

GULFWATCH 2002-2004 Data Report:

TWELFTH - FOURTEENTH YEARS OF THE GULF OF MAINE ENVIRONMENTAL MONITORING PLAN

First Years beyond the Original 9-Year Monitoring Design

August 2006

Published by:

The Gulf of Maine Council on the Marine Environment



GULFWATCH 2002-2004:

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First Years beyond the Original 9-Year Monitoring Design

**Prepared for
Gulf of Maine Council on the Marine Environment
May 2005**

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1.0 INTRODUCTION

This report summarizes the metals and organic contaminant data associated with the collection and analyses of blue mussel (*Mytilus edulis*) tissue from selected sites along the Gulf of Maine Region for the period of 2002-2004. This data is also compared with analytical results from earlier Gulfwatch results beginning in 1993. Statistical analyses are generally limited to fundamental descriptive measures of replicates from each sampling site and include: averages, geometric means, and appropriate measures of variance. The primary purpose of this report is to present the analytical results, show apparent trends in the data, identify potential outliers, and lead users towards further investigations.

1.1 PROGRAMMATIC RATIONALE

The Gulf of Maine is the region of the North Atlantic Ocean that extends from Cape Sable, Nova Scotia, through New Brunswick, Maine, and New Hampshire to Cape Cod, Massachusetts, and includes the Bay of Fundy and Georges Bank. The combined productivity of seaweed, salt marsh grasses, and phytoplankton make it one of the world's most productive ecosystems supporting a vast array of animal species, including some of great commercial importance. Commercial fisheries are region's principal income-generating enterprise. Tourism is also economically important to coastal communities and marine aquaculture is rapidly expanding. Increases in coastal populations and industrial and residential development have contributed to the deteriorating quality of portions of the Gulf's coastal environment (Crawford and Sowles 1992, Dow and Braasch 1996). One important factor resulting from human activities is the steady input of toxic chemicals into the estuarine and coastal environments, despite efforts to improve pollution treatment. Many of these anthropogenic chemicals are bioaccumulated as they transfer through the food chain and have been found in organisms to be elevated above natural levels (Shaw et al., 2003; Aguilar et al., 2002; Weisbrod et al., 2000). Furthermore, some of these environmental contaminants may also be present at toxic concentrations, and thus induce adverse biological effects on productivity, reproduction and survival of marine organisms and humans (Kawaguchi et al. 1999, Wells and Rolston 1991).

To protect water quality and commercial uses in the Gulf of Maine, the *Agreement on the Conservation of the Marine Environment of the Gulf of Maine* was signed in December 1989 by the premiers of Nova Scotia and New Brunswick and the

governors of Maine, New Hampshire and Massachusetts; establishing the Gulf of Maine Council on the Marine Environment. The overarching mission of this council is to maintain and enhance the Gulf's marine ecosystem, its natural resources and environmental quality. To help meet the council's mission statement, The Gulf of Maine Environmental Monitoring Committee was formed and charged with the development of the Gulf of Maine Environmental Monitoring Plan. The monitoring plan is based on a mission statement provided by the Council:

It is the mission of the Gulf of Maine Environmental Quality Monitoring Program to provide environmental resource managers with information to support sustainable use of the Gulf and allow assessment and management risk to public and environmental health from current and potential threats.

Three monitoring goals were established to meet the mission statement:

- (1) To provide information on the status, trends, and sources of risk to the marine environment in the Gulf of Maine;
- (2) To provide information on the status, trends and sources of marine based human health risks in the Gulf of Maine; and
- (3) To provide appropriate and timely information to environmental and resource managers that will allow both efficient and effective management action and evaluation of such action.

In support of the mission and as a first step towards meeting the desired goals, the Gulfwatch Program was established to measure chemical contamination Gulf-wide.

1.2 GULFWATCH OBJECTIVES

Gulfwatch (GW) is presently a program in which the blue mussel, *Mytilus*, is used as an indicator for habitat exposure to organic and inorganic contaminants. Bivalves such as *M. edulis* have been successfully used as an indicator organism in environmental monitoring programs throughout the world (see NAS, 1980; NOAA, 1991; Widdows and Donkin, 1992) to identify variation in chemical contamination between sites, and contribute to the understanding of trends in chemical contamination (NOAA, 1991; O'Connor, 1998; Widdows et al., 1995). The blue mussel was selected as an indicator organism for the Gulfwatch program for the following reasons:

- (1) Mussels are abundant within and across each of the 5 jurisdictions (Nova Scotia and New Brunswick, CA; and the U.S. states of Massachusetts, New Hampshire and Maine) bordering the Gulf and they are easy to collect and process.
- (2) Blue mussels have been comparatively well-studied in the scientific and technical literature.
- (3) Mussels are a commercially important human food source and may be used to monitor human exposure to chemical contamination.
- (4) Mussels are sedentary, thereby eliminating the complications in interpretation of results introduced by mobile species.
- (5) Mussels are suspension feeders that pump large volumes of water and concentrate many chemicals in their tissues. Therefore, the presence of trace contamination is easier to document, and the measurement of chemicals in bivalve tissue provides an assessment of biologically available contamination that is not always apparent from measurement of contamination in environmental matrices such as water, sediment, and suspended particles).

Throughout the history of the program, GW has refined its approach to using mussels as bioindicators of anthropogenic contamination. During the first two years of the program (1991 & 1992), both transplanted and native mussels sampled from areas adjacent to the transplant sites were analyzed for organic and inorganic contaminants (GOMC, 1992). Transplanted mussels were initially collected from relatively pristine sites in each jurisdiction, relocated to targeted sites (for a myriad of reasons) and held there for approximately 60 days. Because of the logistics and the analytical costs, however, only two sites per jurisdiction were monitored each year using this transplant technique. Transplants provided an assessment of the short-term exposure (on the order of weeks to months) to bioavailable contaminants whereas sampling of native mussels provided more of an assessment of long-term exposure to bioavailable contaminants (on the order of months to a year). An objective of the first two years (1991 and 1992) of the Gulfwatch program was to evaluate the feasibility of the project crossing both national and state boundaries and the level of cooperation required for collecting comparative data from different locations along the Gulf of Maine. Having met this objective, the program recognized more monitoring sites were needed throughout the Gulf of Maine in order to adequately assess the degree and extent of contamination of the region. As such a sampling scheme involving a three-year rotation of sites was implemented in 1993 and continues to date. The sites included in the GW monitoring program consisted of two

general categories; test sites that were suspected or known to be contaminated, and reference sites that were thought to be free of any known contaminant source. One location in each jurisdiction was designated as a benchmark station and is continually re-sampled each year. The sampling design implemented in 1993 added additional stations thereby increasing the ability to characterize contaminants within the subregions of the coastal Gulf of Maine and the potential for identifying unforeseen environmental contamination. Additionally, transplant experiments were to be conducted at two sites within each jurisdiction during the last year of each three-year sampling cycle. This 3-year cycle was initiated and repeated for the next nine (9) years to allow assessments of both short-term and long-term contaminant exposure of the Gulf of Maine.

In 1996, regional scientists independently conducted a five-year review of the program for the GOM Council. The feasibility of continuing transplant studies (Jones et al., 1998) was evaluated and abandoned from the program, citing the cost of performing transplant experiments, the low rate of return, missing data, and the complications with the interpretation of the data. In 1998, additional sites in New Hampshire and New Brunswick (previously unsampled) were added to the program to increase the spatial coverage within the GOM and to target subregions where GW data indicated need for further investigation. Sampling of the New Hampshire sites was conducted in conjunction with the New Hampshire Gulfwatch program. The New Brunswick sites were located in the Saint John Harbor, a region of concern for petroleum and sewage-born contaminants. Expanded sampling in New Hampshire was conducted during the 2002-2004 sampling season. The expanded sampling in New Hampshire conducted during the later part of the 9-year cycle offered an opportunity to evaluate exposure to contaminants at a more local scale with that of the GOM region.

In addition to documenting the level of contaminants in mussel tissue, biological variables, including shell growth and condition index, were determined as a measure of the organism's stress and its relationship to different concentrations of contaminant burden. Growth is often one of the most sensitive measures of the effect of a contaminant on an organism (Sheehan, 1984; Sheehan et al., 1984; Howells et al., 1990). Specifically, shell growth has often been used as a measure of environmental quality and pollution effects. The rate of growth is a fundamental measure of physiological fitness/performance (Widdows and Donkin, 1992; Salazar and Salazar, 1995) and, therefore, a direct integrative measure of impairment to physiology.

Gulfwatch uses the condition index (CI) traditionally engaged by shellfishery biologists (Widdows, 1985) as an indicator of the physiological status of mussels. CI relates the tissue's wet weight to shell volume. Because gonadal weight is a significant

contributor to total body weight just prior to spawning, CI generally reflects differences in the reproductive state of sampled mussels. Since gonadal material tends to have low concentrations of metals (LaTouche and Mix, 1981), tissue metal concentrations may be reduced in mussels having a high CI due to ripened gonads. Organic contaminants, however, would tend to partition into both somatic and gonadal lipids, and may be less impacted by changes in CI that are due to the presence of ripe gametes. Variable amounts of ripe gametes have been found in some mussel populations even in late fall (Kimball, 1994) when Gulfwatch sampling occurs. Granby and Spliid (1995) found a significant negative correlation between PAHs and CI but no correlation between PCB or DDE concentration and CI. Regardless, the relationship between CI and contaminant concentrations should be considered in more in depth analyses of GW data.

2.0 METHODS

2.1 2002-2004 SAMPLING LOCATIONS

The 2002-2004 Gulf of Maine GW mussel surveys began the first period following the original 9-year sampling design of the Program (see Sowles et al., 1997). In addition to the benchmark stations (MASN, MECC, MEKN, NBHI, and NSDI) which are sampled annually, many of the other sites have now been sampled more than three times and may provide added value to temporal analyses of GW data. Two additional sites were sampled in New Hampshire for contaminants in clams and oysters: NHMG and NHNI, respectively. These New Hampshire sites are sampled as part of the New Hampshire Gulfwatch Program and are included as a preliminary comparative measure of contaminant accumulation in other organisms. The stations sampled in 2002-2004 are presented in Table 1 with reference to site locations in Fig. 1.

2.2 FIELD AND LABORATORY PROCEDURES

Details regarding the mussel collection, measurement, and sample preparation are published in Sowles et al. (1997) and are summarized briefly here. Gulfwatch attempts to control confounding variables by collecting organisms within a specific size range, at the same site, at similar tidal levels and similar times of the year after major spawning has occurred. The mussels collected were intended to be *Mytilus edulis*. However, a related species, *Mytilus trossulus*, was identified in some Bay of Fundy samples (Mucklow, 1996). Gulfwatch results could be confounded by inadvertent selection, by field personnel, of the wrong species. To alleviate this problem, a description of *M. edulis* was developed for the Gulfwatch program using shell criteria such as length:height ratio, internal color, weight, and location and size of the adductor scars (Jones et al., 1998).

Field sampling occurred between mid-September and mid-November. Mussels were collected from four discrete areas within a segment of the shoreline to be representative of local water quality. Using a polycarbonate gauge or a ruler, four (4) replicates of 45-50 mussels of 50-60 mm shell length were placed in field containers and transported in coolers with ice packs to labs for processing. Those mussels predestined for organic analysis were wrapped in pre-combusted aluminum foil prior to placing in field containers. Mussels were not depurated prior to processing.

From each replicate, 20 mussels were analyzed for trace metals and 20 for organic contaminants. Mussels were washed in the laboratory to remove any external

growth, sediment and debris. Excess seawater was drained from their mantles. Individual mussels were then measured to the nearest 0.1mm for length (anterior umbo to posterior growing lip) and their soft tissue was removed and combined in their respective organic or metals composite. In addition to shell length, shell height, width (mm), and soft tissue wet weight (to the nearest 0.01g) were typically performed on three (3) subsets of ten mussels destined for the metal analysis composite to allow for the calculation of CI. The CI was calculated using the following formula (after Seed, 1968):

$$\text{Condition index (CI)} = \text{wet tissue weight (mg)} / [\text{length (mm)} * \text{width (mm)} * \text{height (mm)}]$$

All samples for trace metal and organic contaminant analysis were placed in pre-cleaned or quality-assured bottles (Sowles et al., 1997). These composite samples (20 mussels/composite; 4 composites/station) were capped, labelled and stored at -15°C for 3-6 months prior to analysis.

TABLE 1. (A-C) Summary of Gulfwatch Stations sampled during 2002-2004.

A. Gulf of Maine Gulfwatch study site locations sampled in 2002.

Site Code	Site Name	Site Type	W Longitude (decimal degrees)	N Latitude (decimal degrees)
Jurisdiction				
Massachusetts				
MASN	Sandwich	Benchmark	70.4789	41.7639
MAPY	Plymouth – Manomet Point	3-year rotation	70.5383	41.9283
MACO	Cohasset – Little Harbor	3-year rotation	70.7902	42.2556
MALI	Long Island (Boston Harbor)	3-year rotation	70.9550	42.3283
MAMH	Marblehead	3-year rotation	70.8483	42.4983
MAME	Merrimack Estuary	3-year rotation	70.8233	42.8083
New Hampshire				
NHMG	Middle Ground (clam samples)	Expanded GW	70.7883	42.8922
NHHS	Hampton/Seabrook Harbor	3-year rotation	70.8163	42.8972
NHRH	Rye Harbor	3-year rotation	70.7400	43.0000
NHNM	North Mill Pond	Occasional	70.7600	43.0750
NHSS	Schiller Station	Expanded GW	70.7883	43.1017
NHDP	Dover Point	3-year rotation	70.8267	43.1196
NHNI	Nannie Island (oyster samples)	Expanded GW	70.8471	43.1344

Table 1A. (continued)

Maine					
	MECC	Clark's Cove	Benchmark	70.7244	43.0774
	MEBH	Brave Boat Harbor	3-year rotation	70.6233	43.0933
	MERY	Royal River	3-year rotation	70.1455	43.7970
	MEKN	Kennebec River	Benchmark	69.7845	43.7850
	MEFP	Penobscot River	3-year rotation	68.8102	44.4695
	MEPI	Pickering Island	3-year rotation	68.7332	44.2605
New Brunswick					
	NBSC	St. Croix River	3-year rotation	67.1638	45.1675
	NBHI	Hospital Island	Benchmark	67.0082	45.1205
	NBLN	Letang Estuary	Multi-year	66.7963	45.0757
Nova Scotia					
	NSAG	Argyle Sound	3-year rotation	65.8182	43.6990
	NSFI	Five Islands	Multi-year	64.0660	45.3975
	NSDI	Digby	Benchmark	64.7523	44.6170
	NSBC	Broad Cove	3-year rotation	65.8308	44.6653
	NSYR	Yarmouth	3-year rotation	66.1448	43.8177

B. Gulf of Maine Gulfwatch study site locations sampled in 2003.

	Site Code	Site Name	Site Type	W Longitude (decimal degrees)	N Latitude (decimal degrees)
Jurisdiction					
Massachusetts					
	MASN	Sandwich	Benchmark	70.4789	41.7639
	MADX	Duxbury	3-year rotation	70.6672	42.0335
	MABI	Outer Brewster Island	3-year rotation	70.8780	42.3425
	MAWN	Winthrop	3-year rotation	70.9642	42.3648
	MAIP	Ipswich	3-year rotation	70.7907	42.7007

Table 1B (continued)

New Hampshire					
NHHS	Hampton/Seabrook Harbor	3-year rotation	70.8163	42.8972	
NHLH	Little Harbor	3-year rotation	70.7154	43.0581	
NHDP	Dover Point	3-year rotation	70.8267	43.1196	
NHSM	South Mill Pond	Occasional	70.7489	43.0727	
Maine					
MECC	Clark's Cove	Benchmark	70.7244	43.0774	
MESA	Saco River	Occasional	70.3743	43.4598	
MEPH	Portland Harbor	3-year rotation	70.2590	43.6392	
MEPR	Presumpscot River	3-year rotation	70.2473	43.6922	
MEKN	Kennebec River	Benchmark	69.7845	43.7850	
MEUR	Union River	3-year rotation	68.4322	44.5015	
MEMR	Machias River	3-year rotation	67.4035	44.7137	
MECK	Cobscook Bay	3-year rotation	67.0543	44.9045	
New Brunswick					
NBSC	St. Croix River	3-year rotation	67.1638	45.1675	
NBHI	Hospital Island	Benchmark	67.0082	45.1205	
NBLB	Letang Estuary	Multi-year	66.7963	45.0757	
Nova Scotia					
NSAR	Apple River	3-year rotation	64.8350	45.4700	
NSDI	Digby	Benchmark	65.7523	44.6170	
NSSC	Spechts Cove	3-year rotation	65.9078	44.5153	

C. Gulf of Maine Gulfwatch study site locations sampled in 2004.

	Site Code	Site Name	Site Type	W Longitude (decimal degrees)	N Latitude (decimal degrees)
Jurisdiction					
Massachusetts					
	MASN	Sandwich	Benchmark	70.4789	41.7639
	MAIH	Boston Inner Harbor	3-year rotation	71.0284	42.3637
	MAPR	Pines River	3-year rotation	70.9793	42.4312
New Hampshire					
	NHHS	Hampton/Seabrook Harbor	3-year rotation	70.8163	42.8972
	NHDP	Dover Point	3-year rotation	70.8267	43.1196
	NHPI	Pierce Island	Occasional	70.7433	43.0717
	NHFP	Fox Point	Occasional	70.8589	43.1201
Maine					
	MECC	Clark's Cove	Benchmark	70.7244	43.0774
	MEKN	Kennebec River	Benchmark	69.7845	43.7850
	MEDM	Damariscotta	3-year rotation	69.5817	43.9383
	MEBB	Boothbay Harbor	Occasional	69.6727	43.8507
New Brunswick					
	NBNR	Niger Reef	Multi-year	67.0980	45..0663
	NBHI	Hospital Island	Benchmark	67.0082	45.1205
	NBTC	Tin Can Beach	Occasional	66.0570	45.2625
Nova Scotia					
	NSCW	Cornwallis	3-year rotation	65.6480	44.6447
	NSDI	Digby	Benchmark	65.7523	44.6170
	NSYR	Yarmouth	3-year rotation	66.1448	43.8177
	NSGC	Grosse Coques	Occasional	66.0950	44.3728

2002 Gulfwatch Sites

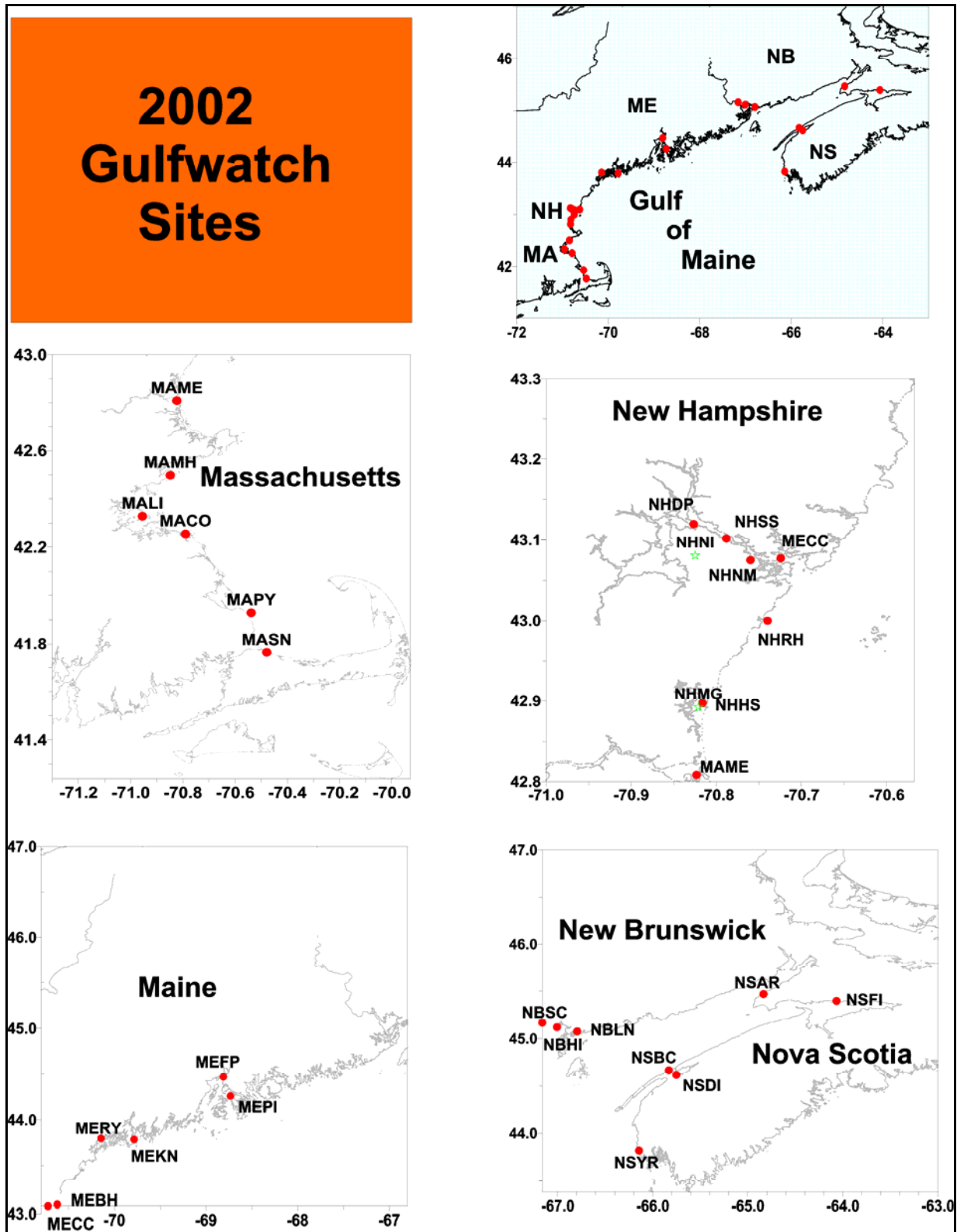


Figure 1 A. Locations along the Gulf of Maine of Gulfwatch sampling sites, 2002.

2003 Gulfwatch Sites

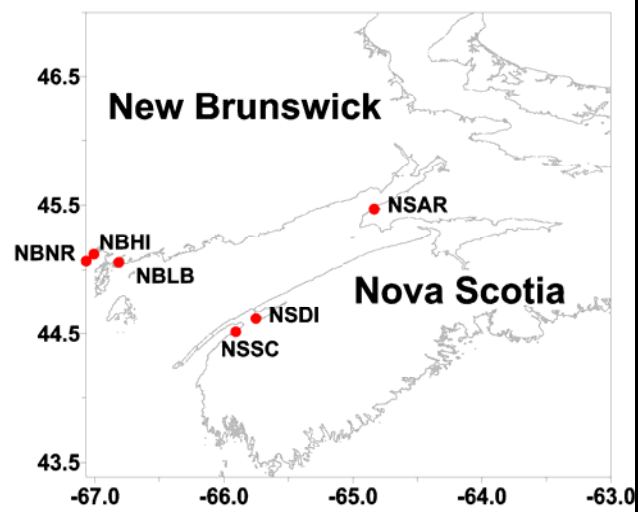
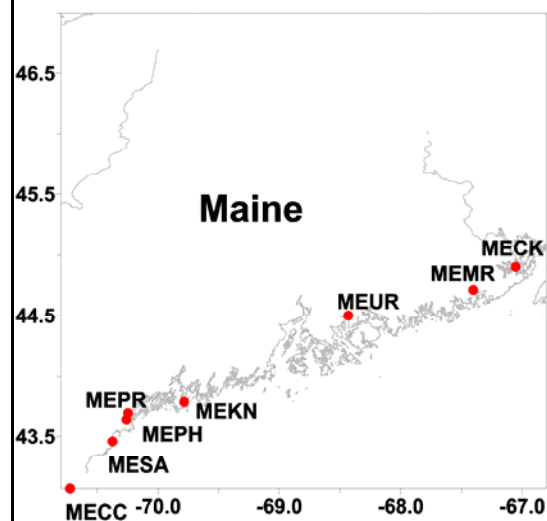
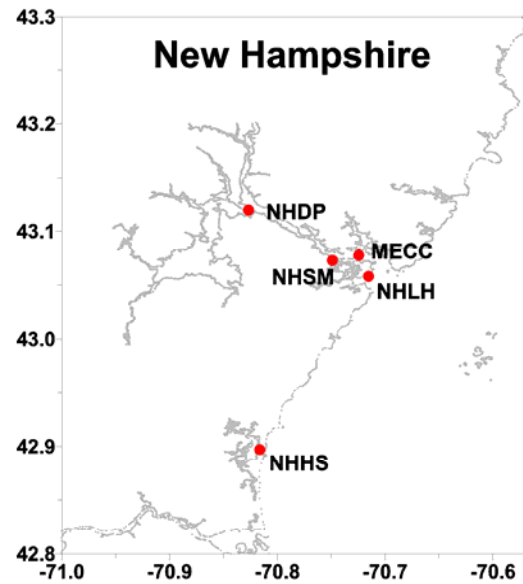
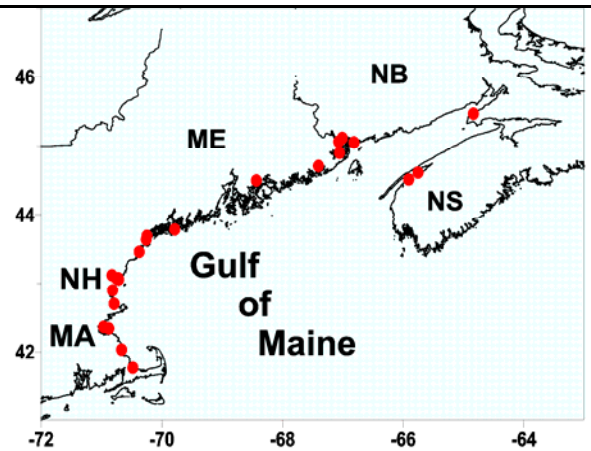
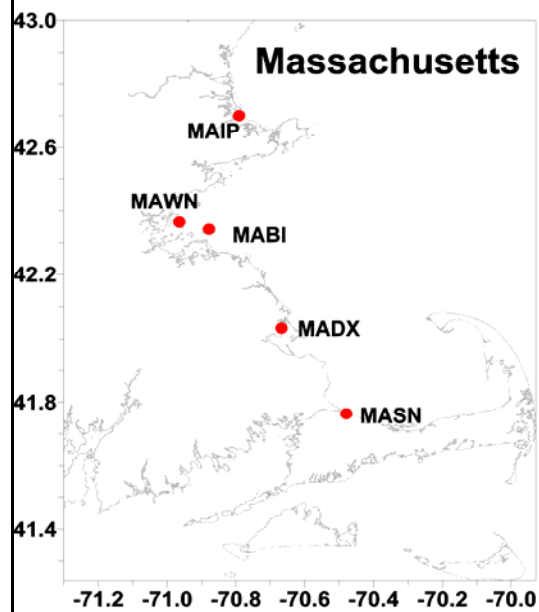


Figure 1 B. Locations along the Gulf of Maine of Gulfwatch sampling sites, 2003.

2004 Gulfwatch Sites

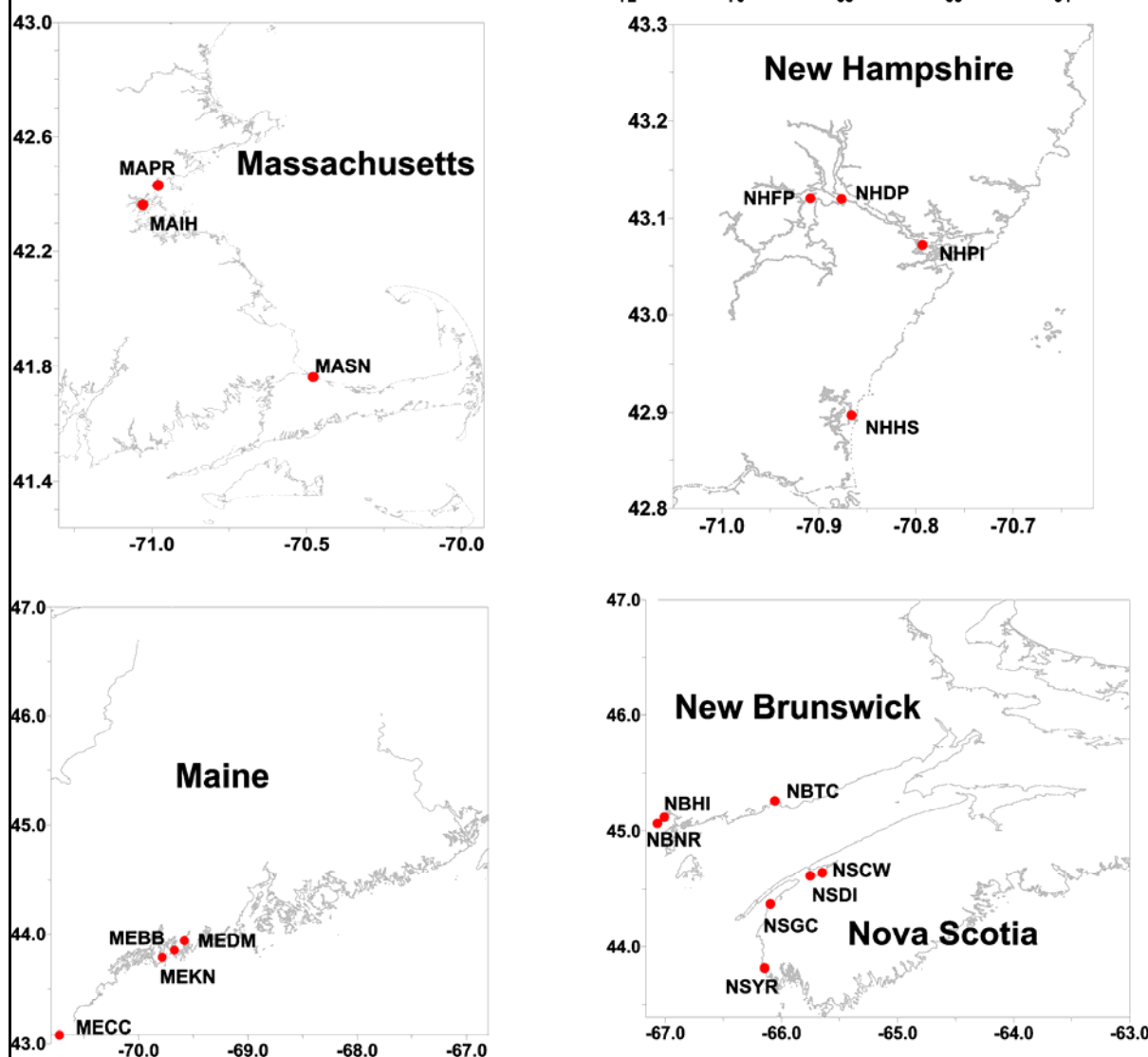


Figure 1 C. Locations along the Gulf of Maine of Gulfwatch sampling sites, 2004.

2.3 ANALYTICAL PROCEDURES

Analytical procedures used followed those reported for the previous years (Jones et al. 1998). Table 2 contains a summary of trace metal and organic compounds measured.

Analytical procedures used followed those reported for the previous years (Jones et al. 1998). However, Gulfwatch obtained a new contractor for the analyses of metals beginning in 2003 which provided improved analytical detection limits for the inorganic analyses. An overview of the analytical methods used for the 2002-2004 samples for both organic and inorganic analytes is detailed below. Table 2 contains a summary of trace metal and organic compounds measured.

2.3.1 Metals

Inorganic contaminants from samples collected during 2002 were analyzed at the State of Maine Department of Health and Environmental Testing Laboratory (HETL, Orono, ME). In 2003 and 2004, Gulfwatch switched analytical labs for the inorganic analyses and contracted with Battelle Marine Sciences Laboratory (MSL, Sequim, WA). It is important to note, the 2003 samples were digested by HETL, but were analyzed by MSL. In all instances, the samples were analyzed for the requisite ten metals: silver (Ag), aluminum (Al), cadmium (Cd), chromium (Cr), copper (Cu), iron (Fe), lead (Pb), mercury (Hg), nickel (Ni), and zinc (Zn).

For analyses conducted by HETL (2002 inorganics), Hg was analyzed on a sub-sample of 1 to 2 g of wet tissue and measured by cold vapor atomic absorption using a Perkin Elmer Model 503 atomic absorption spectrometer. Analyses for all other metals by HETL were conducted on 5 to 10 g of homogenized wet tissue dried at 100°C. These sub samples were acid digested by EPA Method 3050, which involves boiling the sample with concentrated HNO₃. Zn and Fe were measured by flame atomic absorption using a Perkin Elmer Model 1100 atomic absorption spectrometer. All remaining metals (Ag, Al, Cd, Cr, Cu, Ni and Pb) were analyzed using Zeeman background corrected graphite furnace atomic absorption on a Varian Spectra AA 400. The instrumental method detection limits reported by HETL for the metals (µg/g dry weight) were as follows; Ag, 0.1; Cd, 0.2; Cr, 0.3; Cu, 0.6; Fe, 6.0; Hg, 0.1; Ni, 1.2; Pb, 0.6; and Zn, 1.5; Al, 3.0. These differ from the overall Gulfwatch method detection limits that include sampling

and sample processing. A summary of method detection limits and reporting limits are further presented in Appendix B.

The 2004 tissue samples destined for inorganic analyses (performed by Battelle Marine Sciences Laboratory (MSL), Sequim, Washington) 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 ICP-OES*. This procedure is based on two methods (EPA Method 6010B and 200.7) modified and adapted for analysis of low level samples. 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*. Method detection limits (MDL) reported by MSL for the metals, in most cases, were greater than an order of magnitude lower than HETL. The MSL reported MDLs were (µg/g dry weight) as follows; Ag, 0.01; Cd, 0.01; Cr, 0.05; Cu, 0.1; Fe, 1.5; Hg, 0.005; Ni, 0.05; Pb, 0.02; and Zn, 0.3; Al, 0.5. A copy of the MSL QA/QC report is reprinted in end of Appendix B (Section B5).

2.3.2 Organic Contaminants

Organic contaminants in 2002-2004 mussel samples were analyzed at the Environment Canada Environmental Quality Laboratory in Moncton, New Brunswick. The analyte detection limits ranged from 2-8 ng/g for aromatic hydrocarbons and from 1-2 ng/g for PCB congeners and chlorinated pesticides (Appendix A). Eighteen of the PCB

congeners identified and quantified correspond to congeners monitored by the National Oceanographic and Atmospheric Administration's (NOAA) National Status and Trends (NS&T) Program in the U.S.A. Other organic compounds selected for analysis are also consistent, for the most part, with NOAA National Status and Trends mussel monitoring (NOAA, 1989).

A description of the full analytical protocol and accompanying performance based QA/QC procedures are found in Sowles et al. (1997), and more comprehensively in Jones et al. (1998). Briefly, tissue samples were extracted by homogenization with an organic solvent and a drying agent. Solvent extracts were obtained by vacuum filtration, and biomatrix interference was separated from target analytes in extracts through size exclusion chromatography. Purified extracts were subjected to silica gel liquid chromatography, which provided a non-polar PCB/chlorinated pesticides fraction and a polar chlorinated pesticide fraction. PCBs and pesticides were analyzed by high-resolution dual column gas chromatography/electron capture detection (HRGC/ECD). Following PCB and pesticide analysis, the two fractions were combined and the resulting extract was analyzed for aromatic hydrocarbons by high-resolution gas chromatography/mass spectrometry (HRGC/MS).

TABLE 2. Inorganic and organic compounds analyzed in mussel tissue from the Gulf of Maine in 2002-2004.

INORGANIC CONTAMINANTS		
Metals		
Ag, Al, Cd, Cr, Cu, Fe, Hg, Ni, Pb, Zn		
ORGANIC CONTAMINANTS		
<i>Aromatic Hydrocarbons</i> ((ΣPAH_{24})	<i>Chlorinated Pesticides</i>	
Naphthalene	Hexachlorobenzene (HCB)	
1-Methylnaphthalene	gamma-Benzenehexachloride (BHC)	
2-Methylnaphthalene	Heptachlor	
Biphenyl	Heptachlor epoxide	
2,6-Dimethylnaphthalene	Aldrin	
Acenaphthylene	cis-Chlordane	
Acenaphthalene	trans-Nonachlor	
2,3,5-Trimethylnaphthalene	Dieldrin	
Fluorene	alpha-Endosulfan	
Phenanthrene	beta-Endosulfan	
Anthracene		
1-Methylphenanthrene		
Fluoranthene		
Pyrene	<i>DDT and Homologues</i>	
Benzo [a] anthracene		
Chrysene	2,4'-DDE	4,4'-DDE
Benzo [b] fluoranthene	2,4'-DDD	4,4'-DDD
Benzo [k] fluoranthene	2,4'-DDT	4,4'-DDT
Benzo [e] pyrene		
Benzo [a] pyrene		
Perylene	<i>PCB Congeners</i> (ΣPCB_{22})	
Indo [1,2,3-cd] pyrene	PCB 8, PCB 18, PCB 28, PCB 29, PCB 44, PCB 50, PCB 52, PCB 66, PCB 77, PCB 87, PCB 101, PCB 105, PCB 118, PCB 128, PCB 138, PCB 153, PCB 170, PCB 180, PCB 187, PCB 195, PCB 206, PCB 209	
Dibenze [a,h] anthracene		
Benzo [g,h,I] perylene		

2.4 QUALITY ASSURANCES / QUALITY CONTROL

Standard operating procedures for the analysis of mussel samples and related laboratory quality control performance criteria are described in *Gulfwatch Project Standard Procedures: Field and Laboratory (GOMCME August 1997)*. Quality assurance provisions described in the manual serve as a guide for the generation of acceptable analytical data for the Gulfwatch program. The quality control results, when compared to Gulfwatch data quality objectives, also present users of the data measures of accuracy and precision among the sampling years as well as a comparative measure with that of other environmental contaminant monitoring programs.

Appendix B contains the trace metal contaminant QC sample results and a brief QA/QC summary for the 2002-2004 Gulfwatch samples, and Appendix C contains the organic contaminant QC sample results and summary for the 2002-2004 Gulfwatch samples. Laboratory QC measures reported in Appendices B and C include procedural blanks, duplicate sample analyses, contaminant surrogate sample spikes, sample matrix spikes, and the analysis of certified reference material.

2.5 STATISTICAL METHODS AND DATA ANALYSIS

Total PAH (ΣPAH_{24}), total PCB (ΣPCB_{24}) and total pesticides (ΣTPEST_{21}) values were calculated from the sum of all individual compounds or congeners that had values greater than the detection limit for the compound. In 2002, Gulfwatch included four additional pesticides (α -HCH, g-Chlordane, endrin, and metoxychlor) in the analyses of organic contaminants. Total DDT (ΣDDT_6) is the sum of 2,4-DDT and 4,4-DDT and homologues (2,4-DDE, 4,4-DDE, 2,4-DDD and 4,4-DDD). Several tissue samples for metals and organics were below the detection level. Variables in which all replicate measurements were below the detection limit were treated as zero and recorded as not-detected (ND). However, if at least two of the replicates were greater than the detection limit, then the other replicates were treated as having a value equal to $\frac{1}{2}$ the method detection limit (MDL).

From each site, arithmetic means, standard deviations (SD) and geometric means were calculated for all metal and organic contaminants. Analytical replicates (e.g., repeat analyses of a field replicate) were not used in the computation of the above statistical parameters. Graphs of the mean concentrations ($\pm\text{SD}$) are presented for all stations sampled. For comparative purposes in Section 3 (Results and Discussion), Gulfwatch data is compared with the geometric mean plus the 85th percentile of *M. edulis* data from the National Status and Trends' Musselwatch Program (NS&T) of the National Ocean

and Atmospheric Administration. For interpretive purposes, Clark Cove, Maine (MECC) serves as the benchmark site for the group of New Hampshire sites because of its location in the Great Bay / Piscataqua River watershed and, therefore, is more comparable to the other sites in New Hampshire. Gulfwatch data beginning from 1993 are summarized in graphic form, along with all annual data for the 5 benchmark sites, to help evaluate general temporal trends of contaminant exposure along the rim of the Gulf of Maine.

3.0 RESULTS AND DISCUSSION

3.1 FIELD OPERATIONS AND LOGISTICS

Sampling of *Mytilus edulis* from the traditional 3-year rotational stations continued for the period of 2002-2004 (Table 3). As mentioned in the previous section, two additional sites were sampled in New Hampshire during 2002 for clams and oysters (NHMG and NHNI, respectively) and analyzed for contaminants along with the traditional blue mussel samples. Several stations (i.e. "Benchmark Stations") along the Gulfwatch region have now been visited inclusively from 1993-2004 and many of the "3-year Rotational" sites have been revisited at least four (4) times over the 12 years of the Program. Overall, mussels were collected at 27 sites in 2002, 23 sites in 2003, and 18 sites in 2004, for a grand total of 68 sites (50 unique) for the period reported herein. Each station was collected and processed mussel samples (prepared soft tissue composites and performed measurements for determining Condition Index by volunteers from each jurisdiction. (See section 2.2.). The tissue composites were frozen and delivered to the University of New Hampshire prior to shipping to the analytical laboratories. Appropriate field and initial sample preparation information from each jurisdiction were forwarded to the Program Coordinators shortly after collection and composite preparations.

TABLE 3. List of Stations sampled in 2002-2004 along with the years previously visited.

Massachusetts	Site Name	Years Sampled: 1993 - 2004
MABI	Brewster Island	1994, 1997, 2000, 2003
MACO	Cohasset	1993, 1999, 2002
MADX	Duxbury	1994, 1997, 2000, 2003
MAIH	Boston Inner harbor	1995, 1998, 2001, 2004
MAIP	Ipswich	1994, 1997, 2000, 2003
MALI	Long Island	1993, 1999, 2002
MAME	Merrimac River	1993, 1996, 1999, 2002
MAMH	Marblehead	1993, 1996, 1999, 2002
MAPR	Pines River	1995, 1998, 2001, 2004
	Plymouth - Manomet	1993, 1999, 2002
MAPY	Point	
MASN	Sandwich	1993 - 2004
MAWN	Winthrop	1994, 1997, 2000, 2003

TABLE 3 (continued)

New Hampshire	Site Name	Years Sampled: 1993 - 2004
NHCC/MECC	Clarks Cove ME	1993 -2004
NHDP	Dover Point	1994, 1996-1998, 2000-2004
NHFP	Fox Point	1999, 2001, 2004
	Hampton / Seabrook	1993, 1995, 1996, 1999-2004
NHHS	Estuary	
NHLH	Little Harbor	1995, 1998, 2001, 2003
NHMG	Middle Ground - <i>Clams</i>	2002
NHNI	Nannie Island - <i>Oysters</i>	2002
NHNM	North Mill Pond	1998, 2000, 2002
NHRH	Rye Harbor	1994, 1997, 2000, 2002
NHSM	South Mill Pond	1999, 2001, 2003
		1998, 2000, 2001, 2002
NHSS	Schiller Station	
Maine		
MEBB	Boothbay Harbor	1998, 2004
MEBH	Brave Boat Harbor	1993 - 2002
MECK	Cobscook Bay	1994, 1997, 2000, 2003
MEDM	Damariscotta	1995, 1998, 2001, 2004
MEFP	Penobscot River	1993, 1996, 1999, 2002
MEKN	Kennebec River	1993 - 2004
MEMR	Machias River	1994, 1997, 2000, 2003
MEPH	Portland Harbor	1994, 1997, 2000, 2003
MEPI	Pickering Island	1993, 1996, 1999, 2002
MEPR	Presumpscot River	1994, 1997, 2000, 2003
MERY	Royal River	1993, 1996, 1999, 2002
MESA	Saco River	1994, 1997, 2003
MEUR	Union River	1994, 1997, 2000, 2003
New Brunswick		
NBHI	Hospital Island	1993 - 2004
NBLB	Limekiln Bay	1994, 1997, 1998, 2000, 2003
NBLN	Letang Estuary	1993, 1996, 1999 & 1998, 2002
		1994, 1995, 1997, 1998, 2000, 2001,
NBNR	Niger River	2004
NBSC	St. Croix River	1993, 1996, 1999, 2002, 2003
NBTC	Tin Can Beach	1998, 2004

TABLE 3 (continued)

Nova Scotia	Site Name	Years Sampled: 1993 - 2004
NSAR	Apple River	1994, 1997, 2000, 2002, 2003
NSBC	Broad Cove	1993, 1996, 1999, 2002
NSCW	Cornwallis	1995, 1998, 2001, 2004
NSDI	Digby	1993, 1994, 1996 - 2004
NSFI	Five Islands	1993, 1996, 1999 & 1994, 1997, 2000, 2002
NSGC	Grosse Coques	2001, 2004
NSSC	Spechts Cove	1994, 1997, 2000, 2003
NSYR	Yarmouth	1993, 1996, 1999, 2002, 2004

3.2 TRACE METAL CONCENTRATIONS

Table 4 (A-D) contains the metal concentrations (geometric and arithmetic means $\pm$ SD, $\mu\text{g/g}$ dry weight) for mussels from all site composite 2002, 2003, and 2004 samples, respectively. All summary statistics were generated using the field replicate values. In most cases there were four field replicates taken from each site. Analyses of some of the samples yielded concentrations at or below method detection limits (MDL). Metal and organic contaminants concentrations for each individual composite sample (field replicates) are provided in Appendix D. It should be noted that Cu values from 2003 are suspected to be elevated due to either (1) storage container artifacts as indicated by analytical laboratory notes (The samples were collected in glass jars with metals lids) or (2) from the digestion procedure performed by HETL. The contamination is evidenced by unusually high variances of the analyses (e.g., Cu, Cr) of field replicates.

Further, metal concentrations for all mussels are also reported as medians (MD) plus the 85th percentile (85th P) in Table 5 to allow for a program-level comparison with NOAA National Status and Trends (NS&T) concentrations. Table 6 provides the median and the 85th percentile data of the national Mussel Watch data from the years 1991 through 1996 (O'Connor, 1998; <http://ccmaserver.nos.noaa.gov/>). Although the NS&T data were summarized for years 1991 to 1996, only 1991 data were used for comparison to Gulfwatch results. Most of the summarized Gulfwatch metals concentrations were comparable to the 1991 NS&T MD + 85th P values, with the exception of Pb and Hg, which were significantly higher in 2002 and 2004 Gulfwatch samples. Pb and Hg in Gulfwatch samples, both of which are thought to have significant atmospheric component to their loading to the Gulf of Maine, have typically been elevated compared to NOAA NS&T data.

TABLE 4 (A-C). Summary of tissue metal concentrations (ug/g dry weight) for Gulfwatch mussels in 2002-2004. The arithmetic mean ($M_A \pm SD$) and geometric mean (M_G) of all indigenous mussels is given; (n=4 replicates/sample), as well as the overall Gulf of Maine median (and 85th percentile). All summary statistics were computed from all individual replicate data points. Non-detectable amounts were treated as ½ the method detection limit for respective metals. Mussel tissues analyzed by the State of Maine Department of Health for 2002 and Battelle Marine Science Laboratory for the 2003-04 samples.

TABLE 4-A. 2002 metal concentrations ($\mu\text{g g}^{-1}$ dry wt.) in blue mussel tissue. BDL = below detection limit.

Site		Ag	Cd	Cr	Cu	Fe	Ni	Pb	Zn	Al	Hg
MASN	M_A	0.1	1.5	0.6	6.0	203	0.9	2.3	80	86	0.1
	SD	0.0	0.3	0.2	0.0	12	0.1	0.2	10	13	0.1
	M_G	0.1	1.5	0.6	6.0	203	0.9	2.3	80	85	0.1
MAPY	M_A	0.3	1.3	0.8	6.1	305	1.3	3.6	88	107	0.3
	SD	0.2	0.2	0.3	0.7	103	0.1	1.4	9	46	0.1
	M_G	0.3	1.3	0.8	6.1	292	1.3	3.4	87	100	0.2
MACO	M_A	0.4	2.0	1.6	8.3	413	1.3	5.0	113	175	1.0
	SD	0.3	0.5	0.3	1.0	31	0.2	0.5	15	13	0.9
	M_G	0.3	2.0	1.5	8.2	412	1.3	4.9	112	175	0.7
MALI	M_A	0.1	1.8	1.7	8.7	433	1.1	7.7	140	195	0.5
	SD	0.1	0.2	0.3	1.2	293	0.2	3.3	36	145	0.2
	M_G	0.1	1.8	1.7	8.6	377	1.1	6.9	136	164	0.5
MAMH	M_A	BDL	2.1	1.8	6.7	377	1.7	4.4	143	86	0.4
	SD	BDL	0.3	0.3	0.6	85	0.3	0.2	6	33	0.1
	M_G	BDL	2.1	1.8	6.6	370	1.7	4.4	143	81	0.4
MAME	M_A	BDL	2.1	1.5	7.6	438	1.2	4.0	90	114	0.4
	SD	BDL	0.2	0.2	0.5	19	0.1	0.5	14	19	0.1
	M_G	BDL	2.1	1.5	7.6	437	1.2	3.9	89	112	0.4
NHHS	M_A	BDL	2.4	1.2	7.5	350	1.3	4.6	145	116	0.1
	SD	BDL	0.4	0.8	1.0	162	0.2	2.3	24	68	0.1
	M_G	BDL	2.4	1.1	7.5	325	1.3	4.2	144	102	0.1
NHRH	M_A	BDL	1.8	1.3	7.8	355	1.5	2.7	143	87	0.5
	SD	BDL	0.3	0.3	1.7	81	0.3	0.5	38	20	0.2
	M_G	BDL	1.7	1.2	7.6	347	1.4	2.7	139	85	0.5
NHNM	M_A	BDL	2.5	2.2	8.8	583	1.7	6.4	155	208	0.9
	SD	BDL	0.5	0.7	1.7	225	0.2	3.1	19	116	0.3
	M_G	BDL	2.4	2.1	8.6	545	1.6	5.7	154	176	0.8
NHSS	M_A	BDL	2.0	2.2	6.8	460	1.6	3.7	125	163	0.7
	SD	BDL	0.3	0.3	1.0	62	0.2	0.7	13	34	0.0
	M_G	BDL	2.0	2.2	6.7	457	1.6	3.7	124	160	0.7

TABLE 4.A (Continued)

Site		Ag	Cd	Cr	Cu	Fe	Ni	Pb	Zn	Al	Hg
NHDP	M _A	BDL	2.6	2.3	7.8	340	1.4	3.2	140	105	0.9
	SD	BDL	0.2	0.4	0.5	63	0.3	0.3	27	24	0.2
	M _G	BDL	2.6	2.2	7.7	336	1.4	3.2	138	103	0.9
MECC	M _A	BDL	1.8	2.4	8.5	455	1.8	4.7	130	151	0.4
	SD	BDL	0.1	0.8	2.1	90	1.0	0.8	24	45	0.0
	M _G	BDL	1.8	2.3	8.3	448	1.6	4.7	128	145	0.4
MEBH	M _A	BDL	1.9	1.2	6.3	313	1.2	1.5	85	107	0.2
	SD	BDL	0.2	0.3	0.5	65	0.1	0.3	6	18	0.1
	M _G	BDL	1.9	1.1	6.2	308	1.2	1.5	85	106	0.2
MERY	M _A	BDL	0.9	0.8	7.8	535	1.2	2.1	68	240	0.1
	SD	BDL	0.1	0.1	0.5	102	0.2	0.3	10	61	0.1
	M _G	BDL	0.9	0.8	7.7	527	1.2	2.1	67	234	0.1
MEKN	M _A	BDL	1.6	1.2	8.0	423	1.1	1.6	65	158	0.2
	SD	BDL	0.1	0.1	0.8	33	0.1	0.1	10	15	0.1
	M _G	BDL	1.6	1.2	8.0	422	1.0	1.6	64	157	0.2
MEFP	M _A	BDL	2.3	1.8	9.3	748	1.4	2.8	103	210	0.8
	SD	BDL	0.4	0.3	1.3	91	0.1	0.3	22	34	0.3
	M _G	BDL	2.3	1.8	9.2	743	1.4	2.7	101	208	0.8
MEPI	M _A	BDL	2.1	1.1	5.3	190	1.4	2.2	78	50	0.1
	SD	BDL	0.5	0.4	0.5	56	0.8	0.6	5	22	0.1
	M _G	BDL	2.1	1.0	5.2	184	1.2	2.1	77	46	0.1
NBSC	M _A	BDL	1.2	0.5	5.3	285	0.9	0.7	58	108	BDL
	SD	BDL	0.2	0.1	0.5	44	0.1	0.1	5	18	BDL
	M _G	BDL	1.2	0.5	5.2	282	0.8	0.7	57	106	BDL
NBHI	M _A	BDL	1.3	0.4	6.0	255	1.1	0.7	70	99	BDL
	SD	BDL	0.2	0.0	0.0	19	0.2	0.1	14	8	BDL
	M _G	BDL	1.3	0.4	6.0	254	1.1	0.7	69	99	BDL
NBLN	M _A	BDL	1.8	0.9	9.5	375	0.9	1.8	75	148	BDL
	SD	BDL	0.2	0.2	0.6	29	0.1	0.2	6	17	BDL
	M _G	BDL	1.8	0.9	9.5	374	0.9	1.8	75	147	BDL
NSAG	M _A	0.1	1.3	1.0	6.5	275	1.0	4.1	75	72	0.2
	SD	0.0	0.1	0.3	0.6	29	0.2	0.3	6	11	0.1
	M _G	0.1	1.3	1.0	6.5	274	1.0	4.1	75	71	0.1
NSFI	M _A	BDL	2.3	1.3	5.9	813	1.8	1.1	61	428	0.2
	SD	BDL	0.1	0.3	0.6	198	0.2	0.2	2	103	0.0
	M _G	BDL	2.2	1.3	5.9	791	1.8	1.1	61	417	0.2
NSDI	M _A	BDL	1.4	0.8	6.8	383	1.0	2.4	83	158	BDL
	SD	BDL	0.3	0.2	0.5	73	0.1	0.4	9	39	BDL
	M _G	BDL	1.4	0.7	6.8	377	1.0	2.4	82	154	BDL
NSBC	M _A	BDL	2.7	1.6	6.4	500	1.9	2.8	91	190	0.3
	SD	BDL	0.3	0.2	0.4	70	0.1	0.6	12	34	0.0
	M _G	BDL	2.7	1.6	6.4	497	1.9	2.7	90	188	0.3
NSYR	M _A	0.4	1.5	1.0	7.0	463	1.2	3.2	87	168	0.2
	SD	0.2	0.2	0.2	0.9	79	0.2	0.7	2	28	0.0
	M _G	0.4	1.4	1.0	6.9	457	1.2	3.1	87	166	0.2

TABLE 4-B. 2003 metal concentrations ($\mu\text{g g}^{-1}$ dry wt.) in blue mussel tissue. BDL = below detection limit.

Site		Ag	Cd	Cr	*Cu	Fe	Ni	Pb	Zn	Al	Hg
MASN	M _A	0.252	1.05	1.48	12.19	281	1.13	2.78	67.6	304	0.055
	SD	0.087	0.06	0.29	5.75	38	0.15	0.18	4.8	49	0.006
	M _G	0.241	1.05	1.46	11.17	279	1.12	2.77	67.4	301	0.054
MADX	M _A	0.211	0.83	2.27	31.36	714	1.70	4.69	98.5	673	0.194
	SD	0.050	0.06	0.23	23.58	43	0.12	0.55	7.1	38	0.013
	M _G	0.207	0.83	2.26	23.80	713	1.70	4.67	98.3	672	0.193
MABI	M _A	0.088	0.88	1.30	7.37	200	1.48	3.04	97.9	167	0.184
	SD	0.012	0.06	0.14	1.58	42	0.18	0.42	10.5	61	0.011
	M _G	0.087	0.88	1.29	7.27	198	1.48	3.02	97.5	159	0.183
MAWN	M _A	0.159	1.02	3.36	11.45	903	2.07	4.00	105.5	934	0.145
	SD	0.011	0.04	0.66	0.92	289	0.27	0.63	5.2	371	0.039
	M _G	0.159	1.02	3.30	21.82	868	2.06	3.96	105.4	882	0.140
MAIP	M _A	0.126	1.01	1.90	36.48	348	2.00	2.09	86.9	286	0.100
	SD	0.046	0.08	0.35	30.16	40	0.70	0.28	9.4	58	0.027
	M _G	0.120	1.01	1.88	25.69	346	1.92	2.08	86.5	282	0.098
NHHS	M _A	0.046	1.47	2.27	32.72	306	1.66	1.88	90.5	271	0.109
	SD	0.009	0.14	0.69	21.27	35	0.41	0.12	11.2	45	0.008
	M _G	0.046	1.47	2.21	26.65	305	1.63	1.88	90.0	268	0.109
NHDP	M _A	0.069	2.18	4.69	64.90	321	2.44	2.17	103.1	243	0.296
	SD	0.036	0.40	1.03	46.84	29	1.13	0.45	28.5	11	0.012
	M _G	0.063	2.15	4.60	48.42	320	2.28	2.13	100.0	242	0.296
NHSM	M _A	0.053	1.36	8.54	8.11	402	1.52	10.40	121.3	334	0.256
	SD	0.008	0.07	5.12	1.59	31	0.15	0.98	19.1	44	0.048
	M _G	0.052	1.36	7.31	8.00	401	1.51	10.37	120.1	332	0.253
NHLH	M _A	0.075	2.31	2.48	69.83	474	2.87	4.58	115.8	375	0.365
	SD	0.017	0.21	0.15	41.67	30	1.11	0.50	12.8	20	0.012
	M _G	0.074	2.30	2.48	61.21	473	2.73	4.55	115.2	374	0.364
MECC	M _A	0.049	1.77	28.90	8.91	623	2.10	4.79	94.3	393	0.268
	SD	0.004	0.19	24.03	1.65	128	0.24	1.72	9.1	71	0.030
	M _G	0.049	1.76	23.18	8.81	612	2.09	4.59	94.0	388	0.267
MESA	M _A	0.086	1.98	2.47	13.13	407	2.01	2.53	71.1	350	0.126
	SD	0.018	0.10	0.57	5.20	67	0.35	1.24	5.0	118	0.011
	M _G	0.084	1.97	2.42	12.38	403	1.99	2.34	71.0	336	0.125
MEPH	M _A	0.085	1.48	3.55	25.13	669	2.33	7.62	107.7	467	0.296
	SD	0.020	0.10	2.05	13.73	86	0.96	1.08	5.2	101	0.039
	M _G	0.083	1.48	3.08	22.21	665	2.18	7.56	107.6	459	0.294

*GW copper values are suspected to be elevated due to storage container artifacts as indicated by analytical laboratory notes and unusually high variances of the analyses of field replicates.

TABLE 4-B. (continued)

Site		Ag	Cd	Cr	Cu	Fe	Ni	Pb	Zn	Al	Hg
MEPR	M _A	0.138	1.25	1.82	11.33	548	1.48	4.52	66.4	500	0.181
	SD	0.025	0.09	0.16	2.74	86	0.18	0.43	3.0	112	0.012
	M _G	0.136	1.25	1.81	11.11	543	1.47	4.50	66.3	490	0.181
MEKN	M _A	0.072	1.69	2.07	11.59	306	1.51	1.13	62.6	258	0.119
	SD	0.008	0.09	0.28	3.13	21	0.19	0.08	3.2	21	0.022
	M _G	0.071	1.69	2.05	11.27	306	1.50	1.13	62.5	257	0.118
MEUR	M _A	0.084	1.20	1.00	6.81	258	1.09	1.10	55.5	181	0.058
	SD	0.001	0.06	0.05	0.45	18	0.05	0.29	1.0	22	0.003
	M _G	0.084	1.20	1.00	6.80	257	1.09	1.07	55.5	180	0.058
MEMR	M _A	0.058	1.63	2.01	8.09	693	1.57	1.66	52.6	619	0.220
	SD	0.006	0.02	0.04	1.58	58	0.08	0.14	2.3	82	0.014
	M _G	0.058	1.63	2.00	7.98	691	1.57	1.66	52.5	614	0.219
MECK	M _A	0.020	1.16	1.58	14.10	496	1.46	1.21	60.9	503	0.071
	SD	0.002	0.04	0.13	6.66	36	0.12	0.04	4.0	45	0.001
	M _G	0.019	1.16	1.58	13.01	495	1.45	1.21	60.8	502	0.071
NBNR	M _A	0.034	1.32	0.75	6.55	214	0.80	0.55	51.9	268	0.040
	SD	0.004	0.09	0.01	1.71	13	0.06	0.04	4.6	32	0.002
	M _G	0.034	1.32	0.75	6.38	214	0.80	0.54	51.8	266	0.040
NBHI	M _A	0.044	1.52	0.94	11.22	183	1.04	0.65	61.6	194	0.057
	SD	0.006	0.17	0.37	6.11	33	0.14	0.07	11.6	36	0.002
	M _G	0.044	1.51	0.89	10.00	181	1.03	0.65	60.8	191	0.057
NBLB	M _A	0.010	1.13	1.00	18.46	324	0.88	1.41	62.2	437	0.066
	SD	0.000	0.08	0.13	18.76	31	0.10	0.14	9.1	102	0.007
	M _G	0.010	1.12	1.00	13.54	323	0.87	1.41	61.7	429	0.066
NSAR	M _A	0.034	3.21	2.34	9.18	817	2.98	1.68	66.6	1003	0.228
	SD	0.005	0.40	0.13	1.42	44	0.52	0.24	6.8	61	0.023
	M _G	0.034	3.19	2.33	9.09	816	2.95	1.66	66.4	1002	0.227
NSDI	M _A	0.067	1.51	1.62	22.84	408	1.69	2.57	86.2	421	0.106
	SD	0.016	0.21	0.10	31.80	60	0.22	0.37	10.6	53	0.006
	M _G	0.065	1.50	1.61	12.33	405	1.68	2.54	85.6	418	0.106
NSSC	M _A	0.046	1.48	2.17	45.73	782	2.05	2.10	57.7	612	0.143
	SD	0.011	0.17	0.53	73.60	90	0.28	0.37	4.8	32	0.018
	M _G	0.045	1.47	2.13	17.93	778	2.03	2.07	57.5	611	0.142

*GW copper values are suspected to be elevated due to storage container artifacts as indicated by analytical laboratory notes and unusually high variances of the analyses of field replicates.

TABLE 4-C. 2004 metal concentrations ($\mu\text{g g}^{-1}$ dry wt.) in blue mussel tissue

Site		Ag	Cd	Cr	Cu	Fe	Ni	Pb	Zn	Al	Hg
MASN	M _A	0.130	0.96	1.28	6.97	462	1.54	2.58	83.0	525	0.102
	SD	0.026	0.03	0.09	0.23	50	0.10	0.22	4.6	42	0.002
	M _G	0.128	0.96	1.27	6.97	460	1.54	2.57	82.9	524	0.102
MAIH	M _A	0.070	1.50	2.31	14.50	1045	1.65	14.88	208.3	542	0.134
	SD	0.012	0.32	0.23	2.56	511	0.27	4.07	43.1	80	0.017
	M _G	0.069	1.47	2.30	14.33	968	1.63	14.49	204.8	538	0.134
MAPR	M _A	0.091	1.54	4.70	9.24	872	2.09	7.37	106.1	800	0.217
	SD	0.012	0.19	0.31	1.10	153	0.33	1.32	18.9	113	0.021
	M _G	0.090	1.53	4.69	9.19	862	2.07	7.29	104.9	794	0.216
NHHS	M _A	0.020	1.72	1.22	7.22	286	1.18	1.87	93.8	192	0.143
	SD	0.002	0.28	0.15	0.63	33	0.16	0.33	16.4	39	0.009
	M _G	0.020	1.70	1.21	7.20	285	1.17	1.84	92.8	189	0.143
NHFP	M _A	0.072	1.99	2.43	7.58	523	1.81	1.90	92.9	490	0.293
	SD	0.017	0.16	0.28	0.62	67	0.16	0.27	7.7	75	0.027
	M _G	0.070	1.99	2.42	7.56	519	1.81	1.88	92.6	485	0.292
NHDP	M _A	0.061	2.51	2.73	8.14	456	1.96	2.41	97.8	379	0.310
	SD	0.004	0.14	0.14	0.16	38	0.19	0.20	8.0	50	0.017
	M _G	0.061	2.51	2.73	8.14	455	1.95	2.40	97.6	377	0.310
NHPI	M _A	0.057	1.88	2.37	7.69	483	1.73	3.37	116.1	335	0.336
	SD	0.008	0.28	0.47	0.97	107	0.29	0.40	15.2	79	0.048
	M _G	0.056	1.86	2.34	7.64	473	1.71	3.35	115.3	327	0.333
MEKN	M _A	0.075	1.69	1.20	7.48	278	0.84	1.23	52.9	193	0.157
	SD	0.021	0.23	0.21	0.97	27	0.06	0.12	3.3	31	0.023
	M _G	0.072	1.68	1.19	7.43	277	0.84	1.22	52.8	192	0.156
MEBB	M _A	0.024	0.98	1.13	10.68	309	0.78	13.05	108.8	220	0.219
	SD	0.009	0.18	0.08	0.91	25	0.05	1.79	1.3	10	0.031
	M _G	0.023	0.97	1.13	10.65	308	0.78	12.96	108.7	220	0.218
MEDM	M _A	0.061	1.35	1.53	6.86	521	1.29	1.91	65.0	539	0.126
	SD	0.015	0.12	0.15	0.74	73	0.09	0.14	2.9	107	0.008
	M _G	0.059	1.34	1.53	6.83	517	1.28	1.91	64.9	532	0.126
NBNR	M _A	0.039	1.83	1.02	6.15	353	0.96	1.00	56.5	422	0.056
	SD	0.006	0.08	0.17	0.19	105	0.11	0.07	2.4	166	0.010
	M _G	0.039	1.83	1.01	6.14	343	0.95	1.00	56.4	401	0.055
NBHI	M _A	0.075	1.07	0.71	5.59	251	0.83	0.83	61.6	302	0.052
	SD	0.011	0.04	0.05	0.56	32	0.08	0.28	2.8	56	0.001
	M _G	0.075	1.07	0.71	5.57	249	0.83	0.80	61.5	298	0.052
NBTC	M _A	0.041	3.16	2.93	8.45	1276	3.15	4.11	74.7	1392	0.325
	SD	0.006	0.19	0.64	0.43	432	0.62	1.13	7.7	641	0.020
	M _G	0.041	3.16	2.88	8.45	1219	3.10	4.00	74.4	1284	0.324

TABLE 4-C. (Continued)

Site		Ag	Cd	Cr	Cu	Fe	Ni	Pb	Zn	Al	Hg
NSCW	M _A	0.024	1.89	1.83	5.32	750	1.80	3.26	72.1	614	0.112
	SD	0.001	0.05	0.14	0.21	38	0.14	0.28	7.9	35	0.006
	M _G	0.024	1.89	1.83	5.32	749	1.79	3.25	71.7	613	0.112
NSDI	M _A	0.175	1.97	1.92	6.27	680	1.84	4.32	100.1	649	0.107
	SD	0.008	0.15	0.04	0.14	7	0.07	1.53	15.3	18	0.027
	M _G	0.174	1.96	1.92	6.27	680	1.83	4.15	99.2	649	0.104
NSGC	M _A	0.041	1.36	2.07	5.29	836	1.69	1.62	46.7	707	0.094
	SD	0.005	0.04	0.08	0.05	35	0.10	0.13	1.7	20	0.010
	M _G	0.040	1.35	2.07	5.29	835	1.68	1.61	46.6	707	0.094
NSYR	M _A	0.176	1.32	1.75	5.73	634	1.58	2.99	75.4	504	0.183
	SD	0.087	0.22	0.46	1.29	232	0.40	0.84	20.8	184	0.028
	M _G	0.156	1.31	1.70	5.60	590	1.53	2.89	73.2	469	0.181

TABLE 5. Gulf of Maine Median (using the means of field replicates for each site)/85th Percentile values; 2002-2004. BDL = below detection limit.

		Ag	Cd	Cr	*Cu	Fe	Ni	Pb	Zn	Al	Hg
2002	Median	0.1	1.8	1.2	7.0	383	1.3	2.8	88	148	0.2
	85th P	0.1	2.3	2.0	8.6	514	1.7	4.6	141	200	0.7
2003	Median	0.07	1.5	2.1	12.2	407	1.7	2.2	71	375	0.14
	85th P	0.13	1.9	3.5	35.4	708	2.3	4.7	105	617	0.26
2004	Median	0.06	1.7	1.8	7.2	521	1.7	2.6	83	490	0.14
	85th P	0.11	2.0	2.6	8.9	858	1.9	6.2	108	635	0.30

*GW copper values from 2003 are suspected to be elevated due to storage container artifacts as indicated by analytical laboratory notes and unusually high variances of the analyses of field replicates.

TABLE 6. Median metal concentrations (and 85th percentile) reported by the NOAA Status & Trends program (1991-1996).

		Ag	Cd	Cr	Cu	Fe	Ni	Pb	Zn	Al	Hg
NS&T 1991	Median,	0.08	2.3	1.4	8.8	400	2.1	0.8	130	280	0.11
	85th P	0.48	5.4	2.7	11.7	790	3.6	3.6	200	653	0.24
NS&T 1992	Median,	0.09	2.1	1.4	8.6	338	2.1	0.7	120	210	0.10
	85th P	0.55	4.5	3.5	10.1	690	3.9	2.3	170	510	0.23
NS&T 1993	Median,	0.05	2.5	1.2	8.4	340	1.6	0.8	120	120	0.11
	85th P	0.85	4.7	2.7	10.5	673	2.7	2.9	200	280	0.20
NS&T 1994	Median,	0.12	2.0	1.2	8.7	350	1.5	1.0	120	350	0.10
	85th P	0.56	4.3	2.2	10.5	774	2.8	2.7	170	1100	0.21
NS&T 1995	Median,	0.05	2.4	1.8	8.4	607	2.0	0.7	115	480	0.11
	85th P	0.76	4.4	5.2	12.6	1615	3.5	2.4	169	1577	0.23
NS&T 1996	Median,	NA	1.9	11.1	7.3	424	1.6	0.8	102	340	0.11
	85th P	NA	4.2	3.1	9.9	985	3.3	2.4	148	1020	0.20

Monitored trace metals were detected at all Gulfwatch sites except for Ag and Hg, which were below the detection limit (0.1 µg/g dry weight) at 19 and 4 of the 2002 sites, respectively. Because of greater sensitivity in analytical methods employed by the Program after 2002, none of the metals analyzed were observed to be below laboratory detection limits.

Comparison of GW geometric means of concentrations observed at each station over the period of 2002-2004 to NOAA Status & Trends (NS&T) median + 85th P values serves as a measure of elevated concentrations. The GW sites that were considered elevated relative to the national level are listed in Table 7. Slightly less than 20% of the GW sites (13/64) sampled for the period report here exceeded this national standard for Pb. Approximately 16% of the 2002-2004 sites exceeded the NS&T value for Hg; and those are mostly from the 2002 samples. As with Pb, most of these stations were located in the southern portion of the Gulf of Maine, in MA and NH. Only one site, NBTC, exceeded the elevated criteria for Al and Fe. This may be due to atypical amounts of sediment associated with contents in the mussel, especially from the energetic Bay of Fundy, as GW samples were not depurated prior to sample processing. Elevated Cr was observed at three sites (MAPR, NHSM, and MECC) accounting for the remaining stations that exceeded GW elevated criteria. Elevated Cu was observed in a number of samples in the 2003 collection, but as stated above, is suspected to be the result of artifacts in sample collection and/or processing. Trace metals for which a few sites exceeded the NS&T MD + 85th P value, when viewed with nearby GW sites, suggests

highly localized sources of these contaminants, especially for Hg and Pb observed in mussels near Boston Harbor and the NH estuary–bay system.

TABLE 7. Samples from Gulfwatch sites that exceeded the NOAA Status & Trends Mussel Watch Program's 1991 national geometric mean + 85th percentile value

Year	Cr	*Cu	Fe	Pb	Al	Hg
2002				MACO MALI MAMH NHNM MECC		MACO MALI MAMH MAME NHRH NHNM NHSS NHDP MEFP
2003	NHSM MECC	MADX MAWN MAIP NHHS NHDP NHLH MEPH		MADX NHSM NHLH MECC MEPH MEPR		NHLH
2004	MAPR		NBTC	MAIH MAPR MEBB	NBTC	

*GW Copper values from 2003 are suspected to be elevated due to storage container artifacts as indicated by analytical laboratory notes and unusually high variances of the analyses of field replicates.

3.3 ORGANIC CONTAMINANTS CONCENTRATIONS

The total concentration (arithmetic mean $\pm$ SD, ng/g dry weight) of detectable polynuclear aromatic hydrocarbons (Σ PAH₂₂), polychlorinated biphenyls (Σ PCB₂₄) and organochlorine pesticides (Σ TPEST₁₇) measured in blue mussel tissue samples of indigenous mussels collected during 2002-2004 are presented in Table 8. Station arithmetic means are reported here only, since geometric means were essentially equivalent to the arithmetic means. Individual analyte concentrations of each compound class for each field replicate are reported by station and are provided in Appendix E.

Further, overall gulf-wide medians (MD) and the 85th percentile of the organic contaminant concentrations for indigenous mussels are also reported to allow for a

program-level comparison with NOAA National Status and Trends concentrations (Table 9). The GW ΣPCB_{22} median is not directly comparable to NOAA's 1991 Mussel Watch ΣPCB value since the NOAA Mussel Watch PCB data is determined from 18 congeners, while GW included an additional 4 congeners in the ΣPCB_{22} . Therefore, the GW ΣPCB_{18} median and 85th percentile was calculated by summing the 18 common congeners of the two programs. The 2002-2004 Gulfwatch overall average concentrations for summary organic contaminant statistics are significantly lower than the 1991 NS&T MD values and their respective 85th percentile values.

Three Gulfwatch sites (MAIH, MALI; MEPH), two of which are located in Boston Harbor, exceeded the 1991 NS&T median value + the 85th percentile for ΣPAH . Two other sites (NHNM and MEBB) had ΣPAH_{24} concentrations that were close to 3 times the national median level, but below the GW "elevated" criteria. Only one site, MAIH located in inner Boston Harbor, exceed the GW elevated criteria for ΣPCB . All other sites had average summary organic contaminant concentrations at or below the 1991 NS&T median value + the 85th percentile.

TABLE 8 (A-C). Mean $\pm$ (SD) tissue organic concentrations (ng/g dry weight) from mussels collected by the Gulfwatch Program, 2002-2004. ND = not detected, and NA = not assessed.

TABLE 8A. 2002 Organic contaminants summary

Site	ΣPAH_{24}	ΣPCB	ΣPest_{21}	$\Sigma\text{OrgPest}_{15}$	ΣDDTs_6
MASN	28	23.5	6.7	ND	6.7
	(3)	(2.6)	(1.2)		(1.2)
MACO	46	73.8	17.0	ND	17.0
	(5)	(6.6)	(0.9)		(0.9)
MALI	5245	187.9	31.6	7.2	24.4
	(4617)	(18.9)	(5.8)	(1.1)	(4.8)
MAME	257	73.3	15.6	3.5	12.2
	(84)	(2.8)	(3.1)	(2.4)	(0.7)
MAMH	39	19.7	7.4	ND	7.4
	(8)	(0.9)	(1.1)		(1.1)
MAPY	51	14.2	10.3	4.0	6.3
	(32)	(1.1)	(0.6)	(0.1)	(0.5)
NHSS	208	50.7	7.6	ND	7.6
	(113)	(12.8)	(2.0)		(2.0)
NHNM	871	85.0	69.0	1.5	67.5
	(74)	(4.7)	(7.5)	(1.8)	(7.7)
NHRH	43	14.9	2.8	ND	2.8
	(17)	(0.6)	(0.4)		(0.4)

TABLE 8A (continued)

Site	ΣPAH_{24}	ΣPCB	ΣPest_{21}	$\Sigma\text{OrgPest}_{15}$	ΣDDTs_6
NHHS	39	9.5	4.8	ND	4.8
	(12)	(3.0)	(2.0)		(2.0)
NHDP	281	39.3	8.8	ND	8.8
	(19)	(1.9)	(1.8)		(1.8)
MEKN	81	32.4	5.9	ND	5.9
	(37)	(3.1)	(1.6)		(1.6)
MEPI	3	1.1	1.8	1.0	0.8
	(3)	(2.2)	(2.1)	(2.1)	(1.6)
MECC	244	52.5	10.0	1.4	8.6
	(43)	(7.1)	(4.5)	(2.9)	(2.9)
MEBH	13	5.3	3.4	ND	3.4
	(3)	(0.5)	(0.2)		(0.2)
MERY	56	14.5	11.8	ND	11.8
	(4)	(5.1)	(0.9)		(0.9)
MEFP	84	19.0	10.6	ND	10.6
	(10)	(12.7)	(2.9)		(2.9)
NBLN	5	2.5	4.9	ND	4.9
	(6)	(2.2)	(0.6)		(0.6)
NBSC	30	7.1	2.2	0.8	1.4
	(23)	(2.8)	(2.8)	(1.5)	(1.6)
NBHI	ND	ND	4.4	2.9	1.5
			(3.4)	(3.7)	(3.1)
NSYR	84	0.5	0.5	0.0	0.5
	(57)	(1.1)	(1.0)	ND	(1.0)
NSAG	14	0.5	0.0	0.0	0.0
	(12)	(1.1)	(0.0)	(0.0)	(0.0)
NSFI	ND	ND	2.5	1.3	1.6
			(2.5)	2.2	(1.0)
NSDI	11	ND	ND	ND	ND
	(10)				
NSBC	277	ND	3.2	ND	3.2
	(102)		(6.4)		(6.4)

TABLE 8B. 2003 Organic contaminants summary (ng g⁻¹ dry wt.)

Site	ΣPAH ₂₄	ΣPCB	ΣPest ₂₁	ΣOrgPest ₁₅	ΣDDTs ₆
MASN	40	23.2	22.9	8.5	14.4
	12	1.4	0.9	0.3	0.6
MADX	196	78.5	67.7	7.1	60.5
	10	7.5	8.7	2.5	6.3
MABI	73	122.4	22.2	7.9	14.3
	45	11.0	5.9	1.4	4.7
MAWN	192	81.1	25.3	12.3	13.0
	14	8.6	2.2	1.5	1.1
MAIP	110	27.4	15.0	5.0	10.0
	6	3.8	2.1	1.2	1.3
NHHS	34	6.3	8.0	1.9	6.1
	3	0.2	0.3	0.2	0.3
NHLH	107	13.6	3.0	ND	3.0
	15	5.5	0.7		0.7
NHSM	498	41.1	33.1	6.2	26.9
	46	5.4	8.3	2.8	5.6
NHDP	177	26.0	4.0	ND	4.0
	11	4.6	0.8		0.8
MECC	120	36.3	18.3	6.0	12.3
	17	3.8	1.2	0.4	1.4
MESA	63	10.3	5.0	1.9	3.1
	14	2.4	1.1	0.8	1.1
MEPH	1320	73.0	25.3	7.4	17.9
	109	5.2	3.1	1.0	2.1
MEPR	237	30.9	22.4	6.9	15.6
	24	2.3	3.0	1.7	1.4
MEKN	56	16.0	5.1	1.3	3.8
	22	1.8	1.5	0.0	1.5
MEUR	31	0.0	0.7	0.7	0.0
	4	0.0	0.9	0.9	0.0
MEMR	72	4.3	2.6	ND	2.6
	50	1.3	0.3		0.3
MECK	ND	ND	1.3	0.4	0.9
			1.6	0.7	1.1
NBNR	15	3.0	7.8	2.5	5.3
	3	1.3	1.6	1.4	0.3
NBHI	3	0.0	6.5	1.6	4.9
	6	0.0	0.4	0.2	0.2
NBLB	ND	6.2	13.0	5.1	7.8
		0.4	1.4	0.7	0.9
NSAR	ND	ND	1.9	0.4	1.5
			1.4	0.7	1.0
NSDI	105.4	ND	4.3	1.9	2.5
	9.9		0.4	0.7	0.4
NSSC	6.4	ND	2.1	ND	2.1
	0.5		0.2		0.2

TABLE 8C. 2004 Organic contaminants summary (ng g⁻¹ dry wt.)

Site	ΣPAH ₂₄	ΣPCB	ΣPest ₂₁	ΣOrgPest ₁₅	ΣDDTs ₆
MASN	79*	15.0	4.7	0.4	4.4
	13	5.4	0.6	0.7	0.7
MAPR	563	115.4	22.4	6.7	15.7
	42	12.7	6.4	1.6	6.0
MAIH	4879	597.6	53.7	20.1	33.6
	1024	160.7	6.8	3.4	5.1
NHPI	189	25.2	4.9	0.9	4.0
	14	7.3	2.7	1.1	1.9
NHHS	105	7.1	6.6	ND	6.6
	6	1.9	1.0		1.0
NHDP	204	33.1	10.0	2.8	7.2
	9	4.0	2.5	1.3	1.9
NHFP	224	34.1	11.9	3.1	8.9
	20	4.9	1.1	1.1	1.4
MECC	129	36.1	11.3	2.5	8.8
	62	10.1	3.2	0.5	2.9
MEKN	44	11.2	2.3	ND	2.3
	19	4.1	1.7		1.7
MEBB	828	30.0	38.0	1.2	36.8
	121	5.0	5.2	0.8	4.5
MEDM	5	1.9	1.5	0.4	1.1
	6	1.3	1.1	0.7	1.3
NBTCB	206	4.5	13.1	ND	13.1
	43	3.1	2.2		2.2
NBHI	14	ND	2.0	1.4	0.6
	14		1.8	0.9	1.2
NBNR	15	ND	1.8	0.4	1.4
	19		1.4	0.7	0.9
NSDI	44	ND	0.0	ND	0.0
	13		0.0		0.0
NSCW	58	ND	0.5	ND	0.5
	16		0.9		0.9
NSGC	ND	ND	0.4	0.4	0.0
			0.8	0.8	0.0
NSYR	18	ND	ND	ND	ND
	17				

* Suspected contamination from 1-Methylphenanthracene in two of the replicates, value reflects removal of detectable amounts in two of the replicates (see Appendix E)

TABLE 9. Median summary organic contaminant concentrations (and 85th percentile) for the 2002-2004 Gulfwatch samples. NOAA Status and Trend national summary data (1986-1999) provided for comparative purposes. Values are µg/g dry weight.

	GW2002 Median (85 th P)	GW2003 Median (85 th P)	GW2004 Median (85 th P)	NS&T (1986- 1999) [†] Median (85 th P)
ΣPAH ₂₄	46 (265)	72 (195)	92 (377)	320 (1100)
*ΣPCB ₁₈	29 (112)	30 (127)	12 (69)	110 (500)
ΣTPEST ₂₁	6 (13)	8 (25)	5 (17)	48 (192)
ΣDDTs	6 (12)	5 (15)	4 (14)	31 (140)

[†] Compiled from Lauenstein and Cantillo, 2002

*ΣPCB₁₈ twice the sum of concentrations of eighteen congeners (and co-eluting congeners): PCB8, PCB18, PCB28 PCB44, PCB52, PCB66, PCB101, PCB105, PCB118, PCB128, PCB138, PCB153, PCB170, PCB180, PCB187, PCB195, PCB206, and PCB209 computed for comparative purposes with the NOAA Mussel Watch Program (Connor, 2002).

ΣDDTs: The sum of concentrations of DDTs and their metabolites, DDEs and DDDs.

4.0 2002-2004 DISTRIBUTIONS OF CONTAMINANTS IN *MYTILUS EDULIS*

4.1 SPATIAL PATTERNS

Figures 2 to 11 show the concentration of the metals measured in the tissue of *M. edulis* collected by the Gulfwatch Program during the period of 2002-2004. The data is displayed by sampling year and by the geographic location beginning clockwise around the GOM from Sandwich, Massachusetts and ending with the southern-most station in Nova Scotia (See Fig. 1 above). Overall, the concentrations of most metals were relatively evenly distributed around the Gulf of Maine, with no apparent spatial trends and an occasional hot spot of elevated concentrations. Exceptions to this general pattern and further details for metals and organic contaminants are noted in the following individual sections.

4.1.1 Silver (Ag)

Silver concentrations ranged from below the MDL (0.1 µg/g dry weight) in the majority of the sites (19 of 25) sampled in 2002 (Table 4A; Figure 2, top panel). Improved method detection limits allowed for the observation of detectable Ag levels in the 2003 and 2004 data sets. The highest Ag concentration during the reporting period (0.4 µg/g dry weight) was observed at the Cohasset Little Harbor site in Massachusetts (MACO) and the Yarmouth site in Nova Scotia (NSYR). Historically, Sandwich, MA

(MASN), has been one of the more contaminated sites, with respect to Ag. Since, 2001, these levels have been noticeably less. Elevated silver concentrations in sediments and water column have been shown to coincide with regions receiving municipal sewage (Sanudo-Wilhelmy and Flegal, 1992; Buchholz ten Brink et al., 1997). Because of silver's use in the photographic and jewelry industries, part of the coastal waters of Massachusetts have been up to 1000 times more concentrated in Ag than in northern coastal Gulf of Maine waters (Krahforst and Wallace 1996). The higher levels previously reported for MASN may have been a function of transport and deposition of sewage-derived particles from Boston Harbor (Bothner et al. 1993) that were sequestered in Cape Cod Bay sediments and taken up by mussels. Recent coastal management practices associated with the Boston Harbor cleanup (source load reduction and movement of the major outfall further offshore) may be important to understanding changes in the body burden of Ag in mussels collected in coastal Massachusetts waters, especially at MASN. The changes in Ag concentrations since 1993 are depicted in Fig. 59 in the later section 4.2.2 shown temporal trends at the Program's benchmark sites.

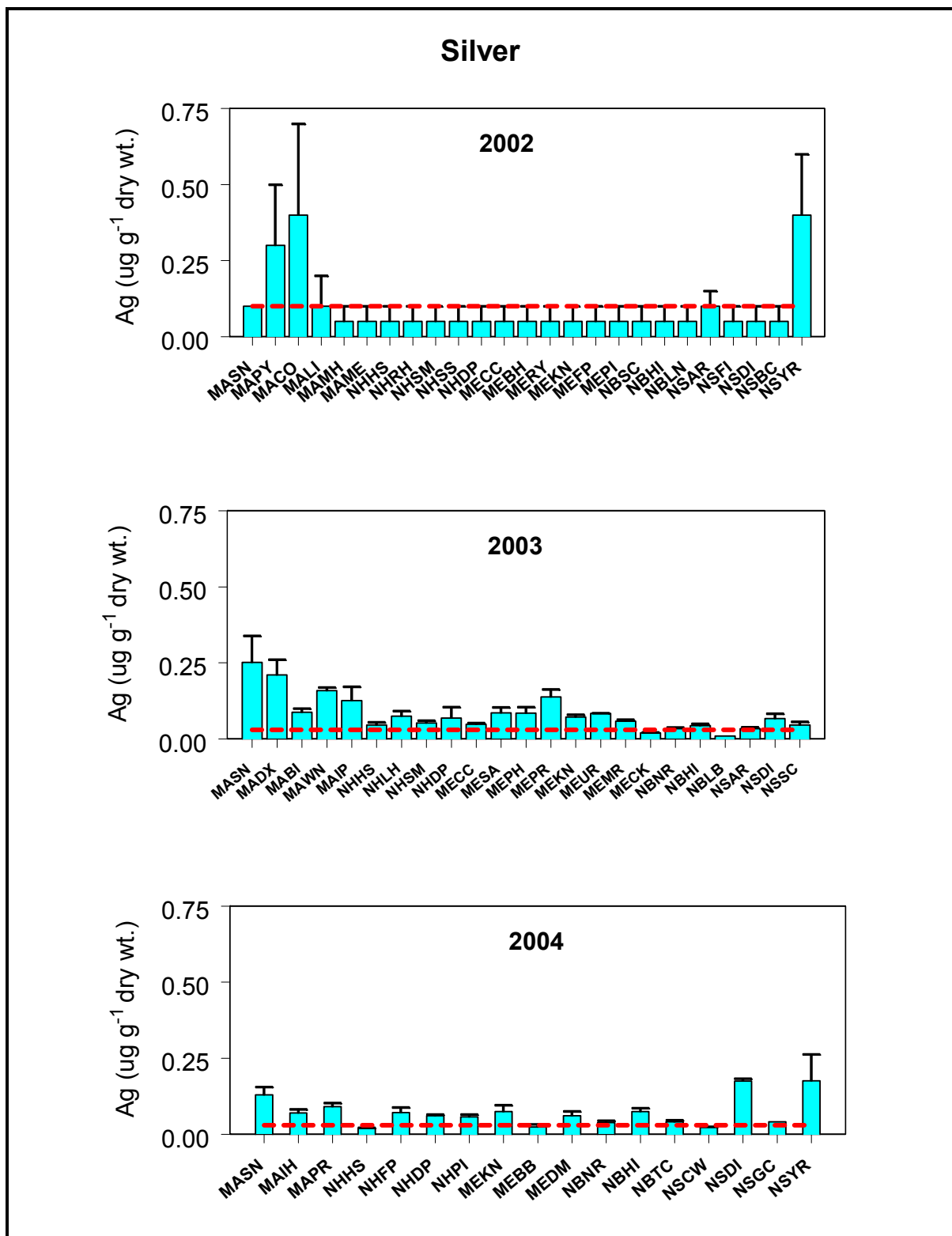


Figure 2. Distribution of silver tissue concentrations (arithmetic mean $\pm$ SD, $\mu\text{g/g}$ dry weight) in mussels at Gulfwatch sites in 2002-2004. Dashed line = Method detection limit (2002) and Reporting Limits (2003-2004).

4.1.2 Cadmium (Cd)

Cadmium was rather uniformly distributed among the Gulfwatch 2002-2004 samples reflecting the control natural coastal sediments and ubiquitous non-point sources may play on Cd bio-availability in the Gulf of Maine. Sediments can act as a major pollutant reservoir because metals and other contaminants can bind to the sediments and become bioavailable to the rest of the food chain. Cadmium is mainly delivered to the aquatic environment from airborne chemicals that are both natural and man-made and include sources from fossil fuel burning, industrial airborne chemicals, auto exhausts, intensive agriculture, and forestry. Localized sources of Cd from industrial waste associated with the production of batteries, plating, stabilizers, and nuclear energy production may have more importance to the sources of exposure for *M. edulis* collected in Boston Harbor and the New Hampshire Great Bay Estuary system because of the higher degree of industrialization. The concentration of cadmium in mussel tissue ranged from 0.05 µg/g dry weight at Grosse Coques, N.S. (NSGC) to 3.2 µg/g dry weight at the Apple River site, N.S. (NSAR) (Table 4; Figure 3).

4.1.3 Chromium (Cr)

The mean Cr concentrations in *M. edulis* collected from the Pines River site in MA (MAPR), the South Mill Pond site in NH (NHSM), and the “NH” benchmark site at Clark’s Cove, ME (MECC) exceeded the Gulfwatch MD + PC85 (Table 4; Figure 4) when all replicates were considered (NHLH = 29 ± 24 µg/g dry weight). However, two sets of replicates (NHSM and MECC), both collected during the 2003 season, show atypical scatter in replicate data. As with most of the 2003 Cu data, these sets are suspected to be partially contaminated during sample processing (see section 3.2). Much more “typical” Cr concentrations (≤ 3 µg/g dry weight) were reported for NHSM and MECC in previous GW data. Further review shows two of the four replicates to be suspect for contaminant artifacts (being >3 SD of the mean of other replicates). Therefore, potential contamination from sampling and handling cannot be ruled out. The lowest concentration observed by Gulfwatch (0.4 µg/g dry weight) was at the Hospital Island site in New Brunswick (NBHI) during 2002.

Chromium is the primary agent used in tanning processes and was discharged with untreated tannery wastes throughout much of this century. Chromium persists in the environment as shown by elevated concentrations in the sediments near such sources (Capuzzo, 1974; NCCOSC, 1997). During the 19th and 20th centuries, coastal New Hampshire was one of the hide tanning centers of the United States. Other tannery

centers were located in Salem, MA and on the Saco River, ME (Capuzzo, 1996). High Cr was also observed in the sediments of along the rim of the Gulf of Maine by other investigators (Mayer and Fink, 1990).

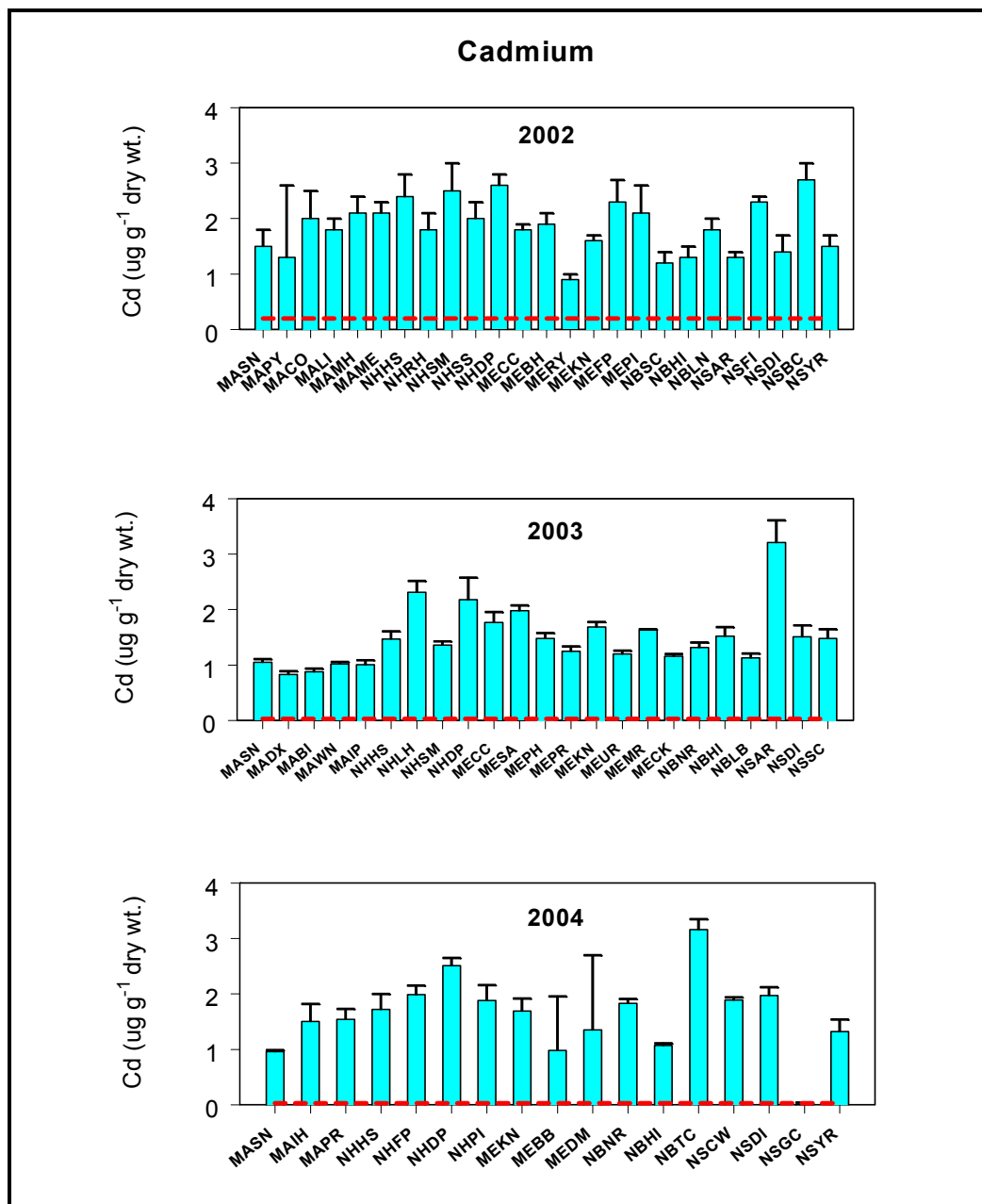


Figure 3. Distribution of chmium tissue concentrations (arithmetic mean $\pm$ SD, $\mu\text{g/g}$ dry weight) in mussels at Gulfwatch sites in 2002-2004. Dashed line = Method detection limit (2002) and Reporting Limits (2003-2004).

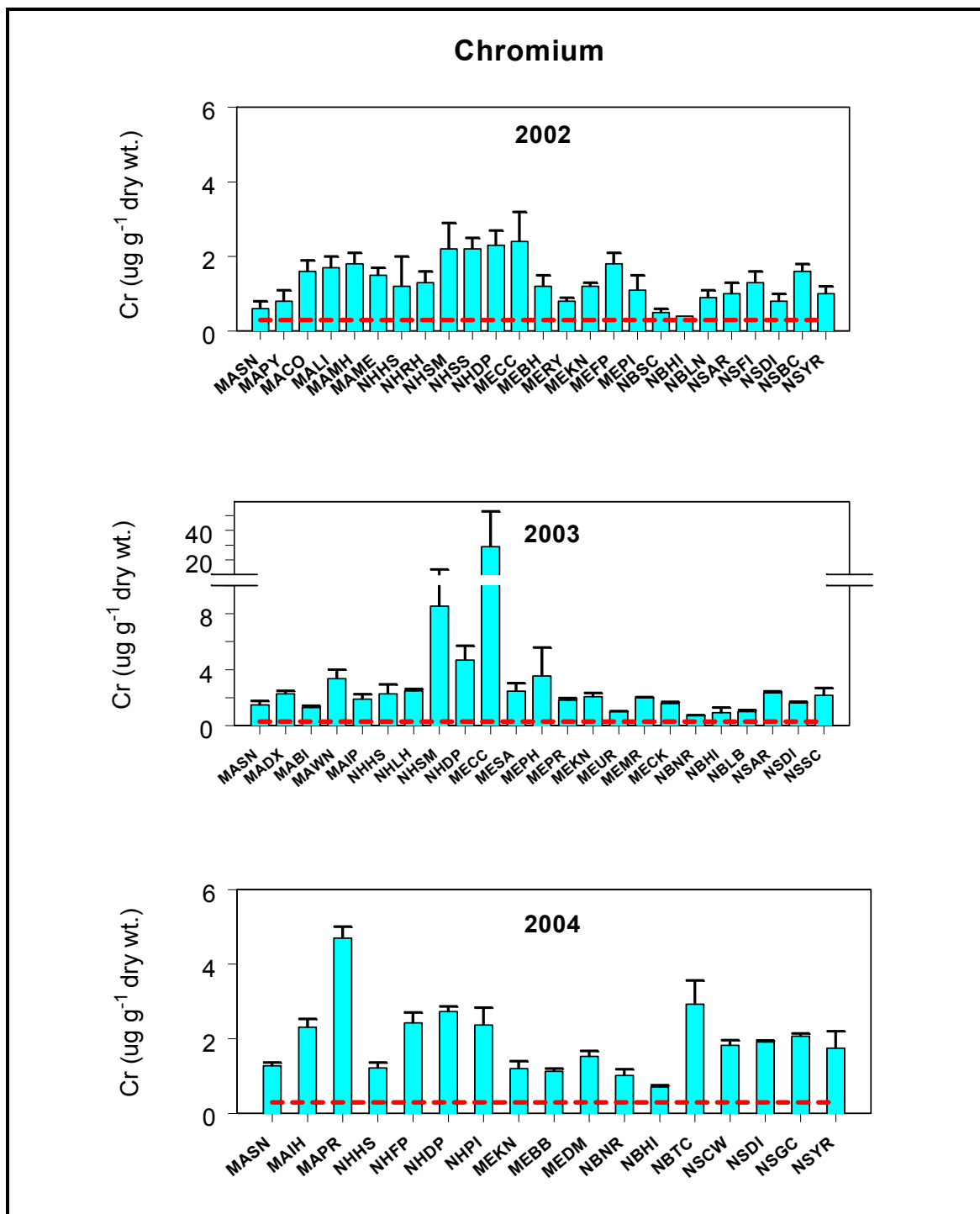


Figure 4. Distribution of chromium tissue concentrations (arithmetic mean $\pm$ SD, $\mu\text{g/g}$ dry weight) in mussels at Gulfwatch sites in 2002-2004. Dashed line = Method detection limit (2002) and Reporting Limits (2003-2004). Contamination during sample collection and processing is suspected for the NHSM and MECC sites during 2002.

4.1.4 Copper (Cu)

For this reporting period, the concentration of copper in *M. edulis* ranged from 6 µg/g dry wt at several locations around the GOM to 70 µg/g dry wt at the Little Harbor site in NH (NHLH) which was sampled in 2003 (Table 4; Figure 5, middle panel). However, as previously noted, many of the Cu analyses from that year appear to be contaminated. Disregarding the 2003 Cu data, the highest concentration of 14.5 µg/g dry wt was observed at the Boston Inner Harbor site (MAIH). Other than MAIH, Cu in 2002-2004 Gulfwatch samples was more uniformly distributed throughout the study region. Copper in Boston Harbor and surrounding waters is well associated with municipal waste waters (Krahforst, in prep). The higher concentrations of Cu at MAIH are most likely associated with municipal waste water discharges to Boston Harbor and the legacy of contamination in Boston Harbor sediments.

4.1.5 Iron and Aluminium (Fe & Al)

The highest concentrations for both Al and Fe were generally found at New Brunswick and Massachusetts sites (Table 4; Figures 6 and 7). The concentration of Fe ranged from 183 µg/g dry weight dry wt at the Hospital Island site, NB (NBHI) to 1276 µg/g dry wt at the Tin Can Beach site also in NB (NBTC). Similarly, the concentration of Al ranged from 50 µg/g dry wt at the Pickering Island site in ME (MEPI) to 1392 µg/g dry wt at NBTC. Consistent with results from previous years, the sites with the lowest and highest Fe concentrations generally were mimicked in respective Al concentrations. Because of their high abundance in crustal material (Wedepohl, 1995), Al and Fe may serve as a potential measure of sediment-associated metals captured along with mussel tissue composite preparation. The concern within the Gulfwatch program is that the observed elevated levels of some trace metals may be a function of sediment that had been incorporated into the samples (sediment material attached to mussel tissue or contained within mussel's gut). Sites where resuspension during windy storm events or intensive tidal action (such as NBTC in the Bay of Fundy) occur may be more susceptible to sediment contamination in their respective composites.

Aluminium values may prove valuable for correcting metal concentrations in mussel tissue to better reflect exposure of *M. edulis* to contamination. Average Metal-to-Al ratios can be derived from crustal abundances reported in literature (Wedepohl, 1995) and the potential crustal contribution may be removed from the metal concentrations of each sample to strengthen the analysis of metal contamination in the Gulf of Maine. However, recoveries of Al from standard reference materials (Appendix B) were

exceptionally low (25-66%) in metals analyzed from the 2002 samples and should be viewed with caution.

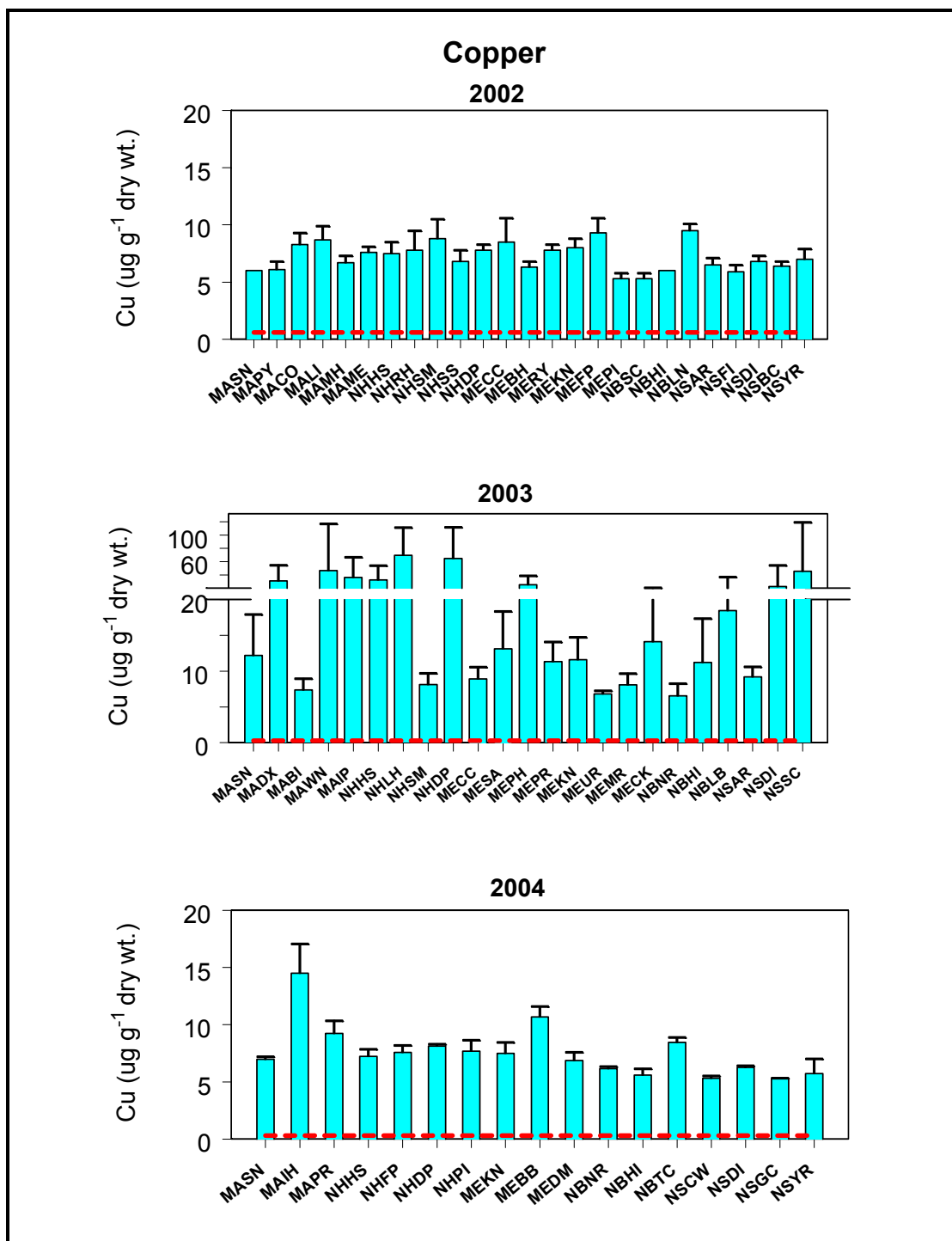


Figure 5. Distribution of copper tissue concentrations (arithmetic mean $\pm$ SD, $\mu\text{g/g}$ dry weight) in mussels at Gulfwatch sites in 2002-2004. Dashed line = Method detection limit (2002) and Reporting Limits (2003-2004).

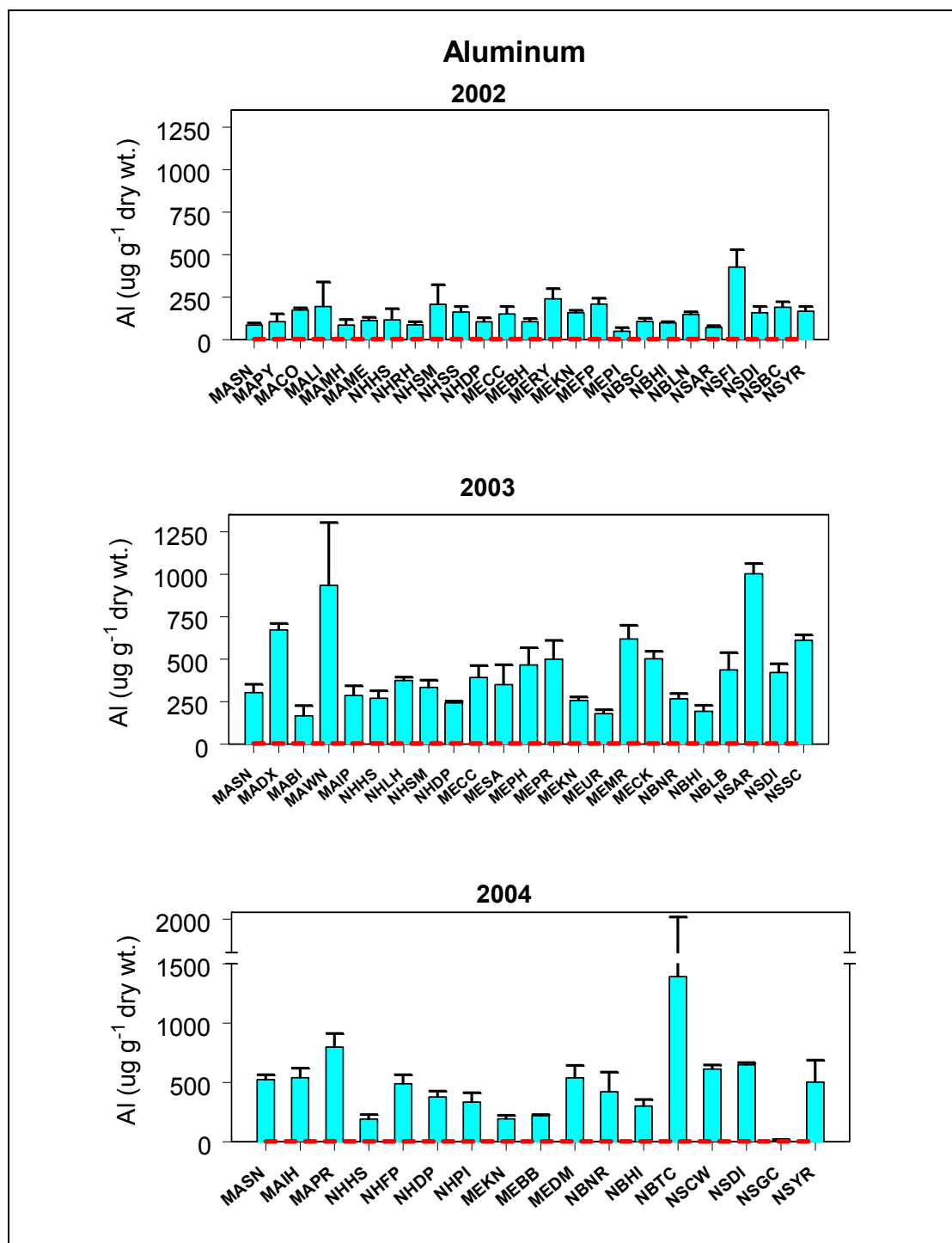


Figure 6. Distribution of aluminum tissue concentrations (arithmetic mean $\pm$ SD, $\mu\text{g/g}$ dry weight) in mussels at Gulfwatch sites in 2002-2004. Dashed line = Method detection limit (2002) and Reporting Limits (2003-2004).

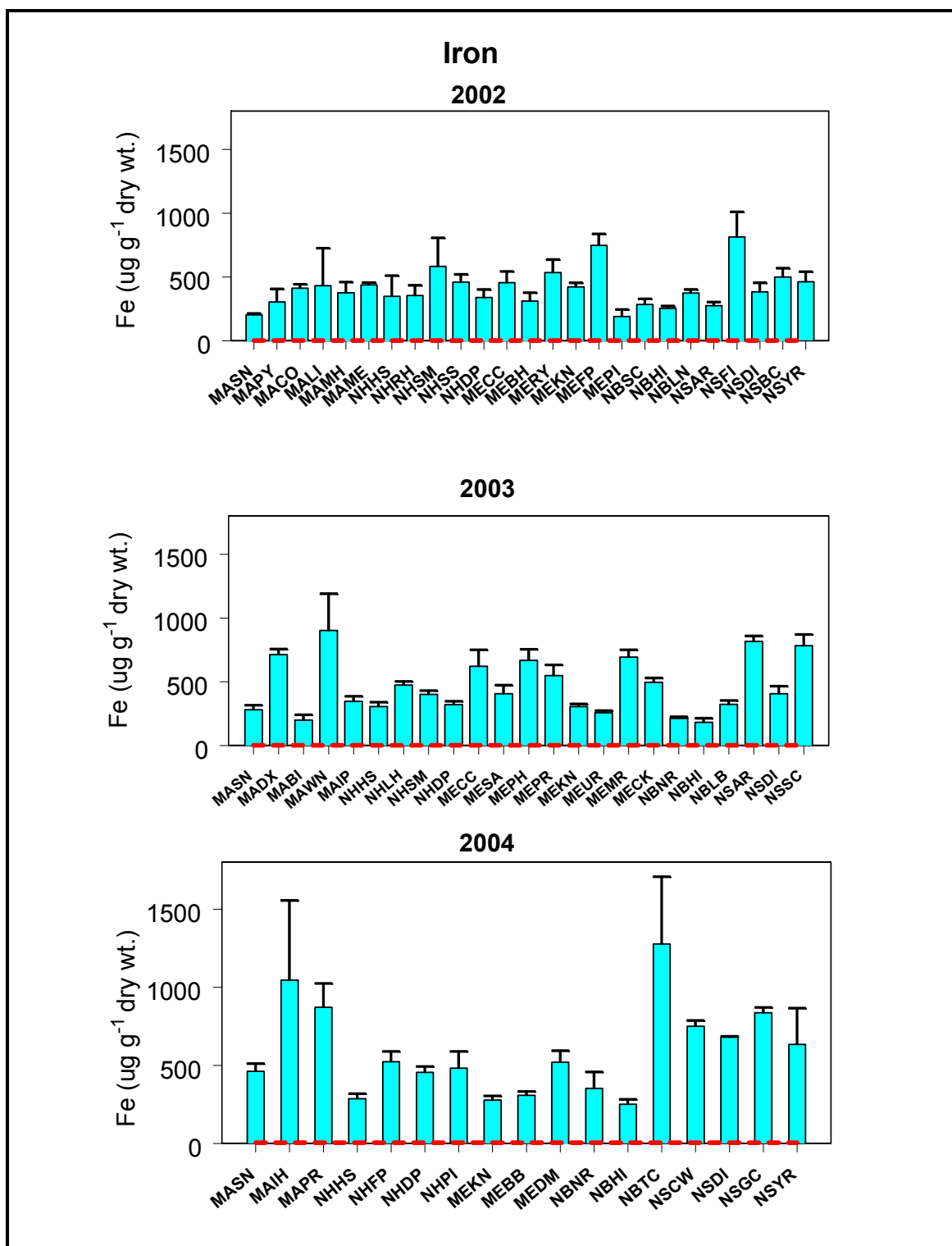


Figure 7. Distribution of iron tissue concentrations (arithmetic mean $\pm$ SD, $\mu\text{g/g}$ dry weight) in mussels at Gulfwatch sites in 2002-2004. Dashed line = Method detection limit (2002) and Reporting Limits (2003-2004).

4.1.6 Nickel (Ni)

Nickel in Gulfwatch samples during 2002-2004 exhibited the following sub-regional differences: highest values and greatest variability occurred in the New Hampshire Great Bay Estuary system within the 2003 data set and may be related to somewhat subtler contamination issues suspected in some of the Cu and Cr 2003 data; and greater than values of the 2002-2004 median Gulfwatch value for sites located in New Brunswick. The concentration of nickel ranged from 0.8 µg/g dry wt at the Booth Bay Harbor, ME site, (MEBB) to 3.1 µg/g dry wt at the Tin Can Beach, NB site (NBTC), (Table 4; Figure 8). Sub-regional impacts may be from local uses of Ni, such as in electroplating processes, production of batteries, and as catalysts. These sources contribute to municipal wastewater contamination as well as forming the legacy of some of the local sediment contamination. However, the levels of Ni observed at NBTC may be related to the associated crustal material due to high resuspension in the Bay of Fundy as evidenced by the corresponding elevated concentrations observed for Al and Fe.

4.1.7 Lead (Pb)

The concentration of lead ranged from a value of 0.5 µg/g dry wt at Hospital Island site, NB (NBHI), to 14.9 µg/g dry wt at the Boston Inner Harbor site, MA (MAIH) (Table 4, Figure 9). Lead levels exceeded NS&T MD + PC85 value of 4.34 µg/g dry wt at 13 of the 50 unique sites sampled during the period of 2002-2004. The highest Pb concentrations historically are observed in mussels collected from MAIH. Lead concentrations in surface sediments in the inner portion of Boston Harbor have been reported as high as 245 µg/g dry wt (in Stolzenbach and Adams, Ed., 1998). Boston Inner Harbor has been impacted by the largest municipal wastewater treatment facility in the region and receives drainage from highly industrialized watersheds. Historical contamination to the sediments of Boston Harbor and the Pines and Saugus Rivers in Massachusetts is well documented. The ME Boothbay site was the second most contaminated site, with respect to Pb, of all the 2002-2004 Gulfwatch sites.

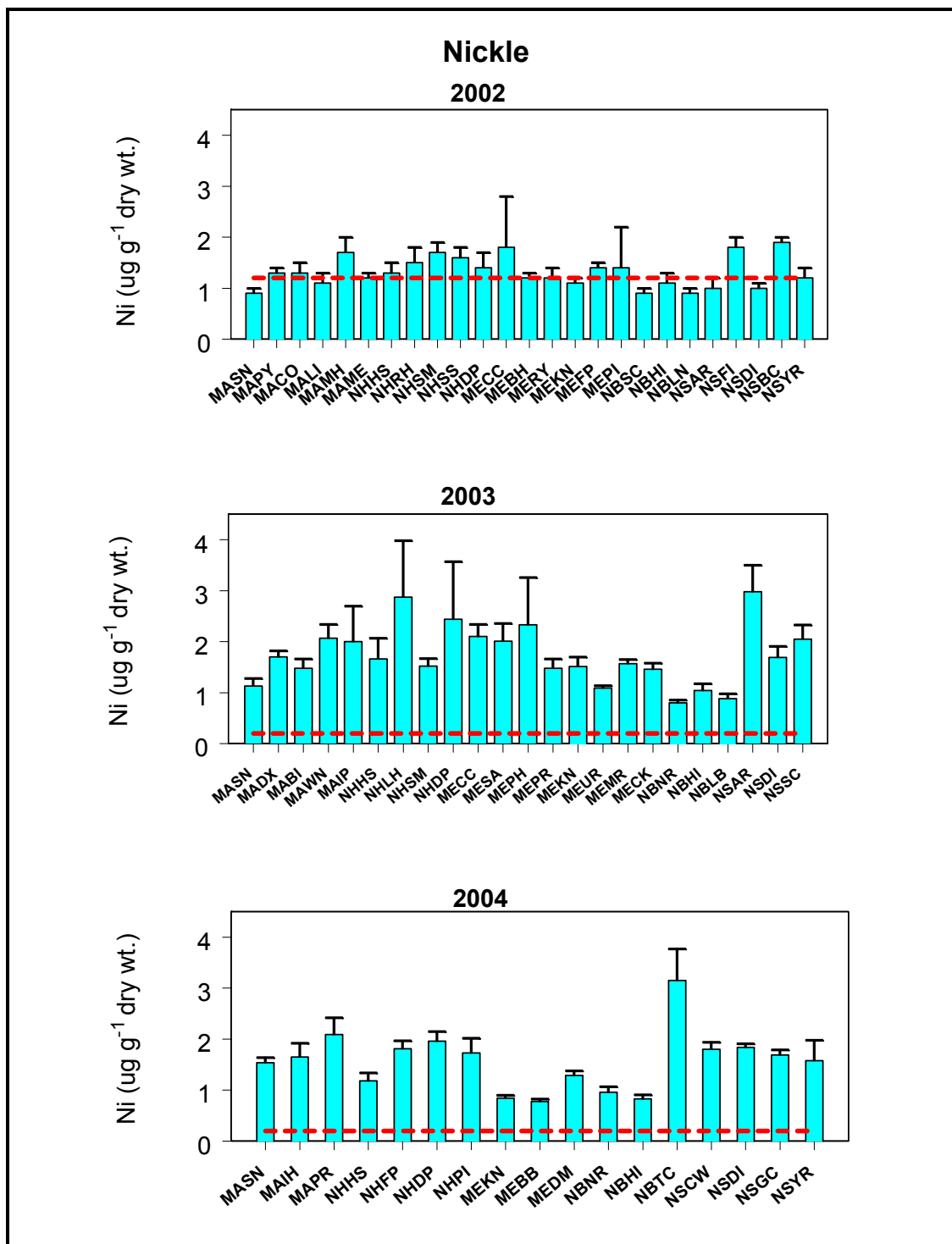


Figure 8. Distribution of nickel tissue concentrations (arithmetic mean $\pm$ SD, $\mu\text{g/g}$ dry weight) in mussels at Gulfwatch sites in 2002-2004. Dashed line = Method detection limit (2002) and Reporting Limits (2003-2004).

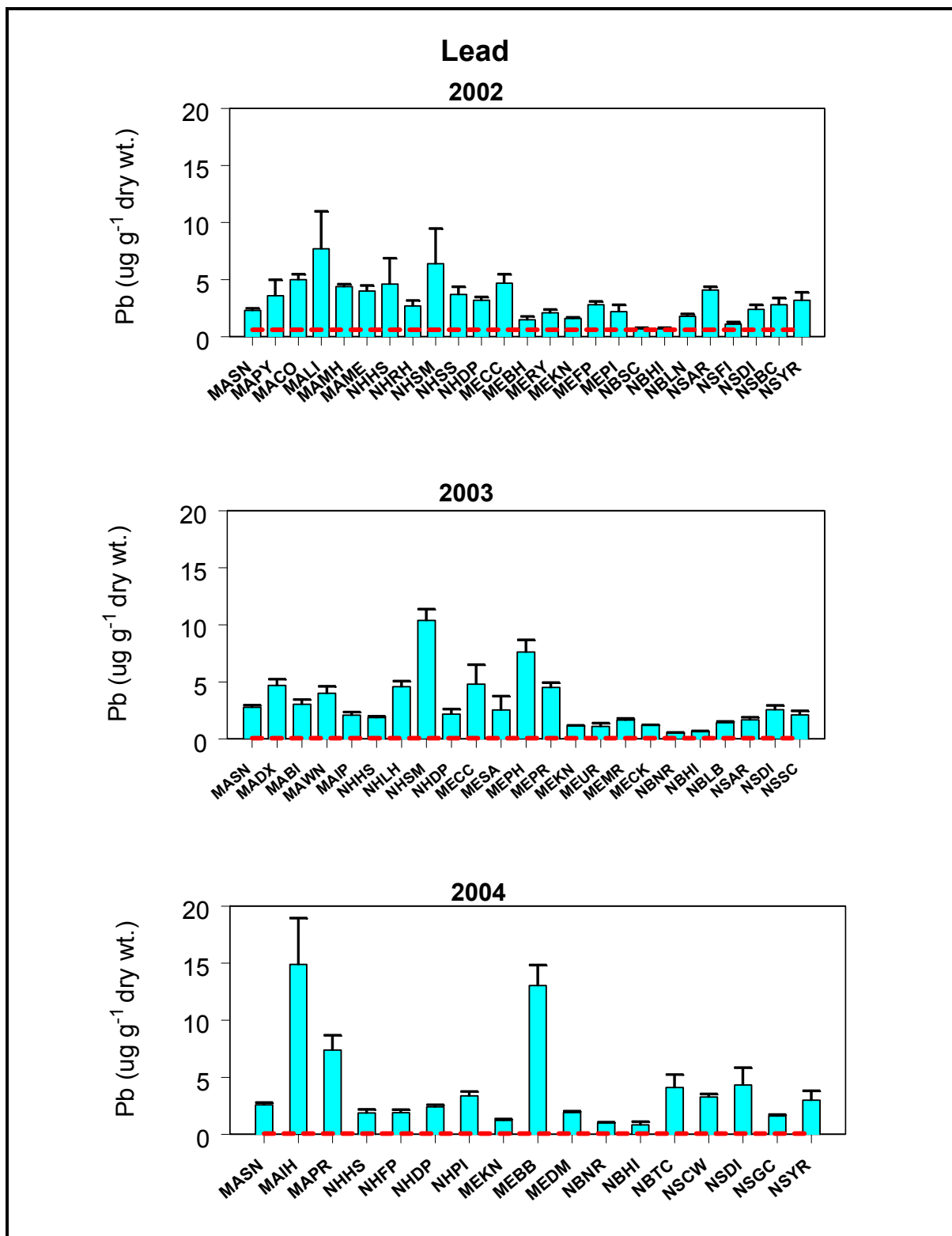


Figure 9. Distribution of lead tissue concentrations (arithmetic mean $\pm$ SD, $\mu\text{g/g}$ dry weight) in mussels at Gulfwatch sites in 2002-2004. Dashed line = Method detection limit (2002) and Reporting Limits (2003-2004).

4.1.8 Zinc (Zn)

Zinc contamination is fairly ubiquitous in our environment. Concentrations generally reflect human activity associated with tire wear, galvanized materials and industrial waste discharges. The concentration of zinc ranged from a value of 46 µg/g dry wt at the Grosse Coques site, NS (NSGC) to 208 µg/g dry wt at the Boston Harbor site (MAIH). (Table 4; Figure 10). For the reporting period, there generally seemed to be less Zn contamination in mussels among sites as they progress further north and east along the GOM.

4.1.9 Mercury (Hg)

The concentration of Hg in mussel tissue were < 0.10 µg/g dry wt (non-detectable) at all of the Gulfwatch New Brunswick sites for 2002 (NBSC, NBHI, and NBLN) and at the NS Digby site (NSDI). Mercury was detected in *M. edulis* collected from all but one of the stations in the United States portion of Gulfwatch sites. For the 2002-2004 GW sites, Hg ranged from just below the detectable level to 1.0 µg/g at the Little Harbor site in Cohasset, MA (MACO) (Table 4; Figure 11). Nine (9) GW sites from 2002 (see Table 7 above) and one site from 2003 (NHLH) exceeded the NS&T MD + PC85 value of 0.35µg/g dry wt. Overall for the 2002-2004, the mussel Hg levels from New Hampshire sites were higher than sites in other jurisdictions. Mussels from the reference station for NH, which is located within the Great Bay Estuary but along the Maine coast (MECC), had levels of Hg comparable to the remaining Great Bay Estuary sites. The consistently higher Hg in the Great Bay Estuary system warrants further evaluation of Hg loading and its transport to and fate in adjacent coastal waters.

There are several known historical Hg sources in the Gulf of Maine (Jones 2004, NCCOSC, 1997). Mean values of Hg in *Mytilus* spp. from coastal regions world-wide range from 0.1 to 0.4 µg/g dry wt (Kennish, 1997), but can be much higher in areas like the south-west Pacific, where sites average as much as 2.7 µg Hg/g dry wt (Fowler, 1990). The 2002-2004 GOM-wide median and 85th Percentile for Hg ranged from 0.07-0.2 and 0.2-0.5 µg/g dry wt, respectively. In a review of the first five years of the Gulfwatch program, tissue concentrations of Hg were discussed as being unusually high and a possible concern for human health (Tripp et al., 1997).

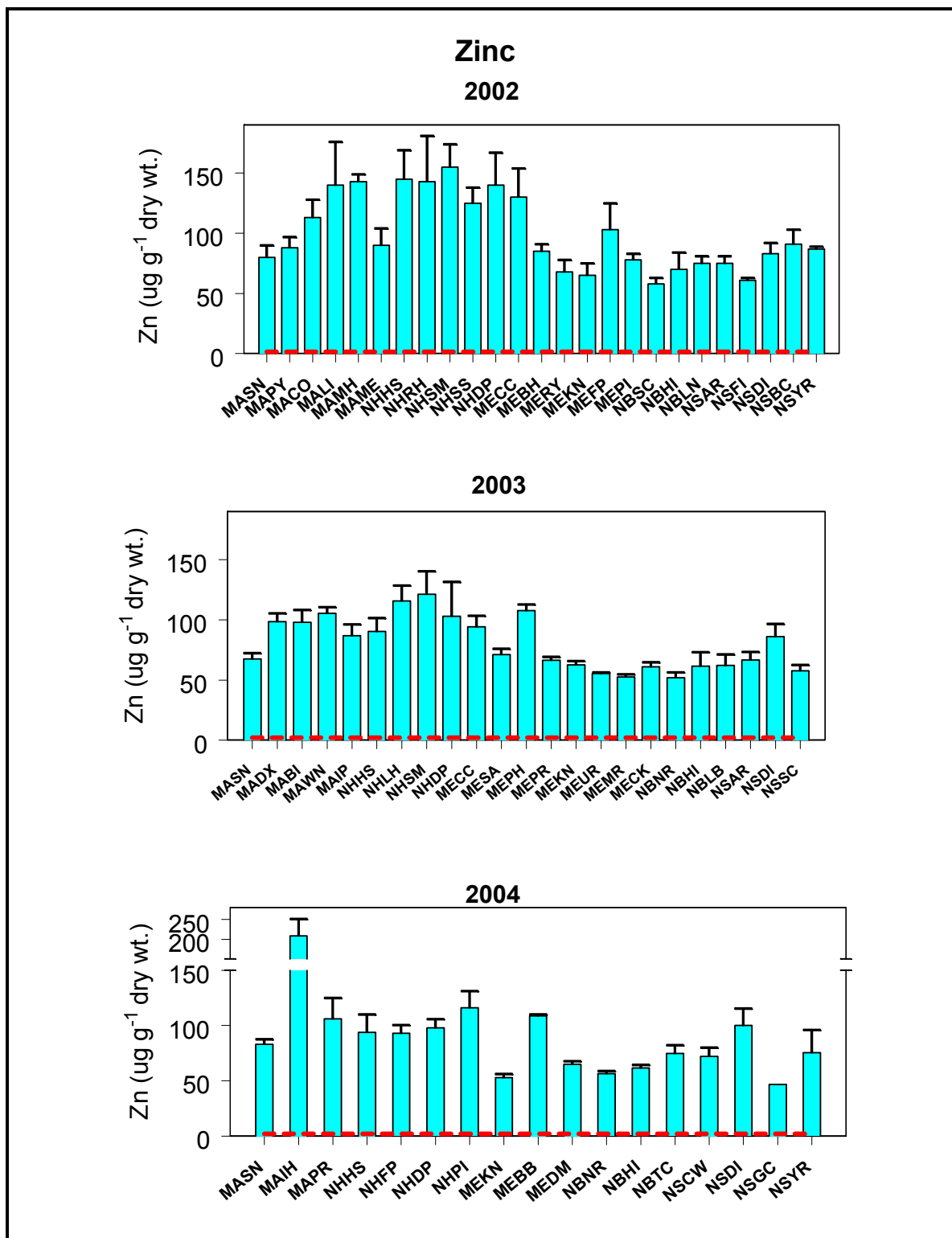


Figure 10. Distribution of zinc tissue concentrations (arithmetic mean $\pm$ SD, $\mu\text{g/g}$ dry weight) in mussels at Gulfwatch sites in 2002-2004. Dashed line = Method detection limit (2002) and Reporting Limits (2003-2004).

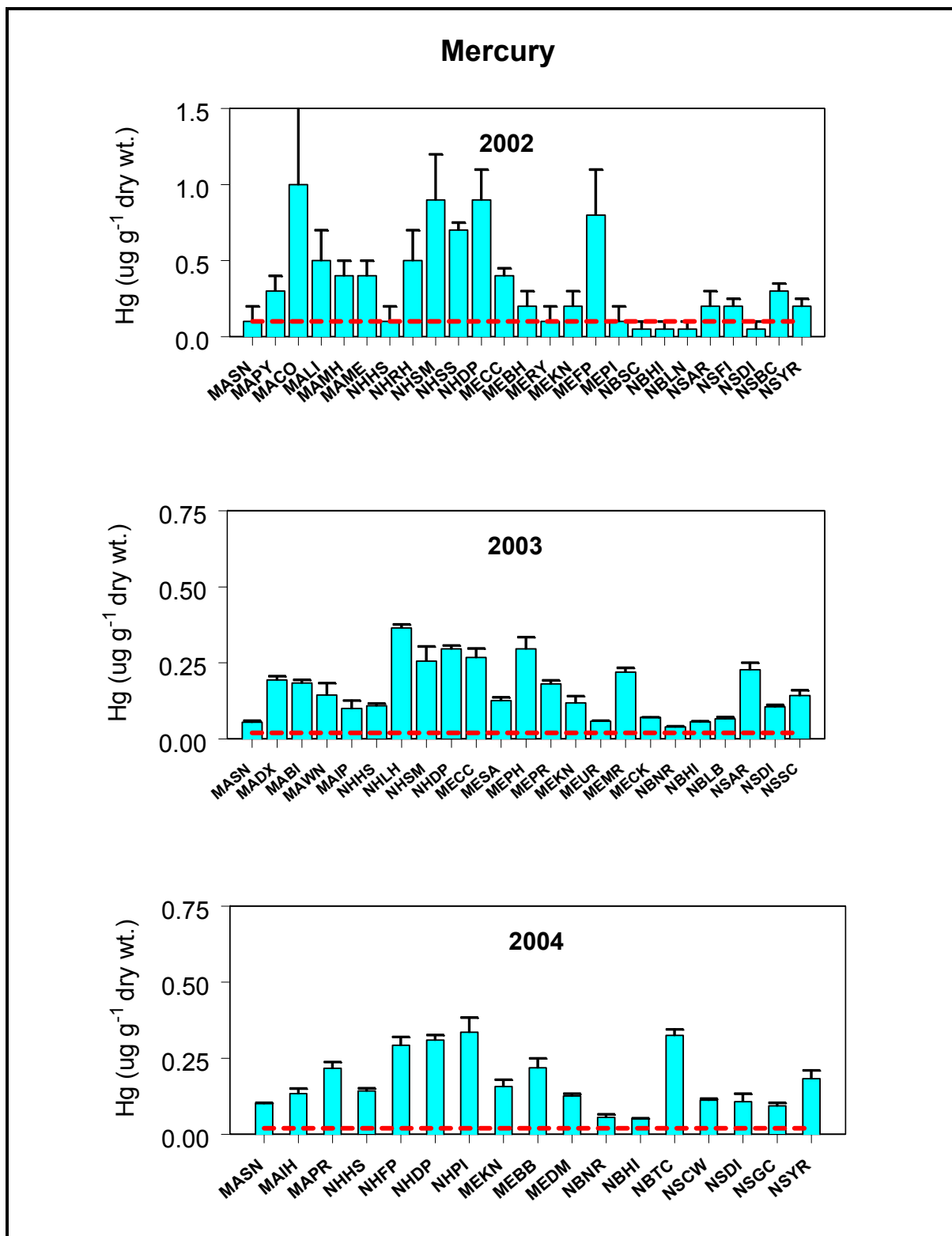


Figure 11. Distribution of mercury tissue concentrations (arithmetic mean $\pm$ SD, $\mu\text{g/g}$ dry weight) in mussels at Gulfwatch sites in 2002-2004. Dashed line = Method detection limit (2002) and Reporting Limits (2003-2004).

4.1.10 Organic Contaminants

Analytes within each category of organic contaminant were detected at all US sites and most of the Canadian sites. The pattern of higher ΣPAH_{24} , ΣPCB_{22} , ΣTPEST_{17} and ΣDDT_6 concentrations in the south-western Gulf compared to the north-eastern Gulf (Table 8, Figs. 12-14) continues as observed from the previous results of Gulfwatch data (Jones et al., 2005). This is particularly so for ΣPAH_{24} , ΣPCB_{22} , and ΣDDT_6 concentrations, where significant increases are observed in mussels collected at many of the US sites. The concentrations of all organic classes were an order of magnitude higher in mussels collected from Boston Inner Harbor (MAIH)

ΣPAH_{24} concentrations ranged from non-detectable levels in many of the NS and NB sites to 4617 ng/g dry wt at the Boston Inner Harbor site (MAIH) (Table 8; Figure 12). Along with MAIH, the Boston Harbor Long Island site (MALI) exceeded the NS&T MD + 85P concentration of 1420 ng/g dry wt. ΣPAH_{24} concentrations in mussels from the sites in the Great Bay Estuary of NH ranged from 34-871 ng/g dry wt. None of the NH sites exceeded the NS&T MD + 85P concentrations for ΣPAH_{24} . However, two sites (NHNM and NHSM) had concentrations approaching 500 ng/g dry weight.

Detectable concentrations of ΣPCB_{24} were observed in all of the US and five New Brunswick sites. All Canadian sites had ΣPCB_{24} concentration levels < 5 ng/g dry wt for the reporting period. The eight greatest ΣPCB_{24} concentrations for this reporting period were all located in MA state waters, with the exception of NHNM (5th highest). Detectable ΣPCB_{24} concentrations ranged 2 ng/g dry wt. at the Damariscotta site in Maine (MEDM) to 598 ng/g dry wt. at MAIH (Table 8; Figure 13). Highest levels of ΣPCB_{22} concentrations were observed in the urbanized estuaries of Massachusetts, followed by most of Great Bay Estuary sites including the nearby reference site in Maine (MECC).

Detectable concentrations of ΣTPEST_{21} ranged from 1.5 ng/g dry wt at the Damariscotta site, ME (MEDM) to 69 ng/g dry wt at the North Mill Pond site in NH (NHNM) (Table 8; Figure 14, bottom). As in previous reports, ΣDDT_6 and its degenerative metabolites were the main contributors to total detectable pesticides, and exhibited the same spatial pattern as seen for ΣTPEST_{21} (Table 8).

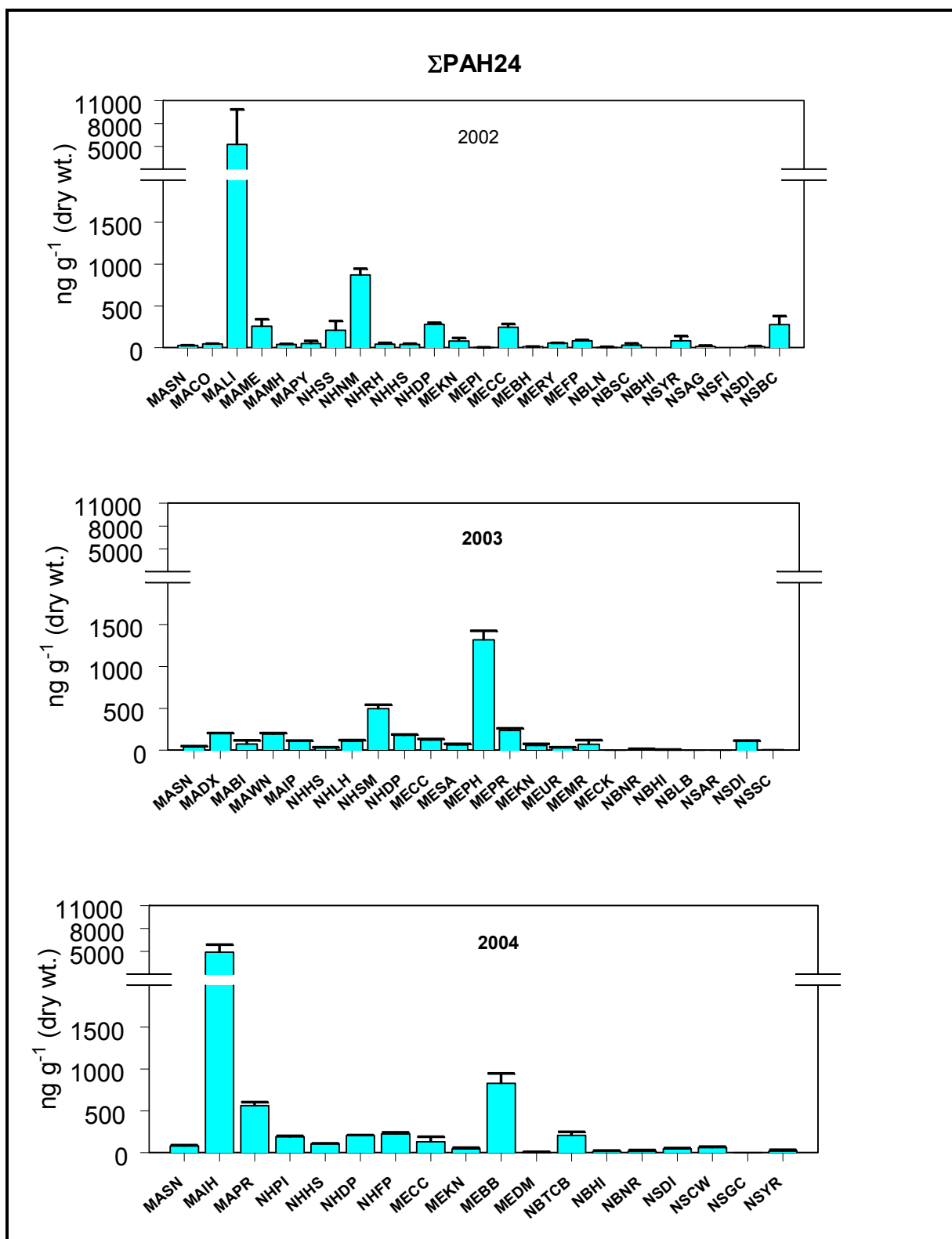


Figure 12. Distribution of ΣPAH_{24} tissue concentrations (arithmetic mean $\pm$ SD, ng/g dry weight) in mussels at Gulfwatch sites during 2002-2004.

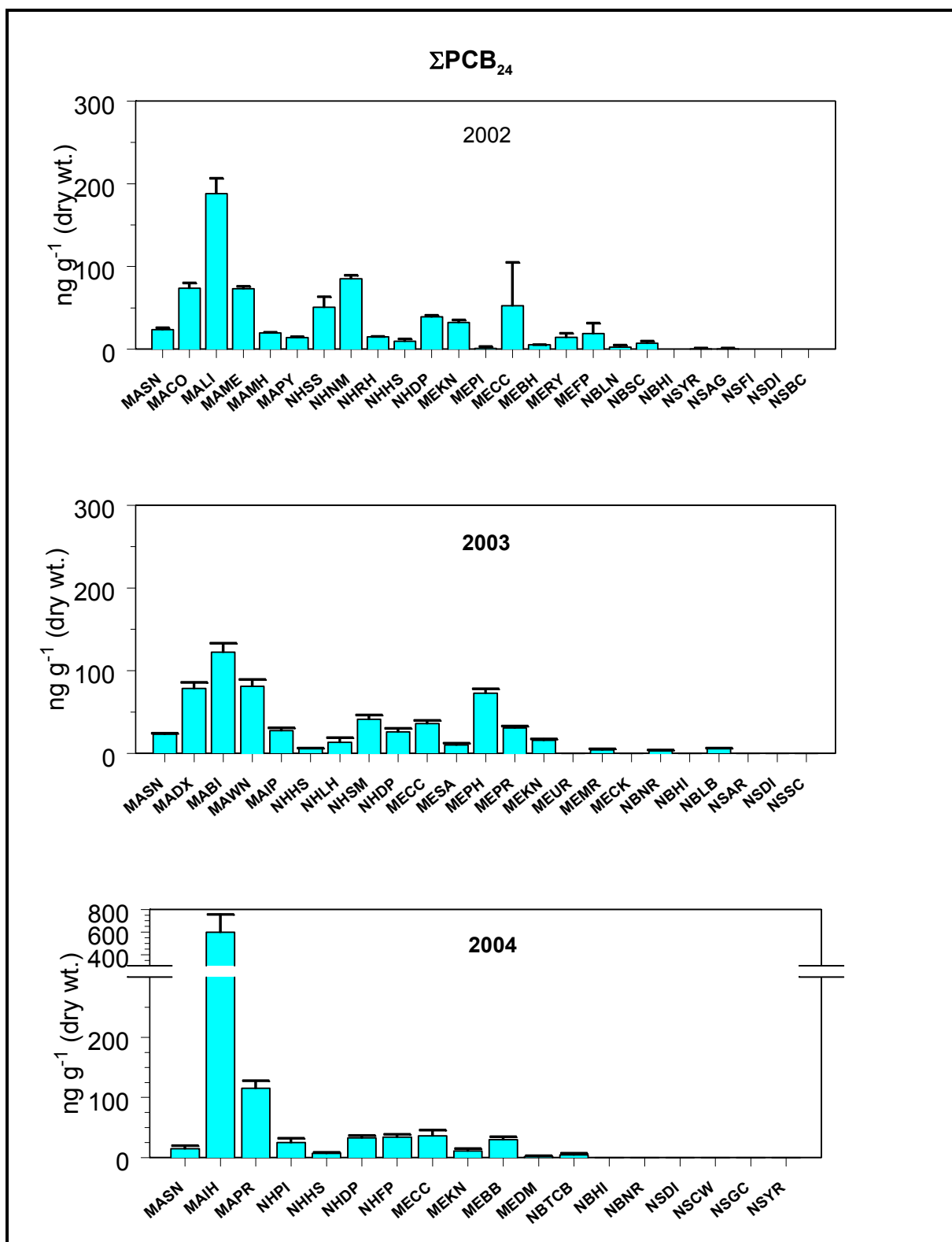


Figure 13. Distribution of ΣPCB₂₄ tissue concentrations (arithmetic mean $\pm$ SD, ng/g dry weight) in mussels at Gulfwatch sites during 2002-2004.

