

US EPA ARCHIVE DOCUMENT

CATALOG DOCUMENTATION
REGIONAL ENVIRONMENTAL MONITORING AND ASSESSMENT PROGRAM - REGION 10
1994-1995 WASHINGTON/OREGON COASTAL STREAMS AND YAKIMA RIVER BASIN STREAMS
BENTHIC MACROINVERTEBRATE COUNTS DATA

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1. DATA SET IDENTIFICATION

1.1 Title of Catalog Document

Regional Environmental Monitoring and Assessment Program - Region 10
1994-1995 Washington/Oregon Coastal Streams and Yakima Basin Streams
Benthic Macroinvertebrate Counts Data Set

1.2 Authors of the Catalog Entry

U.S. EPA NHEERL Western Ecology Division
Corvallis, OR

1.3 Catalog Revision Date

23 March 1999

1.4 Data Set Name

BENCNT

1.5 Task Group

Region 10

1.6 Data Set Identification Code

00005

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 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 Regional EMAP program, it has not been subjected to Agency review, and therefore does not necessarily reflect the views of the Agency and no official endorsement should be inferred."

2. INVESTIGATOR INFORMATION

2.1 Principal Investigators

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U.S. EPA Region 10

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2.2 Investigation Participant - Sample Collection

U.S. Environmental Protection Agency
Office of Research and Development
Region 10
Oregon Department of Environmental Quality
Washington State Department of Ecology
Oregon State University
University of Washington
Yakama Indian Nation Environmental Protection Program

3. DATA SET ABSTRACT

3.1 Abstract of the Data Set

The primary function of the stream benthos data are to provide a snapshot of the benthos assemblage present in the stream at the time of sampling. The benthos community represents an integral component of stream biological integrity.

3.2 Keywords for the Data Set

Benthos assemblage, benthos community, benthos species identification

4. OBJECTIVES AND INTRODUCTION

4.1 Program and Project Objectives

4.1.1 Program Objective

The Regional Environmental Assessment and Monitoring Program (R-EMAP) was initiated to test the applicability of the EMAP approach to answer questions about ecological conditions at regional and local scales. Using EMAP's statistical design and indicator concepts, R-EMAP conducts projects at smaller geographic scales and in shorter time frames.

4.1.2 Project Objective

The objectives of Region 10 1994-1995 Washington/Oregon Coastal Streams and Yakima Basin Streams R-EMAP project were to:

1. Determine the ecological condition of wadeable, 1st-order through 3rd-order streams of the Coast Range Ecoregion and the Yakima River Basin (Columbia Basin Ecoregion).
2. Determine the relationship between the ecological condition of these streams and the predominant land used of the watersheds.
3. Provide the states of Washington and Oregon with information that would assist in the development of water quality biological criteria using indices based on fish/amphibian and invertebrate taxa assemblage information.
4. Determine the applicability of EMAP-derived methods for assessments of ecological condition within streams in the states of Washington and Oregon.

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 multi-habitat sample of the benthos assemblage taken during spring low-flow.

4.3 Data Set Background Discussion

The benthos community within a stream is an integral component of stream biological integrity. This data set contains a list of species and counts of numbers of individuals of each species collected at each stream sampled.

4.4 Summary of Data Set Parameters

Composite benthic macroinvertebrate parameters include taxonomic name of invertebrates identified in the sample to lowest taxonomic level possible, primary and secondary trophic group function codes, quantity identified in sample, and the Pollution Tolerance Value for the identified taxa.

5. DATA ACQUISITION AND PROCESSING METHODS

5.1 Data Acquisition

5.1.1 Sampling Objective

To collect representative samples of benthic macroinvertebrates from the study streams.

5.1.2 Sample Collection Methods Summary

Benthic macroinvertebrates were collected using a fine-mesh (500 micron) D-frame kick net. One kick sample (0.186 square meter; 2 square feet) was collected at each transect and designated by its dominant habitat as either "pool" or "riffle". A composite sample was created by mixing all kicks from pools; another was created by mixing all kicks from riffles.

