CATALOG DOCUMENTATION
NATIONAL COASTAL ASSESSMENT DATABASE
NORTHEAST REGION 2000-2002
SEDIMENT ANALYTE CONCENTRATION DATA

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1. DATASET IDENTIFICATION

1.1 Title of Catalog document

National Coastal Assessment Database
Northeast Region 2000-2002
Sediment Analyte Concentration Data

1.2 Authors of the Catalog entry

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1.3 Catalog revision date

August 2007

1.4 Dataset name

Sediment Analyte Concentrations

1.5 Task Group

National Coastal Assessment-Northeast

1.6 Dataset identification code

005

1.7 Version

001

1.8 Requested Acknowledgment

EMAP requests that all individuals who download EMAP data acknowledge the source of these data in any reports, papers, or presentations. If you publish these data, please include a statement similar to: "Some or all of the data described in this article were produced by the U. S. Environmental Protection Agency through its Environmental Monitoring and Assessment Program (EMAP)".

2. INVESTIGATOR INFORMATION

2.1 Principal Investigators

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2.3 Sample Processing Investigators

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3. DATASET ABSTRACT

3.1 Abstract of the Dataset

The Sediment Chemistry data report the concentrations of chemical contaminants in sediment samples collected in Northeast estuaries sampled during the summers of 2000-02. Sediment concentrations are reported for 77 chemical constituents, including metals, polynuclear aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs), and pesticides. One record is presented per analyte. For concentration values smaller than the method detection limit (MDL) or non-detects, the result is reported as zero, the MDL is listed, and the record is flagged, giving the data user options for alternative treatment of non-detects. Note that in 2000-01 consistent methods were not followed by all analytical laboratories in two respects: (1) in the digestion method used to analyze metals, and (2) in the MDL values used for most chemical analyses. A list of the analyte codes and their full chemical names is available under View Analyte Information.

3.2 Keywords for the Dataset

Sediment contaminants, metals, polynuclear aromatic hydrocarbons, PAH, polychlorinated biphenyls, PCB, pesticides, DDT

4. OBJECTIVES AND INTRODUCTION

4.1 Program Objective

The National Coastal Assessment (NCA) is a national monitoring and assessment program with the primary goal of providing a consistent evaluation of the estuarine condition in U.S. estuaries. It is an initiative of the Environmental Monitoring and Assessment Program (EMAP), and is a partnership of several federal and state environmental agencies, including: EPA's Regions, Office of Research and Development, and Office of Water; state environmental protection agencies in the 24 marine coastal states and Puerto Rico; and the United States Geological Survey (USGS) and the National Oceanic and Atmospheric Agency (NOAA). The five-year NCA program was initiated in 2000.

Stations were randomly selected using EMAP's probabilistic sampling framework and were sampled once during a summer index period (June to October). A consistent suite of indicators was used to measure conditions in the water, sediment, and in benthic and fish communities. The measured data may be used by the states to meet their reporting requirements under the Clean Water Act, Section 305(b). The data will also be used to generate a series of national reports characterizing the condition of the Nation's estuaries.

4.2 Dataset Objective

The objective of the sediment chemistry data file is to report the concentrations of chemical contaminants in estuarine sediment samples collected in the northeast NCA program in 2000-02.

4.3 Dataset Background Discussion

A two-year sampling design was employed for 2000-2001 NCA program in the Northeast. Analysts may therefore wish to consider the two years of data together.

The suite of analytes measured are very similar to the contaminants measured by EPA's Environmental Monitoring and Assessment Program (EMAP) and NOAA's National Status and Trends program. Four classes of analytes are measured: polynuclear aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs), organo-chlorine pesticides, and metals. Twenty-two PAHs are measured, consisting of the 16 priority pollutants defined by the Superfund program and several alkylated derivatives that prove to be useful in identifying sources of these compounds. The concentrations of 20 PCBs and 20 pesticides, all Superfund priority pollutants, are also measured. The NCA protocol calls for measuring total metal concentrations, which includes an aggressive HF/HNO3 digestion prior to analysis. As is discussed below, some samples received a less aggressive HNO3 digestion. Sediment grain-size and Total Organic Carbon (TOC) measurements were made on the same sediments.

