

THE SUSQUEHANNA AQUATIC BIODIVERSITY NETWORK

A FIVE-DAY PROFESSIONAL DEVELOPMENT WORKSHOP FOR MIDDLE AND HIGH SCHOOL TEACHERS OF THE CHESAPEAKE BAY WATERSHED

Earn Pennsylvania Act 48 Hours or Graduate Education Credits (approval pending)



9AM TO 5PM, AUGUST 3–6, 2009

LOCK HAVEN UNIVERSITY

Clinton County, PA

Looking for lab and field activities that will increase understanding and protect aquatic biodiversity? Join this unique monitoring network that will immerse your students in important biodiversity issues and research.



This field, lab, and classroom course will provide you and your students with the opportunity to team-up with practicing scientists to explore aquatic biodiversity issues in the context of the Susquehanna Watershed and the Chesapeake Bay. The Susquehanna Biodiversity Network activities will help teachers provide students with:

- Meaningful lab and field experiences
- Real world monitoring that will document native crayfish, freshwater mussels and aquatic invasive species
- Participants will receive many valuable resources including:
 - A Pennsylvania standards-based activity guide
 - An introduction to using Google Earth satellite imagery software
 - Collecting equipment, and field guides
- Schools participating in the monitoring network will also be eligible to receive hand-held global positioning units (GPUs) and a \$500 field trip implementation grants that can cover bus transportation.

Note: Teachers and their principals will be asked to commit to implement the SABN monitoring activities in their school district and to provide Network field activities for their students. Participants will be surveyed prior to the workshop about their background, school curriculum, and equipment needed to best serve individual schools.

More than 50,000 non-native species have invaded the United States and their ecological damage is estimated to cost more than \$120 billion per year. Join in this special opportunity for teachers in the Chesapeake watershed to learn more about invasive species, their impact on Susquehanna biodiversity and activities to incorporate into your curriculum.

COST:

The workshop cost is \$100 per person for Act 48 credit or graduate tuition (approval pending). Space is limited to 20 participants. Double occupancy lodging is available for out-of-town participants on a first come first served basis. Lunch and snacks are provided. For registration and information contact: Ann Faulds, Pennsylvania Sea Grant 215-806-0894, afaulds@psu.edu. Workshop funding provided by NOAA B-WET program with additional support provided by Penn State University, Pennsylvania Department of Environmental Protection and the National Sea Grant Program.

Pennsylvania Sea Grant Program is a partnership of The Pennsylvania State University, The Commonwealth of Pennsylvania, and the National Oceanic and Atmospheric Administration (NOAA).



2009 SABN TENTATIVE WORKSHOP AGENDA

AUGUST 3TH

- 8:00 a.m. Registration & Pretest
8:30 Introductions, Program Overview and The Vocabulary of Invasion Biology – Ann Faulds, Pennsylvania Sea Grant
9:30 Populations, Communities and Ecosystems: the Fabric of Biodiversity – Ann Faulds, Pennsylvania Sea Grant
10:30 The Biology of Aquatic Supertramps: Ann Faulds, Pennsylvania Sea Grant
11:00 Field Activity: Distinguishing Between Native, Exotic, Invasive; Cornell Invasion Biology Curriculum Guide – Ann Faulds
12:15 p.m. Lunch
12:45 How to Use a Handheld Global Positioning Unit (GPU); Geocaching to Invasive Species Populations – Ann Faulds and Tom Horvath, SUNY Oneonta
2:15 Freshwater Mussel Communities of the Susquehanna River Drainage – Bill Lellis, USGS Branch Chief
- Why are mussels important?
 - What do mussels tell us about aquatic habitats?
 - What are some of the factors that imperil mussels?
- 3:15 An Introduction to Mussel ID – Bill Lellis, Tom Horvath

AUGUST 4TH

- 8:00 Field Trip - Freshwater Mussels and Others
10:15 Field Trip (Continued)
Noon Picnic Lunch
12:45 p.m. Laboratory Session
- Biology and Identification of Mussels
 - Digital Herbarium – Photograph and Scan for “Reference Collection” Posted on the Web
 - Laboratory Activity – Using Asian Clams to Simulate the Ecosystem Function of Bivalves
 - Identifying Plant Supertramps on the Susquehanna Watch List
- 3:15 Classroom AIS Games
- Aquatic Supertramp Roulette
 - Rival for Survival
 - Web of Life

