FROM THE MOUNTAINS TO THE SEA: GETTING THE WORD OUT ON THE HEALTH OF MARYLAND'S STREAMS

Dan Boward, Scott Stranko, Ron Klauda

Maryland Department of Natural Resources
Annapolis, Maryland

National Monitoring Conference
May 19, 2008

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Maryland Biological Stream Survey

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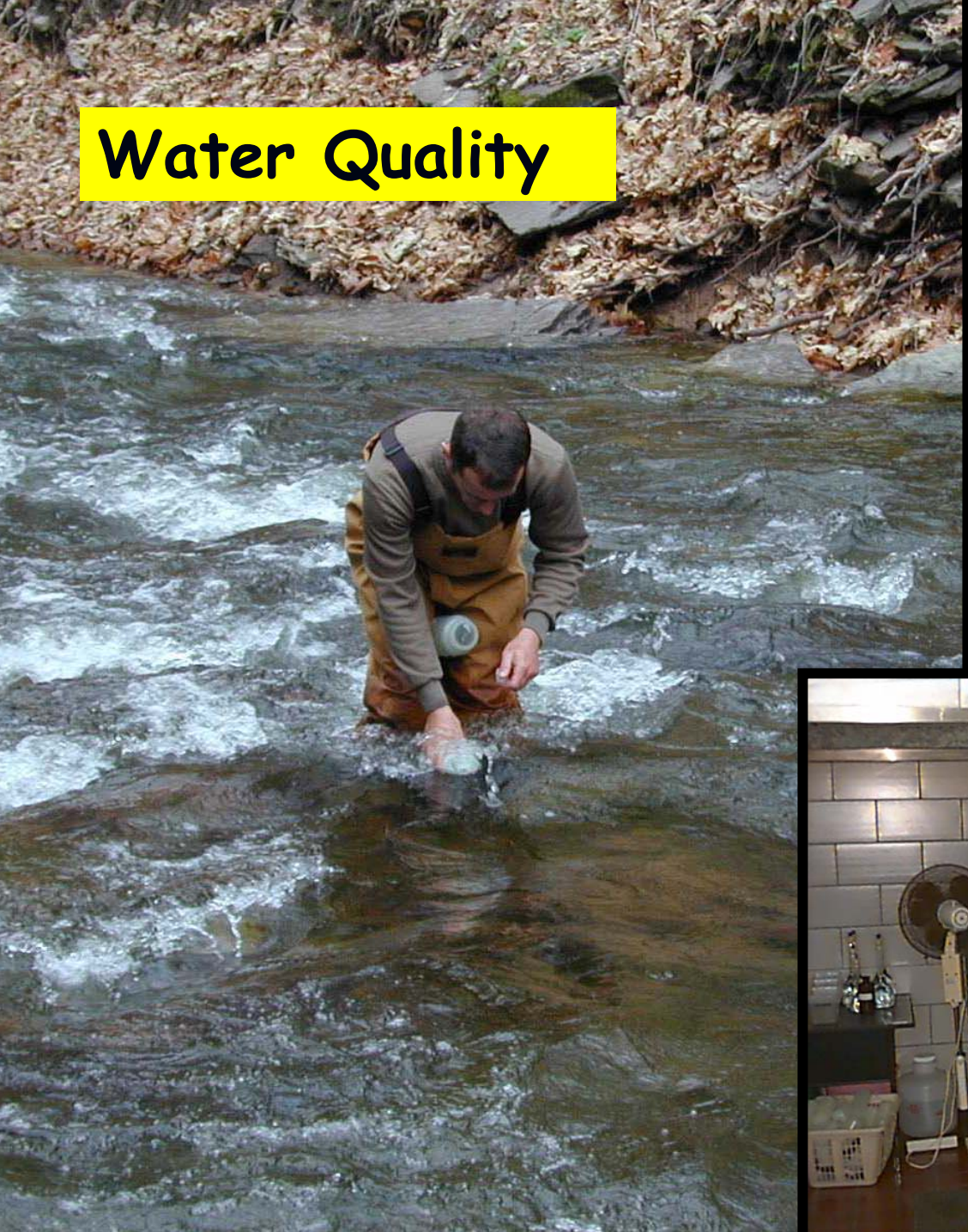
Water Quality



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Physical Habitat

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Benthos

Fish
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1995-2008 MBSS

- 3,000 sites (most are random)
- Sentinel Site Network
- Multiple data uses
  - Regulation
  - GCN species
  - Monitoring restoration and protection
  - Research

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MARYLAND STREAM WADERS VOLUNTEERS

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2000 - 2008 Stream Waders

- 5,000 samples
- 50 teams/year
- 1,200 volunteers
- Multiple uses
  - Support MBSS
  - Watershed management/planning
  - Education/stewardship