Routinely, the concentration values from clean sites were reported as smaller than the method detection limit (MDL). In this file, these 'non-detects' are reported as zero and the QACODE is set to "CH-EE" to indicate the assignment. While the concentration of the analyte is clearly small, it is not strictly zero. The MDL is therefore listed as a guideline to users who wish to substitute values other than zero, i.e., setting the non-detect value to the MDL value, half the MDL value, etc. Furthermore, results of organic analytes may routinely show non-zero values that are less than the MDL. This apparent inconsistency is possible because, by convention, the MDLs for organic analyses are calculated to indicate the threshold of reliable measurements, rather than the stricter limit of instrumental detection. In these cases, the best estimate of the concentration is reported (i.e., the value reported by the analytical laboratory), the QACODE is set to "CH-BB", and the MDL is listed. The user can be confident that the analyte is present, but there is a high degree of uncertainty in the reported concentration. Note that the value of the MDL depends on the dilution history of the sample; therefore, its magnitude can differ widely among samples. Most results in this file are larger than the MDL and are reported directly without MDL values or QACODEs. Finally, records flagged with "CH-CC" indicate that the concentration value is uncertain because an interference was noted in the blank analysis performed with the sample; caution is advised in interpreting these results. To summarize:

QA Code	Interpretation	Conc. reported	MDL reported
<none>	result is detectable and > MDL	as measured	<none>
CH-EE	result is </= MDL and undetectable	zero	MDL is listed
CH-BB	result is </= MDL but detectable	best estimate	MDL is listed
CH-CC	result may be affected by interference	best estimate	<none>

Three analytical labs were involved in analyzing sediment analytes in 2000 and 2001: two state labs for sediment samples collected by co-operative teams in Connecticut and New York and a national contract lab for samples collected in other northeastern states. In two respects, there are noticeable differences in results attributable to different methods used by the three labs. (1) There is a distinction in the number of "non-detects" (concentrations less than the MDL) evident among labs, probably arising from different MDL values used by the labs during analysis. (2) The labs used different procedures to digest sediment samples prior to metal analysis, affecting results for several metals. Refer to Section 5.2.6 for discussion of the nature and implications of the discrepancies.

A suffix indicates whether the station location was the original site, first alternate, or second alternate by -A, -B, or -C, respectively. The user may wish to adjust the magnitude of the weighting factor (station areas) based on this value, for example, by multiplying the weighting factor by 0.5 or 0.33 if sampling crews had to sample at the first or second alternate location, respectively. Such an adjustment reflects the fact that the station did not represent the entire area originally assigned to the station.

Massachusetts did not participate in the NCA program in 2002. Rhode Island conducted fish trawls only in 2002, and collected physical water parameters in conjunction with the trawls. Connecticut collected all parameters, but at an abbreviated group of in-shore stations (stations in the Long Island Sound intended for sampling in 2002 were sampled in 2003).

4.4 Summary of Dataset Parameters

The Sediment Chemistry Data report concentrations of 77 analytes measured in estuarine sediment samples collected in 2000-01 from northeastern U.S.

5.0 DATA ACQUISITION AND PROCESSING METHODS

5.1 Data Acquisition / Field Sampling

The sample collection methods used by USEPA trained field crews will be described here. Any significant variations by NCA partners are noted in Section 5.1.12.

5.1.1 Sampling Objective

Sediment sub-samples were collected for the analysis of metallic and organic chemical constituents. Separate sub-samples from the same grab were used for sediment grain-size analyses and toxicity testing. Additional sediment grabs were taken for benthic macrofaunal analysis.

5.1.2 Sample Collection: Methods Summary

Sediment was collected with a 0.04-m2 Young-modified Van-Veen grab or similar sampler. Only the top two centimeters of a grab were retained for physical, chemical, and toxicological analyses. A sufficient number of grabs were processed to provide three liters of the 2-cm composite material. The composite was homogenized and separated into two fractions for storage until analysis. One fraction was frozen and used in the measurement of total organic carbon (TOC) and concentrations of chemical contaminants. The second fraction was chilled but not frozen during storage, and was used for grain-size and toxicity analyses. Separate sediment grabs were taken for benthic macrofaunal analysis.

