UNIVERSITY OF MARYLAND EXTENSION
Sea Grant Maryland

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Headwaters

Publication of Maryland Sea Grant Extension Watershed Educators

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Greetings loyal headwaters Readers,

With the green of summer fading before our eyes, we turn our attention towards fall and ultimately the first hard freeze of the season. It's a time to put up the sandals, pull out the flannel shirts and sweaters, and think about soup. Speaking of soup, this edition of Headwaters is a veritable alphabet soup of acronyms. Not only is our life at Extension filled with acronyms, within our program areas we use them to identify partners, our individual programs, the forms we use, and the places we go, like MDE, FSNE, CV, IEP, TAR, and UMES.

A few others we toss around in Extension include SNAP, CNMP, GIEI, STEM, HACCP, WSA, and of course, our perennial favorite BMP. In this edition of Headwaters we'll give you a chance to expand your acronym vocabulary with new ones such as S-COSM, DDSS, OWA, MS4, and ECCA. We hope you enjoy this edition and find time to follow the web links provided to learn more about our PPP. Oh, sorry, that's our partners, programs, and projects.

So TTFN!

The Maryland Sea Grant Extension Watershed Educators Team

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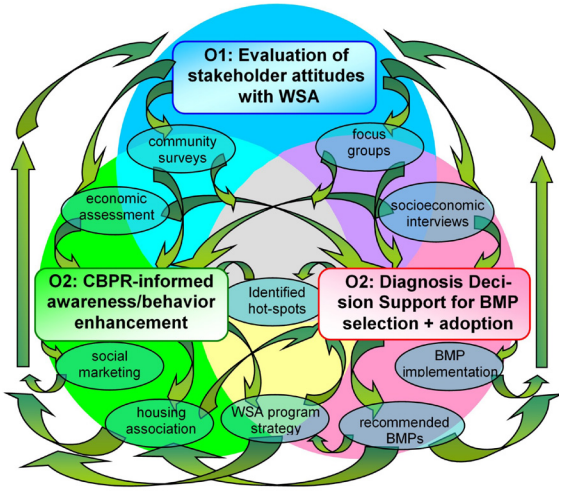
Increasing Stormwater Best Management Practice Adoption Rates Utilizing Natural and Social Sciences

+ Amanda Rockler

Over the past several years, I have been a collaborative partner on a project called Sustainable Community Oriented Stormwater Management or S-COSM. The S-COSM project was developed to build a Diagnostic Decision Support System (DDSS) aimed at integrating biophysical and social factors to target pollution hot spots and prescribe appropriate best management practices (BMP) in urban and suburban watersheds.

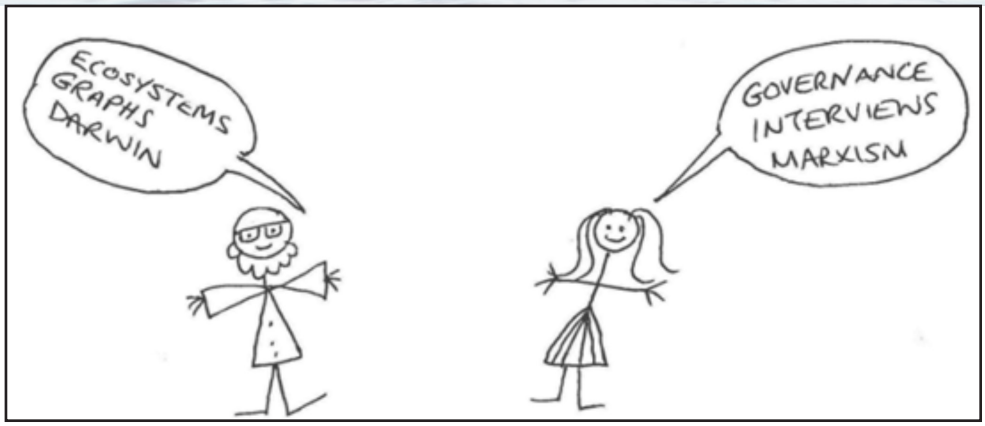
One of the main goals of building the DDSS was to aid Watershed Stewards and Watershed Managers with identifying pollution hotspots or potential stormwater retrofit locations. The unique and innovative component of the DDSS was that it was meant to integrate not only traditional hydrologic and environmental data, but to layer in the social processes that predict BMP adoption.

