Watershed Alliance of Adams County

AdamsWatersheds.org

Winter 2011

Inside this Issue

Message from the President

by Mark D. Berg

Company's coming – four million – and so are the children – 1,560, to be exact..

Two of our members –Charles Skopic and I – organized and co-chair the Gettysburg 150th Anniversary Commemoration of the American Civil War Committee's **Company's Coming Cleanup** sub-committee. A third WAAC member, Chad Clabaugh, is also on the sub-committee. WAAC members will be active participants throughout the Company's Coming campaign, which will run from this year through the commemoration of the battle of Gettysburg in 2013.

WAAC is a sponsor of the **2011 PA Children's Water Festival** that will take place at Gettysburg College on May 24. The theme of the Festival is Unlock the History of Water in Pennsylvania. It is an educational event that will involve children in learning about a precious resource, water

WAAC's **Annual Dinner** will be held on April 27 at the Dobbin House in Gettysburg. Our speaker will be Tom McCarty, a Penn State Cooperative Extension educator on water quality and water resources.

Chad will also lead WAAC's **annual stream cleanup** in conjunction with the Great American Cleanup. It will also support the Company's Coming campaign. Last year's cleanup had the largest turnout to date; we expect an even larger turnout this year.

Wayne Belt will continue the project to place and monitor stream gauges to study the volume of surface water flow in many, if not all, of the streams in Adams County. Stay tuned to WAAC's web site (AdamsWatersheds.org), and please respond to the call for volunteers.

You can read more about these activities in this newsletter.

I hope to see you at our annual dinner. And if you're not now a WAAC member, I hope you'll become one and join us in pursuing our mission: monitoring, improving, and protecting water resources within Adams County.

Annual Dinner (4/27)Speaker

Tom McCarty is a Penn State Cooperative Extension educator on water quality and water resources. He will be speaking about geothermal heating and cooling systems, and about the concerns regarding Marcellus shale.

The development of the gas industry on the Marcellus shale underlying his boyhood home has led Tom to learn about the potential impact of that industry on water resources in other parts of the state.

An agricultural engineer by training, Tom has been an extension educator for more than 20 years. His extension program focuses on helping people understand the nature of their water supply and the well/spring/cistern needed to access it. Of course, used water must be disposed of, and Tom helps people understand and manage their septic systems. He is interested in pesticide safety, pond management, and soil and water conservation.

New WAAC Directors

Sarah Kipp and Adam McClain

Sarah and Adam were elected members of the Board at last year's annual dinner.

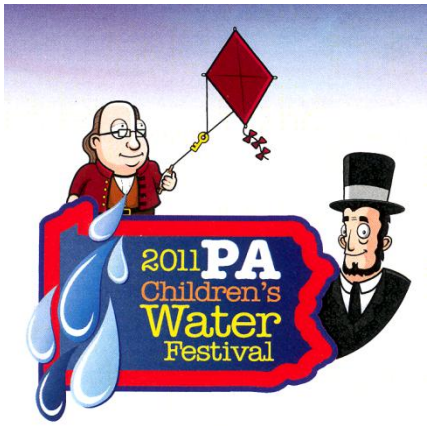
Sarah is the Land Conservation Coordinator at the Land Conservancy of Adam County. Originally from Ohio, she spent two years with AmeriCorps, majored in Environmental Studies at Oberlin College, and worked as a paralegal before earning a Master's Degree in City and Regional Planning from the University of Pennsylvania.

Adam, Vice President of WAAC, is the Watershed Specialist for the Adams County Conservation District, and a member of the Adams County Water Resources Advisory Committee. He has a degree in Wildlife and Fisheries Sciences from Pennsylvania State University, and worked for the National Park Service and the Cumberland County Conservation District.

PA Children's Water Festival

The 2011 PA Children's Water Festival is an educational event that will involve children in learning about a precious resource, water. WAAC is a sponsor.

1,650 fifth-graders from every school district in Adams County and the Hanover and South Western school districts will be coming.



By providing hands-on activities and lessons, the Festival will educate students from Adams and York counties in the Lower Susquehanna-Swatara Watershed about the importance of water and water conservation. They will learn about groundwater, surface water, watersheds, drinking water, and water quality.