5.1.3 Beginning Sampling Dates

7 July 2000
25 June 2001
25 June 2002

5.1.4 Ending Sampling Dates

20 October 2000
29 October 2001
31 October 2002

5.1.5 Sampling Platform

Samples were collected from gasoline or diesel powered boats, 18 to 133 feet in length.

5.1.6 Sampling Equipment

A 1/25 m2, stainless steel (coated with Kynar), Young-modified Van Veen grab sampler was used to collect sediments.

5.1.7 Manufacturer of Sampling Equipment

Young's Welding, Sandwich, MA

5.1.8 Key Variables

Not applicable

5.1.9 Sample Collection: Methods Calibration

The sampling gear does not require calibration, although it was inspected regularly for damage by mishandling or impact on rocky substrates.

5.1.10 Sample Collection: Quality Control

Care was taken to minimize disturbance to the sediment grabs. Grabs that were incomplete, slumped, less than 7 cm in depth, or comprised chiefly of shelly substrates were discarded. The chance of sampling the same location was minimized by repositioning the boat five meters downstream after three sampling attempts.

5.1.11 Sample Collection: References

Strobel, C.J. 2000. Environmental Monitoring and Assessment Program: Coastal 2000 - Northeast component: field operations manual. Narragansett (RI): U.S. Environmental Protection Agency, National Health and Environmental Effects Research Laboratory, Atlantic Ecology Division. Report nr EPA/620/R-00/002. 68 p.

5.1.12 Sample Collection: Alternate Methods

Different grab samplers used by NCA partners include the Smith-MacIntyre and Ponar grab samplers.

5.2 Data Preparation and Sample Processing

5.2.1 Sample Processing Objective

Sediment samples were analyzed for total metals, PAHs, PCBs and pesticides.

5.2.2 Sample Processing: Methods Summary

All analyses were performed on samples that were stored frozen. Sediments analyzed for total metals were dried and completely digested in nitric/hydrofluoric acids (acid persulfate for mercury). The analytical methods used to measure analyte concentrations were: cold vapor atomic analysis (AA) for mercury; graphite furnace AA for silver, arsenic, cadmium, lead, antimony, tin and thallium; hydride generation atomic fluorescence for selenium; and optical-emission ionically coupled plasma (ICP) for the remaining metals. For the organic analyses, sediments were extracted using the procedures of NOAA National Status and Trends Program (Lauenstein and Cantillo, 1993). The PAHs were analyzed by gas-chromatography / mass-spectrometry (GC/MS); pesticides and PCBs were analyzed by GC/ECD (electron capture detector).

5.2.3 Sample Processing: Calibration

The analytical instruments were calibrated by standard laboratory procedures including: constructing calibration curves, running blank and spiked quality control samples, and analyzing standard reference materials.

5.2.4 Sample Processing: Quality Control (QC)

Each batch of samples was accompanied by QC analyses consisting of method blanks, matrix spikes, matrix spike duplicates, and standard reference materials (SRMs). In total, approximately 5% of all analyses were QC analyses. Processing quality was considered acceptable if the following criteria were met: blanks were less than three times the minimum detection limit; accuracy, as determined by analysis of certified reference materials, was within 30% for organic analytes and within 15% for inorganic analytes; and precision, as determined by replicate analyses, was within 30% for organic analytes and within 15% for inorganic analytes. Additional specifications and guidelines are presented in U.S. EPA 2001.

5.2.5 Sample Processing: References

Lauenstein, G. G. and A. Y. Cantillo (eds.). 1993. Sampling and analytical methods of the National Status and Trends Program National Benthic Surveillance and Mussel Watch Projects 1984-1992: Comprehensive descriptions of trace organic analytical methods, Volume IV NOAA Technical Memorandum NOS ORCA 71, Silver Spring, MD. 182 pp.