In order to identify pollution



The three major objectives for the S-COSM Project.

"One of the main goals of building the DDSS was to aid Watershed Stewards and Watershed Managers with identifying pollution hotspots or potential stormwater retrofit locations."



Building a transdisciplinary Diagnostics Decision Support System means bridging the gap between the Natural Sciences and the Social Sciences. Image: samspostgrads.wordpress.com

hotspots, the team developed different climate, land use, and social scenarios, and modeled the potential reductions from each of those scenarios. The social data was captured through surveys, focus groups, and Photovoice, and attempted to assess attitudes, awareness and knowledge about water resources and stormwater management. Relationships between demographics, awareness, knowledge and understanding of small-scale stormwater BMPs were used to better understand attitudes, and identify knowledge and awareness gaps where targeted education and outreach efforts might be conducted. One of the highlights of this project was that it utilized a research-extension-education approach, and the team was committed to community-based participatory research (CBPR).

The team has produced quite a few outputs from this project thus far and if you are interested in learning more, please visit the project website at http://scosm.weebly.com/.

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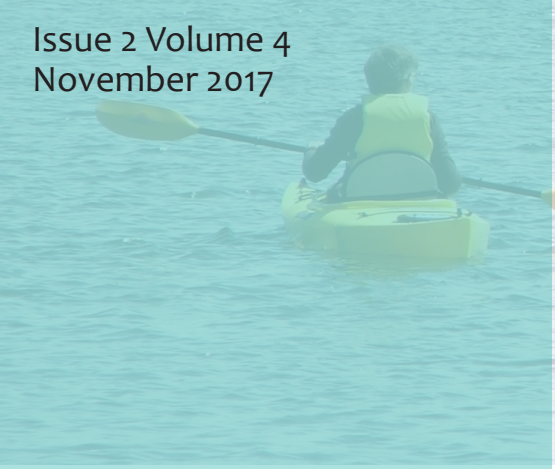
What is the Trust Fund?

+ JACQUELINE TAKACS

The Chesapeake and Atlantic Coastal Bays Trust Fund (aka Trust Fund) was created to provide the financial assistance necessary to advance Chesapeake Bay restoration by focusing limited financial resources on the most effective pollution control projects. With funding provided through gasoline and rental car tax revenues, since its inception in 2009, more than $500 million of state and leveraged money have been spent on targeted activities that fall within 5 areas that can have positive impacts on water quality. These areas range from research and development of new and innovative technologies to the support and implementation of on-the-ground projects that meet Maryland's water quality improvement milestones.

The Trust Fund allocates some funding to specific statewide programs, like Maryland's cover crop program, the phosphorus management tool, and the Conservation Reserve Enhancement Program. The majority of the resources are

Funded by the Trust Fund, once completed, this stream restoration project in Cecil County will reduce the amount of sediment and nutrients transported downstream to the Chesapeake Bay. Image: Eric Buehl



"Maryland's Cover Crop Program removes an additional 1.3 million lbs. of nitrogen and 45,000 lbs. of phosphorus annually."

distributed to local projects through competitive grants that focus on Innovative Technologies, Targeted Monitoring, Cost-Effective Nonpoint Source projects, and Natural Filters. With more than 2,000 projects completed to date, the Trust Fund can boast some impressive annual nutrient reductions: 2,016,922 lbs. Nitrogen 346,533 lbs. Phosphorus 22,627 tons of sediment

Maryland's Cover Crop Program removes an additional 1.3 million lbs. of nitrogen and 45,000 lbs. of phosphorus annually.

Looking to Get Your Project Funded?

Between 2009 and 2016 the Trust Fund has funded 566 stormwaer retrofits, removed 38 acres of impervious surfaces, and planted 14,164 urban trees. This year, the Maryland Department of Natural Resources, in coordination with the other Bay agencies, is planning to issue their annual solicitation for funding through the Trust Fund in December 2017. This solicitation will seek the most cost-effective, efficient nonpoint nutrient and sediment reduction project proposals in geographic targeted areas of the State. The Trust Fund encourages multi-year, multi-partner projects that will achieve the greatest reduction per dollar invested. Based on previous year timelines, full project proposals will likely be due in March 2018.