The students will be divided into groups of 20-30, and each group will have a schedule of activities/times. In larger rooms and the activity hall, several groups may be combined. The classroom presentations, activities, and stage shows last 25 minutes for each class, with 5 minutes in between for class rotations. The Water Jamboree Activity Hall will run continuously with multiple activities.

After previous Festivals, students wrote, "I liked making an aquifer out of ice cream…it was gross and fun"; "I'll turn off the water when I brush my teeth and pick up my dog's poop so it doesn't get into the water"; and "I've learned a lot about saving water and stopping it from getting dirty. It was really cool."

Teachers wrote, "I appreciated the hands-on activities and how everything at the festival reinforced learning. My kids and I loved it"; and "There are many issues, like runoff, that are applicable here. The only way to learn is through interactive events like this."

A number of WAAC members have already volunteered to assist at the Festival, but many more will be needed: altogether, 300 volunteers will serve as presenters, classroom guides, classroom assistants, registration volunteers, and logistics coordinators. For more information, contact Margaret Martens, Public Education Coordinator at the Water Systems Council, at 202-625-4387, or mmartens@watersystemscouncil.org.

To get an idea of what the Festival will be like, you can view a video of the 2010 festival on the web site www.watersystemscouncil.org. Click on the Festival logo on right side of the screen, and then click on the link at the top of the page to view the video.

Company's Coming

WAAC Board members Charles Skopic and Mark Berg were asked by the Gettysburg 150th Anniversary Commemoration of the American Civil War Committee to coordinate a Company's Coming campaign to clean up/fix up/enhance Gettysburg and the surrounding area to prepare for the expected one million additional visitors and the national attention that is expected in 2013.

The goal of Company's Coming is to create a positive atmosphere and long-term benefit for the residents of and visitors to Gettysburg and Adams County (four million visitors in 2013).

Cleanup projects may involve community spaces – parks, municipal facilities, school grounds, sidewalks, playing fields, parking lots, etc. – as well as streams and creeks, stream and creek banks, and riparian buffers that have been neglected, vandalized, or misused.

Critical Area Resource Plan

A CARP, but not a fish.

In January, the Pennsylvania Department of Environmental Protection (DEP) designated three critical water-planning areas, providing local residents and organizations the opportunity to take a proactive approach to deciding how to use and protect these valuable resources,

"We're placing this designation on these watersheds because the existing or future demand on them exceeds or threatens to exceed their supply," DEP Secretary John Hanger said. "This action paves the way to develop locally-driven plans that will protect the water resource, and also protect the public, aquatic life and the environment."

The three designated planning areas include the combined Marsh Creek and Rock Creek watersheds in the Potomac River Basin, and Laurel Hill Creek and Back Creek in the Ohio River Basin.

The Statewide Water Resources Committee and the Potomac and Ohio regional water resources committees recommended designating these planning areas pursuant to Act 220 of 2002, the Water Resources Planning Act. The law established a Statewide Water Resources Committee and six regional committees that guided DEP in developing the first updated state water plan in 26 years, which DEP completed in 2009: "Clean, reliable ground water and surface water resources are critical for sustaining the environmental health of our natural resources, protecting the public's health and safety, and maintaining the economic vitality of the Commonwealth."

Adam McClain, Vice-President of WAAC and the Water Specialist for the Adams County Conservation District, is playing a key role on the local advisory committee that will develop a voluntary critical-area resource plan (yes, a CARP) for combined Marsh Creek and Rock Creek watershed. The plan is intended to address the key problems identified in the watershed and will suggest voluntary measures and actions that prioritize resources to ensure an adequate supply of water in the future.

Specifically, the CARP will include identification of existing and future reasonable and beneficial uses; a water availability evaluation, including a quantitative assessment of the available water resources and their relationship to the existing and future reasonable and beneficial uses; identification of the quantity of water available for new or increased uses of water in the foreseeable future and an identification of quantities required for future water uses associated with planned projects or developments; an assessment of water quality issues that have a direct and substantial effect on water resource availability; consideration of stormwater and floodplain management within the critical water planning area and their impacts on water quality and quantity; identification of existing and potential adverse impacts on uses or conflicts among users or areas of the critical water planning area and identification of alternatives for avoiding or resolving such conflicts; and identification of practicable supply-side and demand-side alternatives for assuring an adequate supply of water to satisfy existing and future reasonable and beneficial uses.