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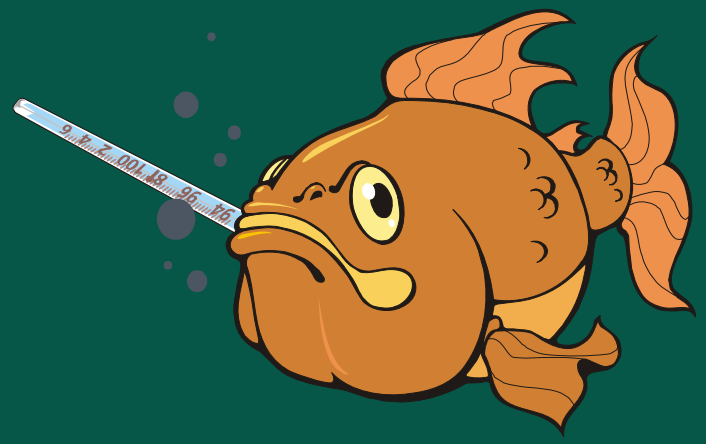
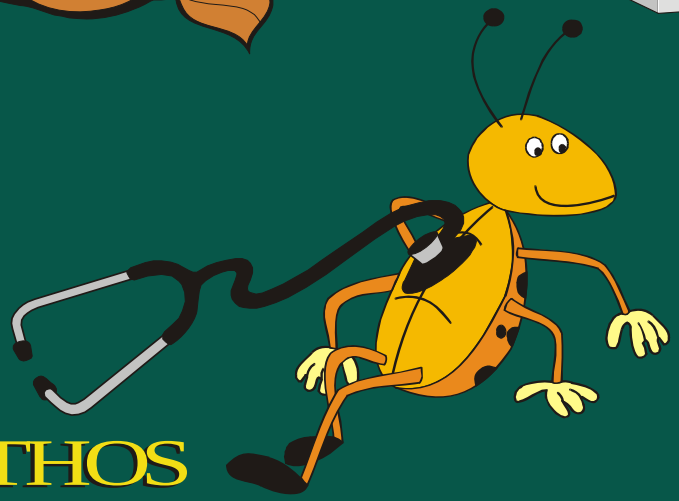
INDICATORS

HERPETOFAUNA
(IN DEVELOPMENT)

FISH



HABITAT



BENTHOS

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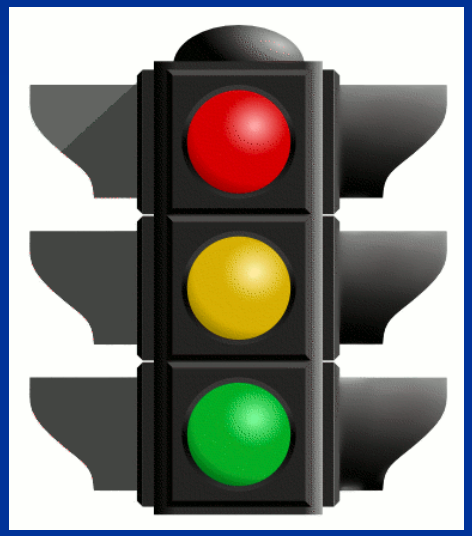
MBSS and Stream Waders IBI



Good	4.0 – 5.0
Fair	3.0 – 3.9
Poor	1.0 – 2.9

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Maintaining Transparency

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MBSS and Stream Waders Customers

Local governments
Other state governments
Federal government (especially EPA!)
Researchers (many graduate students)
Consultants
Watershed organizations
Citizen monitors
Primary and secondary school kids and teachers

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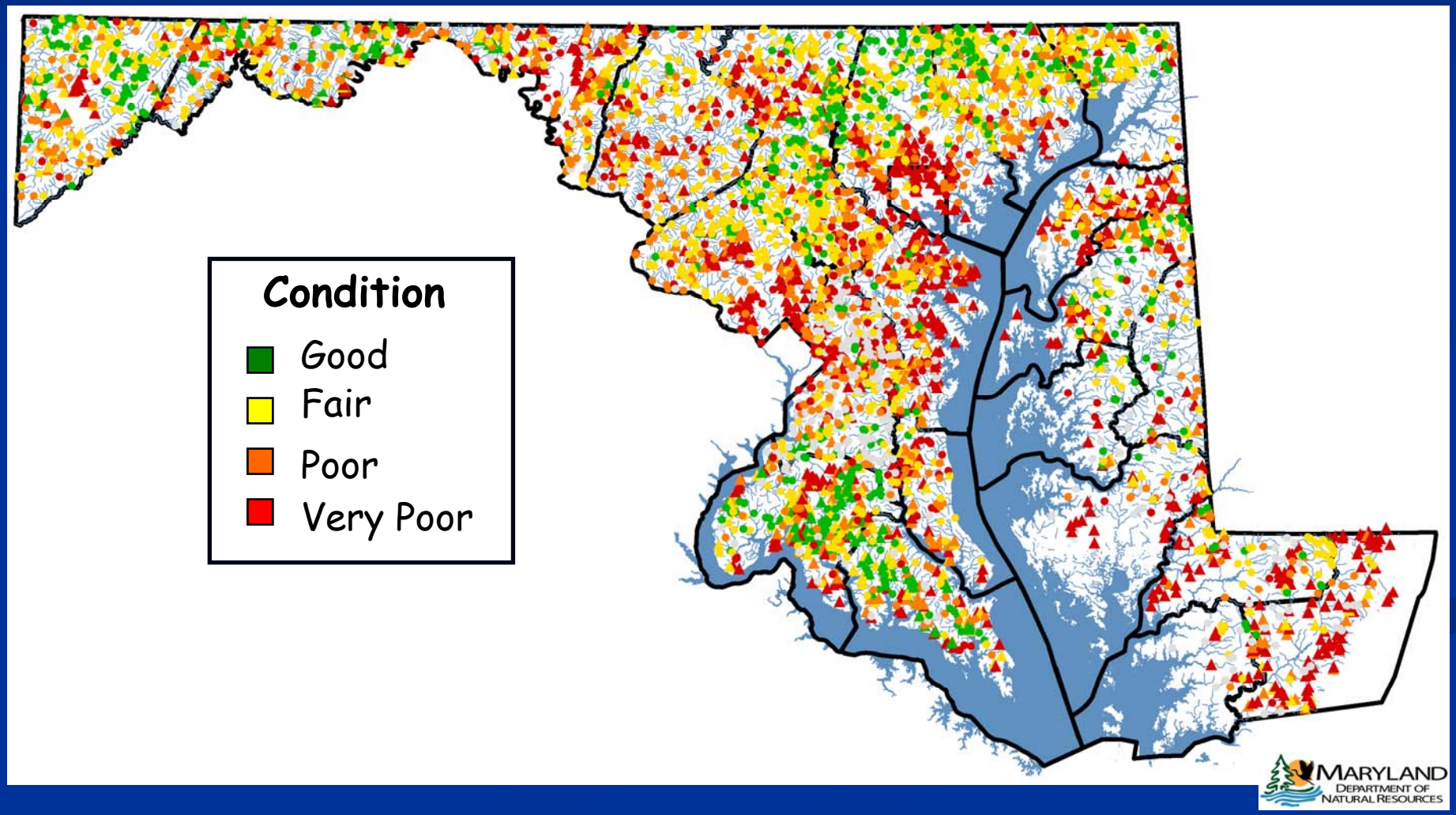
MBSS and Stream Waders 1995-2007



