CATALOG DOCUMENTATION
NATIONAL COASTAL ASSESSMENT DATABASE
2003 NEW YORK/NEW JERSEY HARBOR SYSTEM
SEDIMENT GRAIN COMPOSITION 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 Composition Data by Site

1.2 Author of the Catalog entry
Melissa Hughes, Raytheon

1.3 Catalog revision date
June 14, 2012

1.4 Data set name
Sediment Grain Composition 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

Ms. Darvene A. Adams
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 Grain Composition data set reports the per cent silt/clay, sand, moisture and total organic carbon (TOC) measured in a sample. These samples were taken in the New York/New Jersey Harbor region. The samples were taken from a homogenate of several grabs.

3.2 Keywords for the Data Set

sediment composition, silt/clay, total organic carbon, sand, moisture

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 silt/clay, sand, moisture and total organic carbon (TOC) content of the NY/NJ harbor region.

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. Characterizing sediment condition and composition is a logical way to describe toxic contamination in an estuarine system because the sediment can be a sink for contaminants that adsorb to fine particles.

4.4 Summary of Data Set Parameters

Sediment Grain Composition data set values were based on the results of silt/clay, sand, moisture and TOC analyses.

5. DATA ACQUISITION AND PROCESSING METHODS

5.1 Data Acquisition

5.1.1 Sampling Objective

Collect sediment grab samples suitable for the analysis of silt and clay content.

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. 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. A subsample was removed for silt/clay and TOC content analysis and transferred to a sample container that was 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.

Care was taken to avoid sediment that had touched the surface of the grab and to use only samples with undisturbed surfaces. Clean stainless steel spoons and glass mixing bowls were used to prevent accidental contamination. The van Veen Grab was rinsed with ambient seawater between grabs at a station and 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 silt, clay and TOC content.

5.2.2 Sample Processing Methods Summary

The samples were treated with sodium hexametaphosphate as a dispersant. Percent silt and percent clay were determined using pipette analysis of the filtrate that passed through a 63-u sieve. TOC was determined using a CO2 analyzer after acidification with H3PO4.

5.2.3 Sample Processing Method Calibration

NA

5.2.4 Sample Processing Quality Control

All analyses employed appropriate quality assurance samples.

5.2.5 Sample Processing Method Reference

U.S. EPA. 1993. EMAP Laboratory Methods Manual: Estuaries. U.S. Environmental Protection Agency, Office of Research and Development, Environmental Monitoring Systems Laboratory, Cincinnati, OH.

5.2.6 Sample Processing Method Deviations

Silt and clay samples were not digested with hydrogen peroxide.

6. DATA MANIPULATIONS

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
Siltclay (%)	NUMBER(5.1)	Silt/clay (%) in sample
Sand (%)	NUMBER(5.1)	Sand (%) in sample
Moisture (%)	NUMBER(5.1)	Sediment moisture content(%)
TOC	NUMBER(6.3)	Total organic carbon
TOC Units	VARCHAR2(15)	Total organic carbon units

7.1.6 Precision to which values are reported

The precision is indicated by the attribute format reported under 7.1

7.1.7 Minimum value in data set

Silt/clay (%)	0.52
TOC (mg/Kg)	340
Moisture (%)	16
Sand (%)	3.54

7.1.8 Maximum value in Data Set

Silt/clay (%)	96.46
TOC (mg/Kg)	110000
Moisture (%)	84
Sand (%)	99.48

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,Silt/clay (%),
Sand (%),Moisture (%),TOC,TOC Units

7.2.2 Example Data Records

R-EMAP Region 2 2003,2003,JB301,7/31/2003,40.629,-73.759,2.43,97.57,,,
R-EMAP Region 2 2003,2003,JB301,8/1/2003,40.629,-73.759,,,23,850,mg/Kg
R-EMAP Region 2 2003,2003,JB303,8/8/2003,40.619,-73.778,45.97,54.03,,,

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 QA sample type and for each analysis.

9.2 Quality Assurance/Quality Control Procedures

NA

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.

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12. TABLE OF ACRONYMS

13. PERSONNEL INFORMATION

Principal Investigator
Ms. Darvene A. Adams
Monitoring and Assessment Branch
Division of Environmental Science and Assessment
U.S. Environmental Protection Agency - Region II
2890 Woodbridge Ave.
Edison, NJ 08837
(732) 321-6700
adams.darvene@epa.gov

Data Librarian, EMAP-IM
Melissa M. Hughes
Raytheon
27 Tarzwell Drive
Narragansett, RI 02882-1197
(401) 782-3184 (Tel.)
(401) 782-3030 (FAX)
hughes.melissa@epa.gov