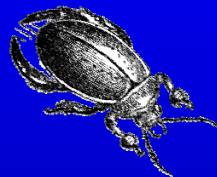


**Penn State Extension**

# **Dive Deeper**

**A multi-state environmental education summit  
spotlighting innovative teaching about water,  
for anyone who teaches youth about water**



## **Program**

**Thurs. September 27, 2012**

**8:30 A.M. - 3:30 P.M.**

**The Central Hotel & Conference Center  
Harrisburg, PA**

**[extension.psu.edu](http://extension.psu.edu)**

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**Cooperative Extension**  
*College of Agricultural Sciences*

# Agenda (a.m.)

8:30a.m.	<b>Registration &amp; Exhibits</b>	Atrium
9:00a.m.	<b>Opening Remarks:</b> <b>Sanford "Sandy" Smith</b> Who Are We and ...What Are We Doing Here Today?	Central A/B
9:15a.m.	<b>Keynote Speaker: Bryan Swistock</b> Current & Emerging Water Resources Issues in the Mid-Atlantic Region	Central A/B
10:00a.m.	<b>Keynote Speaker: Edward Bender</b> Inquiry-Based Learning - What's the Big Deal?	Central A/B
10:45a.m.	<b>Break</b>	
11:00a.m.	<b>Concurrent Sessions 1</b>	
	<b>The View from the River....Education Connections to Land and Community</b> Estelle Ruppert, Pennsylvania DCNR, Bureau of State Parks	Central A/B
	<b>Preparing Youth for Tomorrow's Jobs in the Water Industry</b> Bob Manbeck, United Water	Central D
	<b>Expedition Chesapeake</b> Lori Lauver, Whitaker Center for Science and the Arts	Central E
11:45a.m.	<b>Exhibits</b>	Ballroom Hallway

**Dive Deeper - Youth Water Educators Summit**  
**Thursday, September 27, 2012 - Harrisburg, PA**

# Agenda (p.m.)

12:00p.m.	<b>Lunch</b>	Central A/B
12:45p.m.	<b>Concurrent Sessions 2</b>	
	<b>Slimy Leaves for Clean Streams: The Leaf Pack Network</b>	Central A/B
	Christina Medved, Stroud Water Research Center	
	<b>What's an e-Forum? (and an Overview of PA Sea Grant Aquatic Resource Education Programs)</b>	Central D
	Vivian Williams & Judith Purnell, PA Sea Grant	
	<b>Watershed Decisions - A New Role-Playing Inquiry-Based Activity</b>	Central E
	Jennifer Fetter, Penn State Extension	
1:40p.m.	<b>Concurrent Sessions 3</b>	
	<b>Online Tools for Watershed Tours</b>	Central C
	Amy Hill, Pennsylvania DCNR - Bureau of State Parks	
	<b>Incorporating Citizen-Science Activities Into Your Program</b>	Central D/E
	Melinda Hughes-Wert, Nature Abounds	
2:25p.m.	<b>Break</b>	
2:40p.m.	<b>Joint Session: Jennifer Fetter Bringing it Home &amp; Making it Local</b>	Central A/B
3:15p.m.	<b>Closing Remarks: Christy Bartley</b>	Central A/B
3:30p.m.	<b>Adjourn</b>	



# Keynote Speakers:

## **Bryan Swistock, Penn State University - Water Resources Extension Specialist**

### **CURRENT & EMERGING WATER RESOURCES ISSUES IN THE MID-ATLANTIC REGION**

States in the Mid-Atlantic region are generally considered to be water-rich with abundant precipitation feeding thousands of miles of surface streams and trillions of gallons of underground aquifers. But, historical and current trends in mining, agriculture, development, and other intensive land use activities have created water resources challenges that have still not be adequately addressed on a regional level. Added to these existing problems are emerging issues related to shale gas drilling, climate change, and pharmaceuticals in water. This presentation will introduce each of these current and emerging water resources issues and discuss some relevant educational resources and gaps.

