

# HEADWATERS

PUBLICATION OF MARYLAND SEA GRANT EXTENSION WATERSHED EDUCATORS

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## DEAR READERS:

At the distinct risk of sounding like a braggart, we have an amazing group of contributors to this publication. Every few months, we put our heads together and bring you the best and most valuable nuggets of inspiring work of our community partners and scientifically-grounded work of researchers.

We'd like to recognize the achievements of two of those particularly dedicated individuals who represent the Watershed Team and Extension every day. Jennifer Dindinger and Amanda Rockler received the Off-Campus Junior Faculty Awards from the College of Agriculture and Natural Resources in 2014 and 2015, respectively. Driven by a desire for excellence in science-driven communication and improving water quality in the Chesapeake Bay, Jennifer and Amanda are truly Saving the Bay. Please enjoy this month's contributions from Jennifer and Amanda. Congratulations on bringing home two consecutive Junior Faculty Awards for the watershed team! Learn more about the 2015 awards [here](#).

For more information about the Watershed Protection and Restoration Program, visit [www.extension.umd.edu/watershed](http://www.extension.umd.edu/watershed).

Sincerely,

The Maryland Sea Grant Extension Watershed Educators Team



# 4-H BAY STEWARDS BUILD CAPITAL

+ KRISZTIAN VARSA

+ MIDDLE SCHOOL STUDENTS BECOME LEADERS FOR WATERSHED RESTORATION

March 20th wasn't cooperating. The long winter of 2015 just got longer as the students from Old Court Middle School prepared gloves, shovels, and mulch in the face of a fresh coating of three inches of snow. The students then hauled 20 redbud and oak trees into turf fields surrounding the school. Turf fields being the equivalent of ecological deserts, the trees would add wildlife habitat, stormwater management, and energy & health benefits to the community. However, the first step for the students, teachers, and the University of Maryland Baltimore County Extension educators was to dig holes in the snow.



a two year pilot program aimed at empowering youth to become environmental stewards through a focused STEM curriculum and school-based watershed restoration activities. During the 2014-2015 school year, the team ran workshops and lessons on water quality, native plants, and building community capital for 40 students during the school's Saturday STEM Club. In the Spring, the students put their knowledge of watershed health,

In the Spring of 2014, the Baltimore County 4-H, Horticultural, and Sea Grant programs partnered with Old Court Middle School teachers to create the 4-H Bay Stewards Program. The team received a grant to initiate the first year of



“Planted 20  
native trees (in  
the snow!)”



native plants, and community engagement to work and planted 20 native trees (in the snow!) and a large garden of native plants.

During the 2015-2016 school year, the Baltimore County Extension team will implement the second year of the pilot program, which will incorporate peer-to-peer

learning opportunities to develop leadership skills in their school community and begin the students’ growth into stewardship of the natural world in their neighborhoods. The students will complete the Bay Stewards program with a restoration project in their own community to showcase their work with a community partner.



“It wasn't  
your average  
give away.”

# HOWARD COUNTY STUDENTS TAKE WEATHER TO THE EXTREME

+ AMANDA ROCKLER  
+ SLOW THE FLOW



On April 29, 2015, roughly 120 ninth grade Earth Science students stepped off their busses at the Howard County Conservancy for the third annual Howard County Extreme Weather Conference. Organizations such as NOAA, the retailer REI, and the University of Maryland joined forces on the Conservancy campus to provide hands-on education workshops for the students.

joined the festivities for the third straight year holding our “Slow the Flow” session. The session featured hands-on mini workshops focused on stormwater, stormwater best management practices, the differences between weather and climate, and the complicated intersection of all these topics. Students practiced completing a stormwater site assessment and deciding how to choose best management practices under varying precipitation scenarios.

