Monitoring Report for Seafood Harvested in 2018 from the New Bedford Harbor Superfund Site

by

Massachusetts Department of Environmental Protection

and

Massachusetts Division of Marine Fisheries

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APPENDICIES

1. Introduction

This report documents the levels of PCBs (polychlorinated biphenyls) measured in edible seafood species caught in New Bedford Harbor and surrounding Buzzards Bay in southeastern Massachusetts in 2018. This seafood monitoring program is part of the ongoing PCB cleanup program for the New Bedford Harbor (NBH) Superfund Site, and was a collaborative effort involving the MA Department of Marine Fisheries (DMF), the MA Department of Environmental Protection, (MassDEP), and the U.S. Environmental Protection Agency Region I (EPA).

Due to the identification of high PCB levels in area seafood, the MA Department of Public Health in 1979 promulgated regulations restricting seafood consumption in three closure areas in and around NBH as shown on Figure 1 (MADPH, 1979). NBH was subsequently listed as a Superfund site in 1983. Per the 1998 Record of Decision (ROD) (EPA, 1998) for the Site, as modified by six Explanation of Significant Differences (ESDs), approximately 900,000 cubic yards (cy) of PCB-contaminated sediments are to be removed. Based on the 2013 supplemental Consent Decree settlement, the cleanup is estimated to take another five to complete. Consistent with the 1998 ROD, this seafood monitoring program will aid in the evaluation of the overall effectiveness of the harbor cleanup, as well as assist in the implementation of institutional controls and seafood restrictions.

2. Seafood Monitoring Program Design

Based on previous investigations and risk assessments performed for the NBH Site, a variety of species were selected for this monitoring program that are considered locally caught seafood; are generally available for field collection; and which bracket potential worse case tissue levels **(**MassDEP, 2018**)**. In previous sampling rounds, these species include lobster (*Homarus americanus*), blue crabs (*Carcinus maenas*), quahog (i.e., hard shelled clam, *Mercenaria mercenaria*), alewife (*Alosa pseudoharengus*), American eel (*Anguilla rostrata*), black sea bass (*Centropristes striatus*), winter flounder (*Pseudopleuronectes americanus*), and scup (*Stenotomus chrysops).* The goal of this seafood monitoring program is to acquire annual collections of these species in sufficient numbers from all three closure areas to enable statistical comparisons between them, but with the understanding that some species may not necessarily be caught in sufficient numbers every year.

To meet this goal, the monitoring design calls for five composite samples for each species from each of the three closure areas. Based on previous site sampling experience, modifications have been made to the original sampling approach. The species collected for 2018 were pre-spawn quahog and conch.

Each composite sample consists of legally harvestable organisms. The quahog composited sample generally consists of 12 to 15 organisms per location. The conch composited sample consists of 11 to 12 organisms per location.

In addition to comparing the results of this monitoring to past and future seafood

monitoring results, the results of this seafood monitoring program will be compared to the current U.S. Food and Drug Administration's (FDA's) criteria for PCBs in commercial seafood of 2 parts per million (ppm). It was exceedances of the FDA criteria in NBH seafood which prompted promulgation of the state's seafood closure areas in 1979 (the FDA criteria at that time was 5 ppm). In addition to comparisons to the current FDA level, and as explained in the 1998 ROD, EPA will compare the results of the seafood monitoring program to a risk-based site-specific threshold of 0.02 ppm PCBs. Consistent with CERCLA and the NCP, the selected remedy for the Site (EPA, 1998, Section X) uses a health-based seafood criteria of 0.02 ppm PCBs based on local patterns of seafood consumption which involve more frequent consumption of local PCB-contaminated seafood than that used by the FDA standard.

3. 2017 Field Collection

The DMF on-site field sampling program included the collection of quahog and conch. The Sampling Report for species collected in 2018 by DMF is in Appendix C (MA DMF, 2019).

The quahogs were collected pre-spawn in May and early June (Figure 2) using a rake and diver. The conchs were collected in October (Figure 3) using conch pots.

Complete collection information including the dates collected, identification information, species, station identification, latitude and longitude, and collection method are included on the Field Collection Forms in Appendix C. All samples were delivered frozen to Alpha Woods Hole Labs (Alpha) in Mansfield, MA for analysis.

4. Analytical Chemistry

The seafood samples were analyzed for 148 PCB congeners by GC/MS-SIM (gas chromatography/mass spectrometry-selective ion monitoring) based on EPA Methods 680 and 8270D. In previous sampling rounds starting in 2003 to 2016, 136 PCB congeners had been analyzed. The additional twelve PCB congeners did not significantly add to the total concentrations (see Appendix D), thus allowing comparisons with previous site data. The 148 congeners measured included the eighteen NOAA (National Oceanic and Atmospheric Administration) list congeners and the twelve WHO '98 (1998 World Health Organization) list of dioxin-like congeners. Two congeners, BZ #105 and #118, appear on both lists. The NOAA congener list was used by the MA DMF in its analysis of Area III lobsters from 1988 - 1998, while Aroclors had been used previous to this. The NOAA list typically represents approximately 45% of the total PCB in marine tissue (NOAA, 1993).

The congeners quantitated in this effort are listed in the New Bedford Harbor Superfund Site Quality Assurance Project Plan Revision 13 **(**MassDEP, 2017**).** The WHO '98 congeners were included to enable the evaluation of risks to human health due to the presence of any dioxin-like PCB congeners, if deemed necessary.

Tissue from the collected specimens was filleted, sub-sampled and/or composited as necessary for sample homogenization, extraction and analysis. The first step in the analytical process for the quahog samples was the compositing of thirteen individual samples from each location; these were combined to form one composite sample per location. For each group, approximately five grams of wet sample tissue was homogenized using a tissumizer. Samples were then extracted using EPA method 3570 Microscale Solvent Extraction (MSE) techniques (spin extraction with acetone/methylene chloride in a sealed vessel).

The extract was then cleaned up to remove the lipid portion and separate the PCB Analytes from the lipid. Following sample cleanup, extracts were dried and concentrated using the Kuderna-Danish (K-D) method, brought up to final volume and analyzed. Extract cleanup was performed using Alumina Column Cleanup. Gel Permeation Chromatography (GPC), Sulfuric Acid Cleanup, and/or Silica Gel Cleanup are also employed as appropriate, based on the sample extracts.

Sample analysis using GC/MS-SIM allowed identification and quantitation of congeners using selected PCB congeners from BZ1 to BZ209. The identification of the specific congeners was accomplished by comparing their mass spectra with the electron impact spectra of the calibration standards. Congener concentrations were determined using mean relative response factors from a multi-level calibration curve. Response factors for congeners were determined relative to internal standard technique. A multi-point curve was used for the individual congeners to demonstrate the linear range of the instrument. Continuing calibrations assured linearity remained for the duration of the analysis. Laboratory SOPs are available in the Quality Assurance Project Plan Revision 13 (MassDEP, 2017) should further details on chromatographic conditions, quality control criteria, and other elements of the analysis be needed. While lipid content was reported, the wet weight PCB concentrations reported herein are not lipid normalized.

The data validation summary for the laboratory analysis is presented in Appendix B (AMEC, 2019).

5. Results and Discussion

As with previous studies of sediments, water column, seafood, and air at the NBH Site, the current data set demonstrates a generally decreasing trend (north to south) of PCB levels in locally caught seafood. In other words, tissue PCB levels decrease proportionally with the distance from the primary source of PCBs to the upper harbor (the Aerovox facility). Figures 4 and 5 graphically summarize the current data, and Tables 1 and 2 tabulates the totals and averages of the congener sample results.

PCBs are a group of similar organic molecules featuring a “figure-eight” structure of two bonded benzene rings with chlorine atoms attached at up to ten different attachment sites. Theoretically, up to 209 different PCB congeners (or molecular variations) are possible, yet only about 120 of these are found in the natural environment. Furthermore, NOAA has demonstrated that 18 specific congeners are the most pervasive and generally make up almost half of the PCB mass in marine tissues. In addition, WHO considers the

twelve specific dioxin-like congeners to present the greatest risk to human health. As noted above in Section 4, two congeners, BZ #105 and BZ #118, are included in both the NOAA and the WHO congener sets.

Overall, the current data set indicate continued levels of PCBs in NBH area seafood above the 1998 ROD's site-specific target level of 0.02 ppm. There were no conch or quahog samples above the FDA level of 2 ppm.

It should be noted that these PCB levels do not apply to seafood caught by the harbor's commercial fishing fleet (except for quahog and conch collected commercially in Areas 2 and 3) as this seafood is caught significantly further offshore than the three PCB closure areas at the New Bedford Harbor Superfund Site. However, these results do indicate the need to continue the outreach program to inform and educate the local communities and recreational sport fishermen about the fishing bans.

The seafood sampling program has been on-going since 2002, the previous year's reports can be found at the EPA's web site at www.epa.gov/new-bedford-harbor under "Technical Documents".

6. References

AMEC, 2018. Data Validation Summary, MassDEP, NBH Superfund Site, Seafood Contaminant Survey Monitoring 2018 Sampling, February 18, 2019

EPA, 1998. Record of Decision for the Upper and Lower Harbor Operable Unit, New Bedford Harbor Superfund Site, New Bedford, Massachusetts. U.S. EPA - Region I New England. September 1998.

MADPH, 1979. Massachusetts Department of Public Health Regulations 105 CMR 260.000. 1979

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MassDEP, 2017. Quality Assurance Project Plan Revision 13, New Bedford Harbor Superfund Site, New Bedford, Massachusetts. Massachusetts Department of Environmental Protection. November 2017.

MADMF, 2019. Seafood Monitoring - Field Sampling Activities for the New Bedford Harbor Superfund Site 2018 Annual Report, Vin Malkoski, Senior Marine Fisheries Biologist, Massachusetts Division of Marine Fisheries, February 2019

NOAA, 1993. NOAA Technical Memorandum NOA ORCA 71. National Status and Trends Program for Marine Environmental Quality. Sampling and Analytical Methods of the National Status and Trends Program National Benthic Surveillance and Mussel Watch Projects, 1984-1992. Volume 1. Silver Springs, Maryland. July 1993