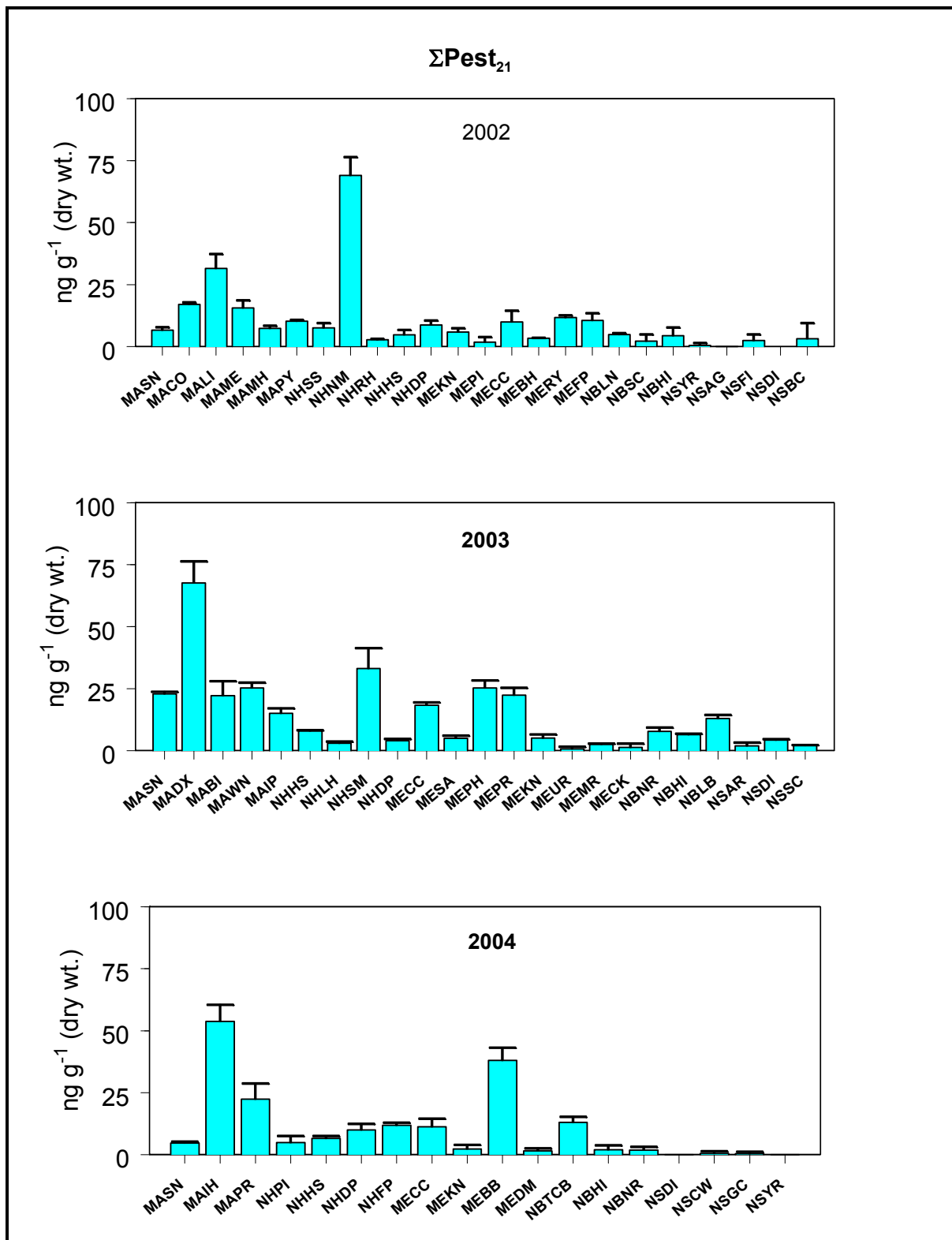


Figure 14. Distribution of ΣTPEST_{17} tissue concentrations (arithmetic mean $\pm$ SD, ng/g dry weight) in mussels at Gulfwatch sites during 2002-2004.

4.2 TEMPORAL PATTERNS

This section presents the distribution of contaminants in mussel tissue collected from “rotational” and benchmark sites along the Gulf of Maine inclusive to 2004 since the beginning of the Program in 1993. All but three of the sites (MEBB, NBTC, NSGC) of the Gulfwatch Program to 2004 have now been sampled at least three times (Table 3) as prescribed by sampling design of the 9-year Gulfwatch Program. Rotational sites are those locations that were sampled every three years and are grouped into three sets of stations; each set belonging to rotations that began in 1993, 1994, and 1995. The temporal distribution (along with a group of occasionally-visited sites – see Table 1A-C) of rotational site means ($+1$ SD) are plotted for each contaminant at individual sites in Figures 15-57. The distribution of contaminants at the 5 benchmark sites (MASN, MECC, MEKN, NBHI, and NSDI), those that were scheduled for sampling each year to 2004, are shown in Figures 58-71. In general, the plots are arranged beginning with the Sandwich, MA and continuing in a clockwise manner around the Gulf of Maine ending with Yarmouth, NS. For plotting purposes, each non-detectable value was assigned $\frac{1}{2}$ the MDL value and used as the lower limit of each concentration axis to help visualize any potential temporal trends.

4.2.1 3-Year Rotational Sites.

For the 3-year rotational sites, there were examples of apparent temporal trends either increasing or decreasing for each metal and suites of organic chemicals. In some cases the trends were often heavily influenced by significant relative variability among the replicates within the year rather than the result of temporal differences among the years sampled (e.g., Cu at MEUR, Fig. 43A, middle-right panel). These plots then may also be used to target further review of individual replicate analyses which are provided in the Appendices (e.g., Ag data at NHSM, Fig. 30A, upper-left panel). Of note are the apparent decline in Hg through 2004 in a number of sites along the Gulf of Maine (MADX, MEPH, MERY, NBNR, NSSC, and NSYR; Figs. 16B, 37B, 39B, 47B, 55B, and 57B, respectively); the apparent increases in Σ PAH and DDT at MADX (Fig 16C), the apparent decline in Σ PAH and Σ PCB at NHFP (34C), and an apparent increase of Pb accumulation at the NHSM (Fig. 30B), and an apparent increase in Cr at NBSC (Fig. 46A). Further, changes in Σ Pest levels at most sites can be attributed to changes in the amount of DDT and DDT homologues; as these species tended to dominate the suite of pesticides monitored by the Gulfwatch Program. Formal trend analyses of the Gulfwatch data is an important next step to discerning temporal changes in contaminant exposure to blue mussels in the Gulf of Maine and is beyond the scope of this data report.

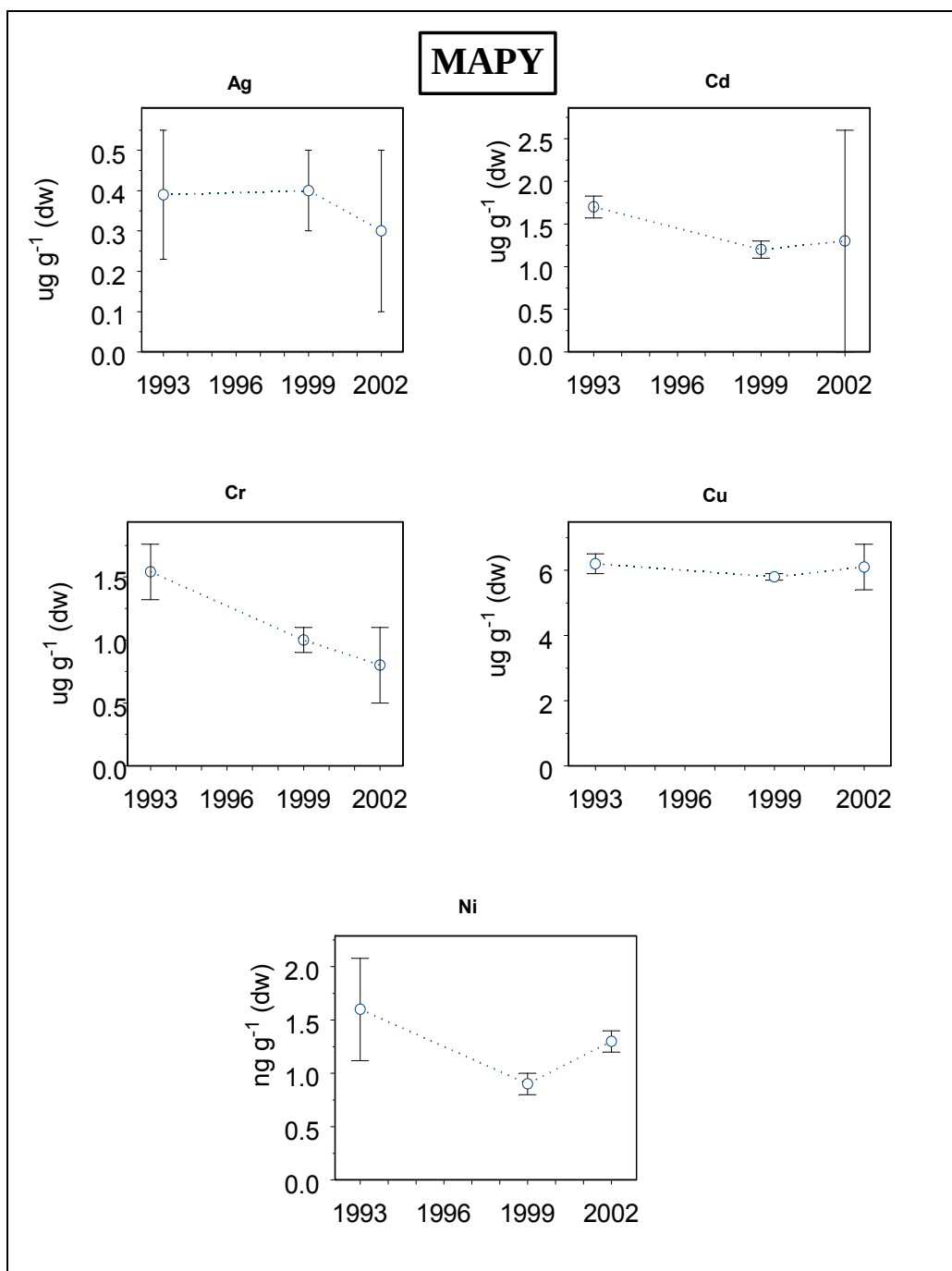


Figure 15A. Distribution of metals (Ag, Cd, Cr, Cu, Ni) concentrations (arithmetic mean $\pm$ SD, $\mu\text{g/g}$ dry weight) in mussels collected at the MAPY Gulfwatch site from selected years during the period from 1993-2004.

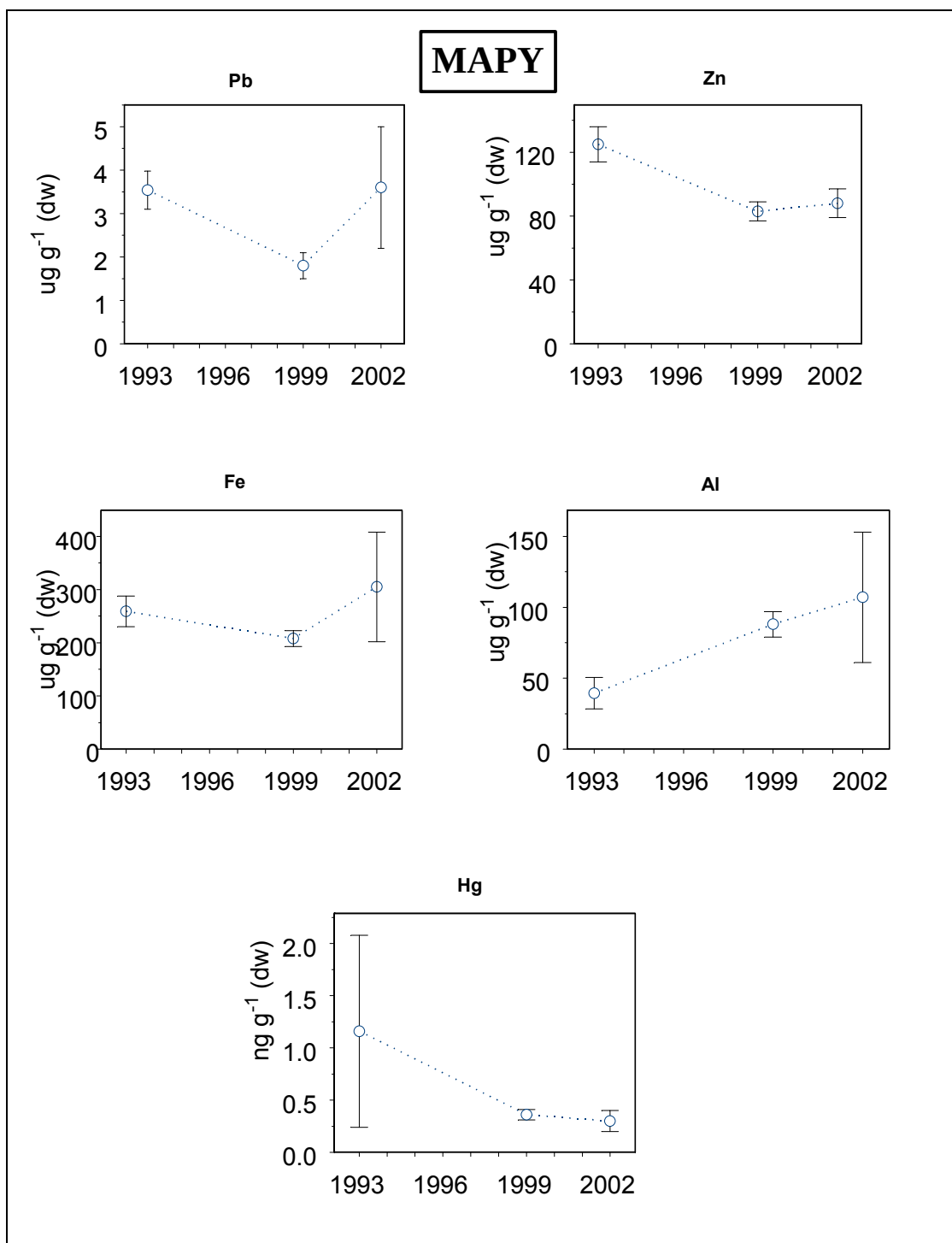


Figure 15B. Distribution of metals (Pb, Zn, Fe, Al, and Hg) concentrations (arithmetic mean $\pm$ SD, $\mu\text{g/g}$ dry weight) in mussels collected at the MAPY Gulfwatch site from selected years during the period from 1993-2004.

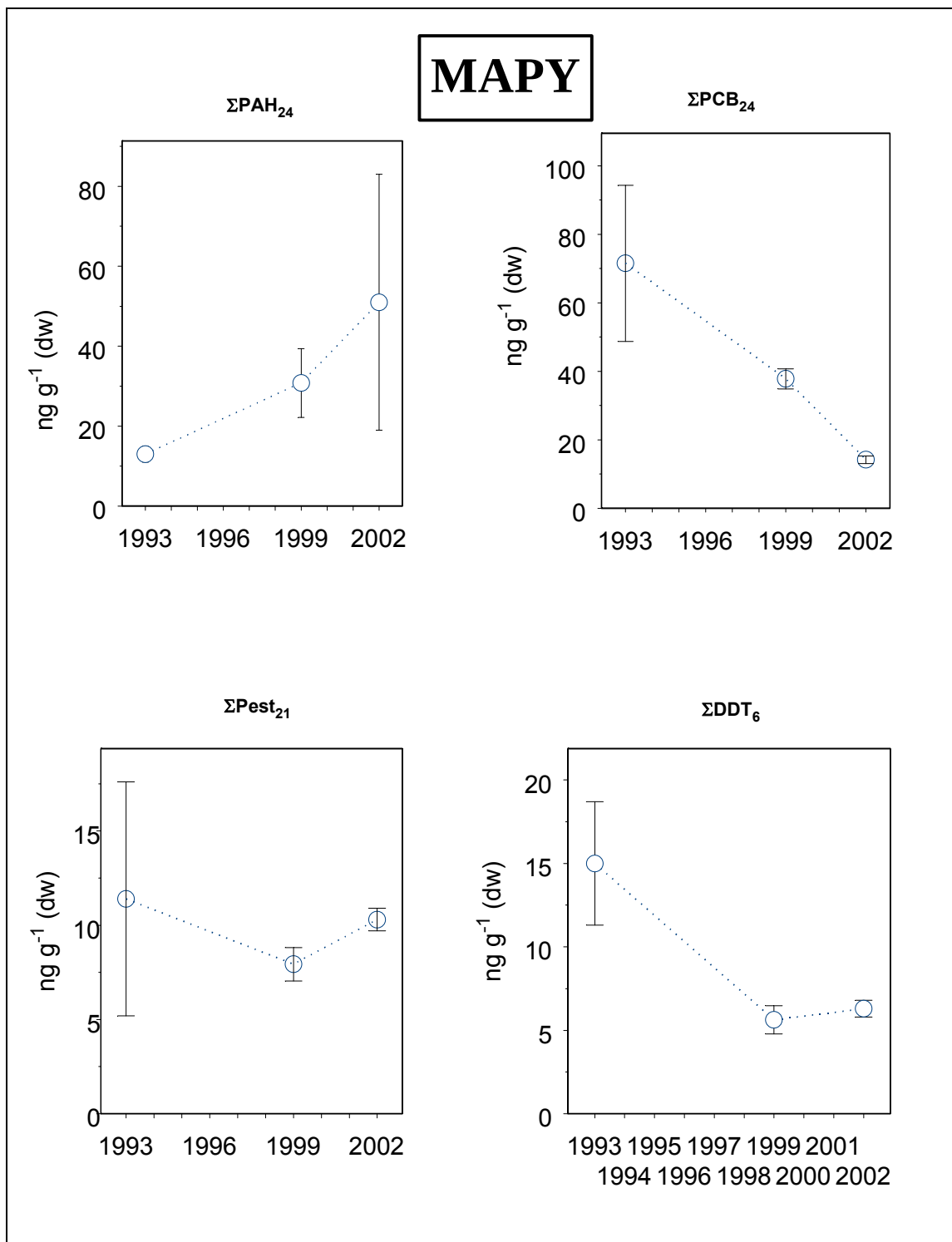


Figure 15C. Distribution of selected organic contaminant concentrations (arithmetic mean $\pm$ SD, ng/g dry weight) in mussels collected at the MAPY Gulfwatch site from selected years during the period from 1993-2004.

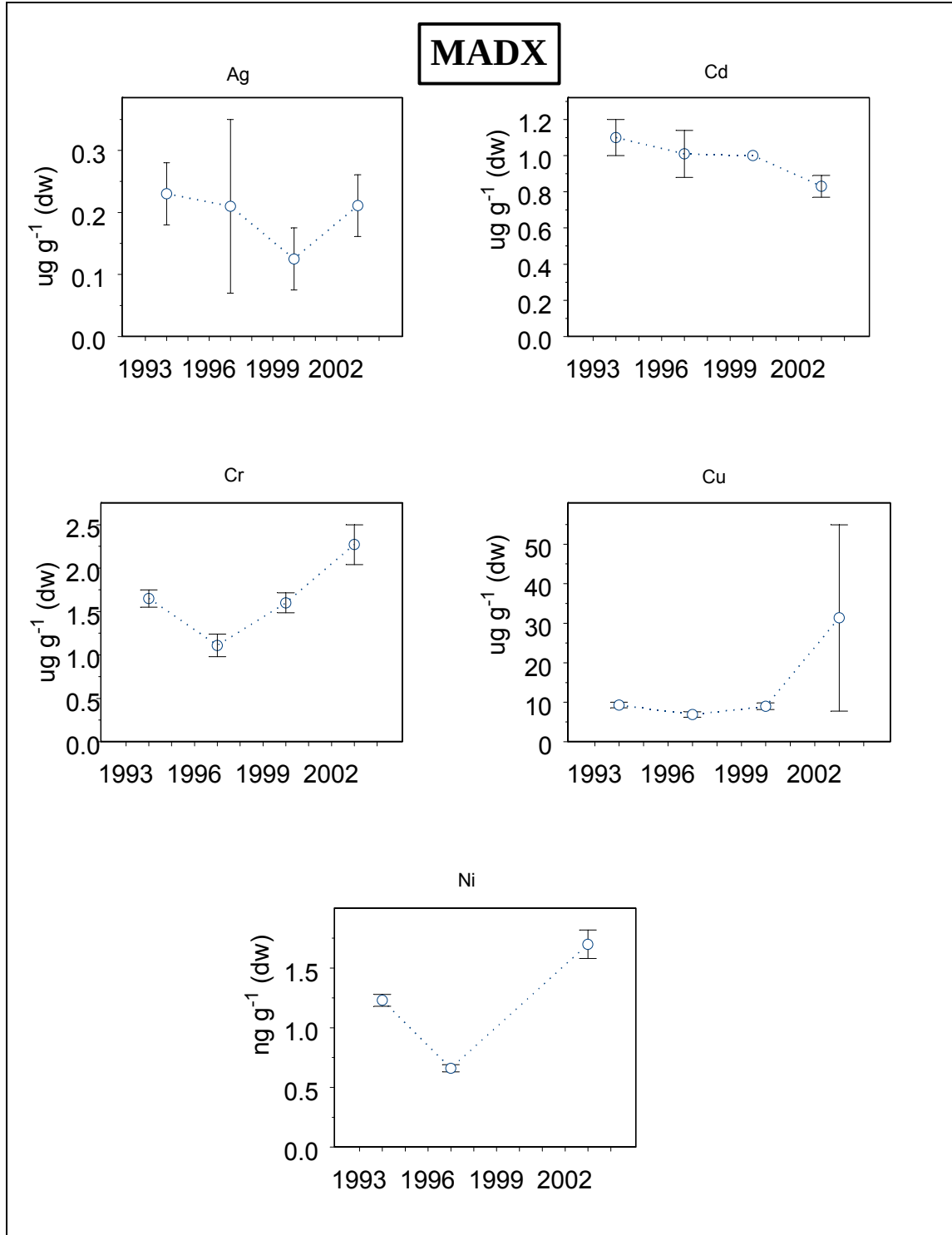


Figure 16A. Distribution of metals (Ag, Cd, Cr, Cu, Ni) concentrations (arithmetic mean $\pm$ SD, $\mu\text{g/g}$ dry weight) in mussels collected at the MADX Gulfwatch site from selected years during the period from 1993-2004.

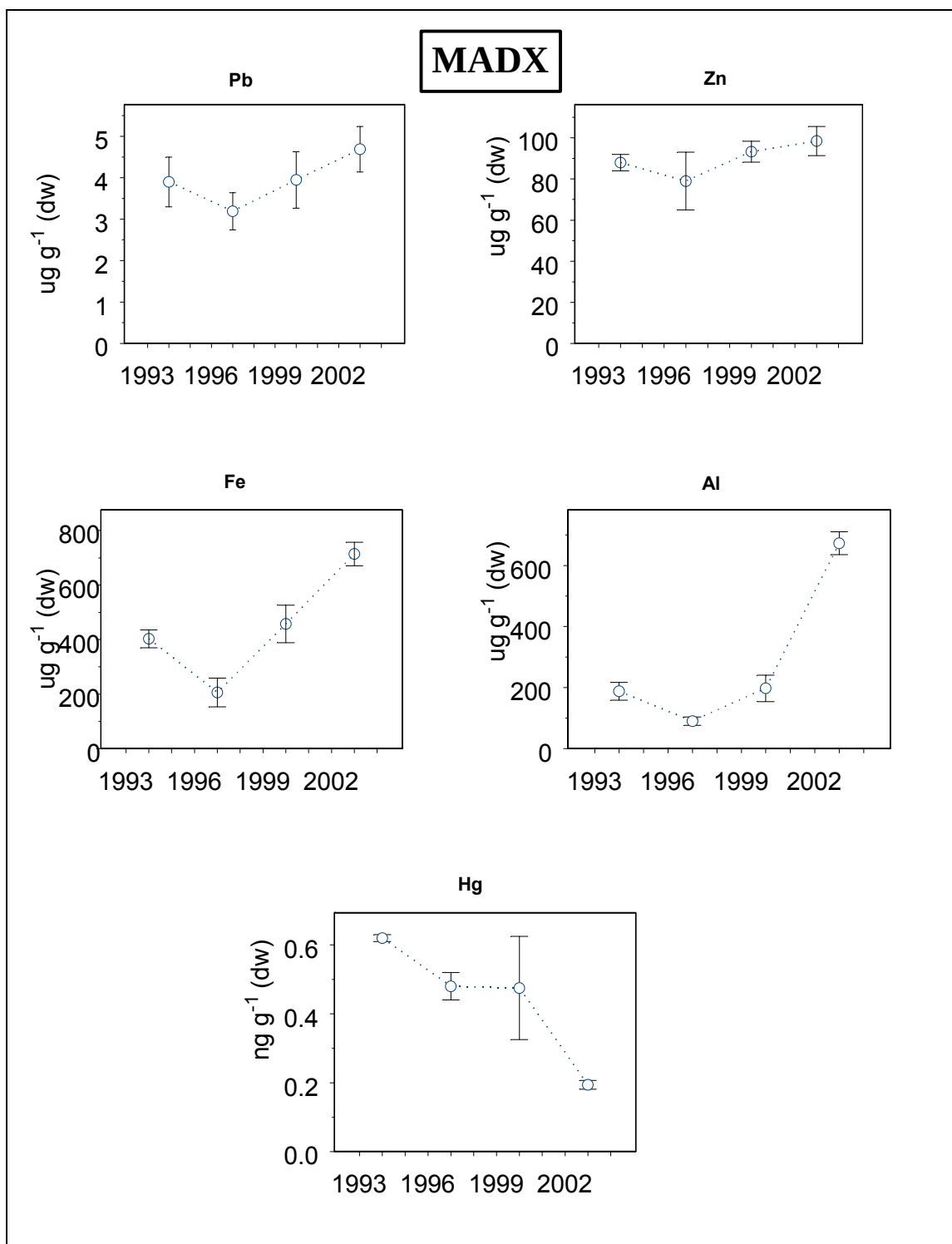


Figure 16B. Distribution of metals (Pb, Zn, Fe, Al, and Hg) concentrations (arithmetic mean $\pm$ SD, $\mu\text{g/g}$ dry weight) in mussels collected at the MADX Gulfwatch site from selected years during the period from 1993-2004.

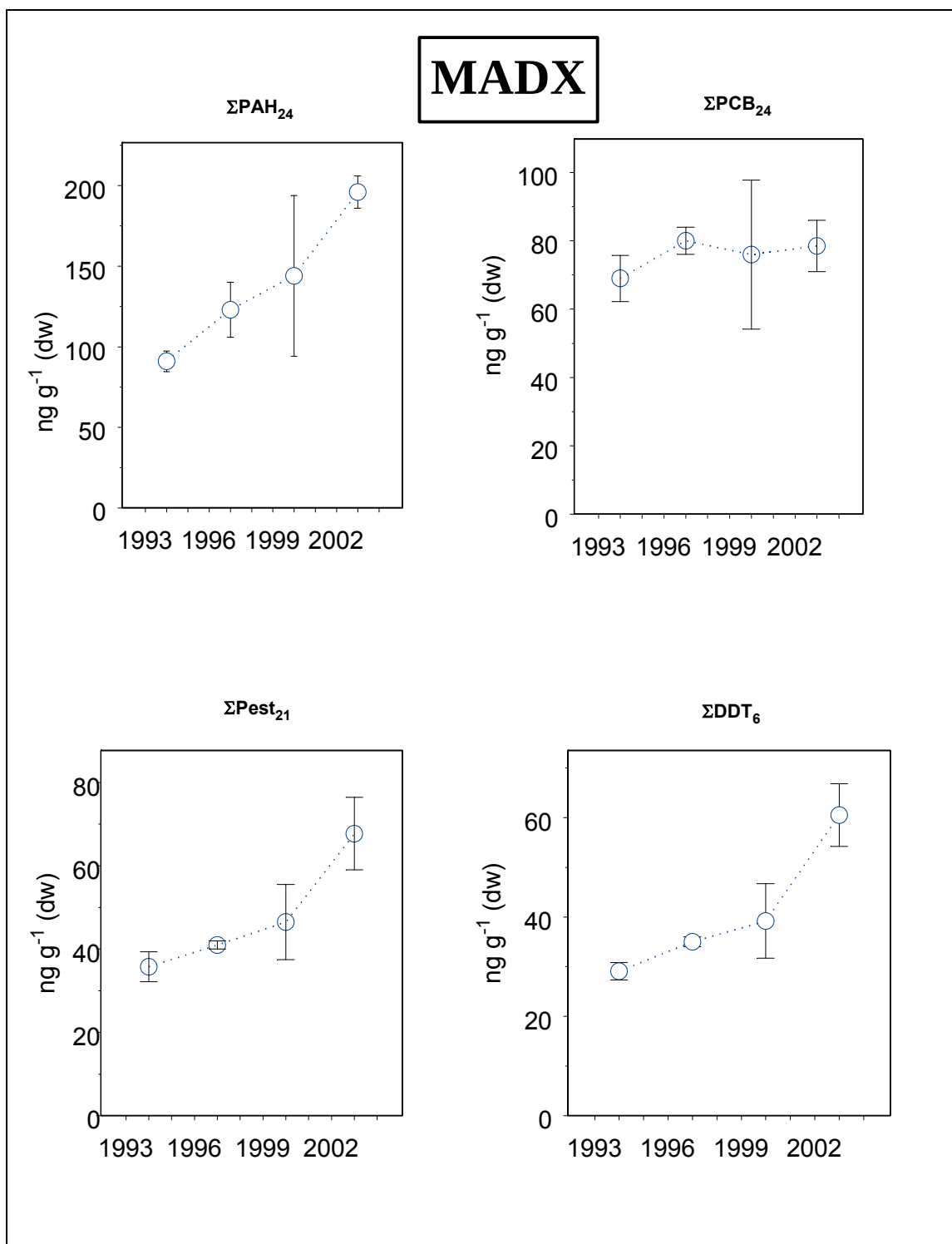


Figure 16C. Distribution of selected organic contaminant concentrations (arithmetic mean $\pm$ SD, ng/g dry weight) in mussels collected at the MADX Gulfwatch site from selected years during the period from 1993-2004.

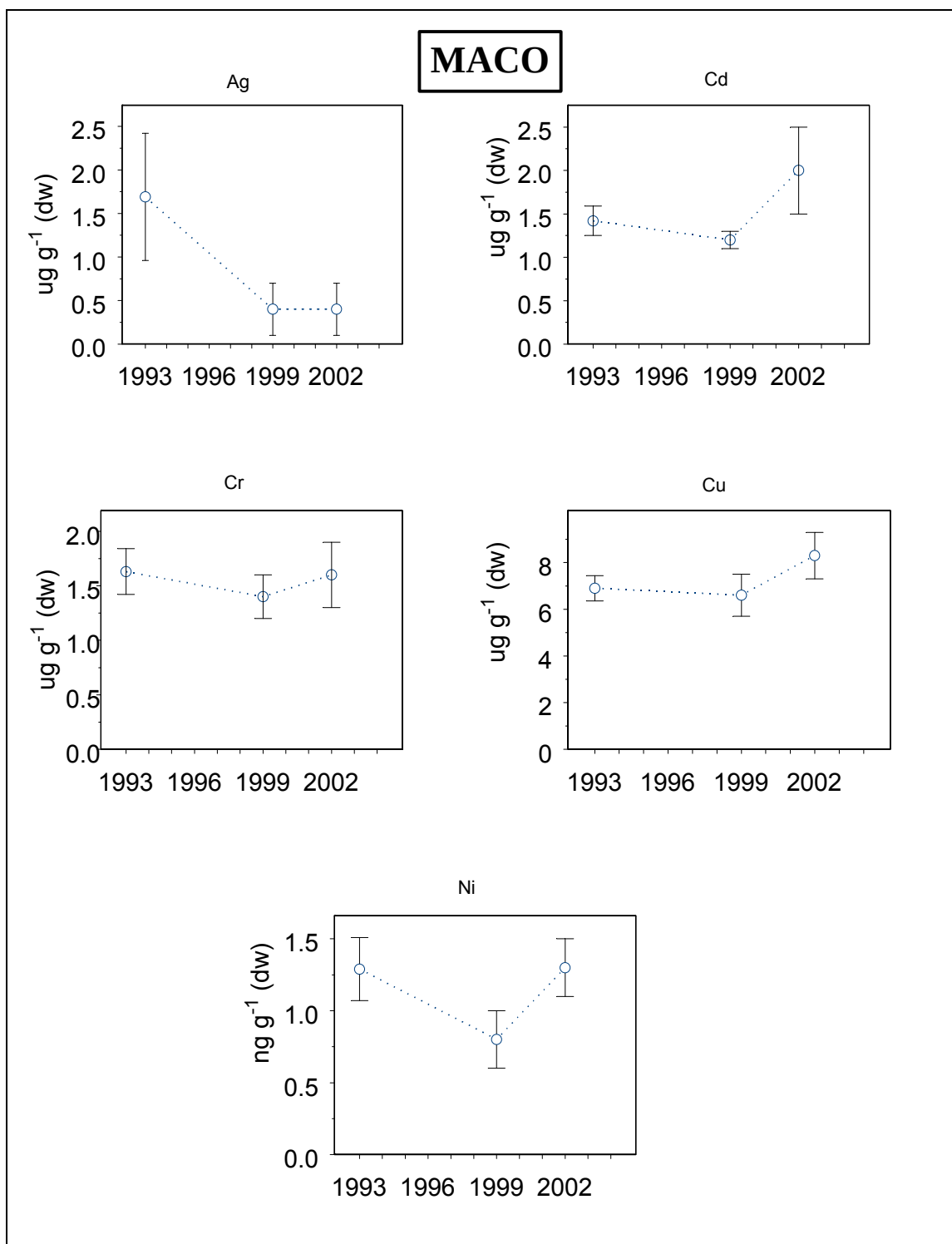


Figure 17A. Distribution of metals (Ag, Cd, Cr, Cu, Ni) concentrations (arithmetic mean $\pm$ SD, $\mu\text{g/g}$ dry weight) in mussels collected at the MACO Gulfwatch site from selected years during the period from 1993-2004.

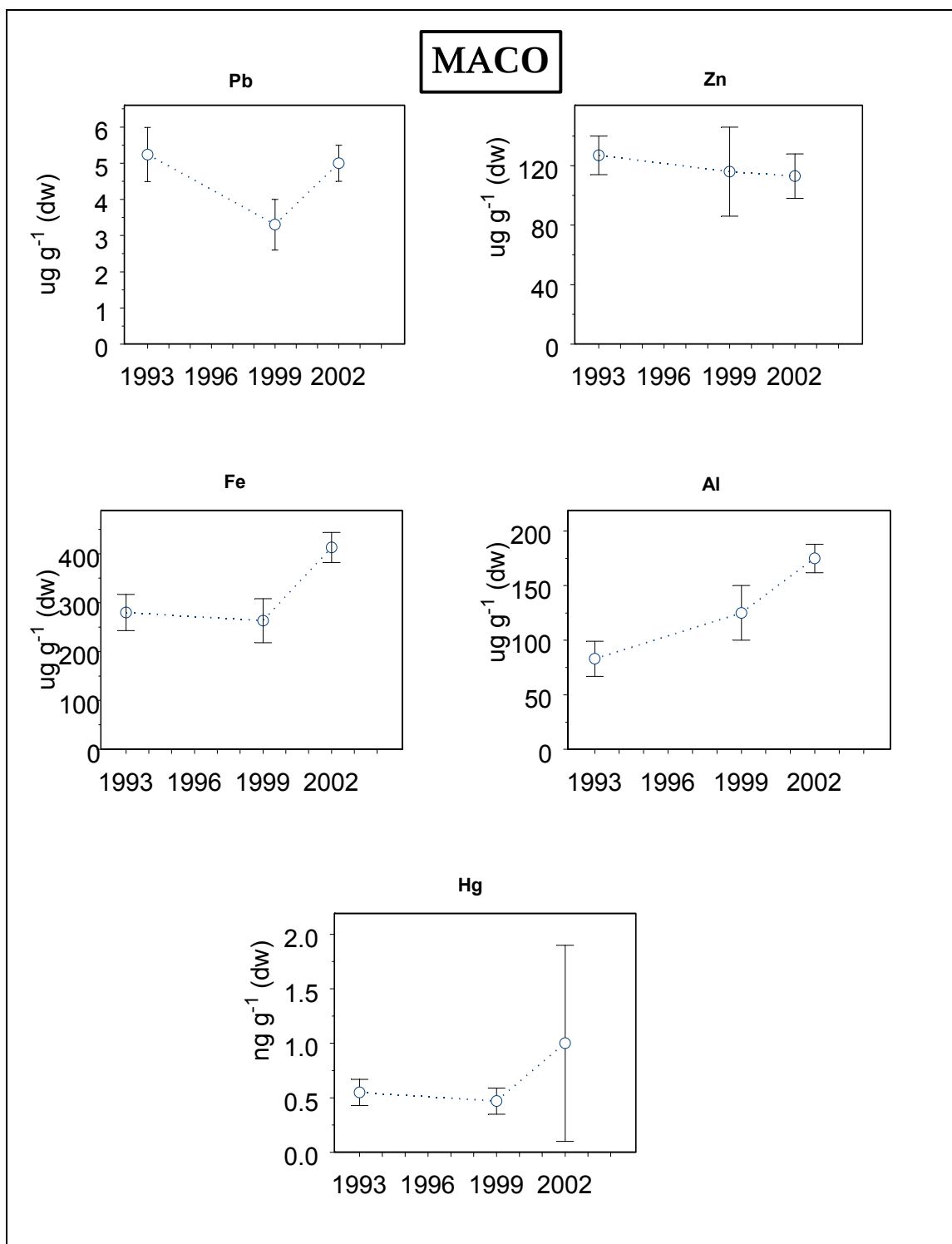


Figure 17B. Distribution of metals (Pb, Zn, Fe, Al, and Hg) concentrations (arithmetic mean $\pm$ SD, $\mu\text{g/g}$ dry weight) in mussels collected at the MACO Gulfwatch site from selected years during the period from 1993-2004.

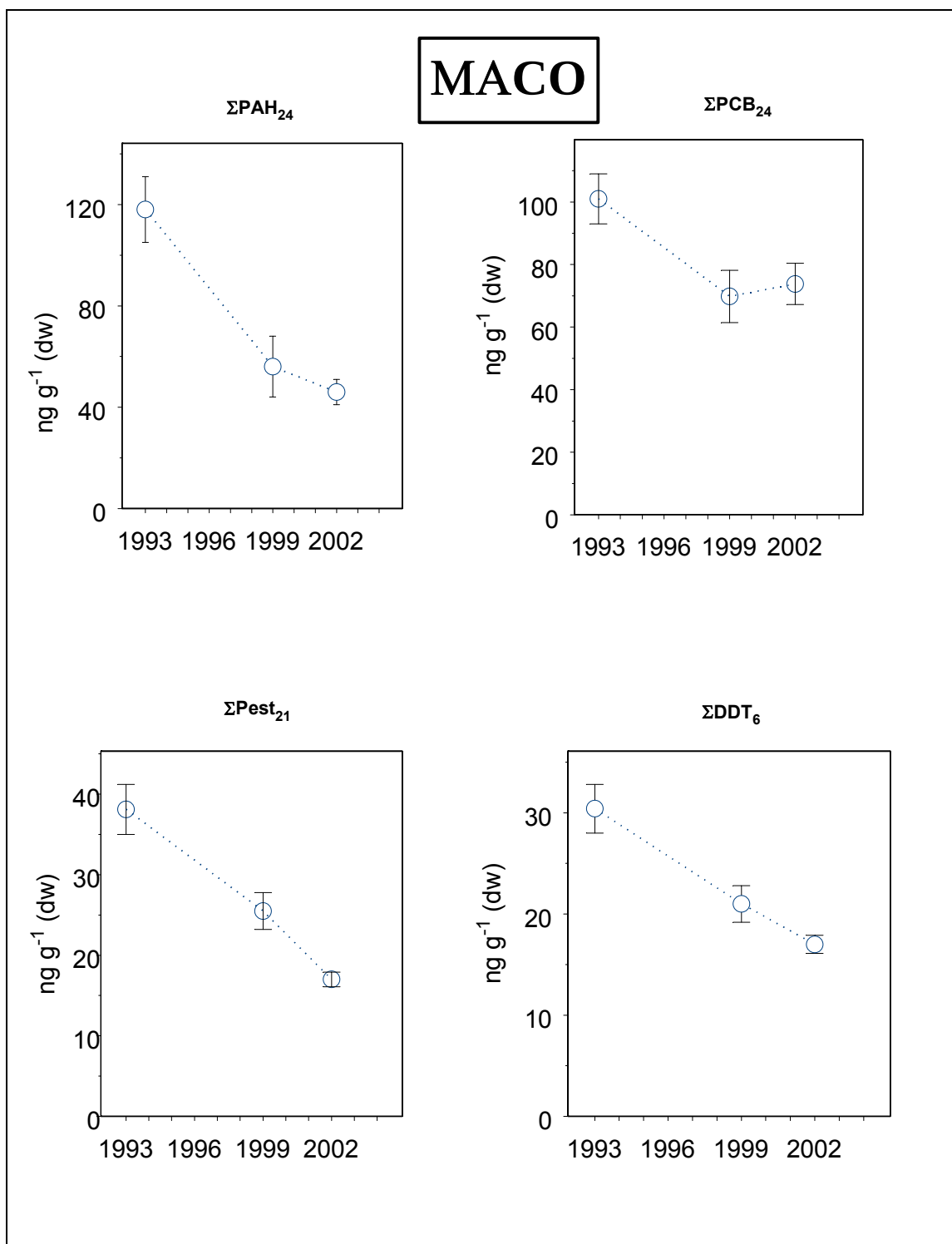


Figure 17C. Distribution of selected organic contaminant concentrations (arithmetic mean $\pm$ SD, ng/g dry weight) in mussels collected at the MACO Gulfwatch site from selected years during the period from 1993-2004.

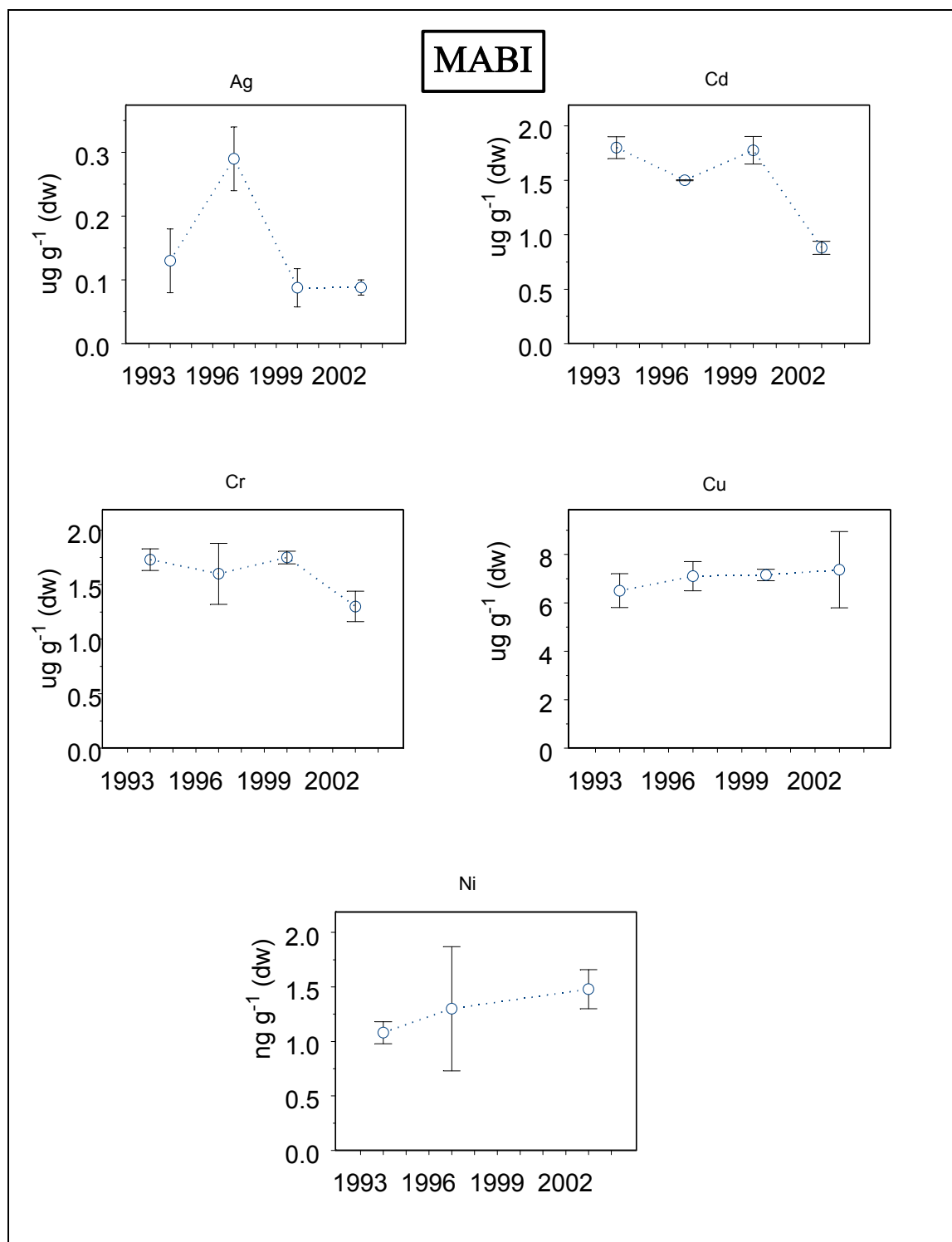


Figure 18A. Distribution of metals (Ag, Cd, Cr, Cu, Ni) concentrations (arithmetic mean $\pm$ SD, $\mu\text{g/g}$ dry weight) in mussels collected at the MABI Gulfwatch site from selected years during the period from 1993-2004.

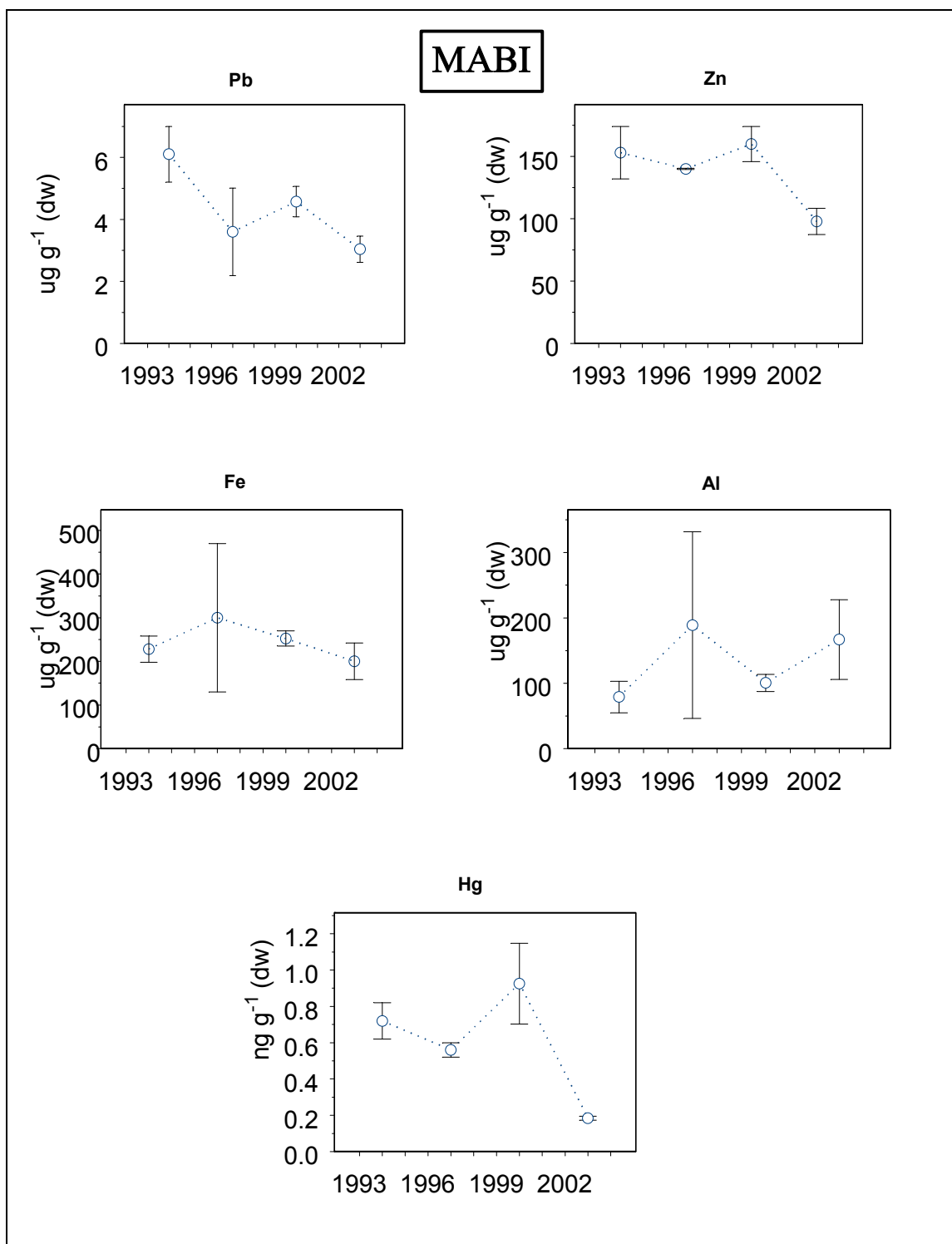


Figure 18B. Distribution of metals (Pb, Zn, Fe, Al, and Hg) concentrations (arithmetic mean $\pm$ SD, $\mu\text{g/g}$ dry weight) in mussels collected at the MABI Gulfwatch site from selected years during the period from 1993-2004.

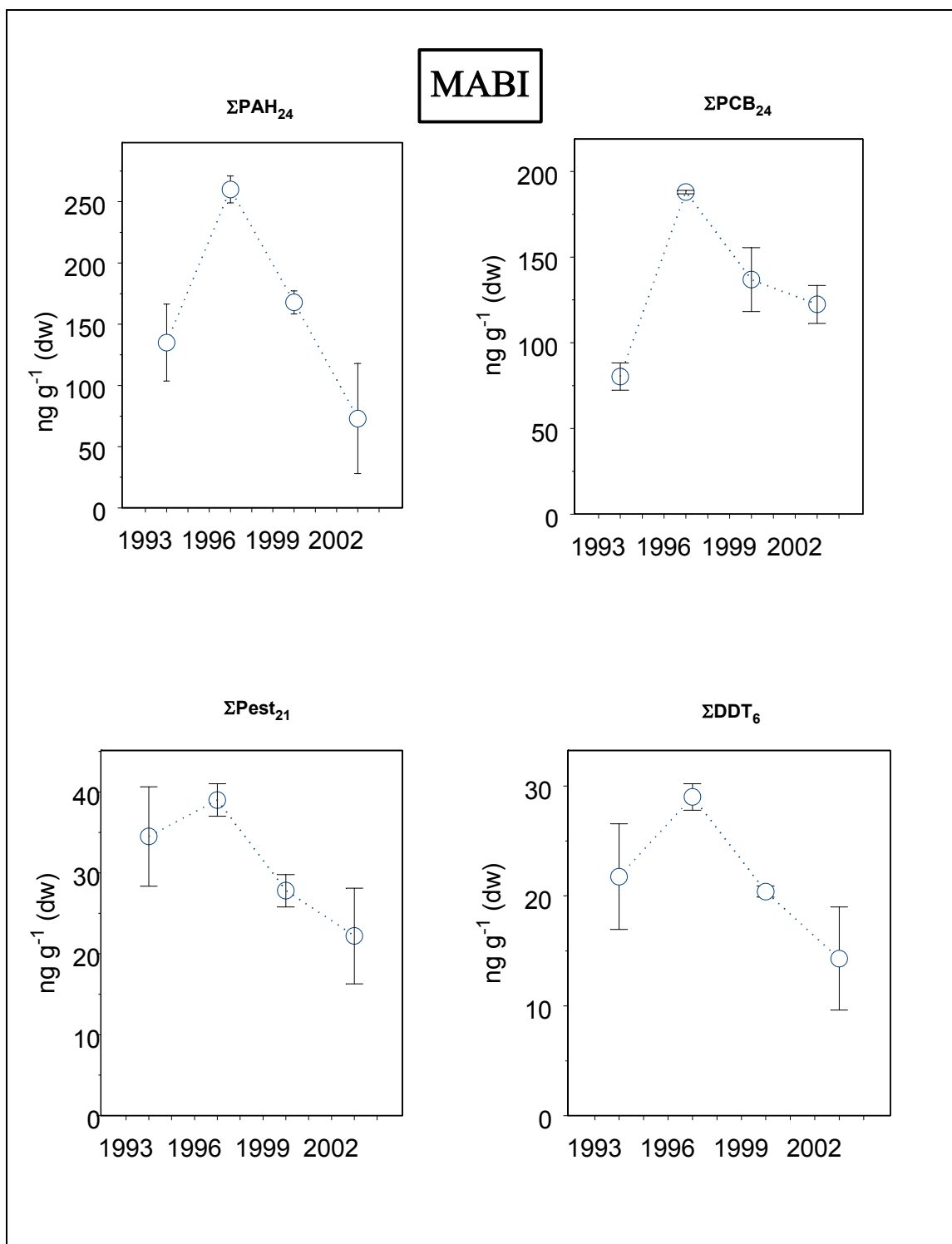


Figure 18C. Distribution of selected organic contaminant concentrations (arithmetic mean $\pm$ SD, ng/g dry weight) in mussels collected at the MABI Gulfwatch site from selected years during the period from 1993-2004.

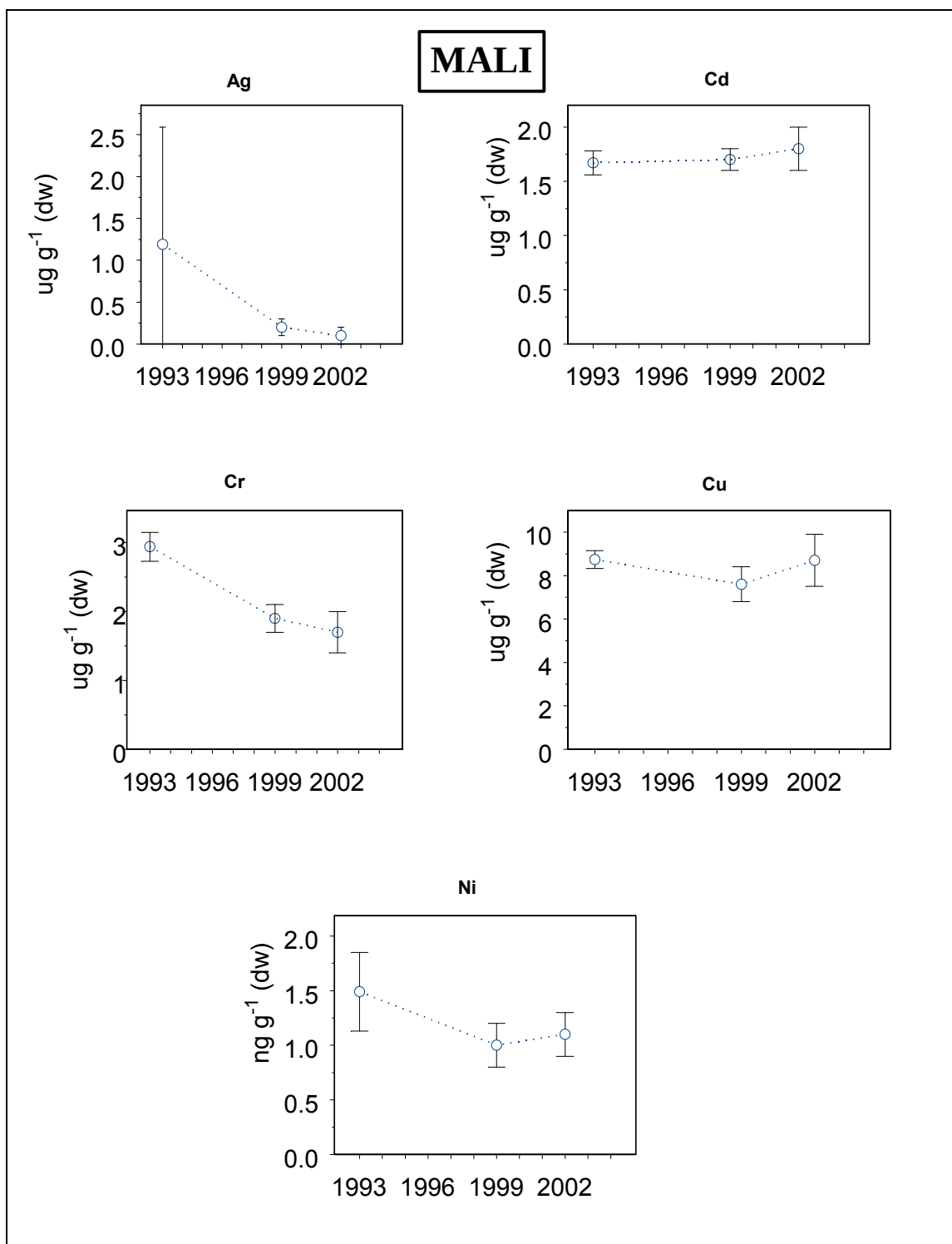


Figure 19A. Distribution of metals (Ag, Cd, Cr, Cu, Ni) concentrations (arithmetic mean $\pm$ SD, $\mu\text{g/g}$ dry weight) in mussels collected at the MALI Gulfwatch site from selected years during the period from 1993-2004.

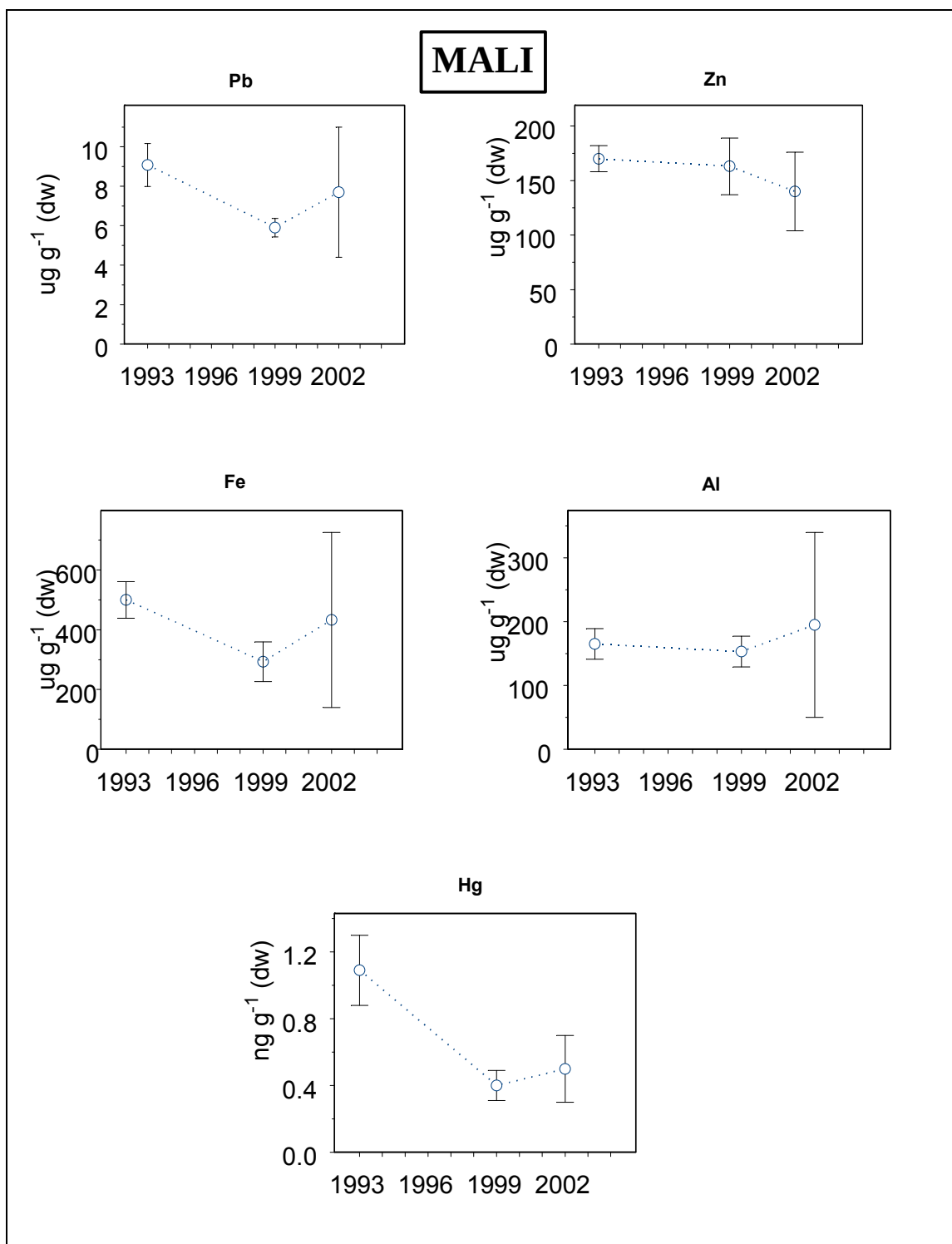


Figure 19B. Distribution of metals (Pb, Zn, Fe, Al, and Hg) concentrations (arithmetic mean $\pm$ SD, $\mu\text{g/g}$ dry weight) in mussels collected at the MALI Gulfwatch site from selected years during the period from 1993-2004.

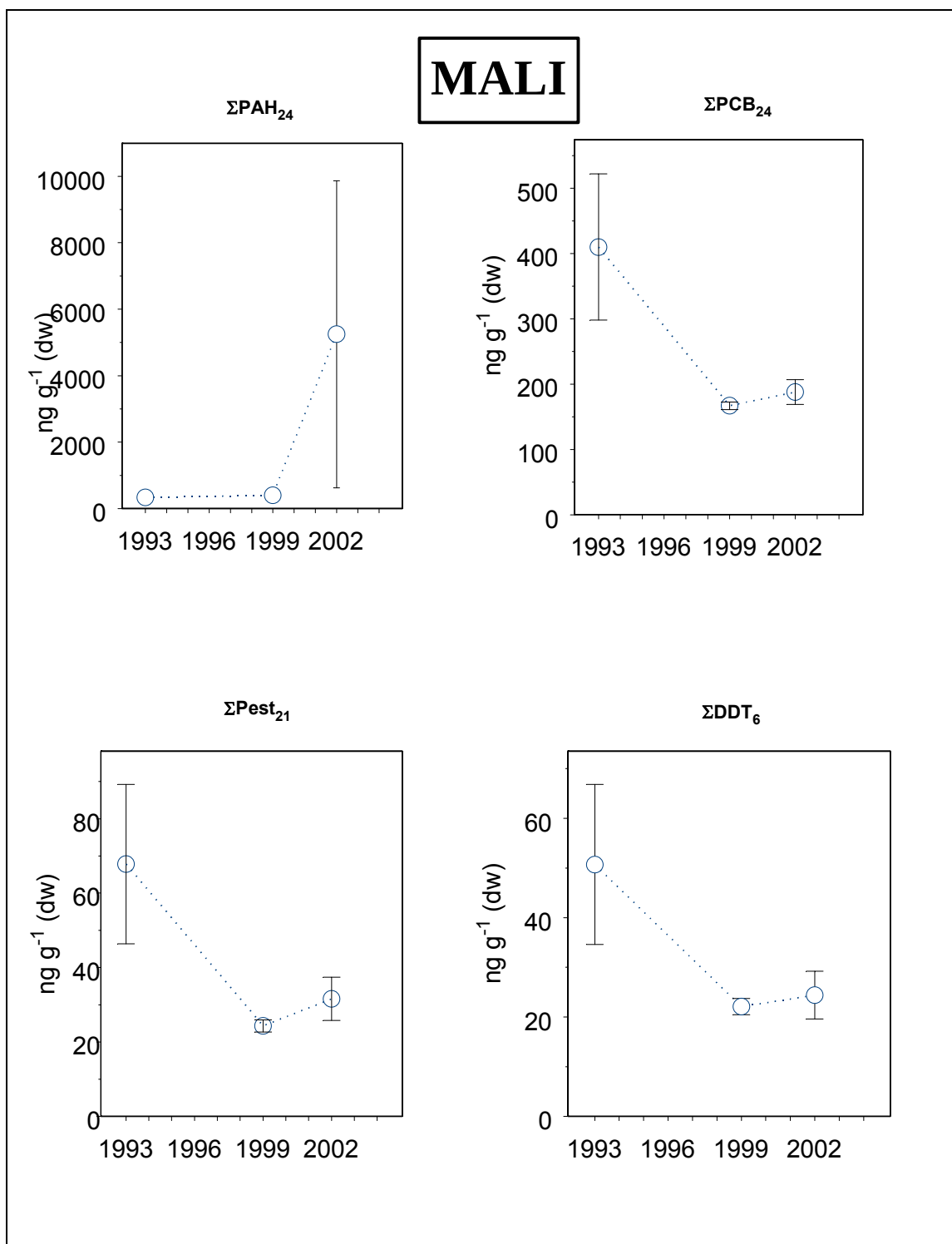


Figure 19C. Distribution of selected organic contaminant concentrations (arithmetic mean $\pm$ SD, ng/g dry weight) in mussels collected at the MALI Gulfwatch site from selected years during the period from 1993-2004.

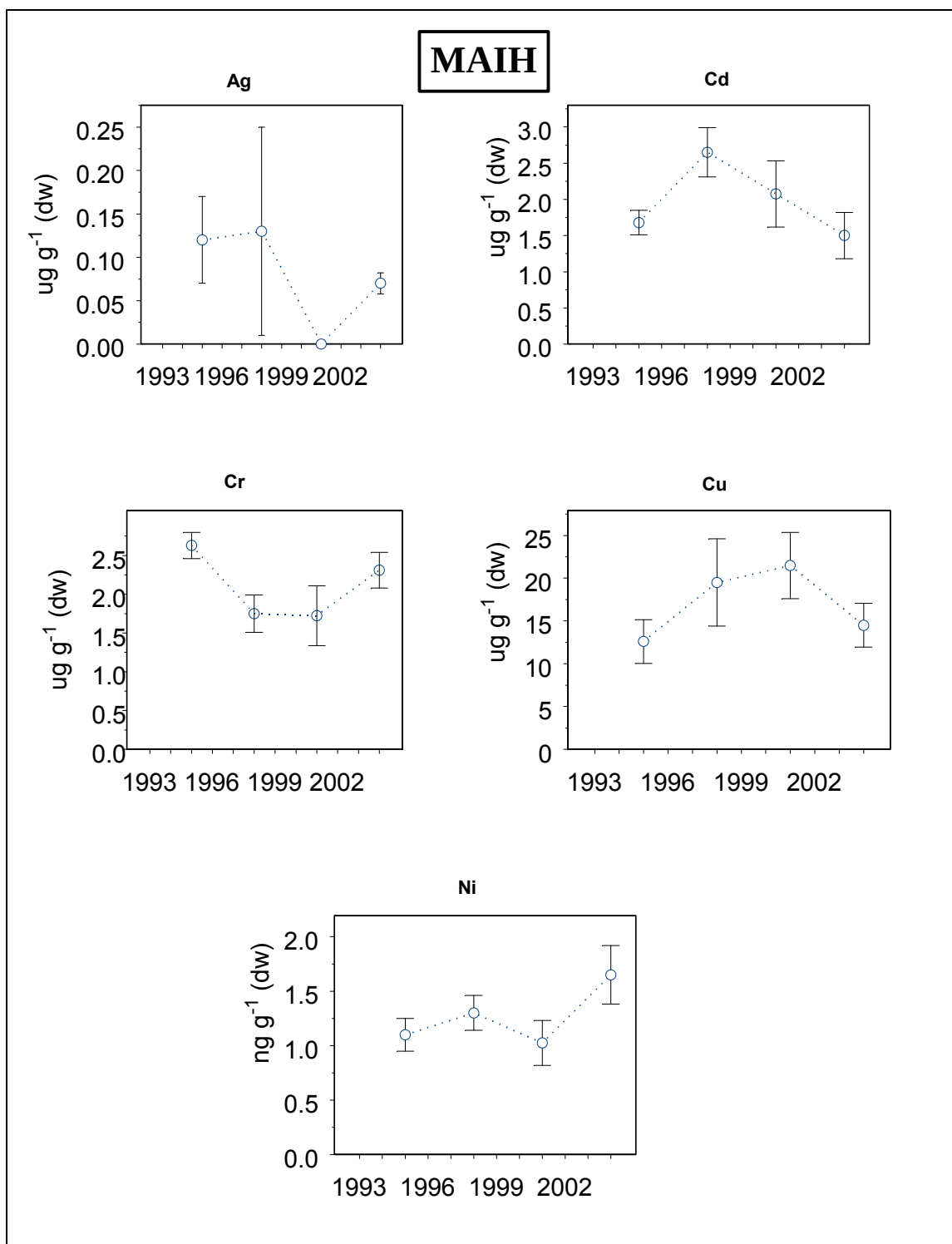


Figure 20A. Distribution of metals (Ag, Cd, Cr, Cu, Ni) concentrations (arithmetic mean $\pm$ SD, $\mu\text{g/g}$ dry weight) in mussels collected at the MAIH Gulfwatch site from selected years during the period from 1993-2004.

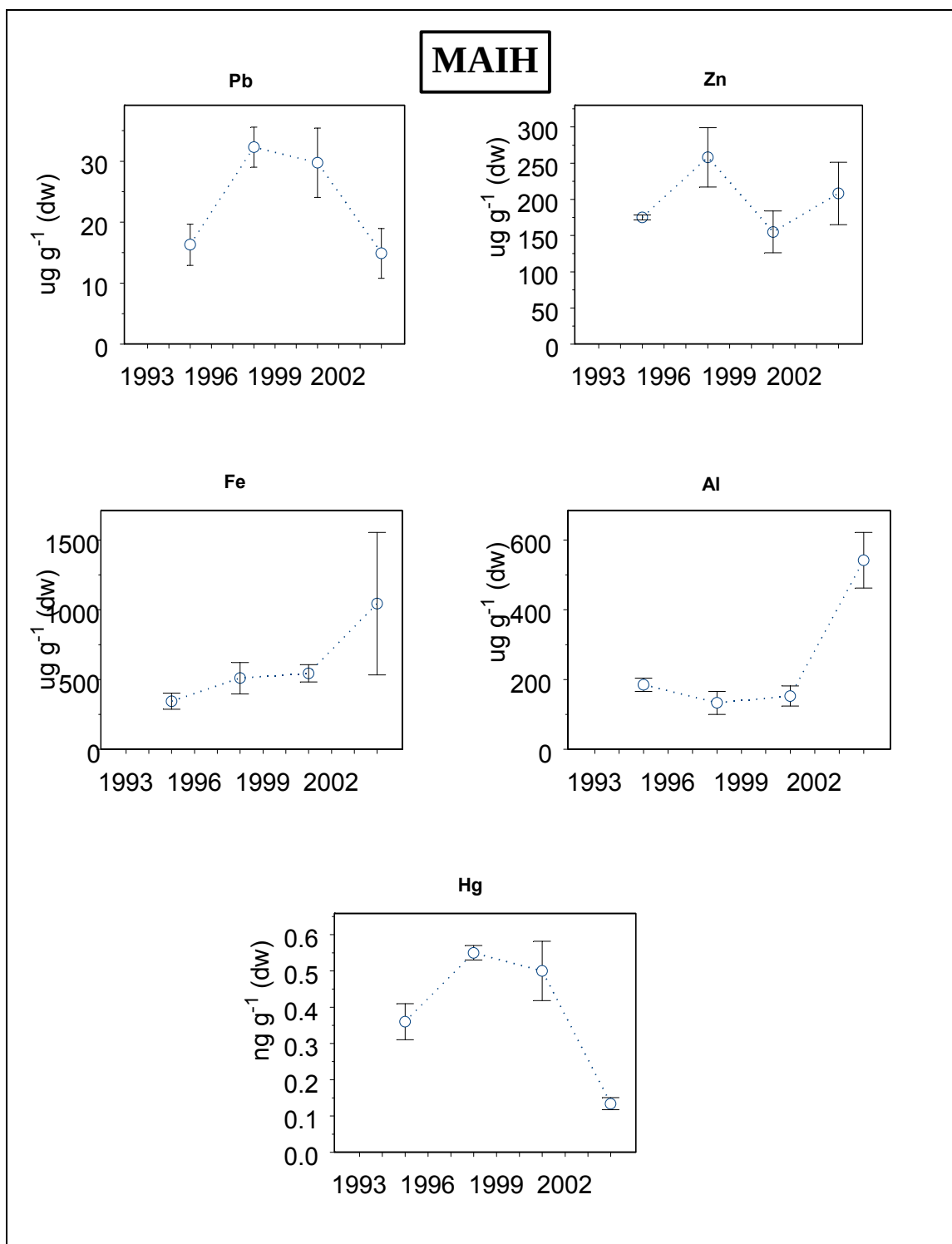


Figure 20B. Distribution of metals (Pb, Zn, Fe, Al, and Hg) concentrations (arithmetic mean $\pm$ SD, $\mu\text{g/g}$ dry weight) in mussels collected at the MAIH Gulfwatch site from selected years during the period from 1993-2004.

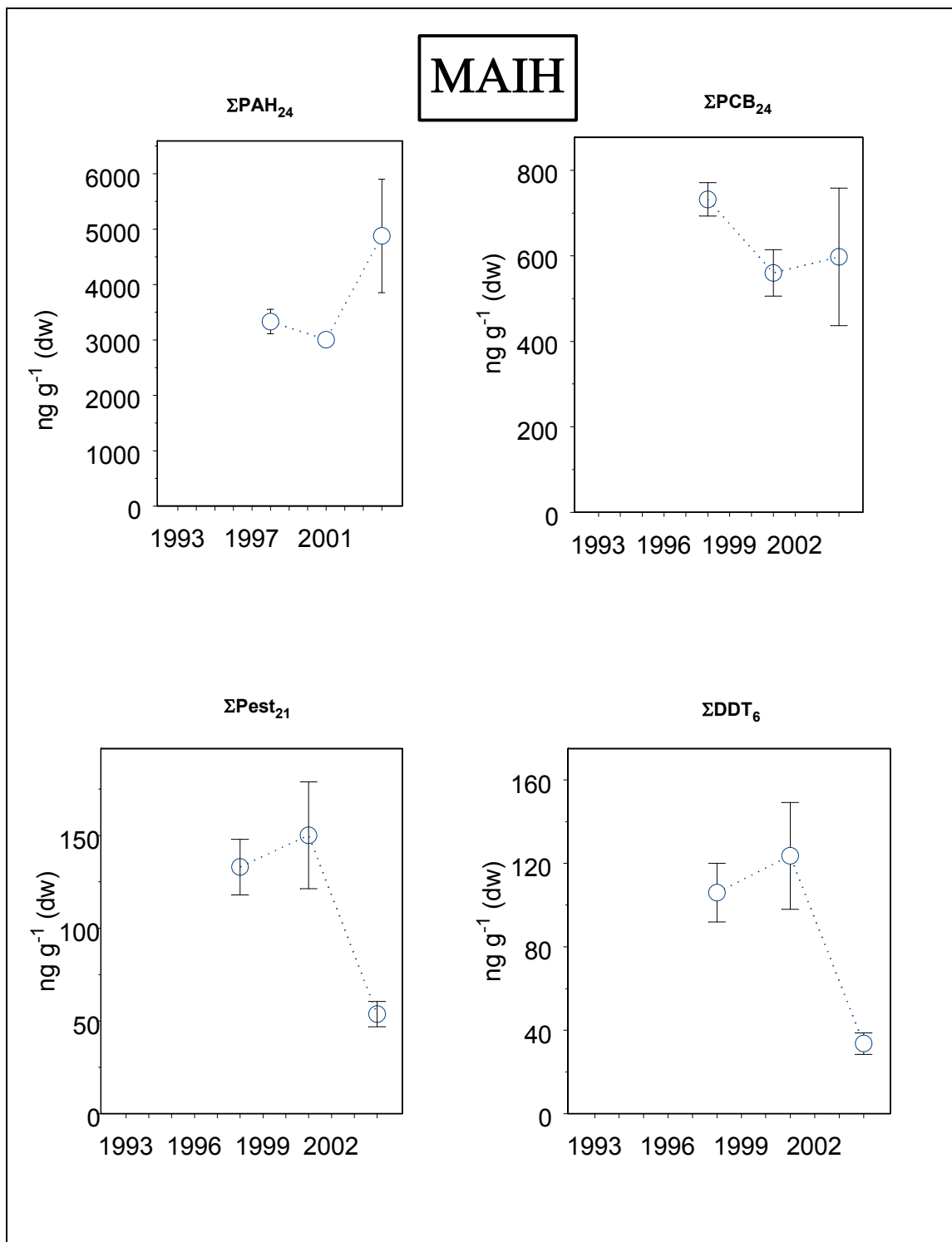


Figure 20C. Distribution of selected organic contaminant concentrations (arithmetic mean $\pm$ SD, ng/g dry weight) in mussels collected at the MAIH Gulfwatch site from selected years during the period from 1993-2004.

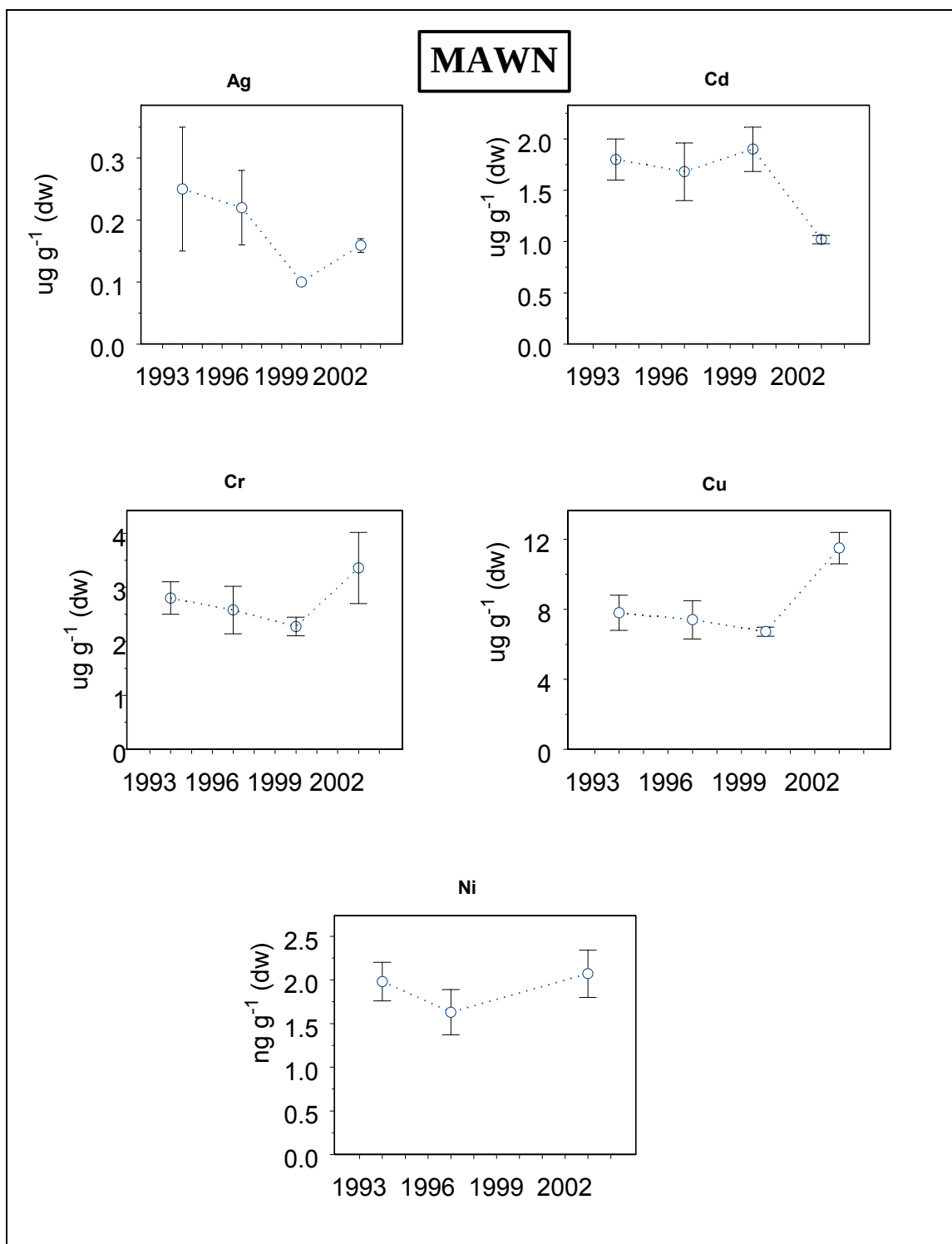


Figure 21A. Distribution of metals (Ag, Cd, Cr, Cu, Ni) concentrations (arithmetic mean $\pm$ SD, $\mu\text{g/g}$ dry weight) in mussels collected at the MAWN Gulfwatch site from selected years during the period from 1993-2004.

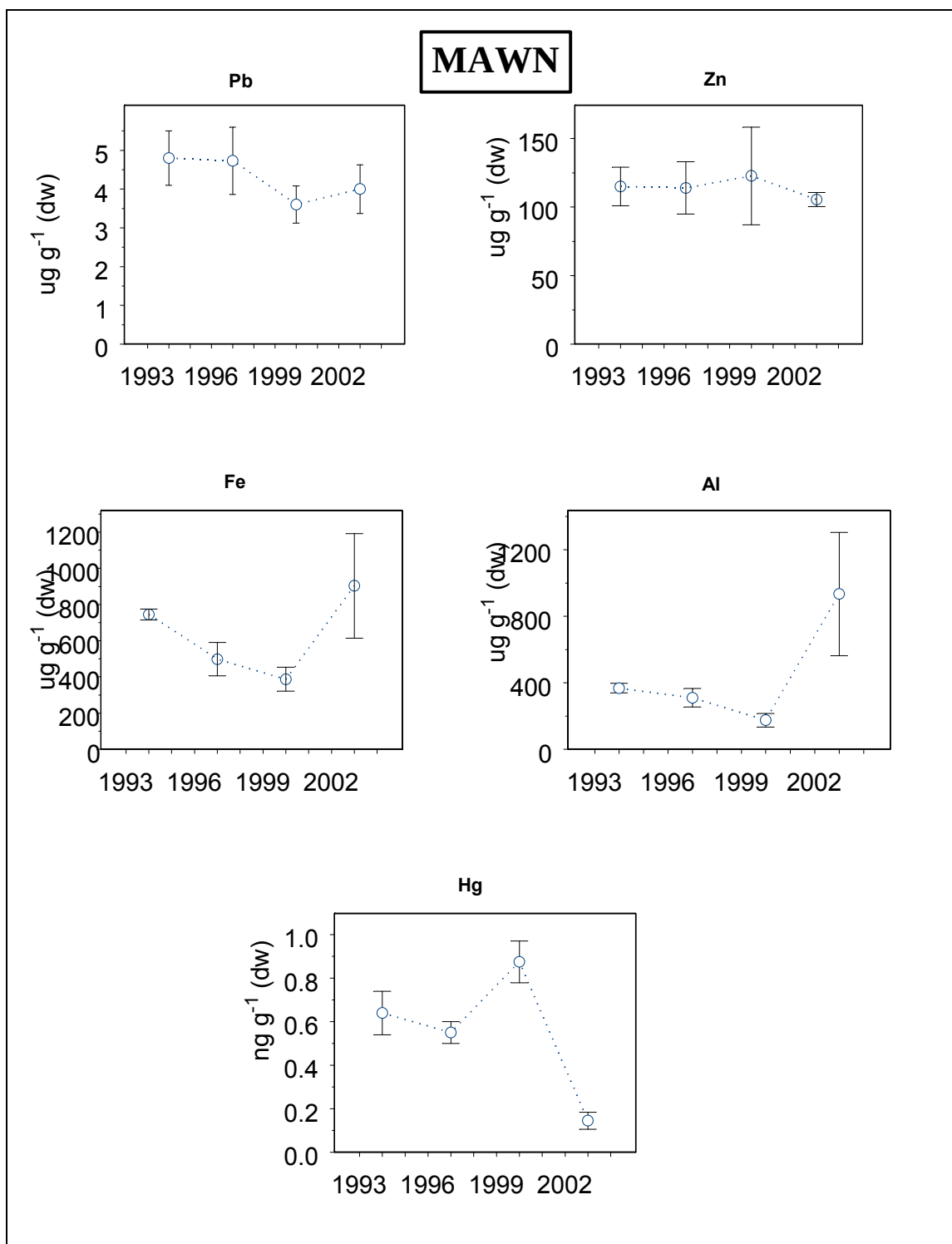


Figure 21B. Distribution of metals (Pb, Zn, Fe, Al, and Hg) concentrations (arithmetic mean $\pm$ SD, $\mu\text{g/g}$ dry weight) in mussels collected at the MAWN Gulfwatch site from selected years during the period from 1993-2004.

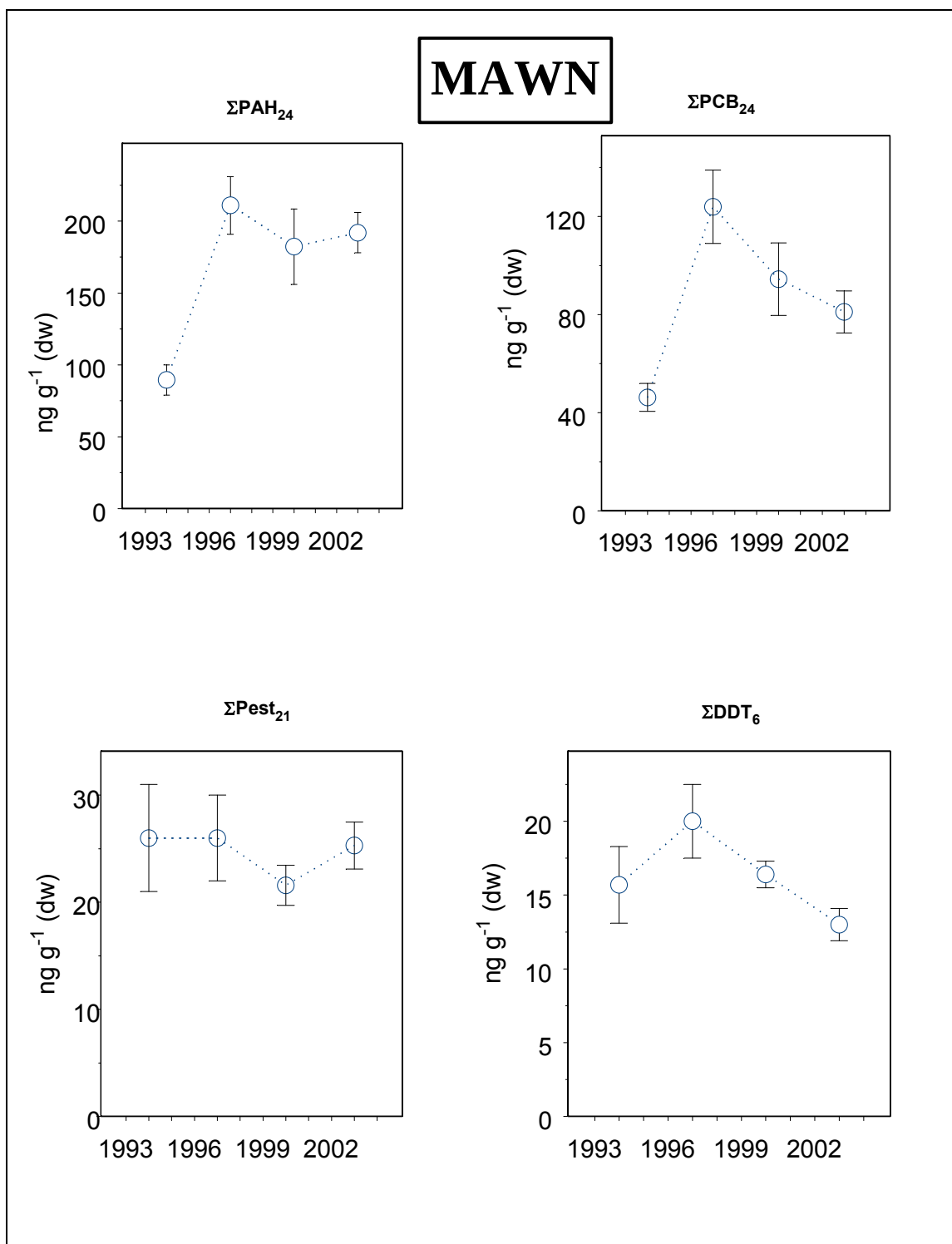


Figure 21C. Distribution of selected organic contaminant concentrations (arithmetic mean $\pm$ SD, ng/g dry weight) in mussels collected at the MAWN Gulfwatch site from selected years during the period from 1993-2004.

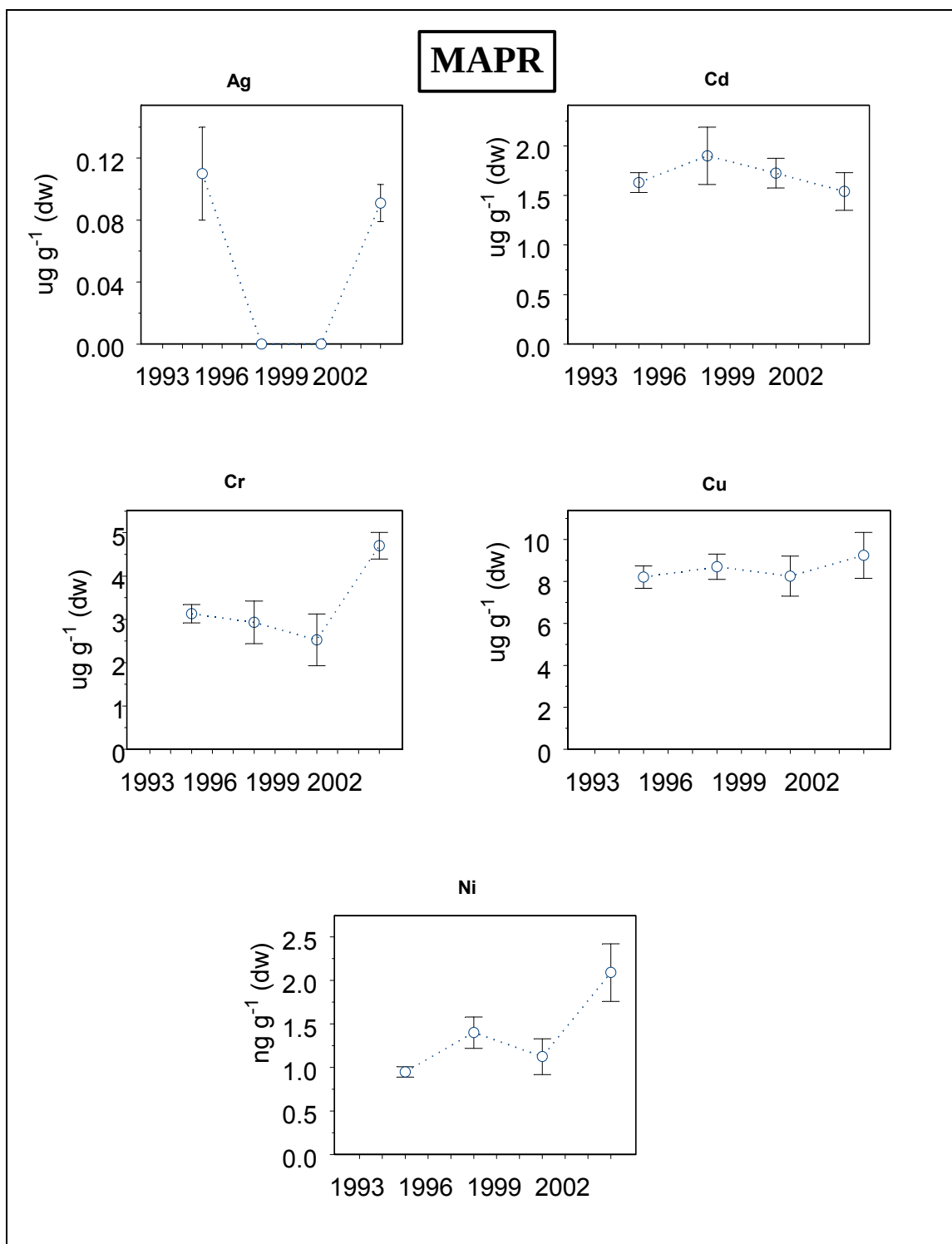


Figure 22A. Distribution of metals (Ag, Cd, Cr, Cu, Ni) concentrations (arithmetic mean $\pm$ SD, $\mu\text{g/g}$ dry weight) in mussels collected at the MAPR Gulfwatch site from selected years during the period from 1993-2004.

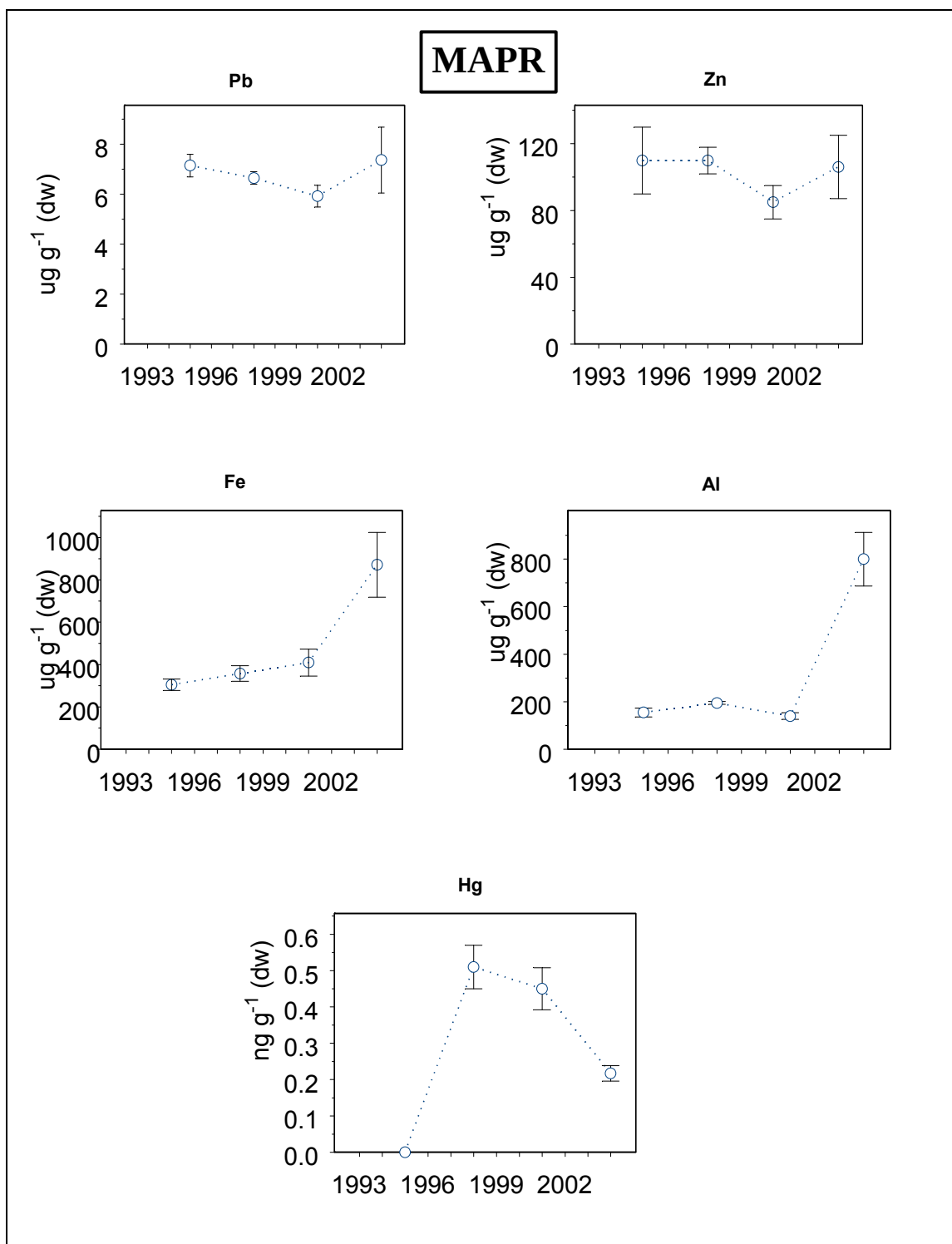


Figure 22B. Distribution of metals (Pb, Zn, Fe, Al, and Hg) concentrations (arithmetic mean $\pm$ SD, $\mu\text{g/g}$ dry weight) in mussels collected at the MAPR Gulfwatch site from selected years during the period from 1993-2004.

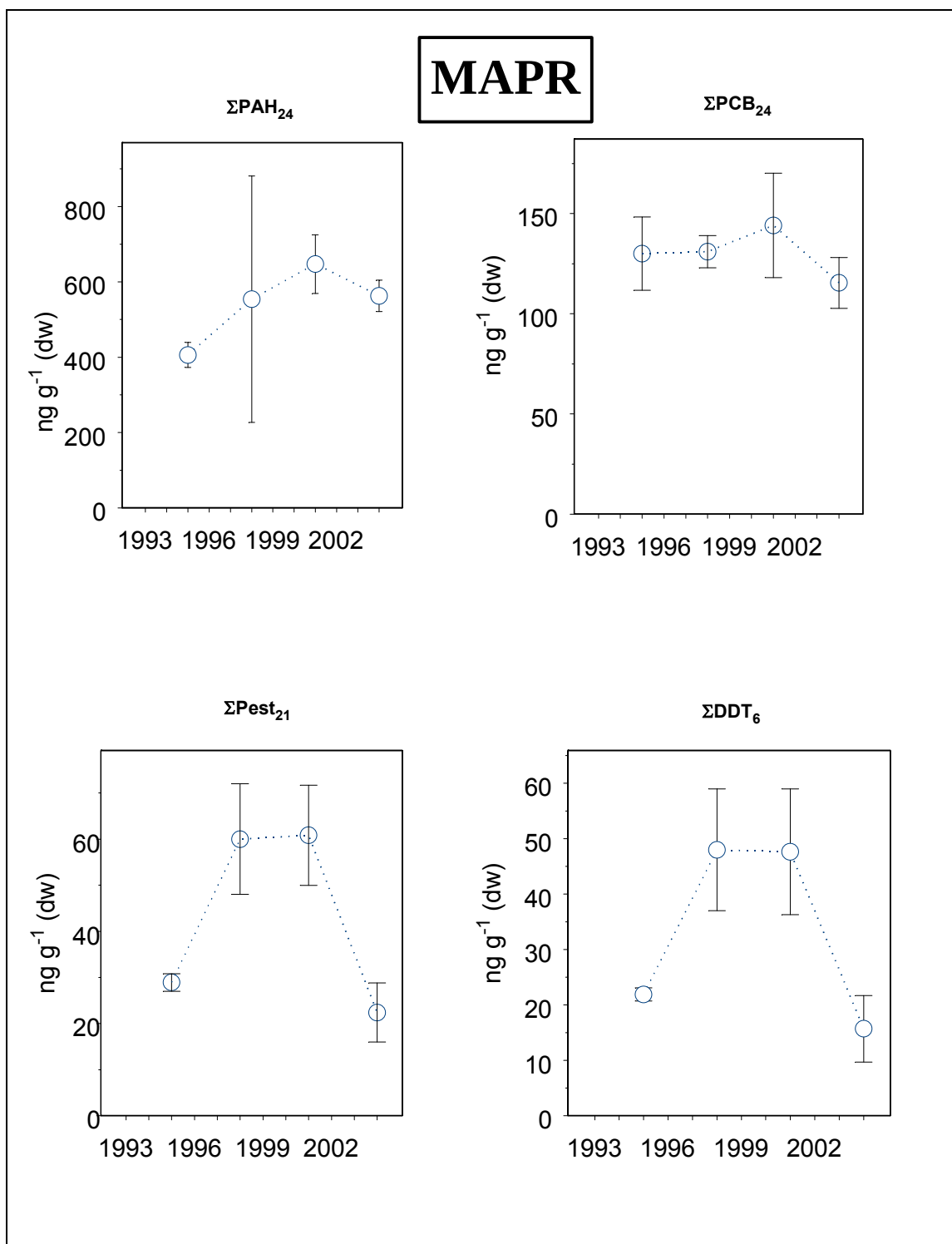


Figure 22C. Distribution of selected organic contaminant concentrations (arithmetic mean $\pm$ SD, ng/g dry weight) in mussels collected at the MAPR Gulfwatch site from selected years during the period from 1993-2004.

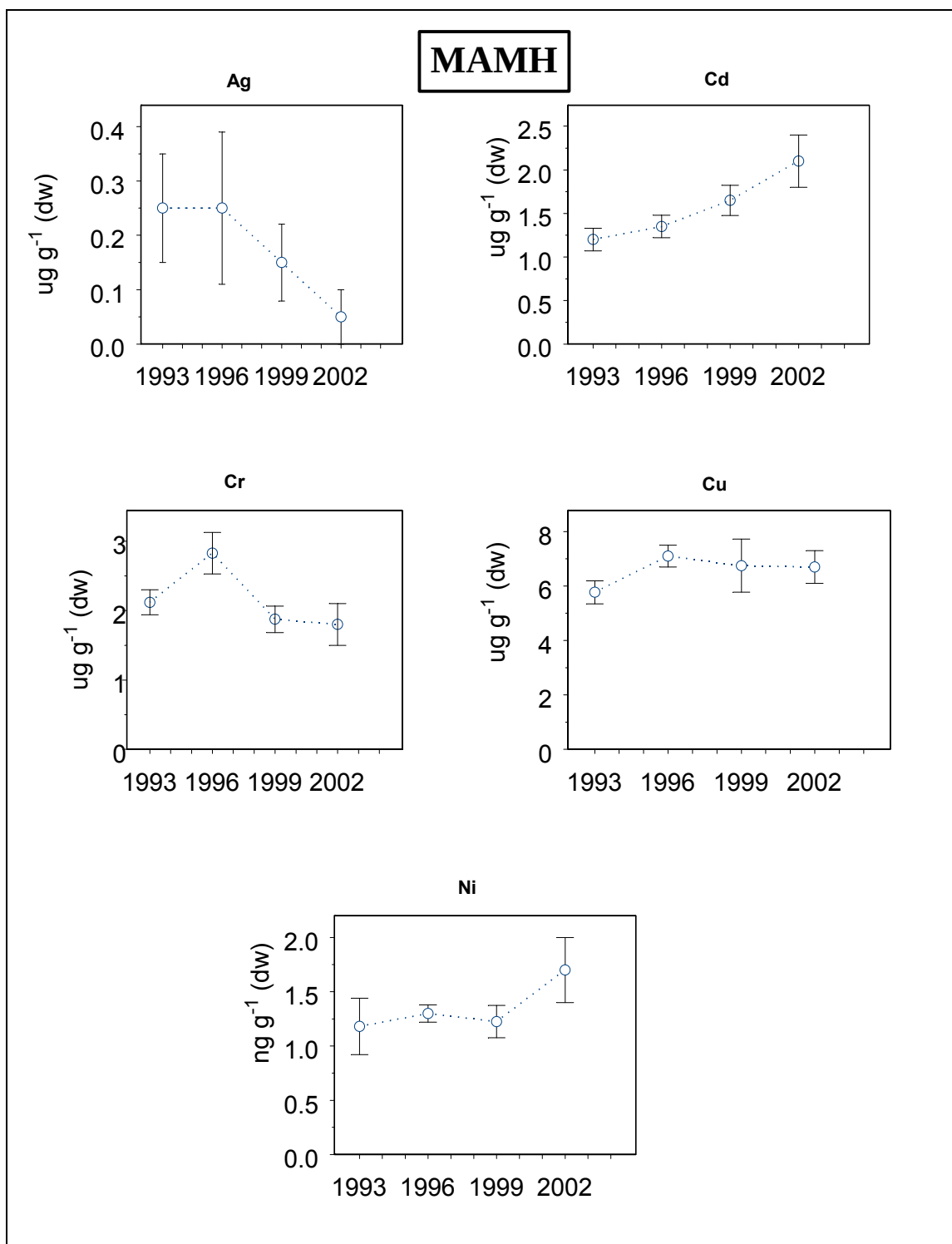


Figure 23A. Distribution of metals (Ag, Cd, Cr, Cu, Ni) concentrations (arithmetic mean $\pm$ SD, $\mu\text{g/g}$ dry weight) in mussels collected at the MAMH Gulfwatch site from selected years during the period from 1993-2004.

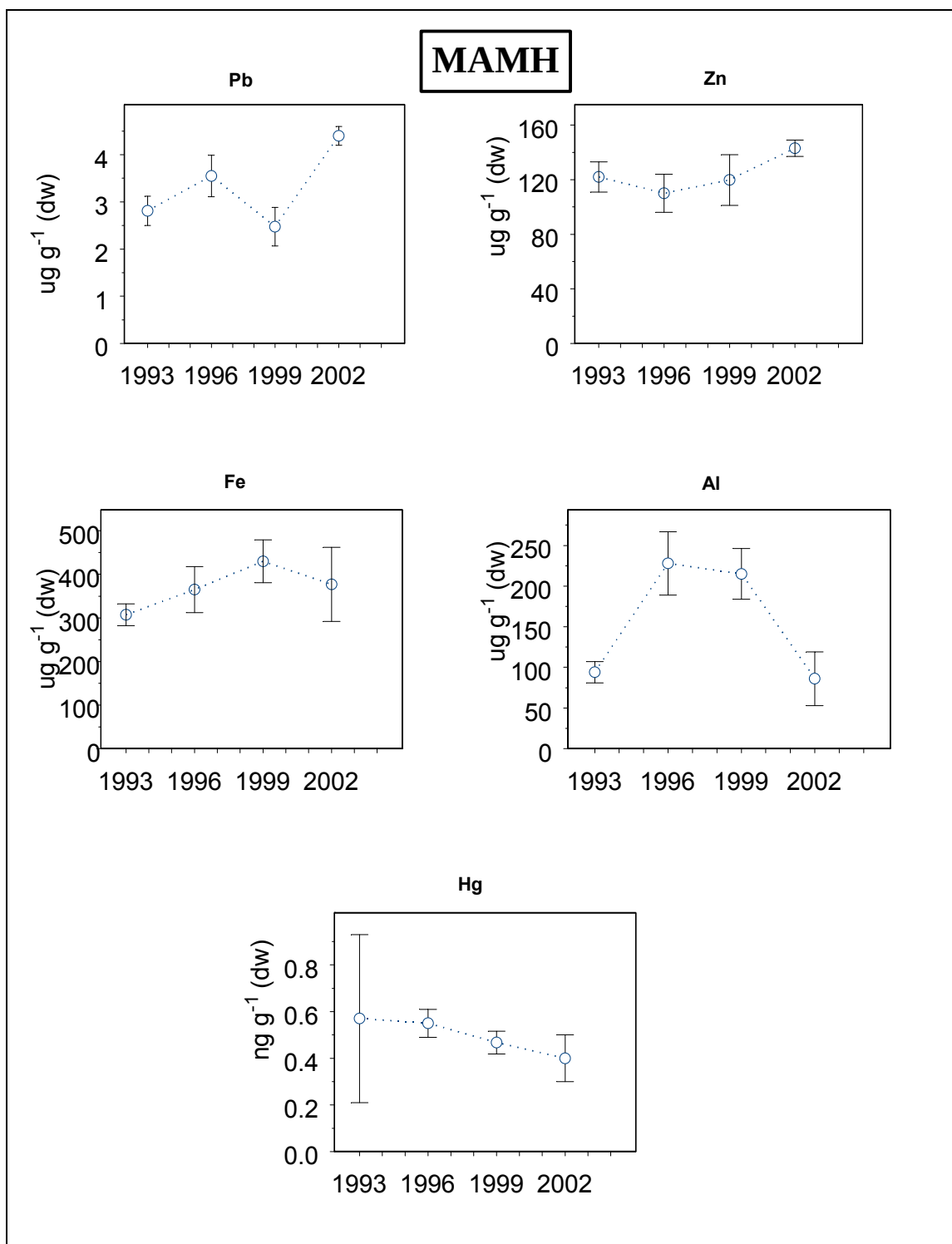


Figure 23B. Distribution of metals (Pb, Zn, Fe, Al, and Hg) concentrations (arithmetic mean $\pm$ SD, $\mu\text{g/g}$ dry weight) in mussels collected at the MAMH Gulfwatch site from selected years during the period from 1993-2004.

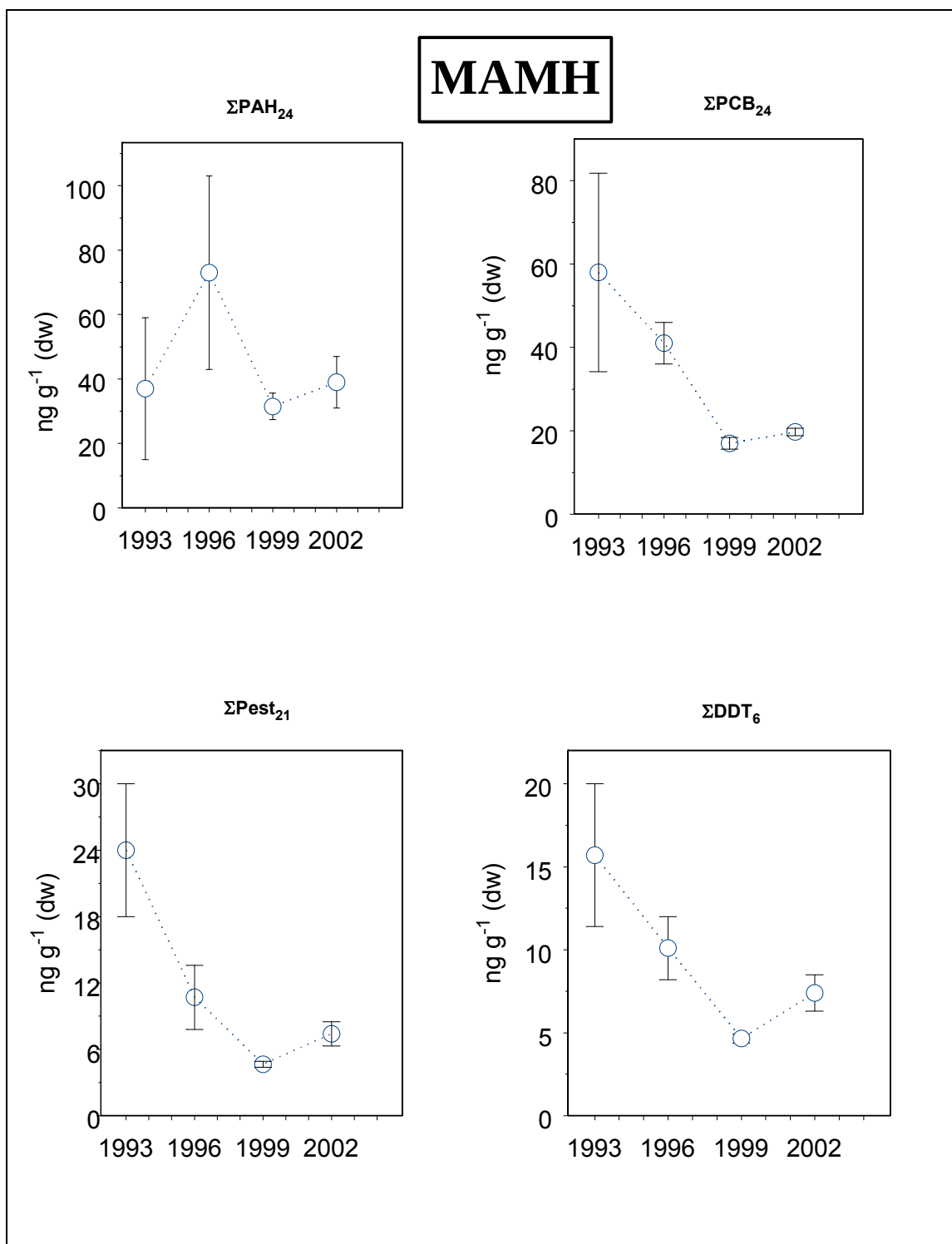


Figure 23C. Distribution of selected organic contaminant concentrations (arithmetic mean $\pm$ SD, ng/g dry weight) in mussels collected at the MAMH Gulfwatch site from selected years during the period from 1993-2004.

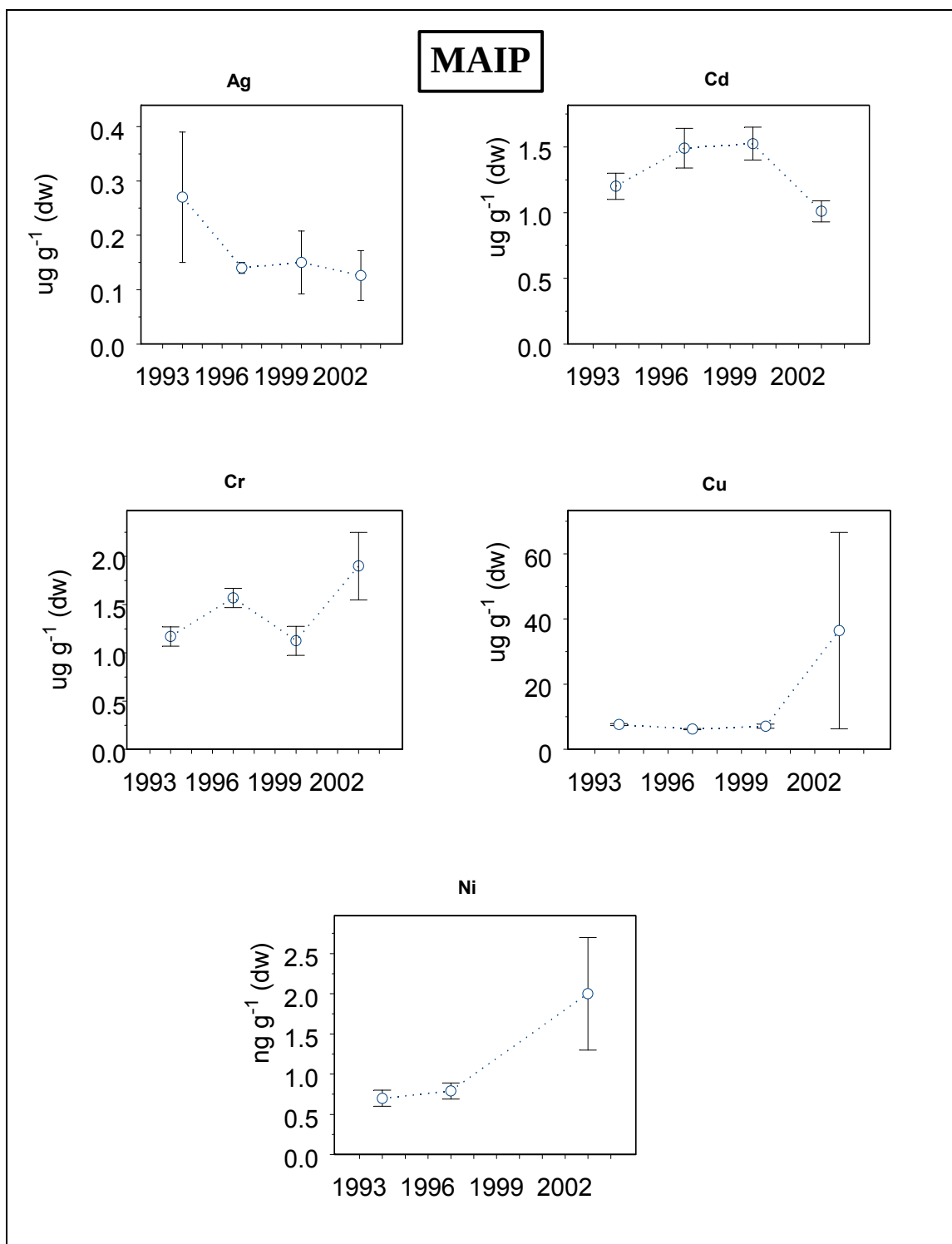


Figure 24A. Distribution of metals (Ag, Cd, Cr, Cu, Ni) concentrations (arithmetic mean $\pm$ SD, $\mu\text{g/g}$ dry weight) in mussels collected at the MAIP Gulfwatch site from selected years during the period from 1993-2004.

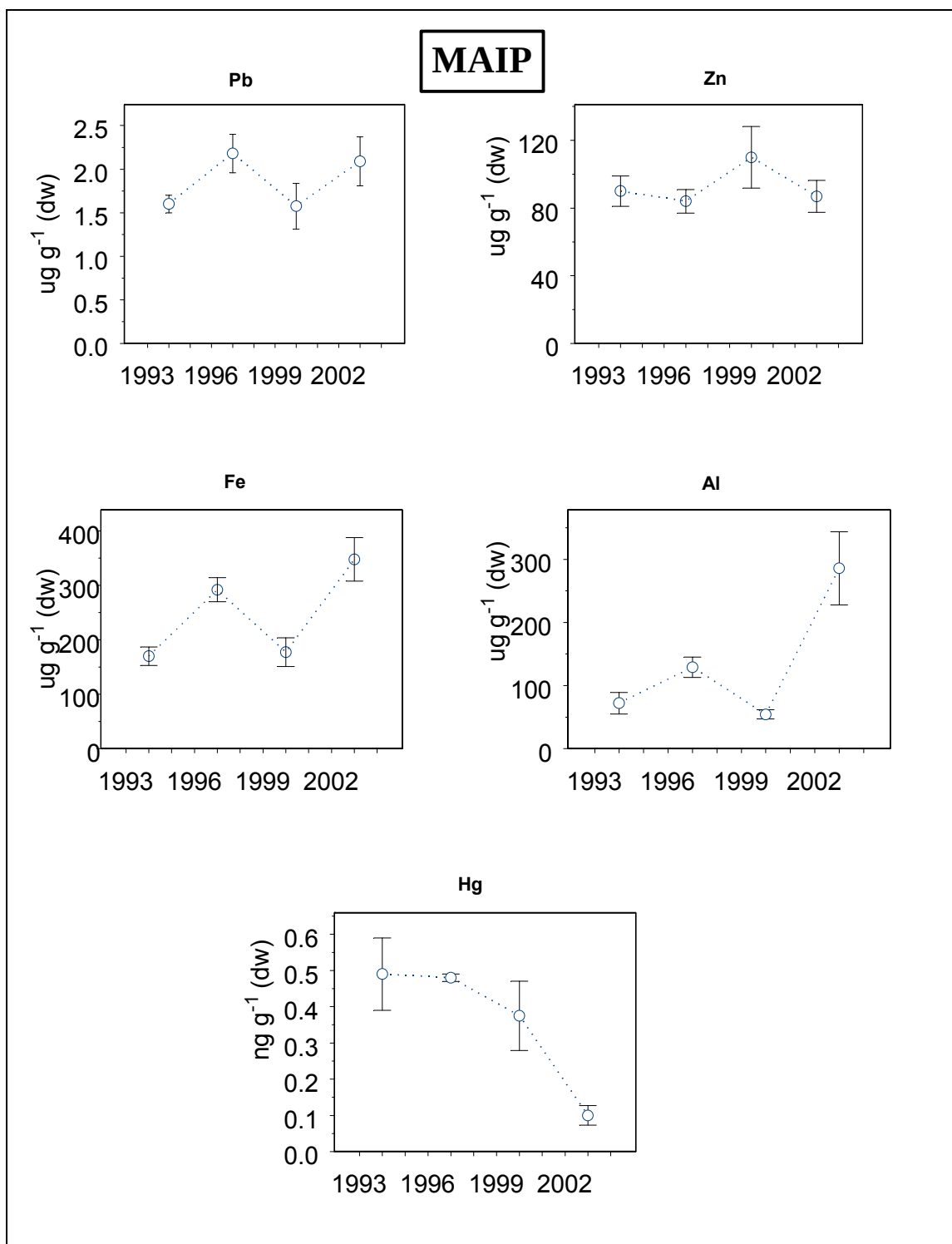


Figure 24B. Distribution of metals (Pb, Zn, Fe, Al, and Hg) concentrations (arithmetic mean $\pm$ SD, $\mu\text{g/g}$ dry weight) in mussels collected at the MAIP Gulfwatch site from selected years during the period from 1993-2004.

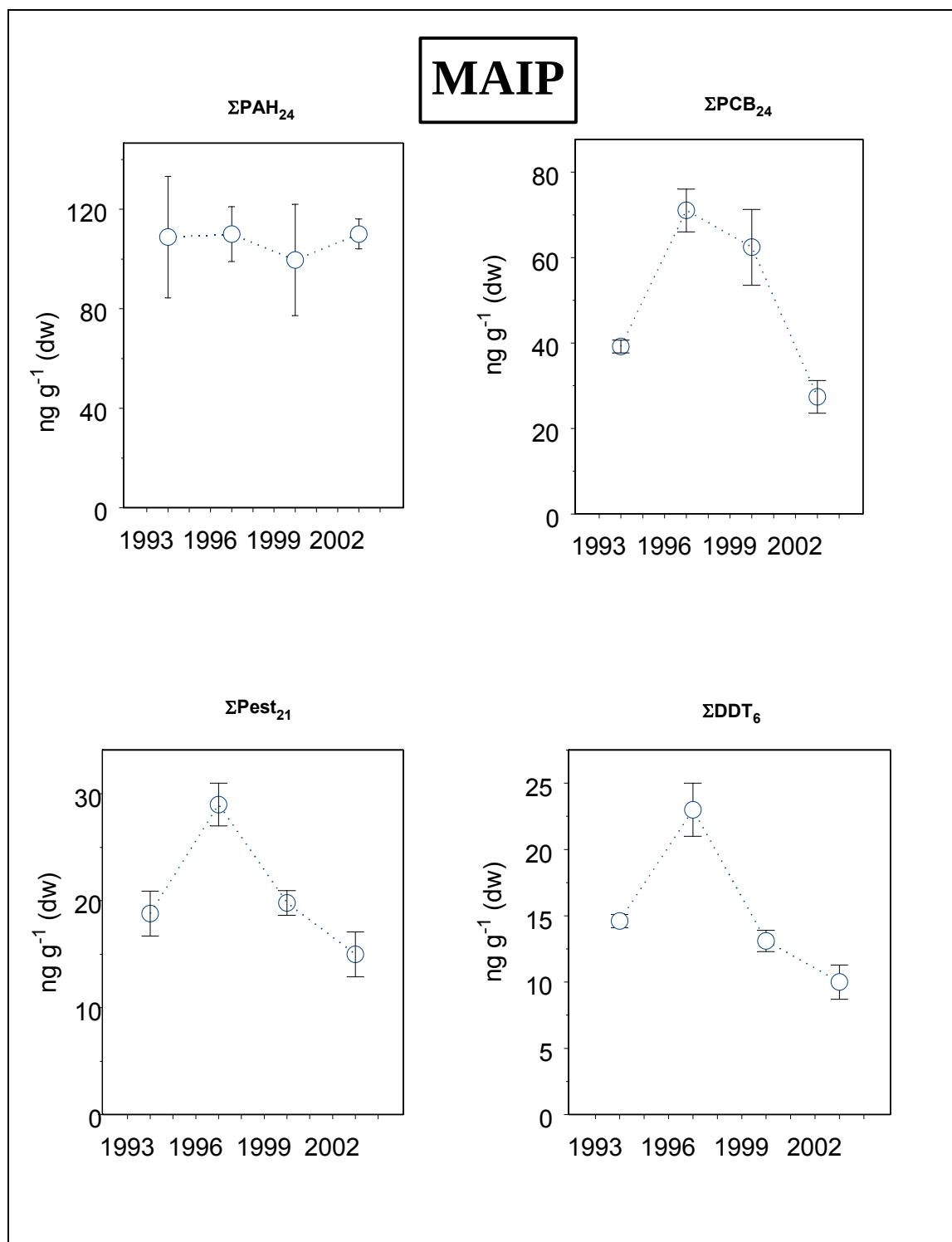


Figure 24C. Distribution of selected organic contaminant concentrations (arithmetic mean $\pm$ SD, ng/g dry weight) in mussels collected at the MAIP Gulfwatch site from selected years during the period from 1993-2004.

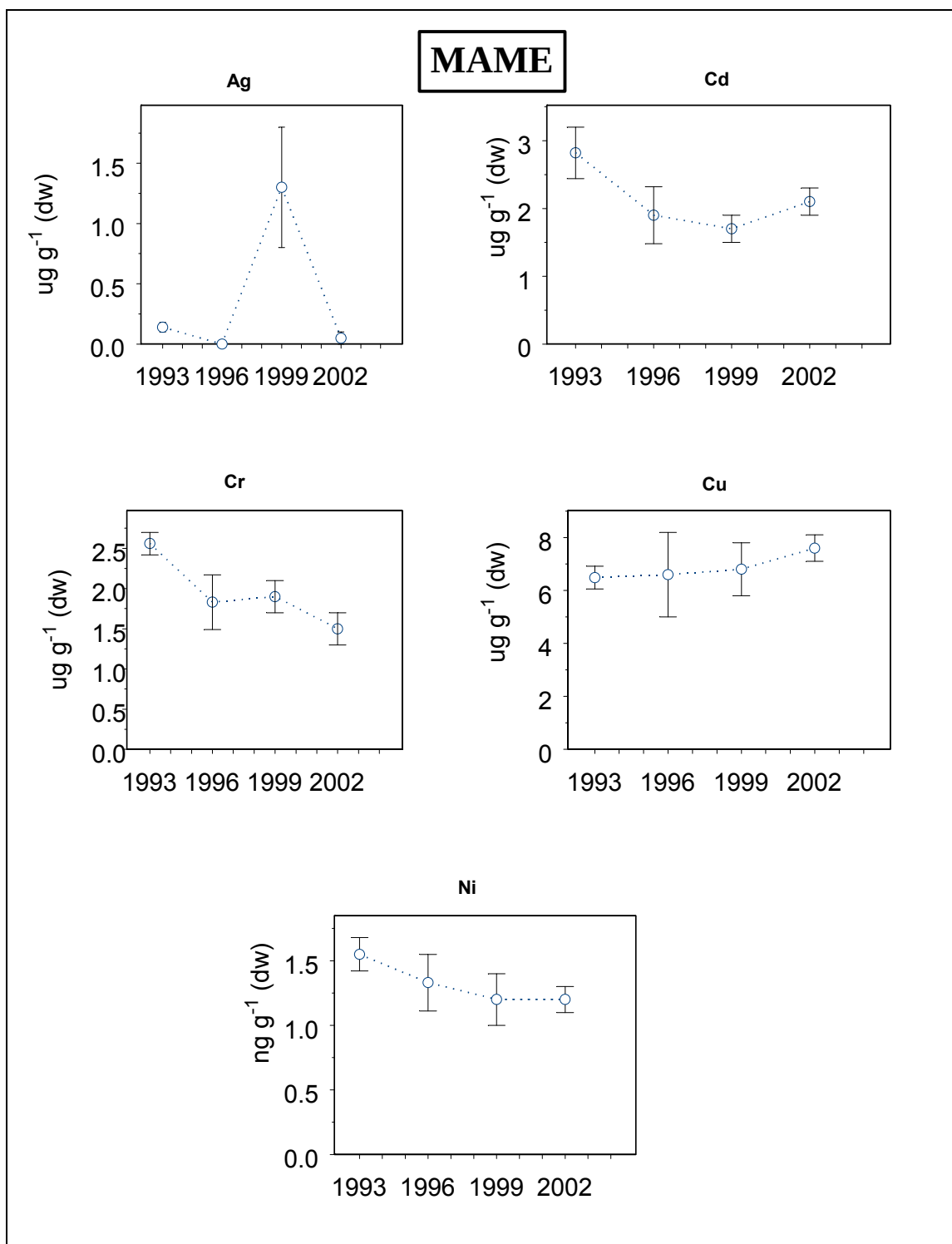


Figure 25A. Distribution of metals (Ag, Cd, Cr, Cu, Ni) concentrations (arithmetic mean $\pm$ SD, $\mu\text{g/g}$ dry weight) in mussels collected at the MAME Gulfwatch site from selected years during the period from 1993-2004.

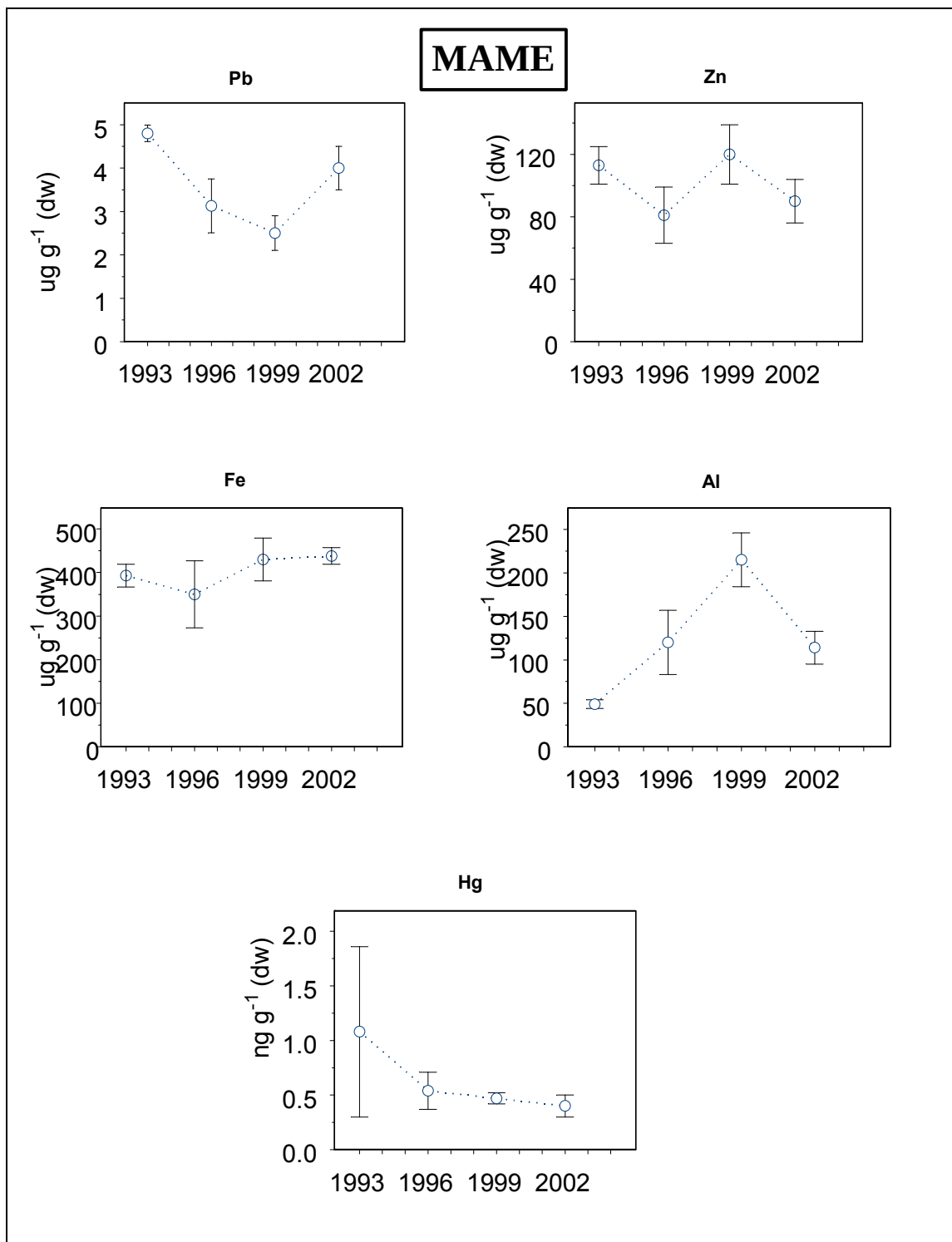


Figure 25B. Distribution of metals (Pb, Zn, Fe, Al, and Hg) concentrations (arithmetic mean $\pm$ SD, $\mu\text{g/g}$ dry weight) in mussels collected at the MAME Gulfwatch site from selected years during the period from 1993-2004.

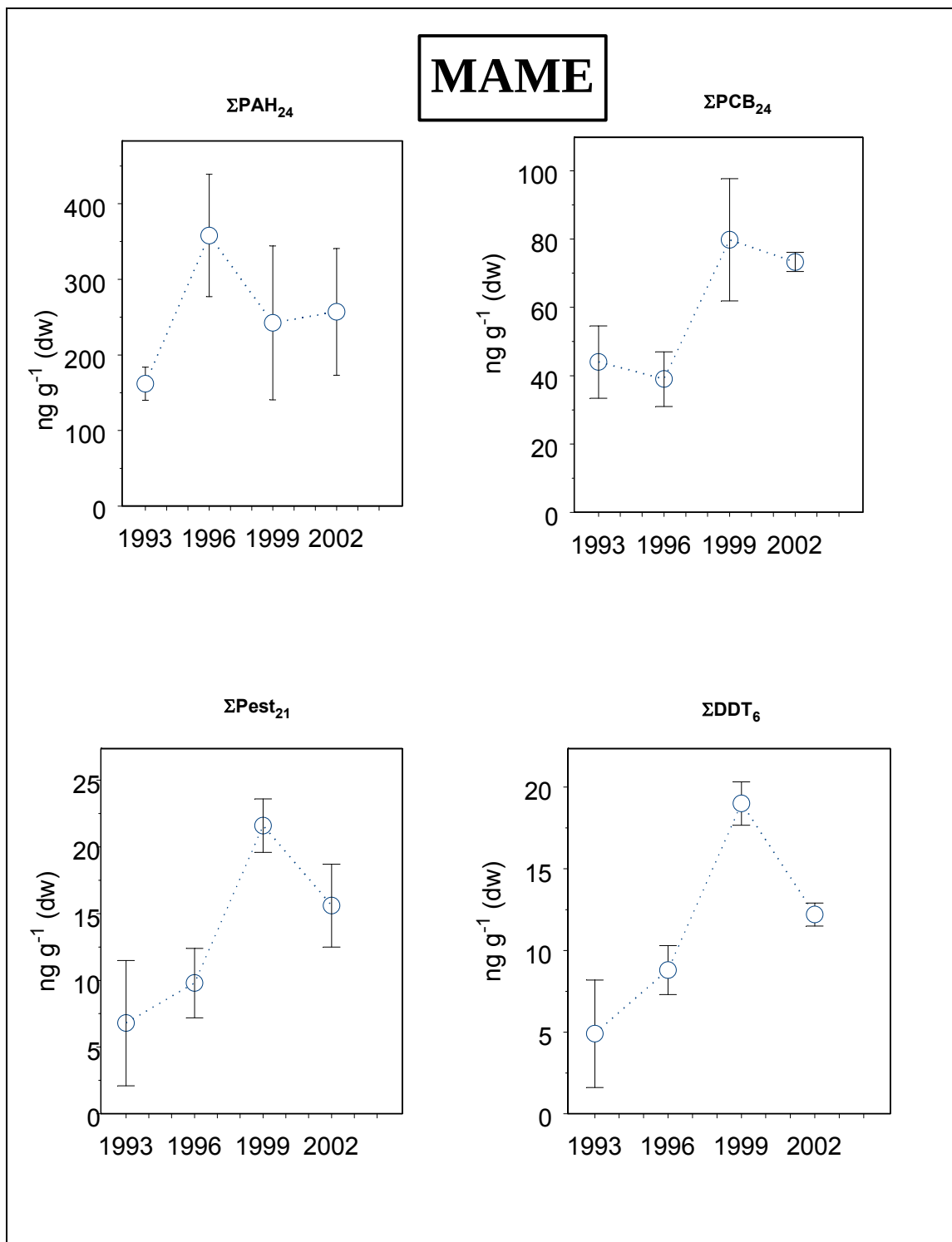


Figure 25C. Distribution of selected organic contaminant concentrations (arithmetic mean $\pm$ SD, ng/g dry weight) in mussels collected at the MAME Gulfwatch site from selected years during the period from 1993-2004.

Temporal changes in contaminants in *Mytilus edulis* tissue from New Hampshire Gulfwatch (Rotational and Occasional) Stations; 1993 – 2004.

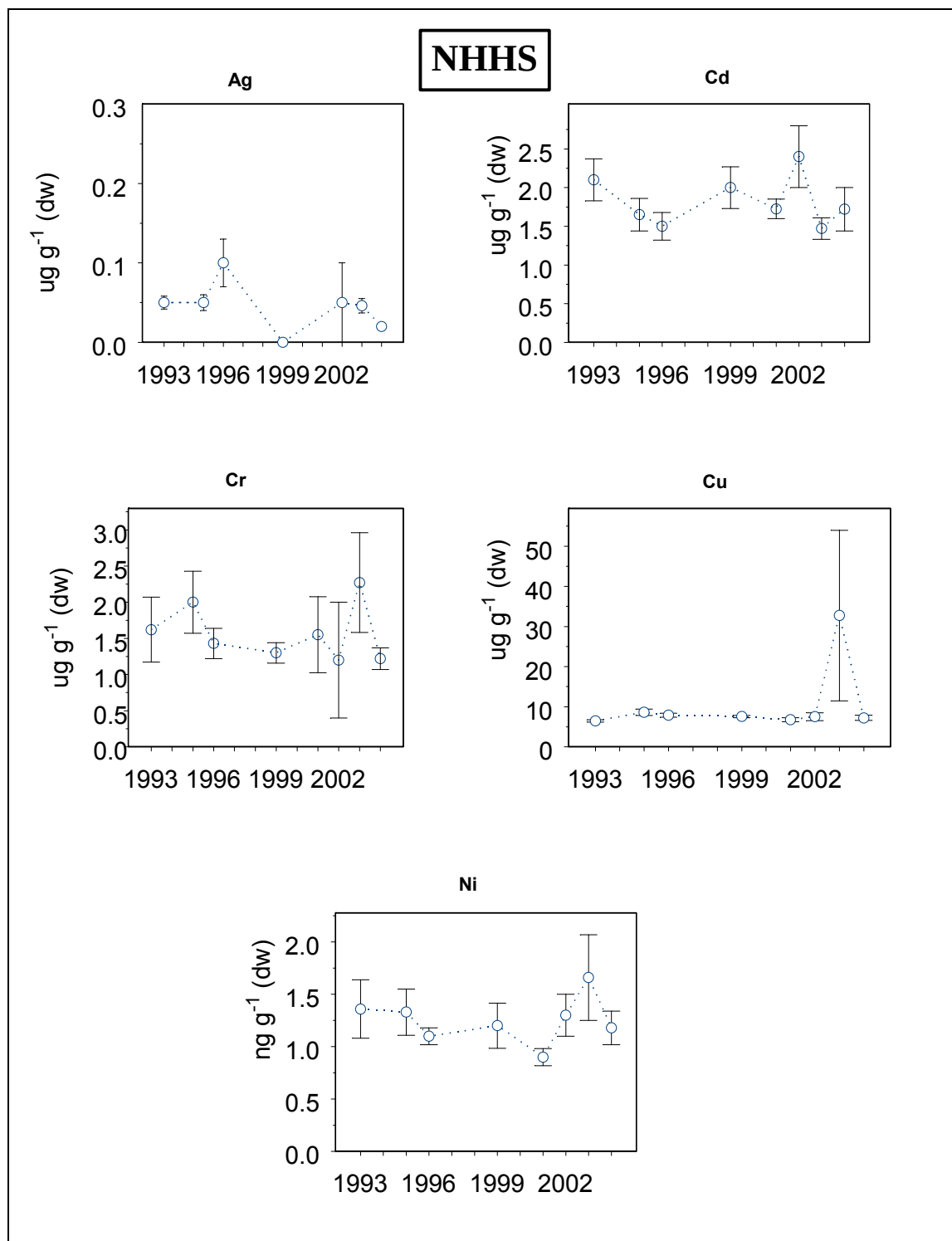


Figure 26A. Distribution of metals (Ag, Cd, Cr, Cu, Ni) concentrations (arithmetic mean $\pm$ SD, $\mu\text{g/g}$ dry weight) in mussels collected at the NHHS Gulfwatch site from selected years during the period from 1993-2004.

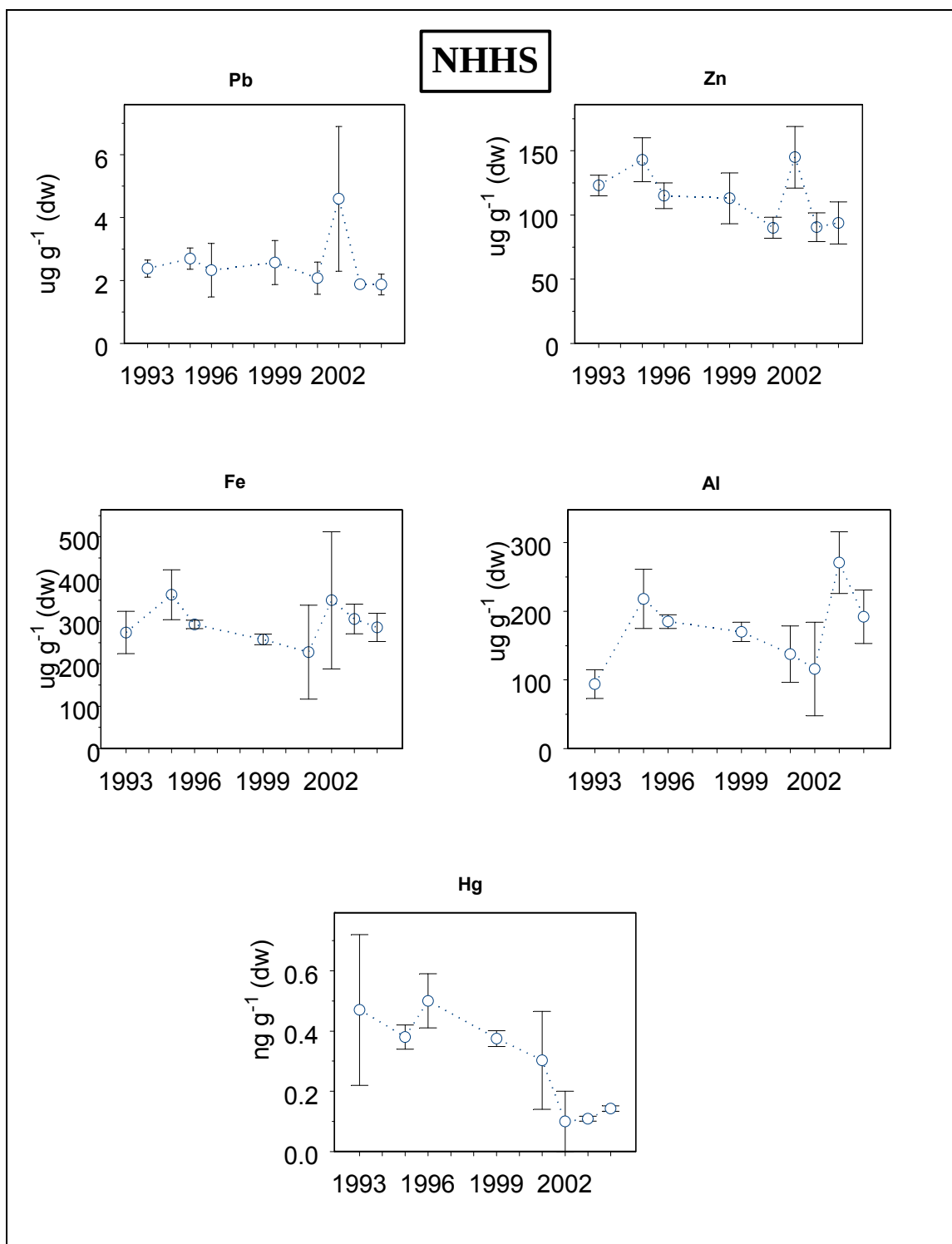


Figure 26B. Distribution of metals (Pb, Zn, Fe, Al, and Hg) concentrations (arithmetic mean $\pm$ SD, $\mu\text{g/g}$ dry weight) in mussels collected at the NHHS Gulfwatch site from selected years during the period from 1993-2004.

