CATALOG DOCUMENTATION
NATIONAL COASTAL ASSESSMENT DATABASE
2003 NEW YORK/NEW JERSEY HARBOR SYSTEM
SEDIMENT ANALYTE CONCENTRATION DATA

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1. DATA SET IDENTIFICATION

1.1 Title of Catalog document

National Coastal Assessment Database
2003 New York/New Jersey Harbor System
Sediment Analyte Concentration Data

1.2 Author of the Catalog entry

Melissa M. Hughes, Raytheon

1.3 Catalog revision date

June 29, 2012

1.4 Data set name

Sediment Analyte Concentration Data

1.5 Task Group

Regional Environmental Monitoring and Assessment Program

1.6 Data set identification code

NA

1.7 Version

NA

1.8 Requested Acknowledgment

If you plan to publish these data in any way, EPA requires a standard statement for work it has supported: "Although the data described in this article have been funded wholly or in part by the U. S. Environmental Protection Agency through its EMAP-Estuaries Program, it has not been subjected to Agency review, and therefore does not necessarily reflect the views of the Agency and no official endorsement should be inferred."

2. INVESTIGATOR INFORMATION

2.1 Principal Investigator

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U.S. Environmental Protection Agency - Region II

2.2. Investigation Participant

Ms. Sandi Robinson
U.S. Environmental Protection Agency - ORD/NHEERL/AED

3. DATA SET ABSTRACT

3.1 Abstract of the Data Set

The Sediment Analyte Concentration data set reports the concentrations of a suite of analytes measured in surficial sediment samples. These samples were taken in the New York/New Jersey Harbor region. The suite of compounds analyzed included: 4 major and 12 trace inorganic elements, 23 polycyclic aromatic hydrocarbons (PAHs), DDT and its metabolites, 10 other chlorinated pesticides, 20 PCB congeners, 17 dioxin and furan congeners (only analyzed in samples from selected regions), mono-, di-, tri- and tetra-butyltins and acid volatile sulfide (AVS). PCB concentrations are not included due to quality assurance issues.

3.2 Keywords for the Data Set

sediment contaminants, inorganics, organics, AVS

4. OBJECTIVES AND INTRODUCTION

4.1 Program Objective

The project was designed to support resource management decisions related to pollution control and remediation throughout the New York/New Jersey (NY/NJ) Harbor and to assist the New York-New Jersey Harbor Estuary Program (HEP) in developing a contaminant monitoring strategy to be included in the Comprehensive Conservation and Management Plan (CCMP) for the NY/NJ Harbor system.

4.2 Data Set Objective

To provide an overview of the extent of the sediment contamination in the NY/NJ harbor region based on chemical analyses.

4.3 Data Set Background Discussion

The New York/New Jersey Harbor System has been susceptible to toxic contamination due to surrounding land uses. Harbor sediments are contaminant reservoirs which can function as a secondary source of these land use contaminants. Contaminated sediments pose a substantial threat to Harbor resources and are a management challenge. Adverse changes in the biota of the system have been documented with increasing frequency, and many of these changes have been linked to toxic contamination.

4.4 Summary of Data Set Parameters

Sediment Analyte Concentration data set values were based on the results of analytical procedures performed in the laboratory.

5. DATA ACQUISITION AND PROCESSING METHODS

5.1 Data Acquisition

5.1.1 Sampling Objective

Collect sediment grab samples suitable for the analysis of organic and inorganic contaminants.

5.1.2 Sample Collection Methods Summary
The grab sampler was lowered through the water column; the grab penetrated the sediment by gravity releasing a trigger allowing the jaws to close. When the grab was pulled from the sediment using the winch, the jaws closed, encapsulating the sediment sample.

Multiple grabs were required to collect enough volume for analysis. Overlying water was carefully drained. Aliquots of the top 2 cm were taken from the undisturbed surface of individual grabs using a 60-cc syringe which had the narrow end removed to create a mini-corer. When the sample container was filled to the top, it was sealed with Teflon tape and immediately frozen.

The remaining top 2 cm of sediment from each grab was removed using stainless steel spoons. A composite of all grabs was homogenized in a glass bowl for 10 minutes. Subsamples were removed for metals, organics, and TOC and transferred to sample containers that were stored on ice.

5.1.3 Sampling Start Date
July 1, 2003

5.1.4 Sampling End Date
September 25, 2003

5.1.5 Platform
Sampling was conducted from the U.S.EPA research vessel, the R/V CLEAN WATERS.

5.1.6 Sampling Gear
A 0.04-m2 or 0.1-m2, stainless steel, Young-modified Van Veen Grab sampler was used to collect sediment grabs. This grab sampled an area of 440 cm2 and a maximum depth of penetration in the sediment of 10 cm.

5.1.7 Manufacturer of Sampling Equipment
Young's Welding, Sandwich, MA

5.1.8 Key Variables
No data were recorded at the time of sample collection.

5.1.9 Collection Method Calibration
The sampling gear did not require any calibration. It required inspection for deformities incurred due to mishandling or impact on rocky substrates.