For more information, read the following article.

Planning the Future of Your Water

The following article by Dr. Heidi Moltz first appeared in WAAC's monthly column in The Gettysburg Times.

Dr. Moltz is a Senior Water Resources Scientist at the Interstate Commission on the Potomac River Basin (ICPRB). She is the ICPRB project manager for the Marsh and Rock Creek Critical Area Resource Plan project.

Marsh and Rock Creek watersheds, together a crucial source of water for much of Adams County, was designated a Critical Water Planning Area by the Pennsylvania Department of Environmental Protection (DEP) in January. The action was taken after an assessment found that, under some conditions, demand for water in these watersheds can exceed streamflow volume. The existing interest by governments and citizens as well as the availability of funding were additional factors in the selection.

Designation of the watersheds initiates a process to develop a non-regulatory management plan for the area's water resources, called a Critical Area Resource Plan. The public will participate in planning for the future of water resources in these watersheds.

The designated watersheds extend west past Orrtanna, north almost to Arendtsville, east to Bonneauville, south to the Maryland border, and have in their center the Borough of Gettysburg. The creeks converge in Maryland to form the Monocacy River,

Continued on the next page.

Planning the Future of Your Water continued from previous page.

a tributary to the Potomac River. Protection of this interstate resource affects not only Adams County residents but downstream residents as well. As the region's population continues to grow, the potential for water use conflicts is expected to worsen if there is not careful planning.

The Marsh and Rock Creeks plan, scheduled for completion in 2012, is being led by a local advisory group and the Potomac Regional Committee, formed as part of the recently completed state water planning process. The Interstate Commission on the Potomac River Basin (ICPRB), with DEP guidance, is facilitating the planning. Technical assistance is being provided by the United States Geological Survey and the Adams County Conservation District. Planning and preliminary discussions were begun in 2008 by the

Adams County Commissioners, who subsequently formed a Water Resources Advisory Committee. This latest effort, funded by DEP and ICPRB, is a positive outgrowth of that action.

The watersheds' major issues include streams and wells going dry, and degradation of water quality, which pose threats to the myriad uses of the resource. After a scientific characterization of the water resources issues, recommendations for solving the problems will be developed. Implementation of the recommendations is voluntary; however, by involving a diverse group of local participants, the project will find solutions that are implementable and practical.

To this end, the local advisory group was recently formed. Charles Bennett, Manager of Environmental Affairs for Knouse Foods, was elected to be chair of this committee. Committee membership is comprised of a wide range of participants with many interests: concerned citizens, municipalities, utilities, state and local government, major water users, environmental organizations, educators, and the agricultural community.

Committee meetings are open to the public and participation is encouraged! Broad involvement with this project will ensure the availability of adequate and clean water now and in the future.

For more information contact Heidi Moltz at ICPRB (hmoltz@icprb.org, 301.274.8116), or visit www.pawaterplan.dep.state.pa.us.

How Does Groundwater Exist?

The following article by Adam McClain first appeared in WAAC's monthly column in The Gettysburg Times.

Adam McClain is the Watershed Specialist for the Adams County Conservation District and Vice President of WAAC.

Groundwater is a term that is often misunderstood. A question that I often get asked is if groundwater exists in Adams County as an underground lake or reservoir. The short answer has always been No. The only places that groundwater usually exist are in limestone areas where the water table fills portions of caverns or caves and sometimes old mines. A good example is Penn's Cave in Centre County.

In Adams County groundwater is simply water that is found beneath the ground in soil pores and rock fractures. The point where all of the soil pores and rock fractures are completely saturated is considered the water table. So how does the water get into your well? Water moves from the rock fractures into your well. Winter is a good time to visualize how water moves through rock fractures. Have you ever been driving along a steep rock cliff and see ice hanging off the rocks? What you are seeing is water seeping out of the rock fractures, the same way it seeps into your well. Keep in mind that the water yields that these fractures produce are influenced by how much water infiltrates into the ground.

Starting in May until the end of October, the water table is gradually dropping. Less water becomes groundwater due to less rain, more plant growth utilizing the rain water, and evaporation caused by heat. From about November to May, the water table is able to recharge and you will see a gradual decrease in the distance from the surface to the water table.