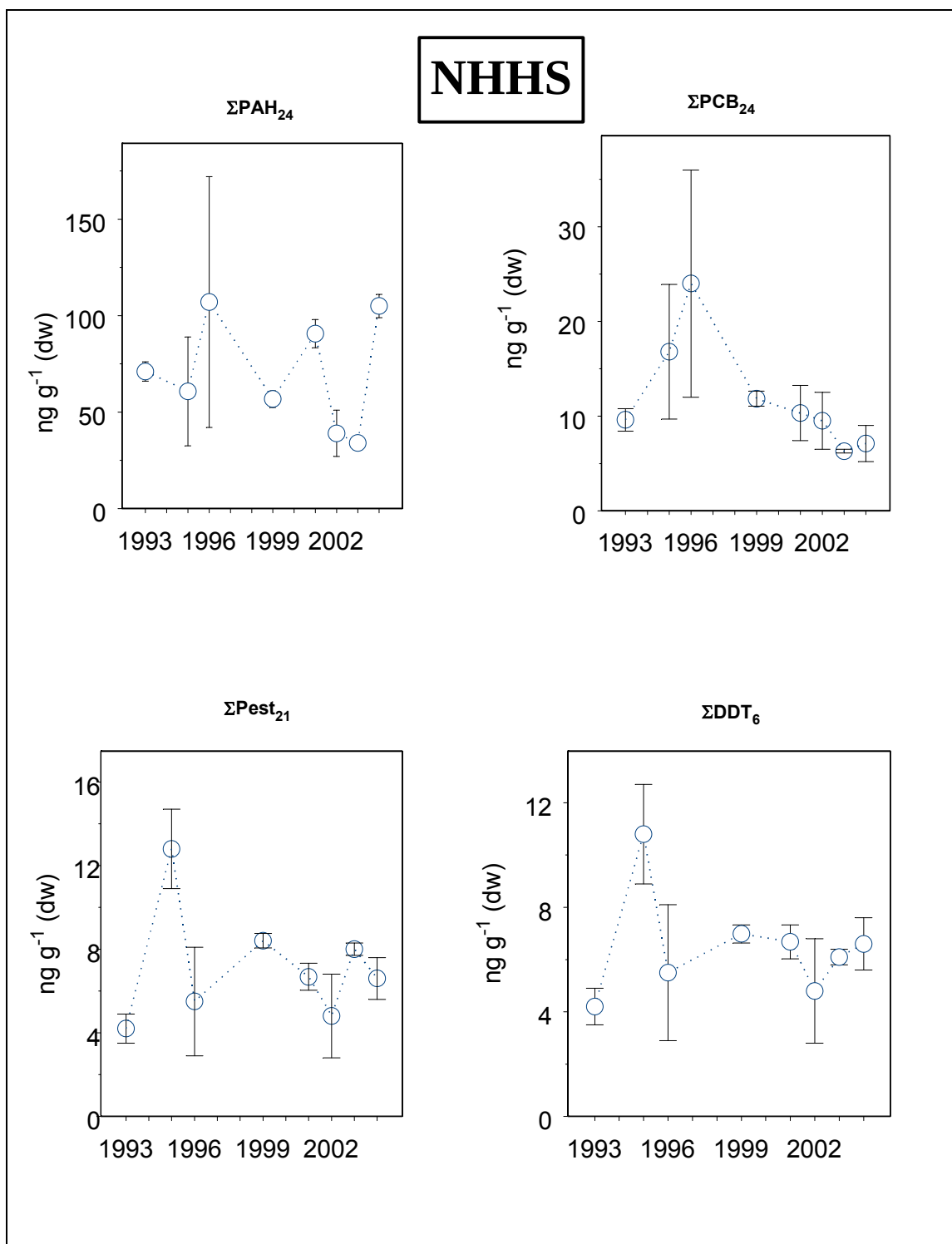


Figure 26C. Distribution of selected organic contaminant concentrations (arithmetic mean $\pm$ SD, ng/g dry weight) in mussels collected at the NHHS Gulfwatch site from selected years during the period from 1993-2004.

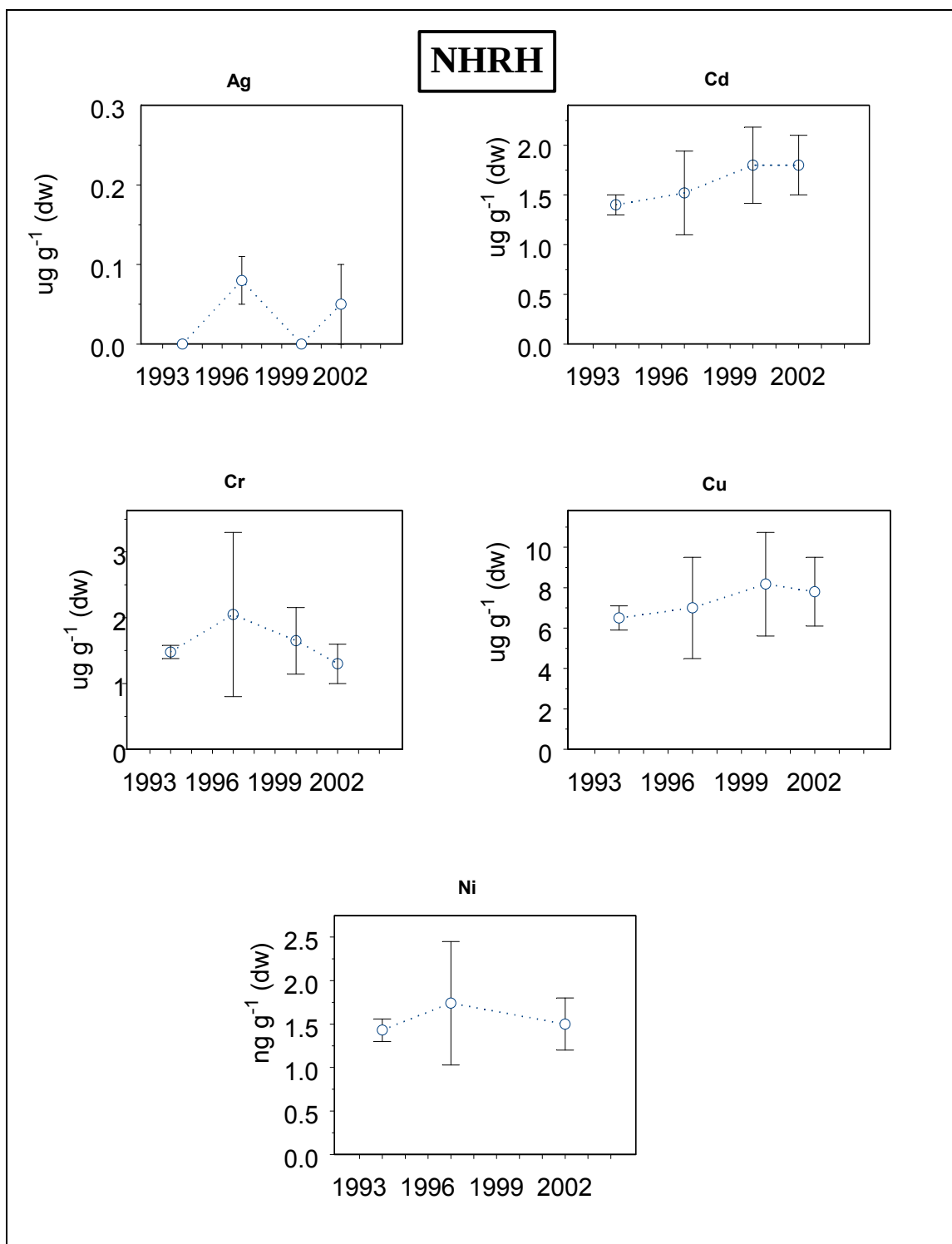


Figure 27A. Distribution of metals (Ag, Cd, Cr, Cu, Ni) concentrations (arithmetic mean $\pm$ SD, $\mu\text{g/g}$ dry weight) in mussels collected at the NHRH Gulfwatch site from selected years during the period from 1993-2004.

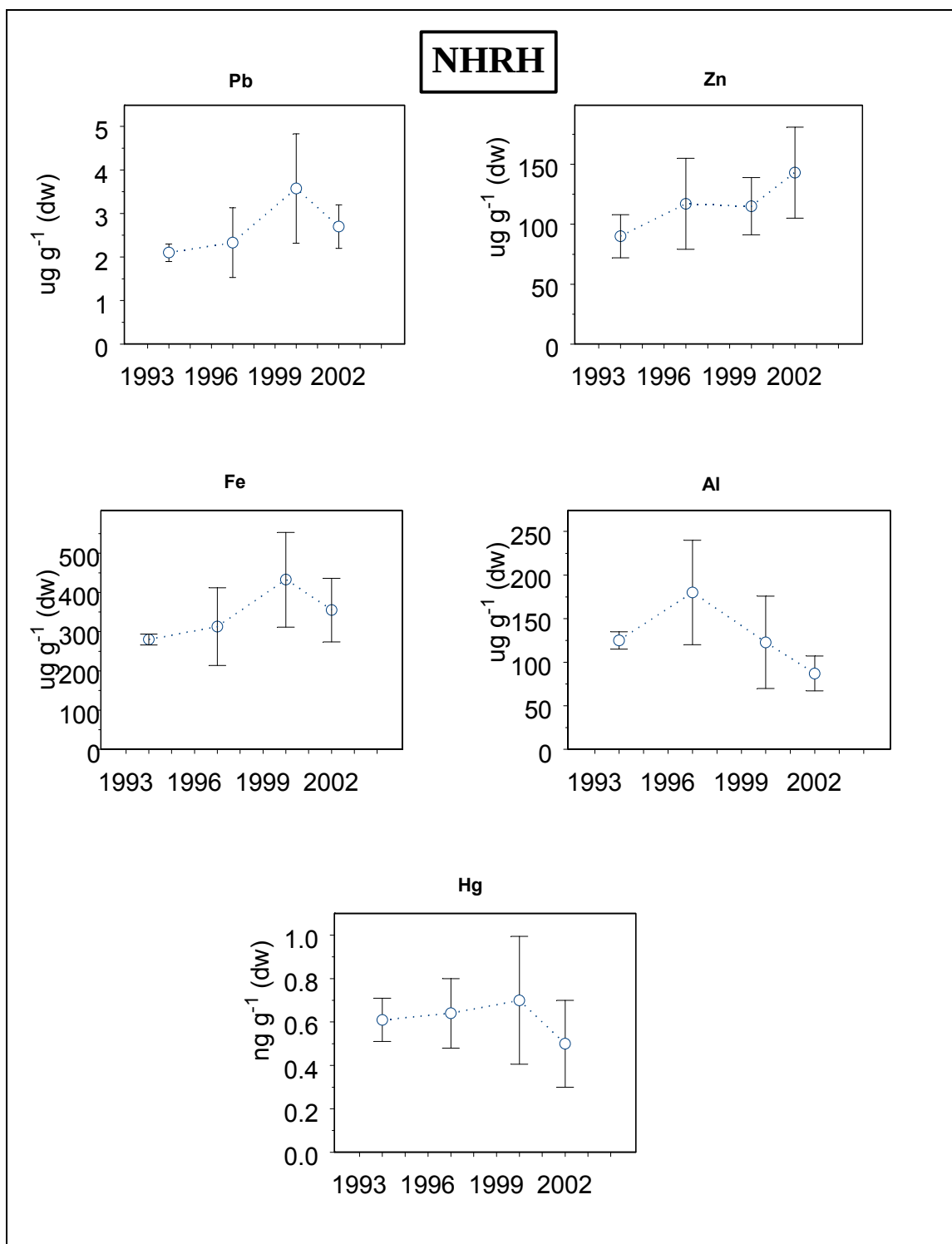


Figure 27B. Distribution of metals (Pb, Zn, Fe, Al, and Hg) concentrations (arithmetic mean $\pm$ SD, $\mu\text{g/g}$ dry weight) in mussels collected at the NHRH Gulfwatch site from selected years during the period from 1993-2004.

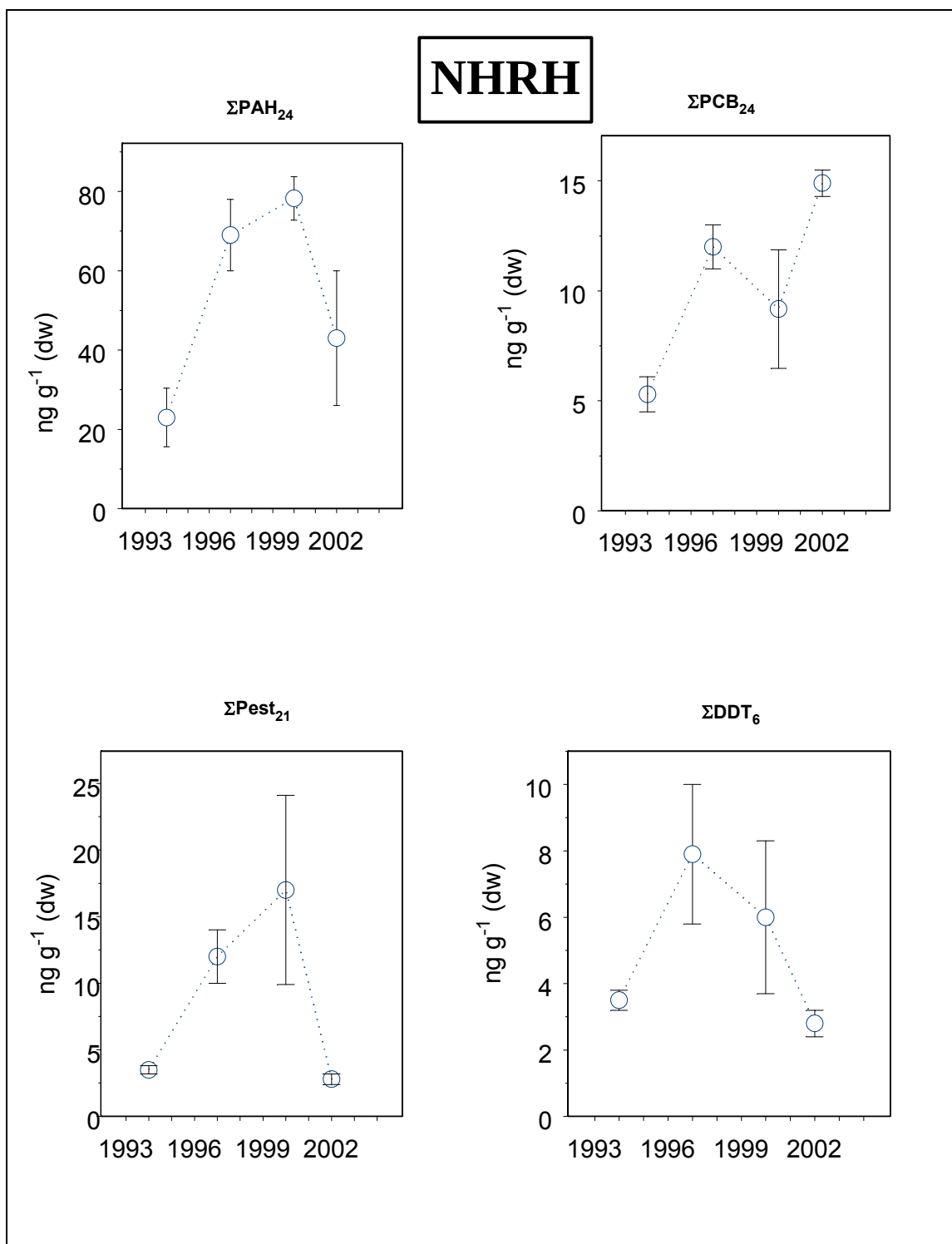


Figure 27C. Distribution of selected organic contaminant concentrations (arithmetic mean $\pm$ SD, ng/g dry weight) in mussels collected at the NHRH Gulfwatch site from selected years during the period from 1993-2004.

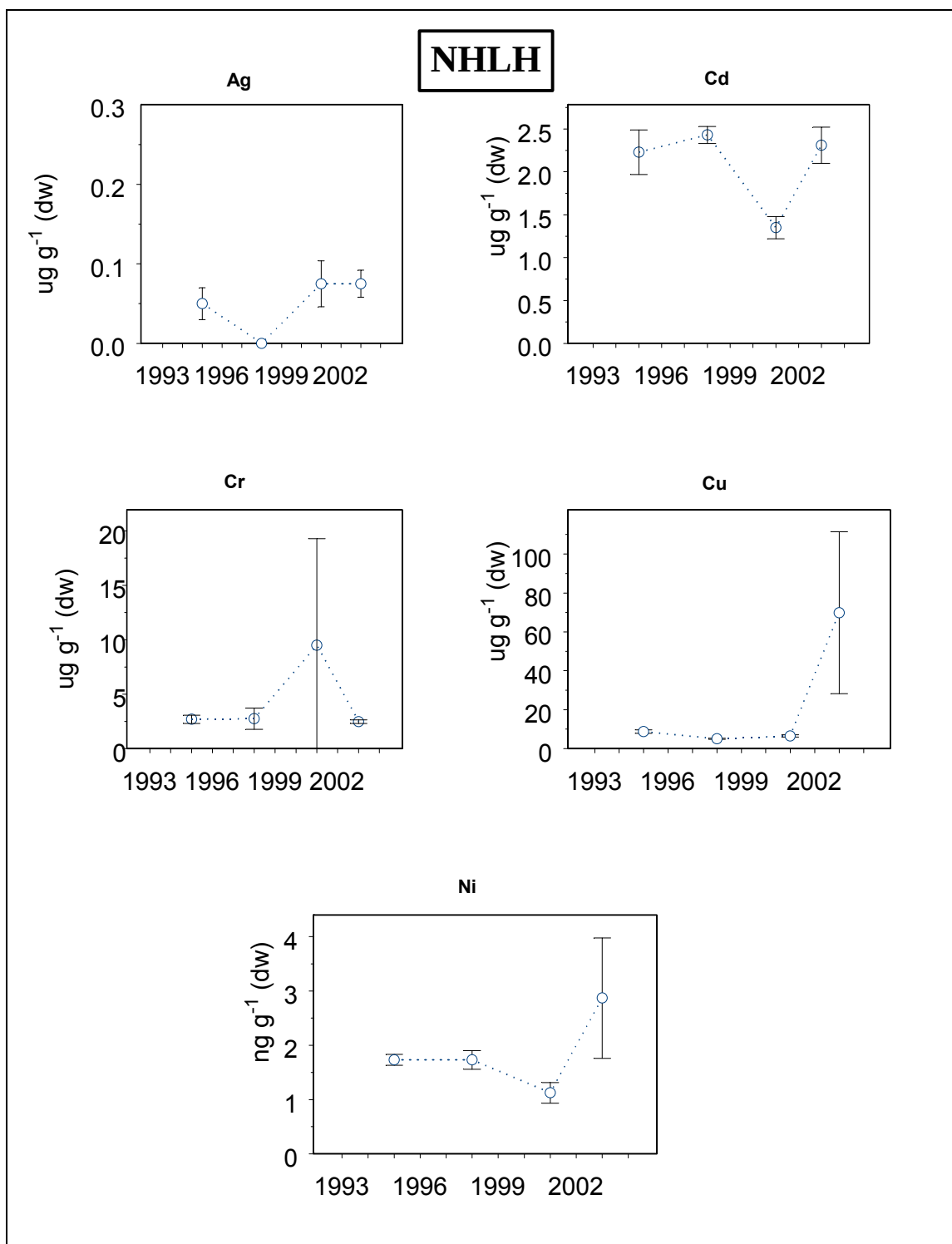


Figure 28A. Distribution of metals (Ag, Cd, Cr, Cu, Ni) concentrations (arithmetic mean $\pm$ SD, $\mu\text{g/g}$ dry weight) in mussels collected at the NHLH Gulfwatch site from selected years during the period from 1993-2004.

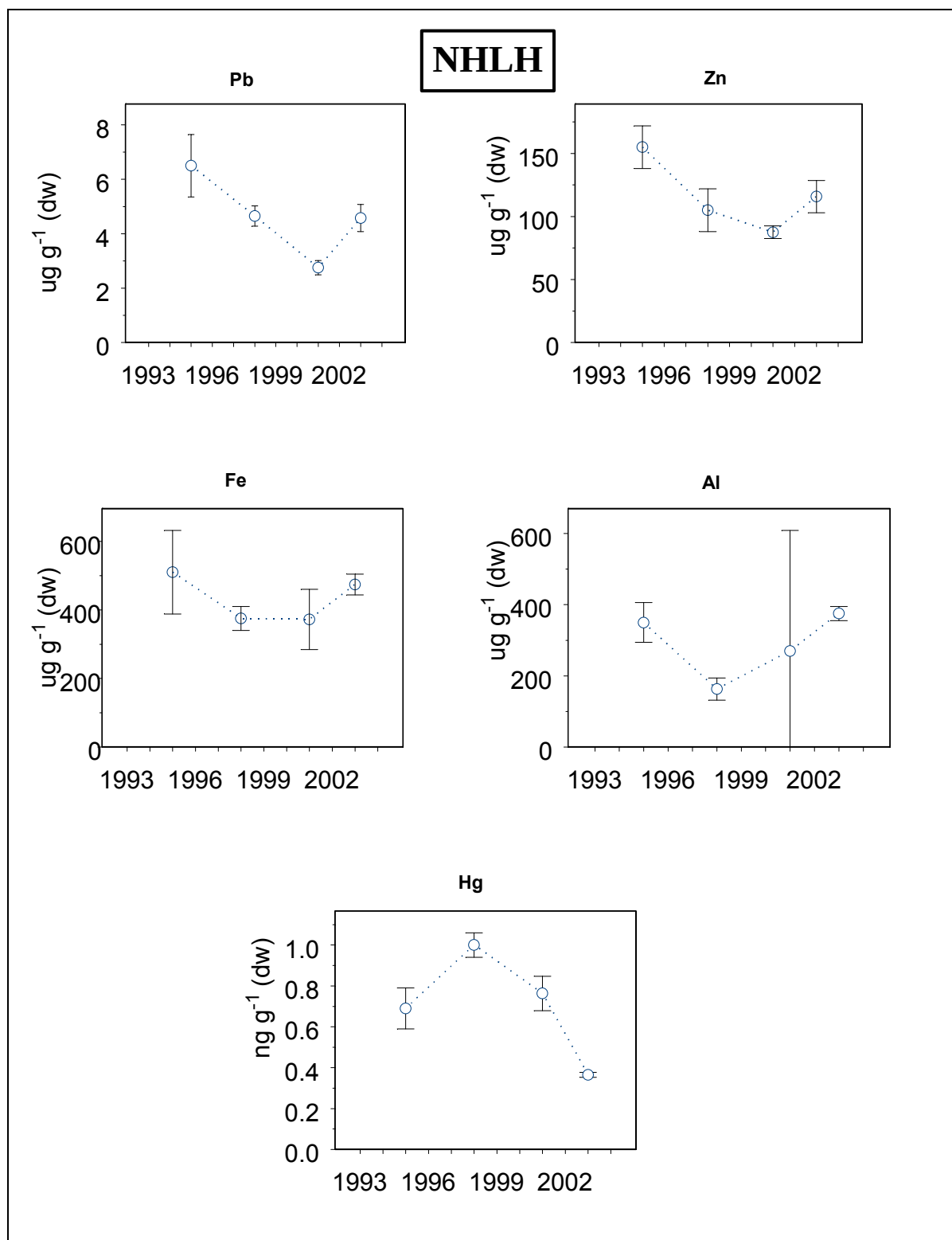


Figure 28B. Distribution of metals (Pb, Zn, Fe, Al, and Hg) concentrations (arithmetic mean $\pm$ SD, $\mu\text{g/g}$ dry weight) in mussels collected at the NHLH Gulfwatch site from selected years during the period from 1993-2004.

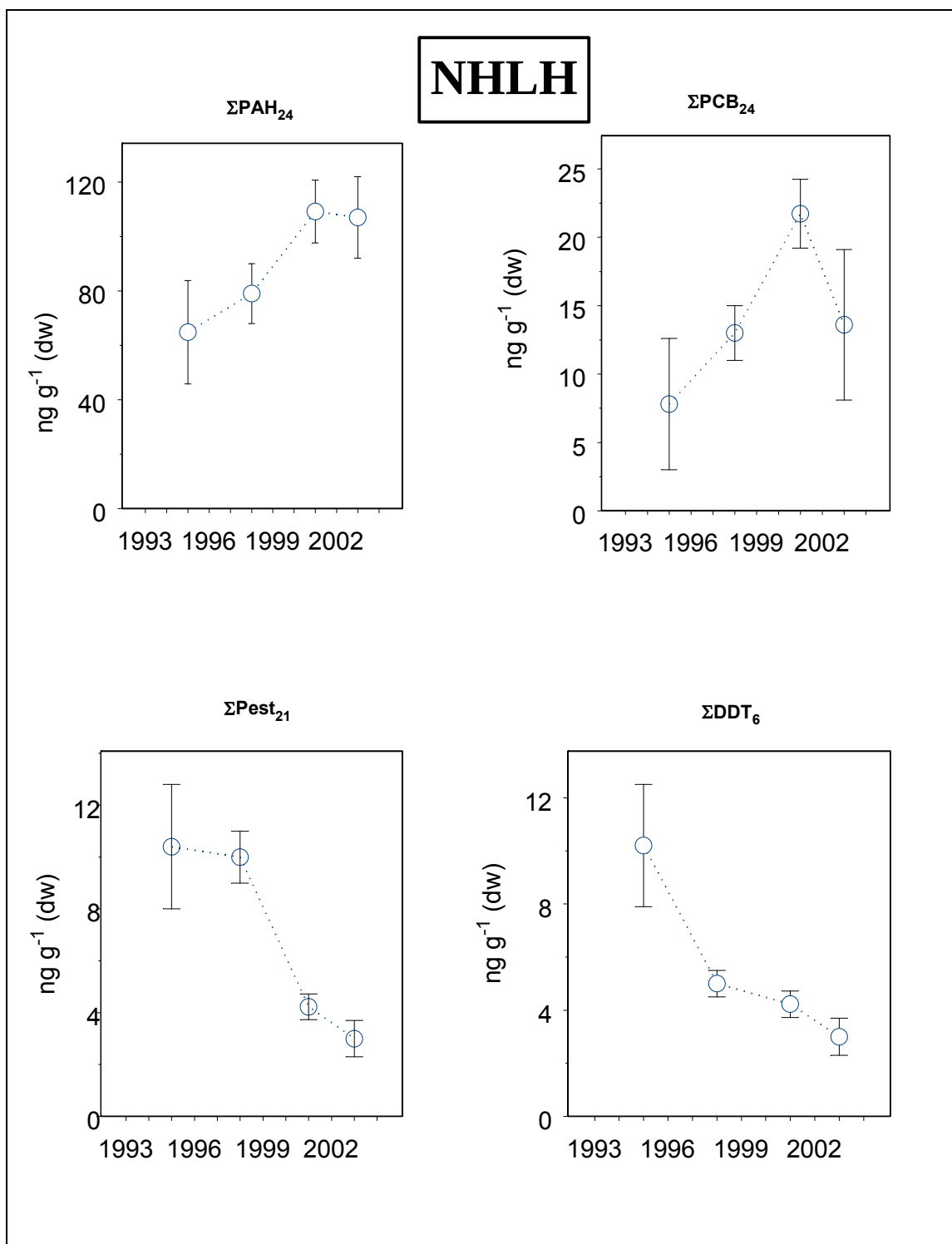


Figure 28C. Distribution of selected organic contaminant concentrations (arithmetic mean $\pm$ SD, ng/g dry weight) in mussels collected at the NHLH Gulfwatch site from selected years during the period from 1993-2004.

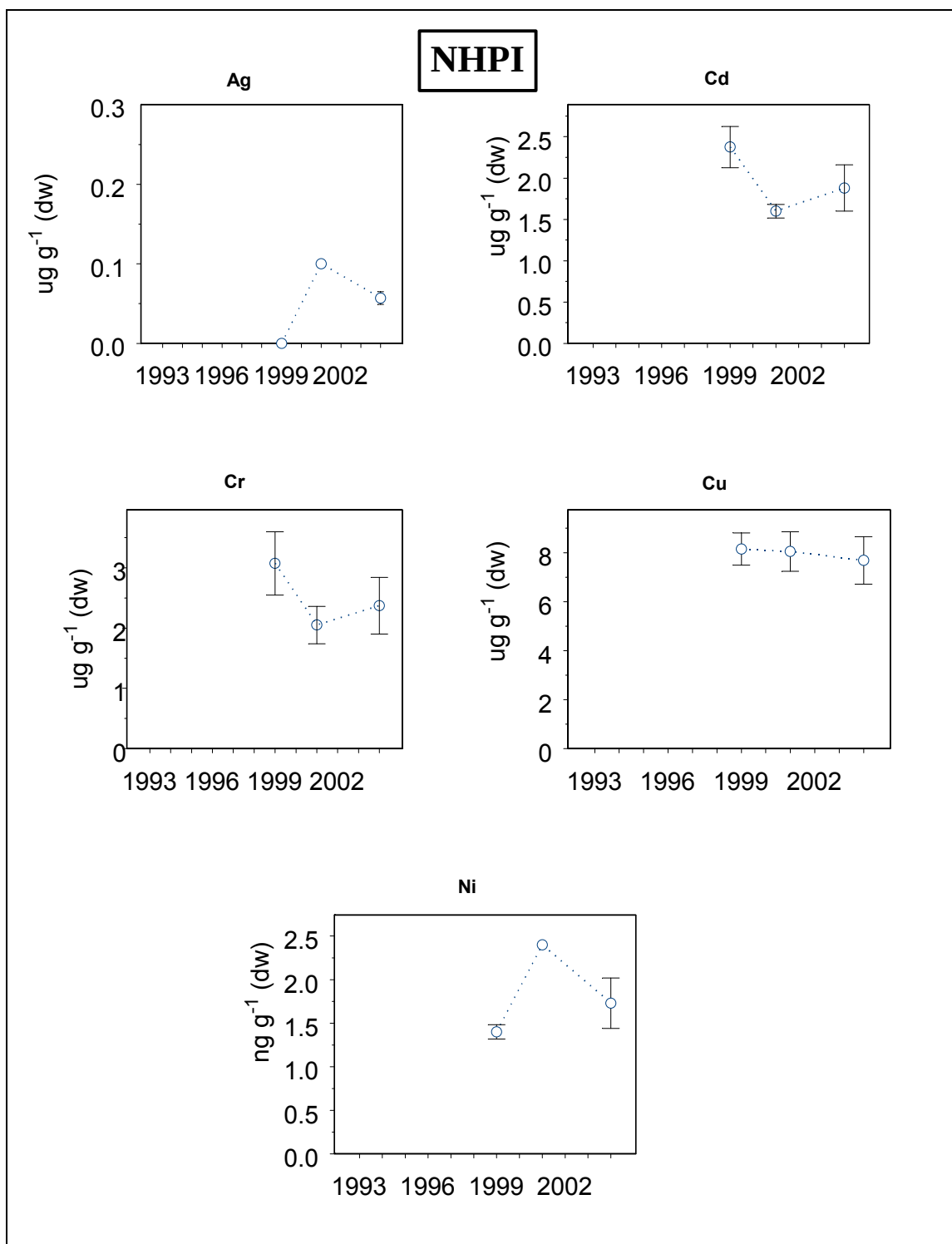


Figure 29A. Distribution of metals (Ag, Cd, Cr, Cu, Ni) concentrations (arithmetic mean $\pm$ SD, $\mu\text{g/g}$ dry weight) in mussels collected at the NHPI Gulfwatch site from selected years during the period from 1993-2004.

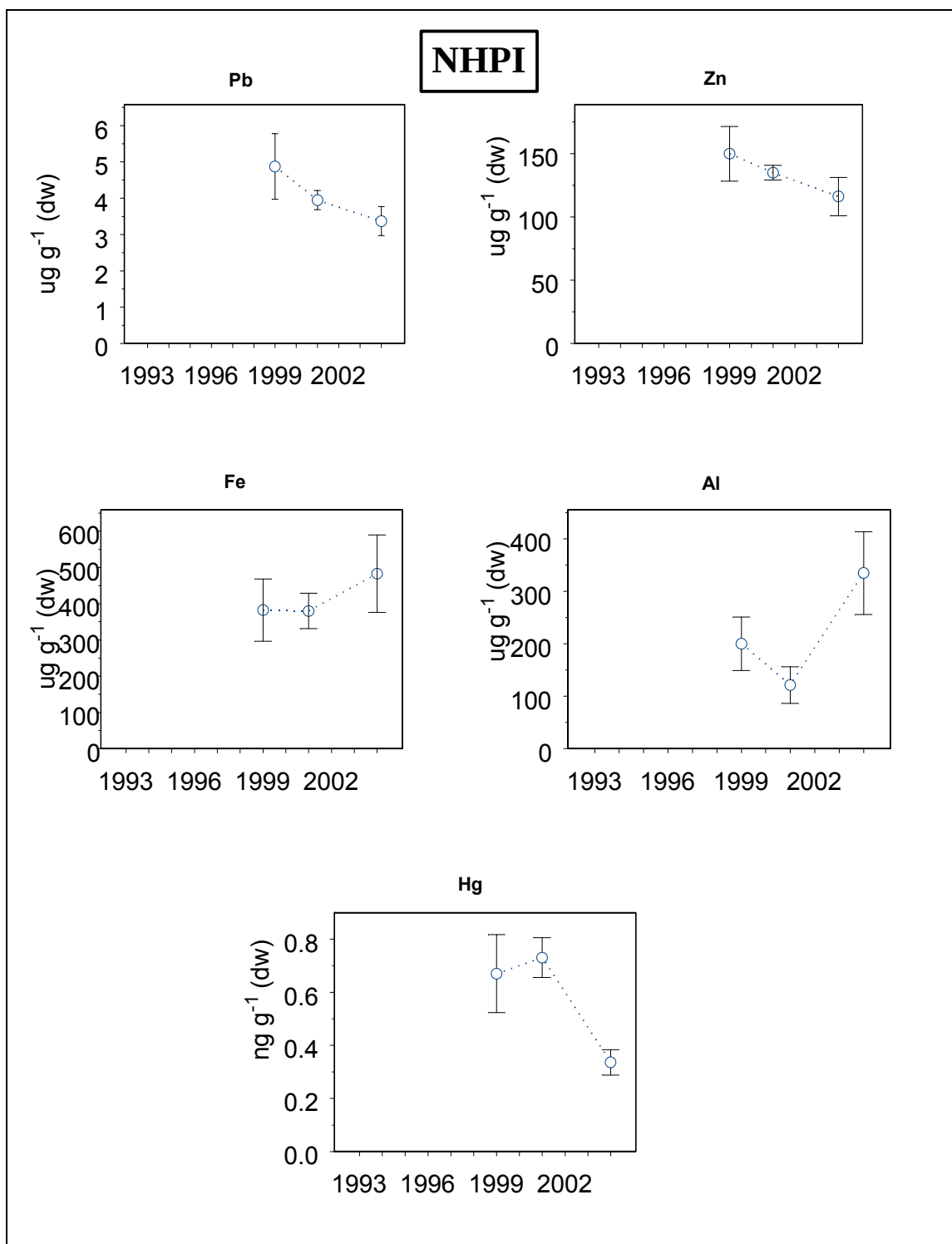


Figure 29B. Distribution of metals (Pb, Zn, Fe, Al, and Hg) concentrations (arithmetic mean $\pm$ SD, $\mu\text{g/g}$ dry weight) in mussels collected at the NHPI Gulfwatch site from selected years during the period from 1993-2004.

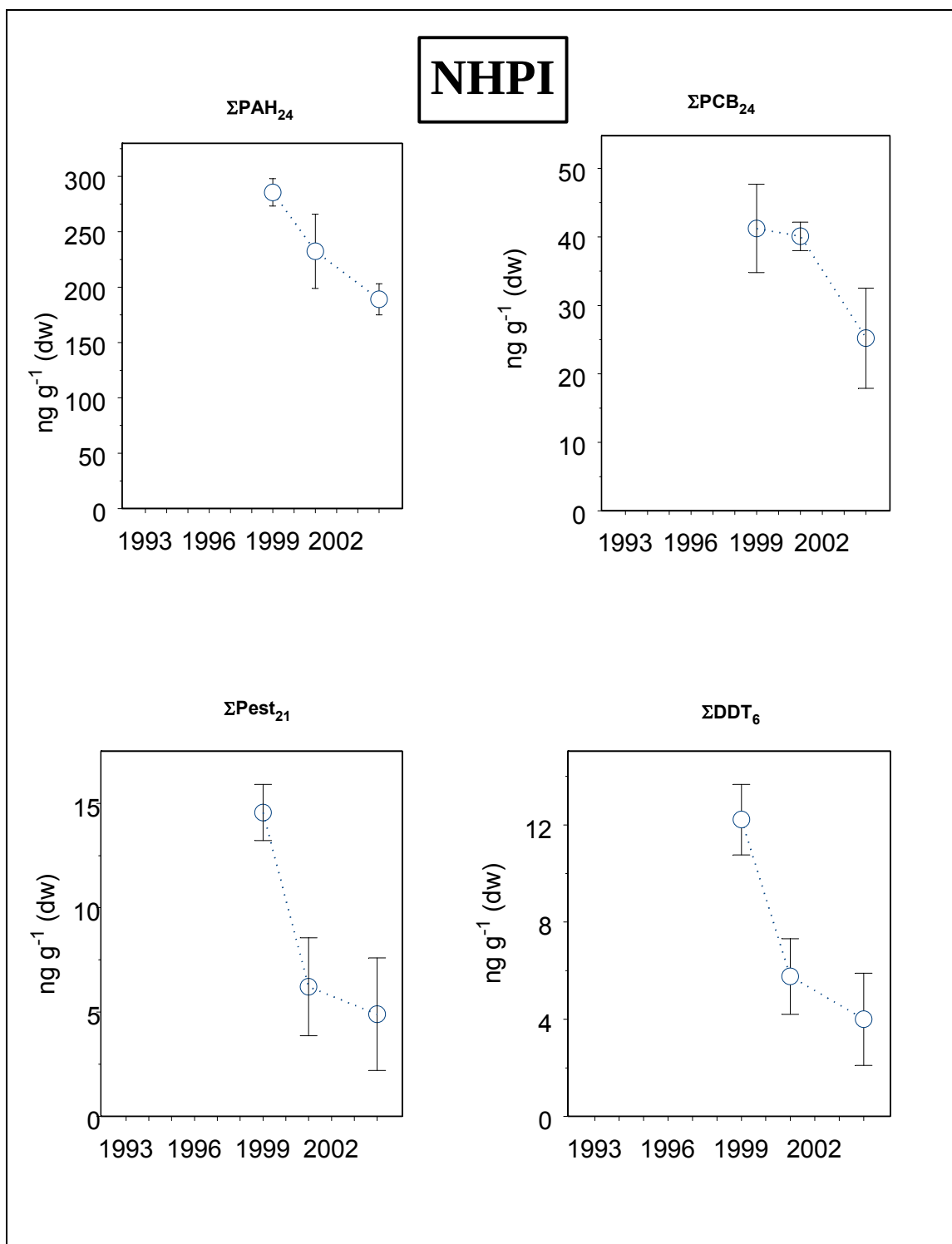


Figure 29C. Distribution of selected organic contaminant concentrations (arithmetic mean $\pm$ SD, ng/g dry weight) in mussels collected at the NHPI Gulfwatch site from selected years during the period from 1993-2004.

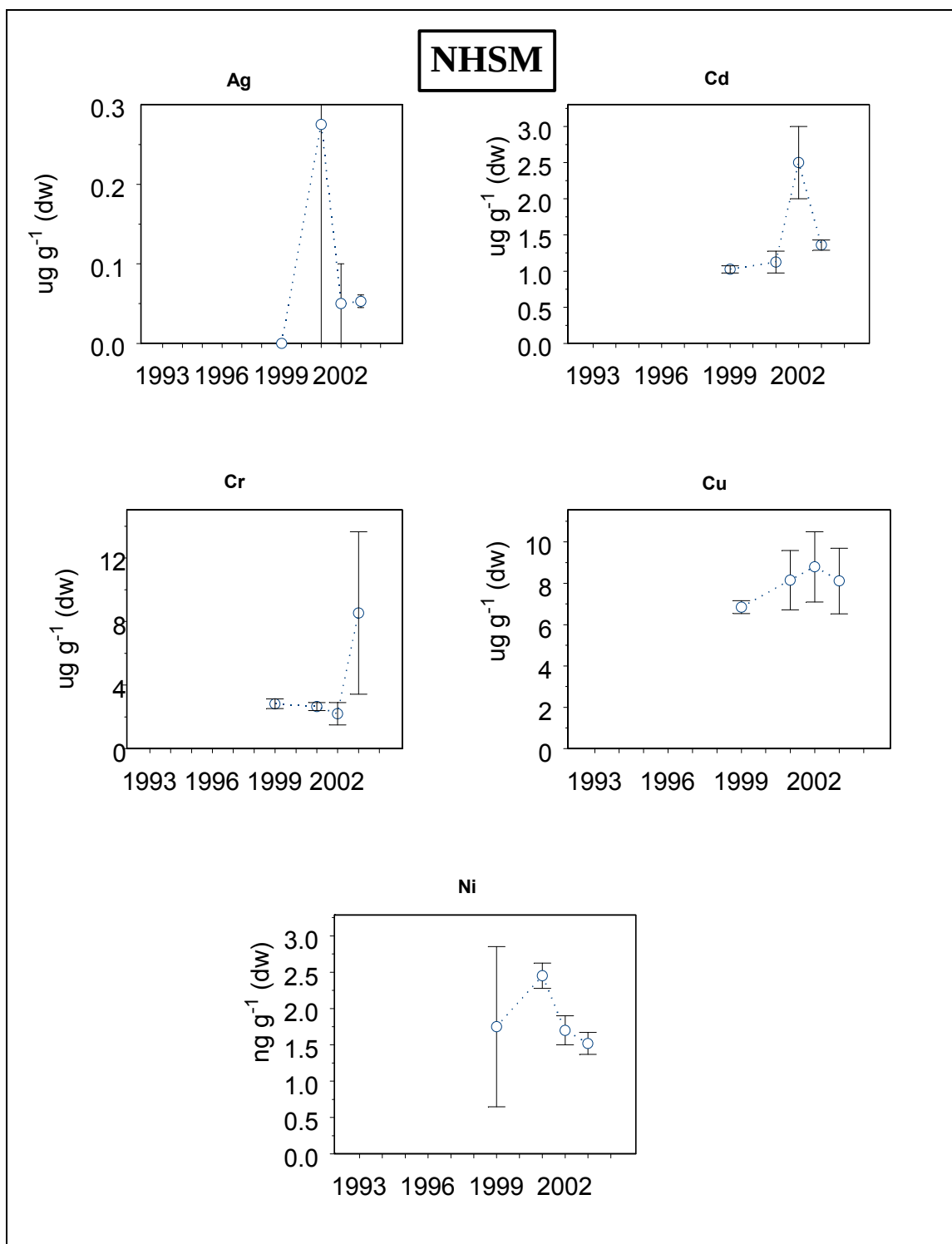


Figure 30A. Distribution of metals (Ag, Cd, Cr, Cu, Ni) concentrations (arithmetic mean $\pm$ SD, $\mu\text{g/g}$ dry weight) in mussels collected at the NHSM Gulfwatch site from selected years during the period from 1993-2004.

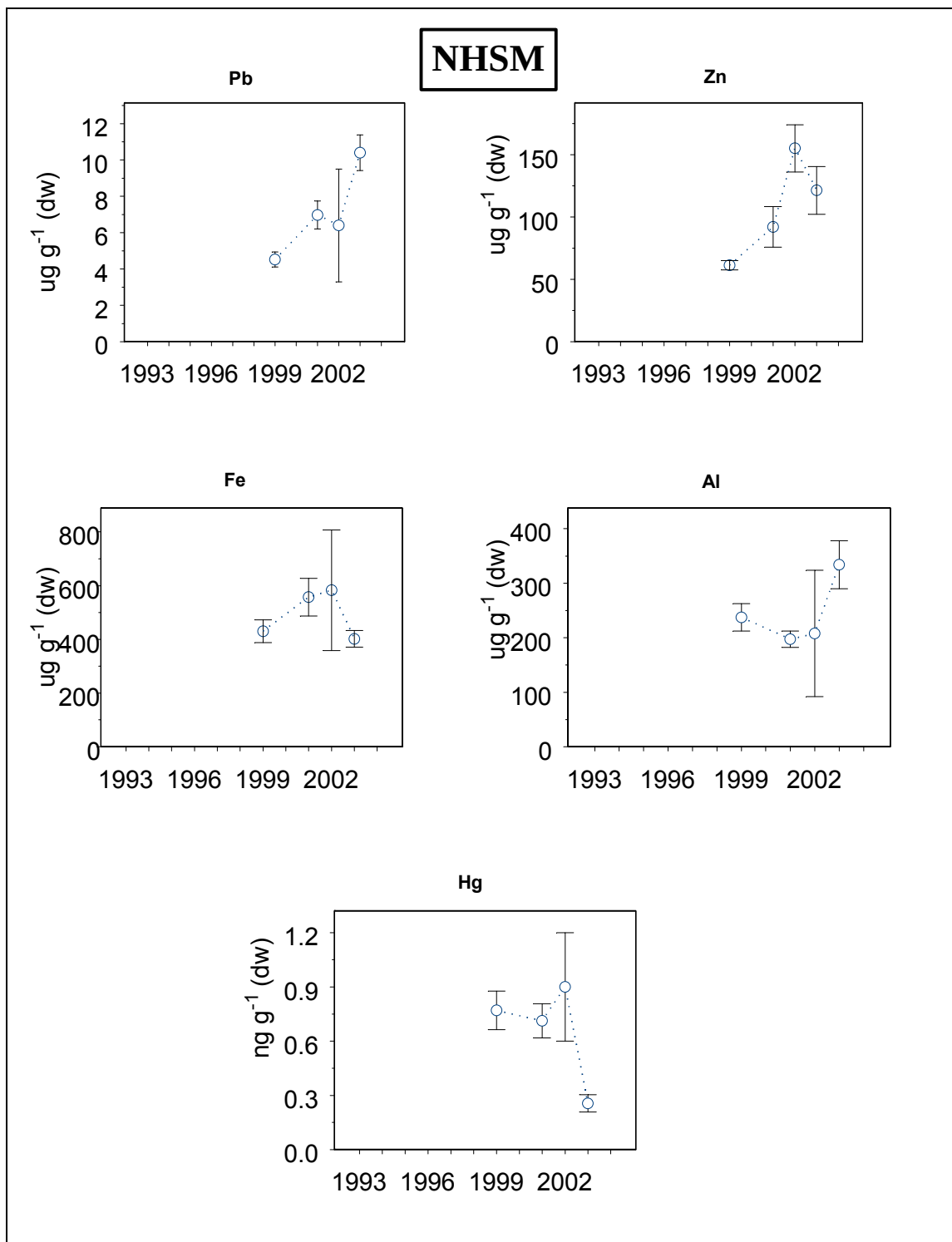


Figure 30B. Distribution of metals (Pb, Zn, Fe, Al, and Hg) concentrations (arithmetic mean $\pm$ SD, $\mu\text{g/g}$ dry weight) in mussels collected at the NHSM Gulfwatch site from selected years during the period from 1993-2004.

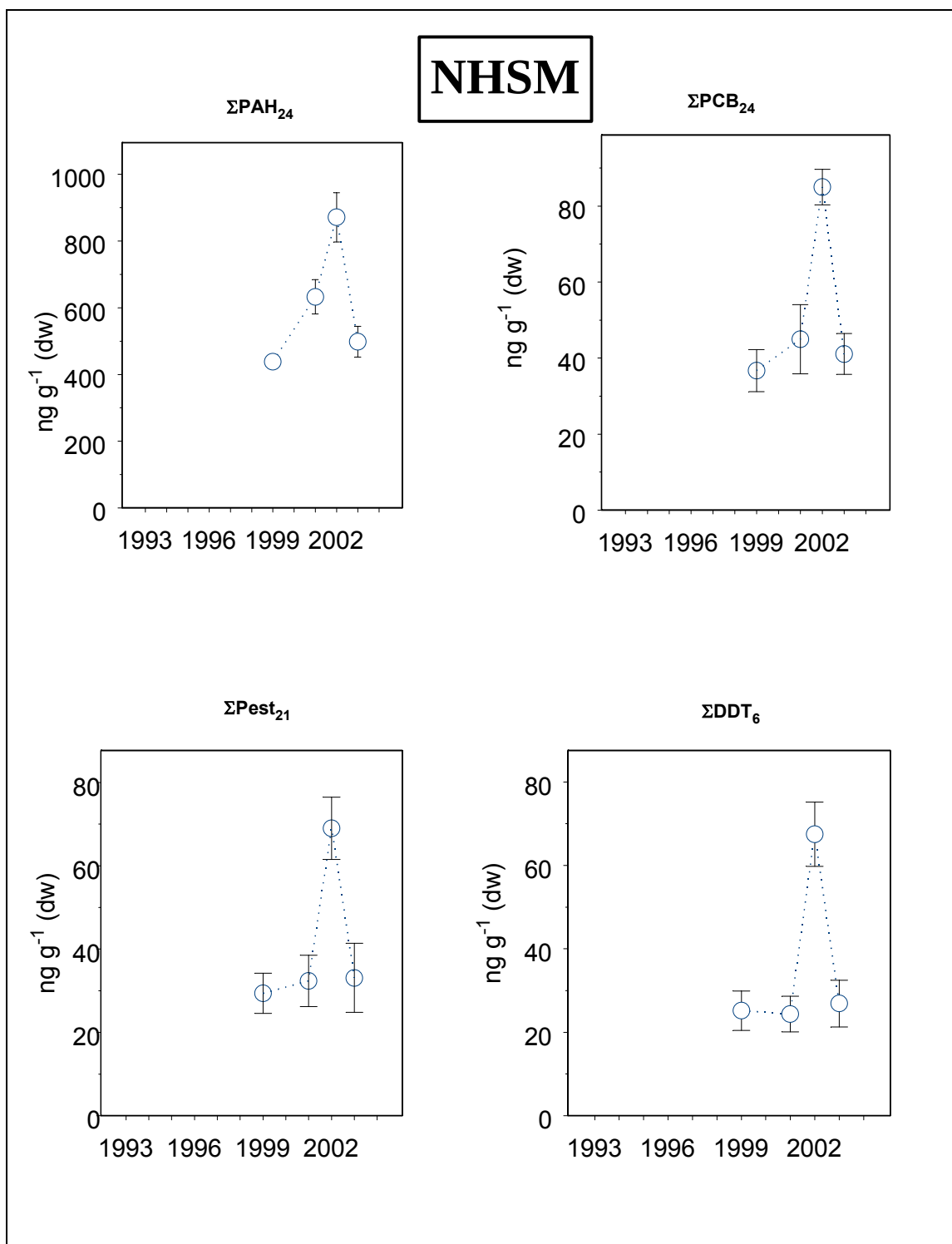


Figure 30C. Distribution of selected organic contaminant concentrations (arithmetic mean $\pm$ SD, ng/g dry weight) in mussels collected at the NHSM Gulfwatch site from selected years during the period from 1993-2004.

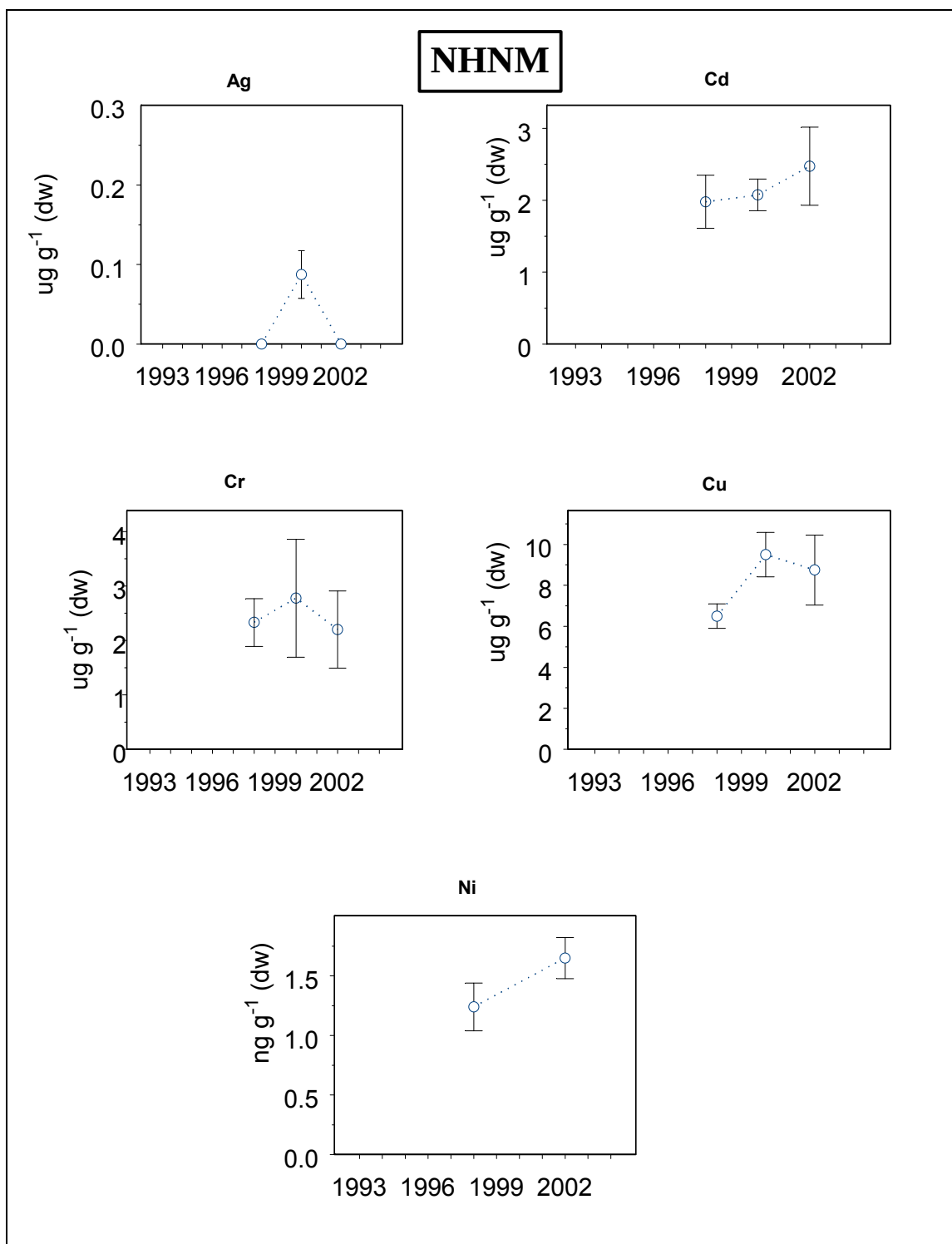


Figure 31A. Distribution of metals (Ag, Cd, Cr, Cu, Ni) concentrations (arithmetic mean $\pm$ SD, $\mu\text{g/g}$ dry weight) in mussels collected at the NHNM Gulfwatch site from selected years during the period from 1993-2004.

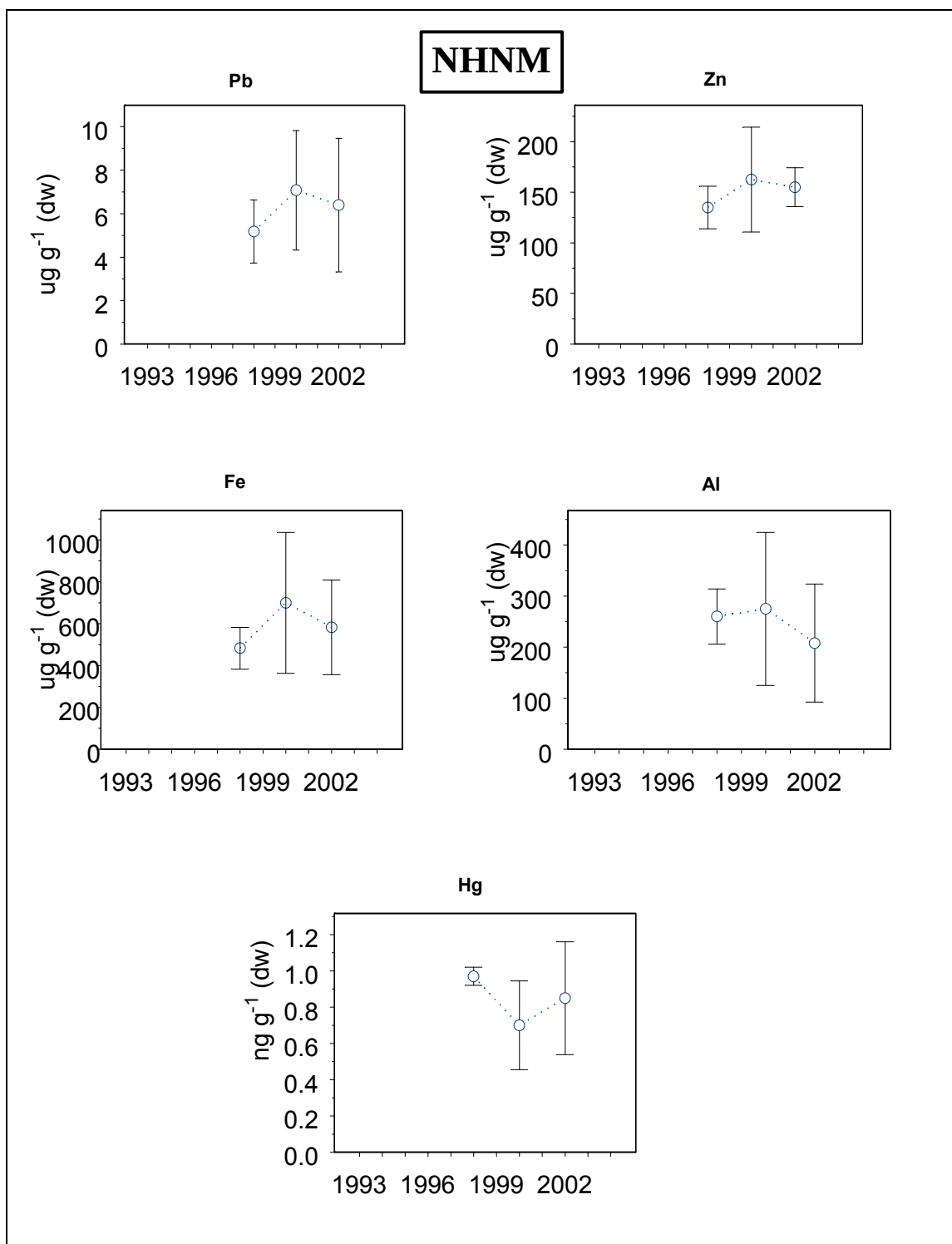


Figure 31B. Distribution of metals (Pb, Zn, Fe, Al, and Hg) concentrations (arithmetic mean $\pm$ SD, $\mu\text{g/g}$ dry weight) in mussels collected at the NHNM Gulfwatch site from selected years during the period from 1993-2004.

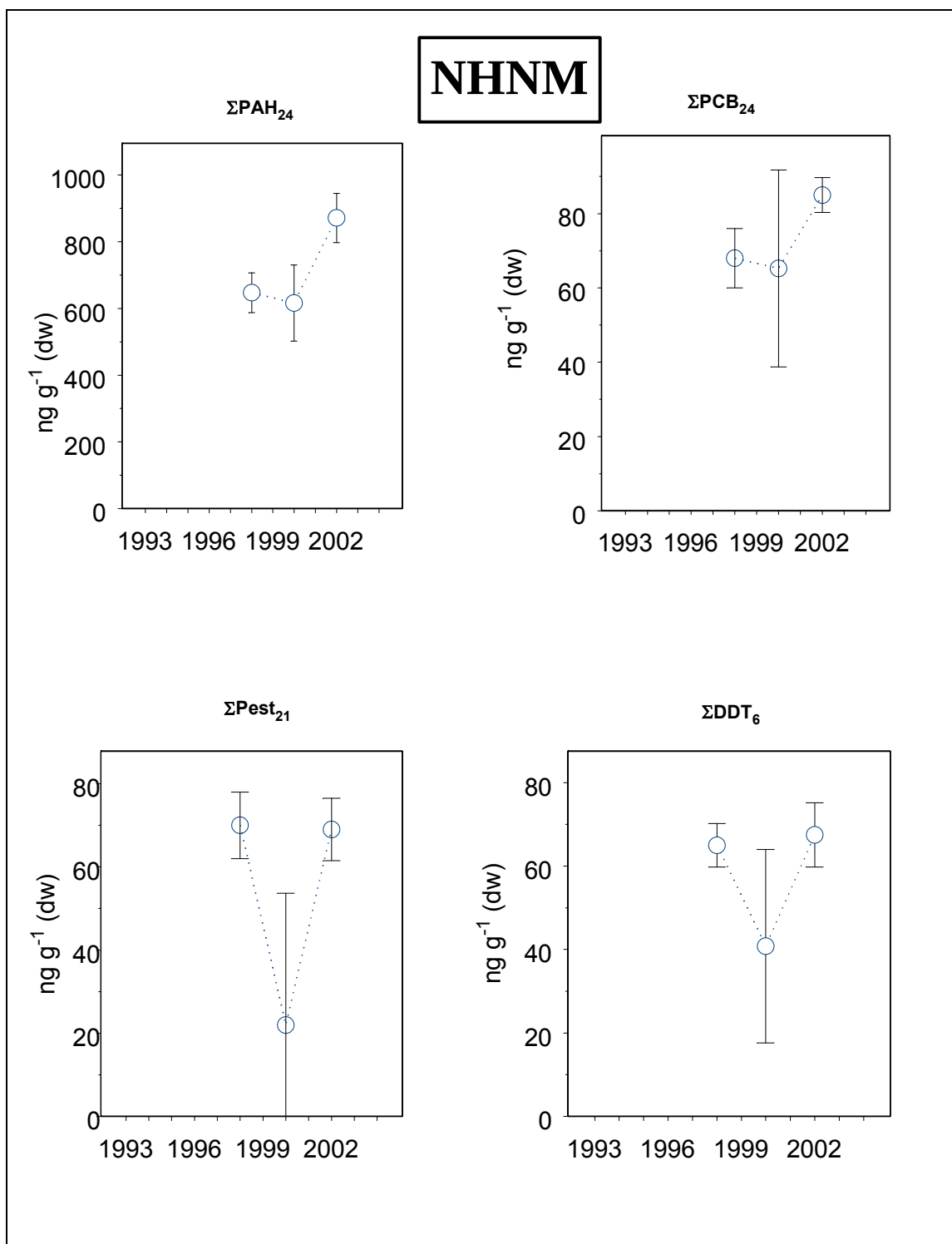


Figure 31C. Distribution of selected organic contaminant concentrations (arithmetic mean $\pm$ SD, ng/g dry weight) in mussels collected at the NHMN Gulfwatch site from selected years during the period from 1993-2004.

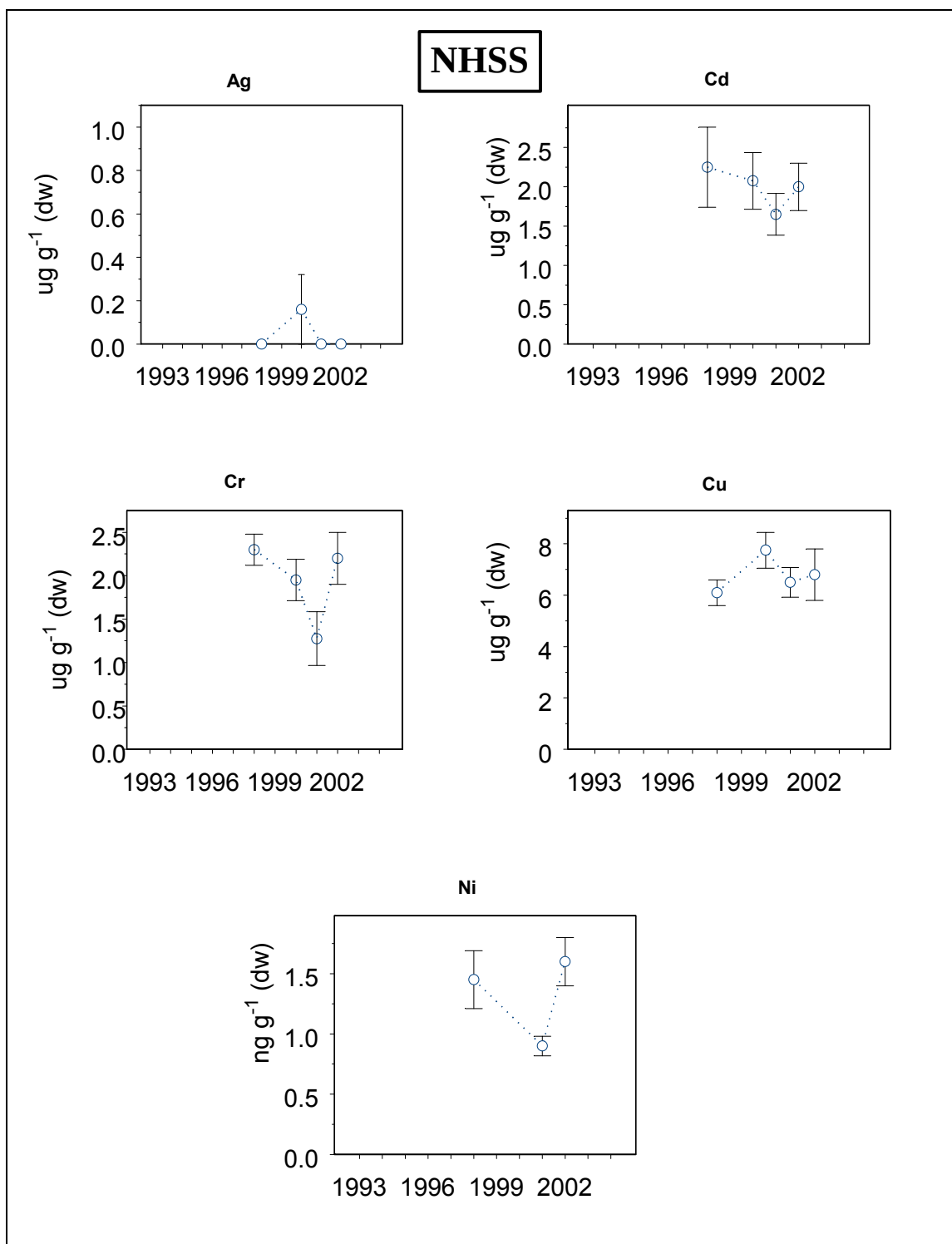


Figure 32A. Distribution of metals (Ag, Cd, Cr, Cu, Ni) concentrations (arithmetic mean $\pm$ SD, $\mu\text{g/g}$ dry weight) in mussels collected at the NHSS Gulfwatch site from selected years during the period from 1993-2004.

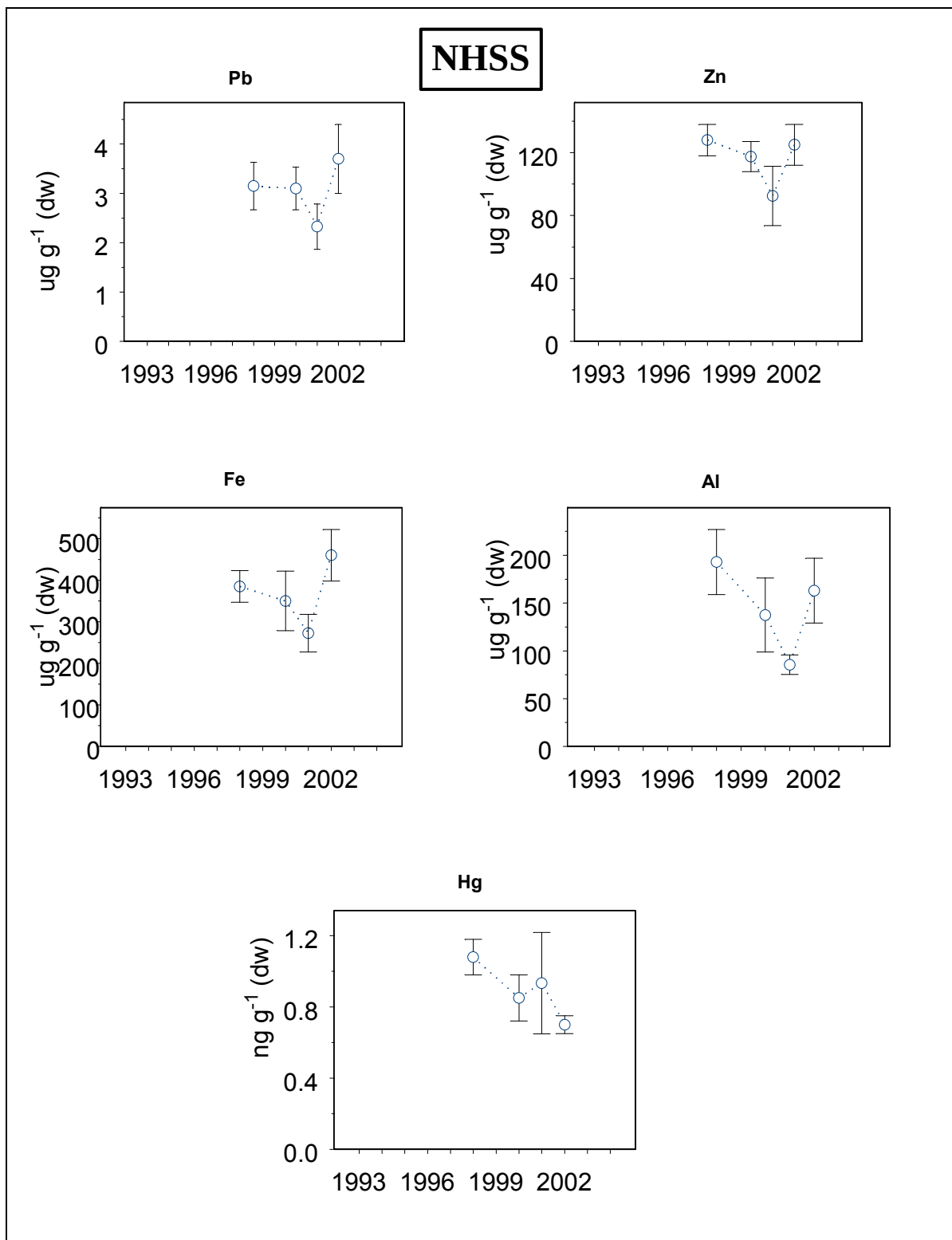


Figure 32B. Distribution of metals (Pb, Zn, Fe, Al, and Hg) concentrations (arithmetic mean $\pm$ SD, $\mu\text{g/g}$ dry weight) in mussels collected at the NHSS Gulfwatch site from selected years during the period from 1993-2004.

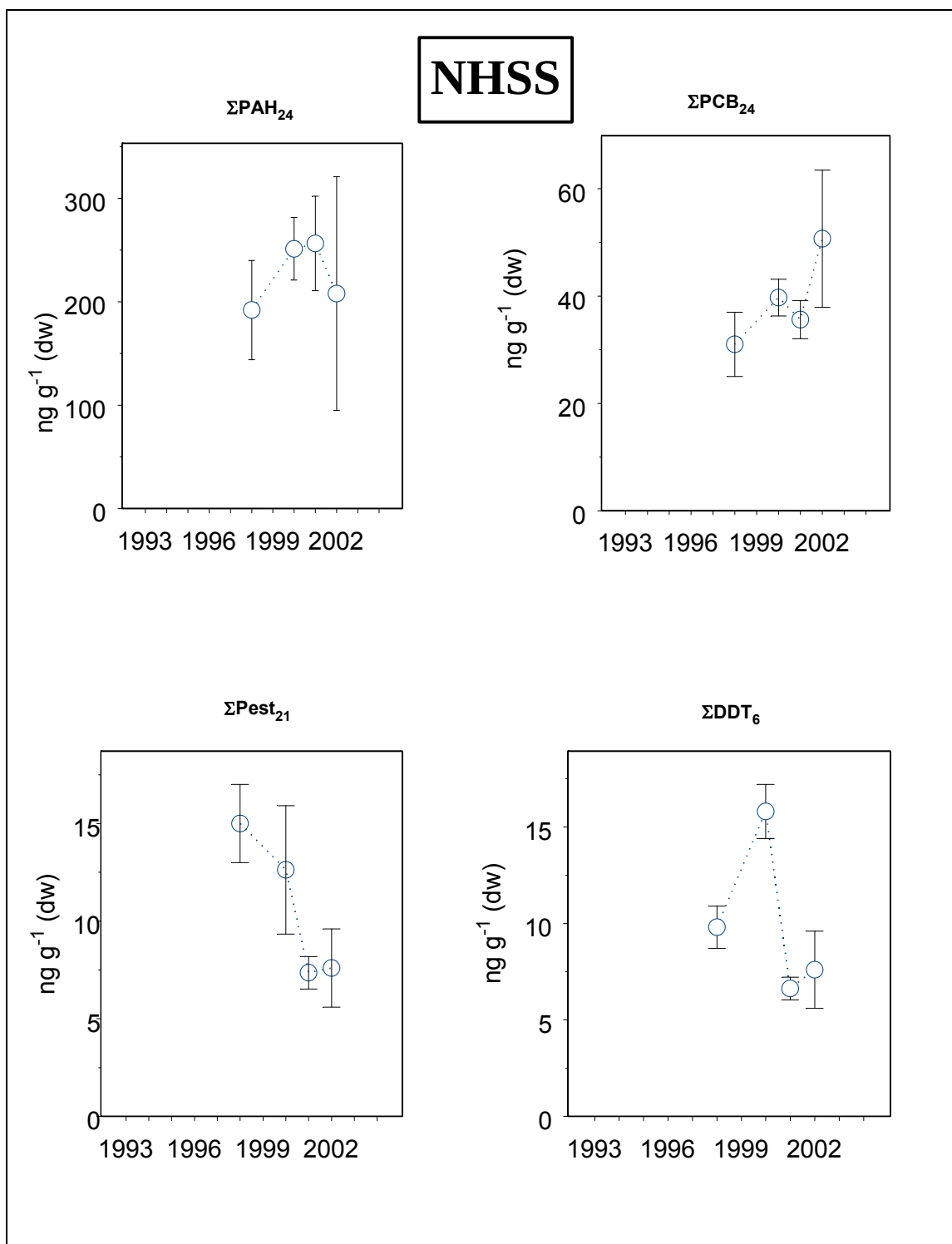


Figure 32C. Distribution of metals (Pb, Zn, Fe, Al, and Hg) concentrations (arithmetic mean $\pm$ SD, $\mu\text{g/g}$ dry weight) in mussels collected at the NHSS Gulfwatch site from selected years during the period from 1993-2004.

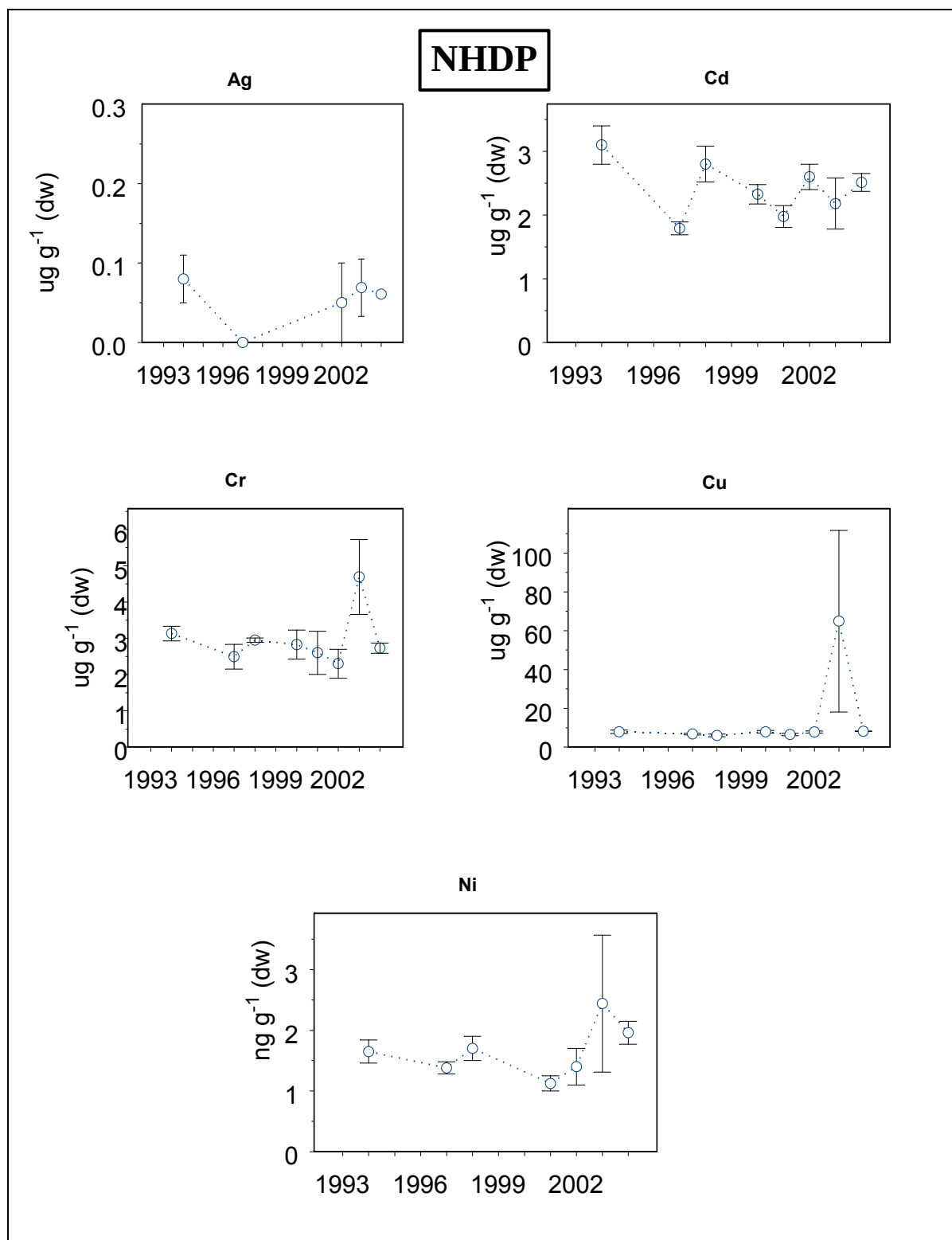


Figure 33A. Distribution of metals (Ag, Cd, Cr, Cu, Ni) concentrations (arithmetic mean $\pm$ SD, $\mu\text{g/g}$ dry weight) in mussels collected at the NHDP Gulfwatch site from selected years during the period from 1993-2004.

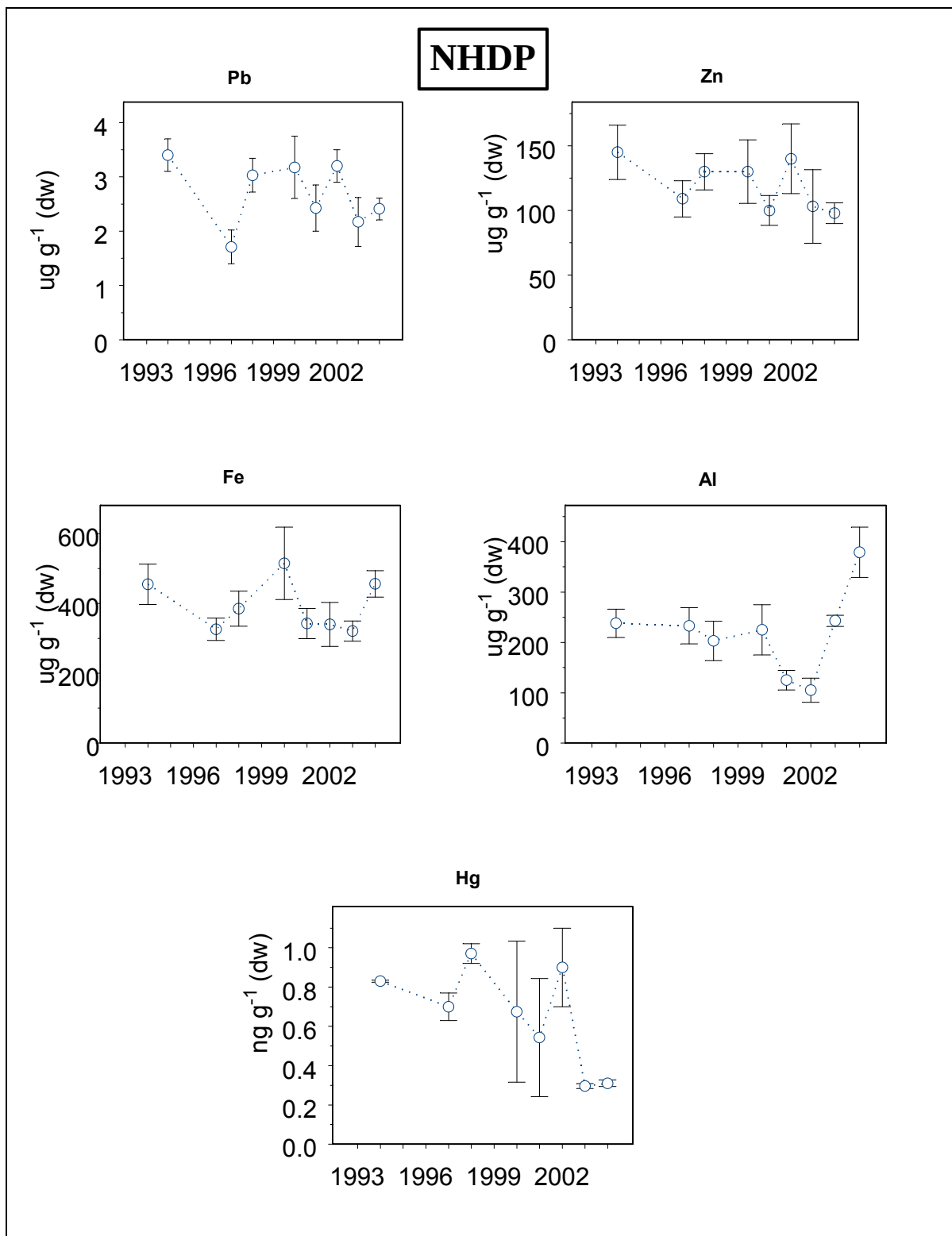


Figure 33B. Distribution of metals (Pb, Zn, Fe, Al, and Hg) concentrations (arithmetic mean $\pm$ SD, $\mu\text{g/g}$ dry weight) in mussels collected at the NHDP Gulfwatch site from selected years during the period from 1993-2004.

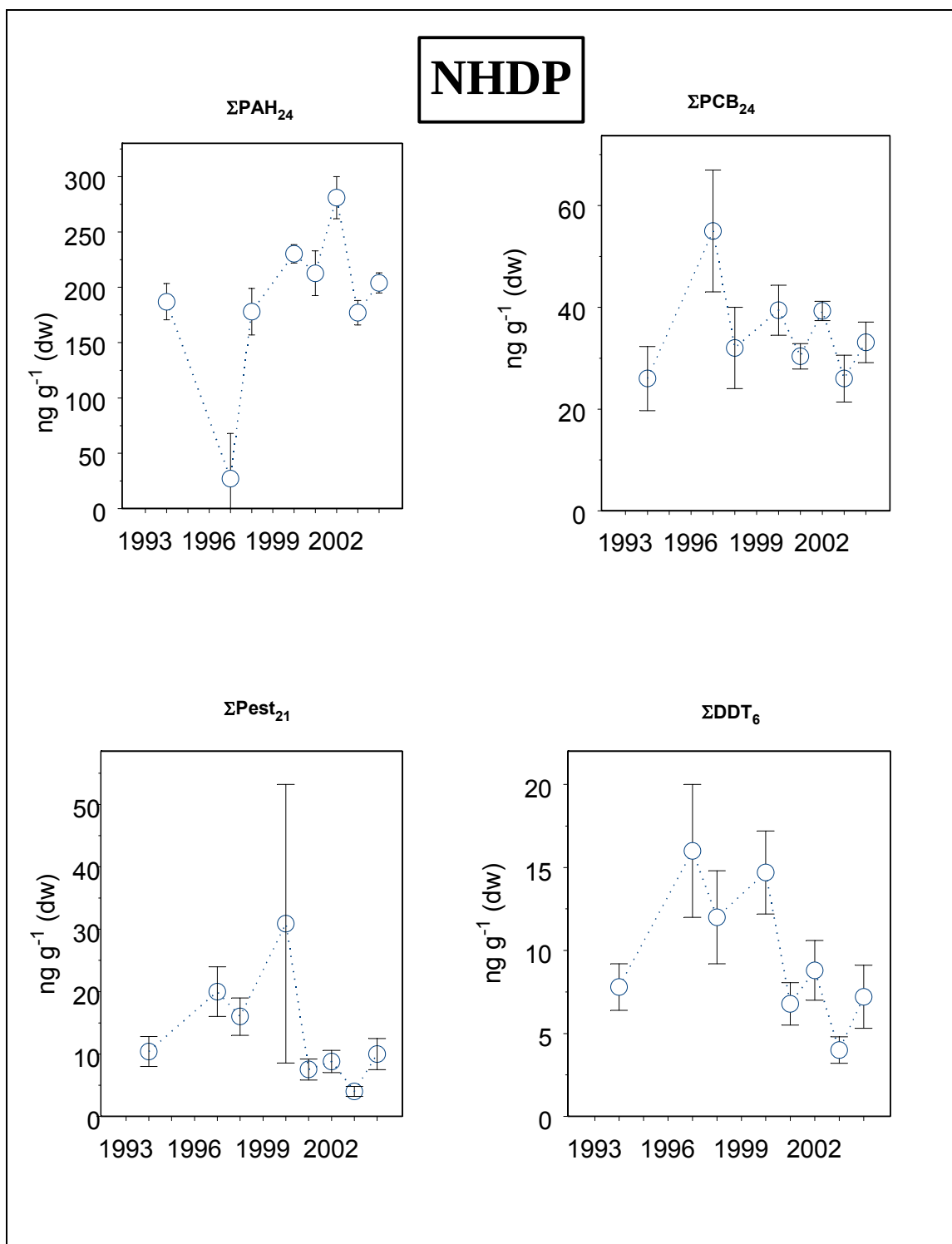


Figure 33C. Distribution of selected organic contaminant concentrations (arithmetic mean $\pm$ SD, ng/g dry weight) in mussels collected at the NHDP Gulfwatch site from selected years during the period from 1993-2004.

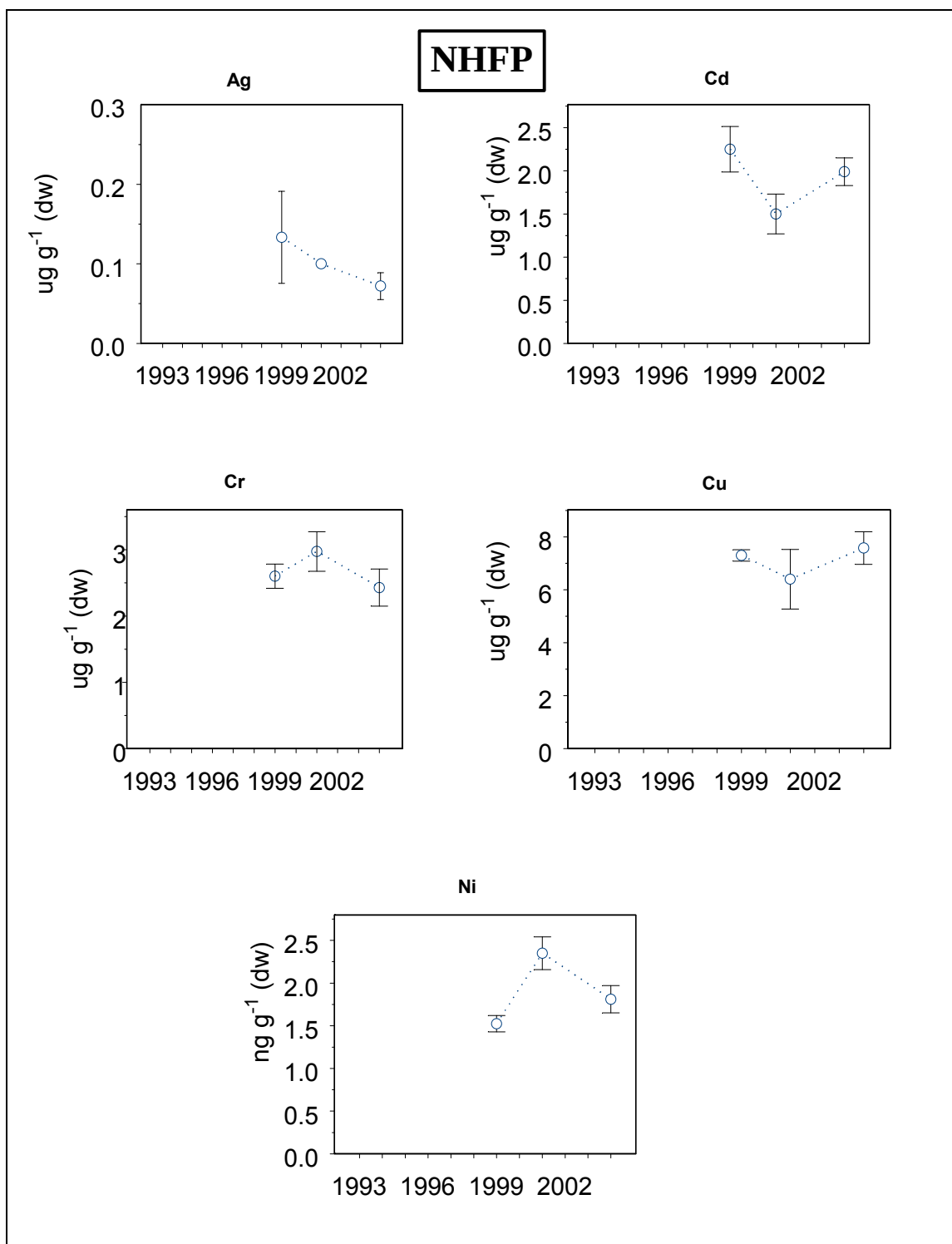


Figure 34A. Distribution of metals (Ag, Cd, Cr, Cu, Ni) concentrations (arithmetic mean $\pm$ SD, $\mu\text{g/g}$ dry weight) in mussels collected at the NHFP Gulfwatch site from selected years during the period from 1993-2004.

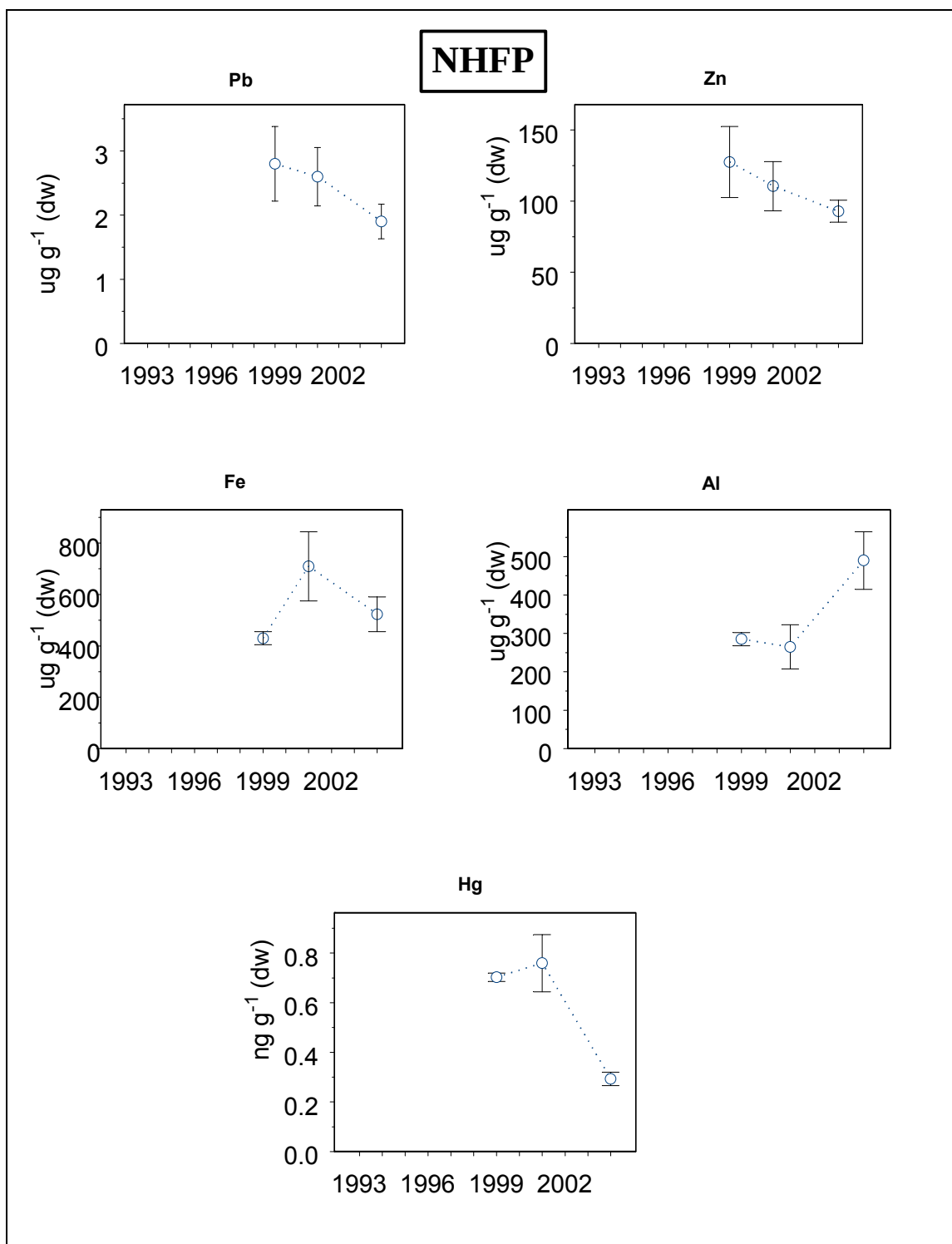


Figure 34B. Distribution of metals (Pb, Zn, Fe, Al, and Hg) concentrations (arithmetic mean $\pm$ SD, $\mu\text{g/g}$ dry weight) in mussels collected at the NHFP Gulfwatch site from selected years during the period from 1993-2004.

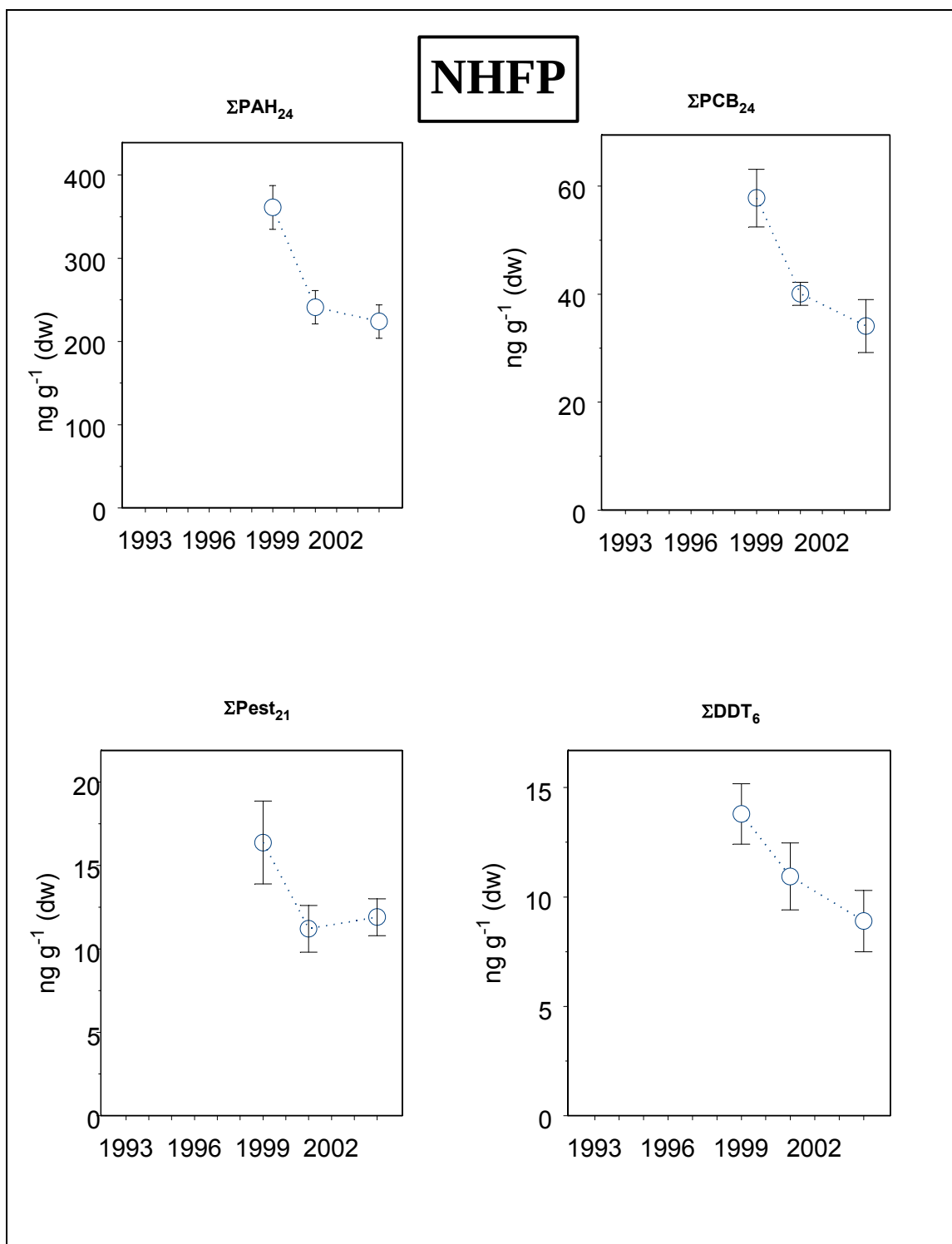


Figure 34C. Distribution of selected organic contaminant concentrations (arithmetic mean $\pm$ SD, ng/g dry weight) in mussels collected at the NHFP Gulfwatch site from selected years during the period from 1993-2004.

Temporal changes in contaminants in *Mytilus edulis* tissue from Maine Gulfwatch (Rotational and Occasional) Stations; 1993 – 2004.

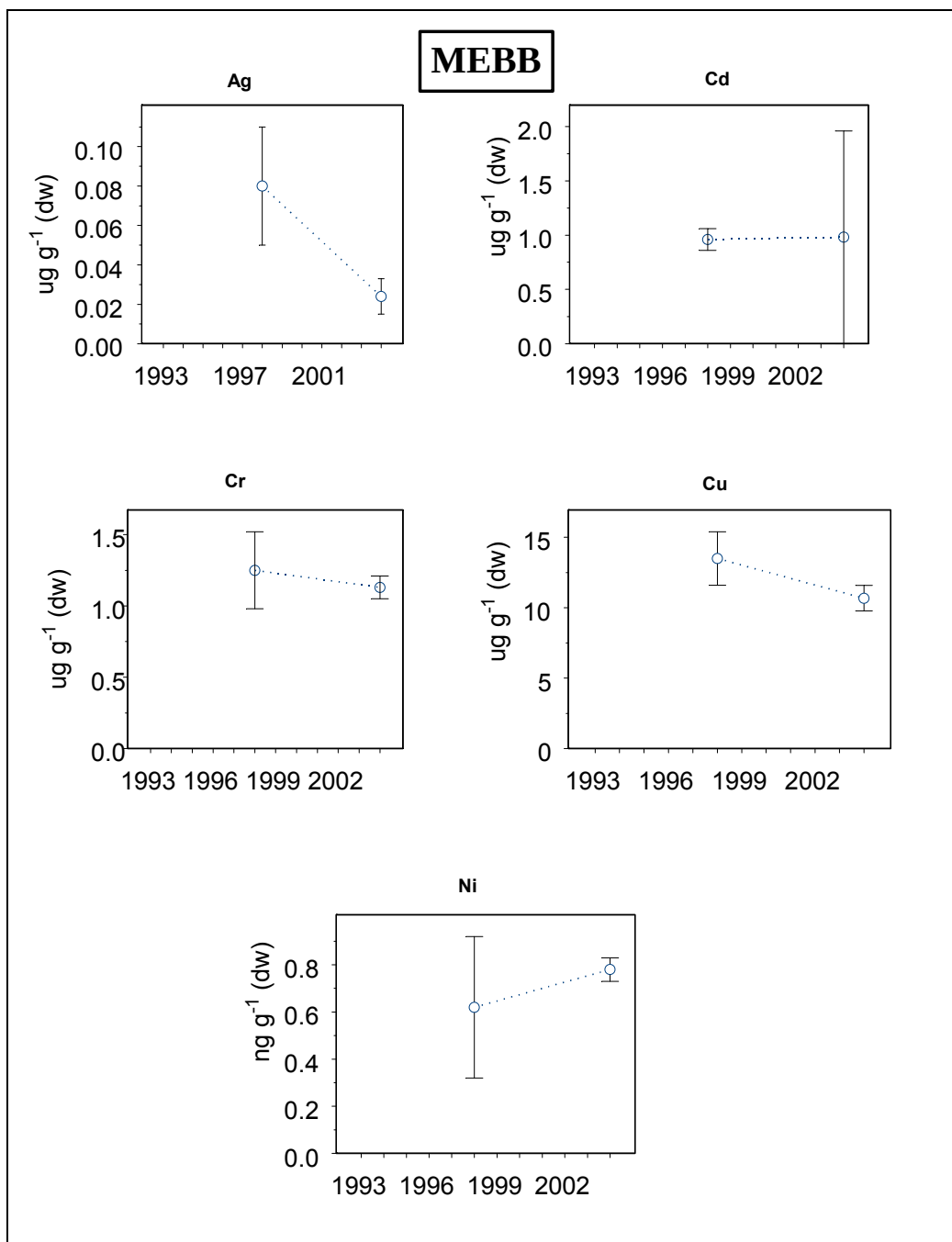


Figure 35A. Distribution of metals (Ag, Cd, Cr, Cu, Ni) concentrations (arithmetic mean $\pm$ SD, $\mu\text{g/g}$ dry weight) in mussels collected at the MEBB Gulfwatch site from selected years during the period from 1993-2004.

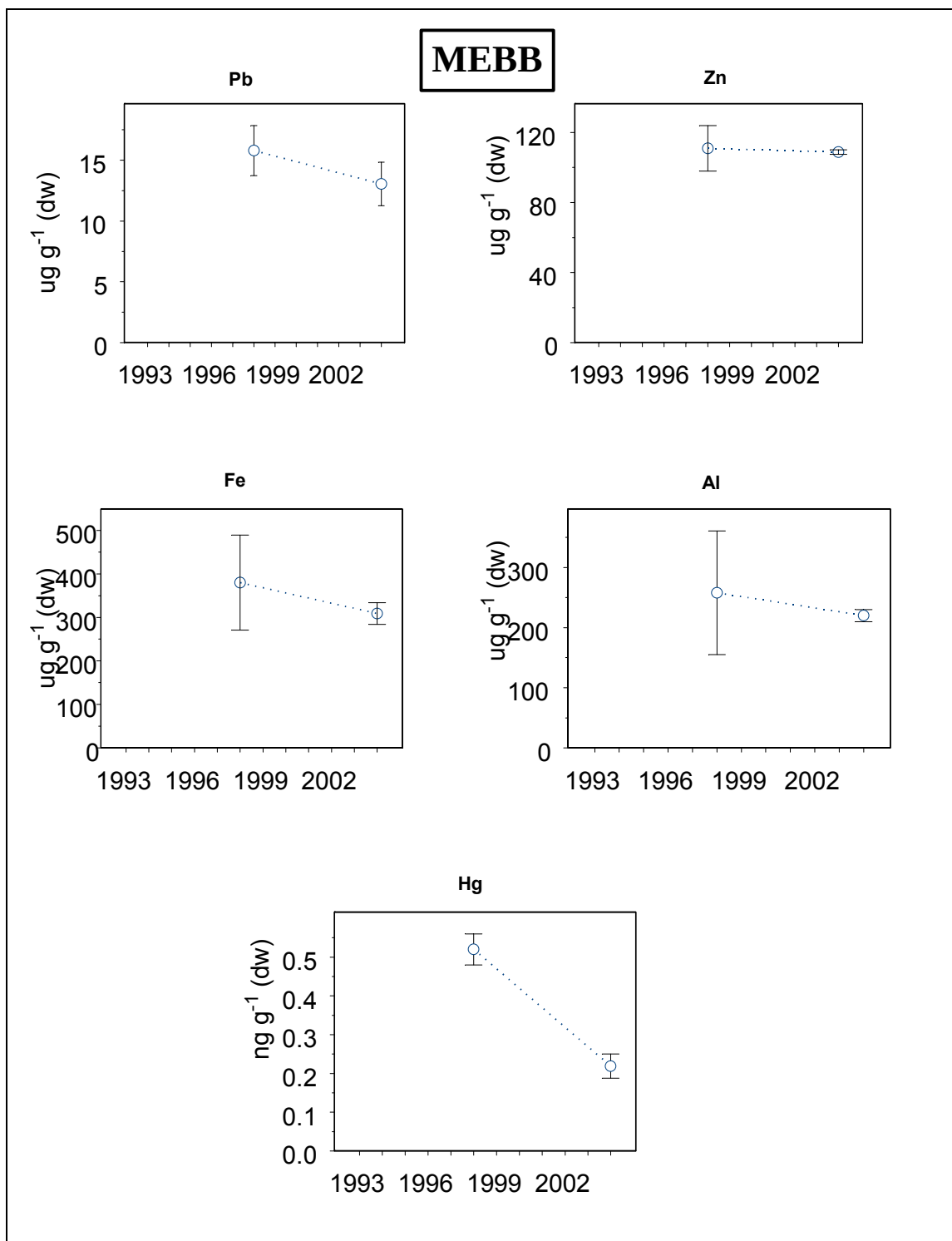


Figure 35B. Distribution of metals (Pb, Zn, Fe, Al, and Hg) concentrations (arithmetic mean $\pm$ SD, $\mu\text{g/g}$ dry weight) in mussels collected at the MEBB Gulfwatch site from selected years during the period from 1993-2004.

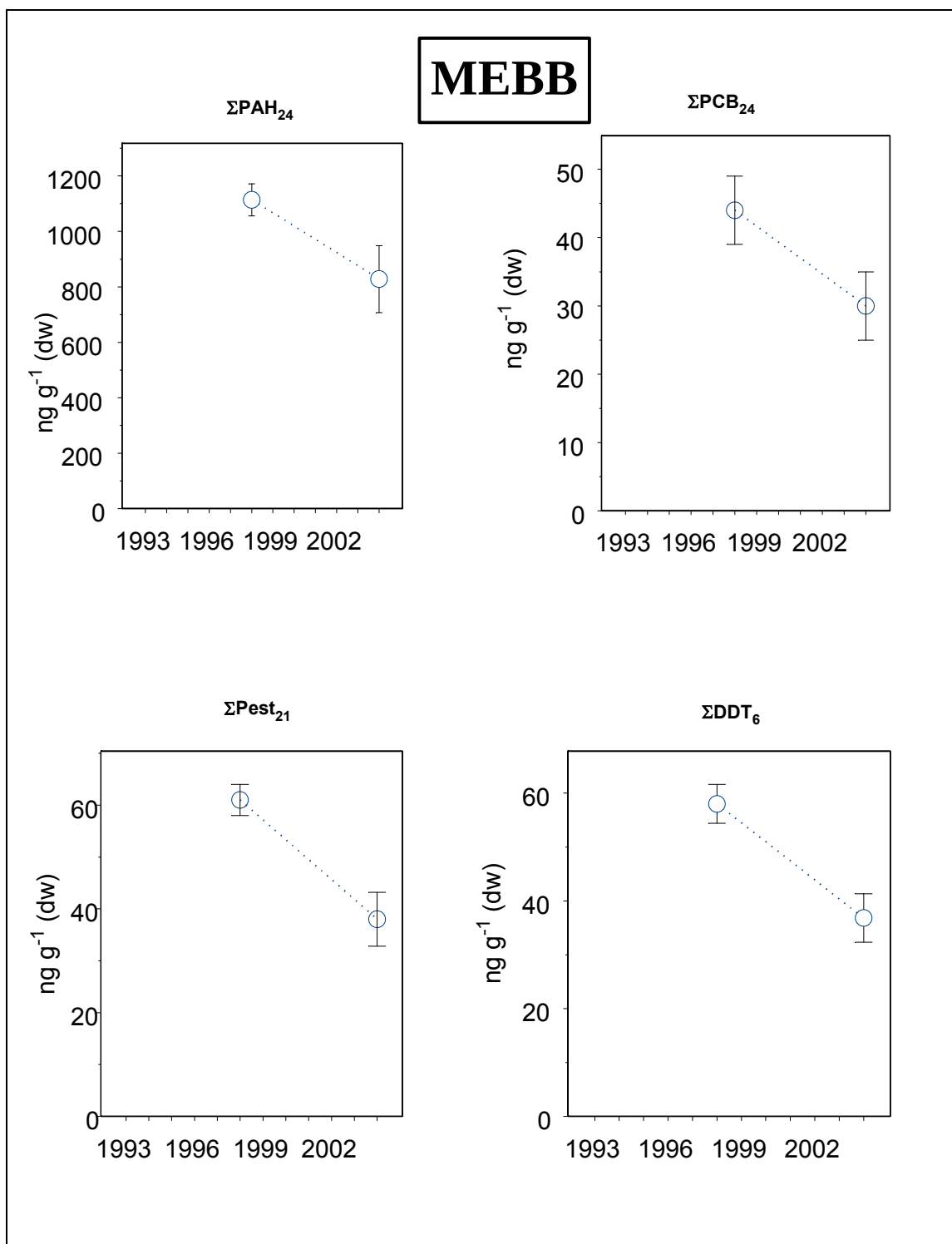


Figure 35C. Distribution of selected organic contaminant concentrations (arithmetic mean $\pm$ SD, ng/g dry weight) in mussels collected at the MEBB Gulfwatch site from selected years during the period from 1993-2004.

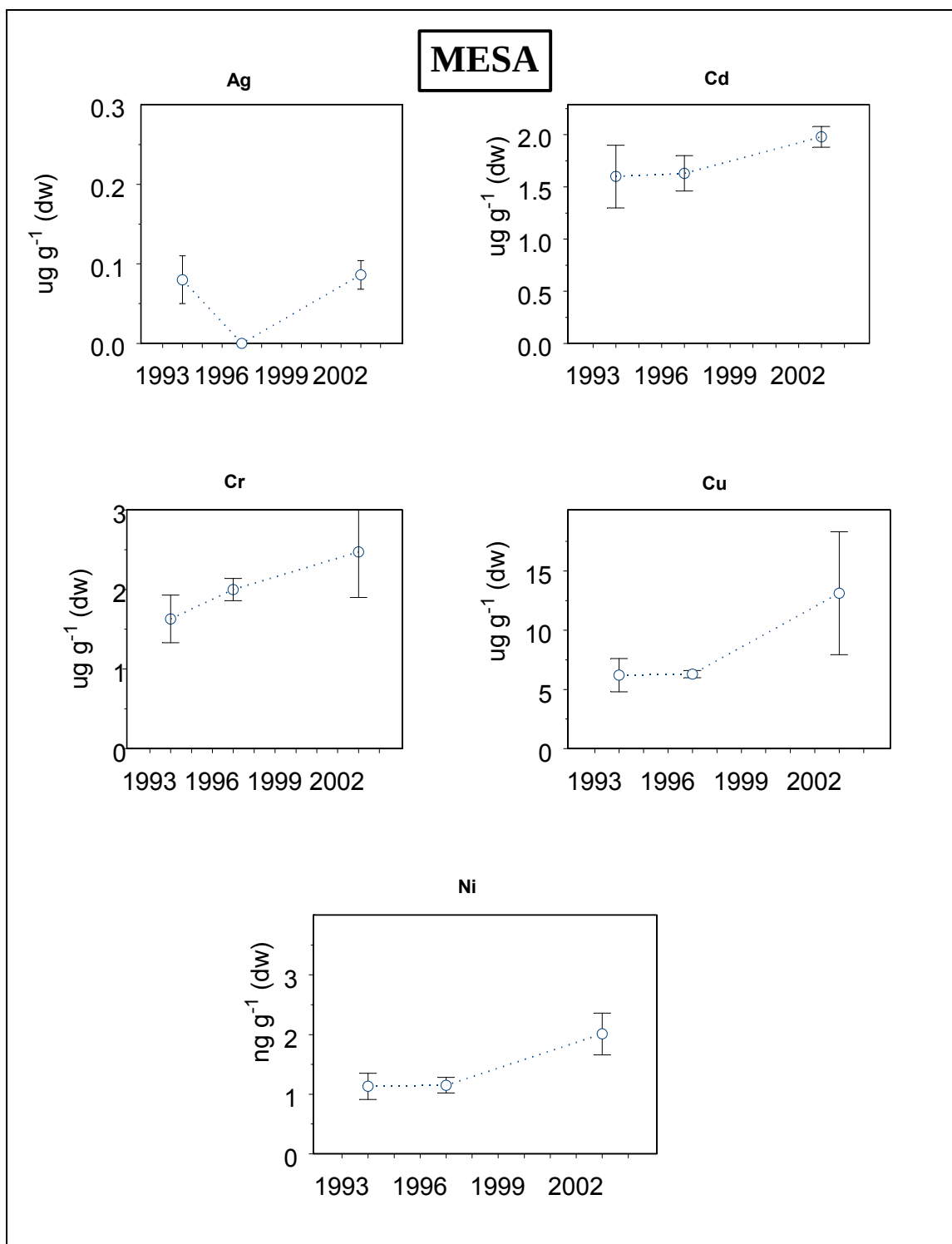


Figure 36A. Distribution of metals (Ag, Cd, Cr, Cu, Ni) concentrations (arithmetic mean $\pm$ SD, $\mu\text{g/g}$ dry weight) in mussels collected at the MESA Gulfwatch site from selected years during the period from 1993-2004.

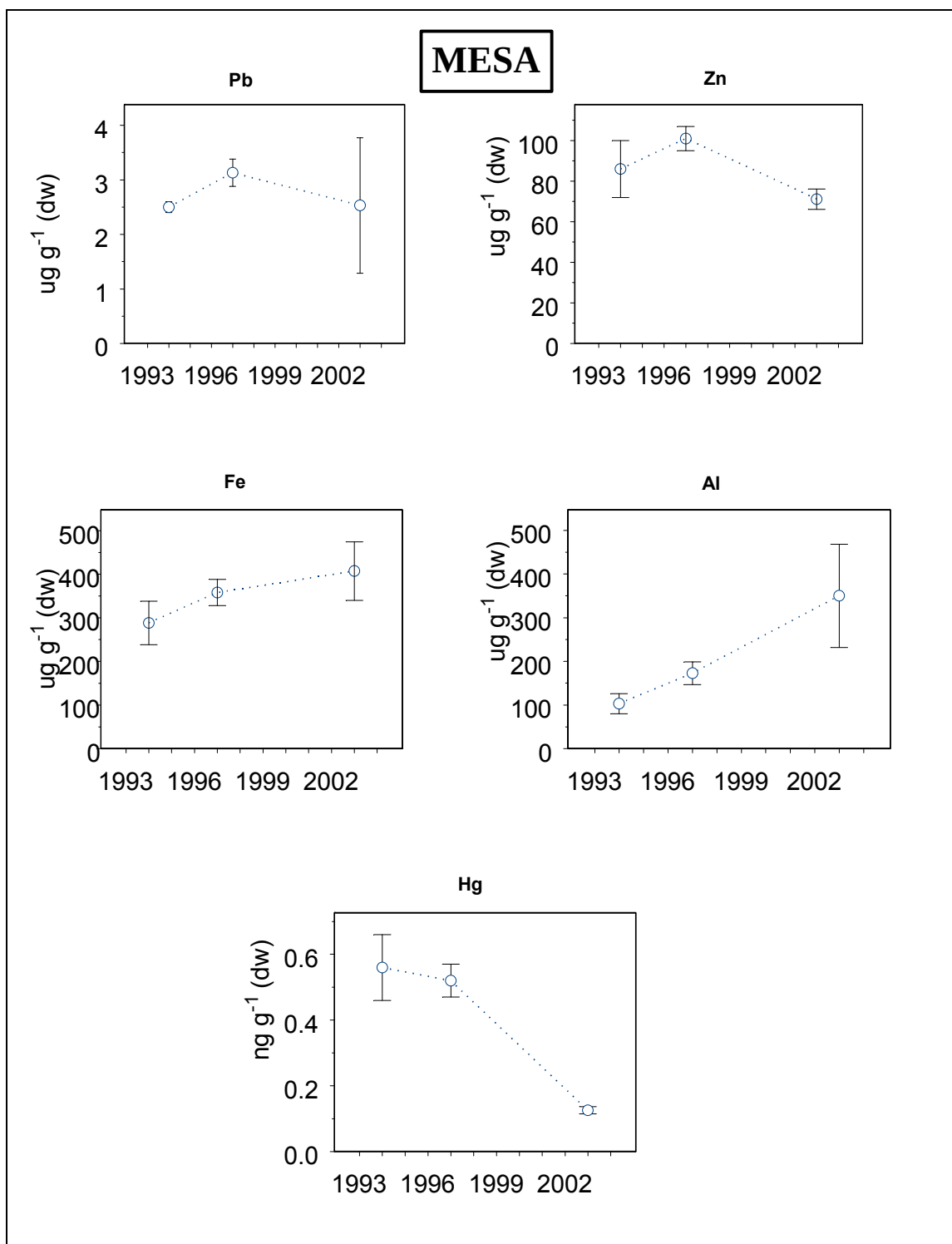


Figure 36B. Distribution of metals (Pb, Zn, Fe, Al, and Hg) concentrations (arithmetic mean $\pm$ SD, $\mu\text{g/g}$ dry weight) in mussels collected at the MESA Gulfwatch site from selected years during the period from 1993-2004.

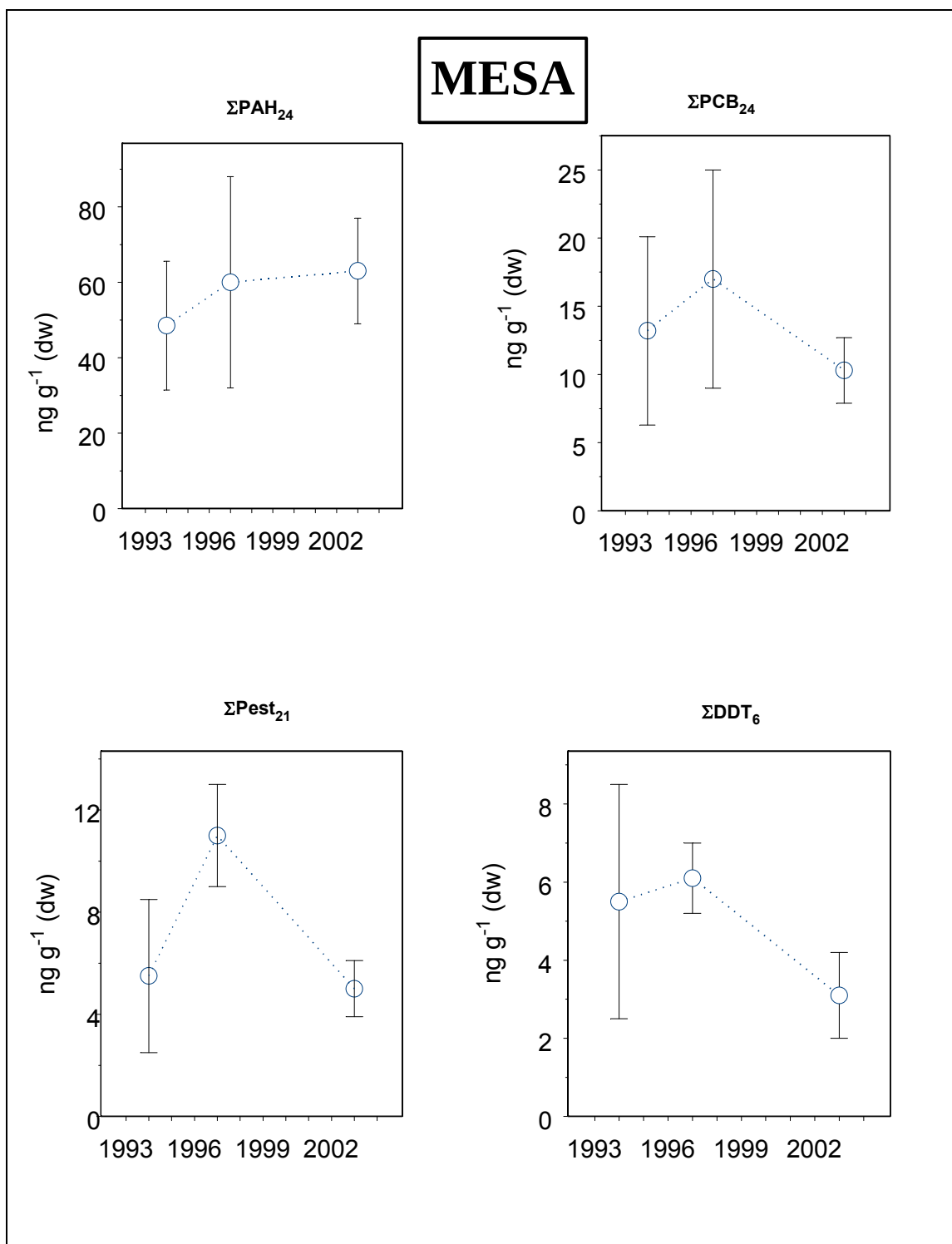


Figure 36C. Distribution of selected organic contaminant concentrations (arithmetic mean $\pm$ SD, ng/g dry weight) in mussels collected at the MESA Gulfwatch site from selected years during the period from 1993-2004.

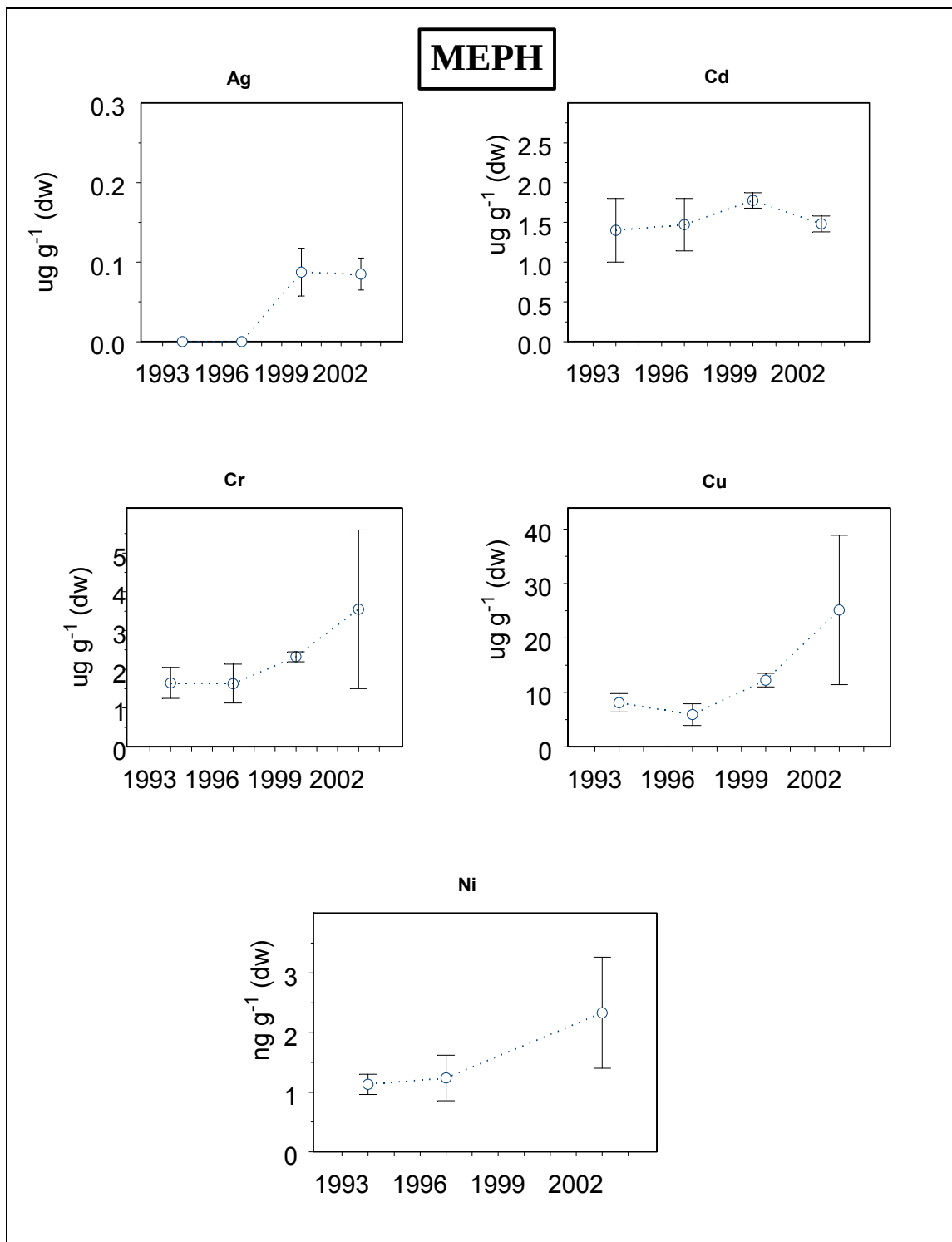


Figure 37A. Distribution of metals (Ag, Cd, Cr, Cu, Ni) concentrations (arithmetic mean $\pm$ SD, $\mu\text{g/g}$ dry weight) in mussels collected at the MEPH Gulfwatch site from selected years during the period from 1993-2004.

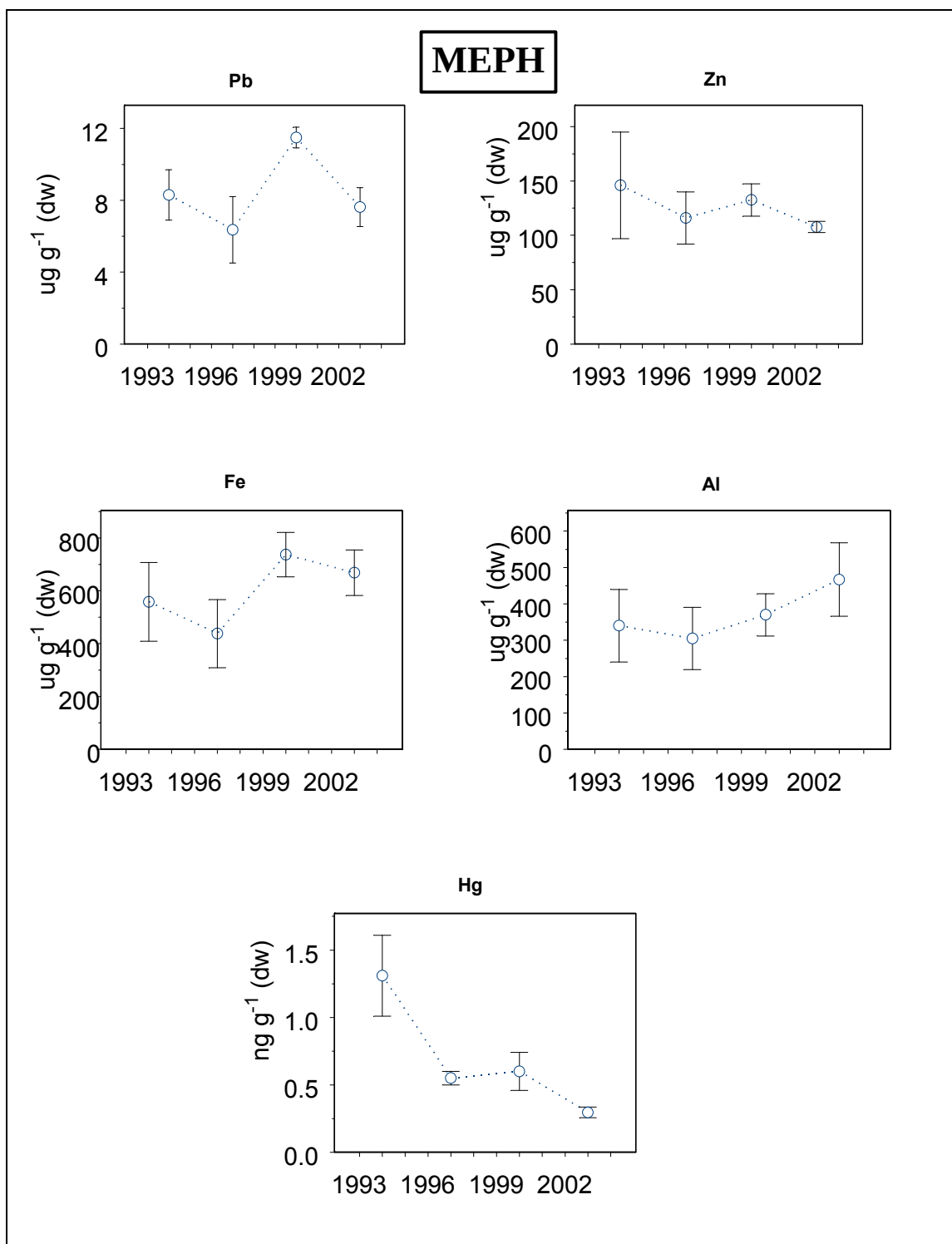


Figure 37B. Distribution of metals (Pb, Zn, Fe, Al, and Hg) concentrations (arithmetic mean $\pm$ SD, $\mu\text{g/g}$ dry weight) in mussels collected at the MEPH Gulfwatch site from selected years during the period from 1993-2004.

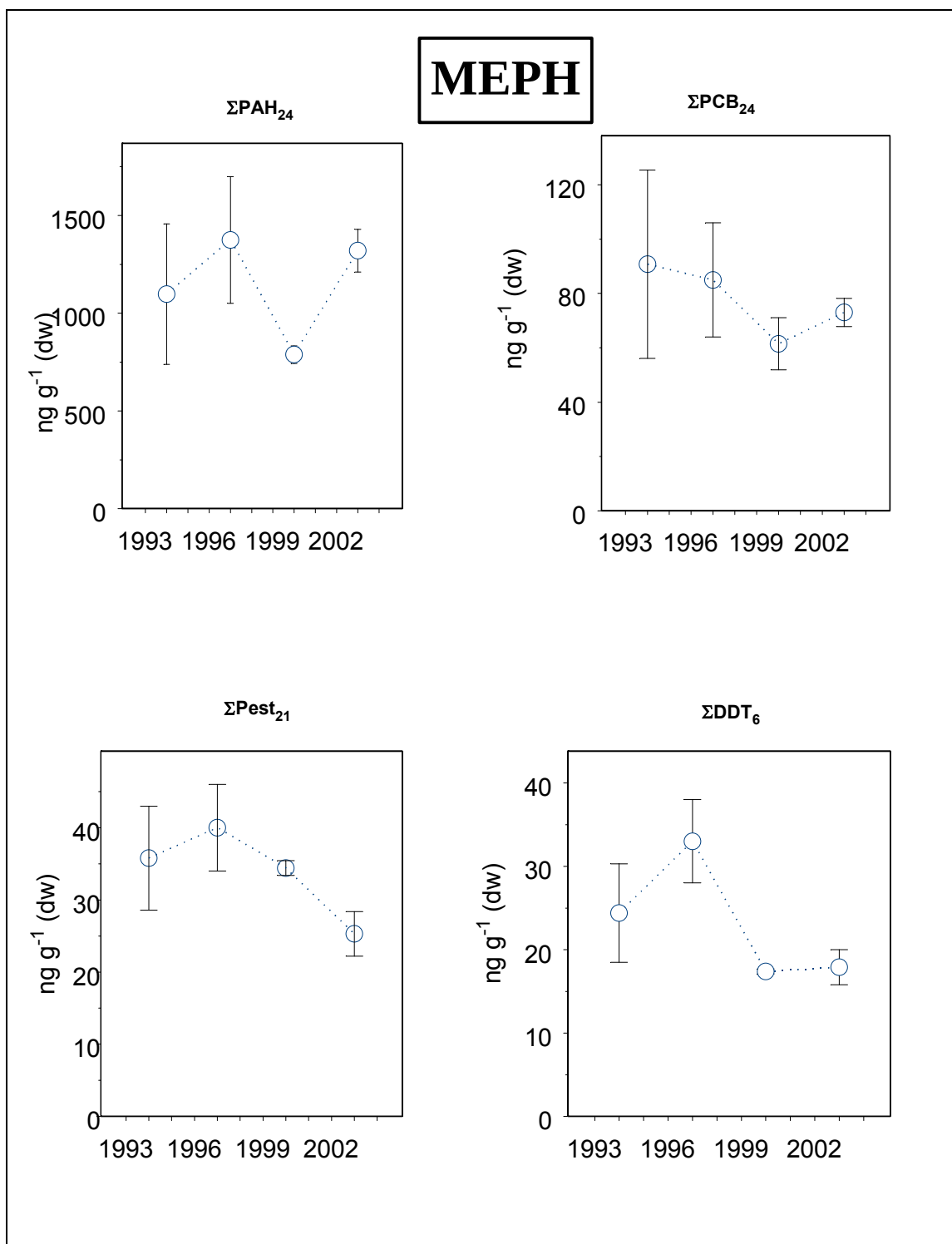


Figure 37C. Distribution of selected organic contaminant concentrations (arithmetic mean $\pm$ SD, ng/g dry weight) in mussels collected at the MEPH Gulfwatch site from selected years during the period from 1993-2004.

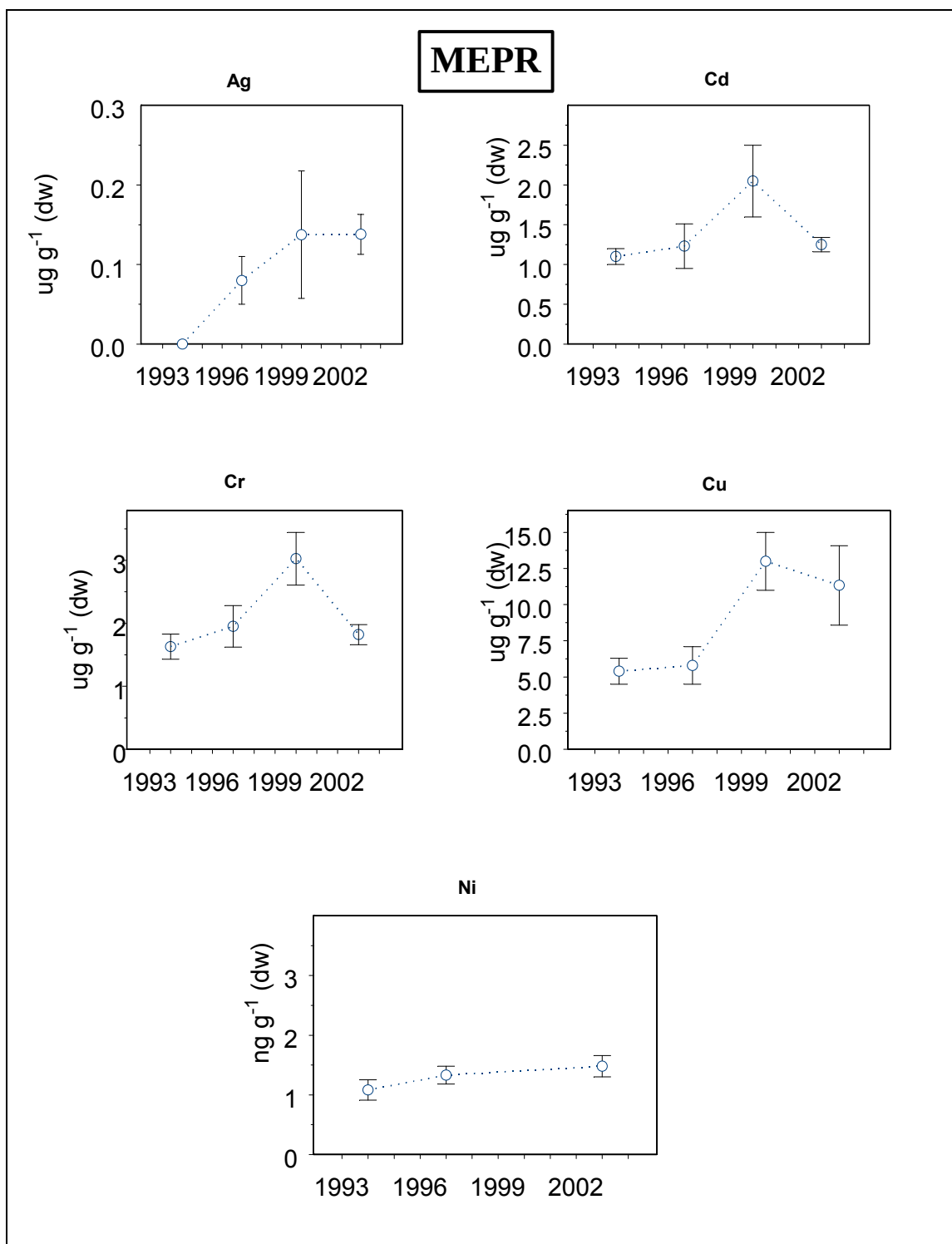


Figure 38A. Distribution of metals (Ag, Cd, Cr, Cu, Ni) concentrations (arithmetic mean $\pm$ SD, $\mu\text{g/g}$ dry weight) in mussels collected at the MEPR Gulfwatch site from selected years during the period from 1993-2004.

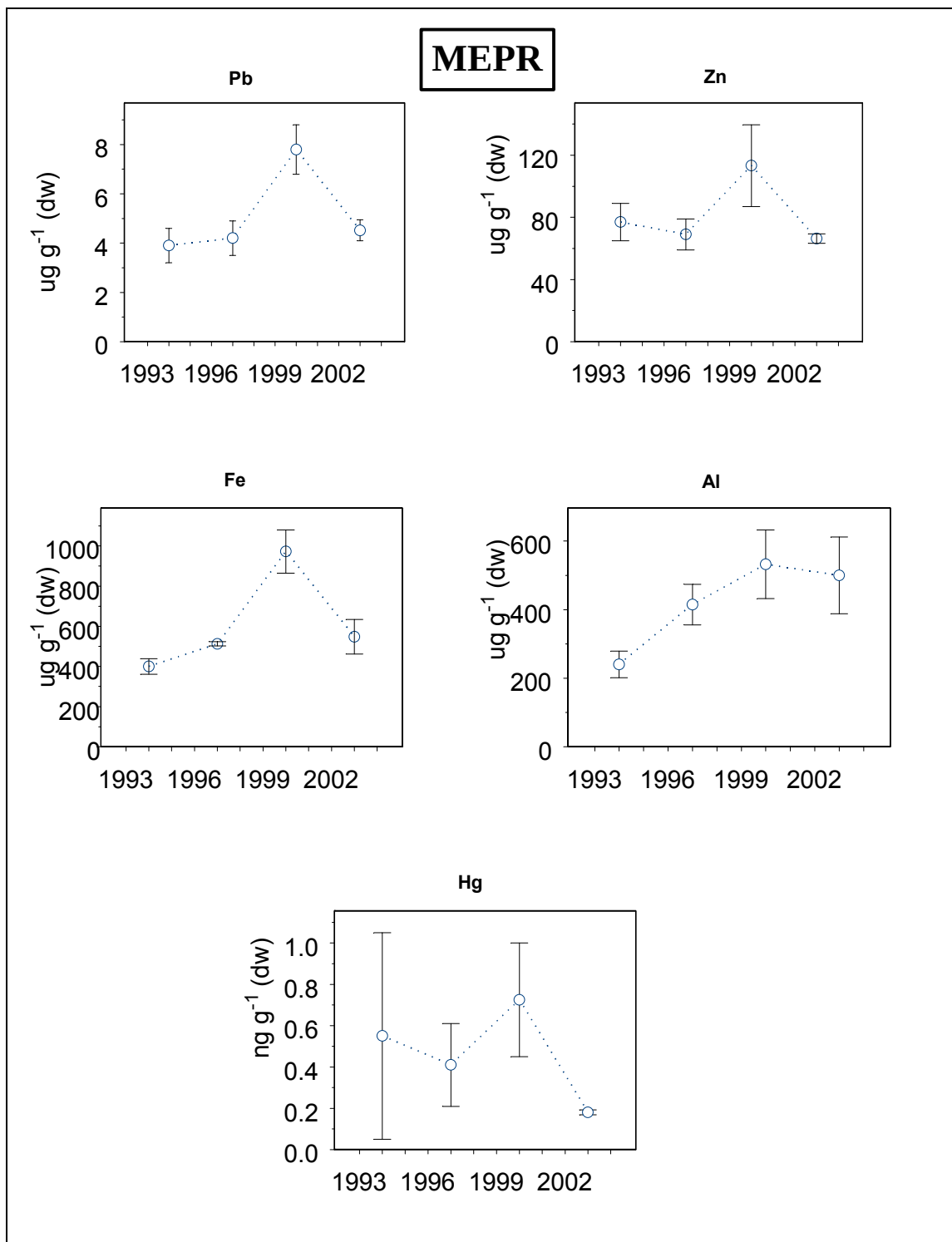


Figure 38B. Distribution of metals (Pb, Zn, Fe, Al, and Hg) concentrations (arithmetic mean $\pm$ SD, $\mu\text{g/g}$ dry weight) in mussels collected at the MEPR Gulfwatch site from selected years during the period from 1993-2004.

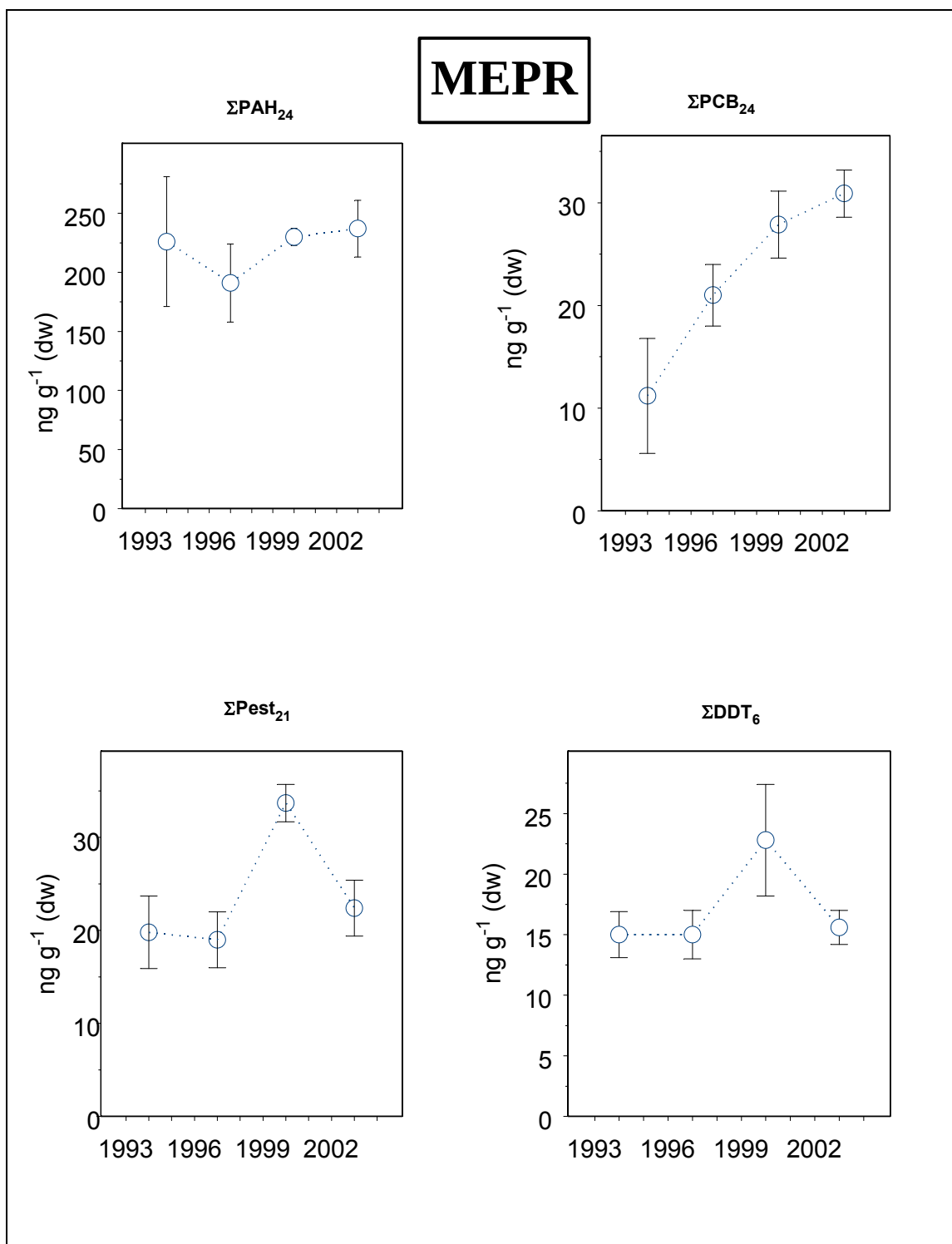


Figure 38C. Distribution of selected organic contaminant concentrations (arithmetic mean $\pm$ SD, ng/g dry weight) in mussels collected at the MEPR Gulfwatch site from selected years during the period from 1993-2004.