Texas A & M University, Geochemical and Environmental Research Group. 1990. NOAA Status and Trends, Mussel Watch Program, Analytical Methods. Submitted to NOAA. Rockville (MD): U.S. Dept. of Commerce, National Oceanic & Atmospheric Administration, Ocean Assessment Division.

U.S. EPA. 1995. Environmental Monitoring and Assessment Program (EMAP): Laboratory Methods Manual-Estuaries, Volume 1: Biological and Physical Analyses. Narragansett (RI): U.S. Environmental Protection Agency, Office of Research and Development, EPA/620/R-95/008.

U.S. EPA. 2001. Environmental Monitoring and Assessment Program (EMAP): National Coastal Assessment Quality Assurance Project Plan 2001-2004. U.S. Environmental Protection Agency, Office of Research and Development, National Health and Environmental Effects Research Laboratory, Gulf Ecology Division, Gulf Breeze, FL. EPA/620/R-01/002. 189 p

5.2.6 Sample Processing: Alternate Methods

2000-2001

Three analytical labs were involved in analyzing sediment analytes in 2000 and 2001: two state labs for sediment samples collected by co-operative teams in Connecticut and New York and a national contract lab for samples collected in other northeastern states. In two respects, there are noticeable differences in results attributable to different methods used by the three labs. (1) There is a distinction in the number of "non-detects" (concentrations less than the method detection limit or MDL) evident among labs, probably arising from different MDL values used by the labs during analysis. (2) The labs used different procedures to digest sediment samples prior to metal analysis, affecting results for several metals.

The three analytical labs used different MDL values when measuring chemical concentrations in sediment. In the case of pesticides and PCBs, the average MDL values were approximately 1 ppb for NY; 0.5 ppb for CT, and 0.25 ppb for NAT (averaged for all pesticides or PCBs). This observation may explain the relatively small rate of non-detects in pesticide and PCB analyses performed by the national contract; however, it doesn't explain the relative rate distinction between the NY and CT labs. Similarly, MDL values differed for PAH analyses: about 10 ppb for CT and about 2 ppb for NAT (NY did not report any MDLs for PAHs). MDL values were similar for all labs regarding metal analyses. Generally, the MDLs used by all labs were smaller than the limits required by the NCA program. In short, much of the discrepancy noted in the percentages of non-detects in 2000 & 2001 data probably arose because of the different MDL values employed by the three labs.

The implications of the differences highlighted above depend on how the data are used. Generally, the non-detects may be interpreted as 'very small concentrations'. Thus, the number of non-detects may be immaterial, for example, if the data are used primarily to identify polluted sites. However, the number of non-detects (zero values) may significantly affect calculated metrics such as averages, medians, expressions of variability, etc. Year-to-year inconsistencies in the use of MDL values may also confound the interpretation of temporal trends.

Different sediment digestion methods. Another important difference is evident among the three laboratories regarding the method of digestion performed on sediments prior to metal analysis in both 2000 and 2001. The national contract lab used an HF/HNO3 digestion,while the state labs used a less aggressive HNO3 digestion. To investigate the likely effects of the differing methods, archived sediment from one state's samples collected in 2000 were reanalyzed using the more aggressive HF/HNO3 digestion. A comparison of results can be expressed as linear regression of HF/HNO3 results vs HNO3 results:
Linear regression parameters of concentrations measured following an HF/HNO3 digestion vs an HNO3 digestion, i.e., HF/HNO3 = m*HNO3 + b:

Metal	slope (m)	intercept (b)	R^2
Al	3.13	15300	0.74
Fe	0.98	4660	0.92
Mn	0.76	203	0.73
As	0.68	0.47	0.78
Pb	0.95	9.70	0.95
Hg	1.01	-0.02	0.85
Ni	1.20	0.45	0.92
Zn	0.94	11.1	0.97
Cd	0.94	-0.68	0.77
Cr	1.41	10.5	0.96
Cu	1.33	-1.97	0.89
Ag	0.68	-0.6	0.81
Se	0.72	-0.28	0.44
Sb	0.02	0.08	0.09

