

Governor O'Malley's "Explore and Restore Your Schoolshed" Initiative
Teacher Professional Development

Elementary Version

October 1, 2014

Held at the Anita C. Leight Estuary Center at Otter Point Creek
700 Otter Point Road, Abingdon, MD 21009

WORKSHOP AGENDA

OBJECTIVES:

As a result of this workshop, **teachers** will be able to:

1. Identify a variety of stream study investigation activities they can conduct with their students.
2. Describe how stream study/action can be integrated into various subject areas in their school.
3. Recognize *FieldScope* as a tool to help students share data and analyze the health of their stream and its surrounding watershed.
4. Understand how they can use observations and data on water quality measures to guide their students toward taking action to help improve (or protect) their local stream.
5. Plan classroom and field issues investigations and a stewardship action project with students.

And ultimately, **students** will be able to:

1. Locate a local stream using mapping tools, visit it and investigate its features.
2. Identify the watershed that drains to the stream and some physical properties of the watershed that indicate the health of the stream.
3. Describe how human actions on the land can change water quality and aquatic habitat; describe some ways that this affects living resources such as fish.
4. Conduct scientific investigations and collect data to determine stream health using biological, chemical and physical assessments.
5. Share their field-collected data through an online, GIS-based mapping tool, and use the tool to view and analyze data over time and in other locations.
6. Use their data and observations to plan a project to address pollution or other stresses on the health of their stream, or to protect a healthy stream; and carry out that project.

Sample essential questions to guide student investigations:

- What human actions on land affect the health of our streams and Chesapeake Bay?
- How do these human actions impact the health of the water?
- How healthy (or how polluted) is our local stream?
- What can we do to help improve or protect the health of our stream?
- What lives in the stream in my neighborhood and what does that tell me about the quality of water in the stream?

Thank you to the Anita C. Leight Estuary Center for hosting us today!

AGENDA ~ Elementary ~ October 1, 2014

7:30 – 8:00 Arrive – coffee and light morning refreshments provided

8:00 – 9:15 **Introduction**

- **Welcome, Introductions, Overview** -- What you need to know about accessing your stream – *Britt Slattery, DNR, Conservation Education and Stewardship*
- **Basic Stream Ecology** and introduction to macroinvertebrates – *Dan Boward and Sara Weglein, DNR Maryland Biological Stream Survey (MBSS)*

9:15 – 12:05 **Outside Time! Hands-on Stream Study:**

Participants will work in smaller groups at the stream, rotating among three stations, to learn about conducting different types of stream health assessment (physical, biological and chemical).

- Stream Features and Habitats Investigation, and Flow Race (velocity) – *Dan Boward, DNR MBSS and Amanda Sullivan, DNR Education Specialist*
- Identifying Macroinvertebrates and other aquatic inhabitants – *Sara Weglein, DNR*
- Measuring Water Conditions and Chemical Water Quality Testing – *Coreen Weilminster, DNR, Chesapeake Bay National Estuarine Research Reserve in Maryland (CBNERR-MD), Education Coordinator*

12:05 – 12:35 **LUNCH, brown bag**

12:35 – 2:30 **Turning Student Observation into Action:**

Leaders from the field stations will review with participants the data and observations collected in the morning, and what the findings may mean in terms of the water quality and the watershed that surrounds the stream. Participants will be introduced to National Geographic Society's FieldScope tool and how to use it to study the watershed and share and analyze data in the classroom. How can all of this be used to help determine an action project that will help to improve stream health over time?

- Data review and Connections to the Watershed – *Amanda Sullivan, DNR, with presenters from the field activities*
- Using National Geographic's **FieldScope** online tool to enhance learning – *Trystan Sill, DNR, CBNERR-MD, Education Specialist*
- Action Projects – How to use the stream conditions discovered to determine effective solutions and ideas for student stewardship projects – *Britt Slattery, DNR*

2:30 – 3:45 **Planning your "Schoolshed" Unit:**

Participants will reflect on how these field and classroom activities connect to the curriculum and how they fit well with new requirements, standards and practices; and become familiar with some resources for planning.

- Curriculum Connections and resources brainstorming – *Britt Slattery, DNR*
- Make Your Own Equipment – make a sample stream study tool to take home and use as a model for more activities for students – *Amanda Sullivan, DNR*

3:45 – 4:00 Discussion / Q&A / Adjourn

Thank you for participating today! Have fun with your students!