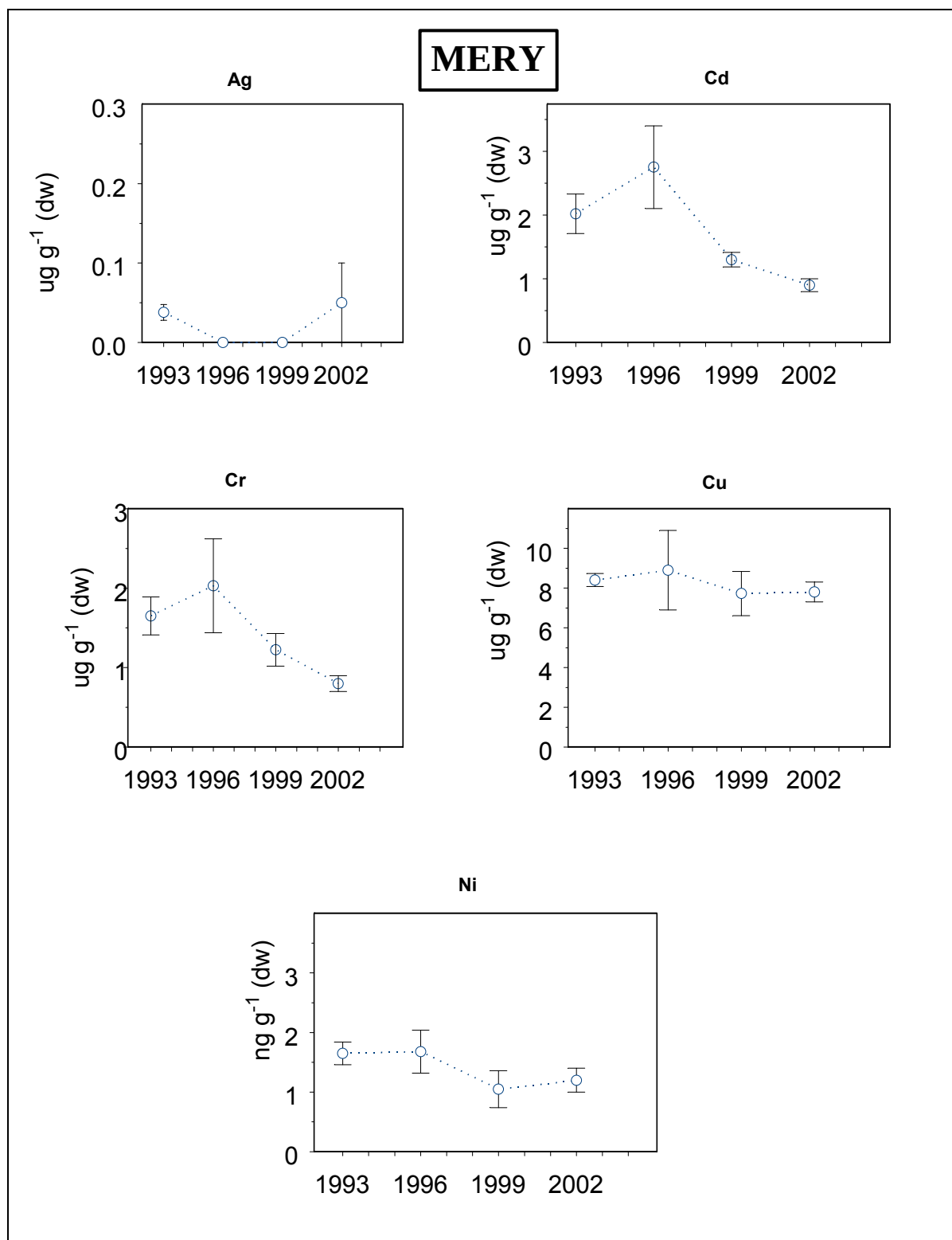


Figure 39A. Distribution of metals (Ag, Cd, Cr, Cu, Ni) concentrations (arithmetic mean $\pm$ SD, $\mu\text{g/g}$ dry weight) in mussels collected at the MERY Gulfwatch site from selected years during the period from 1993-2004.

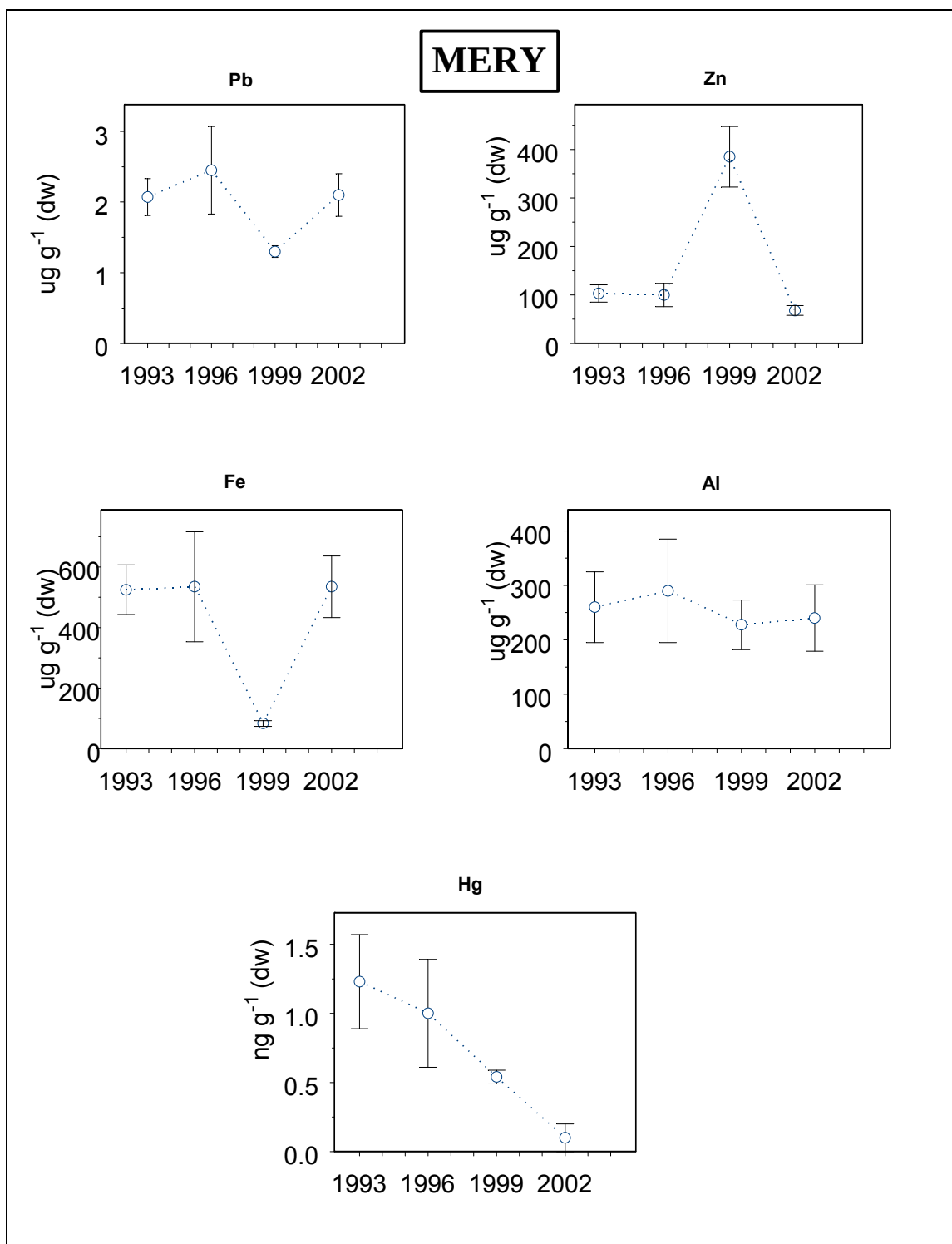


Figure 39B. Distribution of metals (Pb, Zn, Fe, Al, and Hg) concentrations (arithmetic mean $\pm$ SD, $\mu\text{g/g}$ dry weight) in mussels collected at the MERY Gulfwatch site from selected years during the period from 1993-2004.

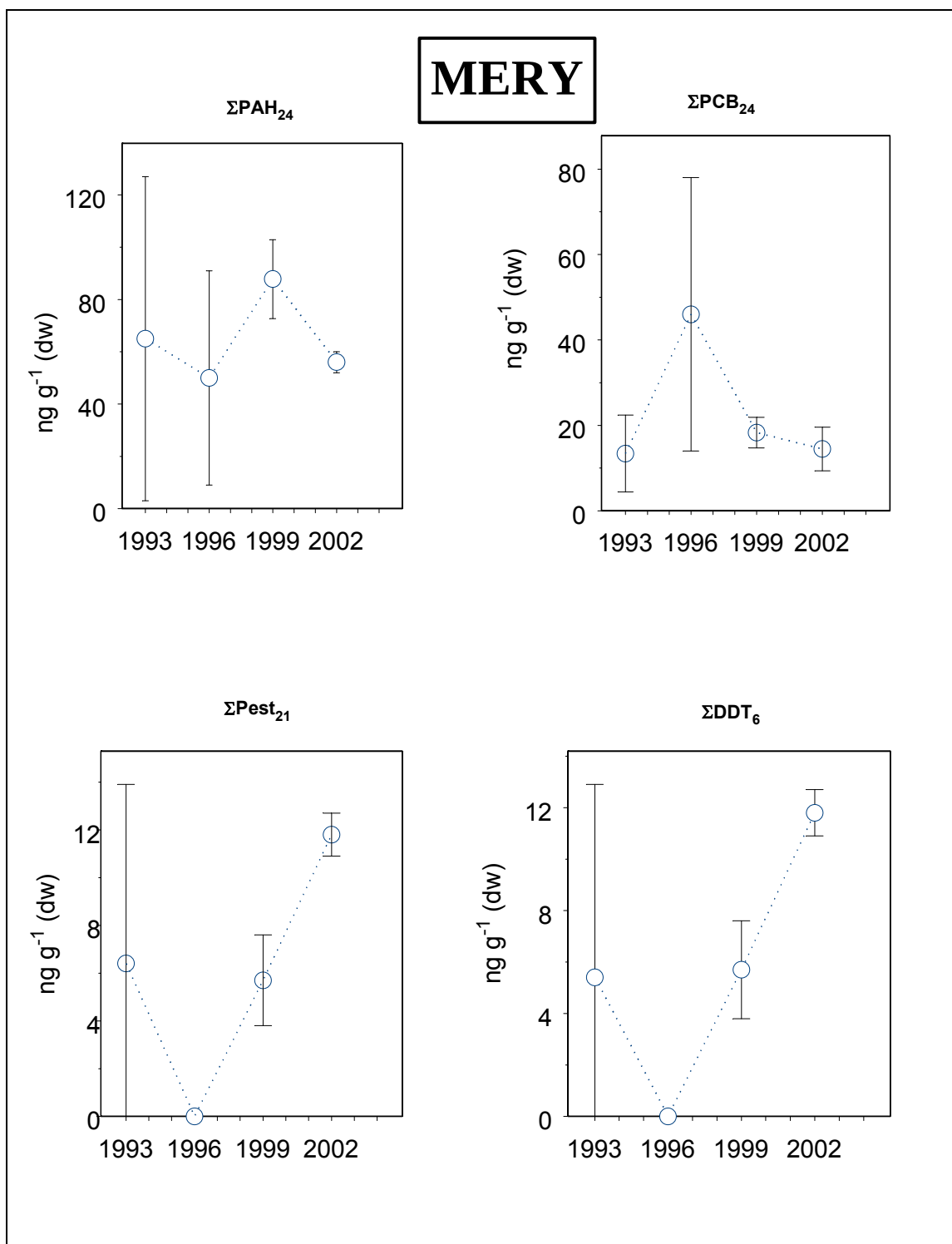


Figure 39C. Distribution of selected organic contaminant concentrations (arithmetic mean $\pm$ SD, ng/g dry weight) in mussels collected at the MERY Gulfwatch site from selected years during the period from 1993-2004.

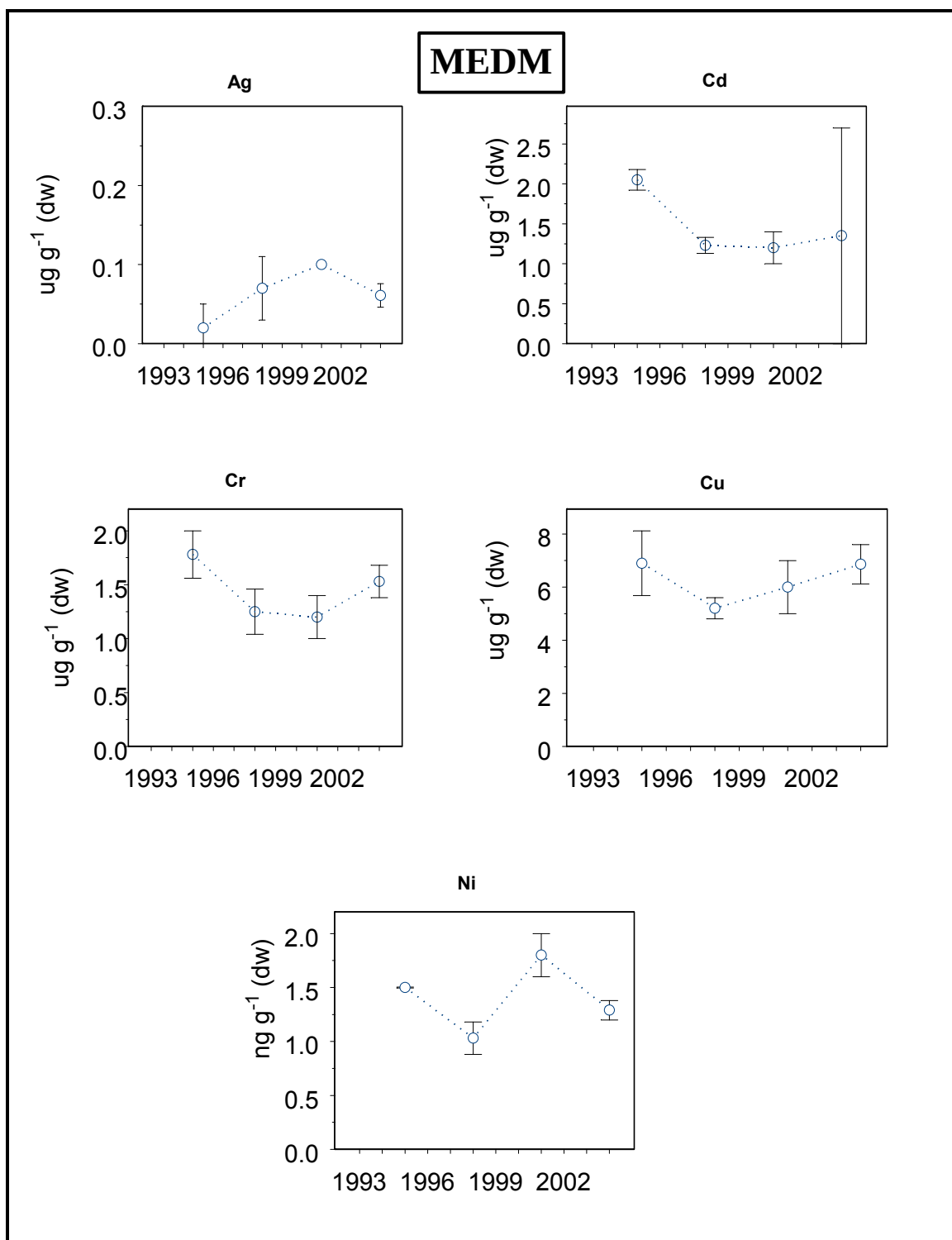


Figure 40A. Distribution of metals (Ag, Cd, Cr, Cu, Ni) concentrations (arithmetic mean $\pm$ SD, $\mu\text{g/g}$ dry weight) in mussels collected at the MEDM Gulfwatch site from selected years during the period from 1993-2004.

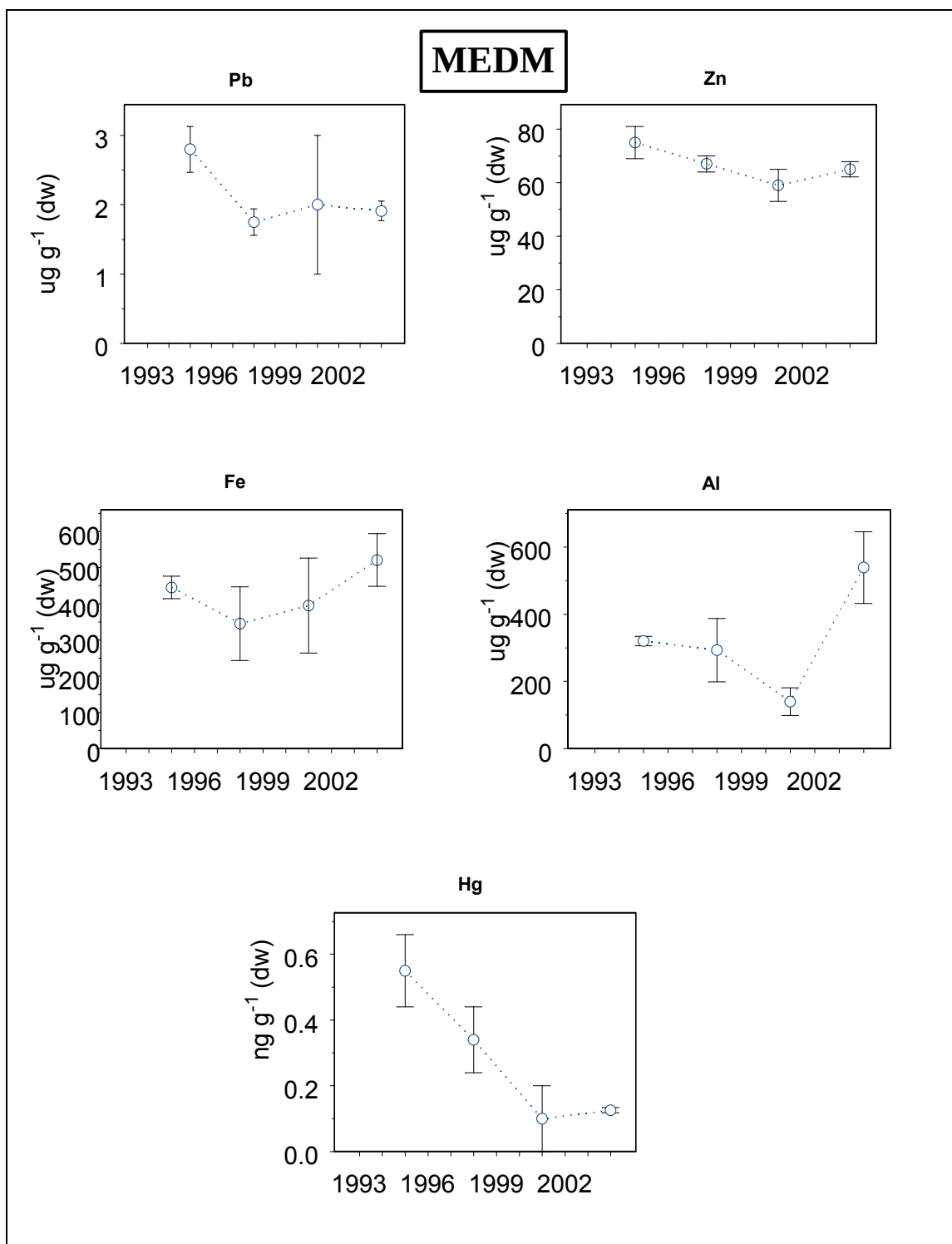


Figure 40B. Distribution of metals (Pb, Zn, Fe, Al, and Hg) concentrations (arithmetic mean $\pm$ SD, $\mu\text{g/g}$ dry weight) in mussels collected at the MEDM Gulfwatch site from selected years during the period from 1993-2004.

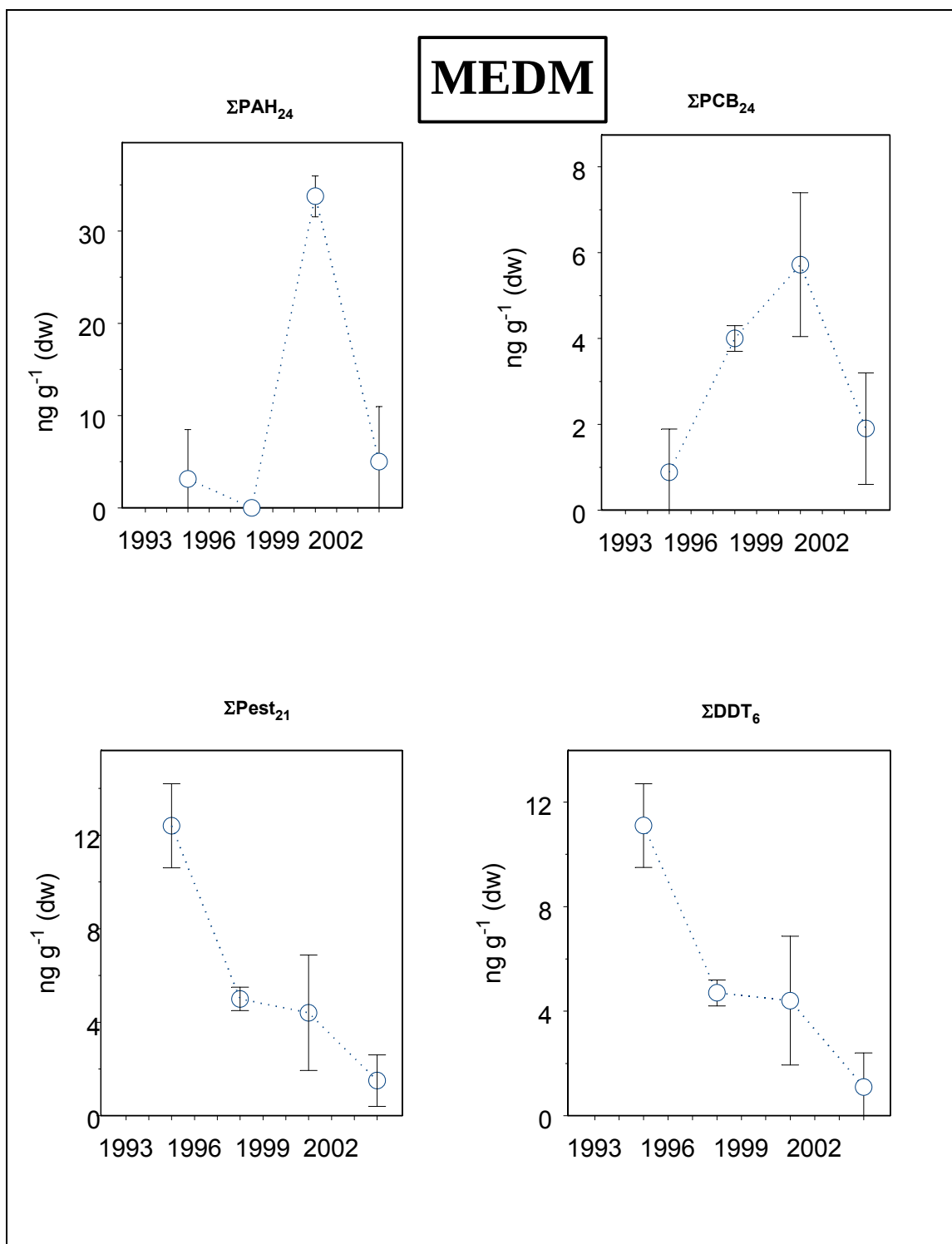


Figure 40C. Distribution of selected organic contaminant concentrations (arithmetic mean $\pm$ SD, ng/g dry weight) in mussels collected at the MEDM Gulfwatch site from selected years during the period from 1993-2004.

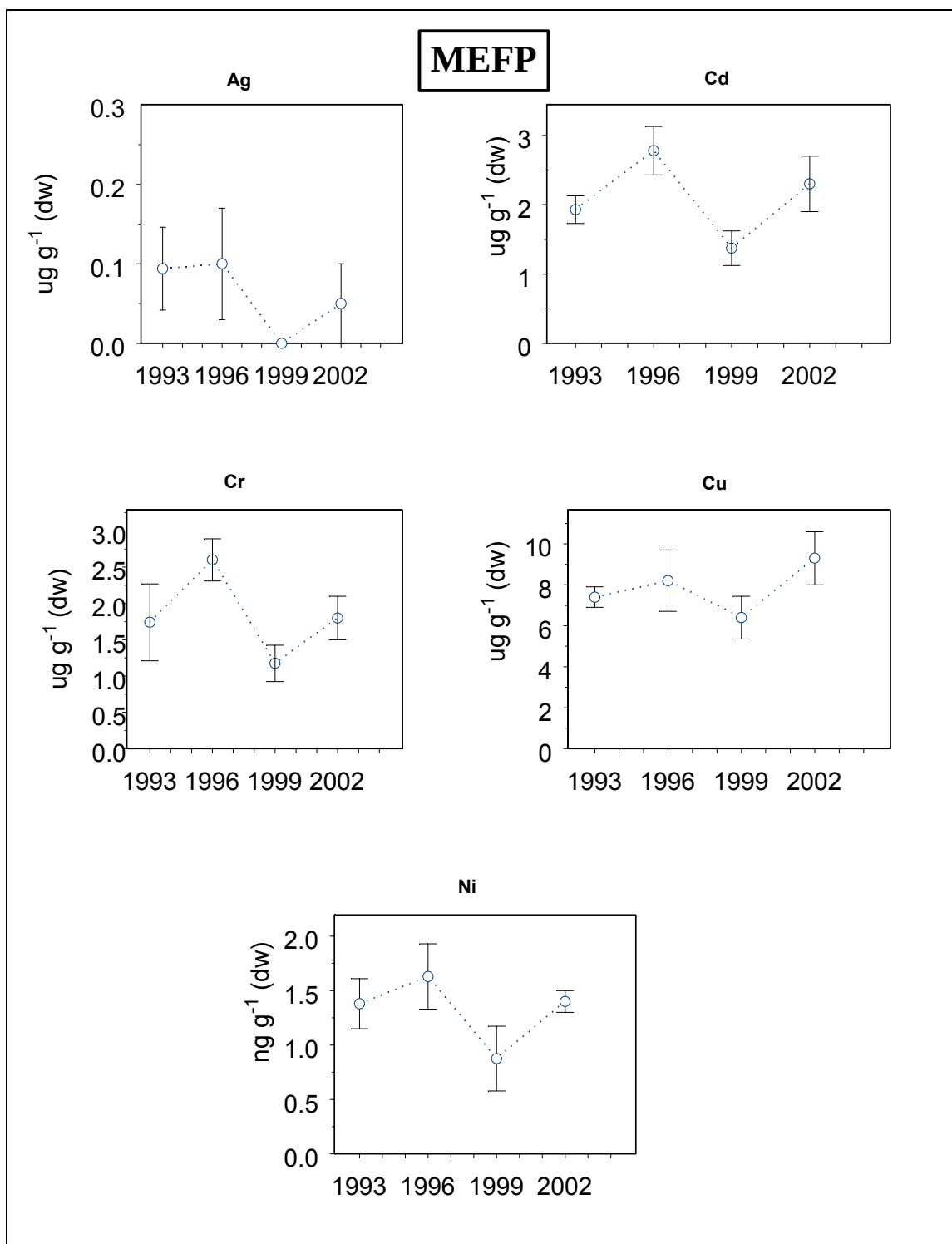


Figure 41A. Distribution of metals (Ag, Cd, Cr, Cu, Ni) concentrations (arithmetic mean $\pm$ SD, $\mu\text{g/g}$ dry weight) in mussels collected at the MEFP Gulfwatch site from selected years during the period from 1993-2004.

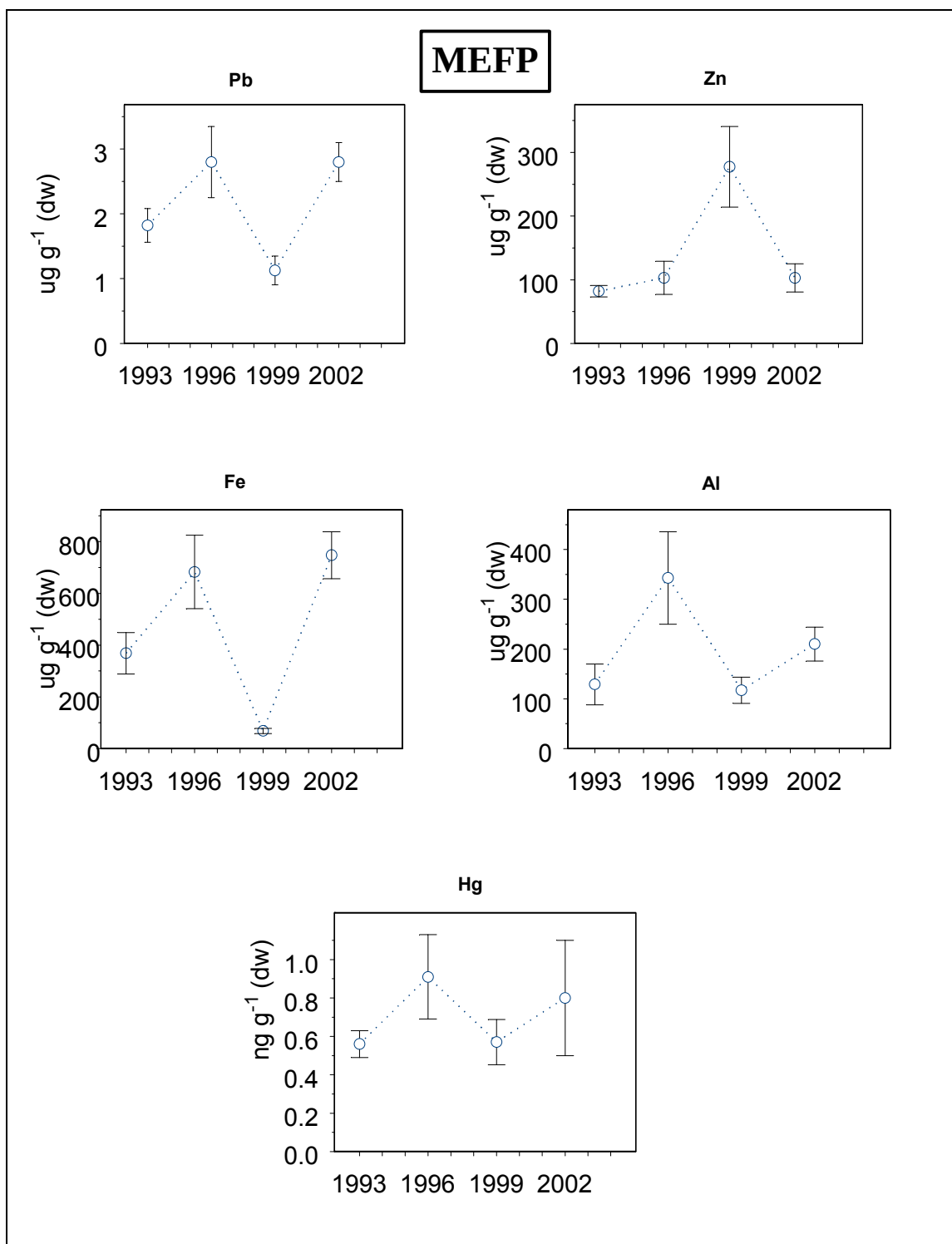


Figure 41B. Distribution of metals (Pb, Zn, Fe, Al, and Hg) concentrations (arithmetic mean $\pm$ SD, $\mu\text{g/g}$ dry weight) in mussels collected at the MEFP Gulfwatch site from selected years during the period from 1993-2004.

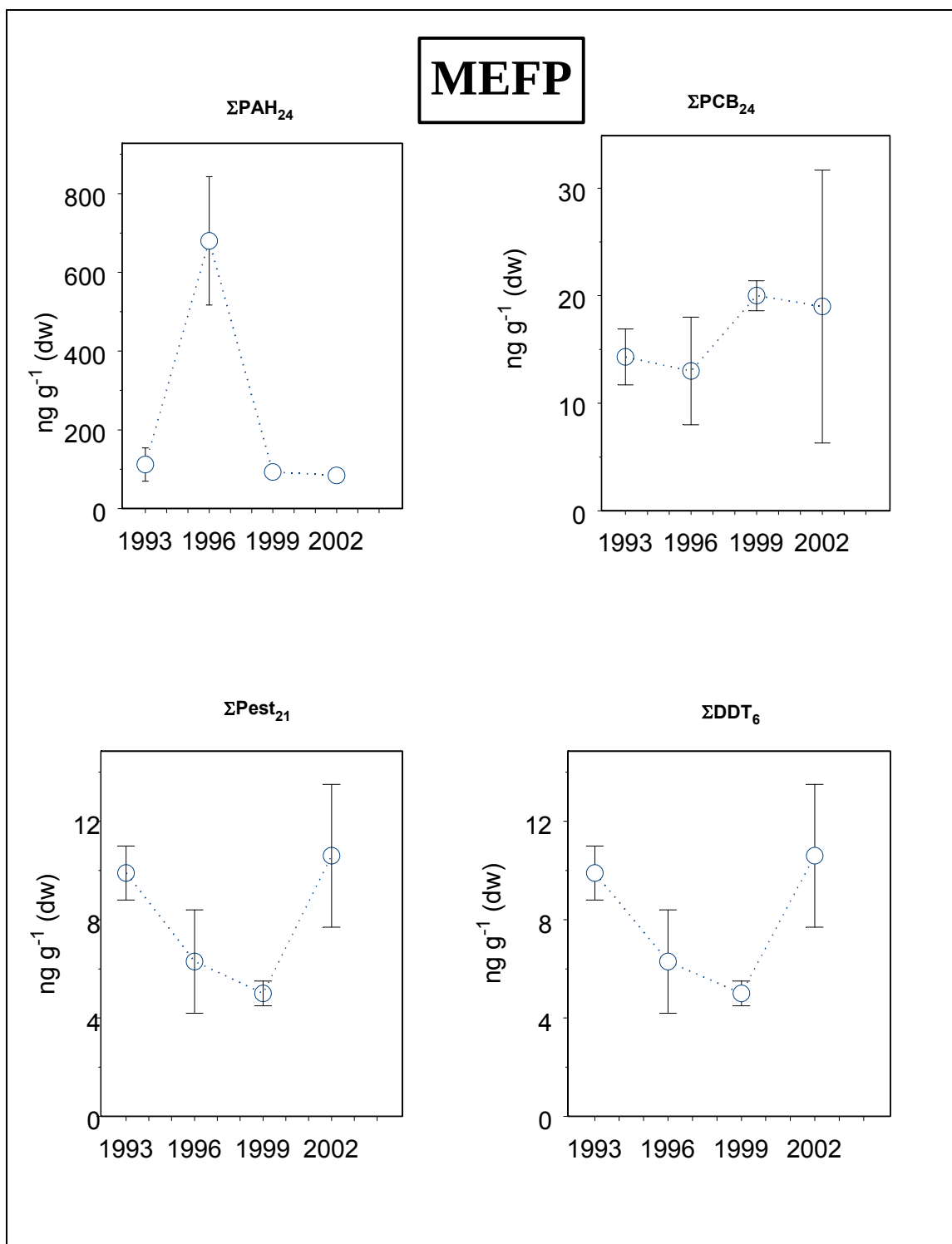


Figure 41C. Distribution of selected organic contaminant concentrations (arithmetic mean $\pm$ SD, ng/g dry weight) in mussels collected at the MEFP Gulfwatch site from selected years during the period from 1993-2004.

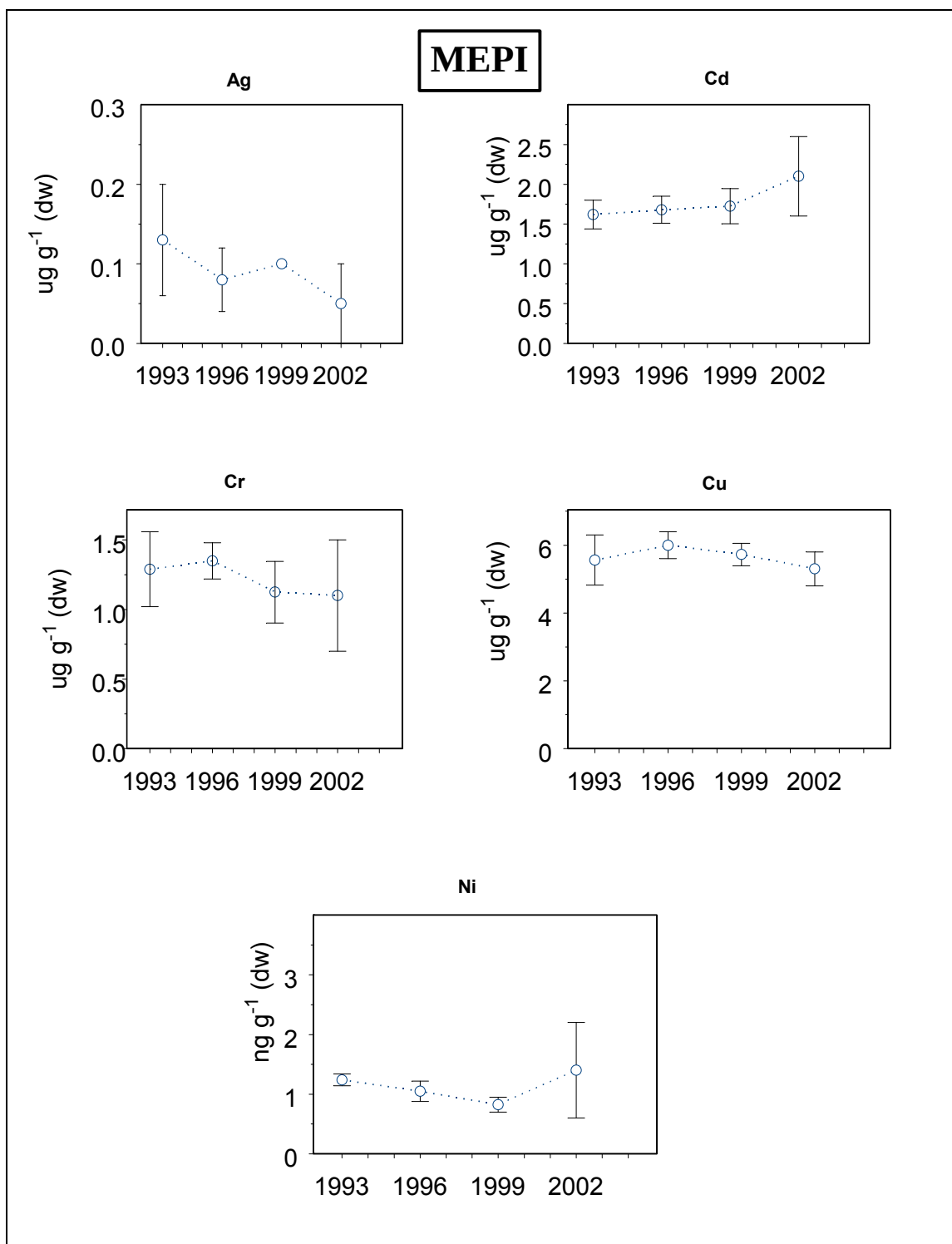


Figure 42A. Distribution of metals (Ag, Cd, Cr, Cu, Ni) concentrations (arithmetic mean $\pm$ SD, $\mu\text{g/g}$ dry weight) in mussels collected at the MEPI Gulfwatch site from selected years during the period from 1993-2004.

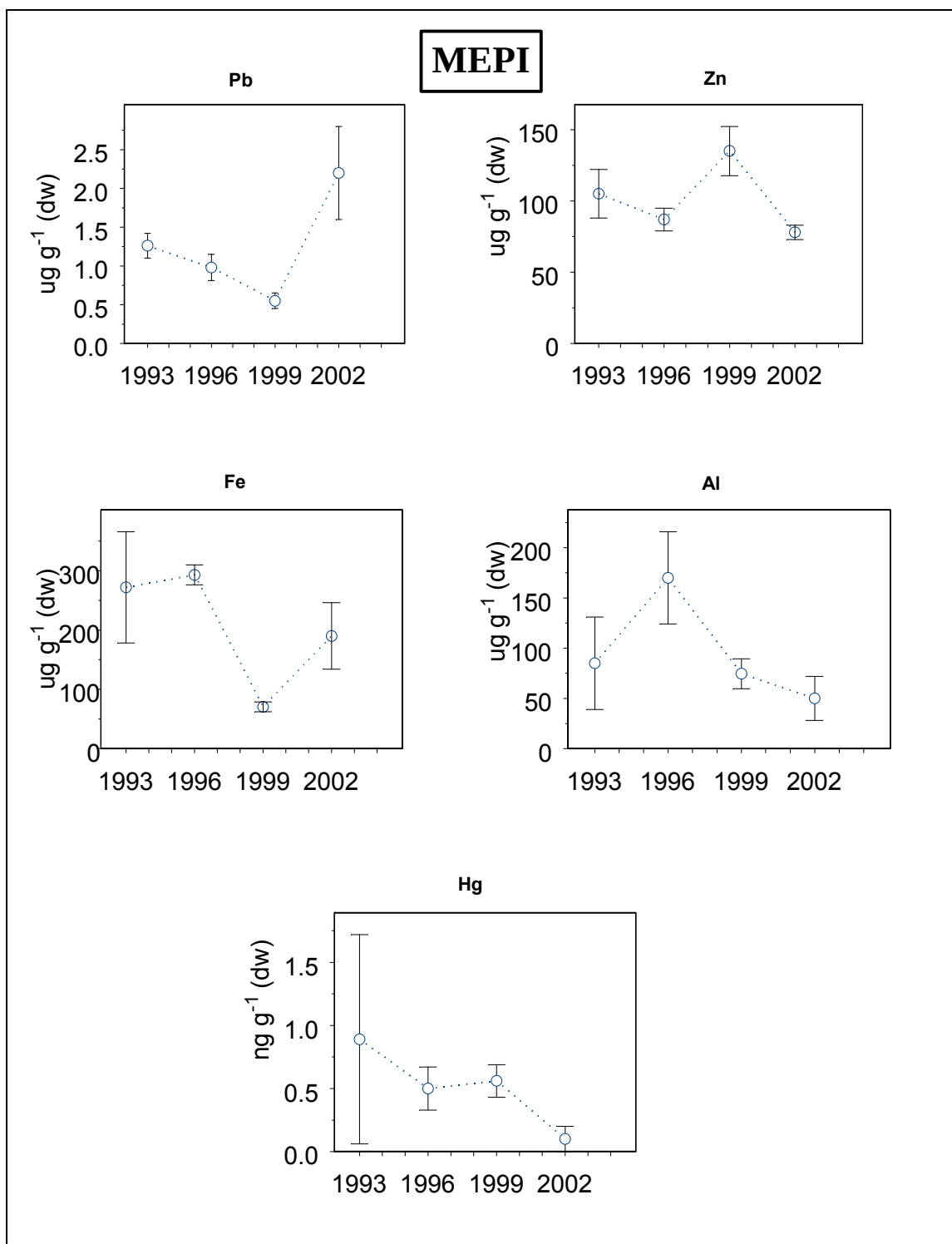


Figure 42B. Distribution of metals (Pb, Zn, Fe, Al, and Hg) concentrations (arithmetic mean $\pm$ SD, $\mu\text{g/g}$ dry weight) in mussels collected at the MEPI Gulfwatch site from selected years during the period from 1993-2004.

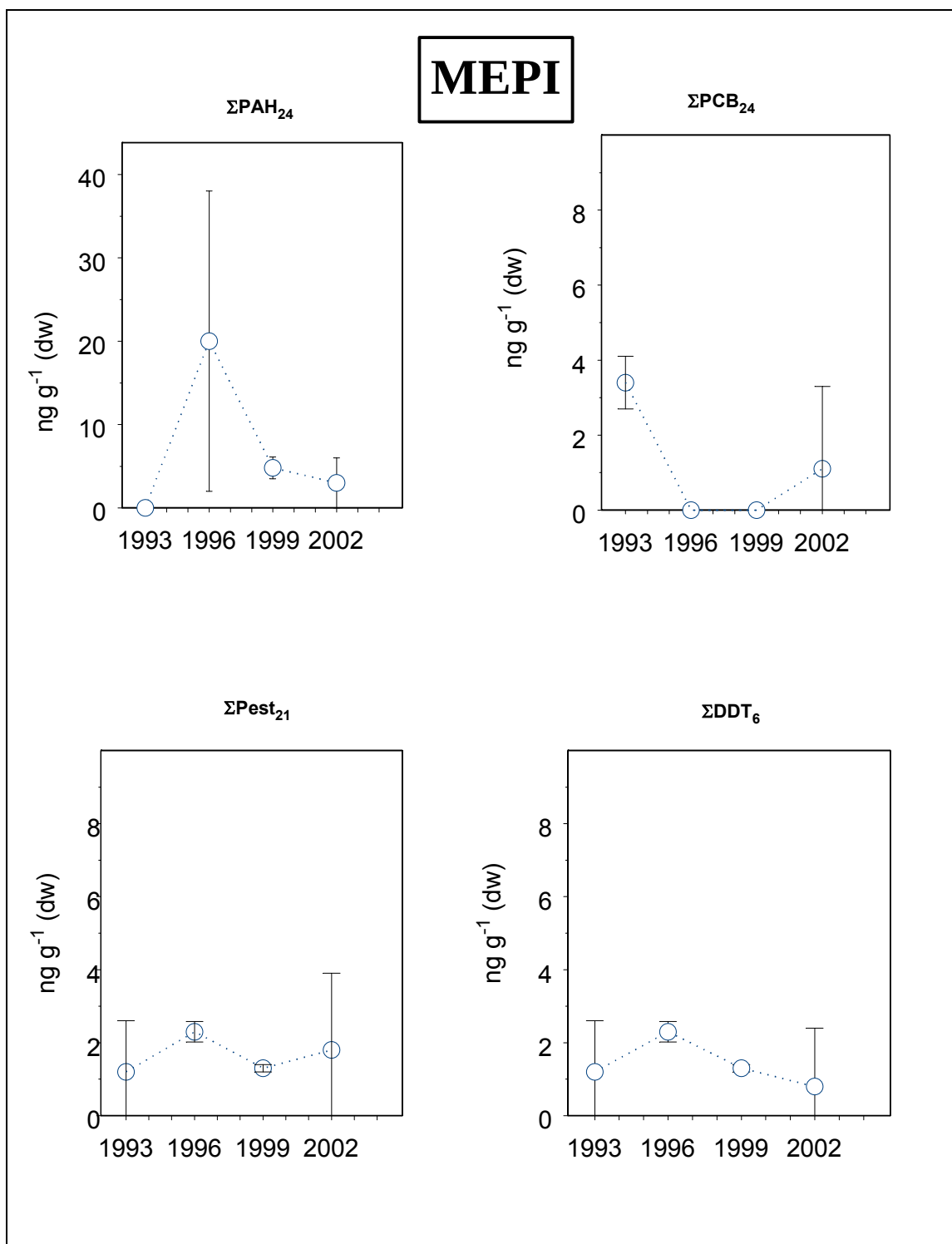


Figure 42C. Distribution of selected organic contaminant concentrations (arithmetic mean $\pm$ SD, ng/g dry weight) in mussels collected at the MEPI Gulfwatch site from selected years during the period from 1993-2004.

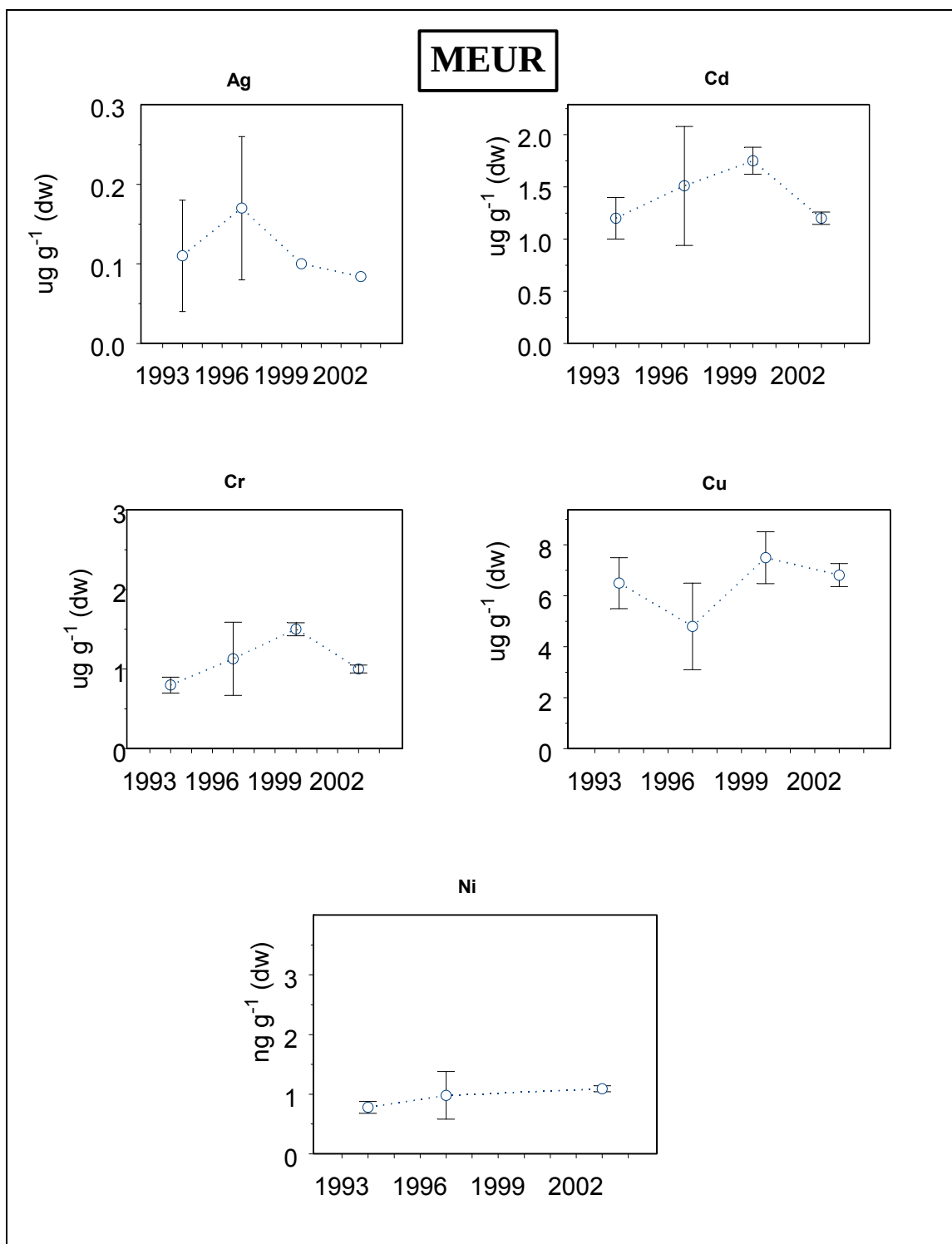


Figure 43A. Distribution of metals (Ag, Cd, Cr, Cu, Ni) concentrations (arithmetic mean $\pm$ SD, $\mu\text{g/g}$ dry weight) in mussels collected at the MEUR Gulfwatch site from selected years during the period from 1993-2004.

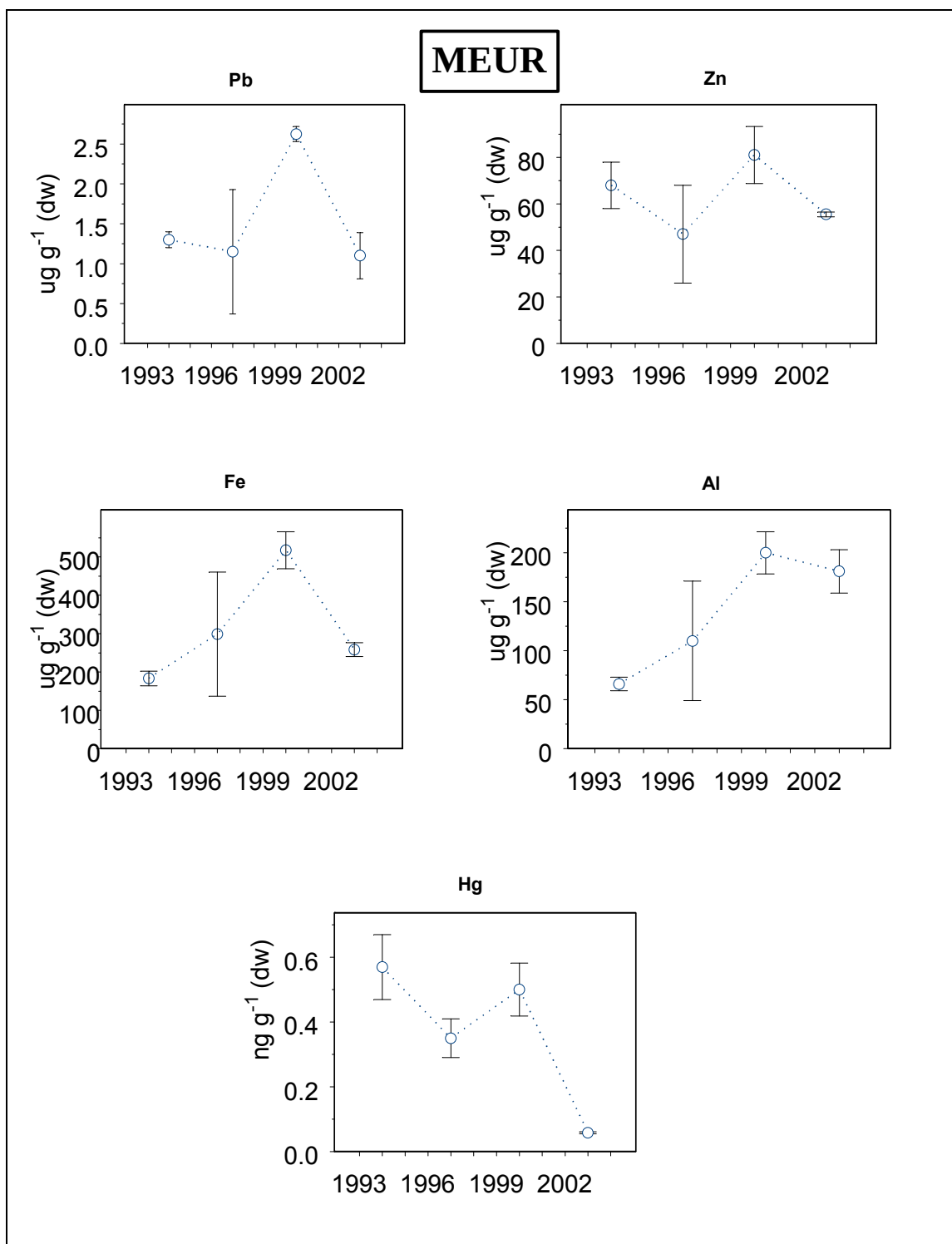


Figure 43B. Distribution of metals (Pb, Zn, Fe, Al, and Hg) concentrations (arithmetic mean $\pm$ SD, $\mu\text{g/g}$ dry weight) in mussels collected at the MEUR Gulfwatch site from selected years during the period from 1993-2004.

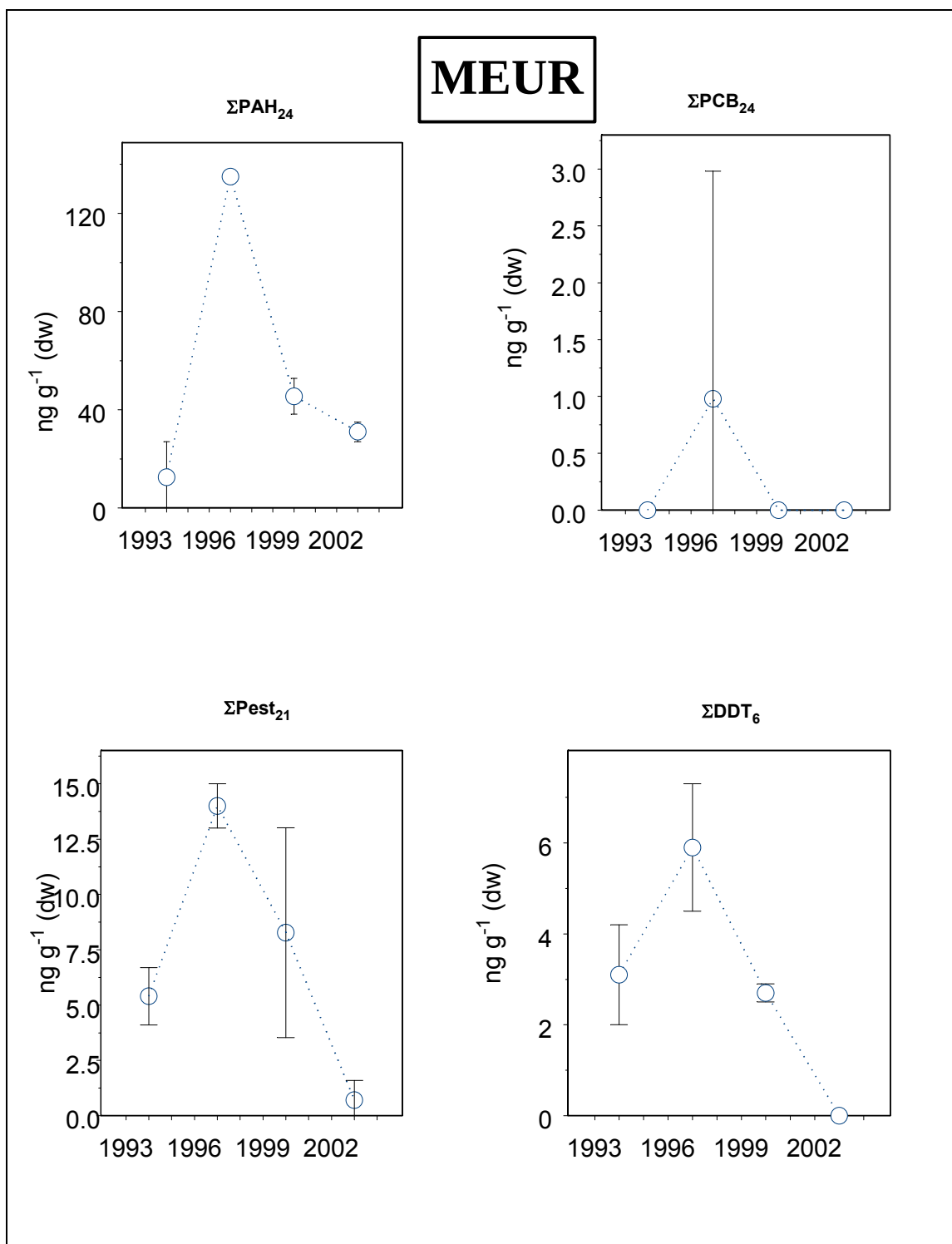


Figure 43C. Distribution of selected organic contaminant concentrations (arithmetic mean $\pm$ SD, ng/g dry weight) in mussels collected at the MEUR Gulfwatch site from selected years during the period from 1993-2004.

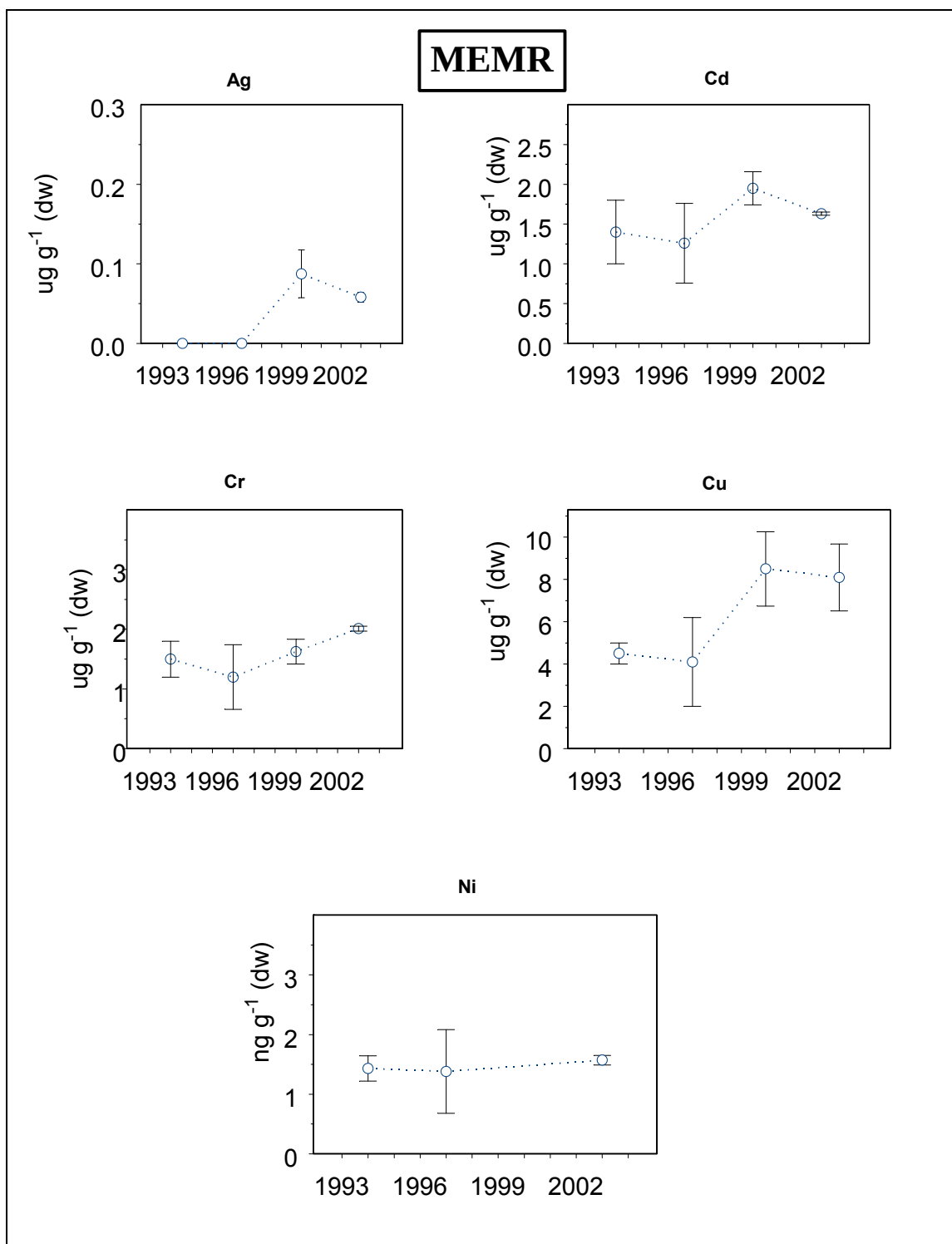


Figure 44A. Distribution of metals (Ag, Cd, Cr, Cu, Ni) concentrations (arithmetic mean $\pm$ SD, $\mu\text{g/g}$ dry weight) in mussels collected at the MEMR Gulfwatch site from selected years during the period from 1993-2004.

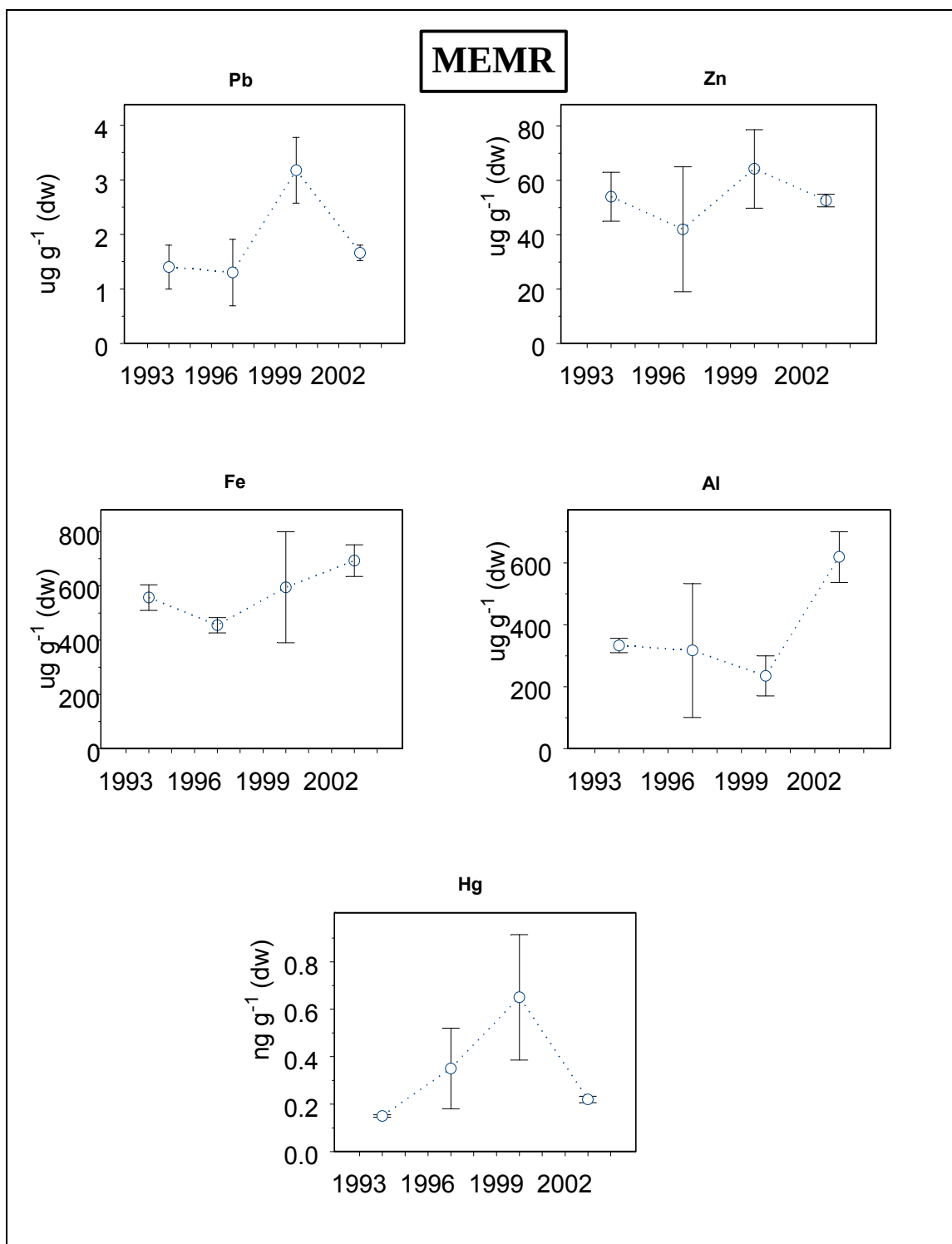


Figure 44B. Distribution of metals (Pb, Zn, Fe, Al, and Hg) concentrations (arithmetic mean $\pm$ SD, $\mu\text{g/g}$ dry weight) in mussels collected at the MEMR Gulfwatch site from selected years during the period from 1993-2004.

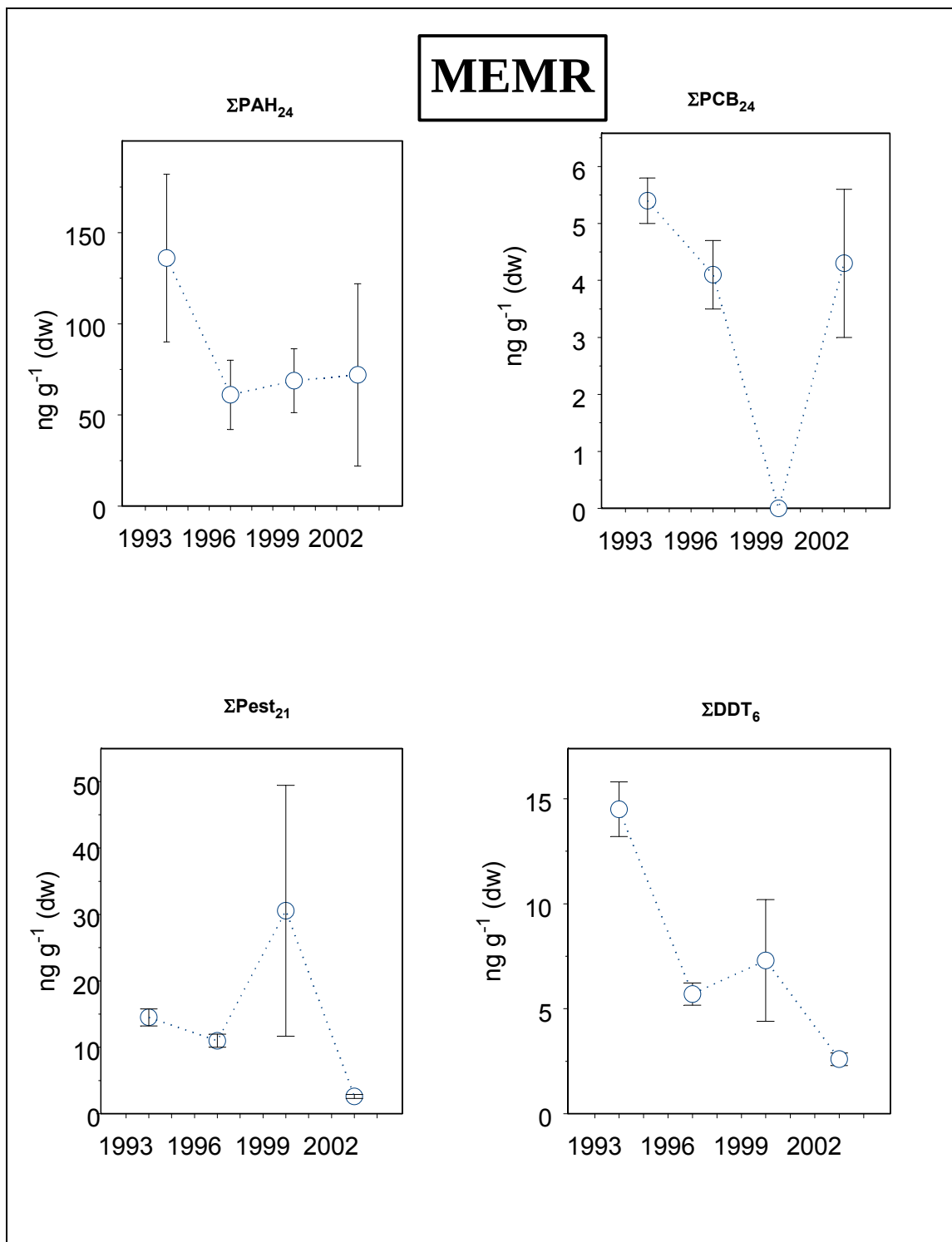


Figure 44C. Distribution of selected organic contaminant concentrations (arithmetic mean $\pm$ SD, ng/g dry weight) in mussels collected at the MEMR Gulfwatch site from selected years during the period from 1993-2004.

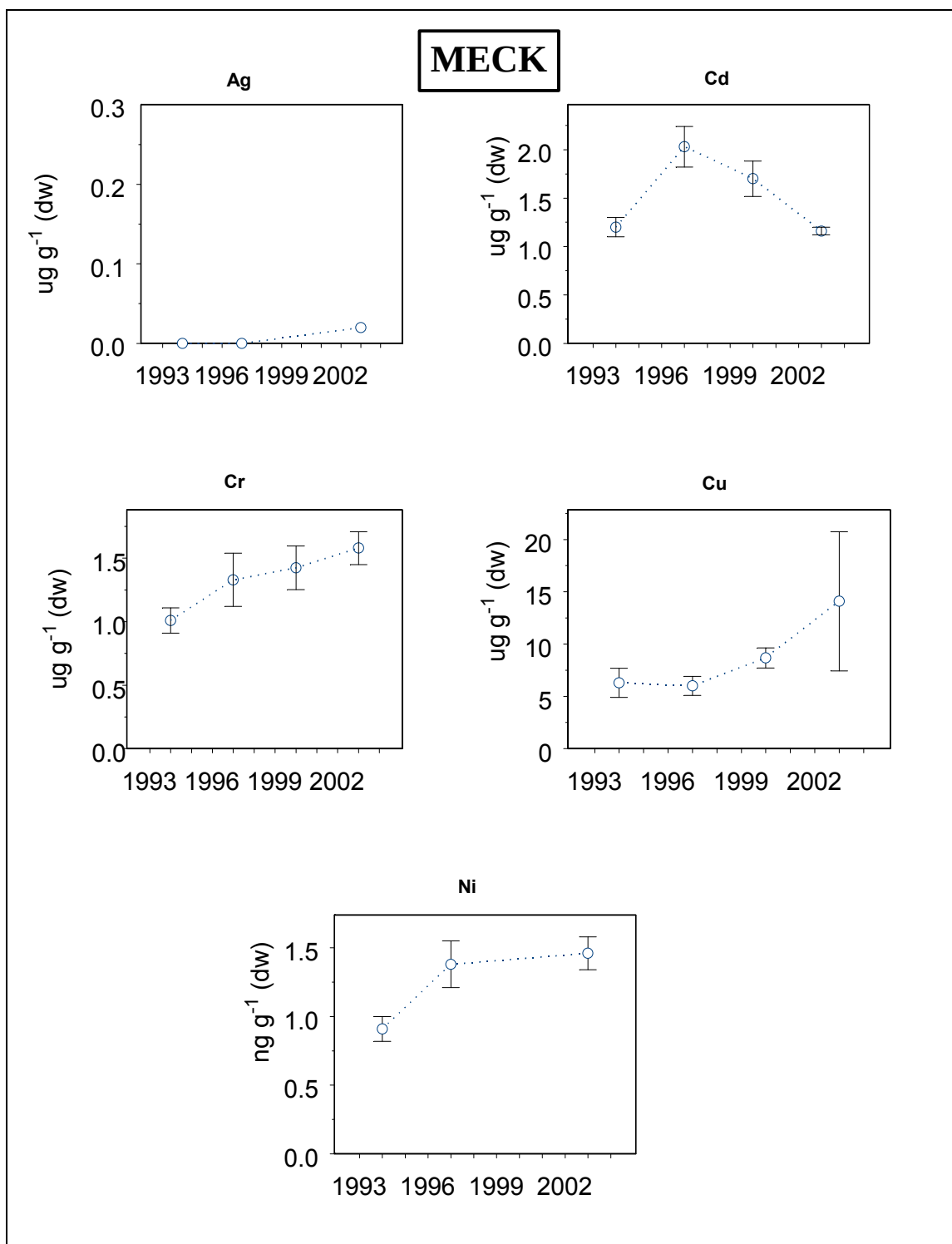


Figure 45A. Distribution of metals (Ag, Cd, Cr, Cu, Ni) concentrations (arithmetic mean $\pm$ SD, $\mu\text{g/g}$ dry weight) in mussels collected at the MECK Gulfwatch site from selected years during the period from 1993-2004.

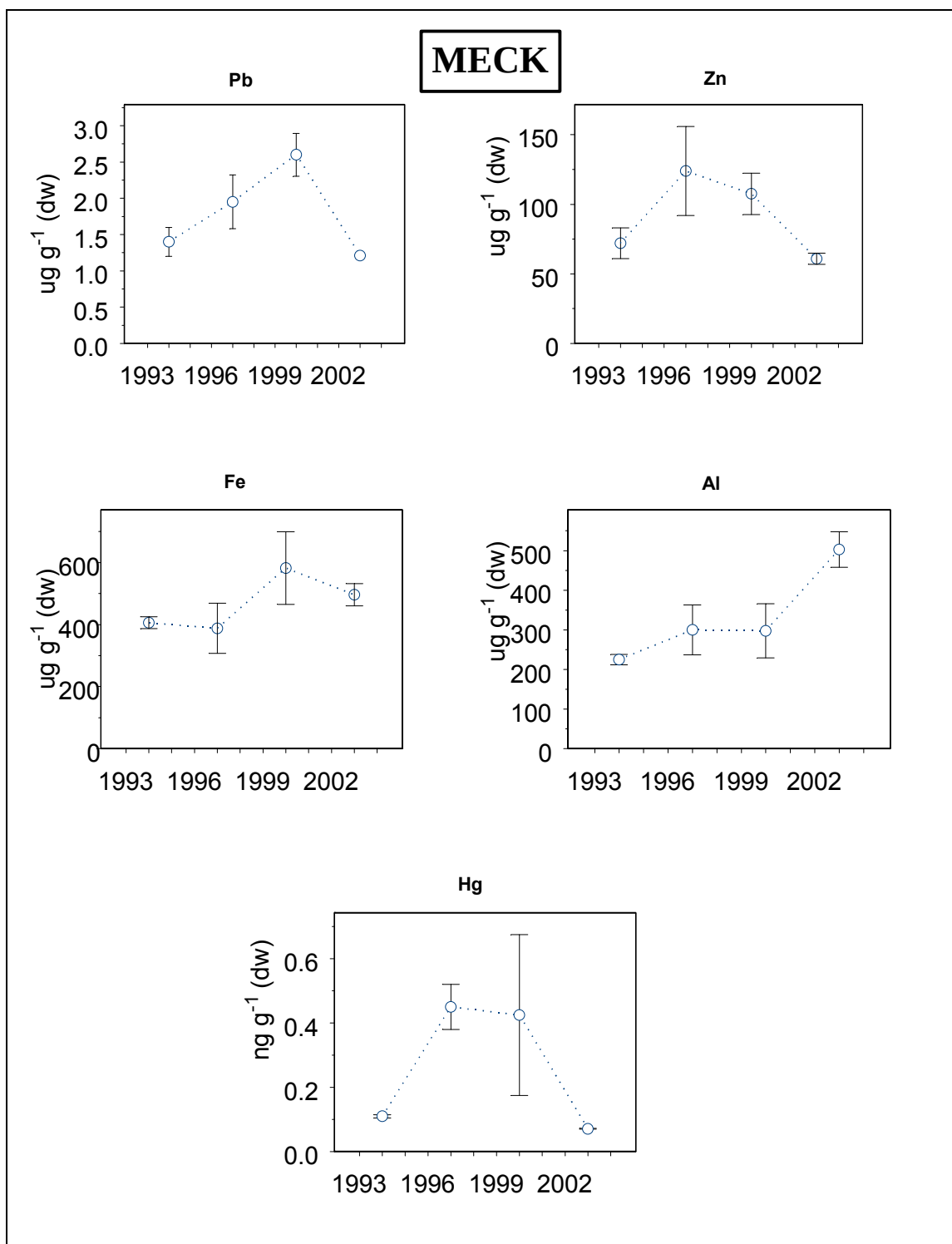


Figure 45B. Distribution of metals (Pb, Zn, Fe, Al, and Hg) concentrations (arithmetic mean $\pm$ SD, $\mu\text{g/g}$ dry weight) in mussels collected at the MECK Gulfwatch site from selected years during the period from 1993-2004.

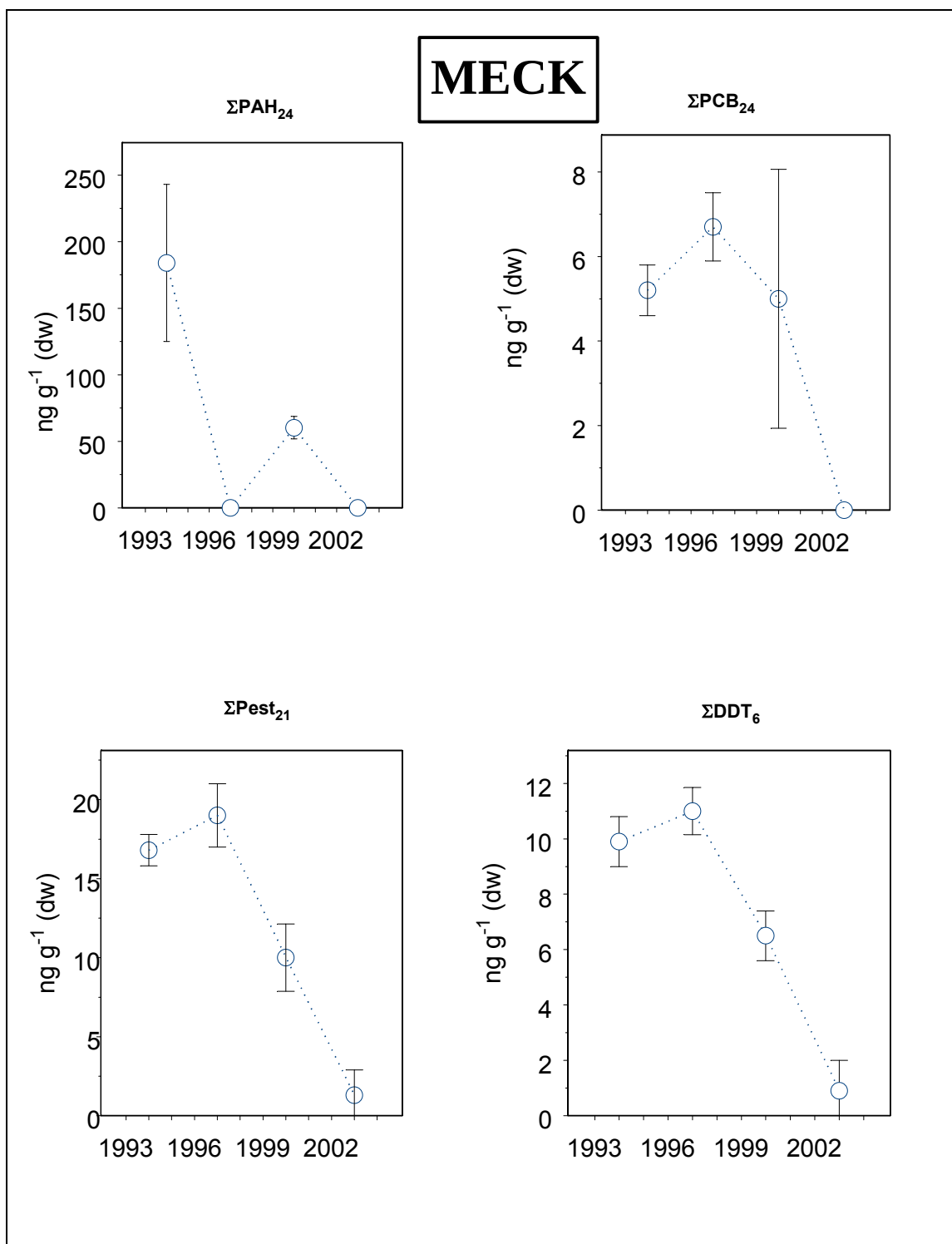


Figure 45C. Distribution of selected organic contaminant concentrations (arithmetic mean $\pm$ SD, ng/g dry weight) in mussels collected at the MECK Gulfwatch site from selected years during the period from 1993-2004.

Temporal changes in contaminants in *Mytilus edulis* tissue from New Brunswick Gulfwatch (Rotational and Occasional) Stations; 1993 – 2004.

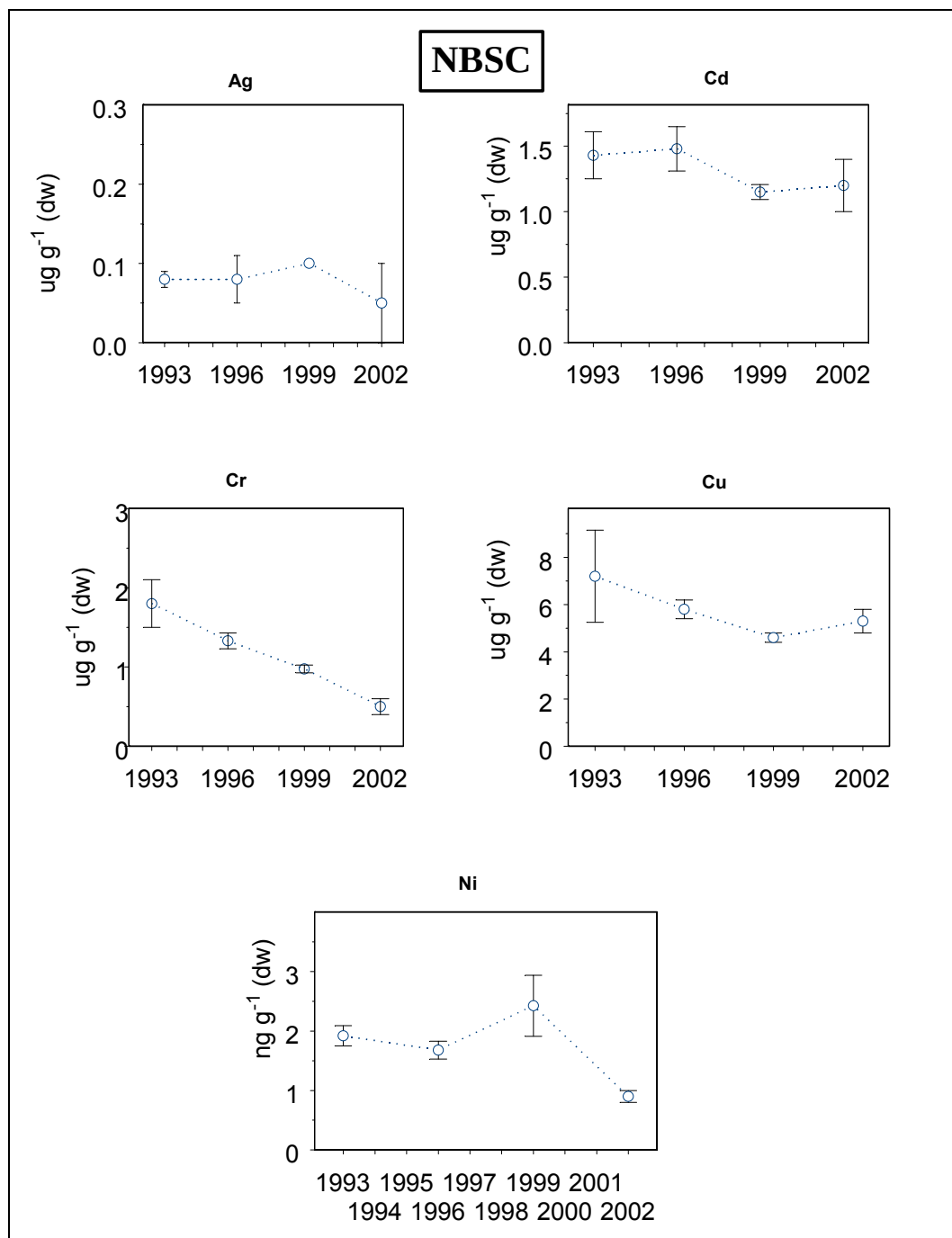


Figure 46A. Distribution of metals (Ag, Cd, Cr, Cu, Ni) concentrations (arithmetic mean $\pm$ SD, $\mu\text{g/g}$ dry weight) in mussels collected at the NBSC Gulfwatch site from selected years during the period from 1993-2004.

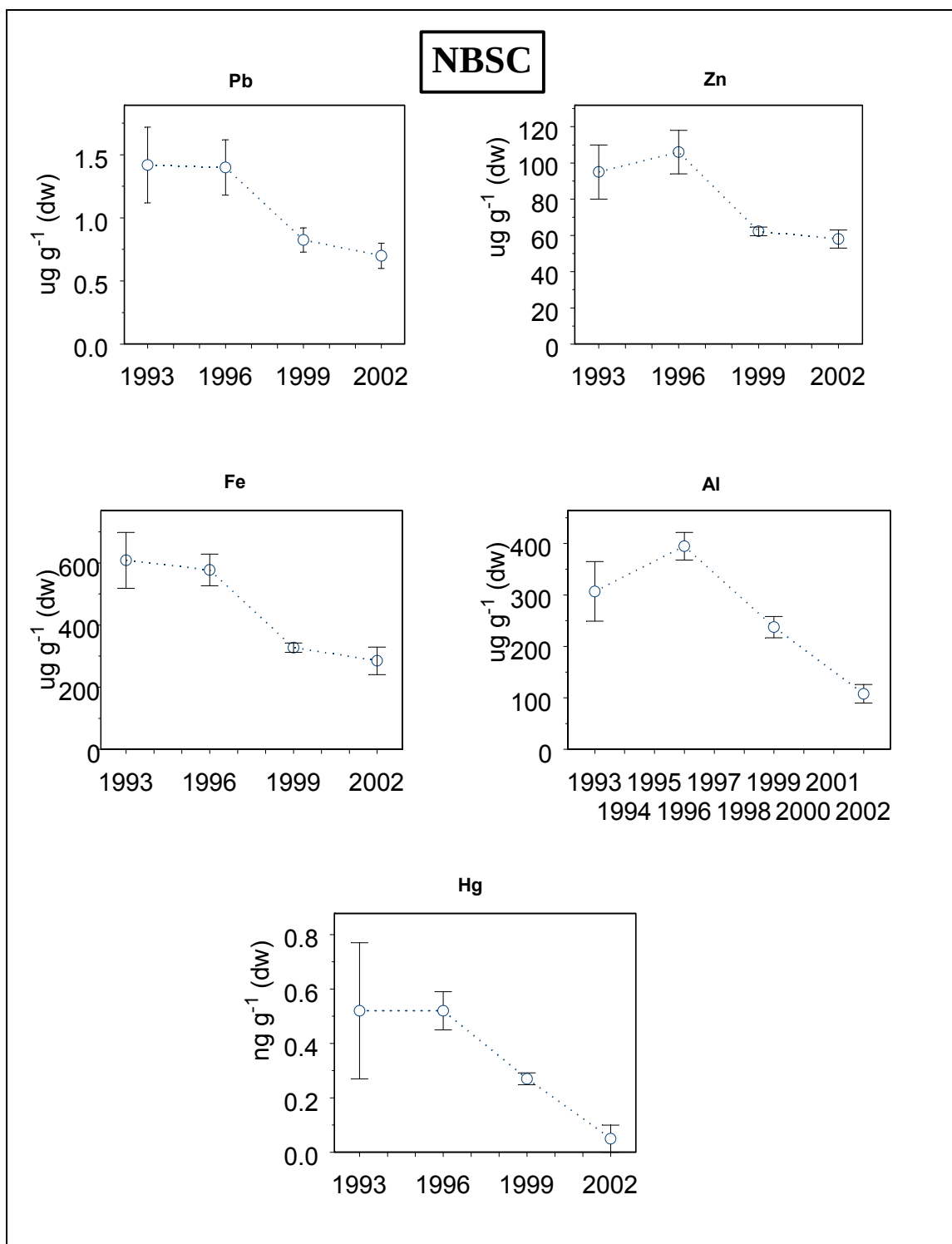


Figure 46B. Distribution of metals (Pb, Zn, Fe, Al, and Hg) concentrations (arithmetic mean $\pm$ SD, $\mu\text{g/g}$ dry weight) in mussels collected at the NBSC Gulfwatch site from selected years during the period from 1993-2004.

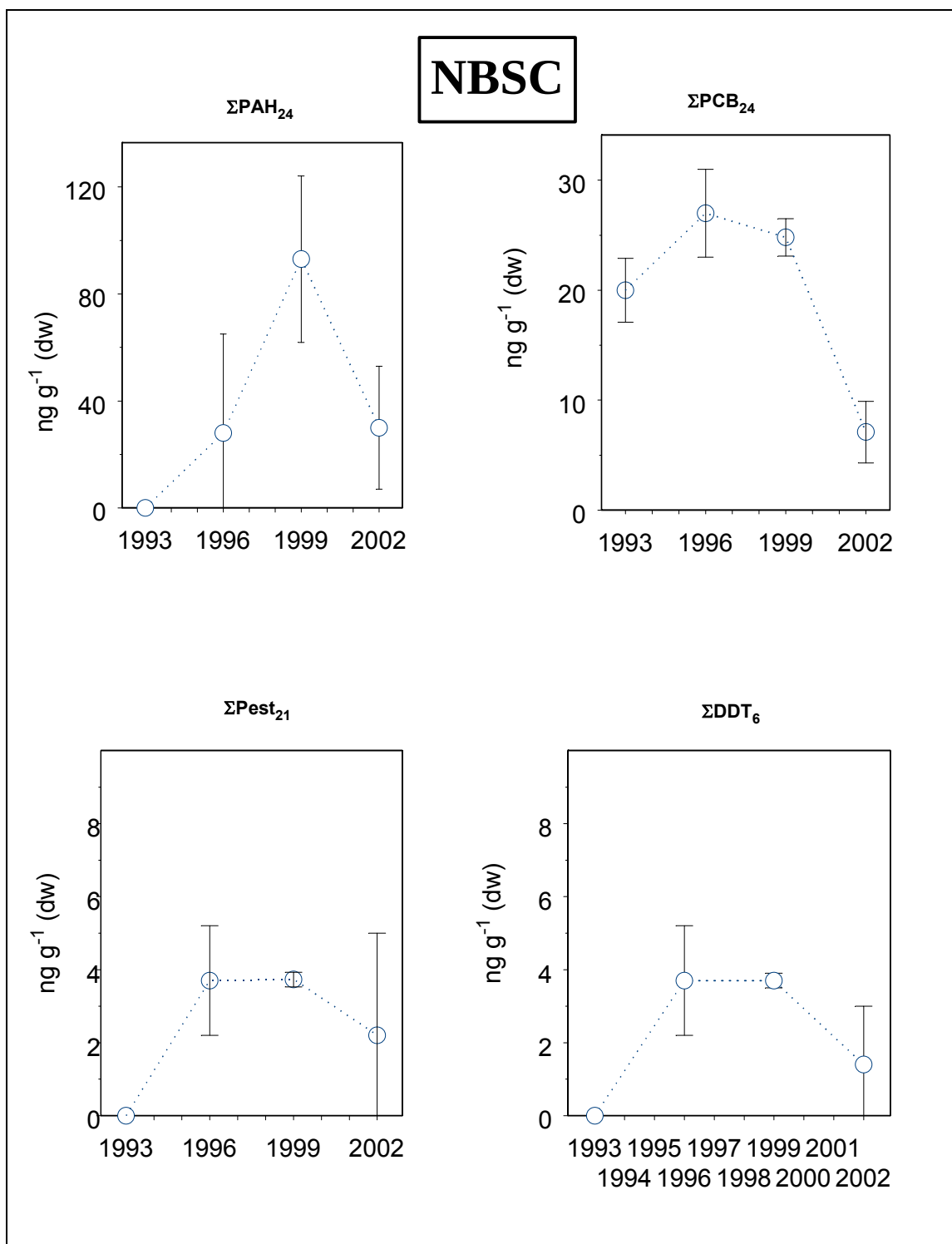


Figure 46C. Distribution of selected organic contaminant concentrations (arithmetic mean $\pm$ SD, ng/g dry weight) in mussels collected at the NBSC Gulfwatch site from selected years during the period from 1993-2004.

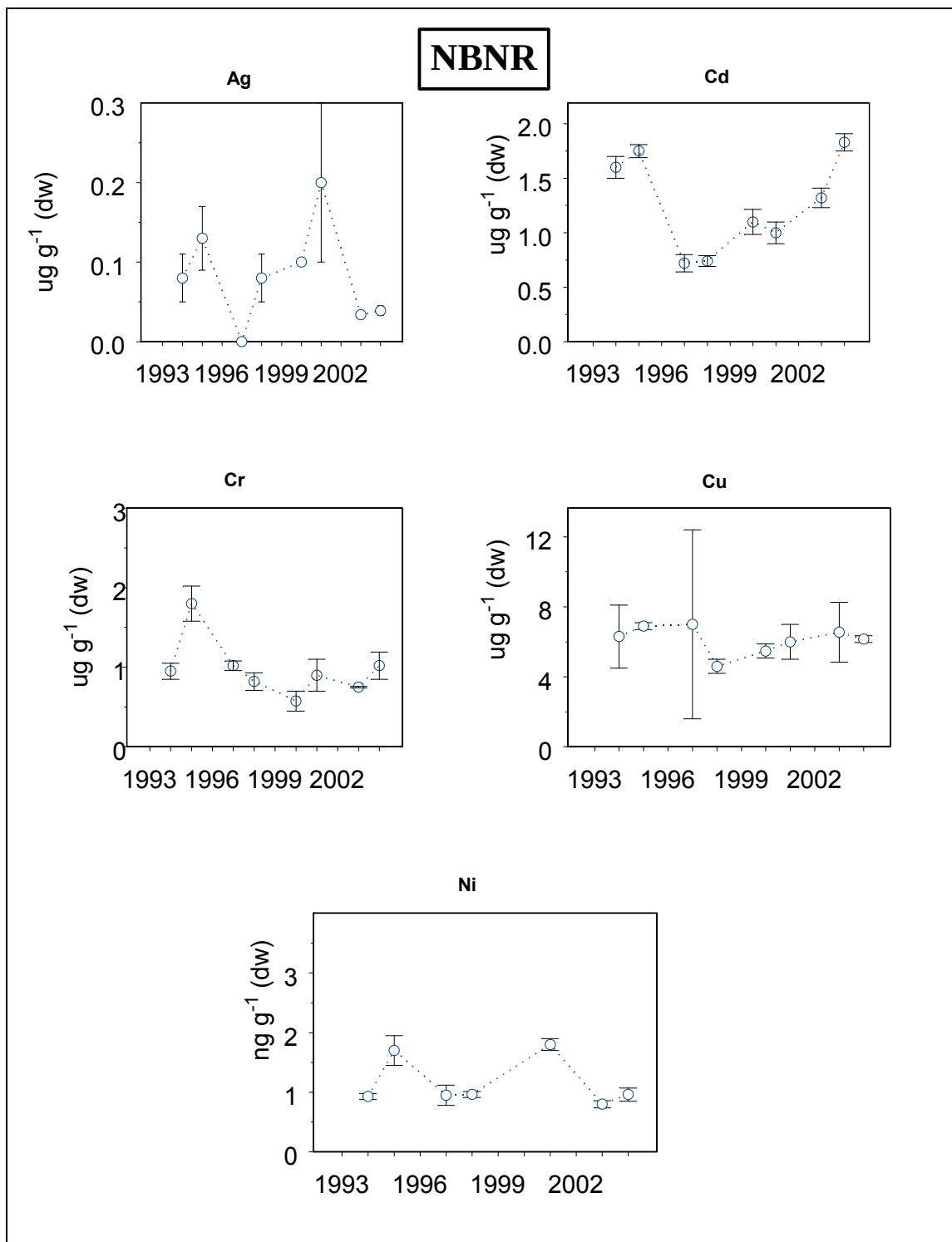


Figure 47A. Distribution of metals (Ag, Cd, Cr, Cu, Ni) concentrations (arithmetic mean $\pm$ SD, $\mu\text{g/g}$ dry weight) in mussels collected at the NBNR Gulfwatch site from selected years during the period from 1993-2004.

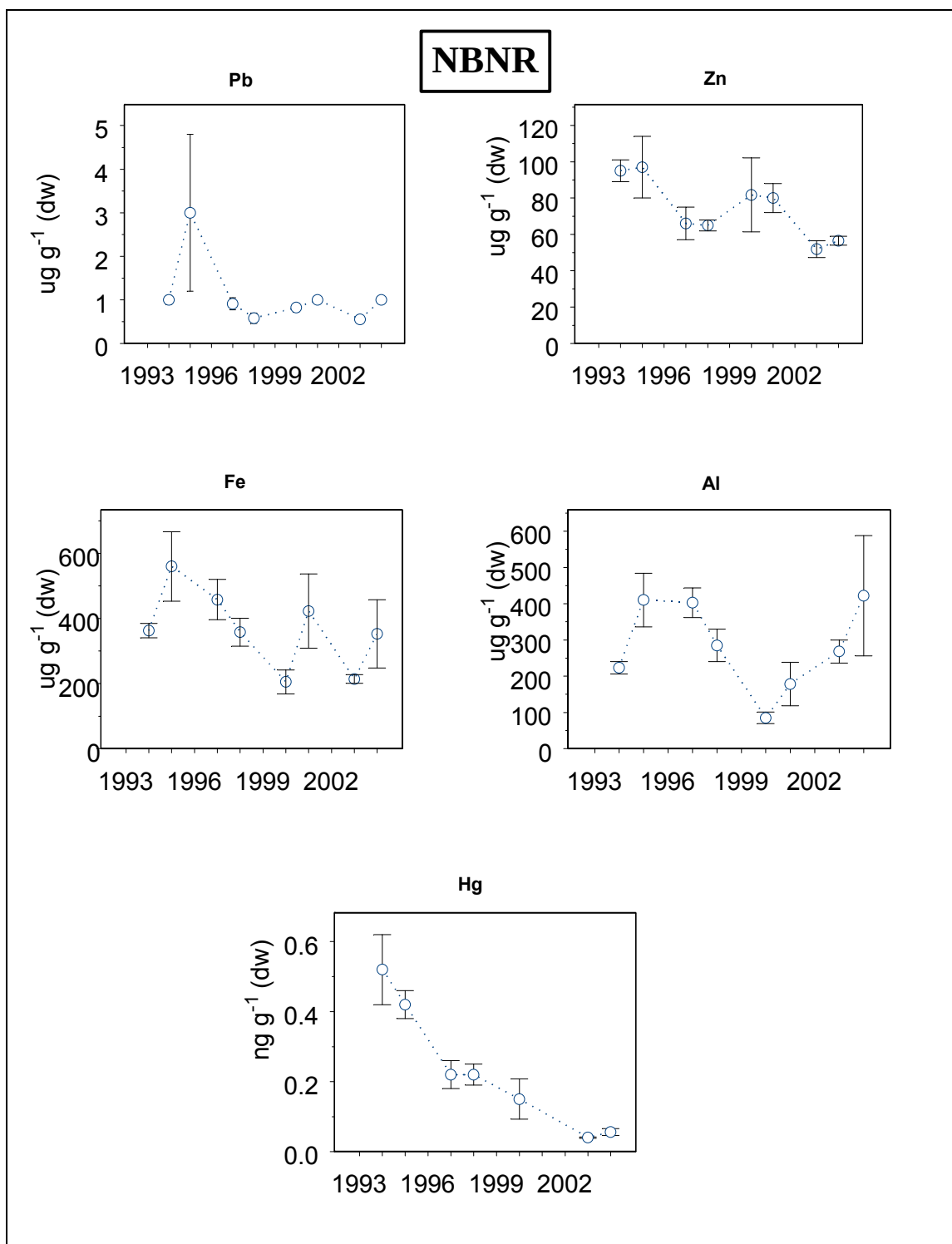


Figure 47B. Distribution of metals (Pb, Zn, Fe, Al, and Hg) concentrations (arithmetic mean $\pm$ SD, $\mu\text{g/g}$ dry weight) in mussels collected at the NBNR Gulfwatch site from selected years during the period from 1993-2004.

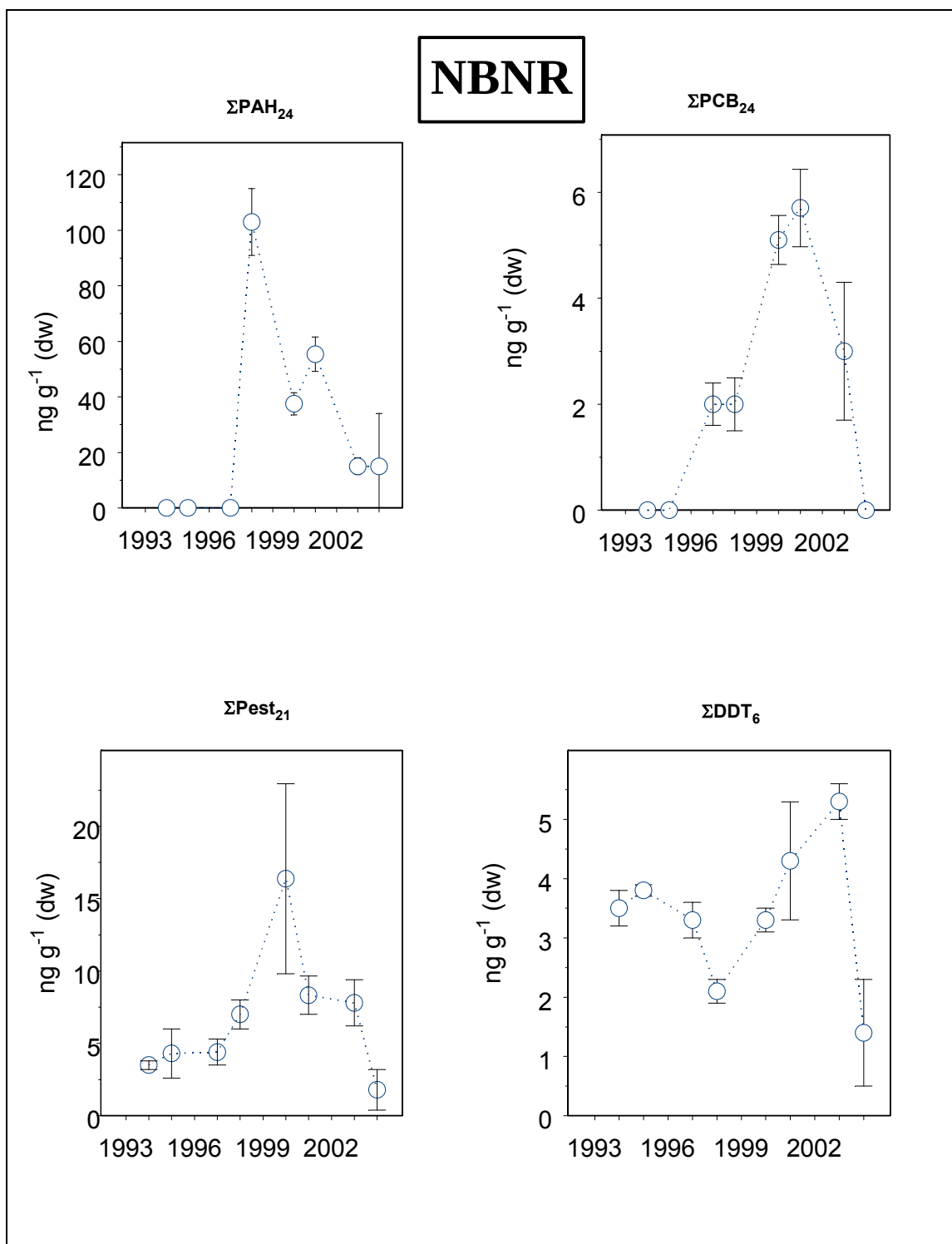


Figure 47C. Distribution of selected organic contaminant concentrations (arithmetic mean $\pm$ SD, ng/g dry weight) in mussels collected at the NBNR Gulfwatch site from selected years during the period from 1993-2004.

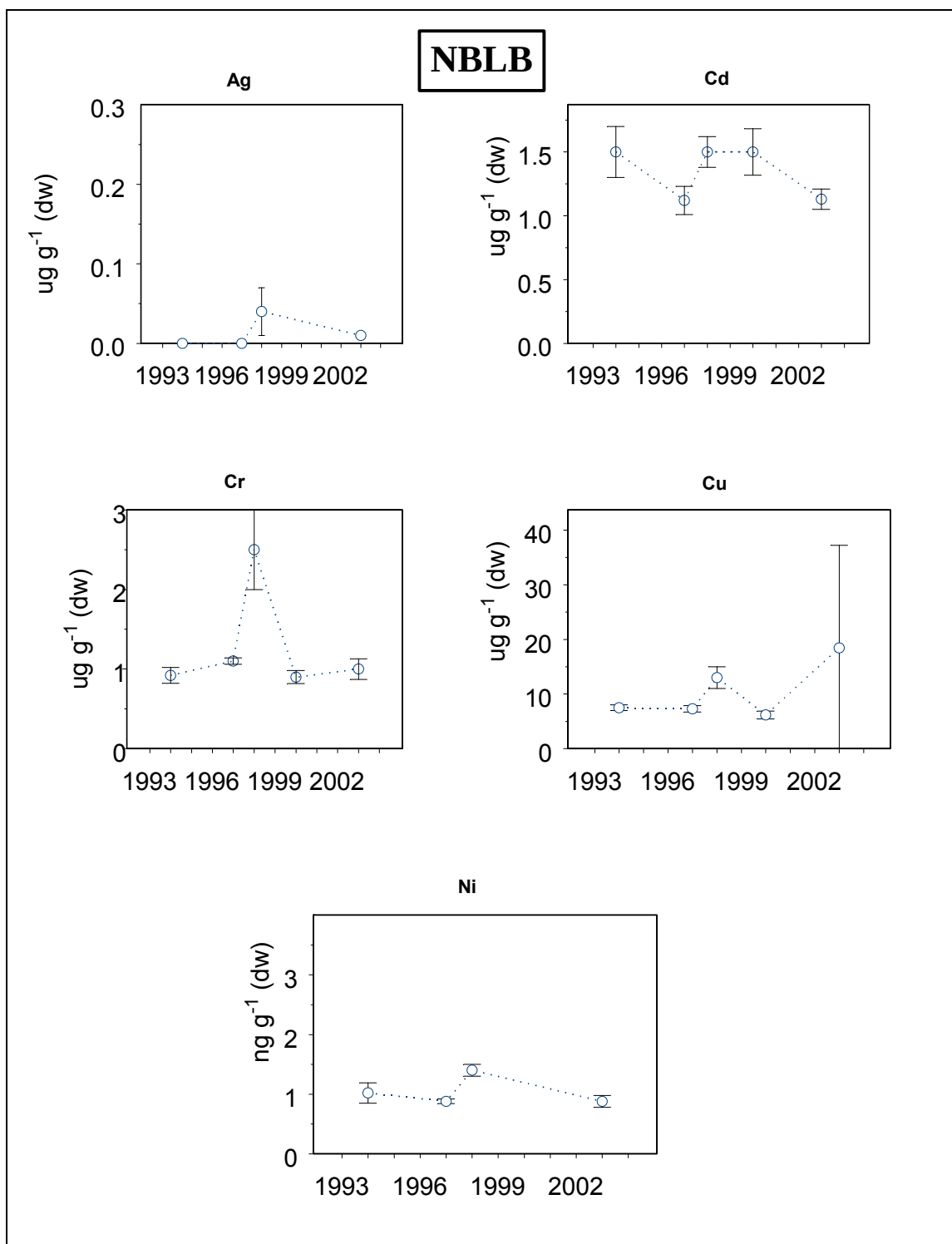


Figure 48A. Distribution of metals (Ag, Cd, Cr, Cu, Ni) concentrations (arithmetic mean $\pm$ SD, $\mu\text{g/g}$ dry weight) in mussels collected at the NBLB Gulfwatch site from selected years during the period from 1993-2004.

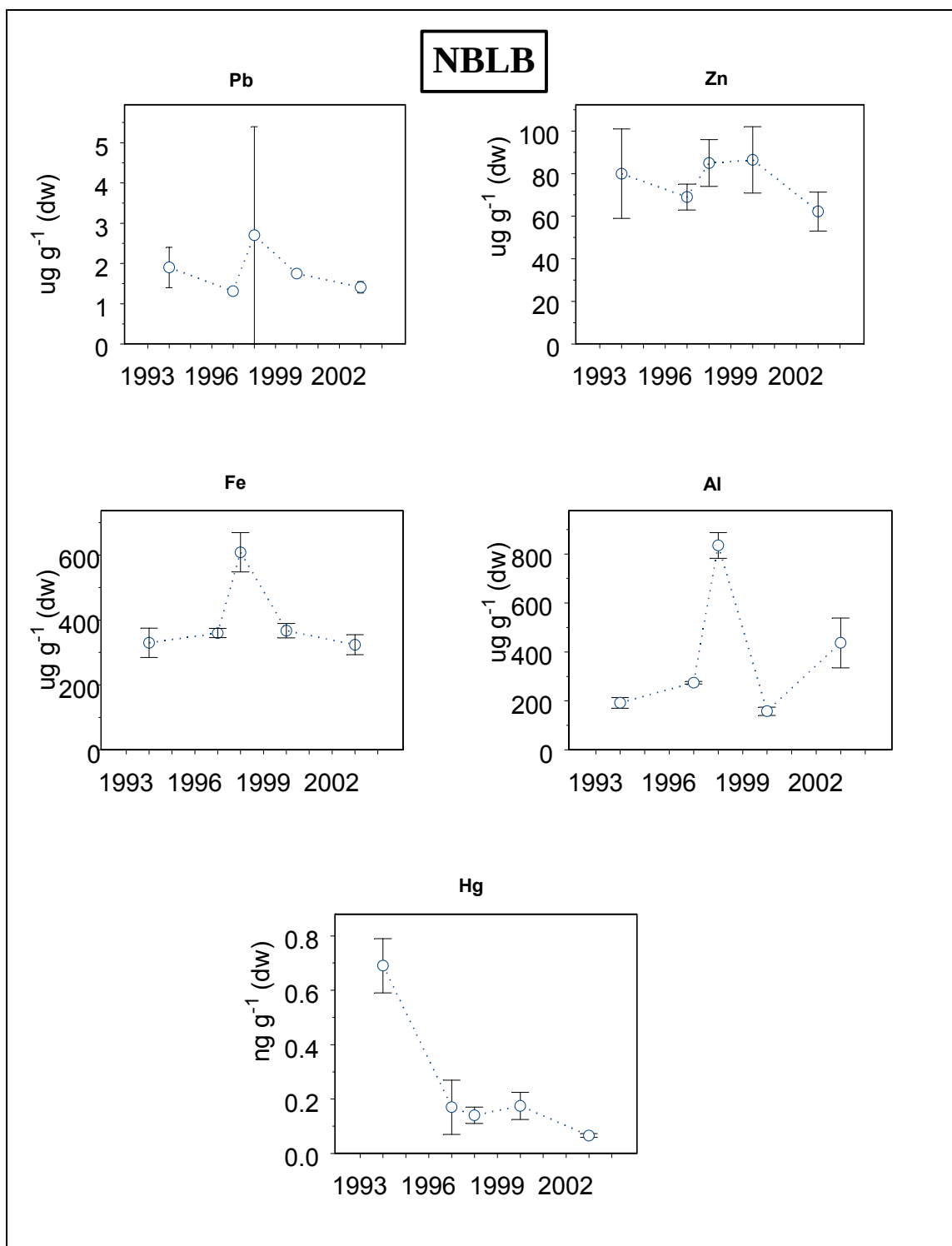


Figure 48B. Distribution of metals (Pb, Zn, Fe, Al, and Hg) concentrations (arithmetic mean $\pm$ SD, $\mu\text{g/g}$ dry weight) in mussels collected at the NBLB Gulfwatch site from selected years during the period from 1993-2004.

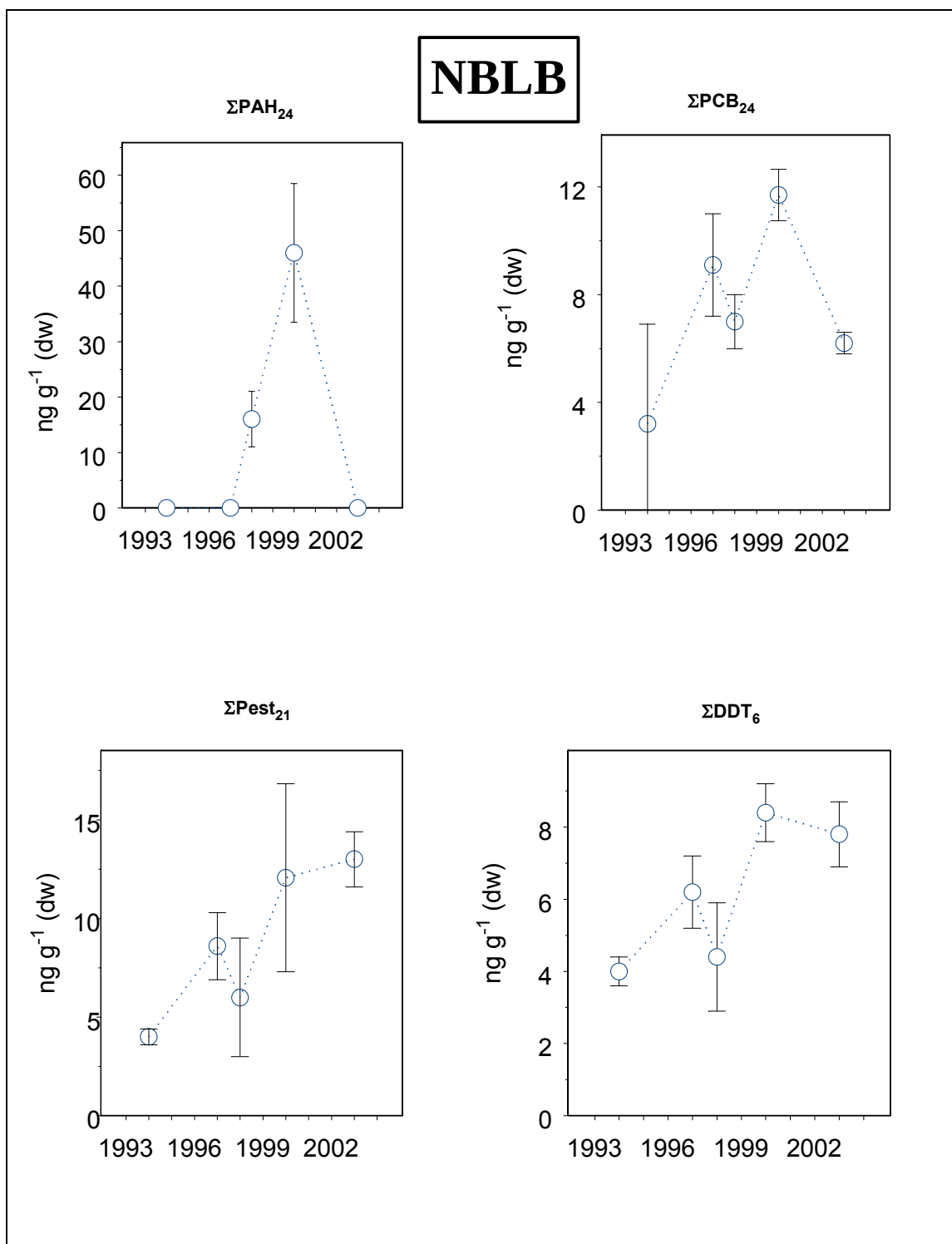


Figure 48C. Distribution of selected organic contaminant concentrations (arithmetic mean $\pm$ SD, ng/g dry weight) in mussels collected at the NBLB Gulfwatch site from selected years during the period from 1993-2004.

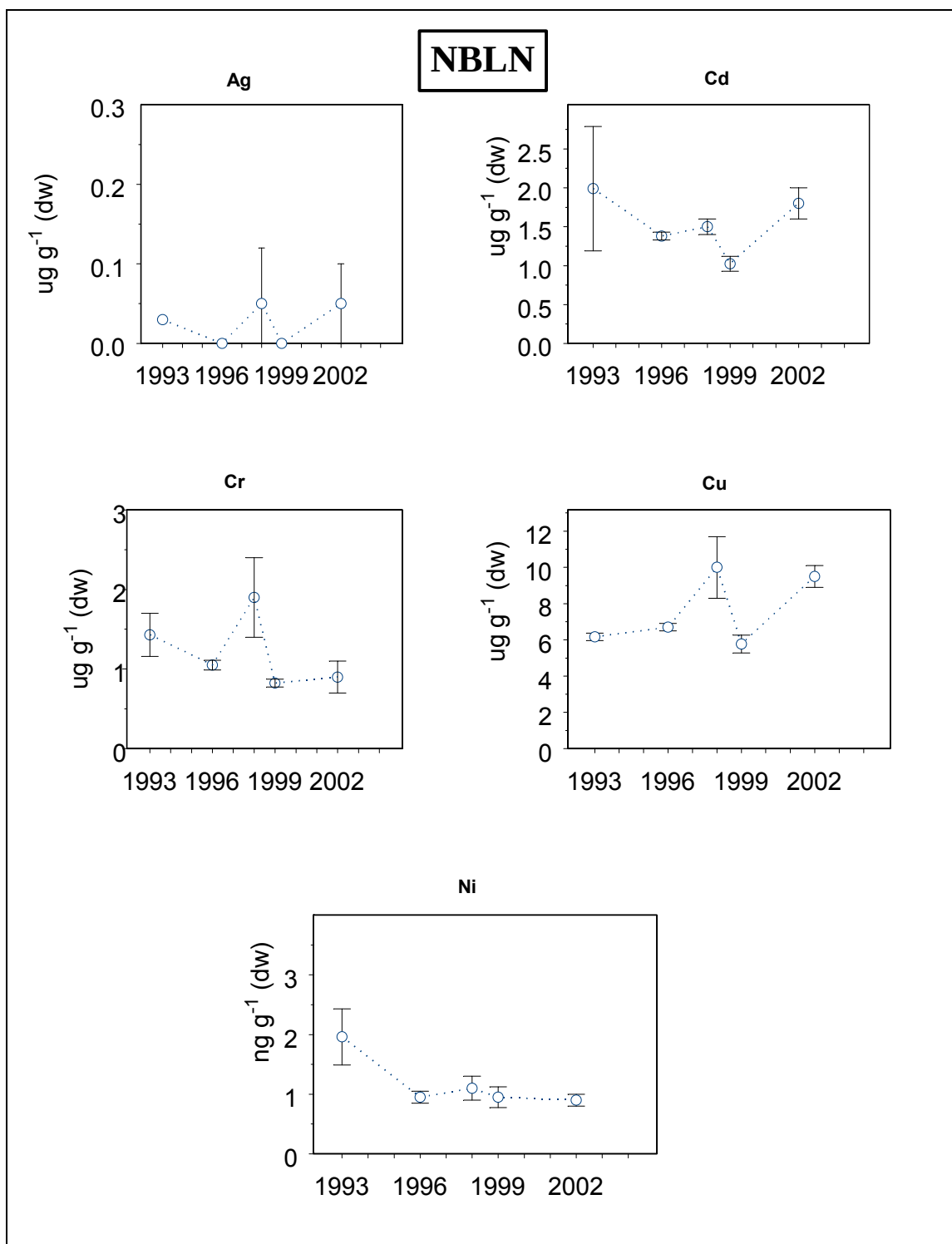


Figure 49A. Distribution of metals (Ag, Cd, Cr, Cu, Ni) concentrations (arithmetic mean $\pm$ SD, $\mu\text{g/g}$ dry weight) in mussels collected at the NBLN Gulfwatch site from selected years during the period from 1993-2004.

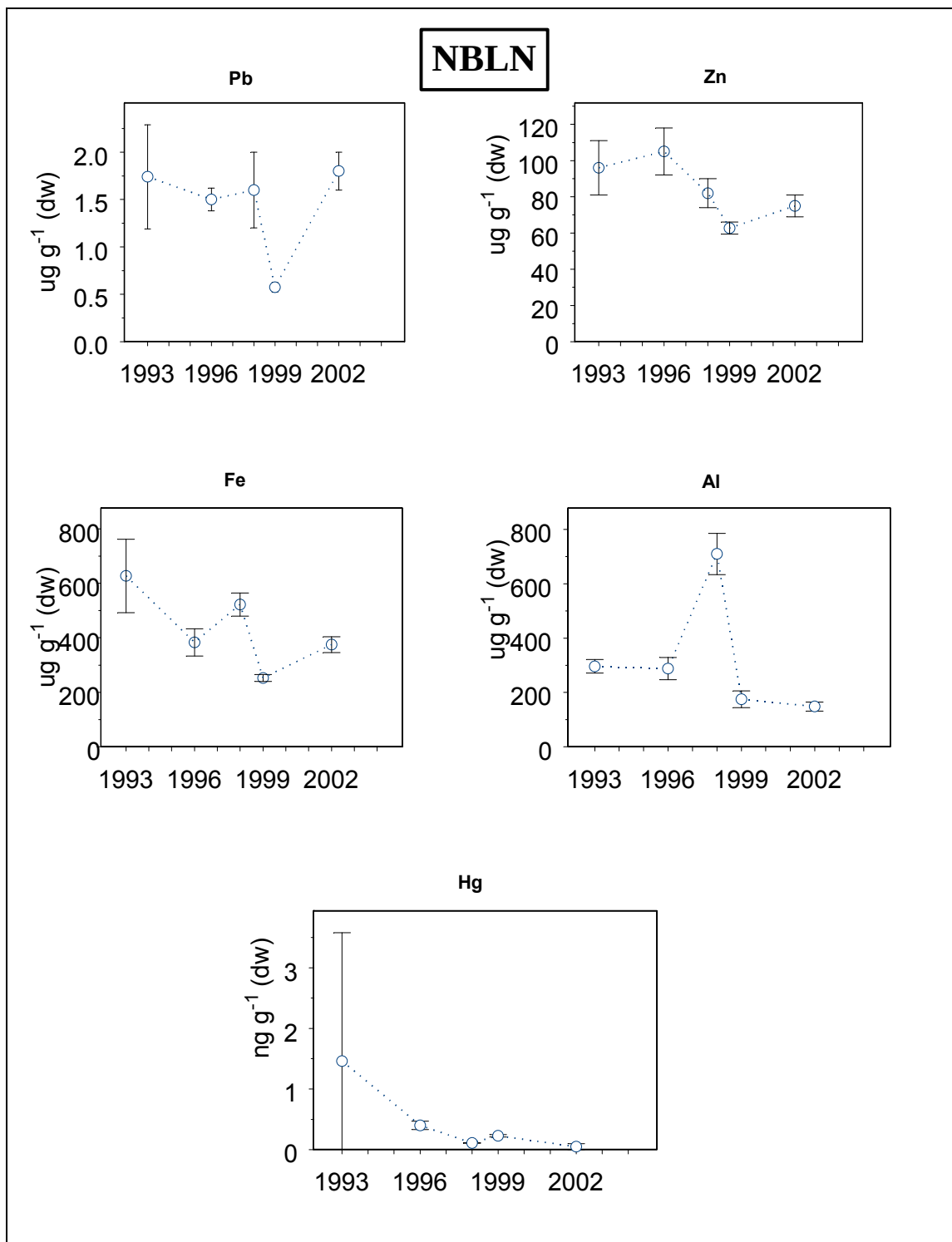


Figure 49B. Distribution of metals (Pb, Zn, Fe, Al, and Hg) concentrations (arithmetic mean $\pm$ SD, $\mu\text{g/g}$ dry weight) in mussels collected at the NBLN Gulfwatch site from selected years during the period from 1993-2004.

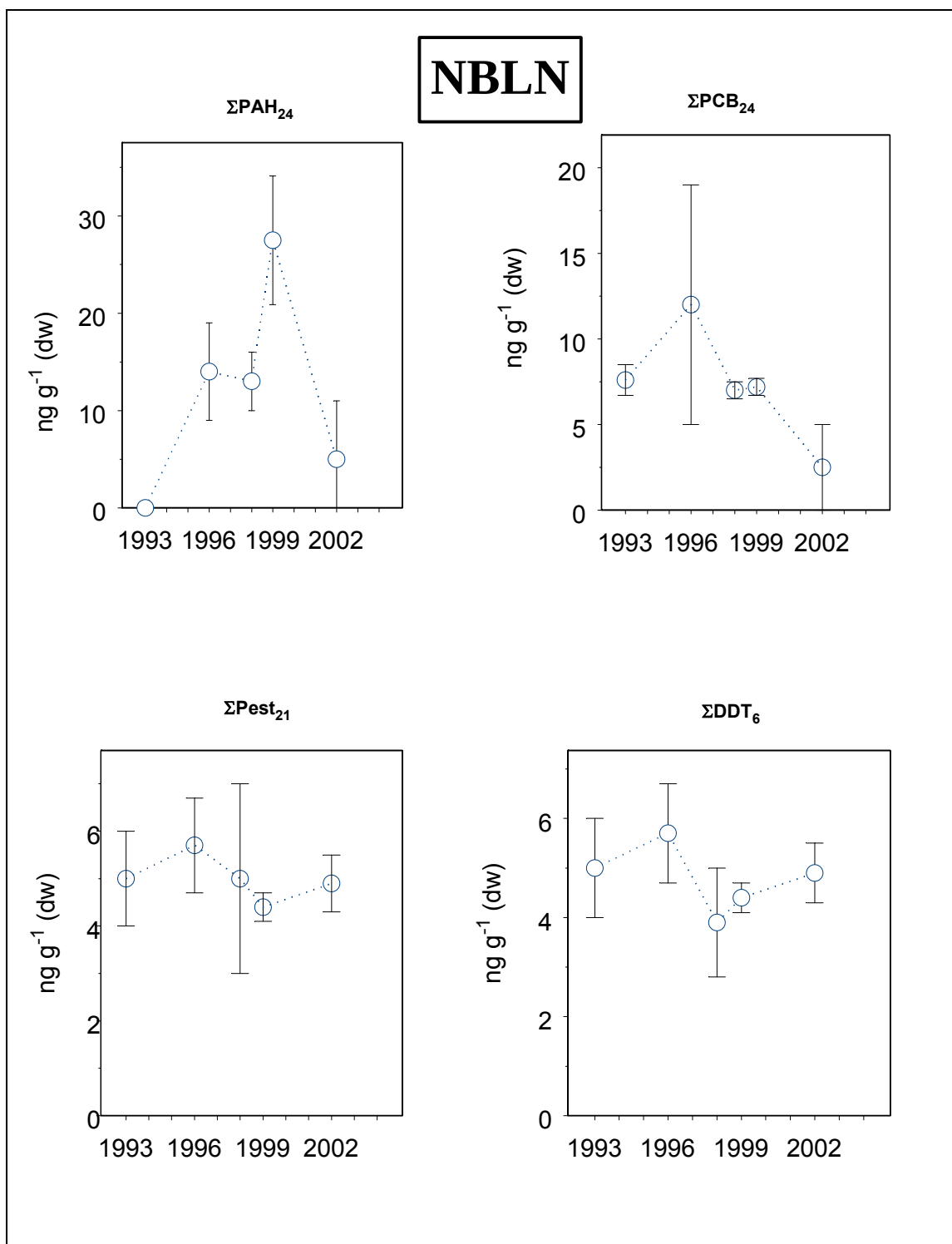


Figure 49C. Distribution of selected organic contaminant concentrations (arithmetic mean $\pm$ SD, ng/g dry weight) in mussels collected at the NBLB Gulfwatch site from selected years during the period from 1993-2004.

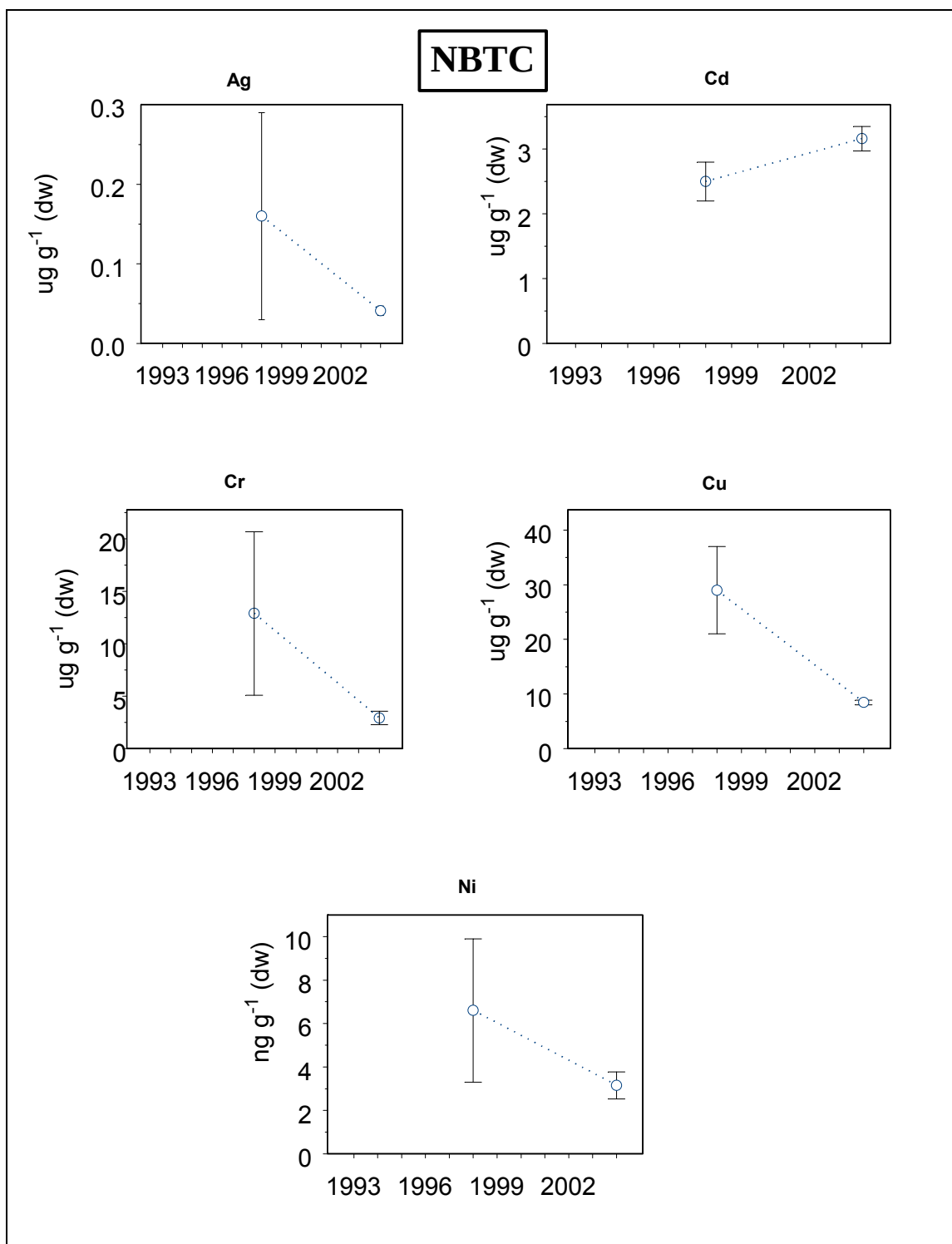


Figure 50A. Distribution of metals (Ag, Cd, Cr, Cu, Ni) concentrations (arithmetic mean $\pm$ SD, $\mu\text{g/g}$ dry weight) in mussels collected at the NBTC Gulfwatch site from selected years during the period from 1993-2004.

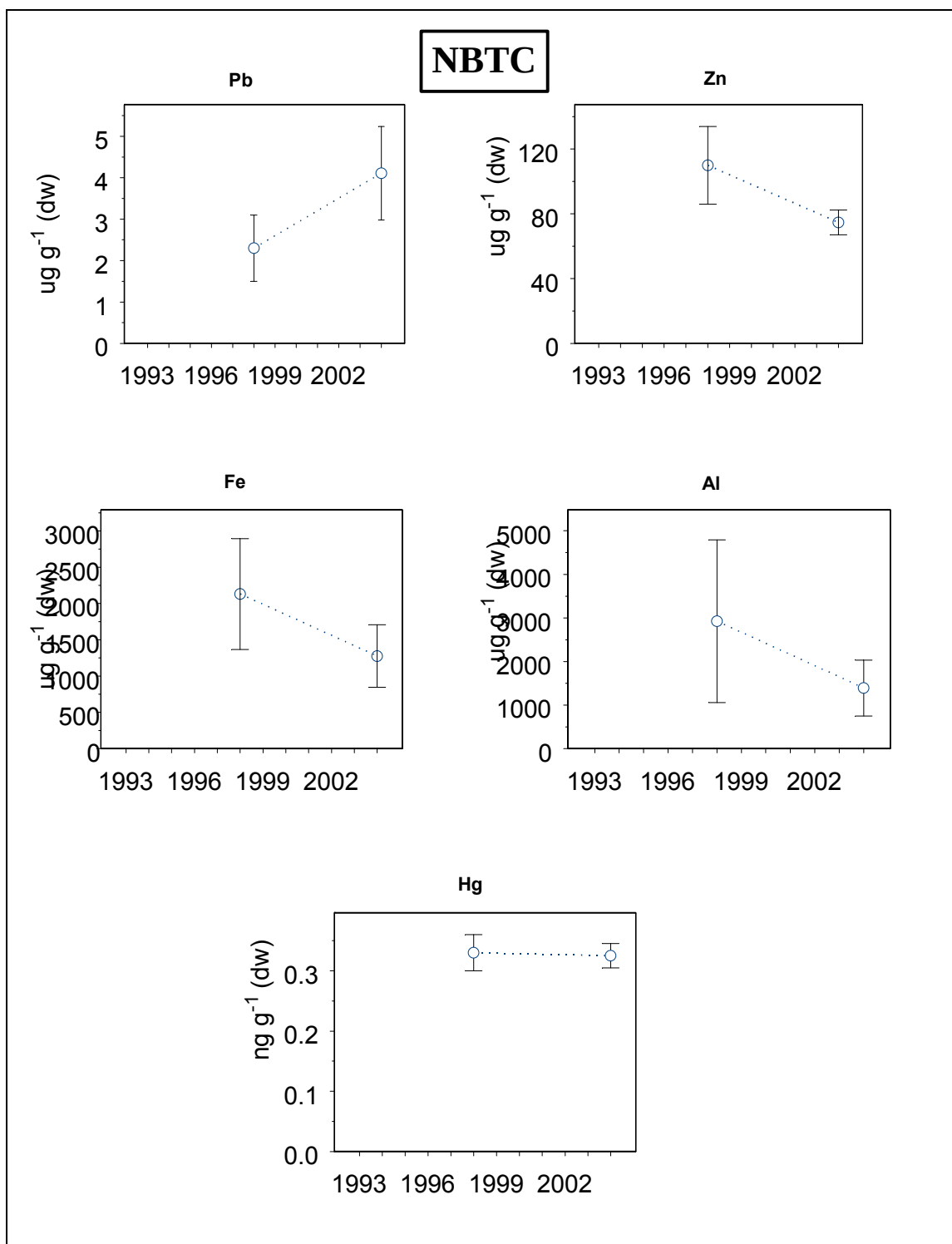


Figure 50B. Distribution of metals (Pb, Zn, Fe, Al, and Hg) concentrations (arithmetic mean $\pm$ SD, $\mu\text{g/g}$ dry weight) in mussels collected at the NBTC Gulfwatch site from selected years during the period from 1993-2004.

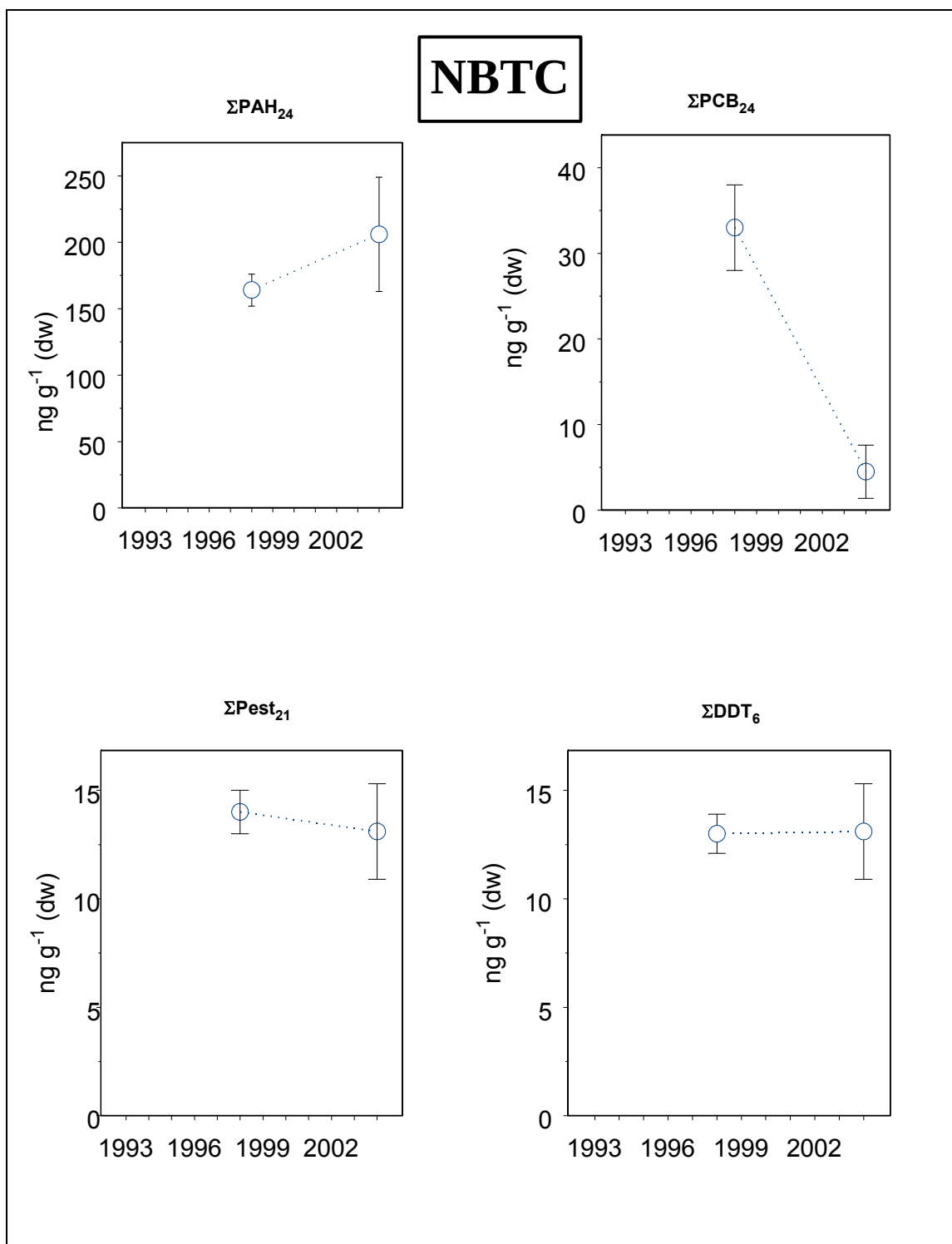


Figure 50C. Distribution of selected organic contaminant concentrations (arithmetic mean $\pm$ SD, ng/g dry weight) in mussels collected at the NBTC Gulfwatch site from selected years during the period from 1993-2004.

Temporal changes in contaminants in *Mytilus edulis* tissue from Nova Scotia Gulfwatch (Rotational and Occasional) Stations; 1993 – 2004.