*Brian serves as a state Water Resources Extension Specialist through the Ecosystem Science and Management Department at Penn State University. He has a B.S. in Environmental Health from Indiana University of Pennsylvania, and a M.S. in Environmental Pollution Control from The Pennsylvania State University. For the past 25 years, he has conducted research and extension programs related to important statewide water issues including safe drinking water, Marcellus gas drilling, watershed management, water conservation, and climate change.*

Website: <http://extension.psu.edu/water>

## **Edward Bender, National 4-H Council & Penn State Extension - 4-H Science Manager of Professional Development and Partnerships**

### **INQUIRY-BASED LEARNING - WHAT'S THE BIG DEAL?**

Evaluation results indicate that inquiry-based teaching methods support youth in their learning of inquiry-based approaches to science, engineering, technology, and math. Inquiry-based methods have the largest effect, or make the greatest positive difference, when there is an emphasis on active learning and involvement in the investigative process. (Minor et al 2010) During this strategy session, the 4-H Science (STEM) mission will be explored, linking experiential learning to inquiry-based learning with youth in non-formal settings, all in the context of High Quality Positive Youth Development (HQPYD). From "Oooh-Ahhh" science to robotics, what are the trends in non-formal youth science education and what can we do to make sure that youth water education, along with all environmental education, stays in the forefront?

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*Edward is a Penn State Extension 4-H Educator and a member of the PA 4-H Science Leadership Team representing Professional Development, he also is the co-chair of the Pennsylvania 4-H Science statewide team of educators. In his 12+ years in extension he worked as the 4-H Coordinator in Adams County, attained a Senior Educator status, earned a Masters in Education in Training and Development at Penn State University and is currently working on a Masters in Educational Technology Integration through the World Campus. Duties include working as principal investigator or co-PI on the Lockheed Martin Robotics, JCP/FIRST Robotics, and BAE Science Grants. Ed is currently on temporary assignment with the National 4-H Council as the 4-H Science Manager of Professional Development and Partnerships and is focusing on developing online learning modules on inquiry-based learning and other topics that will support 4-H educators and our partners in 4-H Science.*

Website: <http://www.4-h.org/resource-library/professional-development-learning/science-training-guides-resources>

## Opening and Closing Remarks:

### **Sanford “Sandy” Smith, Penn State Extension - Extension Specialist & Senior Lecturer**

*Sandy is a state Extension Specialist for Penn State Extension. His professional and academic expertise is in natural resources education programs for youth, adult volunteerism in conservation and environmental education, and forest stewardship on private forestlands. Smith's primary job responsibilities include statewide leadership for 4-H & youth programming in natural and environmental resources, environmental curriculum development and evaluation, and applied research related to natural resources education and youth. He received his B.S. from the University of Maine, and M.S. and Ph.D. degrees from Penn State.*

### **Christy Bartley, Penn State Extension—Extension Program Leader, 4-H Youth Development**

*Christy has worked for Cooperative Extension for 23 years. She started her career as a county 4-H educator with a work interest in youth development in urban and suburban areas of Monroe and Northampton Counties. Christy was the Youth Program Coordinator for ten years, and accepted the position of 4-H Youth Development Program Leader in 2003. She teams with Extension Educators across the state to support program, professional, and resource development and volunteer leader training. Before coming to Extension, Christy taught high school biology and worked for several health and science publishing firms.*



# Concurrent Sessions 1:

**11:00-11:45 a.m.**

## **THE VIEW FROM THE RIVER....EDUCATION CONNECTIONS TO LAND AND COMMUNITY**

(Presented in Central A/B)

***Estelle Ruppert, Pennsylvania DCNR, Bureau of State Parks***

Step out of the water and look around you! You view a landscape that impacts every drop of water in that river. You view a landscape shaped by people, local governments, natural resources, economic growth, engineering, new technologies, and the needs of communities. This landscape has been shaped over time and every human action, magnified as a community - connects to the river. To understand the river, we must teach about the land and the communities that have the power to make laws and decisions that value the resources. To protect the river, we must teach about local government, civics, and stewardship as it pertains to sustainability for the present and the future. Join Estelle Ruppert, as she shares activities and resources from PLACE - People, Land, and Community Education, an educational initiative administered by State Parks that focuses on connections to STEM, Civics, and Environment and Ecology. Each participant will receive a 250 page guide called PA Land Choices which is full of information and activities on PA municipal government, service learning and conservation.