If you have questions about the upcoming solicitation, feel free to reach out to your local Watershed Restoration Specialist. For more information, go to http://dnr.maryland.gov/ccs/Pages/funding/trust-fund.aspx.

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Small Stream, Big Impact

+ Eric Buehl

It's a small stream, something you could hop across at many spots along its banks. But these small streams are important. They provide habitat for a host of animals and are the arteries that feed larger and larger streams that ultimately lead to the Chesapeake Bay. Unfortunately there are also times when they help to transport pollutants including excess amounts of nitrogen, phosphorus, and sediment, leading to degraded water quality. That is why back in early 2015, the Town of Rising Sun partnered with the Octoraro Watershed Association (OWA) to restore a degraded tributary of Stone Run, in an effort to help improve in-stream habitat, control erosion, and improve native vegetation along its banks. With assistance from Sea Grant Extension Specialists and the Center

Rising Sun Parks and Recreation Department Commissioner Dave Warnick (left) and Octoraro Watershed Association Board member Rupert Rossetti tour the ongoing work at Veterans Park. Image: Eric Buehl

"We hope to build community support for more projects like this and educate residents on how they can reduce their impact on the streams that drain to the Octoraro."

While stream restoration contractor Ecotone, Inc. makes progress, nature shows her resilience as a Great Blue Heron forages in the riffles just upstream of a newly-constructed pool. Image courtesy of Rupert Rossetti.

for Watershed Protection, the Town was able to secure a grant from the Maryland Department of Natural Resources Chesapeake and Atlantic Coastal Bays Trust Fund for stream restoration and to address upstream stormwater inputs and wetland enhancement.

"Veterans Park is the perfect spot," said OWA Board member Rupert Rossetti. "It's a busy park with high visibility and has pressing and very apparent stormwater problems. This is the second project in the town's parks which were identified by a watershed assessment. Our first, a small wetland system in what became the Triangle Dog Park, is functioning well and looks great. We hope to build community support for more projects like this and educate residents on how they can reduce their impact on the







"The Veterans Park project is the proverbial 'tip of the iceberg'."

streams that drain to the Octoraro." Town Parks and Recreation Commissioner Dave Warnick pointed out that, "by working with the Octoraro Watershed Association, Sea Grant Extension, and the other project partners and the successes we've had on past projects, we look forward to a similar outcome from the more complex work now underway at Veterans Park."

The value of this broad-ranging partnership is that the Veterans Park project is the proverbial 'tip of the iceberg' in that the Town is working to enhance public access and community connectivity in and around the park and the OWA is interested in addressing stormwater runoff from the surrounding watershed. The project started this summer and will continue into fall. If you would like more information about the project, visit the Town's official Facebook page at https://www.facebook.com/risingsunth/.

