

US EPA ARCHIVE DOCUMENT

CATALOG DOCUMENTATION
EMAP SURFACE WATERS PROGRAM LEVEL DATABASE
1997-1998 Mid-Atlantic Integrated Assessment Program
Sediment Metabolism Data

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1. DATA SET IDENTIFICATION

1.1 Title of Catalog Document

1997-1998 Mid-Atlantic Integrated Assessment Program
Sediment Metabolism Data

1.2 Authors of the Catalog Entry

U.S. EPA NHEERL Western Ecology Division
Corvallis, OR

1.3 Catalog Revision Date

August 2000

1.4 Data Set Name

SEDMET

1.5 Task Group

Surface Waters

1.6 Data Set Identification Code

141

1.7 Version

001

1.8 Requested Acknowledgement

These data were produced as part of the U.S. EPA's Environmental Monitoring and Assessment Program (EMAP). If you publish these data or use them for analyses in publication, 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 Surface Waters Program, it has not been subjected to Agency review, and therefore does not necessarily reflect the views of the Agency and no official endorsement of the conclusions should be inferred."

2. INVESTIGATOR INFORMATION

2.1 Principal Investigator

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2.2 Investigation Participants - Sample Collection

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State of West Virginia
State of Maryland
University of Maryland
U.S. Environmental Protection Agency
Office of Research and Development
Region III

3. DATA SET ABSTRACT

3.1 Abstract of the Data Set

The data set contains the results of sediment respiration assessments. These measurements are critical for assessing trends in stream water quality and the potential for healthy aerobic populations.

3.2 Keywords for the Data Set

specific respiration, sediment metabolism

4. OBJECTIVES AND INTRODUCTION

4.1 Program Objective

In 1997 and 1998 the Ecological Monitoring and Assessment Program (EMAP) Surface Waters Program became a collaborator in the Mid-Atlantic Integrated Assessment (MAIA) project, which is attempting to produce an assessment of the condition of surface water and estuarine resources. The MAIA project represents a follow-up to the MAHA study, with an expanded geographic scope (southern New York to northern North Carolina, with more sites located in the Piedmont and Coastal Plain regions) and a different index period (July-September).

4.2 Data Set Objective

This data set is part of the MAIA project to characterize spatial and temporal variability of ecological indicators and demonstrate the ability of a suite of ecological indicators to estimate the condition of regional populations of aquatic resources.

4.3 Data Set Background Discussion

The primary function of the sedmet data set is to provide an assessment of respiration present in the sediment community. Oxygen consumption rates in soft sediments of a stream provide a functional indicator of energy flow and material transformation within the ecosystem.

Heterotrophic microorganisms (bacteria and fungi) are responsible for oxygen sags in streams and for much of the decomposition of organic matter deposited in them. Measuring rates of oxygen consumption within the soft sediments of a stream provides a functional indicator of energy flow and material transformation within the ecosystem and therefore reflect the trophic structure and integrated function of the community.

4.4 Summary of Data Set Parameters

Specific respiration (mg O₂/g AFDM/hr) and absorbance at 500 nm. Flow type at sample point is also indicated.

5. DATA ACQUISITION AND PROCESSING METHODS

5.1 Data Acquisition

5.1.1 Sampling Objective

To obtain estimates of sediment respiration rates at the sample site.

5.1.2 Sample Collection Methods Summary

See Lazorchak et. al (1998).

5.1.3 Sampling Start Date

May 1997

5.1.4 Sampling End Date

September 1998

5.1.5 Platform

NA

5.1.6 Sampling Gear

See Lazorchak et. al (1998).

5.1.7 Manufacturer of Instruments

NA

5.1.8 Key Variables

NA

5.1.9 Sampling Method Calibration

NA

5.1.10 Sample Collection Quality Control

See Lazorchak, et al. 1998.

5.1.11 Sample Collection Method Reference

Chaloud, D.J. and D.V. Peck. 1994. Environmental Monitoring and Assessment Program: Integrated Quality Assurance Project Plan for the Surface Waters Resource Group, 1994 Activities. EPA 600/X-91/080, Rev. 2.00 U.S. Environmental Protection Agency, Las Vegas, Nevada.

Lazorchak, J.M., Klemm, D.J., and Peck D.V. (editors). 1998. Environmental Monitoring and Assessment Program- Surface Waters: Field Operations and Methods for Measuring the Ecological Condition of Wadeable Streams. EPA/620/R-94/004F. U.S. Environmental Protection Agency, Washington, D.C.

5.1.12 Sample Collection Method Deviations

NA

5.2 Data Preparation and Sample Design

5.2.1 Sample Processing Objective

See Lazorchak, et al. (1998) and Chaloud and Peck (1994).