FIGURES

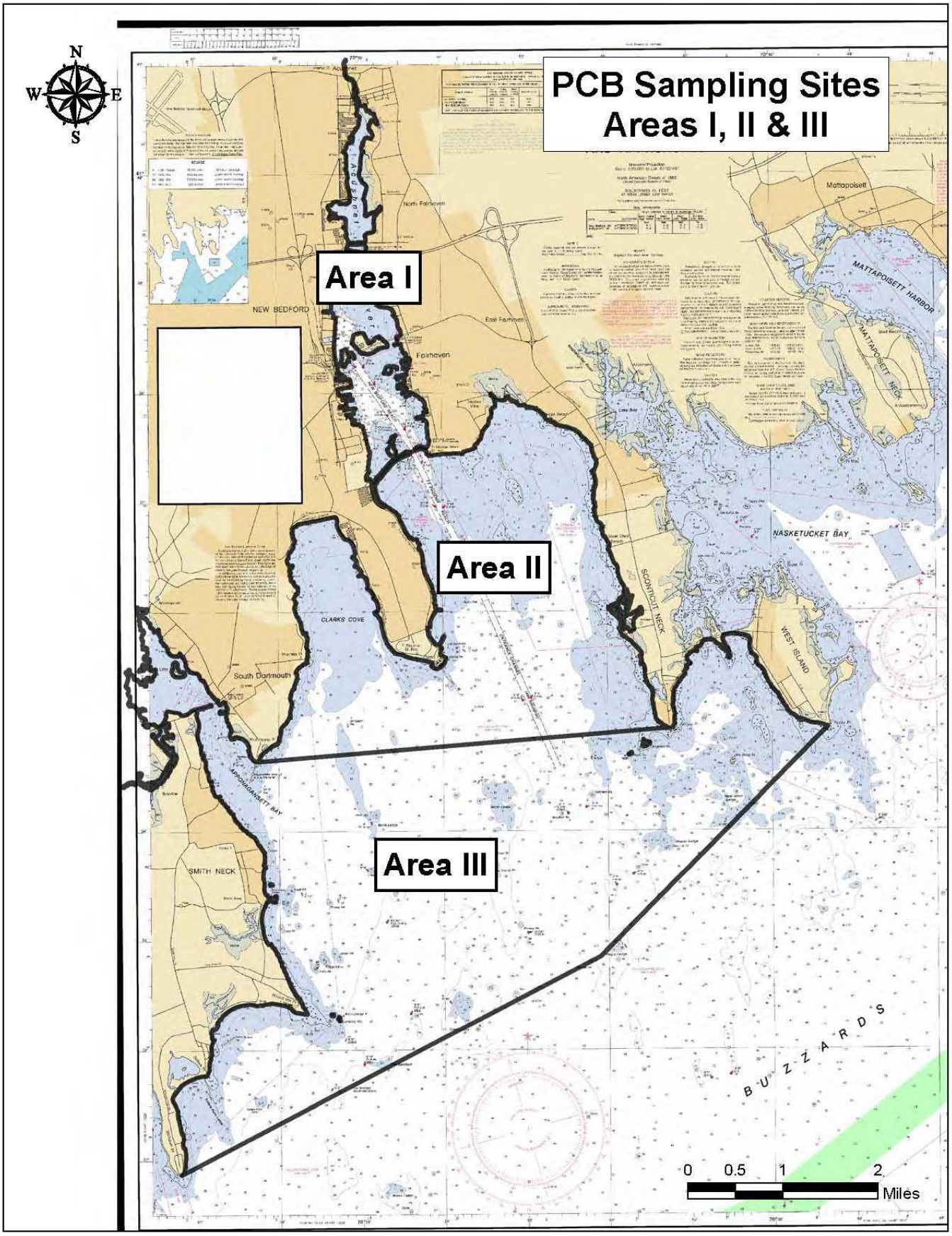

Figure 1 Fish Closure Areas I to III

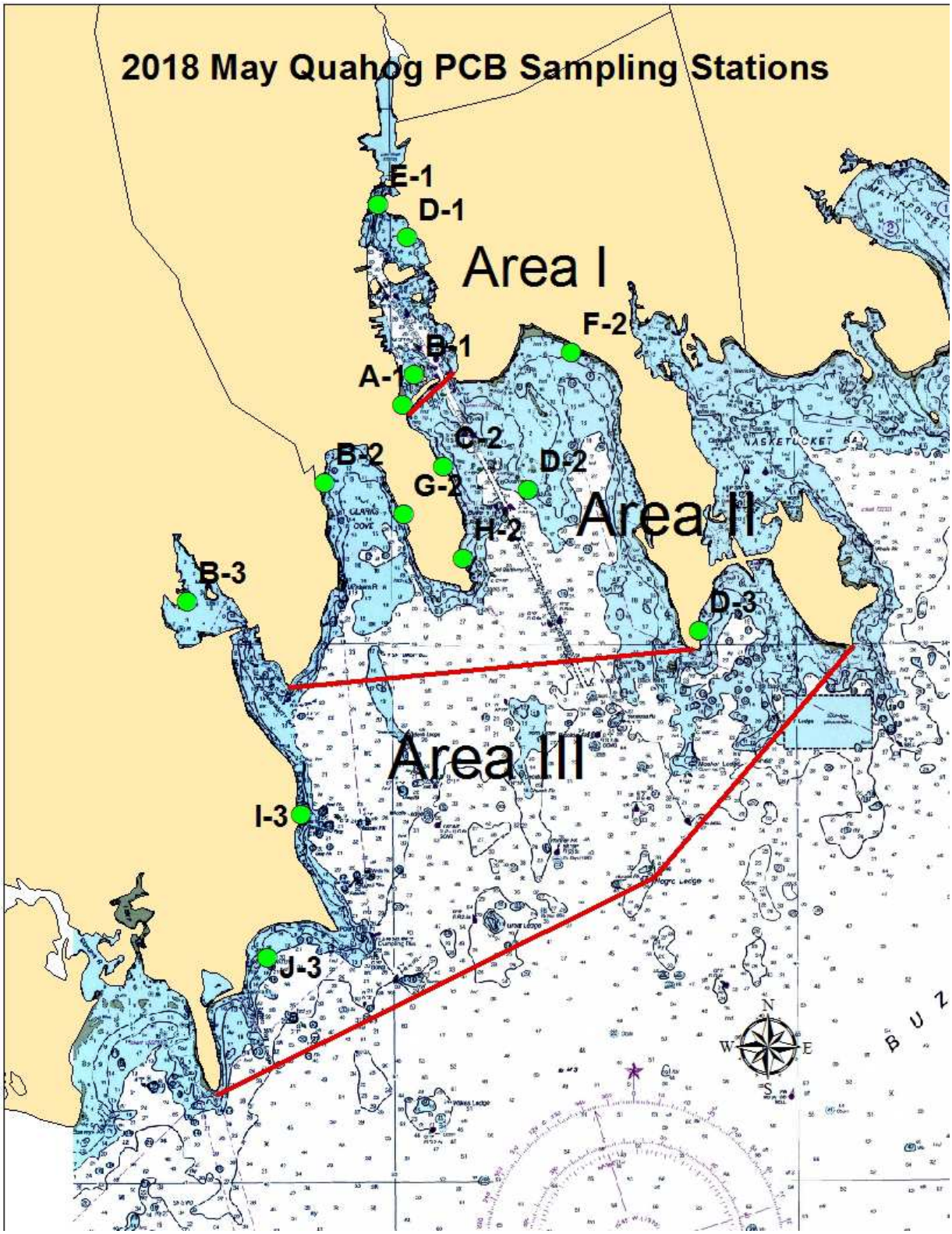

Figure 2 Quahog (Pre-spawn) Sample Locations Areas I to III

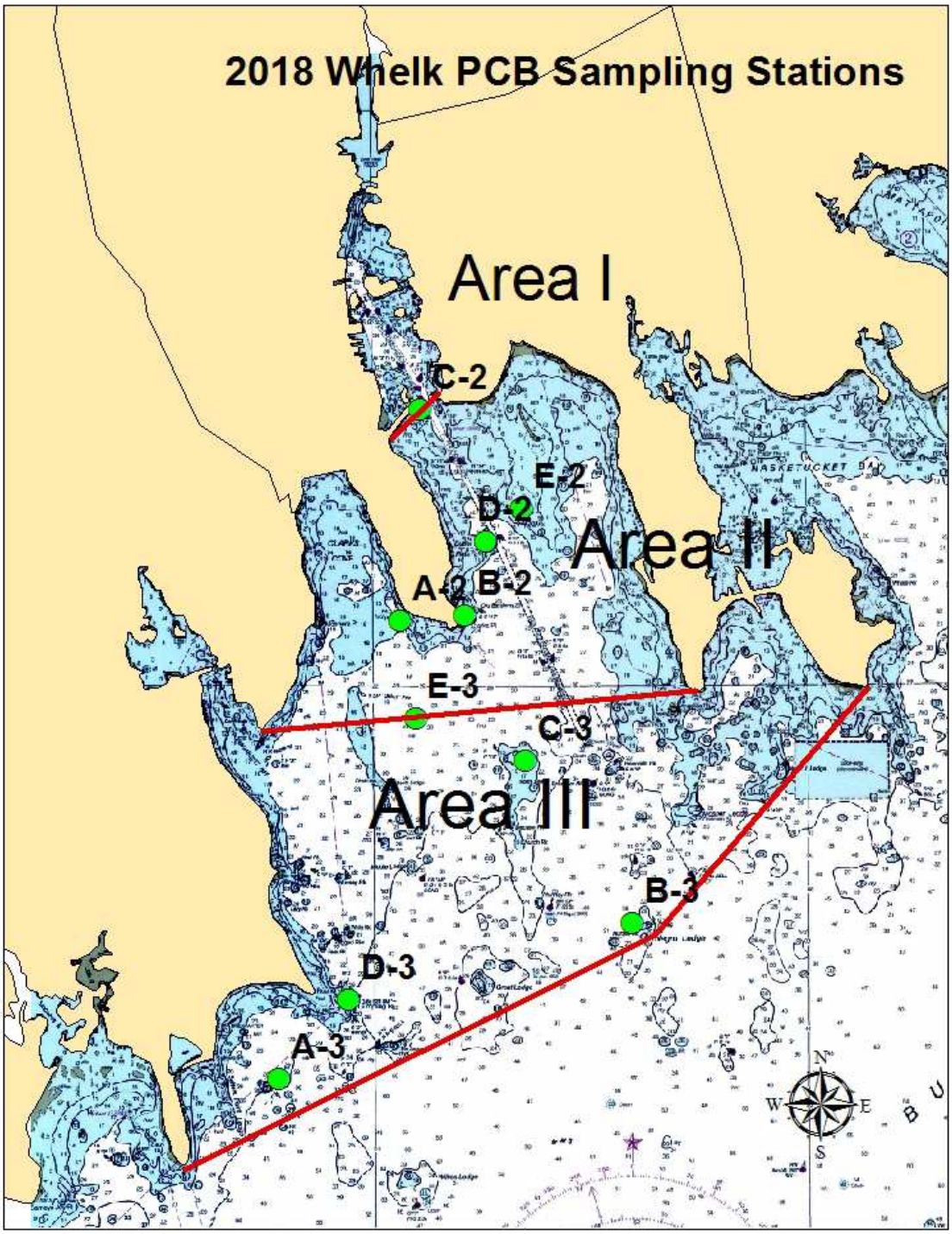

Figure 3 Conch Sample Locations Areas II and III

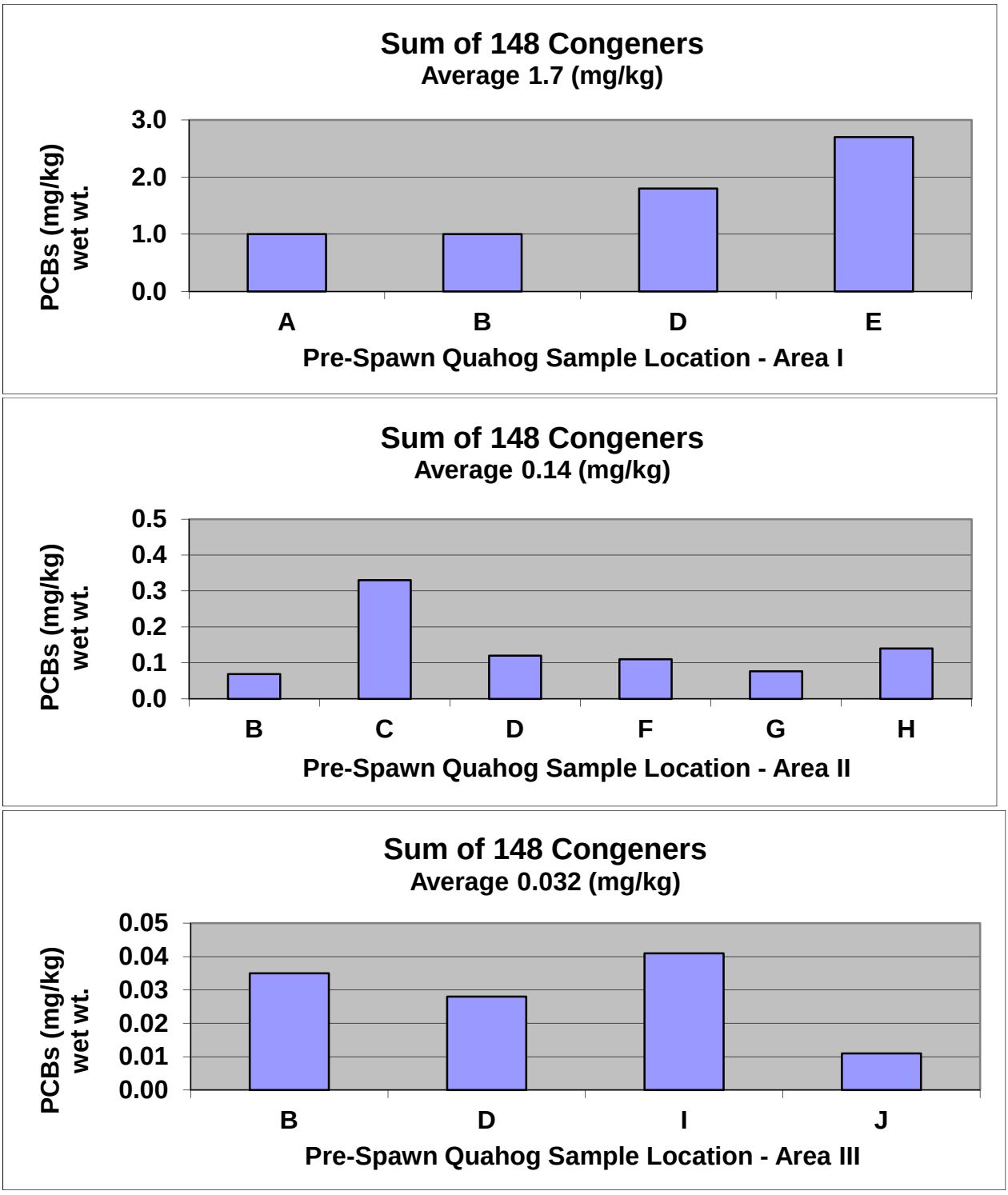

Figure 4 PCBs Concentrations in Pre-Spawn Quahog Areas I to III - 2018

Note: The PCBs concentrations are the detected values as reported on Column 4 of Table 1, and do not included the ½ detection limits.

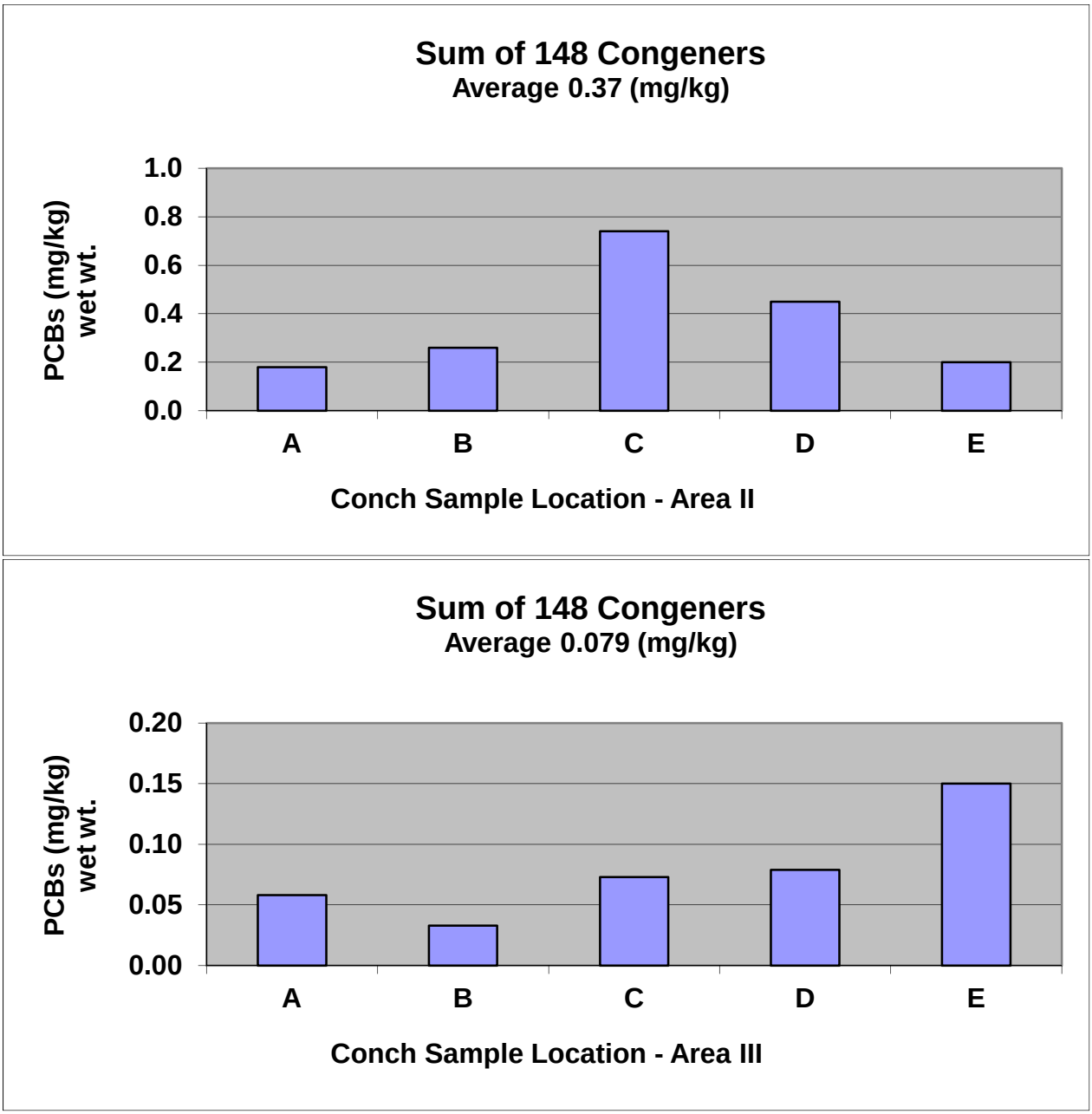

Figure 5 PCBs Concentrations in Conch Areas II and III - 2017

Note: The PCBs concentrations are the detected values as reported on Column 4 of Table 2, and do not included the ½ detection limits.

TABLES

Table 1 Summary of Sample Data for Pre-Spawn Quahogs Areas 1, 2, and 3 - 2018

Parameter	Lipids	Total PCB Congeners[1]	Total PCB Congeners Hits[2]	Total NOAA Congeners[3]	Total WHO Congeners[4]	Total WHO+NOAA Congeners[5]
	PERCENT	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG
Station						
1A	0.53	1.0 J4	1.0	0.36 J4	0.046 J3	0.37 J4
1B	0.33	1.1 J4	1.0	0.36 J4	0.047 J3	0.37 J4
1D	0.44	1.8 J4	1.8	0.68 J4	0.11 J4	0.70 J4
1E	0.36	2.7 J4	2.7	0.95 J4	0.13 J4	0.98 J4
Average	0.42	1.7 J4	1.7	0.59 J4	0.084 J4	0.61 J4
2B	0.29	0.083 J2	0.069	0.028 J3	0.0067 J2	0.031 J3
2C	0.31	0.33 J3	0.33	0.12 J4	0.018 J3	0.12 J3
2D	0.35	0.14 J3	0.12	0.046 J3	0.0077 J2	0.049 J3
2F	0.32	0.13 J3	0.11	0.042 J3	0.0071 J2	0.044 J3
2G	0.40	0.091 J2	0.077	0.031 J3	0.0074 J2	0.034 J3
2H	0.37	0.15 J3	0.14	0.052 J3	0.0093 J3	0.055 J3
Average	0.34	0.15 J3	0.14	0.052 J3	0.0096 J3	0.056 J3
3B	0.44	0.055 J2	0.035	0.016 J3	0.0047 J2	0.018 J2
3D	0.35	0.047 J2	0.028	0.013 J3	0.0036 J1	0.015 J2
3I	0.39	0.060 J2	0.041	0.018 J3	0.0050 J2	0.021 J2
3J	0.28	0.034 J1	0.011	0.0067 J2	0.0029 J1	0.0088 J2
Average	0.36	0.051 J2	0.032	0.014 J3	0.0042 J2	0.016 J2

Prepared by: BCG 9/7/18
Checked by: JAR 9/10/18

Table 2 Summary of Sample Data for Conchs Areas 2 and 3 - 2018

Parameter	Lipids	Total PCB Congeners[1]	Total PCB Congeners Hits[2]	Total NOAA Congeners[3]	Total WHO Congeners[4]	Total WHO+NOAA Congeners[5]
	PERCENT	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG
Station						
2A	0.34	0.19 J3	0.18	0.087 J4	0.020 J3	0.093 J3
2B	0.42	0.27 J3	0.26	0.11 J4	0.027 J3	0.12 J3
2C	0.46	0.75 J4	0.74	0.31 J4	0.056 J4	0.32 J4
2D	0.45	0.46 J3	0.45	0.21 J4	0.043 J3	0.22 J4
2E	0.46	0.21 J3	0.20	0.091 J4	0.021 J3	0.098 J3
Average	0.43	0.38 J4	0.37	0.16 J4	0.033 J4	0.17 J4
3A	0.42	0.074 J2	0.058	0.030 J3	0.0073 J2	0.034 J3
3B	0.38	0.051 J2	0.033	0.020 J3	0.0045 J2	0.022 J3
3C	0.30	0.088 J2	0.073	0.034 J3	0.011 J3	0.038 J3
3D	0.32	0.093 J2	0.079	0.038 J3	0.0063 J2	0.042 J3
3E	0.51	0.16 J3	0.15	0.075 J4	0.021 J3	0.083 J3
Average	0.39	0.093 J3	0.079	0.039 J4	0.010 J3	0.044 J3

Appendices

Appendix A Laboratory Data

Appendix B Data Validation Summary, MassDEP, NBH Superfund Site, Seafood Contaminant Survey Monitoring 2018 Sampling, February 18, 2019

Appendix C Seafood Monitoring - Field Sampling Activities for the NBH Superfund Site 2018 Annual Report, February 2019

Appendix D PCB Congener Calculation Memo, May 30, 2018

Appendix A

Laboratory Data On-Site

TABLE 1a - SUMMARY OF SAMPLE DATA FOR PRE-SPAWN QUAHOG (MG/KG WET WEIGHT) AREA 1 - 2018

Parameter	Units	Sample#	NBH18-SF-A-1	NBH18-SF-B-1	NBH18-SF-D-1	NBH18-SF-E-1
		Species	Quahogs	Quahogs	Quahogs	Quahogs
		Species Type	Meat	Meat	Meat	Meat
		Area	1	1	1	1
		Station	Station A	Station B	Station D	Station E
		Sample Date	6/6/2018	6/8/2018	5/31/2018	5/31/2018
Lipids	PERCENT		0.53	0.33	0.44	0.36
Total PCB Congeners[1]	MG/KG		1.0 J4	1.1 J4	1.8 J4	2.7 J4
Total PCB Congeners Hits[2]	MG/KG		1.0	1.0	1.8	2.7
Total NOAA Congeners[3]	MG/KG		0.36 J4	0.36 J4	0.68 J4	0.95 J4
Total WHO Congeners[4]	MG/KG		0.046 J3	0.047 J3	0.11 J4	0.13 J4
Total NOAA / WHO Combined[5]	MG/KG		0.37 J4	0.37 J4	0.70 J4	0.98 J4
Cl1-BZ#1	MG/KG		0.00036 U	0.00036 U	0.00036 U	0.00036 U
Cl1-BZ#3	MG/KG		0.00036 U	0.00036 U	0.00036 U	0.00036 U
Cl2-BZ#4/#10	MG/KG		0.0026	0.0027	0.0039	0.0066
Cl2-BZ#5	MG/KG		0.00036 U	0.00036 U	0.00036 U	0.00036 U
Cl2-BZ#6	MG/KG		0.0052	0.0049	0.0082	0.016
Cl2-BZ#7	MG/KG		0.00025 J	0.00022 J	0.00031 J	0.00057
Cl2-BZ#8	MG/KG		0.0052	0.0050	0.0080	0.014
Cl2-BZ#12	MG/KG		0.00036 U	0.00036 U	0.00036 U	0.00036 U
Cl2-BZ#13	MG/KG		0.0039	0.0037	0.0054	0.010
Cl2-BZ#15	MG/KG		0.0037	0.0037	0.0046	0.0092
Cl3-BZ#16	MG/KG		0.0028	0.0025	0.0040	0.0063
Cl3-BZ#17	MG/KG		0.012	0.012	0.021	0.035
Cl3-BZ#18	MG/KG		0.028	0.026	0.045	0.073
Cl3-BZ#19	MG/KG		0.0017	0.0018	0.0030	0.0050
Cl3-BZ#21/#20	MG/KG		0.0031	0.0031	0.0052	0.0083
Cl3-BZ#22	MG/KG		0.0082	0.0078	0.012	0.020
Cl3-BZ#24	MG/KG		0.00036 U	0.00036 U	0.00022 J	0.00048
Cl3-BZ#25	MG/KG		0.047 J	0.050	0.045	0.086
Cl3-BZ#26	MG/KG		0.045	0.042	0.076	0.13
Cl3-BZ#27	MG/KG		0.0052	0.0052	0.0079	0.013
Cl3-BZ#28	MG/KG		0.062	0.063	0.095	0.16
Cl3-BZ#29	MG/KG		0.00036 U	0.00036 U	0.00036 U	0.00022 J
Cl3-BZ#31	MG/KG		0.057	0.058	0.092	0.15
Cl3-BZ#32	MG/KG		0.0089	0.0084	0.015	0.025
Cl3-BZ#33	MG/KG		0.0030	0.0028	0.0039	0.0066
Cl3-BZ#37	MG/KG		0.0029	0.0027	0.0041	0.0070
Cl4-BZ#40	MG/KG		0.0029	0.0027	0.0045	0.0073
Cl4-BZ#41	MG/KG		0.00044	0.00045	0.00089	0.0014
Cl4-BZ#42	MG/KG		0.0095	0.011	0.017	0.029
Cl4-BZ#43	MG/KG		0.00060	0.00088	0.0012	0.0025
Cl4-BZ#44	MG/KG		0.024	0.023	0.040	0.064
Cl4-BZ#45	MG/KG		0.0023	0.0023	0.0040	0.0063
Cl4-BZ#47	MG/KG		0.027	0.029	0.045	0.075
Cl4-BZ#48	MG/KG		0.0025	0.0024	0.0046	0.0063
Cl4-BZ#49	MG/KG		0.074	0.081	0.14	0.22
Cl4-BZ#50	MG/KG		0.00036 U	0.00036 U	0.00026 J	0.00042
Cl4-BZ#51	MG/KG		0.0021	0.0023	0.0042	0.0082
Cl4-BZ#52	MG/KG		0.081	0.086	0.14	0.22
Cl4-BZ#53	MG/KG		0.0070	0.0066	0.011	0.020
Cl4-BZ#54	MG/KG		0.00036 U	0.00036 U	0.00028 J	0.00042
Cl4-BZ#56	MG/KG		0.0068	0.0071	0.013	0.018
Cl4-BZ#60	MG/KG		0.0033	0.0031	0.0058	0.0077