Water flows downhill in streams and Chesapeake Bay is at the bottom

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Why Are Headwater Streams Important?

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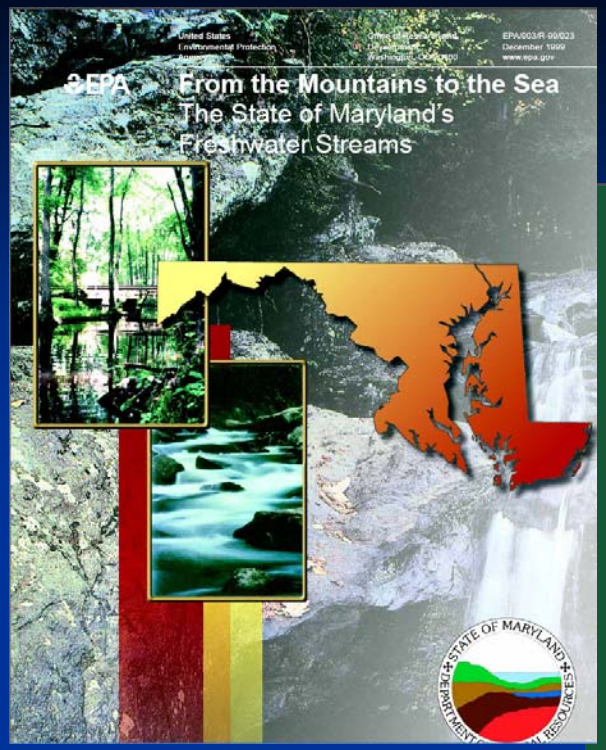
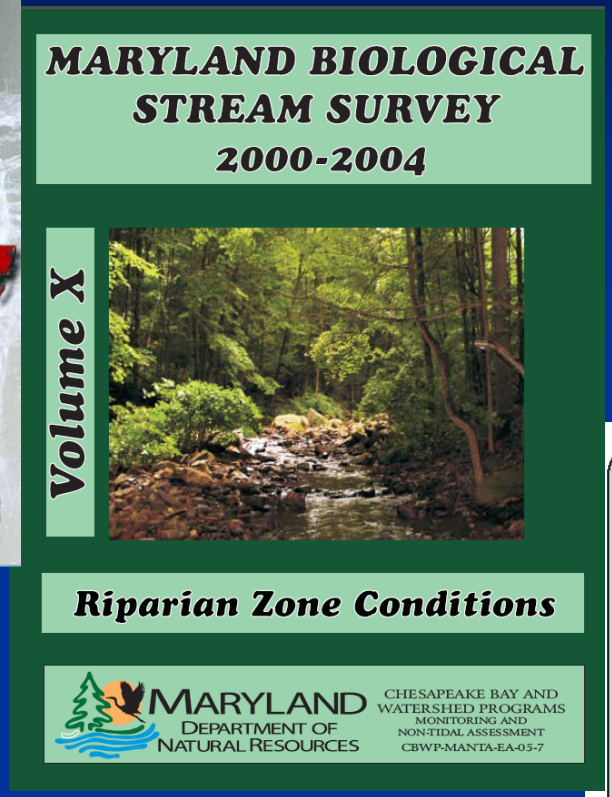

EPA
From the Mountains to the Sea
The State of Maryland's
Freshwater Streams
STATE OF MARYLAND
DEPARTMENT OF NATURAL RESOURCES


