

DRAFT CATALOG DOCUMENTATION
NATIONAL COASTAL ASSESSMENT- NORTHEAST DATABASE
YEAR 2000 STATIONS
BENTHIC TAXON ABUNDANCE DATA: "BEN_ABUN"

TABLE OF CONTENTS

1. DATASET IDENTIFICATION
2. INVESTIGATOR INFORMATION
3. DATASET ABSTRACT
4. OBJECTIVES AND INTRODUCTION
5. DATA ACQUISITION AND PROCESSING METHODS
6. DATA MANIPULATIONS
7. DATA DESCRIPTION
8. GEOGRAPHIC AND SPATIAL INFORMATION
9. QUALITY CONTROL AND QUALITY ASSURANCE
10. DATA ACCESS AND DISTRIBUTION
11. REFERENCES
12. TABLE OF ACRONYMS
13. PERSONNEL INFORMATION

1. DATASET IDENTIFICATION

1.1 Title of Catalog document

National Coastal Assessment-Northeast Region Database
Year 2000 Stations
Benthic Taxon Abundance Data

1.2 Authors of the Catalog entry

John Kiddon, U.S. EPA NHEERL-AED
Harry Buffum, Computer Sciences Corp

1.3 Catalog revision date

September 30, 2002

1.4 Dataset name

BEN_ABUN

1.5 Task Group

National Coastal Assessment-Northeast

1.6 Dataset identification code

009

1.7 Version

001

1.8 Request for 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 (for full addresses see Section 13)

2.1 Principal Investigators

John Paul, U.S. Environmental Protection Agency, NHEERL-Atlantic Ecology Division (AED)

Charles Strobel, U.S. Environmental Protection Agency, NHEERL-Atlantic Ecology Division (AED)

2.2 Sample Collection Investigators

Charles Strobel, U.S. Environmental Protection Agency, NHEERL-Atlantic Ecology Division (AED)

2.3 Sample Processing Investigators

3. DATASET ABSTRACT

3.1 Abstract of the Dataset

The BEN_ABUN file reports the identity and abundance of benthic species found in grab samples collected in NCA Estuaries in the Northeast Region in the year 2000. One record is presented for each taxon per grab at a station. Each record includes the taxonomic name of the organism, the abundance of the taxa is reported, and a parameter that specifies the taxonomic level represented by the record, i.e., species, genus, family, etc, and the size of grab sampler used to collect the sediment.

3.2 Keywords for the Dataset

Benthic species, taxa, invertebrates, community composition, taxonomic identity,

4. OBJECTIVES AND INTRODUCTION

4.1 Program Objective

The Coastal 2000 Initiative is a national EMAP effort. In Coastal 2000 we are demonstrating a consistent, integrated, probabilistic monitoring effort that will produce a national assessment of the condition of the U.S. marine estuaries. We partnered with EPA Regions, EPA's Office of Water, state resource/protection agencies in the 24 marine coastal states and Puerto Rico, USGS, and NOAA to conduct the sampling of estuaries during the late summer months of 2000 and 2001. A minimum of 50 sampling locations in each state have been established within EMAP's probabilistic sampling framework. From this we will develop a national report on the condition of the Nations's estuaries, as well as reports on the condition of the estuaries in each of the individual states and Puerto Rico. In 2002 we are beginning our assessment of the condition of the near-shore coastal environments to complement EPA's ongoing efforts to improve beach monitoring.

4.2 Dataset Objective

The identity and abundance of the benthic organisms are reported for each grab sample collected.

4.3 Dataset Background Discussion

Benthic invertebrates constitute the largest living reservoir of organic carbon in many estuarine systems. Most of the organisms are secondary consumers in the estuarine food web, and in turn are prey for fish and

other organisms. They are generally long-lived, relatively immobile, and are believed to be sensitive to stresses such as alteration of habitat, exposure to toxic substances and low-oxygen conditions, etc. For these reasons, monitoring programs often collect information about the identity, abundance and biomass of benthic organisms. Such data are used to develop indices of abundance and diversity which help characterize the ecological condition of an estuary.

