CATALOG DOCUMENTATION
EMAP SURFACE WATERS PROGRAM LEVEL DATABASE
1991-1995 NORTHEAST LAKES DATA
LAKE SEDIMENT DIATOM METRICS DATA

TABLE OF CONTENTS

1. DATA SET IDENTIFICATION

1.1 Title of Catalog Document
EMAP Surface Waters Lake Database
1991-1995 Northeast Lakes
Lake Sediment Diatom Metrics Data Summarized by Lake

1.2 Authors of the Catalog Entry
U.S. EPA NHEERL Western Ecology Division
Corvallis, OR

1.3 Catalog Revision Date
March 1999

1.4 Data Set Name
DIAMET

1.5 Task Group
Surface Waters

1.6 Data Set Identification Code
00106

1.7 Version
002

1.8 Requested Acknowledgment
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 publications, 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 Participant - Sample Collection

Dartmouth College
Harvard University
New York State Museum of Natural History
Oregon State University
SUNY Syracuse College of Environmental Sciences and Forestry
Queens University
University of Maine
U.S. Fish and Wildlife Service
U.S. Environmental Protection Agency
Office of Research and Development
Regions 1 and 2

3. DATA SET ABSTRACT

3.1 Abstract of the Data Set

The primary function of the lake sediment diatom metric data set is to provide documentation of the summary metrics for a lake as seen by taking a sediment core with a modified KB corer and examining the diatom assemblage in the surficial sediments and in a bottom section of the core. The diatoms represent an important component of the algal community within a lake to provide a reasonable picture of lake biological quality. In addition, the diatom frustules are preserved within the lake sediments and can be used to identify historical conditions for the lake. There is an extensive literature that allows predictions of lake chemical quality based on the diatom assemblage present at a particular point in time. These models can be useful

in developing an understanding of the conditions of a lake at various points in the past. When compared with current conditions, this allows us to evaluate anthropogenic impacts to the lake.

3.2 Keywords for the Data Set

Diatoms, sediment diatoms, paleolimnology.

4. OBJECTIVES AND INTRODUCTION

4.1 Program Objective

The Environmental Monitoring and Assessment Program (EMAP) was designed to periodically estimate the status and trends of the Nation's ecological resources on a regional basis. EMAP provides a strategy to identify and bound the extent, magnitude and location of environmental degradation and improvement on a regional scale based on a probability-based statistical survey design.

4.2 Data Set Objective

This data set is part of a demonstration project to evaluate approaches to monitoring lakes in EMAP. The data set contains the results of analysis of diatom assemblage and calculated metrics within the lake based on examination of the diatoms in the surficial sediments and section of sediment core taken during pre-industrial periods.

4.3 Data Set Background Discussion

Diatoms are an integral component of the primary producer component of a lake and as such reflect the variety of disturbances impacting a lake. This data set contains the species identification and counts for diatoms collected with a modified KB sediment corer at the deepest portion of each lake sampled.

4.4 Summary of Data Set Parameters

Sediment core diatoms parameters include diatom species richness and diversity, and diatom inferred pH, phosphorus, chloride, aluminum, and secchi depth.

5. DATA ACQUISITION AND PROCESSING METHODS

5.1 Data Acquisition

5.1.1 Sampling Objective

A modified KB corer was used to obtain a single undisturbed sediment core from each lake sampled during a two month sampling window from July through mid-September. The top one centimeter section and bottom one centimeter section are collected for analysis.

5.1.2 Sample Collection Methods Summary

A modified KB corer was used to obtain a single undisturbed sediment core. The top one centimeter section and bottom one centimeter section are collected for analysis

5.1.3 Sampling Start Date

July 1991

5.1.4 Sampling End Date

September 1995

5.1.5 Platform

Sampling was conducted from small boats.

5.1.6 Sampling Gear

A modified KB gravity corer was used.

5.1.7 Manufacturer of Instruments
NA

5.1.8 Key Variables
At the time of collection, the depth at which the sample was collected was recorded. The length of the sediment core taken was also recorded.

5.1.9 Sampling Method Calibration
NA

5.1.10 Sample Collection Quality Control
5ee Baker et al. (1997).

5.1.11 Sample Collection Method Reference

Baker, J.R., G.D. Merritt, and D.W. Sutton (eds.). 1997. Environmental Monitoring and Assessment Program - Surface Waters: Field Operations Manual for Lakes.

Chaloud, D.J. and D.V. Peck. 1994. Environmental Monitoring and Assessment Program - Surface Waters: Integrated Quality Assurance Project Plan for the Surface Waters Resource Group.

