

US EPA ARCHIVE DOCUMENT

CATALOG DOCUMENTATION
EMAP SURFACE WATERS PROGRAM LEVEL DATABASE
1991-1994 NORTHEAST LAKES DATA
LAKE FISH TISSUE CONTAMINANTS (METALS) DATA

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1. DATA SET IDENTIFICATION

1.1 Title of Catalog Document

EMAP Surface Waters Lake Database

1991-1994 Northeast Lakes

Lake Fish Tissue Contaminants (Metals) 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

November 1996

1.4 Data Set Name

FTMET

1.5 Task Group

Surface Waters

1.6 Data Set Identification Code

0110

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 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

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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 fish data are to provide a snapshot of the fish assemblage present in the lake at the time of sampling. The fish community represents an integral component of lake biological integrity and represents a snapshot of a publicly visible reflection of lake quality.

3.2 Keywords for the Data Set

Fish assemblage, fish community, fish species identification, fish tissue contamination

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 multihabitat, multi-gear sample of the fish assemblage taken during mid-summer. A subsample of fish were selected for analysis of metal concentrations in tissue of a whole fish sample submitted for analysis.

4.3 Data Set Background Discussion

The fish community within a lake is an integral component of lake biological integrity and represents a publicly visible reflection of lake quality. Contamination of the fish community is a direct threat to the health of the fish community as well as to the human population consuming these fish. This data set contains the metal contaminant concentrations in whole-fish tissue sample collected at each lake.

4.4 Summary of Data Set Parameters

Fish Tissue Contaminants parameters include wet weight concentrations of metal compounds such as silver, aluminum, cadmium, lead, chromium, copper, and iron.

5. DATA ACQUISITION AND PROCESSING METHODS

5.1 Data Acquisition

5.1.1 Sampling Objective

To obtain a sample of the fish assemblage within a lake during a two month sampling window from July through mid-September. To obtain enough individuals of a single species suitable for tissue contaminant analysis.

5.1.2 Sample Collection Methods Summary

The assemblage was sampled using multiple gears distributed in multiple habitats throughout the lake. Habitats sampled were the shallow and deep pelagic zones and the riparian zone of the lake. Trap nets, minnow traps, gill nets and beach seines were the sampling gear used. A subsample of five or more fish from a single species was selected for analysis of metal contaminants in the whole fish.

5.1.3 Sampling Start Date

July 1991

5.1.4 Sampling End Date

September 1994

5.1.5 Platform

Sampling was conducted from small boats.

5.1.6 Sampling Gear

Gill nets, traps nets, beach seines, minnow traps

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 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 Name	Data Type	Len	Format	Parameter Label
AG	Num	8		Wet wt. concentration Silver (ug/g)
AGT	Char	8		Silver flag
AL	Num	8		Wet wt. concentration Aluminum (ug/g)
ALT	Char	8		Aluminum flag
AS	Num	8		Wet wt. concentration Arsenic (ug/g)
AST	Char	8		Arsenic flag
CD	Num	8		Wet wt. concentration Cadmium (ug/g)
CDT	Char	8		Cadmium flag
CR	Num	8		Wet wt. concentration Chromium (ug/g)
CRT	Char	8		Chromium flag
CU	Num	8		Wet wt. concentration Copper (ug/g)
CUT	Char	8		Copper flag
DATE_COL	Num	8	MMDDYY	Start date of sample
DRY	Num	8		100 - % moisture (100 - MOISTURE)
FE	Num	8		Wet wt. concentration Iron (ug/g)
FET	Char	8		Iron flag
HG	Num	8		Wet wt. concentration Mercury (ug/g)
HGT	Char	8		Mercury flag
LAB_REP	Num	8		Analytical lab duplicate analysis
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)
MOISTURE	Num	8		% moisture of composite sample
MSL_CODE	Char	10		Battelle lab sample code ID (1992 only)
NI	Num	8		Wet wt. concentration Nickel (ug/g)
NIT	Char	8		Nickel flag
PB	Num	8		Wet wt. concentration Lead (ug/g)
PBT	Char	8		Lead flag
SAMPLED	Char	20		Site sampling status
SAMP_ID	Num	8		Sample identification code (barcode)
SE	Num	8		Wet wt. concentration Selenium (ug/g)
SET	Char	8		Selenium flag
SN	Num	8		Wet wt. concentration Tin (ug/g)
SNT	Char	8		Tin flag
SPECIES	Char	25		Genus and species of sample
VISIT_NO	Num	8		Visit Number
YEAR	Num	8		Sample year
ZN	Num	8		Wet wt. concentration Zinc (ug/g)
ZNT	Char	8		Zinc flag