As we all know, managing groundwater in Adams County is very important. Over 90% of the residents in Adams County rely on groundwater as their source of drinking water, either through an on-lot system or a public water supplier. Over the next two years, the Adams County Conservation District will be monitoring 14 wells in the Rock and Marsh Creek watersheds as part of a water management plan. Each month a depth to water measurement will be taken which is the distance from the surface to the water table.

The data collected from these 14 sites will be uploaded onto the U.S. Geological Survey's website. The additional 14 sites will give us a total of 16 areas in Adams County where we know the depth to the water table. The two other sites are in Carroll Valley and Lake Meade. Currently there are three measurements for each of the sites used in the Rock and Marsh Creek water management plan and years of data for the Carroll Valley and Lake Meade sites. Each month an additional measurement will be added and you will be able to see how the water table fluctuates throughout the year in those areas. To see if locations near you, visit http://groundwaterwatch.usgs.gov/countymaps/PA_001.html.

Once the Rock and Marsh Creek well monitoring is underway, the Adams County Water Resources Advisory Committee will be setting up a countywide monitoring program. For more information, contact Adam McClain at amcclain@adamscounty.us.

A Covenantal Ethic

The following article appeared in the November 2010 issue of Bay Bound, *a publication of the Chesapeake Bay Foundation.*

Rabbi Nina Beth Cardin is the Program Chair of the Chesapeake Covenant Community and Executive Director of the Baltimore Tree Trust.

"The Earth is not ours to keep; it is ours to use and pass on, no worse for the wear."

There is a brook near my home — a fresh, cool, babbling brook that I visit every now and then. It runs along a private road at the base of a densely wooded, steeply rising hill that was dismissed by builders as too inhospitable to develop. You can stand where the brook slips northward under the road and comes out the other side, and hear it fall and tumble and gurgle

Rabbi Nina Beth Cardin reminds us to honor the rights of our natural surroundings, like this brook near her Baltimore home.
Photo courtesy of Rabbi Cardin

Amazingly, about 1,000 feet away from this natural watercourse runs the manmade river of asphalt called I-695. But you would never know it by just standing there. The thick woods and undulating land buffer the brook from the sounds and vitality of the interstate. This stunning juxtaposition of nature and civilization continually awes, and worries, me.

For while the interstate is well protected, with rights that prevent it from being degraded, built upon or otherwise manhandled by private concerns, I can't say the same for the brook. I began to wonder, then, about the rights claimed by civilization and the rights due this brook.

Until recently, humankind has operated under the ethic of minimal restraint, believing we have the right to do with the world's resources as we wish. "A person has as his substantive end the right of putting his will into any and every thing and thereby making it his, because it … derives its destiny and soul from his will."* Land, trees, water, air, all are at our disposal to pave, cut, divert, and trash as we desire.

But we now know that such an ethic is both unwise and wrong. Unwise because with it we are destroying the very matter that keeps us alive; and wrong because we have no right to swallow up 4.5 billion years of hard-won evolutionary wisdom in one blazing display of gluttony, ignorance, or indifference. The Earth is not ours to keep; it is ours to use and pass on, no worse for the wear. And where possible, even improved.

We know now that we need a new ethic to protect both the well being of the earth and our human occupancy upon it. This new ethic calls for nature to be afforded rights of its own. Just as corporations have been granted the legal rights of persons, so now should nature.

While this may seem like an extraordinary leap in the historical expansion of rights, in fact such a "land ethic" is rooted in one of our most ancient cultures. For 2,500 years, the Bible has spoken of the rights of the land and the obligation of people to treat it well. The land must: be given rest every seven years (Leviticus 25); be treated well so that it in turn will treat its people well (Leviticus 26); be seen as belonging to no one generation or no one owner but rather as a temporary trust that eventually reverts back to the tribal commons. In short, the land must be seen as a partner alongside humanity in this grand covenantal experience called Creation.

The entitlement ethic has failed us. This covenantal ethic promises us a healthier, safer, and just world. It is time.