5.1.12 Sample Collection Method Deviations
NA

5.2 Data Preparation and Sample Processing

5.2.1 Sample Processing Objective
See Baker et al. (1997) and Chaloud and Peck (1994).

5.2.2 Sample Processing Methods Summary
See Baker et al. (1997) and Chaloud and Peck (1994).

5.2.3 Sample Processing Method Calibration
See Baker et al. (1997) and Chaloud and Peck (1994).

5.2.4 Sample Processing Quality Control
See Baker et al. (1997) and Chaloud and Peck (1994).

5.2.5 Sample Processing Method Reference
See Baker et al. (1997) 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 SAS Name	Data Type	Len	Format	Parameter Label
AGE	Char	12		Pre-1850 and post-1850
COREPOS	Char	6		position in sediment core(top or bottom)
DATE_COL	Num	8	MMDDYY	Sample Collection Date
DVRSTY	Num	8		Diatom species diversity (H-prime)
INDEXSAM	Char	1		Index sample (Y=index, blank=not index)
INF_CL	Num	8		Diatom inferred Chloride (ueq/L)
INF_PH	Num	8		Diatom inferred pH
INF_SECH	Num	8		Inferred Secchi Depth (m)
INF_TP	Num	8		Diatom inferred TP (ug/L)
INTERVAL	Num	8		Sediment slice (cm)
LAKENAME	Char	30		Lake Name
LAKE_ID	Char	6		Lake Identification Code
LAT_DD	Num	8		Lake Latitude (decimal degrees)
LON_DD	Num	8		Lake Longitude (decimal degrees)
RICHNESS	Num	8		number of nonmissing values, COUNT
SAMPLED	Char	30		Site Sampled Code
SAMP_ID	Num	8	Z	Tracking number of sample (BAR CODE)
VISIT_NO	Num	8		Visit Number
YEAR	Num	8		Year sampled

7.1.1 Precision to which values are reported

7.1.2 Minimum Value in Data Set

Name	Min
DATE_COL	07/08/1991
DVRSTY	0
INF_CL	0
INF_PH	4.58
INF_SECH	-0.5
INF_TP	0
INTERVAL	0
LAT_DD	39.2262
LON_DD	-78.97917
RICHNESS	0
SAMP_ID	42
VISIT_NO	1
YEAR	1991

7.1.3 Maximum Value in Data Set

Name	Max
DATE_COL	08/10/1995
DVRSTY	4.1
INF_CL	219695
INF_PH	9.47
INF_SECH	8.8
INF_TP	1161.1
INTERVAL	59.5
LAT_DD	47.2125
LON_DD	-67.30111
RICHNESS	108
SAMP_ID	919624
VISIT_NO	2.3
YEAR	1995

7.2 Data Record Example

7.2.1 Column Names for Example Records

"AGE","COREPOS","DATE_COL","DVRSTY","INDEXSAM","INF_CL","INF_PH","INF_SECH",
"INF_TP","INTERVAL","LAKENAME","LAKE_ID","LAT_DD","LON_DD","RICHNESS",
"SAMPLED","SAMP_ID","VISIT_NO","YEAR"

7.2.2 Example Data Records

" ","bottom",07/18/1991,.," ",.,.,.,.,.,."BISSONETTE POND","CT002L",
41.92417,-72.21889,."Not analyzed",.,1,1991

" ","top",07/18/1991,.," ",.,.,.,.,.,."BISSONETTE POND","CT002L",
41.92417,-72.21889,."Not analyzed",.,1,1991

"PRE-1850","bottom",08/16/1991,3.22,"Y",193,7.75,1.3,25.3,31,
"BISSONETTE POND","CT002L",41.92417,-72.21889,59,"Yes",915380,2,1991

8. GEOGRAPHIC AND SPATIAL INFORMATION

8.1 Minimum Longitude

-78 Degrees 58 Minutes 45.01 Seconds West (78.97917 Decimal Degrees)

8.2 Maximum Longitude

-67 Degrees 18 Minutes 4.00 Seconds West (67.30111 Decimal Degrees)

8.3 Minimum Latitude

39 Degrees 13 Minutes 34.32 Seconds North (39.2262 Decimal Degrees)

8.4 Maximum Latitude

47 Degrees 12 Minutes 45.00 Seconds North (47.2125 Decimal Degrees)

8.5 Name of Area or Region

Northeast: EPA Regions I and II which includes Connecticut, Massachusetts, Maine, New Hampshire, New Jersey, New York, Vermont, Rhode Island

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

Baker, J.R., G.D. Merritt, and D.W. Sutton (eds.). 1997. Environmental Monitoring and Assessment Program - Surface Waters: Field Operations Manual for Lakes. EPA/620/R-97/001. U.S. Environmental Protection Agency. Office of Research and Development. Washington, D.C.

Chaloud, D.J. and D.V. Peck. 1994. Environmental Monitoring and Assessment Program - Surface Waters: Integrated Quality Assurance Project Plan for the Surface Waters Resource Group. U.S. Environmental Protection Agency. Office of Research and Development.

12. TABLE OF ACRONYMS

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