CATALOG DOCUMENTATION
EMAP SURFACE WATERS PROGRAM LEVEL DATABASE
1993-1996 MID-ATLANTIC STREAMS DATA
STREAMS HABITAT DATA

TABLE OF CONTENTS

1. DATA SET IDENTIFICATION

1.1 Title of Catalog Document
EMAP Surface Waters Stream Database
1993-1996 Mid-Atlantic Streams
Stream Habitat Data Summarized by Stream

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

1.3 Catalog Revision Date
February 1999

1.4 Data Set Name
HABBEST

1.5 Task Group
Surface Waters

1.6 Data Set Identification Code
0129

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

Oregon State University
State of Virginia
State of West Virginia
State of Maryland
State of Pennsylvania
University of Maine
U.S. Fish and Wildlife Service
U.S. Environmental Protection Agency
Office of Research and Development
Region III

3. DATA SET ABSTRACT

3.1 Abstract of the Data Set

The primary function of the stream habitat data set is to describe the physical habitat quality within the stream and near-shore riparian zone. This information is used to help establish the "expectations" of the biological quality of the stream and to evaluate the extent to which human activity has disturbed habitat and thus impacted stream biota.

3.2 Keywords for the Data Set

Habitat, cover, large woody debris, pools, riffles, residual pools, instream cover, riparian habitat, riparian zone

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 streams in EMAP. The data set contains the results of analysis of the instream and riparian habitat sampled during spring low flow.

4.3 Data Set Background Discussion

Habitat in streams is analyzed for two purposes. First, to understand the physical habitat within which biota must exist so that we can understand the biological potential of the system and second, to evaluate the physical habitat quality of the stream for the purpose of determining the potential stresses to which the biota are exposed.

4.4 Summary of Data Set Parameters

The physical habitat parameters include percentages and total counts of various in-channel and riparian features, such as substrate size, water flow types, fish cover, channel sinuosity, riparian vegetation types, canopy density, and proximity of human influence features.

5. DATA ACQUISITION AND PROCESSING METHODS

5.1 Data Acquisition

5.1.1 Sampling Objective

To obtain a quantitative description of stream physical habitat for the during a two month sampling window from April through early June.

5.1.2 Sample Collection Methods Summary

Quantitative habitat information was collected at eleven transects along the sampling reach- according to the protocols identified in Lazorchak et al. (1998).

5.1.3 Sampling Start Date

April 1993

5.1.4 Sampling End Date

September 1996

5.1.5 Platform

NA

5.1.6 Sampling Gear

Multiple gear; See Lazorchak, et al. 1998.

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 Lazorchak, et al. 1998.

5.1.11 Sample Collection Method Reference

Chaloud, D.J. and D.V. Peck. 1994. Environmental Monitoring and Assessment Program: Integrated Quality Assurance Project Plan for the Surface Waters Resource Group, 1994 Activities. EPA 600/X-91/080, Rev. 2.00. U.S. Environmental Protection Agency, Las Vegas Nevada.

Lazorchak, J.M., Klemm, D.J., and Peck D.V. (editors). 1998. Environmental Monitoring and Assessment Program- Surface Waters: Field Operations and Methods for Measuring the Ecological Condition of Wadeable Streams. EPA/620/R-94/004F. U.S. Environmental Protection Agency, Washington, D.C.

5.1.12 Sample Collection Method Deviations

NA

5.2 Data Preparation and Sample Processing

5.2.1 Sample Processing Objective

See Klemm and Lazorchak (1994) and Chaloud and Peck (1994).

5.2.2 Sample Processing Methods Summary

See Klemm and Lazorchak (1994) and Chaloud and Peck (1994).

5.2.3 Sample Processing Method Calibration

See Klemm and Lazorchak (1994) and Chaloud and Peck (1994).

5.2.4 Sample Processing Quality Control

See Klemm and Lazorchak (1994) and Chaloud and Peck (1994).

5.2.5 Sample Processing Method Reference

See Klemm and Lazorchak (1994) 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 SAS Name	Data Type	Len	Format	Parameter Label
DATE_COL	Num	8	MMDDYY	Date stream visited
LAT_DD	Num	8		Sample Site Latitude (decimal degrees)
LON_DD	Num	8		Sample Site Longitude (decimal degrees)
LSUB_DMM	Num	8		Log10 est substrate geom mean diam (mm)
PCAN_C	Num	8		Riparian Canopy Coniferous (Prop reach)
PCT_BDRK	Num	8		Substrate Bedrock (%)
PCT_BIGR	Num	8		Substrate >= Coarse Gravel >16 mm (%)

