

US EPA ARCHIVE DOCUMENT

CATALOG DOCUMENTATION

National Surface Water Survey: Eastern Lake Survey-Phase II
SUSCHLA - Summer Chlorophyll

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1. DATA SET IDENTIFICATION

1.1 Title of Catalog Document
SUSCHLAM

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

1.3 Catalog Revision Date
May 1998

1.4 Data Set Name
suschla

1.5 Task Group
National Acid Precipitation Assessment Program(NAPAP)- Aquatic Effects
Research Program

1.6 Data Set Identification Code
154

1.7 Version
001

1.8 Requested Acknowledgment

This research was funded as apart of the National Acid Precipitation Assessment Program (NAPAP) by the U.S. Environmental Protection Agency (EPA). 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, 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

John Baker, Coordinator

3. DATA SET ABSTRACT

3.1 Abstract of the Data Set

The Eastern Lake Survey-Phase II (ELS-II), conducted in the spring, summer and fall of 1986. The focus of ELS-II was on the northeastern United States. ELS-II involved the resampling of a subset of lakes in the northeastern United States sampled in ELS-I to determining chemical variability and biological status. Other information was collected as part of ELS-II activities in addition to the data in the three seasonal ELS-II data sets. These include zooplankton species abundance, chlorophyll concentrations, and bathymetry.

3.2 Keywords for the Data Set

4. OBJECTIVES AND INTRODUCTION

4.1 Program Objective

The primary objectives of ELS-II were (1) to assess the sampling error associated with the ELS-I fall index sample, (2) to estimate the number of lakes with low acid neutralizing capacity (ANC) (i.e. potentially susceptible) that are not acidic in the fall but that are acidic in other seasons, and (3) to establish seasonal water chemistry characteristics among lakes. In addition to the three seasonal data sets, ancillary ELS-II data sets include zooplankton species abundance, chlorophyll concentrations, and bathymetry.

4.2 Data Set Objective

This data set is part of the National Surface Water Survey (NSWS) and the National Acid Precipitation Assessment Program (NAPAP). The data set contributes to the quantification of the extent, location, and characteristics of sensitive and acidic lakes and streams in the eastern United States sampled during the summer season.

4.3 Data Set Background Discussion

Efforts to assess the impact of acid deposition on aquatic resources have previously been limited to single-factor indices. Acidification of surface waters, however, depends on the acid neutralizing capacity (ANC) generated both within the lake and its watershed. Hence, the response of an aquatic ecosystem to acidic deposition is a composite of many factors. Water chemistry in lakes is analyzed to understand the chemical habitat within which biota must exist so that we can understand the biological potential of the system.

4.4 Summary of Data Set Parameters

As part of the summer seasonal sampling, samples were collected for chlorophyll analysis.

5. DATA ACQUISITION AND PROCESSING METHODS

5.1 Data Acquisition

5.1.1 Sampling Objective

5.1.2 Sample Collection Methods Summary

Water from the epilimnion taken from the same Van Dorn sample as the ELS-II water chemistry sample was filtered through a 0.8-um pore size polycarbonate filter. The filter was placed in an opaque centrifuge tube and transported frozen to the analysis laboratory. The filter was analyzed for chlorophyll-a, chlorophyll-b and degradation products by spectrophotometry, fluorometry, and HPLC.

5.1.3 Sampling Start Date

July 23, 1986

5.1.4 Sampling End Date
August 11, 1986

5.1.5 Platform

5.1.6 Sampling Gear
Merrit, G.D., and V.A. Sheppe. 1988. Eastern Lake Survey- Phase II, Field Operations Report. EPA/600/4-89/029. U.S. Environmental Protection Agency, Las Vegas, Nevada.

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
Mitchell-Hall, T.E., A.C. Neale, S.G. Paulsen, and J.E. Pollard. 1989. Eastern Lake Survey- Phase II: Quality Assurance Report. EPA/600/4-85-017. U.S. Environmental Protection Agency, Las Vegas, Nevada.