The University of Maryland Sea Grant Extension program



“Students  
practiced  
completing a  
stormwater site  
assessment”



If you are interested in learning more about the Extreme Weather conference, visit the Baltimore Sun article and short video at <http://ter.ps/98l>

*Photos Courtesy of Doug Miller  
Sea Grant Extension Team in Action  
with Howard County Students at the  
2014 Howard County Extreme Weather  
Event.*



# EMPOWERING WOMEN FARMERS IN AFGHANISTAN

+ AMANDA ROCKLER

+ AFGHANISTAN  
AGRICULTURAL  
EXTENSION PROJECT  
DELIVERS EDUCATION,  
FARM DEMONSTRATION,  
AND A POSITIVE  
ECONOMIC IMPACT FOR  
FARMERS



*A new article, "From the field: Empowering women to improve family food security in Afghanistan," was recently published in the Renewable Agriculture and Food Systems Journal. We hope sharing this exciting publication with our readers provides a fun departure from the usual Sea Grant Extension adventures.*

program called the Afghanistan Agriculture Extension Project (AAEP). AAEP was developed with a consortium of leading land grant universities including the University of California Davis, Purdue University, University of Maryland and Washington State University, with a common goal of demonstrating that demand-driven extension services in Afghanistan have a positive economic impact

Three years ago, I joined a team of UMD faculty to work on a



“Designed to facilitate the delivery of a more effective, demand-driven extension service to producers”



for farmers. The consortium was charged with providing professional development training for Afghanistan’s agricultural extension staff, designed to facilitate the delivery of a more effective, demand-driven extension service to producers and other rural clientele in selected areas of the country.

As part of the larger AAEP program, the University of Maryland team was charged with

establishing the Women in Agriculture (WIA) program. The WIA program prepares female extension educators and leaders to work with poor or vulnerable women to improve family food security by expanding or initiating vegetable gardening, small-scale poultry production, composting to improve soil quality, post-harvest handling, food preservation, preparation of nutritious meals, and marketing of agricultural



# “July in Afghanistan is warm”



products. The WIA program engages the female extension educators with demonstration gardens, Farmer Field Schools, and women to women peer teaching and learning.

I departed on my first trip to Afghanistan on July 4, 2012, and the relevance of the date was not lost on me. I was enjoying a Nationals baseball game and a backyard BBQ one day, and the next, I was in a Kabul, the

beautiful and dusty capital of a war-torn country. As you can imagine, July in Afghanistan is warm, especially in long clothes and a hijab, but we immediately settled in and held a series of workshops for the female Afghan extension agents in partnership with Afghanistan’s Ministry of Agriculture, Irrigation and Livestock (MAIL). We also visited the Darluman Farm, a 150 acre farm where the





## “A lively demonstration farm, covered in fruit, vegetables, and spices”

WIA women were given plots of land for cultivation and farmer field workshops were held. On this initial visit and during all subsequent visits to Afghanistan, we developed and delivered hands-on workshops on extension education methodology, teaching techniques, and some technical training topics such as composting, garden planning and planting, and irrigation methods.

With an amazing in-country team consisting of Afghan staff and University of Maryland program manager, the farm is now a lively demonstration farm, covered in fruit, vegetables, and spices. Farmer Field School

trainings are held regularly at the demonstration farm and the women then share their knowledge and expertise at their own demonstration farms located throughout Kabul. The project was recently refunded and is expanding to other provinces within the country.

*Wilcox, C.S., Grutzmacher, S., Ramsing, B., Rockler, A., Balch, C Safi, M., & Hanson, J. (2014). From the field: Empowering women to improve family food security in Afghanistan. Renewable Agriculture and Food Systems. Advanced online publication. doi: 10.1017/S1742170514000209.*



# STORMWATER LAW AND YOU

+ ERIC BUEHL

+ UPSTREAM VS  
DOWNSTREAM



*(This series, Stormwater Law and You, will feature recurring stormwater legal issues which arise in the Chesapeake Bay watershed. Disclaimer: The University of Maryland Extension and WPRP Program are not offering legal counsel, nor do these articles offer legal advice. The following information is to prompt further examination.)*

comprehensive statewide stormwater management laws in the nation in an effort to “maintain after development, as nearly as possible, the predevelopment runoff characteristics (COMAR 26.17.02.01).” Not only was this to decrease the transport of pollutants such as sediment and nutrients, it would lessen the erosion of stream channels, aid in groundwater recharge, and reduce local flooding. Although amended several times to reflect recent trends in stormwater design strategies,

In the early 1980s, the State of Maryland recognized that action had to be taken to address declines in water quality, so it implemented one of the earliest



# “Courts in Maryland rely heavily on civil law precedents”

this phrase remains relevant since being passed by the Maryland General Assembly back in 1982.