7.1 Description of Parameters, continued

PCT_DRS	Num	8	Dry Channel or Subsurf Flow (%)
PCT_FA	Num	8	Falls (% of reach)
PCT_FAST	Num	8	Fast Wtr Hab (% riffle & faster)
PCT_FN	Num	8	Substrate Fines -- Silt/Clay/Muck (%)
PCT_HP	Num	8	Substrate Hardpan -- (%)
PCT_ORG	Num	8	Substrate Wood or Detritus -- (%)
PCT_POOL	Num	8	Pools -- All Types (% of reach)
PCT_RC	Num	8	Substrate Concrete (%)
PCT_SA	Num	8	Substrate Sand -- .06-2 mm (%)
PCT_SAFN	Num	8	Substrate Sand & Fines -- <2 mm (%)
PCT_SFGF	Num	8	Substrate <= Fine Gravel <16 mm (%)
PCT_SLOW	Num	8	Slow Wtr Hab (% Glide & Pool)
RP100	Num	8	Residual Mean Depth (cm or m2/100m)
RPGT75	Num	8	number of nonmissing values, MAXDEP
RPMDEP	Num	8	the largest value, MAXDEP
RPXAREA	Num	8	the mean, POOLAR
SAMPLED	Char	30	Site Sampled Code
SDDEPTH	Num	8	Std Dev of Thalweg Depth (cm)
SDWXD	Num	8	Std Dev of Width*Depth Product (m2)
SINU	Num	8	Channel Sinuosity (m/m)
STRMNAME	Char	40	Stream Name from 7.5 map
STRM_ID	Char	6	individual site identification
V1W_MSQ	Num	8	ave. v1w per square meter stream
V4W_MSQ	Num	8	ave. v4w per square meter stream
VISIT_NO	Num	8	visit number-within year
W1H_LOG	Num	8	Rip Dist--Logging Activity (ProxWt Pres)
W1H_PIPE	Num	8	Rip Dist--Pipes infl/effl (ProxWt Pres)
W1H_WALL	Num	8	Rip Dist--Wall/Bank Revet. (ProxWt Pres)
W1_HAG	Num	8	Rip Dist--Sum Agric Types (ProxWt Pres)
W1_HALL	Num	8	Rip Dist--Sum All Types (ProxWt Pres)
W1_HNOAG	Num	8	Rip Dist--Sum NonAg Types (ProxWt Pres)
WD_RAT	Num	8	Mean Width/Depth Ratio (m/m)
XBKF_H	Num	8	mean BANKHT 93 see data documentation
XBKF_W	Num	8	mean BANKWD. 93 see data documentation
XBK_A	Num	8	the mean, ANGLE
XC	Num	8	Riparian Veg Canopy Cover
XCDENBK	Num	8	Mean Bankside Canopy Density (%)
XCDENMID	Num	8	Mean MidChannel Canopy Density (%)
XCL	Num	8	Riparian Canopy >.3m DBH (Cover)
XCMGW	Num	8	Rip Veg Canopy+Mid+Ground Woody Cover
XCMW	Num	8	Rip Veg Canopy+Mid Layer Woody Cover
XDEPTH	Num	8	Thalweg Mean Depth (cm)
XEMBED	Num	8	Mean Embeddedness--Channel+Margin (%)
XFC_ALG	Num	8	Filamentous Algae Cover (Areal Prop.)
XFC_ALL	Num	8	Fish Cvr--All Types (Sum Areal Prop)
XFC_AQM	Num	8	Aq. Macrophytes Cover (Areal Prop.)
XFC_BIG	Num	8	Fish Cvr--LWD,Bldr,OHBk,Struct (Areal P)
XFC_BRS	Num	8	Brush & Small Debris Cvr (Areal Prop.)
XFC_HUM	Num	8	Fish Cvr--Artif. Structs. (Areal Prop)
XFC_LWD	Num	8	Lg. Woody Debris Cover (Areal Prop.)
XFC_NAT	Num	8	Fish Cvr--Natural Types (Sum Areal Prop)
XFC_OHV	Num	8	Overhang. Veg. Cover (Areal Prop.)

7.1 Description of Parameters, continued

XFC_RCK	Num	8	Fish Cover--Boulders (Areal Prop.)
XFC_UCB	Num	8	Undercut Bank Cover (Areal Prop.)
XG	Num	8	Riparian Veg Ground Layer Cover
XGB	Num	8	Rip Ground Layer Barren (Cover)
XINC_H	Num	8	mean incis ht 93 see data documentation
XPCM	Num	8	Rip Can & MidLayer Present (Prop reach)
XPCMG	Num	8	Riparian 3-Layers Present (Prop reach)
XSLOPE	Num	8	Channel Slope -- reach mean (%)
XUN	Num	8	the mean, UNDERCUT
XWIDTH	Num	8	Wetted Width -- Mean (m)
XWXD	Num	8	Mean Width*Depth Product (m2)
YEAR	Num	8	Sample Year

