CATALOG DOCUMENTATION
EMAP SURFACE WATERS PROGRAM LEVEL DATABASE
1997-1998 Mid-Atlantic Integrated Assessment Program
Streams Habitat Data

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1. DATA SET IDENTIFICATION

1.1 Title of Catalog Document
1997-1998 Mid-Atlantic Integrated Assessment Program
Streams Habitat Data

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

1.3 Catalog Revision Date
August 2000

1.4 Data Set Name
PHABBEST

1.5 Task Group
Surface Waters

1.6 Data Set Identification Code
139

1.7 Version
001

1.8 Requested Acknowledgement
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 publication, 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 Participants - Sample Collection

Oregon State University
State of West Virginia
State of Maryland
University of Maryland
U.S. Environmental Protection Agency
Office of Research and Development
Region III

3. DATA SET ABSTRACT

3.1 Abstract of the Data Set

The data set contains the results of analysis of the instream and riparian habitat.

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

In 1997 and 1998 the Ecological Monitoring and Assessment Program (EMAP) Surface Waters Program became a collaborator in the Mid-Atlantic Integrated Assessment (MAIA) project, which is attempting to produce an assessment of the condition of surface water and estuarine resources. The MAIA project represents a follow-up to the MAHA study, with an expanded geographic scope (southern New York to northern North Carolina, with more sites located in the Piedmont and Coastal Plain regions) and a different index period (July-September).

4.2 Data Set Objective
This data set is part of a demonstration project to evaluate approaches to monitoring streams in EMAP. 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 and quality of the stream and to evaluate the extent to which human activity has disturbed habitat and thus impacted stream biota.

4.3 Data Set Background Discussion
The primary function of the sream habitat data set is to describe the physical habitat quality wihin the stream and near-shore riparian zone. This information is used to help establish the "expectations" of the biological quality of hte stream and to evaluate the extent to which human activity has disturbed habitat and thus impacted stream biota.
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, channle 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 sampling period.

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
May 1997

5.1.4 Sampling End Date
September 1998

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 Design

5.2.1 Sample Processing Objective
See Lazorchak, et al. (1998) and Chaloud and Peck (1994).

5.2.2 Sample Processing Methods Summary
See Lazorchak, et al. (1998) and Chaloud and Peck (1994).

5.2.3 Sample Processing Method Calibration
See Lazorchak, et al. (1998) and Chaloud and Peck (1994).

5.2.4 Sample Processing Quality Control
See Lazorchak, et al. (1998) and Chaloud and Peck (1994).

5.2.5 Sample Processing Method Reference
See Lazorchak, et al. (1998) 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	
LAT_DD	Num	8		X-Site Latitude (decimal degrees)
LON_DD	Num	8		X-Site Longitude (decimal degrees)
LSUB_DMM	Num	8		Log10 est substrate geom mean diam (mm)
PCAN_C	Num	8		Riparian Canopy Coniferous (Fract reach)
PCT_BDRK	Num	8		Substrate Bedrock (%) RUN
PCT_BIGR	Num	8		Substrate >= Coarse Gravel (>16 mm) (%)
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		Mean Residual Depth (cm or m2/100m)
RPGT75	Num	8		Resid Pools >75cm deep (number/reach)
RPMDEP	Num	8		Maximum residual depth in reach (cm)
RPXAREA	Num	8		Mean vert. profile area of RPs (m2/pool)
SAMPLED	Char	30		
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)
STRM_ID	Char	15	$CHAR	Stream ID
V1W_MSQ	Num	8		LWD Vol in Bkf chnl (m3/m2-all sizes)
V4W_MSQ	Num	8		LWD Vol in Bkf chnl (m3/m2-L,X)
VISIT_NO	Num	8		Visit number
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)
XBKA	Num	8		Bank Angle--mean (degrees)
XBKF_H	Num	8		Bankfull Height-Mean (m)
XBKF_W	Num	8		Bankfull Width--Mean (m)
XC	Num	8		Riparian Veg Canopy Cover
XCDENBK	Num	8		Mean Bank Canopy Density (%)
XCDENMID	Num	8		Mean Mid-channel Canopy Density (%)
XCL	Num	8		Riparian Canopy > 0.3m 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 (%)