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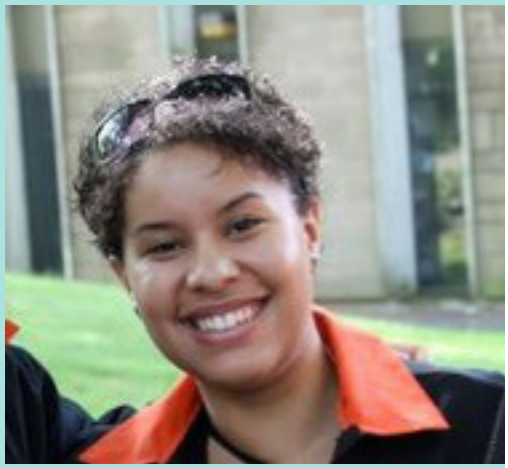
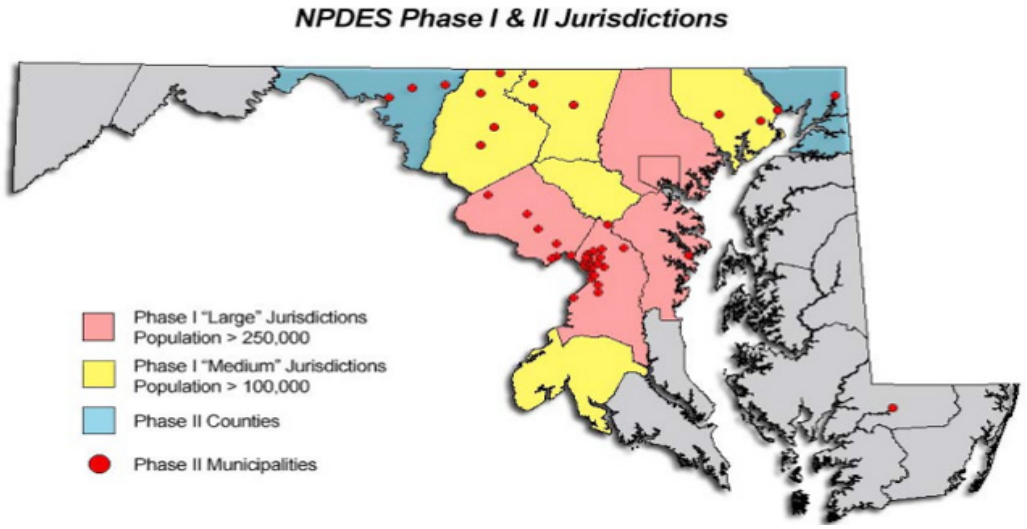
Is Where You Live or Work Served by a Regulated MS4?

+ Kelsey Brooks

If your home or office is in Anne Arundel County, Baltimore County, Baltimore City, Montgomery County, Prince George's County, Carroll County, Cecil County, Charles County, Frederick County, Harford County, Howard County, or Washington County the answer is yes. A number of other Maryland towns, universities, and state and federal institutions are also MS4s subject to regulations under the Clean Water Act. So, what does that mean?

MS4 stands for Municipal Separate Storm Sewer System and they exist in contrast to Combined Sewer Systems (CSS), which primarily persist in older cities. In CSSs, a single system transports sanitary sewage, industrial wastewater, and stormwater to a treatment facility before discharging to a waterbody. Cities and towns shifted away from building CSSs (and, in





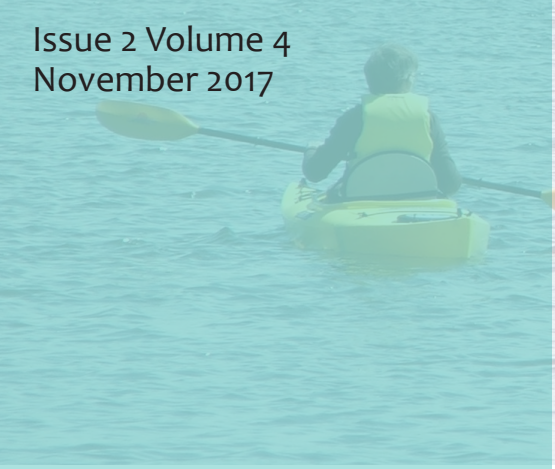
A map showing the location of MS4 jurisdictions across the state. Image: Maryland Department of the Environment.

"Preventing the direct discharge of untreated raw sewage and industrial waste into streams, rivers, and lakes provides obvious benefits."

some places, are working to separate their existing CSSs) because heavy storm events can cause overflows. While preventing the direct discharge of untreated raw sewage and industrial waste into streams, rivers, and lakes provides obvious benefits, the alternative means that the stormwater that passes through an MS4 is not treated. Any pollutants that enter an MS4 will likely be discharged directly into a waterbody.

Discharges from MS4s were not regulated until 1990. At that time, systems serving more than 100,000 people were required to implement procedures and practices to prevent pollutants from entering the MS4 under the Clean Water Act's National Pollutant Discharge Elimination System (NPDES) permitting program. In 2000, smaller systems located in census-designated urbanized areas were incorporated into the permitting process. With each census, as the boundaries of designated urbanized areas change due to population growth, the number of regulated MS4s grows. When the Maryland Department of the Environment reissues its Phase II General Permit for Municipalities, new towns, counties, and other public entities will be regulated under the state's program.