MARYLAND BIOLOGICAL
STREAM SURVEY
2000-2004
Volume X
Riparian Zone Conditions
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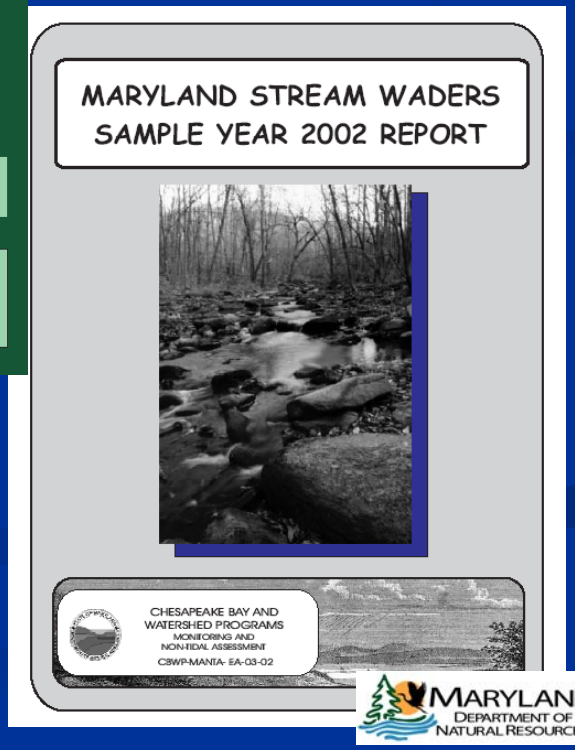
CHESAPEAKE BAY AND
WATERSHED PROGRAMS
MONITORING AND
NON-TIDAL ASSESSMENT
CBWP-MANTA-EA-05-7


MARYLAND STREAM WADERS
SAMPLE YEAR 2002 REPORT
CHESAPEAKE BAY AND
WATERSHED PROGRAMS
MONITORING AND
NON-TIDAL ASSESSMENT
CBWP-MANTA- EA-03-02
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MBSS Results Printed in 15 Reports

1 – 5 Annual assessments of watersheds sampled (2000-2004)
6 Laboratory, Field and Analytical Methods
7 Statewide and Basin Conditions
8 County Results
9 Aquatic Biodiversity
10 Riparian Zone Condition
11 Sentinel Site Network
12 Changes in Condition
13 Fishery Resources
14 Stressors Affecting Maryland Streams
15 Monitoring for Results

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Talking to Landowners

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Working with Local Governments

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EPA United States Environmental Protection Agency

Pilot Study for Montgomery County and Maryland DNR Data Integration: Comparison of Benthic Macroinvertebrate Sampling Protocols for Freshwater Streams

County/MBSS Methods Comparison

MWMC maryland water monitoring council

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Educational Materials

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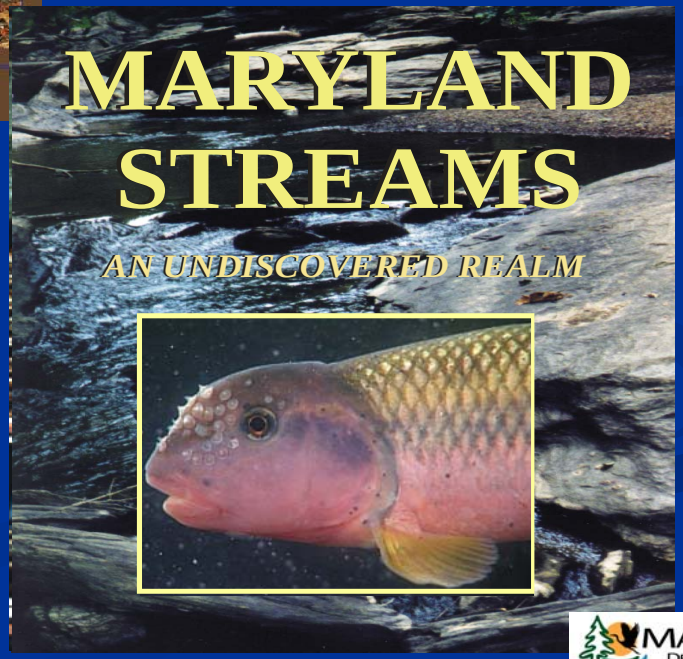

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Training, Training, and more Training