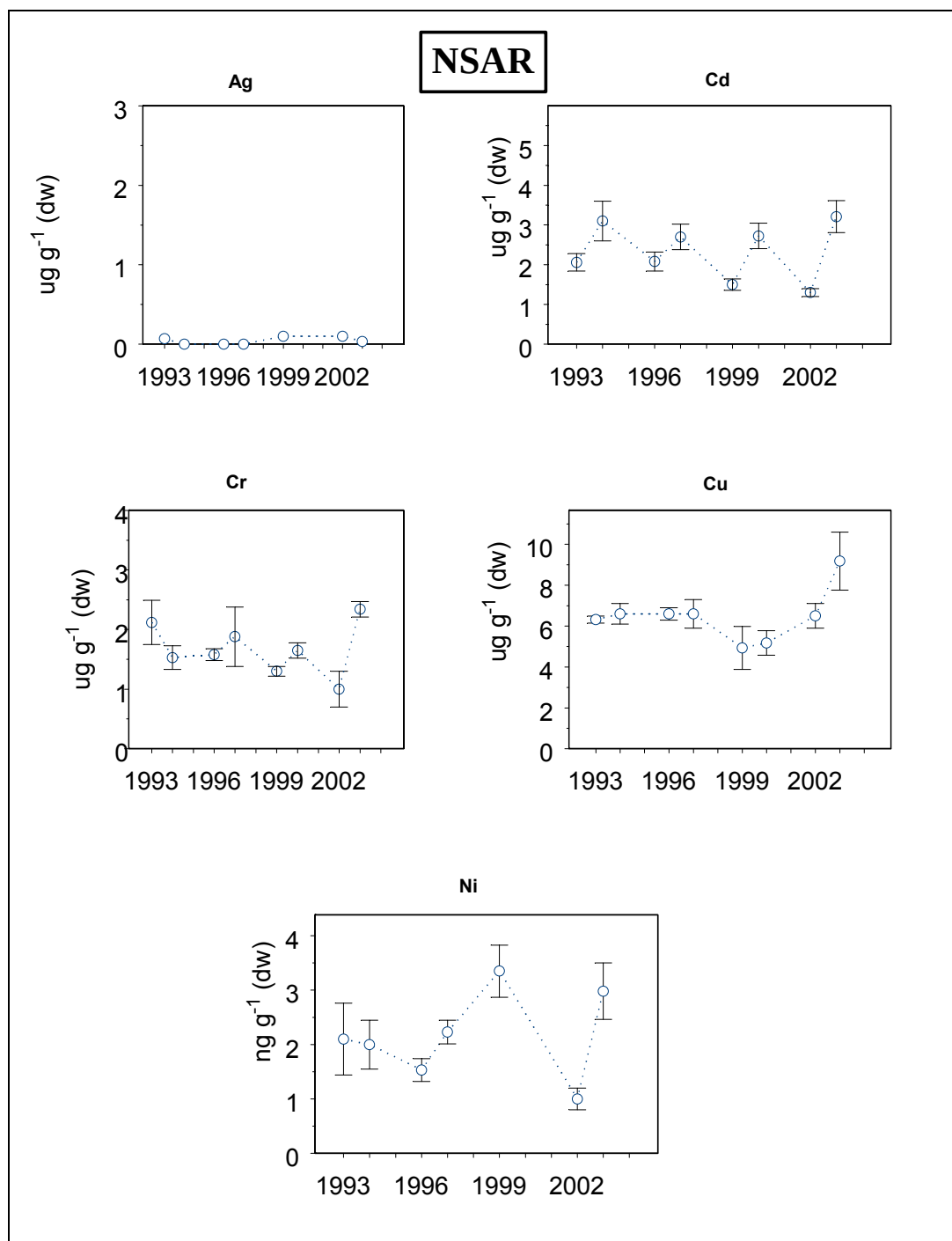


Figure 51A. Distribution of metals (Ag, Cd, Cr, Cu, Ni) concentrations (arithmetic mean $\pm$ SD, $\mu\text{g/g}$ dry weight) in mussels collected at the NSAR Gulfwatch site from selected years during the period from 1993-2004.

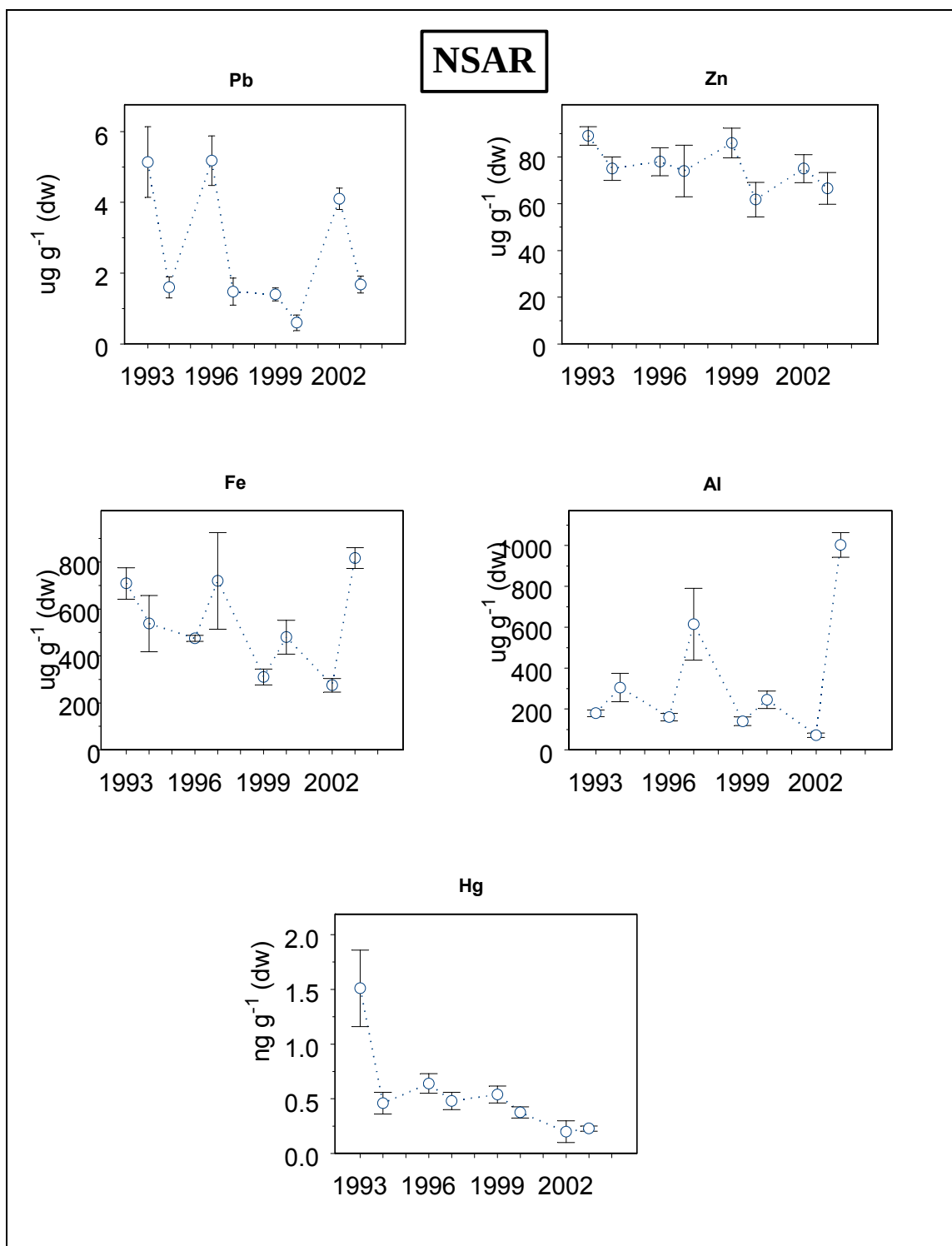


Figure 51B. Distribution of metals (Pb, Zn, Fe, Al, and Hg) concentrations (arithmetic mean $\pm$ SD, $\mu\text{g/g}$ dry weight) in mussels collected at the NSAR Gulfwatch site from selected years during the period from 1993-2004.

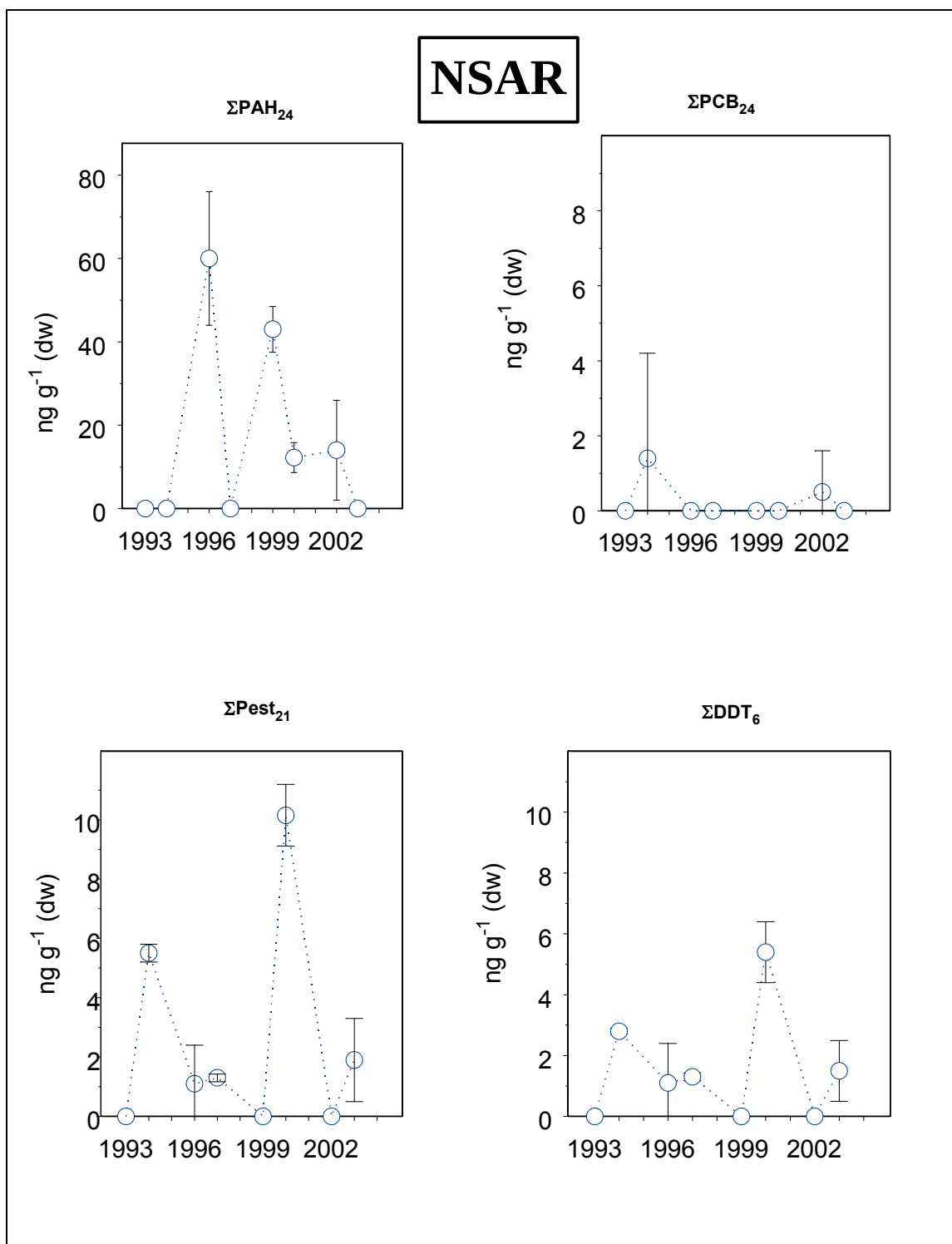


Figure 51C. Distribution of selected organic contaminant concentrations (arithmetic mean $\pm$ SD, ng/g dry weight) in mussels collected at the NSAR Gulfwatch site from selected years during the period from 1993-2004.

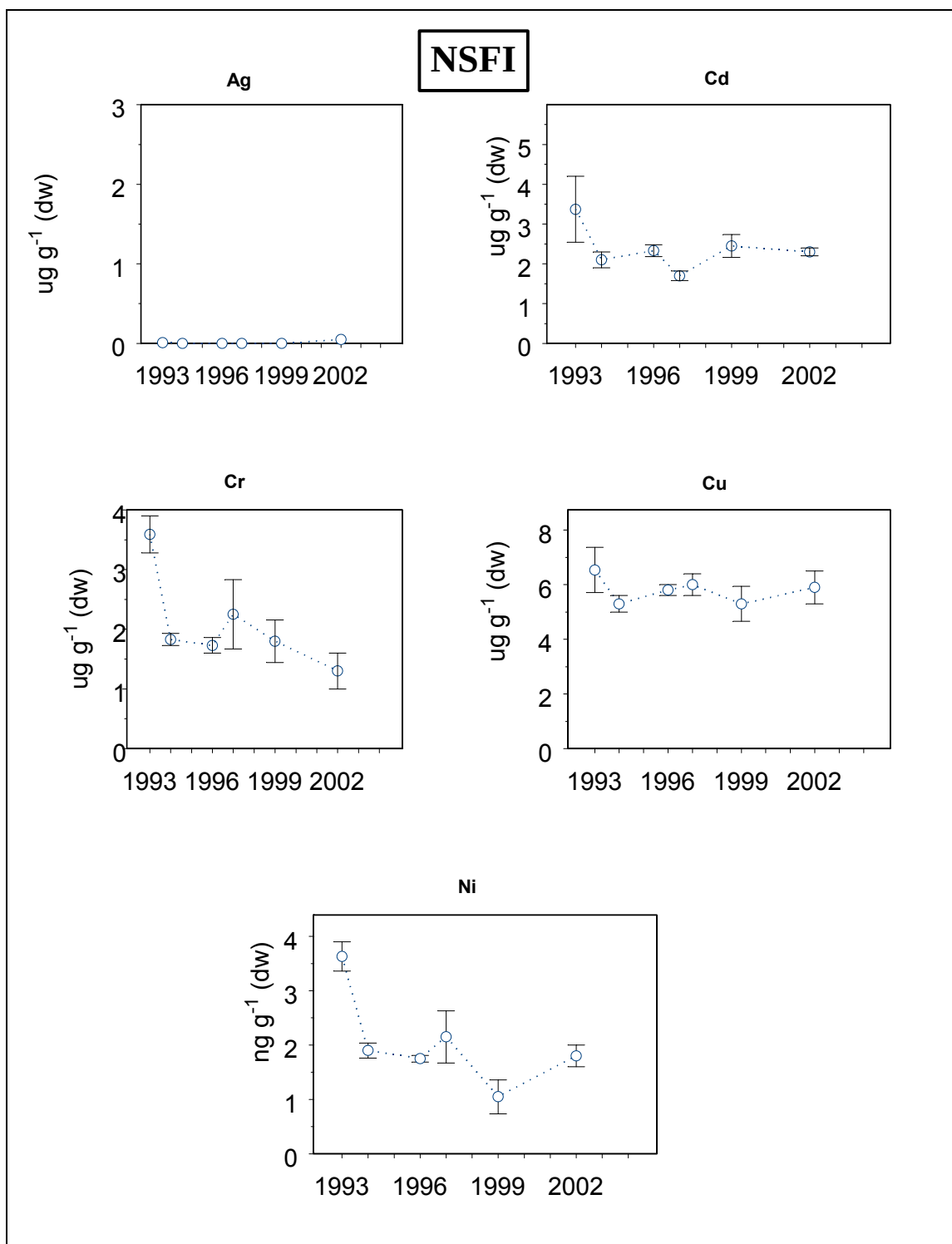


Figure 52A. Distribution of metals (Ag, Cd, Cr, Cu, Ni) concentrations (arithmetic mean $\pm$ SD, $\mu\text{g/g}$ dry weight) in mussels collected at the NSFI Gulfwatch site from selected years during the period from 1993-2004.

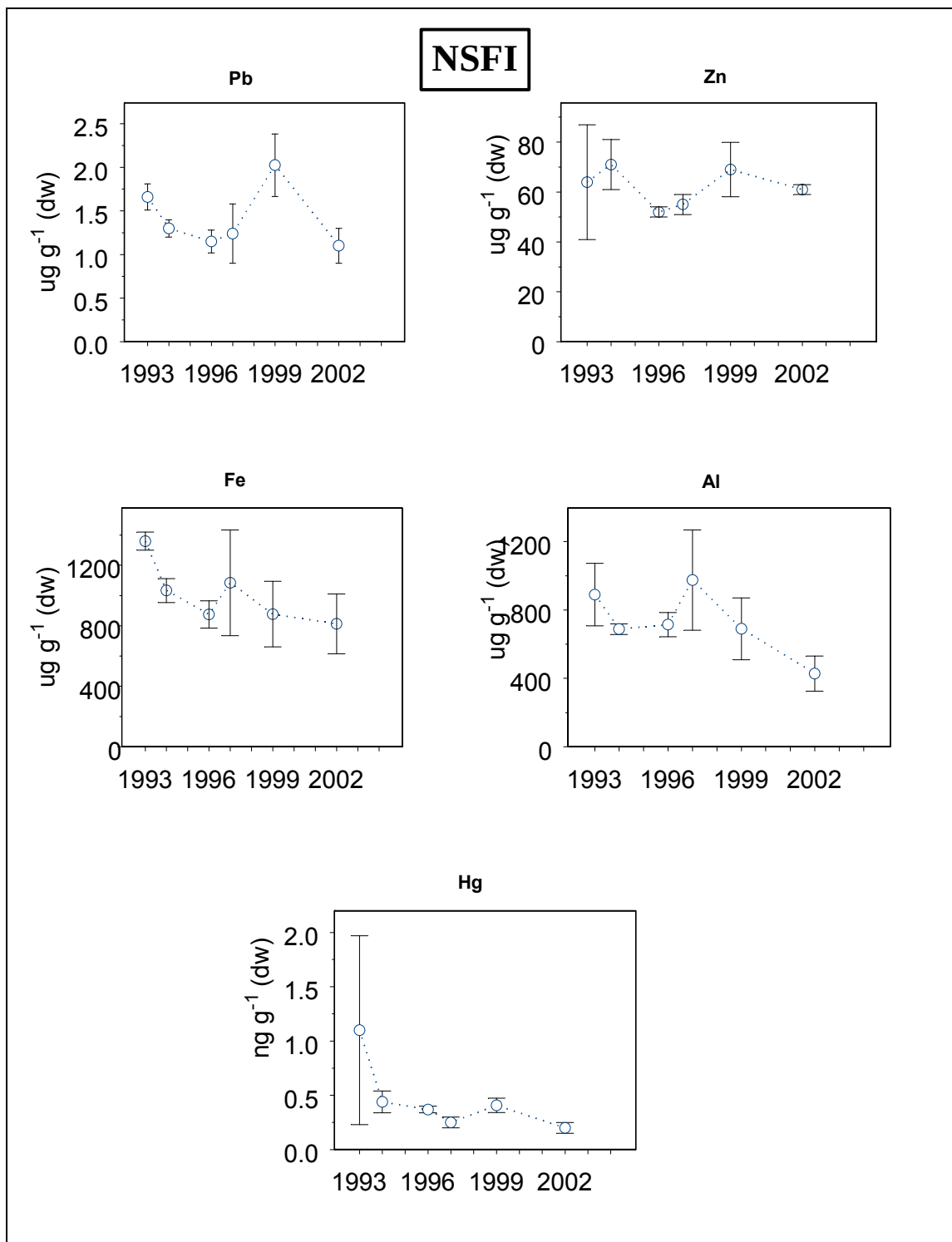


Figure 52B. Distribution of metals (Pb, Zn, Fe, Al, and Hg) concentrations (arithmetic mean $\pm$ SD, $\mu\text{g/g}$ dry weight) in mussels collected at the NSFI Gulfwatch site from selected years during the period from 1993-2004.

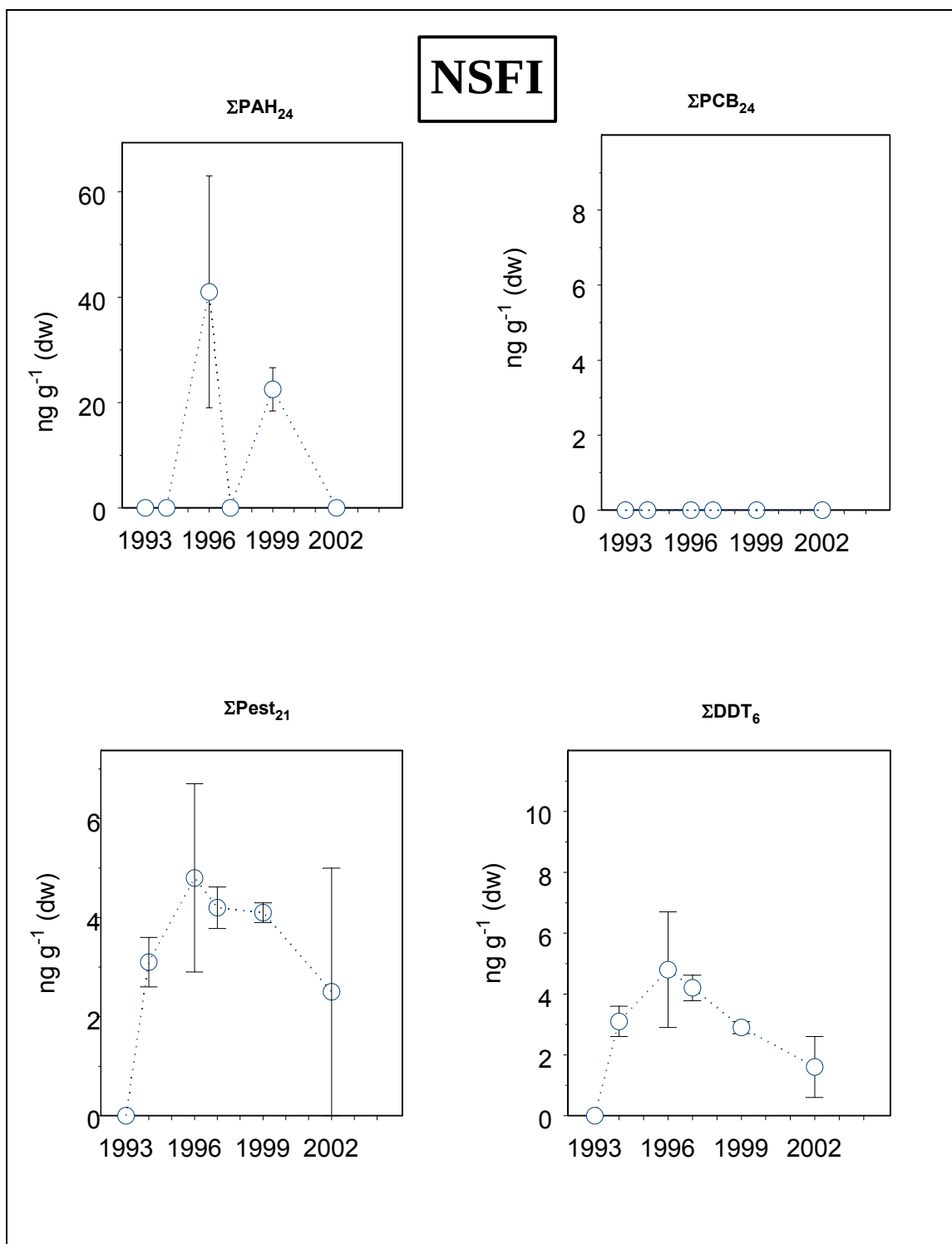


Figure 52C. Distribution of selected organic contaminant concentrations (arithmetic mean $\pm$ SD, ng/g dry weight) in mussels collected at the NSFI Gulfwatch site from selected years during the period from 1993-2004.

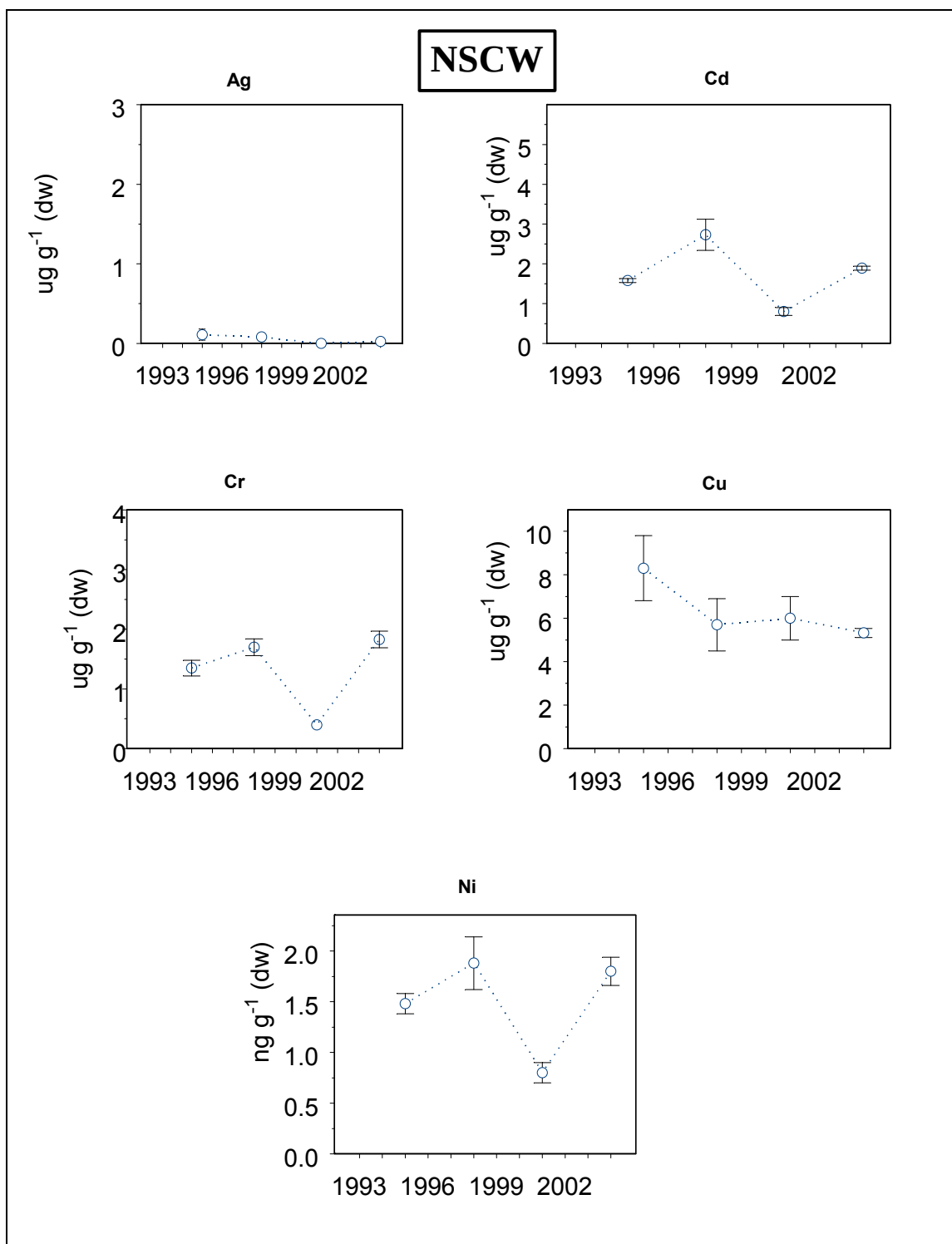


Figure 53A. Distribution of metals (Ag, Cd, Cr, Cu, Ni) concentrations (arithmetic mean $\pm$ SD, $\mu\text{g/g}$ dry weight) in mussels collected at the NSCW Gulfwatch site from selected years during the period from 1993-2004.

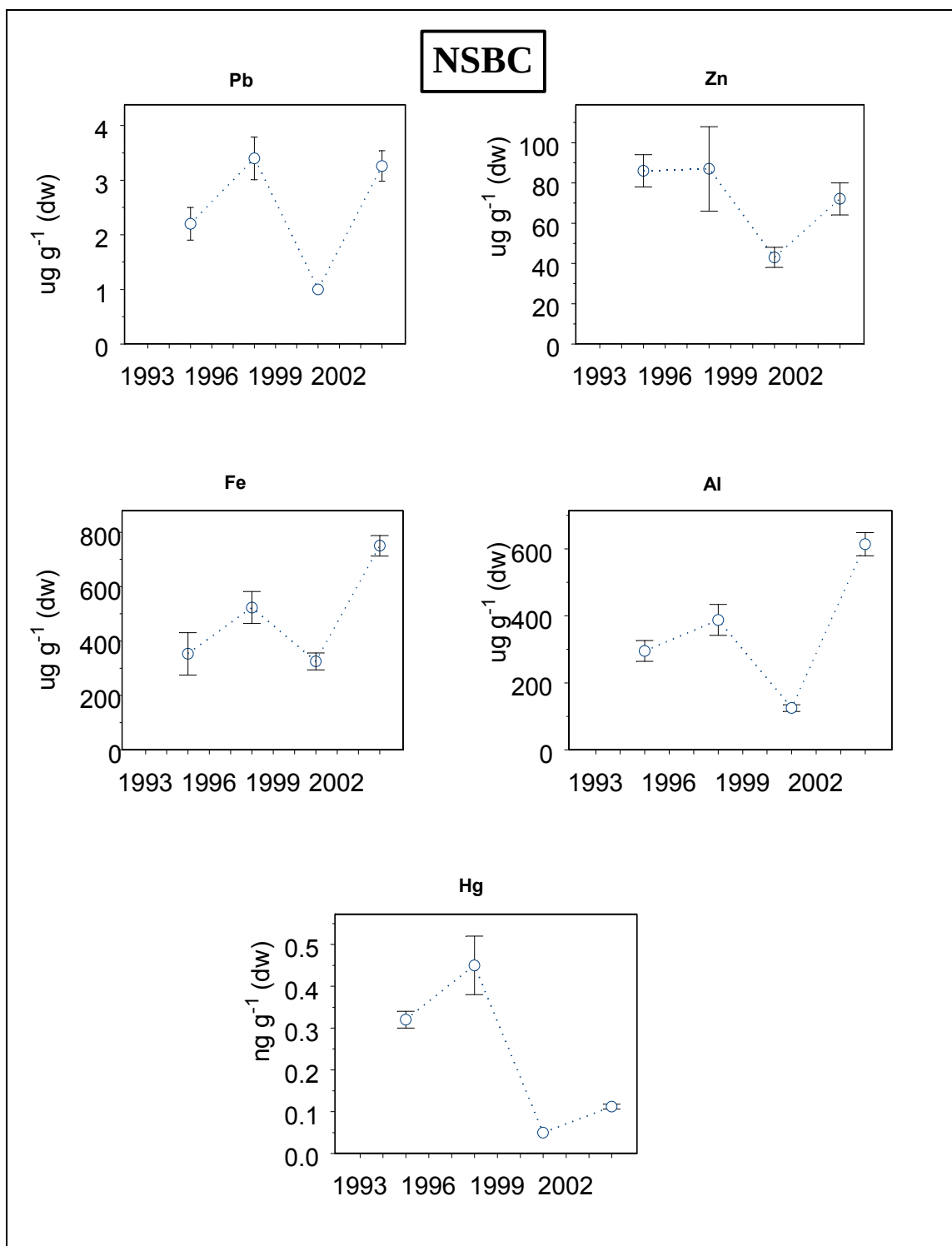


Figure 53B. Distribution of metals (Pb, Zn, Fe, Al, and Hg) concentrations (arithmetic mean $\pm$ SD, $\mu\text{g/g}$ dry weight) in mussels collected at the NSCW Gulfwatch site from selected years during the period from 1993-2004.

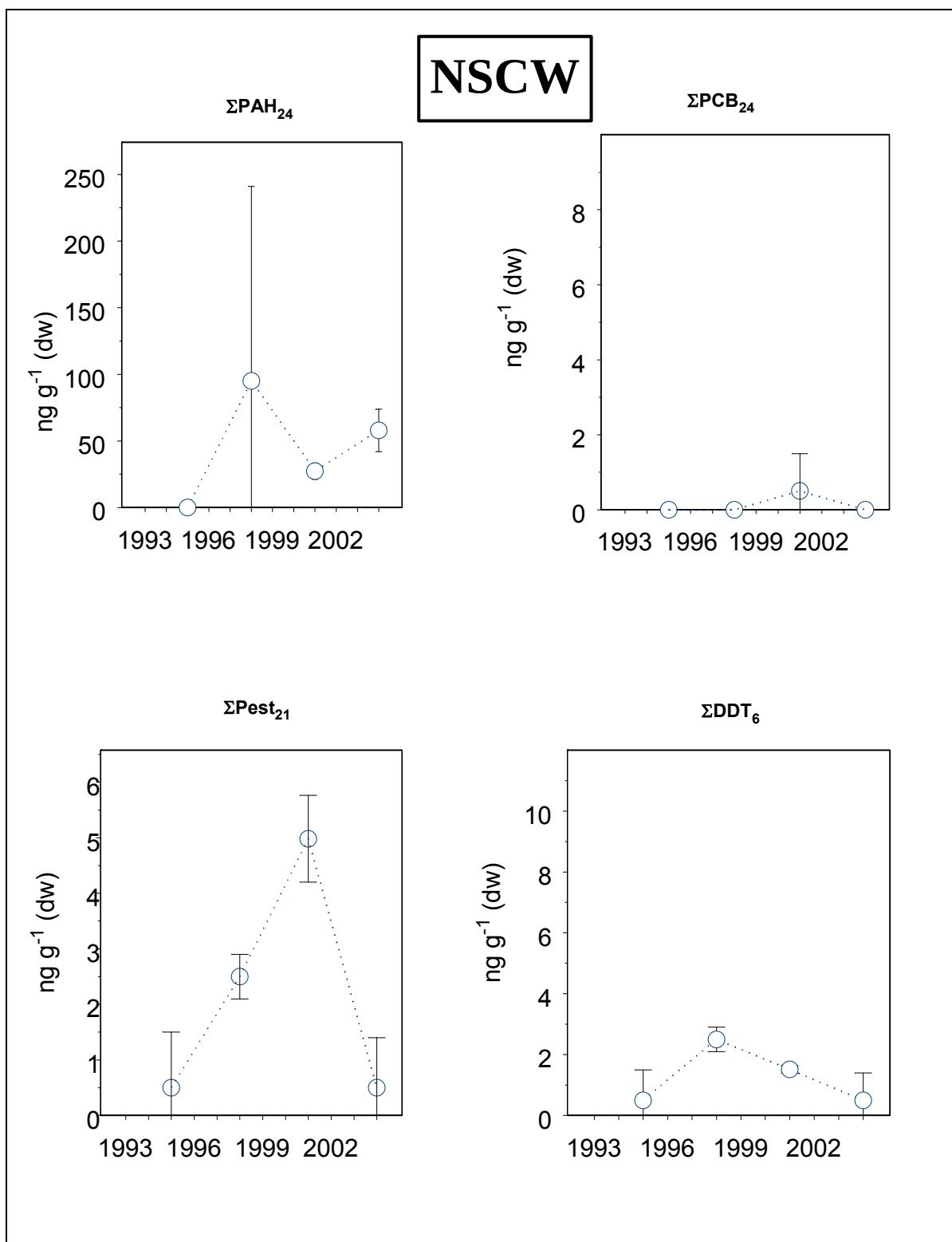


Figure 53C. Distribution of selected organic contaminant concentrations (arithmetic mean $\pm$ SD, ng/g dry weight) in mussels collected at the NSCW Gulfwatch site from selected years during the period from 1993-2004.

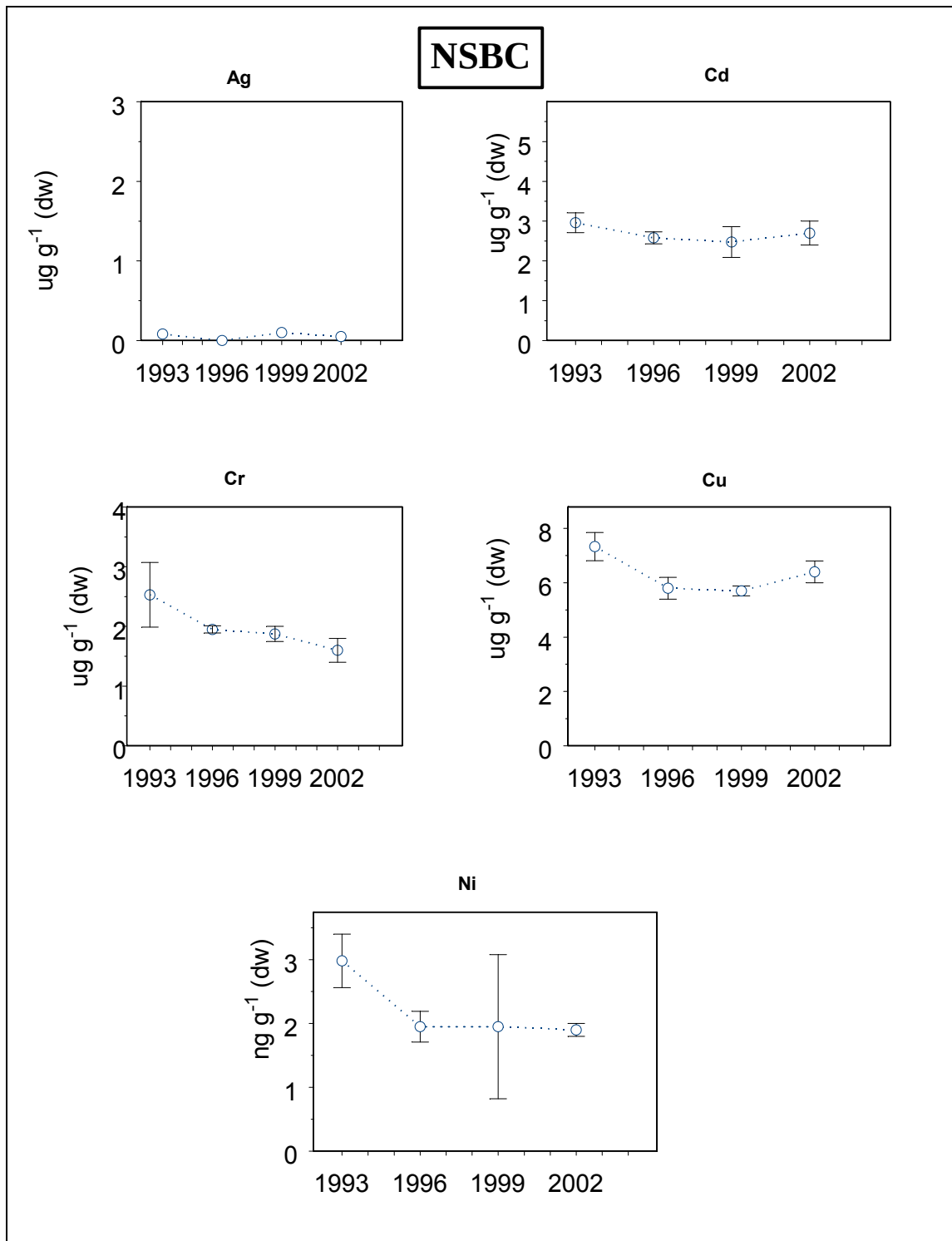


Figure 54A. Distribution of metals (Ag, Cd, Cr, Cu, Ni) concentrations (arithmetic mean $\pm$ SD, $\mu\text{g/g}$ dry weight) in mussels collected at the NSBC Gulfwatch site from selected years during the period from 1993-2004.

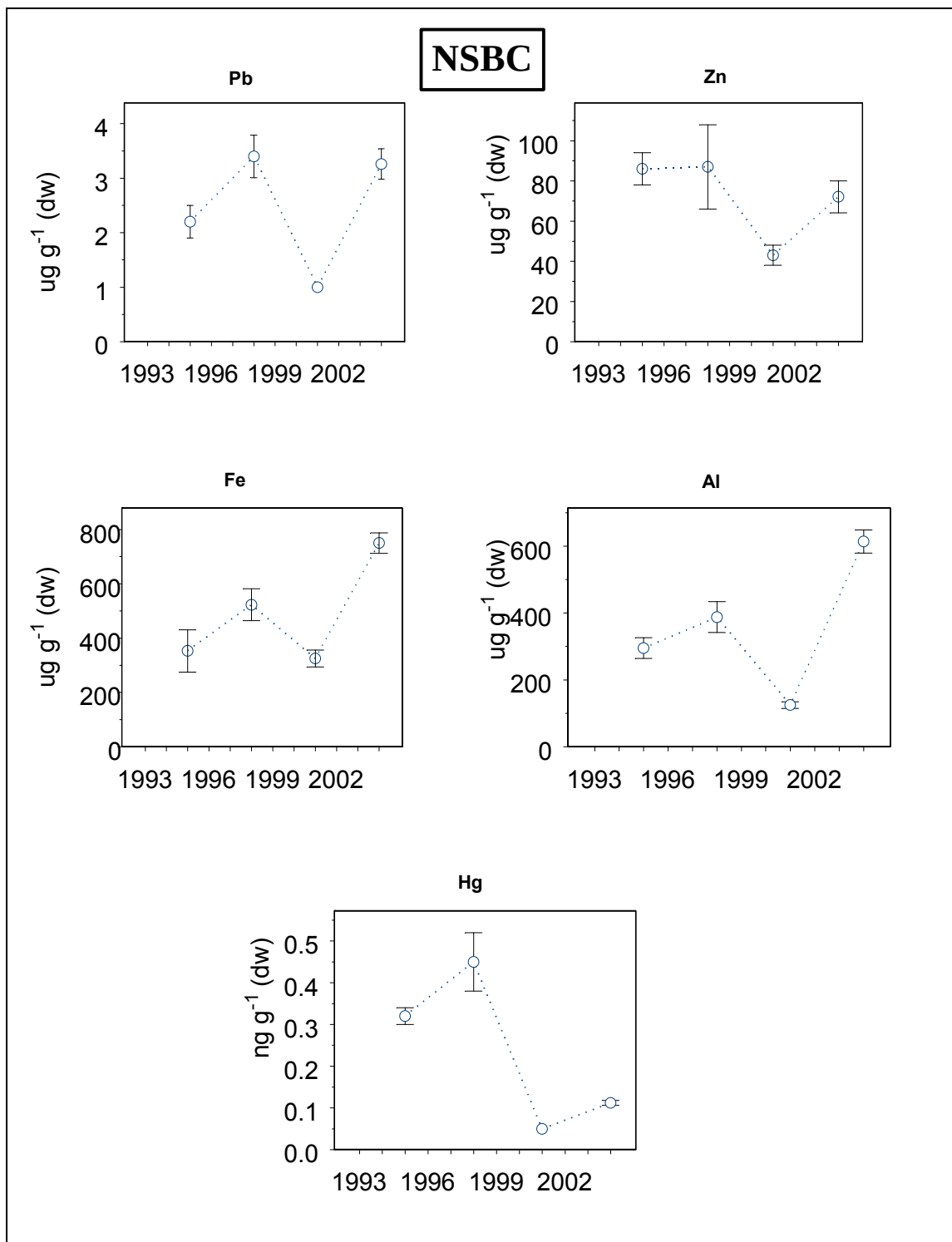


Figure 53B. Distribution of metals (Pb, Zn, Fe, Al, and Hg) concentrations (arithmetic mean $\pm$ SD, $\mu\text{g/g}$ dry weight) in mussels collected at the NSCW Gulfwatch site from selected years during the period from 1993-2004.

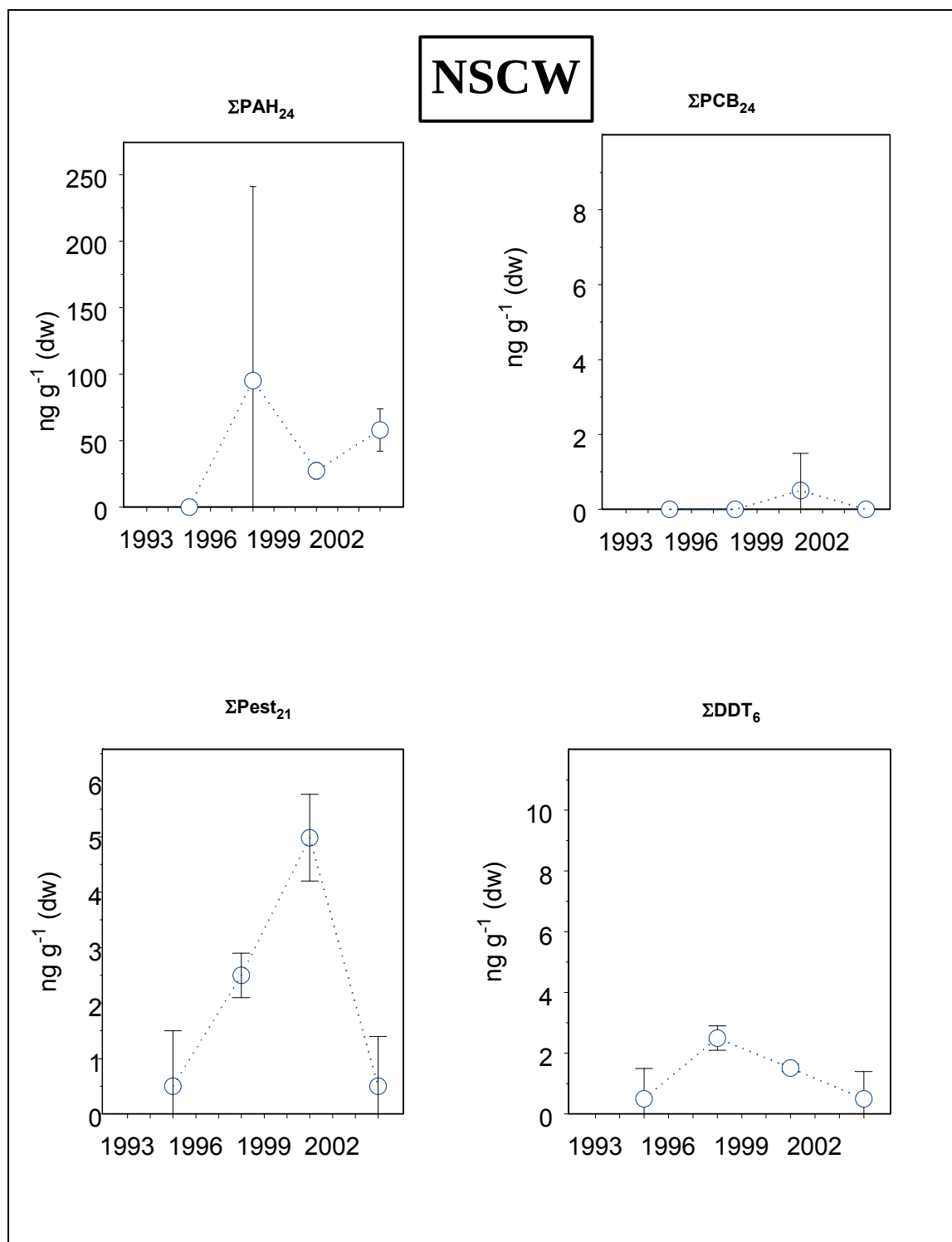


Figure 53C. Distribution of selected organic contaminant concentrations (arithmetic mean $\pm$ SD, ng/g dry weight) in mussels collected at the NSCW Gulfwatch site from selected years during the period from 1993-2004.

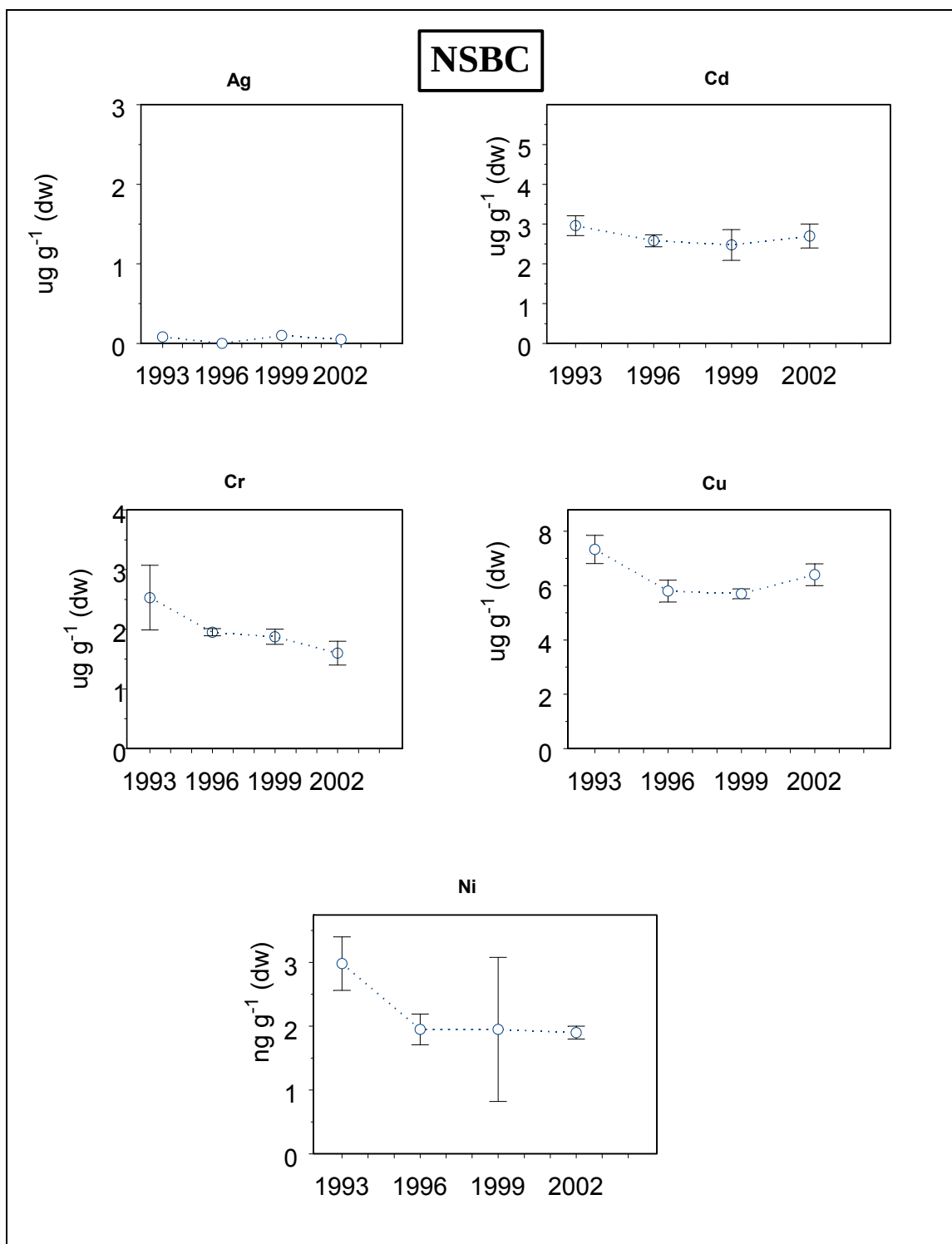


Figure 54A. Distribution of metals (Ag, Cd, Cr, Cu, Ni) concentrations (arithmetic mean $\pm$ SD, $\mu\text{g/g}$ dry weight) in mussels collected at the NSBC Gulfwatch site from selected years during the period from 1993-2004.

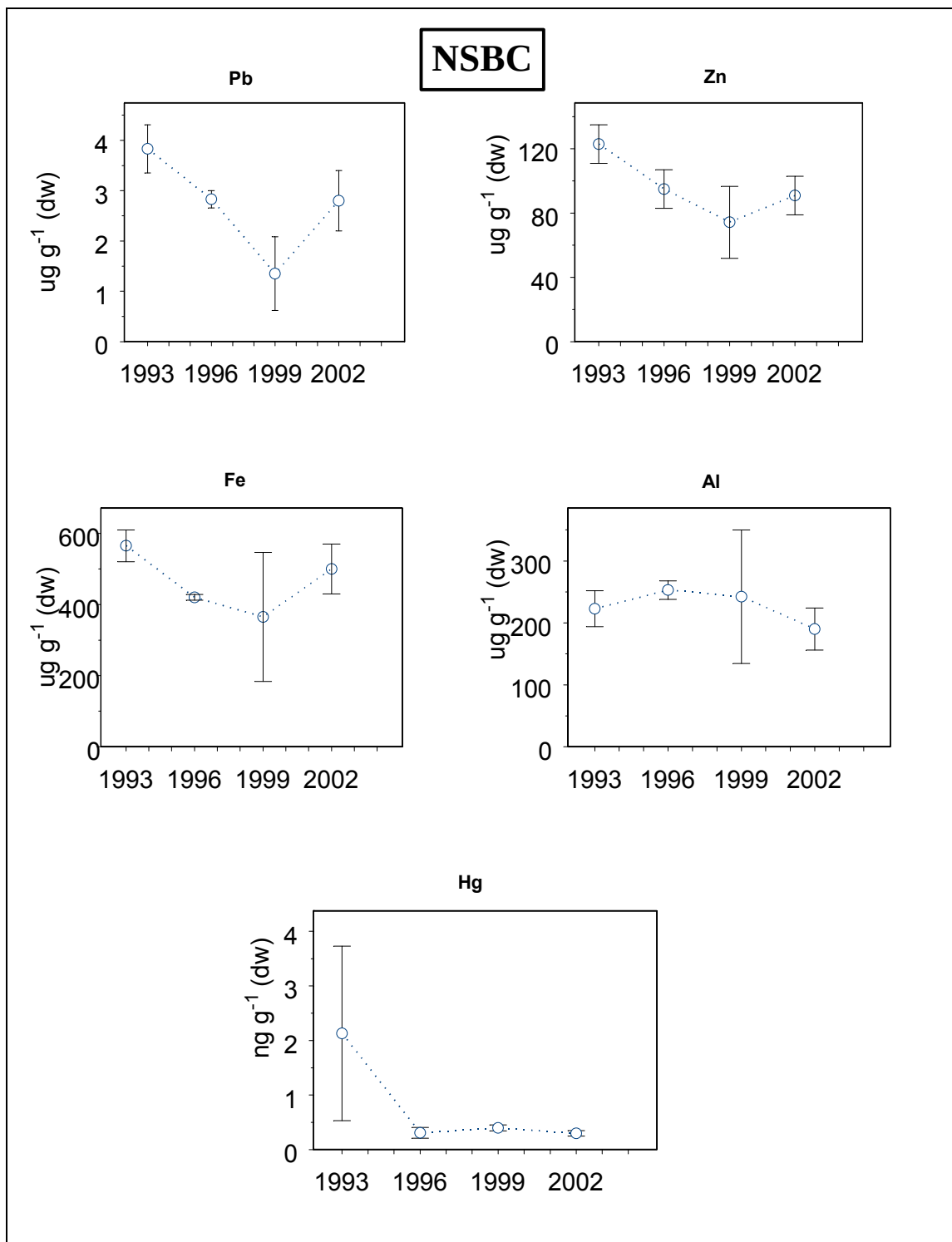


Figure 54B. Distribution of metals (Pb, Zn, Fe, Al, and Hg) concentrations (arithmetic mean $\pm$ SD, $\mu\text{g/g}$ dry weight) in mussels collected at the NSBC Gulfwatch site from selected years during the period from 1993-2004.

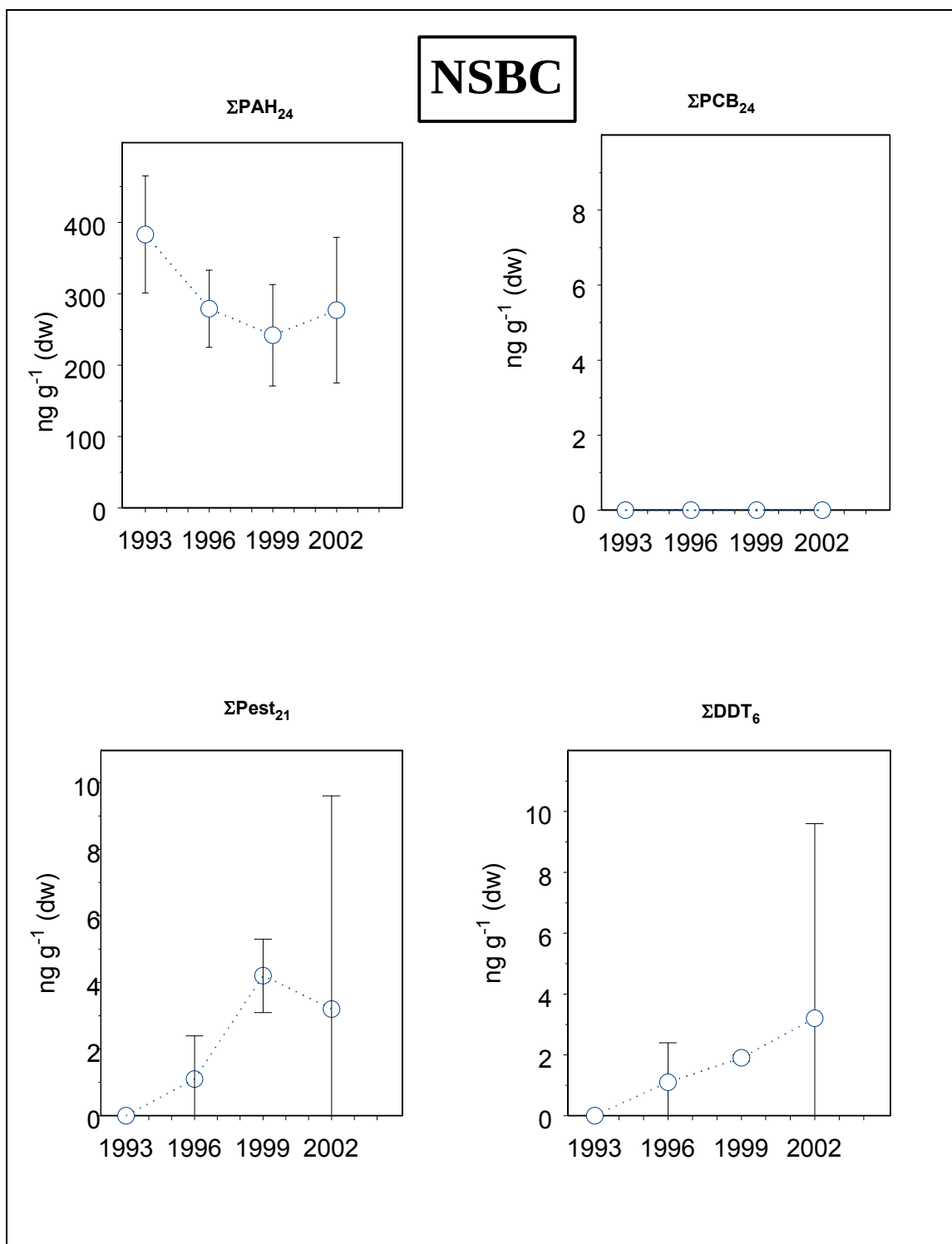


Figure 54C. Distribution of selected organic contaminant concentrations (arithmetic mean $\pm$ SD, ng/g dry weight) in mussels collected at the NSBC Gulfwatch site from selected years during the period from 1993-2004.

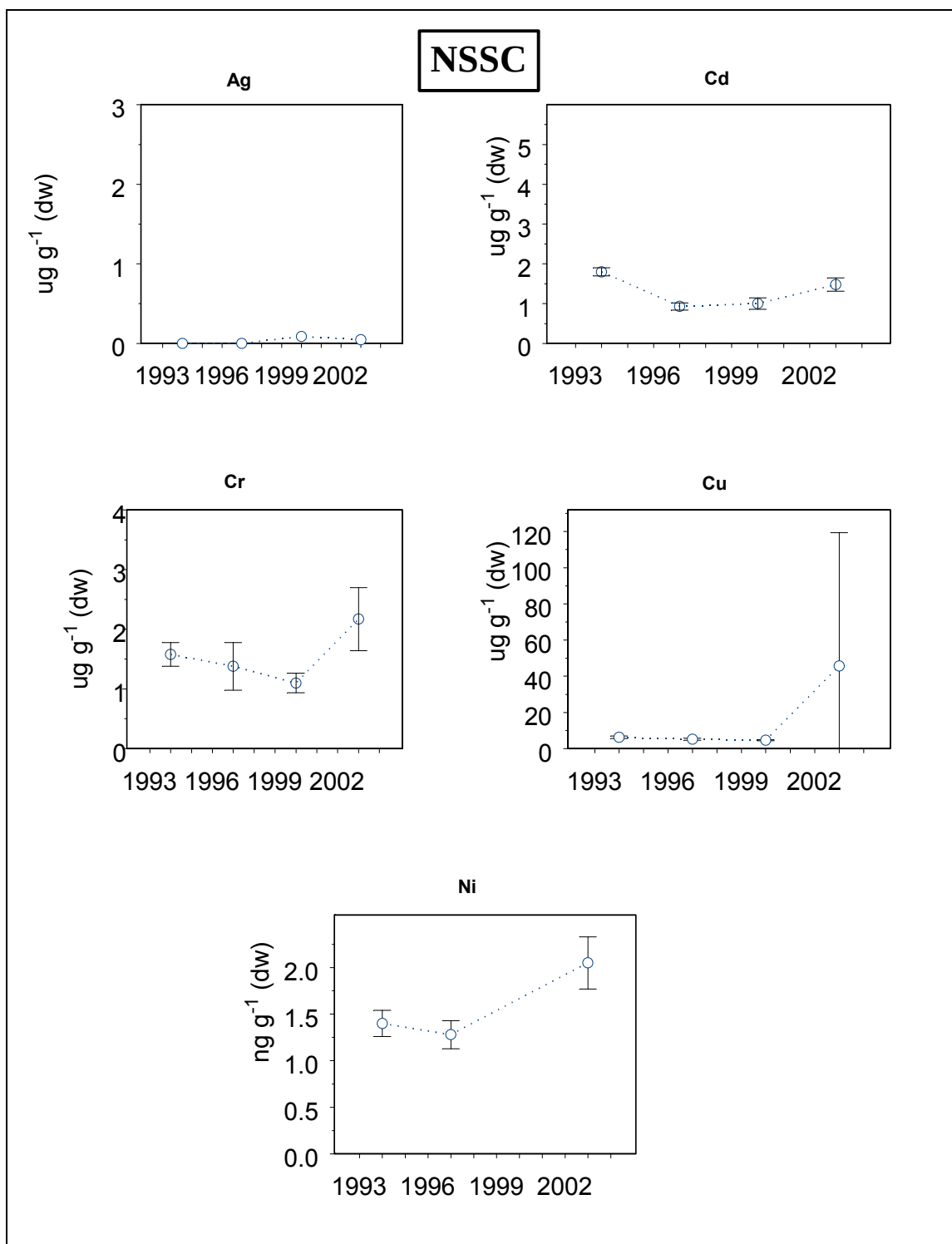


Figure 55A. Distribution of metals (Ag, Cd, Cr, Cu, Ni) concentrations (arithmetic mean $\pm$ SD, $\mu\text{g/g}$ dry weight) in mussels collected at the NSSC Gulfwatch site from selected years during the period from 1993-2004.

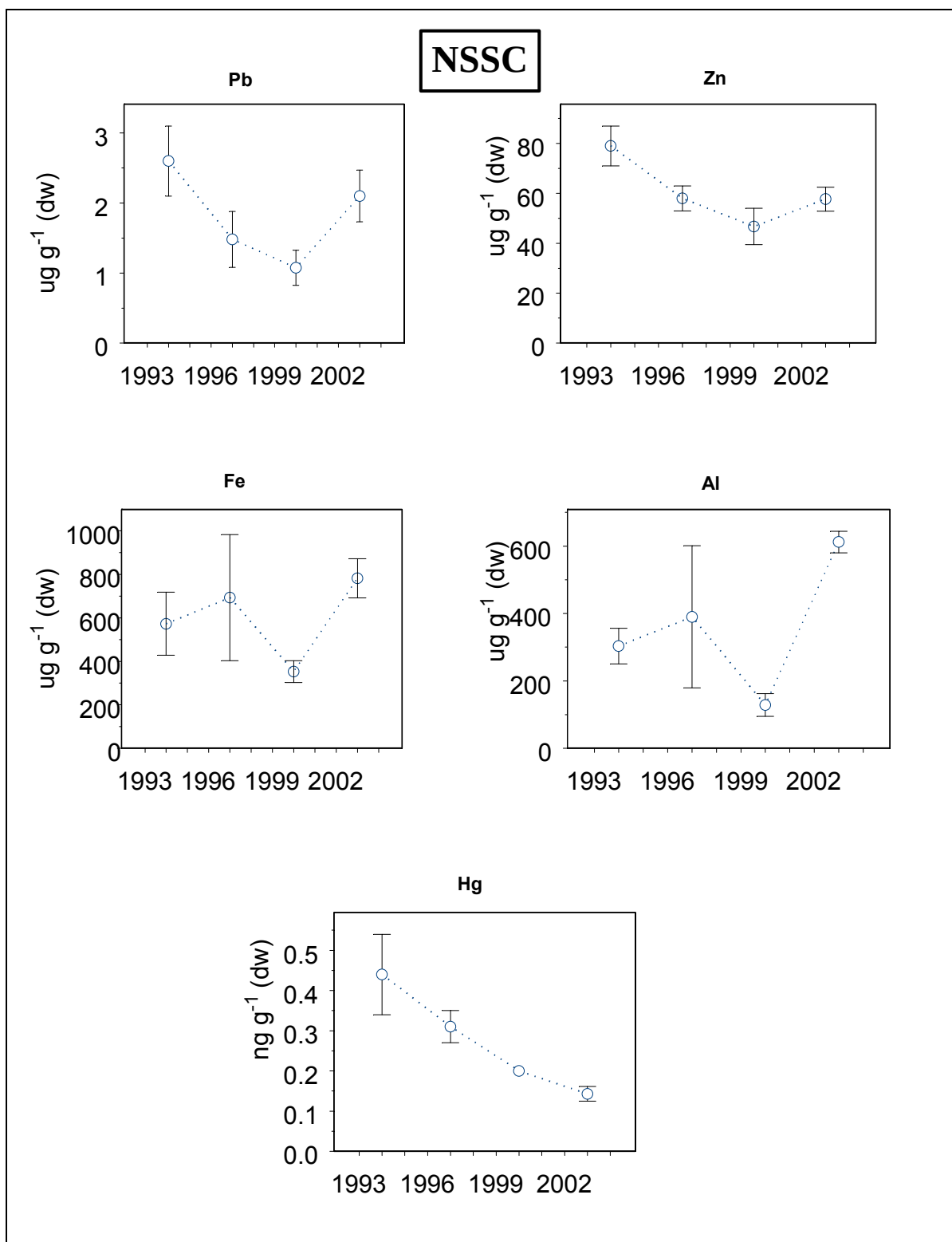


Figure 55B. Distribution of metals (Pb, Zn, Fe, Al, and Hg) concentrations (arithmetic mean $\pm$ SD, $\mu\text{g/g}$ dry weight) in mussels collected at the NSSC Gulfwatch site from selected years during the period from 1993-2004.

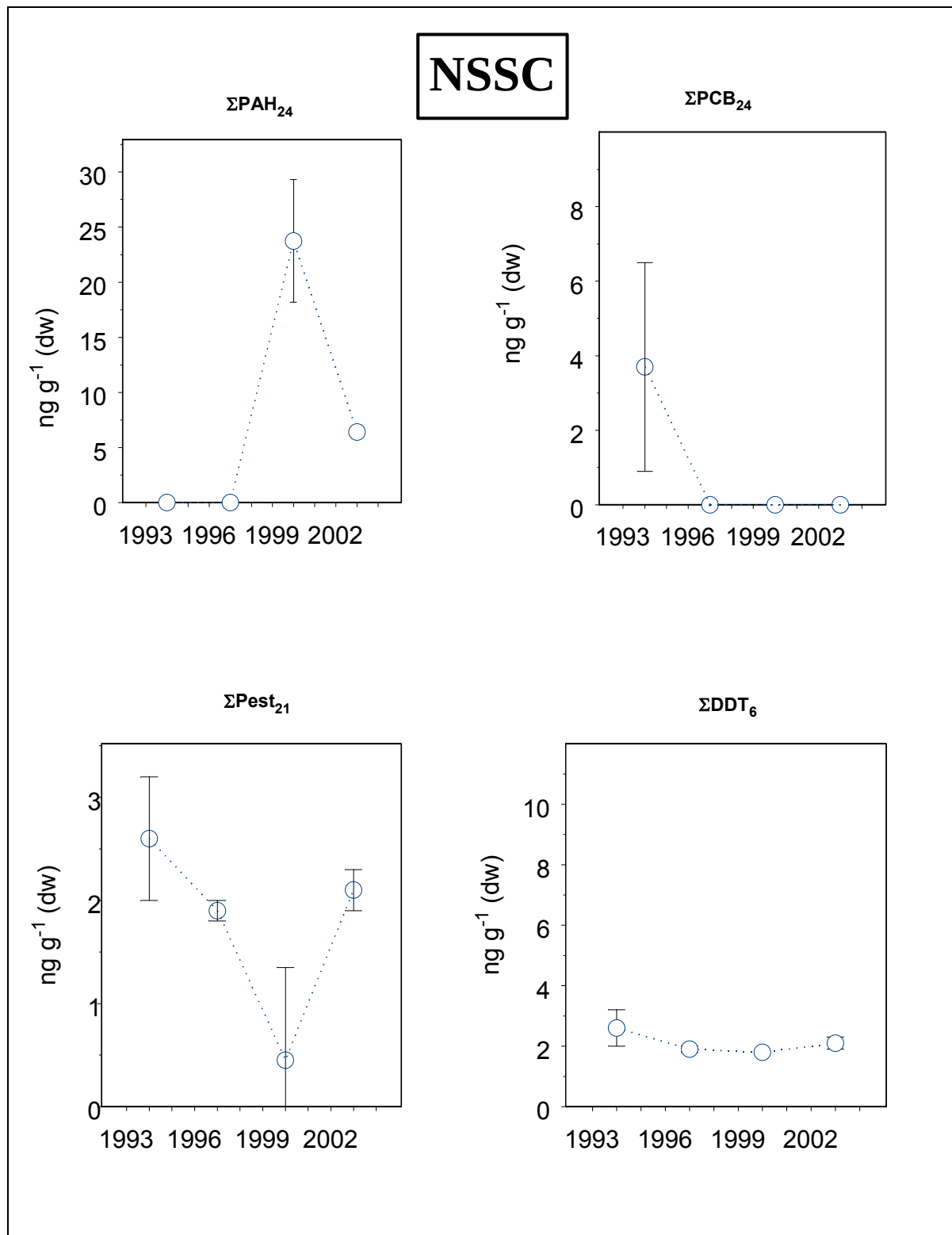


Figure 55C. Distribution of selected organic contaminant concentrations (arithmetic mean $\pm$ SD, ng/g dry weight) in mussels collected at the NSSC Gulfwatch site from selected years during the period from 1993-2004.

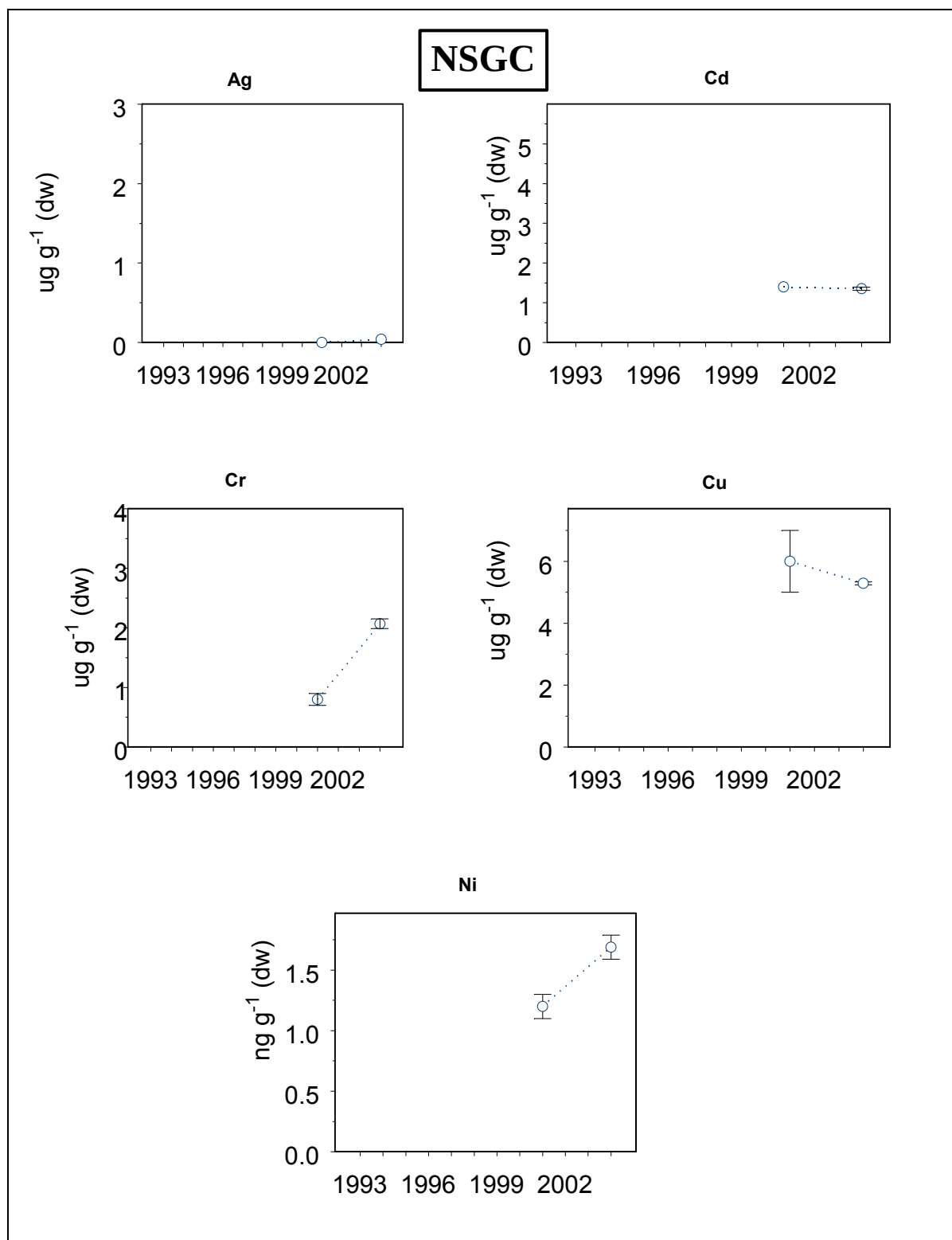


Figure 56A. Distribution of metals (Ag, Cd, Cr, Cu, Ni) concentrations (arithmetic mean $\pm$ SD, $\mu\text{g/g}$ dry weight) in mussels collected at the NSGC Gulfwatch site from selected years during the period from 1993-2004.

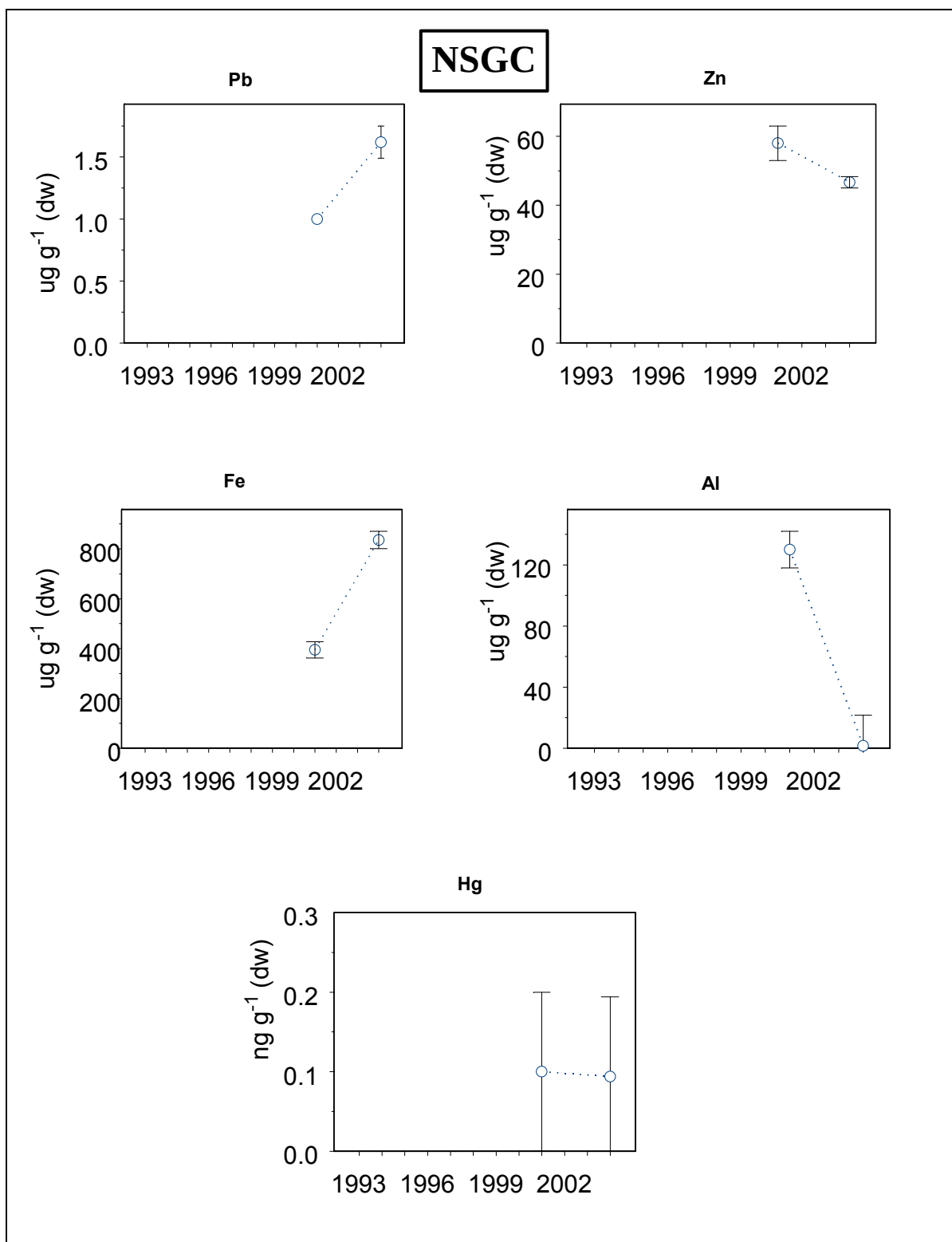


Figure 56B. Distribution of metals (Pb, Zn, Fe, Al, and Hg) concentrations (arithmetic mean $\pm$ SD, $\mu\text{g/g}$ dry weight) in mussels collected at the NSGC Gulfwatch site from selected years during the period from 1993-2004.

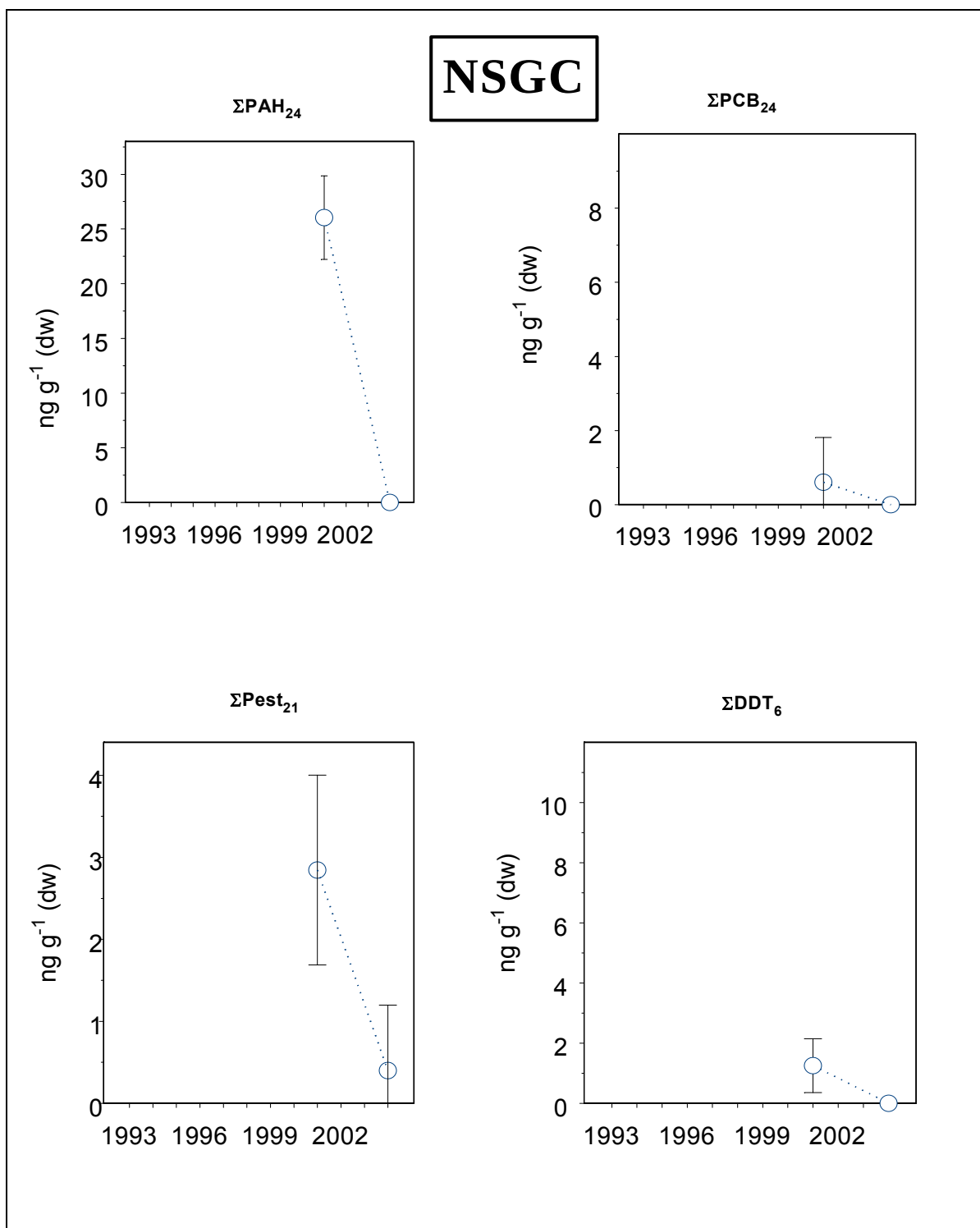


Figure 56C. Distribution of selected organic contaminant concentrations (arithmetic mean $\pm$ SD, ng/g dry weight) in mussels collected at the NSGC Gulfwatch site from selected years during the period from 1993-2004.

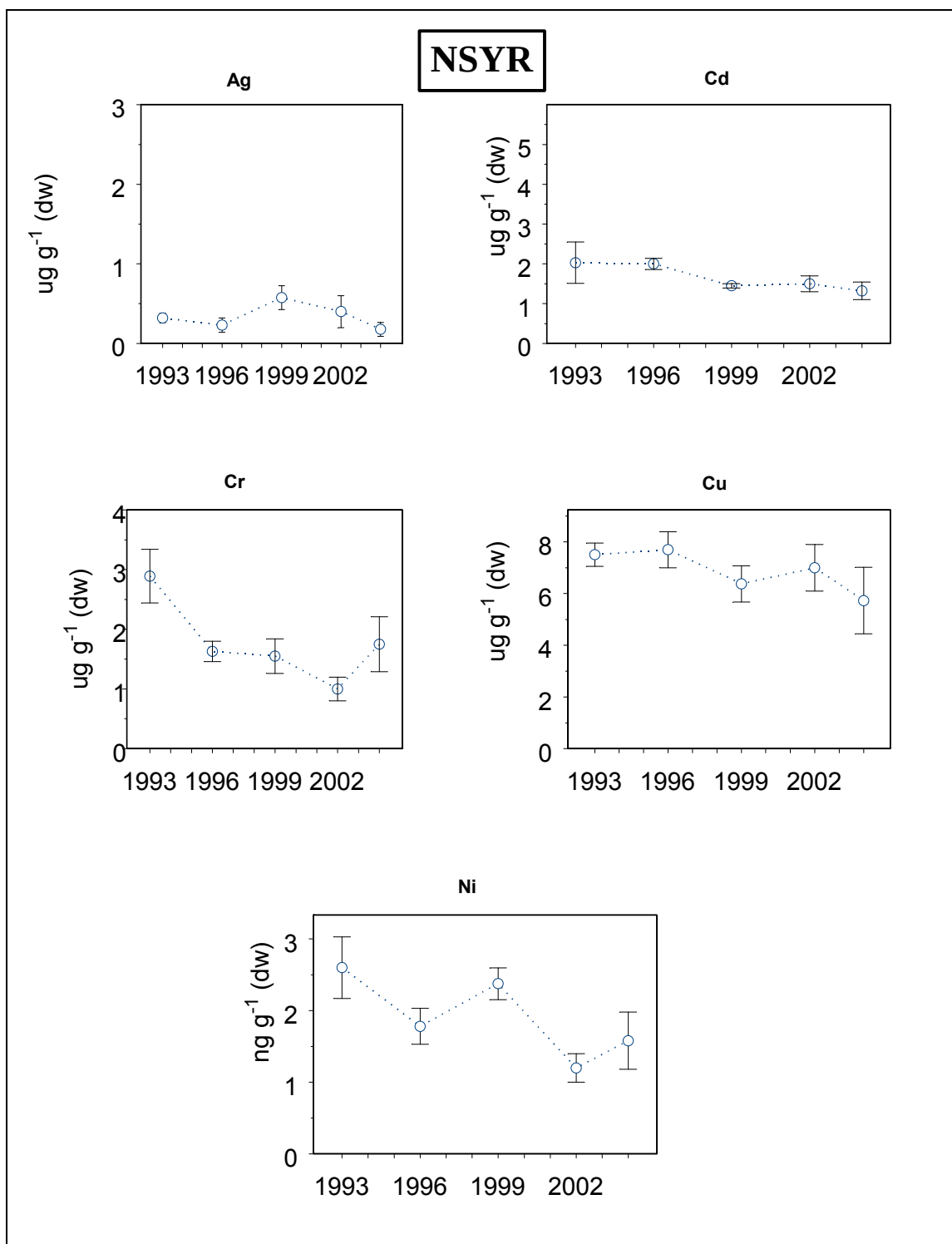


Figure 57A. Distribution of metals (Ag, Cd, Cr, Cu, Ni) concentrations (arithmetic mean $\pm$ SD, $\mu\text{g/g}$ dry weight) in mussels collected at the NSYR Gulfwatch site from selected years during the period from 1993-2004.

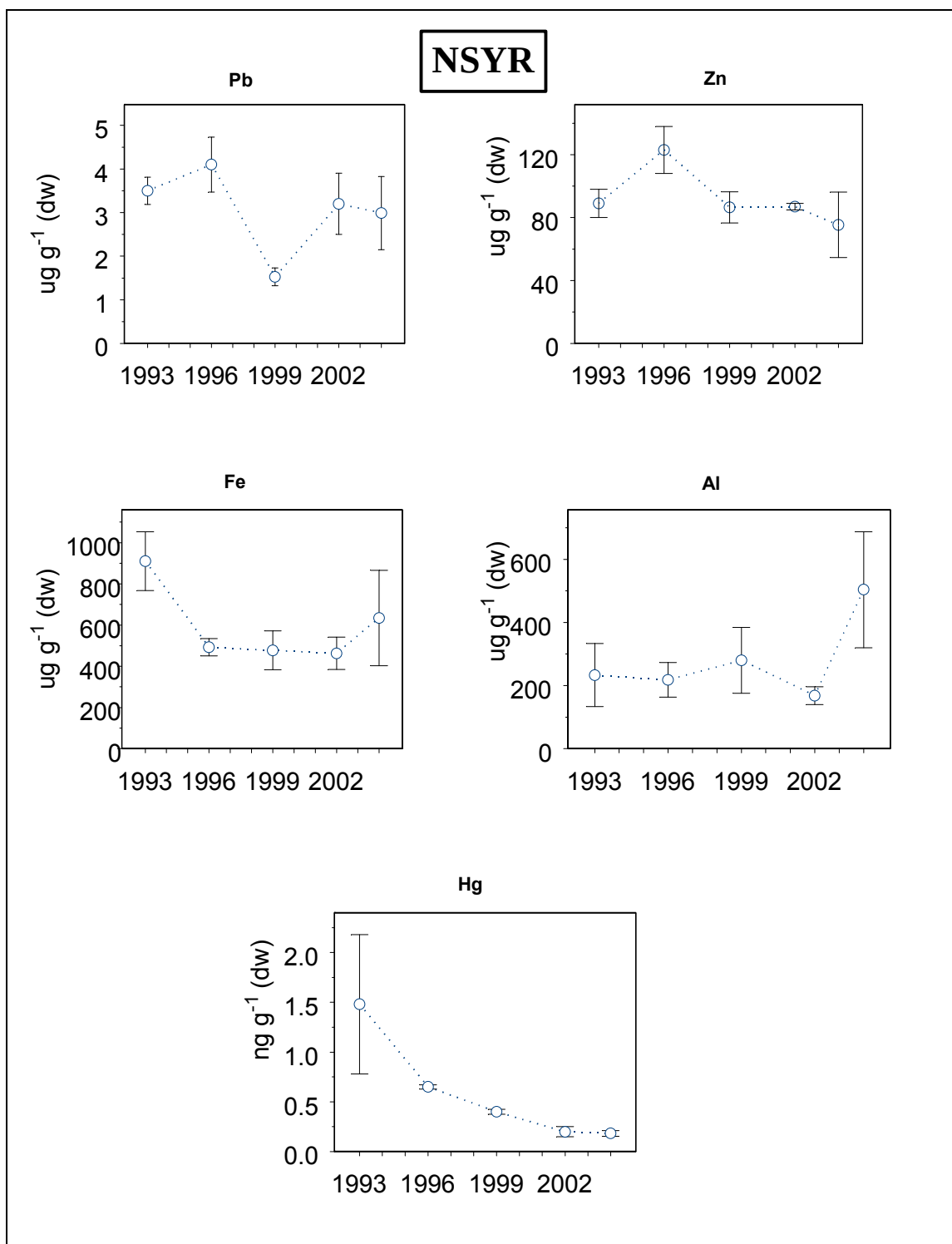


Figure 57B. Distribution of metals (Pb, Zn, Fe, Al, and Hg) concentrations (arithmetic mean $\pm$ SD, $\mu\text{g/g}$ dry weight) in mussels collected at the NSYR Gulfwatch site from selected years during the period from 1993-2004.

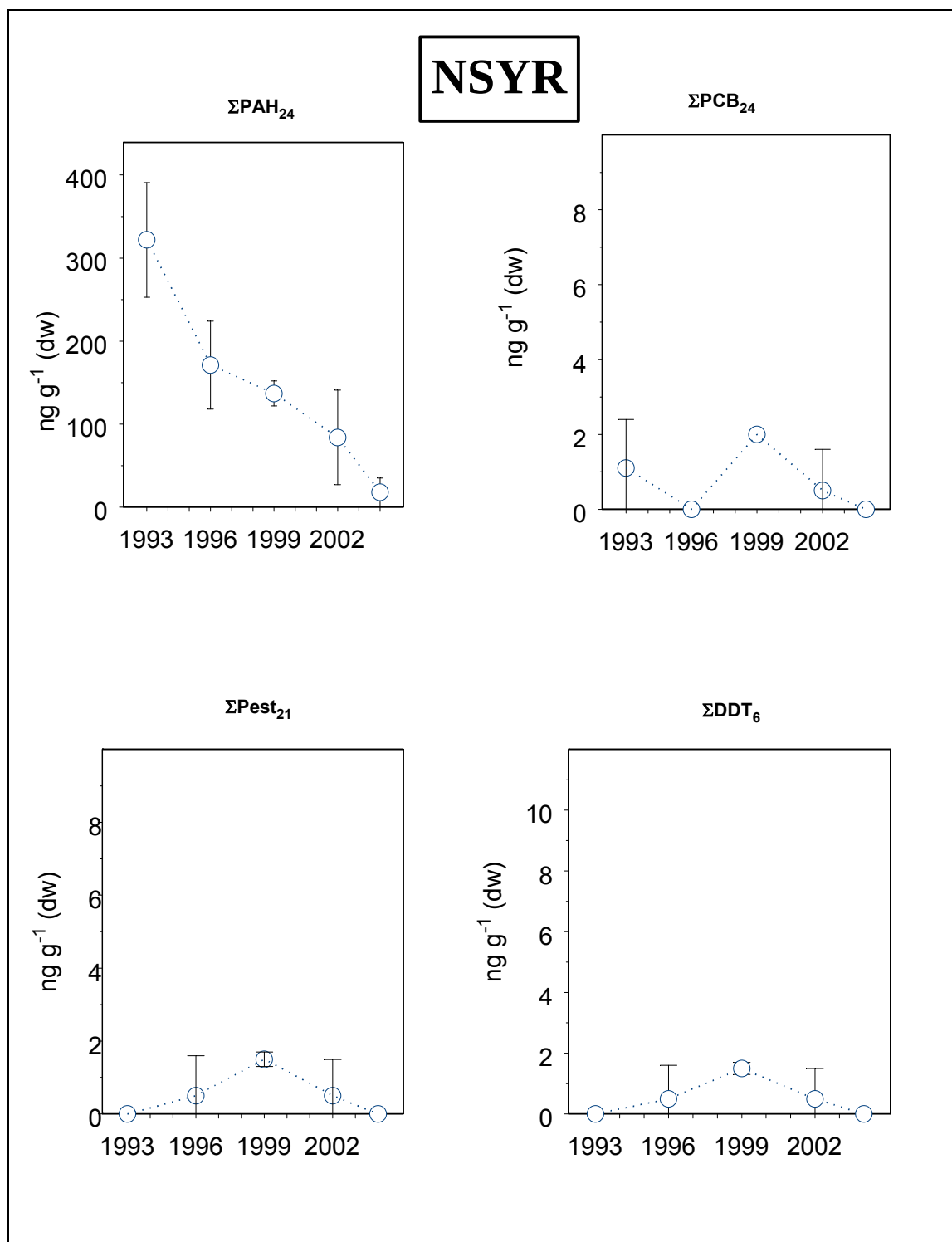


Figure 57C. Distribution of selected organic contaminant concentrations (arithmetic mean $\pm$ SD, ng/g dry weight) in mussels collected at the NSYR Gulfwatch site from selected years during the period from 1993-2004.

4.2.2 Benchmark Sites.

Five benchmark sites that were scheduled for sampling each year in addition to the rotational sites are plotted for the 1993-2004 Program period below. These plots show contaminant-specific changes observed at the individual benchmark sites beginning in with Sandwich, MA and continuing north and east in similar to the manner used above with the rotational sites (Figures 58-71). Many of metals showed decreasing trends during this period (e.g. Ag at MASN, Fig. 58). Statistically significant decreases for several contaminants over time were reported in Jones et al. (in press) using the full 1993-2001 database for benchmark sites and have not included the 2002-2004 data. The sites were apparent trends may exist are Sandwich, MA (MASN) for Ag, Pb and Cr, and possible decline in Hg at all the Benchmark sites.

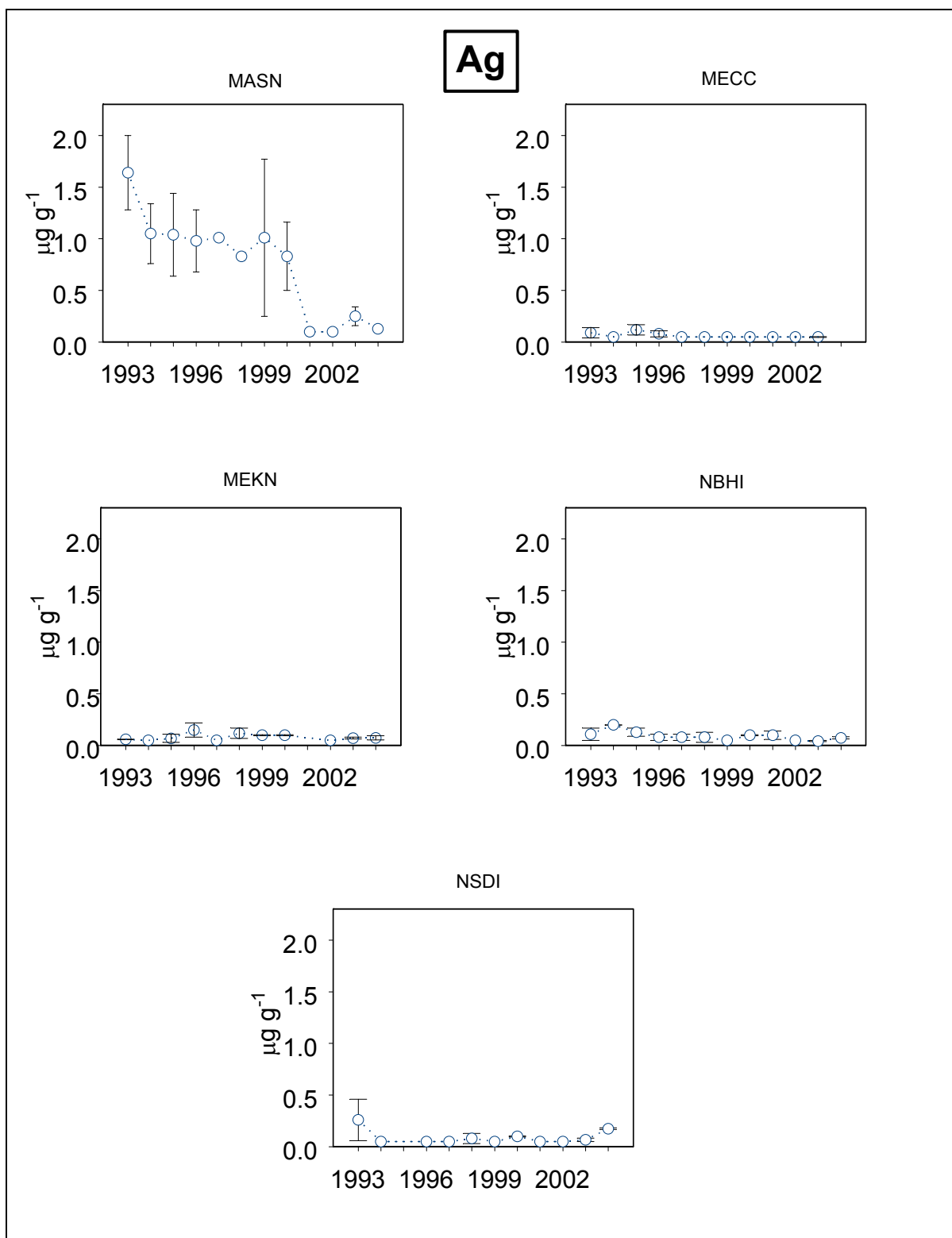


Figure 58. Distribution of silver tissue concentrations (arithmetic mean $\pm$ SD, $\mu\text{g/g}$ dry weight) in mussels at Gulfwatch benchmark sites in 1993-2004.

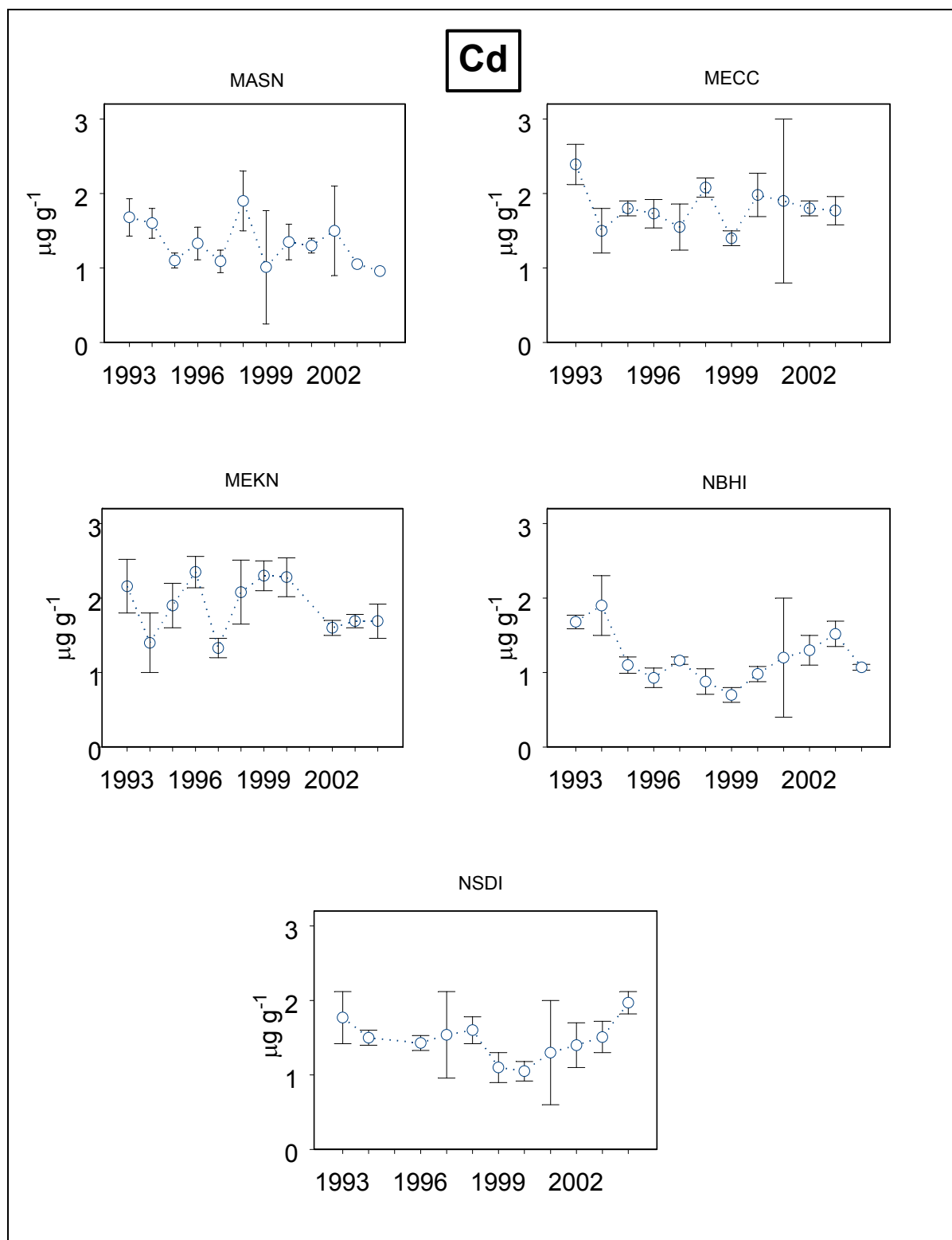


Figure 59. Distribution of cadmium tissue concentrations (arithmetic mean $\pm$ SD, $\mu\text{g/g}$ dry weight) in mussels at Gulfwatch benchmark sites in 1993-2004.

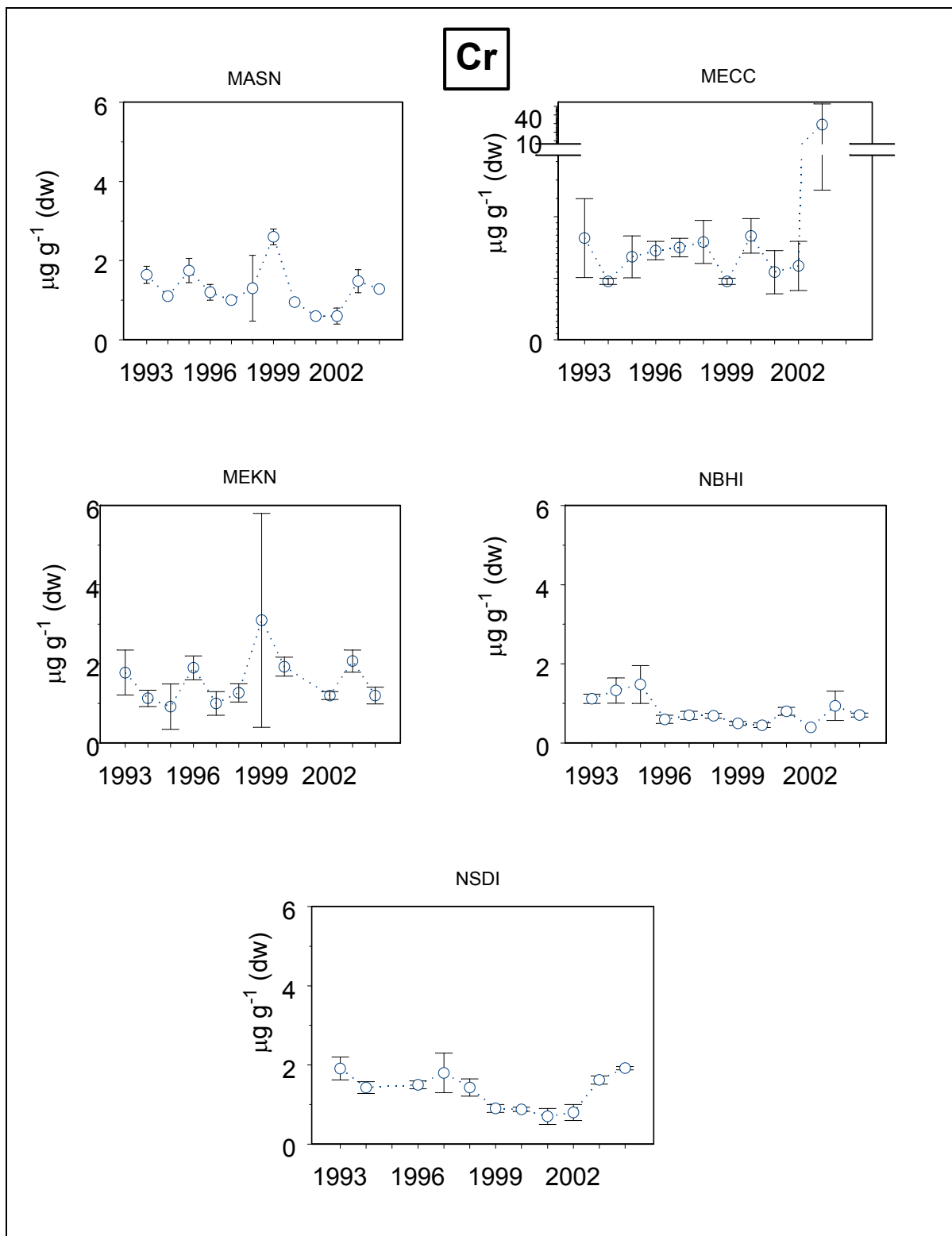


Figure 60. Distribution of chromium tissue concentrations (arithmetic mean $\pm$ SD, $\mu\text{g/g}$ dry weight) in mussels at Gulfwatch benchmark sites in 1993-2004.

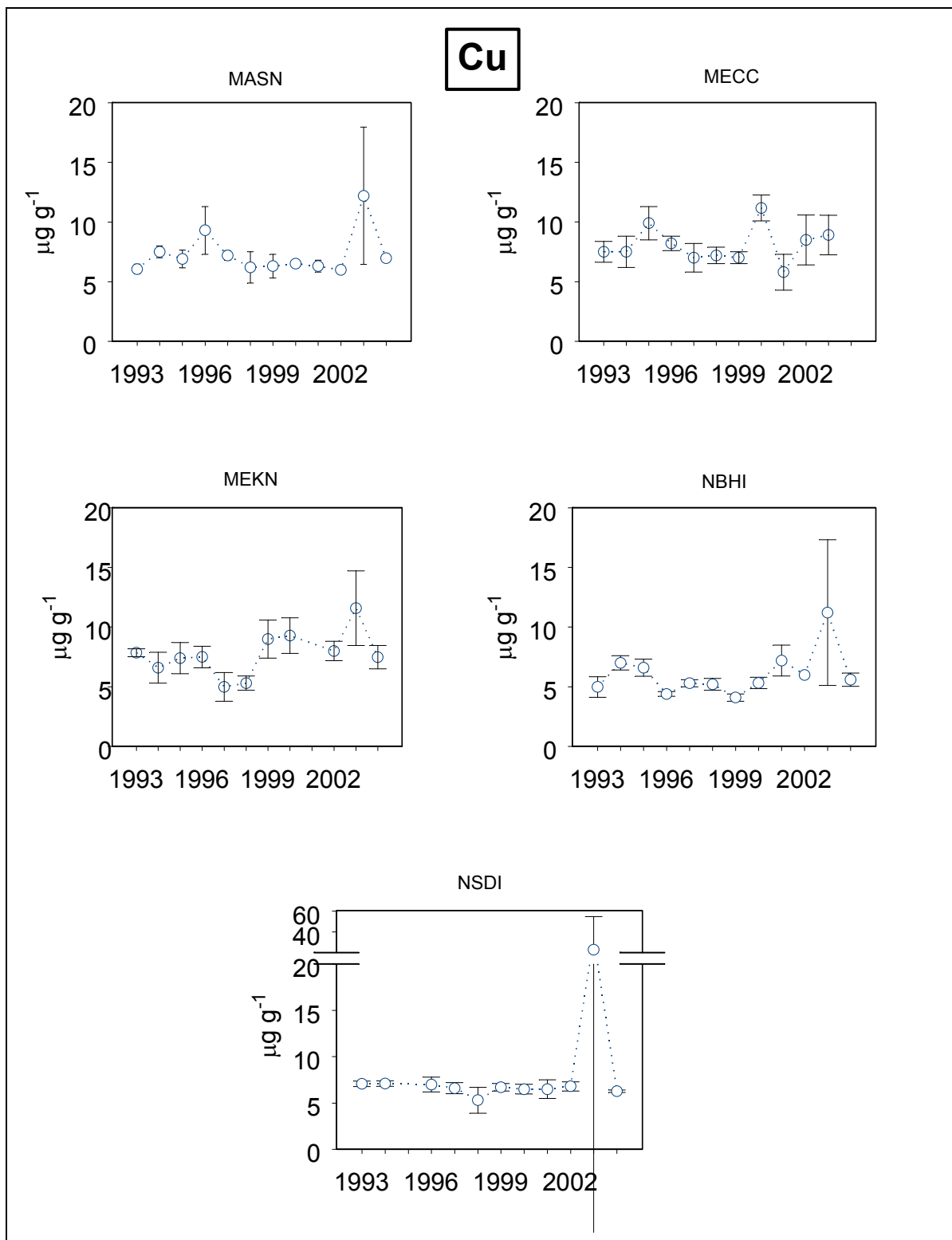


Figure 61. Distribution of copper tissue concentrations (arithmetic mean $\pm$ SD, $\mu\text{g/g}$ dry weight) in mussels at Gulfwatch benchmark sites in 1993-2004.

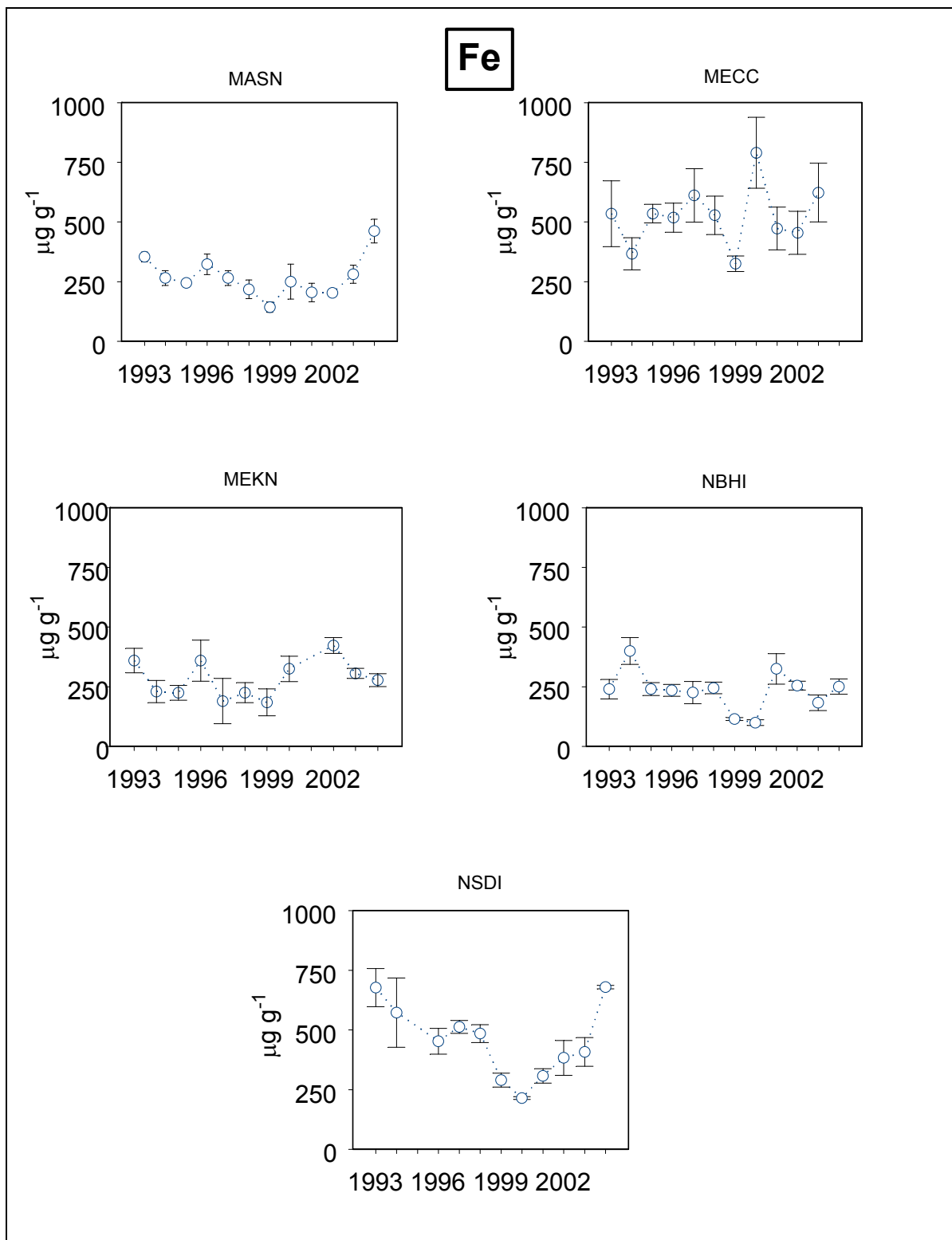


Figure 62. Distribution of iron tissue concentrations (arithmetic mean $\pm$ SD, $\mu\text{g/g}$ dry weight) in mussels at Gulfwatch benchmark sites in 1993-2004.

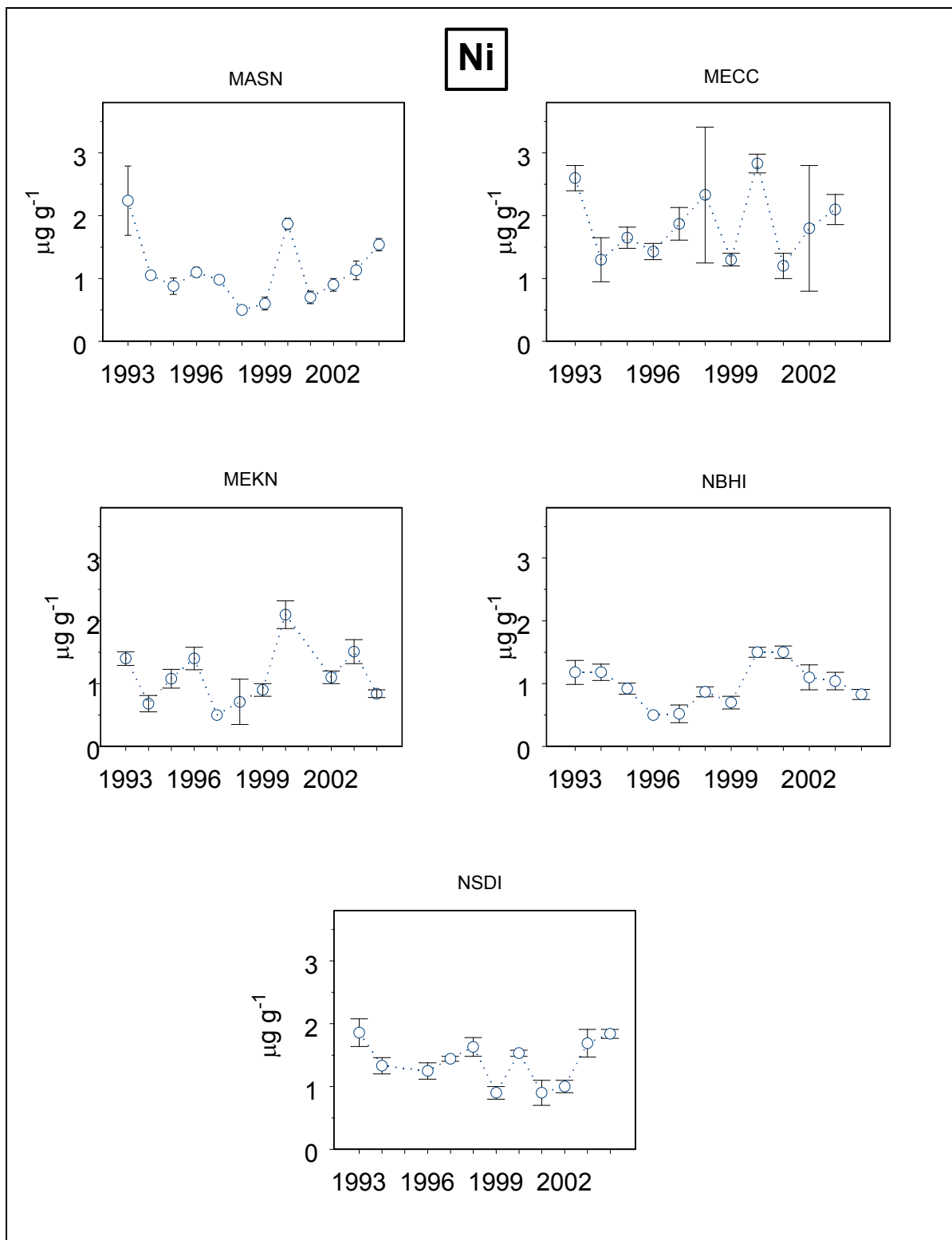


Figure 63. Distribution of nickel tissue concentrations (arithmetic mean $\pm$ SD, $\mu\text{g/g}$ dry weight) in mussels at Gulfwatch benchmark sites in 1993-2004.

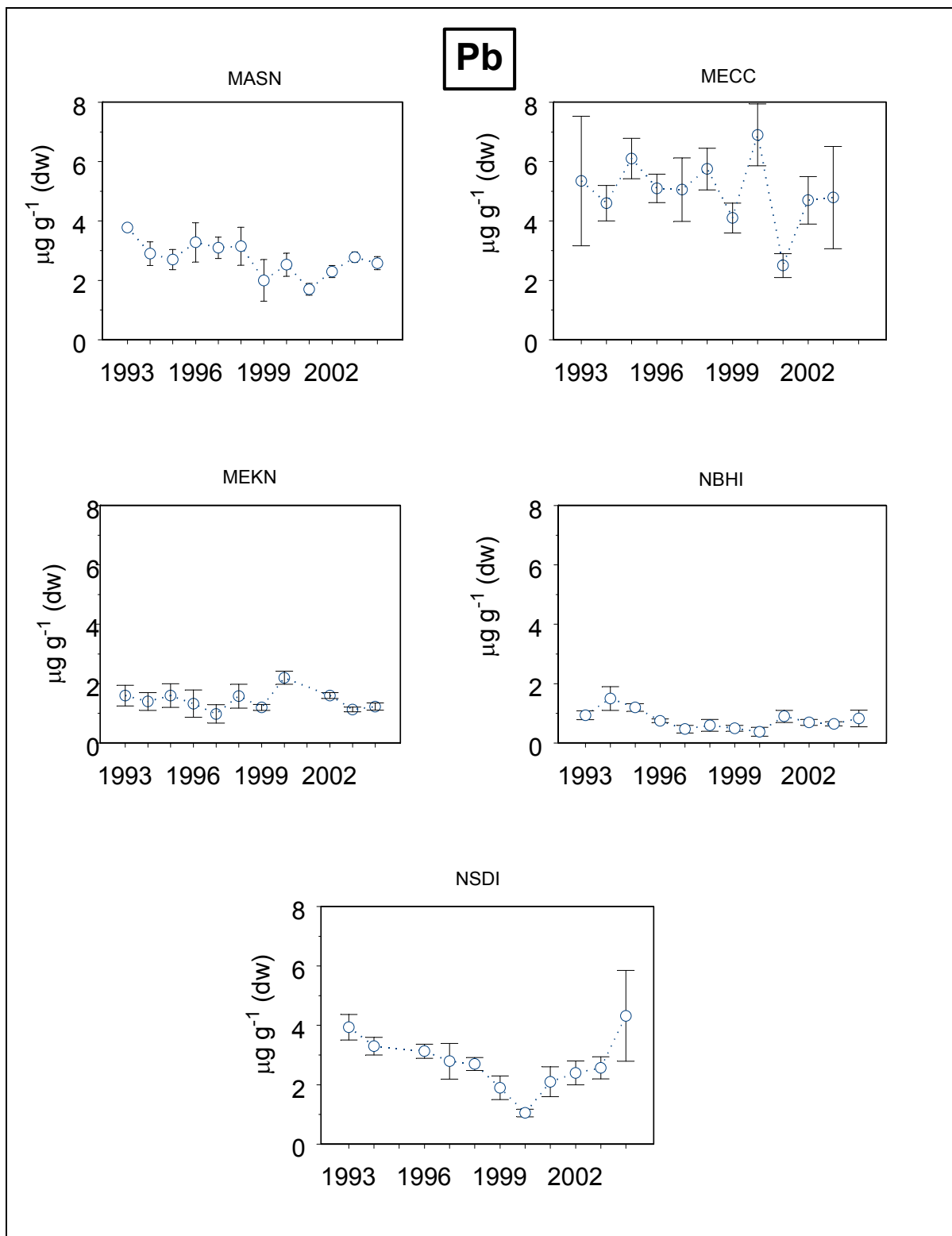


Figure 64. Distribution of lead tissue concentrations (arithmetic mean $\pm$ SD, $\mu\text{g/g}$ dry weight) in mussels at Gulfwatch benchmark sites in 1993-2004.

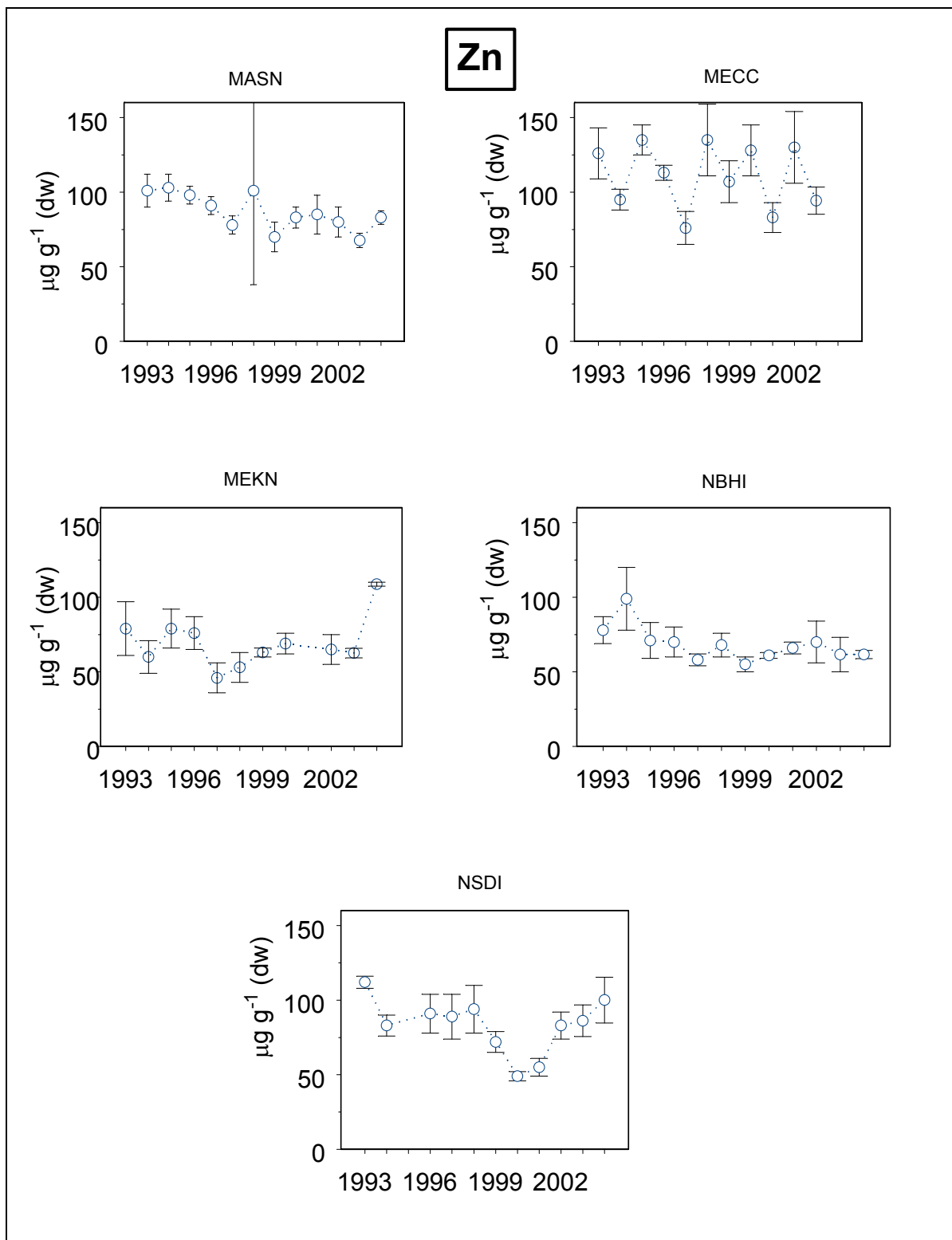


Figure 65. Distribution of zinc tissue concentrations (arithmetic mean $\pm$ SD, $\mu\text{g/g}$ dry weight) in mussels at Gulfwatch benchmark sites in 1993-2004.

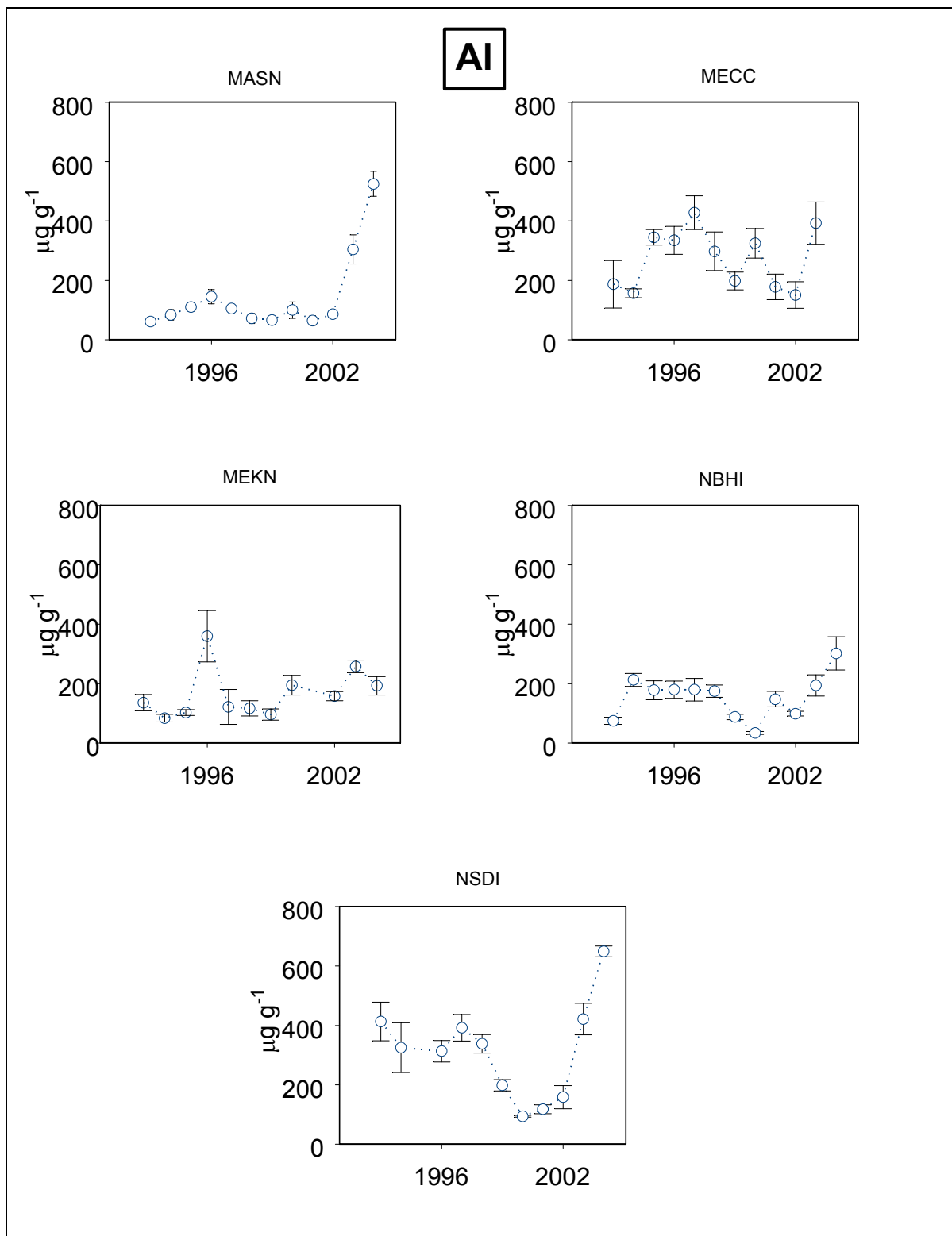


Figure 66. Distribution of aluminum tissue concentrations (arithmetic mean $\pm$ SD, $\mu\text{g/g}$ dry weight) in mussels at Gulfwatch benchmark sites in 1993-2004.

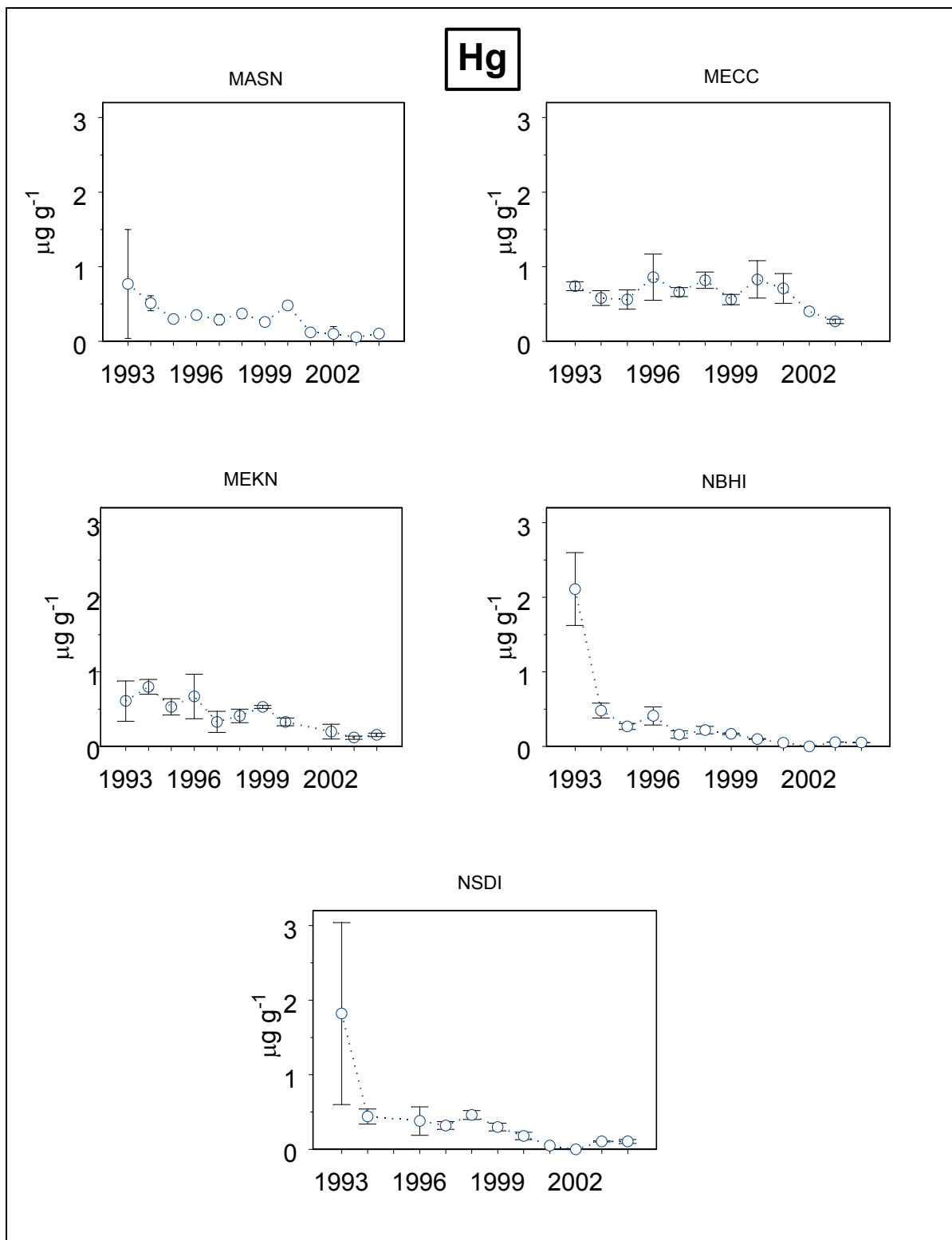


Figure 67. Distribution of mercury tissue concentrations (arithmetic mean $\pm$ SD, $\mu\text{g/g}$ dry weight) in mussels at Gulfwatch benchmark sites in 1993-2004.

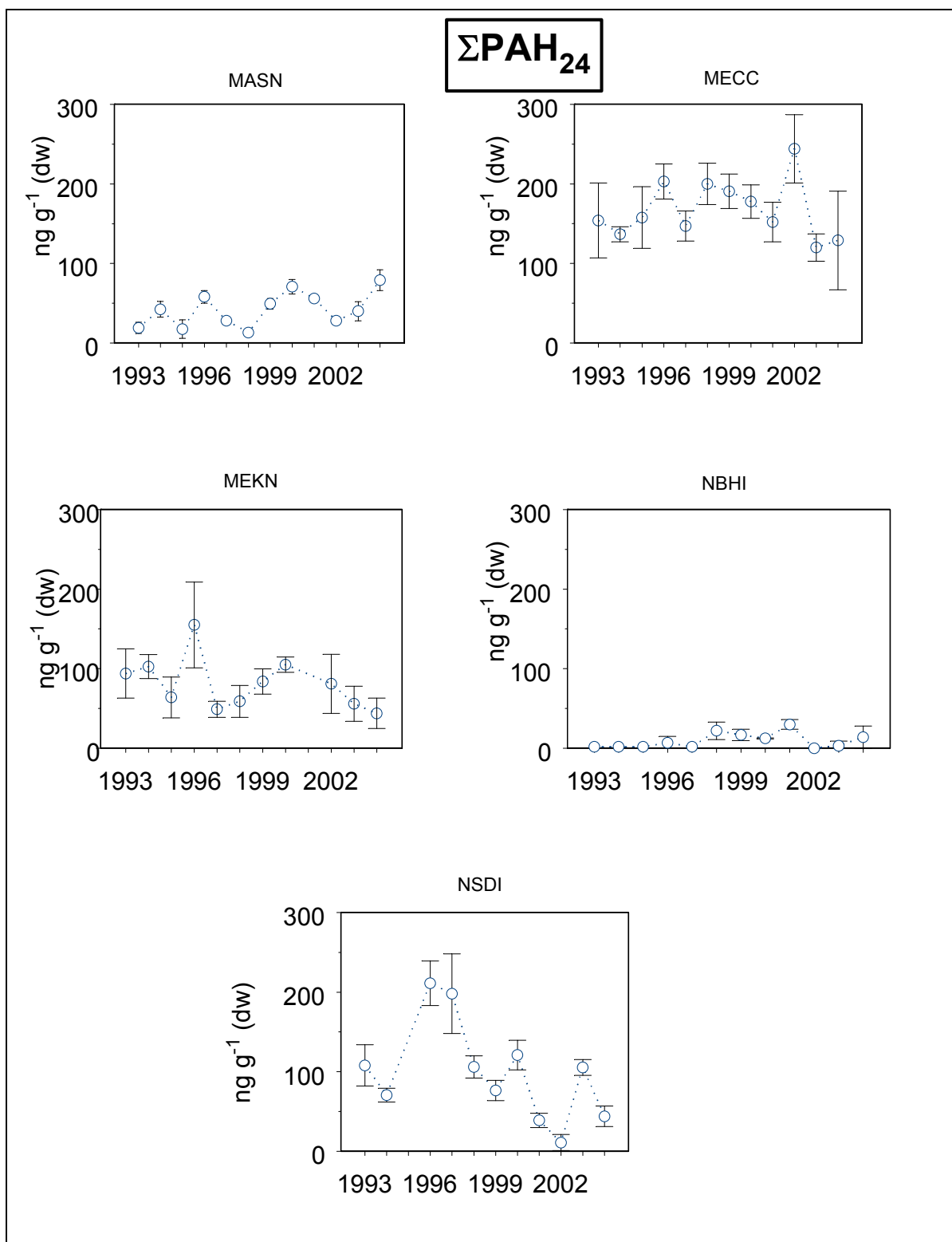


Figure 68. Distribution of ΣPAH_{24} tissue concentrations (arithmetic mean $\pm$ SD, ng/g dry weight) in mussels at Gulfwatch benchmark sites in 1993- 2004.

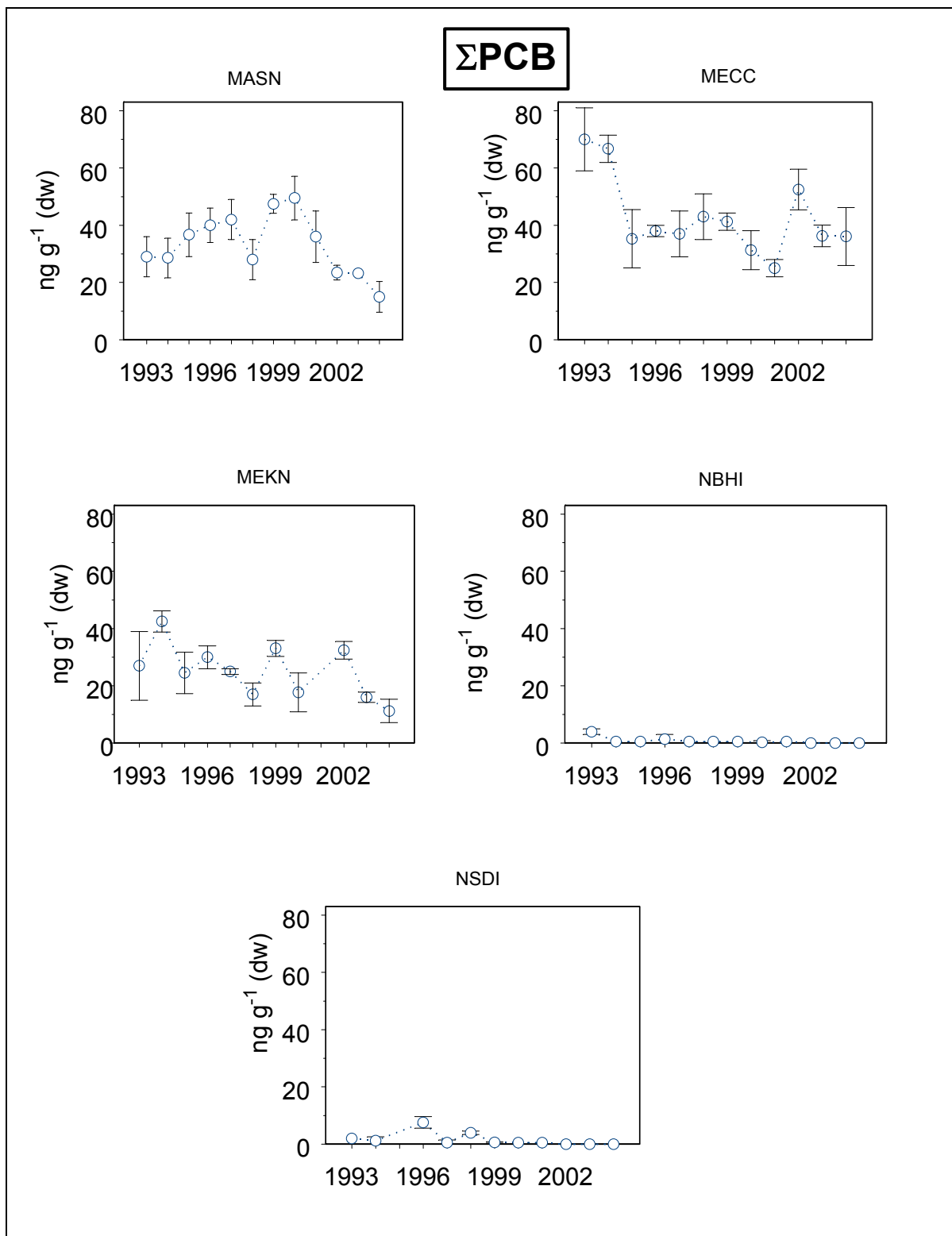


Figure 69. Distribution of Σ PCB₂₂ tissue concentrations (arithmetic mean $\pm$ SD, ng/g dry weight) in mussels at Gulfwatch benchmark sites in 1993- 2004.

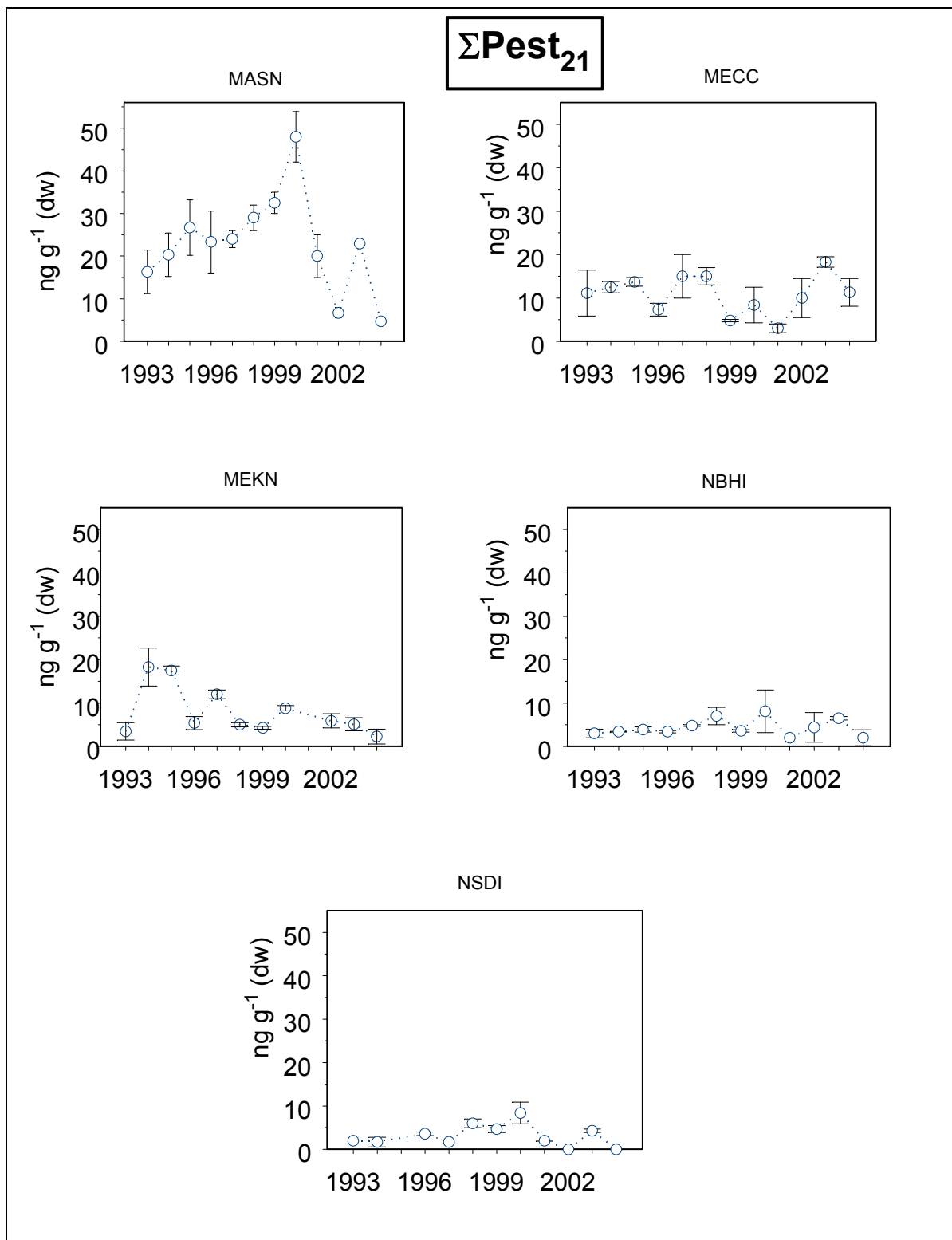


Figure 70. Distribution of ΣPEST_{17} tissue concentrations (arithmetic mean $\pm$ SD, ng/g dry weight) in mussels at Gulfwatch benchmark sites in 1993 - 2004.