Prepared by: BCG 9/7/18
Checked by: JAR 9/10/18

TABLE 1a - SUMMARY OF SAMPLE DATA FOR PRE-SPAWN QUAHOG (MG/KG WET WEIGHT) AREA 1 - 2018

	Sample#	NBH18-SF-A-1	NBH18-SF-B-1	NBH18-SF-D-1	NBH18-SF-E-1
	Species	Quahogs	Quahogs	Quahogs	Quahogs
	Species Type	Meat	Meat	Meat	Meat
	Area	1	1	1	1
	Station	Station A	Station B	Station D	Station E
	Sample Date	6/6/2018	6/8/2018	5/31/2018	5/31/2018
Parameter	Units				
Cl4-BZ#63	MG/KG	0.0024	0.0024	0.0039	0.0057
Cl4-BZ#66	MG/KG	0.021	0.022	0.039	0.056
Cl4-BZ#68/#64	MG/KG	0.019	0.020	0.033	0.054
Cl4-BZ#70	MG/KG	0.017	0.016	0.031	0.042
Cl4-BZ#71	MG/KG	0.011	0.012	0.018	0.031
Cl4-BZ#73/#46	MG/KG	0.0016	0.0017	0.0026	0.0048
Cl4-BZ#74	MG/KG	0.015	0.016	0.029	0.040
Cl4-BZ#76	MG/KG	0.00036 U	0.00036 U	0.00026 J	0.00036 U
Cl4-BZ#77	MG/KG	0.0019	0.0014	0.0026	0.0042
Cl4-BZ#81	MG/KG	0.00036 U	0.00036 U	0.00036 U	0.00036 U
Cl5-BZ#82	MG/KG	0.0016	0.0012	0.0026	0.0031
Cl5-BZ#83/#125/#112	MG/KG	0.0018	0.0018	0.0038	0.0047
Cl5-BZ#85	MG/KG	0.0035	0.0031	0.0071	0.0075
Cl5-BZ#87/#111	MG/KG	0.0055	0.0047	0.0093	0.010
Cl5-BZ#89/#84	MG/KG	0.0069	0.0068	0.011	0.019
Cl5-BZ#91	MG/KG	0.012	0.013	0.024	0.040
Cl5-BZ#92	MG/KG	0.0120	0.012	0.020	0.029
Cl5-BZ#97	MG/KG	0.011	0.011	0.022	0.030
Cl5-BZ#99	MG/KG	0.035 J	0.038 J	0.071 J	0.095 J
Cl5-BZ#100	MG/KG	0.0015	0.0016	0.0025	0.0045
Cl5-BZ#101/#90	MG/KG	0.046	0.049	0.093	0.12
Cl5-BZ#104	MG/KG	0.00036 U	0.00036 U	0.00036 U	0.00036 U
Cl5-BZ#105	MG/KG	0.0054	0.0049	0.011	0.012
Cl5-BZ#107/#123	MG/KG	0.0036	0.0038	0.0080	0.0099
Cl5-BZ#110	MG/KG	0.044 J	0.046 J	0.085 J	0.13 J
Cl5-BZ#114	MG/KG	0.0013	0.0015	0.0032	0.0035
Cl5-BZ#118	MG/KG	0.029 J	0.030 J	0.075 J	0.088 J
Cl5-BZ#119	MG/KG	0.0041	0.0046	0.0077	0.012
Cl5-BZ#121/#95/#88	MG/KG	0.025	0.024	0.041	0.064
Cl5-BZ#124	MG/KG	0.0010	0.00099	0.0023	0.0031
Cl5-BZ#126	MG/KG	0.00036 U	0.00036 U	0.00036 U	0.00046
Cl6-BZ#128	MG/KG	0.0031	0.0029	0.0063	0.0067
Cl6-BZ#129/#158	MG/KG	0.0022	0.0018	0.0055	0.0061
Cl6-BZ#130/#164	MG/KG	0.0033	0.0034	0.0075	0.0091
Cl6-BZ#131	MG/KG	0.00032 J	0.00027 J	0.00059	0.00061
Cl6-BZ#132	MG/KG	0.0049	0.0046	0.0090	0.0097
Cl6-BZ#134	MG/KG	0.0014	0.0013	0.0029	0.0043
Cl6-BZ#135	MG/KG	0.0034	0.0036	0.0067	0.0090
Cl6-BZ#136	MG/KG	0.0032	0.0030	0.0053	0.0086
Cl6-BZ#137	MG/KG	0.0015	0.0017	0.0036	0.0038
Cl6-BZ#138	MG/KG	0.011	0.0080	0.024	0.023
Cl6-BZ#141	MG/KG	0.0017	0.0016	0.0043	0.0050
Cl6-BZ#144	MG/KG	0.00050	0.00036 J	0.0010	0.0012
Cl6-BZ#146	MG/KG	0.0060	0.0062	0.013	0.015
Cl6-BZ#147/#149	MG/KG	0.024	0.024	0.051	0.070
Cl6-BZ#151	MG/KG	0.0027	0.0024	0.0062	0.0074
Cl6-BZ#153	MG/KG	0.031 J	0.032 J	0.077 J	0.084 J
Cl6-BZ#154	MG/KG	0.0013	0.0016	0.0029	0.0041
Cl6-BZ#155	MG/KG	0.00036 U	0.00036 U	0.00036 U	0.00036 U

Prepared by: BCG 9/7/18
Checked by: JAR 9/10/18

TABLE 1a - SUMMARY OF SAMPLE DATA FOR PRE-SPAWN QUAHOG (MG/KG WET WEIGHT) AREA 1 - 2018

Parameter	Units	Sample#	NBH18-SF-A-1	NBH18-SF-B-1	NBH18-SF-D-1	NBH18-SF-E-1
		Species	Quahogs	Quahogs	Quahogs	Quahogs
		Species Type	Meat	Meat	Meat	Meat
		Area	1	1	1	1
		Station	Station A	Station B	Station D	Station E
		Sample Date	6/6/2018	6/8/2018	5/31/2018	5/31/2018
Cl6-BZ#156	MG/KG		0.0023 J	0.0023 J	0.0058 J	0.0067 J
Cl6-BZ#157	MG/KG		0.00072	0.00083	0.0018	0.0017
Cl6-BZ#163/#160	MG/KG		0.0084	0.0100	0.02	0.025
Cl6-BZ#167	MG/KG		0.0012	0.0012	0.0031	0.0036
Cl6-BZ#168	MG/KG		0.00036 U	0.00036 U	0.00036 U	0.00036 U
Cl6-BZ#169	MG/KG		0.00036 U	0.00036 U	0.00036 U	0.00036 U
Cl7-BZ#170	MG/KG		0.0017	0.0016	0.0036	0.0037
Cl7-BZ#171	MG/KG		0.00035 J	0.00039	0.0011	0.00092
Cl7-BZ#172	MG/KG		0.00037	0.00068	0.0013	0.0014
Cl7-BZ#173	MG/KG		0.00036 U	0.00036 U	0.00036 U	0.00036 U
Cl7-BZ#174	MG/KG		0.0011	0.0012	0.0026	0.0028
Cl7-BZ#176	MG/KG		0.00020 J	0.00019 J	0.00040	0.00052
Cl7-BZ#177	MG/KG		0.0012	0.0014	0.0026	0.0030
Cl7-BZ#178	MG/KG		0.00053	0.00067	0.0013	0.0015
Cl7-BZ#180	MG/KG		0.0034	0.0038	0.0084	0.0090
Cl7-BZ#182/#175	MG/KG		0.00073 U	0.00073 U	0.00072 U	0.00040 J
Cl7-BZ#183	MG/KG		0.00080 J	0.00069 J	0.0018 J	0.0022 J
Cl7-BZ#184	MG/KG		0.00036 U	0.00036 U	0.00036 U	0.00036 U
Cl7-BZ#185	MG/KG		0.00036 U	0.00036 U	0.00036 U	0.00019 J
Cl7-BZ#187	MG/KG		0.0034	0.0038	0.0081	0.0098
Cl7-BZ#188	MG/KG		0.00036 U	0.00036 U	0.00036 U	0.00023 J
Cl7-BZ#189	MG/KG		0.00024 J	0.00028 J	0.00036 U	0.00036 U
Cl7-BZ#190	MG/KG		0.00040	0.00042	0.0010	0.00099
Cl7-BZ#191	MG/KG		0.00036 U	0.00036 U	0.00036 U	0.00031 J
Cl7-BZ#193	MG/KG		0.00030 J	0.00028 J	0.00087	0.00074
Cl8-BZ#194	MG/KG		0.00059 J	0.00075 J	0.0016 J	0.0018 J
Cl8-BZ#195	MG/KG		0.00036 U	0.00036 U	0.00036 U	0.00036 U
Cl8-BZ#196	MG/KG		0.00029 J	0.00036 U	0.00036 U	0.00048
Cl8-BZ#197	MG/KG		0.00036 U	0.00036 U	0.00036 U	0.00036 U
Cl8-BZ#199	MG/KG		0.00036 U	0.00036 U	0.00036 U	0.00036 U
Cl8-BZ#201	MG/KG		0.00066	0.00064	0.0012	0.0014
Cl8-BZ#202	MG/KG		0.00020 J	0.00023 J	0.00048	0.00051
Cl8-BZ#203	MG/KG		0.00029 J	0.00027 J	0.00064	0.00067
Cl8-BZ#204/#200	MG/KG		0.00073 U	0.00073 U	0.00072 U	0.00073 U
Cl8-BZ#205	MG/KG		0.00036 U	0.00036 U	0.00036 U	0.00036 U
Cl9-BZ#206	MG/KG		0.00032 J	0.00036 U	0.0006 J	0.00083 J
Cl9-BZ#207	MG/KG		0.00036 U	0.00036 U	0.00036 U	0.00036 U
Cl9-BZ#208	MG/KG		0.00036 U	0.00023 J	0.00053	0.00040
Cl10-BZ#209	MG/KG		0.00036 U	0.00036 U	0.00028 J	0.00036 U

Prepared by: BCG 9/7/18
Checked by: JAR 9/10/18

TABLE 1b - SUMMARY OF SAMPLE DATA FOR PRE-SPAWN QUAHOG (MG/KG WET WEIGHT) AREA 2 - 2018

Parameter	Units	Sample# NBH18-SF-B-2 Species Quahogs Species Type Meat Area 2 Station Station B Sample Date 5/15/2018	Sample# NBH18-SF-C-2 Species Quahogs Species Type Meat Area 2 Station Station C Sample Date 5/15/2018	Sample# NBH18-SF-D-2 Species Quahogs Species Type Meat Area 2 Station Station D Sample Date 5/15/2018	Sample# NBH18-SF-F-2 Species Quahogs Species Type Meat Area 2 Station Station F Sample Date 5/15/2018	Sample# NBH18-SF-G-2 Species Quahogs Species Type Meat Area 2 Station Station G Sample Date 5/15/2018	Sample# NBH18-SF-H-2 Species Quahogs Species Type Meat Area 2 Station Station H Sample Date 5/15/2018
Lipids	PERCENT	0.29	0.31	0.35	0.32	0.40	0.37
Total PCB Congeners[1]	MG/KG	0.083 J2	0.33 J3	0.14 J3	0.13 J3	0.091 J2	0.15 J3
Total PCB Congeners Hits[2]	MG/KG	0.069	0.33	0.12	0.11	0.077	0.14
Total NOAA Congeners[3]	MG/KG	0.028 J3	0.12 J4	0.046 J3	0.042 J3	0.031 J3	0.052 J3
Total WHO Congeners[4]	MG/KG	0.0067 J2	0.018 J3	0.0077 J2	0.0071 J2	0.0074 J2	0.0093 J3
Total NOAA / WHO Combined[5]	MG/KG	0.031 J3	0.12 J3	0.049 J3	0.044 J3	0.034 J3	0.055 J3
Cl1-BZ#1	MG/KG	0.00036 U	0.00037 U	0.00039 U	0.00036 U	0.00037 U	0.00037 U
Cl1-BZ#3	MG/KG	0.00036 U	0.00037 U	0.00039 U	0.00036 U	0.00037 U	0.00037 U
Cl2-BZ#4/#10	MG/KG	0.00073 U	0.00070 J	0.00078 U	0.00071 U	0.00074 U	0.00074 U
Cl2-BZ#5	MG/KG	0.00036 U	0.00037 U	0.00039 U	0.00036 U	0.00037 U	0.00037 U
Cl2-BZ#6	MG/KG	0.00036 U	0.0017	0.00058	0.00052	0.00037 U	0.00058
Cl2-BZ#7	MG/KG	0.00036 U	0.00037 U	0.00039 U	0.00036 U	0.00037 U	0.00037 U
Cl2-BZ#8	MG/KG	0.00036 U	0.0015	0.00048	0.00045	0.00037 U	0.00054
Cl2-BZ#12	MG/KG	0.00036 U	0.00037 U	0.00039 U	0.00036 U	0.00037 U	0.00037 U
Cl2-BZ#13	MG/KG	0.00073 U	0.00092	0.00078 U	0.00039 J	0.00074 U	0.00040 J
Cl2-BZ#15	MG/KG	0.00036 U	0.0011	0.00042	0.00039	0.00037 U	0.00043
Cl3-BZ#16	MG/KG	0.00036 U	0.00071	0.00022 J	0.00025 J	0.00037 U	0.00028 J
Cl3-BZ#17	MG/KG	0.00027 J	0.0032	0.00099	0.00083	0.00031 J	0.0011
Cl3-BZ#18	MG/KG	0.00068	0.0068	0.0024	0.0021	0.00068	0.0023
Cl3-BZ#19	MG/KG	0.00036 U	0.00053	0.00039 U	0.00036 U	0.00037 U	0.00037 U
Cl3-BZ#21/#20	MG/KG	0.00073 U	0.00063 J	0.00078 U	0.00071 U	0.00074 U	0.00074 U
Cl3-BZ#22	MG/KG	0.00029 J	0.0018	0.00077	0.00070	0.00037 J	0.00082
Cl3-BZ#24	MG/KG	0.00036 U	0.00037 U	0.00039 U	0.00036 U	0.00037 U	0.00037 U
Cl3-BZ#25	MG/KG	0.00036 U	0.011	0.0031	0.0058	0.00037 U	0.0031
Cl3-BZ#26	MG/KG	0.0011	0.011	0.0043	0.0037	0.0014	0.0040
Cl3-BZ#27	MG/KG	0.00036 U	0.0012	0.00043	0.00037	0.00037 U	0.00047
Cl3-BZ#28	MG/KG	0.0015	0.015	0.0055	0.0051	0.0020	0.0054
Cl3-BZ#29	MG/KG	0.00036 U	0.00037 U	0.00039 U	0.00036 U	0.00037 U	0.00037 U
Cl3-BZ#31	MG/KG	0.0015	0.013	0.0050	0.0048	0.0017	0.0051
Cl3-BZ#32	MG/KG	0.00022 J	0.0023	0.00069	0.00059	0.00026 J	0.00080
Cl3-BZ#33	MG/KG	0.00036 U	0.00096	0.00030 J	0.00030 J	0.00019 J	0.00028 J
Cl3-BZ#37	MG/KG	0.00025 J	0.00088	0.00036 J	0.00036	0.00024 J	0.00041
Cl4-BZ#40	MG/KG	0.00036 U	0.00096	0.00033 J	0.00042	0.00029 J	0.00032 J
Cl4-BZ#41	MG/KG	0.00036 U	0.00037 U	0.00039 U	0.00036 U	0.00037 U	0.00037 U
Cl4-BZ#42	MG/KG	0.00053	0.0030	0.0012	0.00096	0.00072	0.0012
Cl4-BZ#43	MG/KG	0.00036 U	0.00023 J	0.00039 U	0.00036 U	0.00037 U	0.00037 U
Cl4-BZ#44	MG/KG	0.0012	0.0068	0.0027	0.0025	0.0014	0.0028
Cl4-BZ#45	MG/KG	0.00036 U	0.00063	0.00032 J	0.00022 J	0.00037 U	0.00029 J
Cl4-BZ#47	MG/KG	0.0014	0.0087	0.0033	0.0030	0.0016	0.0033
Cl4-BZ#48	MG/KG	0.00021 J	0.00090	0.00028 J	0.00025 J	0.0002 J	0.00033 J
Cl4-BZ#49	MG/KG	0.0029	0.022	0.0089	0.0074	0.0034	0.0083
Cl4-BZ#50	MG/KG	0.00036 U	0.00037 U	0.00039 U	0.00036 U	0.00037 U	0.00037 U
Cl4-BZ#51	MG/KG	0.00036 U	0.00079	0.00024 J	0.00025 J	0.00037 U	0.00027 J
Cl4-BZ#52	MG/KG	0.0038	0.026	0.011	0.009	0.0044	0.010
Cl4-BZ#53	MG/KG	0.00027 J	0.0023	0.00086	0.00068	0.00033 J	0.00085
Cl4-BZ#54	MG/KG	0.00036 U	0.00037 U	0.00039 U	0.00036 U	0.00037 U	0.00037 U
Cl4-BZ#56	MG/KG	0.00056	0.0023	0.00090	0.00080	0.00056	0.0011