AUGUST 5TH

- 8:00 a.m. Mussel and Plant Laboratory Practicum
8:30 Bait Bucket Introductions: Revelations of a Crayfish Survey – John Wallace, Millersville University.
9:30 The Biology and Ecology of Crayfish – Ted Nuttall, Lock Haven University
10:45 Field Trip - Crayfish and Others
12:15 p.m. Lunch
1:00 More Collecting
1:30 Laboratory Session
- Crayfish Identification & Biology
 - Animal Supertramps on the Susquehanna Watch List
- 3:00 AIS Web Resource Review – Ann Faulds
- The Biodiversity Game
 - Nab the Aquatic Invader and Others
 - Zebra Mussel Mania Traveling Trunk
 - Which Way Did They Go?

AUGUST 6TH

- 8:00 a.m. Crayfish and Laboratory Practicum
8:30 More AIS Web Resource Review – Ann Faulds
10:15 Changing the “Habitattitude” of America’s Aquarium Owners – How to Keep Aquatic Invasive Species from Escaping from Your Classroom – Sarah Whitney
11:00 From Awareness to Action; Service Learning and How to Help Students Take Stewardship Action – Rich Gulyas, Bradford County Conservation District
Noon Lunch
12:30 Digital Herbarium
1:15 Develop Standards Based Lesson Plans
2:30 Participants Present, Critique, and Exchange Lesson Plans
3:30 Post Test and Program Evaluation
4:00 Adjourn



For a registration form
<http://seagrants.psu.edu/education/workshops.htm>
For more information,
contact Ann Faulds, afaulds@psu.edu or
215-806-0894.

2009 SABN REGISTRATION FORM



Qualified participants will be accepted on a first come, first served basis. Selection preference will be given to teams of teachers in the same school or nearby schools. If possible, please mail all the team's applications together. We will send a confirmation of your registration via e-mail. We'll also contact you to schedule a follow-up phone interview to gain more information to help identify you school's environmental education needs.

CONTACT INFORMATION

Name: _____

Home Address: _____

Home Phone: _____ Preferred email: _____

If you have other team members, please tell us their name(s): _____

TEACHING EXPERIENCE

Years of Full-Time Teaching Experience: _____

Area(s) and Level(s) of Certification: _____

School: _____ County: _____

Address: _____

School Phone: _____ Fax: _____

Principal's Name: _____

Current Teaching Assignment: _____

Subjects: _____ Grade(s): _____

2009-2010 Teaching Assignment: _____

HOW DID YOU HEAR ABOUT THE SABN PROGRAM? _____

Will you require double occupancy lodging in the Lock Haven area? Yes ____ No ____

AGREEMENT TO PARTICIPATE

PRINCIPAL'S AGREEMENT:

I understand that this teacher has applied for the Susquehanna Aquatic Biodiversity Network faculty development workshop through Penn State University, Pennsylvania Sea Grant. I agree to support this teacher as they incorporate elements from this program in their classroom. I understand that participating teachers must also agree to involve students from my school in field activities to monitor crayfish, freshwater mussels and aquatic invasive species.

Principal's Signature: _____ Date: _____

TEACHER'S AGREEMENT:

If accepted into this program, I agree to:

- Make every effort to recruit teacher partners from my school or schools nearby to enroll in the SABN workshop along with me
- Attend the entire four-day workshop in Clinton County on August 3-6, 2009
- Implement the SABN monitoring activities with my school, including field-monitoring activities, by May 2010

The SABN will provide follow-up assistance with field trips and some funds for classroom implementation and travel (for instance grants for bus transportation).

Teacher's Signature: _____ Date: _____

Are you interested in act 48 credit? Yes _____ No _____

or
University Graduate credit? Yes _____ No _____ (we will send registration information)

All participants should mail this registration form to Ann Faulds. If you wish to enroll for Graduate Education credit you will receive an e-mail concerning registration and tuition (so do not need to send a check at this time). All others should send a \$100 registration fee with your registration form. Make checks payable to **Pennsylvania State University and mail to:**

Ann Faulds
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215-806-0894, afaulds@psu.edu
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