*Estelle Ruppert is a Natural Resource Program Specialist and Statewide Coordinator for P.L.A.C.E. - People, Land, and Community Education with Pennsylvania DCNR, Bureau of State Parks. An early focus of her work was developing watershed education and youth programs as the first Delaware River Watershed Coordinator for State Parks – hosting the Delaware River Youth Summit for over eight years, a program recognized as exemplary by the United Nations. During the past 15 years, she has developed nationally recognized programming in community conservation as the statewide coordinator and developer for "P.L.A.C.E." – People, Land, and Community Education -an award-winning initiative which connects science, civics, and service learning through place-based education.*

Website: [www.palandchoices.org](http://www.palandchoices.org)

## **PREPARING YOUTH FOR TOMORROW'S JOBS IN THE WATER INDUSTRY**

(Presented in Central D)

***Bob Manbeck, United Water***

This session will focus on United Water's perspective on jobs within the water and wastewater industry and associated requirements. Discussion will center on how curricula can be enhanced to prepare students for a

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variety of jobs within the industry and the importance of soft skills related to collaboration, interpersonal communications, and problem-solving. A video presentation will be shown highlighting an environmental preservation project involving high school students working with businesspeople to achieve a common objective.

*Bob Manbeck is Public Affairs Manager for United Water Pennsylvania, based near Harrisburg. He has managed communications and community, government and media relations for two large water suppliers over the past 20 years. Bob provides school presentations, interacts with elected and regulatory officials and conducts water facility tours for United Water. He is also active on the boards of several business and community organizations throughout the company's eight county regulated service area.*

Website: <http://unitedwater.com>

## **EXPEDITION CHESAPEAKE**

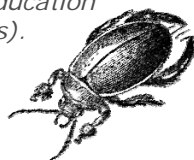
(Presented in Central E)

### ***Lori Lauver, Whitaker Center for Science and the Arts***

Expedition Chesapeake, a multi-faceted initiative of Whitaker Center for Science and the Arts, engages students in reflecting on the role of our nation's largest estuary using a project-based approach and a watershed-perspective designed for students in grades 8-10 and their teachers. During this workshop teachers will engage in proposed student learning experiences and have the opportunity to provide feedback on several educator resources currently in development for inclusion in educational modules for which all materials will be accessed via the project's website. Participants will receive draft lesson plans that can be implemented following the session. Feedback received during and following the sessions will shape the development of subsequent student and educator resources. We encourage participation in this workshop by current middle and high school teachers and informal educators.

*Lori Lauver has 21 years of experience in educational program development, implementation, administration and evaluation. During her career, Ms. Lauver has served as an adult educator, a 4-H/ Youth Programs Coordinator for Penn State Cooperative Extension in Juniata and Mifflin Counties, and, for the past 13 years, has served as the Director of Education at Whitaker Center. She holds a B.S. in Elementary Education (math and science emphasis), and a M.S. in Curriculum and Instruction, both from Penn State University. In addition to leading the educational program and materials development for Expedition Chesapeake, she is also responsible Surgery Live (a facilitated introduction to medical careers using videoconferencing technologies allowing interaction between high school students and surgical personnel during live surgical procedures) and PNC Grow Up Great With Science (extended science education professional development seminars for preschool educators).*

Website: [www.whitakercenter.org](http://www.whitakercenter.org)



# Concurrent Sessions 2:

**12:45-1:30 p.m.**

## **WHAT'S AN E-FORUM? (AND AN OVERVIEW OF PA SEA GRANT AQUATIC RESOURCE EDUCATION PROGRAMS)**

(Presented in Central D)

***Vivian Williams & Judith Purnell, PA Sea Grant***

From sailing classroom programs on Lake Erie to biodiversity and Marcellus Shale education programs in the Susquehanna to urban watershed education in the Delaware River watershed, Pennsylvania Sea Grant works to increase environmental literacy across Pennsylvania. This presentation will provide an overview of our offerings and an in-depth look at the Marcellus Shale E-Forum that was created especially for high school environmental science and biology students. This resource Website (<http://marcellus-e-forum.org>) and the related ShaleTalk moderated discussion group are designed to provide a student-driven investigation of the Marcellus Shale natural gas formation and the environmental and political issues that surround its development. Participation from classrooms in the Susquehanna watershed, and the geographic range of the Marcellus Shale formation, can converse to foster a community approach to problem solving and policy decisions about this challenging environmental issue.