TABLE 1b - SUMMARY OF SAMPLE DATA FOR PRE-SPAWN QUAHOG (MG/KG WET WEIGHT) AREA 2 - 2018

Parameter	Units	Sample#	NBH18-SF-B-2	NBH18-SF-C-2	NBH18-SF-D-2	NBH18-SF-F-2	NBH18-SF-G-2	NBH18-SF-H-2
		Species	Quahogs	Quahogs	Quahogs	Quahogs	Quahogs	Quahogs
		Species Type	Meat	Meat	Meat	Meat	Meat	Meat
		Area	2	2	2	2	2	2
		Station	Station B	Station C	Station D	Station F	Station G	Station H
		Sample Date	5/15/2018	5/15/2018	5/15/2018	5/15/2018	5/15/2018	5/15/2018
Cl4-BZ#60	MG/KG		0.00036 U	0.0010	0.00036 J	0.00036	0.00020 J	0.00040
Cl4-BZ#63	MG/KG		0.00036 U	0.00068	0.00032 J	0.00026 J	0.00018 J	0.00040
Cl4-BZ#66	MG/KG		0.0019	0.0073	0.0028	0.0027	0.0022	0.0031
Cl4-BZ#68/#64	MG/KG		0.00084	0.0055	0.0019	0.0017	0.00088	0.0021
Cl4-BZ#70	MG/KG		0.0014	0.0056	0.0023	0.0021	0.0015	0.0023
Cl4-BZ#71	MG/KG		0.00055	0.0037	0.0015	0.0013	0.00062	0.0014
Cl4-BZ#73/#46	MG/KG		0.00073 U	0.00061 J	0.00078 U	0.00071 U	0.00074 U	0.00074 U
Cl4-BZ#74	MG/KG		0.00079	0.0047	0.0018	0.0016	0.00099	0.0018
Cl4-BZ#76	MG/KG		0.00036 U	0.00037 U	0.00039 U	0.00036 U	0.00037 U	0.00037 U
Cl4-BZ#77	MG/KG		0.00036 U	0.00054	0.00025 J	0.00022 J	0.00037 U	0.00037 U
Cl4-BZ#81	MG/KG		0.00036 U	0.00037 U	0.00039 U	0.00036 U	0.00037 U	0.00037 U
Cl5-BZ#82	MG/KG		0.00036 U	0.00052	0.00024 J	0.00018 J	0.00024 J	0.00029 J
Cl5-BZ#83/#125/#112	MG/KG		0.0011 U	0.00091 J	0.0012 U	0.0011 U	0.0011 U	0.0011 U
Cl5-BZ#85	MG/KG		0.00053	0.0013	0.00065	0.00057	0.00063	0.00079
Cl5-BZ#87/#111	MG/KG		0.00057 J	0.0020	0.00077 J	0.00061 J	0.00059 J	0.0010
Cl5-BZ#89/#84	MG/KG		0.00062 J	0.0025	0.0012	0.00092	0.00070 J	0.0011
Cl5-BZ#91	MG/KG		0.00089	0.0043	0.0018	0.0014	0.0011	0.0018
Cl5-BZ#92	MG/KG		0.0015	0.0047	0.0020	0.0017	0.0015	0.0024
Cl5-BZ#97	MG/KG		0.0012	0.0040	0.0017	0.0016	0.0013	0.0019
Cl5-BZ#99	MG/KG		0.0046 J	0.014 J	0.0055 J	0.0054 J	0.0046 J	0.0065 J
Cl5-BZ#100	MG/KG		0.00036 U	0.00059	0.00023 J	0.00024 J	0.00037 U	0.00026 J
Cl5-BZ#101/#90	MG/KG		0.0054	0.018	0.0075	0.0067	0.0060	0.0090
Cl5-BZ#104	MG/KG		0.00036 U	0.00037 U	0.00039 U	0.00036 U	0.00037 U	0.00037 U
Cl5-BZ#105	MG/KG		0.00060	0.0019	0.00071	0.00071	0.00081	0.00093
Cl5-BZ#107/#123	MG/KG		0.00065 J	0.0014	0.00068 J	0.00063 J	0.00074	0.00085
Cl5-BZ#110	MG/KG		0.0045 J	0.017 J	0.0064 J	0.0052 J	0.0048 J	0.0080 J
Cl5-BZ#114	MG/KG		0.00036 U	0.00042	0.00039 U	0.00019 J	0.00037 U	0.00028 J
Cl5-BZ#118	MG/KG		0.0036 J	0.011 J	0.0042 J	0.0039 J	0.0040 J	0.0053 J
Cl5-BZ#119	MG/KG		0.00042	0.0016	0.00069	0.00060	0.00044	0.00085
Cl5-BZ#121/#95/#88	MG/KG		0.0020	0.0089	0.0034	0.0030	0.0023	0.0039
Cl5-BZ#124	MG/KG		0.00036 U	0.00036 J	0.00039 U	0.00036 U	0.00037 U	0.00037 U
Cl5-BZ#126	MG/KG		0.00036 U	0.00037 U	0.00039 U	0.00036 U	0.00037 U	0.00037 U
Cl6-BZ#128	MG/KG		0.00056	0.0013	0.00057	0.00047	0.00056	0.00073
Cl6-BZ#129/#158	MG/KG		0.00073 U	0.00093	0.00078 U	0.00071 U	0.00074 U	0.00048 J
Cl6-BZ#130/#164	MG/KG		0.00065 J	0.0015	0.00061 J	0.00056 J	0.00063 J	0.00092
Cl6-BZ#131	MG/KG		0.00036 U	0.00037 U	0.00039 U	0.00036 U	0.00037 U	0.00037 U
Cl6-BZ#132	MG/KG		0.00089	0.0021	0.00078	0.00071	0.00097	0.00120
Cl6-BZ#134	MG/KG		0.00021 J	0.00054	0.00023 J	0.00021 J	0.00022 J	0.00027 J
Cl6-BZ#135	MG/KG		0.00053	0.0016	0.00058	0.00059	0.00063	0.00094
Cl6-BZ#136	MG/KG		0.00036 J	0.0014	0.00054	0.00044	0.00042	0.00059
Cl6-BZ#137	MG/KG		0.00020 J	0.00066	0.00026 J	0.00023 J	0.00024 J	0.00037 J
Cl6-BZ#138	MG/KG		0.0017	0.0035	0.0014	0.0014	0.0017	0.0020
Cl6-BZ#141	MG/KG		0.00019 J	0.00073	0.00029 J	0.00021 J	0.00023 J	0.00036 J
Cl6-BZ#144	MG/KG		0.00036 U	0.00018 J	0.00039 U	0.00036 U	0.00037 U	0.00037 U
Cl6-BZ#146	MG/KG		0.0012	0.0027	0.0012	0.0011	0.0014	0.0017
Cl6-BZ#147/#149	MG/KG		0.0027	0.0086	0.0037	0.0029	0.0029	0.0046
Cl6-BZ#151	MG/KG		0.00033 J	0.00094	0.00036 J	0.00035 J	0.00036 J	0.00056
Cl6-BZ#153	MG/KG		0.0048 J	0.012 J	0.0047 J	0.0049 J	0.0046 J	0.0065 J
Cl6-BZ#154	MG/KG		0.00021 J	0.00067	0.00028 J	0.00024 J	0.00026 J	0.00034 J
Cl6-BZ#155	MG/KG		0.00036 U	0.00037 U	0.00039 U	0.00036 U	0.00037 U	0.00037 U

TABLE 1b - SUMMARY OF SAMPLE DATA FOR PRE-SPAWN QUAHOG (MG/KG WET WEIGHT) AREA 2 - 2018

	Sample#	NBH18-SF-B-2	NBH18-SF-C-2	NBH18-SF-D-2	NBH18-SF-F-2	NBH18-SF-G-2	NBH18-SF-H-2
	Species	Quahogs	Quahogs	Quahogs	Quahogs	Quahogs	Quahogs
	Species Type	Meat	Meat	Meat	Meat	Meat	Meat
	Area	2	2	2	2	2	2
	Station	Station B	Station C	Station D	Station F	Station G	Station H
	Sample Date	5/15/2018	5/15/2018	5/15/2018	5/15/2018	5/15/2018	5/15/2018
Parameter	**Units**						
Cl6-BZ#156	MG/KG	0.00036 J	0.00097 J	0.00037 J	0.00029 J	0.00035 J	0.00052 J
Cl6-BZ#157	MG/KG	0.00036 U	0.00035 J	0.00039 U	0.00036 U	0.00037 U	0.00019 J
Cl6-BZ#163/#160	MG/KG	0.0019	0.0044	0.0018	0.0016	0.0020	0.0027
Cl6-BZ#167	MG/KG	0.00021 J	0.00051	0.00023 J	0.00020 J	0.00023 J	0.00030 J
Cl6-BZ#168	MG/KG	0.00036 U	0.00037 U	0.00039 U	0.00036 U	0.00037 U	0.00037 U
Cl6-BZ#169	MG/KG	0.00036 U	0.00037 U	0.00039 U	0.00036 U	0.00037 U	0.00037 U
Cl7-BZ#170	MG/KG	0.00032 J	0.00067	0.00030 J	0.00023 J	0.00032 J	0.00044
Cl7-BZ#171	MG/KG	0.00036 U	0.00021 J	0.00039 U	0.00036 U	0.00037 U	0.00037 U
Cl7-BZ#172	MG/KG	0.00036 U	0.00026 J	0.00039 U	0.00036 U	0.00021 J	0.00037 U
Cl7-BZ#173	MG/KG	0.00036 U	0.00037 U	0.00039 U	0.00036 U	0.00037 U	0.00037 U
Cl7-BZ#174	MG/KG	0.00027 J	0.00059	0.00022 J	0.00019 J	0.00023 J	0.00037 J
Cl7-BZ#176	MG/KG	0.00036 U	0.00037 U	0.00039 U	0.00036 U	0.00037 U	0.00037 U
Cl7-BZ#177	MG/KG	0.00038	0.00075	0.0003 J	0.00026 J	0.00044	0.00049
Cl7-BZ#178	MG/KG	0.00036 U	0.00030 J	0.00039 U	0.00036 U	0.00021 J	0.00037 U
Cl7-BZ#180	MG/KG	0.00074	0.0018	0.00071	0.00052	0.00076	0.0011
Cl7-BZ#182/#175	MG/KG	0.00073 U	0.00073 U	0.00078 U	0.00071 U	0.00074 U	0.00074 U
Cl7-BZ#183	MG/KG	0.00036 U	0.00036 J	0.00039 U	0.00036 U	0.00037 U	0.00019 J
Cl7-BZ#184	MG/KG	0.00036 U	0.00037 U	0.00039 U	0.00036 U	0.00037 U	0.00037 U
Cl7-BZ#185	MG/KG	0.00036 U	0.00037 U	0.00039 U	0.00036 U	0.00037 U	0.00037 U
Cl7-BZ#187	MG/KG	0.00083	0.0017	0.00073	0.00071	0.00079	0.0011
Cl7-BZ#188	MG/KG	0.00036 U	0.00037 U	0.00039 U	0.00036 U	0.00037 U	0.00037 U
Cl7-BZ#189	MG/KG	0.00036 U	0.00037 U	0.00039 U	0.00036 U	0.00037 U	0.00037 U
Cl7-BZ#190	MG/KG	0.00036 U	0.00037 U	0.00039 U	0.00036 U	0.00037 U	0.00037 U
Cl7-BZ#191	MG/KG	0.00036 U	0.00037 U	0.00039 U	0.00036 U	0.00037 U	0.00037 U
Cl7-BZ#193	MG/KG	0.00036 U	0.00019 J	0.00039 U	0.00036 U	0.00037 U	0.00037 U
Cl8-BZ#194	MG/KG	0.00036 U	0.00032 J	0.00039 U	0.00036 U	0.00037 U	0.00037 U
Cl8-BZ#195	MG/KG	0.00036 U	0.00037 U	0.00039 U	0.00036 U	0.00037 U	0.00037 U
Cl8-BZ#196	MG/KG	0.00036 U	0.00037 U	0.00039 U	0.00036 U	0.00037 U	0.00037 U
Cl8-BZ#197	MG/KG	0.00036 U	0.00037 U	0.00039 U	0.00036 U	0.00037 U	0.00037 U
Cl8-BZ#199	MG/KG	0.00036 U	0.00037 U	0.00039 U	0.00036 U	0.00037 U	0.00037 U
Cl8-BZ#201	MG/KG	0.00020 J	0.00031 J	0.00039 U	0.00036 U	0.00037 U	0.00022 J
Cl8-BZ#202	MG/KG	0.00036 U	0.00037 U	0.00039 U	0.00036 U	0.00037 U	0.00037 U
Cl8-BZ#203	MG/KG	0.00036 U	0.00037 U	0.00039 U	0.00036 U	0.00037 U	0.00037 U
Cl8-BZ#204/#200	MG/KG	0.00073 U	0.00073 U	0.00078 U	0.00071 U	0.00074 U	0.00074 U
Cl8-BZ#205	MG/KG	0.00036 U	0.00037 U	0.00039 U	0.00036 U	0.00037 U	0.00037 U
Cl9-BZ#206	MG/KG	0.00036 U	0.00037 U	0.00039 U	0.00036 U	0.00037 U	0.00037 U
Cl9-BZ#207	MG/KG	0.00036 U	0.00037 U	0.00039 U	0.00036 U	0.00037 U	0.00037 U
Cl9-BZ#208	MG/KG	0.00036 U	0.00037 U	0.00039 U	0.00036 U	0.00037 U	0.00037 U
Cl10-BZ#209	MG/KG	0.00036 U	0.00037 U	0.00039 U	0.00036 U	0.00037 U	0.00037 U

TABLE 1c - SUMMARY OF SAMPLE DATA FOR PRE-SPAWN QUAHOG (MG/KG WET WEIGHT) AREA 3 - 2018

Parameter	Units	Sample#	NBH18-SF-B-3	NBH18-SF-D-3	NBH18-SF-I-3	NBH18-SF-J-3
		Species	Quahogs	Quahogs	Quahogs	Quahogs
		Species Type	Meat	Meat	Meat	Meat
		Area	3	3	3	3
		Station	Station B	Station D	Station I	Station J
		Sample Date	5/16/2018	5/16/2018	5/11/2018	5/16/2018
Lipids	PERCENT		0.44	0.35	0.39	0.28
Total PCB Congeners[1]	MG/KG		0.055 J2	0.047 J2	0.060 J2	0.034 J1
Total PCB Congeners Hits[2]	MG/KG		0.035	0.028	0.041	0.011
Total NOAA Congeners[3]	MG/KG		0.016 J3	0.013 J3	0.018 J3	0.0067 J2
Total WHO Congeners[4]	MG/KG		0.0047 J2	0.0036 J1	0.0050 J2	0.0029 J1
Total NOAA / WHO Combined[5]	MG/KG		0.018 J2	0.015 J2	0.021 J2	0.0088 J2
Cl1-BZ#1	MG/KG		0.00040 U	0.00037 U	0.00040 U	0.00038 U
Cl1-BZ#3	MG/KG		0.00040 U	0.00037 U	0.00040 U	0.00038 U
Cl2-BZ#4/#10	MG/KG		0.00080 U	0.00073 U	0.00079 U	0.00076 U
Cl2-BZ#5	MG/KG		0.00040 U	0.00037 U	0.00040 U	0.00038 U
Cl2-BZ#6	MG/KG		0.00040 U	0.00037 U	0.00040 U	0.00038 U
Cl2-BZ#7	MG/KG		0.00040 U	0.00037 U	0.00040 U	0.00038 U
Cl2-BZ#8	MG/KG		0.00040 U	0.00037 U	0.00040 U	0.00038 U
Cl2-BZ#12	MG/KG		0.00040 U	0.00037 U	0.00040 U	0.00038 U
Cl2-BZ#13	MG/KG		0.00080 U	0.00073 U	0.00079 U	0.00076 U
Cl2-BZ#15	MG/KG		0.00040 U	0.00037 U	0.00040 U	0.00038 U
Cl3-BZ#16	MG/KG		0.00040 U	0.00037 U	0.00040 U	0.00038 U
Cl3-BZ#17	MG/KG		0.00040 U	0.00037 U	0.00040 U	0.00038 U
Cl3-BZ#18	MG/KG		0.00034 J	0.00029 J	0.00036 J	0.00038 U
Cl3-BZ#19	MG/KG		0.00040 U	0.00037 U	0.00040 U	0.00038 U
Cl3-BZ#21/#20	MG/KG		0.00080 U	0.00073 U	0.00079 U	0.00076 U
Cl3-BZ#22	MG/KG		0.00025 J	0.00037 U	0.00040 U	0.00038 U
Cl3-BZ#24	MG/KG		0.00040 U	0.00037 U	0.00040 U	0.00038 U
Cl3-BZ#25	MG/KG		0.00040 U	0.00037 U	0.00040 U	0.00038 U
Cl3-BZ#26	MG/KG		0.00063	0.00067	0.00060	0.00027 J
Cl3-BZ#27	MG/KG		0.00040 U	0.00037 U	0.00040 U	0.00038 U
Cl3-BZ#28	MG/KG		0.00091	0.00084	0.00083	0.00032 J
Cl3-BZ#29	MG/KG		0.00040 U	0.00037 U	0.00040 U	0.00038 U
Cl3-BZ#31	MG/KG		0.00089	0.00081	0.00067	0.00037 J
Cl3-BZ#32	MG/KG		0.00040 U	0.00037 U	0.00040 U	0.00038 U
Cl3-BZ#33	MG/KG		0.00040 U	0.00037 U	0.00040 U	0.00038 U
Cl3-BZ#37	MG/KG		0.00040 U	0.00037 U	0.00040 U	0.00038 U
Cl4-BZ#40	MG/KG		0.00040 U	0.00037 U	0.00040 U	0.00038 U
Cl4-BZ#41	MG/KG		0.00040 U	0.00037 U	0.00040 U	0.00038 U
Cl4-BZ#42	MG/KG		0.00032 J	0.00022 J	0.00027 J	0.00038 U
Cl4-BZ#43	MG/KG		0.00040 U	0.00037 U	0.00040 U	0.00038 U
Cl4-BZ#44	MG/KG		0.00064	0.00055	0.00074	0.00026 J
Cl4-BZ#45	MG/KG		0.00040 U	0.00037 U	0.00040 U	0.00038 U
Cl4-BZ#47	MG/KG		0.00073	0.00065	0.00054	0.00027 J
Cl4-BZ#48	MG/KG		0.00040 U	0.00037 U	0.00040 U	0.00038 U
Cl4-BZ#49	MG/KG		0.0015	0.0016	0.0016	0.00064
Cl4-BZ#50	MG/KG		0.00040 U	0.00037 U	0.00040 U	0.00038 U
Cl4-BZ#51	MG/KG		0.00040 U	0.00037 U	0.00040 U	0.00038 U
Cl4-BZ#52	MG/KG		0.0021	0.0020	0.0024	0.00078
Cl4-BZ#53	MG/KG		0.00040 U	0.00037 U	0.00022 J	0.00038 U
Cl4-BZ#54	MG/KG		0.00040 U	0.00037 U	0.00040 U	0.00038 U
Cl4-BZ#56	MG/KG		0.00028 J	0.00024 J	0.00028 J	0.00038 U
Cl4-BZ#60	MG/KG		0.00040 U	0.00037 U	0.00040 U	0.00038 U