7.1.1 Precision to Which Values are Reported

7.1.2 Minimum Value in Data Set by Parameter

Name	Min
AG	0.003
AL	0.26
AS	0.013
CD	0.003
CR	0.034
CU	0.125
DRY	19.1
FE	6.7
HG	0.009
LAB_REP	1
LAT_DD	39.2262
LON_DD	-78.8519
MOISTURE	25.9
NI	0.048
PB	0.01
SAMP_ID	1
SE	0.112
SN	0
VISIT_NO	1
YEAR	1992
ZN	8.407

7.1.3 Maximum Value in Data Set by Parameter

Name	Max
AG	0.185
AL	114.478
AS	10.282352
CD	0.527961
CR	2.166732
CU	21.845
DRY	74.1
FE	1446.48
HG	2.62973
LAB_REP	2
LAT_DD	47.1998
LON_DD	-67.30111
MOISTURE	81.8
NI	4.428662
PB	1.481
SAMP_ID	311872
SE	8.51
SN	1.477
VISIT_NO	2
YEAR	1994
ZN	80.3

7.2 Data Record Example

7.2.1 Column Names for Example Records

AG, AGT, AL, ALT, AS, AST, CD, CDT, CR, CRT, CU, CUT, DATE_COL, DRY, FE, FET, HG, HGT
LAB_REP, LAKENAME, LAKE_ID, LAT_DD, LON_DD, MOISTURE, MSL_CODE, NI, NIT, PB, PBT
SAMPLED, SAMP_ID, SE, SET, SN, SNT, SPECIES, VISIT_NO, YEAR, ZN, ZNT

7.2.2 Example Data Records

., " ", 5.801748, " ", 3.75, "U", 0.1, "U", 1.947421, " ", 0.961556, "", 08/21/94, ., 21.589093, " ", 0.316017, " ", ., "NORTH SPRINGFIELD BESERVOIR", "VT750L", 43.3468, 72.5065, 72.99, " ", 0.70226, " ", 0.027, "", "Yes", 311872, 3.75, "U", ., " ", "Perca flavescens", 2, 1994, 17.326915, " "

., " ", 16.608, " ", 3.75, "U", 0.1, "U", 0.454644, " ", 0.797184, "", 06/29/94, ., 42.134496, " ", 0.03114, " ", ., "STOUGHTONPOND", "VT751L", 43.381, 72.501, 79.24, " ", 0.125, "U", 0.08304, "", "Yes", 311798, 3.75, "U", ., " ", "Salmo gairdneri", 1, 1994, 23.352924, " "

., " ", 6.485248, " ", 3.75, "U", 0.1, "U", 0.802032, " ", 0.209132, "", 06/30/94, ., 34.43132, " ", 0.090552, " ", ., "TILDYSPOND", "VT752L", 44.644, 72.2043, 78.44, " ", 0.260876, "", 0.025, "U", "Yes", 311783, 3.75, "U", ., " ", "Perca flavescens", 1, 1994, 20.630764, ""

8. GEOGRAPHIC AND SPATIAL INFORMATION

8.1 Minimum Longitude

-78 Degrees 51 Minutes 6.84 Seconds West (78.8519 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 11 Minutes 59.28 Seconds North (47.1998 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 Gopher and 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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