5.1.10 Sample Collection Quality Control
A successful grab had relatively level, intact sediment over the entire area of the grab and a sediment depth at the center of at least 5 centimeters. Unacceptable grabs included those with grossly slumped surfaces and those completely filled to the top, where the sediment was in direct contact with the hinged top.

The van Veen Grab was rinsed with ambient seawater between grabs at a station to remove remaining organisms. It was thoroughly cleaned with detergent and water between stations.

5.1.11 Sample Collection Method Reference
Reifsteck, D.M., C.J. Strobel and D.J. Keith. 1993. Environmental Monitoring and Assessment Program - Near Coastal Component: 1993 Virginian Province Field Operations and Safety Manual. U.S. EPA NHEERL-AED. Narragansett, RI.

5.2 Data Preparation and Sample Processing

5.2.1 Sample Processing Objective
Process sediment samples to accurately measure organic and inorganic compounds, TOC and AVS.

5.2.2 Sample Processing Methods Summary
The samples were analyzed by standard methods.

5.2.3 Sample Processing Method Calibration
Appropriate Sediment Reference Materials (SRM) from the National Research Council of Canada (NRCC), the National Institute of Technology (NIST) and Cambridge Isotope Laboratories were used.

5.2.4 Sample Processing Quality Control
All analyses employed appropriate quality assurance samples.

5.2.5 Sample Processing Method Reference
Adams, D. 1998. Quality Assurance Project Plan for Environmental Monitoring, A 5-year Revisit of Sediment Quality in the NY/NJ Harbor. U.S. Environmental Protection Agency, Region 2, Edison, NJ.

6. DATA MANIPULATIONS

NA

6.1 Name of new or modified values
NA

6.2 Data Manipulation Description
NA

6.3 Data Manipulation Examples
NA

7. DATA DESCRIPTION

7.1 Description of Parameters

Attribute Name	Format	Description
Data Group	VARCHAR2(4)	Data group conducting sampling
Sampling Year	NUMBER(4.0)	Data collection year
Station Name	VARCHAR2(20)	The station identifier
Sampling Collection Date	DATE	Date of sample collection
Latitude Decimal Degrees	NUMBER(9.3)	Decimal degrees of latitude
Longitude Decimal Degrees	NUMBER(9.3)	Decimal degrees (-) of longitude
Analyte Code	VARCHAR2(8)	Analyte Code
Analyte Concentration	NUMBER(13.6)	Concentration (dry wt.)
Unit Code	VARCHAR2(15)	Unit of measure
Detection Limit Conc.	NUMBER(13.6)	Method Detection Limit

7.1.6 Precision to which values are reported
The precision is indicated by the format reported under 7.1.7 and 7.1.8

7.1.7/7.1.8 Minimum/Maximum value in data set

Analyte Code	Minimum	Maximum
14_HXCDD	0.02	41.29
14_HXCDF	0.04	239.34
16_HXCDD	0.09	104.41
16_HXCDF	0.03	44.3
17_HXCDD	0.07	98.48
17_HXCDF	0.02	4.6
18_HPCDD	0.96	2778.18
18_HPCDF	0.2	773.68
18_PECDD	0.11	20.04
18_PECDF	0.04	86
19_HPCDF	0.09	85.73
28_HXCDF	0.04	30.81
28_PECDF	0.08	70.19
ACENTHE	10	2100
ACENTHY	10	1100
AG	0.025	8.6
AL	1980	45400
ALDRIN	0.5	10
ALPHACHL	0.5	42
ANTHRA	10	2800
AS	0.94	82.8
BENANTH	10	5300
BENAPY	10	3900
BENZOBFL	10	3700
BENZOKFL	10	1500
BENZOP	10	2200
BIPHENYL	10	230
CD	0.12	6.2
CHRYSENE	10	3900
CR	5.1	328
CU	1.6	383
DBT	0.56	1205.01
DIBENTP	10	1000
DIBENZ	10	240
DIELDRIN	0.39	10
DIMETH	10	890
ENDOSUL1	0.49	10
ENDOSUL2	0.5	10
ENDRIN	0.5	10
ENDSUSFT	0.5	10
FE	3170	59300
FLUORANT	10	4400
FLUORENE	10	2200
HEPTACHL	0.5	10
HEPTAEPO	0.5	10
HEXACHL	0.5	10
HG	0.017	9.4
INDENO	10	2200
LINDANE	0.37	10
MBT	0.73	73.82
MENAP1	10	1000
MENAP2	10	790
MEPHEN1	10	3100
MIREX	0.5	13
MN	70.9	1690