TABLE 1c - SUMMARY OF SAMPLE DATA FOR PRE-SPAWN QUAHOG (MG/KG WET WEIGHT) AREA 3 - 2018

Parameter	Units	NBH18-SF-B-3	NBH18-SF-D-3	NBH18-SF-I-3	NBH18-SF-J-3
Sample#		NBH18-SF-B-3	NBH18-SF-D-3	NBH18-SF-I-3	NBH18-SF-J-3
Species		Quahogs	Quahogs	Quahogs	Quahogs
Species Type		Meat	Meat	Meat	Meat
Area		3	3	3	3
Station		Station B	Station D	Station I	Station J
Sample Date		5/16/2018	5/16/2018	5/11/2018	5/16/2018
Cl4-BZ#63	MG/KG	0.00040 U	0.00037 U	0.00040 U	0.00038 U
Cl4-BZ#66	MG/KG	0.0010	0.00069	0.00087	0.00035 J
Cl4-BZ#68/#64	MG/KG	0.00052 J	0.00040 J	0.00046 J	0.00076 U
Cl4-BZ#70	MG/KG	0.00075	0.00059	0.00084	0.00026 J
Cl4-BZ#71	MG/KG	0.00034 J	0.00031 J	0.00029 J	0.00038 U
Cl4-BZ#73/#46	MG/KG	0.00080 U	0.00073 U	0.00079 U	0.00076 U
Cl4-BZ#74	MG/KG	0.00049	0.00035 J	0.00043	0.00038 U
Cl4-BZ#76	MG/KG	0.00040 U	0.00037 U	0.00040 U	0.00038 U
Cl4-BZ#77	MG/KG	0.00040 U	0.00037 U	0.00040 U	0.00038 U
Cl4-BZ#81	MG/KG	0.00040 U	0.00037 U	0.00040 U	0.00038 U
Cl5-BZ#82	MG/KG	0.00040 U	0.00037 U	0.00040 U	0.00038 U
Cl5-BZ#83/#125/#112	MG/KG	0.0012 U	0.0011 U	0.0012 U	0.0011 U
Cl5-BZ#85	MG/KG	0.00051	0.00024 J	0.00036 J	0.00038 U
Cl5-BZ#87/#111	MG/KG	0.00080 U	0.00073 U	0.00064 J	0.00076 U
Cl5-BZ#89/#84	MG/KG	0.00036 J	0.00032 J	0.00054 J	0.00076 U
Cl5-BZ#91	MG/KG	0.00045	0.00048	0.00058	0.00023 J
Cl5-BZ#92	MG/KG	0.00074	0.00064	0.00098	0.00029 J
Cl5-BZ#97	MG/KG	0.00068	0.00051	0.00084	0.00038 U
Cl5-BZ#99	MG/KG	0.0023 J	0.0018 J	0.0023 J	0.00084 J
Cl5-BZ#100	MG/KG	0.00040 U	0.00037 U	0.00040 U	0.00038 U
Cl5-BZ#101/#90	MG/KG	0.0029	0.0023	0.0036	0.0011
Cl5-BZ#104	MG/KG	0.00040 U	0.00037 U	0.00040 U	0.00038 U
Cl5-BZ#105	MG/KG	0.00043	0.00021 J	0.00048	0.00038 U
Cl5-BZ#107/#123	MG/KG	0.00080 U	0.00073 U	0.00079 U	0.00076 U
Cl5-BZ#110	MG/KG	0.0023 J	0.0016 J	0.0032 J	0.00079 J
Cl5-BZ#114	MG/KG	0.00040 U	0.00037 U	0.00040 U	0.00038 U
Cl5-BZ#118	MG/KG	0.0020 J	0.0013 J	0.0022 J	0.00068 J
Cl5-BZ#119	MG/KG	0.00023 J	0.00022 J	0.00023 J	0.00038 U
Cl5-BZ#121/#95/#88	MG/KG	0.0010 J	0.00088 J	0.0016	0.0011 U
Cl5-BZ#124	MG/KG	0.00040 U	0.00037 U	0.00040 U	0.00038 U
Cl5-BZ#126	MG/KG	0.00040 U	0.00037 U	0.00040 U	0.00038 U
Cl6-BZ#128	MG/KG	0.00043	0.00024 J	0.00045	0.00038 U
Cl6-BZ#129/#158	MG/KG	0.00080 U	0.00073 U	0.00079 U	0.00076 U
Cl6-BZ#130/#164	MG/KG	0.00080 U	0.00073 U	0.00079 U	0.00076 U
Cl6-BZ#131	MG/KG	0.00040 U	0.00037 U	0.00040 U	0.00038 U
Cl6-BZ#132	MG/KG	0.00047	0.00032 J	0.00071	0.00019 J
Cl6-BZ#134	MG/KG	0.00040 U	0.00037 U	0.00040 U	0.00038 U
Cl6-BZ#135	MG/KG	0.00033 J	0.00028 J	0.00036 J	0.00038 U
Cl6-BZ#136	MG/KG	0.00040 U	0.00037 U	0.00025 J	0.00038 U
Cl6-BZ#137	MG/KG	0.00040 U	0.00037 U	0.00040 U	0.00038 U
Cl6-BZ#138	MG/KG	0.0010	0.00061	0.0014	0.00032 J
Cl6-BZ#141	MG/KG	0.00040 U	0.00037 U	0.00022 J	0.00038 U
Cl6-BZ#144	MG/KG	0.00040 U	0.00037 U	0.00040 U	0.00038 U
Cl6-BZ#146	MG/KG	0.00071	0.00059	0.00072	0.00030 J
Cl6-BZ#147/#149	MG/KG	0.0015	0.0012	0.0016	0.00054 J
Cl6-BZ#151	MG/KG	0.00040 U	0.00037 U	0.00026 J	0.00038 U
Cl6-BZ#153	MG/KG	0.0026 J	0.0021 J	0.0029 J	0.0010 J
Cl6-BZ#154	MG/KG	0.00040 U	0.00037 U	0.00040 U	0.00038 U
Cl6-BZ#155	MG/KG	0.00040 U	0.00037 U	0.00040 U	0.00038 U

TABLE 1c - SUMMARY OF SAMPLE DATA FOR PRE-SPAWN QUAHOG (MG/KG WET WEIGHT) AREA 3 - 2018

Parameter	Units	Sample#	NBH18-SF-B-3	NBH18-SF-D-3	NBH18-SF-I-3	NBH18-SF-J-3
		Species	Quahogs	Quahogs	Quahogs	Quahogs
		Species Type	Meat	Meat	Meat	Meat
		Area	3	3	3	3
		Station	Station B	Station D	Station I	Station J
		Sample Date	5/16/2018	5/16/2018	5/11/2018	5/16/2018
Cl6-BZ#156	MG/KG		0.00021 J	0.00037 U	0.00035 J	0.00038 U
Cl6-BZ#157	MG/KG		0.00040 U	0.00037 U	0.00040 U	0.00038 U
Cl6-BZ#163/#160	MG/KG		0.0010	0.00082	0.0011	0.00051 J
Cl6-BZ#167	MG/KG		0.00040 U	0.00037 U	0.00040 U	0.00038 U
Cl6-BZ#168	MG/KG		0.00040 U	0.00037 U	0.00040 U	0.00038 U
Cl6-BZ#169	MG/KG		0.00040 U	0.00037 U	0.00040 U	0.00038 U
Cl7-BZ#170	MG/KG		0.00040 U	0.00037 U	0.00040 U	0.00038 U
Cl7-BZ#171	MG/KG		0.00040 U	0.00037 U	0.00040 U	0.00038 U
Cl7-BZ#172	MG/KG		0.00040 U	0.00037 U	0.00040 U	0.00038 U
Cl7-BZ#173	MG/KG		0.00040 U	0.00037 U	0.00040 U	0.00038 U
Cl7-BZ#174	MG/KG		0.00040 U	0.00037 U	0.00023 J	0.00038 U
Cl7-BZ#176	MG/KG		0.00040 U	0.00037 U	0.00040 U	0.00038 U
Cl7-BZ#177	MG/KG		0.00023 J	0.00020 J	0.00034 J	0.00038 U
Cl7-BZ#178	MG/KG		0.00040 U	0.00037 U	0.00040 U	0.00038 U
Cl7-BZ#180	MG/KG		0.00038 J	0.00030 J	0.00052	0.00038 U
Cl7-BZ#182/#175	MG/KG		0.00080 U	0.00073 U	0.00079 U	0.00076 U
Cl7-BZ#183	MG/KG		0.00040 U	0.00037 U	0.00040 U	0.00038 U
Cl7-BZ#184	MG/KG		0.00040 U	0.00037 U	0.00040 U	0.00038 U
Cl7-BZ#185	MG/KG		0.00040 U	0.00037 U	0.00040 U	0.00038 U
Cl7-BZ#187	MG/KG		0.00044	0.00039	0.00049	0.00024 J
Cl7-BZ#188	MG/KG		0.00040 U	0.00037 U	0.00040 U	0.00038 U
Cl7-BZ#189	MG/KG		0.00040 U	0.00037 U	0.00040 U	0.00038 U
Cl7-BZ#190	MG/KG		0.00040 U	0.00037 U	0.00040 U	0.00038 U
Cl7-BZ#191	MG/KG		0.00040 U	0.00037 U	0.00040 U	0.00038 U
Cl7-BZ#193	MG/KG		0.00040 U	0.00037 U	0.00040 U	0.00038 U
Cl8-BZ#194	MG/KG		0.00040 U	0.00037 U	0.00040 U	0.00038 U
Cl8-BZ#195	MG/KG		0.00040 U	0.00037 U	0.00040 U	0.00038 U
Cl8-BZ#196	MG/KG		0.00040 U	0.00037 U	0.00040 U	0.00038 U
Cl8-BZ#197	MG/KG		0.00040 U	0.00037 U	0.00040 U	0.00038 U
Cl8-BZ#199	MG/KG		0.00040 U	0.00037 U	0.00040 U	0.00038 U
Cl8-BZ#201	MG/KG		0.00040 U	0.00037 U	0.00040 U	0.00038 U
Cl8-BZ#202	MG/KG		0.00040 U	0.00037 U	0.00040 U	0.00038 U
Cl8-BZ#203	MG/KG		0.00040 U	0.00037 U	0.00040 U	0.00038 U
Cl8-BZ#204/#200	MG/KG		0.00080 U	0.00073 U	0.00079 U	0.00076 U
Cl8-BZ#205	MG/KG		0.00040 U	0.00037 U	0.00040 U	0.00038 U
Cl9-BZ#206	MG/KG		0.00040 U	0.00037 U	0.00040 U	0.00038 U
Cl9-BZ#207	MG/KG		0.00040 U	0.00037 U	0.00040 U	0.00038 U
Cl9-BZ#208	MG/KG		0.00040 U	0.00037 U	0.00040 U	0.00038 U
Cl10-BZ#209	MG/KG		0.00040 U	0.00037 U	0.00040 U	0.00038 U

Notes for 2018 Appendix Tables:

[1] = summation of 148 PCB congener results (1/2 sample quantitation limit [SQL] used for non-detected results)
[2] = summation of detected 148 PCB congeners
[3] = summation of 18 NOAA PCB congener results (1/2 sample quantitation limit [SQL] used for non-detected results)
[4] = summation of 12 WHO PCB congener results (1/2 sample quantitation limit [SQL] used for non-detected results)
5 = summation of 12 WHO and 18 NOAA PCB congener results (1/2 sample quantitation limit [SQL] used for non-detected results)

U = not detected (ND); value represents SQL
J = estimated value
J1 = concentration of detected congeners contributes < 50% of total congener result
J2 = concentration of detected congeners contributes > 50% of total congener result
J3 = concentration of detected congeners contributes > 90% of total congener result
J4 = concentration of detected congeners contributes > 99% of total congener result
mg/kg = milligrams per kilogram (wet weight)

The PCB Congener list reported by the laboratory in 2017 included the 136 project-specified congeners plus an additional 12 congeners that coelute with the project-specific congeners due to updated instrumentation and calibration standards.

Prepared by: BCG 9/7/2018
Checked by: JAR 9/7/2018

TABLE 2a - SUMMARY OF SAMPLE DATA FOR CONCH (MG/KG WET WEIGHT) AREA 2 - 2018

Parameter	Units	Sample#	NBH18-SF-A-2	NBH18-SF-B-2	NBH18-SF-C-2	NBH18-SF-D-2	NBH18-SF-E-2
		Species	Conch	Conch	Conch	Conch	Conch
		Species Type	Meat	Meat	Meat	Meat	Meat
		Area	2	2	2	2	2
		Station	Station A	Station B	Station C	Station D	Station E
		Sample Date	10/19/2018	10/19/2018	10/19/2018	10/19/2018	10/22/2018
Lipids	PERCENT		0.34	0.42	0.46	0.45	0.46
Total PCB Congeners[1]	MG/KG		0.19 J3	0.27 J3	0.75 J4	0.46 J3	0.21 J3
Total PCB Congeners Hits[2]	MG/KG		0.18	0.26	0.74	0.45	0.20
Total NOAA Congeners[3]	MG/KG		0.087 J4	0.11 J4	0.31 J4	0.21 J4	0.091 J4
Total WHO Congeners[4]	MG/KG		0.020 J3	0.027 J3	0.056 J4	0.043 J3	0.021 J3
Total NOAA / WHO Combined[5]	MG/KG		0.093 J3	0.12 J3	0.32 J4	0.22 J4	0.098 J3
Cl1-BZ#1	MG/KG		0.00039 U	0.00035 U	0.00033 U	0.00035 U	0.00038 U
Cl1-BZ#3	MG/KG		0.00039 U	0.00035 U	0.00033 U	0.00035 U	0.00038 U
Cl2-BZ#4/#10	MG/KG		0.00077 U	0.00070 U	0.00047 J	0.00070 U	0.00076 U
Cl2-BZ#5	MG/KG		0.00039 U	0.00035 U	0.00033 U	0.00035 U	0.00038 U
Cl2-BZ#6	MG/KG		0.00039 U	0.00035	0.0019	0.00044	0.00042
Cl2-BZ#7	MG/KG		0.00039 U	0.00035 U	0.00033 U	0.00035 U	0.00038 U
Cl2-BZ#8	MG/KG		0.00025 J	0.00035 U	0.00035	0.00035 U	0.00020 J
Cl2-BZ#12	MG/KG		0.00039 U	0.00035 U	0.00033 U	0.00035 U	0.00038 U
Cl2-BZ#13	MG/KG		0.00077 U	0.00070 U	0.00067 U	0.00070 U	0.00076 U
Cl2-BZ#15	MG/KG		0.00039 U	0.00035 U	0.00050	0.00035 U	0.00020 J
Cl3-BZ#16	MG/KG		0.00039 U	0.00035 U	0.00047	0.00020 J	0.00038 U
Cl3-BZ#17	MG/KG		0.00039 U	0.00035 U	0.00098	0.00035 U	0.00028 J
Cl3-BZ#18	MG/KG		0.00044 J	0.00076	0.0059	0.0013	0.0011
Cl3-BZ#19	MG/KG		0.00039 U	0.00035 U	0.00020 J	0.00035 U	0.00038 U
Cl3-BZ#21/#20	MG/KG		0.00077 U	0.00070 U	0.00096	0.00070 U	0.00076 U
Cl3-BZ#22	MG/KG		0.00039 U	0.00025 J	0.0015	0.00042	0.00029 J
Cl3-BZ#24	MG/KG		0.00039 U	0.00035 U	0.00033 U	0.00035 U	0.00038 U
Cl3-BZ#25	MG/KG		0.00039 U	0.00035 U	0.00033 U	0.00035 U	0.00038 U
Cl3-BZ#26	MG/KG		0.0010	0.0026	0.013	0.0045	0.0024
Cl3-BZ#27	MG/KG		0.00039 U	0.00035 U	0.0011	0.00025 J	0.00027 J
Cl3-BZ#28	MG/KG		0.00058	0.00074	0.0065	0.0015	0.0014
Cl3-BZ#29	MG/KG		0.00039 U	0.00035 U	0.00033 U	0.00035 U	0.00038 U
Cl3-BZ#31	MG/KG		0.0017	0.0048	0.019	0.0071	0.0035
Cl3-BZ#32	MG/KG		0.00039 U	0.00035 U	0.00097	0.00025 J	0.00025 J
Cl3-BZ#33	MG/KG		0.00039 U	0.00035 U	0.00033 U	0.00035 U	0.00038 U
Cl3-BZ#37	MG/KG		0.00039 U	0.00023 J	0.00070	0.00032 J	0.00029 J
Cl4-BZ#40	MG/KG		0.00039 U	0.00029 J	0.0011	0.00045	0.00032 J
Cl4-BZ#41	MG/KG		0.00039 U	0.00035 U	0.00033 U	0.00035 U	0.00038 U
Cl4-BZ#42	MG/KG		0.00047	0.00072	0.0035	0.0014	0.00087
Cl4-BZ#43	MG/KG		0.00039 U	0.00035 U	0.00032 J	0.00035 U	0.00038 U
Cl4-BZ#44	MG/KG		0.0018	0.0036	0.013	0.0066	0.0030
Cl4-BZ#45	MG/KG		0.00039 U	0.00035 U	0.00043	0.00024 J	0.00038 U
Cl4-BZ#47	MG/KG		0.00061	0.00091	0.0048	0.0016	0.0011
Cl4-BZ#48	MG/KG		0.00039 U	0.00035 U	0.00033 J	0.00035 U	0.00038 U
Cl4-BZ#49	MG/KG		0.0065	0.015	0.049	0.024	0.0088
Cl4-BZ#50	MG/KG		0.00039 U	0.00035 U	0.00033 U	0.00035 U	0.00038 U
Cl4-BZ#51	MG/KG		0.00039 U	0.00035 U	0.00032 J	0.00035 U	0.00038 U
Cl4-BZ#52	MG/KG		0.0067	0.016	0.048	0.026	0.011
Cl4-BZ#53	MG/KG		0.00039 U	0.00035 U	0.00061	0.00035 U	0.00022 J
Cl4-BZ#54	MG/KG		0.00039 U	0.00035 U	0.00033 U	0.00035 U	0.00038 U
Cl4-BZ#56	MG/KG		0.00041	0.00053	0.0023	0.0010	0.00058

