

US EPA ARCHIVE DOCUMENT

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

FTORG

1.5 Task Group

Surface Waters

1.6 Data Set Identification Code

0111

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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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 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 organic contaminant 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 organic contaminant concentrations in whole-fish tissue sample collected at each lake.

4.4 Summary of Data Set Parameters

Fish Tissue Organic Contaminants parameters include wet weight concentrations of target organic contaminants such as Hexachlorobenzene, Endosulfan, and Alpha Chlordane.

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 organic 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
ALDRIN	Num	8		Wet wt. concentration Aldrin (ug/g)
ALDRINT	Char	3		Aldrin flag
A_BHC	Num	8		Wet wt. concentration Alpha-BHC (ug/g)
A_BHCT	Char	3		Alpha-BHC flag
A_CHL	Num	8		Wet wt. concentration Alpha Chlordane (ug/g)
A_CHLT	Char	3		Alpha Chlordane flag
B_BHC	Num	8		Wet wt. concentration Beta-BHC (ug/g)
B_BHCT	Char	3		Beta-BHC flag
C_NCHL	Num	8		Wet wt. concentration Cis-nonachlor (ug/g)
C_NCHLT	Char	3		Cis-nonachlor flag
DATE_COL	Num	8	MMDDYY	Start date of sample
DIELDRIN	Num	8		Wet wt. concentration Dieldrin (ug/g)
DIELDT	Char	3		Dieldrin flag
D_BHC	Num	8		Wet wt. concentration Delta-BHC (ug/g)
D_BHCT	Char	3		Delta-BHC flag
ENDRIN	Num	8		Wet wt. concentration Endrin (ug/g)
ENDRINT	Char	3		Endrin flag
E_SUL1	Num	8		Wet wt. concentration Endosulfan I (ug/g)
E_SUL1T	Char	3		Endosulfan I flag
E_SUL2	Num	8		Wet wt. concentration Endosulfan II (ug/g)
E_SUL2T	Char	3		Endosulfan II flag
G_BHC	Num	8		Wet wt. conc. Gamma-BHC (Lindane) (ug/g)
G_BHCT	Char	3		Gamma-BHC flag
G_CHL	Num	8		Wet wt. concentration Gamma chlordane (ug/g)
G_CHLT	Char	3		Gamma chlordane flag
HCB	Num	8		Wet wt. concentration Hexachlorobenzine (ug/g)
HCBT	Char	3		Hexachlorobenzine flag
HCHL	Num	8		Wet wt. concentration Heptachlor (ug/g)
HCHLEP	Num	8		Wet wt. conc. Heptachlor Epoxide (ug/g)
HCHLEPT	Char	3		Heptachlor Epoxide flag
HCHLT	Char	3		Heptachlor flag
LAKENAME	Char	30		Lake Name
LAKE_ID	Char	6		Lake Identification Code
LAT_DD	Num	8		Lake Latitude (decimal degrees)
LIPID	Num	8		% lipids of composite sample
LON_DD	Num	8		Lake Longitude (decimal degrees)
MIREX	Num	8		Wet wt. concentration Mirex (ug/g)
MIREXT	Char	3		Mirex flag
MOISTURE	Num	8		% moisture of composite sample
OXYCHL	Num	8		Wet wt. concentration Oxychlordane (ug/g)
OXYCHLT	Char	3		Oxychlordane flag
O_DDD	Num	8		Wet wt. concentration O,P DDD (ug/g)
O_DDDT	Char	3		O,P DDD flag
O_DDE	Num	8		Wet wt. concentration O,P DDE (ug/g)
O_DDET	Char	3		O,P DDE flag
O_DDT	Num	8		Wet wt. concentration O,P DDT (ug/g)
O_DDTT	Char	3		O,P DDT flag

7.1 Description of Parameters, continued

PCBTOT	Num	8	Total PCBs
PCBTOTT	Char	3	Total PCB flag
P_DDD	Num	8	Wet wt. concentration P,P DDD (ug/g)
P_DDDT	Char	3	P,P DDD flag
P_DDE	Num	8	Wet wt. concentration P,P DDE (ug/g)
P_DDET	Char	3	P,P DDE flag
P_DDT	Num	8	Wet wt. concentration P,P DDT (ug/g)
P_DDTT	Char	3	P,P DDT flag
SAMPLED	Char	20	Site sampling status
SAMP_ID	Num	8	Sample identification code (barcode)
SPECIES	Char	22	Genus and species of sample
TNONCHL	Num	8	Wet wt. concentration Trans-nonachlor (ug/g)
TNONCHLT	Char	3	Trans-nonachlor flag
VISIT_NO	Num	8	Visit Number
YEAR	Num	8	Sample year