Perfect agreement of methods would result in parameter values of m = 1, b = 0, and R^2 = 1. The HF/HNO3 digestion completely dissolves the aluminosilicate matrix of sediments, yielding significantly larger concentrations of crustal elements: Al, Fe, and Mn. Relatively good agreement was evident for both digestion methods for the most toxic elements that have designated ERM (effects range median) limits: As, Pb, Hg, Ni, Zn, Cd, Cr, and Cu (Pb and Cr values may be marginally elevated in HF/HNO3 digestions). There was poor agreement for the non-priority elements selenium (Se) and antimony (Sb). Note that all data included in this database are the original results obtained following the non-standard HNO3 digestion. All data for the inter-comparison study of the 2000 NY sediments are included in an Excel file titled "NY metals compare" available from the NCA website.

2002
Samples collected in 2002 were analyzed by one of several analytical labs, two state labs for sediment samples collected by co-operative teams in Connecticut and New York and a two national contract laboratories for samples collected in other northeastern states.

6. DATA ANALYSIS AND MANIPULATIONS

6.1 Name of New or Modified Values

Not applicable

6.2 Data Manipulation Description

Concentrations of metallic analytes smaller than the method detection limit were reported as zero.

7. DATA DESCRIPTION

7.1 Description of Parameters

7.1.1 Components of the Dataset

Attribute Name	Format	Description
Data Group	VARCHAR2(20)	Data group conducting sampling
Sampling Year	NUMBER(4)	Year during which data were collected
Station Name	VARCHAR2(20)	The station identifier
Sampling Collection Date	DATE	Date of sample collection
Latitude Decimal Degrees	NUMBER(9.3)	Station-decimal degrees of latitude
Longitude Decimal Degrees	NUMBER(9.3)	Station-decimal degrees of longitude
Analyte Code	VARCHAR2(8)	Analyte code
Analyte Name	VARCHAR2(80)	Chemical name
Analyte Category	VARCHAR2(15)	General category of analyte
Analyte Concentration	NUMBER(13.6)	Concentration of (dry wt.)
Unit Code	VARCHAR2(15)	Units of measure
Detection Limit Concentration	NUMBER(13.6)	Method detection limit for analyte
Analyte Count in Totals	NUMBER(4)	Analytes (#) in summed concentration
QA Code	VARCHAR2(8)	Quality Assurance code and definition

7.1.2 Precision of Reported Values

All values have been rounded to three significant digits.

7.1.3 Minimum and Maximum Value in Dataset (non-zero data)

Blank entries in MIN and MAX columns indicate non-detects

Metals

ANALYTE	ANALYTE NAME	MIN	MAX
AG	Silver	0.06	9
AL	Aluminum	4	109000
AS	Arsenic	0.35	88.1
CD	Cadmium	0.02	40.6
CR	Chromium	0.53	489
CU	Copper	0.56	657
FE	Iron	4.41	126000
HG	Mercury	0.01	5.3
MN	Manganese	8.09	2430
NI	Nickel	0.43	86
PB	Lead	0.306	400
SB	Antimony	0.1	28.3
SE	Selenium	0.05	40.8
SN	Tin	0.1	118
ZN	Zinc	1.19	780

Polynuclear aromatic hydrocarbons (PAHs)

ANALYTE	ANALYTE NAME	MIN	MAX
ACENTHE	Acenaphthene	0.026	1300
ACENTHY	Acenaphthlylene	0.01	560
ANTHRA	Anthracene	0.01	4200
BENANTH	Benz(a)anthracene	0.02	7500
BENAPY	Benz(a)pyrene	0.021	7700
BENZOBFL	Benzo(b)fluoranthene	0.044	7700
BENZOKFL	Benzo(k)fluoranthene	0.016	3000
BENZOP	Benzo(g,h,i)perylene	0.019	3900
BIPHENYL	Biphenyl	0.02	860
CHRYSENE	Chrysene	0.03	6900
DIBENTP	Dibenzothiophene	0.01	780
DIBENZ	Dibenz(a,h)anthracene	0.003	933
DIMETH	2,6-dimethylnaphthalene	0.006	4730
FLUORANT	Fluoranthene	0.073	15000