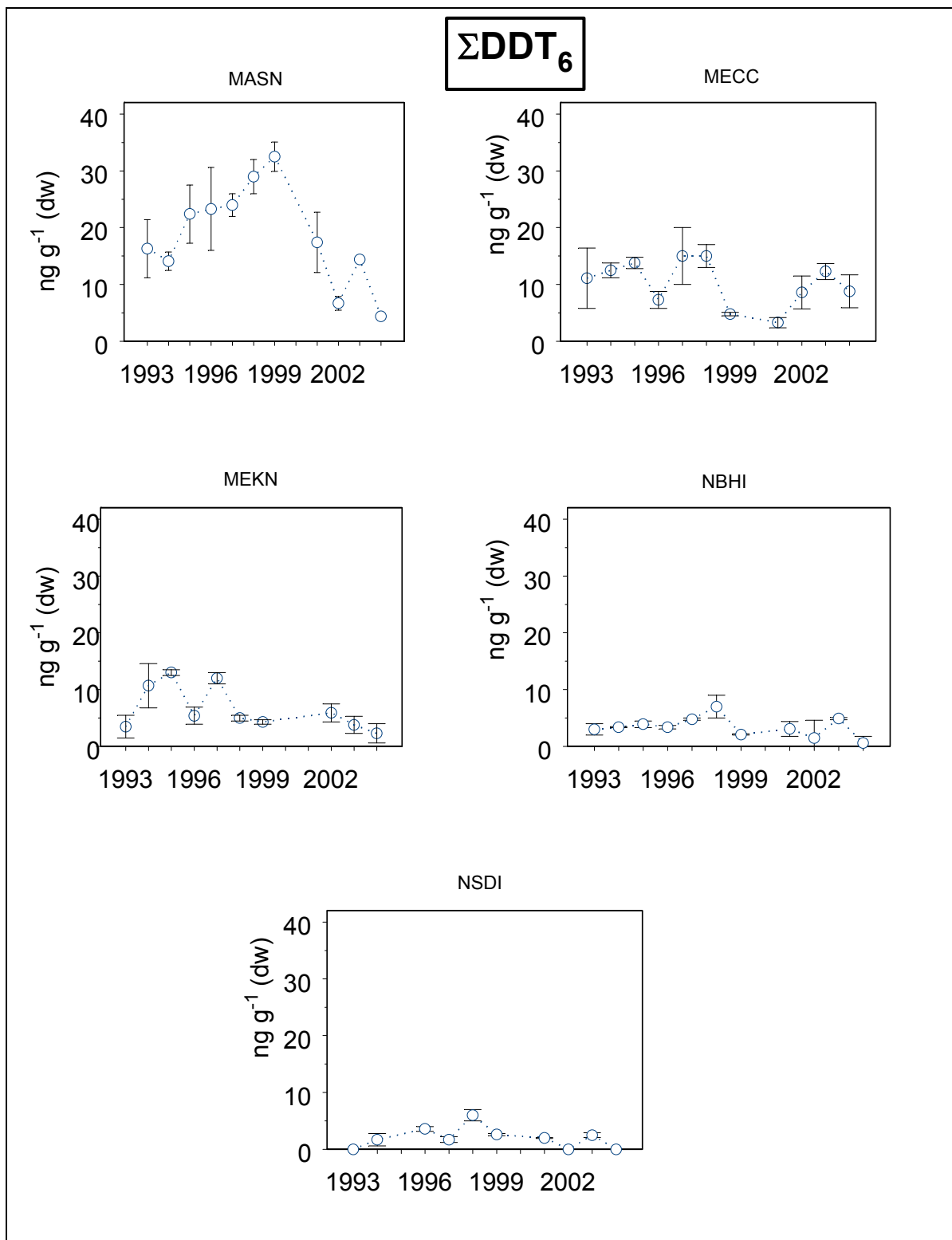


Figure 71. Distribution of ΣDDT_6 tissue concentrations (arithmetic mean $\pm$ SD, ng/g dry weight) in mussels at Gulfwatch benchmark sites in 1993- 2004.

4.3 DRY WEIGHT AND LIPID FRACTIONS

Lipid content and percent dry weights (represented as % solids) were determined on subsamples of composites, typically between 5-10 g of wet tissue, after drying to a constant weight at 100°C. The mean (+ 1SD) percent of solids and lipids as a function of tissue mass are plotted in Figs. 72 and 73 respectively. Percent solids were typically near 15-20% of the overall tissue mass. Percent lipid content was typically between 5-10% of the tissue mass. Greater lipid content appears to be found in mussels collected at the northern Maine and New Brunswick sites.

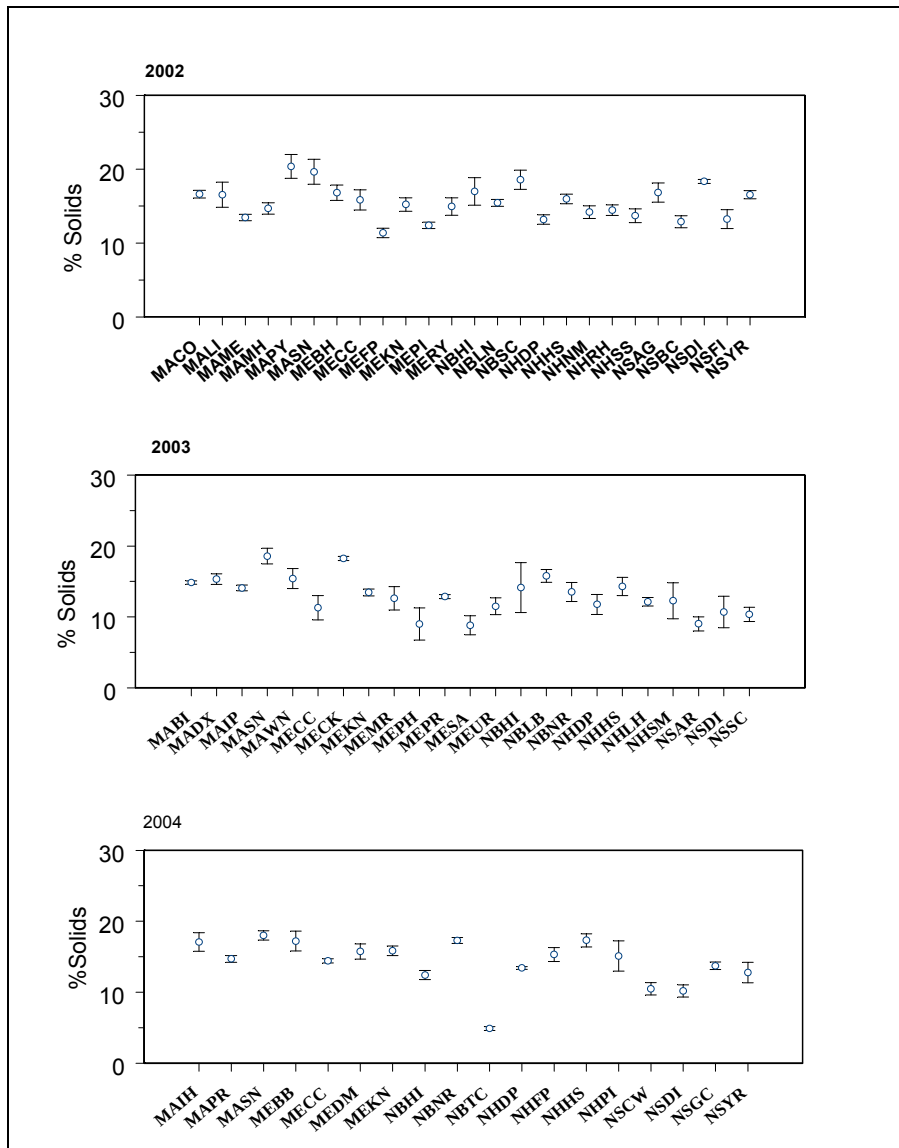


Figure 72. Mean (and standard deviation) of % solids in mussels collected during the 2002-2004 Gulfwatch Program.

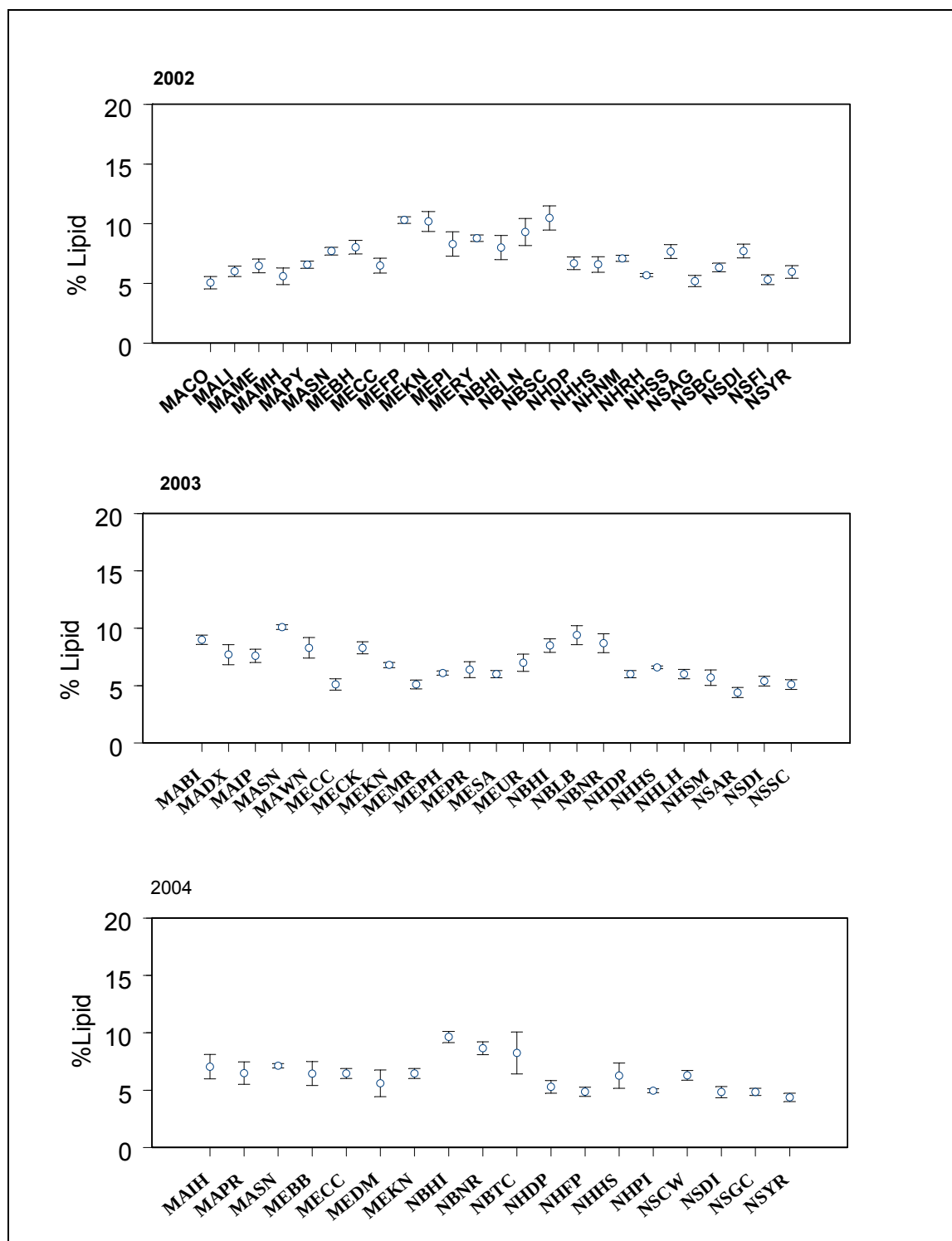


Figure 73. Mean (and standard deviation) of lipid content (%) in mussels collected during the 2002-2004 Gulfwatch Program.

4.4 SHELL LENGTH AND CONDITION INDEX

Table 10 contains a summary of the morphological measurements and condition indices for mussels collect at each site in 2002-2004.

4.4.1 Shell Morphology and Weight

GW Field collection protocol recommends collecting *M. edulis* within the length range of 50-60 mm. The Gulfwide mean shell length ($\pm$ SD) from the 2002- 2004 sites was 55.5 ($\pm$ 2.3). Analysis of variance on height and width, and to a lesser extent, wet weight, on the mussels collected among the 2002-2004 sites were not significant ($p < 0.05$) and suggest no significant differences in the morphology of mussels collected among sites in during 2002-2004.

4.4.2 Condition Index

Mean condition indices (CI) calculated from morphological measurements of 2002-2004 GW mussels are also listed in Table 10 and shown in Figure 75. The mean CI ($\pm$ SD) for mussels from all GW sites was 0.19 ($\pm$ 0.03). ANOVA performed on CI means was significant ($p < 0.05$). An analysis of covariance (ANCOVA) on wet weight using shell height and width as covariates was performed to evaluate the CI differences observed between the New Brunswick and remaining GW samples across 2002-2004. The ANCOVA revealed significant differences in the covariates of shell wet weights and to a lesser extent, shell height.

TABLE 10 (A-C). Morphometric determinations (Mean, standard deviation) on mussels collected along the Gulf Maine, 2002-2004 Gulfwatch stations. Sample size (n) is reported for computing means and SD for length (n_L) and other parameters (n_O).

Table 10 A. Condition Index (CI), length (L), height (H) and width (W) summary data for the 2002 Gulfwatch samples.
(Morphological data reported in mm).

Station	CI	SD _{CI}		L	SD _L	H	SD _H	W	SD _W
MASN	0.172	0.028	(n=30)	55.1	2.9	28.7	2.0	23.6	2.4
MAPY	0.178	0.025	(n=30)	56.1	3.3	28.8	2.2	23.7	1.5
MACO	0.139	0.034	(n=30)	54.9	2.9	27.7	1.9	23.3	1.6
MALI	0.155	0.016	(n=30)	54.7	2.6	28.4	1.6	21.7	1.6
MAMH	0.145	0.031	(n=30)	54.1	2.5	27.4	2.4	22.7	2.1
MAME	0.164	0.034	(n=30)	55.7	2.7	27.2	1.7	23.3	1.8
NHHS	0.166	0.012	n=10	54.5	2.4	28.8	1.9	25.7	1.9
NHNM	0.168	0.027	n=10	55.0	2.6	29.6	2.5	21.5	2.5
NHRH	0.146	0.010	n=10	53.0	2.4	20.0	0.9	28.9	0.9
NHSS	0.142	0.016	n=10	55.0	2.3	28.5	1.7	22.5	1.7
NHDP	NA	NA	NA	NA	NA	NA	NA	NA	NA
MECC	0.159	0.015	n=10	53.9	4.6	28.3	2.5	22.7	2.5
MEBH	NA	NA	NA	54.7	2.0	NA	NA	NA	NA
MERY	0.171	0.071	n=80	56.2	2.5	29.5	1.9	23.1	1.8
MEKN	0.180	0.077	n=80	55.9	2.5	30.0	3.5	22.9	1.9
MEFP	0.177	0.080	n=80	55.8	2.7	32.6	22.4	21.8	1.9
MEPI	0.192	0.090	n=80	55.5	2.5	28.2	1.9	23.0	2.0
NBHI	0.253	0.061	n=80	64.9	6.2	29.8	3.9	26.4	3.1
NBLN	0.292	0.034	n=80	56.3	5.3	29.4	3.9	27.0	2.9
NBSC	0.206	0.075	n=80	58.2	5.3	28.0	3.7	24.1	3.2
NSFI	0.191	0.036	n=80	55.1	2.2	28.6	1.7	23.4	1.8
NSDI	0.198	0.030	n=80	55.6	2.7	30.4	2.3	23.1	2.4
NSBC	0.198	0.030	n=80	55.6	2.7	29.2	2.4	23.8	2.2
NSYR	0.156	0.029	n=80	54.7	2.7	30.8	1.8	22.2	1.9
NSAG	0.175	0.023	n=80	55.8	2.6	28.7	1.7	22.8	1.6

Table 10 B. Condition Index (CI), length (L), height (H) and width (W) summary data for the 2003 Gulfwatch samples. (Morphological data reported in mm).

Station	CI	SD _{CI}		L	SD _L	H	SD _H	W	SD _W
MASN	0.162	0.018	(n=20)	54.5	2.8	29.2	2.3	23.1	2.8
MADX	0.139	0.019	(n=30)	54.8	2.8	29.8	1.7	23.5	2.0
MABI	0.131	0.016	(n=20)	55.0	2.9	27.7	1.9	21.8	2.1
MAWN	0.137	0.023	(n=20)	56.9	2.6	27.6	2.4	24.9	2.0
MAIP	0.154	0.037	(n=18)	55.5	3.0	28.9	1.7	22.4	2.1
NHLH	0.109	0.029	(n=30)	54.9	2.7	28.5	2.0	23.5	1.7
NHDP	0.139	0.025	(n=30)	54.3	2.3	27.1	1.6	22.7	1.6
NHHS	0.162	0.013	(n=30)	55.0	2.4	30.4	4.2	24.1	2.1
NHSM	0.154	0.025	(n=30)	56.3	2.4	30.4	1.7	23.5	2.6
MECC	0.143	0.019	(n=28)	54.1	3.4	28.5	1.7	22.3	2.0
MEKN	0.173	0.019	n=80	56.7	2.5	28.8	1.9	21.7	1.6
MEPR	0.172	0.028	n=80	54.9	2.4	27.4	1.6	22.2	1.6
MEUR	0.187	0.022	n=80	55.9	2.6	29.9	1.7	22.6	1.8
MEPH	0.152	0.025	n=80	53.7	2.3	26.7	1.7	24.0	2.3
MECK	0.177	0.024	n=80	54.4	2.7	29.8	2.9	21.9	1.4
MESA	0.158	0.023	n=80	55.2	2.6	27.7	1.8	23.1	1.8
MEMR	0.162	0.021	n=80	54.7	2.8	28.9	2.4	21.1	1.4
NBLB	0.259	0.044	n=80	54.8	4.6	28.3	3.2	22.7	2.8
NBNR	0.272	0.043	n=80	56.9	4.3	27.9	2.4	23.3	2.2
NBHI	0.280	0.056	n=80	68.4	6.7	32.6	4.2	29.5	3.9
NSDI	0.191	0.034	n=80	56.2	2.4	31.2	2.5	22.3	1.7
NSAR	0.160	0.037	n=80	53.4	2.6	26.3	1.7	21.3	1.5
NSSC	0.159	0.038	n=80	56.6	2.1	26.7	1.6	22.9	1.5

Table 10 C. Condition Index (CI), length (L), height (H) and width (W) summary data for the 2004 Gulfwatch samples. (Morphological data reported in mm).

Station	CI	SD _{CI}		L	SD _L	H	SD _H	W	SD _W
MASN	0.125	0.019	n=30	53.0	2.5	27.7	1.6	20.0	1.2
MAIH	0.109	0.021	n=30	54.3	2.7	28.8	1.6	23.9	2.6
MAPR	0.112	0.022	n=30	54.9	2.5	29.4	1.9	23.8	1.8
NHHS	0.147	0.020	n=30	55.0	2.5	28.6	1.8	23.4	1.7
NHPI	0.117	0.017	n=30	55.0	2.7	30.1	1.8	23.4	1.7
NHDP	0.124	0.021	n=30	54.2	2.5	27.2	1.7	23.2	2.1
NHFP	0.139	0.026	n=30	54.8	3.1	27.5	1.7	22.9	2.1
MECC	0.132	0.019	n=30	54.7	2.4	28.5	1.7	22.8	1.8
MEKN	0.177	0.019	n=80	56.2	2.8	29.3	2.0	22.2	2.0
MEBB	0.167	0.023	n=80	55.4	2.5	30.7	2.0	22.7	1.9
MEDM	0.151	0.025	n=80	56.1	2.3	30.4	1.8	21.9	1.82
NBNR	0.218	0.031	n=80	56.4	4.4	31.4	4.2	26.2	3.2
NBHI	0.280	0.031	n=80	54.0	4.0	26.4	2.8	20.6	1.9
NBTC	0.278	0.053	n=80	53.2	4.4	25.8	2.0	20.0	1.8
NSGC	0.168	0.035	n=80	53.2	3.8	28.5	2.8	23.1	2.0
NSCW	0.161	0.035	n=80	54.5	2.7	27.3	2.7	22.9	2.0
NSYR	0.161	0.031	n=80	55.1	2.7	29.6	2.6	22.1	2.0
NSDI	0.156	0.027	n=80	54.9	2.5	29.9	2.3	22.8	2.2

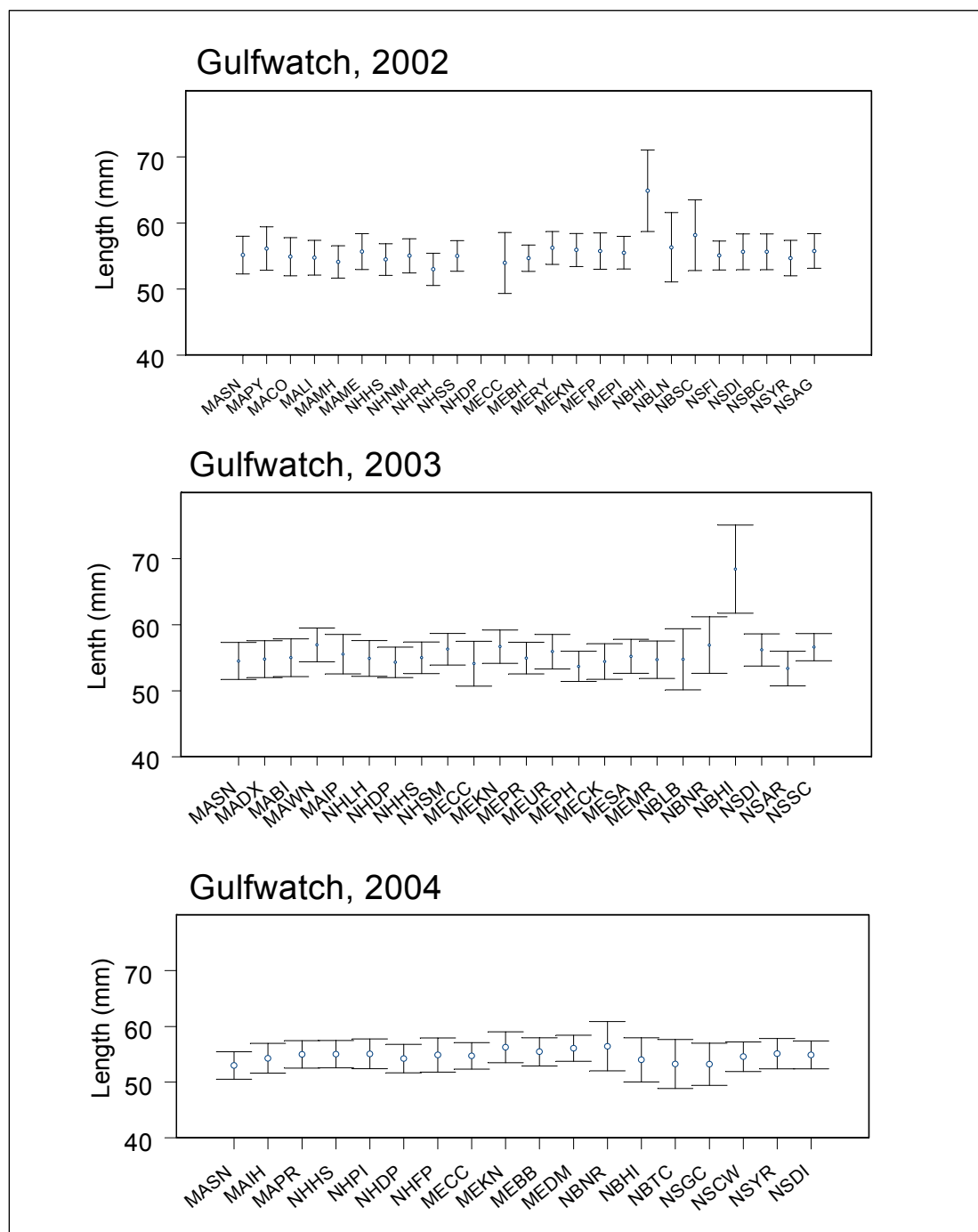


Figure 74. Mean (and standard deviation) of length of mussels collected during the 2002-2004 Gulfwatch Program.

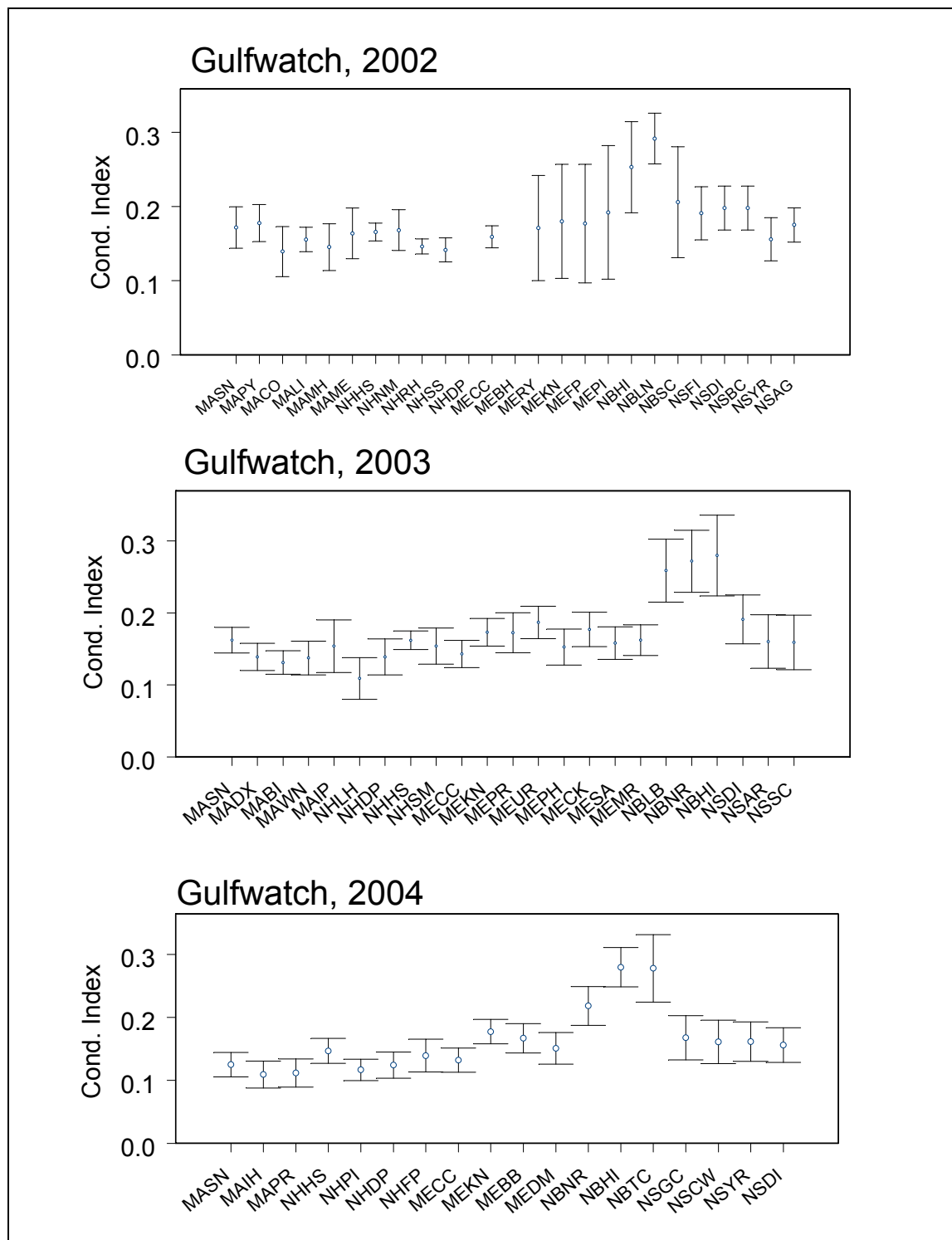


Figure 75. Mean (and standard deviation) of length and condition index (CI) of mussels collected during the 2002-2004 Gulfwatch Program.

5.0 2002-2004 GULFWATCH SUMMARY

The 2002-2004 GW field seasons essentially extended the sampling to 3 additional years beyond the original 9-year sampling design. Monitoring of contaminants in the soft tissue of *M. edulis* from Massachusetts to Nova Scotia during this 12 year period has provided enough information over time to begin to evaluate trends in contamination to the Gulf of Maine. Reference sites have as much as 12 years of data while rotational sites have been sampled up to 4 times over this period. Temporal and spatial analyses of the data are beyond the scope of GW data reporting. Detailed analysis of the 9-year program has, as of this writing, been completed and will be further evaluated with the additional 2002-2004 data.

GW samples from 2003 were flagged by the analytical laboratory performing the metals analyses as having inappropriate sample containers (metal lids) and the data must be viewed with caution. In fact, much of the data from that year show anomalous variability in replicates for the analyses of Cu. However, the recovery of the more recalcitrant metals (i.e., Al, Cr, Ni) from certified reference material improved in 2003 and 2004 with the acquisition of metal analytical services from Battelle Marine Science Laboratory, WA. Therefore, temporal analyses of these metals must consider the QA/QC of digestion methods used since GW began in 1993.

Given the above caveats, many of the metals monitored at the 3-year rotational sites appear to be lower than previously observed, especially for Hg. In a broad sense, organic contaminants seem to indicate increases over the 12 year sampling period. Some local areas that have been sampled on a rotational basis appear to have significant increasing trends for PAH and some pesticides. The greater temporal resolution provided by the annual sampling of reference sites show metal contamination to be decreasing and organic contamination remaining constant or increasing for the Gulf of Maine in general. Particularly, silver concentrations appear to have significantly decreased in recent samples collected at the Sandwich, MA site (MASN) and may be related to source reduction in wastewater effluents and/or relocation of the Massachusetts Water Resource Authority's wastewater discharge in Massachusetts Bay. PAHs and DDT-related pesticides at MADX also seemed to be increasing. Many of the organic contaminants

where higher in MA waters and are related, in part, to the influence of highly industrialized watersheds that drain into these waters.

The NH Great Bay Estuary received greater spatial resolution in the sampling design as GW progressed through the 12-year program. NH added additional sites through their own initiative and have demonstrated the utility of using mussels as contaminant indicators at smaller spatial scales. With the exception of Boston Inner Harbor, the Great Bay Estuary system appears to have greatest contamination and exposure for aquatic organism in the Gulf of Maine region with respect to Hg, and possibly Cr and Pb.

Overall, the GW data to date show the urban estuaries (Boston Harbor and Pines River) to be the most contaminated, especially for Pb, DDT, and PCBs, among the sites collected for that year. Mussels from the NH Great Bay Estuary system were the most contaminated with respect to Hg and seemed to be second in overall exposure to contamination with respect to the above-mentioned sites in Massachusetts. However, an apparent decline in Hg contamination is suggested at all the GW benchmark sites. Detailed trend and spatial analysis is underway such that meaningful descriptions of contamination in the Gulf of Maine can be made available to coastal environmental managers of the region.

Gulfwatch is in the process of evaluating its program and has taken steps to improve analytical results, reporting, and redesign of sampling to better evaluate contamination in Gulf of Maine, and meet the needs of coastal management for present and emerging issues. The value of long term environmental monitoring is beginning to be realized from the Program's data set. Local hot spots, like Boston Inner Harbor (MAIH), the Pines River (MAPR), and the Great Bay Estuary system along the NH-ME jurisdictional boundary point to the need for more focused monitoring at the sub regional scale.

Coastal monitoring programs like Gulfwatch provide valuable measures, which can enable managers to better understand the ecological condition of the Gulf of Maine system and to reveal the direction that coastal ecosystems may be heading. GW results provide the most geographically intensive perspective in the region on relative contaminant exposure, extending across the contamination (or contaminant exposure)

spectrum, ranging from relatively pristine coastal waters to highly impacted urban estuaries. As such, GW provides a unique and invaluable source of information for management decisions on issues related to toxic contamination in the near coastal waters of the Gulf of Maine. It is anticipated that the results of the GW program to date will be used as guidance for improving monitoring by this Program and continue to strengthen the temporal perspective necessary to determine trends and impacts of anthropogenic perturbation for more effective coastal management for the Gulf of Maine region.

6.0 ACKNOWLEDGEMENTS

The authors are grateful to the following individuals: Andy Bagnell, Jay Baker, Steve Barrett, Andrea Bowman, Todd Callaghan, Noel Carlson, Marc Carullo, Amber Currier, Paul Currier, Charles Elvin, Bob Gaudet, Julie Keane, Robin Lacey, Deb Lamson, Rob Livingston, Ronald MacDonald, Joanne McLaughlin, Tina Nims, Andrea Riley, Irma Simon, Jan Smith, Don Walter, Tony Wilbur, and Eric Williams for their assistance in field collection, sample preparation and laboratory analyses. This study was possible through the diligent fieldwork of teams in Massachusetts, New Hampshire, Maine, New Brunswick and Nova Scotia. The study team gratefully acknowledges financial support from the U.S. Environmental Protection Agency through the U.S. Gulf of Maine Association and Environment Canada and the laboratory support for determinations of organic pollutants by Environment Canada.

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APPENDIX A 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 A-1 and A-2 list the MDLs for the respective contaminants monitored for 2002-2004.

TABLE A-1. Organic Analytical Methods Detection Limits (ng/g dry wt.)

PAH		PCB congener		Pesticide	
Naphthalene	<4	8 ; 5	<2	HCB	<1.2
2-Methyl-naphthalene	<3	18 ; 15	<1.2	lindane (□-HCH)	<1.2
1-Methyl-naphthalene	<3	28 ;	<1.2	αναφλυσσοδνε–	<1.2
Biphenyl	<3	29 ;	<1	βναφλυσσοδνε–	<2
2,6-Dimethyl naphthalene	<4	44 ;	<1.2	Cyclodienes	
Acenaphthylene	<4	50 ;	<1.2	cis-chlordane	<1
Acenaphthene	<4	52 ;	<1.2	trans-nonachlor	<1
2,3,5-Trimemethyl naphthalene	<3	66 ; 95	<1.5	heptachlor	<1
Fluorene	<4	77 ;	<1.5	heptachor epoxide	<1.2
Phenanthrene	<2	87 ;	<1.5	dieldrin	<1.2
Anthracene	<2	101 ; 90	<1.5	aldrin	<1.5
1-Methyl phenanthrene	<4	105 ;	<1	mirex	<1.5
Fluoranthene	<2	118 ;	<1	DDT isomers	
Pyrene	<2	128 ;	<1	o,p'-DDD	<1
Benzo(a)anthracene	<2	138 ;	<1.5	p,p'-DDD	<1.5
Chrysene	<2	153 ; 132	<1.5	o,p'-DDE	<1.2
Benzo(b+k)fluoranthene		170 ; 190	<1.5	p,p'-DDE	<1.2
Benzo(b)fluoranthene	<8	180 ;	<1	o,p'-DDT	<1.2/2.0
Benzo(k)fluoranthene	<2	187 ;	<1	p,p'-DDT	<1
Benzo(e)pyrene	<3	195 ; 208	<1.5		
Benzo(a)pyrene	<3	206 ;	<1.5		
Perylene	<3	209 ;	<1.5		
Indeno(123cd)pyrene	<4				
Dibenzo(ah)anthrace	<4				
Benzo(ghi)perylene	<2				

TABLE A-2. 2002 Metal Methods Detection Limits (µg/g dry wt.)

Ag	Cd	Cr	Cu	Fe	Ni	Pb	Zn	Hg	Al
0.1	0.2	0.3	3	22	0.2	0.5	25	0.1	8

TABLE A-3. 2003-2004 Metal Methods Detection Limits (µg/g dry wt.)

Ag	Cd	Cr	Cu	Fe	Ni	Pb	Zn	Hg	Al
0.01	0.01	0.05	0.1	1.5	0.05	0.02	0.3	0.005	0.5

APPENDIX B Summary of Trace Metal Analysis Quality Assurance/Quality Control

B.1 ACCURACY

B.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 standards 1974a and 2976 (blue mussel tissue) were used to certify accuracy in the metals analysis. Overall mean SRM recoveries for the metals analyzed ranged from 35-379% (Table B.1.1-2). For all metals, only 14 of the 27 SRM recoveries that were within the $\pm 25\%$ of the certified value criteria. All of the SRM analysis for Al, Ni, and Pb were outside Gulfwatch data quality objectives (DQO). Low recoveries were observed for Ag and Al.

TABLE B.1.2 Analysis of certified reference materials for trace metals (ug/g) associated with the 2002 analyses performed by HTEL, Orono, ME

	Ag	Cd	Cr	Cu	Fe	Ni	Pb	Zn	Al	Hg
NIST 1974a	0.056 0.068 0.068 0.067 0.068	0.170 0.170 0.149 0.169 0.164	1.120 0.224 0.183 0.183 0.174	1.120 1.260 1.120 1.209 1.250	43 53 46 50 50	0.078 0.111 0.070 0.091 0.088	1.020 1.480 1.230 1.130 1.090	10.9 12.4 10.9 11.8 11.7	13.4 14.0 12.3 13.5 14.9	0.240 0.208 0.277 0.236 ---
Mean % Recovery	111	117	84	103	89	93	86	99	25	109
RSD	9	6	10	6	7	16	13	6	2	13
	(n=4)									
NRC DORM2	nd 0.008 0.057 0.053 0.052	0.095 0.090 0.093 0.026 0.190	31.100 23.300 27.800 26.000 26.900	2.050 2.050 1.970 1.690 2.010	143 113 130 122 124	17.6 12.6 15.3 14.6 14.9	0.013 0.161 0.018 nd nd	24.7 23.6 23.0 27.0 23.4	4.0 2.4 4.1 4.2 4.3	3.54 4.79 4.73 4.66 ---
Certified or Reference value	0.041	0.043	34.7	2.34	142	19.4	0.065	25.6	10.9	4.64
Range	± 0.013	± 0.008	± 5.5	± 0.16	± 10	± 3.10	± 0.007	± 2.3	± 1.70	± 0.26
Mean % Recovery	132	230	75	84	89	77	98	95	35	95
RSD	6	136	6	6	8	9	129	6	7	13
	(n=3)									
NIST 2976	nd nd 0.015 nd 0.006	0.890 0.855 0.080 0.870 0.900	0.140 0.054 0.099 0.120 0.049	3.800 3.750 3.510 3.310 3.550	143 152 150 145 151	0.760 0.711 0.830 0.845 0.757	1.080 1.400 1.230 0.635 1.150	139 133 131 126 129	105.0 82.6 84.4 81.8 90.6	--- --- --- --- ---
Certified or Reference value	0.011	0.82	0.5	4.02	171	0.93	1.19	137	134	
Range	REF	± 0.2	REF	± 0.33	± 4.9	REF	± 0.18	± 13	REF	
Mean % Recovery	BDL	88	16	89	87	84	92	96	66	---
RSD	BDL	44	7	5	2	6	24	4	7	

TABLE B.1.2 Analysis of standard reference materials for trace metals (ug/g) associated with the 2003-04 analyses performed by Battelle MSL, Sequim, WA.

	Ag	Cd	Cr	Cu	Fe	Ni	Pb	Zn	Al	Hg
NIST 2976	0.010	0.810	0.57	3.81	184	0.80	1.23	161	139	0.070
	0.010	0.814	0.61	3.59	181	0.76	1.19	149	142	0.065
	0.011	0.840	0.58	3.70	176	0.79	1.22	149	146	0.066
	0.010	0.797	0.59	3.77	178	0.80	1.17	148	142	0.064
<i>Certified or Reference value</i>	<i>0.011</i>	<i>0.82</i>	<i>0.5</i>	<i>4.02</i>	<i>171</i>	<i>0.93</i>	<i>1.19</i>	<i>137</i>	<i>134</i>	<i>0.061</i>
<i>Range</i>	<i>REF</i>	<i>±0.2</i>	<i>REF</i>	<i>±0.33</i>	<i>±4.9</i>	<i>REF</i>	<i>±0.18</i>	<i>±13</i>	<i>REF</i>	<i>±0.0036</i>
Recovery:	NA	0.99	1.14	0.95	1.08	0.86	1.03	1.18	1.04	1.14
Recovery:	NA	0.99	1.22	0.89	1.06	0.82	1.00	1.09	1.06	1.07
Recovery:	NA	1.02	1.15	0.92	1.03	0.85	1.03	1.09	1.09	1.08
Recovery:	NA	0.97	1.19	0.94	1.04	0.86	0.98	1.08	1.06	1.04
Mean % Recovery	NA	99.4	117	92.5	105	84.7	101	111	106	108
RSD	NA	2.2	3.5	2.5	2.2	1.9	2.3	4.6	2.0	4.4
NRC DORM2	0.038	0.043	30.1	2.32	148	16.5	0.076	26.2	7.81	4.60
	0.043	0.043	34.2	1.99	158	18.7	0.064	24.5	8.45	4.77
	0.034	0.043	34.2	2.28	159	18.7	0.081	24.9	8.37	4.64
	0.033	0.042	31.0	2.37	149	16.9	0.069	26.6	11.01	4.73
<i>Certified or Reference value</i>	<i>0.041</i>	<i>0.043</i>	<i>34.7</i>	<i>2.34</i>	<i>142</i>	<i>19.4</i>	<i>0.065</i>	<i>25.6</i>	<i>10.9</i>	<i>4.64</i>
<i>Range</i>	<i>±0.013</i>	<i>±0.008</i>	<i>±5.5</i>	<i>±0.16</i>	<i>±10</i>	<i>±3.10</i>	<i>±0.007</i>	<i>±2.3</i>	<i>±1.70</i>	<i>±0.26</i>
Recovery:	0.94	0.99	0.87	0.99	1.04	0.85	1.18	1.02	0.72	0.99
Recovery:	1.04	1.01	0.98	0.85	1.11	0.97	0.98	0.96	0.78	1.03
Recovery:	0.82	1.01	0.98	0.97	1.12	0.96	1.24	0.97	0.77	1.00
Recovery:	0.81	0.98	0.89	1.01	1.05	0.87	1.06	1.04	1.01	1.02
Mean % Recovery	89.9	99.8	93.2	95.7	108	91.3	112	99.7	81.7	101
RSD	10.9	1.3	6.2	7.3	3.9	6.1	11.6	3.9	13.1	1.7

NIST 2976: National Institute of Standards and Technology Trace Organics and, Trace elements and methylmercury in Mussel Tissue (*Mytilus edulis*); DORM2: Trace elements in Dogfish (*Squalus acanthias*) mussel from the National Research Council of Canada.

B.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 DQO of the Program. Matrix spikes ranged from 96-109% and averaged 100 (+/- 4)% over all the batches. All matrix spike results were all within acceptable criteria (Table B.1.2).

Table B.1.2.1 Blank spike results (% Recovered) reported by HETL for the 2002 metals analyses

	Ag	Cd	Cr	Cu	Fe	Ni	Pb	Zn	Al	Hg
	108	99	100	95	100	100	101	102	101	104
	104	90	96	95	94	95	95	96	110	95
	102	91	96	100	93	95	95	95	108	112
	100	93	95	100	97	95	97	95	104	102
	106	93	98	980	95	98	93	96	101	90
	104	91	95	96	95	96	94	95	102	112
	---	---	---	---	---	---	---	---	---	101
Mean:	104	93	97	244	96	97	96	97	104	102
RSD	3	3	2	360	3	2	3	3	4	8

Table B.1.2.2 Matrix spike results reported by HETL for the 2002 metals analyses. No matrix sample spikes reported for Hg.

	Ag	Cd	Cr	Cu	Fe	Ni	Pb	Zn	Al
spike (added)	0.01	0.01	0.03	0.05	2.00	0.01	0.01	1.00	2.00
samp val	nd	0.02	0.02	0.02	4.17	0.01	0.04	1.14	1.37
(sam + spike)(obt)	0.01	0.03	0.05	0.12	6.08	0.02	0.06	2.12	3.18
% recovery	96	103	102	101	96	99	125	97.8	91
spike (added)	0.01	0.01	0.03	0.05	2.00	0.01	0.01	1.00	2.00
samp val	nd	0.02	0.02	0.06	3.28	0.01	0.33	0.99	1.04
(sam + spike)(obt)	0.01	0.02	0.05	0.11	5.64	0.02	0.05	1.97	2.93
% recovery	92	91	106	115	118	90	185	97.7	94
spike (added)	0.01	0.01	0.03	0.05	2.00	0.01	0.01	1.00	2.00
samp val	nd	0.01	0.01	0.07	3.05	0.01	0.01	0.56	1.18
(sam + spike)(obt)	0.01	0.02	0.04	0.12	4.98	0.02	0.02	1.52	2.88
% recovery	93	107	94	102	96	100	100	95.7	85
spike (added)	0.01	0.01	0.03	0.05	2.00	0.01	0.01	1.00	2.00
samp val	nd	0.01	0.01	0.07	2.86	0.01	0.01	0.58	1.10
(sam + spike)(obt)	0.01	0.02	0.04	0.12	4.74	0.02	0.23	1.46	2.82
% recovery	92	100	96	98	94	87	100	88.3	86
spike (added)	0.01	0.01	0.03	0.05	2.00	0.01	0.01	1.00	2.00
samp val	nd	0.01	0.01	0.05	3.09	0.01	0.01	0.46	1.25
(sam + spike)(obt)	0.01	0.02	0.04	0.11	6.73	0.02	0.25	1.44	3.69
% recovery	86	100	100	111	182	108	111	98.7	122
spike (added)	0.01	0.01	0.03	0.05	2.00	0.01	0.01	1.00	2.00
samp val	nd	0.01	0.01	0.54	3.59	0.01	0.17	0.54	1.47
(sam + spike)(obt)	0.01	0.02	0.03	0.11	5.92	0.19	0.03	1.46	3.42
% recovery	98	94	97	109	117	105	78	92.6	97
Mean % Recovery	93	99	99	106	117	98	117	95	96
RSD	4	6	4	7	34	8	37	4	14

Table B.1.2.3 Blank spike results reported by Battelle Marine Sciences Laboratory for the 2003 – 2004 metals analyses

	Ag	Cd	Cr	Cu	Fe	Ni	Pb	Zn	Al	Hg
LCS1	1.94	2.02	2.12	2.002	27.0	2.06	2.09	27.0	26.1	1.994
Blank060706r1	0.01	0.01	0.05	0.100	1.5	0.05	0.02	0.3	1.3	0.005
Spike concentration	2.00	2.00	2.00	2.000	25.0	2.00	2.00	25.0	25.0	2.000
RECOVERY	0.97	1.01	1.06	1.001	1.1	1.03	1.05	1.1	1.0	0.997
LCS2	1.91	2.02	2.12	1.993	27.4	1.99	2.07	27.2	27.9	2.067
Blank060706r2	0.01	0.01	0.05	0.100	1.5	0.05	0.02	0.3	0.6	0.005
Spike concentration	2.00	2.00	2.00	2.000	25.0	2.00	2.00	25.0	25.0	2.000
RECOVERY	0.96	1.01	1.06	0.996	1.1	1.00	1.04	1.1	1.1	1.034
LCS3	1.85	2.09	2.16	2.095	25.9	2.12	2.10	26.6	26.6	1.937
Blank060706r3	0.01	0.01	0.05	0.100	1.5	0.05	0.02	0.3	0.6	0.005
Spike concentration	2.00	2.00	2.00	2.000	25.0	2.00	2.00	25.0	25.0	2.000
RECOVERY	0.93	1.05	1.08	1.047	1.0	1.06	1.05	1.1	1.0	0.969
LCS4	1.93	2.01	2.14	2.051	27.0	2.06	2.00	26.7	26.5	1.964
Blank060706r4	0.01	0.01	0.05	0.100	1.5	0.05	0.02	0.3	0.7	0.006
Spike concentration	2.00	2.00	2.00	2.000	25.0	2.00	2.00	25.0	25.0	2.000
RECOVERY	0.97	1.01	1.07	1.025	1.1	1.03	1.00	1.1	1.0	0.979

Table B.1.2.4 Matrix spike results reported by Battelle Marine Sciences Laboratory for the 2003 – 2004 metals analyses

	Ag	Cd	Cr	Cu	Fe	Ni	Pb	Zn	Al	Hg
MECC1	1.89	12.00	12.73	17.366	847.4	10.89	15.70	356.6	741.2	2.410
Blnk Cor.	0.05	2.18	2.28	7.356	540.7	1.37	4.18	145.8	455.1	0.314
Spike conc	2.02	9.90	9.90	9.900	208.0	9.90	9.90	208.0	208.0	2.010
RECOVERY	0.91	0.99	1.06	1.011	SL	0.96	1.16	1.0	SL	1.043
MECC2	1.73	11.20	11.51	15.872	782.5	9.85	14.30	327.0	637.3	2.310
Blnk Cor.	0.05	2.48	2.57	6.863	603.4	1.46	5.34	127.2	416.0	0.339
Spike conc	1.96	9.21	9.21	9.210	193.0	9.21	9.21	193.0	193.0	1.960
RECOVERY	0.86	0.95	0.97	0.978	0.9	0.91	0.97	1.0	1.1	1.006
NHMG	2.42	2.46	14.37	20.124	3710.8	11.24	15.20	308.2	3262.1	2.060
Blnk Cor.	0.68	0.50	3.95	10.388	3362.9	1.83	4.72	89.2	1980.4	0.093
Spike conc	1.96	1.96	9.90	9.900	208.0	9.90	9.90	208.0	208.0	1.960
RECOVERY	0.89	1.00	1.05	0.983	SL	0.95	1.06	1.1	SL	1.004
NSBC	1.77	4.42	11.82	15.023	911.0	10.72	4.16	299.7	752.3	2.020
Blnk Cor.	0.04	2.52	2.03	5.538	689.2	1.69	2.26	77.4	509.3	0.140
Spike conc	1.96	1.96	9.78	9.780	205.0	9.78	1.96	205.0	205.0	1.960
RECOVERY	0.88	0.97	1.00	0.970	1.1	0.92	0.97	1.1	1.2	0.959
Mean % Rec:	88.6	97.7	102.0	98.6	100.5	93.7	104.1	104.7	116.6	100.3
RSD	2.2	2.3	4.1	1.8	10.9	2.4	9.2	3.0	2.8	3.4

B.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. Results of duplicate comparisons from 8 samples are listed in Tables B.2.1-2. The RPD between laboratory duplicates ranged from 0-20%, with a mean of 7.6%. The RPDs all duplicates were well within acceptable limits. All Hg duplicates were below the MDL.

Table B.2.1. Replicate metals analysis (µg/g) for 2002. Analyses performed by the State of Maine Department of Health and Environmental Testing Laboratory (HETL)

	Ag	% Dif.	Cd	% Dif.	Cr	% Dif.	Cu	% Dif.	Fe	% Dif.	Ni	% Dif.	Pb	% Dif.	Zn	% Dif.	Al	% Dif.	Hg	% Dif.
Dup1	ND	NA	2.39	3	1.39	21	5.86	7	880	25	1.47	15	1.38	22	67	6	479	26	0.095	88
	ND	NA	2.25	3	0.9	21	5.1	7	533	25	2	15	0.88	22	59.4	6	280	26	0.006	88
Dup2	ND	NA	2.37	1	1.31	3	6.33	8	441	1	1.79	1	2.12	5	85.3	5	168	3	0.118	3
	ND	NA	2.42	1	1.23	3	7.43	8	428	1	1.82	1	2.33	5	77.6	5	177	3	0.111	3
Dup3	ND	NA	1.57	4	1.99	4	7.29	4	418	5	1.29	4	4.66	3	118	4	137	5	0.007	3
	ND	NA	1.69	4	2.16	4	7.88	4	463	5	1.39	4	4.97	3	127	4	152	5	0.007	3
Dup4	ND	NA	1.68	1	1.14	3	9.07	3	378	2	1.1	1	1.66	1	76.1	2	145	3	---	---
	ND	NA	1.64	1	1.2	3	8.5	3	396	2	1.08	1	1.71	1	73.2	2	153	3	---	---
Dup5	ND	NA	0.95	5	0.69	4	7.02	2	470	6	1.07	4	2.26	8	70.2	7	193	7	---	---
	ND	NA	0.86	5	0.74	4	6.68	2	417	6	0.99	4	1.92	8	61.4	7	169	7	---	---
Dup6	0.04	63	1.65	1	1.62	24	8.06	0	225	22	1.14	8	6.24	17	92.4	1	91	33	---	---
	0.15	63	1.62	1	1	24	8.06	0	349	22	0.97	8	4.45	17	90	1	45	33	---	---
Dup7	0.04	85	1.96	0	1.89	4	6.72	1	386	5	1.65	1	4.74	3	151	0	65	5	---	---
	0.52	85	1.96	0	2.04	4	6.53	1	350	5	1.62	1	4.43	3	151	0	59	5	---	---
Dup8	ND	NA	1.29	4	1.02	2	5.91	1	237	2	1.01	2	4.15	4	74.3	4	59	4	---	---
	ND	NA	1.41	4	1.07	2	5.82	1	249	2	0.98	2	4.52	4	80.2	4	65	4	---	---
Mean	74		2		8		3		9		4		8		4		11		31	
RSD	NA		2		9		3		9		5		7		2		12		49	

Table B.2.2. Replicate metals analysis (µg/g) for 2003 and 2004 (grey-shaded) samples
Battelle Marine Sciences Laboratory (MSL).

Sample	Ag	% Diff	Cd	% Diff	Ni	% Diff	Pb	% Diff	Zn	% Diff	Al	% Diff	Cr	% Diff	Fe	% Diff	Cu	% Diff	Hg	% Diff
NHDP 4	0.121	3.9	2.73	3.6	2.17	5.1	2.72	3.6	138	3.8	232	4.5	6.10	0.2	308	1.0	69.6	0.2	0.301	0.2
	0.112	3.9	2.54	3.6	1.96	5.1	2.53	3.6	128	3.8	212	4.5	6.08	0.2	302	1.0	69.9	0.2	0.300	0.2
MESA 2	0.0887	0.2	2.11	2.5	2.53	8.4	2.28	0.9	65.0	2.8	504	7.4	3.16	1.0	490	0.2	8.59	2.2	0.130	2.0
	0.0890	0.2	2.22	2.5	2.14	8.4	2.32	0.9	68.7	2.8	435	7.4	3.22	1.0	492	0.2	8.98	2.2	0.135	2.0
MECK 1	0.0169	3.4	1.20	2.0	1.38	1.8	1.18	1.3	58.1	0.9	487	2.7	1.50	1.2	471	1.0	7.87	0.3	0.069	0.3
	0.0181	3.4	1.25	2.0	1.43	1.8	1.21	1.3	59.1	0.9	461	2.7	1.54	1.2	481	1.0	7.82	0.3	0.069	0.3
MAIP 3	0.106	0.5	0.956	0.6	3.03	20.2	1.85	0.0	75.6	0.2	211	0.0	1.53	0.6	314	1.4	57.1	0.2	0.096	1.0
	0.107	0.5	0.944	0.6	2.01	20.2	1.85	0.0	75.3	0.2	211	0.0	1.55	0.6	306	1.4	56.9	0.2	0.098	1.0
NBHI	0.0529	7.3	1.74	7.7	1.03	2.8	0.598	7.7	55.5	8.5	164	0.3	0.740	1.3	161	1.0	6.16	0.7	0.057	1.5
	0.0457	7.3	1.49	7.7	0.973	2.8	0.513	7.7	46.8	8.5	163	0.3	0.760	1.3	158	1.0	6.08	0.7	0.059	1.5
NSDI3	0.183	0.5	2.14	0.7	1.79	0.8	6.60	5.7	117	0.0	655	3.0	1.89	0.1	683	2.6	6.21	0.1	0.116	6.5
	0.181	0.5	2.11	0.7	1.82	0.8	5.89	5.7	117	0.0	695	3.0	1.89	0.1	720	2.6	6.19	0.1	0.132	6.5
NHDP2	0.0644	3.4	2.48	0.4	1.81	6.0	2.36	0.2	105	2.4	362	4.7	2.56	0.5	471	0.9	8.34	0.6	0.306	0.7
	0.0602	3.4	2.46	0.4	2.04	6.0	2.37	0.2	100	2.4	398	4.7	2.59	0.5	480	0.9	8.25	0.6	0.302	0.7
MAIH4	0.0536	0.0	1.04	1.5	1.33	12.2	11.0	1.4	156	3.0	499	0.0	2.10	2.8	1798	9.4	12.4	1.7	0.118	2.4
	0.0536	0.0	1.01	1.5	1.70	12.2	10.7	1.4	147	3.0	499	0.0	2.22	2.8	2171	9.4	12.0	1.7	0.112	2.4
Mean:		2.4		2.4		7.2		2.6		2.7		2.8		1.0		2.2		0.8		1.8
SD		2.6		2.4		6.5		2.8		2.7		2.7		0.9		3.0		0.8		2.1

B.3 BLANKS

115 digestion procedure blanks were reported for trace metal analysis, except n=7 for Hg. Most of the blanks, with the exception of Al, were non-detectable. Table B.3.1 summarizes percent of non-detectable blanks and presents the mean (and RSD) of the blanks observed above the reported instrumental detection limit.

TABLE B.3.1. HETL reported analysis of mussel preparation blanks for 2003-2004.

	AG	CD	CR	CU	FE	NI	PB	ZN	AL
	ND	ND	ND	ND	ND	ND	ND	ND	ND
	0.001	0.002	0.001	0.005	0.01	0.003	0.002	0.003	0.02
	ND	ND	ND	ND	ND	ND	ND	ND	ND
	0.001	0.002	0.001	0.005	0.01	0.003	0.002	0.003	0.02
	ND	ND	ND	ND	ND	ND	ND	ND	ND
	0.001	0.002	0.001	0.005	0.01	0.003	0.002	0.003	0.02
	ND	ND	ND	ND	ND	ND	ND	ND	ND
	0.001	0.002	0.001	0.005	0.01	0.003	0.002	0.003	0.02
	ND	ND	ND	ND	ND	ND	ND	ND	ND
	0.001	0.002	0.001	0.005	0.01	0.003	0.002	0.003	0.02
	ND	ND	ND	ND	ND	ND	ND	ND	ND
	0.001	0.002	0.001	0.005	0.01	0.003	0.002	0.003	0.02
	ND	ND	ND	ND	ND	ND	ND	ND	ND
	0.001	0.002	0.001	0.005	0.01	0.003	0.002	0.003	0.02

TABLE B.3.2. MSL reported analysis of mussel preparation blanks for 2003-2004.

Ag	Cd	Cr	Cu	Fe	Ni	Pb	Zn	Al	Hg
0.01	0.01	0.05	0.100	1.5	0.05	0.02	0.3	0.5	0.005
0.01	0.01	0.05	0.100	1.5	0.05	0.02	0.3	0.6	0.005
0.01	0.01	0.05	0.100	1.5	0.05	0.02	0.3	0.6	0.005
0.01	0.01	0.05	0.100	1.5	0.05	0.02	0.3	0.7	0.006

B.4 COMPLETENESS

The data on 68 of 68 samples (100%) were completed successfully. Approximately ½ of the SRMs met the data quality objectives of the Program. All matrix spikes were within control limits. All the RPDs for laboratory duplicates were within precision limits, with the exception of one Cu analysis.

B.5 BATTELLE QUALITY ASSURANCE/QUALITY CONTROL 2006 NARRATIVE

PROJECT: Gulf of Maine 2006
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: Sixty three tissue samples were received at MSL on 05/05/06. All samples were received in good condition (i.e., containers were intact and cooler temperature was acceptable). The 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 (2565). All project information was entered into Battelle's laboratory information and sample tracking system.

Chemistry Lab IDs:	2565*1-63
Description	<i>Tissue</i>
Collection dates	2001 (see table for dates)
Laboratory arrival date	05/05/06
Cooler temperatures, on arrival	-15°C
Digestion (aqua regia)	06/07/06
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:

Analyte	Analytical Method	Range of Recovery	SRM Accuracy	Relative Precision	Method Detection Limit (µg/g dry weight) ^(a)	Reporting Limit (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

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 ICP-OES*. 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 $\mu\text{g/g}$ 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 $\leq 25\%$ relative percent difference.
- N QC sample outside QC criterion of $\pm 25\%$ 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. 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 C Summary of 2002-2004 Organic Contaminant Analysis Assurance/Quality Control

C.1 ACCURACY

C.1.1 Standard Reference Materials

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. The NIST standard 1946 (Lake Superior Fish Tissue) and a “Fish V” homogenate were used to certify accuracy of PCB and pesticide analyses. These data are from Gulfwatch’s participation in the 2002 NIST Intercomparison Exercise Program for Organic Contaminants (Schantz et al., 2005). Accuracy was assessed by NIST using a z-score index:

$$\text{z-score [25\%]} = (x - X) / \sigma$$

where:

x – individual laboratory result

X – certified/assigned value of SRM/Fish Homogenate

σ – 25% of target value (X) substituted for standard deviation ($\sigma = 0.025 X$, see Schantz et al., 2005).

The z-score groups the results into three categories: satisfactory ($|z| \leq 2$), questionable ($2 < |z| \leq 3$) and unsatisfactory ($|z| \geq 3$).

Table C.1.1a and C.1.1b list the analytical results of SRM 1946 and the Fish Homogenate V from the NIST 2002 Intercalibration exercise. Performance for organic contaminant accuracy and precision are summarized in Table C.1.1c.

TABLE C.1.1a PCB Standard Reference Material Recovery from the National Institute for Standards and Technology 2002 Intercomparison Exercise for PCB contaminants. (Schantz et. al, 2005)

Fish Homogenate V (ng/g wet wt.)						SRM 1946 (ng/g wet wt.)				
	Replicates			95% Assigned CL		Replicates			SRM194 6 95% CL	
	S1	S2	S3	value		S1	S2	S3	Target Value	
PCB 8	<3	<3	<3	no Assigned value		<3	<3	<3	no target	
PCB 18	2.11	2.20	2.31	2.46	0.36	<1.5	<1.5	<1.5	0.84	0.11
PCB 28	11.8	12.1	12.4	13.8	1.4	3.13	<3	<3	2.00	0.24
PCB 31	NA	NA	NA	10.9	1.4	NA	NA	NA	1.46	0.2
PCB 44	15.5	15.4	16.5	20.7	2.6	4.49	3.56	<3	4.46	0.84
PCB 49	NA	NA	NA	25.0	2.9	NA	NA	NA	3.00	0.39
PCB 52	49.1	49.8	51.5	33.3	3.5	7.34	5.95	7.52	8.1	1.0
PCB 66	112	114	121	70.2	6.1	8.83	8.05	7.85	10.0	1.9
PCB 95	NA	NA	NA	43.4	10.4	NA	NA	NA	11.4	1.3
PCB 99	NA	NA	NA	75.0	8.9	NA	NA	NA	25.6	2.3
PCB 101	127	122	143	88.8	6.9	52.4	59.1	60.2	34.6	2.6
PCB 105	76.9	77.0	87.4	60.8	4.7	22.7	24.0	28.4	19.9	0.9
PCB 118	131	139	149	114	10	84.1	89.6	102	52.1	1.4
PCB 128	57.4	59.0	57.8	31.4	3.3	33.3	37.7	44.0	22.8	1.9
PCB 138	240	246	274	174	12	172	198	223	115	13
PCB 149	NA	NA	NA	63.5	7.6	NA	NA	NA	26.3	1.3
PCB 151	242	245	274	201	14	209	223	263	178	9
PCB 156	NA	NA	NA	15.4	1.9	NA	NA	NA	9.52	0.51
PCB 170	44.6	44.2	50.2	31.2	2.1	36.6	40.1	45.6	25.2	2.2
PCB 180	94.6	94.8	107	81.0	7.2	83.6	91.2	105	74.4	4
PCB 187	68.7	68.8	78	54.0	4.6	63.5	68.7	82.0	55.2	2.1
PCB 194	NA	NA	NA	12.6	1.2	NA	NA	NA	13.0	1.3
PCB 195	4.02	3.95	4.55	5.21	0.68	7.56	7.32	7.35	5.30	0.45
PCB 205	4.26	4.58	4.63	5.51	0.5	5.02	4.98	4.86	5.00	0.43
PCB 209	<2	<2	2.22	2.25	0.21	3.29	3.21	3.17	1.30	0.21

TABLE C.1.1b Pesticide Standard Reference Material Recovery from the National Institute for Standards and Technology 2002 Intercomparison Exercise for PCB contaminants. (Schantz et al., 2005)

Fish Homogenate V (ng/g wet wt.)				SRM 1946 (ng/g wet wt.)			Material Reference values			
	S1	S2	S3	S1	S2	S3	Fish V Assigned value	95% CL	SRM1946 Target Value	95% CL
alpha-HCH	<3	<3	<3	5.94	5.68	6.06	1.22	0.33	5.72	0.65
hexachlorobenzene	4.77	5.06	5.16	5.73	5.77	5.76	6.11	0.53	7.25	0.83
gamma-HCH	<3	<3	<3	<3	<3	<3	0.467	0.12	1.14	0.18
Beta-HCH	NA	NA	NA	NA	NA	NA	<2		no target	
heptachlor	<3	<3	<3	<3	<3	<3	<2		no target	
aldrin	<3	<3	<3	<3	<3	<3	<2		no target	
heptachlor epoxide	14.7	15.1	14.7	7.69	7.5	7.5	13.2	1.3	5.5	0.23
oxychlordane	NA	NA	NA	NA	NA	NA	21.2	2.2	18.9	1.5
trans-chlordane	<3	<3	<3	13.8	13.2	12.1	11.2	1.1	8.36	0.91
2,4'-DDE	<9	<9	<9	<9	<9	<9			1.04	0.29
endosulfan I	<3	<3	<3	<3	<3	<3	<2		no target	
cis-chlordane	40	45.4	69.4	36.9	25.2	28.7			32.5	1.8
trans-nonachlor	145	147	175	132	133	148			99.6	7.6
dieldrin	84.4	93.8	107.6	52.5	43	45.6			32.5	3.5
4,4'-DDE	846	864	968	428	467	553			373	48
2,4'-DDD	<10	<10	<10	<10	<10	<10			2.2	0.25
endrin	NA	NA	NA	NA	NA	NA			no target	
endosulfan II	<5	<5	<5	<5	<5	<5	no assigned value		no target	
4,4'-DDD	31.3	35.7	35.8	18.4	16.8	17.3			17.7	2.8
2,4'-DDT	29.9	30.4	46.1	22.7	28.7	28.1			22.3	3.2
cis-nonachlor	NA	NA	NA	NA	NA	NA			59.1	3.6
4,4'-DDT	23.2	26.1	18.7	20.5	12.4	12.6			37.2	3.5
mirex	3.86	3.81	4.04	5.98	6.41	4.73			6.47	0.77
endosulfan sulfate	NA	NA	NA	NA	NA	NA	no assigned value		no target	
chlorpyrifos	NA	NA	NA	NA	NA	NA	<2		no target	

TABLE C.1.1c. SRM accuracy (z-scores, z[s]) and precision (p[15%]) performances summary from the 2002 NIST intercomparison exercise for organic contaminants in the marine environment (Schantz, et al., 2005).

PCB SRM Performance	No. of Analytes %		NIST Category	NIST Score	z (25%)	z(s)	p(15%)
Quantitative	16	64	Satisfactory	<2	14	12	16
Qualitative	2	8	Questionable	2 to 3	2	3	0
			Unsatisfactory				
Not Determined	7	28	y	>3	1	2	0
Pesticide SRM Performance							
Quantitative	10	40	Satisfactory	<2	6	7	9
Qualitative	9	36	Questionable	2 to 3	1	3	1
			Unsatisfactory				
Not Determined	6	24	y	>3	1	0	0

Table C.1.1.d Certified reference material (CRM 1974a) performance, 2003 analyses.

CRM NIST1974a					Certified values	Uncertainty
PAH					Reference values	+/-
Naphthalene	0%	0%	37%	42%	23.5	4.4
1-Methylnaphthalene	49%	61%	72%	47%	5.3	1.8
2-Methylnaphthalene	38%	45%	58%	50%	10.2	1.5
Biphenyl	30%	105%	38%	33%	5.1	0.33
2,6-Dimethylnaphthalene						
Acenaphthylene	91%	165%	157%	121%	5.25	0.38
Acenaphthene	83%	107%	76%	66%	3.15	0.26
2,3,5-Trimethylnaphthalene						
Fluorene	59%	100%	67%	89%	5.72	0.91
Phenanthrene	97%	93%	98%	95%	22.2	2.4
Anthracene	147%	124%	99%	129%	6.1	1.7
1-Methylphenanthracene	103%	122%	100%	76%	10.5	4.8
Fluoranthene	146%	141%	107%	107%	163.7	9.1
Pyrene	143%	142%	117%	118%	151.6	6.6
Benzo(a)Anthracene	103%	65%	91%	86%	32.5	4.7
Chrysene	108%	75%	101%	92%	44.2	2.3
Benzo(b)Fluoranthene	108%	99%	110%	113%	46.4	3.7
Benzo(k)Fluoranthene	141%	136%	161%	130%	20.18	0.84
Benzo(e)Pyrene	114%	86%	110%	101%	84	1.9
Benzo(a)Pyrene	115%	113%	108%	114%	15.63	0.65
Perylene	106%	117%	86%	81%	7.68	0.27
Indeno(1,2,3,4-cd)Pyrene	83%	33%	126%	49%	14.2	2.8
Dibenz(a,h)Anthracene	127%	179%	118%	157%	3	0.2
Benzo(ghi)Perylene	120%	73%	84%	64%	22	2.2

Table C.1.1.d (continued), 2003 analyses.

PCB					CRM NIST1974a Certified values Reference values	Uncertainty +/-
#8,5						
#18,15	79%	82%	82%	60%	33	11
#29						
#50						
	101					
#28	%	98%	98%	83%	79	15
#52	95%	92%	92%	76%	115	11
#44	95%	101%	101%	79%	72.7	7.4
	111					
#66,95	%	98%	98%	86%	101.4	4.4
	108					
#101,90	%	109%	109%	90%	128.3	9.7
	115					
#87	%	116%	116%	93%	54	14
#77						
	112					
#118	%	104%	104%	85%	130.8	3.6
#153,132	91%	82%	82%	68%	145.2	7.6
#105	90%	80%	80%	103%	53	3.4
	104					
#138	%	94%	94%	78%	133.5	9.5
#126						
	108					
#187	%	98%	98%	79%	34	2.3
	110					
#128	%	111%	111%	87%	22	3.4
#180	79%	71%	71%	56%	17.1	3.8
#169						
#170,190	76%	91%	91%	63%	5.5	1.1
Pesticide					CRM NIST1974a Certified values Reference values	Uncertainty +/-
g-Chlordane	INT	80%	122%	91%	16.6	1.7
o,p'-DDE	81%	149%	62%	196%	5.26	0.27
cis-Chlordane	118%	94%	103%	88%	17.2	2.8
t-Nonachlor	118%	103%	108%	87%	18	3.6
p,p'_DDE	100%	101%	98%	80%	51.2	5.5
Dieldrin	117%	123%	129%	111%	6.2	1.3
o,p'-DDD	INT	94%	93%	83%	13.7	2.8
p,p'-DDD	121%	92%	110%	76%	43	6.3
o,p'-DDT	141%	70%	84%	77%	8.5	1.9
p,p'-DDT	86%	96%	146%	68%	3.91	0.59

C.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 C.1.2

PAH: In general, matrix spike recoveries met expectations (40-120%). Analytes for each batch that exceed the QA thresholds are highlighted in grey in Table C-1. Four of the PAHs (anthracene, fluorene, phenanthrene, and perylene) were analytically problematic; having spike recoveries greater than 120%. Anthracene exceeded 120% in all batch analyses. 18.9% of analyses fell outside of the targeted QA range, the majority of which exceeded 120%. Surrogate recovery was generally low for Naphthalene-d8.

PCB: Recovery of matrix spikes ranged from 63-117% for all matrix spikes and met targeted performance criteria of 40-120% (Table C-2). Recoveries of 60-70% were observed in only 7 of the 240 analyses and were mostly observed in 4 of the 10 batches for BZ# 8,5. Surrogate recoveries for BZ#103 and BZ#198 were 89 and 98%, respectively and were <5% in relative standard deviation for all batch analyses (n=10).

OC: Recovery of matrix spikes ranged from 66-132% (Table C-3). Only two analyses were outside the targeted performance criteria of 40-120% and these exceeded 120%. Surrogate recoveries for g-Chlordane averaged 72% ($\pm 9\%$, n=10).

TABLE C.1.2.1a Percent recovery of 2002 Gulfwatch PAH matrix spikes

PAH												Mean %RSD	
Naphthalene	79%	60%	25%	76%	52%	0%	10%	38%	74%	88%		50%	61
1-Methylnaphthalene	89%	74%	30%	78%	87%	6%	49%	76%	90%	88%		67%	43
2-Methylnaphthalene	82%	65%	27%	74%	77%	0%	42%	56%	78%	104%		60%	50
Biphenyl	110%	91%	38%	87%	86%	17%	71%	81%	96%	97%		77%	37
2,6-Dimethylnaphthalene	111%	89%	40%	88%	92%	25%	85%	76%	96%	97%		80%	33
Acenaphthylene	111%	100%	49%	101%	87%	33%	83%	86%	108%	102%		86%	30
Acenaphthene	122%	99%	59%	119%	106%	41%	98%	96%	120%	116%		98%	28
2,3,5-Trimethylnaphthalene	101%	96%	62%	99%	98%	67%	110%	100%	111%	109%		95%	18
Fluorene	165%	141%	91%	157%	116%	79%	113%	123%	133%	131%		125%	21
Phenanthrene	121%	118%	95%	128%	115%	104%	111%	106%	117%	109%		112%	9
Anthracene	143%	130%	112%	146%	108%	117%	118%	116%	133%	126%		125%	10
1-Methylphenanthracene	122%	105%	100%	122%	118%	119%	120%	115%	Int	121%		116%	7
Fluoranthene	151%	117%	108%	Int	119%	132%	126%	118%	128%	98%		122%	12
Pyrene	133%	109%	104%	119%	112%	118%	119%	116%	121%	117%		117%	7
Benzo(a)Anthracene	127%	91%	93%	93%	111%	125%	102%	97%	110%	77%		103%	15
Chrysene	137%	103%	109%	109%	114%	111%	111%	105%	108%	107%		111%	9
Benzo(b)Fluoranthene	100%	97%	90%	92%	102%	114%	117%	101%	113%	105%		103%	9
Benzo(k)Fluoranthene	97%	85%	93%	84%	98%	116%	109%	103%	113%	95%		99%	11
Benzo(e)Pyrene	101%	90%	90%	92%	108%	117%	116%	108%	115%	104%		104%	10
Benzo(a)Pyrene	113%	104%	99%	100%	106%	121%	104%	111%	113%	83%		105%	10
Perylene	120%	107%	114%	98%	95%	116%	96%	91%	100%	96%		103%	10
Indeno(1,2,3,4-cd)Pyrene	90%	84%	81%	104%	99%	116%	119%	107%	120%	97%		102%	14
Dibenz(a,h)Anthracene	85%	84%	83%	73%	78%	98%	96%	101%	96%	95%		89%	11
Benzo(ghi)Perylene	72%	87%	82%	101%	108%	120%	108%	110%	118%	72%		98%	19
Surrogate Recovery													
Napthalene-d8	66%	56%	23%	58%	66%	1%	2%	46%	73%	83%		47%	61
Acenaphthene-d10	101%	93%	47%	91%	95%	38%	91%	87%	108%	100%		85%	27
Phenanthrene-d10	115%	106%	89%	113%	116%	121%	129%	111%	128%	115%		114%	10
Fluoranthene-d10	IN	129%	99%	167%	137%	130%	110%	118%	150%	122%		129%	16
Chrysene-d12	117%	89%	97%	89%	126%	134%	110%	97%	108%	108%		108%	14
Benzo(a)pyrene-d12	91%	88%	86%	89%	102%	120%	103%	102%	109%	108%		100%	11
Benzo(g,h,i)perylene-d12	Not Reported												

TABLE C.1.2.1b Percent recovery of 2003 Gulfwatch PAH matrix spikes

PAH										Mean %RSD	
Naphthalene	131%	72%	84%	40%	77%	96%	62%	83%	69%	79%	31%
1-Methylnaphthalene	110%	88%	101%	67%	81%	93%	90%	90%	84%	89%	13%
2-Methylnaphthalene	116%	92%	109%	62%	85%	96%	81%	103%	89%	93%	17%
Biphenyl	106%	96%	104%	72%	83%	97%	87%	89%	87%	91%	12%
2,6-Dimethylnaphthalene	102%	87%	103%	72%	85%	98%	98%	89%	91%	92%	11%
Acenaphthylene	113%	98%	109%	75%	85%	99%	56%	80%	68%	87%	22%
Acenaphthene	124%	113%	125%	80%	99%	118%	105%	113%	107%	109%	13%
2,3,5-Trimethylnaphthalene	126%	111%	122%	95%	103%	114%	113%	110%	105%	111%	9%
Fluorene	141%	135%	112%	102%	121%	133%	120%	128%	122%	124%	10%
Phenanthrene	121%	103%	113%	96%	109%	106%	93%	107%	114%	107%	8%
Anthracene	140%	107%	100%	122%	104%	113%	84%	119%	107%	110%	14%
1-Methylphenanthracene	130%	99%	76%	87%	98%	136%	104%	98%	97%	103%	19%
Fluoranthene	125%	68%	79%	88%	76%	73%	62%	39%	33%	72%	38%
Pyrene	134%	109%	126%	96%	110%	115%	111%	110%	97%	112%	11%
Benzo(a)Anthracene	104%	78%	79%	99%	109%	104%	98%	102%	101%	97%	11%
Chrysene	104%	86%	87%	90%	102%	117%	103%	98%	104%	99%	10%
Benzo(b)Fluoranthene	122%	106%	110%	85%	98%	106%	105%	117%	120%	108%	11%
Benzo(k)Fluoranthene	104%	96%	100%	84%	93%	105%	92%	98%	96%	96%	7%
Benzo(e)Pyrene	115%	84%	92%	96%	113%	110%	107%	95%	100%	101%	11%
Benzo(a)Pyrene	88%	95%	99%	95%	93%	104%	102%	83%	103%	96%	7%
Perylene	98%	59%	80%	115%	91%	91%	91%	102%	83%	90%	17%
Indeno(1,2,3,4-cd)Pyrene	108%	109%	110%	98%	96%	104%	98%	100%	96%	102%	6%
Dibenz(a,h)Anthracene	97%	96%	94%	112%	80%	58%	93%	85%	92%	90%	17%
Benzo(ghi)Perylene	105%	23%	48%	85%	87%	69%	76%	55%	28%	64%	43%
Surrogate Recovery											
Napthalene-d8	97%	79%	81%	54%	64%	71%	73%	67%	64%	72%	17%
Acenaphthene-d10	114%	97%	104%	73%	86%	103%	93%	88%	85%	94%	13%
Phenanthrene-d10	134%	107%	114%	85%	95%	111%	105%	100%	91%	105%	14%
Fluoranthene-d10	142%	IN	IN	93%	63%	55%	70%	60%	41%	75%	45%
Chrysene-d12	111%	74%	77%	87%	96%	111%	99%	91%	88%	93%	14%
Benzo(a)pyrene-d12	120%	92%	104%	95%	109%	105%	101%	94%	90%	101%	9%
Benzo(g,h,i)perylene-d12	not reported										

TABLE C.1.2.1c Percent recovery of 2004 Gulfwatch PAH matrix spikes

PAH										Mean	SD
Naphthalene	45%	45%	45%	98%	102%	116%	57%	105%	97%	79%	30
1-Methylnaphthalene	68%	67%	67%	86%	85%	60%	72%	81%	74%	74%	9
2-Methylnaphthalene	66%	63%	63%	87%	86%	59%	69%	85%	78%	73%	11
Biphenyl	76%	74%	74%	88%	91%	75%	78%	82%	72%	79%	7
2,6-Dimethylnaphthalene	75%	77%	77%	94%	98%	72%	78%	87%	79%	82%	9
Acenaphthylene	70%	75%	75%	78%	82%	61%	75%	77%	70%	74%	6
Acenaphthene	79%	81%	81%	89%	94%	78%	79%	87%	79%	83%	6
2,3,5-Trimethylnaphthalene	88%	90%	90%	95%	105%	82%	89%	96%	87%	91%	6
Fluorene	83%	88%	88%	95%	108%	79%	83%	97%	88%	90%	9
Phenanthrene	83%	95%	95%	81%	46%	91%	84%	118%	105%	89%	20
Anthracene	80%	93%	93%	88%	115%	80%	84%	91%	83%	90%	11
1-Methylphenanthracene	88%	99%	99%	95%	IN	174%	88%	100%	93%	104%	28
Fluoranthene	83%	95%	95%	126%	IN	78%	80%	135%	121%	102%	22
Pyrene	90%	98%	98%	105%	IN	131%	84%	112%	102%	102%	14
Benzo(a)Anthracene	86%	97%	97%	79%	102%	66%	99%	97%	93%	91%	12
Chrysene	86%	95%	95%	86%	55%	72%	86%	96%	95%	85%	14
Benzo(b)Fluoranthene	94%	108%	108%	82%	98%	78%	87%	108%	107%	97%	12
Benzo(k)Fluoranthene	86%	101%	101%	76%	89%	68%	87%	95%	89%	88%	11
Benzo(e)Pyrene	91%	103%	103%	86%	100%	72%	86%	104%	99%	94%	11
Benzo(a)Pyrene	70%	97%	97%	76%	89%	70%	65%	97%	90%	83%	13
Perylene	86%	107%	107%	104%	92%	64%	89%	103%	94%	94%	14
Indeno(1,2,3,4-cd)Pyrene	80%	107%	107%	85%	93%	69%	81%	87%	85%	88%	13
Dibenz(a,h)Anthracene	78%	92%	92%	64%	75%	61%	71%	77%	74%	76%	11
Benzo(ghi)Perylene	73%	100%	100%	75%	79%	59%	81%	94%	91%	83%	14
Surrogate Recovery											
Napthalene-d8	62%	59%	59%	73%	65%	52%	60%	52%	47%	59%	8
Acenaphthene-d10	81%	77%	77%	82%	87%	69%	74%	81%	76%	78%	5
Phenanthrene-d10	97%	103%	103%	91%	100%	76%	86%	91%	86%	92%	9
Fluoranthene-d10	101%	106%	106%	89%	IN	103%	90%	95%	92%	98%	7
Chrysene-d12	93%	97%	97%	73%	85%	66%	89%	91%	90%	87%	11
Benzo(a)pyrene-d12	98%	107%	107%	74%	86%	74%	90%	99%	98%	93%	13
Benzo(g,h,i)perylene-d12	Not reported										

TABLE C.1.2.2a. Gulfwatch 2002 PCB Matrix Spike Recoveries (%)

PCB											Mean	STD
#8,5	62%	81%	48%	71%	79%	70%	71%	59%	85%	79%	70%	11
#18,15	67%	88%	58%	77%	78%	69%	77%	62%	84%	86%	75%	10
#29	88%	79%	69%	86%	79%	76%	78%	67%	89%	88%	80%	8
#28	95%	93%	101%	110%	106%	87%	107%	103%	108%	98%	101%	8
#52	74%	92%	78%	87%	85%	88%	87%	75%	98%	90%	85%	8
#50	79%	82%	82%	92%	78%	56%	71%	72%	73%	96%	78%	11
#44	92%	92%	81%	84%	84%	81%	88%	74%	95%	95%	87%	7
#66,95	99%	114%	111%	107%	94%	93%	94%	99%	105%	103%	102%	7
#101,90	93%	110%	95%	100%	94%	94%	91%	93%	95%	102%	97%	6
#87	83%	107%	93%	95%	78%	78%	80%	69%	84%	90%	86%	11
#77	114%	107%	113%	95%	83%	91%	84%	84%	90%	94%	95%	12
#118	106%	89%	100%	80%	87%	82%	102%	81%	94%	105%	93%	10
#153,132	90%	92%	98%	97%	87%	82%	92%	79%	92%	112%	92%	9
#105	100%	103%	101%	101%	91%	93%	94%	84%	98%	100%	97%	6
#138	100%	95%	104%	95%	94%	83%	99%	88%	101%	104%	96%	7
#126	82%	81%	89%	95%	88%	80%	85%	78%	92%	98%	87%	7
#187	89%	107%	Int	99%	93%	85%	90%	83%	94%	106%	94%	8
#128	102%	105%	119%	103%	91%	90%	101%	84%	101%	93%	99%	10
#180	96%	95%	111%	110%	78%	75%	85%	82%	84%	99%	92%	13
#169	88%	92%	112%	Int	87%	85%	96%	80%	86%	101%	92%	10
#170,190	89%	98%	113%	86%	87%	82%	89%	83%	87%	99%	91%	9
#195,208	94%	94%	105%	96%	91%	80%	93%	82%	96%	96%	93%	7
#206	90%	89%	136%	80%	85%	75%	80%	82%	85%	97%	90%	17
#209	103%	86%	130%	111%	94%	84%	90%	87%	102%	98%	98%	14
Surrogate Recovery												
103	83%	82%	83%	83%	81%	82%	82%	74%	85%	87%	82%	3
198	99%	88%	105%	89%	81%	81%	84%	77%	80%	91%	88%	9

TABLE C.1.2.2b. Gulfwatch 2003 PCB Matrix Spike Recoveries (%)

PCB											Mean	STD
#8,5	84%	69%	46%	56%	54%	72%	66%	52%	85%		65%	14
#18,15	91%	70%	51%	55%	58%	73%	73%	59%	87%		69%	14
#29	95%	78%	60%	64%	70%	79%	77%	70%	90%		76%	12
#50	102%	83%	67%	67%	76%	85%	80%	72%	99%		81%	13
#28	112%	94%	82%	75%	83%	95%	87%	80%	106%		91%	12
#52	102%	83%	82%	72%	75%	86%	81%	77%	100%		84%	10
#44	107%	83%	71%	75%	74%	92%	83%	78%	102%		85%	13
#66,95	117%	95%	85%	91%	89%	103%	88%	86%	111%		96%	12
#101,90	116%	93%	87%	88%	89%	103%	90%	87%	113%		96%	11
#87	101%	82%	75%	78%	79%	93%	79%	74%	96%		84%	10
#77	103%	86%	80%	81%	81%	94%	79%	70%	105%		87%	12
#118	117%	93%	93%	95%	91%	107%	93%	86%	109%		98%	10
#153,132	118%	94%	90%	93%	90%	106%	91%	84%	110%		97%	11
#105	111%	90%	85%	89%	88%	103%	90%	80%	103%		93%	10
#138	117%	93%	89%	93%	90%	105%	92%	84%	107%		97%	11
#126	108%	89%	86%	93%	81%	100%	80%	82%	109%		92%	11
#187	113%	97%	94%	100%	95%	114%	96%	87%	115%		101%	10
#128	102%	85%	83%	87%	86%	101%	83%	74%	101%		89%	10
#180	114%	90%	81%	90%	85%	101%	87%	81%	102%		92%	11
#169	115%	90%	94%	95%	88%	103%	89%	83%	100%		95%	10
#170,190	110%	88%	84%	92%	91%	105%	92%	83%	103%		94%	9
#195,208	113%	91%	87%	94%	89%	104%	88%	82%	97%		94%	10
#206	109%	84%	81%	95%	86%	97%	86%	82%	97%		91%	9
#209	106%	85%	79%	94%	89%	97%	86%	81%	99%		91%	9
Surrogate Recovery												
103	101%	78%	69%	73%	72%	85%	74%	69%	97%		80%	12
198	105%	77%	73%	88%	82%	95%	82%	72%	93%		85%	11

TABLE C.1.2.2c. Gulfwatch 2004 PCB Matrix Spike Recoveries (%)

PCB											Mean	STD
#8,5	60%	56%	57%	54%	76%	61%	43%	63%	63%		59%	9
#18,15	61%	59%	60%	61%	61%	55%	62%	67%	61%		61%	3
#29	63%	59%	61%	63%	63%	53%	69%	68%	66%		63%	5
#50	71%	68%	70%	71%	62%	57%	62%	72%	72%		67%	5
#28	81%	70%	72%	67%	56%	49%	59%	77%	72%		67%	11
#52	75%	77%	74%	80%	69%	62%	70%	72%	70%		72%	5
#44	73%	68%	70%	69%	57%	43%	71%	75%	68%		66%	10
#66,95	72%	72%	74%	74%	66%	52%	74%	80%	75%		71%	8
#101,90	78%	79%	81%	52%	60%	50%	81%	86%	86%		73%	14
#87	74%	68%	70%	66%	65%	47%	73%	76%	73%		68%	9
#77	72%	83%	80%	65%	42%	46%	64%	94%	84%		70%	17
#118	81%	84%	87%	69%	57%	49%	86%	91%	87%		77%	15
#153,132	94%	88%	93%	81%	57%	55%	95%	96%	88%		83%	16
#105	82%	78%	81%	69%	48%	46%	81%	85%	78%		72%	15
#138	87%	87%	90%	86%	58%	56%	102%	102%	91%		84%	16
#126	82%	79%	79%	56%	58%	49%	79%	88%	81%		72%	14
#187	86%	76%	86%	80%	60%	58%	91%	95%	88%		80%	13
#128	79%	73%	81%	68%	54%	51%	82%	87%	77%		72%	13
#180	81%	79%	82%	76%	60%	51%	70%	74%	68%		71%	10
#169	75%	77%	79%	70%	64%	50%	78%	81%	74%		72%	10
#170,190	70%	77%	80%	70%	60%	53%	71%	78%	70%		70%	9
#195,208	82%	78%	82%	74%	66%	57%	77%	81%	74%		75%	8
#206	80%	77%	80%	71%	68%	60%	77%	83%	75%		74%	7
#209	53%	80%	84%	75%	76%	65%	80%	81%	74%		74%	10
Surrogate Recovery												
103	76%	77%	80%	73%	60%	50%	66%	68%	66%		68%	9
198	77%	79%	82%	71%	62%	54%	68%	76%	69%		71%	9

TABLE C.1.2.3a Quality Control Results for 2002 Pesticide Analysis

Pesticide											Mean SD	
a_BHC	102%	113%	71%	118%	82%	80%	93%	62%	106%	92%	92%	18
HCB	69%	83%	55%	73%	74%	59%	68%	57%	90%	94%	72%	13
g-HCH(Lindane)	91%	99%	84%	97%	83%	83%	82%	69%	97%	97%	88%	10
Heptachlor	77%	95%	163%	90%	90%	72%	71%	63%	96%	109%	93%	28
Aldrin	103%	130%	114%	115%	134%	118%	116%	99%	128%	123%	118%	11
HeptachlorEpoxide	86%	116%	121%	113%	93%	86%	94%	77%	107%	102%	100%	15
g-Chlordane	85%	122%	81%	94%	101%	95%	106%	106%	101%	96%	99%	11
o,p'-DDE	85%	86%	97%	94%	82%	83%	81%	79%	83%	87%	86%	6
a-Endosulfan	93%	116%	104%	121%	110%	107%	103%	95%	112%	101%	106%	9
cis-Chlordane	99%	109%	117%	118%	90%	63%	88%	85%	110%	90%	97%	17
t-Nonachlor	94%	107%	111%	122%	118%	89%	97%	94%	116%	91%	104%	12
p,p'-DDE	101%	97%	108%	93%	96%	98%	101%	103%	111%	120%	103%	8
Dieldrin	101%	119%	105%	103%	128%	111%	114%	94%	119%	95%	109%	11
o,p'-DDD	109%	103%	98%	Int	102%	107%	120%	114%	109%	71%	104%	14
Endrin	95%	116%	101%	113%	110%	99%	98%	88%	97%	102%	102%	9
b-Endosulfan	85%	104%	94%	102%	101%	95%	90%	76%	102%	118%	97%	11
p,p'-DDD	107%	85%	72%	77%	88%	95%	94%	105%	117%	74%	91%	15
o,p'-DDT	97%	77%	91%	108%	97%	92%	92%	99%	106%	102%	96%	9
p,p'-DDT	103%	99%	62%	140%	116%	104%	99%	102%	95%	97%	102%	19
Metoxychlor	108%	110%	124%	109%	119%	118%	114%	101%	118%	93%	111%	9
Mirex	98%	90%	121%	80%	89%	89%	93%	77%	89%	98%	92%	12
Surrogate Recovery												
g-Chlordene	60%	82%	65%	68%	74%	60%	69%	63%	78%	85%	70%	9

TABLE C.1.2.3b Quality Control Results for 2003 Pesticide Analysis

Pesticide										Mean	SD
a_BHC	99%	90%	75%	74%	67%	86%	73%	82%	87%	81%	10
HCB	96%	79%	62%	59%	64%	76%	74%	64%	89%	74%	13
g-HCH(Lindane)	108%	96%	87%	86%	76%	97%	88%	95%	104%	93%	10
Heptachlor	85%	88%	69%	62%	66%	81%	74%	52%	81%	73%	12
Aldrin	134%	110%	96%	88%	98%	111%	103%	92%	103%	104%	14
HeptachlorEpoxide	112%	82%	72%	85%	84%	96%	81%	96%	67%	86%	14
g-Chlordane	120%	86%	67%	82%	76%	96%	74%	91%	108%	89%	17
o,p'-DDE	88%	98%	86%	86%	83%	82%	68%	85%	75%	83%	8
a-Endosulfan	124%	84%	71%	94%	91%	101%	84%	95%	113%	95%	16
cis-Chlordane	115%	81%	75%	82%	79%	90%	73%	89%	89%	86%	12
t-Nonachlor	93%	82%	74%	79%	68%	91%	76%	80%	115%	84%	14
p,p'_DDE	140%	106%	102%	107%	98%	124%	102%	99%	112%	110%	14
Dieldrin	129%	92%	80%	88%	89%	88%	83%	105%	94%	94%	15
o,p'-DDD	120%	81%	72%	44%	35%	58%	57%	88%	104%	73%	28
Endrin	127%	97%	88%	85%	78%	92%	75%	105%	94%	93%	16
b-Endosulfan	92%	63%	55%	46%	34%	64%	46%	61%	82%	60%	18
p,p'-DDD	119%	79%	69%	52%	37%	78%	72%	59%	80%	72%	23
o,p'-DDT	127%	105%	105%	86%	62%	115%	95%	83%	102%	98%	19
p,p'-DDT	111%	74%	83%	79%	50%	104%	86%	65%	92%	82%	19
Metoxychlor	119%	122%	118%	105%	78%	128%	115%	89%	101%	108%	17
Mirex	108%	88%	90%	90%	86%	100%	84%	79%	99%	92%	9
Surrogate Recovery											
g-Chlordene	87%	78%	56%	53%	59%	71%	70%	53%	76%	67%	12

TABLE C.1.2.3c Quality Control Results for 2004 Pesticide Analysis

Pesticide										Mean	SD
a_BHC	78%	83%	81%	82%	93%	73%	86%	82%	84%	82%	5
HCB	70%	69%	73%	83%	90%	75%	69%	66%	69%	74%	8
g-HCH(Lindane)	75%	84%	81%	85%	85%	72%	89%	95%	90%	84%	7
Heptachlor	60%	53%	58%	69%	65%	60%	74%	75%	77%	66%	9
Aldrin	78%	73%	76%	85%	60%	49%	75%	75%	82%	73%	11
HeptachlorEpoxide	128%	69%	68%	68%	75%	49%	86%	84%	91%	80%	22
g-Chlordane	81%	91%	73%	77%	77%	51%	86%	84%	78%	78%	11
o,p'-DDE	61%	72%	79%	72%	63%	35%	64%	72%	81%	67%	14
a-Endosulfan	136%	93%	89%	92%	80%	59%	88%	69%	70%	86%	22
cis-Chlordane	86%	89%	90%	81%	87%	57%	103%	105%	106%	89%	15
t-Nonachlor	93%	97%	104%	101%	79%	60%	110%	116%	112%	97%	18
p,p'_DDE	99%	98%	102%	101%	66%	57%	94%	108%	104%	92%	18
Dieldrin	146%	97%	99%	104%	89%	53%	97%	98%	96%	98%	24
o,p'-DDD	99%	78%	82%	96%	74%	55%	86%	87%	91%	83%	13
Endrin	67%	83%	77%	59%	73%	53%	96%	101%	82%	77%	16
b-Endosulfan	130%	84%	75%	83%	66%	48%	51%	59%	23%	69%	30
p,p'-DDD	56%	102%	97%	79%	119%	59%	72%	78%	83%	83%	20
o,p'-DDT	83%	119%	108%	101%	75%	58%	93%	103%	104%	94%	19
p,p'-DDT	87%	99%	100%	104%	116%	70%	78%	106%	99%	95%	14
Metoxychlor	78%	90%	79%	93%	83%	71%	85%	90%	42%	79%	16
Mirex	84%	95%	98%	102%	72%	66%	92%	98%	102%	90%	13
Surrogate Recovery											
g-Chlordene	65%	58%	58%	70%	58%	46%	60%	60%	65%	60%	7

C.2 PRECISION

Relative Percent Differences for Duplicate Analyses

The relative percent difference for duplicate analyses on samples is another quality assurance exercise (Table C.2.1). In some cases where samples are near the method detection limit one analysis would have a detectable value but the other duplicate would not. In these cases, the RPD was determined to be 0% since the actual RPD could not be determined. The analysis of duplicates should agree to within 25% of each other.

TABLE C.2.1a PAH Duplicate analysis 2002 Gulfwatch mussel tissue concentrations (ng/g dry wt.)

PAH	MASN		MAME		NHDP		MEPI		MECC		NSYR	
Naphthalene	ND	ND	ND	31.3	ND	ND	ND	25.9	ND	ND	ND	ND
Phenanthrene	ND	ND	13.2	16.4	13.9	14.7	ND	ND	29.2	26.4	ND	ND
Fluoranthene	17.5	18.0	38.4	29.9	63.4	67.4	5.2	ND	64.5	61.0	39.9	41.4
Pyrene	7.7	7.7	40.3	45.0	57.4	61.3	ND	ND	50.3	49.1	10.8	11.0
Benzo(a)Anthracene	ND	ND	<10	11.9	17.2	17.9	ND	ND	ND	ND	ND	ND
Chrysene	ND	ND	21.0	25.3	29.7	33.3	ND	ND	16.5	17.1	ND	ND
Benzo(b)Fluoranthene	ND	ND	15.9	18.4	28.2	30.7	ND	ND	12.9	12.7	ND	ND
Benzo(k)Fluoranthene	ND	ND	14.0	16.2	25.6	26.2	ND	ND	ND	ND	ND	ND
Benzo(e)Pyrene	ND	ND	26.8	31.3	33.2	34.6	ND	ND	19.1	18.8	ND	ND
Benzo(a)Pyrene	ND	ND	10.8	12.5	11.7	14.2	ND	ND	ND	ND	ND	ND
Indeno(1,2,3,4-cd)Pyrene	ND	ND	ND	ND	12.2	12.1	ND	ND	ND	ND	ND	ND
Benzo(ghi)Perylene	ND	ND	12.7	10.7	15.8	14.8	ND	ND	ND	ND	ND	ND
Total	25.3	25.7	193	249	308	327	5.2	25.9	192	185	50.7	52.3

TABLE C.2.1b PAH Duplicate analysis 2003 Gulfwatch mussel tissue concentrations
(ng/g dry wt.)

PAH	MASN		MADX		NHDP		NHHS		MEKN		MEPH		MESA		NBSC		NSDI	
Naphthalene	ND	ND	26.9	24.4	11.7	12.2	ND	ND	ND	ND	ND	ND	ND	ND	10.4	12.4	ND	ND
1-Methylnaphthalene	9.2	9.9	15.7	14.1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Methylnaphthalene	13.1	14.1	30.9	28.2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Phenanthrene	11.6	12.6	15.0	15.8	<6	6.3	8.0	8.2	ND	ND	ND	ND	9.3	9.4	ND	ND	18.4	18.9
Anthracene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	11.5	11.3	ND	ND	ND	ND	ND	ND
Fluoranthene	14.4	14.8	30.9	42.1	37.0	37.8	15.9	16.2	14.1	14.5	361	283	18.5	17.2	ND	ND	27.3	27.6
Pyrene	ND	ND	27.6	28.9	41.4	42.4	11.4	12.3	19.5	20.1	318	246	17.9	16.2	ND	ND	17.1	16.8
Benzo(a)Anthracene	ND	ND	<6	<6	8.2	7.9	ND	ND	ND	ND	67.8	62.9	ND	ND	ND	ND	ND	ND
Chrysene	ND	ND	12.4	13.8	16.5	15.8	ND	ND	6.5	7.0	207	160	8.2	7.1	ND	ND	7.8	7.8
Benzo(b)Fluoranthene	ND	ND	9.2	9.7	19.5	19.3	ND	ND	ND	6.3	139	110	7.4	ND	ND	ND	ND	ND
Benzo(k)Fluoranthene	ND	ND	6.2	7.0	14.5	14.7	ND	ND	5.0	4.9	98.0	89.1	5.3	4.5	ND	ND	ND	ND
Benzo(e)Pyrene	ND	ND	11.3	12.1	21.7	21.2	ND	ND	9.4	9.7	156	121	7.8	7.2	ND	ND	ND	ND
Benzo(a)Pyrene	4.2	4.9	6.8	8.3	10.8	10.7	ND	ND	ND	4.3	33.6	29.8	ND	ND	ND	ND	ND	ND
Perylene	ND	ND	ND	ND	9.5	8.8	ND	ND	9.9	10.2	19.0	17.3	ND	ND	ND	20.7	ND	ND
Indeno(1,2,3,4-cd)Pyrene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	34.2	33.3	ND	ND	ND	ND	ND	ND
Benzo(ghi)Perylene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	25.6	27.6	ND	ND	ND	ND	ND	ND
Total	52	56	193	204	191	197	35	37	64	77	1472	1191	74	62	10	33	71	71

TABLE C.2.1c PAH Duplicate analysis 2004 Gulfwatch mussel tissue concentrations
(ng/g dry wt.)

PAH	MAIH		NHHS		NBNR		NSYR	
Naphthalene	14.1	13.9	ND	ND	ND	ND	ND	ND
Acenaphthene	8.4	8.2	ND	ND	ND	ND	ND	ND
Fluorene	12.3	11.9	ND	ND	ND	ND	ND	ND
Phenanthrene	74.3	69.9	11.2	11.4	ND	ND	6.0	7.7
Anthracene	28.0	27.2	ND	ND	ND	ND	ND	ND
1-Methylphenanthracene	23.9	23.8	ND	ND	ND	ND	ND	ND
Fluoranthene	1172	1120	30.7	29.3	ND	ND	18.4	21.2
Pyrene	1132	1083	21.9	20.4	ND	ND	9.8	11.1
Benzo(a)Anthracene	162	148	ND	ND	ND	ND	ND	ND
Chrysene	941	853	10.9	9.3	ND	ND	6.3	6.9
Benzo(b)Fluoranthene	610	578	7.3	8.6	ND	ND	ND	ND
Benzo(k)Fluoranthene	146	132	5.3	4.5	ND	ND	ND	ND
Benzo(e)Pyrene	725	642	11.6	9.5	ND	ND	ND	ND
Benzo(a)Pyrene	75.0	72.1	7.7	ND	ND	ND	ND	ND
Perylene	24.9	25.4	Int	ND	ND	ND	ND	5.9
Indeno(1,2,3,4-cd)Pyrene	48.3	43.9	Int	ND	ND	ND	ND	ND
Dibenz(a,h)Anthracene	14.2	14.6	Int	ND	ND	ND	ND	ND
Benzo(ghi)Perylene	37.8	37.0	Int	ND	ND	ND	ND	ND
Total	5250	4904	107	93	0.0	0.0	40.4	52.8

TABLE C.2.2a PCB Duplicate analysis 2002 Gulfwatch mussel tissue concentrations
(ng/g dry wt.)

PCB Congener	MASN		MASN		MAME		NHDP		MEPI		MECC		NSAG		NSFI		NSDI	
52	ND	ND	ND	ND	4.7	4.1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
44	ND	ND	ND	ND	3.6	2.7	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
66;95	ND	ND	ND	ND	7.3	7.3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
101;90	3.6	2.8	2.3	2.4	7.4	7.5	5.0	5.0	ND	ND	7.5	7.2	ND	ND	ND	ND	ND	ND
87	ND	ND	ND	ND	2.6	2.9	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
77	ND	ND	ND	ND	4.2	3.8	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
118	4.3	3.4	3.1	2.7	9.4	9.6	6.0	6.3	ND	ND	7.9	7.8	ND	ND	ND	ND	ND	ND
153;132	8.2	6.9	7.0	6.5	12.3	12.7	12.4	12.4	ND	ND	16.5	16.4	ND	ND	ND	ND	ND	ND
105	ND	ND	ND	ND	3.4	3.6	ND	ND	ND	ND	2.1	2.1	ND	ND	ND	ND	ND	ND
138	6.5	5.2	5.8	4.0	13.0	13.6	10.2	10.4	ND	ND	15.3	15.1	ND	ND	ND	ND	ND	ND
187	ND	ND	ND	ND	4.8	5.4	5.5	5.0	4.4	ND	6.9	6.7	ND	ND	ND	Int	ND	ND
Total	22.6	18.3	18.2	15.6	72.6	73.1	39.1	39.1	4.4	0.0	56.3	55.4	0.0	0.0	0.0	0.0	0.0	0.0

TABLE C.2.2b PCB Duplicate analysis 2003 Gulfwatch mussel tissue concentrations
(ng/g dry wt.)

PCB Congener	MASN		MADX		NHDP		NHHS		MEKN		MEPR		MEPH		MESA		NBSC		NSDI	
52	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	2.4	2.3	ND	ND	ND	ND	ND	ND
66;95	ND	ND	3.5	3.3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
101;90	4.4	4.5	11.1	10.0	4.7	4.2	ND	ND	3.0	3.0	6.3	5.6	10.1	10.1	ND	ND	ND	ND	ND	ND
87	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	3.2	3.0	ND	ND	ND	ND	ND	ND
118	4.3	4.5	12.4	11.7	5.1	4.6	ND	ND	ND	ND	4.4	3.9	8.8	8.4	ND	ND	ND	ND	ND	ND
153;132	7.1	7.5	23.0	23.2	10.1	8.7	3.4	3.5	6.0	6.1	9.6	9.2	13.8	13.3	4.0	3.8	2.4	2.3	ND	ND
105	ND	ND	3.4	3.4	ND	ND	ND	ND	ND	ND	ND	ND	3.0	2.8	ND	ND	ND	ND	ND	ND
138	5.7	6.2	19.9	20.1	8.2	7.2	3.1	3.1	4.5	4.6	8.8	8.1	13.9	13.4	3.7	3.6	ND	ND	ND	ND
187	2.1	2.2	7.2	7.0	4.4	3.5	ND	ND	2.8	2.7	3.6	3.6	5.6	4.9	ND	ND	ND	ND	ND	ND
128	ND	ND	3.5	3.6	ND	ND	ND	ND	ND	ND	ND	ND	2.6	2.5	ND	ND	ND	ND	ND	ND
Total	23.5	24.9	83.9	82.3	32.4	28.2	6.6	6.5	16.3	16.4	32.7	30.4	63.6	60.7	7.7	7.4	2.4	2.3	0.0	0.0

TABLE C.2.3c PCB Duplicate analysis 2004 Gulfwatch mussel tissue concentrations (ng/g dry wt.)

PCB Congener	MAIH		NHHS		NBNR		NSYR	
28	4.3	4.0	ND	ND	ND	ND	ND	ND
52	18.8	18.1	ND	ND	ND	ND	ND	ND
44	8.6	8.1	ND	ND	ND	ND	ND	ND
66;95	48.0	45.5	ND	ND	ND	ND	ND	ND
101;90	69.3	65.4	ND	ND	ND	ND	ND	ND
87	21.6	20.0	ND	ND	ND	ND	ND	ND
77	7.1	7.6	ND	ND	ND	ND	ND	ND
118	38.7	35.0	ND	ND	ND	ND	ND	ND
153;132	99.0	90.8	3.9	4.1	ND	ND	ND	ND
105	15.0	13.3	ND	ND	ND	ND	ND	ND
138	94.5	84.8	3.2	3.3	ND	ND	ND	ND
126	3.5	4.1	ND	ND	ND	ND	ND	ND
187	36.4	33.7	ND	ND	ND	ND	ND	ND
128	10.6	10.0	ND	ND	ND	ND	ND	ND
180	14.8	10.9	ND	ND	ND	ND	ND	ND
170;190	4.0	3.6	ND	ND	ND	ND	ND	ND
Total	494	455	7.1	7.4	0.0	0.0	0.0	0.0

TABLE C.2.3a Pesticide duplicate analysis 2002 Gulfwatch mussel tissue concentrations (ng/g dry wt.)

Pesticide	MASN			MAME		NHDP		MEPI		MECC		NSAG		NSFI	
p,p'-DDE	4.9	4.3	3.9	7.8	8.8	6.1	6.2	ND	ND	6.3	6.3	ND	ND	2.2	ND
Dieldrin	ND	ND	ND	5.6	3.8	ND	ND	ND	ND	ND	ND	ND	ND	ND	Int
o,p'-DDD	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	Int
Endrin	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
b-Endosulfan	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
p,p'-DDD	2.4	2.2	2.2	4.8	5	2.8	3.9	ND	ND	2.4	3.4	ND	ND	ND	ND
o,p'-DDT	ND	ND	ND	ND	ND	ND	ND	ND	ND	2.6	ND	ND	ND	ND	ND
p,p'-DDT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total	7.3	6.5	6.1	18.2	17.6	8.9	10.1	0.0	0.0	11.3	9.7	0.0	0.0	2.2	0.0

TABLE C.2.3b Pesticide duplicate analysis 2003 Gulfwatch mussel tissue concentrations (ng/g dry wt.)

Pesticide	MASN		MADX		NHDP		MEKN		MEPH		NBSC		NSDI	
g-Chlordane	1.8	1.8	2.2	2.3	ND	ND	ND	ND	2.6	1.9	ND	ND	ND	2.0
cis-Chlordane	2.8	2.7	2.1	2.2	ND	ND	1.4	1.4	2.6	2.2	ND	ND	ND	ND
t-Nonachlor	2.6	2.8	3.0	2.7	ND	ND	ND	ND	1.6	1.7	ND	ND	ND	ND
p,p'_DDE	9.1	9.7	55.6	56.1	5.1	4.4	2.7	2.7	7.9	8.0	2.7	2.6	2.5	2.5
Dieldrin	1.9	1.9	2.3	1.9	ND	ND	ND	ND	ND	ND	1.8	1.5	1.5	ND
p,p'-DDD	6.2	5.8	9.4	9.5	ND	ND	ND	ND	9.1	9.0	2.2	2.4	ND	ND
Total	24.3	24.7	74.6	74.7	5.1	4.4	4.1	4.1	23.7	22.8	6.8	6.5	4.0	4.5

TABLE C.2.2c Pesticide duplicate analysis 2004 Gulfwatch mussel tissue concentrations (ng/g dry wt.)

Pesticide	MAIH		NHHS		NBNR		NSYR	
g-Chlordane	4.0	3.4	ND	ND	ND	ND	ND	ND
cis-Chlordane	4.5	4.4	ND	ND	ND	ND	ND	ND
t-Nonachlor	5.4	5.0	ND	ND	ND	ND	ND	ND
p,p'_DDE	25.3	23.7	3.9	4.0	1.9	1.8	ND	ND
Dieldrin	3.3	3.2	ND	ND	1.5	1.8	ND	ND
o,p'-DDD	7.1	6.3	ND	ND	ND	ND	ND	ND
p,p'-DDD	ND	ND	2.5	2.4	ND	ND	ND	ND
Total	49.6	45.9	6.4	6.3	3.4	3.6	0.0	0.0

C.3 BLANKS

Blank analyses (Table C.3.1) should ideally recover no detectable amounts of target compounds. For 2002-2004, no discernible signal was observed for PAHs, PCBs, and PEST.

C.4 COMPLETENESS

The data on 67 of 68 samples (99%) were completed successfully.

APPENDIX D 2002-2004 Trace Metal (and % solids) Data Gulfwatch Mussel Samples

TABLES D. Selected metals concentration (ug/g dry wt.) observed in blue mussel tissue collected by Gulfwatch, 2002-2004. Stations are ordered by year, essentially clockwise in rotation, south (Massachusetts) to north (to Nova Scotia).

GULFWATCH 2002

Table D.1 2002 blue mussel tissue metal concentrations (µg/g dry wt.) at Sandwich, MA (MASN); 41.7645°N, 70.4840°W. **Benchmark Site**

MASN	(µg/g dry wt.)			
<i>Replicate</i>	<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>
Ag	0.1	NA	0.1	0.1
Cd	1.9	NA	1.3	1.3
Cr	0.8	NA	0.6	0.5
Cu	6	NA	6	6
Fe	210	NA	210	190
Ni	1.0	NA	0.9	0.9
Pb	2.5	NA	2.2	2.1
Zn	90	NA	80	70
Al	100	NA	83	74
Hg	0.1	0.2	0.1	ND 0.1
%Solids	18.5	18.1	20.2	21.8

Table D.2 2002 Blue mussel tissue metal concentrations (µg/g dry wt.) in Massachusetts inner Plymouth-Manomet Point station (MAPY); 41.9283°N, 70.5383°W

MAPY	(µg/g dry wt.)			
<i>Replicate</i>	<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>
Ag	0.23	0.1	0.41	0.49
Cd	1.4	1.5	1.2	1.0
Cr	0.8	1.2	0.6	0.7
Cu	6.3	7.0	5.6	5.5
Fe	330	440	240	210
Ni	1.3	1.4	1.2	1.3
Pb	5.2	4.2	3.2	1.9
Zn	100	90	80	81
Al	110	170	79	67
Hg	0.3	0.2	0.2	0.3
%Solids	19.5	20.7	22.5	18.8

Table D.3 2002 blue mussel tissue metal concentrations ($\mu\text{g/g}$ dry wt.) at Massachusetts Little Harbor site, Cohasset, MA (MACO); 42.2550°N, 70. 7900°W

MACO		($\mu\text{g/g}$ dry wt.)			
<i>Replicate</i>		<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>
Ag		ND 0.1	0.4	0.7	0.5
Cd		2.6	2.1	1.6	1.7
Cr		2.0	1.5	1.3	1.4
Cu		7	8	9	9
Fe		430	410	370	440
Ni		1.6	1.3	1.2	1.1
Pb		5.3	5.0	4.3	5.2
Zn		120	100	100	130
Al		180	170	160	190
Hg		2.3	0.6	0.5	0.4
%Solids		16.4	16.4	17.4	16.3

Table D.4 2002 blue mussel tissue metal concentrations ($\mu\text{g/g}$ dry wt.) at Long Island, Boston Harbor (MALI); 42.3283°N, 70.9550°W

MALI		($\mu\text{g/g}$ dry wt.)			
<i>Replicate</i>		<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>
Ag		0.19	ND 0.1	ND 0.1	0.2
Cd		2.0	2.0	1.6	1.7
Cr		1.5	1.8	2.0	1.4
Cu		8.9	9.2	7.0	9.7
Fe		260	870	330	270
Ni		1.1	1.4	0.9	1.1
Pb		9.7	9.1	2.8	9.2
Zn		170	170	98	120
Al		91	410	150	130
Hg		0.7	0.5	0.4	0.3
%Solids		14.9	15.3	17.8	18.2

Table D.5 2002 blue mussel tissue metal concentrations (µg/g dry wt.) at Marblehead, MA (MAMH); 42.4983°N, 70.8483°W

MAMH		(µg/g dry wt.)		
<i>Replicate</i>		<i>1N</i>	<i>2N</i>	<i>3&4N</i>
Ag		ND 0.1	ND 0.1	ND 0.1
Cd		2.4	2.1	1.9
Cr		1.5	2.1	1.9
Cu		7	7	6
Fe		280	410	440
Ni		1.4	1.9	1.7
Pb		4.3	4.6	4.2
Zn		140	150	140
Al		54	83	120
Hg		0.3	0.5	0.4
%Solids		15.5	14.0	14.6

Table D.6 Blue mussel tissue metal concentrations (µg/g dry wt.) at the Merrimack River site, MA (MAME); 42.8083°N, 70.8233°W.

MAME		(µg/g dry wt.)			
<i>Replicate</i>		<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>
Ag		ND 0.1	ND 0.1	ND 0.1	ND 0.1
Cd		2.3	2.1	1.8	2.3
Cr		1.6	1.3	1.4	1.6
Cu		8.2	7.6	6.9	7.7
Fe		450	410	450	440
Ni		1.3	1.1	1.1	1.2
Pb		4.2	3.5	3.6	4.5
Zn		110	79	82	90
Al		130	94	100	130
Hg		0.5	0.5	0.4	0.2
%Solids		13.1	13.3	13.4	14.1

Table D.7 Blue mussel tissue metal concentrations ($\mu\text{g/g}$ dry wt.) at the Hampton/Seabrook estuary, NH site (NHHS); 42.8917°N, 70.8167°W

NHHS		($\mu\text{g/g}$ dry wt.)			
<i>Replicate</i>		<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>
Ag		ND 0.1	ND 0.1	ND 0.1	ND 0.1
Cd		2.4	2.9	2.2	2.0
Cr		2.4	1.0	0.7	0.8
Cu		7	9	7	7
Fe		580	320	200	300
Ni		1.5	1.3	1.1	1.2
Pb		8.0	3.6	3.8	2.8
Zn		170	160	130	120
Al		210	110	48	97
Hg		0.2	0.2	0.1	ND 0.1
%Solids		15.2	16.0	15.9	16.8

Table D.8 2002 blue mussel tissue metal concentrations ($\mu\text{g/g}$ dry wt.), Rye Harbor, NH (NHRH); 43.0000°N, 70.7438°W

NHRH		($\mu\text{g/g}$ dry wt.)			
<i>Replicate</i>		<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>
Ag		ND 0.1	ND 0.1	ND 0.1	ND 0.1
Cd		2.0	1.3	1.8	2.0
Cr		0.9	1.2	1.3	1.6
Cu		6	8	7	10
Fe		240	380	370	430
Ni		0.3	0.6	0.8	0.4
Pb		3.1	2.1	2.4	3.2
Zn		100	150	130	190
Al		73	68	110	95
Hg		0.3	0.6	0.8	0.4
%Solids		15.4	14.6	13.9	13.9

Table D.9 2002 blue mussel tissue metal concentrations ($\mu\text{g/g}$ dry wt.) at North Mill Pond, NH (NHNM); 43.0750°N, 70.7600°W.

NHNM		($\mu\text{g/g}$ dry wt.)			
Replicate		1N	2N	3N	4N
Ag		ND 0.1	ND 0.1	0.1	ND 0.1
Cd		3.2	2.5	2.3	1.9
Cr		3.0	2.4	2.1	1.3
Cu		11	8	9	7
Fe		840	650	540	300
Ni		1.7	1.4	1.7	1.8
Pb		10	6.8	6.3	2.5
Zn		170	170	150	130
Al		340	240	190	62
Hg		0.8	0.6	0.7	1.3
%Solids		13.2	15.1	14.7	13.8

Table D.10 2002 *oyster* tissue metal concentrations ($\mu\text{g/g}$ dry wt.) at Nannie Island (expanded Gulfwatch) site (NHNI); 43.1344°N, 70.8471°W

NHNI		($\mu\text{g/g}$ dry wt.)
Ag		ND 0.1
Cd		0.5
Cr		1.0
Cu		7
Fe		960
Ni		1.0
Pb		1.5
Zn		60
Al		280
Hg		ND 0.1
%Solids		16.3

Table D.11 2000 *clam* tissue metal concentrations (µg/g dry wt.)
at the Middle Ground site (expanded Gulfwatch), NH
(NHMG); 42.8922°N, 70.7883°W

NHMG		(µg/g dry wt.)
	Ag	0.1
	Cd	0.7
	Cr	1.6
	Cu	12
	Fe	1700
	Ni	1.5
	Pb	2.5
	Zn	100
	Al	430
	Hg	ND 0.1
	%Solids	16.0

Table D.12 2002 blue mussel tissue metal concentrations (µg/g
dry wt.) at Dover Point, NH (NHDP); 43.1196°N,
70.8267°W

NHDP		(µg/g dry wt.)			
<i>Replicate</i>	<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>	
	Ag	ND 0.1	ND 0.1	ND 0.1	ND 0.1
	Cd	2.6	2.3	2.5	2.9
	Cr	2.0	2.3	1.9	2.8
	Cu	7	8	8	8
	Fe	290	360	290	420
	Ni	1.2	1.2	1.8	1.4
	Pb	3.2	3.4	2.7	3.4
	Zn	100	160	150	150
	Al	77	120	93	130
	Hg	1.0	0.7	0.8	1.0
	%Solids	13.2	13.7	13.6	12.3

Table D.13 2002 blue mussel tissue metal concentrations (µg/g dry wt.) at Schiller Station (NHSS); 43.1017°N, 70.7883°W

NHSS		(µg/g dry wt.)			
Replicate		1N	2N	3N	4N
	Ag	ND 0.1	ND 0.1	ND 0.1	ND 0.1
	Cd	2.3	1.8	1.8	2.2
	Cr	2.3	2.2	1.8	2.5
	Cu	8	6	6	7
	Fe	460	540	390	450
	Ni	0.7	0.7	0.6	0.7
	Pb	4.6	3.4	3.0	3.8
	Zn	140	120	110	130
	Al	150	210	130	160
	Hg	0.7	0.7	0.6	0.7
	%Solids	14.2	13.0	14.8	12.9

Table D.14 2002 blue mussel tissue metal concentrations (µg/g dry wt.) at Clark's Cove, ME (MECC); 43.0774°N, 70.7244°W. **Benchmark Site**

MECC		(µg/g dry wt.)			
Replicate		1N	2N	3N	4N
	Ag	ND 0.1	ND 0.1	ND 0.1	ND 0.1
	Cd	1.7	2.0	1.7	1.7
	Cr	2.2	3.4	2.5	1.6
	Cu	8	11	9	6
	Fe	460	560	460	340
	Ni	1.4	3.3	1.4	1.1
	Pb	5.0	5.0	5.3	3.6
	Zn	130	160	130	100
	Al	150	200	160	92
	Hg	0.4	0.4	0.5	0.4
	%Solids	17.4	14.1	15.9	16.0

Table D.15 2002 blue mussel tissue metal concentrations ($\mu\text{g/g}$ dry wt.) at Brave Boat Harbor, ME (MEBH); 43.0933°N, 70.6233°W

MEBH		($\mu\text{g/g}$ dry wt.)			
<i>Replicate</i>		<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>
Ag		ND 0.1	ND 0.1	0.1	ND 0.1
Cd		1.7	1.8	2.2	1.9
Cr		1.4	0.8	1.4	1.0
Cu		7	6	6	6
Fe		280	250	320	400
Ni		1.1	1.1	1.3	1.4
Pb		1.2	1.3	1.5	1.9
Zn		90	80	80	90
Al		100	88	110	130
Hg		0.2	0.2	0.3	0.2
%Solids		17.1	16.9	15.4	17.9

Table D.16 2002 blue mussel tissue metal concentrations ($\mu\text{g/g}$ dry wt.) at the Royal River site, ME (MERY); 43.7970°N, 70.1455°W

MERY		($\mu\text{g/g}$ dry wt.)			
<i>Replicate</i>		<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>
Ag		ND 0.1	ND 0.1	ND 0.1	ND 0.1
Cd		1.0	0.9	0.8	0.9
Cr		0.7	0.7	0.9	0.9
Cu		8	7	8	8
Fe		480	420	600	640
Ni		1.0	1.0	1.3	1.5
Pb		2.0	1.9	1.9	2.5
Zn		60	60	70	80
Al		210	170	280	300
Hg		ND 0.10	0.2	0.1	ND 0.10
%Solids		14.8	14.8	13.8	16.6

Table D.17 Blue mussel tissue metal concentrations ($\mu\text{g/g}$ dry wt.) at the Kennebec River site, ME (MEKN); 43.7850°N, 69.7845°W **Benchmark Site**

MEKN	($\mu\text{g/g}$ dry wt.)			
<i>Replicate</i>	<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>
Ag	ND 0.1	ND 0.1	ND 0.1	ND 0.1
Cd	1.6	1.7	1.4	1.6
Cr	1.2	1.3	1.1	1.2
Cu	9	8	7	8
Fe	460	440	390	400
Ni	1.1	1.1	0.9	1.1
Pb	1.7	1.6	1.5	1.7
Zn	70	70	50	70
Al	170	170	140	150
Hg	0.2	0.3	0.1	0.2
%Solids	14.7	14.8	16.6	14.8

Table D.18 2002 blue mussel tissue metal concentrations ($\mu\text{g/g}$ dry wt.) at the Penobscot River site, ME (MEFP); 44.4695°N, 68.8102°W

MEFP	($\mu\text{g/g}$ dry wt.)			
<i>Replicate</i>	<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>
Ag	ND 0.1	ND 0.1	ND 0.1	ND 0.1
Cd	2.0	2.1	2.8	2.2
Cr	1.6	2.3	1.8	1.6
Cu	11	9	9	8
Fe	660	780	690	860
Ni	1.4	1.5	1.4	1.2
Pb	2.5	3.1	2.9	2.5
Zn	80	90	130	110
Al	220	230	230	160
Hg	0.8	0.5	0.9	1.1
%Solids	11.3	11.9	10.5	11.8

Table D.19 2002 blue mussel tissue metal concentrations ($\mu\text{g/g}$ dry wt.) at the Pickering Island site, ME (MEPI); 44.2605°N, 68.7332°W

MEPI		($\mu\text{g/g}$ dry wt.)			
<i>Replicate</i>		<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>
Ag		ND 0.1	ND 0.1	ND 0.1	ND 0.1
Cd		2.1	2.7	1.5	2.2
Cr		1.6	1.1	0.7	0.9
Cu		5	6	5	5
Fe		270	170	180	140
Ni		2.6	1.1	0.9	0.8
Pb		2.8	2.6	2.0	1.4
Zn		80	80	80	70
Al		80	47	42	29
Hg		0.2	0.1	ND 0.1	ND 0.1
%Solids		12.0	12.2	12.4	13.0

Table D.20 2002 blue mussel tissue metal concentrations ($\mu\text{g/g}$ dry wt.) at the St. Croix River site, NB (NBSC); 45.1675°N, 67.1638°W

NBSC		($\mu\text{g/g}$ dry wt.)			
<i>Replicate</i>		<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>
Ag		ND 0.1	ND 0.1	ND 0.1	ND 0.1
Cd		1.3	0.9	1.3	1.4
Cr		0.5	0.4	0.5	0.6
Cu		6	5	5	5
Fe		310	220	300	310
Ni		0.9	0.7	0.9	0.9
Pb		0.7	0.5	0.7	0.8
Zn		60	50	60	60
Al		120	81	110	120
Hg		ND 0.1	ND 0.1	ND 0.1	ND 0.1
%Solids		17.6	20.4	18.6	17.7

Table D.21 2002 blue mussel tissue metal concentrations ($\mu\text{g/g}$ dry wt.) at the Hospital Island site, NB (NBHI); 45.1205°N, 66.0082°W **Benchmark Site**

NBHI		($\mu\text{g/g}$ dry wt.)			
<i>Replicate</i>	<i>IN</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>	
Ag	ND 0.1	ND 0.1	ND 0.1	ND 0.1	
Cd	1.4	1.3	1.6	1.0	
Cr	0.4	0.4	0.5	0.4	
Cu	6	6	6	6	
Fe	240	260	280	240	
Ni	1.0	1.0	1.3	1.0	
Pb	0.7	0.7	0.7	0.6	
Zn	70	80	80	50	
Al	93	100	110	93	
Hg	ND 0.1	ND 0.1	ND 0.1	ND 0.1	
%Solids	16.5	15.4	16.4	19.7	

Table D.22 2002 blue mussel tissue metal concentrations ($\mu\text{g/g}$ dry wt.) at the Letang Estuary site, NB (NBLN); 45.0757°N, 66.7963°W

NBLN		($\mu\text{g/g}$ dry wt.)			
<i>Replicate</i>	<i>IN</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>	
Ag	ND 0.1	ND 0.1	ND 0.1	ND 0.1	
Cd	2.1	1.7	1.7	1.8	
Cr	0.9	0.7	0.9	1.1	
Cu	10	9	9	10	
Fe	370	340	410	380	
Ni	0.9	0.8	0.8	1.1	
Pb	1.7	1.6	1.8	2.1	
Zn	80	70	80	70	
Al	140	130	170	150	
Hg	ND 0.1	ND 0.1	ND 0.1	ND 0.1	
%Solids	14.8	15.7	15.5	15.8	

Table D.23 2002 blue mussel tissue metal concentrations ($\mu\text{g/g}$ dry wt.) at the Argyle Sound site, NS (NSAG); 43.6990°N, 65.8182°W

NSAG		($\mu\text{g/g}$ dry wt.)			
Replicate		1N	2N	3N	4N
	Ag	ND 0.1	0.1	0.1	0.1
	Cd	1.3	1.2	1.3	1.3
	Cr	1.0	0.8	0.9	1.4
	Cu	6	6	7	7
	Fe	240	270	310	280
	Ni	1.0	0.9	0.9	1.3
	Pb	3.7	4.1	4.3	4.2
	Zn	70	80	80	70
	Al	59	74	85	70
	Hg	0.3	0.1	0.1	0.1
	%Solids	15.0	17.8	16.9	17.1

Table D.24 2002 blue mussel tissue metal concentrations ($\mu\text{g/g}$ dry wt.) at the Five Islands site, NS (NSFI); 45.3975°N, 64.0660°W

NSFI		($\mu\text{g/g}$ dry wt.)			
Replicate		1N	2N	3N	4N
	Ag	ND 0.1	ND 0.1	ND 0.1	ND 0.1
	Cd	2.3	2.1	2.3	2.3
	Cr	1.6	1.3	1.4	0.9
	Cu	6.0	6.5	6.0	5.1
	Fe	960	940	820	530
	Ni	1.9	2.0	1.8	1.5
	Pb	1.3	1.1	1.1	0.9
	Zn	60	62	63	59
	Al	460	520	450	280
	Hg	0.2	0.2	0.2	0.2
	%Solids	11.5	13.8	13.2	14.5

Table D.25 2002 blue mussel tissue metal concentrations ($\mu\text{g/g}$ dry wt.) at Digby, NS (NSDI); 44.6170°N, 64.7523°W
Benchmark Site

NSAG		($\mu\text{g/g}$ dry wt.)			
Replicate	1N	2N	3N	4N	
Ag	ND 0.1	ND 0.1	ND 0.1	ND 0.1	
Cd	1.5	1.8	1.3	1.1	
Cr	0.8	1.0	0.6	0.6	
Cu	7.1	6.8	7.2	6.0	
Fe	430	460	320	320	
Ni	1.0	1.1	0.9	0.9	
Pb	2.4	2.9	2.1	2.1	
Zn	94	85	72	80	
Al	160	210	140	120	
Hg	0.1	ND 0.1	ND 0.1	ND 0.1	
%Solids	18.6	18.0	18.3	18.5	

Table D.26 2002 blue mussel tissue metal concentrations ($\mu\text{g/g}$ dry wt.) at the Broad Cove site, NB (NSBC); 44.6653°N, 65.8308°W

NSBC		($\mu\text{g/g}$ dry wt.)			
Replicate	1N	2N	3N	4N	
Ag	ND 0.1	ND 0.1	ND 0.1	ND 0.1	
Cd	3.0	2.8	2.4	2.7	
Cr	1.9	1.6	1.3	1.6	
Cu	6	7	6.3	6.2	
Fe	490	600	440	470	
Ni	1.9	2.1	1.8	1.8	
Pb	3.2	3.3	2.2	2.3	
Zn	100	100	74	88	
Al	150	230	180	200	
Hg	0.2	0.3	0.3	0.3	
%Solids	11.9	13.0	13.9	12.8	

Table D.27 2002 blue mussel tissue metal concentrations (µg/g dry wt.) at Yarmouth, NS (NSYR); 43.8177°N, 66.1448°W

NSYR		(µg/g dry wt.)			
Replicate		1N	2N	3N	4N
	Ag	0.5	0.5	0.2	0.3
	Cd	1.6	1.7	1.3	1.2
	Cr	1.0	1.2	0.9	0.8
	Cu	7.2	8.1	6.2	6.4
	Fe	520	540	410	380
	Ni	1.1	1.6	1.1	1.1
	Pb	3.7	3.8	3.0	2.3
	Zn	85	89	88	85
	Al	180	200	150	140
	Hg	0.2	0.2	0.2	0.2
	%Solids	16.2	16.1	16.6	17.3

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Table D.28 2003 blue mussel tissue metal concentrations (µg/g dry wt.) at Town Beach, Sandwich, MA (MASN); 41.7639°N, 70.4789°W **Benchmark Site**

MASN		(µg/g dry wt.)			
Replicate		1N	2N	3N	4N
	Ag	0.360	0.284	0.181	0.182
	Cd	1.10	1.08	1.07	0.966
	Cr	1.85	1.36	1.16	1.55
	Cu	14.8	8.15	19.0	6.78
	Fe	278	264	245	335
	Ni	1.29	1.10	0.947	1.19
	Pb	2.75	2.88	2.53	2.94
	Zn	72.8	65.2	62.1	70.2
	Al	298	275	267	375
	Hg	0.0456	0.0573	0.0566	0.0588
	%Solids	19.5	18.0	19.6	17.3

Table D29. 2003 blue mussel tissue metal concentrations ($\mu\text{g/g}$ dry wt.) at Duxbury, MA, (MADX); 42.0335°N, 70.6672°W

MADX		($\mu\text{g/g}$ dry wt.)			
<i>Replicate</i>		<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>
	Ag	0.211	0.190	0.163	0.281
	Cd	0.895	0.821	0.752	0.843
	Cr	2.29	2.48	2.36	1.95
	Cu	51.3	10.8	52.3	11.1
	Fe	773	671	698	715
	Ni	1.75	1.81	1.71	1.53
	Pb	4.50	4.71	4.13	5.43
	Zn	104	100	88.1	102
	Al	690	622	671	711
	Hg	0.213	0.190	0.187	0.184
	%Solids	14.6	15.6	16.2	14.9

Table D30. 2003 blue mussel tissue metal concentrations ($\mu\text{g/g}$ dry wt.) at the outer Brewster Island site, Boston Harbor, MA (MABI); 42.3425°N, 70.8780°W

MABI		($\mu\text{g/g}$ dry wt.)		
<i>Replicate</i>		<i>1N</i>	<i>2N</i>	<i>3N</i>
	Ag	0.100	0.077	0.087
	Cd	0.951	0.840	0.859
	Cr	1.42	1.15	1.32
	Cu	9.19	6.42	6.50
	Fe	242	158	201
	Ni	1.69	1.34	1.42
	Pb	3.53	2.78	2.81
	Zn	110	92.5	91.1
	Al	225	103	173
	Hg	0.196	0.181	0.174
	%Solids	14.8	15.1	14.7

Table D31. 2003 blue mussel tissue metal concentrations (µg/g dry wt.) at Winthrop (shopping carts), MA (MAWN); 42.3648°N, 70.9642°W

MAWN		(µg/g dry wt.)			
Replicate		1N	2N	3N	4N
	Ag	0.166	0.151	0.149	0.171
	Cd	1.07	0.966	1.02	1.01
	Cr	3.47	3.68	3.87	2.40
	Cu	11.6	152	10.5	12.3
	Fe	925	851	1269	566
	Ni	2.01	2.27	2.29	1.72
	Pb	4.74	4.24	3.69	3.31
	Zn	102	113	102	105
	Al	909	814	1447	566
	Hg	0.178	0.165	0.148	0.0891
	%Solids	15.2	13.9	15.2	17.3

Table D32. 2003 blue mussel tissue metal concentrations (µg/g dry wt.) at Ipswich, MA (MAIP); 42.7007°N, 70.7907°W #N-Dup represents duplicate analysis of site replicate.

MAIP		(µg/g dry wt.)				
Replicate		1N	2N	3N	3N-Dup	4N
	Ag	0.110	0.092	0.106	0.107	0.194
	Cd	1.09	1.07	0.956	0.944	0.936
	Cr	1.73	2.35	1.53	1.55	1.98
	Cu	67.6	10.7	57.1	56.9	10.5
	Fe	394	370	314	306	314
	Ni	1.72	1.74	3.03	2.01	1.49
	Pb	2.38	2.28	1.85	1.85	1.86
	Zn	98.5	86.1	75.6	75.3	87.4
	Al	351	285	211	211	298
	Hg	0.138	0.0934	0.0956	0.0976	0.0734
	%Solids	14.0	13.7	14.0	14.0	14.6

Table D33. 2003 blue mussel tissue metal concentrations (µg/g dry wt.) at the Hampton/Seabrook Harbor, NH (NHHS); 42.8972°N, 70.8163°W

NHHS		(µg/g dry wt.)			
<i>Replicate</i>		<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>
Ag		0.034	0.051	0.046	0.054
Cd		1.29	1.46	1.53	1.61
Cr		1.97	3.30	1.79	2.04
Cu		41.1	58.0	22.3	9.49
Fe		290	331	340	264
Ni		1.28	2.24	1.60	1.52
Pb		1.78	2.06	1.85	1.83
Zn		76.5	102	96.4	87.2
Al		260	317	292	214
Hg		0.113	0.108	0.116	0.0981
%Solids		12.9	16.0	13.9	14.4

Table D34. 2003 blue mussel tissue metal concentrations (µg/g dry wt.) at the Little Harbor site, NH (NHLH); 43.0581°N, 70.7154°W

NHLH		(µg/g dry wt.)			
<i>Replicate</i>		<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>
Ag		0.065	0.062	0.073	0.100
Cd		2.09	2.57	2.39	2.19
Cr		2.51	2.28	2.64	2.49
Cu		127	31.8	72.7	47.8
Fe		447	452	512	483
Ni		2.34	2.41	2.19	4.53
Pb		4.11	4.73	5.21	4.25
Zn		113	104	112	134
Al		373	372	401	352
Hg		0.372	0.377	0.354	0.355
%Solids		11.8	12.8	12.5	11.5

Table D35. 2003 blue mussel tissue metal concentrations ($\mu\text{g/g}$ dry wt.) at the Dover Point site, Dover, NH (NHDP); 43.1196°N, 70.8267°W #N-Dup represents duplicate analysis of site replicate.

NHDP		($\mu\text{g/g}$ dry wt.)				
<i>Replicate</i>		<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>	<i>4N-Dup</i>
	Ag	0.046	0.046	0.063	0.121	0.112
	Cd	1.96	1.81	2.21	2.73	2.54
	Cr	3.71	4.18	4.75	6.10	6.08
	Cu	53.1	125	11.9	69.6	69.9
	Fe	310	300	364	308	302
	Ni	1.80	1.69	4.11	2.17	1.96
	Pb	1.77	1.84	2.33	2.72	2.53
	Zn	105	68.4	101	138	128
	Al	235	246	257	232	212
	Hg	0.295	0.309	0.280	0.301	0.300
	%Solids	12.5	11.6	9.9	13.1	13.1

Table D36. 2003 blue mussel tissue metal concentrations ($\mu\text{g/g}$ dry wt.) at the South Mill Pond site, NH (NHSM); 43.0727°N, 70.7489°W

NHSM		($\mu\text{g/g}$ dry wt.)			
<i>Replicate</i>		<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>
	Ag	0.065	0.051	0.049	0.047
	Cd	1.37	1.42	1.39	1.26
	Cr	14.2	4.78	11.5	3.66
	Cu	6.85	8.69	6.81	10.1
	Fe	375	382	444	407
	Ni	1.38	1.46	1.51	1.73
	Pb	10.5	9.21	11.6	10.3
	Zn	142	96.0	121	126
	Al	296	302	349	390
	Hg	0.235	0.198	0.302	0.289
	%Solids	15.8	10.2	12.5	10.7

Table D37. 2003 blue mussel tissue metal concentrations (µg/g dry wt.) at Clark's Cove on Seavey Island, ME (MECC); 43.0774°N, 70.7244°W **Benchmark Site**

MECC		(µg/g dry wt.)			
<i>Replicate</i>		<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>
Ag		0.051	0.054	0.046	0.044
Cd		1.98	1.53	1.74	1.84
Cr		13.3	24.0	64.2	14.1
Cu		8.31	8.54	11.3	7.50
Fe		575	703	748	465
Ni		2.03	1.91	2.45	2.00
Pb		7.32	4.36	3.78	3.68
Zn		104	87.5	85.7	100
Al		423	474	367	309
Hg		0.312	0.244	0.258	0.258
%Solids		10.8	9.1	12.4	12.9

Table D38. 2003 blue mussel tissue metal concentrations (µg/g dry wt.) at the Saco River site, ME (MESA); 43.4598°N, 70.3743°W #N-Dup represents duplicate analysis of site replicate.

MESA		(µg/g dry wt.)				
<i>Replicate</i>		<i>1N</i>	<i>2N</i>	<i>2N-Dup</i>	<i>3N</i>	<i>4N</i>
Ag		0.109	0.089	0.089	0.066	0.080
Cd		1.99	2.11	2.22	1.92	1.88
Cr		2.68	3.16	3.22	2.21	1.84
Cu		19.6	8.59	8.98	15.0	9.27
Fe		432	490	492	355	351
Ni		1.90	2.53	2.14	1.75	1.85
Pb		4.35	2.28	2.32	1.91	1.59
Zn		70.0	65.0	68.7	77.1	72.4
Al		380	504	435	263	251
Hg		0.138	0.130	0.135	0.122	0.113
%Solids		8.1	8.1	8.1	8.3	10.8

Table D39. 2003 blue mussel tissue metal concentrations (µg/g dry wt.) at the Portland Harbor site, ME (MEPH); 43.6392°N, 70.2590°W

MEPH		(µg/g dry wt.)			
<i>Replicate</i>		<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>
Ag		0.085	0.112	0.072	0.069
Cd		1.53	1.56	1.49	1.34
Cr		2.12	4.74	5.81	1.54
Cu		15.6	32.3	40.8	11.9
Fe		674	770	672	559
Ni		1.61	2.81	3.45	1.45
Pb		6.83	8.93	8.07	6.63
Zn		106	115	103	107
Al		505	587	421	355
Hg		0.300	0.345	0.287	0.251
%Solids		7.4	7.1	9.6	11.9

Table D40. 2003 blue mussel tissue metal concentrations (µg/g dry wt.) at Presumpscot site, (MEPR); 43.6922°N, 70.2473°W

MACO		(µg/g dry wt.)			
<i>Replicate</i>		<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>
Ag		0.156	0.163	0.115	0.118
Cd		1.14	1.23	1.31	1.33
Cr		1.80	1.63	2.02	1.81
Cu		15.3	9.34	11.2	9.57
Fe		531	454	662	546
Ni		1.44	1.25	1.59	1.65
Pb		4.02	4.34	4.99	4.73
Zn		65.2	69.1	68.4	62.7
Al		518	366	637	477
Hg		0.168	0.176	0.182	0.197
Solid		13.1	12.8	13.0	12.5

Table D41. 2003 blue mussel tissue metal concentrations (µg/g dry wt.) at the Kennebec River site, Perkins Island, ME (MEKN); 43.7850°N, 69.7845°W **Benchmark Site**

MEKN	(µg/g dry wt.)		
<i>Replicate</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>
Ag	0.067	0.063	0.078
Cd	1.61	1.63	1.80
Cr	1.79	2.18	1.89
Cu	8.29	14.5	9.55
Fe	281	306	305
Ni	1.27	1.51	1.51
Pb	1.04	1.09	1.22
Zn	61.8	58.6	66.1
Al	227	266	268
Hg	0.138	0.0990	0.138
%Solids	12.9	13.4	13.7

Table D42. 2003 blue mussel tissue metal concentrations (µg/g dry wt.) at the Union River site, ME (MEUR); 44.5015°N, 68.4322°W

MEUR	(µg/g dry wt.)			
<i>Replicate</i>	<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>
Ag	0.086	0.083	0.083	0.084
Cd	1.16	1.29	1.15	1.20
Cr	0.988	1.01	0.941	1.07
Cu	6.44	6.47	6.94	7.38
Fe	242	275	242	272
Ni	1.15	1.08	1.02	1.11
Pb	0.978	1.52	0.883	1.01
Zn	54.8	55.7	54.7	56.8
Al	165	183	164	211
Hg	0.0550	0.0599	0.0554	0.0605
%Solids	11.9	13.0	10.5	10.6

Table D43. 2003 blue mussel tissue metal concentrations (µg/g dry wt.) at the Machias River site, ME (MEMR); 44.7137°N, 67.4035°W

MEMR		(µg/g dry wt.)			
Replicate		1N	2N	3N	4N
Ag		0.061	0.065	0.052	0.054
Cd		1.62	1.66	1.60	1.63
Cr		1.96	2.05	1.98	2.04
Cu		7.06	6.89	10.3	8.09
Fe		755	694	615	709
Ni		1.54	1.66	1.47	1.61
Pb		1.69	1.84	1.53	1.59
Zn		50.3	55.3	53.5	51.2
Al		702	628	505	639
Hg		0.237	0.223	0.204	0.214
%Solids		10.9	11.6	13.5	14.5

Table D44. 2003 blue mussel tissue metal concentrations (µg/g dry wt.) at the Cobscook Bay site, ME (MECK); 44.9045°N, 67.0543°W #N-Dup represents duplicate analysis of site replicate.