Prior to joining UME and Sea Grant Extension, I spent four years working in Virginia's MS4 program at the state level. As a result, for better or for



"MS4 is not a term most people recognize."

worse, my first thought when I hear "urban stormwater management" is "MS4 regulations." However, I have also learned that "MS4" is not a term most people recognize. While it may not be necessary to know that you live or work in a regulated MS4 to understand why it is important that only "rain goes down the drain," it can be useful to have a basic understanding of what your local government must, can, and cannot do to address urban stormwater and water quality issues. To learn more about Maryland's MS4 program, visit http://mde.maryland.gov/programs/Water/

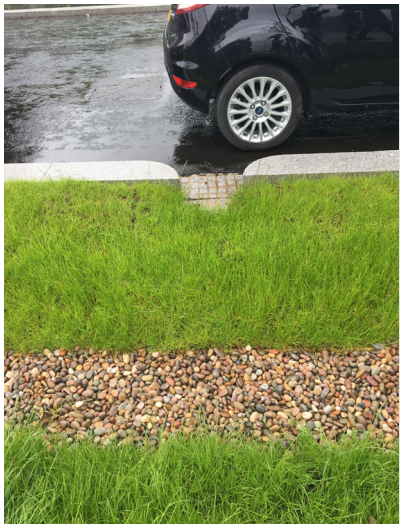
Outlander!

+ JENNIFER DINDINGER

This summer I represented the Watershed Protection and Restoration Team at the 3rd European Climate Change Adaptation Conference (ECCA2017). The theme was "Our Climate Ready Future," and more than 800 global professionals converged on Glasgow, Scotland for the five day event. While MD Sea Grant Extension was definitely an "outlander," everyone at the conference was welcoming and excited to talk about our shared mission. The Watershed team was part of a four-person session entitled, "US NOAA Sea Grant Program Facilitates Coastal Adaptation Planning Efforts." Each presenter discussed projects in her state (Florida, Maryland, North Carolina, and Pennsylvania) and highlighted the unique role Sea Grant Extension plays in assisting coastal communities with climate change adaptation.

Sea Grant Extension sharing their experiences with assisting coastal communities to conference attendees in Glasgow, Scotland. Image: Libby Carnahan, Florida Sea grant.

"Notably, we learned about European countries' sustainable solutions for shoreline erosion and flooding."



Example of a stormwater retrofit in the Clyde Gateway community in Glasgow, Scotland. Image: Jennifer Dindinger

Notably, we learned about European countries' sustainable solutions for shoreline erosion and flooding. Some of these solutions are "nature-based," such as managed realignment of high-flood coastline in Sussex, England to protect a popular caravan community nearby, and development of a Flood Risk Management Strategy that includes green infrastructure practices for an upland flood-prone community in Yorkshire, England. The talks followed a common thread: presenters learned the hard way that major changes should incorporate community input for planning and implementation rather than just being delivered as a final solution. This lesson helped reinforce that Sea Grant Extension plays a critical role in the United States as a communicator to help navigate those situations.

The well-attended poster session on Tuesday night (an

"Stormwater management in highly urbanized impervious areas is challenging."

offer of free whisky might have contributed to the turn-out) included more than 160 posters with new ideas for prediction tools, "serious games," restoration projects, and colleagues to share experiences. Coastal adaptation experiences in India, Sweden, England, Germany, and many other nations sparked so many conversations and potential collaborations that attendees had to be ushered from the room well after the event ended.

The conference finished with two days of excursions throughout Glasgow and nearby communities. One of the Thursday excursions was a tour of "green" and "blue" infrastructure upriver from the conference center in an area called the Clyde Gateway. Luckily, it rained! (Actually, it rained most of the trip). The group witnessed many stormwater practices in action, and even some not in action. Stormwater management in highly urbanized impervious areas is challenging, with considerations for chemical site remediation and decades of neglect due to the decline of industry. It was heartening to see the work Glasgow was doing to revitalize the Clyde Gateway community.

The next European Climate Change Adaptation Conference will be in 2019 in Lisbon, Portugal. See you there!