7.1 Description of Parameters, continued

XFC_ALG	Num	8	Fish Cvr-Filamentous Algae (Areal Prop)
XFC_ALL	Num	8	Fish Cvr-All Types (Sum Areal Prop)
XFC_AQM	Num	8	Fish Cvr-Aq. Macrophytes (Areal Prop)
XFC_BIG	Num	8	Fish Cvr-LWD,RCK,UCBorHUM(Sum Area Prop)
XFC_BRS	Num	8	Fish Cvr-Brush&Small Debris (Areal Prop)
XFC_HUM	Num	8	Fish Cvr-Artif. Structs. (Areal Prop)
XFC_LWD	Num	8	Fish Cvr-Large Woody Debris (Areal Prop)
XFC_NAT	Num	8	Fish Cvr-Natural Types (Sum Areal Prop)
XFC_OHV	Num	8	Fish Cvr-Overhang Veg (Areal Prop)
XFC_RCK	Num	8	Fish Cvr-Boulders (Areal Prop)
XFC_UCB	Num	8	Fish Cvr-Undercut Banks (Areal Prop)
XG	Num	8	Riparian Veg Ground Layer Cover
XGB	Num	8	Rip Ground Layer Barren (Cover)
XINC_H	Num	8	Channel Incision Ht.-Mean (m)
XPCM	Num	8	Rip Can & MidLayer Present (Frac. reach)
XPCMG	Num	8	Riparian 3-Layers Present (Fract. reach)
XSLOPE	Num	8	Channel Slope -- reach mean (%)
XUN	Num	8	Undercut Distance--Mean (m)
XWD_RAT	Num	8	Mean Width/Depth Ratio (m/m)
XWIDTH	Num	8	Wetted Width -- Mean (m)
XWXD	Num	8	Mean Width*Depth Product (m2)
YEAR	Num	4	

7.1.6 Precision to which values are reported

7.1.7 Minimum Value in Data Set

Name	Min
DATE_COl	.
LAT_DD	35.182938
LON_DD	-83.555659
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
RPGT75	0
RPMDEP	0
RPXAREA	0.0368929844

7.1.7 Minimum Value in Data Set, continued

SDDEPTH	0
SDWXD	0
SINU	1
V1W_MSQ	0
V4W_MSQ	0
VISIT_NO	0
W1H_PIPE	0
W1H_WALL	0
W1_HAG	0
W1_HALL	0
W1_HNOAG	0
XBKA	4.4545454545
XBKF_H	0
XBKF_W	0.5254545455
XC	0
XCDENBK	0
XCDENMID	0
XCL	0
XCMGW	0
XCMW	0
XDEPTH	0
XEMBED	0
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	0.0954545455
XGB	0
XINC_H	0
XPCM	0
XPCMG	0
XSLOPE	0.0975
XUN	0
XWD_RAT	3.4133872867
XWIDTH	0
XWXD	0
YEAR	1997

7.1.7 Maximum Value in Data Set

Name	Max
DATE_COl	.
LAT_DD	42.600349
LON_DD	-74.662034
LSUB_DMM	3.979357
PCAN_C	0.4090909091
PCT_BDRK	70.909090909
PCT_BIGR	100
PCT_DRS	100
PCT_FA	5
PCT_FAST	100
PCT_FN	100
PCT_HP	100
PCT_ORG	12.727272727
PCT_POOL	100
PCT_RC	18.181818182
PCT_SA	100
PCT_SAFN	100
PCT_SFGF	100
PCT_SLOW	100
RP100	41.745243759
RPGT75	7
RPMDEP	315.2
RPXAREA	39.336965009
SDDEPTH	65.714788551
SDWXD	62.619647318
SINU	2.3050709551
V1W_MSQ	2.8935183673
V4W_MSQ	1.3109333333
VISIT_NO	3
W1H_PIPE	0.7045590909
W1H_WALL	1.3181818182
W1_HAG	2
W1_HALL	6.3031318182
W1_HNOAG	6.3031318182
XBKA	92.272727273
XBKF_H	3.1090909091
XBKF_W	178.8
XC	1.15
XCDENBK	100
XCDENMID	100
XCL	0.8340909091
XCMGW	2.3363636364
XCMW	1.8954545455
XDEPTH	106
XEMBED	100
XFC_ALG	0.875
XFC_ALL	2.6
XFC_AQM	0.625
XFC_BIG	1.15
XFC_BRS	0.875