NAPH	10	1100
NI	1.5	70.6
OCDD	8.54	18796.7
OCDF	0.62	2746.08
OPDDD	0.5	110
OPDDE	0.5	65
OPDDT	0.5	20
PB	3.4	347
PCB101	0.2	120
PCB105	0.18	27
PCB110	0.31	95
PCB118	1	10
PCB126	0.28	10
PCB128	0.19	8.8
PCB138	0.35	1100
PCB153	0.28	64
PCB170	0.34	21
PCB18	1	220
PCB180	0.27	26
PCB187	0.22	22
PCB195	0.31	5
PCB206	0.15	17
PCB209	0.19	19
PCB28	0.3	270
PCB44	0.25	140
PCB52	0.4	150
PCB66	0.39	170
PCB77	1	34
PCB8	1	51
PHENANTH	10	3900
PPDDD	0.36	890
PPDDE	0.46	120
PPDDT	0.5	390
PYRENE	10	5300
SB	0.18	5.6
SE	0.34	4
SN	3.4	255
TBT	0.34	3630.72
TCDD	0.06	235.81
TCDF	0.05	169.77
TETBT	0.57	353.03
THPD	2.22	5464.87
THPF	0.3	1549.11
THXD	0.23	826.22
THXF	0.18	823
TNONCHL	0.5	23
TOXAPHEN	50	1000
TPND	0.11	126.55
TPNF	0	458.19
TRIMETH	9.5	1400
TTED	0.09	272.17
TTEF	0.06	416.61
ZN	7.1	705

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,Units,
Detection Limit Concentration,QA Code

7.2.2 Example Data Records
R-EMAP Region 2,2003,JB301,31-Jul-03,40.629,-73.759,AG,Silver,Metal,
0.052,mg/kg,0.011,,CH-QQ
R-EMAP Region 2,2003,JB301,31-Jul-03,40.629,-73.759,AL,Aluminum,Metal,
1980,mg/kg,6.7,,CH-TT
R-EMAP Region 2,2003,JB301,31-Jul-03,40.629,-73.759,PCB101,
2,2',4,5,5'-pentachlorobiphenyl,PCB,1,ug/kg,0.05,,CH-UU

8. GEOGRAPHIC AND SPATIAL INFORMATION

8.1 Minimum Longitude
-74 Degrees 17.4 Minutes 48.00 Decimal Seconds

8.2 Maximum Longitude
-73 Degrees 45 Minutes 0.54 Decimal Seconds

8.3 Minimum Latitude
40 Degrees 25.2 Minutes 36.00 Decimal Seconds

8.4 Maximum Latitude
40 Degrees 51.6 Minutes 42.00 Decimal Seconds

8.5 Name of area or region
New York/New Jersey Harbor System:
Four sub-basins were sampled in the New York/New Jersey Harbor, including: Upper Harbor, Newark Bay, Lower Harbor (includes Raritan and Sandy Hook Bays) and Jamaica Bay. For purposes of this study, the region includes the lower portions of the Hudson, Passaic, Harlem, Hackensack and Raritan Rivers, upstream to a near-bottom salinity of 15 ppt, the East River to Long Island Sound and Lower Harbor to the Atlantic Ocean.

9. QUALITY CONTROL AND QUALITY ASSURANCE

9.1 Data Quality Objectives
Quality assurance goals were developed and followed for each sample type.

9.2 Quality Assurance/Quality Control Procedures
The QA/QC procedures for the laboratory chemical methods will follow a performance-based approach, which involves continuous laboratory evaluation through the use of accuracy-certified reference materials (CRMs), laboratory-fortified sample matrices, reagent blanks, calibration standards and laboratory and field replicates.

9.3 Quality Assessment Results
These in-house QC measures met the requirements established in the QA Plan.

9.4 Unassessed Errors
NA

10. DATA ACCESS

10.1 Data Access Procedures
Data can be downloaded from the WWW server.

10.2 Data Access Restrictions
Data can only be accessed from the WWW server.

10.3 Data Access Contact Persons
Ms. Darvene A. Adams
U.S. EPA Region II

10.4 Data Set Format
Tab-delimited

10.5 Information Concerning Anonymous FTP
Data cannot be accessed via ftp.

10.6 Information Concerning WWW
Data can be downloaded from the WWW servers.

10.7 EMAP CD-ROM Containing the Data Set
Data are not available on CD-ROM

11. REFERENCES

Adams, D. 1998. Quality Assurance Project Plan for Environmental Monitoring, A 5-year Revisit of Sediment Quality in the NY/NJ Harbor. U.S. Environmental Protection Agency, Region 2, Edison, NJ.

Adams, Darvene and Sandra Benyi. 2003. Final Report: Sediment Quality of the NY/NJ Harbor System - A 5-Year Revisit. EPA/902-R-03-002. USEPA-Region 2, Division of Science and Assessment. Edison, NJ. December, 2003.

Overton, W.S., D.L. Stevens and D. White. 1990. Design Report for EMAP: Environmental Monitoring and Assessment Program. EPA/600/3-91/053. U.S. Environmental Protection Agency, ORD, Washington, DC.

Reifsteck, D.M., C.J. Strobel and D.J. Keith. 1993. Environmental Monitoring and Assessment Program - Near Coastal Component: 1993 Virginian Province Field Operations and Safety Manual. U.S. EPA NHEERL-AED. Narragansett, RI.

USEPA, 1989. Draft EPA Locational Data Policy. US EPA, Washington, DC

12. TABLE OF ACRONYMS

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