*Judith Purnell is a Sea Grant Coastal Education Specialist with a wealth of experience teaching in the urban setting of the Chester Upland School District.*

*Vivian Williams is an Environmental Education Consultant for PA Sea Grant specializing in water resources, art and science, and natural history.*

Website: <http://www.pserie.psu.edu/seagrant/seagindex.htm>

## **WATERSHED DECISIONS - A NEW ROLE-PLAYING INQUIRY-BASED ACTIVITY**

(Presented in Central E)

***Jennifer Fetter, Penn State Extension***

Watershed Decisions was created to provide a hands-on, inquiry based activity that helps older youth learn about water quality issues surrounding small watersheds and the decision making processes that go into improving those water quality issues. As new members of a local community organization interested in improving local water quality; youth examine simulated water samples, explore the land users in their community, and then create a plan for improving their watershed on a limited budget. There is no one solution to this activity and the results are dependent upon the creativity, opinions, and ideas of the participants. This workshop will take you through the activity as participants.

*Jennifer is a Watershed/Youth Development Educator for Penn State Extension. Jennifer's current focus is developing an innovative pilot*



*program, 4-H Stream Teams, that teaches youth about water within their own small watershed and with a community service focus. Penn State Extension offers practical how-to education and problem-solving assistance based on university research and strives to help people make informed decisions to better their lives, businesses, and communities. Jennifer previously served Penn State Extension as a 4-H Youth Development Educator for Erie County. She studied at Villanova University where she earned both her bachelor's and master's degrees in Biology.*

Website: <http://ecosystems.psu.edu/youth/4-h-stream-teams-information>

## **SLIMY LEAVES FOR CLEAN STREAMS: THE LEAF PACK NETWORK**

(Presented in Central A/B)

***Christina Medved, Stroud Water Research Center***

For years, stream researchers have used slimy clumps of leaves, called leaf packs, to assess the health of a stream. More recently educators at the Stroud Center have used the same technique to train teachers and citizen volunteers on how to use leaf packs to study the life in – and assess the health of – their local streams. In the course of conducting the Leaf Pack Experiment, participants investigate local watershed issues, gather relevant ecological data (including macroinvertebrates), compare their data with those of other communities, recognize the importance of streamside forests, and learn how to use the new information to address local problems. All the data collected can be posted on the Leaf Pack Network® website ([www.stroudcenter.org/lpn](http://www.stroudcenter.org/lpn)), which is emerging as a rich web-based resource that provides, in addition to the data, information on macroinvertebrates, watershed research, riparian ecology, and water resources. This session will cover use of the Leaf Pack Experiment as a unique research tool for non-scientists and the valuable opportunities for inquiry-based, interdisciplinary watershed education available with the project framework. And, it all starts with an onion bag!

*Christina Medved is Education Programs Manager and Leaf Pack Network® Administrator at Stroud Water Research Center. Prior to SWRC, Christina was an Environmental Education Specialist and Field Instructor at the Cuyahoga Valley Environmental Education Center within Cuyahoga Valley National Park in Peninsula, OH. Her 12 years of experience in the field of environmental education have her working with students of all ages and developing and leading programs for schools, teachers and community outreach, such as teaching workshops in Peru and Costa Rica and most recently co-teaching an undergraduate class at Cabrini College in Radnor, PA. Christina also coordinated two watershed treks which engaged high schools students in tracing the entire length of their drinking water supply: Mountaintop to Tap, in 2007, traced New York City's drinking water supply and the Brandywine Trek, in 2011, followed the path of the historic Brandywine River flowing through PA and DE. Christina earned her B.S. in Environmental Science with a concentration in Biology from Ashland University in Ashland, OH. In 2007, she completed a Masters Degree in Communication Studies from West Chester University in West Chester, PA.*

