1. DATA SET IDENTIFICATION

1.1 Title of Catalog Document
EMAP Surface Waters Lake Database
Lake Design Data

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

1.3 Catalog Revision Date
June 1997

1.4 Data Set Name
LDESIGN

1.5 Task Group
Surface Waters

1.6 Data Set Identification Code
116
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

3. DATA SET ABSTRACT

3.1 Abstract of the Data Set
The primary function of the lake design data are to provide the ability for researchers to calculate population estimates using data collected under the EMAP probability-based statistical survey design.

3.2 Keywords for the Data Set
weighting factors, probability design, statistical analysis, regional estimates.

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 statistical weighting factors which allow the data to be summarized into statements about the status of Lakes in the Northeast region.

4.3 Data Set Background Discussion
Data on the lakes for site selection were summarized from digital and paper sources. Lakes were classified as target or non-target; target lakes were categorized by lake surface area into six classes. Sample weights for
each sampled lake were determined using the sample sizes for each size class and total surface area in each size class. Lakes were chosen randomly, using a clustering algorithm which spread the sample spatially across the region. Information on each sampled lake was collected using information taken from maps, digital sources, and visits to the site.

4.4 Summary of Data Set Parameters
Information on each lake sampled, such as the lake name, geographic location, size class, county and state are stored in this data set. The weighting factors for each lake are also stored in this data set. There are separate weighting factors for fish (fish assemblage and fish tissue), and for the other indicator types (chemistry, birds, benthos, etc.). The weighting factors are to be used when computing regional estimates for the entire data set over the four year period. Further details on the methods which should be used when processing these data can be obtained from the Information Management contact, below.

5. DATA ACQUISITION AND PROCESSING METHODS

5.1 Data Acquisition
5.1.1 Sampling Objective
To allow scientists to summarize indicator data for the defined population of lakes in the Northeast region during a two month sampling window from July through mid-September.

5.1.2 Sample Collection Methods Summary
Not Applicable

5.1.3 Sampling Start Date
July 1991

5.1.4 Sampling End Date
September 1994

5.1.5 Platform
NA

5.1.6 Sampling Gear
NA

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
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

7. DATA DESCRIPTION

7.1 Description of Parameters

<table>
<thead>
<tr>
<th>#</th>
<th>Name</th>
<th>Type</th>
<th>Len</th>
<th>Format</th>
<th>Label</th>
</tr>
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<tbody>
<tr>
<td>16</td>
<td>COUNTY</td>
<td>Char</td>
<td>40</td>
<td></td>
<td>Lake County Location</td>
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<tr>
<td>17</td>
<td>ECO_ATH</td>
<td>Char</td>
<td>15</td>
<td></td>
<td>Broad Ecoregion Location</td>
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<tr>
<td>18</td>
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<td>8</td>
<td></td>
<td>Lake Elevation from 7.5 Map (feet)</td>
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<tr>
<td>6</td>
<td>GRID_TYP</td>
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<td></td>
<td>G=1X Grid,A=3X Augment (TIME),F=IES Fish</td>
</tr>
<tr>
<td>1</td>
<td>HEXSW_ID</td>
<td>Char</td>
<td>12</td>
<td></td>
<td>EMAP hexagon identifier</td>
</tr>
<tr>
<td>9</td>
<td>LAKEAREA</td>
<td>Num</td>
<td>8</td>
<td></td>
<td>Lake Area from Las Vegas GIS (ha)</td>
</tr>
<tr>
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<td>LAKENAME</td>
<td>Char</td>
<td>30</td>
<td></td>
<td>Lake Name</td>
</tr>
<tr>
<td>2</td>
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<td>Char</td>
<td>6</td>
<td></td>
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</tr>
<tr>
<td>11</td>
<td>LAT_DD</td>
<td>Num</td>
<td>8</td>
<td></td>
<td>Lake Latitude (decimal degrees)</td>
</tr>
<tr>
<td>12</td>
<td>LON_DD</td>
<td>Num</td>
<td>8</td>
<td></td>
<td>Lake Longitude (-decimal degrees)</td>
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<tr>
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<td></td>
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<tr>
<td>15</td>
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<td>25</td>
<td></td>
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<tr>
<td>8</td>
<td>REG_3X</td>
<td>Char</td>
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<td></td>
<td>Name of TIME Augment Region</td>
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<tr>
<td>7</td>
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<td>Repeat Sample on Lake - Y/N</td>
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<tr>
<td>26</td>
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<td>Char</td>
<td>10</td>
<td></td>
<td>Repeat Visit Status (Plan)</td>
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<td>REPEAT93</td>
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<td></td>
<td>2X2 Index/Annual 1993 Repeat Lake (Y/N)</td>
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<td></td>
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<td>4</td>
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<td>Char</td>
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<td>Char</td>
<td>8</td>
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</table>
7.1 Description of Parameters, continued