5.2.2 Sample Processing Methods Summary

See Lazorchak, et al. (1998) and Chaloud and Peck (1994).

5.2.3 Sample Processing Method Calibration

See Lazorchak, et al. (1998) and Chaloud and Peck (1994).

5.2.4 Sample Processing Quality Control

See Lazorchak, et al. (1998) and Chaloud and Peck (1994).

5.2.5 Sample Processing Method Reference

See Lazorchak, et al. (1998) and Chaloud and Peck (1994).

6. DATA MANIPULATIONS

6.1 Name of New or Modified Values

None

6.2 Data Manipulation Description

See Chaloud and Peck (1994).

7. DATA DESCRIPTION

7.1 Description of Parameters

Parameter Data SAS Name	Type	Len	Format	Parameter Label
ABS_500	Num	8		Absorbance at 500 nm
DATE_COL	Num	8	MMDDYY	Date stream visited
LAT_DD	Num	8		X-Site Latitude (decimal degrees)
LON_DD	Num	8		X-Site Longitude (decimal degrees)
REPEATS	Char	2		Tube ID (R1/R2/R3/R4/R5/R6)
SAMPLED	Char	30		Site sampled code
SAMP_ID	Num	8	BEST	Barcode
SPCRESP	Num	8		Specific respiration (mg O2/g AFDM/hr)
STRM_ID	Char	11	\$	Stream ID
VISIT_NO	Num	8	BEST	Visit Number
YEAR	Num	8	BEST	Site year of data collection

7.1.6 Precision to which values are reported

7.1.7 Minimum Value in Data Set

Name	Min
ABS_500	0.01
DATE_COL	05/20/1997
LAT_DD	35.182938
LON_DD	-83.555659
SAMP_ID	24095
SPCRESP	0
VISIT_NO	0
YEAR	1997

7.1.7 Maximum Value in Data Set

Name	Max
ABS_500	4
DATE_COL	09/30/1998
LAT_DD	42.567163
LON_DD	-74.688136
SAMP_ID	249824
SPCRESP	0.5583472924
VISIT_NO	3
YEAR	1998

7.2.1 Column Names for Example Records

"ABS_500", "DATE_COL", "LAT_DD", "LON_DD", "REPEATS", "SAMPLED", "SAMP_ID",
"SPCRESP", "STRM_ID", "VISIT_NO", "YEAR"

7.2.2 Example Data Records

0.24100,09/08/1997,38.247943,-81.886602,"R6","Sampling failed/no instrument",
234281,0,"MAIA97-001",1,1997

0.11400,09/08/1997,38.247943,-81.886602,"R1","Sampling failed/no instrument",
234282,0,"MAIA97-001",1,1997

0.19900,09/08/1997,38.247943,-81.886602,"R2","Sampling failed/no instrument",
234283,0,"MAIA97-001",1,1997

8. GEOGRAPHIC AND SPATIAL INFORMATION

8.1 Minimum Longitude

-83 Degrees 33 Minutes 20 Seconds West (-83.555659 Decimal Degrees)

8.2 Maximum Longitude

-74 Degrees 41 Minutes 17 Seconds West (-74.688136 Decimal Degrees)

8.3 Minimum Latitude

35 Degrees 10 Minutes 58 Seconds North (35.182938 Decimal Degrees)

8.4 Maximum Latitude

42 Degrees 34 Minutes 1 Seconds North (42.567163 Decimal Degrees)

8.5 Name of Area or Region

Mid Atlantic: EPA Region III which includes Delaware, Maryland, New York,
Virginia, and West Virginia

9. QUALITY CONTROL / QUALITY ASSURANCE

9.1 Data Quality Objectives

See Chaloud and Peck (1994).

9.2 Quality Assurance Procedures

See Chaloud and Peck (1994).

9.3 Unassessed Errors

NA

10. DATA ACCESS

10.1 Data Access Procedures

10.2 Data Access Restrictions

10.3 Data Access Contact Persons

10.4 Data Set Format

10.5 Information Concerning Anonymous FTP

10.6 Information Concerning WWW

10.7 EMAP CD-ROM Containing the Data

11. REFERENCES

Chaloud, D.J. and D.V. Peck. 1994. Environmental Monitoring and Assessment Program: Integrated Quality Assurance Project Plan for the Surface Waters Resource Group, 1994 Activities. EPA 600/X-91/080, Rev. 2.00 U.S. Environmental Protection Agency, Las Vegas, Nevada.

Lazorchak, J.M., Klemm, D.J., and Peck D.V. (editors). 1998. Environmental Monitoring and Assessment Program- Surface Waters: Field Operations and Methods for Measuring the Ecological Condition of Wadeable Streams. EPA/620/R-94/004F. U.S. Environmental Protection Agency, Washington, D.C.

12. TABLE OF ACRONYMS

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