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The Journey of a Thousand Miles

+ Eric Buehl

In June of 2016, a small group arrived at the Greensboro Volunteer Fire Company's community hall to help plant a recently-completed rain garden, including members of the Greensboro 4H Club, Caroline County Planning and Codes staff, members of the fire company, and even my granddaughter. In a short amount of time the project was completed and everyone moved on to bigger and better things. This past summer I led a program with Maryland Rural Development Corporation's Green Summer Youth Program in which the participants did a planting project at the Greensboro Public Library's bioretention facility to help them learn about native plants, stormwater, and to improve water quality.

Not long after the library plantings were complete, I asked my granddaughter if

Shown in the light blue shirt holding a plant at her very first volunteer project in a June 2016 Maryland Sea Grant Facebook post.

"We don't do it for us, we do it for future generations."

One year later she is standing in the very same rain garden where the plants are now taller than she is. Image: Eric Buehl

she wanted to ride over and see how the plants at the library were doing. She said she would go, but only if we could stop and see how the plants at the fire company's community hall were doing. Now mentally, I had put that project aside, but to her, it was significant enough that she wanted to see things for herself. In some subliminal way, I felt that I had just witnessed what we say and do as Extension Specialists and Educators, actually living that conviction or principle that drives and motivates us; we don't do it for us, we do it for future generations. To me, it was a wonderful moment but to her, it was the start of a lifetime journey of learning, exploring, and doing. And to think, all it took was a simple plant to start her on that journey.

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Headwaters is a publication providing information and resources for Extension and watershed protection professionals. It is a joint production of the University of Maryland Extension and Maryland Sea Grant Program. If you have any comments, questions, or ideas for Headwaters, please contact the Editor: Eric Buehl
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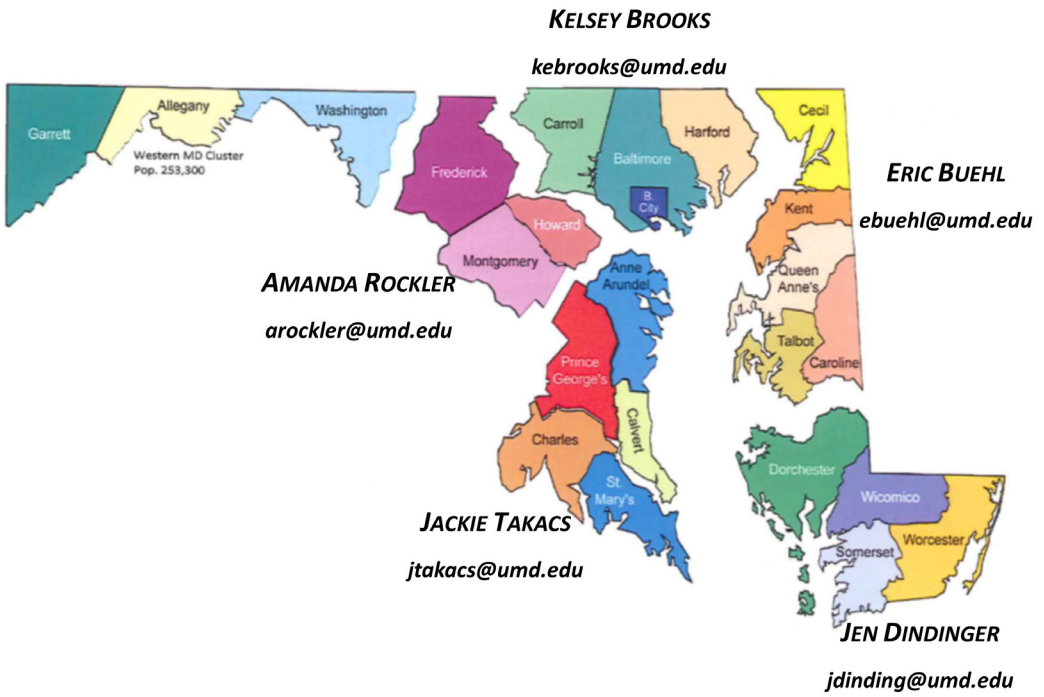
Who's *Your* Watershed Specialist?



For more information on related publications and programs, visit extension.umd.edu/watershed. Please visit http://extension.umd.edu/ to find out more about Extension programs in Maryland.