7.1.6 Precision to which values are reported

7.1.7 Minimum Value in Data Set

Name	Min
DATE_COL	04/26/1993
LAT_DD	36.5535
LON_DD	-83.24443889
LSUB_DMM	-2.454616
PCAN_C	0
PCT_BDRK	0
PCT_BIGR	0
PCT_DRS	0
PCT_FA	0
PCT_FAST	0
PCT_FN	0
PCT_HP	0
PCT_ORG	0
PCT_POOL	0
PCT_RC	0
PCT_SA	0
PCT_SAFN	0
PCT_SFGF	0
PCT_SLOW	0
RP100	0.042970297
RPGT75	0
RPMDEP	3
RPXAREA	0.0204666667
SDDEPTH	0.3588702813
SDWXD	0.001336209
SINU	1.004522552
V1W_MSQ	0
V4W_MSQ	0
VISIT_NO	1
W1H_LOG	0
W1H_PIPE	0
W1H_WALL	0
W1_HAG	0

7.1.7 Minimum Value in Data Set, continued

W1_HALL	0
W1_HNOAG	0
WD_RAT	0
XBKF_H	-0.072727273
XBKF_W	0.6454545455
XBK_A	16.142857143
XC	0
XCDENBK	0
XCDENMID	0
XCL	0
XCMGW	0
XCMW	0
XDEPTH	0.05
XEMBED	3.4545454545
XFC_ALG	0
XFC_ALL	0
XFC_AQM	0
XFC_BIG	0
XFC_BRS	0
XFC_HUM	0
XFC_LWD	0
XFC_NAT	0
XFC_OHV	0
XFC_RCK	0
XFC_UCB	0
XG	0.0022727273
XGB	0
XINC_H	0.1625
XPCM	0
XPCMG	0
XSLOPE	0
XUN	0
XWIDTH	0
XWXD	0
YEAR	1993

7.1.7 Maximum Value in Data Set

Name	Max
DATE_COL	09/15/1996
LAT_DD	41.956013889
LON_DD	-75.12139
LSUB_DMM	3.7699375818
PCAN_C	0.6363636364
PCT_BDRK	83.636363636
PCT_BIGR	100
PCT_DRS	98
PCT_FA	27.516778523
PCT_FAST	100
PCT_FN	100
PCT_HP	9.2592592593

PCT_ORG	76.363636364
PCT_POOL	98.076923077
PCT_RC	90.909090909
PCT_SA	87.272727273
PCT_SAFN	100
PCT_SFGF	100
PCT_SLOW	100
RP100	42.22180198
RPGT75	10
RPMDEP	200
RPXAREA	51.172824
SDDEPTH	39.590581474
SDWXD	11.065567367
SINU	2.8609842224
V1W_MSQ	2.326847619
V4W_MSQ	0.5643306717
VISIT_NO	2
W1H_LOG	1.5
W1H_PIPE	0.6666863636
W1H_WALL	1.4318181818
W1_HAG	1.7575909091
W1_HALL	4.8258454545
W1_HNOAG	4.8258454545
WD_RAT	76.559027778
XBKF_H	2.9363636364
XBKF_W	23.97
XBK_A	97.227272727
XC	1.375
XCDENBK	100
XCDENMID	100
XCL	0.7261363636
XCMGW	2.2204545455
XCMW	1.9443181818
XDEPTH	88.89
XEMBED	100
XFC_ALG	0.6022727273
XFC_ALL	1.4636363636
XFC_AQM	0.5818181818
XFC_BIG	1.0613636364
XFC_BRS	0.3136363636
XFC_HUM	0.7681818182
XFC_LWD	0.3022727273
XFC_NAT	1.4636363636
XFC_OHV	0.8477272727
XFC_RCK	0.8
XFC_UCB	0.4068181818
XG	1.2011363636
XGB	0.875
XINC_H	8.2
XPCM	1
XPCMG	1
XSLOPE	40.8