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EM 10C/CR
EX-L
EX-L
Freshwater
Northeastern
North America
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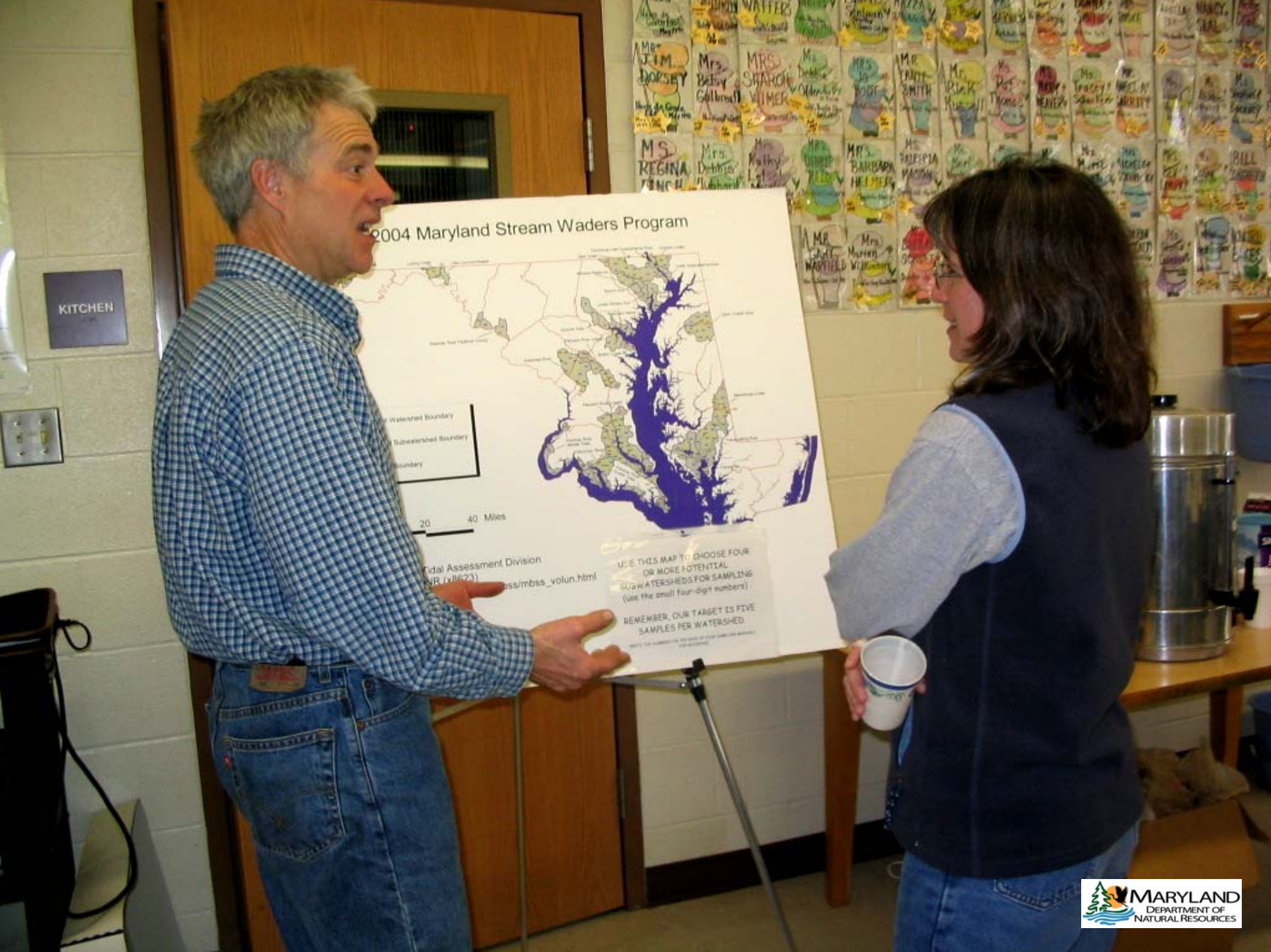
2004 Maryland Stream Waders Program
KITCHEN
20
40 Miles
USE THIS MAP TO CHOOSE FOUR OR MORE POTENTIAL SUBWATERSHEDS FOR SAMPLING (use the small four-digit numbers)
REMEMBER, OUR TARGET IS FIVE SAMPLES PER WATERSHED
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Data via the Web

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Download MBSS Data Survey (Form) - Windows Internet Explorer

http://mddnr.chesapeakebay.net/mbss/survey.cfm

File Edit View Favorites Tools Help

Download MBSS Data Survey (Form)

Home Feeds (J) Print Page Tools

MBSS Data Download Questionnaire

Before you download the data, could you please help us to serve you better by answering the following?

Your comments and identity are confidential. We value your feedback and thank you for your time.

I am a:

- Teacher Choose One
- Student Choose One
- Government employee Choose One
- Consultant
- Curious Citizen

I plan to use the data for Choose one

I reside in

- Maryland Choose County
- Not in Maryland Select State/Province

Any additional comments about the data or the website, please enter them in the box below. Thank You.

Replace this text with your comments.

Submit now Reset form

Need help or have suggestions? Please contact: Ann Schenk at aschenk"at"dnr.state.md.us

410-260-8609 (voice)
877-620-8367 x 8609 (toll free)

Go back to the MBSS website

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This page was updated on 1/9/2008

Maryland Biological Stream Survey - data search

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MARYLAND BIOLOGICAL STREAM SURVEY

About the MBSS

Fish Distributions

Your Feedback

Search by:

County:
Cecil County

Stream name:
(avoid using terms like "creek" or "branch")

Major River basin:

Site name:

8 Digit watershed code:

8 Digit watershed name:

Search

Search tips: **Use only one search field at a time.**

Searches using multiple fields will require that BOTH search conditions be met. This is a good way to find specific conditions.

Some examples:

- If no search terms are entered, you will recieve a list of EVERY site sampled by the MBSS.
- A search on **Patuxent** in the **stream name** field returns 61 different monitoring sites!
- If **Patuxent** and **Anne Arundel County** are selected, only 10 results will be displayed.
- Want more search tips?

