Endosulfan	<1.5	<1.5	<1.5	<1.5
cis-Chlordane	<1.2	<1.2	<1.2	<1.2
t-Nonachlor	0.70	1.46	1.42	0.70
p,p'-DDE	4.49	5.60	5.20	5.68
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
b-Endosulfan	<3.4	<3.4	<3.4	<3.4
p,p'-DDD	4.17	3.81	3.16	3.43
o,p'-DDT	<2.8	<2.8	<2.8	<2.8
p,p'-DDT	2.84	<2.5	<2.5	<2.5
Metoxychlor	3.17	<3.1	<3.1	<3.1
Mirex	<1.5	<1.5	<1.5	<1.5
Surrogate Recoveries (%)				
γ -Chlordene	70	69	68	68
β -BHC	80	77	91	98

Table F.22. Tissue concentrations of chlorinated pesticides in mussels collected from Hampton/Seabrook Harbor, NH (NHHS)

Site replicate	NHHS 1N	NHHS 2N	NHHS 3N	NHHS 4N
Pesticide	(ng/g)	(ng/g)	(ng/g)	(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	1.81	2.26	1.93	1.96
o,p'-DDE	<1.0	<1.0	<1.0	<1.0
a-Endosulfan	<1.5	<1.5	<1.5	<1.5
cis-Chlordane	<1.2	<1.2	<1.2	<1.2
t-Nonachlor	<1.4	<1.4	<1.4	<1.4
p,p'_DDE	2.93	2.95	3.57	3.57
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
b-Endosulfan	<3.4	<3.4	<3.4	<3.4
p,p'-DDD	<2	<2	2.11	2.15
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 Recoveries (%)				
γ -Chlordene	70	63	83	78
β -BHC	89	86	80	91

Table F.23. Tissue concentrations of chlorinated pesticides in mussels collected from Broad Cove, NH (NHBC)

Site Replicate	NHBC 1N	NHBC 2N	NHBC 2N DUP
Pesticide	(ng/g)	(ng/g)	(ng/g)
α _BHC	<2.0	<2.0	<2.0
HCB	<2.4	<2.4	<2.4
γ -HCH(Lindane)	<1.5	<1.5	<1.5
Heptachlor	<2	<2	<2
Aldrin	<1.5	<1.5	<1.5
Heptachlor Epoxide	<1.8	<1.8	<1.8
γ -Chlordane	1.54	0.00	<1.5
o,p'-DDE	<1.0	<1.0	<1.0
a-Endosulfan	<1.5	<1.5	<1.5
cis-Chlordane	<1.2	<1.2	<1.2
t-Nonachlor	<1.4	<1.4	<1.4
p,p'_DDE	8.52	6.50	6.80
Dieldrin	<1.4	<1.4	<1.4
o,p'-DDD	<4.0	<4.0	<4.0
Endrin	<2.2	<2.2	<2.2
b-Endosulfan	<3.4	<3.4	<3.4
p,p'-DDD	4.14	3.43	3.30
o,p'-DDT	<2.8	<2.8	<2.8
p,p'-DDT	<2.5	<2.5	<2.5
Metoxychlor	4.92	0.00	<3.1
Mirex	<1.5	<1.5	<1.5
Surrogate Recoveries (%)			
Surrogates			
γ -Chlordene	76	69	77
β -BHC	68	73	80

Table F.24. Tissue concentrations of chlorinated pesticides in mussels collected from Clark's Cove, ME (MECC).

Site replicate	MECC 1N	MECC 2N	MECC 3N	MECC 4N
Pesticide	(ng/g)	(ng/g)	(ng/g)	(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
a-Endosulfan	<1.5	<1.5	<1.5	<1.5
cis-Chlordane	<1.2	<1.2	<1.2	<1.2
t-Nonachlor	<1.4	<1.4	<1.4	<1.4
p,p'_ DDE	4.26	4.15	4.09	4.19
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
b-Endosulfan	<3.4	<3.4	<3.4	<3.4
p,p'-DDD	<2	<2	<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 recoveries (%)				
Surrogates				
γ -Chlordene	81	75	75	75
β -BHC	65	74	62	64

Table F.25. Tissue concentrations of PAH target analytes in softshell clams and oysters (station NHNI) from site replicates collected in New Hampshire, during the 2007 Gulfwatch Program.