*Hegel's Philosophy of Right, as quoted in *Should Trees Have Standing: Toward Legal Rights for Natural Objects*. Christopher D. Stone. Los Altos, California: William Kaufmann, Inc. 1974

Stream Gauge Workshop

Taking measurements of Marsh Creek

Impervious Surfaces Hinder Infiltration and Increase Runoff

What is an Impervious Surface?
Impervious surfaces are surfaces that do not allow water to infiltrate the soil. They include rooftops and asphalt or concrete roads, parking lots and sidewalks. If these surfaces stood alone in a sea of porous soil and vegetation, they probably wouldn't cause many problems; instead they are usually connected to one another. Rooftops drain onto driveways, sidewalks and parking lots that connect to a network of paved streets. During rain storms or periods of snow melt, these surfaces channel water down our city streets, into storm drains, and eventually into our creeks and lakes.

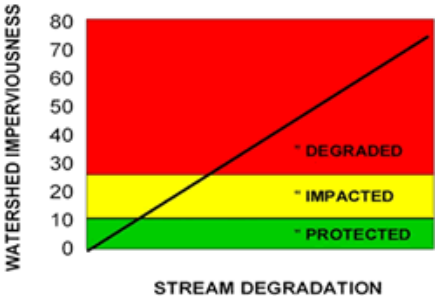
What harm is done?
In a completely natural setting, streams come to equilibrium with their environment. Water from storm events erodes some parts of the channel, while depositing sediments in others. Groundwater slowly enters the stream from the surrounding watershed long after storms have past, acting as a constant resupplier.

Urban streams fill more quickly (since water can run off of pavement quickly) and with more water than their natural counterparts. All of this water causes greater stream channel erosion and less of this material is redeposited in the channel before washing into a larger river or lake. Since less water infiltrates the soil in urbanized watersheds, less is available to recharge streams during dry seasons.

Researchers have measured declines in stream health for disturbances of as little as 3% of a watershed. When 10% of a watershed is paved, stream habitat is in deep trouble. When 20% of a watershed is paved, many streams can no longer sustain fish populations.

Even with a mere 10% of a watershed covered with impervious surfaces, the resulting increase in stream volume from corresponding run-off can have numerous impacts.

1. Increased floods and flood peaks, leading to stream straightening and streambed erosion;
2. Increased erosion, leading to loss of trees and vegetation along the banks (at 8% - 10% impervious surface coverage, streams double in the size of the bed due to the increased volume);
3. Increased pollutant loads;
4. Increased shell fish diseases and beach closures;
5. Increase in stream temperature which messes up lots of biological processes;
6. Increased bacteria, often as a direct of a high density of household pets;
7. Decreased high water flow;
8. Decreased pooling;
9. Decreased woody debris, a crucial habitat element for aquatic insects;
10. Decrease in substrate quality;
11. Decreased fish passage during dry weather flow periods due to the enlarged stream bed; and
12. Decrease in insect fish and fish diversity. At 12% imperviousness, trout and other sensitive species can no longer survive in the stream.



Stylized relationship between imperviousness and receiving stream impact

2010 Stream Cleanup

Above: Charles Skopic and Dr. William Steinour with some of the trash they pulled from the stream.

Below: The volunteers with the truckloads of trash they collected.

On Saturday, June 19, as part of the Great American Cleanup, the Watershed Alliance coordinated an effort to clean up a portion of Toms Creek which flows through Carroll Valley. The purpose of a cleanup is to improve the health of a stream's ecology and increase the physical beauty of this natural asset by removing trash and debris from the stream.

Local volunteers, employees of C.S. Davidson, Inc., and members of the Watershed Alliance took part in the cleanup.

WAAC will again coordinate a stream cleanup in 2011.

Adams County Water Facts

Adams County has over 1,300 miles of streams. But Adams is the only county in Pennsylvania into which virtually no water flows; every stream in Adams County originates within the county. We are the headwaters for the Chesapeake Bay. Our water starts here!

Of course, water is important to you only if you drink water ... or cook with water ... or wash with it ... or need it for sanitation. That is to say, all of us. We take the availability of clean water for granted ... most if the time. And here in Adams County, it usually is. All the water we have is what falls from the sky and recharges our groundwater. Let's make sure we use it wisely.