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MBSS Search Results

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MARYLAND BIOLOGICAL STREAM SURVEY

New Search

Search Tips

About the MBSS

Fish Distributions

Your Feedback

Round 2 (2000-2002) MBSS data Search Results

Site	County	Basin	Watershed name	Stream Name
BELK-110-R-2003	CE	ELK RIVER	Big Elk Creek	gramies run
BELK-116-R-2003	CE	ELK RIVER	Big Elk Creek	big elk cr ut1
BELK-301-X-2000	CE	ELK RIVER	Upper Elk River	big elk cr
BOHE-105-R-2003	CE	ELK RIVER	Bohemia River	little bohemia cr ut1
BOHE-113-R-2003	CE	ELK RIVER	Bohemia River	little bohemia cr ut1
CHRI-104-R-2003	CE	ELK RIVER	Christina River	persimmon run
FURN-101-C-2000	CE	ELK RIVER	Furnace Bay	winch run (buck swamp cr)
FURN-101-S-2001	CE	ELK RIVER	Furnace Bay	principio cr ut2
FURN-101-S-2002	CE	ELK RIVER	Furnace Bay	principio cr ut2
FURN-101-S-2003	CE	ELK RIVER	Furnace Bay	principio cr ut2
FURN-101-S-2004	CE	ELK RIVER	Furnace Bay	principio cr ut 2
FURN-118-R-2001	CE	ELK RIVER	Furnace Bay	principio cr
FURN-119-R-2001	CE	ELK RIVER	Furnace Bay	principio cr ut1
LIEL-312-R-2003	CE	ELK RIVER	Little Elk Creek	little elk cr
LIEL-318-R-2003	CE	ELK RIVER	Little Elk Creek	little elk cr
LIEL-325-R-2003	CE	ELK RIVER	Little Elk Creek	little elk cr
LSUS-104-R-2004	CE	SUSQUEHANNA RIVER	L Susquehanna River	susquehanna r ut 1
LSUS-109-R-2004	CE	SUSQUEHANNA RIVER	L Susquehanna River	susquehanna r ut 2
LSUS-117-R-2004	CE	SUSQUEHANNA RIVER	L Susquehanna River	mill cr chesapeake bay
LSUS-119-R-2004	CE	SUSQUEHANNA RIVER	L Susquehanna River	happy valley br
LSUS-292-E-2004	CE	SUSQUEHANNA RIVER	L Susquehanna River	mill cr chesapeake bay
NEAS-103-R-2001	CE	ELK RIVER	Northeast River	west br (of northeast cr)

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Data Summary for: BOHE-105-R-2003

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MARYLAND BIOLOGICAL STREAM SURVEY

New Search

Search Tips

About the MBSS

Fish Distributions

Your Feedback

BOHE-105-R-2003 is located on **little bohemia cr ut1** in the Bohemia River watershed, 8-digit code: (02130602). This stream was visited in the spring on 4-14-2003 and again in the summer on 7-29-2003.

Fish IBI	4.33	**Good**
Benthic IBI	3.57	**Fair**

Catchment area	1871.1 acres
Urban	2.3 %
Agricultural	86.0 %
Forest	11.3 %
Amphibians and Reptiles	
COMMON MUSK TURTLE	
GREEN FROG	
NORTHERN WATER SNAKE	

Instream Habitat	14.0 (Suboptimal)
Epifaunal Substrate	13.0 (Suboptimal)
Velocity/Depth Diversity	13.0 (Suboptimal)
Pool Quality Pool Extent = 43.0 of 75.0 meters	13.0 (Suboptimal)
Riffle Quality Riffle Extent = 45.0 of 75.0 meters	16.0 (Optimal)
Shading	20.0 %
Embeddedness	100.0

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The following fishes were collected at BOHE-105-R-2003

Common name	Percent of total
MUMMICHOG	33.8
AMERICAN EEL	19.7
TESSELLATED DARTER	16.2
SPOTTAIL SHINER	9.2
BLUESPOTTED SUNFISH	5.4
GOLDEN SHINER	5.4
BLUEGILL	2.9
GREEN SUNFISH	1.9
CREEK CHUBSUCKER	1.6
EASTERN MUDMINNOW	1.0
LEAST BROOK LAMPREY	1.0
MOSQUITOFISH	1.0
WHITE PERCH	0.6
STRIPED BASS	0.3

Fish IBI metrics	value
Number of native sp.	fibiq.nspecxi
Number of benthic fish sp.	2.0
% abundance of dominant sp.	fibiq.pabdom%
Percentage of tolerant sp.	fibiq.ptol%
biomass (g) per sq. meter	18.6

What does the Fish IBI score mean?

The IBI score is a quantitative rating of the health of the fish assemblage found at each site. A relatively high number of native fish species (2.0) were observed at this site. Higher diversity of native fishes is often associated with better stream quality.

The following benthic macroinvertebrates were collected at BOHE-105-R-2003

Name of organism	Percent of total
Polypedilum, (non-biting midge)	43.2
Chaetocladius, (non-biting midge)	14.4
Dicrotendipes, (non-biting midge)	4.2
Phaenopsectra, (non-biting midge)	4.2
Caenis,	3.4

The Benthic Index of Biotic integrity (BIBI) has recently been updated, and bibi metric information for individual sites is currently not available on the web.

More information about the Benthic IBI is available in the online PDF document:
Development of a Benthic Index of Biotic Integrity for Maryland Streams

Information disclaimer: The information and data on this page is for guidance and general planning purposes only. It should not be used to make decisions on specific matters.

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Give Us Feedback!