Site replicate	NHBC 1N	NHBC 2N	NHMG 1N	NHMG 2N*	NHLB 1N	NHLB 2N	NHYC 1N	NHYC 2N	NHNI 1N	NHNI 2N
PAH abbrev.	(ng/g)	(ng/g)	(ng/g)	(ng/g)	(ng/g)	(ng/g)	(ng/g)	(ng/g)	(ng/g)	(ng/g)
NAP	<10	10.1	13.7	<10	<10	<10	<10	14.6	<10	<10
C1-NAP	<10	<10	13.1	<10	<10	<10	<10	13.2	<10	<10
C2-NAP	5.3	5.2	<5	<5	<5	<5	<5	<5	<5	<5
C3-NAP	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
C4-NAP	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
BIP	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
ACE	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
ACEY	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
FLU	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
C1-FLU	8.0	7.3	<5	<5	<5	<5	<5	<5	<5	6.4
C2-FLU	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6
C3-FLU	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
C4-FLU	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
DBT	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
C1-DBT	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6
C2-DBT	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
C3-DBT	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
PHEN	9.3	8.8	<6	6.7	7.0	7.2	6.2	<6	<6	<6
ANTH	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6
C1-PHEN	23.2	18.8	6.0	8.6	16.8	18.2	10.4	7.8	14.9	13.4
C2-PHEN	36.4	34.2	13.8	14.6	32.8	35.4	22.8	14.4	24.6	21.3
C3-PHEN	<8	<8	<8	<8	<8	<8	<8	<8	<8	<8
C4-PHEN	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
FLU	39.4	39.7	9.3	11.3	45.4	46.6	13.8	10.9	31.2	31.3
PYR	39.0	41.7	6.5	9.2	61.7	65.6	12.2	8.8	19.0	18.3
C1-FP	30.9	29.6	<5	<5	<5	<5	<5	<5	22.5	22.5
C2-FP	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
BAA	14.9	14.2	<5	<5	14.3	15.1	<5	<5	7.6	7.2
CHRY	23.8	24.9	<6	<6	26.0	26.9	8.5	6.5	26.7	27.1
C1-CHRY	21.8	19.4	<5	<5	18.1	20.5	7.2	<5	13.9	14.1
C2-CHRY	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
C3-CHRY	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
C4-CHRY	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
BBF	13.8	14.4	<5	<5	13.1	13.7	5.2	<5	15.4	15.3
BKF	17.3	16.6	<4	<4	15.6	16.8	5.6	<4	6.5	5.4
BEP	30.3	33.5	<5	<5	35.0	33.3	8.2	6.2	13.9	14.3
BAP	11.7	11.8	<5	<5	8.8	10.6	<5	<5	<5	<5
PER	12.2	14.3	<5	<5	12.2	12.0	<5	<5	7.4	7.1
IND	13.2	14.5	<5	6.2	11.0	11.7	6.4	<5	5.4	5.0
DBAHA	5.3	5.4	<5	5.1	<5	<5	<5	<5	<5	<5
BGHIP	25.7	31.1	5.5	6.6	26.6	26.1	8.1	6.7	5.8	5.5

Table F.25 (cont'd)

	NHBC 1N	NHBC 2N	NHMG 1N	NHMG 2N*	NHLB 1N	NHLB 2N	NHYC 1N	NHYC 2N	NHNI 1N	NHNI 2N
Surrogate recoveries (%)										
NAPH-d ₈	79	85	75	72	82	81	85	83	93	86
ACE-d ₁₀	66	70	67	64	72	67	68	69	77	76
PHEN-d ₁₀	82	87	80	76	87	83	83	82	90	87
FLUO-d ₁₀	90	94	87	76	96	83	90	89	92	92
CHRY-d ₁₂	89	92	84	69	93	87	87	88	90	91
BAP-d ₁₂	86	89	79	69	91	84	84	83	87	84
BGHIP-d ₁₂	90	94	88	79	88	85	86	86	103	101
lipids	3.02	4.13	3.81	4.08	3.50	3.49	3.91	3.20	7.77	8.91

*Sample was re-extracted due to low initial surrogate recoveries.