7.1.7 Maximum Value in Data Set, continued

XFC_HUM	0.4477272727
XFC_LWD	0.575
XFC_NAT	2.6
XFC_OHV	0.875
XFC_RCK	0.875
XFC_UCB	0.4181818182
XG	1.15
XGB	0.8613636364
XINC_H	6.9818181818
XPCM	1
XPCMG	1
XSLOPE	17.29
XUN	1.1
XWD_RAT	289.50993745
XWIDTH	155.75
XWXD	98.7375
YEAR	1998

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","STRM_ID","V1W_MSQ","V4W_MSQ","VISIT_NO",
"W1H_PIPE","W1H_WALL","W1_HAG","W1_HALL","W1_HNOAG","XBKA","XBKF_H","XBKF_W",
"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","XWD_RAT","XWIDTH","XWXD","YEAR"

7.2.2 Example Data Records

.,38.247943,-81.886602,1.1696464727,0,1.8181818182,52.727272727,64,0,0,0,
1.8181818182,0,36,0,32.727272727,32.727272727,45.454545455,36,0.8427675,0,
17.64475,0.070230625,"YES",3.2872419436,0.0735908802,1.0673681628,
"MAIA97-001",0.0288552632,0,1,0,0,0.1363636364,0.6060727273,0.4697090909,65,
0.5272727273,2.5636363636,0.8295454545,89.304812834,86.363636364,0.2034090909,
1.5272727273,1.3590909091,1.61,55.909090909,0,0.2886363636,0,0.1113636364,
0.0613636364,0,0,0.2886363636,0.1159090909,0.0795454545,0.0318181818,
0.7693181818,0.1590909091,0.8363636364,1,1,3.134,0.0363636364,19.154692286,
0.4470588235,0.0403529412,1997

.,38.550017,-82.144807,1.2481787545,0,0,65.454545455,0,0,28,1.8181818182,0,0,
70,0,25.454545455,27.272727273,34.545454545,72,18.591612111,1,75.9625,
3.7183224221,"YES",23.427593159,1.7061844867,1.0676716022,"MAIA97-002",
0.0435726103,0.0344126838,1,0.0454545455,0,0.48485,1.1894045455,0.7045545455,
57.954545455,1.1181818182,9.8181818182,0.7534090909,79.679144385,66.310160428,
0.3170454545,1.1522186147,1.0855519481,40.42,58.727272727,0.0045454545,
0.3045454545,0.0045454545,0.0727272727,0.1181818182,0,0.0409090909,
0.3045454545,0.1136363636,0.0227272727,0.0090909091,0.8452380952,0.0166666667,
3.1454545455,0.9523809524,0.9523809524,2.295,0.2,18.41895746,5.44,2.28685,1997

7.2.2 Example Data Records, continued

.,38.558859,-80.666924,1.9549692909,0,1.8181818182,94.545454545,0,0,91,0,0,0,
0,0,5.4545454545,5.4545454545,5.4545454545,9,3.424425,0,22.8475,0.256831875,
"YES",6.7139158966,0.1890523389,1.1141171962,"MAIA97-005",0.0014618778,0,1,0,
0,0,0.5303090909,0.5303090909,24.636363636,0.2818181818,4.4636363636,
0.6454545455,100,100,0.1954545455,1.0454545455,0.85,15.29,29,0,0.1590909091,0,
0.0818181818,0.0454545455,0,0.0318181818,0.1590909091,0.0318181818,0.05,0,
0.6636363636,0.0852272727,0.4727272727,1,1,4.1,0,22.726680672,2.645,0.38095,
1997

8. GEOGRAPHIC AND SPATIAL INFORMATION

8.1 Minimum Longitude
-83 Degrees 33 Minutes 20 Seconds West (-83.555659 Decimal Degrees)

8.2 Maximum Longitude
-74 Degrees 39 Minutes 43 Seconds West (-74.662034 Decimal Degrees)

8.3 Minimum Latitude
35 Degrees 10 Minutes 58 Seconds North (35.182938 Decimal Degrees)

8.4 Maximum Latitude
42 Degrees 36 Minutes 1 Seconds North (42.600349 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 WWW

10.7 EMAP CD-ROM Containing the Data

11. REFERNCES

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.

12. TABLE OF ACRONYMS

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