7.1.1 Precision to Which Values are Reported

7.1.2 Minimum Value in Data Set by Parameter

Name	Min

ALDRIN	0.000197
A_BHC	0.000177
A_CHL	0.0002
B_BHC	0.0002
C_NCHL	0.000196
DIELDRIN	0.000197
D_BHC	0.0002
ENDRIN	0.00019
E_SUL1	0.0004
E_SUL2	0.0004
G_BHC	0.000177
G_CHL	0.000185
HCB	0.000185
HCHL	0.0002
HCHLEP	0.000169
LAT_DD	39.2262
LIPID	0.24
LON_DD	-78.8519
MIREX	0.000199
MOISTURE	60.32
OXYCHL	0.00019
O_DDD	0.000189
O_DDE	0.000195
O_DDT	0.000195
PCBTOT	0.0017
P_DDD	0.0002
P_DDE	0.0005
P_DDT	0.000196
SAMP_ID	1
TNONCHL	0.00019

7.1.2 Minimum Value in Data Set by Parameter, continued

VISIT_NO 1
YEAR 1993

7.1.3 Maximum Value in Data Set by Parameter

Name	Max

ALDRIN	0.00337
A_BHC	0.00275
A_CHL	0.12261
B_BHC	0.00053
C_NCHL	0.1125
DIELDRIN	0.03421
D_BHC	0.000919
ENDRIN	0.005675
E_SUL1	0.0005
E_SUL2	0.123653
G_BHC	0.002319
G_CHL	0.06928
HCB	0.015292
HCHL	0.000561
HCHLEP	0.007318
LAT_DD	47.1998
LIPID	11.67
LON_DD	-67.30111
MIREX	0.00156
MOISTURE	84.01
OXYCHL	0.060578
O_DDD	0.079488
O_DDE	0.0195
O_DDT	0.23803
PCBTOT	2.2985
P_DDD	0.74801
P_DDE	4.27174
P_DDT	2.02781
SAMP_ID	311872
TNONCHL	0.283442
VISIT_NO 2	
YEAR	1994

7.2 Data Record Example

7.2.1 Column Names for Example Records

ALDRIN, ALDRINT, A_BHC, A_BHCT, A_CHL, A_CHLT, B_BHC, B_BHCT, C_NCHL, _NCHLT, DATE_COL, DIELDRIN, DIELDT, D_BHC, D_BHCT, ENDRIN, ENDRINT, E_SUL1, E_SUL1T, E_SUL2, E_SUL2T, G_BHC, G_BHCT, G_CHL, G_CHLT, HCB, HCBT, HCHL, HCHLEP, HCHLEPT, HCHLT, LAKENAME, LAKE_ID, LAT_DD, LIPID, LON_DD, MIREX, MIREXT, MOISTURE, OXYCHL, OXYCHLT, O_DDD, O_DDDT, O_DDE, O_DDET, O_DDT, O_DDTT, PCBTOT, PCBTOTT, P_DDD, P_DDDT, P_DDE, P_DDET, P_DDT, P_DDTT, SAMPLED, SAMP_ID, SPECIES, TNONCHL, TNONCHLT, VISIT_NO, YEAR

7.2.2 Example Data Records

0.0002,"U",0.0002,"U",0.000632," ",0.0002,"U",0.000982," ",08/21/94,0.002849,
"",0.0002,"U",0.0002,"U",0.0004,"U",0.0004,"U",0.000237," ",0.000222,"",
0.000465," ",0.0002,0.000301," ", "U", "NORTH SPRINGFIELD BESERVOIR", "VT750L",
43.3468,4.74,-72.5065,0.0002,"U",73.29,0.000571,"",0.000491," ",
0.0002,"U",0.000466," ",0.169479," ",0.002973," ",0.05629,
"",0.001178," ", "Yes",311872,"Perca flavescens",0.002714," ",2,1994

0.0002,"U",0.0002,"U",0.000541," ",0.0002,"U",0.000765," ",06/29/94,0.00056,
"",0.0002,"U",0.0002,"U",0.0004,"U",0.0004,"U",0.0002,"U",0.000316,
"",0.00052," ",0.0002,0.000454," ", "U", "STOUGHTON POND", "VT751L",43.381,
1.31,-72.501,0.0002,"U",79.51,0.000239," ",0.000778,"",0.0002,"U",
0.000872," ",0.048178," ",0.003603," ",0.018657," ",0.003453,
"", "Yes",311798,"Salmo gairdneri",0.001699," ",1,1994

0.0002,"U",0.0002,"U",0.0002,"U",0.0002,"U",0.000337," ",06/30/94,0.000197,
"",0.0002,"U",0.0002,"U",0.0004,"U",0.0004,"U",0.0002,"U",0.0002,"U",0.0002,
"U",0.0002,0.0002,"U", "U", "TILDYS POND", "VT752L",
44.644,1.1,-72.2043,0.0002,"U",77.65,0.0002,"U",0.000607,
"",0.0002,"U",0.000294," ",0.100397," ",0.001476," ",0.006191," ",0.0003,
"", "Yes",311783,"Perca flavescens",0.000683," ",1,1994

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/620/97-R/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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