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Streams Symposia (1999 and 2005)

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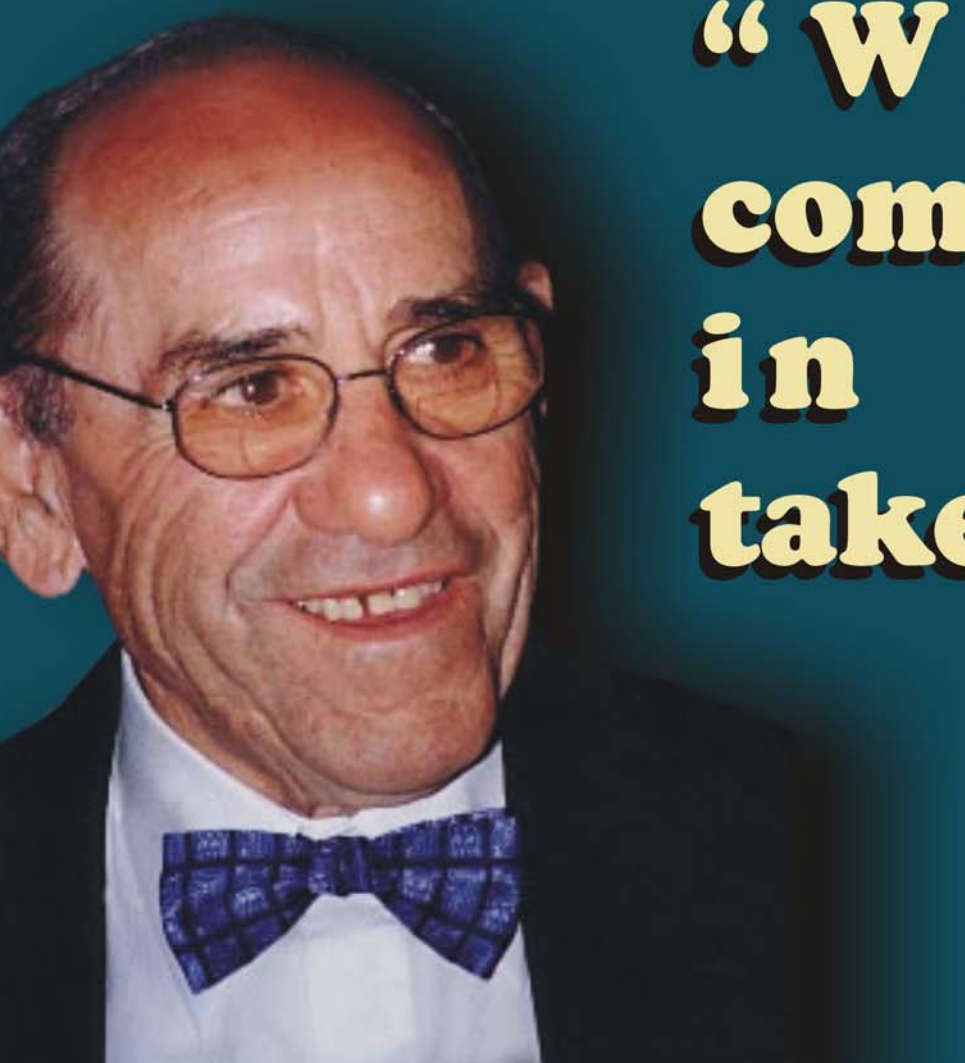
SOUND PLANS MUST BE SPECIFIC



"When you come to a fork in the road, take it."

- Yogi Berra

It's Not all Random!

- Watershed restoration monitoring
- Effects of development
- Monitoring climate change
- Endocrine disrupting chemicals
- Refine the 303(d) list
- Where are all the good streams?

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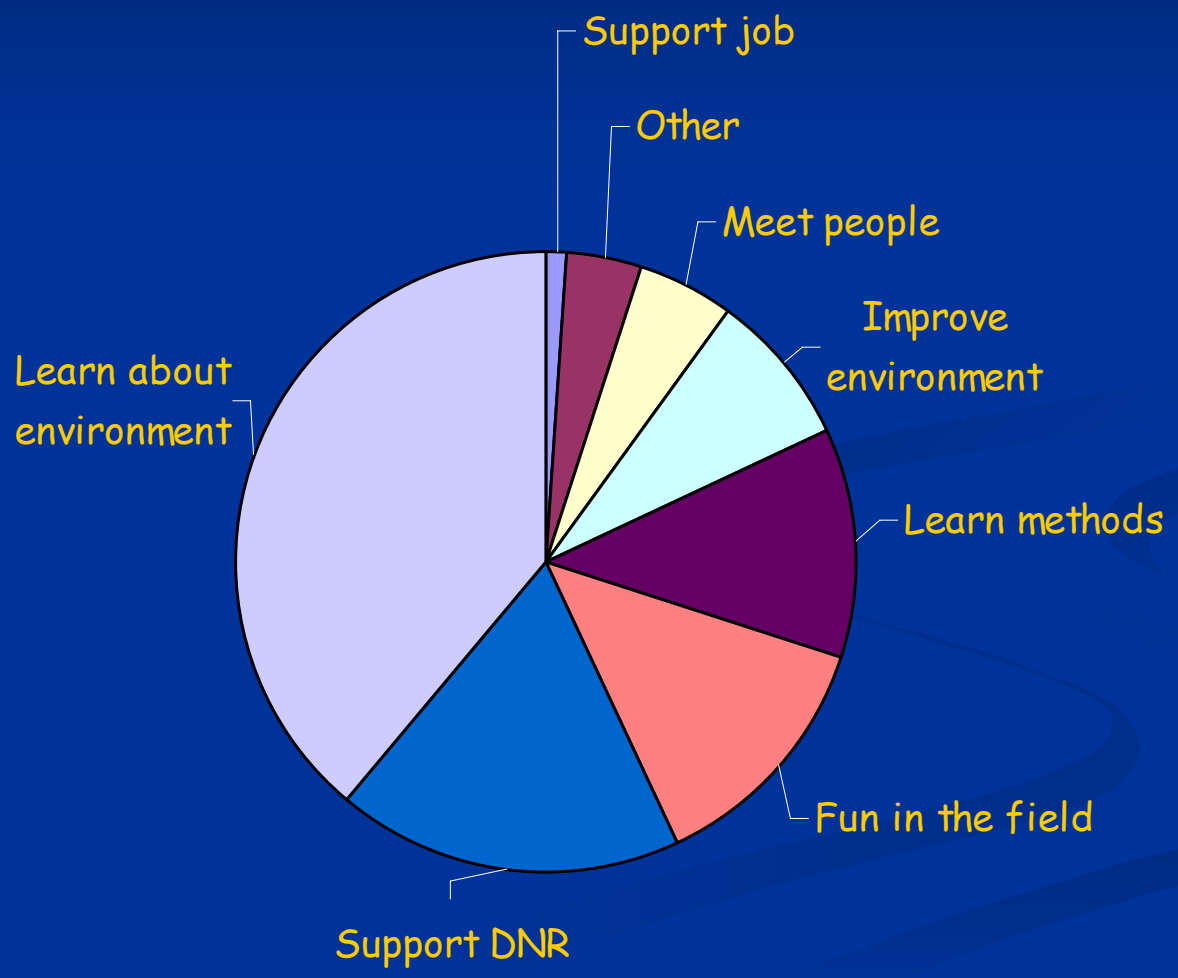
Why did you Volunteer?