TABLE 2a - SUMMARY OF SAMPLE DATA FOR CONCH (MG/KG WET WEIGHT) AREA 2 - 2018

Parameter	Units	NBH18-SF-A-2	NBH18-SF-B-2	NBH18-SF-C-2	NBH18-SF-D-2	NBH18-SF-E-2
Sample#		NBH18-SF-A-2	NBH18-SF-B-2	NBH18-SF-C-2	NBH18-SF-D-2	NBH18-SF-E-2
Species		Conch	Conch	Conch	Conch	Conch
Species Type		Meat	Meat	Meat	Meat	Meat
Area		2	2	2	2	2
Station		Station A	Station B	Station C	Station D	Station E
Sample Date		10/19/2018	10/19/2018	10/19/2018	10/19/2018	10/22/2018
Cl4-BZ#60	MG/KG	0.00045	0.0010	0.0027	0.0014	0.00062
Cl4-BZ#63	MG/KG	0.00032 J	0.00061	0.0016	0.00099	0.00045
Cl4-BZ#66	MG/KG	0.0035	0.0046	0.014	0.0073	0.0039
Cl4-BZ#68/#64	MG/KG	0.0018	0.0034	0.011	0.0050	0.0022
Cl4-BZ#70	MG/KG	0.0018	0.0029	0.010	0.0055	0.0031
Cl4-BZ#71	MG/KG	0.00028 J	0.00051	0.0023	0.00073	0.00056
Cl4-BZ#73/#46	MG/KG	0.00077 U	0.00070 U	0.00050 J	0.00070 U	0.00076 U
Cl4-BZ#74	MG/KG	0.0018	0.0029	0.0083	0.0040	0.0018
Cl4-BZ#76	MG/KG	0.00039 U	0.00035 U	0.00033 U	0.00035 U	0.00038 U
Cl4-BZ#77	MG/KG	0.00039 U	0.00035 U	0.00023 J	0.00035 U	0.00021 J
Cl4-BZ#81	MG/KG	0.00039 U	0.00035 U	0.00033 U	0.00035 U	0.00038 U
Cl5-BZ#82	MG/KG	0.00039 U	0.00019 J	0.00064	0.00042	0.00024 J
Cl5-BZ#83/#125/#112	MG/KG	0.00059 J	0.0011	0.0023	0.0017	0.0012
Cl5-BZ#85	MG/KG	0.0017	0.0021	0.0050	0.0039	0.0016
Cl5-BZ#87/#111	MG/KG	0.0011	0.0015	0.0045	0.0032	0.0014
Cl5-BZ#89/#84	MG/KG	0.00068 J	0.00095	0.0030	0.0017	0.0013
Cl5-BZ#91	MG/KG	0.0018	0.0041	0.013	0.0066	0.0024
Cl5-BZ#92	MG/KG	0.0038	0.0062	0.014	0.012	0.0050
Cl5-BZ#97	MG/KG	0.0024	0.0041	0.017	0.0084	0.0031
Cl5-BZ#99	MG/KG	0.013	0.016	0.044	0.026	0.011
Cl5-BZ#100	MG/KG	0.00020 J	0.00037	0.00085	0.00045	0.00023 J
Cl5-BZ#101/#90	MG/KG	0.013	0.020	0.062	0.037	0.016
Cl5-BZ#104	MG/KG	0.00039 U	0.00035 U	0.00033 U	0.00035 U	0.00038 U
Cl5-BZ#105	MG/KG	0.0020	0.0028	0.0064	0.0051	0.0020
Cl5-BZ#107/#123	MG/KG	0.0017	0.0023	0.0045	0.0040	0.0024
Cl5-BZ#110	MG/KG	0.0082	0.017	0.051	0.028	0.011
Cl5-BZ#114	MG/KG	0.00072	0.00072	0.0018	0.0013	0.00066
Cl5-BZ#118	MG/KG	0.012	0.016	0.036	0.026	0.013
Cl5-BZ#119	MG/KG	0.0013	0.0018	0.0042	0.0024	0.00085
Cl5-BZ#121/#95/#88	MG/KG	0.0023	0.0037	0.012	0.0069	0.0036
Cl5-BZ#124	MG/KG	0.00022 J	0.00042	0.0012	0.00070	0.00038
Cl5-BZ#126	MG/KG	0.00039 U	0.00035 U	0.00033 U	0.00035 U	0.00038 U
Cl6-BZ#128	MG/KG	0.0029	0.0033	0.0071	0.0059	0.0026
Cl6-BZ#129/#158	MG/KG	0.0015	0.0020	0.0051	0.0040	0.0013
Cl6-BZ#130/#164	MG/KG	0.0013	0.0024	0.0052	0.0039	0.0018
Cl6-BZ#131	MG/KG	0.00039 U	0.00035 U	0.00036	0.00035 U	0.00038 U
Cl6-BZ#132	MG/KG	0.0010	0.0014	0.0042	0.0029	0.0015
Cl6-BZ#134	MG/KG	0.00059	0.00092	0.0021	0.0017	0.00075
Cl6-BZ#135	MG/KG	0.00080	0.0012	0.0031	0.0022	0.0012
Cl6-BZ#136	MG/KG	0.00020 J	0.00032 J	0.0011	0.00060	0.00042
Cl6-BZ#137	MG/KG	0.00069	0.00084	0.00206	0.00145	0.00050
Cl6-BZ#138	MG/KG	0.010	0.010	0.027	0.024	0.0096
Cl6-BZ#141	MG/KG	0.00050	0.00087	0.0022	0.0018	0.00056
Cl6-BZ#144	MG/KG	0.00039 U	0.00035 U	0.00050	0.00041	0.00038 U
Cl6-BZ#146	MG/KG	0.0045	0.0060	0.011	0.0099	0.0048
Cl6-BZ#147/#149	MG/KG	0.0062	0.010	0.0370	0.019	0.0076
Cl6-BZ#151	MG/KG	0.0012	0.0019	0.0044	0.0037	0.0016
Cl6-BZ#153	MG/KG	0.026	0.025	0.068	0.051	0.022
Cl6-BZ#154	MG/KG	0.00068	0.0010	0.0032	0.0014	0.00065
Cl6-BZ#155	MG/KG	0.00039 U	0.00035 U	0.00033 U	0.00035 U	0.00038 U

TABLE 2a - SUMMARY OF SAMPLE DATA FOR CONCH (MG/KG WET WEIGHT) AREA 2 - 2018

Parameter	Units	Sample#	NBH18-SF-A-2	NBH18-SF-B-2	NBH18-SF-C-2	NBH18-SF-D-2	NBH18-SF-E-2
		Species	Conch	Conch	Conch	Conch	Conch
		Species Type	Meat	Meat	Meat	Meat	Meat
		Area	2	2	2	2	2
		Station	Station A	Station B	Station C	Station D	Station E
		Sample Date	10/19/2018	10/19/2018	10/19/2018	10/19/2018	10/22/2018
Cl6-BZ#156	MG/KG		0.0013	0.0021	0.0035	0.0034	0.0012
Cl6-BZ#157	MG/KG		0.00054	0.00070	0.0010	0.00097	0.00057
Cl6-BZ#163/#160	MG/KG		0.0050	0.0068	0.011	0.011	0.0055
Cl6-BZ#167	MG/KG		0.00081	0.0012	0.0021	0.0019	0.00085
Cl6-BZ#168	MG/KG		0.00039 U	0.00035 U	0.00033 U	0.00035 U	0.00038 U
Cl6-BZ#169	MG/KG		0.00039 U	0.00035 U	0.00033 U	0.00035 U	0.00038 U
Cl7-BZ#170	MG/KG		0.0014	0.0016	0.0030	0.0028	0.0011
Cl7-BZ#171	MG/KG		0.00039	0.00040	0.00092	0.00076	0.00034 J
Cl7-BZ#172	MG/KG		0.00029 J	0.00036	0.00051	0.00057	0.00032 J
Cl7-BZ#173	MG/KG		0.00039 U	0.00035 U	0.00033 U	0.00035 U	0.00038 U
Cl7-BZ#174	MG/KG		0.00032 J	0.00053	0.0012	0.00087	0.00043
Cl7-BZ#176	MG/KG		0.00039 U	0.00035 U	0.00021 J	0.00035 U	0.00038 U
Cl7-BZ#177	MG/KG		0.00067	0.00080	0.0013	0.0014	0.00074
Cl7-BZ#178	MG/KG		0.00052	0.00065	0.0011	0.0011	0.00056
Cl7-BZ#180	MG/KG		0.0024	0.0030	0.0057	0.0051	0.0020
Cl7-BZ#182/#175	MG/KG		0.00077 U	0.00070 U	0.00067 U	0.00070 U	0.00076 U
Cl7-BZ#183	MG/KG		0.00094	0.00092	0.0026	0.0019	0.00073
Cl7-BZ#184	MG/KG		0.00039 U	0.00035 U	0.00033 U	0.00035 U	0.00038 U
Cl7-BZ#185	MG/KG		0.00039 U	0.00035 U	0.00033 U	0.00035 U	0.00038 U
Cl7-BZ#187	MG/KG		0.0031	0.0037	0.0072	0.0063	0.0030
Cl7-BZ#188	MG/KG		0.00039 U	0.00035 U	0.00033 U	0.00035 U	0.00038 U
Cl7-BZ#189	MG/KG		0.00039 U	0.00024 J	0.00021 J	0.00020 J	0.00038 U
Cl7-BZ#190	MG/KG		0.00020 J	0.00024 J	0.00038	0.00037	0.00020 J
Cl7-BZ#191	MG/KG		0.00039 U	0.00035 U	0.00019 J	0.00035 U	0.00038 U
Cl7-BZ#193	MG/KG		0.00023 J	0.00039	0.00046	0.00044	0.00027 J
Cl8-BZ#194	MG/KG		0.00043	0.00048	0.00059	0.00082	0.00027 J
Cl8-BZ#195	MG/KG		0.00039 U	0.00035 U	0.00033 U	0.00035 U	0.00038 U
Cl8-BZ#196	MG/KG		0.00039 U	0.00035 U	0.00042	0.00019 J	0.00019 J
Cl8-BZ#197	MG/KG		0.00039 U	0.00035 U	0.00033 U	0.00035 U	0.00038 U
Cl8-BZ#199	MG/KG		0.00039 U	0.00035 U	0.00033 U	0.00035 U	0.00038 U
Cl8-BZ#201	MG/KG		0.00040	0.00060	0.00071	0.00077	0.00050
Cl8-BZ#202	MG/KG		0.00039 U	0.00022 J	0.00036	0.00033 J	0.00025 J
Cl8-BZ#203	MG/KG		0.00020 J	0.00025 J	0.00042	0.00045	0.00020 J
Cl8-BZ#204/#200	MG/KG		0.00077 U	0.00070 U	0.00067 U	0.00070 U	0.00076 U
Cl8-BZ#205	MG/KG		0.00039 U	0.00035 U	0.00033 U	0.00035 U	0.00038 U
Cl9-BZ#206	MG/KG		0.00039 U	0.00035 U	0.00018 J	0.00035 U	0.00038 U
Cl9-BZ#207	MG/KG		0.00039 U	0.00035 U	0.00033 U	0.00035 U	0.00038 U
Cl9-BZ#208	MG/KG		0.00039 U	0.00035 U	0.00033 U	0.00035 U	0.00038 U
Cl10-BZ#209	MG/KG		0.00039 U	0.00035 U	0.00033 U	0.00035 U	0.00038 U

TABLE 2b - SUMMARY OF SAMPLE DATA FOR CONCH (MG/KG WET WEIGHT) AREA 3 - 2018

Parameter	Units	NBH18-SF-A-3	NBH18-SF-B-3	NBH18-SF-C-3	NBH18-SF-D-3	NBH18-SF-E-3
Sample#		NBH18-SF-A-3	NBH18-SF-B-3	NBH18-SF-C-3	NBH18-SF-D-3	NBH18-SF-E-3
Species		Conch	Conch	Conch	Conch	Conch
Species Type		Meat	Meat	Meat	Meat	Meat
Area		3	3	3	3	3
Station		Station A	Station B	Station C	Station D	Station E
Sample Date		11/1/2018	10/22/2018	10/22/2018	10/22/2018	10/22/2018
Lipids	PERCENT	0.42	0.38	0.30	0.32	0.51
Total PCB Congeners[1]	MG/KG	0.074 J2	0.051 J2	0.088 J2	0.093 J2	0.16 J3
Total PCB Congeners Hits[2]	MG/KG	0.058	0.033	0.073	0.079	0.15
Total NOAA Congeners[3]	MG/KG	0.030 J3	0.020 J3	0.034 J3	0.038 J3	0.075 J4
Total WHO Congeners[4]	MG/KG	0.0073 J2	0.0045 J2	0.011 J3	0.0063 J2	0.021 J3
Total NOAA / WHO Combined[5]	MG/KG	0.034 J3	0.022 J3	0.038 J3	0.042 J3	0.083 J3
Cl1-BZ#1	MG/KG	0.00037 U	0.00034 U	0.00038 U	0.00034 U	0.00035 U
Cl1-BZ#3	MG/KG	0.00037 U	0.00034 U	0.00038 U	0.00034 U	0.00035 U
Cl2-BZ#4/#10	MG/KG	0.00074 U	0.00069 U	0.00076 U	0.00067 U	0.00070 U
Cl2-BZ#5	MG/KG	0.00037 U	0.00034 U	0.00038 U	0.00034 U	0.00035 U
Cl2-BZ#6	MG/KG	0.00037 U	0.00034 U	0.00038 U	0.00034 U	0.00020 J
Cl2-BZ#7	MG/KG	0.00037 U	0.00034 U	0.00038 U	0.00034 U	0.00035 U
Cl2-BZ#8	MG/KG	0.00037 U	0.00034 U	0.00038 U	0.00034 U	0.00035 U
Cl2-BZ#12	MG/KG	0.00037 U	0.00034 U	0.00038 U	0.00034 U	0.00035 U
Cl2-BZ#13	MG/KG	0.00074 U	0.00069 U	0.00076 U	0.00067 U	0.00070 U
Cl2-BZ#15	MG/KG	0.00037 U	0.00034 U	0.00038 U	0.00034 U	0.00035 U
Cl3-BZ#16	MG/KG	0.00037 U	0.00034 U	0.00038 U	0.00034 U	0.00035 U
Cl3-BZ#17	MG/KG	0.00037 U	0.00034 U	0.00038 U	0.00034 U	0.00035 U
Cl3-BZ#18	MG/KG	0.00037 U	0.00034 U	0.00038 U	0.00034 U	0.00043
Cl3-BZ#19	MG/KG	0.00037 U	0.00034 U	0.00038 U	0.00034 U	0.00035 U
Cl3-BZ#21/#20	MG/KG	0.00074 U	0.00069 U	0.00076 U	0.00067 U	0.00070 U
Cl3-BZ#22	MG/KG	0.00037 U	0.00034 U	0.00038 U	0.00034 U	0.00035 U
Cl3-BZ#24	MG/KG	0.00037 U	0.00034 U	0.00038 U	0.00034 U	0.00035 U
Cl3-BZ#25	MG/KG	0.00037 U	0.00034 U	0.00038 U	0.00034 U	0.00035 U
Cl3-BZ#26	MG/KG	0.00033 J	0.00034 U	0.00036 J	0.00081	0.00083
Cl3-BZ#27	MG/KG	0.00037 U	0.00034 U	0.00038 U	0.00034 U	0.00035 U
Cl3-BZ#28	MG/KG	0.00037 U	0.00034 U	0.00026 J	0.00019 J	0.00050
Cl3-BZ#29	MG/KG	0.00037 U	0.00034 U	0.00038 U	0.00034 U	0.00035 U
Cl3-BZ#31	MG/KG	0.00063	0.00019 J	0.00062	0.0014	0.0014
Cl3-BZ#32	MG/KG	0.00037 U	0.00034 U	0.00038 U	0.00034 U	0.00035 U
Cl3-BZ#33	MG/KG	0.00037 U	0.00034 U	0.00038 U	0.00034 U	0.00035 U
Cl3-BZ#37	MG/KG	0.00037 U	0.00034 U	0.00038 U	0.00034 U	0.00035 U
Cl4-BZ#40	MG/KG	0.00037 U	0.00034 U	0.00038 U	0.00034 U	0.00035 U
Cl4-BZ#41	MG/KG	0.00037 U	0.00034 U	0.00038 U	0.00034 U	0.00035 U
Cl4-BZ#42	MG/KG	0.00037 U	0.00034 U	0.00038 U	0.00022 J	0.00036
Cl4-BZ#43	MG/KG	0.00037 U	0.00034 U	0.00038 U	0.00034 U	0.00035 U
Cl4-BZ#44	MG/KG	0.00049	0.00034 U	0.00078	0.0011	0.0013
Cl4-BZ#45	MG/KG	0.00037 U	0.00034 U	0.00038 U	0.00034 U	0.00035 U
Cl4-BZ#47	MG/KG	0.00021 J	0.00034 U	0.00028 J	0.00024 J	0.00044
Cl4-BZ#48	MG/KG	0.00037 U	0.00034 U	0.00038 U	0.00034 U	0.00035 U

TABLE 2b - SUMMARY OF SAMPLE DATA FOR CONCH (MG/KG WET WEIGHT) AREA 3 - 2018

Parameter		Sample#	NBH18-SF-A-3	NBH18-SF-B-3	NBH18-SF-C-3	NBH18-SF-D-3	NBH18-SF-E-3
		Species	Conch	Conch	Conch	Conch	Conch
		Species Type	Meat	Meat	Meat	Meat	Meat
		Area	3	3	3	3	3
		Station	Station A	Station B	Station C	Station D	Station E
		Sample Date	11/1/2018	10/22/2018	10/22/2018	10/22/2018	10/22/2018
Parameter	Units						
Cl4-BZ#49	MG/KG		0.0021	0.00054	0.0026	0.0044	0.0029
Cl4-BZ#50	MG/KG		0.00037 U	0.00034 U	0.00038 U	0.00034 U	0.00035 U
Cl4-BZ#51	MG/KG		0.00037 U	0.00034 U	0.00038 U	0.00034 U	0.00035 U
Cl4-BZ#52	MG/KG		0.0022	0.00062	0.0033	0.0042	0.0044
Cl4-BZ#53	MG/KG		0.00037 U	0.00034 U	0.00038 U	0.00034 U	0.00035 U
Cl4-BZ#54	MG/KG		0.00037 U	0.00034 U	0.00038 U	0.00034 U	0.00035 U
Cl4-BZ#56	MG/KG		0.00037 U	0.00034 U	0.00020 J	0.00034 U	0.00035 J
Cl4-BZ#60	MG/KG		0.00019 J	0.00034 U	0.00038 U	0.00034 U	0.00041
Cl4-BZ#63	MG/KG		0.00037 U	0.00034 U	0.00020 J	0.00034 U	0.00042
Cl4-BZ#66	MG/KG		0.00093	0.00031 J	0.00108	0.0011	0.0021
Cl4-BZ#68/#64	MG/KG		0.00047 J	0.00069 U	0.00062 J	0.00090	0.00089
Cl4-BZ#70	MG/KG		0.00059	0.00037	0.0012	0.00072	0.0020
Cl4-BZ#71	MG/KG		0.00037 U	0.00034 U	0.00038 U	0.00034 U	0.00020 J
Cl4-BZ#73/#46	MG/KG		0.00074 U	0.00069 U	0.00076 U	0.00067 U	0.00070 U
Cl4-BZ#74	MG/KG		0.00049	0.00034 U	0.00054	0.00045	0.0010
Cl4-BZ#76	MG/KG		0.00037 U	0.00034 U	0.00038 U	0.00034 U	0.00035 U
Cl4-BZ#77	MG/KG		0.00037 U	0.00034 U	0.00038 U	0.00034 U	0.00018 J
Cl4-BZ#81	MG/KG		0.00037 U	0.00034 U	0.00038 U	0.00034 U	0.00035 U
Cl5-BZ#82	MG/KG		0.00037 U	0.00034 U	0.00038 U	0.00034 U	0.00035 U
Cl5-BZ#83/#125/#112	MG/KG		0.0011 U	0.0010 U	0.00065 J	0.0010 U	0.00066 J
Cl5-BZ#85	MG/KG		0.00053	0.00034	0.00044	0.00077	0.0015
Cl5-BZ#87/#111	MG/KG		0.00038 J	0.00069 U	0.00043 J	0.0004 J	0.00075
Cl5-BZ#89/#84	MG/KG		0.00074 U	0.00069 U	0.00052 J	0.00039 J	0.00057 J
Cl5-BZ#91	MG/KG		0.00060	0.00023 J	0.00074	0.0011	0.0013
Cl5-BZ#92	MG/KG		0.0012	0.00065	0.0030	0.0014	0.0038
Cl5-BZ#97	MG/KG		0.00063	0.00045	0.00080	0.0014	0.0031
Cl5-BZ#99	MG/KG		0.0035	0.0016	0.0036	0.0051	0.0056
Cl5-BZ#100	MG/KG		0.00037 U	0.00034 U	0.00038 U	0.00034 U	0.00035 U
Cl5-BZ#101/#90	MG/KG		0.0040	0.0022	0.0051	0.0055	0.012
Cl5-BZ#104	MG/KG		0.00037 U	0.00034 U	0.00038 U	0.00034 U	0.00035 U
Cl5-BZ#105	MG/KG		0.00066	0.00041	0.00096	0.00066	0.00210
Cl5-BZ#107/#123	MG/KG		0.00087	0.00069	0.0014	0.00087	0.0026
Cl5-BZ#110	MG/KG		0.0020	0.00095	0.0028	0.0045	0.0052
Cl5-BZ#114	MG/KG		0.00026 J	0.00018 J	0.00028 J	0.00032 J	0.00062
Cl5-BZ#118	MG/KG		0.0033	0.0014	0.0055	0.0023	0.012
Cl5-BZ#119	MG/KG		0.00039	0.00034 U	0.00029 J	0.00056	0.00044
Cl5-BZ#121/#95/#88	MG/KG		0.00059 J	0.0010 U	0.0010 J	0.00089 J	0.0016
Cl5-BZ#124	MG/KG		0.00037 U	0.00034 U	0.00024 J	0.00017 J	0.00036
Cl5-BZ#126	MG/KG		0.00037 U	0.00034 U	0.00038 U	0.00034 U	0.00035 U
Cl6-BZ#128	MG/KG		0.0012	0.0010	0.0012	0.0015	0.0027
Cl6-BZ#129/#158	MG/KG		0.00048 J	0.00034 J	0.00059 J	0.00073	0.0012