4.4 Summary of Dataset Parameters

*STATION	Station name
*STAT_ALT	Alternate Site Code (A,B,C)
*EVNTDATE	Event date
*LAT_NAME	Taxa Latin Name
ABUNDANC	Number of organisms of a taxon found in a grab sample
ID_LEVEL	Taxonomic level represented by the taxa (i.e., species, genus, family, etc.)
GRABSIZE	Size of Benthic Grab Sampler ("0.04 sq. m" or "0.1 sq. m")
LABCODE	A code identifying the partner or contract responsible for analyzing samples
	EPA USEPA contractor: Barry Vitor Associates

* denotes parameters that should be used as key fields when merging data files

5. DATA ACQUISITION AND PROCESSING METHODS

5.1 Data Acquisition

5.1.1 Sampling Objective

Benthic grab samples were collected for the identification and enumeration of benthic organisms.

5.1.2 Sample Collection: Methods Summary

One 'grab' sample was collected from each station using a Young-modified Van Veen grab sampler. The grabs were nominally 440 cm² in area and 10 cm deep. A sub-sample 2.5 cm in diameter and the depth of the grab was taken from each grab for grain-size analysis. The remaining sediments were live-sieved in the field with a 0.5 mm mesh screen. Organisms retained on the screen were placed in plastic containers and fixed in 10% buffered formalin with rose bengal stain for preservation.

5.1.3 Beginning Sampling Dates

8 July 2000

5.1.4 Ending Sampling Dates

8 October 2000

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: Calibration

The sampling gear does not require any 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. 1998. Environmental Monitoring and Assessment Program - Mid-Atlantic Integrated Assessment. Estuaries Component, Field Operations and Safety Manual. U.S. EPA, Office of Research and Development, NHEERL-AED, Narragansett, RI. July 1998.

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

Not applicable

5.2 Data Preparation and Sample Processing

5.2.1 Sample Processing Objective

To identify and count all infaunal and epifaunal organisms present in benthic grab samples.

5.2.2 Sample Processing: Methods Summary

All taxa in a grab sample were sorted by a technician and then identified and counted by a skilled taxonomist. Only organisms larger than 0.5 mm were processed; therefore groups such as turbellarian flatworms, nematodes, ostracods, harpacticoid copepods and foraminifera were excluded from the identification process.

5.2.3 Sample Processing: Calibration

Not applicable

5.2.4 Sample Processing: Quality Control

A minimum of 10% of all samples sorted by each technician were resorted to monitor performance and provide feedback to maintain acceptable standards. Only skilled taxonomists conducted the organism identification. A minimum of 10% of samples were re-checked by other qualified taxonomists for accuracy in identification and enumeration. Species lists from different labs were cross-checked. Inconsistencies in nomenclature were corrected as necessary.

5.2.5 Sample Processing: References

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.

5.2.6 Sample Processing: Alternate Methods

Not applicable

6. DATA ANALYSIS AND MANIPULATIONS

6.1 Name of New or Modified Values

Not applicable

6.2 Data Manipulation Description

Not applicable

7. DATA DESCRIPTION

7.1 Description of Parameters

7.1.1 Components of the Dataset

<u>VARIABLE</u>	<u>TYPE</u>	<u>LENGTH</u>	<u>LABEL</u>
STATION	Char	9	Coastal 2000 Station Name
STAT_ALT	Char	1	Alternate Site Code (A,B,C)
EVNTDATE	Date	8	Event Date
LAT_NAME	Char	40	Taxa Latin Name
ABUNDANC	Num	4	Taxa Abundance in sample
ID_LEVEL	Char	15	Taxonomic Level of Identification
GRABSIZE	Char	10	Size of Benthic Grab Sampler
LABCODE	Char	7	Lab/Contract Identifier

7.1.2 Precision of Reported Values

Abundance counts are reported as whole numbers

7.1.3 Minimum Value in Dataset

ABUNDANC 0

7.1.4 Maximum Value in Dataset

ABUNDANC 5628

7.2 Data Record Example

STATION	STAT_ALT	EVNTDATE	LAT_NAME	ABUNDANC	ID_LEVEL	GRABSIZE	LABCODE
CT00-0001	A	8/17/00	Bivalvia	4	Class	0.04 sq. m	EPA BEN
CT00-0001	A	8/17/00	Cirratulidae	529	Family	0.04 sq. m	EPA BEN
CT00-0001	A	8/17/00	Corophium	1	Genus	0.04 sq. m	EPA BEN

0001

spp.

m

8. GEOGRAPHIC AND SPATIAL INFORMATION

8.1 Minimum Longitude (Westernmost)

-75.7737 decimal degrees

8.2 Maximum Longitude (Easternmost)

-67.0939 decimal degrees

8.3 Minimum Latitude (Southernmost)

38.4521 decimal degrees

8.4 Maximum Latitude (Northernmost)

44.9456 decimal degrees

8.5 Name of area or 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 specifies that sorting, counting and identification procedures be accurate to within 10% (see Valente and Strobel, 1993).