Analyte abbreviations are listed in Table F.1.

Table F.26. Tissue concentrations of PCB congeners in softshell clams and oysters (Station NHNI only) from site replicates collected in New Hampshire during the Gulfwatch 2007 Monitoring Program.

Site replicate	NHBC 1N	NHBC 2N	NHMG 1N	NHMG 2N*	NHLB 1N	NHLB 2N	NHYC 1N	NHYC 2N	NHNI 1N	NHNI 2N
Congeners	(ng/g)	(ng/g)	(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	<2.8	<2.8
18;15	<2.7	<2.7	<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	<2.2	<2.2
50	<2.4	<2.4	<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	<2.3	<2.3
52	<2	<2	<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	<2.3	<2.3
66;95	<2.2	<2.2	3.7	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2
101;90	<2.2	<2.2	8.0	9.2	<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	<1.9	<1.9
77	<2.3	<2.3	<2.3	<2.3	<2.3	<2.3	<2.3	<2.3	<2.3	<2.3
118	<2	<2	8.2	8.9	<2	<2	<2	<2	<2	<2
153;132	<2.1	<2.1	14.3	16.4	<2.1	<2.1	<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	<1.4	<1.4
138	<2	<2	8.2	10.1	<2	<2	<2	<2	<2	<2
126	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9
187	<1.9	<1.9	7.1	8.3	<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	<1.9	<1.9
180	<1.7	<1.7	<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	<1.7	<1.7
170;190	<1.8	<1.8	<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	<1.8	<1.8
206	<1.7	<1.7	<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	<1.7	<1.7
Surrogate recoveries (%)										
103	78	80	82	80	82	64	81	70	80	77
198	87	92	76	84	89	66	88	85	85	82

*Sample was re-extracted due to low initial surrogate recoveries.

Congener numbers are according to IUPAC convention. Two congeners on the same line indicate co-elution by GC analysis and are quantified as one peak.

Table F.27. Tissue concentrations of chlorinated pesticides in softshell clams and oysters (Station NHNI only) from site replicates collected in New Hampshire during the Gulfwatch 2007 Monitoring Program.

Site replicate	NHBC 1N	NHBC 2N	NHNI 1N	NHNI 2N	NHMG 1N	NHMG 2N*	NHLB 1N	NHLB 2N	NHYC 1N	NHYC 2N
Pesticide	(ng/g)	(ng/g)	(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	<2.0	<2.0
HCB	<2.4	<2.4	<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	<1.5	<1.5
Heptachlor	<2	<2	<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	<1.5	<1.5
Heptachlor Epoxide	<1.8	<1.8	<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	<1.5	<1.5
o,p'-DDE	<1.0	<1.0	<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	<1.5	<1.5
cis-Chlordane	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2
t-Nonachlor	<1.4	<1.4	2.11	1.98	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4
p,p'_DDE	<1.8	<1.8	16.11	16.69	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8
Dieldrin	<1.4	<1.4	<1.4	<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	<4.0	<4.0
Endrin	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2
b-Endosulfan	<3.4	<3.4	<3.4	<3.4	<3.4	<3.4	<3.4	<3.4	<3.4	<3.4
p,p'-DDD	<2	<2	4.10	4.46	<2	<2	<2	<2	<2	2.12
o,p'-DDT	<2.8	<2.8	<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	<2.5	<2.5
Metoxychlor	<3.1	<3.1	<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	<1.5	<1.5
Surrogate recoveries (%)										
γ -Chlordene	72	73	72	73	74	58	73	68	73	72
β -BHC	84	89	74	92	87	63	93	76	79	79

*Sample was re-extracted due to low initial surrogate recoveries.