

**SEA GRANT SUSTAINABLE COASTAL COMMUNITY DEVELOPMENT BULLETIN**



*Watershed Education*



Edited by **Emily Susko** (Knauss Fellow) and **Amy Painter** (Communications)  
at the National Sea Grant Office

Coastal communities depend on their unique resources—healthy coastal waters, clean beaches and shorelines, robust fisheries and ecosystems—to sustain their economies and their cherished ways of life. It can be tempting for citizens to view coastal resource issues through the narrow lens of their physical coastlines.

Sea Grant plays an important role by **educating communities** about ways in which their upland actions, policies, and development impact these coastal resources indirectly by impacting **the surrounding watershed**. Highlighting these connections increases knowledge and understanding of human impacts on coastal resources and can foster a stronger community-wide stewardship ethic, which is necessary for truly *sustainable* community development.

This issue of the *Sea Grant Sustainable Coastal Community Development Bulletin* highlights examples of Sea Grant’s work in educating a variety of audiences within a community about important watershed issues. Audiences range from municipal officials to rural high schools students to urban sixth graders in a distressed community.



Columbia River Watershed. **Photo Credit:** Wikimedia Commons.

*What is the Sustainable Coastal Community Development Network?*

The SCCDN is a network of Sea Grant agents and other interested professionals working to promote vibrant coastal communities sustained by healthy coastal and marine ecosystems.

**SCCDN Officers**

(January 2012—December 2013)

**Chair:**

Joe Lucente, Ohio Sea Grant

**Vice-Chair:**

Heather Wade, Texas Sea Grant

**Secretary/Treasurer:**

Mary Penney, New York Sea Grant

The SCCD Network also elects Regional Coordinators, not listed here. *Please see [sgsccdn.ning.com](http://sgsccdn.ning.com) for more information or to join the network.*



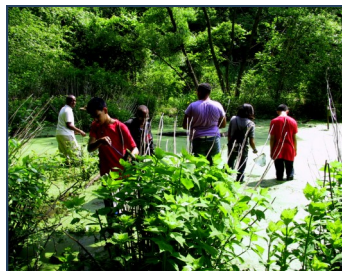
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## It's All About Playing the Game— The Watershed Game— for Sustainable Coastal Communities

By John Bilotta, MN SG

Remember when Monopoly or some other board game was an exciting way to gather family and friends? Gaming has been reinvented and incorporated into sustainable coastal community efforts with the **Watershed Game** – a tool developed through a partnership between the **Minnesota Sea Grant** and Minnesota Land Grant Extension Programs.

The Watershed Game helps local leaders to understand complex issues that affect healthy coastal ecosystems and sustainable coastal development. The game provides an easy way to discuss national efforts aimed at improving water quality, including Total Maximum Daily Loads (TMDLs), Municipal Separate Storm Sewer System (MS4), the National Pollution Discharge Elimination System (NPDES) Permit programs, and Great Lakes Restoration Initiative projects.

The Watershed Game helps individuals understand the connection between land use and water quality. The interactive game uses role-playing to break down barriers, build community, and increase local capacity to protect and restore water quality. Participants learn how a variety of land uses impact water and natural resources, increase their knowledge of best management practices (BMPs), and learn how their choices can prevent adverse impacts. Participants apply plans, practices and policies that help them achieve a water quality goal for a stream, lake or river. In the 2012 version, new challenges were added to enhance interdisciplinary learning for participants.



New features include climate change impacts and research results on stormwater and land use best management practices.

The Game and its associated curriculum are used throughout Minnesota to build the knowledge base of local leaders, provide sound science and current research, and support efforts to protect and enhance Lake Superior and all of Minnesota's water resources. Its success has led to a train-the-trainer program that has produced 75 facilitators who are using the Watershed Game in eight states.

The Watershed Game is a major component of the Northland NEMO (Nonpoint Education for Municipal Officials) program. Three Minnesota Sea Grant educators champion the game: John Bilotta, Cindy Hagley and Jesse Schomberg.



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For more information, visit the Watershed Game website at [www.northlandnemo.org](http://www.northlandnemo.org).

Photo credits: Minnesota Sea Grant.



## Oregon's Youth Master Stewardship Program Meets Community Need

By Emily Susko, NSGO, and Megan Kleibacker, OR SG



Since the late 1990's, **Oregon Sea Grant**, in conjunction with Oregon State University Extension's Watershed Education Team, has run a highly successful *Master Watershed Stewards* (MWS) certification program—for adults. Aimed at educating the members of local watershed councils, this program has trained over 1000 Oregon land owners, property managers, and local officials on water conservation and water quality issues.

But last year, when the Coos Bay School District decided to shorten its school week to four days (Monday-Thursday), Oregon Sea Grant staff members Megan Kleibacker (Watershed Education Coordinator) and Jamie Doyle (Coos Bay Extension Agent) saw an opportunity to expand the program to youth. Working with the Coos Watershed Association, Marshfield High School, and Southwest Oregon Community College (SWOCC), Megan and Jamie adapted the MWS curriculum into a certification program for high school students that is conducted throughout the school year on Fridays.

