

US EPA ARCHIVE DOCUMENT

CATALOG DOCUMENTATION  
EMAP-GREAT LAKES PROGRAM LEVEL DATABASE  
1994 LAKE MICHIGAN NEARSHORE  
WATER QUALITY VERTICAL PROFILE DATA

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1. DATA SET IDENTIFICATION

- 1.1 Title of Catalog document  
EMAP-Great Lakes Program Level Database  
1994 Lake Michigan Nearshore  
Water Quality Vertical Profile Data
- 1.2 Authors of the Catalog entry  
Greg Elonen, ILS
- 1.3 Catalog revision date  
22, May 1997
- 1.4 Data set name  
LMCTD94
- 1.5 Task Group  
Great Lakes
- 1.6 Data set identification code  
506

### 1.7 Version

001

### 1.8 Requested Acknowledgment

These data were produced as part of the U.S. EPA's Environmental Monitoring and Assessment Program (EMAP). 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 has been funded wholly or in part by the U.S. Environmental Protection Agency through its EMAP-Great Lakes 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

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Ann Arbor, Michigan

### 2.2 Investigation Participant - Sample Collection

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Great Lakes Environmental Research Lab  
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## 3. DATA SET ABSTRACT

### 3.1 Abstract of the Data Set

The Vertical Profile Water Quality file provides data on depth, transmittance and fluorometer voltage at one meter intervals of the water column at each station visited. Transmittance was used as a measure of turbidity. Fluorometry was used to provide information on reduction in light penetration due to the presence of photosynthetic algae.

### 3.2 Keywords for the Data Set

Lake Michigan, fluorescence, transmissometry, CTD, vertical profile, nearshore.

## 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 station sites randomly located in the Great Lakes. Three-fold enhanced sampling sites from nearshore Lake Michigan are included.

#### 4.2 Data Set Objective

The objective of the vertical profile water quality data is to provide summary data of specific water quality parameters measured at one meter intervals for each station visited in Lake Michigan.

#### 4.3 Background Discussion

Water quality parameter measurements provide valuable information concerning the environmental conditions at a given sample site. Water depth by itself does little to directly influence a regions biota. However changes in water quality parameters are often associated with changes in water depth. Measurements of depth have been included as a means to explain changes in other water quality parameter measurements. Per cent transmittance provides information on the turbidity of the water. Fluorometer voltage was used to provide information on the reduction of light penetration due to photosynthetic algae.

#### 4.4 Summary of Data Set Parameters

Water quality parameters of the water column were reported at one meter intervals on the downcast at each station. Transmittance, used as an estimate of turbidity was reported as a per cent. Fluorescence, used as an estimate of the chlorophyll<sub>a</sub> concentration, was reported as voltage measurements.

### 5. DATA ACQUISITION AND PROCESSING METHODS

#### 5.1 Data Acquisition

##### 5.1.1 Sampling Objective

NA

##### 5.1.2 Sample Collection Methods Summary

A CTD probe will be slowly lowered to the bottom at each sampling station to give a continuous profile of depth, transmittance, and fluorescence. Data will be captured electronically on a personal computer.

##### 5.1.3 Beginning Sampling Date

18 July 1994

##### 5.1.4 Ending Sampling Date

5 August 1994

##### 5.1.5 Platform

Sampling was conducted from the R/V Shanahan.

##### 5.1.6 Sampling Equipment

A Sea-Bird Electronics, Inc. model SBE-19 Sealogger CTD is a self-contained array of instruments capable of measuring temperature, dissolved oxygen, pH, transmissivity, fluorescence, and photosynthetically active radiation (PAR)

##### 5.1.7 Manufacturer of Instrument

Sea-Bird Electronics, Inc.

5.1.8 Key Variables

Not applicable.

5.1.9 Collection Method Calibration

NA

5.1.10 Collection Quality Control

NA

5.1.11 Sample Collection Method Reference

Strobel, C.J. and S.C. Schimmel, 1991. Environmental Monitoring and Assessment Program-Near Coastal. 1991 Virginian Province, Field Operations and Safety Manual. U.S. EPA, NHEERL-AED, Narragansett, RI. June 1991.

5.2 Data Processing and Sample Processing

5.2.1 Sample Processing Objective

NA

5.2.2 Sample Processing Methods Summary

NA

5.2.3 Sample Processing Method Calibration

Not reported.

5.2.4 Sample Processing Quality Control

NA

5.2.5 Sample Processing Method Reference

NA

5.2.6 Sample Processing Method Deviations

None reported.

6. DATA ANALYSIS AND MANIPULATIONS

6.1 Name of New or Modified Values

None

6.2 Data Manipulation Description

None reported.

6.3 Data Manipulation Examples

NA

7. DATA DESCRIPTION

7.1 Description of Parameters

#	Name	Type	Length	Format	Parameter Label
1	STA_NAME	Char	10	10.	Station Name
2	DATE	Num	6	6.	Sampling Date (YYMMDD)
3	Trans	Num	4	2.2	% Transmittance
4	flV	Num	4	2.2	Fluorometer voltage

7.1.1 Precision to which values are reported

NA

7.1.2 Minimum Value in Data Set

NA

7.1.3 Maximum Value in Data Set

NA

7.2 Data Record Example

7.2.1 Column Names for Example Records

STA\_NAME, DATE, DPTH, TRANSV, FLUORV

7.2.2 Example Data Records

STATION	DATE	DPTH	TEMP (C)	TRANSV	FLUORV
LM94-75000	940718	1	21.6	2.68	0.93
LM94-75000	940718	2	21.6	2.68	0.98
LM94-75000	940718	3	20.8	2.95	1.22

8. GEOGRAPHIC AND SPATIAL INFORMATION

8.1 Minimum Longitude

-87.922667

8.2 Maximum Longitude

-85.025

8.3. Minimum Latitude

40.666667

8.4 Maximum Latitude

46.000667

8.5 Name of Area or Region

Nearshore Lake Michigan:  
 Stations were located within the Nearshore resource class of Lake Michigan. The nearshore sites were located within the 85 meter depth contour.

## 9. QUALITY CONTROL/QUALITY ASSURANCE

### 9.1 Measurement Quality Objectives

### 9.2 Data Quality Assurance Procedures

Data validation by principal investigators.

### 9.3 Actual Measurement Quality

None reported.

## 10. DATA ACCESS

### 10.1 Data Access Procedures

Data can be downloaded from the EMAP Website.

### 10.2 Data Access Restrictions

Not applicable.

### 10.3 Data Access Contact Persons

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### 10.4 Data Set Format

Data from the Website are in ASCII fixed format.

### 10.5 Information Concerning Anonymous FTP

Not accessible.

### 10.6 Information Concerning WWW

Data can be downloaded from the EMAP Website.

### 10.7 EMAP CD-ROM Containing the Data Set

Data are not available on CD-ROM.

## 11. REFERENCES

Hedtke, S., A. Pilli, D. Dolan, G. McRae, B. Goodno, R. Kreis, G. Warren, D. Swackhamer, and M. Henry. 1992. Great Lakes Monitoring and Research Strategy: Environmental Monitoring and Assessment Program. USEPA, Office of Research and Development, ERL-Duluth, Duluth, Minnesota. EPA/602/R-92/001. 204 p.

## 12. TABLE OF ACRONYMS

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