CATALOG DOCUMENTATION
NATIONAL COASTAL ASSESSMENT DATABASE
2003 NEW YORK/NEW JERSEY HARBOR SYSTEM
BENTHIC TAXON ABUNDANCE BY STATION/TAXON
BENTHIC TAXON ABUNDANCE BY REPLICATE
BENTHIC GRAB INFORMATION

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1. DATA SET IDENTIFICATION

1.1 Title of Catalog document

National Coastal Assessment
2003 New York/New Jersey Harbor System
Benthic Taxon Abundance Data by Station/Taxon
Benthic Taxon Abundance Data by Replicate
Benthic Grab Information

1.2 Author of the Catalog entry

Melissa Hughes, Raytheon

1.3 Catalog revision date

June 19, 2012

1.4 Data set name

Benthic Taxon Abundance Data by Replicate

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 Benthic Taxon Abundance by Replicate data set records a count of organisms by taxon identified in each acceptable grab collected at a station. Each taxon is identified by latin name. The Benthic Taxon Abundance by Station/Taxon data set averages the replicate data. Information on grab depth and type of equipment is presented in the Benthic Grab data set.

3.2 Keywords for the Data Set

benthic species, benthic species abundance, species composition, taxon abundance, benthic taxon abundance

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 abundance of benthic organisms in the NY/NJ harbor region based on random sampling.

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

The Benthic Abundance data set values were based on the results of identifying the infauna in the replicate samples.

5. DATA ACQUISITION AND PROCESSING METHODS

5.1 Data Acquisition

5.1.1 Sampling Objective

Collect sediment grab samples suitable for the identification of benthic organisms.

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.

Three macroinvertebrate grabs per sampling station were collected using the 0.04-m2 Young-modified van Veen grab. Benthic grabs were alternated with sediment chemistry/toxicity grabs. Benthic samples were gently washed through a 0.5 mm mesh sieve. The material was preserved in a 10% buffered formaldehyde-rose bengal solution.

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 benthic sediment samples to accurately identify and enumerate benthic infauna.

5.2.2 Sample Processing Methods Summary
Three replicate grabs for benthic macroinvertebrate community structure were obtained at each station. Invertebrates from two of these were sorted and identified; the third replicate was archived. The macrobenthos were identified to the lowest practical taxonomic category.

5.2.3 Sample Processing Method Calibration
NA

5.2.4 Sample Processing Quality Control
Rare or previously undocumented specimens from the Harbor were put aside in a reference collection.

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.

5.2.6 Sample Processing Method Deviations
NA

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

7.1.1 Benthic Abundance Data by Station/Taxon

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
Latin Name	VARCHAR2(78)	Latin name of the taxon
Taxon Total Abundance	NUMBER(6.0)	Total organisms (#) collected
Taxon Mean Abundance	NUMBER(6.2)	Mean organisms (#) collected
Taxon Mean Abundance (SD)	NUMBER(6.2)	Standard deviation
Total Grabs	NUMBER(2.0)	Total grabs (#) taken

7.1.2 Benthic Abundance Data by Replicate

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
Replicate Number	NUMBER(2.0)	Benthic grab replicate number
Latin Name	VARCHAR2(78)	Latin name of the taxon
Replicate Abundance	NUMBER(6.0)	Organisms (#) in replicate
Sieve size	NUMBER(5.2)	Sample sieve size (mm)

7.1.3 Benthic Grab Information

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
Grab Replicate Number	NUMBER(2.0)	Benthic grab replicate number
Penetration Depth	NUMBER(4.0)	Grab penetration depth (mm)
Area	NUMBER(8.2)	Grab area
Area Units	VARCHAR2(15)	Grab area units
Collection Gear	VARCHAR2(240)	Type collection gear

7.1.6 Precision to which values are reported

The abundance is reported to the whole number.

7.1.7 Minimum value in data set

Replicate number	1
Replicate abundance	1
Total abundance	1

7.1.8 Maximum value in Data Set

Replicate number	2
Replicate abundance	14612
Total abundance	18480

7.2 Data Record Example

7.2.1 Column Names for Example Records

7.2.1.1 Benthic Abundance Data by Station/Taxon

Data Group,Sampling Year,Station Name,Sampling Collection Date,
Latitude Decimal Degrees,Longitude Decimal Degrees,Latin Name,
Taxon Total Abundance (#),Taxon Mean Abundance (#),
Taxon Mean Abundance (SD),Total Grabs

7.2.1.2 Benthic Abundance Data by Replicate

Data Group,Sampling Year,Station Name,Sampling Collection Date,
Latitude Decimal Degrees,Longitude Decimal Degrees,Replicate Number,
Latin Name,Replicate Abundance,Sieve Size

7.2.1.3 Benthic Grab Information
Data Group,Sampling Year,Station Name,Sampling Collection Date,
Latitude Decimal Degrees,Longitude Decimal Degrees,Replicate Number,
Penetration Depth (mm),Area,Area Units,Collection Gear

7.2.2 Example Data Records
7.2.2.1 Benthic Abundance Data by Station/Taxon
R-EMAP Region 2,2003,JB301,7/31/2003,40.629,-73.759,Ampelisca abdita,
2,1,0,2
R-EMAP Region 2,2003,JB301,7/31/2003,40.629,-73.759,Asteroidea,3,1.5,
2.12,2
R-EMAP Region 2,2003,JB301,7/31/2003,40.629,-73.759,Cirrophorus,1,0.5,
0.71,2

7.2.2.1 Benthic Abundance Data by Replicate
R-EMAP Region 2,2003,JB301,7/31/2003,40.629,-73.759,1,
Ampelisca abdita,1,,0.05
R-EMAP Region 2,2003,JB301,7/31/2003,40.629,-73.759,1,
Crepidula fornicata,2,,0.05
R-EMAP Region 2,2003,JB301,7/31/2003,40.629,-73.759,1,
Microphthalmus hartmanae,2,,0.05
R-EMAP Region 2,2003,JB301,7/31/2003,40.629,-73.759,1,Mysidae,1,,0.05

7.2.2.1 Benthic Grab Information
R-EMAP Region 2,2003,JB301,7/31/2003,40.629,-73.759,1,10,440,cm2,
Young-modified Van Veen Grab sampler
R-EMAP Region 2,2003,JB301,7/31/2003,40.629,-73.759,2,10,440,cm2,
Young-modified Van Veen Grab sampler
R-EMAP Region 2,2003,JB303,8/8/2003,40.619,-73.778,1,10,440,cm2,
Young-modified Van Veen Grab sampler

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

Ten percent of all samples were reprocessed and subjected to a second QA evaluation. Taxonomic identifications were verified using reference organisms obtained from EMAP's reference collection.

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.

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