Upstream vs Downstream  
When it comes to surface water, courts in Maryland rely heavily on civil law precedents, or consideration for past rulings on the subject. Generally, upstream landowners are permitted to have surface water flow over and off their property, and down onto and through a downstream property, if the upstream landowner has done nothing to increase the volume or quantity of surface runoff (in other words, the owner maintained the natural drainage). Concurrently, downstream landowners are not permitted to prevent the natural flow of surface water onto their property.

Although initially it may seem that downstream property owners are not protected, that is not always the case. Due to the complexity of drainage issues,



courts in Maryland also utilize a “reasonableness of use” rule, which allows the courts to offer some relief or recourse to the downstream owner. The reasonableness of use rule applies when an upstream landowner has increased the volume or quantity of water, has caused pollutants to flow onto a downstream property, or created some type of health hazard.



## “Start by talking to the other landowner”

### Your Responsibility

Whether you live upstream or downstream, if you believe that a new project (i.e. a new subdivision, a building addition, lot grading, etc.) might impact your property, communication is the first step in trying to prevent an issue from escalating into a court case. Start by talking to the other landowner and candidly expressing your concerns. Additionally, document with photographs and notes what was discussed and the work that was taking place, in the event your attempts to talk to your neighbor fail. You can also contact state, county, and municipal agencies that deal with development,

construction, or stormwater management to learn more about a particular project or share your concerns. And remember, mediation is much cheaper than litigation.

As the Watershed Protection and Restoration Program Specialists explore Maryland’s stormwater laws to improve our understanding of their application, we are collaborating with the University of Maryland’s Agricultural Law Extension Program (<http://extension.umd.edu/aglaw>) to develop valuable information for property owners.



# CECIL COUNTY WSA - OFF AND RUNNING!

+ ERIC BUEHL

+ ACADEMY MEMBERS  
ARE LEADERS IN THEIR  
COMMUNITIES



On a beautiful weekend in late April, the inaugural class of the Cecil County Watershed Stewards Academy (WSA) constructed and planted a micro-bioretenention facility at the County's Administration Building in Elkton. After more than 60 hours of class time learning about stormwater management, soils, site assessment, and effective outreach methods, the Academy members decided that their class project should be located at the highly-visible County Administration Building location since it can serve multiple

purposes. Not only does it treat stormwater runoff from part of the facility's parking lot, it will serve as an educational tool for visitors and future WSA participants alike. The project also involved installing gutters, downspouts, and rain barrels on a pavilion adjacent to the micro-bioretenention facility. Now that their class project is behind them, the Academy members are focused on developing proposals for their capstone projects, to be completed over the summer.



# “Assist the local jurisdictions in reaching their (WIP) goals”

The Cecil County WSA is a partnership between the Cecil County Department of Public Works and University of Maryland Sea Grant Extension. The program trains and supports community leaders in Maryland to serve as Master Watershed Stewards: leaders in their communities who can identify and assess areas to implement stormwater management practices, educate local citizens, and assist the local jurisdictions in reaching their Watershed Implementation Plan (WIP) goals. The 2014 - 2015 Cecil County WSA was supported by the Chesapeake Bay Trust, Cecil County Development Services Division, and University of Maryland Sea Grant Extension.



For more information about the Cecil County WSA program or to sign up for the 2015-16 class, contact Jen Dindinger at [jdinding@umd.edu](mailto:jdinding@umd.edu), Marshall McSorley at [mmcsorley@ccgov.org](mailto:mmcsorley@ccgov.org) or Eric Buehl at [ebuehl@umd.edu](mailto:ebuehl@umd.edu).