TABLE 2b - SUMMARY OF SAMPLE DATA FOR CONCH (MG/KG WET WEIGHT) AREA 3 - 2018

Parameter		Sample#	NBH18-SF-A-3	NBH18-SF-B-3	NBH18-SF-C-3	NBH18-SF-D-3	NBH18-SF-E-3
		Species	Conch	Conch	Conch	Conch	Conch
		Species Type	Meat	Meat	Meat	Meat	Meat
		Area	3	3	3	3	3
		Station	Station A	Station B	Station C	Station D	Station E
		Sample Date	11/1/2018	10/22/2018	10/22/2018	10/22/2018	10/22/2018
Parameter	Units						
Cl6-BZ#130/#164	MG/KG		0.00049 J	0.00043 J	0.00087	0.00078	0.0016
Cl6-BZ#131	MG/KG		0.00037 U	0.00034 U	0.00038 U	0.00034 U	0.00035 U
Cl6-BZ#132	MG/KG		0.00022 J	0.00034 U	0.00034 J	0.00044	0.00071
Cl6-BZ#134	MG/KG		0.00025 J	0.00034 U	0.00047	0.00023 J	0.00068
Cl6-BZ#135	MG/KG		0.00027 J	0.00021 J	0.00075	0.00032 J	0.0010
Cl6-BZ#136	MG/KG		0.00037 U	0.00034 U	0.00038 U	0.00034 U	0.00022 J
Cl6-BZ#137	MG/KG		0.00019 J	0.00017 J	0.00024 J	0.00034	0.00051
Cl6-BZ#138	MG/KG		0.0037	0.0031	0.0031	0.0051	0.010
Cl6-BZ#141	MG/KG		0.00022 J	0.00034 U	0.00034 J	0.00022 J	0.00050
Cl6-BZ#144	MG/KG		0.00037 U	0.00034 U	0.00038 U	0.00034 U	0.00035 U
Cl6-BZ#146	MG/KG		0.0023	0.0018	0.0032	0.0021	0.0063
Cl6-BZ#147/#149	MG/KG		0.0020	0.0013	0.0021	0.0034	0.0066
Cl6-BZ#151	MG/KG		0.00042	0.00027 J	0.00096	0.00047	0.0013
Cl6-BZ#153	MG/KG		0.0096	0.0067	0.0080	0.012	0.022
Cl6-BZ#154	MG/KG		0.00029 J	0.00034 U	0.00038 U	0.00039	0.00032 J
Cl6-BZ#155	MG/KG		0.00037 U	0.00034 U	0.00038 U	0.00034 U	0.00035 U
Cl6-BZ#156	MG/KG		0.00059	0.00040	0.00092	0.00065	0.0013
Cl6-BZ#157	MG/KG		0.00033 J	0.00025 J	0.00034 J	0.00028 J	0.00057
Cl6-BZ#163/#160	MG/KG		0.0023	0.0017	0.0043	0.0024	0.0058
Cl6-BZ#167	MG/KG		0.00038	0.00027 J	0.00058	0.00033 J	0.0011
Cl6-BZ#168	MG/KG		0.00037 U	0.00034 U	0.00038 U	0.00034 U	0.00035 U
Cl6-BZ#169	MG/KG		0.00037 U	0.00034 U	0.00038 U	0.00034 U	0.00035 U
Cl7-BZ#170	MG/KG		0.00051	0.00053	0.00060	0.00082	0.0010
Cl7-BZ#171	MG/KG		0.00037 U	0.00034 U	0.00023 J	0.00028 J	0.00027 J
Cl7-BZ#172	MG/KG		0.00037 U	0.00034 U	0.00038 U	0.00034 U	0.00023 J
Cl7-BZ#173	MG/KG		0.00037 U	0.00034 U	0.00038 U	0.00034 U	0.00035 U
Cl7-BZ#174	MG/KG		0.00019 J	0.00034 U	0.00038 U	0.00034 U	0.00035
Cl7-BZ#176	MG/KG		0.00037 U	0.00034 U	0.00038 U	0.00034 U	0.00035 U
Cl7-BZ#177	MG/KG		0.00042	0.00035	0.00059	0.00034	0.00082
Cl7-BZ#178	MG/KG		0.00033 J	0.00025 J	0.00040	0.00034	0.00053
Cl7-BZ#180	MG/KG		0.0011	0.00079	0.0011	0.0012	0.0019
Cl7-BZ#182/#175	MG/KG		0.00074 U	0.00069 U	0.00076 U	0.00067 U	0.00070 U
Cl7-BZ#183	MG/KG		0.00036 J	0.00026 J	0.00032 J	0.00046	0.00079
Cl7-BZ#184	MG/KG		0.00037 U	0.00034 U	0.00038 U	0.00034 U	0.00035 U
Cl7-BZ#185	MG/KG		0.00037 U	0.00034 U	0.00038 U	0.00034 U	0.00035 U
Cl7-BZ#187	MG/KG		0.0017	0.0013	0.0018	0.0017	0.0032
Cl7-BZ#188	MG/KG		0.00037 U	0.00034 U	0.00038 U	0.00034 U	0.00035 U
Cl7-BZ#189	MG/KG		0.00037 U	0.00034 U	0.00038 U	0.00034 U	0.00035 U
Cl7-BZ#190	MG/KG		0.00037 U	0.00034 U	0.00038 U	0.00034 U	0.00035 U
Cl7-BZ#191	MG/KG		0.00037 U	0.00034 U	0.00038 U	0.00034 U	0.00035 U
Cl7-BZ#193	MG/KG		0.00037 U	0.00034 U	0.00038 U	0.00034 U	0.00022 J

TABLE 2b - SUMMARY OF SAMPLE DATA FOR CONCH (MG/KG WET WEIGHT) AREA 3 - 2018

Parameter	Units	Sample#	NBH18-SF-A-3	NBH18-SF-B-3	NBH18-SF-C-3	NBH18-SF-D-3	NBH18-SF-E-3
		Species	Conch	Conch	Conch	Conch	Conch
		Species Type	Meat	Meat	Meat	Meat	Meat
		Area	3	3	3	3	3
		Station	Station A	Station B	Station C	Station D	Station E
		Sample Date	11/1/2018	10/22/2018	10/22/2018	10/22/2018	10/22/2018
Cl8-BZ#194	MG/KG		0.00021 J	0.00020 J	0.00020 J	0.00034 U	0.00035 U
Cl8-BZ#195	MG/KG		0.00037 U	0.00034 U	0.00038 U	0.00034 U	0.00035 U
Cl8-BZ#196	MG/KG		0.00037 U	0.00034 U	0.00038 U	0.00034 U	0.00035 U
Cl8-BZ#197	MG/KG		0.00037 U	0.00034 U	0.00038 U	0.00034 U	0.00035 U
Cl8-BZ#199	MG/KG		0.00037 U	0.00034 U	0.00038 U	0.00034 U	0.00035 U
Cl8-BZ#201	MG/KG		0.00031 J	0.00022 J	0.00025 J	0.00018 J	0.00035 J
Cl8-BZ#202	MG/KG		0.00037 U	0.00034 U	0.00038 U	0.00034 U	0.00019 J
Cl8-BZ#203	MG/KG		0.00037 U	0.00034 U	0.00038 U	0.00034 U	0.00035 U
Cl8-BZ#204/#200	MG/KG		0.00074 U	0.00069 U	0.00076 U	0.00067 U	0.00070 U
Cl8-BZ#205	MG/KG		0.00037 U	0.00034 U	0.00038 U	0.00034 U	0.00035 U
Cl9-BZ#206	MG/KG		0.00037 U	0.00034 U	0.00038 U	0.00034 U	0.00035 U
Cl9-BZ#207	MG/KG		0.00037 U	0.00034 U	0.00038 U	0.00034 U	0.00035 U
Cl9-BZ#208	MG/KG		0.00037 U	0.00034 U	0.00038 U	0.00034 U	0.00035 U
Cl10-BZ#209	MG/KG		0.00037 U	0.00034 U	0.00038 U	0.00034 U	0.00035 U

Notes for 2018 Appendix Tables:

[1] = summation of 148 PCB congener results (1/2 sample quantitation limit [SQL] used for non-detected results)
[2] = summation of detected 148 PCB congeners
[3] = summation of 18 NOAA PCB congener results (1/2 sample quantitation limit [SQL] used for non-detected results)
[4] = summation of 12 WHO PCB congener results (1/2 sample quantitation limit [SQL] used for non-detected results)
5 = summation of 12 WHO and 18 NOAA PCB congener results (1/2 sample quantitation limit [SQL] used for non-detected results)

U = not detected (ND); value represents SQL
J = estimated value
J1 = concentration of detected congeners contributes < 50% of total congener result
J2 = concentration of detected congeners contributes > 50% of total congener result
J3 = concentration of detected congeners contributes > 90% of total congener result
J4 = concentration of detected congeners contributes > 99% of total congener result
mg/kg = milligrams per kilogram (wet weight)

The PCB Congener list reported by the laboratory in 2017 included the 136 project-specified congeners plus an additional 12 congeners that coelute with the project-specific congeners due to updated instrumentation and calibration standards.

Prepared by: BCG 2/25/2019
Checked by: JAR 2/28/19

Appendix B

Data Validation Summary
Massachusetts Department of Environmental Protection
New Bedford Harbor Seafood Contaminant Survey Monitoring
2018 Sampling
February 18, 2019

Data Validation Summary
Massachusetts Department of Environmental Protection
New Bedford Harbor Superfund Site
Seafood Contaminant Survey Monitoring 2018 Sampling
New Bedford, Massachusetts

INTRODUCTION

Fourteen pre-spawn quahog tissue samples and ten conch tissue samples were collected as part of the New Bedford Harbor Superfund Site's Seafood Contaminant Survey Monitoring. Samples were collected in May 2018 (quahogs) and October-November 2018 (conch). All samples were collected by the Massachusetts Department of Marine Fisheries (MADMF). Samples were submitted to Alpha Analytical Laboratory located in Mansfield, Massachusetts, for processing and analysis. Tissue samples were analyzed for percent lipids and polychlorinated biphenyls (PCBs) by gas chromatography/mass spectrometry (GC/MS) Selected Ion Monitoring (SIM).

Tissue samples were analyzed in Sample Delivery Groups (SDGs): L1824807 (quahogs – pre-spawn) and L1900323 (conch). The data package was validated using Region I EPA-New England Data Validation Functional Guidelines for Evaluating Environmental Analyses (USEPA, 1996), Region I Laboratory Data Validation Functional Guidelines for Evaluating Organics Analyses (USEPA, 2004), Alpha Analytical Laboratory Standard Operating Procedure (SOP) 2162 (Alpha, 2017), and the Quality Assurance Project Plan, Seafood Contaminant Survey, New Bedford Harbor Superfund Site, Revision 13.0 (MADEP, 2017). As specified in the QAPP, Tier I+ data validation is performed on 95 percent of the samples, and Tier II data validation is performed on 5 percent of the samples. For the 2018 sampling events, Tier II validation was performed on the following quahog samples analyzed in the same analytical sequence:

NBH18-SF-B-2
NBH18-SF-C-2
NBH18-SF-D-2
NBH18-SF-F-2
NBH18-SF-G-2
NBH18-SF-H-2
NBH18-SF-B-3
NBH18-SF-D-3
NBH18-SF-J-3

For Tier I+ data validation, data were evaluated for the following parameters:

* Collection and Preservation
* Holding Times
* Data Completeness
* Initial Calibration (for Tier I+ only if problems noted in case narrative)
* Continuing Calibration (for Tier I+ only if problems noted in case narrative)
* Blanks
* Surrogate Standards
  Standard Reference Material (SRM)
* Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD)
  Matrix Spike/Matrix Spike Duplicates (MS/MSD)
  Laboratory Duplicates

* Internal Standards (for Tier I+ only if problems noted in case narrative)
* Target Compound Quantitation (for Tier I+ only if problems noted in case narrative)
Miscellaneous

* - all criteria were met for this parameter

For Tier II data validation, the above checks were completed along with evaluations of initial calibrations, continuing calibrations, instrument tuning, and internal standards using summary forms provided in the data package. No problems were noted for the Tier II validation checks.

DATA VALIDATION SUMMARY

In general, laboratory performance is considered acceptable and all results are usable. The following qualifying statements have been applied to the 2018 data.

SRM

PCB (L1824807) – The SRM associated with all samples had percent recoveries greater than the 40-140 control limits for a subset of congeners, indicating potential high bias for detections of the following congeners:

BZ 99 (160)
BZ 110 (160)
BZ 118 (160)
BZ 153 (171)
BZ 156 (151)
BZ 183 (141)
BZ 194 (182)
BZ 206 (149)

Positive results for these congeners in all quahog samples were qualified estimated (J) and may represent potential high biases.

Matrix Spikes

PCB (L1824807) – The matrix spike associated with sample NBH18-SF-A-1 had a percent recovery greater than the 40-140 control limits for BZ 25 (177), indicating potential high bias. The result for BZ 25 in sample NBH18-SF-A-1 was qualified estimated (J) and may represent a potential high bias.

Laboratory Duplicates

PCB (L1900323) – The laboratory duplicate associated with sample NBH18-SF-A-2 had a relative percent difference (RPD) greater than the control limit of 30 for BZ 18 (55). The result for BZ 18 in conch sample NBH18-SF-A-2 was qualified estimated (J).

Miscellaneous

PCB (L1824807, L1900323) – Consistent with the 2017 data, the PCB Congener list reported by the laboratory in 2018 included the 136 project-specified congeners plus an additional 12 congeners that coelute with the project-specific congeners due to updated instrumentation and calibration standards.

Reference:

U.S. Environmental Protection Agency (USEPA), 1996. "Region I, EPA-New England Data Validation Functional Guidelines for Evaluating Environmental Analyses, Parts I and II," Quality Assurance Unit Staff; Office of Environmental Measurement and Evaluation; December, 1996.

U.S. Environmental Protection Agency (USEPA), 2004. "Region I, Laboratory Data Validation Functional Guidelines for Evaluating Organics Analyses;" Hazardous Site Evaluation Division; Draft, February, 2004.

Alpha Analytical, Inc., 2017. "Determination of PCB Homologs and 209 Individual Congeners by GC/MS-SIM," Alpha Analytical, Inc.; November, 2017.

MADEP, 2017. "Quality Assurance Project Plan, Seafood Contaminant Survey, New Bedford Harbor Superfund Site, Revision 13.0", Massachusetts Department of Environmental Protection; November, 2017.

Data Validator: Julie Ricardi

Signature:  Date: February 18, 2019

Reviewed by: Bradley B. LaForest, NRCC-EAC

Signature:  Date: February 21, 2019

Appendix C

Seafood Monitoring - Field Sampling Activities
for
the New Bedford Harbor Superfund Site
2018 Annual Report
February 2019

Seafood Monitoring - Field Sampling Activities for the New Bedford Harbor Superfund Site
2018 Annual Report

Vin Malkoski, Senior Marine Fisheries Biologist
Massachusetts Division of Marine Fisheries
February 2019

The Massachusetts Division of Marine Fisheries (*MarineFisheries*) under an agreement with the Massachusetts Department of Environmental Protection (MassDEP) collects legal-size fish and shellfish from the three New Bedford Harbor fish closure areas. At the end of the collection period, these frozen samples were delivered to the Alpha Woods Hole Laboratories in Mansfield, Massachusetts for analysis. MassDEP provides the results of the analyses to EPA to monitor and support the site remediation project. This report describes *MarineFisheries*' field activities in 2018 in accordance with the Seafood Monitoring and Field Sampling Work Plan and makes recommendations for the upcoming 2019 field season based on results obtained during the previous field season.

Sample Sites

The three Fish Closure Areas are identified in Attachment 1 from the EPA Record of Decision for the Upper and Lower Operable Unit, New Bedford Harbor Superfund Site, New Bedford, Massachusetts, dated September 25, 1998. These three Fish Closure Areas were designated by the Mass. Dept. of Public Health in 1979. Area 1 includes the waters of the Acushnet River and the New Bedford/Fairhaven Inner Harbor north of the Hurricane Barrier. Area 2 comprises the waters of the Outer Harbor and Clarks Cove south of the Hurricane Barrier and north of a line drawn from Wilbur Point in Fairhaven to Ricketsons Point in Dartmouth. Area 3 is that portion of Buzzards Bay south of the line drawn from Wilbur Point in Fairhaven to Ricketsons Point in Dartmouth and north of a line drawn from Rocky Point on West Island in Fairhaven to the Negro Ledge C3 buoy then to Mishaum Point in Dartmouth.

There are five original sample stations in each of the three fish closure areas in the waters of the City of New Bedford and the Towns of Dartmouth and Fairhaven. Station locations within each area vary for different species as what may be suitable habitat for one species may not be suitable for another (Attachment 1 – Figure 1 to 3). During the 2018 collection season, the only species collected from Area 1 was quahog.

2018 Field Collections

Attachment 2 – Collection Sheets 1 & 2 contain data on the harvest dates, collection identification information, species, station identification information, location by latitude and longitude, and collection method.

Channeled whelk (*Busycon canaliculatum)* and knobbed whelk *(Busycon carica)*
We collected channeled and knobbed whelk from all ten stations in Areas 2 and 3 during October using conch pots.

Quahog (*Mercenaria mercenaria*)
Marine Fisheries collected pre-spawn quahog samples from fourteen stations in Areas 1, 2, and 3 during May and early June by rake and diver. We harvested a minimum of 12 quahogs per station in order to provide sufficient sample sizes for the Work Plan. We could not find any quahogs at Station SF C-1 (Crow's Island) in Area 1. This area has been problematic in recent years and we will continue to look for quahogs in the vicinity of this station in 2019.

Planning for 2019 Field Collections

The 2019 collection requirements are not yet been established.