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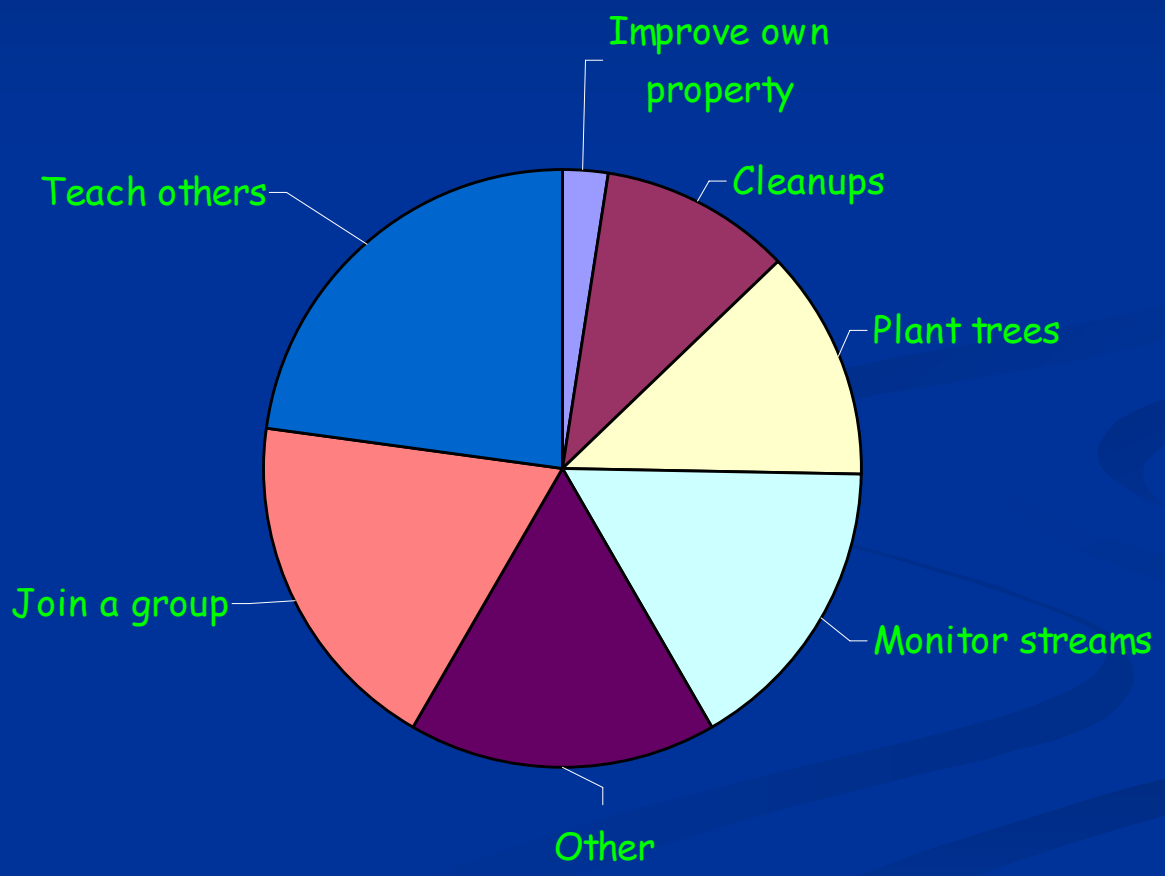
What did you do after volunteering?



More Information?

Google:

MBSS or Maryland Stream Waders

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