5.1.3 Sampling Start Date

May 1994
May 1995

5.1.4 Sampling End Date

Oct 1994
Sept 1995

5.1.5 Platform

NA

5.1.6 Sampling Equipment

D-frame kick net with 500 micron mesh openings and closed bag, pole attachment for kick net sampler (four foot length), spare nets for kick net sampler or extra sampler, sieve bucket with 500 micron mesh openings, two plastic with eight to ten quart capacity, forceps, wash bottle, ethanol, funnel, small spatula.

5.1.7 Manufacturer of Sampling Equipment

NA

5.1.8 Key Variables

NA

5.1.9 Sampling Method Calibration

NA

5.1.10 Sample Collection Quality Control

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.

Hayslip, G. A. (editor). 1993. EPA Region 10 In-stream Biological Monitoring Handbook (for wadeable streams in the Pacific Northwest). U. S. Environmental Protection Agency - Region 10, Environmental Services Division, Seattle, WA 98101. EPA-910/9-92-013.

Merritt, G.D. 1994. Biological Assessment of wadeable Streams in the Coast Range Ecoregion and the Yakima River Basin: Final Quality Assurance Project Plan. Washington State Department of Ecology, Environmental Investigations and Laboratory Services, Olympia, WA, 15 pp.

5.1.11 Sample Collection Method Reference

Hayslip, G. A. (editor). 1993. EPA Region 10 In-stream Biological Monitoring Handbook (for wadeable streams in the Pacific Northwest). U. S. Environmental Protection Agency - Region 10, Environmental Services Division, Seattle, WA 98101. EPA-910/9-92-013.

Hayslip, G., D.J. Klemm, J.M. Lazorchak. 1994. Environmental Monitoring and Assessment Program Surface Waters and Region 10 Regional Environmental Monitoring and Assessment Program: 1994 Pilot Field Operations and Methods Manual for Streams on the Coast Range Ecoregion of Oregon and Washington and the Yakima River Basin. Office of Research and Development, U.S. Environmental Protection Agency, Cincinnati, OH.

Plafkin, J.L., M.T. Barbour, K.D. Porter, S.K. Gross, and R.M. Hughes. 1989. Rapid Bioassessment Protocols for Use in Streams and Rivers: Benthic Macroinvertebrates and Fish. EPA 440/4-89/001. U.S. Environmental Protection Agency, Office of Water, 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 Hayslip et al. (1994) and Hayslip (1993).

5.2.2 Sample Processing Methods Summary

See Hayslip et al. (1994) and Hayslip (1993).

5.2.3 Sample Processing Method Calibration

See Hayslip et al. (1994) and Hayslip (1993).

5.2.4 Sample Processing Quality Control

See Chaloud and Peck (1994), Merritt (1994), and Hayslip (1993).

5.2.5 Sample Processing Method Reference

See Hayslip et al. (1994) and Hayslip (1993).

6. DATA MANIPULATIONS

6.1 Name of New or Modified Values

NA

6.2 Data Manipulation Description

NA

6.3 Data Manipulation Examples

NA

7. DATA DESCRIPTION

7.1 Description of Parameters

#	Parameter	Data SAS Name	Type	Len	Format	Parameter Label
3	COM_BENT	Char		40		Comment field
1	DATE_COL	Num		8	DATE	Date sample Collected
6	FLOWTYPE	Char		8		Stream Habitat P)ool,R)iffle,C)omposite
14	LAT_DD	Num		8		Latitude (decimal degrees)
13	LON_DD	Num		8		Longitude (decimal degrees)
7	QTY	Num		8		Quantity
12	SAMPLED	Char		30		Site Sampled Code
11	STORET	Num		8		Stream id number from STORET
10	STRMNAME	Char		45		Stream name
5	STRM_ID	Char		8	\$	EMAP Stream Identifier
4	TAXACODE	Char		20		Taxa code used by each lab
2	TAXANAME	Char		40		Taxa Name
9	VISIT_NO	Num		8	F	Sample Visit Number
8	YEAR	Num		8		Year sampled

7.1.1 Precision to which values are reported

7.1.2 Minimum Value in Data Set

```
Name      Min
-----
DATE_COL  05/16/1994
LAT_DD    42.1114
LON_DD    -124.5862217
QTY       1
STORET    405013
VISIT_NO  1
YEAR      1994
```

7.1.3 Maximum Value in Data Set

```
Name      Max
-----
DATE_COL  09/29/1995
LAT_DD    48.1784
LON_DD    -119.5619
QTY       844
STORET    412212
VISIT_NO  3
YEAR      1995
```