5.1.11 Sample Collection Method Reference

5.1.12 Sample Collection Method Deviations
NA

5.2 Data Preparation and Sample Processing

5.2.1 Sample Processing Objective

5.2.2 Sample Processing Methods Summary

5.2.3 Sample Processing Method Calibration

5.2.4 Sample Processing Quality Control

5.2.5 Sample Processing Method Reference

6. DATA MANIPULATIONS

6.1 Name of New or Modified Values
None.

6.2 Data Manipulation Description

7. DATA DESCRIPTION

7.1 Description of Parameters

#	Parameter SAS Name	Data Type	Len	Format	Parameter Label
6	BATCH_ID	Num	8	F	BATCH ID CODE
26	CHLA_AC	Num	8		CHLa CONC. BASED ON PEAK AREA
20	CHLA_AR	Num	8		CHLa PEAK AREA
25	CHLA_HC	Num	8		CHLa CONC. BASED ON PEAK HIGHT
19	CHLA_HT	Num	8		CHLa PEAK HEIGHT
22	CHLB_AR	Num	8		CHLb PEAK AREA
21	CHLB_HT	Num	8		CHLb PEAK HEIGHT
1	DAT_ANAL	Char	10		DATE ANALYZED
24	DG_AR	Num	8		DEGREDAATION PRODUCTS PEAK AREA

7.1 Description of Parameters, continued

#	Parameter SAS Name	Data Type	Len	Format	Parameter Label
23	DG_HT	Num	8		DEGREDAATION PRODUCTS PEAK HEIGHT
18	FLU_CHL	Num	8		CONC. OF CHLa MEASURED WITH FLUOROMETER
15	FLU_DIL	Num	8		DILUTION FACTOR FOR FLUOR. MEASUREMENT
16	FLU_SCL	Num	8		FLUOROMETER SALE
2	FLU_STD	Char	2		FLUORESCENCE STANDARD (MEASURED)
17	FLU_VAL	Num	8		FLUORESCENCE VALUE
3	LAKE_ID	Char	7		NSWS LAKE ID CODE
7	SAM_ID	Num	8	F	SAMPLE ID CODE
4	SAM_TYPE	Char	4		SAMPLE TYPE
8	SAM_VOL	Num	8		SAMPLE VOLUME
9	SOL_VOL	Num	8		SOLVENT VOLUME
13	SPCCHLA	Num	8		CONC. OF CHLa AS MEASURED WITH SPEC
14	SPC_CHLB	Num	8		CONC. OF CHLb AS MEASURED WITH SPEC
5	SPECFILE	Char	10		SPECTROPHOTOMETRY FILE
10	SPEC_650	Num	8		SPECTROPHOTOMETRY @ 650 nm
11	SPEC_665	Num	8		SPECTROPHOTOMETRY @ 665 nm
12	SPEC_700	Num	8		SPECTROPHOTOMETRY @ 700 nm

7.1.6 Precision to which values are reported

7.1.7 Minimum Value in Data Set

Name	Min
BATCH_ID	3600
CHLA_AC	0.03
CHLA_AR	0
CHLA_HC	0.39
CHLA_HT	3
CHLB_AR	0
CHLB_HT	0
DG_AR	0
DG_HT	0
FLU_CHL	0.63
FLU_DIL	1.48
FLU_SCL	1
FLU_VAL	12
SAM_ID	1
SAM_VOL	20
SOL_VOL	4
SPCCHLA	0.51
SPC_CHLB	-6.58
SPEC_650	0.0003
SPEC_665	0.00237
SPEC_700	-0.002

7.1.8 Maximum Value in Data Set

Name	Max
BATCH_ID	3617
CHLA_AC	78.94
CHLA_AR	1826
CHLA_HC	75.87
CHLA_HT	280
CHLB_AR	50
CHLB_HT	12
DG_AR	330
DG_HT	60

7.1.8 Maximum Value in Data Set, continued

Name	Max
FLU_CHL	132.34
FLU_DIL	50
FLU_SCL	3
FLU_VAL	96.8
SAM_ID	29
SAM_VOL	250
SOL_VOL	4
SPCCHLA	83.06
SPC_CHLB	20.74
SPEC_650	0.0678
SPEC_665	0.1453
SPEC_700	0.052