MECK		(µg/g dry wt.)				
Replicate		1N	1N-Dup	2N	3N	4N
Ag		0.017	0.018	0.020	0.021	0.020
Cd		1.20	1.25	1.15	1.10	1.18
Cr		1.50	1.54	1.48	1.76	1.59
Cu		7.87	7.82	11.1	23.3	14.1
Fe		471	481	470	548	493
Ni		1.38	1.43	1.38	1.64	1.42
Pb		1.18	1.21	1.27	1.20	1.20
Zn		58.1	59.1	64.8	56.9	63.7
Al		487	461	449	551	526
Hg		0.0693	0.0689	0.0729	0.0708	0.0705
%Solids		17.8	17.8	18.4	18.3	18.4

Table D45. 2003 blue mussel tissue metal concentrations (µg/g dry wt.) at the St. Croix River site, NB (NBSC); 45.1675°N, 67.1638°W

NBSC		(µg/g dry wt.)			
Replicate		1N	2N	3N	4N
Ag		0.039	0.036	0.031	0.032
Cd		1.40	1.20	1.36	1.32
Cr		0.738	0.744	0.763	0.757
Cu		8.06	7.95	4.67	5.54
Fe		215	230	213	197
Ni		0.743	0.811	0.887	0.772
Pb		0.496	0.590	0.574	0.522
Zn		49.6	50.6	58.7	48.7
Al		261	299	284	226
Hg		0.0387	0.0434	0.0382	0.0396
%Solids		11.9	12.9	14.9	14.4

Table D46. 2003 blue mussel tissue metal concentrations (µg/g dry wt.) at the Hospital Island site, NB (NBHI); 45.1205°N, 67.0082°W **Benchmark Site** #N-Dup represents duplicate analysis of site replicate.

NBHI		(µg/g dry wt.)				
Replicate		1N	1N-Dup	2N	3N	4N
Ag		0.053	0.046	0.045	0.039	0.041
Cd		1.74	1.49	1.38	1.54	1.40
Cr		0.740	0.760	1.49	0.773	0.748
Cu		6.16	6.08	6.41	18.9	13.4
Fe		161	158	232	170	170
Ni		1.03	0.973	1.22	1.01	0.893
Pb		0.598	0.513	0.690	0.732	0.589
Zn		55.5	46.8	48.4	73.0	69.5
Al		164	163	246	187	178
Hg		0.0569	0.0586	0.0587	0.0575	0.0537
%Solids		13.2	13.2	9.9	15.2	18.3

Table D47. 2003 blue mussel tissue metal concentrations ($\mu\text{g/g}$ dry wt.) at the Letang Estuary site, NB (NBLB); 45.0757°N, 66.7963°W

NBLN		($\mu\text{g/g}$ dry wt.)			
<i>Replicate</i>		<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>
Ag		0.010	0.010	0.011	0.011
Cd		1.23	1.07	1.15	1.05
Cr		1.14	0.855	1.07	0.945
Cu		11.4	46.5	8.43	7.56
Fe		360	286	333	315
Ni		1.00	0.781	0.809	0.919
Pb		1.51	1.21	1.48	1.45
Zn		58.8	52.0	73.6	64.2
Al		582	364	435	367
Hg		0.0660	0.0608	0.0754	0.0623
%Solids		16.5	14.8	16.7	15.2

Table D48. 2003 blue mussel tissue metal concentrations ($\mu\text{g/g}$ dry wt.) at the Apple River site, NS (NSAR); 45.4700°N, 64.8350°W

NSAR		($\mu\text{g/g}$ dry wt.)			
<i>Replicate</i>		<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>
Ag		0.033	0.041	0.032	0.030
Cd		3.45	3.56	2.66	3.18
Cr		2.18	2.34	2.34	2.49
Cu		10.6	7.22	9.58	9.32
Fe		752	841	826	849
Ni		3.70	2.94	2.47	2.82
Pb		1.62	1.99	1.40	1.70
Zn		71.1	73.4	58.6	63.4
Al		944	1079	966	1025
Hg		0.211	0.260	0.212	0.230
Solid		9.8	7.6	9.3	9.5

Table D49. 2003 blue mussel tissue metal concentrations ($\mu\text{g/g}$ dry wt.) at Digby, NS (NSDI); 44.6170°N, 65.7523°W
Benchmark Site

NSDI		($\mu\text{g/g}$ dry wt.)			
Replicate		1N	2N	3N	4N
	Ag	0.061	0.059	0.056	0.091
	Cd	1.54	1.21	1.66	1.63
	Cr	1.63	1.54	1.54	1.75
	Cu	70.5	5.88	7.45	7.48
	Fe	374	347	433	480
	Ni	1.66	2.01	1.53	1.56
	Pb	2.84	2.03	2.78	2.61
	Zn	98.1	72.4	88.8	85.3
	Al	406	363	424	491
	Hg	0.105	0.0998	0.115	0.106
	%Solids	13.9	9.1	10.2	9.6

Table D50. 2003 blue mussel tissue metal concentrations ($\mu\text{g/g}$ dry wt.) at the Spechts Cove site, (NSSC); 44.5153°N, 65.9078°W

NSSC		($\mu\text{g/g}$ dry wt.)			
Replicate		1N	2N	3N	4N
	Ag	0.051	0.057	0.032	0.046
	Cd	1.63	1.53	1.24	1.51
	Cr	2.08	2.94	1.77	1.89
	Cu	156	11.9	7.75	7.16
	Fe	815	755	674	885
	Ni	2.02	2.44	1.78	1.95
	Pb	2.14	1.88	1.76	2.60
	Zn	58.6	64.1	54.5	53.4
	Al	607	570	640	631
	Hg	0.139	0.131	0.133	0.170
	%Solids	9.8	10.7	11.6	9.4

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Table D51. 2004 blue mussel tissue metal concentrations ($\mu\text{g/g}$ dry wt.) at Sandwich, MA, (MASN); 41.7622°N, 70.4730°W
Benchmark Site

MASN		($\mu\text{g/g}$ dry wt.)			
Replicate		1N	2N	3N	4N
	Ag	0.104	0.112	0.144	0.159
	Cd	0.982	0.989	0.950	0.919
	Cr	1.17	1.37	1.32	1.25
	Cu	6.64	6.99	7.18	7.09
	Fe	448	497	505	397
	Ni	1.43	1.65	1.59	1.48
	Pb	2.26	2.73	2.61	2.72
	Zn	78.9	83.7	89.2	80.2
	Al	513	564	552	471
	Hg	0.103	0.103	0.105	0.099
	%Solids	17.6	18.9	18.0	17.5

Table D52. 2004 blue mussel tissue metal concentrations ($\mu\text{g/g}$ dry wt.) at the Boston Inner Harbor site, MA (MAIH); 42.3637°N, 71.0284°W #N-Dup represents duplicate analysis of site replicate.

MAIH		($\mu\text{g/g}$ dry wt.)				
Replicate		1N	2N	3N	4N	4N-Dup
	Ag	0.079	0.078	0.069	0.054	0.054
	Cd	1.59	1.78	1.60	1.04	1.01
	Cr	2.62	2.35	2.18	2.10	2.22
	Cu	17.5	15.8	12.4	12.4	12.0
	Fe	848	867	664	1798	2171
	Ni	1.68	1.99	1.59	1.33	1.70
	Pb	13.6	20.6	14.3	11.0	10.7
	Zn	256	227	194	156	147
	Al	661	504	501	499	499
	Hg	0.150	0.148	0.122	0.118	0.112
	%Solids	15.7	16.8	17.1	18.8	18.8

Table D53. 2004 blue mussel tissue metal concentrations ($\mu\text{g/g}$ dry wt.) at the Pines River site, MA (MAPR); 42.4312°N, 70.9793°W

MAPR		($\mu\text{g/g}$ dry wt.)			
<i>Replicate</i>		<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>
	Ag	0.080	0.084	0.107	0.093
	Cd	1.70	1.54	1.66	1.27
	Cr	5.15	4.45	4.65	4.55
	Cu	8.12	8.52	10.4	9.92
	Fe	746	733	1013	996
	Ni	1.67	2.07	2.16	2.46
	Pb	6.27	6.55	9.19	7.48
	Zn	92.5	101	134	96.9
	Al	704	699	904	892
	Hg	0.229	0.230	0.222	0.186
	%Solids	14.4	15.3	14.2	14.9

Table D54. 2004 blue mussel tissue metal concentrations ($\mu\text{g/g}$ dry wt.) at Hampton/Seabrook estuary site, NH (NHHS); 42.8972°N, 70.8163°W

NHHS		($\mu\text{g/g}$ dry wt.)			
<i>Replicate</i>		<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>
	Ag	0.018	0.022	0.019	0.022
	Cd	1.70	1.35	1.99	1.85
	Cr	1.25	1.12	1.41	1.10
	Cu	6.57	7.22	8.08	7.01
	Fe	297	254	327	265
	Ni	1.21	1.01	1.39	1.10
	Pb	1.92	1.39	2.12	2.04
	Zn	81.8	82.7	117	93.5
	Al	212	160	237	159
	Hg	0.132	0.140	0.151	0.149
	%Solids	17.4	18.4	16.2	17.2

Table D55. 2004 blue mussel tissue metal concentrations (µg/g dry wt.) at Dover Point, NH, (NHDP); 43.1196°N, 70.8267°W #N-Dup represents duplicate analysis of site replicate.

NHDP		(µg/g dry wt.)				
<i>Replicate</i>		<i>1N</i>	<i>2N</i>	<i>2N-Dup</i>	<i>3N</i>	<i>4N</i>
Ag		0.056	0.064	0.060	0.060	0.065
Cd		2.66	2.48	2.46	2.33	2.58
Cr		2.72	2.56	2.59	2.74	2.90
Cu		7.96	8.34	8.25	8.16	8.09
Fe		426	471	480	426	503
Ni		2.17	1.81	2.04	1.79	2.07
Pb		2.49	2.36	2.37	2.16	2.62
Zn		86.4	105	100	98.9	101
Al		331	362	398	375	448
Hg		0.301	0.306	0.302	0.299	0.336
%Solids		13.4	13.2	13.2	13.7	13.3

Table D56. 2004 blue mussel tissue metal concentrations (µg/g dry wt.) at Pierce Island, NH (NHPI); 43.0717°N, 70.7433°W

NHPI		(µg/g dry wt.)			
<i>Replicate</i>		<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>
Ag		0.058	0.067	0.056	0.047
Cd		1.72	2.15	2.06	1.57
Cr		2.33	2.42	2.94	1.80
Cu		7.82	8.39	8.27	6.29
Fe		458	549	582	343
Ni		1.82	1.81	1.98	1.31
Pb		3.18	3.84	3.53	2.93
Zn		114	129	126	95.4
Al		418	348	346	227
Hg		0.319	0.379	0.370	0.276
Solid		14.3	13.5	14.4	18.2

Table D57. 2004 blue mussel tissue metal concentrations (µg/g dry wt.) at the Fox Point site, Newington, NH (NHFP); 43.1201°N, 70.8589°W

NHFP		(µg/g dry wt.)			
<i>Replicate</i>		<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>
Ag		0.049	0.072	0.089	0.076
Cd		1.85	2.22	1.98	1.92
Cr		2.03	2.46	2.67	2.55
Cu		6.67	7.84	7.83	8.00
Fe		427	560	576	527
Ni		1.70	1.90	1.99	1.66
Pb		1.57	2.17	2.07	1.78
Zn		84.2	101	89.0	97.3
Al		380	548	515	516
Hg		0.268	0.329	0.293	0.280
Solid		16.3	14.0	15.4	15.6

Table D58. 2004 blue mussel tissue metal concentrations (µg/g dry wt.) at the Clark's Cove site, Seavey Island, ME (MECC); 43.0774°N, 70.7244°W **Benchmark Site**

MECC		(µg/g dry wt.)			
<i>Replicate</i>		<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>
Ag		1.72	1.92	1.82	1.93
Cd		2.39	2.71	2.53	2.18
Cr		7.85	8.63	8.23	7.30
Cu		441	615	527	457
Fe		1.87	2.15	2.01	1.52
Ni		3.63	4.29	3.18	2.88
Pb		92.9	97.4	105	88.8
Zn		294	458	447	348
Al		0.281	0.274	0.280	0.231
Hg		14.2	14.6	14.1	14.7
Solid		1.72	1.92	1.82	1.93

Table D59. 2004 blue mussel tissue metal concentrations ($\mu\text{g/g}$ dry wt.) at the Kennebec River site, Perkins Island, ME (MEKN); 43.7850°N, 69.7845°W **Benchmark Site**

MEKN		($\mu\text{g/g}$ dry wt.)			
<i>Replicate</i>		<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>
	Ag	0.064	0.093	0.050	0.091
	Cd	1.55	1.77	1.46	1.97
	Cr	1.00	1.29	1.06	1.45
	Cu	7.02	7.10	6.86	8.93
	Fe	253	296	258	307
	Ni	0.80	0.826	0.819	0.933
	Pb	1.10	1.23	1.18	1.39
	Zn	48.1	53.9	53.8	55.8
	Al	168	187	180	239
	Hg	0.135	0.176	0.141	0.179
	Solid	15.8	14.9	16.3	16.4

Table D60. 2004 blue mussel tissue metal concentrations ($\mu\text{g/g}$ dry wt.) at the Damariscotta site, Wentworth Point, ME (MEDM); 43.9383°N, 69.5817°W

MEDM		($\mu\text{g/g}$ dry wt.)			
<i>Replicate</i>		<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>
	Ag	0.040	0.073	0.073	0.059
	Cd	1.53	1.25	1.31	1.30
	Cr	1.50	1.75	1.42	1.48
	Cu	6.00	7.81	6.92	6.70
	Fe	504	628	468	483
	Ni	1.39	1.31	1.19	1.25
	Pb	2.11	1.84	1.78	1.92
	Zn	64.7	61.5	65.1	68.5
	Al	482	696	459	519
	Hg	0.127	0.119	0.138	0.120
	%Solids	14.3	16.4	16.7	15.6

Table D61. 2004 blue mussel tissue metal concentrations (µg/g dry wt.) at Booth Bay Harbor, ME, (MEBB); 43.8507°N, 69.6727°W #N-Dup represents duplicate analysis of site replicate.

MEBB		(µg/g dry wt.)				
<i>Replicate</i>		<i>1N</i>	<i>2N</i>	<i>2N-Dup</i>	<i>3N</i>	<i>4N</i>
	Ag	0.032	0.023	0.023	0.029	0.013
	Cd	0.820	0.842	0.833	1.16	1.11
	Cr	1.04	1.08	1.01	1.22	1.16
	Cu	11.0	10.2	10.2	11.8	9.74
	Fe	312	309	291	338	276
	Ni	0.829	0.718	0.683	0.779	0.779
	Pb	12.6	12.0	11.9	15.7	11.9
	Zn	109	107	105	110	109
	Al	225	225	198	225	206
	Hg	0.198	0.195	0.192	0.223	0.262
	%Solids	18.8	18.0	18.0	16.2	15.9

Table D62. 2004 blue mussel tissue metal concentrations (µg/g dry wt.) at the Niger Reef site, NB (NBNR); 45.0663°N, 67.0980°W

NBNR		(µg/g dry wt.)			
<i>Replicate</i>		<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>
	Ag	0.043	0.043	0.039	0.031
	Cd	1.90	1.81	1.89	1.72
	Cr	0.960	1.01	1.26	0.846
	Cu	6.20	6.39	5.97	6.02
	Fe	299	325	509	279
	Ni	0.955	0.902	1.11	0.860
	Pb	1.06	0.946	0.931	1.06
	Zn	59.7	54.1	55.2	56.9
	Al	393	354	661	280
	Hg	0.0604	0.0636	0.0418	0.0576
	%Solids	17.7	17.0	16.9	17.6

Table D63. 2004 blue mussel tissue metal concentrations ($\mu\text{g/g}$ dry wt.) at the Hospital Island site, NB (NBHI); 45.1205°N, 67.0082°W **Benchmark Site.**

NBHI		($\mu\text{g/g}$ dry wt.)			
<i>Replicate</i>		<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>
Ag		0.091	0.075	0.065	0.069
Cd		1.03	1.05	1.08	1.12
Cr		0.744	0.715	0.642	0.746
Cu		5.26	6.43	5.36	5.30
Fe		280	256	205	263
Ni		0.883	0.882	0.722	0.828
Pb		0.694	0.686	0.686	1.25
Zn		64.9	62.5	58.2	60.7
Al		366	299	231	312
Hg		0.0525	0.0508	0.0516	0.0539
%Solids		12.6	12.2	13.2	11.7

Table D64. 2004 blue mussel tissue metal concentrations ($\mu\text{g/g}$ dry wt.) at the Tin Can Beach site, NB (NBTC); 45.2625°N, 66.0570°W

NBTC		($\mu\text{g/g}$ dry wt.)			
<i>Replicate</i>		<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>
Ag		0.043	0.033	0.041	0.047
Cd		3.00	3.06	3.16	3.43
Cr		3.06	2.22	2.70	3.75
Cu		9.06	8.05	8.37	8.33
Fe		1451	791	1079	1781
Ni		2.89	2.41	3.79	3.50
Pb		3.82	2.91	4.08	5.63
Zn		82.2	65.7	71.0	79.7
Al		1445	735	1139	2249
Hg		0.321	0.298	0.338	0.342
%Solids		4.9	5.3	4.7	4.7

Table D65. 2004 blue mussel tissue metal concentrations ($\mu\text{g/g}$ dry wt.) at Cornwallis, NS, (NSCW); 44.6447°N, 65.6480°W

NSCW		($\mu\text{g/g}$ dry wt.)			
Replicate		1N	2N	3N	4N
	Ag	0.024	0.024	0.023	0.025
	Cd	1.95	1.86	1.84	1.91
	Cr	2.00	1.75	1.70	1.86
	Cu	5.24	5.11	5.61	5.32
	Fe	797	721	718	765
	Ni	1.70	1.69	1.98	1.82
	Pb	3.46	2.89	3.21	3.48
	Zn	78.3	67.8	79.1	63.0
	Al	630	580	591	655
	Hg	0.108	0.106	0.116	0.118
	%Solids	9.7	10.3	11.8	10.2

Table D66. 2004 blue mussel tissue metal concentrations ($\mu\text{g/g}$ dry wt.) at Digby, NS, (NSDI); 44.6170°N, 65.7523°W **Benchmark Site**

NSDI		($\mu\text{g/g}$ dry wt.)			
Replicate		1N	2N	3N	4N
	Ag	0.061	0.059	0.056	0.091
	Cd	1.54	1.21	1.66	1.63
	Cr	1.63	1.54	1.54	1.75
	Cu	70.5	5.88	7.45	7.48
	Fe	374	347	433	480
	Ni	1.66	2.01	1.53	1.56
	Pb	2.84	2.03	2.78	2.61
	Zn	98.1	72.4	88.8	85.3
	Al	406	363	424	491
	Hg	0.105	0.0998	0.115	0.106
	%Solids	13.9	9.1	10.2	9.6

Table D67. 2004 blue mussel tissue metal concentrations ($\mu\text{g/g}$ dry wt.) at Grosse Coques, (NSGC); 44.3728°N, 66.0950°W

NSGC		$(\mu\text{g/g dry wt.})$			
<i>Replicate</i>		<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>
	Ag	0.051	0.057	0.032	0.046
	Cd	1.63	1.53	1.24	1.51
	Cr	2.08	2.94	1.77	1.89
	Cu	156	11.9	7.75	7.16
	Fe	815	755	674	885
	Ni	2.02	2.44	1.78	1.95
	Pb	2.14	1.88	1.76	2.60
	Zn	58.6	64.1	54.5	53.4
	Al	607	570	640	631
	Hg	0.139	0.131	0.133	0.170
	%Solids	9.8	10.7	11.6	9.4

Table D68. 2004 blue mussel tissue metal concentrations ($\mu\text{g/g}$ dry wt.) at Yarmouth, NS (NSYR); 43.8177°N, 66.1448°W

NSYR		$(\mu\text{g/g dry wt.})$			
<i>Replicate</i>		<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>
	Ag	0.212	0.272	0.068	0.151
	Cd	1.52	1.43	1.02	1.32
	Cr	2.06	2.01	1.08	1.87
	Cu	6.32	6.69	3.84	6.07
	Fe	738	772	287	738
	Ni	1.75	1.81	0.98	1.78
	Pb	3.71	3.39	1.79	3.08
	Zn	98.8	85.6	52.0	65.2
	Al	566	619	229	601
	Hg	0.207	0.193	0.142	0.190
	%Solids	11.2	12.8	14.7	12.4

APPENDIX E Organic Contaminants in 2002-2004 Gulfwatch Mussel Samples

TABLES E.1 PAH concentration (ng/g dry wt.) observed in Mussel tissue collected by Gulfwatch, 2002-2004. "Int." indicates the presence of interferences during analysis. Stations are ordered by year, essentially clockwise in rotation, south (Massachusetts) to north (to Nova Scotia).

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Table E.1.1 2002 blue mussel tissue PAH concentrations (ng/g dry wt.) at Sandwich, MA (MASN); 41.7645°N, 70.4840°W.

Benchmark Site #N-Dup represents duplicate analysis of site replicate.

MASN	(ng/g dry wt.)				
<i>Replicate</i>	<i>1N.</i>	<i>2N.</i>	<i>3N</i>	<i>4N</i>	<i>4N-Dup</i>
Naphthalene	<20	<20	<20	<20	<20
2-Me naphthalene	<20	<20	<20	<20	<20
1-Me naphthalene	<18	<18	<18	<18	<18
Biphenyl	<20	<20	<20	<20	<20
2,6-Dime naphthalen	<20	<20	<20	<20	<20
Acenaphthylene	<18	<18	<18	<18	<18
Acenaphthene	<20	<20	<20	<20	<20
2,3,5-Trime naphthal	<10	<10	<10	<10	<10
Fluorene	<15	<15	<15	<15	<15
Phenanthrene	<12	<12	<12	<12	<12
Anthracene	<8	<8	<8	<8	<8
1-Me phenanthrene	<7	<7	<7	<7	<7
Fluoranthene	17.6	22.0	17.5	18.0	17.6
Pyrene	8.5	10.6	7.7	7.7	8.5
Benzo(a)anthracene	<10	<10	<10	<10	<10
Chrysene	<12	<12	<12	<12	<12
Benzo(b)fluoranthene	<12	<12	<12	<12	<12
Benzo(k)fluoranthene	<12	<12	<12	<12	<12
Benzo(e)pyrene	<12	<12	<12	<12	<12
Benzo(a)pyrene	<10	<10	<10	<10	<10
Perylene	<18	<18	<18	<18	<18
Indeno(123cd)pyren	<12	<12	<12	<12	<12
Dibenzo(ah)anthrace	<10	<10	<10	<10	<10
Benzo(ghi)perylene	<10	<10	<10	<10	<10

Table E.1.2 2002 Blue mussel PAH concentrations (ng/g dry wt.) in Massachusetts inner Plymouth-Manomet Point station (MAPY); 41.9283°N, 70.5383°W

MAPY	(ng/g dry wt.)		
<i>Replicate</i>	<i>1N</i>	<i>2N</i>	<i>3N</i>
Naphthalene	<20	<20	<20
2-Me naphthalene	<20	<20	<20
1-Me naphthalene	<18	<18	<18
Biphenyl	<20	<20	<20
2,6-Dime naphthalen	<20	<20	<20
Acenaphthylene	<18	<18	<18
Acenaphthene	<20	<20	<20
2,3,5-Trime naphthal	<10	<10	<10
Fluorene	<15	<15	<15
Phenanthrene	21.2	14.4	<12
Anthracene	24.3	<8	<8
1-Me phenanthrene	<7	<7	<7
Fluoranthene	21.4	24.6	10.3
Pyrene	13.8	14.9	7.2
Benzo(a)anthracene	<10	<10	<10
Chrysene	<12	<12	<12
Benzo(b)fluoranthene	<12	<12	<12
Benzo(k)fluoranthene	<12	<12	<12
Benzo(e)pyrene	<12	<12	<12
Benzo(a)pyrene	<10	<10	<10
Perylene	<18	<18	<18
Indeno(123cd)pyren	<12	<12	<12
Dibenzo(ah)anthrace	<10	<10	<10
Benzo(ghi)perylene	<10	<10	<10

Table E.1.3 2002 blue mussel tissue PAH concentrations (ng/g dry wt.) at Massachusetts Little Harbor site, Cohasset, MA (MACO); 42.2550°N, 70. 7900°W

MACO	(ng/g dry wt.)			
<i>Replicate</i>	<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>
Naphthalene	<20	<20	<20	<20
2-Me naphthalene	<20	<20	<20	<20
1-Me naphthalene	<18	<18	<18	<18
Biphenyl	<20	<20	<20	<20
2,6-Dime naphthalen	<20	<20	<20	<20
Acenaphthylene	<18	<18	<18	<18
Acenaphthene	<20	<20	<20	<20
2,3,5-Trime naphthal	<10	<10	<10	<10
Fluorene	<15	<15	<15	<15
Phenanthrene	<12	<12	<12	12.1
Anthracene	<8	<8	<8	<8
1-Me phenanthrene	<7	<7	<7	<7
Fluoranthene	26.1	25.7	27.5	25.6
Pyrene	16.9	16.4	17.5	16.3
Benzo(a)anthracene	<10	<10	<10	<10
Chrysene	<12	<12	<12	<12
Benzo(b)fluoranthene	<12	<12	<12	<12
Benzo(k)fluoranthene	<12	<12	<12	<12
Benzo(e)pyrene	<12	<12	<12	<12
Benzo(a)pyrene	<10	<10	<10	<10
Perylene	<18	<18	<18	<18
Indeno(123cd)pyren	<12	<12	<12	<12
Dibenzo(ah)anthrace	<10	<10	<10	<10
Benzo(ghi)perylene	<10	<10	<10	<10

Table E.1.4 2002 blue mussel tissue PAH concentrations (ng/g dry wt.) at Long Island, Boston Harbor (MALI); 42.3283°N, 70.9550°W

MALI	(ng/g dry wt.)			
<i>Replicate</i>	<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>
Naphthalene	138.4	33.6	23.5	35.1
2-Me naphthalene	44.5	<20	<20	<20
1-Me naphthalene	85.8	30.0	<18	19.3
Biphenyl	41.5	<20	<20	<20
2,6-Dime naphthalen	43.4	<20	<20	<20
Acenaphthylene	<18	<18	<18	<18
Acenaphthene	415.5	148.1	70.4	80.7
2,3,5-Trime naphthal	Int	<10	<10	<10
Fluorene	583.5	255.2	95.8	101.1
Phenanthrene	3109.5	1333.4	508.2	586.2
Anthracene	450.3	160.2	67.2	71.0
1-Me phenanthrene	111.6	51.7	24.5	29.1
Fluoranthene	3389.9	1489.2	573.4	668.5
Pyrene	2204.9	980.6	360.9	403.7
Benzo(a)anthracene	337.1	128.1	40.4	42.0
Chrysene	359.7	142.3	61.9	70.9
Benzo(b)fluoranthene	142.0	61.8	22.9	24.9
Benzo(k)fluoranthene	122.6	54.5	20.7	22.4
Benzo(e)pyrene	117.4	63.5	37.3	42.7
Benzo(a)pyrene	69.0	28.2	<10	<10
Perylene	25.3	<18	<18	<18
Indeno(123cd)pyren	28.6	17.0	<12	<12
Dibenzo(ah)anthrace	<10	<10	<10	<10
Benzo(ghi)perylene	29.6	20.1	12.3	14.5

Table E.1.5 2002 blue mussel tissue PAH concentrations (ng/g dry wt.) at Marblehead, MA (MAMH); 42.4983°N, 70.8483°W

MAMH <i>Replicate</i>	(ng/g dry wt.)		
	<i>1N</i>	<i>2N</i>	<i>3&4N</i>
Naphthalene	<20	<20	<20
2-Me naphthalene	<20	<20	<20
1-Me naphthalene	<18	<18	<18
Biphenyl	<20	<20	<20
2,6-Dime naphthalen	<20	<20	<20
Acenaphthylene	<18	<18	<18
Acenaphthene	<20	<20	<20
2,3,5-Trime naphthal	<10	<10	<10
Fluorene	<15	<15	<15
Phenanthrene	13.1	<12	<12
Anthracene	<8	<8	<8
1-Me phenanthrene	<7	<7	<7
Fluoranthene	20.4	19.2	20.7
Pyrene	14.0	14.0	14.7
Benzo(a)anthracene	<10	<10	<10
Chrysene	<12	<12	<12
Benzo(b)fluoranthene	<12	<12	<12
Benzo(k)fluoranthene	<12	<12	<12
Benzo(e)pyrene	<12	<12	<12
Benzo(a)pyrene	<10	<10	<10
Perylene	<18	<18	<18
Indeno(123cd)pyren	<12	<12	<12
Dibenzo(ah)anthrace	<10	<10	<10
Benzo(ghi)perylene	<10	<10	<10

Table E.1.6 Blue mussel tissue PAH concentrations (ng/g dry wt.) at the Merrimack River site, MA (MAME); 42.8083°N, 70.8233°W. #N-Dup represents duplicate analysis of site replicate.

MAME	(ng/g dry wt.)				
<i>Replicate</i>	<i>1N.</i>	<i>2N.</i>	<i>3N</i>	<i>4N</i>	<i>4N-Dup</i>
Naphthalene	22.0	35.9	<20	<20	31.3
2-Me naphthalene	<20	<20	<20	<20	<20
1-Me naphthalene	<18	<18	<18	<18	<18
Biphenyl	<20	<20	<20	<20	<20
2,6-Dime naphthalen	<20	<20	<20	<20	<20
Acenaphthylene	<18	<18	<18	<18	<18
Acenaphthene	<20	<20	<20	<20	<20
2,3,5-Trime naphthal	<10	<10	<10	<10	<10
Fluorene	19.9	<15	<15	<15	<15
Phenanthrene	49.2	14.9	14.6	13.2	16.4
Anthracene	10.7	<8	<8	<8	<8
1-Me phenanthrene	<7	<7	<7	<7	<7
Fluoranthene	49.3	39.3	24.2	38.4	29.9
Pyrene	62.2	42.3	33.7	40.3	45.0
Benzo(a)anthracene	21.3	12.2	11.1	<10	11.9
Chrysene	32.0	27.0	26.9	21.0	25.3
Benzo(b)fluoranthene	23.3	18.5	15.3	15.9	18.4
Benzo(k)fluoranthene	21.9	17.4	15.1	14.0	16.2
Benzo(e)pyrene	32.8	27.7	28.6	26.8	31.3
Benzo(a)pyrene	18.4	11.1	18.3	10.8	12.5
Perylene	<18	<18	<18	<18	<18
Indeno(123cd)pyren	<12	<12	<12	<12	<12
Dibenzo(ah)anthrace	<10	<10	<10	<10	<10
Benzo(ghi)perylene	12.0	12.7	12.4	12.7	10.7

Table E.1.7 Blue mussel tissue PAH concentrations (ng/g dry wt.) at the Hampton/Seabrook estuary, NH site (NHHS); 42.8917°N, 70.8167°W

NHHS <i>Replicate</i>	(ng/g dry wt.)			
	<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>
Naphthalene	<20	<20	<20	<20
2-Me naphthalene	<20	<20	<20	<20
1-Me naphthalene	<18	<18	<18	<18
Biphenyl	<20	<20	<20	<20
2,6-Dime naphthalen	<20	<20	<20	<20
Acenaphthylene	<18	<18	<18	<18
Acenaphthene	<20	<20	<20	<20
2,3,5-Trime naphthal	<10	<10	<10	<10
Fluorene	16.2	<15	<15	<15
Phenanthrene	24.6	53.1	22.9	26.6
Anthracene	<8	9.5	<8	<8
1-Me phenanthrene	Int	<7	<7	<7
Fluoranthene	Int	109.5	Int	Int
Pyrene	Int	84.1	61.0	64.2
Benzo(a)anthracene	Int	13.2	14.2	18.6
Chrysene	Int	26.4	20.0	30.6
Benzo(b)fluoranthene	17.6	21.0	14.6	17.5
Benzo(k)fluoranthene	<12	16.9	<12	13.4
Benzo(e)pyrene	21.6	28.3	20.2	21.2
Benzo(a)pyrene	16.1	<10	12.5	15.7
Perylene	<18	<18	<18	<18
Indeno(123cd)pyren	<12	<12	<12	<12
Dibenzo(ah)anthrace	<10	<10	<10	<10
Benzo(ghi)perylene	<10	<10	<10	<10

Table E.1.8 2002 blue mussel tissue PAH concentrations (ng/g dry wt.), Rye Harbor, NH (NHRH); 43.0000°N, 70.7438°W

NHRH <i>Replicate</i>	(ng/g dry wt.)			
	<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>
Naphthalene	<20	<20	<20	<20
2-Me naphthalene	<20	<20	<20	<20
1-Me naphthalene	<18	<18	<18	<18
Biphenyl	<20	<20	<20	<20
2,6-Dime naphthalen	<20	<20	<20	<20
Acenaphthylene	<18	<18	<18	<18
Acenaphthene	<20	<20	<20	<20
2,3,5-Trime naphthal	<10	<10	<10	<10
Fluorene	<15	<15	<15	<15
Phenanthrene	<12	<12	<12	<12
Anthracene	<8	<8	<8	<8
1-Me phenanthrene	Int	<7	<7	<7
Fluoranthene	24.8	21.1	18.8	20.2
Pyrene	19.1	14.7	13.6	13.7
Benzo(a)anthracene	<10	<10	<10	<10
Chrysene	<12	<12	<12	<12
Benzo(b)fluoranthene	<12	<12	<12	<12
Benzo(k)fluoranthene	<12	<12	<12	<12
Benzo(e)pyrene	12.7	<12	<12	<12
Benzo(a)pyrene	11.9	<10	<10	<10
Perylene	<18	<18	<18	<18
Indeno(123cd)pyren	<12	<12	<12	<12
Dibenzo(ah)anthrace	<10	<10	<10	<10
Benzo(ghi)perylene	<10	<10	<10	<10

Table E.1.9 2002 blue mussel tissue PAH concentrations (ng/g dry wt.) at North Mill Pond, NH (NHNM); 43.0750°N, 70.7600°W.

NHNM <i>Replicate</i>	(ng/g dry wt.)			
	<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>
Naphthalene	<20	<20	<20	<20
2-Me naphthalene	<20	<20	<20	<20
1-Me naphthalene	<18	<18	<18	<18
Biphenyl	<20	<20	<20	<20
2,6-Dime naphthalen	<20	<20	<20	<20
Acenaphthylene	<18	<18	<18	<18
Acenaphthene	<20	<20	<20	<20
2,3,5-Trime naphthal	<10	<10	<10	<10
Fluorene	<15	<15	<15	<15
Phenanthrene	26.3	27.0	30.4	28.2
Anthracene	<8	<8	<8	<8
1-Me phenanthrene	<7	8.8	<7	<7
Fluoranthene	133.8	138.6	152.1	165.3
Pyrene	128.5	128.5	148.0	158.5
Benzo(a)anthracene	48.9	49.1	34.3	48.3
Chrysene	128.5	124.5	84.6	125.9
Benzo(b)fluoranthene	94.6	100.4	93.7	115.2
Benzo(k)fluoranthene	75.1	74.4	71.5	91.5
Benzo(e)pyrene	88.6	92.7	85.9	105.5
Benzo(a)pyrene	49.3	42.7	30.4	40.4
Perylene	20.5	23.8	27.4	28.9
Indeno(123cd)pyren	16.6	22.1	34.3	32.5
Dibenzo(ah)anthrace	<10	<10	<10	<10
Benzo(ghi)perylene	<10	27.3	41.0	37.4

Table E.1.10 2002 *oyster* tissue PAH concentrations (ng/g dry wt.) at Nannie Island (expanded Gulfwatch) site (NHNI); 43.1344°N, 70.8471°W

NHNI <i>Replicate</i>	(ng/g dry wt.)	
	<i>1N</i>	<i>2N</i>
Naphthalene	<20	<20
2-Me naphthalene	<20	<20
1-Me naphthalene	<18	<18
Biphenyl	<20	<20
2,6-Dime naphthalen	<20	<20
Acenaphthylene	<18	<18
Acenaphthene	<20	<20
2,3,5-Trime naphthal	<10	<10
Fluorene	<15	<15
Phenanthrene	<12	<12
Anthracene	<8	<8
1-Me phenanthrene	<7	<7
Fluoranthene	Int	Int
Pyrene	20.2	<5
Benzo(a)anthracene	<10	15.6
Chrysene	29.4	39.2
Benzo(b)fluoranthene	19.8	29.0
Benzo(k)fluoranthene	<12	<12
Benzo(e)pyrene	14.6	21.7
Benzo(a)pyrene	<10	<10
Perylene	<18	<18
Indeno(123cd)pyren	<12	<12
Dibenzo(ah)anthrace	<10	<10
Benzo(ghi)perylene	<10	<10

Table E.1.11 2000 *clam* tissue PAH concentrations (ng/g dry wt.) at the Middle Ground site (expanded Gulfwatch), NH (NHMG); 42.8922°N, 70.7883°W

NHMG <i>Replicate</i>	(ng/g dry wt.)	
	<i>1N</i>	<i>2N</i>
Naphthalene	<20	<20
2-Me naphthalene	<20	<20
1-Me naphthalene	<18	<18
Biphenyl	<20	<20
2,6-Dime naphthalen	<20	<20
Acenaphthylene	<18	<18
Acenaphthene	<20	<20
2,3,5-Trime naphthal	<10	<10
Fluorene	18.1	<15
Phenanthrene	<12	<12
Anthracene	<8	<8
1-Me phenanthrene	<7	<7
Fluoranthene	Int	8.8
Pyrene	Int	6.6
Benzo(a)anthracene	<10	<10
Chrysene	<12	<12
Benzo(b)fluoranthene	<12	<12
Benzo(k)fluoranthene	<12	<12
Benzo(e)pyrene	<12	<12
Benzo(a)pyrene	<10	<10
Perylene	<18	<18
Indeno(123cd)pyren	<12	<12
Dibenzo(ah)anthrace	<10	<10
Benzo(ghi)perylene	<10	<10

Table E.1.12 2002 blue mussel tissue PAH concentrations (ng/g dry wt.)
at Dover Point, NH (NHDP); 43.1196°N, 70.8267°W #N-Dup
represents duplicate analysis of site replicate.

NHDP <i>Replicate</i>	(ng/g dry wt.)				
	<i>1N.</i>	<i>2N.</i>	<i>3N</i>	<i>4N</i>	<i>4N-Dup</i>
Naphthalene	<20	<20	<20	<20	<20
2-Me naphthalene	<20	<20	<20	<20	<20
1-Me naphthalene	<18	<18	<18	<18	<18
Biphenyl	<20	<20	<20	<20	<20
2,6-Dime naphthalen	<20	<20	<20	<20	<20
Acenaphthylene	<18	<18	<18	<18	<18
Acenaphthene	<20	<20	<20	<20	<20
2,3,5-Trime naphthal	<10	<10	<10	<10	<10
Fluorene	<15	<15	Int	Int	<15
Phenanthrene	16.1	14.4	13.4	13.9	14.7
Anthracene	<8	<8	<8	<8	<8
1-Me phenanthrene	Int	Int	<7	<7	Int
Fluoranthene	63.0	61.6	54.1	63.4	67.4
Pyrene	57.6	57.3	52.9	57.4	61.3
Benzo(a)anthracene	15.5	15.6	15.7	17.2	17.9
Chrysene	28.6	29.3	27.1	29.7	33.3
Benzo(b)fluoranthene	23.0	26.1	29.6	28.2	30.7
Benzo(k)fluoranthene	20.8	21.0	22.9	25.6	26.2
Benzo(e)pyrene	29.1	29.3	28.6	33.2	34.6
Benzo(a)pyrene	<10	<10	11.1	11.7	14.2
Perylene	<18	<18	<18	<18	<18
Indeno(123cd)pyren	<12	<12	12.2	12.2	12.1
Dibenzo(ah)anthrace	<10	<10	<10	<10	<10
Benzo(ghi)perylene	13.2	13.1	15.1	15.8	14.8

Table E.1.13 2002 blue mussel tissue PAH concentrations (ng/g dry wt.) at Schiller Station (NHSS); 43.1017°N, 70.7883°W

NHSS <i>Replicate</i>	(ng/g dry wt.)			
	<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>
Naphthalene	<20	22.7	<20	<20
2-Me naphthalene	<20	<20	<20	<20
1-Me naphthalene	<18	<18	<18	<18
Biphenyl	<20	<20	<20	<20
2,6-Dime naphthalen	<20	<20	<20	<20
Acenaphthylene	<18	<18	<18	<18
Acenaphthene	<20	<20	<20	<20
2,3,5-Trime naphthal	<10	<10	<10	<10
Fluorene	<15	<15	<15	<15
Phenanthrene	<12	<12	<12	<12
Anthracene	<8	<8	<8	<8
1-Me phenanthrene	<7	<7	<7	Int
Fluoranthene	21.8	19.4	21.2	17.2
Pyrene	15.4	13.5	14.2	11.3
Benzo(a)anthracene	<10	<10	<10	<10
Chrysene	<12	<12	<12	<12
Benzo(b)fluoranthene	<12	<12	<12	<12
Benzo(k)fluoranthene	<12	<12	<12	<12
Benzo(e)pyrene	<12	<12	<12	<12
Benzo(a)pyrene	<10	<10	<10	<10
Perylene	<18	<18	<18	<18
Indeno(123cd)pyren	<12	<12	<12	<12
Dibenzo(ah)anthrace	<10	<10	<10	<10
Benzo(ghi)perylene	<10	<10	<10	<10

Table E.1.14 2002 blue mussel tissue PAH concentrations (ng/g dry wt.)
at Clark's Cove, ME (MECC); 43.0774°N, 70.7244°W.

Benchmark Site #N-Dup represents duplicate analysis of site replicate.

MECC <i>Replicate</i>	(ng/g dry wt.)				
	<i>1N.</i>	<i>2N.</i>	<i>3N</i>	<i>4N</i>	<i>4N-Dup</i>
Naphthalene	33.9	<20	<20	<20	<20
2-Me naphthalene	<20	<20	<20	<20	<20
1-Me naphthalene	<18	<18	<18	<18	<18
Biphenyl	<20	<20	<20	<20	<20
2,6-Dime naphthalen	<20	<20	<20	<20	<20
Acenaphthylene	<18	<18	<18	<18	<18
Acenaphthene	<20	<20	<20	<20	<20
2,3,5-Trime naphthal	<10	<10	<10	<10	<10
Fluorene	<15	<15	<15	<15	<15
Phenanthrene	27.7	29.8	26.0	29.2	26.4
Anthracene	<8	<8	<8	<8	<8
1-Me phenanthrene	<7	<7	<7	<7	<7
Fluoranthene	67.3	74.6	64.7	64.5	61.0
Pyrene	55.9	62.0	52.2	50.3	49.1
Benzo(a)anthracene	10.9	12.8	<10	<10	<10
Chrysene	19.1	23.1	19.0	16.5	17.1
Benzo(b)fluoranthene	15.9	19.0	12.6	12.9	12.7
Benzo(k)fluoranthene	13.9	16.0	12.1	<12	<12
Benzo(e)pyrene	21.9	27.4	24.4	19.1	18.8
Benzo(a)pyrene	13.1	13.3	14.2	<10	<10
Perylene	<18	<18	<18	<18	<18
Indeno(123cd)pyren	<12	<12	<12	<12	<12
Dibenzo(ah)anthrace	<10	<10	<10	<10	<10
Benzo(ghi)perylene	<10	<10	<10	<10	11.2

Table E.1.15 2002 blue mussel tissue PAH concentrations (ng/g dry wt.) at Brave Boat Harbor, ME (MEBH); 43.0933°N, 70.6233°W

MEBH <i>Replicate</i>	(ng/g dry wt.)			
	<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>
Naphthalene	<20	<20	<20	<20
2-Me naphthalene	<20	<20	<20	<20
1-Me naphthalene	<18	<18	<18	<18
Biphenyl	<20	<20	<20	<20
2,6-Dime naphthalen	<20	<20	<20	<20
Acenaphthylene	<18	<18	<18	<18
Acenaphthene	<20	<20	<20	<20
2,3,5-Trime naphthal	<10	<10	<10	<10
Fluorene	Int	Int	<15	Int
Phenanthrene	<12	<12	<12	<12
Anthracene	<8	<8	<8	<8
1-Me phenanthrene	<7	<7	<7	<7
Fluoranthene	10.1	9.2	8.1	9.6
Pyrene	5.1	5.1	<5	5.7
Benzo(a)anthracene	<10	<10	<10	<10
Chrysene	<12	<12	<12	<12
Benzo(b)fluoranthene	<12	<12	<12	<12
Benzo(k)fluoranthene	<12	<12	<12	<12
Benzo(e)pyrene	<12	<12	<12	<12
Benzo(a)pyrene	<10	<10	<10	<10
Perylene	<18	<18	<18	<18
Indeno(123cd)pyren	<12	<12	<12	<12
Dibenzo(ah)anthrace	<10	<10	<10	<10
Benzo(ghi)perylene	<10	<10	<10	<10

Table E.1.16 2002 blue mussel tissue PAH concentrations (ng/g dry wt.) at the Royal River site, ME (MERY); 43.7970°N, 70.1455°W

MERY	(ng/g dry wt.)			
<i>Replicate</i>	<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>
Naphthalene	<20	<20	<20	<20
2-Me naphthalene	<20	<20	<20	<20
1-Me naphthalene	<18	<18	<18	<18
Biphenyl	<20	<20	<20	<20
2,6-Dime naphthalen	<20	<20	<20	<20
Acenaphthylene	<18	<18	<18	<18
Acenaphthene	<20	<20	<20	<20
2,3,5-Trime naphthal	<10	<10	<10	<10
Fluorene	<15	<15	<15	<15
Phenanthrene	<12	<12	<12	<12
Anthracene	<8	<8	<8	<8
1-Me phenanthrene	<7	<7	<7	<7
Fluoranthene	20.9	15.9	17.0	18.4
Pyrene	18.8	15.2	13.8	16.4
Benzo(a)anthracene	<10	<10	<10	<10
Chrysene	<12	<12	<12	<12
Benzo(b)fluoranthene	<12	<12	<12	<12
Benzo(k)fluoranthene	<12	<12	<12	<12
Benzo(e)pyrene	<12	<12	<12	<12
Benzo(a)pyrene	<10	<10	<10	<10
Perylene	22.1	22.5	21.9	22.5
Indeno(123cd)pyren	<12	<12	<12	<12
Dibenzo(ah)anthrace	<10	<10	<10	<10
Benzo(ghi)perylene	<10	<10	<10	<10

Table E.1.17 Blue mussel tissue PAH concentrations (ng/g dry wt.)
at the Kennebec River site, ME (MEKN); 43.7850°N,
69.7845°W **Benchmark Site**

MEKN <i>Replicate</i>	(ng/g dry wt.)			
	<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>
Naphthalene	<20	<20	<20	<20
2-Me naphthalene	<20	<20	<20	<20
1-Me naphthalene	<18	<18	<18	<18
Biphenyl	<20	<20	<20	<20
2,6-Dime naphthalen	<20	<20	<20	<20
Acenaphthylene	<18	<18	<18	<18
Acenaphthene	<20	<20	<20	<20
2,3,5-Trime naphthal	<10	<10	<10	<10
Fluorene	<15	<15	<15	<15
Phenanthrene	12.8	<12	<12	<12
Anthracene	<8	<8	<8	<8
1-Me phenanthrene	<7	<7	<7	<7
Fluoranthene	Int	32.5	34.7	34.3
Pyrene	Int	34.7	37.6	35.0
Benzo(a)anthracene	<10	<10	<10	<10
Chrysene	13.4	12.8	14.5	13.4
Benzo(b)fluoranthene	<12	<12	<12	<12
Benzo(k)fluoranthene	<12	<12	<12	<12
Benzo(e)pyrene	<12	15.6	18.1	16.4
Benzo(a)pyrene	Int	<10	<10	<10
Perylene	Int	<18	<18	<18
Indeno(123cd)pyren	<12	<12	<12	<12
Dibenzo(ah)anthrace	<10	<10	<10	<10
Benzo(ghi)perylene	<10	Int	<10	Int

Table E.1.18 2002 blue mussel tissue PAH concentrations (ng/g dry wt.) at the Penobscot River site, ME (MEFP); 44.4695°N, 68.8102°W

MEFP <i>Replicate</i>	(ng/g dry wt.)			
	<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>
Naphthalene	<20	<20	<20	<20
2-Me naphthalene	<20	<20	<20	<20
1-Me naphthalene	<18	<18	<18	<18
Biphenyl	<20	<20	<20	<20
2,6-Dime naphthalen	<20	<20	<20	<20
Acenaphthylene	<18	<18	<18	<18
Acenaphthene	<20	<20	<20	<20
2,3,5-Trime naphthal	<10	<10	<10	<10
Fluorene	<15	<15	<15	<15
Phenanthrene	<12	<12	12.4	<12
Anthracene	<8	<8	<8	<8
1-Me phenanthrene	<7	<7	9.4	<7
Fluoranthene	32.1	31.7	31.8	33.1
Pyrene	28.2	25.8	26.2	27.4
Benzo(a)anthracene	<10	<10	<10	<10
Chrysene	13.5	<12	<12	13.4
Benzo(b)fluoranthene	<12	<12	<12	<12
Benzo(k)fluoranthene	<12	<12	<12	<12
Benzo(e)pyrene	13.3	12.4	12.6	14.5
Benzo(a)pyrene	<10	<10	<10	<10
Perylene	<18	<18	<18	<18
Indeno(123cd)pyren	<12	<12	<12	<12
Dibenzo(ah)anthrace	<10	<10	<10	<10
Benzo(ghi)perylene	<10	<10	<10	<10

Table E.1.19 2002 blue mussel tissue PAH concentrations (ng/g dry wt.)
at the Pickering Island site, ME (MEPI); 44.2605°N,
68.7332°W #N-Dup represents duplicate analysis of site
replicate.

MEPI	(ng/g dry wt.)				
<i>Replicate</i>	<i>1N.</i>	<i>2N.</i>	<i>3N</i>	<i>3N-Dup</i>	<i>4N</i>
Naphthalene	<20	<20	<20	25.9	<20
2-Me naphthalene	<20	<20	<20	<20	<20
1-Me naphthalene	<18	<18	<18	<18	<18
Biphenyl	<20	<20	<20	<20	<20
2,6-Dime naphthalen	<20	<20	<20	<20	<20
Acenaphthylene	<18	<18	<18	<18	<18
Acenaphthene	<20	<20	<20	<20	<20
2,3,5-Trime naphthal	<10	<10	<10	<10	<10
Fluorene	<15	<15	<15	<15	<15
Phenanthrene	<12	<12	<12	<12	<12
Anthracene	<8	<8	<8	<8	<8
1-Me phenanthrene	<7	<7	<7	<7	<7
Fluoranthene	5.9	<5	5.2	<5	<5
Pyrene	<5	<5	<5	<5	<5
Benzo(a)anthracene	<10	<10	<10	<10	<10
Chrysene	<12	<12	<12	<12	<12
Benzo(b)fluoranthene	<12	<12	<12	<12	<12
Benzo(k)fluoranthene	<12	<12	<12	<12	<12
Benzo(e)pyrene	<12	<12	<12	<12	<12
Benzo(a)pyrene	<10	<10	<10	<10	<10
Perylene	<18	<18	<18	<18	<18
Indeno(123cd)pyren	<12	<12	<12	<12	<12
Dibenzo(ah)anthrace	<10	<10	<10	<10	<10
Benzo(ghi)perylene	<10	<10	<10	<10	<10

Table E.1.20 2002 blue mussel tissue PAH concentrations (ng/g dry wt.) at the St. Croix River site, NB (NBSC); 45.1675°N, 67.1638°W

NBSC	(ng/g dry wt.)			
<i>Replicate</i>	<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>
Naphthalene	<20	<20	<20	<20
2-Me naphthalene	<20	<20	<20	<20
1-Me naphthalene	<18	<18	<18	<18
Biphenyl	<20	<20	<20	<20
2,6-Dime naphthalen	<20	<20	<20	<20
Acenaphthylene	<18	<18	<18	<18
Acenaphthene	<20	<20	<20	<20
2,3,5-Trime naphthal	<10	<10	<10	<10
Fluorene	<15	<15	<15	<15
Phenanthrene	<12	42.4	<12	34.6
Anthracene	<8	11.6	8.1	10.6
1-Me phenanthrene	<7	<7	<7	Int
Fluoranthene	Int	<5	<5	<5
Pyrene	14.6	<5	<5	<5
Benzo(a)anthracene	<10	<10	<10	<10
Chrysene	<12	<12	<12	<12
Benzo(b)fluoranthene	<12	<12	<12	<12
Benzo(k)fluoranthene	<12	<12	<12	<12
Benzo(e)pyrene	<12	<12	<12	<12
Benzo(a)pyrene	<10	<10	<10	<10
Perylene	<18	<18	<18	<18
Indeno(123cd)pyren	<12	<12	<12	<12
Dibenzo(ah)anthrace	<10	<10	<10	<10
Benzo(ghi)perylene	<10	<10	<10	<10

Table E.1.21 2002 blue mussel tissue PAH concentrations (ng/g dry wt.) at the Hospital Island site, NB (NBHI); 45.1205°N, 66.0082°W **Benchmark Site**

NBHI <i>Replicate</i>	(ng/g dry wt.)			
	<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>
Naphthalene	<20	<20	<20	<20
2-Me naphthalene	<20	<20	<20	<20
1-Me naphthalene	<18	<18	<18	<18
Biphenyl	<20	<20	<20	<20
2,6-Dime naphthalen	<20	<20	<20	<20
Acenaphthylene	<18	<18	<18	<18
Acenaphthene	<20	<20	<20	<20
2,3,5-Trime naphthal	<10	<10	<10	<10
Fluorene	<15	<15	<15	<15
Phenanthrene	<12	<12	<12	<12
Anthracene	<8	<8	<8	<8
1-Me phenanthrene	<7	<7	<7	<7
Fluoranthene	<5	<5	<5	<5
Pyrene	<5	<5	<5	<5
Benzo(a)anthracene	<10	<10	<10	<10
Chrysene	<12	<12	<12	<12
Benzo(b)fluoranthene	<12	<12	<12	<12
Benzo(k)fluoranthene	<12	<12	<12	<12
Benzo(e)pyrene	<12	<12	<12	<12
Benzo(a)pyrene	<10	<10	<10	<10
Perylene	<18	<18	<18	<18
Indeno(123cd)pyren	<12	<12	<12	<12
Dibenzo(ah)anthrace	<10	<10	<10	<10
Benzo(ghi)perylene	<10	<10	<10	<10

Table E.1.22 2002 blue mussel tissue PAH concentrations (ng/g dry wt.) at the Letang Estuary site, NB (NBLN); 45.0757°N, 66.7963°W

NBLN <i>Replicate</i>	(ng/g dry wt.)			
	<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>
Naphthalene	<20	<20	<20	<20
2-Me naphthalene	<20	<20	<20	<20
1-Me naphthalene	<18	<18	<18	<18
Biphenyl	<20	<20	<20	<20
2,6-Dime naphthalen	<20	<20	<20	<20
Acenaphthylene	<18	<18	<18	<18
Acenaphthene	<20	<20	<20	<20
2,3,5-Trime naphthal	<10	<10	<10	<10
Fluorene	<15	<15	<15	<15
Phenanthrene	12.4	<12	<12	<12
Anthracene	<8	<8	<8	<8
1-Me phenanthrene	<7	<7	9.5	<7
Fluoranthene	<5	<5	<5	<5
Pyrene	<5	<5	<5	<5
Benzo(a)anthracene	<10	<10	<10	<10
Chrysene	<12	<12	<12	<12
Benzo(b)fluoranthene	<12	<12	<12	<12
Benzo(k)fluoranthene	<12	<12	<12	<12
Benzo(e)pyrene	<12	<12	<12	<12
Benzo(a)pyrene	<10	<10	<10	<10
Perylene	<18	<18	<18	<18
Indeno(123cd)pyren	<12	<12	<12	<12
Dibenzo(ah)anthrace	<10	<10	<10	<10
Benzo(ghi)perylene	<10	<10	<10	<10

Table E.1.23 2002 blue mussel tissue PAH concentrations (ng/g dry wt.) at the Argyle Sound site, NS (NSAG); 43.6990°N, 65.8182°W

NSAG <i>Replicate</i>	(ng/g dry wt.)			
	<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>
Naphthalene	<20	<20	<20	<20
2-Me naphthalene	<20	<20	<20	<20
1-Me naphthalene	<18	<18	<18	<18
Biphenyl	<20	<20	<20	<20
2,6-Dime naphthalen	<20	<20	<20	<20
Acenaphthylene	<18	<18	<18	<18
Acenaphthene	Int	<20	<20	<20
2,3,5-Trime naphthal	<10	<10	<10	<10
Fluorene	<15	<15	<15	<15
Phenanthrene	<12	<12	<12	<12
Anthracene	<8	<8	<8	<8
1-Me phenanthrene	<7	<7	<7	<7
Fluoranthene	8.7	9.2	13.7	7.1
Pyrene	<5	<5	<5	<5
Benzo(a)anthracene	<10	<10	<10	<10
Chrysene	<12	<12	<12	<12
Benzo(b)fluoranthene	<12	<12	<12	<12
Benzo(k)fluoranthene	<12	<12	<12	<12
Benzo(e)pyrene	<12	<12	<12	<12
Benzo(a)pyrene	<10	<10	<10	<10
Perylene	<18	<18	18.1	<18
Indeno(123cd)pyren	<12	<12	<12	<12
Dibenzo(ah)anthrace	<10	<10	<10	<10
Benzo(ghi)perylene	<10	<10	<10	<10

Table E.1.24 2002 blue mussel tissue PAH concentrations (ng/g dry wt.)
at the Five Islands site, NS (NSFI); 45.3975°N, 64.0660°W

NSFI <i>Replicate</i>	(ng/g dry wt.)		
	<i>1N.</i>	<i>2N.</i>	<i>3N</i>
Naphthalene	<20	<20	<20
2-Me naphthalene	<20	<20	<20
1-Me naphthalene	<18	<18	<18
Biphenyl	<20	<20	<20
2,6-Dime naphthalen	<20	<20	<20
Acenaphthylene	<18	<18	<18
Acenaphthene	<20	<20	<20
2,3,5-Trime naphthal	<10	<10	<10
Fluorene	<15	<15	<15
Phenanthrene	<12	<12	<12
Anthracene	<8	<8	<8
1-Me phenanthrene	<7	<7	<7
Fluoranthene	<5	<5	<5
Pyrene	<5	<5	<5
Benzo(a)anthracene	<10	<10	<10
Chrysene	<12	<12	<12
Benzo(b)fluoranthene	<12	<12	<12
Benzo(k)fluoranthene	<12	<12	<12
Benzo(e)pyrene	<12	<12	<12
Benzo(a)pyrene	<10	<10	<10
Perylene	<18	<18	<18
Indeno(123cd)pyren	<12	<12	<12
Dibenzo(ah)anthrace	<10	<10	<10
Benzo(ghi)perylene	<10	<10	<10

Table E.1.25 2002 blue mussel tissue PAH concentrations (ng/g dry wt.) at Digby, NS (NSDI); 44.6170°N, 64.7523°W
Benchmark Site

NSDI	(ng/g dry wt.)			
<i>Replicate</i>	<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>
Naphthalene	<20	<20	<20	<20
2-Me naphthalene	<20	<20	<20	<20
1-Me naphthalene	<18	<18	<18	<18
Biphenyl	<20	<20	<20	<20
2,6-Dime naphthalen	<20	<20	<20	<20
Acenaphthylene	<18	<18	<18	<18
Acenaphthene	<20	<20	<20	<20
2,3,5-Trime naphthal	<10	<10	<10	<10
Fluorene	<15	<15	<15	<15
Phenanthrene	<12	<12	<12	<12
Anthracene	<8	<8	<8	<8
1-Me phenanthrene	<7	<7	<7	<7
Fluoranthene	Int	15.4	Int	Int
Pyrene	9.0	7.9	<5	8.4
Benzo(a)anthracene	<10	<10	<10	Int
Chrysene	<12	<12	<12	Int
Benzo(b)fluoranthene	<12	<12	<12	<12
Benzo(k)fluoranthene	<12	<12	<12	<12
Benzo(e)pyrene	<12	<12	<12	<12
Benzo(a)pyrene	<10	<10	<10	<10
Perylene	<18	<18	<18	Int
Indeno(123cd)pyren	<12	<12	<12	<12
Dibenzo(ah)anthrace	<10	<10	<10	<10
Benzo(ghi)perylene	<10	<10	<10	<10

Table E.1.26 2002 blue mussel tissue PAH concentrations (ng/g dry wt.) at the Broad Cove site, NB (NSBC); 44.6653°N, 65.8308°W

NSBC <i>Replicate</i>	(ng/g dry wt.)			
	<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>
Naphthalene	<20	<20	<20	<20
2-Me naphthalene	<20	<20	<20	<20
1-Me naphthalene	<18	<18	<18	<18
Biphenyl	<20	<20	<20	<20
2,6-Dime naphthalen	<20	<20	<20	<20
Acenaphthylene	<18	<18	<18	<18
Acenaphthene	<20	25.1	<20	<20
2,3,5-Trime naphthal	<10	<10	<10	<10
Fluorene	16.6	35.6	24.1	<15
Phenanthrene	55.4	84.8	89.2	40.2
Anthracene	9.5	14.0	22.0	<8
1-Me phenanthrene	<7	<7	8.0	<7
Fluoranthene	70.4	89.3	98.5	56.4
Pyrene	43.9	58.5	70.3	36.9
Benzo(a)anthracene	14.6	17.8	20.9	11.1
Chrysene	16.6	19.1	21.5	13.1
Benzo(b)fluoranthene	Int	12.8	12.8	<12
Benzo(k)fluoranthene	Int	<12	<12	<12
Benzo(e)pyrene	<12	<12	<12	<12
Benzo(a)pyrene	<10	<10	<10	<10
Perylene	<18	<18	<18	<18
Indeno(123cd)pyren	<12	<12	<12	<12
Dibenzo(ah)anthrace	<10	<10	<10	<10
Benzo(ghi)perylene	<10	<10	<10	<10

Table E.1.27 2002 blue mussel tissue PAH concentrations (ng/g dry wt.)
at Yarmouth, NS (NSYR); 43.8177°N, 66.1448°W #N-Dup
represents duplicate analysis of site replicate.

NSYR Replicate	(ng/g dry wt.)				
	1N.	2N.	2N-Dup	34N	4N
Naphthalene	<20	<20	<20	<20	<20
2-Me naphthalene	<20	<20	<20	<20	<20
1-Me naphthalene	<18	<18	<18	<18	<18
Biphenyl	<20	<20	<20	<20	<20
2,6-Dime naphthalen	<20	<20	<20	<20	<20
Acenaphthylene	<18	<18	<18	<18	<18
Acenaphthene	<20	<20	<20	<20	<20
2,3,5-Trime naphthal	<10	<10	<10	<10	<10
Fluorene	<15	<15	<15	<15	<15
Phenanthrene	23.5	<12	<12	14.2	<12
Anthracene	<8	<8	<8	<8	<8
1-Me phenanthrene	7.8	<7	<7	<7	<7
Fluoranthene	84.1	39.9	41.4	49.1	31.8
Pyrene	24.1	10.8	11.0	12.1	11.6
Benzo(a)anthracene	15.3	Int	Int	Int	<10
Chrysene	12.9	<12	<12	<12	<12
Benzo(b)fluoranthene	<12	<12	<12	<12	<12
Benzo(k)fluoranthene	<12	<12	<12	<12	<12
Benzo(e)pyrene	<12	<12	<12	<12	<12
Benzo(a)pyrene	<10	<10	<10	<10	<10
Perylene	<18	<18	<18	<18	<18
Indeno(123cd)pyren	<12	<12	<12	<12	<12
Dibenzo(ah)anthrace	<10	<10	<10	<10	<10
Benzo(ghi)perylene	<10	<10	<10	<10	<10

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Table E.1.28 2003 blue mussel tissue PAH concentrations (ng/g dry wt.)
at Town Beach, Sandwich, MA (MASN); 41.7639°N,
70.4789°W **Benchmark Site** #N-Dup represents duplicate
analysis of site replicate.

MASN	(ng/g dry wt.)				
<i>Replicate</i>	<i>1N.</i>	<i>2N.</i>	<i>3N</i>	<i>4N</i>	<i>4N-Dup</i>
Naphthalene	15.6	<10	<10	<10	<10
2-Me naphthalene	<8	<8	<8	9.2	9.9
1-Me naphthalene	<10	<10	<10	13.1	14.1
Biphenyl	<7	<7	<7	<7	<7
2,6-Dime naphthalen	<8	<8	<8	<8	<8
Acenaphthylene	<11	<11	<11	<11	<11
Acenaphthene	<8	<8	<8	<8	<8
2,3,5-Trime naphthal	<7	<7	<7	<7	<7
Fluorene	<7	<7	<7	<7	<7
Phenanthrene	12.4	11.1	10.8	11.6	12.6
Anthracene	<10	<10	<10	<10	<10
1-Me phenanthrene	<12	<12	<12	<12	<12
Fluoranthene	14.8	14.0	14.3	14.4	14.8
Pyrene	<9	<9	<9	<9	<9
Benzo(a)anthracene	<6	<6	<6	<6	<6
Chrysene	<6	<6	<6	<6	<6
Benzo(b)fluoranthene	<6	<6	<6	<6	<6
Benzo(k)fluoranthene	<4	<4	<4	<4	<4
Benzo(e)pyrene	<7	<7	<7	<7	<7
Benzo(a)pyrene	4.6	4.1	4.9	4.2	4.9
Perylene	<5	<5	<5	<5	<5
Indeno(123cd)pyren	<7	<7	<7	<7	<7
Dibenzo(ah)anthrace	<11	<11	<11	<11	<11
Benzo(ghi)perylene	<15	<15	<15	<15	<15

Table E.1.29. 2003 blue mussel tissue PAH concentrations (ng/g dry wt.) at Duxbury, MA, (MADX); 42.0335°N, 70.6672°W #N-Dup represents duplicate analysis of site replicate.

MADX	(ng/g dry wt.)				
<i>Replicate</i>	<i>1N.</i>	<i>2N.</i>	<i>3N</i>	<i>4N</i>	<i>4N-Dup</i>
Naphthalene	20.4	25.3	23.3	26.9	24.4
2-Me naphthalene	10.6	11.3	15.0	15.7	14.1
1-Me naphthalene	20.3	21.7	30.5	30.9	28.2
Biphenyl	<7	<7	<7	<7	<7
2,6-Dime naphthalen	9.2	10.2	13.0	12.0	11.0
Acenaphthylene	<11	<11	<11	<11	<11
Acenaphthene	<8	<8	<8	<8	<8
2,3,5-Trime naphthal	<7	<7	<7	<7	<7
Fluorene	<7	<7	<7	<7	<7
Phenanthrene	13.9	13.2	13.9	15.0	15.8
Anthracene	<10	<10	<10	<10	<10
1-Me phenanthrene	<12	<12	<12	<12	<12
Fluoranthene	37.5	31.9	31.3	30.9	42.1
Pyrene	29.1	24.5	28.0	27.6	28.9
Benzo(a)anthracene	<6	<6	<6	<6	<6
Chrysene	11.8	10.4	12.9	12.4	13.8
Benzo(b)fluoranthene	7.5	8.8	10.2	9.2	9.7
Benzo(k)fluoranthene	7.1	6.0	7.5	6.2	7.0
Benzo(e)pyrene	11.5	9.6	11.4	11.3	12.1
Benzo(a)pyrene	7.4	6.7	8.0	6.8	8.3
Perylene	<5	<5	<5	<5	<5
Indeno(123cd)pyren	<7	7.8	<7	<7	<7
Dibenzo(ah)anthrace	<11	<11	<11	<11	<11
Benzo(ghi)perylene	<15	<15	<15	<15	<15

Table E.1.30. 2003 blue mussel tissue PAH concentrations (ng/g dry wt.) at the outer Brewster Island site, Boston Harbor, MA (MABI); 42.3425°N, 70.8780°W

MABI	(ng/g dry wt.)		
<i>Replicate</i>	<i>1N</i>	<i>2N</i>	<i>3N</i>
Naphthalene	16.2	15.6	<10
2-Me naphthalene	<8	<8	<8
1-Me naphthalene	<10	<10	<10
Biphenyl	<7	<7	<7
2,6-Dime naphthalen	<8	<8	<8
Acenaphthylene	<11	<11	<11
Acenaphthene	<8	<8	<8
2,3,5-Trime naphthal	<7	<7	<7
Fluorene	<7	<7	<7
Phenanthrene	10.2	9.3	15.3
Anthracene	<10	<10	<10
1-Me phenanthrene	<12	<12	<12
Fluoranthene	24.2	22.7	42.5
Pyrene	22.8	21.9	38.9
Benzo(a)anthracene	<6	<6	<6
Chrysene	<6	<6	15.1
Benzo(b)fluoranthene	<6	<6	9.5
Benzo(k)fluoranthene	<4	<4	5.5
Benzo(e)pyrene	<7	<7	16.9
Benzo(a)pyrene	<4	<4	5.6
Perylene	<5	<5	<5
Indeno(123cd)pyren	<7	<7	<7
Dibenzo(ah)anthrace	<11	<11	<11
Benzo(ghi)perylene	<15	<15	<15

Table E.1.31. 2003 blue mussel tissue PAH concentrations (ng/g dry wt.) at Winthrop (shopping carts), MA (MAWN); 42.3648°N, 70.9642°W

MAWN	(ng/g dry wt.)			
<i>Replicate</i>	<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>
Naphthalene	<10	<10	15.2	15.4
2-Me naphthalene	<8	<8	<8	<8
1-Me naphthalene	<10	<10	<10	<10
Biphenyl	<7	<7	<7	<7
2,6-Dime naphthalen	<8	<8	<8	<8
Acenaphthylene	<11	<11	<11	<11
Acenaphthene	<8	<8	<8	<8
2,3,5-Trime naphthal	<7	<7	<7	<7
Fluorene	<7	7.3	7.5	<7
Phenanthrene	20.6	23.8	23.9	22.8
Anthracene	<10	<10	<10	<10
1-Me phenanthrene	<12	<12	<12	<12
Fluoranthene	53.4	60.4	56.7	54.4
Pyrene	42.3	49.3	41.5	42.5
Benzo(a)anthracene	6.4	7.5	<6	<6
Chrysene	12.3	13.8	<6	11.5
Benzo(b)fluoranthene	11.5	11.8	8.6	9.3
Benzo(k)fluoranthene	9.1	10.6	7.0	7.1
Benzo(e)pyrene	14.5	14.6	13.2	12.2
Benzo(a)pyrene	11.7	12.2	8.0	9.5
Perylene	<5	<5	<5	10.5
Indeno(123cd)pyren	<7	<7	<7	<7
Dibenzo(ah)anthrace	<11	<11	<11	<11
Benzo(ghi)perylene	<15	<15	<15	<15

Table E.1.32. 2003 blue mussel tissue PAH concentrations (ng/g dry wt.) at Ipswich, MA (MAIP); 42.7007°N, 70.7907°W

MAIP <i>Replicate</i>	(ng/g dry wt.)			
	<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>
Naphthalene	11.1	12.3	11.6	<10
2-Me naphthalene	<8	<8	<8	<8
1-Me naphthalene	<10	<10	<10	<10
Biphenyl	<7	<7	<7	<7
2,6-Dime naphthalen	<8	<8	<8	<8
Acenaphthylene	<11	<11	<11	<11
Acenaphthene	<8	<8	<8	<8
2,3,5-Trime naphthal	<7	<7	<7	<7
Fluorene	<7	<7	<7	<7
Phenanthrene	9.2	9.5	11.3	9.3
Anthracene	<10	<10	<10	<10
1-Me phenanthrene	<12	<12	<12	<12
Fluoranthene	19.3	18.9	19.5	18.7
Pyrene	19.3	18.1	18.8	21.6
Benzo(a)anthracene	<6	<6	<6	<6
Chrysene	7.5	7.1	7.4	10.8
Benzo(b)fluoranthene	8.4	7.1	7.0	11.0
Benzo(k)fluoranthene	5.9	5.5	5.8	9.0
Benzo(e)pyrene	9.2	9.7	9.7	13.6
Benzo(a)pyrene	7.5	8.7	11.7	14.4
Perylene	<5	<5	<5	<5
Indeno(123cd)pyren	8.6	7.4	8.2	9.3
Dibenzo(ah)anthrace	<11	<11	<11	<11
Benzo(ghi)perylene	<15	<15	<15	<15

Table E.1.33. 2003 blue mussel tissue PAH concentrations (ng/g dry wt.) at the Hampton/Seabrook Harbor, NH (NHHS); 42.8972°N, 70.8163°W #N-Dup represents duplicate analysis of site replicate.

NHHS	(ng/g dry wt.)				
<i>Replicate</i>	<i>1N.</i>	<i>2N.</i>	<i>3N</i>	<i>4N</i>	<i>4N-Dup</i>
Naphthalene	<10	<10	<10	<10	<10
2-Me naphthalene	<8	<8	<8	<8	<8
1-Me naphthalene	<10	<10	<10	<10	<10
Biphenyl	<7	<7	<7	<7	<7
2,6-Dime naphthalen	<8	<8	<8	<8	<8
Acenaphthylene	<11	<11	<11	<11	<11
Acenaphthene	<8	<8	<8	<8	<8
2,3,5-Trime naphthal	<7	<7	<7	<7	<7
Fluorene	<7	<7	<7	<7	<7
Phenanthrene	8.0	8.2	7.4	6.4	6.9
Anthracene	<10	<10	<10	<10	<10
1-Me phenanthrene	<12	<12	<12	<12	<12
Fluoranthene	15.9	16.2	17.1	14.5	14.4
Pyrene	11.4	12.3	13.0	9.5	11.7
Benzo(a)anthracene	<6	<6	<6	<6	<6
Chrysene	<6	<6	<6	<6	<6
Benzo(b)fluoranthene	<6	<6	<6	<6	<6
Benzo(k)fluoranthene	<4	<4	<4	<4	<4
Benzo(e)pyrene	<7	<7	<7	<7	<7
Benzo(a)pyrene	<4	<4	<4	<4	<4
Perylene	<5	<5	<5	<5	<5
Indeno(123cd)pyren	<7	<7	<7	<7	<7
Dibenzo(ah)anthrace	<11	<11	<11	<11	<11
Benzo(ghi)perylene	<15	<15	<15	<15	<15

Table E.1.34. 2003 blue mussel tissue PAH concentrations (ng/g dry wt.) at the Little Harbor site, NH (NHLH); 43.0581°N, 70.7154°W

NHLH	(ng/g dry wt.)			
<i>Replicate</i>	<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>
Naphthalene	11.6	10.1	<10	10.6
2-Me naphthalene	<8	<8	<8	<8
1-Me naphthalene	<10	<10	<10	<10
Biphenyl	<7	<7	<7	<7
2,6-Dime naphthalen	<8	<8	<8	<8
Acenaphthylene	<11	<11	<11	<11
Acenaphthene	<8	<8	<8	<8
2,3,5-Trime naphthal	<7	<7	<7	<7
Fluorene	<7	<7	<7	<7
Phenanthrene	6.6	<6	8.0	6.3
Anthracene	<10	<10	<10	<10
1-Me phenanthrene	<12	<12	<12	<12
Fluoranthene	22.1	19.6	27.8	19.7
Pyrene	19.6	18.0	24.0	18.1
Benzo(a)anthracene	<6	<6	<6	<6
Chrysene	6.4	6.1	8.8	6.6
Benzo(b)fluoranthene	8.3	7.7	11.0	8.3
Benzo(k)fluoranthene	5.7	6.2	7.3	6.6
Benzo(e)pyrene	12.4	11.3	12.5	10.3
Benzo(a)pyrene	10.3	9.5	9.0	8.2
Perylene	<5	<5	16.7	16.4
Indeno(123cd)pyren	<7	<7	<7	<7
Dibenzo(ah)anthrace	<11	<11	<11	<11
Benzo(ghi)perylene	<15	<15	<15	<15

Table E.1.35. 2003 blue mussel tissue PAH concentrations (ng/g dry wt.) at the Dover Point site, Dover, NH (NHDP); 43.1196°N, 70.8267°W #N-Dup represents duplicate analysis of site replicate.

NHDP <i>Replicate</i>	(ng/g dry wt.)				
	<i>1N.</i>	<i>2N.</i>	<i>3N</i>	<i>4N</i>	<i>4N-Dup</i>
Naphthalene	11.1	<10	11.6	11.7	12.2
2-Me naphthalene	<8	<8	<8	<8	<8
1-Me naphthalene	<10	<10	<10	<10	<10
Biphenyl	<7	<7	<7	<7	<7
2,6-Dime naphthalen	<8	<8	<8	<8	<8
Acenaphthylene	<11	<11	<11	<11	<11
Acenaphthene	<8	<8	<8	<8	<8
2,3,5-Trime naphthal	<7	<7	<7	<7	<7
Fluorene	<7	<7	<7	<7	<7
Phenanthrene	<6	<6	<6	<6	6.3
Anthracene	<10	<10	<10	<10	<10
1-Me phenanthrene	<12	<12	<12	<12	13.2
Fluoranthene	34.5	31.5	33.7	37.0	37.8
Pyrene	40.3	36.4	38.4	41.4	42.4
Benzo(a)anthracene	7.0	7.1	7.8	8.2	7.9
Chrysene	14.4	13.7	16.0	16.5	15.8
Benzo(b)fluoranthene	18.0	19.0	16.5	19.5	19.3
Benzo(k)fluoranthene	14.1	14.7	14.5	14.5	14.7
Benzo(e)pyrene	19.7	20.8	19.3	21.7	21.2
Benzo(a)pyrene	9.5	11.3	8.2	10.8	10.7
Perylene	9.8	9.4	9.9	9.5	8.8
Indeno(123cd)pyren	<7	<7	<7	<7	<7
Dibenzo(ah)anthrace	<11	<11	<11	<11	<11
Benzo(ghi)perylene	<15	<15	<15	<15	<15

Table E.1.36. 2003 blue mussel tissue PAH concentrations (ng/g dry wt.) at the South Mill Pond site, NH (NHSM); 43.0727°N, 70.7489°W

NHSM <i>Replicate</i>	(ng/g dry wt.)			
	<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>
Naphthalene	14.1	<10	<10	<10
2-Me naphthalene	<8	<8	<8	<8
1-Me naphthalene	<10	<10	<10	<10
Biphenyl	<7	<7	<7	<7
2,6-Dime naphthalen	<8	<8	<8	<8
Acenaphthylene	<11	<11	<11	<11
Acenaphthene	<8	<8	<8	<8
2,3,5-Trime naphthal	<7	<7	<7	<7
Fluorene	<7	<7	<7	<7
Phenanthrene	14.7	10.3	12.8	11.4
Anthracene	<10	<10	<10	<10
1-Me phenanthrene	<12	<12	<12	<12
Fluoranthene	84.4	68.8	77.3	72.8
Pyrene	94.6	78.5	92.1	84.4
Benzo(a)anthracene	23.9	18.7	21.7	20.5
Chrysene	55.7	44.8	49.2	46.4
Benzo(b)fluoranthene	62.3	49.8	53.7	54.9
Benzo(k)fluoranthene	52.7	42.0	47.0	46.0
Benzo(e)pyrene	77.3	63.7	68.7	68.4
Benzo(a)pyrene	16.8	18.4	14.4	15.3
Perylene	21.3	17.5	18.7	19.5
Indeno(123cd)pyren	20.3	19.4	20.3	22.3
Dibenzo(ah)anthrace	<11	<11	<11	<11
Benzo(ghi)perylene	23.3	20.1	20.2	21.4

Table E.1.37. 2003 blue mussel tissue PAH concentrations (ng/g dry wt.) at Clark's Cove on Seavey Island, ME (MECC); 43.0774°N, 70.7244°W **Benchmark Site**

MECC <i>Replicate</i>	(ng/g dry wt.)			
	<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>
Naphthalene	<10	10.5	<10	<10
2-Me naphthalene	<8	<8	<8	<8
1-Me naphthalene	<10	<10	<10	<10
Biphenyl	<7	<7	<7	<7
2,6-Dime naphthalen	<8	<8	<8	<8
Acenaphthylene	<11	<11	<11	<11
Acenaphthene	<8	<8	<8	<8
2,3,5-Trime naphthal	<7	<7	<7	<7
Fluorene	<7	<7	<7	<7
Phenanthrene	6.3	6.6	6.0	6.4
Anthracene	<10	<10	<10	<10
1-Me phenanthrene	<12	<12	<12	<12
Fluoranthene	21.9	22.7	22.5	23.1
Pyrene	20.9	22.5	22.5	23.5
Benzo(a)anthracene	<6	<6	6.8	7.3
Chrysene	11.6	12.3	13.6	13.2
Benzo(b)fluoranthene	8.1	10.8	11.9	10.6
Benzo(k)fluoranthene	9.4	10.3	11.2	12.2
Benzo(e)pyrene	13.6	15.2	14.5	17.3
Benzo(a)pyrene	4.1	7.0	6.3	9.0
Perylene	<5	6.1	6.0	6.8
Indeno(123cd)pyren	<7	<7	<7	8.2
Dibenzo(ah)anthrace	<11	<11	<11	<11
Benzo(ghi)perylene	<15	<15	<15	<15

Table E.1.38. 2003 blue mussel tissue PAH concentrations (ng/g dry wt.)
at the Saco River site, ME (MESA); 43.4598°N, 70.3743°W
#N-Dup represents duplicate analysis of site replicate.

MESA	(ng/g dry wt.)			
<i>Replicate</i>	<i>2N.</i>	<i>3N</i>	<i>4N</i>	<i>4N-Dup</i>
Naphthalene	<10	<10	<10	<10
2-Me naphthalene	<8	<8	<8	<8
1-Me naphthalene	<10	<10	<10	<10
Biphenyl	<7	<7	<7	<7
2,6-Dime naphthalen	<8	<8	<8	<8
Acenaphthylene	<11	<11	<11	<11
Acenaphthene	<8	<8	<8	<8
2,3,5-Trime naphthal	<7	<7	<7	<7
Fluorene	<7	<7	<7	<7
Phenanthrene	7.1	7.7	9.3	9.4
Anthracene	<10	<10	<10	<10
1-Me phenanthrene	<12	<12	<12	<12
Fluoranthene	<14	16.4	18.5	17.2
Pyrene	15.7	17.1	17.9	16.2
Benzo(a)anthracene	7.0	<6	<6	<6
Chrysene	6.3	7.3	8.2	7.1
Benzo(b)fluoranthene	6.3	6.4	7.4	<6
Benzo(k)fluoranthene	4.7	5.3	5.3	4.5
Benzo(e)pyrene	<7	7.9	7.8	7.2
Benzo(a)pyrene	<4	<4	<4	<4
Perylene	<5	<5	<5	<5
Indeno(123cd)pyren	<7	<7	<7	<7
Dibenzo(ah)anthrace	<11	<11	<11	<11
Benzo(ghi)perylene	<15	<15	<15	<15

Table E.1.39. 2003 blue mussel tissue PAH concentrations (ng/g dry wt.)
at the Portland Harbor site, ME (MEPH); 43.6392°N,
70.2590°W #N-Dup represents duplicate analysis of site
replicate.

MEPH	(ng/g dry wt.)				
<i>Replicate</i>	<i>1N.</i>	<i>2N.</i>	<i>3N</i>	<i>4N</i>	<i>4N-Dup</i>
Naphthalene	<10	<10	<10	<10	<10
2-Me naphthalene	<8	<8	<8	<8	<8
1-Me naphthalene	<10	<10	<10	<10	<10
Biphenyl	<7	<7	<7	<7	<7
2,6-Dime naphthalen	<8	<8	<8	<8	<8
Acenaphthylene	<11	<11	<11	<11	<11
Acenaphthene	<8	<8	<8	<8	<8
2,3,5-Trime naphthal	<7	<7	<7	<7	<7
Fluorene	9.9	<7	<7	<7	<7
Phenanthrene	36.7	40.3	38.5	<6	<6
Anthracene	<10	13.5	10.4	11.5	11.3
1-Me phenanthrene	<12	12.4	12.3	<12	<12
Fluoranthene	291.6	300.8	309.6	361.4	283.1
Pyrene	251.9	261.2	259.9	318.3	246.4
Benzo(a)anthracene	65.3	67.6	55.3	67.8	62.9
Chrysene	162.0	173.6	159.6	207.2	159.8
Benzo(b)fluoranthene	117.8	105.2	85.2	138.9	110.0
Benzo(k)fluoranthene	93.3	96.9	75.8	98.0	89.1
Benzo(e)pyrene	123.0	131.6	120.9	155.9	120.7
Benzo(a)pyrene	34.0	35.5	27.5	33.6	29.8
Perylene	19.8	20.5	17.5	19.0	17.3
Indeno(123cd)pyren	33.2	36.5	28.2	34.2	33.3
Dibenzo(ah)anthrace	<11	<11	<11	<11	<11
Benzo(ghi)perylene	24.1	29.8	21.2	25.6	27.6

Table E.1.40. 2003 blue mussel tissue PAH concentrations (ng/g dry wt.) at the Presumpscot site, (MEPR); 43.6922°N, 70.2473°W

MEPR	(ng/g dry wt.)			
<i>Replicate</i>	<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>
Naphthalene	<10	<10	<10	<10
2-Me naphthalene	<8	<8	<8	<8
1-Me naphthalene	<10	<10	<10	<10
Biphenyl	<7	<7	<7	<7
2,6-Dime naphthalen	<8	<8	<8	<8
Acenaphthylene	<11	<11	<11	<11
Acenaphthene	<8	<8	<8	<8
2,3,5-Trime naphthal	<7	<7	<7	<7
Fluorene	<7	8.6	<7	<7
Phenanthrene	14.0	13.9	13.3	11.9
Anthracene	<10	<10	<10	<10
1-Me phenanthrene	14.2	<12	<12	<12
Fluoranthene	76.1	72.4	78.2	64.0
Pyrene	59.5	56.4	56.6	48.6
Benzo(a)anthracene	10.8	10.1	8.1	8.0
Chrysene	25.2	24.3	22.0	20.2
Benzo(b)fluoranthene	15.7	15.3	12.1	12.9
Benzo(k)fluoranthene	11.8	11.8	9.3	9.9
Benzo(e)pyrene	19.7	19.6	18.0	17.7
Benzo(a)pyrene	7.4	7.1	5.2	4.7
Perylene	8.5	9.7	8.5	8.7
Indeno(123cd)pyren	<7	<7	<7	<7
Dibenzo(ah)anthrace	<11	<11	<11	<11
Benzo(ghi)perylene	<15	<15	<15	<15

Table E.1.41. 2003 blue mussel tissue PAH concentrations (ng/g dry wt.) at the Kennebec River site, Perkins Island, ME (MEKN); 43.7850°N, 69.7845°W **Benchmark Site** #N-Dup represents duplicate analysis of site replicate.

MEKN	(ng/g dry wt.)				
<i>Replicate</i>	<i>1N.</i>	<i>2N.</i>	<i>3N</i>	<i>4N</i>	<i>4N-Dup</i>
Naphthalene	<10	<10	<10	<10	<10
2-Me naphthalene	<8	<8	<8	<8	<8
1-Me naphthalene	<10	<10	<10	<10	<10
Biphenyl	<7	<7	<7	<7	<7
2,6-Dime naphthalen	<8	<8	<8	<8	<8
Acenaphthylene	<11	<11	<11	<11	<11
Acenaphthene	<8	<8	<8	<8	<8
2,3,5-Trime naphthal	<7	<7	<7	<7	<7
Fluorene	<7	<7	<7	<7	<7
Phenanthrene	<6	<6	<6	<6	<6
Anthracene	<10	<10	<10	<10	<10
1-Me phenanthrene	<12	<12	<12	<12	<12
Fluoranthene	16.2	<14	<14	14.1	14.5
Pyrene	20.2	17.6	15.9	19.5	20.1
Benzo(a)anthracene	<6	<6	<6	<6	<6
Chrysene	7.8	<6	<6	6.5	7.0
Benzo(b)fluoranthene	6.3	<6	<6	<6	6.3
Benzo(k)fluoranthene	4.9	4.3	4.0	5.0	4.9
Benzo(e)pyrene	10.8	8.4	7.7	9.4	9.7
Benzo(a)pyrene	5.6	<4	<4	<4	4.3
Perylene	10.2	9.4	8.4	9.9	10.2
Indeno(123cd)pyren	<7	<7	<7	<7	<7
Dibenzo(ah)anthrace	<11	<11	<11	<11	<11
Benzo(ghi)perylene	<15	<15	<15	<15	<15

Table E.1.42. 2003 blue mussel tissue PAH concentrations (ng/g dry wt.) at the Union River site, ME (MEUR); 44.5015°N, 68.4322°W

MEUR	(ng/g dry wt.)			
<i>Replicate</i>	<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>
Naphthalene	<10	<10	<10	<10
2-Me naphthalene	<8	<8	<8	<8
1-Me naphthalene	<10	<10	<10	<10
Biphenyl	<7	<7	<7	<7
2,6-Dime naphthalen	<8	<8	<8	<8
Acenaphthylene	<11	<11	<11	<11
Acenaphthene	<8	<8	<8	<8
2,3,5-Trime naphthal	<7	<7	<7	<7
Fluorene	<7	<7	<7	<7
Phenanthrene	<6	<6	<6	<6
Anthracene	<10	<10	<10	<10
1-Me phenanthrene	<12	<12	<12	<12
Fluoranthene	15.0	19.9	16.5	15.5
Pyrene	13.7	16.5	14.7	13.2
Benzo(a)anthracene	<6	<6	<6	<6
Chrysene	<6	<6	<6	<6
Benzo(b)fluoranthene	<6	<6	<6	<6
Benzo(k)fluoranthene	<4	<4	<4	<4
Benzo(e)pyrene	<7	<7	<7	<7
Benzo(a)pyrene	<4	<4	<4	<4
Perylene	<5	<5	<5	<5
Indeno(123cd)pyren	<7	<7	<7	<7
Dibenzo(ah)anthrace	<11	<11	<11	<11
Benzo(ghi)perylene	<15	<15	<15	<15

Table E.1.43. 2003 blue mussel tissue PAH concentrations (ng/g dry wt.) at the Machias River site, ME (MEMR); 44.7137°N, 67.4035°W

MEMR	(ng/g dry wt.)			
<i>Replicate</i>	<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>
Naphthalene	<10	<10	<10	15.4
2-Me naphthalene	<8	<8	<8	<8
1-Me naphthalene	<10	<10	<10	<10
Biphenyl	<7	<7	<7	<7
2,6-Dime naphthalen	<8	<8	<8	<8
Acenaphthylene	<11	<11	<11	<11
Acenaphthene	<8	<8	<8	<8
2,3,5-Trime naphthal	<7	<7	<7	<7
Fluorene	<7	<7	10.0	<7
Phenanthrene	6.0	8.3	24.6	<6
Anthracene	<10	<10	<10	<10
1-Me phenanthrene	<12	<12	<12	<12
Fluoranthene	<14	21.5	34.2	<14
Pyrene	10.0	16.8	26.0	10.4
Benzo(a)anthracene	<6	<6	6.1	<6
Chrysene	<6	<6	7.5	<6
Benzo(b)fluoranthene	<6	6.4	7.3	<6
Benzo(k)fluoranthene	<4	<4	4.1	<4
Benzo(e)pyrene	<7	<7	7.1	<7
Benzo(a)pyrene	<4	<4	<4	<4
Perylene	13.2	13.6	16.0	14.9
Indeno(123cd)pyren	<7	<7	<7	8.7
Dibenzo(ah)anthrace	<11	<11	<11	<11
Benzo(ghi)perylene	<15	<15	<15	<15

Table E.1.44. 2003 blue mussel tissue PAH concentrations (ng/g dry wt.) at the Cobscook Bay site, ME (MECK); 44.9045°N, 67.0543°W

MECK	(ng/g dry wt.)			
<i>Replicate</i>	<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>
Naphthalene	<10	<10	<10	<10
2-Me naphthalene	<8	<8	<8	<8
1-Me naphthalene	<10	<10	<10	<10
Biphenyl	<7	<7	<7	<7
2,6-Dime naphthalen	<8	<8	<8	<8
Acenaphthylene	<11	<11	<11	<11
Acenaphthene	<8	<8	<8	<8
2,3,5-Trime naphthal	<7	<7	<7	<7
Fluorene	<7	<7	<7	<7
Phenanthrene	<6	<6	<6	<6
Anthracene	<10	<10	<10	<10
1-Me phenanthrene	<12	<12	<12	<12
Fluoranthene	<14	<14	<14	<14
Pyrene	<9	<9	<9	<9
Benzo(a)anthracene	<6	<6	<6	<6
Chrysene	<6	<6	<6	<6
Benzo(b)fluoranthene	<6	<6	<6	<6
Benzo(k)fluoranthene	<4	<4	<4	<4
Benzo(e)pyrene	<7	<7	<7	<7
Benzo(a)pyrene	<4	<4	<4	<4
Perylene	<5	<5	<5	<5
Indeno(123cd)pyren	<7	<7	<7	<7
Dibenzo(ah)anthrace	<11	<11	<11	<11
Benzo(ghi)perylene	<15	<15	<15	<15

Table E.1.45. 2003 blue mussel tissue PAH concentrations (ng/g dry wt.)
at the St. Croix River site, NB (NBSC); 45.1675°N, 67.1638°W
#N-Dup represents duplicate analysis of site replicate.

NBSC <i>Replicate</i>	(ng/g dry wt.)				
	<i>1N.</i>	<i>2N.</i>	<i>3N</i>	<i>4N</i>	<i>4N-Dup</i>
Naphthalene	16.0	16.0	16.8	10.4	12.4
2-Me naphthalene	<8	<8	<8	<8	<8
1-Me naphthalene	<10	<10	<10	<10	<10
Biphenyl	<7	<7	<7	<7	<7
2,6-Dime naphthalen	<8	<8	<8	<8	<8
Acenaphthylene	<11	<11	<11	<11	<11
Acenaphthene	<8	<8	<8	<8	<8
2,3,5-Trime naphthal	<7	<7	<7	<7	<7
Fluorene	<7	<7	<7	<7	<7
Phenanthrene	<6	<6	<6	<6	<6
Anthracene	<10	<10	<10	<10	<10
1-Me phenanthrene	<12	<12	<12	<12	<12
Fluoranthene	<14	<14	<14	<14	<14
Pyrene	<9	<9	<9	<9	<9
Benzo(a)anthracene	<6	<6	<6	<6	<6
Chrysene	<6	<6	<6	<6	<6
Benzo(b)fluoranthene	<6	<6	<6	<6	<6
Benzo(k)fluoranthene	<4	<4	<4	<4	<4
Benzo(e)pyrene	<7	<7	<7	<7	<7
Benzo(a)pyrene	<4	<4	<4	<4	<4
Perylene	<5	<5	<5	<5	20.7
Indeno(123cd)pyren	<7	<7	<7	<7	<7
Dibenzo(ah)anthrace	<11	<11	<11	<11	<11
Benzo(ghi)perylene	<15	<15	<15	<15	<15

Table E.1.46. 2003 blue mussel tissue PAH concentrations (ng/g dry wt.) at the Hospital Island site, NB (NBHI); 45.1205°N, 67.0082°W **Benchmark Site**

NBHI	(ng/g dry wt.)			
<i>Replicate</i>	<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>
Naphthalene	<10	11.3	<10	<10
2-Me naphthalene	<8	<8	<8	<8
1-Me naphthalene	<10	<10	<10	<10
Biphenyl	<7	<7	<7	<7
2,6-Dime naphthalen	<8	<8	<8	<8
Acenaphthylene	<11	<11	<11	<11
Acenaphthene	<8	<8	<8	<8
2,3,5-Trime naphthal	<7	<7	<7	<7
Fluorene	<7	<7	<7	<7
Phenanthrene	<6	<6	<6	<6
Anthracene	<10	<10	<10	<10
1-Me phenanthrene	<12	<12	<12	<12
Fluoranthene	<14	<14	<14	<14
Pyrene	<9	<9	<9	<9
Benzo(a)anthracene	<6	<6	<6	<6
Chrysene	<6	<6	<6	<6
Benzo(b)fluoranthene	<6	<6	<6	<6
Benzo(k)fluoranthene	<4	<4	<4	<4
Benzo(e)pyrene	<7	<7	<7	<7
Benzo(a)pyrene	<4	<4	<4	<4
Perylene	<5	<5	<5	<5
Indeno(123cd)pyren	<7	<7	<7	<7
Dibenzo(ah)anthrace	<11	<11	<11	<11
Benzo(ghi)perylene	<15	<15	<15	<15

Table E.1.47. 2003 blue mussel tissue PAH concentrations (ng/g dry wt.) at the Letang Estuary site, NB (NBLB); 45.0757°N, 66.7963°W

NBLN	(ng/g dry wt.)			
<i>Replicate</i>	<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>
Naphthalene	<10	<10	<10	<10
2-Me naphthalene	<8	<8	<8	<8
1-Me naphthalene	<10	<10	<10	<10
Biphenyl	<7	<7	<7	<7
2,6-Dime naphthalen	<8	<8	<8	<8
Acenaphthylene	<11	<11	<11	<11
Acenaphthene	<8	<8	<8	<8
2,3,5-Trime naphthal	<7	<7	<7	<7
Fluorene	<7	<7	<7	<7
Phenanthrene	<6	<6	<6	<6
Anthracene	<10	<10	<10	<10
1-Me phenanthrene	<12	<12	<12	<12
Fluoranthene	<14	<14	<14	<14
Pyrene	<9	<9	<9	<9
Benzo(a)anthracene	<6	<6	<6	<6
Chrysene	<6	<6	<6	<6
Benzo(b)fluoranthene	<6	<6	<6	<6
Benzo(k)fluoranthene	<4	<4	<4	<4
Benzo(e)pyrene	<7	<7	<7	<7
Benzo(a)pyrene	<4	<4	<4	<4
Perylene	<5	<5	<5	<5
Indeno(123cd)pyren	<7	<7	<7	<7
Dibenzo(ah)anthrace	<11	<11	<11	<11
Benzo(ghi)perylene	<15	<15	<15	<15

Table E.1.48. 2003 blue mussel tissue PAH concentrations (ng/g dry wt.) at the Apple River site, NS (NSAR); 45.4700°N, 64.8350°W

NSAR	(ng/g dry wt.)			
<i>Replicate</i>	<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>
Naphthalene	<10	<10	<10	<10
2-Me naphthalene	<8	<8	<8	<8
1-Me naphthalene	<10	<10	<10	<10
Biphenyl	<7	<7	<7	<7
2,6-Dime naphthalen	<8	<8	<8	<8
Acenaphthylene	<11	<11	<11	<11
Acenaphthene	<8	<8	<8	<8
2,3,5-Trime naphthal	<7	<7	<7	<7
Fluorene	<7	<7	<7	<7
Phenanthrene	<6	<6	<6	7.6
Anthracene	<10	<10	<10	<10
1-Me phenanthrene	<12	<12	<12	<12
Fluoranthene	<14	<14	<14	<14
Pyrene	<9	<9	<9	<9
Benzo(a)anthracene	<6	<6	<6	<6
Chrysene	<6	<6	<6	<6
Benzo(b)fluoranthene	<6	<6	<6	<6
Benzo(k)fluoranthene	<4	<4	<4	<4
Benzo(e)pyrene	<7	<7	<7	<7
Benzo(a)pyrene	<4	<4	<4	<4
Perylene	<5	<5	<5	5.4
Indeno(123cd)pyren	<7	<7	<7	<7
Dibenzo(ah)anthrace	<11	<11	<11	<11
Benzo(ghi)perylene	<15	<15	<15	<15

Table E.1.49. 2003 blue mussel tissue PAH concentrations (ng/g dry wt.)
at Digby, NS (NSDI); 44.6170°N, 65.7523°W **Benchmark**
Site #N-Dup represents duplicate analysis of site replicate.

NSDI	(ng/g dry wt.)				
<i>Replicate</i>	<i>1N.</i>	<i>2N.</i>	<i>3N</i>	<i>4N</i>	<i>4N-Dup</i>
Naphthalene	<10	<10	<10	<10	<10
2-Me naphthalene	<8	<8	<8	<8	<8
1-Me naphthalene	<10	<10	<10	<10	<10
Biphenyl	<7	<7	<7	<7	<7
2,6-Dime naphthalen	10.9	8.2	8.9	8.3	8.2
Acenaphthylene	<11	<11	<11	<11	<11
Acenaphthene	<8	<8	<8	<8	<8
2,3,5-Trime naphthal	13.7	11.3	12.0	12.7	10.4
Fluorene	<7	<7	<7	<7	<7
Phenanthrene	21.4	18.5	16.7	18.4	18.9
Anthracene	<10	<10	<10	<10	<10
1-Me phenanthrene	16.7	14.3	12.6	14.0	14.4
Fluoranthene	29.1	27.9	22.6	27.3	27.6
Pyrene	17.7	16.5	13.0	17.1	16.8
Benzo(a)anthracene	<6	<6	<6	<6	<6
Chrysene	8.1	7.9	7.8	7.8	7.8
Benzo(b)fluoranthene	<6	<6	<6	<6	<6
Benzo(k)fluoranthene	<4	<4	<4	<4	<4
Benzo(e)pyrene	<7	<7	<7	<7	<7
Benzo(a)pyrene	<4	<4	<4	<4	<4
Perylene	<5	<5	<5	<5	<5
Indeno(123cd)pyren	<7	<7	<7	<7	<7
Dibenzo(ah)anthrace	<11	<11	<11	<11	<11
Benzo(ghi)perylene	<15	<15	<15	<15	<15

Table E.1.50. 2003 blue mussel tissue PAH concentrations (ng/g dry wt.) at the Spechts Cove site, (NSSC); 44.5153°N, 65.9078°W

NSSC	(ng/g dry wt.)			
<i>Replicate</i>	<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>
Naphthalene	<10	<10	<10	<10
2-Me naphthalene	<8	<8	<8	<8
1-Me naphthalene	<10	<10	<10	<10
Biphenyl	<7	<7	<7	<7
2,6-Dime naphthalen	<8	<8	<8	<8
Acenaphthylene	<11	<11	<11	<11
Acenaphthene	<8	<8	<8	<8
2,3,5-Trime naphthal	<7	<7	<7	<7
Fluorene	<7	<7	<7	<7
Phenanthrene	<6	<6	<6	<6
Anthracene	<10	<10	<10	<10
1-Me phenanthrene	<12	<12	<12	<12
Fluoranthene	<14	<14	<14	<14
Pyrene	<9	<9	<9	<9
Benzo(a)anthracene	<6	<6	<6	<6
Chrysene	<6	<6	<6	<6
Benzo(b)fluoranthene	<6	<6	<6	<6
Benzo(k)fluoranthene	<4	<4	<4	<4
Benzo(e)pyrene	<7	<7	<7	<7
Benzo(a)pyrene	<4	<4	<4	<4
Perylene	6.2	5.9	6.4	7.0
Indeno(123cd)pyren	<7	<7	<7	<7
Dibenzo(ah)anthrace	<11	<11	<11	<11
Benzo(ghi)perylene	<15	<15	<15	<15

Table E.1.51. 2004 blue mussel tissue PAH concentrations (ng/g dry wt.) at Sandwich, MA, (MASN); 41.7622°N, 70.4730°W
Benchmark Site

MASN <i>Replicate</i>	(ng/g dry wt.)			
	<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>
Naphthalene	17.7	10.2	<10	<10
2-Me naphthalene	<8	<8	<8	<8
1-Me naphthalene	<10	<10	<10	<10
Biphenyl	<7	<7	<7	<7
2,6-Dime naphthalen	<8	<8	<8	<8
Acenaphthylene	<11	<11	<11	<11
Acenaphthene	<8	<8	<8	<8
2,3,5-Trime naphthal	<7	<7	<7	<7
Fluorene	<7	<7	<7	<7
Phenanthrene	76.6	45.8	34.8	55.2
Anthracene	<10	<10	36.6	<10
1-Me phenanthrene	<12	384.5	212.8	<12
Fluoranthene	<14	<14	<14	<14
Pyrene	<9	<9	<9	<9
Benzo(a)anthracene	<6	<6	<6	<6
Chrysene	<6	22.3	<6	7.1
Benzo(b)fluoranthene	<6	<6	<6	<6
Benzo(k)fluoranthene	<4	4.1	<4	<4
Benzo(e)pyrene	<7	<7	<7	<7
Benzo(a)pyrene	<4	<4	7.3	<4
Perylene	<5	<5	<5	<5
Indeno(123cd)pyren	<7	<7	<7	<7
Dibenzo(ah)anthrace	<11	<11	<11	<11
Benzo(ghi)perylene	<15	<15	<15	<15

Table E.1.52. 2004 blue mussel tissue PAH concentrations (ng/g dry wt.)
at the Boston Inner Harbor site, MA (MAIH); 42.3637°N,
71.0284°W #N-Dup represents duplicate analysis of site
replicate.

MAIH	(ng/g dry wt.)				
<i>Replicate</i>	<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>	<i>4N-Dup</i>
Naphthalene	10.5	<10	<10	14.1	13.9
2-Me naphthalene	<8	<8	<8	<8	<8
1-Me naphthalene	<10	<10	<10	<10	<10
Biphenyl	<7	<7	<7	<7	<7
2,6-Dime naphthalen	<8	<8	<8	<8	<8
Acenaphthylene	<11	<11	<11	<11	<11
Acenaphthene	<8	8.1	8.7	8.4	8.2
2,3,5-Trime naphthal	<7	<7	<7	<7	<7
Fluorene	10.3	12.9	11.8	12.3	11.9
Phenanthrene	65.2	83.2	65.6	74.3	69.9
Anthracene	23.3	31.5	26.1	28.0	27.2
1-Me phenanthrene	25.2	27.9	32.1	23.9	23.8
Fluoranthene	828.8	1387.6	1338.4	1171.7	1119.9
Pyrene	778.8	1310.6	1265.0	1131.6	1082.9
Benzo(a)anthracene	129.6	160.4	134.6	162.2	147.7
Chrysene	591.9	1049.5	890.9	941.2	853.4
Benzo(b)fluoranthene	186.2	597.1	483.0	610.3	578.0
Benzo(k)fluoranthene	124.9	148.3	122.9	146.3	132.4
Benzo(e)pyrene	446.5	693.8	653.7	725.3	642.1
Benzo(a)pyrene	60.5	75.0	55.8	75.0	72.1
Perylene	18.8	21.1	17.9	24.9	25.4
Indeno(123cd)pyren	45.5	45.6	36.1	48.3	43.9
Dibenzo(ah)anthrace	<11	11.5	11.8	14.2	14.6
Benzo(ghi)perylene	35.1	34.9	31.5	37.8	37.0

Table E.1.53. 2004 blue mussel tissue PAH concentrations (ng/g dry wt.) at the Pines River site, MA (MAPR); 42.4312°N, 70.9793°W

MAPR	(ng/g dry wt.)			
<i>Replicate</i>	<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>
Naphthalene	11.5	24.2	13.2	<10
2-Me naphthalene	<8	<8	<8	<8
1-Me naphthalene	<10	<10	<10	<10
Biphenyl	<7	<7	<7	<7
2,6-Dime naphthalen	<8	<8	<8	<8
Acenaphthylene	<11	<11	<11	<11
Acenaphthene	<8	<8	<8	<8
2,3,5-Trime naphthal	<7	<7	<7	<7
Fluorene	<7	<7	<7	<7
Phenanthrene	34.4	32.9	39.1	37.3
Anthracene	<10	<10	<10	<10
1-Me phenanthrene	<12	<12	<12	<12
Fluoranthene	124.1	123.6	143.3	132.0
Pyrene	104.9	99.3	121.3	109.0
Benzo(a)anthracene	23.9	26.0	29.0	28.8
Chrysene	57.3	59.1	64.1	62.8
Benzo(b)fluoranthene	41.0	43.6	49.8	51.1
Benzo(k)fluoranthene	33.3	34.3	39.4	41.4
Benzo(e)pyrene	43.3	44.2	66.3	49.1
Benzo(a)pyrene	15.4	18.7	18.7	22.8
Perylene	5.9	6.0	6.7	7.1
Indeno(123cd)pyren	16.2	19.0	18.8	21.8
Dibenzo(ah)anthrace	<11	<11	<11	<11
Benzo(ghi)perylene	<15	24.0	<15	15.2

Table E.1.54. 2004 blue mussel tissue PAH concentrations (ng/g dry wt.) at Hampton/Seabrook estuary site, NH (NHHS); 42.8972°N, 70.8163°W #N-Dup represents duplicate analysis of site replicate.

NHHS <i>Replicate</i>	(ng/g dry wt.)				
	<i>1N.</i>	<i>2N.</i>	<i>3N</i>	<i>4N</i>	<i>4N-Dup</i>
Naphthalene	<10	<10	<10	<10	<10
2-Me naphthalene	<8	<8	<8	<8	<8
1-Me naphthalene	<10	10.0	<10	<10	<10
Biphenyl	<7	<7	<7	<7	<7
2,6-Dime naphthalen	<8	8.3	<8	<8	<8
Acenaphthylene	<11	<11	<11	<11	<11
Acenaphthene	<8	<8	<8	<8	<8
2,3,5-Trime naphthal	<7	<7	<7	<7	<7
Fluorene	<7	<7	<7	<7	<7
Phenanthrene	11.9	14.2	13.3	11.2	11.4
Anthracene	<10	<10	<10	<10	<10
1-Me phenanthrene	<12	<12	<12	<12	<12
Fluoranthene	29.9	31.3	29.9	30.7	29.3
Pyrene	22.5	21.8	22.4	21.9	20.4
Benzo(a)anthracene	<6	<6	<6	<6	<6
Chrysene	12.9	10.9	11.5	10.9	9.3
Benzo(b)fluoranthene	8.2	7.4	8.2	7.3	8.6
Benzo(k)fluoranthene	5.0	<4	5.3	5.3	4.5
Benzo(e)pyrene	8.5	9.5	11.3	11.6	9.5
Benzo(a)pyrene	<4	<4	<4	7.7	<4
Perylene	<5	<5	<5	Int	<5
Indeno(123cd)pyren	<7	<7	<7	Int	<7
Dibenzo(ah)anthrace	<11	<11	<11	Int	<11
Benzo(ghi)perylene	<15	<15	<15	Int	<15

Table E.1.55. 2004 blue mussel tissue PAH concentrations (ng/g dry wt.) at Dover Point, NH, (NHDP); 43.1196°N, 70.8267°W

NHDP	(ng/g dry wt.)			
<i>Replicate</i>	<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>
Naphthalene	10.3	<10	<10	<10
2-Me naphthalene	<8	<8	<8	<8
1-Me naphthalene	<10	<10	<10	<10
Biphenyl	<7	<7	<7	<7
2,6-Dime naphthalen	<8	<8	<8	<8
Acenaphthylene	<11	<11	<11	<11
Acenaphthene	<8	<8	<8	<8
2,3,5-Trime naphthal	<7	<7	<7	<7
Fluorene	<7	<7	<7	<7
Phenanthrene	6.1	<6	<6	<6
Anthracene	<10	<10	<10	<10
1-Me phenanthrene	<12	<12	<12	<12
Fluoranthene	30.5	32.0	30.4	31.1
Pyrene	33.2	34.4	34.6	34.3
Benzo(a)anthracene	12.1	13.0	12.2	12.8
Chrysene	20.7	23.0	21.9	22.4
Benzo(b)fluoranthene	27.0	28.0	25.3	25.6
Benzo(k)fluoranthene	18.5	19.0	17.3	18.5
Benzo(e)pyrene	26.5	25.9	24.0	25.4
Benzo(a)pyrene	8.9	9.2	7.5	9.3
Perylene	11.6	9.4	10.0	10.3
Indeno(123cd)pyren	11.3	11.3	11.2	11.4
Dibenzo(ah)anthrace	<11	<11	<11	<11
Benzo(ghi)perylene	<15	<15	<15	<15

Table E.1.56. 2004 blue mussel tissue PAH concentrations (ng/g dry wt.) at Pierce Island, NH (NHPI); 43.0717°N, 70.7433°W

NHPI	(ng/g dry wt.)			
<i>Replicate</i>	<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>
Naphthalene	<10	<10	<10	<10
2-Me naphthalene	<8	<8	<8	<8
1-Me naphthalene	<10	<10	<10	<10
Biphenyl	<7	<7	<7	<7
2,6-Dime naphthalen	<8	<8	<8	<8
Acenaphthylene	<11	<11	<11	<11
Acenaphthene	<8	<8	<8	<8
2,3,5-Trime naphthal	<7	<7	<7	<7
Fluorene	<7	<7	<7	<7
Phenanthrene	7.5	6.8	8.0	8.1
Anthracene	<10	<10	<10	<10
1-Me phenanthrene	<12	<12	<12	<12
Fluoranthene	30.4	30.9	33.1	36.7
Pyrene	30.5	28.2	31.0	34.9
Benzo(a)anthracene	10.9	9.9	11.0	12.2
Chrysene	17.8	18.7	20.4	23.2
Benzo(b)fluoranthene	20.6	19.3	23.3	21.5
Benzo(k)fluoranthene	15.2	14.2	16.3	15.7
Benzo(e)pyrene	21.4	23.2	24.0	25.1
Benzo(a)pyrene	7.2	6.7	8.3	8.2
Perylene	8.5	8.0	9.9	10.3
Indeno(123cd)pyren	8.5	9.3	10.4	9.8
Dibenzo(ah)anthrace	<11	<11	<11	<11
Benzo(ghi)perylene	<15	<15	<15	<15

Table E.1.57. 2004 blue mussel tissue PAH concentrations (ng/g dry wt.) at the Fox Point site, Newington, NH (NHFP); 43.1201°N, 70.8589°W

NHFP <i>Replicate</i>	(ng/g dry wt.)			
	<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>
Naphthalene	<10	<10	<10	<10
2-Me naphthalene	<8	<8	<8	<8
1-Me naphthalene	<10	<10	<10	<10
Biphenyl	<7	<7	<7	<7
2,6-Dime naphthalen	<8	<8	<8	<8
Acenaphthylene	<11	<11	<11	<11
Acenaphthene	<8	<8	<8	<8
2,3,5-Trime naphthal	<7	<7	<7	<7
Fluorene	<7	<7	<7	<7
Phenanthrene	6.7	6.5	7.4	<6
Anthracene	<10	<10	<10	<10
1-Me phenanthrene	<12	<12	<12	<12
Fluoranthene	37.0	31.5	41.3	30.1
Pyrene	42.1	36.4	42.4	33.7
Benzo(a)anthracene	13.1	11.7	14.1	11.7
Chrysene	25.3	20.8	22.8	20.6
Benzo(b)fluoranthene	26.6	23.9	26.3	25.7
Benzo(k)fluoranthene	23.7	20.5	20.0	18.6
Benzo(e)pyrene	31.3	27.4	26.5	25.1
Benzo(a)pyrene	9.2	8.9	8.2	9.1
Perylene	19.2	17.0	14.9	15.3
Indeno(123cd)pyren	10.8	11.7	10.9	10.7
Dibenzo(ah)anthrace	<11	<11	<11	<11
Benzo(ghi)perylene	<15	<15	<15	<15

Table E.1.58. 2004 blue mussel tissue PAH concentrations (ng/g dry wt.) at the Clark's Cove site, Seavey Island, ME (MECC); 43.0774°N, 70.7244°W **Benchmark Site**

MECC <i>Replicate</i>	(ng/g dry wt.)			
	<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>
Naphthalene	<10	<10	<10	<10
2-Me naphthalene	<8	<8	<8	<8
1-Me naphthalene	<10	<10	<10	<10
Biphenyl	<7	<7	<7	<7
2,6-Dime naphthalen	<8	<8	<8	<8
Acenaphthylene	<11	<11	<11	<11
Acenaphthene	<8	<8	<8	<8
2,3,5-Trime naphthal	<7	<7	<7	<7
Fluorene	<7	<7	<7	<7
Phenanthrene	6.2	<6	<6	<6
Anthracene	<10	<10	<10	<10
1-Me phenanthrene	13.3	<12	<12	<12
Fluoranthene	26.8	25.1	22.9	<14
Pyrene	26.9	24.0	22.6	13.2
Benzo(a)anthracene	12.8	7.7	8.4	<6
Chrysene	20.0	15.3	14.6	7.6
Benzo(b)fluoranthene	21.7	16.0	17.3	9.3
Benzo(k)fluoranthene	16.3	10.9	12.0	5.7
Benzo(e)pyrene	23.0	18.0	17.7	9.2
Benzo(a)pyrene	7.7	6.1	5.7	<4
Perylene	9.9	8.2	8.8	<5
Indeno(123cd)pyren	10.4	7.1	7.5	<7
Dibenzo(ah)anthrace	<11	<11	<11	<11
Benzo(ghi)perylene	<15	<15	<15	<15

Table E.1.59. 2004 blue mussel tissue PAH concentrations (ng/g dry wt.) at the Kennebec River site, Perkins Island, ME (MEKN); 43.7850°N, 69.7845°W **Benchmark Site**

MEKN <i>Replicate</i>	(ng/g dry wt.)			
	<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>
Naphthalene	<10	<10	<10	<10
2-Me naphthalene	<8	<8	<8	<8
1-Me naphthalene	<10	<10	<10	<10
Biphenyl	<7	<7	<7	<7
2,6-Dime naphthalen	<8	<8	<8	<8
Acenaphthylene	<11	<11	<11	<11
Acenaphthene	<8	<8	<8	<8
2,3,5-Trime naphthal	<7	<7	<7	<7
Fluorene	<7	<7	<7	<7
Phenanthrene	<6	<6	<6	<6
Anthracene	<10	<10	<10	<10
1-Me phenanthrene	<12	<12	<12	<12
Fluoranthene	<14	16.2	16.8	<14
Pyrene	17.1	16.3	19.2	11.4
Benzo(a)anthracene	<6	<6	<6	<6
Chrysene	6.1	6.8	7.0	<6
Benzo(b)fluoranthene	<6	<6	<6	<6
Benzo(k)fluoranthene	<4	<4	<4	<4
Benzo(e)pyrene	8.5	8.5	8.8	<7
Benzo(a)pyrene	<4	<4	<4	<4
Perylene	9.3	8.0	8.6	6.3
Indeno(123cd)pyren	<7	<7	<7	<7
Dibenzo(ah)anthrace	<11	<11	<11	<11
Benzo(ghi)perylene	<15	<15	<15	<15

Table E.1.60. 2004 blue mussel tissue PAH concentrations (ng/g dry wt.) at the Damariscotta site, Wentworth Point, ME (MEDM); 43.9383°N, 69.5817°W

MEDM	(ng/g dry wt.)			
<i>Replicate</i>	<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>
Naphthalene	10.4	<10	<10	11.3
2-Me naphthalene	<8	<8	<8	<8
1-Me naphthalene	<10	<10	<10	<10
Biphenyl	<7	<7	<7	<7
2,6-Dime naphthalen	<8	<8	<8	<8
Acenaphthylene	<11	<11	<11	<11
Acenaphthene	<8	<8	<8	<8
2,3,5-Trime naphthal	<7	<7	<7	<7
Fluorene	<7	<7	<7	<7
Phenanthrene	<6	<6	<6	<6
Anthracene	<10	<10	<10	<10
1-Me phenanthrene	<12	<12	<12	<12
Fluoranthene	<14	<14	<14	<14
Pyrene	<9	<9	<9	<9
Benzo(a)anthracene	<6	<6	<6	<6
Chrysene	<6	<6	<6	<6
Benzo(b)fluoranthene	<6	<6	<6	<6
Benzo(k)fluoranthene	<4	<4	<4	<4
Benzo(e)pyrene	<7	<7	<7	<7
Benzo(a)pyrene	<4	<4	<4	<4
Perylene	<5	<5	<5	<5
Indeno(123cd)pyren	<7	<7	<7	<7
Dibenzo(ah)anthrace	<11	<11	<11	<11
Benzo(ghi)perylene	<15	<15	<15	<15

Table E.1.61. 2004 blue mussel tissue PAH concentrations (ng/g dry wt.) at Booth Bay Harbor, ME, (MEBB); 43.8507°N, 69.6727°W #N-Dup represents duplicate analysis of site replicate.

MEBB	(ng/g dry wt.)			
<i>Replicate</i>	<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>
Naphthalene	<10	<10	<10	<10
2-Me naphthalene	<8	<8	<8	<8
1-Me naphthalene	<10	<10	<10	<10
Biphenyl	<7	<7	<7	<7
2,6-Dime naphthalen	<8	<8	<8	<8
Acenaphthylene	<11	<11	<11	<11
Acenaphthene	<8	<8	<8	<8
2,3,5-Trime naphthal	<7	<7	<7	<7
Fluorene	8.4	<7	<7	<7
Phenanthrene	49.5	41.8	37.1	31.3
Anthracene	<10	<10	<10	<10
1-Me phenanthrene	<12	<12	<12	<12
Fluoranthene	218.6	207.8	190.9	156.3
Pyrene	219.7	206.9	177.2	151.6
Benzo(a)anthracene	38.5	36.0	29.0	28.7
Chrysene	86.7	81.6	72.2	65.9
Benzo(b)fluoranthene	79.4	70.4	60.9	59.7
Benzo(k)fluoranthene	62.2	55.2	47.4	46.0
Benzo(e)pyrene	101.6	93.4	79.2	73.6
Benzo(a)pyrene	28.0	25.1	19.1	19.6
Perylene	10.8	10.2	7.7	7.0
Indeno(123cd)pyren	29.1	27.8	23.4	28.5
Dibenzo(ah)anthrace	<11	<11	<11	<11
Benzo(ghi)perylene	32.5	28.3	25.8	23.9

Table E.1.62. 2004 blue mussel tissue PAH concentrations (ng/g dry wt.)
at the Niger Reef site, NB (NBNR); 45.0663°N, 67.0980°W
#N-Dup represents duplicate analysis of site replicate.

NBNR <i>Replicate</i>	(ng/g dry wt.)				
	<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>3N-Dup</i>	<i>4N</i>
Naphthalene	16.0	<10	<10	<10	10.7
2-Me naphthalene	8.6	<8	<8	<8	<8
1-Me naphthalene	13.7	<10	<10	<10	10.7
Biphenyl	<7	<7	<7	<7	<7
2,6-Dime naphthalen	<8	<8	<8	<8	<8
Acenaphthylene	<11	<11	<11	<11	<11
Acenaphthene	<8	<8	<8	<8	<8
2,3,5-Trime naphthal	<7	<7	<7	<7	<7
Fluorene	<7	<7	<7	<7	<7
Phenanthrene	<6	<6	<6	<6	<6
Anthracene	<10	<10	<10	<10	<10
1-Me phenanthrene	<12	<12	<12	<12	<12
Fluoranthene	Int	<14	<14	<14	<14
Pyrene	<9	<9	<9	<9	<9
Benzo(a)anthracene	<6	<6	<6	<6	<6
Chrysene	<6	<6	<6	<6	<6
Benzo(b)fluoranthene	<6	<6	<6	<6	<6
Benzo(k)fluoranthene	<4	<4	<4	<4	<4
Benzo(e)pyrene	<7	<7	<7	<7	<7
Benzo(a)pyrene	<4	<4	<4	<4	<4
Perylene	<5	<5	<5	<5	<5
Indeno(123cd)pyren	<7	<7	<7	<7	<7
Dibenzo(ah)anthrace	<11	<11	<11	<11	<11
Benzo(ghi)perylene	<15	<15	<15	<15	<15

Table E.1.63. 2004 blue mussel tissue PAH concentrations (ng/g dry wt.) at the Hospital Island site, NB (NBHI); 45.1205°N, 67.0082°W **Benchmark Site.**

NBHI	(ng/g dry wt.)			
<i>Replicate</i>	<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>
Naphthalene	10.3	<10	11.3	19.5
2-Me naphthalene	<8	<8	<8	<8
1-Me naphthalene	<10	<10	<10	14.0
Biphenyl	<7	<7	<7	<7
2,6-Dime naphthalen	<8	<8	<8	<8
Acenaphthylene	<11	<11	<11	<11
Acenaphthene	<8	<8	<8	<8
2,3,5-Trime naphthal	<7	<7	<7	<7
Fluorene	<7	<7	<7	<7
Phenanthrene	<6	<6	<6	<6
Anthracene	<10	<10	<10	<10
1-Me phenanthrene	<12	<12	<12	<12
Fluoranthene	<14	<14	<14	Int
Pyrene	<9	<9	<9	Int
Benzo(a)anthracene	<6	<6	<6	<6
Chrysene	<6	<6	<6	<6
Benzo(b)fluoranthene	<6	<6	<6	<6
Benzo(k)fluoranthene	<4	<4	<4	<4
Benzo(e)pyrene	<7	<7	<7	<7
Benzo(a)pyrene	<4	<4	<4	<4
Perylene	<5	<5	<5	<5
Indeno(123cd)pyren	<7	<7	<7	Int
Dibenzo(ah)anthrace	<11	<11	<11	Int
Benzo(ghi)perylene	<15	<15	<15	Int

Table E.1.64. 2004 blue mussel tissue PAH concentrations (ng/g dry wt.) at the Tin Can Beach site, NB (NBTC); 45.2625°N, 66.0570°W

NBTC <i>Replicate</i>	(ng/g dry wt.)			
	<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>
Naphthalene	21.4	10.5	11.5	<10
2-Me naphthalene	<8	<8	<8	<8
1-Me naphthalene	<10	<10	<10	<10
Biphenyl	<7	<7	<7	<7
2,6-Dime naphthalen	<8	<8	<8	<8
Acenaphthylene	<11	<11	<11	<11
Acenaphthene	<8	<8	<8	<8
2,3,5-Trime naphthal	<7	<7	<7	<7
Fluorene	<7	<7	<7	<7
Phenanthrene	20.6	19.7	22.1	18.6
Anthracene	<10	<10	<10	<10
1-Me phenanthrene	<12	<12	<12	<12
Fluoranthene	44.3	38.8	41.1	29.9
Pyrene	34.1	31.7	34.0	22.9
Benzo(a)anthracene	17.4	17.2	17.8	11.9
Chrysene	22.7	21.2	25.2	14.2
Benzo(b)fluoranthene	19.8	18.8	19.8	12.8
Benzo(k)fluoranthene	12.6	12.3	12.3	8.4
Benzo(e)pyrene	16.7	16.3	16.0	10.6
Benzo(a)pyrene	7.9	8.8	9.0	7.2
Perylene	14.9	13.7	13.4	8.2
Indeno(123cd)pyren	7.6	<7	8.8	<7
Dibenzo(ah)anthrace	<11	<11	<11	<11
Benzo(ghi)perylene	<15	<15	<15	<15

Table E.1.65. 2004 blue mussel tissue PAH concentrations (ng/g dry wt.) at Cornwallis, NS, (NSCW); 44.6447°N, 65.6480°W

NSCW <i>Replicate</i>	(ng/g dry wt.)			
	<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>
Naphthalene	<10	<10	<10	<10
2-Me naphthalene	<8	<8	<8	<8
1-Me naphthalene	<10	<10	<10	<10
Biphenyl	<7	<7	<7	<7
2,6-Dime naphthalen	<8	<8	<8	<8
Acenaphthylene	<11	<11	<11	<11
Acenaphthene	<8	<8	<8	<8
2,3,5-Trime naphthal	<7	<7	<7	<7
Fluorene	<7	<7	<7	<7
Phenanthrene	15.1	19.8	16.9	11.0
Anthracene	<10	<10	<10	<10
1-Me phenanthrene	<12	<12	<12	<12
Fluoranthene	18.1	22.8	20.9	16.4
Pyrene	12.4	14.8	13.4	10.3
Benzo(a)anthracene	<6	<6	<6	<6
Chrysene	6.1	7.1	6.1	<6
Benzo(b)fluoranthene	<6	6.1	<6	<6
Benzo(k)fluoranthene	4.6	4.8	4.3	<4
Benzo(e)pyrene	<7	<7	<7	<7
Benzo(a)pyrene	<4	<4	<4	<4
Perylene	<5	<5	<5	<5
Indeno(123cd)pyren	<7	<7	<7	<7
Dibenzo(ah)anthrace	<11	<11	<11	<11
Benzo(ghi)perylene	<15	<15	<15	<15

Table E.1.66. 2004 blue mussel tissue PAH concentrations (ng/g dry wt.) at Digby, NS, (NSDI); 44.6170°N, 65.7523°W **Benchmark Site**

<i>Replicate</i>	(ng/g dry wt.)			
	<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>
Naphthalene	<10	<10	<10	<10
2-Me naphthalene	<8	<8	<8	<8
1-Me naphthalene	<10	<10	<10	<10
Biphenyl	<7	<7	<7	<7
2,6-Dime naphthalen	<8	<8	<8	<8
Acenaphthylene	<11	<11	<11	<11
Acenaphthene	<8	<8	<8	<8
2,3,5-Trime naphthal	<7	<7	<7	<7
Fluorene	<7	<7	<7	<7
Phenanthrene	9.5	9.9	9.7	13.6
Anthracene	<10	<10	<10	<10
1-Me phenanthrene	<12	<12	<12	<12
Fluoranthene	15.6	16.2	16.6	22.3
Pyrene	9.3	9.9	10.4	14.1
Benzo(a)anthracene	<6	<6	<6	<6
Chrysene	<6	<6	<6	7.9
Benzo(b)fluoranthene	<6	<6	6.5	<6
Benzo(k)fluoranthene	<4	<4	<4	4.6
Benzo(e)pyrene	<7	<7	<7	<7
Benzo(a)pyrene	<4	<4	<4	<4
Perylene	<5	<5	<5	<5
Indeno(123cd)pyren	<7	<7	<7	<7
Dibenzo(ah)anthrace	<11	<11	<11	<11
Benzo(ghi)perylene	<15	<15	<15	<15

Table E.1.67 2004 blue mussel tissue PAH concentrations (ng/g dry wt.) in Nova Scotia Grosse Coques (occasionally sampled) site (NSGC); 44.3728°N, 66.0950°W

NSGC <i>Replicate</i>	(ng/g dry wt.)			
	<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>
Naphthalene	<10	<10	<10	<10
2-Me naphthalene	<8	<8	<8	<8
1-Me naphthalene	<10	<10	<10	<10
Biphenyl	<7	<7	<7	<7
2,6-Dime naphthalen	<8	<8	<8	<8
Acenaphthylene	<11	<11	<11	<11
Acenaphthene	<8	<8	<8	<8
2,3,5-Trime naphthal	<7	<7	<7	<7
Fluorene	<7	<7	<7	<7
Phenanthrene	<6	<6	<6	<6
Anthracene	<10	<10	<10	<10
1-Me phenanthrene	<12	<12	<12	<12
Fluoranthene	<14	<14	<14	<14
Pyrene	<9	<9	<9	<9
Benzo(a)anthracene	<6	<6	<6	<6
Chrysene	<6	<6	<6	<6
Benzo(b)fluoranthene	<6	<6	<6	<6
Benzo(k)fluoranthene	<4	<4	<4	<4
Benzo(e)pyrene	<7	<7	<7	<7
Benzo(a)pyrene	<4	<4	<4	<4
Perylene	<5	<5	<5	<5
Indeno(123cd)pyren	<7	<7	<7	<7
Dibenzo(ah)anthrace	<11	<11	<11	<11
Benzo(ghi)perylene	<15	<15	<15	<15

Table E.1.68. 2004 blue mussel tissue PAH concentrations (ng/g dry wt.) at Yarmouth, NS (NSYR); 43.8177°N, 66.1448°W #N-Dup represents duplicate analysis of site replicate.

<i>Replicate</i>	(ng/g dry wt.)				
	<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>3N-Dup</i>	<i>4N</i>
Naphthalene	<10	<10	<10	<10	<10
2-Me naphthalene	<8	<8	<8	<8	<8
1-Me naphthalene	<10	<10	<10	<10	<10
Biphenyl	<7	<7	<7	<7	<7
2,6-Dime naphthalen	<8	<8	<8	<8	<8
Acenaphthylene	<11	<11	<11	<11	<11
Acenaphthene	<8	<8	<8	<8	<8
2,3,5-Trime naphthal	<7	<7	<7	<7	<7
Fluorene	<7	<7	<7	<7	<7
Phenanthrene	<6	<6	6.0	7.7	<6
Anthracene	<10	<10	<10	<10	<10
1-Me phenanthrene	<12	<12	<12	<12	<12
Fluoranthene	<14	16.1	18.4	21.2	16.2
Pyrene	<9	<9	9.8	11.1	<9
Benzo(a)anthracene	<6	<6	<6	<6	<6
Chrysene	<6	<6	6.3	6.9	<6
Benzo(b)fluoranthene	<6	<6	<6	<6	<6
Benzo(k)fluoranthene	<4	<4	<4	<4	<4
Benzo(e)pyrene	<7	<7	<7	<7	<7
Benzo(a)pyrene	<4	<4	<4	<4	<4
Perylene	<5	<5	<5	5.9	<5
Indeno(123cd)pyren	<7	<7	<7	<7	<7
Dibenzo(ah)anthrace	<11	<11	<11	<11	<11
Benzo(ghi)perylene	<15	<15	<15	<15	<15

TABLES E.2 PCB concentration (ng/g dry wt.) observed in Mussel tissue collected by Gulfwatch, 2002-2004. "Int." indicates the presence of interferences during analysis. Stations are ordered by year, essentially clockwise in rotation, south (Massachusetts) to north (to Nova Scotia).

GULFWATCH 2002

Table E.2.1 2002 blue mussel tissue PCB concentrations (ng/g dry wt.) at Sandwich, MA (MASN); 41.7645°N, 70.4840°W. **Benchmark Site** #N-Dup represents duplicate analysis of site replicate.

MASN	(ng/g dry wt.)				
	<i>Replicate</i>	<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>3N-Dup</i>
	8;5	<3	<3	<3	<3
	18;15	<3	<3	<3	<3
	29	<3	<4	<4	<4
	50	<3	<3	<3	<3
	28	<2	<2	<2	<2
	52	<2	<2	<2	<2
	44	<2.5	<2.5	<2.5	<2.5
	66;95	<2	<2	<2	<2
	101;90	2.4	3.7	2.9	3.6
	87	<2.5	<2.5	<2.5	<2.5
	77	<3	<3	<3	<3
	118	3.2	4.1	3.9	4.3
	153;132	7.0	8.3	10.1	8.2
	105	<2	<2	<2	<2
	138	5.7	3.6	5.6	6.5
	126	<2	<2	<2	<2
	187	2.1	2.6	<2	2.5
	128	<2	<3	<3	<3
	180	<4	<4	<4	<4
	169	<2.5	<2.5	<2.5	<2.5
	170;190	<2	<2	<2	<2
	195;208	<3	<3	<3	<3
	206	<2	<2	<2	<2
	209	<4	<4	<4	<4

Table E.2.2 2002 Blue mussel PCB concentrations (ng/g dry wt.) in Massachusetts inner Plymouth-Manomet Point station (MAPY); 41.9283°N, 70.5383°W

MAPY	(ng/g dry wt.)		
<i>Replicate</i>	<i>1N</i>	<i>2N</i>	<i>3N</i>
8;5	<3	<3	<3
18;15	<3	<3	<3
29	<4	<4	<4
50	<3	<3	<3
28	<2	<2	<2
52	<2	<2	<2
44	<2.5	<2.5	<2.5
66;95	<2	<2	<2
101;90	<2	<2	<2
87	<2.5	<2.5	<2.5
77	<3	<3	<3
118	3.0	2.9	3.6
153;132	5.6	5.3	6.2
105	<2	<2	<2
138	5.2	5.1	5.6
126	<2	<2	<2
187	<2	<2	<2
128	<3	<3	<3
180	<4	<4	<4
169	<2.5	<2.5	<2.5
170;190	<2	<2	<2
195;208	<3	<3	<3
206	<2	<2	<2
209	<4	<4	<4

Table E.2.3 2002 blue mussel tissue PCB concentrations (ng/g dry wt.) at Massachusetts Little Harbor site, Cohasset, MA (MACO); 42.2550°N, 70. 7900°W

MACO	(ng/g dry wt.)			
<i>Replicate</i>	<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>
8;5	<3	<3	<3	<3
18;15	<3	<3	<3	<3
29	<3	<3	<3	<3
50	<3	<3	<3	<3
28	<2	<2	2.1	<2
52	<2	<2	<2	<2
44	<2.5	<2.5	<2.5	<2.5
66;95	4.4	3.7	4.1	4.0
101;90	7.8	7.0	8.8	8.8
87	<2.5	<2.5	<2.5	<2.5
77	3.4	4.6	3.4	3.8
118	11.5	9.4	11.0	11.4
153;132	19.9	18.9	19.3	20.2
105	3.4	3.2	3.9	3.6
138	18.6	15.7	18.8	18.9
126	<2	<2	<2	<2
187	<2	<2	4.9	4.9
128	2.6	3.0	3.1	3.1
180	<4	<4	<4	<4
169	<2.5	<2.5	<2.5	<2.5
170;190	<2	<2	<2	<2
195;208	<3	<3	<3	<3
206	<2	<2	<2	<2
209	<4	<4	<4	<4

Table E.2.4 2002 blue mussel tissue PCB concentrations (ng/g dry wt.) at Long Island, Boston Harbor (MALI); 42.3283°N, 70.9550°W

MALI <i>Replicate</i>	(ng/g dry wt.)			
	<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>
8;5	<3	<3	<3	<3
18;15	<3	<3	<3	<3
29	<3	<3	<3	<3
50	3.4	4.3	3.5	<3
28	4.7	4.7	8.3	7.5
52	<2	<2	<2	<2
44	<2.5	3.6	6.0	6.2
66;95	9.9	8.2	11.5	10.4
101;90	21.1	14.3	25.5	23.7
87	7.1	7.8	9.2	7.8
77	9.1	7.3	11.2	9.3
118	24.0	24.2	29.8	26.1
153;132	40.6	35.6	49.4	41.1
105	7.7	7.5	11.3	9.7
138	41.3	37.3	34.2	39.9
126	<2	<2	<2	<2
187	<2	11.1	<2	<2
128	7.0	4.2	8.0	6.6
180	<4	<4	4.2	4.9
169	<2.5	<2.5	<2.5	<2.5
170;190	<2	<2	<2	<2
195;208	<3	<3	<3	<3
206	<2	<2	<2	<2
209	<4	<4	<4	<4

Table E.2.5 2002 blue mussel tissue PCB concentrations (ng/g dry wt.) at Marblehead, MA (MAMH); 42.4983°N, 70.8483°W

MAMH <i>Replicate</i>	(ng/g dry wt.)		
	<i>1N</i>	<i>2N</i>	<i>3&4N</i>
8;5	<3	<3	<3
18;15	<3	<3	<3
29	<4	<4	<4
50	<3	<3	<3
28	<2	<2	<2
52	<2	<2	<2
44	<2.5	<2.5	<2.5
66;95	<2	<2	<2
101;90	2.8	2.2	2.0
87	<2.5	<2.5	<2.5
77	<3	<3	<3
118	4.1	3.8	3.5
153;132	7.1	6.8	7.0
105	<2	<2	<2
138	6.7	6.5	6.5
126	<2	<2	<2
187	<2	<2	<2
128	<3	<3	<3
180	<4	<4	<4
169	<2.5	<2.5	<2.5
170;190	<2	<2	<2
195;208	<3	<3	<3
206	<2	<2	<2
209	<4	<4	<4

Table E.2.6 Blue mussel tissue PCB concentrations (ng/g dry wt.) at the Merrimack River site, MA (MAME); 42.8083°N, 70.8233°W. #N-Dup represents duplicate analysis of site replicate.

MAME <i>Replicate</i>	(ng/g dry wt.)				
	<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>	<i>4N-Dup</i>
8;5	<3	<3	<3	<3	<3
18;15	<3	<3	<3	<3	<3
29	<4	<4	<4	<4	<4
50	3.3	3.5	3.7	3.4	<3
28	4.6	4.3	4.4	4.7	4.1
52	<2	<2	<2	<2	<2
44	3.2	3.2	2.9	3.6	2.7
66;95	6.7	7.1	8.0	7.3	7.3
101;90	7.4	7.0	7.9	7.4	7.5
87	2.6	2.6	2.7	2.6	2.9
77	4.0	4.2	4.2	4.2	3.8
118	8.4	8.6	8.4	9.4	9.6
153;132	10.6	11.9	11.9	12.3	12.7
105	3.2	3.4	3.4	3.4	3.6
138	11.3	12.6	12.4	13.0	13.6
126	<2	<2	<2	<2	<2
187	4.2	4.7	4.9	4.8	5.4
128	<3	<3	<3	<3	<3
180	<4	<4	<4	<4	<4
169	<2.5	<2.5	<2.5	<2.5	<2.5
170;190	<2	<2	<2	<2	<2
195;208	<3	<3	<3	<3	<3
206	<2	<2	<2	<2	<2
209	<4	<4	<4	<4	<4

Table E.2.7 Blue mussel tissue PCB concentrations (ng/g dry wt.) at the Hampton/Seabrook estuary, NH site (NHHS); 42.8917°N, 70.8167°W

NHHS <i>Replicate</i>	(ng/g dry wt.)			
	<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>
8;5	<3	<3	<3	<3
18;15	<3	<3	<3	<3
29	<3	<4	<3	<3
50	<3	<3	<3	<3
28	<2	<2	<2	<2
52	<2	<2	<2	<2
44	<2.5	<2.5	<2.5	<2.5
66;95	<2	<2	<2	<2
101;90	6.1	9.6	8.9	5.8
87	<2.5	<2.5	<2.5	<2.5
77	<3	<3	<3	<3
118	5.8	9.0	10.5	6.0
153;132	11.9	18.2	17.9	11.6
105	<2	2.5	2.6	<2
138	11.3	14.7	17.2	12.8
126	<2	<2	<2	<2
187	4.3	6.5	5.8	3.8
128	<2	<3	<2	<2
180	<4	<4	<4	<4
169	<2.5	<2.5	<2.5	<2.5
170;190	<2	<2	<2	<2
195;208	<3	<3	<3	<3
206	<2	<2	<2	<2
209	<4	<4	<4	<4

Table E.2.8 2002 blue mussel tissue PCB concentrations (ng/g dry wt.), Rye Harbor, NH (NHRH); 43.0000°N, 70.7438°W

NHRH <i>Replicate</i>	(ng/g dry wt.)			
	<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>
8;5	<3	<3	<3	<3
18;15	<3	<3	<3	<3
29	<3	<3	<3	<3
50	<3	<3	<3	<3
28	<2	<2	<2	<2
52	<2	<2	<2	<2
44	<2.5	<2.5	<2.5	<2.5
66;95	<2	<2	<2	<2
101;90	<2	<2	<2	<2
87	<2.5	<2.5	<2.5	<2.5
77	<3	<3	<3	<3
118	2.3	2.2	2.3	2.1
153;132	5.7	5.3	6.0	5.4
105	<2	<2	<2	<2
138	4.7	4.6	4.8	4.3
126	<2	<2	<2	<2
187	2.1	2.1	2.4	3.3
128	<2	<2	<2	<2
180	<4	<4	<4	<4
169	<2.5	<2.5	<2.5	<2.5
170;190	<2	<2	<2	<2
195;208	<3	<3	<3	<3
206	<2	<2	<2	<2
209	<4	<4	<4	<4

Table E.2.9 2002 blue mussel tissue PCB concentrations (ng/g dry wt.) at North Mill Pond, NH (NHNM); 43.0750°N, 70.7600°W.