FLUORENE	Fluorene	0.01	1700
INDENO	Indeno(1,2,3-c,d)pyrene	0.018	4100
MENAP1	1-methylnaphthalene	0.03	10400
MENAP2	2-methylnaphthalene	0.033	13800
MEPHEN1	1-methylphenanthrene	0.008	1600
NAPH	Naphthalene	0.06	7880
PYRENE	Pyrene	0.05	14000
TRIMETH	2,3,5-trimethylnaphthalene	0.021	360

Polychlorinated biphenyls (PCBs)

ANALYTE	ANALYTE NAME	MIN	MAX
PCB101	2,2',4,5,5'-pentachlorobiphenyl	0.01	580
PCB105	2,3,3',4,4'-pentachlorobiphenyl	0.003	200
PCB110	2,2',4,5,5'pentachlorobiphenyl	0.3	41
PCB118	2,3',4,4',5-pentachlorobiphenyl	0.008	690
PCB126	3,3',4,4',5-pentachlorobiphenyl	0.014	19
PCB128	2,2',3,3',4,4'-hexachlorobiphenyl	0.004	110
PCB138	2,2',3,4,4',5'-hexachlorobiphenyl	0.008	510
PCB153	2,2',4,4',5,5'-hexachlorobiphenyl	0.012	590
PCB170	2,2',3,3',4,4',5-heptachlorobiphenyl	0.01	71
PCB18	2,2',5-trichlorobiphenyl	0.014	371
PCB180	2,2',3,4,4',5,5'-heptachlorobiphenyl	0.005	84
PCB187	2,2',3,4',5,5',6-heptachlorobiphenyl	0.005	44
PCB195	2,2',3,3',4,4',5,6-octachlorobiphenyl	0.003	22
PCB206	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl	0.003	50
PCB209	decachlorobiphenyl	0.002	48
PCB28	2,4,4'-trichlorobiphenyl	0.007	900
PCB44	2,2',3,5'-tetrachlorobiphenyl	0.013	260
PCB52	2,2',5,5'-tetrachlorobiphenyl	0.01	550
PCB66	2,3',4,4'-tetrachlorobiphenyl	0.0	367
PCB77	3,3',4,4'-tetrachlorobiphenyl	0.032	8.4
PCB77_CO	PCB77 co-elluted with PCB110	0.22	25
PCB8	2,4'-dichlorobiphenyl	0.021	82

Pesticides

ANALYTE	ANALYTE NAME	MIN	MAX
ALDRIN	Aldrin	0.28	12
CISCHL	alpha-Chlordane	0.005	28
DIELDRIN	Dieldrin	0.005	100
ENDOSUI	Endosulfan I	0.024	9.38
ENDOSUII	Endosulfan II	0.013	9.5
ENDOSULF	Endosulfan Sulfate	0.005	7.7
ENDRIN	Endrin	0.034	3.5
HEPTACHL	Heptachlor	0.012	5.0
HEPTAEPO	Heptachlor epoxide	0.006	7.8
HEXACHL	Hexachlorobenzene	0.002	28
LINDANE	Lindane (gamma-BHC)	0.005	6.6
MIREX	Mirex	0.0	9
OPDDD	2,4'-DDD	0.012	120
OPDDE	2,4'-DDE	0.014	71
OPDDT	2,4'-DDT	0.008	11
PPDDD	4,4'-DDD	0.009	360
PPDDE	4,4'-DDE	0.001	230
PPDDT	4,4'-DDT	0.006	250
TNONCHL	trans-Nonachlor	0.004	18
TOXAPHEN	Toxaphene	0	0

7.1.4 Maximum Value in Dataset

See Section 7.1.3

7.2 Data Record Example

7.2.1 Column Names for Example Records

Data Group,Sampling Year,Station Name,Sampling Collection Date, Latitude Decimal Degrees,Longitude Decimal Degrees,Analyte Code, Analyte Name,Analyte Category,Analyte Concentration,Unit Code, Detection Limit Concentration,QA Code