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<tr>
<th>Parameter Data</th>
<th>Parameter</th>
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<tr>
<td>#   Name</td>
<td>Type</td>
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<td>-----------------------------------------</td>
<td></td>
</tr>
<tr>
<td>5   STATE</td>
<td>Char</td>
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<tr>
<td>3   TIME_REG</td>
<td>Char</td>
</tr>
<tr>
<td>23  TIME_REP</td>
<td>Char</td>
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<tr>
<td>24  WGT_1X</td>
<td>Num</td>
</tr>
<tr>
<td>25  WGT_3X</td>
<td>Num</td>
</tr>
<tr>
<td>27  WGT_FS</td>
<td>Num</td>
</tr>
<tr>
<td>14  YEAR</td>
<td>Num</td>
</tr>
<tr>
<td>21  YEARORIG</td>
<td>Char</td>
</tr>
</tbody>
</table>

7.1.1 Precision to which values are reported
Total abundance is reported as a whole number.
Mean abundance and standard deviation (SD) are reported to 2 decimal places.

7.1.2 Minimum Value in Data Set

<table>
<thead>
<tr>
<th>Name</th>
<th>Min</th>
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</thead>
<tbody>
<tr>
<td>ELEV</td>
<td>22</td>
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<tr>
<td>LAKEAREA</td>
<td>1</td>
</tr>
<tr>
<td>LAT_DD</td>
<td>39.0683</td>
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<tr>
<td>LON_DD</td>
<td>-79.42944</td>
</tr>
<tr>
<td>WGT_1X</td>
<td>0</td>
</tr>
<tr>
<td>WGT_3X</td>
<td>0</td>
</tr>
<tr>
<td>WGT_FS</td>
<td>313.6</td>
</tr>
<tr>
<td>YEAR</td>
<td>1991</td>
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</tbody>
</table>

7.1.3 Maximum Value in Data Set

<table>
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<th>Name</th>
<th>Max</th>
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</thead>
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<tr>
<td>LAKEAREA</td>
<td>34014.84</td>
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<td>LAT_DD</td>
<td>47.2125</td>
</tr>
<tr>
<td>LON_DD</td>
<td>-67.30111</td>
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<tr>
<td>WGT_1X</td>
<td>200</td>
</tr>
<tr>
<td>WGT_3X</td>
<td>200</td>
</tr>
<tr>
<td>WGT_FS</td>
<td>2508.8</td>
</tr>
<tr>
<td>YEAR</td>
<td>1994</td>
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</tbody>
</table>

7.2 Data Record Example

7.2.1 Column Names for Example Records
COUNTY ECO_ATH ELEV GRID_TYP HEXSW_ID LAKEAREA LAKENAME LAKE_ID LAT_DD LON_DD
MAP_100 MAP_75 REG_3X REPEAT91 REPEAT92 REPEAT93 REPEAT94 SITECLS SIZE_CLS STATE
TIME_REG TIME_REP WGT_1X WGT_3X WGT_FS YEAR YEARORIG
7.2.2 Example Data Records

```
""""""G"","1310120","1","MRS. POUND'S POND","CT001L",41.45667,-73.20028," ",

"","",""G","1032230",19.5,"BISSONETTE POND","CT002L",41.92417,-72.21889," ",
""""""Y","","","TARGET","B:5-20","CT","NEWENG",""
",64,64,..1991,"1991"

"","",""G","1032230",1.6,"NO NAME","CT003L",41.87639,-72.20278," "," ",
""""""N",

"","",""G","1032320",38.2,"WYASSUP LAKE","CT004L",41.48833,-71.87278," ",

"NEW LONDON","Coast/Low/Plat",301,"G","1032320.000",38.2,"WYASSUP LAKE","CT004L",
"","TARGET",
"C:10-50","CT","NEWENG"," ",0,0,660.210516,1992,"1991"
```

8. GEOGRAPHIC AND SPATIAL INFORMATION

8.1 Minimum Longitude

-79 Degrees 25 Minutes 45.98 Seconds West ( -79.42944 Decimal Degrees )

8.2 Maximum Longitude

-67 Degrees 18 Minutes 3.96 Seconds West ( -67.30111 Decimal Degrees )

8.3 Minimum Latitude

39 Degrees 4 Minutes 5.88 Seconds North ( 39.0683 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 Gopher and WWW

10.7 EMAP CD-ROM Containing the Data

11. REFERENCES


12. TABLE OF ACRONYMS

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