7.1.7 Maximum Value in Data Set, continued

XUN	5.5
XWIDTH	19.714
XWXD	12.622428571
YEAR	1996

7.2 Data Record Example

7.2.1 Column Names for Example Records

```
"DATE_COL","LAT_DD","LON_DD","LSUB_DMM","PCAN_C","PCT_BDRK","PCT_BIGR",
"PCT_DRS","PCT_FA","PCT_FAST","PCT_FN","PCT_HP","PCT_ORG","PCT_POOL",
"PCT_RC","PCT_SA","PCT_SAFN","PCT_SFGF","PCT_SLOW","RP100","RPGT75","RPMDEP",
"RPXAREA","SAMPLED","SDDEPTH","SDWXD","SINU","STRMNAME","STRM_ID","V1W_MSQ",
"V4W_MSQ","VISIT_NO","W1H_LOG","W1H_PIPE","W1H_WALL","W1_HAG","W1_HALL",
"W1_HNOAG","WD_RAT","XBKF_H","XBKF_W","XBK_A","XC","XCDENBK","XCDENMID",
"XCL","XCMGW","XCMW","XDEPTH","XEMBED","XFC_ALG","XFC_ALL","XFC_AQM",
"XFC_BIG","XFC_BRS","XFC_HUM","XFC_LWD","XFC_NAT","XFC_OHV","XFC_RCK",
"XFC_UCB","XG","XGB","XINC_H","XPCM","XPCMG","XSLOPE","XUN","XWIDTH","XWXD",
"YEAR"
```

7.2.2 Example Data Records

```
05/17/1994,38.52530,-75.63110,-2.322676245,0,0,0,0,0,0,83.636363636,0,0,90,0,
5.4545454545,89.090909091,89.090909091,100,13.065966814,1,98,3.6950554149,
"Yes",17.01180517,1.6909979761,1.0791677598,"TUSOCKY BR","DE750S",
0.0002480431,0,1,0,0,0,0.9394090909,2.6288772727,1.6894681818,11.41365336,
0.3,8,54.227272727,0.1545454545,65.77540107,32.085561497,0.1022727273,0.85,
0.6806818182,66.95,100,0,0.1181818182,0.0681818182,0,0.0136363636,0,0,
0.1181818182,0.1045454545,0,0,0.7227272727,0.1306818182,.,0.5909090909,
0.5909090909,0.1,0,7.345,5.10655,1994

05/25/1993,39.68369,-79.47240,1.9441428241,0,0,69.090909091,0,0,67.333333333,
1.8181818182,0,1.8181818182,12.666666667,0,23.636363636,25.454545455,
29.090909091,32.666666667,2.832703609,0,36,0.12961765,"Yes",5.4083207085,
0.1691950306,1.2851571764,"S. BR. LAUREL RUN","MD507S",0.000261922,
0,1,0,0,0,0,0.2121318182,0.2121318182,25.595745785,0.62,3.65,59.818181818,
0.4488636364,99.732620321,99.732620321,0.2147727273,0.9659090909,0.8159090909,
13.72,73,0.5159090909,1.4590909091,0,0.9090909091,0.1886363636,0,0.0272727273,
1.4590909091,0.3613636364,0.7113636364,0.1704545455,0.2375,0.3147727273,3.4,1,
1,3.1,0.0318181818,2.9525333333,0.3879753333,1993

05/16/1994,38.92420,-75.98710,-0.280008945,0,0,14.545454545,0,0,34.31372549,
30.909090909,0,0,34.31372549,0,34.545454545,65.454545455,85.454545455,
65.68627451,14.997295313,0,65,3.3101173226,"Yes",14.714430441,0.6074071511,
1.448642614,"NNT NORWICH CR","MD750S",0.0080215417,0,1,0,0,0,0.33335,
1.3182318182,0.9848818182,9.245011655,0.265,3.39,45.555555556,0.3727272727,
77.540106952,82.486631016,0.2204545455,0.9625,0.8852272727,26.31372549,
91.454545455,0,0.2136363636,0.0045454545,0.0409090909,0.0863636364,0,
0.0045454545,0.2136363636,0.0863636364,0,0.0363636364,0.4886363636,
0.2761363636,0.6875,0.7272727273,0.7272727273,0.2975,0.75,2.195,0.70035,1994
```

8. GEOGRAPHIC AND SPATIAL INFORMATION

8.1 Minimum Longitude
-83 Degrees 14 Minutes 39 Seconds West (-83.24444 Decimal Degrees)

8.2 Maximum Longitude
-75 Degrees 7 Minutes 17 Seconds West (-75.12139 Decimal Degrees)

8.3 Minimum Latitude
36 Degrees 33 Minutes 12 Seconds North (36.55350 Decimal Degrees)

8.4 Maximum Latitude
41 Degrees 57 Minutes 21 Seconds North (41.95601 Decimal Degrees)

8.5 Name of Area or Region
Mid Atlantic: EPA Region III which includes Delaware, Maryland, New York, Virginia, and West Virginia

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

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. Washington, D.C.

Lazorchak, J.M., Klemm, D.J., and Peck D.V. (editors). 1998. Environmental Monitoring and Assessment Program- Surface Waters: Field Operations and Methods for Measuring the Ecological Condition of Wadeable Streams. EPA/620/R-94/004F. U.S. Environmental Protection Agency, Washington, D.C.

12. TABLE OF ACRONYMS

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