CATALOG DOCUMENTATION

EMAP SURFACE WATERS PROGRAM LEVEL DATABASE
1997-1998 Mid-Atlantic Integrated Assessment Program
Periphyton Chlorophyll Data

TABLE OF CONTENTS

1. DATA SET IDENTIFICATION

1.1 Title of Catalog Document
1997-1998 Mid-Atlantic Integrated Assessment Program
Periphyton Chlorophyll 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
PERIPHYT

1.5 Task Group
Surface Waters

1.6 Data Set Identification Code
138

1.7 Version
004

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

Dr. John Stoddard
U.S. Environmental Protection Agency
NHEERL Western Ecology Division
200 S.W. 35th Street
Corvallis, OR 97333

2.2 Investigation Participants - Sample Collection

Oregon State University
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 chlorophyll analysis, periphyton ash free dry mass, acid and alkaline phosphatase activity.

3.2 Keywords for the Data Set

acid phosphatase, alkaline phosphatase, ash free dry mass , chlorophyll a, enzyme activity, periphyton, pheophytin

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 periphyt data set is to provide an assessment of the amount of chlorophyll present in the stream

at the time of sampling. Periphyton are sensitive to many environmental conditions, which can be detected by changes in species composition, cell density, ash free dry mass, chlorophyll, and enzyme activity. These characteristics may be used singly or in concert to assess biological integrity and trophic condition. Periphyton is algae, fungi, bacteria, protozoa, and associated organic matter associated with channel substrates. Periphyton are useful indicators of environmental condition because they respond rapidly and are sensitive to a number of anthropogenic disturbances, including habitat destruction, contamination by nutrients, metals, herbicides, hydrocarbons, and acidification.

4.4 Summary of Data Set Parameters
Amount of chlorophyll a in mg, periphyton ash free biomass (total, and per square meter), and alkaline/acid phosphatase activity. 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 a sample of chlorophyll, biomass and alkaline/acid phosphatase activity at the sample site.

5.1.2 Sample Collection Methods Summary
Samples were collected from erosional and depositional habitats located at each of nine interior cross-section transects. Chlorophyll, biomass, and phosphatase activity were assessed in subsamples from the composite index sample according to the protocols outlined in 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) for gear used in each subsample method.

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

7.1.7 Minimum Value in Data Set

Name	Min
AFDM	0.0005
AFDMM2	2.5925925926
AREA_CM2	12
CHLA	0
CHL_M2	0
CHL_MASS	0
DATE_COL	05/20/1997
LAT_DD	35.182938
LON_DD	-83.555659
PHA	0

SAMP_ID	222222
SP_ACI	0
SP_ALK	0
VISIT_NO	0
YEAR	1997

7.1.7 Maximum Value in Data Set

Name	Max
AFDM	0.3275
AFDMM2	1212.962963
AREA_CM2	132
CHLA	1.7622
CHL_M2	0.42275
CHL_MASS	1000.9533333
DATE_COL	09/30/1998
LAT_DD	42.567163
LON_DD	-74.688136
PHA	952.2288
SAMP_ID	999999
SP_ACI	77233333.333
SP_ALK	66528000
VISIT_NO	3
YEAR	1998

7.2 Data Record Example

7.2.1 Column Names for Example Records

"AFDM","AFDMM2","AREA_CM2","CHLA","CHL_M2","CHL_MASS","DATE_COL","LAT_DD",
"LON_DD","PHA","SAMPLED","SAMPTYPE","SAMP_ID","SITE_ID","SP_ACI","SP_ALK",
"VISIT_NO","YEAR"

7.2.2 Example Data Records

0.00414,23,72,0.123888,0.0172066667,29.924637681,09/08/1997,38.247943,
-81.886602,61.5168,"Yes","POOL",235530,"MAIA97-001",1903381.6425,
1362318.8406,1,1997
0.00411,22.833333333,72,0.121752,0.01691,29.623357664,07/12/1997,38.550017,
-82.144807,64.4004,"Yes","POOL",235458,"MAIA97-002",80291.970803,
695863.74696,1,1997
0.00524,58.222222222,36,0.40584,0.1127333333,77.450381679,07/12/1997,
38.550017,-82.144807,181.7736,"Yes","RIFFLE",235459,"MAIA97-002",
38167.938931,1297709.9237,1,1997
0.02067,62.636363636,132,0.115344,0.0087381818,5.5802612482,08/27/1997,
39.067885,-81.388766,61.8372,"Yes","SHORE",235553,"MAIA97-003",
756748.91147,445428.15675,1,1997
0.01685,51.060606061,132,0.492882,0.0373395455,29.25115727,08/21/1997,
38.747642,-81.962637,150.9885,"Yes","SHORE",235552,"MAIA97-004",.,
3159347.181,1,1997

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

13. PERSONNEL INFORMATION

Project Manager
Dr. John Stoddard
U.S. Environmental Protection Agency
NHEERL Western Ecology Division
200 S.W. 35th Street
Corvallis, OR 97333
541-754-4441
541-754-4716(FAX)
stoddard.john@epa.gov

Quality Assurance Officer
Dave Peck
U.S. Environmental Protection Agency
NHEERL Western Ecology Division
200 S.W. 35th Street
Corvallis, OR 97333
541-754-44265
41-754-4716(FAX)
peck.david@epa.gov

Information Management, EMAP-Surface Waters
Marlys Cappaert
CSC c/o U.S. Environmental Protection Agency
NHEERL Western Ecology Division
200 S.W. 35th Street
Corvallis, OR 97333
541-754-4467
541-754-4716(FAX)
cappaert.marlys@epa.gov