

US EPA ARCHIVE DOCUMENT

CATALOG DOCUMENTATION
EMAP-ESTUARIES PROGRAM LEVEL DATABASE
1993 DELAWARE AND MARYLAND COASTAL BAYS
VERTICAL PROFILE DATA FROM RANDOM AND ITE SITES

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1. DATA SET IDENTIFICATION

1.1 Title of Catalog document

Coastal Bays Database
1993 Delaware and Maryland Bays
Vertical Profile data from Random and ITE Sites

1.2 Author of the Catalog entry

Melissa Hughes, OAO Corp.

1.3 Catalog revision date

10 December 1996

1.4 Data set name

HYDRLAB1, HYDRLAB2

1.5 Task Group

Mid-Atlantic Integration and Assessment (MAIA)

1.6 Data set identification code

209

1.7 Version

001

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

Dr. Fredrick Kutz
U.S. Environmental Protection Agency - Region III

2.2. Investigation Participant-Sample Collection

Janis C. Chaillou
Versar, Inc.

3. DATA SET ABSTRACT

3.1 Abstract of the Data Set

The Vertical Profile data set presents data recorded from a Hydrolab Surveyor II. Salinity, temperature, dissolved oxygen, conductivity, dissolved oxygen saturation and pH are reported by depth for each Random and ITE site. Since ITE sites were visited more than once, data are reported for each visit.

3.2 Keywords for the Data Set

pH, salinity, temperature, dissolved oxygen, dissolved oxygen saturation, conductivity, depth

4. OBJECTIVES AND INTRODUCTION

4.1 Program Objective

The objective of the Coastal Bays Joint Assessment was to assess the ecological condition of the Delaware and Maryland coastal bays, compare the current ecological condition of the bays with their historical condition and to evaluate indicators and sampling design elements that can be used to direct future monitoring activities in the system.

4.2 Data Set Objective

The objective of the Vertical Profile data set is to report water column measurements recorded at depth for each station and visit.

4.3 Data Set Background Discussion

Measurements of physical characteristics provide basic information about the environmental setting of a sample site. Knowledge of the physical context in which biological and chemical data are collected is important for interpreting results accurately because physical characteristics of the environment determine the distribution and species composition of estuarine communities, particularly assemblages of benthic macroinvertebrates.

Healthy aquatic ecosystems require clear water, acceptable concentrations of dissolved oxygen, limited concentrations of phytoplankton and appropriate concentrations of nutrients. Salinity and temperature are among the most important factors controlling the distribution of biota and ecological processes in estuaries. Depth, bottom salinity, dissolved oxygen, temperature and pH were measured to describe the physical conditions at sites in the coastal bays.

4.4 Summary of Data Set Parameters

Bottom water quality measurements are reported for each vertical profile taken at a station. These included: temperature, salinity, pH and depth.

5. DATA ACQUISITION AND PROCESSING METHODS

5.1 Data Acquisition

5.1.1 Sampling Objective

To collect high-quality vertical water column profiles to characterize the physical conditions at a sampling site.

5.1.2 Sample Collection Methods Summary

The Hydrolab was attached to the end of a winch cable with a shackle. The instrument was swung over the side of the boat, turned on and lowered to just below the water surface. The instrument was then lowered through the water column until it reached the bottom. Criteria were set for in situ water quality measurements:

Bottom Depth (m) Water Quality Measurements

- < 1 Surface (0.5 m below the surface)
- 1-2 Surface, bottom (0.5 m above the bottom)
- 2-3.3 Surface, midpoint, bottom
- >3.3 1 meter intervals from surface to bottom

5.1.3 Sampling Start Date

12 July 1993

5.1.4 Sampling End Date

30 September 1993

5.1.5 Platform

Sampling was conducted from 7 m (21 ft) Privateer equipped with an electric winch with a 12-foot boom.

5.1.6 Sampling Gear

Hydrolab Surveyor II

5.1.7 Manufacturer of Instrument

NA

5.1.8 Key Variables

This data set contains bottom values measured at the time of sampling.

5.1.9 Sampling Method Calibration

NA

5.1.10 Sample Collection Quality Control

NA

5.1.11 Sample Collection Method Reference

NA

5.1.12 Sample Collection Method Deviations

NA

5.2 Data Preparation and Sample Processing

5.2.1 Sample Processing Objective

Ensure accurate data collection; all probes functioning properly.

5.2.2 Sample Processing Methods Summary

NA

5.2.3 Sample Processing Method Calibration

NA

5.2.4 Sample Processing Quality Control

NA

5.2.5 Sample Processing Method Reference

NA

6. DATA MANIPULATIONS

6.1 Name of New or Modified Values

NA

6.2 Data Manipulation Description

NA

7. DATA DOCUMENTATION

7.1 Description of Parameters

| Parameter # SAS Name | Data Type | Len | Format | Parameter Label |
|-------------------------|--------------|-----|----------|----------------------------|
| 1 SITE | Num | 8 | 3. | Site Number |
| 2 EVNTDATE | Num | 8 | MMDDYY8. | Date when Sample Collected |
| 3 EVNTNUM | Num | 8 | 5. | Event Number |
| 4 B_TEMP | Num | 8 | 5.2 | Bottom Temperature |
| 5 B_PH | Num | 8 | 5.2 | Bottom pH (pH) |
| 6 B_SALIN | Num | 8 | 4.1 | Bottom Salinity (ppt) |
| 7 B_DEPTH | Num | 8 | 6.2 | Bottom Depth (m) |

7.1.6 Precision to which values are reported

The number of decimal places for each value reflects the precision of the probe.