# SOUTHERN MARYLAND COUNTIES SUPPORT WATERSHED RESTORATION

+ JACKIE TAKACS  
+ ST. MARY'S AND CHARLES COUNTIES RECOGNIZE THE NEED TO MITIGATE AND TREAT STORMWATER



County officials and staff in St. Mary's and Charles Counties recognize the need to mitigate and treat stormwater as well as educate their residents about the issues related to stormwater. They also acknowledge that their resources and capacity are limited and partnering is essential. This Spring marked the start of two new partnerships between the Watershed Team (WPRP) and these counties.

### Starting Small

On Saturday, May 2nd, WPRP partnered with the Charles County Department of Public Works (DPW) to offer five hands-on rain barrel workshops. Funding provided by the Town

Creek Foundation through the Department of Natural Resources made it possible to offer residents rain barrels at reduced prices. A few highlights of the day include:

- Over 90 people registered to attend one of the five workshops
- 30 individuals attended the workshops to learn more about rain barrels
- 44 households took home 72 rain barrels
- 10 households ordered additional rain barrels

County staff managed all advertising and event logistics (set-up, rain barrel pick-up, clean-up) while WPRP handled



“Nicole enjoys exploring the local waterways, parks, and abundant state history.”

registration and teaching. The County’s DPW requested funds in Fiscal Year 2016 to continue incentivizing barrels through reduced prices and avoid the need to apply for grant funding for future programs. Fall 2015 programming efforts are already underway.

#### Going Bigger

In 2015, St. Mary’s County approved a new part-time position for a Watershed Restoration Assistant. This position will coordinate and manage program activities associated with WPRP, specifically the development of a Watershed Stewards Academy and the implementation of the Stormwater Management and Restoration Tracker tool. We are happy to welcome Nicole Basenback as our new Watershed Restoration Assistant.

As a new Maryland resident, Nicole Basenback enjoys exploring the local waterways, parks, and abundant state history. Since moving, she has learned a lot by volunteering with the Chesapeake Biological Laboratory and the American Chestnut Land Trust. Nicole has a Bachelors of Science



in Ecological Engineering from the Ohio State University, and is preparing to pursue a Masters degree in Environmental Science from the University of Maryland. Her background includes community education, stream restoration, and rain garden projects. Nicole is excited about joining the Watershed Team and assisting community members in positively impacting the area’s natural resources. Nicole’s hobbies include crafting, gardening, and playing volleyball with her husband, Bryan.

For information about either of these programs contact Jackie Takacs at [takacs@mdsg.umd.edu](mailto:takacs@mdsg.umd.edu).





# CHANGES TO THE WATERSHED PROTECTION AND RESTORATION PROGRAM, OR “SB 863”

+ JENNIFER DINDINGER

+ New Stormwater Fee  
legislation significantly  
alters original law



Maryland’s 2015 General Assembly passed Senate Bill 863, which significantly modified the 2012 legislation for the “Watershed Protection and Restoration Program” that originally mandated Stormwater Remediation Fees for the 10 most populous counties in Maryland (Anne Arundel, Baltimore, Carroll, Charles, Frederick, Harford, Howard, Montgomery, and Prince George’s Counties & Baltimore City). [Learn more about the original fees.](#) These 10 jurisdictions have federal requirements under the Clean Water Act for stormwater management because of their dense populations; they are considered “Municipal Separate Storm Sewer System” (MS4) Phase 1 jurisdictions. The new legislation is complex and there are still uncertainties about its requirements and limitations, but below is a brief synopsis of what individual property owners can expect.

## Does the fee apply to you?

The new legislation still applies only to those jurisdictions listed above, the MS4 Phase 1 jurisdictions, and only if the jurisdiction enacted a fee program after July 1, 2012. For example, some municipalities within these Phase 1 counties already had a stormwater remediation fee program when the 2012 legislation was passed; if you live in a municipality that charges a fee, you cannot be charged a fee by the County too.

