

US EPA ARCHIVE DOCUMENT

CATALOG DOCUMENTATION  
EMAP SURFACE WATERS PROGRAM LEVEL DATABASE  
1997-1998 Mid-Atlantic Integrated Assessment Program  
Stream velocity (discharge)

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1. DATA SET IDENTIFICATION

1.1 Title of Catalog Document

1997-1998 Mid-Atlantic Integrated Assessment Program  
Stream velocity (discharge)

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

FLOW

1.5 Task Group

Surface Waters

1.6 Data Set Identification Code

135

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

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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

This data set contains stream discharge estimates based on one of three methods; Velocity-Area, Timed Filling, or Neutrally-Buoyant Object Procedure. The method chosen depended on stream channel type. The preferred method is Velocity-Area. Smaller channels may necessitate the Timed Filling method, or very small streams use a Neutrally-Buoyant Object.

### 3.2 Keywords for the Data Set

Stream discharge, flow, velocity-area, timed-filling, neutrally-buoyant object

## 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 the MAIA project to characterize spatial and temporal variability of ecological indicators and demonstrate the ability of a suite of ecological indicators to estimate the condition of regional populations of aquatic resources. The data set contains the results of stream discharge measurements observed within the sample reach, as close as possible to where water chemistry samples were collected.

#### 4.3 Data Set Background Discussion

The primary function of the stream discharge data is to provide a snapshot of the flow characteristics of the stream at the time of sampling. Discharge measurements are critical for assessing trends in stream water acidity and other characteristics that are very sensitive to stream flow differences.

#### 4.4 Summary of Data Set Parameters

Flow parameters include stream discharge measured as instantaneous flow estimate and stream width at the measurement location.

### 5. DATA ACQUISITION AND PROCESSING METHODS

#### 5.1 Data Acquisition

##### 5.1.1 Sampling Objective

To obtain an estimate of instantaneous flow at or near the point of the water chemistry sample.

##### 5.1.2 Sample Collection Methods Summary

Stream was sampled using either the Velocity-Area, Timed Filling, or Neutrally Buoyant Object procedure.

##### 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

Dependent on method: Velocity-Area: surveyor's rod or meter tape and a velocity meter probe. Timed Filling: construction of a spillway or plunge(if necessary), calibrated bucket/container, and a stopwatch. Neutrally-Buoyant Object: surveyor's rod or meter tape, stopwatch, and a neutrally buoyant object.

##### 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
COMM_FLW	Char	80		Flow comments
DATE_COL	Num	8	MMDDYY	Date of site visit
FLOW	Num	8		Instantaneous Discharge (m3/sec)
FLOWMETH	Char	10		Flow measurement method
FLOW_CFS	Num	8		Instantaneous Discharge (ft3/sec)
LAT_DD	Num	8		X-Site Latitude (decimal degrees)
LON_DD	Num	8		X-Site Longitude (decimal degrees)
NINTRVL	Num	8		Number of Non-zero velocity Intervals
SAMPLED	Char	30		Site sampled code
STRM_ID	Char	10	\$	Stream Id
SWIDTH	Num	8		Stream Width at Discharge Point (m)
TEAM_ID	Char	8	\$	Team ID
VISIT_NO	Num	8		Visit number
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	05/20/1997
FLOW	0
FLOW_CFS	0
LAT_DD	35.182938
LON_DD	-83.555659
NINTRVL	0
SWIDTH	0.1
VISIT_NO	0
YEAR	1997

#### 7.1.7 Maximum Value in Data Set

Name	Max
DATE_COL	09/30/1998
FLOW	19.6755
FLOW_CFS	694.741
LAT_DD	42.600349
LON_DD	-74.662034
NINTRVL	20
SWIDTH	142.5
VISIT_NO	2
YEAR	1998

### 7.2.1 Column Names for Example Records

"COMM\_FLW", "DATE\_COL", "FLOW", "FLOWMETH", "FLOW\_CFS", "LAT\_DD", "LON\_DD", "NINTRVL",  
"SAMPLED", "STRM\_ID", "SWIDTH", "TEAM\_ID", "VISIT\_NO", "YEAR"

### 7.2.2 Example Data Records

"NO FLOW TO BE TAKEN", 09/08/1997, 0, "VISUAL\_EST", 0, 38.247943,  
-81.886602, 0, "Yes", "MAIA97-001", ., "4", 1, 1997

"", 07/12/1997, 0.0346, "VEL\_DEPTH", 1.222, 38.550017, -82.144807, 6, "Yes",  
"MAIA97-002", 4.75, "4", 1, 1997

" ", 08/27/1997, ., " ", ., 39.067885, -81.388766, ., "Yes, but flow not measured",  
"MAIA97-003", ., " ", 1, 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. REFERENCES

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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