NHNM <i>Replicate</i>	(ng/g dry wt.)			
	<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>
8;5	<3	<3	<3	<3
18;15	<3	<3	<3	<3
29	<3	<3	<3	<3
50	<3	<3	<3	<3
28	2.4	2.5	2.6	3.1
52	<2	<2	<2	<2
44	<2.5	<2.5	<2.5	<2.5
66;95	3.0	2.5	2.8	2.9
101;90	8.8	9.6	10.4	10.2
87	<2.5	<2.5	<2.5	2.6
77	<3	<3	<3	3.0
118	10.7	11.8	11.9	12.0
153;132	20.0	20.8	23.4	21.0
105	3.0	3.5	3.8	3.7
138	18.0	18.9	21.7	19.6
126	<2	<2	<2	<2
187	13.6	8.4	9.6	8.4
128	2.2	2.2	2.8	2.5
180	<4	<4	<4	<4
169	<2.5	<2.5	<2.5	<2.5
170;190	<2	<2	<2	<2
195;208	<3	<3	<3	<3
206	<2	<2	<2	<2
209	<4	<4	<4	<4

Table E.2.10 2002 *oyster* tissue PCB concentrations (ng/g dry wt.) at Nannie Island (expanded Gulfwatch) site (NHNI); 43.1344°N, 70.8471°W

NHNI-Oysters <i>Replicate</i>	(ng/g dry wt.)	
	<i>1N</i>	<i>2N</i>
8;5	<3	<3
18;15	<3	<3
29	<3	<3
50	<3	<3
28	<2	2.6
52	<2	<2
44	<2.5	<2.5
66;95	3.2	4.8
101;90	11.4	14.4
87	<2.5	<2.5
77	<3	4.5
118	13.7	17.7
153;132	21.4	26.0
105	<2	3.5
138	15.8	20.0
126	<2	<2
187	10.6	10.7
128	<2	2.5
180	<4	<4
169	<2.5	<2.5
170;190	<2	<2
195;208	<3	<3
206	<2	<2
209	<4	<4

Table E.2.11 2000 *clam* tissue PCB concentrations (ng/g dry wt.) at the Middle Ground site (expanded Gulfwatch), NH (NHMG); 42.8922°N, 70.7883°W

NHMG-Clams <i>Replicate</i>	(ng/g dry wt.)	
	<i>1N</i>	<i>2N</i>
8;5	<3	<3
18;15	<3	<3
29	<3	<3
50	<3	<3
28	<2	<2
52	<2	<2
44	<2.5	<2.5
66;95	<2	<2
101;90	<2	<2
87	<2.5	<2.5
77	<3	<3
118	<2	<2
153;132	<2	<2
105	<2	<2
138	<2	<2
126	<2	<2
187	<2	<2
128	<2	<2
180	<4	<4
169	<2.5	<2.5
170;190	<2	<2
195;208	<3	<3
206	<2	<2
209	<4	<4

Table E.2.12 2002 blue mussel tissue PCB concentrations (ng/g dry wt.) at Dover Point, NH (NHDP); 43.1196°N, 70.8267°W #N-Dup represents duplicate analysis of site replicate.

NHDP <i>Replicate</i>	(ng/g dry wt.)				
	<i>1N</i>	<i>2N</i>	<i>2N-Dup</i>	<i>3N</i>	<i>4N</i>
8;5	<3	<3	<3	<3	<3
18;15	<3	<3	<3	<3	<3
29	<3	<3	<3	<3	<3
50	<3	<3	<3	<3	<3
28	<2	<2	<2	<2	<2
52	<2	<2	<2	<2	<2
44	<2.5	<2.5	<2.5	<2.5	<2.5
66;95	<2	<2	<2	<2	<2
101;90	5.9	5.6	4.6	5.0	5.0
87	<2.5	<2.5	<2.5	<2.5	<2.5
77	<3	<3	<3	<3	<3
118	7.1	6.4	5.7	6.0	6.3
153;132	12.5	12.6	11.8	12.4	12.4
105	<2	<2	<2	<2	<2
138	10.7	11.0	10.0	10.2	10.4
126	<2	<2	<2	<2	<2
187	4.9	4.8	4.6	5.5	5.0
128	<2	<2	<2	<2	<2
180	<4	<4	<4	<4	<4
169	<2.5	<2.5	<2.5	<2.5	<2.5
170;190	<2	<2	<2	<2	<2
195;208	<3	<3	<3	<3	<3
206	<2	<2	<2	<2	<2
209	<4	<4	<4	<4	<4

Table E.2.13 2002 blue mussel tissue PCB concentrations (ng/g dry wt.) at Schiller Station (NHSS); 43.1017°N, 70.7883°W

NHSS Replicate	(ng/g dry wt.)			
	1N	2N	3N	4N
8;5	<3	<3	<3	<3
18;15	<3	<3	<3	<3
29	<3	<4	<3	<3
50	<3	<3	<3	<3
28	<2	<2	<2	<2
52	<2	<2	<2	<2
44	<2.5	<2.5	<2.5	<2.5
66;95	<2	<2	<2	<2
101;90	6.1	9.6	8.9	5.8
87	<2.5	<2.5	<2.5	<2.5
77	<3	<3	<3	<3
118	5.8	9.0	10.5	6.0
153;132	11.9	18.2	17.9	11.6
105	<2	2.5	2.6	<2
138	11.3	14.7	17.2	12.8
126	<2	<2	<2	<2
187	4.3	6.5	5.8	3.8
128	<2	<3	<2	<2
180	<4	<4	<4	<4
169	<2.5	<2.5	<2.5	<2.5
170;190	<2	<2	<2	<2
195;208	<3	<3	<3	<3
206	<2	<2	<2	<2
209	<4	<4	<4	<4

Table E.2.14 2002 blue mussel tissue PCB concentrations (ng/g dry wt.) at Clark's Cove, ME (MECC); 43.0774°N, 70.7244°W. **Benchmark Site#**N-Dup represents duplicate analysis of site replicate.

MECC	(ng/g dry wt.)					
	<i>Replicate</i>	<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>	<i>4N-Dup</i>
	8;5	<3	<3	<3	<3	<3
	18;15	<3	<3	<3	<3	<3
	29	<3	<3	<3	<3	<3
	50	<3	<3	<3	<3	<3
	28	<2	<2	<2	<2	<2
	52	<2	<2	<2	<2	<2
	44	<2.5	<2.5	<2.5	<2.5	<2.5
	66;95	<2	<2	<2	<2	<2
	101;90	6.2	7.7	8.0	7.5	7.2
	87	<2.5	<2.5	<2.5	<2.5	<2.5
	77	<3	<3	<3	<3	<3
	118	6.2	8.5	7.8	7.9	7.8
	153;132	13.2	16.8	15.7	16.5	16.4
	105	<2	2.1	2.1	2.1	2.1
	138	11.5	15.1	14.3	15.3	15.1
	126	<2	<2	<2	<2	<2
	187	4.9	7.1	6.5	6.9	6.7
	128	<2	<2	<2	<2	<2
	180	<4	<4	<4	<4	<4
	169	<2.5	<2.5	<2.5	<2.5	<2.5
	170;190	<2	<2	<2	<2	<2
	195;208	<3	<3	<3	<3	<3
	206	<2	<2	<2	<2	<2
	209	<4	<4	<4	<4	<4

Table E.2.15 2002 blue mussel tissue PCB concentrations (ng/g dry wt.) at Brave Boat Harbor, ME (MEBH); 43.0933°N, 70.6233°W

MEBH	(ng/g dry wt.)			
<i>Replicate</i>	<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>
8;5	<3	<3	<3	<3
18;15	<3	<3	<3	<3
29	<3	<3	<3	<3
50	<3	<3	<3	<3
28	<2	<2	<2	<2
52	<2	<2	<2	<2
44	<2.5	<2.5	<2.5	<2.5
66;95	<2	<2	<2	<2
101;90	<2	<2	<2	<2
87	<2.5	<2.5	<2.5	<2.5
77	<3	<3	<3	<3
118	<2	<2	<2	<2
153;132	3.3	2.8	3.0	2.7
105	<2	<2	<2	<2
138	2.7	2.4	2.4	2.1
126	<2	<2	<2	<2
187	<2	<2	<2	<2
128	<2	<2	<2	<2
180	<4	<4	<4	<4
169	<2.5	<2.5	<2.5	<2.5
170;190	<2	<2	<2	<2
195;208	<3	<3	<3	<3
206	<2	<2	<2	<2
209	<4	<4	<4	<4

Table E.2.16 2002 blue mussel tissue PCB concentrations (ng/g dry wt.) at the Royal River site, ME (MERY); 43.7970°N, 70.1455°W

MERY	(ng/g dry wt.)			
<i>Replicate</i>	<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>
8;5	<3	<3	<3	<3
18;15	<3	<3	<3	<3
29	<3	<3	<3	<3
50	<3	<3	<3	<3
28	<2	<2	<2	<2
52	<2	<2	<2	<2
44	<2.5	<2.5	<2.5	<2.5
66;95	<2	<2	<2	<2
101;90	2.2	2.1	<2	2.3
87	<2.5	<2.5	<2.5	<2.5
77	<3	<3	<3	<3
118	2.3	<2	<2	2.6
153;132	6.4	5.1	5.1	6.7
105	<2	<2	<2	<2
138	4.9	4.1	3.9	5.0
126	<2	<2	<2	<2
187	2.3	<2	<2	3.0
128	<2	<2	<2	<2
180	<4	<4	<4	<4
169	<2.5	<2.5	<2.5	<2.5
170;190	<2	<2	<2	<2
195;208	<3	<3	<3	<3
206	<2	<2	<2	<2
209	<4	<4	<4	<4

Table E.2.17 Blue mussel tissue PCB concentrations (ng/g dry wt.)
at the Kennebec River site, ME (MEKN); 43.7850°N,
69.7845°W **Benchmark Site**

MEKN	(ng/g dry wt.)			
<i>Replicate</i>	<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>
8;5	<3	<3	<3	<3
18;15	<3	<3	<3	<3
29	<3	<3	<3	<3
50	<3	<3	<3	<3
28	<2	<2	<2	<2
52	<2	<2	<2	<2
44	<2.5	<2.5	<2.5	<2.5
66;95	<2	<2	<2	<2
101;90	3.5	4.0	4.3	4.0
87	<2.5	<2.5	<2.5	<2.5
77	<3	<3	<3	<3
118	2.5	3.3	3.5	3.4
153;132	10.1	11.9	12.4	12.4
105	<2	<2	<2	<2
138	8.0	9.4	9.7	9.4
126	<2	<2	<2	<2
187	3.7	4.4	4.9	4.8
128	<2	<2	<2	<2
180	<4	<4	<4	<4
169	<2.5	<2.5	<2.5	<2.5
170;190	<2	<2	<2	<2
195;208	<3	<3	<3	<3
206	<2	<2	<2	<2
209	<4	<4	<4	<4

Table E.2.18 2002 blue mussel tissue PCB concentrations (ng/g dry wt.) at the Penobscot River site, ME (MEFP); 44.4695°N, 68.8102°W

MEFP	(ng/g dry wt.)			
<i>Replicate</i>	<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>
8;5	<3	<3	<3	<3
18;15	<3	<3	<3	<3
29	<4	<4	<4	<4
50	<3	<3	<3	<3
28	<2	<2	<2	<2
52	<2	<2	<2	<2
44	<2.5	<2.5	<2.5	<2.5
66;95	<2	<2	<2	2.1
101;90	<2	5.1	3.3	4.3
87	<2.5	<2.5	<2.5	<2.5
77	<3	<3	<3	<3
118	<3	<3	<3	<3
153;132	<2	10.2	13.4	8.4
105	<2	<2	<2	<2
138	<2	7.2	4.9	6.6
126	<2	<2	<2	<2
187	<2	3.7	3.4	3.5
128	<3	<3	<3	<3
180	<4	<4	<4	<4
169	<2.5	<2.5	<2.5	<2.5
170;190	<2	<2	<2	<2
195;208	<3	<3	<3	<3
206	<2	<2	<2	<2
209	<4	<4	<4	<4

Table E.2.19 2002 blue mussel tissue PCB concentrations (ng/g dry wt.) at the Pickering Island site, ME (MEPI); 44.2605°N, 68.7332°W #N-Dup represents duplicate analysis of site replicate.

MEPI	(ng/g dry wt.)				
	<i>Replicate</i>	<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>3N-Dup</i>
	8;5	<3	<3	<3	<3
	18;15	<3	<3	<3	<3
	29	<3	<3	<3	<3
	50	<3	<3	<3	<3
	28	<2	<2	<2	<2
	52	<2	<2	<2	<2
	44	<2.5	<2.5	<2.5	<2.5
	66;95	<2	<2	<2	<2
	101;90	<2	<2	<2	<2
	87	<2.5	<2.5	<2.5	<2.5
	77	<3	<3	<3	<3
	118	<2	<2	<2	<2
	153;132	<2	<2	<2	<2
	105	<2	<2	<2	<2
	138	<2	<2	<2	<2
	126	<2	<2	<2	<2
	187	<2	<2	4.4	<2
	128	<2	<2	<2	<2
	180	<4	<4	<4	<4
	169	<2.5	<2.5	<2.5	<2.5
	170;190	<2	<2	<2	<2
	195;208	<3	<3	<3	<3
	206	<2	<2	<2	<2
	209	<4	<4	<4	<4

Table E.2.20 2002 blue mussel tissue PCB concentrations (ng/g dry wt.) at the St. Croix River site, NB (NBSC); 45.1675°N, 67.1638°W

NBSC <i>Replicate</i>	(ng/g dry wt.)			
	<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>
8;5	<3	<3	<3	<3
18;15	<3	<3	<3	<3
29	<3	<3	<3	<3
50	<3	<3	<3	<3
28	<2	<2	<2	<2
52	<2	<2	<2	<2
44	<2.5	<2.5	<2.5	<2.5
66;95	<2	<2	<2	<2
101;90	<2	<2	<2	<2
87	<2.5	<2.5	<2.5	<2.5
77	<3	<3	<3	<3
118	<2	<2	<2	<2
153;132	5.0	4.8	4.7	3.0
105	<2	<2	<2	<2
138	4.2	3.8	3.0	<2
126	<2	<2	<2	<2
187	<5	<2	<2	<2
128	<2	<2	<2	<2
180	<4	<4	<4	<4
169	<2.5	<2.5	<2.5	<2.5
170;190	<2	<2	<2	<2
195;208	<3	<3	<3	<3
206	<2	<2	<2	<2
209	<4	<4	<4	<4

Table E.2.21 2002 blue mussel tissue PCB concentrations (ng/g dry wt.) at the Hospital Island site, NB (NBHI); 45.1205°N, 66.0082°W **Benchmark Site** #N-Dup represents duplicate analysis of site replicate.

NBHI	(ng/g dry wt.)					
	<i>Replicate</i>	<i>1N</i>	<i>2N</i>	<i>2N-Dup</i>	<i>3N</i>	<i>4N</i>
	8;5	<3	<3	<3	<3	<3
	18;15	<3	<3	<3	<3	<3
	29	<3	<3	<4	<3	<3
	50	<3	<3	<3	<3	<3
	28	<2	<2	<2	<2	<2
	52	<2	<2	<2	<2	<2
	44	<2.5	<2.5	<2.5	<2.5	<2.5
	66;95	<2	<2	2.1	<2	<2
	101;90	<2	<2	3.8	<2	<2
	87	<2.5	<2.5	<2.5	<2.5	<2.5
	77	<3	<3	<3	<3	<3
	118	<2	<2	<3	<2	<2
	153;132	<2	<2	7.0	<2	<2
	105	<2	<2	<2	<2	<2
	138	<2	<2	5.5	<2	<2
	126	<2	<2	<2	<2	<2
	187	<2	<2	3.0	<2	<2
	128	<2	<2	<3	<2	<2
	180	<4	<4	<4	<4	<4
	169	<2.5	<2.5	<2.5	<2.5	<2.5
	170;190	<2	<2	<2	<2	<2
	195;208	<3	<3	<3	<3	<3
	206	<2	<2	<2	<2	<2
	209	<4	<4	<4	<4	<4

Table E.2.22 2002 blue mussel tissue PCB concentrations (ng/g dry wt.) at the Letang Estuary site, NB (NBLN); 45.0757°N, 66.7963°W

NBLN <i>Replicate</i>	(ng/g dry wt.)			
	<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>
8;5	<3	<3	<3	<3
18;15	<3	<3	<3	<3
29	<3	<3	<3	<3
50	<3	<3	<3	<3
28	<2	<2	<2	<2
52	<2	<2	<2	<2
44	<2.5	<2.5	<2.5	<2.5
66;95	<2	<2	<2	<2
101;90	<2	<2	<2	<2
87	<2.5	<2.5	<2.5	<2.5
77	<3	<3	<3	<3
118	<2	<2	<2	<2
153;132	2.3	2.9	2.6	<2
105	<2	<2	<2	<2
138	<2	2.5	<2	<2
126	<2	<2	<2	<2
187	<2	<2	<2	<2
128	<2	<2	<2	<2
180	<4	<4	<4	<4
169	<2.5	<2.5	<2.5	<2.5
170;190	<2	<2	<2	<2
195;208	<3	<3	<3	<3
206	<2	<2	<2	<2
209	<4	<4	<4	<4

Table E.2.23 2002 blue mussel tissue PCB concentrations (ng/g dry wt.)
at the Argyle Sound site, NS (NSAG); 43.6990°N,
65.8182°W #N-Dup represents duplicate analysis of site
replicate.

NSAG	(ng/g dry wt.)					
	<i>Replicate</i>	<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>3N-Dup</i>	<i>4N</i>
	8;5	<3	<3	<3	<3	<3
	18;15	<3	<3	<3	<3	<3
	29	<3	<3	<3	<3	<3
	50	<3	<3	<3	<3	<3
	28	<2	<2	<2	<2	<2
	52	<2	<2	<2	<2	<2
	44	<2.5	<2.5	<2.5	<2.5	<2.5
	66;95	<2	<2	<2	<2	<2
	101;90	<2	<2	<2	<2	<2
	87	<2.5	<2.5	<2.5	<2.5	<2.5
	77	<3	<3	<3	<3	<3
	118	<2	<2	<2	<2	<2
	153;132	<2	<2	<2	<2	<2
	105	<2	<2	<2	<2	<2
	138	<2	2.2	<2	<2	<2
	126	<2	<2	<2	<2	<2
	187	<2	<2	<2	<2	<2
	128	<2	<2	<2	<2	<2
	180	<4	<4	<4	<4	<4
	169	<2.5	<2.5	<2.5	<2.5	<2.5
	170;190	<2	<2	<2	<2	<2
	195;208	<3	<3	<3	<3	<3
	206	<2	<2	<2	<2	<2
	209	<4	<4	<4	<4	<4

Table E.2.24 2002 blue mussel tissue PCB concentrations
(ng/g dry wt.) at the Five Islands site, NS (NSFI);
45.3975°N, 64.0660°W #N-Dup represents
duplicate analysis of site replicate.

NSFI <i>Replicate</i>	(ng/g dry wt.)			
	<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>3N-Dup</i>
8;5	<3	<3	<3	<3
18;15	<3	<3	<3	<3
29	<3	<3	<3	<3
50	<3	<3	<3	<3
28	<2	<2	<2	<2
52	<2	<2	<2	<2
44	<2.5	<2.5	<2.5	<2.5
66;95	<2	<2	<2	<2
101;90	<2	<2	<2	<2
87	<2.5	<2.5	<2.5	<2.5
77	<3	<3	<3	<3
118	<2	<2	<2	<2
153;132	<2	<2	<2	<2
105	<2	<2	<2	<2
138	<2	<2	<2	<2
126	<2	<2	<2	<2
187	<2	<2	Int	Int
128	<2	<2	<2	<2
180	<4	<4	<4	<4
169	<2.5	<2.5	<2.5	<2.5
170;190	<2	<2	<2	<2
195;208	<3	<3	<3	<3
206	<2	<2	<2	<2
209	<4	<4	<4	<4

Table E.2.25 2002 blue mussel tissue PCB concentrations (ng/g dry wt.)
at Digby, NS (NSDI); 44.6170°N, 64.7523°W **Benchmark**
Site #N-Dup represents duplicate analysis of site replicate.

NSDI	(ng/g dry wt.)					
	<i>Replicate</i>	<i>1N</i>	<i>1N-Dup</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>
	8;5	<3	<3	<3	<3	<3
	18;15	<3	<3	<3	<3	<3
	29	<3	<3	<3	<3	<3
	50	<3	<3	<3	<3	<3
	28	<2	<2	<2	<2	<2
	52	<2	<2	<2	<2	<2
	44	<2.5	<2.5	<2.5	<2.5	<2.5
	66;95	<2	<2	<2	<2	<2
	101;90	<2	<2	<2	<2	<2
	87	<2.5	<2.5	<2.5	<2.5	<2.5
	77	<3	<3	<3	<3	<3
	118	<2	<2	<2	<2	<2
	153;132	<2	<2	<2	<2	<2
	105	<2	<2	<2	<2	<2
	138	<2	<2	<2	<2	<2
	126	<2	<2	<2	<2	<2
	187	<5	<5	<2	<2	<2
	128	<2	<2	<2	<2	<2
	180	<4	<4	<4	<4	<4
	169	<2.5	<2.5	<2.5	<2.5	<2.5
	170;190	<2	<2	<2	<2	<2
	195;208	<3	<3	<3	<3	<3
	206	<2	<2	<2	<2	<2
	209	<4	<4	<4	<4	<4

Table E.2.26 2002 blue mussel tissue PCB concentrations (ng/g dry wt.) at the Broad Cove site, NB (NSBC); 44.6653°N, 65.8308°W

NSBC <i>Replicate</i>	(ng/g dry wt.)			
	<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>
8;5	<3	<3	<3	<3
18;15	<3	<3	<3	<3
29	<3	<3	<3	<3
50	<3	<3	<3	<3
28	<2	<2	<2	<2
52	<2	<2	<2	<2
44	<2.5	<2.5	<2.5	<2.5
66;95	<2	<2	<2	<2
101;90	<2	<2	<2	<2
87	<2.5	<2.5	<2.5	<2.5
77	<3	<3	<3	<3
118	<2	<2	<2	<2
153;132	<2	<2	<2	<2
105	<2	<2	<2	<2
138	<2	<2	<2	<2
126	<2	<2	<2	<2
187	<2	<5	<5	<2
128	<2	<2	<2	<2
180	<4	<4	<4	<4
169	<2.5	<2.5	<2.5	<2.5
170;190	<2	<2	<2	<2
195;208	<3	<3	<3	<3
206	<2	<2	<2	<2
209	<4	<4	<4	<4

Table E.2.27 2002 blue mussel tissue PCB concentrations (ng/g dry wt.) at Yarmouth, NS (NSYR); 43.8177°N, 66.1448°W#N-Dup represents duplicate analysis of site replicate.

NSYR Replicate	(ng/g dry wt.)			
	1N	2N	3N	4N
8;5	<3	<3	<3	<3
18;15	<3	<3	<3	<3
29	<3	<3	<3	<3
50	<3	<3	<3	<3
28	<2	<2	<2	<2
52	<2	<2	<2	<2
44	<2.5	<2.5	<2.5	<2.5
66;95	<2	<2	<2	<2
101;90	<2	<2	<2	<2
87	<2.5	<2.5	<2.5	<2.5
77	<3	<3	<3	<3
118	<2	<2	<2	<2
153;132	<2	<2	<2	<2
105	<2	<2	<2	<2
138	<2	<2	<2	2.1
126	<2	<2	<2	<2
187	<2	<2	<2	<2
128	<2	<2	<2	<2
180	<4	<4	<4	<4
169	<2.5	<2.5	<2.5	<2.5
170;190	<2	<2	<2	<2
195;208	<3	<3	<3	<3
206	<2	<2	<2	<2
209	<4	<4	<4	<4

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Table E.2.28 2003 blue mussel tissue PCB concentrations (ng/g dry wt.) at Town Beach, Sandwich, MA (MASN); 41.7639°N, 70.4789°W **Benchmark Site** #N-Dup represents duplicate analysis of site replicate.

MASN <i>Replicate</i>	(ng/g dry wt.)				
	<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>	<i>4N-Dup</i>
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	<2.2	<2.2
101;90	3.9	3.6	3.8	4.4	4.5
87	<1.9	<1.9	<1.9	<1.9	<1.9
77	<2.3	<2.3	<2.3	<2.3	<2.3
118	4.3	3.8	4.2	4.3	4.5
153;132	7.9	6.7	7.3	7.1	7.5
105	<1.4	<1.4	<1.4	<1.4	<1.4
138	6.2	5.2	5.8	5.7	6.2
126	<1.9	<1.9	<1.9	<1.9	<1.9
187	2.4	2.0	2.3	2.1	2.2
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

Table E.2.29. 2003 blue mussel tissue PCB concentrations (ng/g dry wt.) at Duxbury, MA, (MADX); 42.0335°N, 70.6672°W#N-Dup represents duplicate analysis of site replicate.

MADX	(ng/g dry wt.)					
<i>Replicate</i>	<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>	<i>4N-Dup</i>	
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	2.6	2.2	
44	<2.3	<2.3	<2.3	<2.3	<2.3	
66;95	3.4	3.0	3.0	3.5	3.3	
101;90	10.5	8.8	8.1	11.1	10.0	
87	<1.9	<1.9	<1.9	<1.9	<1.9	
77	<2.3	<2.3	<2.3	<2.3	<2.3	
118	11.2	10.4	9.4	12.4	11.7	
153;132	23.1	21.5	20.0	23.0	23.2	
105	3.5	2.8	3.3	3.4	3.4	
138	20.1	18.4	17.5	19.9	20.1	
126	<1.9	<1.9	<1.9	<1.9	<1.9	
187	7.6	6.8	6.1	7.2	7.0	
128	3.4	3.0	2.7	3.5	3.6	
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	

Table E.2.30. 2003 blue mussel tissue PCB concentrations (ng/g dry wt.) at the outer Brewster Island site, Boston Harbor, MA (MABI); 42.3425°N, 70.8780°W

MABI	(ng/g dry wt.)		
<i>Replicate</i>	<i>1N</i>	<i>2N</i>	<i>3N</i>
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	3.3	3.9	4.2
44	<2.3	<2.3	<2.3
66;95	5.5	6.3	7.0
101;90	13.1	15.1	16.3
87	3.0	3.4	3.4
77	<2.3	<2.3	<2.3
118	17.0	18.9	20.1
153;132	26.4	29.7	30.9
105	4.5	5.3	6.2
138	24.0	27.0	28.4
126	<1.9	<1.9	<1.9
187	7.5	8.4	8.6
128	4.0	4.8	5.1
180	2.0	2.0	1.8
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

Table E.2.31. 2003 blue mussel tissue PCB concentrations (ng/g dry wt.) at Winthrop (shopping carts), MA (MAWN); 42.3648°N, 70.9642°W

MAWN <i>Replicate</i>	(ng/g dry wt.)			
	<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>
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	2.0	2.6	2.6	2.3
44	<2.3	<2.3	<2.3	<2.3
66;95	3.1	3.8	3.8	3.7
101;90	8.5	10.6	10.3	10.3
87	2.3	<1.9	2.5	2.6
77	<2.3	<2.3	<1	<1
118	8.8	11.6	10.6	10.2
153;132	16.6	21.8	19.9	21.5
105	2.3	5.7	2.8	2.6
138	14.5	18.6	17.4	18.2
126	<1.9	<1.9	<1.5	<1.5
187	5.9	7.8	7.3	7.7
128	2.7	3.4	3.3	3.3
180	1.9	2.2	2.8	1.9
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

Table E.2.32. 2003 blue mussel tissue PCB concentrations (ng/g dry wt.) at Ipswich, MA (MAIP); 42.7007°N, 70.7907°W #N-Dup represents duplicate analysis of site replicate.

MAIP <i>Replicate</i>	(ng/g dry wt.)			
	<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>
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	2.2
44	<2.3	<2.3	<2.3	<2.3
66;95	3.6	3.4	4.1	4.1
101;90	4.2	3.9	4.6	4.9
87	<1.9	<1.9	<1.9	<1.9
77	<2.3	<2.3	<2.3	<2.3
118	3.7	3.4	4.1	3.8
153;132	5.8	5.5	6.2	6.1
105	<1.4	<1.4	1.4	1.5
138	5.6	5.1	5.8	5.7
126	<1.9	<1.9	<1.9	<1.9
187	2.1	2.0	2.2	2.1
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

Table E.2.33. 2003 blue mussel tissue PCB concentrations (ng/g dry wt.) at the Hampton/Seabrook Harbor, NH (NHHS); 42.8972°N, 70.8163°W#N-Dup represents duplicate analysis of site replicate.

NHHS <i>Replicate</i>	(ng/g dry wt.)				
	<i>1N</i>	<i>1N-Dup</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>
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	<2.2	<2.2
101;90	<2.2	<2.2	<2.2	<2.2	<2.2
87	<1.9	<1.9	<1.9	<1.9	<1.9
77	<2.3	<2.3	<2.3	<2.3	<2.3
118	<2	<2	<2	<2	<2
153;132	3.4	3.5	3.2	3.3	3.3
105	<1.4	<1.4	<1.4	<1.4	<1.4
138	3.1	3.1	2.9	2.8	2.8
126	<1.9	<1.9	<1.9	<1.9	<1.9
187	<1.9	<1.9	<1.9	<1.9	<1.9
128	<1.9	<1.9	<1.9	<1.9	<1.9
180	<1.7	<1.7	<1.7	<1.7	<1.7
169	<1.7	<1.7	<1.7	<1.7	<1.7
170;190	<1.8	<1.8	<1.8	<1.8	<1.8
195;208	<1.8	<1.8	<1.8	<1.8	<1.8
206	<1.7	<1.7	<1.7	<1.7	<1.7
209	<1.7	<1.7	<1.7	<1.7	<1.7

Table E.2.34. 2003 blue mussel tissue PCB concentrations (ng/g dry wt.) at the Little Harbor site, NH (NHLH); 43.0581°N, 70.7154°W

NHLH	(ng/g dry wt.)			
<i>Replicate</i>	<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>
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	2.5	<2.2	2.7	<2.2
87	<1.9	<1.9	<1.9	<1.9
77	<2.3	<2.3	<2.3	<2.3
118	2.6	<2	2.5	<2
153;132	5.6	4.5	6.2	4.2
105	<1.4	<1.4	<1.4	<1.4
138	4.6	3.8	5.1	3.5
126	<1.9	<1.9	<1.9	<1.9
187	2.2	1.9	2.4	<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

Table E.2.35. 2003 blue mussel tissue PCB concentrations (ng/g dry wt.) at the Dover Point site, Dover, NH (NHDP); 43.1196°N, 70.8267°W #N-Dup represents duplicate analysis of site replicate.

NHDP <i>Replicate</i>	(ng/g dry wt.)				
	<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>	<i>4N-Dup</i>
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	<2.2	<2.2
101;90	3.7	3.6	3.0	4.7	4.2
87	<1.9	<1.9	<1.9	<1.9	<1.9
77	<2.3	<2.3	<2.3	<2.3	<2.3
118	4.0	4	3.1	5.1	4.6
153;132	7.8	8.0	6.9	10.1	8.7
105	<1.4	<1.4	<1.4	<1.4	<1.4
138	6.4	6.6	5.6	8.2	7.2
126	<1.9	<1.9	<1.9	<1.9	<1.9
187	3.1	3.3	2.8	4.4	3.5
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

Table E.2.36. 2003 blue mussel tissue PCB concentrations (ng/g dry wt.) at the South Mill Pond site, NH (NHSM); 43.0727°N, 70.7489°W

NHSM <i>Replicate</i>	(ng/g dry wt.)			
	<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>
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	7.9	6.4	6.2	6.7
87	6.8	5.3	2.3	2.9
77	<2.3	<2.3	<2.3	<2.3
118	6.6	5.4	5.5	5.8
153;132	11.3	9.3	9.4	9.9
105	2.1	1.6	1.6	1.8
138	10.1	8.3	8.4	8.7
126	<1.9	<1.9	<1.9	<1.9
187	4.1	3.3	3.2	3.6
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

Table E.2.37. 2003 blue mussel tissue PCB concentrations (ng/g dry wt.) at Clark's Cove on Seavey Island, ME (MECC); 43.0774°N, 70.7244°W **Benchmark Site**

MECC Replicate	(ng/g dry wt.)			
	1N	2N	3N	4N
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	2.3	2.3	2.4
101;90	4.2	5.1	5.2	5.6
87	<1.9	<1.9	<1.9	<1.9
77	<2.3	<2.3	<2.3	<2.3
118	4.6	4.4	4.6	4.8
153;132	10.0	10.5	10.7	11.6
105	<1.4	<1.4	<1.4	1.4
138	8.5	9.0	9.3	9.9
126	<1.9	<1.9	<1.9	<1.9
187	4.2	4.6	4.7	5.0
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

Table E.2.38. 2003 blue mussel tissue PCB concentrations (ng/g dry wt.) at the Saco River site, ME (MESA); 43.4598°N, 70.3743°W #N-Dup represents duplicate analysis of site replicate.

MESA <i>Replicate</i>	(ng/g dry wt.)			
	<i>2N</i>	<i>3N</i>	<i>4N</i>	<i>4N-Dup</i>
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	2.3	2.3	<2.2	<2.2
87	<1.9	<1.9	<1.9	<1.9
77	<2.3	<2.3	<2.3	<2.3
118	<2	2.1	<2	<2
153;132	4.3	4.2	4.0	3.8
105	<1.4	<1.4	<1.4	<1.4
138	4.2	3.9	3.7	3.6
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

Table E.2.39. 2003 blue mussel tissue PCB concentrations (ng/g dry wt.) at the Portland Harbor site, ME (MEPH); 43.6392°N, 70.2590°W #N-Dup represents duplicate analysis of site replicate.

MEPH	(ng/g dry wt.)				
	<i>Replicate</i>	<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>3N-Dup</i>
	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	2.4	2.7	2.9	2.4
	44	<2.3	<2.3	<2.3	<2.3
	66;95	2.2	2.5	2.7	2.3
	101;90	11.4	12.3	12.0	10.1
	87	3.2	3.6	3.8	3.2
	77	<2.3	<2.3	<2.3	<2.3
	118	8.9	9.8	10.2	8.8
	153;132	14.1	15.6	15.8	13.8
	105	3.0	3.3	3.5	3.0
	138	14.0	15.5	15.5	13.9
	126	<1.9	<1.9	<1.9	<1.9
	187	5.8	6.8	6.4	5.6
	128	2.9	3.1	3.2	2.6
	180	1.7	1.9	2.0	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

Table E.2.40. 2003 blue mussel tissue PCB concentrations (ng/g dry wt.) at the Presumpscot site, (MEPR); 43.6922°N, 70.2473°W

MEPR <i>Replicate</i>	(ng/g dry wt.)			
	<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>
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	6.3	5.6	6.2	5.3
87	<1.9	<1.9	<1.9	<1.9
77	<2.3	<2.3	<2.3	<2.3
118	4.4	3.9	4.1	3.5
153;132	9.6	9.2	9.0	8.3
105	<1.4	<1.4	1.5	<1.4
138	8.8	8.1	8.3	7.5
126	<1.9	<1.9	<1.9	<1.9
187	3.6	3.6	3.7	3.3
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

Table E.2.41. 2003 blue mussel tissue PCB concentrations (ng/g dry wt.) at the Kennebec River site, Perkins Island, ME (MEKN); 43.7850°N, 69.7845°W **Benchmark Site**

MEKN <i>Replicate</i>	(ng/g dry wt.)			
	<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>
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	<2.1	<2.1	<2.1	<2.1
105	<1.4	<1.4	<1.4	<1.4
138	<2	<2	<2	<2
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

Table E.2.42. 2003 blue mussel tissue PCB concentrations (ng/g dry wt.) at the Union River site, ME (MEUR); 44.5015°N, 68.4322°W

MEUR <i>Replicate</i>	(ng/g dry wt.)			
	<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>
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	<2.1	<2.1	<2.1	<2.1
105	<1.4	<1.4	<1.4	<1.4
138	<2	<2	<2	<2
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

Table E.2.43. 2003 blue mussel tissue PCB concentrations (ng/g dry wt.) at the Machias River site, ME (MEMR); 44.7137°N, 67.4035°W

MEMR <i>Replicate</i>	(ng/g dry wt.)			
	<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>
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	2.6	2.6	3.3	2.4
105	<1.4	<1.4	<1.4	<1.4
138	2.1	2.0	2.3	<2
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

Table E.2.44. 2003 blue mussel tissue PCB concentrations (ng/g dry wt.) at the Cobscook Bay site, ME (MECK); 44.9045°N, 67.0543°W #N-Dup represents duplicate analysis of site replicate.

MECK <i>Replicate</i>	(ng/g dry wt.)			
	<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>
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	<2.1	<2.1	<2.1	<2.1
105	<1.4	<1.4	<1.4	<1.4
138	<2	<2	<2	<2
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

Table E.2.45. 2003 blue mussel tissue PCB concentrations (ng/g dry wt.) at the St. Croix River site, NB (NBSC); 45.1675°N, 67.1638°W

NBSC <i>Replicate</i>	(ng/g dry wt.)			
	<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>
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	2.2	2.8	2.4	2.4
105	<2	<2	<2	<2
138	<2	2.1	<2	<2
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

Table E.2.46. 2003 blue mussel tissue PCB concentrations (ng/g dry wt.) at the Hospital Island site, NB (NBHI); 45.1205°N, 67.0082°W **Benchmark Site** #N-Dup represents duplicate analysis of site replicate.

NBHI Replicate	(ng/g dry wt.)			
	1N	2N	3N	4N
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	<2.1	<2.1	<2.1	<2.1
105	<2	<2	<2	<2
138	<2	<2	<2	<2
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

Table E.2.47. 2003 blue mussel tissue PCB concentrations (ng/g dry wt.) at the Letang Estuary site, NB (NBLB); 45.0757°N, 66.7963°W

NBLB <i>Replicate</i>	(ng/g dry wt.)			
	<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>
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	3.4	3.8	3.3	3.7
105	<2	<2	<2	<2
138	2.5	2.9	2.5	2.6
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

Table E.2.48. 2003 blue mussel tissue PCB concentrations (ng/g dry wt.) at the Apple River site, NS (NSAR); 45.4700°N, 64.8350°W

NSAR <i>Replicate</i>	(ng/g dry wt.)			
	<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>
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	<2.1	<2.1	<2.1	<2.1
105	<1.4	<1.4	<1.4	<1.4
138	<2	<2	<2	<2
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

Table E.2.49. 2003 blue mussel tissue PCB concentrations (ng/g dry wt.) at Digby, NS (NSDI); 44.6170°N, 65.7523°W
Benchmark Site #N-Dup represents duplicate analysis of site replicate.

NSDI	(ng/g dry wt.)					
	<i>Replicate</i>	<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>	<i>4N-Dup</i>
	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	<2.2	<2.2
	101;90	<2.2	<2.2	<2.2	<2.2	<2.2
	87	<1.9	<1.9	<1.9	<1.9	<1.9
	77	<2.3	<2.3	<2.3	<2.3	<2.3
	118	<2	<2	<2	<2	<2
	153;132	<2.1	<2.1	<2.1	<2.1	<2.1
	105	<1.4	<1.4	<1.4	<1.4	<1.4
	138	<2	<2	<2	<2	<2
	126	<1.9	<1.9	<1.9	<1.9	<1.9
	187	<1.9	<1.9	<1.9	<1.9	<1.9
	128	<1.9	<1.9	<1.9	<1.9	<1.9
	180	<1.7	<1.7	<1.7	<1.7	<1.7
	169	<1.7	<1.7	<1.7	<1.7	<1.7
	170;190	<1.8	<1.8	<1.8	<1.8	<1.8
	195;208	<1.8	<1.8	<1.8	<1.8	<1.8
	206	<1.7	<1.7	<1.7	<1.7	<1.7
	209	<1.7	<1.7	<1.7	<1.7	<1.7

Table E.2.50. 2003 blue mussel tissue PCB concentrations (ng/g dry wt.) at the Spechts Cove site, (NSSC); 44.5153°N, 65.9078°W

NSSC <i>Replicate</i>	(ng/g dry wt.)			
	<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>
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	<2.1	<2.1	<2.1	<2.1
105	<1.4	<1.4	<1.4	<1.4
138	<2	<2	<2	<2
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

GULFWATCH 2004

Table E.2.51. 2004 blue mussel tissue PCB concentrations (ng/g dry wt.) at Sandwich, MA, (MASN); 41.7622°N, 70.4730°W
Benchmark Site

MASN <i>Replicate</i>	(ng/g dry wt.)			
	<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>
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	2.7
87	<1.9	<1.9	<1.9	<1.9
77	<2.3	<2.3	<2.3	<2.3
118	2.2	2.3	2.7	3.5
153;132	4.5	4.8	5.5	7.3
105	<1.4	<1.4	<1.4	<1.4
138	4.2	4.5	4.9	6.5
126	<1.9	<1.9	<1.9	<1.9
187	<1.9	<1.9	1.9	2.6
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

Table E.2.52. 2004 blue mussel tissue PCB concentrations (ng/g dry wt.) at the Boston Inner Harbor site, MA (MAIH); 42.3637°N, 71.0284°W #N-Dup represents duplicate analysis of site replicate.

MAIH <i>Replicate</i>	(ng/g dry wt.)				
	<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>	<i>4N-Dup</i>
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	3.9	5.0	6.6	4.3	4.0
52	17.9	31.7	36.4	18.8	18.1
44	8.2	10.7	12.0	8.6	8.1
66;95	46.4	62.9	62.4	48.0	45.5
101;90	70.5	90.5	130.9	69.3	65.4
87	21.8	28.2	47.8	21.6	20.0
77	7.5	8.4	8.6	7.1	7.6
118	41.2	48.6	56.2	38.7	35.0
153;132	85.9	108.7	176.9	99.0	90.8
105	15.2	40.3	33.6	15.0	13.3
138	82.6	119.8	158.3	94.5	84.8
126	3.8	4.6	5.9	3.5	4.1
187	28.8	39.1	40.4	36.4	33.7
128	10.5	12.8	15.3	10.6	10.0
180	9.0	12.0	16.1	14.8	10.9
169	<1.7	<1.7	<1.7	<1.7	<1.7
170;190	3.3	3.7	4.9	4.0	3.6
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

Table E.2.53. 2004 blue mussel tissue PCB concentrations (ng/g dry wt.) at the Pines River site, MA (MAPR); 42.4312°N, 70.9793°W

MAPR	(ng/g dry wt.)			
<i>Replicate</i>	<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>
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	3.1	3.1	5.0	4.1
44	<2.3	<2.3	<2.3	<2.3
66;95	7.4	7.3	8.4	7.8
101;90	9.6	10.2	12.4	10.4
87	2.9	2.9	4.4	3.9
77	<2.3	<2.3	<2.3	<2.3
118	9.7	10.4	13.3	11.3
153;132	32.2	29.5	35.5	25.1
105	6.2	3.7	4.6	3.8
138	28.8	26.1	31.5	22.2
126	<1.9	<1.9	<1.9	<1.9
187	9.1	9.4	11.2	9.7
128	3.0	3.3	3.9	3.4
180	1.9	2.8	3.7	3.8
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

Table E.2.54. 2004 blue mussel tissue PCB concentrations (ng/g dry wt.) at Hampton/Seabrook estuary site, NH (NHHS); 42.8972°N, 70.8163°W#N-Dup represents duplicate analysis of site replicate.

NHHS <i>Replicate</i>	(ng/g dry wt.)				
	<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>	<i>4N-Dup</i>
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	<2.2	<2.2
101;90	<2.2	<2.2	<2.2	<2.2	<2.2
87	<1.9	<1.9	<1.9	<1.9	<1.9
77	<2.3	<2.3	<2.3	<2.3	<2.3
118	<2	2.1	<2	<2	<2
153;132	3.6	4.1	2.7	3.9	4.1
105	<1.4	<1.4	<1.4	<1.4	<1.4
138	3.1	3.4	2.4	3.2	3.3
126	<1.9	<1.9	<1.9	<1.9	<1.9
187	<1.9	<1.9	<1.9	<1.9	<1.9
128	<1.9	<1.9	<1.9	<1.9	<1.9
180	<1.7	<1.7	<1.7	<1.7	<1.7
169	<1.7	<1.7	<1.7	<1.7	<1.7
170;190	<1.8	<1.8	<1.8	<1.8	<1.8
195;208	<1.8	<1.8	<1.8	<1.8	<1.8
206	<1.7	<1.7	<1.7	<1.7	<1.7
209	<1.7	<1.7	<1.7	<1.7	<1.7

Table E.2.55. 2004 blue mussel tissue PCB concentrations (ng/g dry wt.) at Dover Point, NH, (NHDP); 43.1196°N, 70.8267°W #N-Dup represents duplicate analysis of site replicate.

NHDP <i>Replicate</i>	(ng/g dry wt.)			
	<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>
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	4.6	4.4	4.5	5.4
87	<1.9	<1.9	<1.9	<1.9
77	<2.3	<2.3	<2.3	<2.3
118	4.7	4.1	4.4	5.3
153;132	8.9	8.3	8.7	11.2
105	2.4	2.2	2.2	2.8
138	8.4	7.7	8.0	10.1
126	<1.9	<1.9	<1.9	<1.9
187	3.4	3.2	3.3	4.1
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

Table E.2.56. 2004 blue mussel tissue PCB concentrations (ng/g dry wt.) at Pierce Island, NH (NHPI); 43.0717°N, 70.7433°W

NHPI Replicate	(ng/g dry wt.)			
	1N	2N	3N	4N
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	2.4	2.8
101;90	3.3	2.6	3.8	4.5
87	<1.9	<1.9	<1.9	2.1
77	<2.3	<2.3	<2.3	<2.3
118	3.5	2.6	4.0	4.9
153;132	6.8	5.7	7.9	9.3
105	<1.4	<1.4	<1.4	<1.4
138	5.7	4.4	6.5	7.7
126	<1.9	<1.9	<1.9	<1.9
187	2.5	2.0	2.7	3.1
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

Table E.2.57. 2004 blue mussel tissue PCB concentrations (ng/g dry wt.) at the Fox Point site, Newington, NH (NHFP); 43.1201°N, 70.8589°W

NHFP <i>Replicate</i>	(ng/g dry wt.)			
	<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>
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	5.7	4.4	4.9	4.3
87	<1.9	<1.9	<1.9	<1.9
77	<2.3	<2.3	<2.3	<2.3
118	5.8	4.3	4.8	4.2
153;132	11.9	8.9	9.7	8.8
105	2.8	2.1	2.3	1.9
138	10.5	7.7	8.3	7.6
126	<1.9	<1.9	<1.9	<1.9
187	4.4	3.7	3.6	3.6
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

Table E.2.58. 2004 blue mussel tissue PCB concentrations (ng/g dry wt.) at the Clark's Cove site, Seavey Island, ME (MECC); 43.0774°N, 70.7244°W **Benchmark Site**

MECC Replicate	(ng/g dry wt.)			
	1N	2N	3N	4N
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	3.3	2.7	3.1	<2.2
101;90	5.2	4.5	4.8	3.2
87	2.1	<1.9	1.9	<1.9
77	<2.3	<2.3	<2.3	<2.3
118	5.3	4.7	4.9	3.2
153;132	10.8	10.0	10.8	7.0
105	2.5	1.9	2.0	<1.4
138	9.1	8.6	9.0	5.6
126	<1.9	<1.9	<1.9	<1.9
187	4.8	4.2	4.3	2.8
128	2.1	<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

Table E.2.59. 2004 blue mussel tissue PCB concentrations (ng/g dry wt.) at the Kennebec River site, Perkins Island, ME (MEKN); 43.7850°N, 69.7845°W **Benchmark Site**

MEKN <i>Replicate</i>	(ng/g dry wt.)			
	<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>
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	3.4	<2.2	<2.2
101;90	2.6	<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	5.8	4.6	6.1	3.1
105	<1.4	<1.4	<1.4	<1.4
138	4.0	3.5	4.7	2.4
126	<1.9	<1.9	<1.9	<1.9
187	2.3	2.1	<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

Table E.2.60. 2004 blue mussel tissue PCB concentrations (ng/g dry wt.) at the Damariscotta site, Wentworth Point, ME (MEDM); 43.9383°N, 69.5817°W

MEDM <i>Replicate</i>	(ng/g dry wt.)			
	<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>
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	<4.4	<4.4	<4.4	<4.4
153;132	<2.1	2.57	2.95	2.21
105	<1.4	<1.4	<1.4	<1.4
138	<2	<2	<2	<2
126	<1.9	<1.9	<1.9	<1.9
187	<2.3	<2.3	<2.3	<2.3
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

Table E.2.61. 2004 blue mussel tissue PCB concentrations (ng/g dry wt.) at Booth Bay Harbor, ME, (MEBB); 43.8507°N, 69.6727°W #N-Dup represents duplicate analysis of site replicate.

MEBB <i>Replicate</i>	(ng/g dry wt.)			
	<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>
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	6.80	6.22	6.07	5.05
87	<1.9	<1.9	<1.9	<1.9
77	<2.3	<2.3	<2.3	<2.3
118	5.98	4.96	5.12	<4.4
153;132	8.17	7.30	7.98	6.70
105	2.02	1.84	1.75	1.53
138	7.82	7.15	7.59	6.51
126	<1.9	<1.9	<1.9	<1.9
187	3.84	3.26	3.36	3.16
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

Table E.2.62. 2004 blue mussel tissue PCB concentrations (ng/g dry wt.) at the Niger Reef site, NB (NBNR); 45.0663°N, 67.0980°W#N-Dup represents duplicate analysis of site replicate.

NBNR	(ng/g dry wt.)				
	<i>Replicate</i>	<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>3N-Dup</i>
	8;5	<2.8	<2.8	<2.8	<2.8
	18;15	<2.7	<2.7	<2.7	<2.7
	29	<2.2	<2.2	<2.2	<2.2
	50	<2.4	<2.4	<2.4	<2.4
	28	<2.3	<2.3	<2.3	<2.3
	52	<2	<2	<2	<2
	44	<2.3	<2.3	<2.3	<2.3
	66;95	<2.2	<2.2	<2.2	<2.2
	101;90	<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	<2.1	<2.1	<2.1	<2.1
	105	<1.4	<1.4	<1.4	<1.4
	138	<2	<2	<2	<2
	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

Table E.2.63. 2004 blue mussel tissue PCB concentrations (ng/g dry wt.) at the Hospital Island site, NB (NBHI); 45.1205°N, 67.0082°W **Benchmark Site.**

NBHI Replicate	(ng/g dry wt.)			
	1N	2N	3N	4N
8;5	<2.8	<2.8	<2.8	<2.8
18;15	<2.7	<2.7	<2.7	<2.7
29	<2.2	<2.2	<2.2	<2.2
50	<2.4	<2.4	<2.4	<2.4
28	<2.3	<2.3	<2.3	<2.3
52	<2	<2	<2	<2
44	<2.3	<2.3	<2.3	<2.3
66;95	<2.2	<2.2	<2.2	<2.2
101;90	<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	<2.1	<2.1	<2.1	<2.1
105	<1.4	<1.4	<1.4	<1.4
138	<2	<2	<2	<2
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

Table E.2.64. 2004 blue mussel tissue PCB concentrations (ng/g dry wt.) at the Tin Can Beach site, NB (NBTC); 45.2625°N, 66.0570°W

NBTC <i>Replicate</i>	(ng/g dry wt.)			
	<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>
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	<2.1	3.6	3.0	2.7
105	<1.4	<1.4	<1.4	<1.4
138	<2	3.4	2.8	2.4
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

Table E.2.65. 2004 blue mussel tissue PCB concentrations (ng/g dry wt.) at Cornwallis, NS, (NSCW); 44.6447°N, 65.6480°W

NSCW	(ng/g dry wt.)			
<i>Replicate</i>	<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>
8;5	<2.8	<2.8	<2.8	<2.8
18;15	<2.7	<2.7	<2.7	<2.7
29	<2.2	<2.2	<2.2	<2.2
50	<2.4	<2.4	<2.4	<2.4
28	<2.3	<2.3	<2.3	<2.3
52	<2	<2	<2	<2
44	<2.3	<2.3	<2.3	<2.3
66;95	<2.2	<2.2	<2.2	<2.2
101;90	<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	<2.1	<2.1	<2.1	<2.1
105	<1.4	<1.4	<1.4	<1.4
138	<2	<2	<2	<2
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

Table E.2.66. 2004 blue mussel tissue PCB concentrations (ng/g dry wt.) at Digby, NS, (NSDI); 44.6170°N, 65.7523°W **Benchmark Site**

NSDI <i>Replicate</i>	(ng/g dry wt.)			
	<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>
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	<2.1	<2.1	<2.1	<2.1
105	<1.4	<1.4	<1.4	<1.4
138	<2	<2	<2	<2
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

Table E.1.67 2004 blue mussel tissue PCB concentrations (ng/g dry wt.) in Nova Scotia Grosse Coques (occasionally sampled) site (NSGC); 44.3728°N, 66.0950°W

<i>Replicate</i>	(ng/g dry wt.)			
	<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>
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	<2.1	<2.1	<2.1	<2.1
105	<1.4	<1.4	<1.4	<1.4
138	<2	<2	<2	<2
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

Table E.2.68. 2004 blue mussel tissue PCB concentrations (ng/g dry wt.) at Yarmouth, NS (NSYR); 43.8177°N, 66.1448°W#N-Dup represents duplicate analysis of site replicate.

<i>Replicate</i>	(ng/g dry wt.)				
	<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>3N-Dup</i>	<i>4N</i>
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	<2.2	<2.2
101;90	<2.2	<2.2	<2.2	<2.2	<2.2
87	<1.9	<1.9	<1.9	<1.9	<1.9
77	<2.3	<2.3	<2.3	<2.3	<2.3
118	<2	<2	<2	<2	<2
153;132	<2.1	<2.1	<2.1	<2.1	<2.1
105	<1.4	<1.4	<1.4	<1.4	<1.4
138	<2	<2	<2	<2	<2
126	<1.9	<1.9	<1.9	<1.9	<1.9
187	<1.9	<1.9	<1.9	<1.9	<1.9
128	<1.9	<1.9	<1.9	<1.9	<1.9
180	<1.7	<1.7	<1.7	<1.7	<1.7
169	<1.7	<1.7	<1.7	<1.7	<1.7
170;190	<1.8	<1.8	<1.8	<1.8	<1.8
195;208	<1.8	<1.8	<1.8	<1.8	<1.8
206	<1.7	<1.7	<1.7	<1.7	<1.7
209	<1.7	<1.7	<1.7	<1.7	<1.7

TABLES E.3 Pesticide concentration (ng/g dry wt.) observed in Mussel tissue collected by Gulfwatch, 2002-2004. "Int." indicates the presence of interferences during analysis. Stations are ordered by year, essentially clockwise in rotation, south (Massachusetts) to north (to Nova Scotia).

GULFWATCH 2002

Table E.3.1 2002 blue mussel tissue pesticide concentrations (ng/g dry wt.) at Sandwich, MA (MASN); 41.7645°N, 70.4840°W.

Benchmark Site #N-Dup represents duplicate analysis of site replicate.

MASN	(ng/g dry wt.)				
<i>Replicate</i>	<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>	<i>4N-Dup</i>
a_BHC	<5.0	<5.0	<5.0	<5.0	<5.0
HCB	<2.5	<2.5	<2.5	<2.5	<2.5
g-HCH(Lindane)	<3.0	<3.0	<3.0	<3.0	<3.0
Heptachlor	<3.5	<3.5	<3.5	<3.5	<3.5
Aldrin	<3.0	<3.0	<3.0	<3.0	<3.0
HeptachlorEpoxide	<3.5	<3.5	<3.5	<3.5	<3.5
g-Chlordane	<4.0	<4.0	<4.0	<4.0	<4.0
o,p'-DDE	<3.0	<3.0	<3.0	<3.0	<3.0
a-Endosulfan	<3.0	<3.0	<3.0	<3.0	<3.0
cis-Chlordane	<3.0	<3.0	<3.0	<3.0	<3.0
t-Nonachlor	<3.0	<3.0	<3.0	<3.0	<3.0
p,p'_DDE	3.9	5.1	5.2	4.9	4.3
Dieldrin	<3.0	<3.0	<3.0	<3.0	<3.0
o,p'-DDD	<3.0	<3.0	<3.0	<3.0	<3.0
Endrin	<3.0	<3.0	<3.0	<3.0	<3.0
b-Endosulfan	<3.0	<3.0	<3.0	<3.0	<3.0
p,p'-DDD	2.4	<2.0	2.7	2.4	2.2
o,p'-DDT	<2.0	<2.0	<2.0	<2.0	<2.0
p,p'-DDT	<5.0	<5.0	<5.0	<5.0	<5.0
Metoxychlor	<4.0	<4.0	<4.0	<4.0	<4.0
Mirex	<2.5	<2.5	<2.5	<2.5	<2.5

Table E.3.2 2002 Blue mussel pesticide concentrations (ng/g dry wt.) in Massachusetts inner Plymouth-Manomet Point station (MAPY); 41.9283°N, 70.5383°W

MAPY	(ng/g dry wt.)		
<i>Replicate</i>	<i>1N</i>	<i>2N</i>	<i>3N</i>
a_BHC	<5.0	<5.0	<5.0
HCB	<2.5	<2.5	<2.5
g-HCH(Lindane)	<3.0	<3.0	<3.0
Heptachlor	<3.5	<3.5	<3.5
Aldrin	<3.0	<3.0	<3.0
HeptachlorEpoxide	<3.5	<3.5	<3.5
g-Chlordane	<4.0	<4.0	<4.0
o,p'-DDE	<3.0	<3.0	<3.0
a-Endosulfan	<3.0	<3.0	<3.0
cis-Chlordane	<3.0	<3.0	<3.0
t-Nonachlor	<3.0	<3.0	<3.0
p,p'_DDE	3.3	3.2	3.3
Dieldrin	4.0	3.8	4.1
o,p'-DDD	<3.0	<3.0	<3.0
Endrin	<3.0	<3.0	<3.0
b-Endosulfan	<3.0	<3.0	<3.0
p,p'-DDD	3.2	2.7	3.4
o,p'-DDT	<2.0	<2.0	<2.0
p,p'-DDT	<5.0	<5.0	<5.0
Metoxychlor	<4.0	<4.0	<4.0
Mirex	<2.5	<2.5	<2.5

Table E.3.3 2002 blue mussel tissue pesticide concentrations
(ng/g dry wt.) at Massachusetts Little Harbor site,
Cohasset, MA (MACO); 42.2550°N, 70. 7900°W

MACO	(ng/g dry wt.)			
<i>Replicate</i>	<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>
a_BHC	<5.0	<5.0	<5.0	<5.0
HCB	<2.5	<2.5	<2.5	<2.5
g-HCH(Lindane)	<3.0	<3.0	<3.0	<3.0
Heptachlor	<3.5	<3.5	<3.5	<3.5
Aldrin	<3.0	<3.0	<3.0	<3.0
HeptachlorEpoxide	<3.5	<3.5	<3.5	<3.5
g-Chlordane	<4.0	<4.0	<4.0	<4.0
o,p'-DDE	<3.0	<3.0	<3.0	<3.0
a-Endosulfan	<3.0	<3.0	<3.0	<3.0
cis-Chlordane	<3.0	<3.0	<3.0	<3.0
t-Nonachlor	<3.0	<3.0	<3.0	<3.0
p,p'_DDE	10.0	10.4	10.1	9.9
Dieldrin	<3.0	<3.0	<3.0	<3.0
o,p'-DDD	<3.0	<3.0	<3.0	<3.0
Endrin	<3.0	<3.0	<3.0	<3.0
b-Endosulfan	<3.0	<3.0	<3.0	<3.0
p,p'-DDD	6.8	7.8	6.6	6.4
o,p'-DDT	<2.0	<2.0	<2.0	<2.0
p,p'-DDT	<5.0	<5.0	<5.0	<5.0
Metoxychlor	<4.0	<4.0	<4.0	<4.0
Mirex	<2.5	<2.5	<2.5	<2.5

Table E.3.4 2002 blue mussel tissue pesticide concentrations
(ng/g dry wt.) at Long Island, Boston Harbor (MALI);
42.3283°N, 70.9550°W

MALI	(ng/g dry wt.)			
<i>Replicate</i>	<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>
a_BHC	<5.0	<5.0	<5.0	<5.0
HCB	<2.5	<2.5	<2.5	<2.5
g-HCH(Lindane)	<3.0	<3.0	<3.0	<3.0
Heptachlor	<3.5	<3.5	<3.5	<3.5
Aldrin	<3.0	<3.0	<3.0	<3.0
HeptachlorEpoxide	<3.5	<3.5	<3.5	<3.5
g-Chlordane	<4.0	<4.0	<4.0	<4.0
o,p'-DDE	<3.0	<3.0	<3.0	<3.0
a-Endosulfan	<3.0	<3.0	<3.0	<3.0
cis-Chlordane	3.2	3.2	4.1	3.6
t-Nonachlor	3.7	3.1	4.6	3.3
p,p'_DDE	11.5	9.8	14.6	12.6
Dieldrin	<3.0	<3.0	<3.0	<3.0
o,p'-DDD	<3.0	<3.0	3.3	<3.0
Endrin	<3.0	<3.0	<3.0	<3.0
b-Endosulfan	<3.0	<3.0	<3.0	<3.0
p,p'-DDD	14.5	9.7	12.4	9.0
o,p'-DDT	<2.0	<2.0	<2.0	<2.0
p,p'-DDT	<5.0	<5.0	<5.0	<5.0
Metoxychlor	<4.0	<4.0	<4.0	<4.0
Mirex	<2.5	<2.5	<2.5	<2.5

Table E.3.5 2002 blue mussel tissue pesticide concentrations
(ng/g dry wt.) at Marblehead, MA (MAMH);
42.4983°N, 70.8483°W

MAMH <i>Replicate</i>	(ng/g dry wt.)		
	<i>1N</i>	<i>2N</i>	<i>3&4N</i>
a_BHC	<5.0	<5.0	<5.0
HCB	<2.5	<2.5	<2.5
g-HCH(Lindane)	<3.0	<3.0	<3.0
Heptachlor	<3.5	<3.5	<3.5
Aldrin	<3.0	<3.0	<3.0
HeptachlorEpoxide	<3.5	<3.5	<3.5
g-Chlordane	<4.0	<4.0	<4.0
o,p'-DDE	<3.0	<3.0	<3.0
a-Endosulfan	<3.0	<3.0	<3.0
cis-Chlordane	<3.0	<3.0	<3.0
t-Nonachlor	<3.0	<3.0	<3.0
p,p'_DDE	4.1	3.8	3.3
Dieldrin	<3.0	<3.0	<3.0
o,p'-DDD	<3.0	<3.0	<3.0
Endrin	<3.0	<3.0	<3.0
b-Endosulfan	<3.0	<3.0	<3.0
p,p'-DDD	3.6	4.4	2.9
o,p'-DDT	<2.0	<2.0	<2.0
p,p'-DDT	<5.0	<5.0	<5.0
Metoxychlor	<4.0	<4.0	<4.0
Mirex	<2.5	<2.5	<2.5

Table E.3.6 Blue mussel tissue pesticide concentrations (ng/g dry wt.) at the Merrimack River site, MA (MAME); 42.8083°N, 70.8233°W. #N-Dup represents duplicate analysis of site replicate.

MAME <i>Replicate</i>	(ng/g dry wt.)				
	<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>	<i>4N-Dup</i>
a_BHC	<5.0	<5.0	<5.0	<5.0	<5.0
HCB	<2.5	<2.5	<2.5	<2.5	<2.5
g-HCH(Lindane)	<3.0	<3.0	<3.0	<3.0	<3.0
Heptachlor	<3.5	<3.5	<3.5	<3.5	<3.5
Aldrin	<3.0	<3.0	<3.0	<3.0	<3.0
HeptachlorEpoxide	<3.5	<3.5	<3.5	<3.5	<3.5
g-Chlordane	<4.0	<4.0	<4.0	<4.0	<4.0
o,p'-DDE	<3.0	<3.0	<3.0	<3.0	<3.0
a-Endosulfan	<3.0	<3.0	<3.0	<3.0	<3.0
cis-Chlordane	<3.0	<3.0	<3.0	<3.0	<3.0
t-Nonachlor	<3.0	<3.0	<3.0	<3.0	<3.0
p,p'_DDE	6.5	7.4	7.2	7.8	8.8
Dieldrin	<3.0	4.0	4.3	5.6	3.8
o,p'-DDD	<3.0	<3.0	<3.0	<3.0	<3.0
Endrin	<3.0	<3.0	<3.0	<3.0	<3.0
b-Endosulfan	<3.0	<3.0	<3.0	<3.0	<3.0
p,p'-DDD	4.6	4.8	5.3	4.8	5.0
o,p'-DDT	<2.0	<2.0	<2.0	<2.0	<2.0
p,p'-DDT	<5.0	<5.0	<5.0	<5.0	<5.0
Metoxychlor	<4.0	<4.0	<4.0	<4.0	<4.0
Mirex	<2.5	<2.5	<2.5	<2.5	<2.5

Table E.3.7 Blue mussel tissue pesticide concentrations (ng/g dry wt.) at the Hampton/Seabrook estuary, NH site (NHHS); 42.8917°N, 70.8167°W

NHHS <i>Replicate</i>	(ng/g dry wt.)			
	<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>
a_BHC	<5.0	<5.0	<5.0	<5.0
HCB	<2.5	<2.5	<2.5	<2.5
g-HCH(Lindane)	<3.0	<3.0	<3.0	<3.0
Heptachlor	<3.5	<3.5	<3.5	<3.5
Aldrin	<3.0	<3.0	<3.0	<3.0
HeptachlorEpoxide	<3.5	<3.5	<3.5	<3.5
g-Chlordane	<4.0	<4.0	<4.0	<4.0
o,p'-DDE	<3.0	<3.0	<3.0	<3.0
a-Endosulfan	<3.0	<3.0	<3.0	<3.0
cis-Chlordane	<3.0	<3.0	<3.0	<3.0
t-Nonachlor	<3.0	<3.0	<3.0	<3.0
p,p'_DDE	3.3	4.3	4.3	2.8
Dieldrin	<3.0	<3.0	<3.0	<3.0
o,p'-DDD	<3.0	<3.0	<3.0	<3.0
Endrin	<3.0	<3.0	<3.0	<3.0
b-Endosulfan	<3.0	<3.0	<3.0	<3.0
p,p'-DDD	<2.0	2.1	2.3	<2.0
o,p'-DDT	<2.0	<2.0	<2.0	<2.0
p,p'-DDT	<5.0	<5.0	<5.0	<5.0
Metoxychlor	<4.0	<4.0	<4.0	<4.0
Mirex	<2.5	<2.5	<2.5	<2.5

Table E.3.8 2002 blue mussel tissue pesticide concentrations
(ng/g dry wt.), Rye Harbor, NH (NHRH); 43.0000°N,
70.7438°W

NHRH <i>Replicate</i>	(ng/g dry wt.)			
	<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>
a_BHC	<5.0	<5.0	<5.0	<5.0
HCB	<2.5	<2.5	<2.5	<2.5
g-HCH(Lindane)	<3.0	<3.0	<3.0	<3.0
Heptachlor	<3.5	<3.5	<3.5	<3.5
Aldrin	<3.0	<3.0	<3.0	<3.0
HeptachlorEpoxide	<3.5	<3.5	<3.5	<3.5
g-Chlordane	<4.0	<4.0	<4.0	<4.0
o,p'-DDE	<3.0	<3.0	<3.0	<3.0
a-Endosulfan	<3.0	<3.0	<3.0	<3.0
cis-Chlordane	<3.0	<3.0	<3.0	<3.0
t-Nonachlor	<3.0	<3.0	<3.0	<3.0
p,p'_DDE	2.4	3.2	3.0	2.5
Dieldrin	<3.0	<3.0	<3.0	<3.0
o,p'-DDD	<3.0	<3.0	<3.0	<3.0
Endrin	<3.0	<3.0	<3.0	<3.0
b-Endosulfan	<3.0	<3.0	<3.0	<3.0
p,p'-DDD	<2.0	<2.0	<2.0	<2.0
o,p'-DDT	<2.0	<2.0	<2.0	<2.0
p,p'-DDT	<5.0	<5.0	<5.0	<5.0
Metoxychlor	<4.0	<4.0	<4.0	<4.0
Mirex	<2.5	<2.5	<2.5	<2.5

Table E.3.9 2002 blue mussel tissue pesticide concentrations (ng/g dry wt.) at North Mill Pond, NH (NHNM); 43.0750°N, 70.7600°W.

NHNM <i>Replicate</i>	(ng/g dry wt.)			
	<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>
a_BHC	<5.0	<5.0	<5.0	<5.0
HCB	<2.5	<2.5	<2.5	<2.5
g-HCH(Lindane)	<3.0	<3.0	<3.0	<3.0
Heptachlor	<3.5	<3.5	<3.5	<3.5
Aldrin	<3.0	<3.0	<3.0	<3.0
HeptachlorEpoxide	<3.5	<3.5	<3.5	<3.5
g-Chlordane	<4.0	<4.0	<4.0	<4.0
o,p'-DDE	<3.0	<3.0	<3.0	<3.0
a-Endosulfan	<3.0	<3.0	<3.0	<3.0
cis-Chlordane	3.0	<3.0	3.1	<3.0
t-Nonachlor	<3.0	<3.0	<3.0	<3.0
p,p'_DDE	13.3	14.5	16.4	17.8
Dieldrin	<3.0	<3.0	<3.0	<3.0
o,p'-DDD	7.5	7.7	9.3	10.1
Endrin	<3.0	<3.0	<3.0	<3.0
b-Endosulfan	<3.0	<3.0	<3.0	<3.0
p,p'-DDD	26.7	25.0	33.9	39.3
o,p'-DDT	<2.0	<2.0	<2.0	<2.0
p,p'-DDT	12.5	14.9	12.1	9.2
Metoxychlor	<4.0	<4.0	<4.0	<4.0
Mirex	<2.5	<2.5	<2.5	<2.5

Table E.3.10 2002 *oyster* tissue pesticide concentrations (ng/g dry wt.) at Nannie Island (expanded Gulfwatch) site (NHNI); 43.1344°N, 70.8471°W

NHNI <i>Replicate</i>	(ng/g dry wt.)	
	<i>1</i>	<i>2</i>
a_BHC	<5.0	<5.0
HCB	<2.5	<2.5
g-HCH(Lindane)	<3.0	<3.0
Heptachlor	<3.5	<3.5
Aldrin	<3.0	<3.0
HeptachlorEpoxide	<3.5	<3.5
g-Chlordane	Int	Int
o,p'-DDE	<3.0	<3.0
a-Endosulfan	<3.0	<3.0
cis-Chlordane	<3.0	<3.0
t-Nonachlor	<3.0	<3.0
p,p'_DDE	23.5	35.3
Dieldrin	<3.0	<3.0
o,p'-DDD	<3.0	<3.0
Endrin	<3.0	<3.0
b-Endosulfan	<3.0	<3.0
p,p'-DDD	2.5	3.6
o,p'-DDT	<2.0	<2.0
p,p'-DDT	<5.0	<5.0
Metoxychlor	<4.0	<4.0
Mirex	<2.5	<2.5

Table E.3.11 2000 *clam* tissue pesticide concentrations (ng/g dry wt.) at the Middle Ground site (expanded Gulfwatch), NH (NHMG); 42.8922°N, 70.7883°W

NHMG <i>Replicate</i>	(ng/g dry wt.)	
	<i>1</i>	<i>2</i>
a_BHC	<5.0	<5.0
HCB	<2.5	<2.5
g-HCH(Lindane)	<3.0	<3.0
Heptachlor	<3.5	<3.5
Aldrin	<3.0	<3.0
HeptachlorEpoxide	<3.5	<3.5
g-Chlordane	<4.0	<4.0
o,p'-DDE	<3.0	<3.0
a-Endosulfan	<3.0	<3.0
cis-Chlordane	<3.0	<3.0
t-Nonachlor	<3.0	<3.0
p,p'_DDE	<2.0	<2.0
Dieldrin	<3.0	<3.0
o,p'-DDD	<3.0	<3.0
Endrin	<3.0	<3.0
b-Endosulfan	<3.0	<3.0
p,p'-DDD	<2.0	<2.0
o,p'-DDT	<2.0	<2.0
p,p'-DDT	<5.0	<5.0
Metoxychlor	<4.0	<4.0
Mirex	<2.5	<2.5

Table E.3.12 2002 blue mussel tissue pesticide concentrations (ng/g dry wt.) at Dover Point, NH (NHDP); 43.1196°N, 70.8267°W
#N-Dup represents duplicate analysis of site replicate.

NHDP <i>Replicate</i>	(ng/g dry wt.)				
	<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>	<i>4N-Dup</i>
a_BHC	<5.0	<5.0	<5.0	<5.0	<5.0
HCB	<2.5	<2.5	<2.5	<2.5	<2.5
g-HCH(Lindane)	<3.0	<3.0	<3.0	<3.0	<3.0
Heptachlor	<3.5	<3.5	<3.5	<3.5	<3.5
Aldrin	<3.0	<3.0	<3.0	<3.0	<3.0
HeptachlorEpoxide	<3.5	<3.5	<3.5	<3.5	<3.5
g-Chlordane	<4.0	<4.0	<4.0	<4.0	<4.0
o,p'-DDE	<3.0	<3.0	<3.0	<3.0	<3.0
a-Endosulfan	<3.0	<3.0	<3.0	<3.0	<3.0
cis-Chlordane	<3.0	<3.0	<3.0	<3.0	<3.0
t-Nonachlor	<3.0	<3.0	<3.0	<3.0	<3.0
p,p'_DDE	6.5	6.8	6.0	6.1	6.2
Dieldrin	<3.0	<3.0	<3.0	<3.0	<3.0
o,p'-DDD	<3.0	<3.0	<3.0	<3.0	<3.0
Endrin	<3.0	<3.0	<3.0	<3.0	<3.0
b-Endosulfan	<3.0	<3.0	<3.0	<3.0	<3.0
p,p'-DDD	<2.0	4.2	2.7	2.8	3.9
o,p'-DDT	<2.0	<2.0	<2.0	<2.0	<2.0
p,p'-DDT	<5.0	<5.0	<5.0	<5.0	<5.0
Metoxychlor	<4.0	<4.0	<4.0	<4.0	<4.0
Mirex	<2.5	<2.5	<2.5	<2.5	<2.5

Table E.3.13 2002 blue mussel tissue pesticide concentrations (ng/g dry wt.) at Schiller Station (NHSS); 43.1017°N, 70.7883°W

NHSS <i>Replicate</i>	(ng/g dry wt.)			
	<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>
a_BHC	<5.0	<5.0	<5.0	<5.0
HCB	<2.5	<2.5	<2.5	<2.5
g-HCH(Lindane)	<3.0	<3.0	<3.0	<3.0
Heptachlor	<3.5	<3.5	<3.5	<3.5
Aldrin	<3.0	<3.0	<3.0	<3.0
HeptachlorEpoxide	<3.5	<3.5	<3.5	<3.5
g-Chlordane	<4.0	<4.0	<4.0	<4.0
o,p'-DDE	<3.0	<3.0	<3.0	<3.0
a-Endosulfan	<3.0	<3.0	<3.0	<3.0
cis-Chlordane	<3.0	<3.0	<3.0	<3.0
t-Nonachlor	<3.0	<3.0	<3.0	<3.0
p,p'_DDE	3.3	4.3	4.3	2.8
Dieldrin	<3.0	<3.0	<3.0	<3.0
o,p'-DDD	<3.0	<3.0	<3.0	<3.0
Endrin	<3.0	<3.0	<3.0	<3.0
b-Endosulfan	<3.0	<3.0	<3.0	<3.0
p,p'-DDD	<2.0	2.1	2.3	<2.0
o,p'-DDT	<2.0	<2.0	<2.0	<2.0
p,p'-DDT	<5.0	<5.0	<5.0	<5.0
Metoxychlor	<4.0	<4.0	<4.0	<4.0
Mirex	<2.5	<2.5	<2.5	<2.5

Table E.3.14 2002 blue mussel tissue pesticide concentrations (ng/g dry wt.) at Clark's Cove, ME (MECC); 43.0774°N, 70.7244°W.
Benchmark Site #N-Dup represents duplicate analysis of site replicate.

MECC	(ng/g dry wt.)				
<i>Replicate</i>	<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>	<i>4N-Dup</i>
a_BHC	<5.0	<5.0	<5.0	<5.0	<5.0
HCB	<2.5	<2.5	<2.5	<2.5	<2.5
g-HCH(Lindane)	<3.0	<3.0	<3.0	<3.0	<3.0
Heptachlor	<3.5	<3.5	<3.5	<3.5	<3.5
Aldrin	<3.0	<3.0	<3.0	<3.0	<3.0
HeptachlorEpoxide	<3.5	<3.5	<3.5	<3.5	<3.5
g-Chlordane	<4.0	5.7	<4.0	<4.0	4.3
o,p'-DDE	<3.0	<3.0	<3.0	<3.0	<3.0
a-Endosulfan	<3.0	<3.0	<3.0	<3.0	<3.0
cis-Chlordane	<3.0	<3.0	<3.0	<3.0	<3.0
t-Nonachlor	<3.0	<3.0	<3.0	<3.0	<3.0
p,p'_DDE	4.5	6.4	6.4	6.3	6.3
Dieldrin	<3.0	<3.0	<3.0	<3.0	<3.0
o,p'-DDD	<3.0	<3.0	<3.0	<3.0	<3.0
Endrin	<3.0	<3.0	<3.0	<3.0	<3.0
b-Endosulfan	<3.0	<3.0	<3.0	<3.0	<3.0
p,p'-DDD	<2.0	3.1	2.8	2.4	3.4
o,p'-DDT	<2.0	<2.0	<2.0	2.6	<2.0
p,p'-DDT	<5.0	<5.0	<5.0	<5.0	<5.0
Metoxychlor	<4.0	<4.0	<4.0	<4.0	<4.0
Mirex	<2.5	<2.5	<2.5	<2.5	<2.5

Table E.3.15 2002 blue mussel tissue pesticide concentrations
(ng/g dry wt.) at Brave Boat Harbor, ME (MEBH);
43.0933°N, 70.6233°W

MEBH	(ng/g dry wt.)			
<i>Replicate</i>	<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>
a_BHC	<5.0	<5.0	<5.0	<5.0
HCB	<2.5	<2.5	<2.5	<2.5
g-HCH(Lindane)	<3.0	<3.0	<3.0	<3.0
Heptachlor	<3.5	<3.5	<3.5	<3.5
Aldrin	<3.0	<3.0	<3.0	<3.0
HeptachlorEpoxide	<3.5	<3.5	<3.5	<3.5
g-Chlordane	<4.0	<4.0	<4.0	<4.0
o,p'-DDE	<3.0	<3.0	<3.0	<3.0
a-Endosulfan	<3.0	<3.0	<3.0	<3.0
cis-Chlordane	<3.0	<3.0	<3.0	<3.0
t-Nonachlor	<3.0	<3.0	<3.0	<3.0
p,p'_DDE	3.3	3.6	3.4	3.2
Dieldrin	<3.0	<3.0	<3.0	<3.0
o,p'-DDD	<3.0	<3.0	<3.0	<3.0
Endrin	<3.0	<3.0	<3.0	<3.0
b-Endosulfan	<3.0	<3.0	<3.0	<3.0
p,p'-DDD	<2.0	<2.0	<2.0	<2.0
o,p'-DDT	<2.0	<2.0	<2.0	<2.0
p,p'-DDT	<5.0	<5.0	<5.0	<5.0
Metoxychlor	<4.0	<4.0	<4.0	<4.0
Mirex	<2.5	<2.5	<2.5	<2.5

Table E.3.16 2002 blue mussel tissue pesticide concentrations
(ng/g dry wt.) at the Royal River site, ME (MERY);
43.7970°N, 70.1455°W

MERY	(ng/g dry wt.)			
<i>Replicate</i>	<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>
a_BHC	<5.0	<5.0	<5.0	<5.0
HCB	<2.5	<2.5	<2.5	<2.5
g-HCH(Lindane)	<3.0	<3.0	<3.0	<3.0
Heptachlor	<3.5	<3.5	<3.5	<3.5
Aldrin	<3.0	<3.0	<3.0	<3.0
HeptachlorEpoxide	<3.5	<3.5	<3.5	<3.5
g-Chlordane	<4.0	<4.0	<4.0	<4.0
o,p'-DDE	<3.0	<3.0	<3.0	<3.0
a-Endosulfan	<3.0	<3.0	<3.0	<3.0
cis-Chlordane	<3.0	<3.0	<3.0	<3.0
t-Nonachlor	<3.0	<3.0	<3.0	<3.0
p,p'_DDE	8.1	7.9	7.1	8.8
Dieldrin	<3.0	<3.0	<3.0	<3.0
o,p'-DDD	<3.0	<3.0	<3.0	<3.0
Endrin	<3.0	<3.0	<3.0	<3.0
b-Endosulfan	<3.0	<3.0	<3.0	<3.0
p,p'-DDD	3.7	4.2	3.5	4.0
o,p'-DDT	<2.0	<2.0	<2.0	<2.0
p,p'-DDT	<5.0	<5.0	<5.0	<5.0
Metoxychlor	<4.0	<4.0	<4.0	<4.0
Mirex	<2.5	<2.5	<2.5	<2.5

Table E.3.17 Blue mussel tissue pesticide concentrations (ng/g dry wt.) at the Kennebec River site, ME (MEKN); 43.7850°N, 69.7845°W **Benchmark Site**

MEKN <i>Replicate</i>	(ng/g dry wt.)			
	<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>
a_BHC	<5.0	<5.0	<5.0	<5.0
HCB	<2.5	<2.5	<2.5	<2.5
g-HCH(Lindane)	<3.0	<3.0	<3.0	<3.0
Heptachlor	<3.5	<3.5	<3.5	<3.5
Aldrin	<3.0	<3.0	<3.0	<3.0
HeptachlorEpoxide	<3.5	<3.5	<3.5	<3.5
g-Chlordane	<4.0	<4.0	<4.0	<4.0
o,p'-DDE	<3.0	<3.0	<3.0	<3.0
a-Endosulfan	<3.0	<3.0	<3.0	<3.0
cis-Chlordane	<3.0	<3.0	<3.0	<3.0
t-Nonachlor	<3.0	<3.0	<3.0	<3.0
p,p'_DDE	4.6	5.6	6.0	5.4
Dieldrin	<3.0	<3.0	<3.0	<3.0
o,p'-DDD	<3.0	<3.0	<3.0	<3.0
Endrin	<3.0	<3.0	<3.0	<3.0
b-Endosulfan	<3.0	<3.0	<3.0	<3.0
p,p'-DDD	<2.0	<2.0	2.3	<2.0
o,p'-DDT	<2.0	<2.0	<2.0	<2.0
p,p'-DDT	<5.0	<5.0	<5.0	<5.0
Metoxychlor	<4.0	<4.0	<4.0	<4.0
Mirex	<2.5	<2.5	<2.5	<2.5

Table E.3.18 2002 blue mussel tissue pesticide concentrations (ng/g dry wt.) at the Penobscot River site, ME (MEFP); 44.4695°N, 68.8102°W

MEFP	(ng/g dry wt.)			
<i>Replicate</i>	<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>
a_BHC	<5.0	<5.0	<5.0	<5.0
HCB	<2.5	<2.5	<2.5	<2.5
g-HCH(Lindane)	<3.0	<3.0	<3.0	<3.0
Heptachlor	<3.5	<3.5	<3.5	<3.5
Aldrin	<3.0	<3.0	<3.0	<3.0
HeptachlorEpoxide	<3.5	<3.5	<3.5	<3.5
g-Chlordane	<4.0	<4.0	<4.0	<4.0
o,p'-DDE	<3.0	<3.0	<3.0	<3.0
a-Endosulfan	<3.0	<3.0	<3.0	<3.0
cis-Chlordane	<3.0	<3.0	<3.0	<3.0
t-Nonachlor	<3.0	<3.0	<3.0	<3.0
p,p'_DDE	2.3	7.4	6.9	7.0
Dieldrin	<3.0	<3.0	<3.0	<3.0
o,p'-DDD	<3.0	<3.0	<3.0	<3.0
Endrin	<3.0	<3.0	<3.0	<3.0
b-Endosulfan	<3.0	<3.0	<3.0	<3.0
p,p'-DDD	4.1	4.9	5.0	5.0
o,p'-DDT	<2.0	<2.0	<2.0	<2.0
p,p'-DDT	<5.0	<5.0	<5.0	<5.0
Metoxychlor	<4.0	<4.0	<4.0	<4.0
Mirex	<2.5	<2.5	<2.5	<2.5

Table E.3.19 2002 blue mussel tissue pesticide concentrations (ng/g dry wt.) at the Pickering Island site, ME (MEPI); 44.2605°N, 68.7332°W #N-Dup represents duplicate analysis of site replicate.

MEPI	(ng/g dry wt.)				
	Replicate	1N	2N	3N	3N-Dup
a_BHC		<5.0	<5.0	<5.0	<5.0
HCB		<2.5	<2.5	<2.5	<2.5
g-HCH(Lindane)		<3.0	<3.0	<3.0	<3.0
Heptachlor		<3.5	<3.5	<3.5	<3.5
Aldrin		<3.0	<3.0	<3.0	<3.0
HeptachlorEpoxide		<3.5	<3.5	<3.5	<3.5
g-Chlordane		<4.0	<4.0	<4.0	<4.0
o,p'-DDE		<3.0	<3.0	<3.0	<3.0
a-Endosulfan		<3.0	<3.0	<3.0	<3.0
cis-Chlordane		<3.0	<3.0	<3.0	<3.0
t-Nonachlor		<3.0	<3.0	<3.0	<3.0
p,p'_DDE		<2.0	3.2	<2.0	<2.0
Dieldrin		<3.0	<3.0	<3.0	<3.0
o,p'-DDD		<3.0	<3.0	<3.0	<3.0
Endrin		<3.0	<3.0	<3.0	<3.0
b-Endosulfan		<3.0	<3.0	<3.0	<3.0
p,p'-DDD		<2.0	<2.0	<2.0	<2.0
o,p'-DDT		<2.0	<2.0	<2.0	<2.0
p,p'-DDT		<5.0	<5.0	<5.0	<5.0
Metoxychlor		<4.0	<4.0	<4.0	<4.0
Mirex		<2.5	<2.5	<2.5	<2.5

Table E.3.20 2002 blue mussel tissue pesticide concentrations (ng/g dry wt.) at the St. Croix River site, NB (NBSC); 45.1675°N, 67.1638°W

NBSC <i>Replicate</i>	(ng/g dry wt.)			
	<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>
a_BHC	<5.0	<5.0	<5.0	<5.0
HCB	<2.5	<2.5	<2.5	<2.5
g-HCH(Lindane)	<3.0	<3.0	<3.0	<3.0
Heptachlor	<3.5	<3.5	<3.5	<3.5
Aldrin	<3.0	<3.0	<3.0	<3.0
HeptachlorEpoxide	<3.5	<3.5	<3.5	<3.5
g-Chlordane	<4.0	<4.0	<4.0	<4.0
o,p'-DDE	<3.0	<3.0	<3.0	<3.0
a-Endosulfan	<3.0	<3.0	<3.0	<3.0
cis-Chlordane	<3.0	<3.0	<3.0	<3.0
t-Nonachlor	3.0	<3.0	<3.0	<3.0
p,p'_DDE	2.9	<2.0	2.7	<2.0
Dieldrin	<3.0	<3.0	<3.0	<3.0
o,p'-DDD	<3.0	<3.0	<3.0	<3.0
Endrin	<3.0	<3.0	<3.0	<3.0
b-Endosulfan	<3.0	<3.0	<3.0	<3.0
p,p'-DDD	<2.0	<2.0	<2.0	<2.0
o,p'-DDT	<2.0	<2.0	<2.0	<2.0
p,p'-DDT	<5.0	<5.0	<5.0	<5.0
Metoxychlor	<4.0	Int	<4.0	Int
Mirex	<2.5	<2.5	<2.5	<2.5

Table E.3.21 2002 blue mussel tissue pesticide concentrations (ng/g dry wt.) at the Hospital Island site, NB (NBHI); 45.1205°N, 66.0082°W **Benchmark Site**

NBHI	(ng/g dry wt.)			
<i>Replicate</i>	<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>
a_BHC	<5.0	<5.0	<5.0	<5.0
HCB	<2.5	<2.5	<2.5	<2.5
g-HCH(Lindane)	<3.0	<3.0	<3.0	<3.0
Heptachlor	<3.5	<3.5	3.8	3.8
Aldrin	<3.0	<3.0	<3.0	<3.0
HeptachlorEpoxide	Int	<3.5	4.0	<3.5
g-Chlordane	<4.0	<4.0	<4.0	<4.0
o,p'-DDE	<3.0	<3.0	<3.0	<3.0
a-Endosulfan	<3.0	<3.0	<3.0	<3.0
cis-Chlordane	<3.0	<3.0	<3.0	<3.0
t-Nonachlor	<3.0	<3.0	<3.0	<3.0
p,p'_DDE	<2.0	6.1	<2.0	<2.0
Dieldrin	<3.0	<3.0	<3.0	<3.0
o,p'-DDD	<3.0	<3.0	<3.0	<3.0
Endrin	<3.0	<3.0	<3.0	<3.0
b-Endosulfan	<3.0	<3.0	<3.0	<3.0
p,p'-DDD	<2.0	<2.0	<2.0	<2.0
o,p'-DDT	<2.0	<2.0	<2.0	<2.0
p,p'-DDT	<5.0	<5.0	<5.0	<5.0
Metoxychlor	<4.0	<4.0	<4.0	<4.0
Mirex	<2.5	<2.5	<2.5	<2.5

Table E.3.22 2002 blue mussel tissue pesticide concentrations (ng/g dry wt.) at the Letang Estuary site, NB (NBLN); 45.0757°N, 66.7963°W

NBLN	(ng/g dry wt.)			
<i>Replicate</i>	<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>
a_BHC	<5.0	<5.0	<5.0	<5.0
HCB	<2.5	<2.5	<2.5	<2.5
g-HCH(Lindane)	<3.0	<3.0	<3.0	<3.0
Heptachlor	<3.5	<3.5	<3.5	<3.5
Aldrin	<3.0	<3.0	<3.0	<3.0
HeptachlorEpoxide	<3.5	<3.5	<3.5	<3.5
g-Chlordane	<4.0	<4.0	<4.0	<4.0
o,p'-DDE	<3.0	<3.0	<3.0	<3.0
a-Endosulfan	<3.0	<3.0	<3.0	<3.0
cis-Chlordane	<3.0	<3.0	<3.0	<3.0
t-Nonachlor	<3.0	<3.0	<3.0	<3.0
p,p'_DDE	4.7	5.7	4.7	4.4
Dieldrin	<3.0	<3.0	<3.0	<3.0
o,p'-DDD	<3.0	<3.0	<3.0	<3.0
Endrin	<3.0	<3.0	<3.0	<3.0
b-Endosulfan	<3.0	<3.0	<3.0	<3.0
p,p'-DDD	<2.0	<2.0	<2.0	<2.0
o,p'-DDT	<2.0	<2.0	<2.0	<2.0
p,p'-DDT	<5.0	<5.0	<5.0	<5.0
Metoxychlor	<4.0	<4.0	<4.0	<4.0
Mirex	<2.5	<2.5	<2.5	<2.5

Table E.3.23 2002 blue mussel tissue pesticide concentrations (ng/g dry wt.) at the Argyle Sound site, NS (NSAG); 43.6990°N, 65.8182°W #N-Dup represents duplicate analysis of site replicate.

NSAG	(ng/g dry wt.)				
	<i>Replicate</i>	<i>1N</i>	<i>2N</i>	<i>3N-Dup</i>	<i>4N</i>
a_BHC		<5.0	<5.0	<5.0	<5.0
HCB		<2.5	<2.5	<2.5	<2.5
g-HCH(Lindane)		<3.0	<3.0	<3.0	<3.0
Heptachlor		<3.5	<3.5	<3.5	<3.5
Aldrin		<3.0	<3.0	<3.0	<3.0
HeptachlorEpoxide		<3.5	<3.5	<3.5	<3.5
g-Chlordane		<4.0	<4.0	<4.0	<4.0
o,p'-DDE		<3.0	<3.0	<3.0	<3.0
a-Endosulfan		<3.0	<3.0	<3.0	<3.0
cis-Chlordane		<3.0	<3.0	<3.0	<3.0
t-Nonachlor		<3.0	<3.0	<3.0	<3.0
p,p'_DDE		<2.0	<2.0	<2.0	<2.0
Dieldrin		<3.0	<3.0	<3.0	<3.0
o,p'-DDD		<3.0	<3.0	<3.0	<3.0
Endrin		<3.0	<3.0	<3.0	<3.0
b-Endosulfan		<3.0	<3.0	<3.0	<3.0
p,p'-DDD		<2.0	<2.0	<2.0	<2.0
o,p'-DDT		<2.0	<2.0	<2.0	<2.0
p,p'-DDT		<5.0	<5.0	<5.0	<5.0
Metoxychlor		<4.0	<4.0	<4.0	<4.0
Mirex		<2.5	<2.5	<2.5	<2.5

Table E.3.24 2002 blue mussel tissue pesticide concentrations (ng/g dry wt.) at the Five Islands site, NS (NSFI); 45.3975°N, 64.0660°W #N-Dup represents duplicate analysis of site replicate.

NSFI	(ng/g dry wt.)				
	<i>Replicate</i>	<i>1N</i>	<i>2N</i>	<i>2N-Dup</i>	<i>3N</i>
a_BHC		<5.0	<5.0	<5.0	<5.0
HCB		<2.5	<2.5	<2.5	<2.5
g-HCH(Lindane)		<3.0	<3.0	<3.0	<3.0
Heptachlor		<3.5	3.8	<3.5	<3.5
Aldrin		<3.0	<3.0	<3.0	<3.0
HeptachlorEpoxide		<3.5	<3.5	<3.5	<3.5
g-Chlordane		<4.0	<4.0	<4.0	<4.0
o,p'-DDE		<3.0	<3.0	<3.0	<3.0
a-Endosulfan		<3.0	<3.0	<3.0	<3.0
cis-Chlordane		<3.0	<3.0	<3.0	<3.0
t-Nonachlor		<3.0	<3.0	<3.0	<3.0
p,p'_DDE		2.0	2.2	<2.0	2.0
Dieldrin		<3.0	<3.0	Int	Int
o,p'-DDD		<3.0	<3.0	Int	<3.0
Endrin		<3.0	<3.0	<3.0	<3.0
b-Endosulfan		<3.0	<3.0	<3.0	<3.0
p,p'-DDD		<2.0	<2.0	<2.0	<2.0
o,p'-DDT		<2.0	<2.0	<2.0	<2.0
p,p'-DDT		<5.0	<5.0	<5.0	<5.0
Metoxychlor		<4.0	<4.0	<4.0	<4.0
Mirex		<2.5	<2.5	<2.5	<2.5

Table E.3.25 2002 blue mussel tissue pesticide concentrations (ng/g dry wt.) at Digby, NS (NSDI); 44.6170°N, 64.7523°W
Benchmark Site

NSDI	(ng/g dry wt.)			
<i>Replicate</i>	<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>
a_BHC	<5.0	<5.0	<5.0	<5.0
HCB	<2.5	<2.5	<2.5	<2.5
g-HCH(Lindane)	<3.0	<3.0	<3.0	<3.0
Heptachlor	<3.5	<3.5	<3.5	<3.5
Aldrin	<3.0	<3.0	<3.0	<3.0
HeptachlorEpoxide	<3.5	<3.5	<3.5	<3.5
g-Chlordane	<4.0	<4.0	<4.0	<4.0
o,p'-DDE	<3.0	<3.0	<3.0	<3.0
a-Endosulfan	<3.0	<3.0	<3.0	<3.0
cis-Chlordane	<3.0	<3.0	<3.0	<3.0
t-Nonachlor	<3.0	<3.0	<3.0	<3.0
p,p'_DDE	<2.0	<2.0	<2.0	<2.0
Dieldrin	<3.0	<3.0	<3.0	<3.0
o,p'-DDD	<3.0	<3.0	<3.0	<3.0
Endrin	<3.0	<3.0	<3.0	<3.0
b-Endosulfan	<3.0	<3.0	<3.0	<3.0
p,p'-DDD	<2.0	<2.0	<2.0	<2.0
o,p'-DDT	<2.0	<2.0	<2.0	<2.0
p,p'-DDT	<5.0	<5.0	<5.0	<5.0
Metoxychlor	<4.0	<4.0	<4.0	INT
Mirex	<2.5	<2.5	<2.5	<2.5

Table E.3.26 2002 blue mussel tissue pesticide concentrations (ng/g dry wt.) at the Broad Cove site, NB (NSBC); 44.6653°N, 65.8308°W

NSBC <i>Replicate</i>	(ng/g dry wt.)			
	<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>
a_BHC	<5.0	<5.0	<5.0	<5.0
HCB	<2.5	<2.5	<2.5	<2.5
g-HCH(Lindane)	<3.0	<3.0	<3.0	<3.0
Heptachlor	<3.5	<3.5	<3.5	<3.5
Aldrin	<3.0	<3.0	<3.0	<3.0
HeptachlorEpoxide	<3.5	<3.5	<3.5	<3.5
g-Chlordane	<4.0	<4.0	<4.0	<4.0
o,p'-DDE	<3.0	<3.0	<3.0	<3.0
a-Endosulfan	<3.0	<3.0	<3.0	<3.0
cis-Chlordane	<3.0	<3.0	<3.0	<3.0
t-Nonachlor	<3.0	<3.0	<3.0	<3.0
p,p'_DDE	Int	Int	<2.0	<2.0
Dieldrin	<3.0	<3.0	<3.0	<3.0
o,p'-DDD	<3.0	<3.0	<3.0	<3.0
Endrin	<3.0	<3.0	<3.0	<3.0
b-Endosulfan	<3.0	<3.0	<3.0	<3.0
p,p'-DDD	<2.0	3.2	<2.0	<2.0
o,p'-DDT	<2.0	<2.0	<2.0	<2.0
p,p'-DDT	<5.0	9.6	<5.0	<5.0
Metoxychlor	INT	<4.0	<4.0	<4.0
Mirex	<2.5	<2.5	<2.5	<2.5

Table E.3.27 2002 blue mussel tissue pesticide concentrations (ng/g dry wt.) at Yarmouth, NS (NSYR); 43.8177°N, 66.1448°W

NSYR <i>Replicate</i>	(ng/g dry wt.)			
	<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>
a_BHC	<5.0	<5.0	<5.0	<5.0
HCB	<2.5	<2.5	<2.5	<2.5
g-HCH(Lindane)	<3.0	<3.0	<3.0	<3.0
Heptachlor	<3.5	<3.5	<3.5	<3.5
Aldrin	<3.0	<3.0	<3.0	<3.0
HeptachlorEpoxide	<3.5	<3.5	<3.5	<3.5
g-Chlordane	<4.0	<4.0	<4.0	<4.0
o,p'-DDE	<3.0	<3.0	<3.0	<3.0
a-Endosulfan	<3.0	<3.0	<3.0	<3.0
cis-Chlordane	<3.0	<3.0	<3.0	<3.0
t-Nonachlor	<3.0	<3.0	<3.0	<3.0
p,p'_DDE	<2.0	<2.0	<2.0	2.1
Dieldrin	<3.0	<3.0	<3.0	<3.0
o,p'-DDD	<3.0	<3.0	<3.0	<3.0
Endrin	<3.0	<3.0	<3.0	<3.0
b-Endosulfan	<3.0	<3.0	<3.0	<3.0
p,p'-DDD	<2.0	<2.0	<2.0	<2.0
o,p'-DDT	<2.0	<2.0	<2.0	<2.0
p,p'-DDT	<5.0	<5.0	<5.0	<5.0
Metoxychlor	<4.0	<4.0	<4.0	<4.0
Mirex	<2.5	<2.5	<2.5	<2.5

GULFWATCH 2003

Table E.3.28 2003 blue mussel tissue pesticide concentrations (ng/g dry wt.) at Town Beach, Sandwich, MA (MASN); 41.7639°N, 70.4789°W **Benchmark Site** #N-Dup represents duplicate analysis of site replicate.

MASN	(ng/g dry wt.)				
<i>Replicate</i>	<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>3N-Dup</i>	<i>4N</i>
a_BHC	<2.0	<2.0	<2.0	<2.0	<2.0
HCB	<2.4	<2.4	<2.4	<2.4	<2.4
g-HCH(Lindane)	<1.5	<1.5	<1.5	<1.5	<1.5
Heptachlor	<2.0	<2.0	<2.0	<2.0	<2.0
Aldrin	<1.5	<1.5	<1.5	<1.5	<1.5
HeptachlorEpoxide	<1.8	<1.8	<1.8	<1.8	<1.8
g-Chlordane	1.7	1.7	1.7	1.8	1.8
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	2.6	2.5	2.5	2.8	2.7
t-Nonachlor	2.3	2.5	2.4	2.6	2.8
p,p'_DDE	8.7	8.2	8.8	9.1	9.7
Dieldrin	1.7	1.7	1.9	1.9	1.9
o,p'-DDD	<4.0	<4.0	<4.0	<4.0	<4.0
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	5.4	5.9	5.2	6.2	5.8
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

Table E.3.29. 2003 blue mussel tissue pesticide concentrations (ng/g dry wt.) at Duxbury, MA, (MADX); 42.0335°N, 70.6672°W #N-Dup represents duplicate analysis of site replicate.

MADX	(ng/g dry wt.)				
<i>Replicate</i>	<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>	<i>4N-Dup</i>
a_BHC	<2.0	<2.0	<2.0	<2.0	<2.0
HCB	<2.4	<2.4	<2.4	<2.4	<2.4
g-HCH(Lindane)	<1.5	<1.5	<1.5	<1.5	<1.5
Heptachlor	<2.0	<2.0	<2.0	<2.0	<2.0
Aldrin	<1.5	<1.5	<1.5	<1.5	<1.5
HeptachlorEpoxide	<1.8	<1.2	<1.8	<1.8	<1.8
g-Chlordane	2.3	<1.5	<1.5	2.2	2.3
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	2.3	1.5	1.5	2.1	2.2
t-Nonachlor	2.3	1.7	1.9	3.0	2.7
p,p'_DDE	58.8	49.1	50.1	55.6	56.1
Dieldrin	2.0	1.6	1.7	2.3	1.9
o,p'-DDD	<4.0	<4.0	<4.0	<4.0	<4.0
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	8.0	5.4	5.6	9.4	9.5
o,p'-DDT	<2.8	<2.8	<2.8	<2.8	<2.8
p,p'-DDT	<1.0	<1.0	<1.0	<1.0	<1.0
Metoxychlor	<3.1	<3.1	<3.1	<3.1	<3.1
Mirex	<1.5	<1.5	<1.5	<1.5	<1.5

Table E.3.30. 2003 blue mussel tissue pesticide concentrations
(ng/g dry wt.) at the outer Brewster Island site,
Boston Harbor, MA (MABI); 42.3425°N, 70.8780°W

MABI	(ng/g dry wt.)		
<i>Replicate</i>	<i>1N</i>	<i>2N</i>	<i>3N</i>
a_BHC	<2.0	<2.0	<2.0
HCB	<2.4	<2.4	<2.4
g-HCH(Lindane)	<1.5	<1.5	<1.5
Heptachlor	<2.0	<2.0	<2.0
Aldrin	<1.5	<1.5	<1.5
HeptachlorEpoxide	<1.8	<1.8	<1.8
g-Chlordane	2.0	2.6	3.1
o,p'-DDE	<1.0	<1.0	<1.0
a-Endosulfan	<1.5	<1.5	<1.5
cis-Chlordane	1.9	<1.0	<1.2
t-Nonachlor	2.4	3.6	4.0
p,p'_DDE	6.9	8.3	9.1
Dieldrin	<1.4	2.2	1.9
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	2.3	6.7	6.3
o,p'-DDT	<2.8	3.3	<2.8
p,p'-DDT	<1.0	<1.0	<1.0
Metoxychlor	<3.1	<3.1	<3.1
Mirex	<1.5	<1.5	<1.5

Table E.3.31. 2003 blue mussel tissue pesticide concentrations (ng/g dry wt.) at Winthrop (shopping carts), MA (MAWN); 42.3648°N, 70.9642°W

MAWN <i>Replicate</i>	(ng/g dry wt.)			
	<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>
a_BHC	<2.0	<2.0	<2.0	<2.0
HCB	<2.4	<2.4	<2.4	<2.4
g-HCH(Lindane)	<1.5	<1.5	<1.5	<1.5
Heptachlor	<2.0	<2.0	<2.0	<2.0
Aldrin	<1.5	<1.5	<1.5	<1.5
HeptachlorEpoxide	<1.8	<1.8	<1.8	<1.8
g-Chlordane	3.1	2.7	3.2	2.9
o,p'-DDE	<1.0	<1.0	<1.0	<1.0
a-Endosulfan	<1.5	<1.5	<1.5	<1.5
cis-Chlordane	4.6	3.7	5.3	4.4
t-Nonachlor	3.5	3.5	3.6	3.4
p,p'_DDE	5.4	6.7	7.0	7.2
Dieldrin	1.7	1.6	2.0	<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	6.4	6.2	7.4	5.6
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

Table E.3.32. 2003 blue mussel tissue pesticide concentrations
(ng/g dry wt.) at Ipswich, MA (MAIP); 42.7007°N,
70.7907°W

MAIP	(ng/g dry wt.)			
<i>Replicate</i>	<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>
a_BHC	<2.0	<2.0	<2.0	<2.0
HCB	<2.4	<2.4	<2.4	<2.4
g-HCH(Lindane)	<1.5	<1.5	<1.5	<1.5
Heptachlor	<2.0	<2.0	<2.0	<2.0
Aldrin	<1.5	<1.5	<1.5	<1.5
HeptachlorEpoxide	<1.8	<1.8	<1.8	<1.8
g-Chlordane	2.3	2.0	2.0	1.8
o,p'-DDE	<1.0	<1.0	<1.0	<1.0
a-Endosulfan	<1.5	<1.5	<1.5	<1.5
cis-Chlordane	1.6	1.6	2.3	1.6
t-Nonachlor	1.5	1.5	2.1	<1.4
p,p'_DDE	4.7	4.4	5.4	5.1
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	4.2	4.0	5.2	4.4
o,p'-DDT	<2.8	<2.8	<2.8	<2.8
p,p'-DDT	2.6	<2.5	<2.5	<2.5
Metoxychlor	<3.1	<3.1	<3.1	<3.1
Mirex	<1.5	<1.5	<1.5	<1.5

Table E.3.33. 2003 blue mussel tissue pesticide concentrations (ng/g dry wt.) at the Hampton/Seabrook Harbor, NH (NHHS); 42.8972°N, 70.8163°W

NHHS <i>Replicate</i>	(ng/g dry wt.)			
	<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>
a_BHC	<2.0	<2.0	<2.0	<2.0
HCB	<2.4	<2.4	<2.4	<2.4
g-HCH(Lindane)	<1.5	<1.5	<1.5	<1.5
Heptachlor	<2.0	<2.0	<2.0	<2.0
Aldrin	<1.5	<1.5	<1.5	<1.5
HeptachlorEpoxide	<1.8	<1.8	<1.8	<1.8
g-Chlordane	<1.0	<1.0	<1.0	<1.0
o,p'-DDE	<1.0	<1.0	<1.0	<1.0
a-Endosulfan	<1.5	<1.5	<1.5	<1.5
cis-Chlordane	1.4	2.1	1.9	1.8
t-Nonachlor	<1.4	<1.4	<1.4	<1.4
p,p'_DDE	3.8	3.6	3.6	3.8
Dieldrin	<1.4	<1.4	<1.4	<1.4
o,p'-DDD	<4.0	<1.0	<1.0	<4.0
Endrin	<2.2	<2.2	<2.2	<2.2
b-Endosulfan	<3.4	<3.4	<3.4	<3.4
p,p'-DDD	<2.0	2.4	2.2	2.5
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

Table E.3.34. 2003 blue mussel tissue pesticide concentrations
(ng/g dry wt.) at the Little Harbor site, NH (NHLH);
43.0581°N, 70.7154°W

NHLH	(ng/g dry wt.)			
<i>Replicate</i>	<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>
a_BHC	<2.0	<2.0	<2.0	<2.0
HCB	<2.4	<2.4	<2.4	<2.4
g-HCH(Lindane)	<1.5	<1.5	<1.5	<1.5
Heptachlor	<2.0	<2.0	<2.0	<2.0
Aldrin	<1.5	<1.5	<1.5	<1.5
HeptachlorEpoxide	<1.8	<1.8	<1.8	<1.8
g-Chlordane	<1.5	<1.0	<1.0	<1.0
o,p'-DDE	<1.0	<1.0	<1.0	<1.0
a-Endosulfan	<1.5	<1.5	<1.5	<1.5
cis-Chlordane	<1.0	<1.0	<1.0	<1.0
t-Nonachlor	<1.4	<1.4	<1.4	<1.4
p,p'_DDE	3.5	2.5	3.7	2.3
Dieldrin	<1.4	<1.4	<1.4	<1.4
o,p'-DDD	<4.0	<4.0	<1.0	<4.0
Endrin	<2.2	<2.2	<2.2	<2.2
b-Endosulfan	<3.4	<3.4	<3.4	<3.4
p,p'-DDD	<2.0	<2.0	<2.0	<2.0
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

Table E.3.35. 2003 blue mussel tissue pesticide concentrations (ng/g dry wt.) at the Dover Point site, Dover, NH (NHDP); 43.1196°N, 70.8267°W #N-Dup represents duplicate analysis of site replicate.

NHDP	(ng/g dry wt.)					
	<i>Replicate</i>	<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>	<i>4N-Dup</i>
a_BHC		<2.0	<2.0	<2.0	<2.0	<2.0
HCB		<2.4	<2.4	<2.4	<2.4	<2.4
g-HCH(Lindane)		<1.5	<1.5	<1.5	<1.5	<1.5
Heptachlor		<2.0	<2.0	<2.0	<2.0	<2.0
Aldrin		<1.5	<1.5	<1.5	<1.5	<1.5
HeptachlorEpoxide		<1.8	<1.8	<1.8	<1.8	<1.8
g-Chlordane		<1.0	<1.0	<1.0	<1.0	<1.0
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		<1.0	<1.0	<1.0	<1.0	<1.0
t-Nonachlor		<1.4	<1.4	<1.4	<1.4	<1.4
p,p'_DDE		3.9	3.9	3.2	5.1	4.4
Dieldrin		<1.4	<1.4	<1.4	<1.4	<1.4
o,p'-DDD		<4.0	<4.0	<4.0	<1.0	<4.0
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		<2.0	<2.0	<2.0	<2.0	<2.0
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

Table E.3.36. 2003 blue mussel tissue pesticide concentrations
(ng/g dry wt.) at the South Mill Pond site, NH
(NHSM); 43.0727°N, 70.7489°W

NHSM <i>Replicate</i>	(ng/g dry wt.)			
	<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>
a_BHC	<2.0	<2.0	<2.0	<2.0
HCB	2.6	<2.4	<2.4	<2.4
g-HCH(Lindane)	<1.5	<1.5	<1.5	<1.5
Heptachlor	<2.0	<2.0	<2.0	<2.0
Aldrin	<1.5	<1.5	<1.5	<1.5
HeptachlorEpoxide	<1.8	<1.8	<1.8	<1.8
g-Chlordane	1.7	<1.5	1.6	<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	3.3	2.2	2.7	2.4
t-Nonachlor	2.4	1.7	2.1	2.0
p,p'_DDE	17.9	12.6	12.6	13.7
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	17.4	11.1	11.5	10.5
o,p'-DDT	<2.0	<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

Table E.3.37. 2003 blue mussel tissue pesticide concentrations (ng/g dry wt.) at Clark's Cove on Seavey Island, ME (MECC); 43.0774°N, 70.7244°W **Benchmark Site**

MECC <i>Replicate</i>	(ng/g dry wt.)			
	<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>
a_BHC	<2.0	<2.0	<2.0	<2.0
HCB	<2.4	<2.4	<2.4	<2.4
g-HCH(Lindane)	<1.5	<1.5	<1.5	<1.5
Heptachlor	<2.0	<2.0	<2.0	<2.0
Aldrin	<1.5	<1.5	<1.5	<1.5
HeptachlorEpoxide	<1.8	<1.8	<1.8	<1.8
g-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	2.2	1.8	1.6	1.7
t-Nonachlor	<1.4	<1.4	<1.4	<1.4
p,p'_DDE	4.2	4.2	4.5	4.5
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	4.3	4.2	3.8	4.3
p,p'-DDD	6.3	6.5	7.8	7.8
o,p'-DDT	<2.8	<2.8	<2.8	<2.8
p,p'-DDT	<2.5	3.1	<2.5	<2.5
Metoxychlor	<3.1	<3.1	<3.1	<3.1
Mirex	<1.5	<1.5	<1.5	<1.5

Table E.3.38. 2003 blue mussel tissue pesticide concentrations (ng/g dry wt.) at the Saco River site, ME (MESA); 43.4598°N, 70.3743°W #N-Dup represents duplicate analysis of site replicate.

MESA	(ng/g dry wt.)			
<i>Replicate</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>	<i>4N-Dup</i>
a_BHC	<2.0	<2.0	<2.0	<2.0
HCB	<2.4	<2.4	<2.4	<2.4
g-HCH(Lindane)	<1.5	<1.5	<1.5	<1.5
Heptachlor	<2.0	<2.0	<2.0	<2.0
Aldrin	<1.5	<1.5	<1.5	<1.5
HeptachlorEpoxide	<1.8	<1.8	<1.8	<1.8
g-Chlordane	<1.5	1.6	<1.5	1.7
o,p'-DDE	<1.0	<1.0	<1.0	<1.0
a-Endosulfan	<1.5	<1.5	<1.5	<1.5
cis-Chlordane	1.5	1.2	1.4	1.2
t-Nonachlor	<1.4	<1.4	<1.4	<1.4
p,p'_DDE	2.2	2.7	4.3	3.3
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	<2.0	<2.0	<2.0	<2.0
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

Table E.3.39. 2003 blue mussel tissue pesticide concentrations (ng/g dry wt.) at the Portland Harbor site, ME (MEPH); 43.6392°N, 70.2590°W #N-Dup represents duplicate analysis of site replicate.

MEPH	(ng/g dry wt.)				
<i>Replicate</i>	<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>	<i>4N-Dup</i>
a_BHC	<2.0	<2.0	<2.0	<2.0	<2.0
HCB	<2.4	<2.4	<2.4	<2.4	<2.4
g-HCH(Lindane)	<1.5	<1.5	<1.5	<1.5	<1.5
Heptachlor	<2.0	<2.0	<2.0	<2.0	<2.0
Aldrin	<1.5	<1.5	<1.5	<1.5	<1.5
HeptachlorEpoxide	<1.8	<1.8	<1.8	<1.8	<1.8
g-Chlordane	2.7	2.8	2.5	2.6	1.9
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	2.6	2.6	2.6	2.6	2.2
t-Nonachlor	1.7	2.0	1.8	1.6	1.7
p,p'_DDE	7.8	9.6	9.3	7.9	8.0
Dieldrin	<1.4	1.5	<1.4	<1.4	<1.4
o,p'-DDD	<4.0	<4.0	<4.0	<4.0	<4.0
Endrin	<2.2	<2.2	<2.2	<2.2	<2.2
b-Endosulfan	<3.4	<3.4	<3.4	<3.4	<3.4
p,p'-DDD	8.3	11.3	8.4	9.1	9.0
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

Table E.3.40. 2003 blue mussel tissue pesticide concentrations
(ng/g dry wt.) at Presumpscot site, (MEPR);
43.6922°N, 70.2473°W

MEPR	(ng/g dry wt.)			
<i>Replicate</i>	<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>
a_BHC	<2.0	<2.0	<2.0	<2.0
HCB	<2.4	<2.4	<2.4	<2.4
g-HCH(Lindane)	<1.5	<1.5	<1.5	<1.5
Heptachlor	<2.0	<2.0	<2.0	<2.0
Aldrin	<1.5	<1.5	<1.5	<1.5
HeptachlorEpoxide	<1.8	<1.8	<1.8	<1.8
g-Chlordane	2.5	1.7	2.4	2.2
o,p'-DDE	<1.0	<1.0	<1.0	<1.0
a-Endosulfan	2.3	<1.5	<1.5	<1.5
cis-Chlordane	2.6	2.5	2.4	2.0
t-Nonachlor	1.9	1.6	1.7	1.5
p,p'_DDE	8.1	6.8	7.3	6.3
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	9.1	8.7	8.5	7.5
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

Table E.3.41. 2003 blue mussel tissue pesticide concentrations (ng/g dry wt.) at the Kennebec River site, Perkins Island, ME (MEKN); 43.7850°N, 69.7845°W **Benchmark Site** #N-Dup represents duplicate analysis of site replicate.

MEKN	(ng/g dry wt.)				
<i>Replicate</i>	<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>	<i>4N-Dup</i>
a_BHC	<2.0	<2.0	<2.0	<2.0	<2.0
HCB	<2.4	<2.4	<2.4	<2.4	<2.4
g-HCH(Lindane)	<1.5	<1.5	<1.5	<1.5	<1.5
Heptachlor	<2.0	<2.0	<2.0	<2.0	<2.0
Aldrin	<1.5	<1.5	<1.5	<1.5	<1.5
HeptachlorEpoxide	<1.8	<1.8	<1.8	<1.8	<1.8
g-Chlordane	<1.5	<1.5	<1.5	<1.5	<1.5
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	1.3	1.3	1.3	1.4	1.4
t-Nonachlor	<1.4	<1.4	<1.4	<1.4	<1.4
p,p'_DDE	3.0	2.5	2.3	2.7	2.7
Dieldrin	<1.4	<1.4	<1.4	<1.4	<1.4
o,p'-DDD	<4.0	<4.0	<4.0	<4.0	<4.0
Endrin	<2.2	<2.2	<2.2	<2.2	<2.2
b-Endosulfan	<3.4	<3.4	<3.4	<3.4	<3.4
p,p'-DDD	2.5	2.1	<2.0	<2.0	<2.0
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

Table E.3.42. 2003 blue mussel tissue pesticide concentrations
(ng/g dry wt.) at the Union River site, ME (MEUR);
44.5015°N, 68.4322°W

MEUR	(ng/g dry wt.)			
<i>Replicate</i>	<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>
a_BHC	<2.0	<2.0	<2.0	<2.0
HCB	<2.4	<2.4	<2.4	<2.4
g-HCH(Lindane)	<1.5	<1.5	<1.5	<1.5
Heptachlor	<2.0	<2.0	<2.0	<2.0
Aldrin	<1.5	<1.5	<1.5	<1.5
HeptachlorEpoxide	<1.8	<1.8	<1.8	<1.8
g-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	1.6	1.4	<1.2
t-Nonachlor	<1.4	<1.4	<1.4	<1.4
p,p'_DDE	<1.8	<1.8	<1.8	<1.8
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	<2.0	<2.0	<2.0	<2.0
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

Table E.3.43. 2003 blue mussel tissue pesticide concentrations (ng/g dry wt.) at the Machias River site, ME (MEMR); 44.7137°N, 67.4035°W

MEMR	(ng/g dry wt.)			
<i>Replicate</i>	<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>
a_BHC	<2.0	<2.0	<2.0	<2.0
HCB	<2.4	<2.4	<2.4	<2.4
g-HCH(Lindane)	<1.5	<1.5	<1.5	<1.5
Heptachlor	<2.0	<2.0	<2.0	<2.0
Aldrin	<1.5	<1.5	<1.5	<1.5
HeptachlorEpoxide	<1.8	<1.8	<1.2	<1.8
g-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	2.5	2.4	3.0	2.5
Dieldrin	<1.4	<1.4	<1.4	<1.4
o,p'-DDD	<4.0	<4.0	<1.0	<4.0
Endrin	<2.2	<2.2	<2.2	<2.2
b-Endosulfan	<3.4	<3.4	<3.4	<3.4
p,p'-DDD	<2.0	<2.0	<2.0	<2.0
o,p'-DDT	<2.8	<2.8	<2.8	<2.8
p,p'-DDT	<1.0	<1.0	<1.0	<1.0
Metoxychlor	<3.1	<3.1	<3.1	<3.1
Mirex	<1.5	<1.5	<1.5	<1.5

Table E.3.44. 2003 blue mussel tissue pesticide concentrations
(ng/g dry wt.) at the Cobscook Bay site, ME
(MECK); 44.9045°N, 67.0543°W #N-Dup represents
duplicate analysis of site replicate.

MECK	(ng/g dry wt.)			
<i>Replicate</i>	<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>
a_BHC	<2.0	<2.0	<2.0	<2.0
HCB	<2.4	<2.4	<2.4	<2.4
g-HCH(Lindane)	<1.5	<1.5	<1.5	<1.5
Heptachlor	<2.0	<2.0	<2.0	<2.0
Aldrin	<1.5	<1.5	<1.5	<1.5
HeptachlorEpoxide	<1.8	<1.8	<1.8	<1.8
g-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	1.9	<1.8	1.8	<1.8
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	<2.0	<2.0	<2.0	<2.0
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

Table E.3.45. 2003 blue mussel tissue pesticide concentrations (ng/g dry wt.) at the St. Croix River site, NB (NBSC); 45.1675°N, 67.1638°W #N-Dup represents duplicate analysis of site replicate.

NBSC	(ng/g dry wt.)					
	<i>Replicate</i>	<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>3N-Dup</i>	<i>4N</i>
a_BHC		<2.0	<2.0	<2.0	<2.0	<2.0
HCB		<2.4	<2.4	<2.4	<2.4	<2.4
g-HCH(Lindane)		<1.5	<1.5	<1.5	<1.5	<1.5
Heptachlor		<2.0	<2.0	<2.0	<2.0	<2.0
Aldrin		<1.5	<1.5	<1.5	<1.5	<1.5
HeptachlorEpoxide		<1.8	<1.8	<1.8	<1.8	<1.8
g-Chlordane		<1.5	<1.5	<1.5	<1.5	<1.5
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		<1.2	1.2	<1.2	<1.2	<1.2
t-Nonachlor		<1.4	1.4	<1.4	<1.4	<1.4
p,p'_DDE		2.7	3.3	3.0	2.7	2.6
Dieldrin		1.9	2.0	1.6	1.8	1.5
o,p'-DDD		<1.0	<1.0	<1.0	<4.0	<4.0
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		2.3	2.3	2.5	2.2	2.4
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	15.3
Mirex		<1.5	<1.5	<1.5	<1.5	<1.5

Table E.3.46. 2003 blue mussel tissue pesticide concentrations (ng/g dry wt.) at the Hospital Island site, NB (NBHI); 45.1205°N, 67.0082°W **Benchmark Site** #N-Dup represents duplicate analysis of site replicate.

NBHI <i>Replicate</i>	(ng/g dry wt.)			
	<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>
a_BHC	<2.0	<2.0	<2.0	<2.0
HCB	<2.4	<2.4	<2.4	<2.4
g-HCH(Lindane)	<1.5	<1.5	<1.5	<1.5
Heptachlor	<2.0	<2.0	<2.0	<2.0
Aldrin	<1.5	<1.5	<1.5	<1.5
HeptachlorEpoxide	<1.8	<1.8	<1.8	<1.8
g-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	2.7	2.6	2.4	2.9
Dieldrin	1.8	1.4	1.4	1.6
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	2.3	2.3	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

Table E.3.47. 2003 blue mussel tissue pesticide concentrations (ng/g dry wt.) at the Letang Estuary site, NB (NBLB); 45.0757°N, 66.7963°W

NBLB	(ng/g dry wt.)			
<i>Replicate</i>	<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>
a_BHC	<2.0	<2.0	<2.0	<2.0
HCB	<2.4	<2.4	<2.4	<2.4
g-HCH(Lindane)	<1.5	<1.5	<1.5	<1.5
Heptachlor	<2.0	<2.0	<2.0	<2.0
Aldrin	<1.5	<1.5	<1.5	<1.5
HeptachlorEpoxide	<1.8	<1.8	<1.8	<1.8
g-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	1.5	1.5	<1.2	1.4
t-Nonachlor	1.7	1.9	2.0	1.8
p,p'_DDE	4.4	5.4	4.7	5.0
Dieldrin	2.0	2.6	2.2	2.0
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	2.5	3.6	3.0	2.6
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

Table E.3.48. 2003 blue mussel tissue pesticide concentrations
(ng/g dry wt.) at the Apple River site, NS (NSAR);
45.4700°N, 64.8350°W

NSAR	(ng/g dry wt.)			
<i>Replicate</i>	<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>
a_BHC	<2.0	<2.0	<2.0	<2.0
HCb	<2.4	<2.4	<2.4	<2.4
g-HCH(Lindane)	<1.5	<1.5	<1.5	<1.5
Heptachlor	<2.0	<2.0	<2.0	<2.0
Aldrin	<1.5	<1.5	<1.5	<1.5
HeptachlorEpoxide	<1.8	<1.8	<1.8	<1.8
g-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	<1.8	1.9	2.1	2.1
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	<2.0	<2.0	<2.0	<2.0
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

Table E.3.49. 2003 blue mussel tissue pesticide concentrations (ng/g dry wt.) at Digby, NS (NSDI); 44.6170°N, 65.7523°W
Benchmark Site #N-Dup represents duplicate analysis of site replicate.

NSDI	(ng/g dry wt.)					
	<i>Replicate</i>	<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>	<i>4N-Dup</i>
a_BHC		<2.0	<2.0	<2.0	<2.0	<2.0
HCB		<2.4	<2.4	<2.4	<2.4	<2.4
g-HCH(Lindane)		<1.5	<1.5	<1.5	<1.5	<1.5
Heptachlor		<2.0	<2.0	<2.0	<2.0	<2.0
Aldrin		<1.5	<1.5	<1.5	<1.5	<1.5
HeptachlorEpoxide		<1.8	<1.8	<1.8	<1.8	<1.8
g-Chlordane		<1.5	1.6	2.9	<1.5	2.0
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		<1.2	<1.2	<1.2	<1.2	<1.2
t-Nonachlor		<1.4	<1.4	<1.4	<1.4	<1.4
p,p'_DDE		2.6	2.8	2.0	2.5	2.5
Dieldrin		1.4	<1.4	<1.4	1.5	<1.4
o,p'-DDD		<4.0	<4.0	<4.0	<4.0	<4.0
Endrin		<2.2	<2.2	<2.2	<2.2	<2.2
b-Endosulfan		<3.4	<3.4	<3.4	<3.4	<3.4
p,p'-DDD		<2.0	<2.0	<2.0	<2.0	<2.0
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

Table E.3.50. 2003 blue mussel tissue pesticide concentrations
(ng/g dry wt.) at the Spechts Cove site, (NSSC);
44.5153°N, 65.9078°W

NSSC	(ng/g dry wt.)			
<i>Replicate</i>	<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>
a_BHC	<2.0	<2.0	<2.0	<2.0
HCB	<2.4	<2.4	<2.4	<2.4
g-HCH(Lindane)	<1.5	<1.5	<1.5	<1.5
Heptachlor	<2.0	<2.0	<2.0	<2.0
Aldrin	<1.5	<1.5	<1.5	<1.5
HeptachlorEpoxide	<1.8	<1.8	<1.8	<1.8
g-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	2.2	2.3	2.0	1.9
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	<2.0	<2.0	<2.0	<2.0
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

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Table E.3.51. 2004 blue mussel tissue pesticide concentrations (ng/g dry wt.) at Sandwich, MA, (MASN); 41.7622°N, 70.4730°W **Benchmark Site**

MASN <i>Replicate</i>	(ng/g dry wt.)			
	<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>
a_BHC	<2.0	<2.0	<2.0	<2.0
HCB	<2.4	<2.4	<2.4	<2.4
g-HCH(Lindane)	<1.5	<1.5	<1.5	<1.5
Heptachlor	<2	<2	<2	<2
Aldrin	<1.5	<1.5	<1.5	<1.5
HeptachlorEpoxide	<1.8	<1.8	<1.8	<1.8
g-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	3.7	3.9	4.7	5.2
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

Table E.3.52. 2004 blue mussel tissue pesticide concentrations (ng/g dry wt.) at the Boston Inner Harbor site, MA (MAIH); 42.3637°N, 71.0284°W #N-Dup represents duplicate analysis of site replicate.

MAIH	(ng/g dry wt.)					
	<i>Replicate</i>	<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>	<i>4N-Dup</i>
a_BHC		<2.0	<2.0	<2.0	<2.0	<2.0
HCB		<2.4	<2.4	<2.4	<2.4	<2.4
g-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
HeptachlorEpoxide		<1.8	<1.8	<1.8	<1.8	<1.8
g-Chlordane		3.8	6.2	7.4	4.0	3.4
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		4.9	7.3	8.2	4.5	4.4
t-Nonachlor		5.5	4.0	4.6	5.4	5.0
p,p'_DDE		23.2	32.6	30.7	25.3	23.7
Dieldrin		3.3	4.0	4.0	3.3	3.2
o,p'-DDD		6.8	8.6	<4.0	7.1	6.3
Endrin		<2.2	<2.2	<2.2	<2.2	<2.2
b-Endosulfan		<3.4	<3.4	<3.4	<3.4	<3.4

Table E.3.53. 2004 blue mussel tissue pesticide concentrations (ng/g dry wt.) at the Pines River site, MA (MAPR); 42.4312°N, 70.9793°W

MAPR	(ng/g dry wt.)			
<i>Replicate</i>	<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>
a_BHC	<2.0	<2.0	<2.0	<2.0
HCB	<2.4	<2.4	<2.4	<2.4
g-HCH(Lindane)	<1.5	<1.5	<1.5	<1.5
Heptachlor	<2	<2	<2	<2
Aldrin	<1.5	<1.5	<1.5	<1.5
HeptachlorEpoxide	<1.8	<1.8	<1.8	<1.8
g-Chlordane	<1.5	1.8	2.0	2.0
o,p'-DDE	<1.0	<1.0	<1.0	<1.0
a-Endosulfan	<1.5	<1.5	<1.5	<1.5
cis-Chlordane	1.8	2.5	2.4	2.1
t-Nonachlor	2.8	3.4	3.7	2.4
p,p'_DDE	11.2	10.2	10.5	8.4
Dieldrin	<1.4	<1.4	<1.4	<1.4
o,p'-DDD	5.6	12.6	4.1	<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

Table E.3.54. 2004 blue mussel tissue pesticide concentrations (ng/g dry wt.) at Hampton/Seabrook estuary site, NH (NHHS); 42.8972°N, 70.8163°W #N-Dup represents duplicate analysis of site replicate.

NHHS	(ng/g dry wt.)					
	<i>Replicate</i>	<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>	<i>4N-Dup</i>
a_BHC		<2.0	<2.0	<2.0	<2.0	<2.0
HCB		<2.4	<2.4	<2.4	<2.4	<2.4
g-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
HeptachlorEpoxide		<1.8	<1.8	<1.8	<1.8	<1.8
g-Chlordane		<1.5	<1.5	<1.5	<1.5	<1.5
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		<1.2	<1.2	<1.2	<1.2	<1.2
t-Nonachlor		<1.4	<1.4	<1.4	<1.4	<1.4
p,p'_DDE		3.9	4.3	2.9	3.9	4.0
Dieldrin		<1.4	<1.4	<1.4	<1.4	<1.4
o,p'-DDD		<4.0	<4.0	<4.0	<4.0	<4.0
Endrin		<2.2	<2.2	<2.2	<2.2	<2.2
b-Endosulfan		<3.4	<3.4	<3.4	<3.4	<3.4
p,p'-DDD		3.2	3.4	2.3	2.5	2.4
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

Table E.3.55. 2004 blue mussel tissue pesticide concentrations (ng/g dry wt.) at Dover Point, NH, (NHDP); 43.1196°N, 70.8267°W #N-Dup represents duplicate analysis of site replicate.

NHDP	(ng/g dry wt.)			
<i>Replicate</i>	<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>
a_BHC	<2.0	<2.0	<2.0	<2.0
HCB	<2.4	<2.4	<2.4	<2.4
g-HCH(Lindane)	<1.5	<1.5	<1.5	<1.5
Heptachlor	<2	<2	<2	<2
Aldrin	<1.5	<1.5	<1.5	<1.5
HeptachlorEpoxide	<1.8	<1.8	<1.8	<1.8
g-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	1.6	<1.2	1.5
t-Nonachlor	<1.4	<1.4	<1.4	<1.4
p,p'_DDE	4.7	5.0	4.8	6.2
Dieldrin	1.5	2.2	1.9	2.6
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	2.4	<2	2.1	3.4
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

Table E.3.56. 2004 blue mussel tissue pesticide concentrations
(ng/g dry wt.) at Pierce Island, NH (NHPI);
43.0717°N, 70.7433°W

NHPI <i>Replicate</i>	(ng/g dry wt.)			
	<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>
a_BHC	<2.0	<2.0	<2.0	<2.0
HCB	<2.4	<2.4	<2.4	<2.4
g-HCH(Lindane)	<1.5	<1.5	<1.5	<1.5
Heptachlor	<2	<2	<2	<2
Aldrin	<1.5	<1.5	<1.5	<1.5
HeptachlorEpoxide	<1.8	<1.8	<1.8	<1.8
g-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	3.4	2.2	3.5	4.2
Dieldrin	<1.4	1.5	<1.4	2.2
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	2.5
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

Table E.3.57. 2004 blue mussel tissue pesticide concentrations (ng/g dry wt.) at the Fox Point site, Newington, NH (NHFP); 43.1201°N, 70.8589°W

NHFP	(ng/g dry wt.)			
<i>Replicate</i>	<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>
a_BHC	NHFP-1	NHFP-2	NHFP-3	NHFP-4
HCB				
g-HCH(Lindane)	ng/g	ng/g	ng/g	ng/g
Heptachlor				
Aldrin	<2.0	<2.0	<2.0	<2.0
HeptachlorEpoxide	<2.4	<2.4	<2.4	<2.4
g-Chlordane	<1.5	<1.5	<1.5	<1.5
o,p'-DDE	<2	<2	<2	<2
a-Endosulfan	<1.5	<1.5	<1.5	<1.5
cis-Chlordane	<1.8	<1.8	<1.8	<1.8
t-Nonachlor	<1.5	<1.5	<1.5	<1.5
p,p'_DDE	<1.0	<1.0	<1.0	<1.0
Dieldrin	<1.5	<1.5	<1.5	<1.5
o,p'-DDD	<1.2	1.3	1.2	<1.2
Endrin	<1.4	<1.4	<1.4	<1.4
b-Endosulfan	7.2	5.4	5.6	5.2
p,p'-DDD	2.0	3.0	2.4	2.3
o,p'-DDT	<4.0	<4.0	<4.0	<4.0
p,p'-DDT	<2.2	<2.2	<2.2	<2.2
Metoxychlor	<3.4	<3.4	<3.4	<3.4
Mirex	3.8	2.7	2.6	3.0

Table E.3.58. 2004 blue mussel tissue pesticide concentrations
(ng/g dry wt.) at the Clark's Cove site, Seavey Island,
ME (MECC); 43.0774°N, 70.7244°W **Benchmark**
Site

MECC	(ng/g dry wt.)			
<i>Replicate</i>	<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>
a_BHC	<2.0	<2.0	<2.0	<2.0
HCB	<2.4	<2.4	<2.4	<2.4
g-HCH(Lindane)	<1.5	<1.5	<1.5	<1.5
Heptachlor	<2	<2	<2	<2
Aldrin	<1.5	<1.5	<1.5	<1.5
HeptachlorEpoxide	<1.8	<1.8	<1.8	<1.8
g-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	4.9	4.5	4.6	3.1
Dieldrin	2.2	2.1	3.3	2.5
o,p'-DDD	<4.0	<4.0	4.1	<4.0
Endrin	<2.2	<2.2	<2.2	<2.2
b-Endosulfan	<3.4	<3.4	<3.4	<3.4
p,p'-DDD	4.2	4.2	3.5	2.0
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

Table E.3.59. 2004 blue mussel tissue pesticide concentrations (ng/g dry wt.) at the Kennebec River site, Perkins Island, ME (MEKN); 43.7850°N, 69.7845°W **Benchmark Site**

MEKN	(ng/g dry wt.)			
<i>Replicate</i>	<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>
a_BHC	<2.0	<2.0	<2.0	<2.0
HCB	<2.4	<2.4	<2.4	<2.4
g-HCH(Lindane)	<1.5	<1.5	<1.5	<1.5
Heptachlor	<2	<2	<2	<2
Aldrin	<1.5	<1.5	<1.5	<1.5
HeptachlorEpoxide	<1.8	<1.8	<1.8	<1.8
g-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	2.7	2.3	4.0	<1.8
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

Table E.3.60. 2004 blue mussel tissue pesticide concentrations
(ng/g dry wt.) at the Damariscotta site, Wentworth
Point, ME (MEDM); 43.9383°N, 69.5817°W

MEDM	(ng/g dry wt.)			
<i>Replicate</i>	<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>
a_BHC	<2.0	<2.0	<2.0	<2.0
HCB	<2.4	<2.4	<2.4	<2.4
g-HCH(Lindane)	<1.5	<1.5	<1.5	<1.5
Heptachlor	<2	<2	<2	<2
Aldrin	<1.5	<1.5	<1.5	<1.5
HeptachlorEpoxide	<1.8	<1.8	<1.8	<1.8
g-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	<1.8	2.1	2.5	<1.8
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

Table E.3.61. 2004 blue mussel tissue pesticide concentrations (ng/g dry wt.) at Booth Bay Harbor, ME, (MEBB); 43.8507°N, 69.6727°W #N-Dup represents duplicate analysis of site replicate.

MEBB	(ng/g dry wt.)			
<i>Replicate</i>	<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>
a_BHC	<2.0	<2.0	<2.0	<2.0
HCB	<2.4	<2.4	<2.4	<2.4
g-HCH(Lindane)	<1.5	<1.5	<1.5	<1.5
Heptachlor	<2	<2	<2	<2
Aldrin	<1.5	<1.5	<1.5	<1.5
HeptachlorEpoxide	<1.8	<1.8	<1.8	<1.8
g-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	5.1	4.4	4.6	3.6
Dieldrin	1.6	1.5	1.7	<1.4
o,p'-DDD	10.0	8.7	9.5	7.7
Endrin	<2.2	<2.2	<2.2	<2.2
b-Endosulfan	<3.4	<3.4	<3.4	<3.4
p,p'-DDD	26.4	22.0	25.2	20.0
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

Table E.3.62. 2004 blue mussel tissue pesticide concentrations (ng/g dry wt.) at the Niger Reef site, NB (NBNR); 45.0663°N, 67.0980°W #N-Dup represents duplicate analysis of site replicate.

NBNR	(ng/g dry wt.)					
	Replicate	1N	2N	3N	3N-Dup	4N
a_BHC		<2.0	<2.0	<2.0	<2.0	<2.0
HCB		<2.4	<2.4	<2.4	<2.4	<2.4
g-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
HeptachlorEpoxide		<1.8	<1.8	<1.8	<1.8	<1.8
g-Chlordane		<1.5	<1.5	<1.5	<1.5	<1.5
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		<1.2	<1.2	<1.2	<1.2	<1.2
t-Nonachlor		<1.4	<1.4	<1.4	<1.4	<1.4
p,p'_DDE		1.9	<1.8	1.9	1.8	1.8
Dieldrin		<1.4	<1.4	1.5	1.8	<1.4
o,p'-DDD		<4.0	<4.0	<4.0	<4.0	<4.0
Endrin		<2.2	<2.2	<2.2	<2.2	<2.2
b-Endosulfan		<3.4	<3.4	<3.4	<3.4	<3.4
p,p'-DDD		<2	<2	<2	<2	<2
o,p'-DDT		<2.8	<2.8	<2.8	<2.8	<2.8
p,p'-DDT		<2.5	<2.5	<2.5	<2.5	<2.5
Metoxychlor		<3.1	<3.1	<3.1	<3.1	<3.1
Mirex		<1.5	<1.5	<1.5	<1.5	<1.5

Table E.3.63. 2004 blue mussel tissue pesticide concentrations (ng/g dry wt.) at the Hospital Island site, NB (NBHI); 45.1205°N, 67.0082°W **Benchmark Site.**

NBHI <i>Replicate</i>	(ng/g dry wt.)			
	<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>
a_BHC	<2.0	<2.0	<2.0	<2.0
HCB	<2.4	<2.4	<2.4	<2.4
g-HCH(Lindane)	<1.5	<1.5	<1.5	<1.5
Heptachlor	<2	<2	<2	<2
Aldrin	<1.5	<1.5	<1.5	<1.5
HeptachlorEpoxide	<1.8	<1.8	<1.8	<1.8
g-Chlordane	<1.5	<1.5	<1.5	<1.5
o,p'-DDE	<1.0	<1.0	<1.0	2.4
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	<1.8	<1.8	<1.8	<1.8
Dieldrin	<1.4	1.8	1.6	2.1
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

Table E.3.64. 2004 blue mussel tissue pesticide concentrations
(ng/g dry wt.) at the Tin Can Beach site, NB
(NBTC); 45.2625°N, 66.0570°W

NBTC <i>Replicate</i>	(ng/g dry wt.)			
	<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>
a_BHC	<2.0	<2.0	<2.0	<2.0
HCB	<2.4	<2.4	<2.4	<2.4
g-HCH(Lindane)	<1.5	<1.5	<1.5	<1.5
Heptachlor	<2	<2	<2	<2
Aldrin	<1.5	<1.5	<1.5	<1.5
HeptachlorEpoxide	<1.8	<1.8	<1.8	<1.8
g-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	11.0	9.9	9.3	5.8
Dieldrin	<1.4	<1.4	<1.4	<1.4
o,p'-DDD	INT	INT	INT	INT
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	3.1	3.7	5.4	4.1
Metoxychlor	<3.1	<3.1	<3.1	<3.1
Mirex	<1.5	<1.5	<1.5	<1.5

Table E.3.65. 2004 blue mussel tissue pesticide concentrations (ng/g dry wt.) at Cornwallis, NS, (NSCW); 44.6447°N, 65.6480°W

NSCW	(ng/g dry wt.)			
<i>Replicate</i>	<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>
a_BHC	<2.0	<2.0	<2.0	<2.0
HCB	<2.4	<2.4	<2.4	<2.4
g-HCH(Lindane)	<1.5	<1.5	<1.5	<1.5
Heptachlor	<2	<2	<2	<2
Aldrin	<1.5	<1.5	<1.5	<1.5
HeptachlorEpoxide	<1.8	<1.8	<1.8	<1.8
g-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	1.8	<1.8	<1.8	<1.8
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

Table E.3.66. 2004 blue mussel tissue pesticide concentrations
(ng/g dry wt.) at Digby, NS, (NSDI); 44.6170°N,
65.7523°W **Benchmark Site**

NSDI	(ng/g dry wt.)			
<i>Replicate</i>	<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>
a_BHC	<2.0	<2.0	<2.0	<2.0
HCB	<2.4	<2.4	<2.4	<2.4
g-HCH(Lindane)	<1.5	<1.5	<1.5	<1.5
Heptachlor	<2	<2	<2	<2
Aldrin	<1.5	<1.5	<1.5	<1.5
HeptachlorEpoxide	<1.8	<1.8	<1.8	<1.8
g-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	<1.8	<1.8	<1.8	<1.8
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

Table E.1.67 2004 blue mussel tissue pesticide concentrations
(ng/g dry wt.) in Nova Scotia Grosse Coques
(occasionally sampled) site (NSGC); 44.3728°N,
66.0950°W

NSGC	(ng/g dry wt.)			
<i>Replicate</i>	<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>4N</i>
a_BHC	<2.0	<2.0	<2.0	<2.0
HCB	<2.4	<2.4	<2.4	<2.4
g-HCH(Lindane)	<1.5	<1.5	<1.5	<1.5
Heptachlor	<2	<2	<2	<2
Aldrin	<1.5	<1.5	<1.5	<1.5
HeptachlorEpoxide	<1.8	<1.8	<1.8	<1.8
g-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	<1.8	<1.8	<1.8	<1.8
Dieldrin	<1.4	1.7	<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

Table E.3.68. 2004 blue mussel tissue pesticide concentrations (ng/g dry wt.) at Yarmouth, NS (NSYR); 43.8177°N, 66.1448°W #N-Dup represents duplicate analysis of site replicate.

NSYR <i>Replicate</i>	(ng/g dry wt.)				
	<i>1N</i>	<i>2N</i>	<i>3N</i>	<i>3N-Dup</i>	<i>4N</i>
a_BHC	<2.0	<2.0	<2.0	<2.0	<2.0
HCB	<2.4	<2.4	<2.4	<2.4	<2.4
g-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
HeptachlorEpoxide	<1.8	<1.8	<1.8	<1.8	<1.8
g-Chlordane	<1.5	<1.5	<1.5	<1.5	<1.5
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	<1.2	<1.2	<1.2	<1.2	<1.2
t-Nonachlor	<1.4	<1.4	<1.4	<1.4	<1.4
p,p'_DDE	<1.8	<1.8	<1.8	<1.8	<1.8
Dieldrin	<1.4	<1.4	<1.4	<1.4	<1.4
o,p'-DDD	<4.0	<4.0	<4.0	<4.0	<4.0
Endrin	<2.2	<2.2	<2.2	<2.2	<2.2
b-Endosulfan	<3.4	<3.4	<3.4	<3.4	<3.4
p,p'-DDD	<2	<2	<2	<2	<2
o,p'-DDT	<2.8	<2.8	<2.8	<2.8	<2.8
p,p'-DDT	<2.5	<2.5	<2.5	<2.5	<2.5
Metoxychlor	<3.1	<3.1	<3.1	<3.1	<3.1
Mirex	<1.5	<1.5	<1.5	<1.5	<1.5