ATTACHMENT 1
DMF HARVEST SITE MAPS

Figure 1 PCB Sample Areas 1, 2, & 3
Figure 2 Quahog (Pre-spawn May), Areas 1, 2, & 3
Figure 3 Whelk, Areas 2, & 3

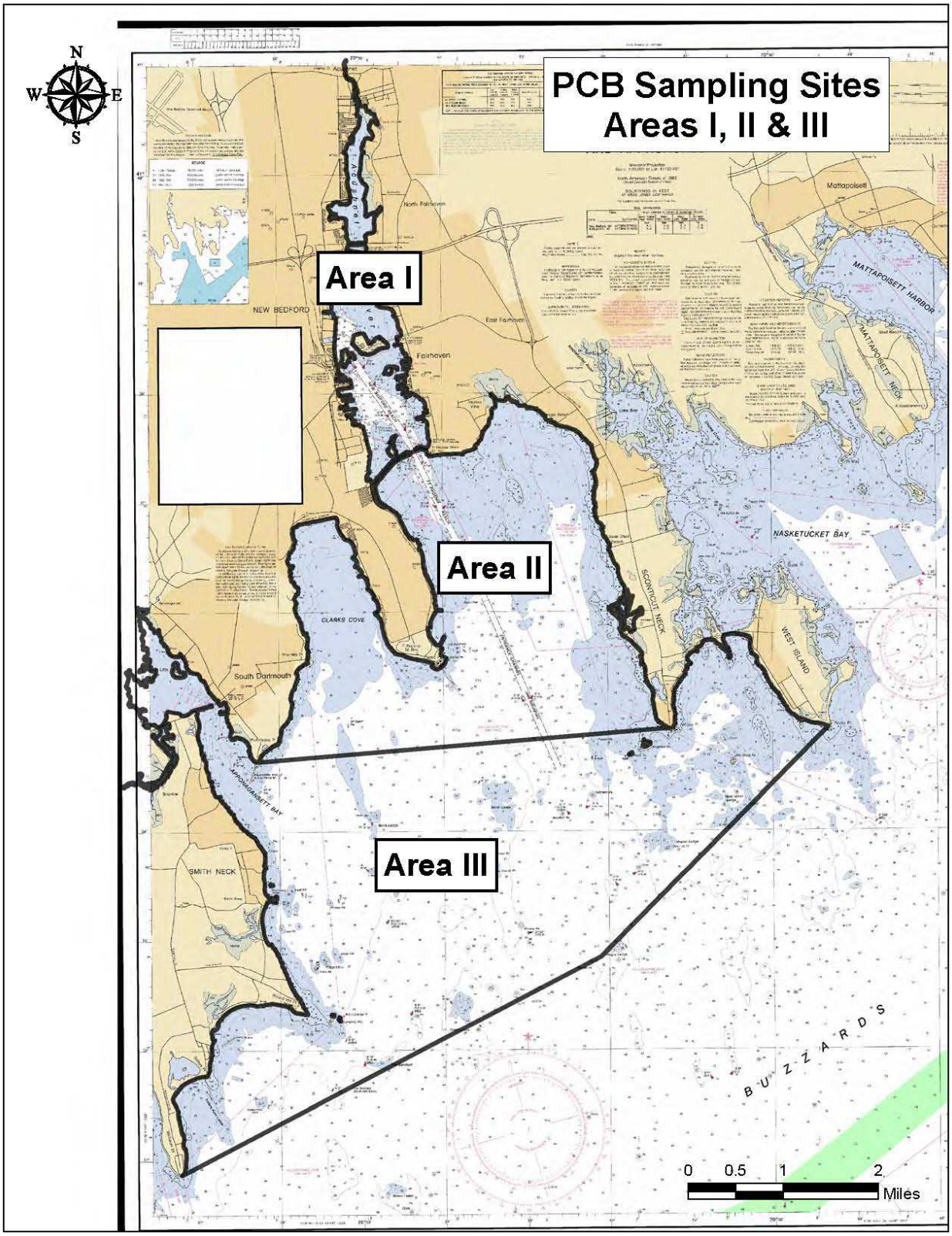

Figure 1 PCB Sample Areas I to III

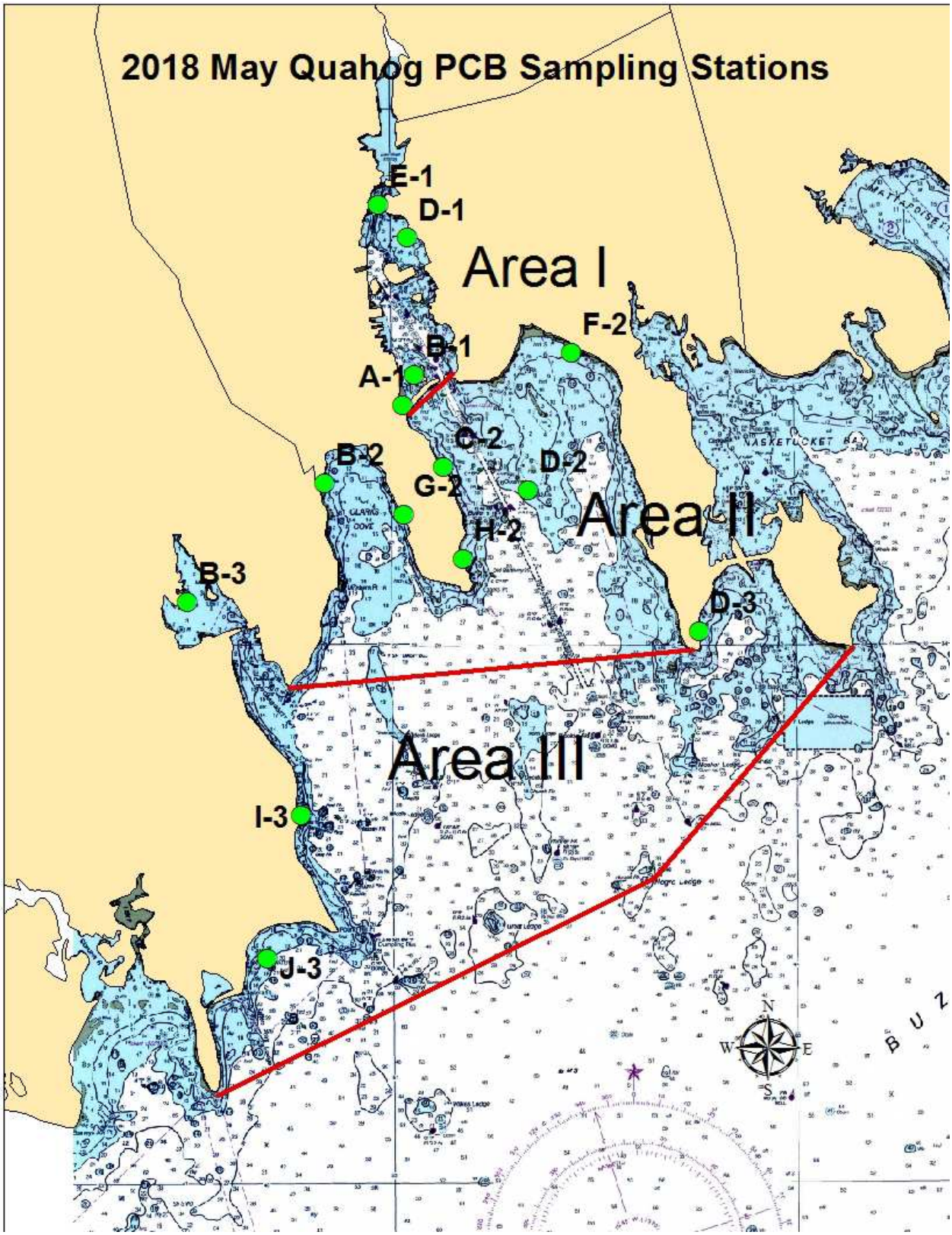

Figure 2 Quahog (Pre-spawn May), Areas I, II, & III

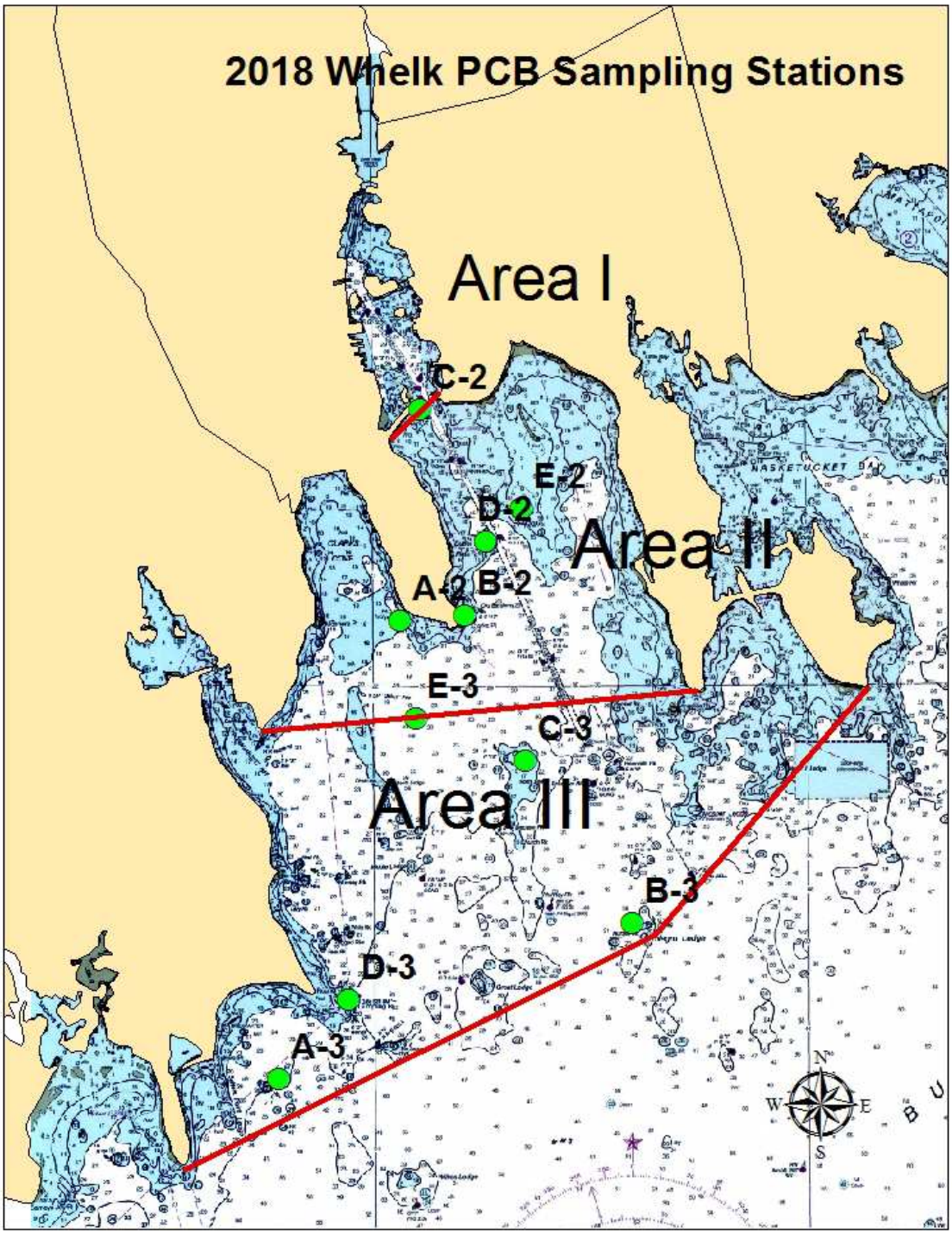

Figure 3 Whelk, Areas II, & III

ATTACHMENT 2
DMF FIELD COLLECTION SHEETS

Field Collection Form 1 Quahog Pre-spawn
Field Collection Form 2 Whelk

FIELD COLLECTION FORM 1: DIVISION MARINE FISHERIES, NEW BEDFORD OFFICE, 1213 PURCHASE ST, NEW BEDFORD, MA 02740
PROJECT #: NBH18 REQUESTED BY/AGENCY: Paul Craffey / Dept. Environmental Protection ANALYSIS REQUESTED:

COLLECTOR: MDMF Vin Malkoski SHIPPER: MDMF Vin Malkoski SAMPLE CONDITION: FRESH ____ FROZEN X

COLLECTION DATE DDMMYY	COLLECTION #	SPECIES & # IN SAMPLE	STATION I.D.	LOCATION	LAT/LONG DEG. MIN.	COLLECTION METHOD	RESERVED FOR OFFICE USE
6/6/2018	NBH18-SF-A1	13 Quahogs (Prespawn)	West of Barrier Opening	NBH Area 1	41º 37.220' 070º 54.845'	Rake	
6/8/2018	NBH18-SF-B-1	13 Quahogs (Prespawn)	Palmer Island	NBH Area 1	41º 37.505' 070º 54.690'	Rake	
5/31/2018	NBH18-SF-D-1	13 Quahogs (Prespawn)	North of Gifford's Marina	NBH Area 1	41º 38.783' 070º 54.773'	Rake	
5/31/2018	NBH18-SF-E-1	13 Quahogs (Prespawn)	Tin Can Island	NBH Area 1	41º 39.092' 070º 55.122'	Rake	
5/15/2018	NBH18-SF-B-2	13 Quahogs (Prespawn)	Rogers Street	NBH Area 2	041º 36.500' 070º 55.820'	Dive	
5/15/2018	NBH18-SF-C-2	13 Quahogs (Prespawn)	S of Fredrick St Ramp	NBH Area 2	041º 36.650' 070º 54.345'	Dive	
5/15/2018	NBH18-SF-D-2	13 Quahogs (Prespawn)	Egg Island	NBH Area 2	041º 36.422 070º 53.290'	Dive	
5/15/2018	NBH18-SF-F-2	13 Quahogs (Prespawn)	Priest's Cove	NBH Area 2	041º 37.700' 070º 52.740'	Dive	
5/15/2018	NBH18-SF-G-2	13 Quahogs (Prespawn)	W Rodney Family Area	NBH Area 2	041º 36.205' 070º 54.842'	Dive	
5/15/2018	NBH18-SF-H-2	13 Quahogs (Prespawn)	E Rodney Family Area	NBH Area 2	041º 35.790' 070º 54.108'	Dive	
5/16/2018	NBH18-SF-B-3	13 Quahogs (Prespawn)	Star of the Sea	NBH Area 3	041º 35.410' 070º 57.524'	Rake	
5/16/2018	NBH18-SF-D-3	13 Quahogs (Prespawn)	Nakata Beach	NBH Area 3	041º 35.102' 070º 51.192'	Dive	
5/11/2018	NBH18-SF-I-3	13 Quahogs (Prespawn)	Nonquit	NBH Area 3	041º 33.415' 070º 56.128'	Dive	
5/16/2018	NBH18-SF-J-3	13 Quahogs (Prespawn)	Salters Point	NBH Area 3	41° 32.09' 070 56.56'	Dive	

FIELD COLLECTION FORM 3: DIVISION MARINE FISHERIES, NEW BEDFORD OFFICE, 1213 PURCHASE ST, NEW BEDFORD, MA 02740
PROJECT #: NBH18 REQUESTED BY/AGENCY: Paul Craffey / Dept. Environmental Protection ANALYSIS REQUESTED:

COLLECTOR: MDMF Vin Malkoski SHIPPER: MDMF Vin Malkoski SAMPLE CONDITION: FRESH ____ FROZEN X

COLLECTION DATE DDMMYY	COLLECTION #	SPECIES & # IN SAMPLE	STATION I.D.	LOCATION	LAT/LONG DEG. MIN.	COLLECTION METHOD	RESERVED FOR OFFICE USE
10/19/2018; 10/22/2018	NBH18-SF-A-2	13 Whelk	SMAST Pier	NBH Area 2	041º 35.556' 070º 54.669'	Pots	
10/19/2018; 10/22/2018	NBH18-SF-B-2	12 Whelk	E of Fort Rodman	NBH Area 2	041º 35.596' 070º 53.922'	Pots	
10/19/2018	NBH18 SF-C-2	12 Whelk	W of Opening	NBH Area 2	041º 37.380' 070º 54.430'	Pots	
10/19/2018	NBH18-SF-D-2	12 Whelk	Lighthouse	NBH Area 2	041º 36.242' 070º 53.683'	Pots	
10/22/2018	NBH18-SF-E-2	12 Whelk	Egg Island	NBH Area 2	041º 36.523' 070º 53.258'	Pots	
11/1/2018	NBH18-SF-A-3	12 Whelk	Great Ledge	NBH Area 3	41º 31.591' 070º 56.110'	Pots	
10/22/2018	NBH18-SF-B-3	12 Whelk	Negro Ledge	NBH Area 3	41º 32.922' 070º 52.023'	Pots	
10/22/2018	NBH18-SF-C-3	12 Whelk	North Ledge	NBH Area 3	041º 34.341' 070º 53.234'	Pots	
10/22/2018	NBH18-SF-D-3	12 Whelk	Radome	NBH Area 3	041º 32.281' 070º 55.292'	Pots	
10/22/2018	NBH18-SF-E-3	12 Whelk	Angelica Rock	NBH Area 3	41º 34.711' 070º 51.498'	Pots	

Appendix D

PCB Congener Calculations 136 vs 148 for 2017 Memo
May 30, 2018

Commonwealth of Massachusetts
Executive Office of Energy & Environmental Affairs

Department of Environmental Protection
One Winter Street Boston, MA 02108 • 617-292-5500

Charles D. Baker
Governor

Karyn E. Polito
Lieutenant Governor

Matthew A. Beaton
Secretary

Martin Suuberg
Commissioner

Memorandum

From: Paul Craffey, MassDEP Project Manager
To: File
Date: May 30, 2018
Subject: PCB Congener Calculations 136 vs 148 for 2017

Introduction

Since 2003, the same 136 PCB congeners were analyzed for each location. The reason to keep the number and the specific congeners the same each year is so a comparison could be made to determine a trend of the PCB concentrations over the years of sampling. For the 2017 analysis, there were 148 PCB congeners that were analyzed in each sample. The new PCB congeners added in 2017 were BZ#20, #68, #73, #88, #90, #111, #112, #121, #125, #160, #164, and #204. These additional PCB congeners represent an 8.1% increase (12/148) in the number of PCB congeners vs. the previous sampling. The purpose of this memo is to determine if the 2017 concentrations represent a potential high bias due to the additional 12 congeners and may need a reduction correction when compared to the previous years.

Congener Result Analysis

Because the additional new PCB congeners co-eluted with other previous congeners, it is not possible to separate the peaks, add up the new 2017 PCB congeners, and subtract the total to obtain adjusted PCB congener totals that could be compared the previous years. The summary tables below represent each of the sample locations that were sampled in 2011 through 2017 and include only the PCB congeners affected by the new 2017 PCB congener list. The subset of affected PCB congeners was totaled and then compared to the total PCB concentration for each individual sample. The percentages of the subset vs. the total are shown on the last gray line of each sample location. The 2017 values including the additional 12 PCB congeners can be compared to the previous years (2011 to 2016) that do not include the additional congeners.

Results

The percentages of the subset PCB congeners for all Conch locations are between 12 to 22%

(averaging 17%) of the total PCB congeners. The percentages of the subset PCB congeners for the 2017 Conch locations are between 12 to 22% (averaging 18.9%) of the total PCB congeners. The total increase in the 2017 PCB congeners compared to the previous years (2011 to 2016) is less than 2% (18.9% – 17% = 1.9%).

The percentages of the subset PCB congeners for all Quahog locations are between 0 to 16% (averaging 12.4%) of the total PCB congeners. The percentages of the subset PCB congeners for the 2017 Quahog locations are between 2.3 to 15% (averaging 11.7%) of the total PCB congeners. The total decrease in the 2017 PCB congeners compared to the previous years (2011 to 2016) is less than 1% (12.4% –11.7% = 0.7%).

Even though the total number of new PCB congeners in 2017 increased the total number of PCB congeners analyzed by 8.1%, the additional new PCB congeners do not seem to represent a significant change to the total PCB congener results. Based on this evaluation an adjustment to the 2017 results is not required when compared to the previous years' results.