7.2 Data Record Example

7.2.1 Column Names for Example Records

BATCH_ID CHLA AC CHLA_AR CHLA_HC CHLA_HT CHLB_AR CHLB_HT DAT_ANAL DG_AR DG_HT
 FLU_CHL FLU_DIL FLU_SCL FLU_STD FLU_VAL LAKE_ID SAM_ID SAM_TYPE SAM_VOL SOL_VOL
 SPCCHLA SPC_CHLB SPECFILE SPEC_650 SPEC_665 SPEC_700

7.2.2 Example Data Records

3600,1.02,77.4,1.06,14,0,0,"20AUG86",0,0,1.4,2,3," ",45,"OH3-679",8,"A",250,4,
 1.22,0.52,"1-27",0.0089,0.0119,0.0056

3601,0.31,36,0.75,11,0,0,"21AUG86",0,0,2.91,2,3," ",34,"OH3-679",21,"A",250,4,
 1.23,0.44,"60",0.0057,0.0088,0.0026

3602,1.46,91,1.5,13,0,0,"28AUG86",0,1,1.34,2,3," ",43,"OH3-679",3,"A",250,4,
 1.24,1,"90",0.0093,0.0118,0.0049

3603,1.78,91,2.16,19,0,0,"29AUG86",0,4,1.71,2,3," ",46.8,"OH3-679",4,"A",250,
 4,1.83,0.51,"108",0.0125,0.0173,0.0082

3604,0.3,.,1.03,8,0,0,"29AUG86",0,0,1.19,2,3," ",32.5,"OH3-679",23,"A",250,4,
 1.01,0.77,"126",0.0204,0.0225,0.0169

3605,1.93,97,1.62,16,0,0,"02SEP86",0,0,1.71,2,3,"V",56.3,"OH3-679",24,"A",250,
 4,1.78,0.63,"146",0.0143,0.0188,0.0098

8. GEOGRAPHIC AND SPATIAL INFORMATION

8.1 Minimum Longitude
 -73.3208 decimal degrees

8.2 Maximum Longitude
 -67.2667 decimal degrees

8.3 Minimum Latitude
 41.0042 decimal degrees

8.4 Maximum Latitude
 46.9339 decimal degrees

8.5 Name of Area or Region
 Connecticut, Maine, New York, Pennsylvania, Rhode Island, Massachusetts,
 and New Hampshire

9. QUALITY CONTROL / QUALITY ASSURANCE

9.1 Data Quality Objectives

9.2 Quality Assurance Procedures

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 Gopher and WWW

10.7 EMAP CD-ROM Containing the Data

11. REFERENCES

Brakke, D.F., D.H. Landers, and J.M. Eilers. 1988. Chemical and physical characteristics of lakes in the northeastern U.S. *Environ. Sci. Technol.* 22:155-163.

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Landers, D.H., W.S. Overton, R.A. Linthurst, and D.F. Brakke. 1988. EPA's Eastern Lake Survey: Regional estimates of lake chemistry. *Environ. Sci. Technol.* 22:128-135.

Landers, D.H., J.M. Eilers, D.F. Brakke, and P.E. Kellar. 1987. Characteristics of acidic lakes in the eastern United States. *Verh. Int. Verein. Limnol.* 23:152-162.

Linthurst, R.A., and W.S. Overton. 1985. Response to ASA Coordinating Committee's comment on Project 3B: National Surface Water Survey, National Lake Survey, Phase I Research Plan. *J. Amer. Stat. Assoc.* 39:260-274.

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Overton, W.S., P. Kanciruk, L.A. Hook, J.M. Eilers, D.H. Landers, D.J. Blick, Jr., D.F. Brakke, R.A. Linthurst, and M.S. DeHaan, 1986. Characteristics of Lakes in the Eastern United States. Volume II: Lakes Sampled and Descriptive Statistics for Physical and Chemical Variables. EPA-600/4-86-007B, U.S. Environmental Protection Agency, Washington, D.C.

12. TABLE OF ACRONYMS

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