Pennsylvania and the Bay

The Susquehanna, which drains half of Pennsylvania, pumps in 40% of the Chesapeake Bay's nitrogen, largely from agriculture, and a gusher of its two other major pollutants - natural sediment and phosphorus from fertilizers and detergents - abetting the decline of the Chesapeake's celebrated fishing industry. "As goes Pennsylvania," says J. Charles Fox, the EPA's senior Chesapeake adviser, "so goes the Bay."

The Chesapeak Bay Watershed

About the Watershed Alliance

The mission of the Watershed Alliance is to monitor, improve, and protect water resources within Adams County.

WAAC is a member-based, nonprofit organization whose goals are to

- Help residents better understand the complex watershed issues affecting Adams County;
- Encourage sound water management and land use practices that will promote a sustainable watershed resource;
- Support a county-wide water monitoring program and data base to use for evaluating water resources;
- Identify and carry out watershed improvement projects; and
- Maintain the viability and sustainability of the Watershed Alliance of Adams.

In 2008, WAAC received the Peacemaker of the Year Award from the Interfaith Center for Peace and Justice.

How to Join the Watershed Alliance

Not yet a WAAC member? Join us now!

Membership Application

WAAC is a 501(c)3 organization under the rules of the IRS. Membership dues are tax-deductible to the extent of the law.

Membership Benefits

- Members' Newsletter
- Member events and field trips
- Satisfaction of protecting water resources
- Joy of community service

Annual Dues

- Individual _____ $20
- Family _____ $30
- Protector _____ $50
- Guardian _____ $100
- Conservator _____ $250
- Steward _____ $500
- Life Member _____ $1,000

Name_____

Address_____

_____

_____

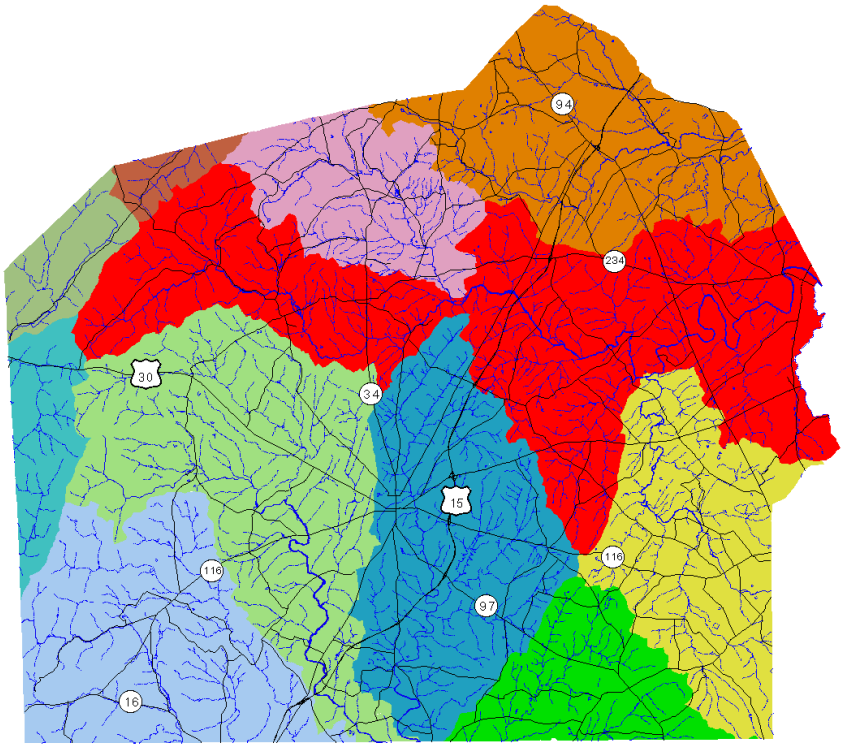
Phone Number_____

Email_____

Thank you!

Please mail your check to:

Watershed Alliance
of Adams County
P.O. Box 4329
Gettysburg, PA 17325



Susquehanna Watershed

- Conewago Creek Watershed
- South Branch Watershed
- Bermudian Creek Watershed
- Opposum Creek Watershed
- Mountain Creek Watershed

Potomac Watershed

- Marsh Creek Watershed
- Rock Creek Watershed
- Toms Creek Watershed
- Piny and Alloway Creek Watersheds
- Conococheaugue Creek Watershed
- Antietam Creek Watershed

Adams County's Watersheds

Watershed Alliance of Adams County
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