7.2.2 Example Data Records

```
National Coastal Assessment-Northeast/Connecticut,2000,CT00-0001-A,08/17/00,
41.151,-73.22,AG,Silver,Metal,0.75,ug/g,,,
National Coastal Assessment-Northeast/Connecticut,2000,CT00-0001-A,08/17/00,
41.151,-73.22,AL,Aluminum,Metal,4780,ug/g,,
National Coastal Assessment-Northeast/Connecticut,2000,CT00-0001-A,08/17/00,
41.151,-73.22,ALDRIN,Aldrin,Organic,0,ng/g,1500,CH-EE,
```

8. GEOGRAPHIC AND SPATIAL INFORMATION

8.1 Minimum Longitude (Westernmost)

-75.7737 decimal degrees

8.2 Maximum Longitude (Easternmost)

-66.98 decimal degrees

8.3 Minimum Latitude (Southernmost)

38.4521 decimal degrees

8.4 Maximum Latitude (Northernmost)

44.9456 decimal degrees

8.5 Name of Region

The National Coastal Assessment Northeast Region covers the northeastern US coastline from Maine to Delaware.

9. QUALITY CONTROL AND QUALITY ASSURANCE

9.1 Measurement Quality Objectives

The measurement quality objectives of the EMAP-Estuaries program (see U.S. EPA 2001)specify accuracy goals of 35% and 20% respectively for analyses of organics and inorganics; and precision goals of 30% for all sediment chemistry analyses.

9.2 Data Quality Assurance Procedures

QA procedures included running blanks, spiked samples, and standard reference materials with each batch of samples. Any batch failing to meet the specifications presented in Section 9.1 was reanalyzed or rejected.

9.3 Actual Measurement Quality

All of the data reported in this data file met the QA specifications listed in Section 9.1 or are flagged in a variable called "QACODE".

10. DATA ACCESS

10.1 Data Access Procedures

Data can be downloaded from the web at: http://www.epa.gov/emap/nca/html/data/

10.2 Data Access Restrictions

None

10.3 Data Access Contact Persons

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401-782-3183, 401-782-3030(FAX), buffum.harry@epa.gov

10.4 Dataset Format

Tab-delimited ASCII files

10.5 Information Concerning Anonymous FTP

Not available

10.6 Information Concerning WWW

See Section 10.1 for WWW access

10.7 EMAP CD-ROM Containing the Dataset

Data not available on CD-ROM

11. REFERENCES

Lauenstein, G. G. and A. Y. Cantillo (eds.). 1993. Sampling and analytical methods of the National Status and Trends Program National Benthic Surveillance and Mussel Watch Projects 1984-1992: Comprehensive descriptions of trace organic analytical methods, Volume IV NOAA Technical Memorandum NOS ORCA 71, Silver Spring, MD. 182 pp.

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U.S. EPA. 2001. Environmental Monitoring and Assessment Program (EMAP): National Coastal Assessment Quality Assurance Project Plan 2001-2004. U.S. Environmental Protection Agency, Office of Research and Development, National Health and Environmental Effects Research Laboratory, Gulf Ecology Division, Gulf Breeze, FL. EPA/620/R-01/002. 189 p

12. TABLE OF ACRONYMS

AED	Atlantic Ecology Division
EMAP	Environmental Monitoring and Assessment Program
EPA	Environmental Protection Agency
MDL	Method Detection Limit
NCA	National Coastal Assessment
ng/g	Nano gram per gram
NHEERL	National Health and Environmental Effects Research Laboratory
PAH	Polynuclear Aromatic Hydrocarbon
PCB	Polychlorinated Biphenyls
ppb	parts per billion
ppm	parts per million
QA/QC	Quality Assurance/Quality Control
SRM	Standard Reference Material
TOC	Total Organic Carbon
ug/g	Micro gram per gram
WWW	World Wide Web

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