9.2 Data Quality Assurance Procedures

A minimum of 10% of all samples processed were resorted by a second qualified technician. A minimum of 10% of all samples processed by each taxonomic technician was checked by a second senior taxonomist to verify the accuracy of species identification and enumeration.

9.3 Actual Measurement Quality :

10. DATA ACCESS

10.1 Data Access Procedures

Data can be downloaded from the web

10.2 Data Access Restrictions

None

10.3 Data Access Contact Persons

John Paul, Principal Investigator

U.S. EPA NHEERL-AED

401-782-3037, 401-782-3099 (FAX), paul.john@epa.gov

Harry Buffum, Data Manager/ MAIA-Estuaries

U.S. EPA NHEERL-AED

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

10.4 Dataset Format

ASCII (CSV) and SAS Export files

10.5 Information Concerning Anonymous FTP

Not available

10.6 Information Concerning WWW

No gopher access, see Section 10.1 for WWW access

10.7 EMAP CD-ROM Containing the Dataset

Data not available on CD-ROM

11. REFERENCES

Strobel, C.J. 1998. Environmental Monitoring and Assessment Program - Mid-Atlantic Integrated Assessment. Estuaries Component, Field Operations and Safety Manual. U.S. EPA, Office of Research and Development, NHEERL-AED, Narragansett, RI. Forthcoming.

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

Valente, R. and Strobel, C.J. 1993. Environmental Monitoring and Assessment Program- Estuaries: 1993 Virginian Province Quality Assurance Project Plan. U.S. EPA, NHEERL-AED, Narragansett, RI. May 1993

12. TABLE OF ACRONYMS

AED	Atlantic Ecology Division (USEPA)
DB	Delaware Bay
EMAP	Environmental Monitoring and Assessment Program
EPA	U.S. Environmental Protection Agency
GED	Gulf Ecology Division (USEPA)
mg/L	Milligrams per liter (same as part per million)
ug/L	Micrograms per liter (same as part per billion)
um	Micrometer
USEPA	United States Environmental Protection Agency
WWW	World Wide Web

13. PERSONNEL INFORMATION

Harry Buffum, Database Manager, Computer Sciences Corporation.
U.S. Environmental Protection Agency, NHEERL-AED
27 Tarzwell Drive, Narragansett, RI 02882-1197
401-782-3183, 401-782-3030 (FAX), buffum.harry@epa.gov

Don Cobb, Chemist
U.S. Environmental Protection Agency, NHEERL-AED
27 Tarzwell Drive, Narragansett, RI 02882-1197
401-782-9616, 401-782-3030 (FAX), cobb.donald@epa.gov

Steve Hale, EMAP Information Manager
U.S. Environmental Protection Agency, NHEERL-AED
27 Tarzwell Drive, Narragansett, RI 02882-1197
401-782-3048, 401-782-3030 (FAX), hale.stephen@epa.gov

John Kiddon, AED Oceanographer
U.S. Environmental Protection Agency, NHEERL-AED
27 Tarzwell Drive, Narragansett, RI 02882-1197
401-782-3044, 401-782-3030 (FAX), kiddon.john@epa.gov

Joe LiVolsi, AED QA Officer
U.S. Environmental Protection Agency, NHEERL-AED
27 Tarzwell Drive, Narragansett, RI 02882-1197
401-782-3163, 401-782-3030 (FAX), livolsi.joseph@epa.gov

John Paul, Principal Investigator
U.S. Environmental Protection Agency, NHEERL-AED
27 Tarzwell Drive, Narragansett, RI 02882-1197
401-782-3037, 401-782-3099 (FAX), paul.john@epa.gov

Charles J. Strobel, Field Coordinator
U.S. Environmental Protection Agency, NHEERL-AED
27 Tarzwell Drive, Narragansett, RI 02882-1197
401-782-3180, 401-782-3030 (FAX), strobel.charles@epa.gov