Students in the Youth MWS program, like their adult counterparts, become versed in watershed health issues and trained in watershed monitoring and restoration (such as tree planting, native plant propagation, invasive species control, and low-impact development.)

Megan and Jamie also incorporated into the curriculum

the use of the StreamWebs, a site hosted by OSU that provides educational material and a platform to enter classroom-collected stream monitoring data.

Unlike the adult MWS program, the Youth MWS program includes special emphasis on service learning and leadership skills. In an area with a difficult economic climate, the Youth MWS program adds particular value by exposing students to a variety of natural resource careers and providing valuable hands-on experience. And Southwest Oregon Community College offers the chance to translate the certification into 1-2 college credits.

Throughout the first year of its implementation, many additional partners lent their support to the project, providing financial resources, time, and mentoring. Eighteen students became certified Youth Master Watershed Stewards, and two gained employment as natural resource field techs as a direct result. Two students, nominated by local watershed councils, attended the statewide Youth Watershed Summit last August.

Oregon Sea Grant's efforts are helping the local Coos Bay community meet the new challenges posed by the shortened school year, while bringing watershed education and wise resource stewardship to a new audience.

For more information, contact Megan Kleibacker at [megan.kleibacker@oregonstate.edu](mailto:megan.kleibacker@oregonstate.edu), or Jamie Doyle at [jamie.doyle@oregonstate.edu](mailto:jamie.doyle@oregonstate.edu).



Oregon Sea Grant's Youth Master Watershed Stewards learn about salmon spawning (L) and local bird fauna (R) during their Friday classes. **Photo credits:** Oregon Sea Grant.

## *Pennsylvania Sea Grant's Watershed and Airshed Education Program helps Chester, PA schools make the connection between the air, the land, and the water*

By Ann Faulds, PA SG

By almost every metric, the schools in the City of Chester, Pennsylvania are some of the lowest performing in the nation. With so many financial, social, and educational stressors present, how can one empower urban students and teachers with a better understanding of the connection between the air, the land, and the water? Using a traditional "train the trainer" model, **Pennsylvania Sea Grant** first offered free teacher workshops. This enlisted mostly suburban teachers even when the workshops took place in a city setting. Turns out filling workshops was the easy part; reaching Chester schools proved much harder. We kept at it.

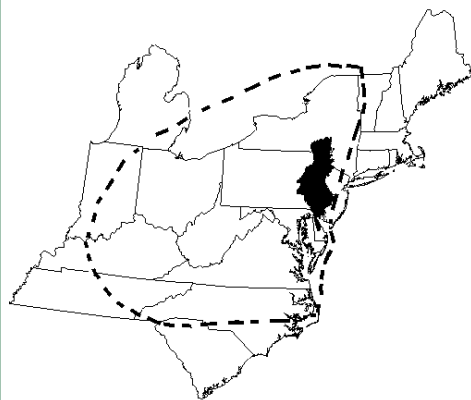


*Photo credit: Pennsylvania Sea Grant.*

The day we received our first Watershed and Airshed Education grant from the DuPont Clear into the Future program was a little scary – we said we would work with Chester schools, without knowing exactly whom we would serve.

For more information, contact Ann Faulds at [amf12@psu.edu](mailto:amf12@psu.edu).

### Chesapeake Bay Airshed Delaware Watershed



--- Airshed of the Chesapeake Bay  
 Watershed of the Delaware Bay

*Adapted  
from a figure  
developed by  
EPA modeler  
Robin  
Dennis.*

But a "knocking on doors" recruiting approach worked. We visited Chester schools and asked staff to suggest teachers who might be interested in taking their students on a watershed field trip. This opened the door to conversations with teachers who cared about their students and the environment. The field trip opportunity became a carrot, and we coached teachers, providing many pre-trip and post-trip suggestions. Here are some things that we've found useful in working with schools in a distressed community:

- We work very intensively with schools, coaching teachers when we can.
- Whenever possible, we try to craft an educational "package" that includes science and environmental education activities for teachers, kits of materials for experiments and activities, workshops for teachers specific to the lesson, and field trips for students (including transportation costs).
- We try to be flexible. If pre-trip classroom lessons can't be scheduled, we'll do post-trip lessons. One of our teachers was having difficulty getting their school cafeteria to prepare bag lunches so Sea Grant provided lunch the day of the field trip.
- In the Chester Community Charter School we were fortunate to be able to work with all 13 sixth grade classes and teachers in synchrony. This allowed us to cover more curriculum ground relatively efficiently. And, each year we ask the teachers to do a little more of the instruction that we've modeled.
- For some classes, it's all we can do to get across the watershed concept. In a few classes, we're able to help students explore the connection between air pollution and water pollution in more detail.

### ← *What's an Airshed?*

Like watersheds, airsheds transcend political boundaries. But unlike watersheds, airshed shapes and sizes depend on the strength and direction of the prevailing winds. As a result, airsheds have no sharp boundaries and are usually many times larger than their watersheds. So, air pollution originating from Ohio, western Pennsylvania or Washington D.C. can easily travel to the Delaware River watershed in a day or two. In a recent Penn State University study of 85 small Pennsylvania watersheds, atmospheric deposition accounted for about 48 percent of the total nitrogen load!