Website: [www.stroudcenter.org](http://www.stroudcenter.org)

# Concurrent Sessions 3:

**1:40 –2:25 p.m.**

## **INCORPORATING CITIZEN-SCIENCE ACTIVITIES INTO YOUR PROGRAM**

(Presented in Central D/E)

### ***Melinda Hughes-Wert, Nature Abounds***

Volunteering is great for the community and a great way to enhance your educational programs, but did you know that you can incorporate science into your volunteerism and help the planet? For example, how about monitoring your waterbody over the winter for ice and snow, or observing and reporting on wildlife and seasonal changes? Scientists are looking for information like this, and you can help collect data and be part of the scientific process. By adding activities like this can strengthen your program while also inspiring more volunteers to join your effort. Find out how to help scientists collect data on weather, wildlife and seasonal changes, and about the world of opportunities in citizen science.

*Melinda Hughes-Wert is the President and Co-founder of Nature Abounds, a national non-profit bringing people together for a healthy planet through volunteerism and environmental stewardship. Since incorporating in 2008, Nature Abounds has launched four signature opportunities including IceWatch USA and Watch the Wild, and has revitalized the Pennsylvania Senior Environment Corps, a group of senior volunteers working to protect Pennsylvania's streams. In 2012, Nature Abounds plans to launch three more signature programs; the Going Green Corps, Keepers of the Forest, and Turtle Ambassadors. Prior to founding Nature Abounds, Melinda was the Manager of Volunteer and Community programs for the National Wildlife Federation, and she was also the National Programs Director for the Environmental Alliance for Senior Involvement.*

website: [www.natureabounds.org](http://www.natureabounds.org)

## **| ONLINE TOOLS FOR WATERSHED TOURS**

(Presented in Central C)

### ***Amy Hill, Pennsylvania DCNR - Bureau of State Parks***

As part of DCNR's Watershed Education program (an educational, watershed-based, interdisciplinary program for students in grades 6-12), we offer new information and resources to make your watershed studies more interesting, relevant and fun! This session will explore online tools available for mapping, virtual investigation or tours of watersheds and data gathering of diverse activities occurring within our local communities. Not convinced? What if I told you that you will...

- Discover a way to DELINEATE a watershed with ONE CLICK of your mouse.

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- Explore GIS-based online tools for exploring complaints lodged to DEP.
- Use birds-eye imaging software via satellite to see land use activities surrounding your local waterways...and more.

Laptops are welcome during this session but are not required. We look forward to seeing you there.

*Amy Hill works for the Department of Conservation and Natural Resources' Bureau of State Parks as a Natural Resource Program Specialist. DCNR strives to conserve and sustain Pennsylvania's natural resources for present and future generations' use and enjoyment. As such, she coordinates a variety of statewide programs including Watershed Education, Pennsylvania Songbirds, professional development, interpretive planning, and more. She is a graduate of the College of William and Mary and has been working for the Commonwealth of Pennsylvania since 2002.*

Website: <http://www.watershedded.dcnr.state.pa.us/>

## Exhibits:

**8:30 a.m. - 3:30 p.m.**

**Ballroom Hallway**

Please take some time during registration, breaks and lunch to visit our many fabulous exhibitors for more information about youth water education. Special thanks to our presenters and these additional exhibitors for providing these resources today:

- Shaver's Creek Environmental Center - Penn State
- PA Fish & Boat Commission
- Renfrew Institute for Cultural & Environmental Studies
- Pennsylvania Association of Conservation Districts
- Agriculture and Environment Center - Penn State
- PA Department of Environmental Protection
- Water Resources Education Network (WREN)
- Pennsylvania 4-H—Penn State Extension



## **Dive Deeper - Youth Water Educators Summit Thursday, September 27, 2012 - Harrisburg, PA**

For more  
information  
about this  
program:

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Penn State Extension Dauphin County  
**1451 Peters Mountain Road**  
**Dauphin, PA 17018**

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