Was the stormwater fee repealed? Not exactly. The bill changed the language from “shall” to “may” with respect to creating a stormwater fee program. This means that the creation of a stormwater utility fee is no longer required in these 10 jurisdictions, but can be used as a tool to raise money for MS4 Phase 1 compliance. However, each MS4 Phase I jurisdiction is still required to



## “The stormwater funds cannot be transferred to the jurisdiction’s general fund”

have a **dedicated local watershed protection and restoration (WPR) fund**, and this fund must be used **exclusively** to pay for installation of stormwater management practices and watershed, stream, and wetland restoration activities. These practices and activities can include monitoring, inspection, operations, maintenance, education, planning, enforcement, plan review and permit applications for new development, and grants to non-governmental organizations for project and administration costs. The funds **cannot** be transferred to the jurisdiction’s general fund.

### An Example

If “Blue Crab” County (BCC), Maryland established a fee in response to the original 2012 legislation, the fee **can be** repealed or reduced **if** BCC identifies dedicated funding that will be deposited into the WPR fund and used to meet its MS4 Phase 1 permit. The fee can also be repealed or reduced if BCC files a

financial assurance plan with the Maryland Department of the Environment and the plan shows that BCC can meet 75% of the projected costs of its Phase 1 MS4 compliance for the 2 year period following the plan’s filing date. The legislation also includes many details about the reporting requirements for the affected jurisdictions and the benchmarks that must be met to ensure compliance. Major financial penalties will result from an inability to demonstrate that projected costs of compliance can be met. These penalties will increase over time until financial assurance can be met. On the other hand, if BCC chooses to keep its original stormwater fee program, the fee must be set based on the share of stormwater management services related to the property and provided by BCC. The fee can be a flat rate; a rate based on the amount



## “Financial hardship must also be established”

of impervious surface on each property; or another method of calculation determined by BCC. This fee is separate from any charges that are established related to new development, including permitting, review of stormwater plans, inspections, or monitoring. If a fee is maintained, BCC must establish a system for the method, frequency, and enforcement of the collection of the fee, and must have specific language on the bill or bill insert to describe the fee. Policies, procedures, and guidelines must also be created for reducing any portion of the fee to account for systems and activities that reduce the quantity of or improve the quality of stormwater discharged from the property (i.e. best management practices) and for agricultural facilities or activities that are otherwise exempted from stormwater management requirements by the county. A program for exempting properties based on financial hardship must also be established.

### Big Picture

Remember, regardless of the changes in this legislation, the jurisdictions are required to dedicate funding toward remediating stormwater runoff issues. As a result of this legislation, the 10 MS4 Phase 1 jurisdictions will have more flexibility in meeting permit requirements and managing their budgets, providing they show good faith efforts toward dedicating funding for stormwater management.

### References:

Holland and Knight, LLP:  
<http://ter.ps/975>  
Maryland General Assembly  
2015, SB 863: <http://ter.ps/976>



# HEADWATERS

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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:

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## WHO'S YOUR WATERSHED SPECIALIST?

Cluster	Population	Specialist	Email
Northern Maryland Cluster	1,871,000	KRISZTIAN VARSA	<a href="mailto:kvarsa@umd.edu">KVARSA@UMD.EDU</a>
Central MD Cluster	1,481,550	AMANDA ROCKLER	<a href="mailto:arockler@umd.edu">AROCKLER@UMD.EDU</a>
Southern Maryland Cluster	1,725,000	JACKIE TAKACS	<a href="mailto:takacs@mmsg.umd.edu">TAKACS@MDSG.UMD.EDU</a>
Upper Shore Cluster	243,850	ERIC BUEHL	<a href="mailto:ebuehl@umd.edu">EBUEHL@UMD.EDU</a>
Lower Shore Cluster	205,550	JEN DINDINGER	<a href="mailto:jdinding@umd.edu">JDINDING@UMD.EDU</a>
Western MD Cluster	253,300		

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