7.1.7 Minimum Value in Data Set by Parameter

| | |
|---------|-------|
| B_TEMP | 19.16 |
| B_PH | 7.00 |
| B_SALIN | 2.8 |
| B_DEPTH | 0.61 |

7.1.7 Maximum Value in Data Set by Parameter

| | |
|---------|-------|
| B_TEMP | 37.40 |
| B_PH | 9.82 |
| B_SALIN | 36.2 |
| B_DEPTH | 3.66 |

7.2 Data Record Example

7.2.1 Column Names for Example Records

SITE EVNTDATE EVNTNUM B_TEMP B_PH B_SALIN B_DEPTH

7.2.2 Example Data Records

| OBS | SITE | EVNTDATE | EVNTNUM | B_TEMP | B_PH | B_SALIN | B_DEPTH |
|-----|------|----------|---------|--------|------|---------|---------|
| 1 | 101 | 08/10/93 | 1091 | 25.75 | 7.73 | 16.3 | 1.22 |
| 2 | 102 | 08/10/93 | 1092 | 25.82 | 8.13 | 8.4 | 0.91 |
| 3 | 105 | 07/15/93 | 2016 | 37.40 | 7.70 | 21.6 | 1.22 |
| 4 | 106 | 08/17/93 | 1117 | 27.46 | 7.63 | 27.8 | 1.52 |
| 5 | 107 | 08/04/93 | 1080 | 28.71 | 7.46 | 26.9 | 1.22 |

8. GEOGRAPHIC AND SPATIAL INFORMATION

8.1 Minimum Longitude

-77 Degrees 19 Minutes 51.00 Decimal Seconds

8.2 Maximum Longitude

-69 Degrees 56 Minutes 27.60 Decimal Seconds

8.3 Minimum Latitude

36 Degrees 51 Minutes 51.00 Decimal Seconds

8.4 Maximum Latitude

42 Degrees 05 Minutes 15.49 Decimal Seconds

8.5 Name of area or region

Delaware and Maryland Coastal Bays

Stations were located in coastal bays along the East Coast of the United States in the States of Delaware and Maryland. Four major subsystems included Rehobeth Bay, Indian River Bay, Assawoman Bay and Chincoteague Bay. Areas of interest included Indian River, St. Martin River, Trappe Creek and artificial lagoons.

9. QUALITY CONTROL/QUALITY ASSURANCE

9.1 Data Quality Objectives

Measurement quality objectives were outlined in the Quality Assurance Project Plan (Valente et al., 1990). Accuracy and precision goals are outlined below:

Measurement Quality Objectives for EMAP-Estuaries Indicators and associated data.

| Data Type | Maximum Allowable | | |
|--------------|-------------------|-------------------|----------------------|
| | Accuracy Goal | Precision Goal | Completeness Goal |
| Salinity | 1 ppt | 10 % | 90 % |
| Depth | 0.5 m | 10 % | 90 % |
| pH | 0.2 units | NA | 90 % |
| Temperature | 0.5 deg C | NA | 90 % |

9.2 Quality Assurance Procedures

NA

9.3 Unassessed Errors

NA

10. DATA ACCESS

10.1 Data Access Procedures

Data can be requested from a contact under Section 10.3.
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

Dr. Fredrick Kutz
U.S. EPA Region III
(410) 305-2742 (Tele)

10.4 Data Set Format

Data can be transmitted in a variety of formats derived from SAS data sets.

10.5 Information Concerning Anonymous FTP

Data cannot be accessed via ftp.

10.6 Information Concerning WWW

Data can be downloaded from the WWW server.

10.7 EMAP CD-ROM Containing the Data Set

Data are not available on CD-ROM

11. REFERENCES

Chaillou, J.C., S.B. Weisberg, F.W. Kutz, T.E. DeMoss, L. Mangiaracina, R. Magnien, R. Eskin, J. Maxted, K. Price and J.K. Summers. 1996. Assessment of the Ecological Condition of the Delaware and Maryland Coastal Bays. U.S. Environmental Protection Agency. Prepared by Versar, Inc., Columbia, MD.

Holland, A.F., ed. 1990. Near Coastal Program Plan for 1990: Estuaries. EPA 600/4-900/033. Narragansett, RI: U.S. Environmental Protection Agency, NHEERL-AED, Office of Research and Development.

Strobel, C. J., 1990. Environmental Monitoring and Assessment Program - Near Coastal Component: 1990 Demonstration Project, Field Operations Manual. U.S. EPA NHEERL-AED. Narragansett, RI. October 1990.

Valente, R., C.J. Strobel, J.E. Pollard, K.M. Peres, T.C. Chang and J. Rosen. 1990. Quality Assurance Project Plan for EMAP Near Coastal: 1990 Demonstration Project. U.S. Environmental Protection Agency. NHEERL-AED. Narragansett, RI.

Weisberg, S.B., J.B. Frithsen, A.F. Holland, J.F. Paul, K.J. Scott, J.K. Summers, H.T. Wilson, R. Valente, D.G. Heimbuch, J. Gerritsen, S.C. Schimmel and R.W. Latimer, 1993. EMAP-Estuaries Virginian Province 1990 Demonstration Project Report. EPA 620/R-93/006. U.S. Environmental Protection Agency, NHEERL-AED, Narragansett, RI 02882-1197.

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