7.2 Data Record Example

7.2.1 Column Names for Example Records

```
"COM_BENT", "DATE_COL", "FLOWTYPE", "LAT_DD", "LON_DD", "QTY", "SAMPLED", "STORET",
"STRMNAME", "STRM_ID", "TAXACODE", "TAXANAME", "VISIT_NO", "YEAR"
```

7.2.2 Example Data Records

```
" ", 21JUL1995, "P", 45.991677169, -122.8964313, 20, "Yes", 405270,
"S.F. GOBLE CREEK AT RM 0.9", "OR001S", "CHI140", "Brillia", 1, 1995

" ", 21JUL1995, "P", 45.991677169, -122.8964313, 9, "Yes", 405270,
"S.F. GOBLE CREEK AT RM 0.9", "OR001S", "CRU720", "Caecidotea", 1, 1995

" ", 21JUL1995, "P", 45.991677169, -122.8964313, 3, "Yes", 405270,
"S.F. GOBLE CREEK AT RM 0.9", "OR001S", "EPH130", "Centroptilum", 1, 1995
```

8. GEOGRAPHIC AND SPATIAL INFORMATION

8.1 Minimum Longitude

-124 Degrees 35 Minutes 10 Seconds West (-124.5862217 Decimal Degrees)

8.2 Maximum Longitude

-119 Degrees 33 Minutes 42 Seconds West (-119.5619 Decimal Degrees)

8.3 Minimum Latitude

42 Degrees 6 Minutes 41 Seconds North (42.1114 Decimal Degrees)

8.4 Maximum Latitude

48 Degrees 10 Minutes 42 Seconds North (48.1784 Decimal Degrees)

8.5 Name of Area or Region

EPA Region 10

The sampling area included the Coast Range Ecoregion and the Yakima River Basin (Columbia Basin Ecoregion).

9. QUALITY CONTROL / QUALITY ASSURANCE

9.1 Data Quality Objectives

See Chaloud and Peck (1994), Merritt (1994), and Hayslip (1993).

9.2 Quality Assurance Procedures

See Chaloud and Peck (1994), Merritt (1994), and Hayslip (1993).

9.3 Unassessed Errors

NA

10. DATA ACCESS

10.1 Data Access Procedures

Download data from the WWW site or contact personnel in Section 10.3.

10.2 Data Access Restrictions

Data can only be accessed from the WWW server.

10.3 Data Access Contact Persons

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10.4 Data Set Format

Data files are in ASCII comma-delimited format.

10.5 Information Concerning Anonymous FTP

Data cannot be accessed via ftp.

10.6 Information Concerning WWW

Data can be downloaded from the WWW site.

10.7 EMAP CD-ROM Containing the Data

Data are not available on CD-ROM.

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.

Hayslip, G. A. (editor). 1993. EPA Region 10 In-stream Biological Monitoring Handbook (for wadeable streams in the Pacific Northwest). U. S. Environmental Protection Agency - Region 10, Environmental Services Division, Seattle, WA 98101. EPA-910/9-92-013.

Hayslip, G., D.J. Klemm, J.M. Lazorchak. 1994. Environmental Monitoring and Assessment Program Surface Waters and Region 10 Regional Environmental Monitoring and Assessment Program: 1994 Pilot Field Operations and Methods Manual for Streams on the Coast Range Ecoregion of Oregon and Washington and the Yakima River Basin. Office of Research and Development, U.S. Environmental Protection Agency, Cincinnati, OH.

Merritt, G.D. 1994. Biological Assessment of wadeable Streams in the Coast Range Ecoregion and the Yakima River Basin: Final Quality Assurance Project Plan. Washington State Department of Ecology, Environmental Investigations and Laboratory Services, Olympia, WA, 15 pp.

Plafkin, J.L., M.T. Barbour, K.D. Porter, S.K. Gross, and R.M. Hughes. 1989. Rapid Bioassessment Protocols for Use in Streams and Rivers: Benthic Macroinvertebrates and Fish. EPA 440/4-89/001. U.S. Environmental Protection Agency, Office of Water, Washington, D.C.

12. TABLE OF ACRONYMS

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