

Watershed Alliance of Adams County

Adamswatersheds.org

Newsletter, January-March 2017

WAAC launches Riparian Buffer Campaign

The importance of riparian buffers to improving water quality cannot be overstated. Keeping our streams and lakes healthy for wildlife, recreation and drinking water, in Adams County is a major goal of WAAC. To help this implement this goal, we have started a “Riparian Buffer Campaign”. The campaign has several objectives. First we must communicate the basics of what, why and how riparian buffers work to improve water quality. We will continue to communicate our message through newsletters and articles in local newspapers.

Another objective is to install riparian buffers on private and public land. WAAC has received a \$3,000 grant from the South Mountain Partnership which provides the funding to convert 3 acres of land to forested riparian buffers. This equates to planting a 25 foot strip of forest on both sides of a stream for a length of one-half mile. We are looking for interested landowners to join us in this endeavor.

Our first riparian buffer planting project will be on Saturday, April 29th! We need volunteers. We will be planting native tree species purchased through the Adams County Conservation District seedling sale. Contact ACCD at 334-0636 if you are interested in ordering trees for your property.

Interested in a fun day of planting trees? Come join us and together we can keep our streams in good health and keep those fish biting! For

more information on volunteering and to join the Riparian Buffer Campaign, Contact Pat Naugle, 334-1142.

Collaborative monitoring with EASI resumed in East Berlin

After a 6 year hiatus, WAAC has resumed monthly water sampling of Conewago Creek in East Berlin supported by the Environmental Alliance for Senior Involvement (EASI). The East Berlin sampling site is co-located with the USGS stream gage which will permit estimation of nitrate and phosphate pollutants flowing out of the county’s largest watershed. WAAC and EASI continue the monitoring of Marsh and Rock Creek watersheds near their confluence along the Maryland border (and approximately 2 miles upstream of the USGS Bridgeport Md stream gage). The Rock, Marsh and Conewago sites are monitoring approximately 75% of the Adams county watershed.

Urban forests, iTREE, and the 2017 ACCD native tree sale

You can plant your own forest on as little as a tenth of an acre with just 10 to 20 trees. The value of a tree in an urban setting includes slowing stormwater runoff, energy savings from sheltering your domicile and carbon sequestration. Use the US Forestry Service’s planning software at www.itreetools.org and GoogleMaps to design your forest on your own parcel. Once you have an idea of what you want to plant and where, you can get native trees and shrubs at reduced cost from the April

tree seedling sale of the ACCD. Here is a link to the Tree Sale Brochure - [http://www.adamscounty.us/Documents/2017 Brochure.pdf](http://www.adamscounty.us/Documents/2017%20Brochure.pdf) Don't miss the order deadlines of March 1st for containerized plants and April 3rd for bareroot seedlings

Rock Creek: Nitrates down, phosphates up

First the good news, analysis of Rock Creek water quality data from 2005 to present, reveals a significant decline in the level of nitrates (figure 1). Improvements in wastewater treatment technologies deployed by municipal facilities in the last 15 years are believed to have strongly contributed to this result. At 2.02 mg/l the average level of nitrate over the 2011-16 period was 59% lower than the average over the 2005-10 period.

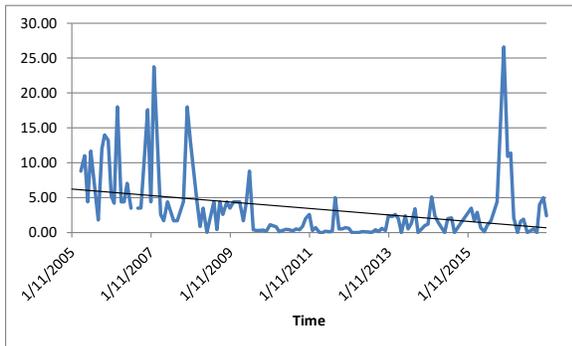


Figure1. Trend in nitrate level (mg/liter) on Rock Creek, 2005 to 2016.

But all is not rosy on Rock Creek, as reflected in the increasing trend in phosphate levels since 2005 (figure 2).

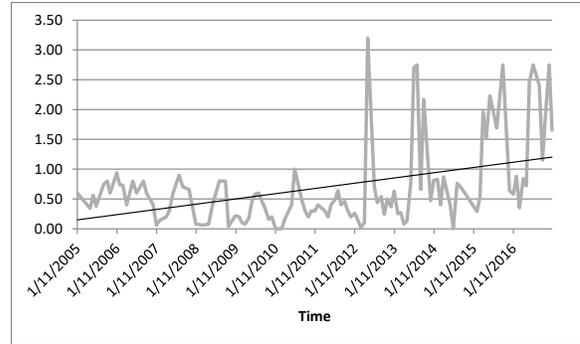


Figure 2. Trend in phosphate levels (mg/liter) on Rock Creek, 2005 to 2016.

Levels seemed to have abruptly increased in the month of May 2012 and have remained elevated ever since. Explanations are being sought so if you have an idea drop us a line.

Marsh Creek: A picture of stability

The levels of nitrate and phosphate in Marsh Creek have remained relatively low and stable with no significant trends discernable over the last 17 years. The average Marsh Creek nitrate level at 1.85 mg/l was lower than the averages observed for Conewago and Rock Creek, respectively, over this period. This likely reflects the greater proportion of forest in the Marsh Creek watershed.

The average phosphate level of 0.78 mg/l was similar to the other two principal watersheds

Conewago Creek: The jury is still out

From 2005 to 2010 the levels of nitrates and phosphates measured at the county line in East Berlin were both trending downward (figure 3).

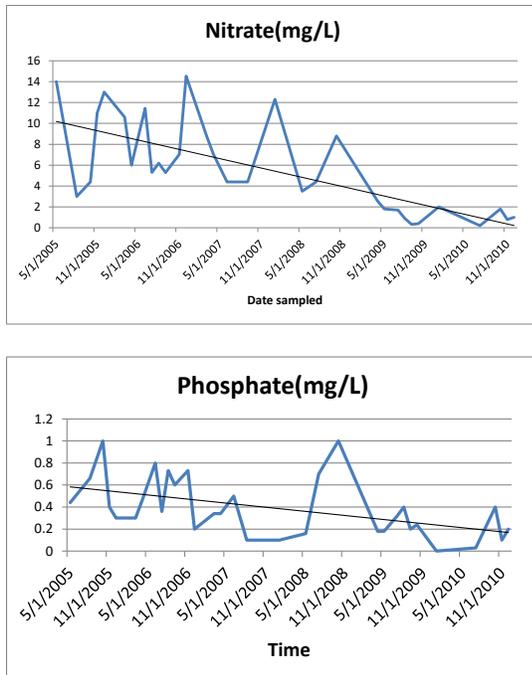


Figure 3. Trends in nitrate and phosphate levels in samples from Conewago Creek, 2005 to 2011

With only 4 months of data recorded since the resumption of WAAC monitoring, it is too early to tell if those trends have continued. The Conewago watershed drains 50 percent of the land area in Adams county and accounts for a high proportion of streams listed by the DEP as impaired. Land use is largely agricultural in nature.

WAAC annual meeting of the membership

The 2017 annual meeting is scheduled for Tuesday the 17th of April at the Adams County Agriculture & Natural Resource Center, 670 Old Harrisburg Road, Gettysburg. There will be snacks and hot beverages served starting at 6:30 pm with the meeting to begin at 7 pm.

On average:

The averages of nitrate and phosphate in water samples taken by WAAC and EASI volunteers on

a monthly basis are given below. Compare the averages for the three principal watersheds of Adams county over various periods. Such data combined with streamflow data from the USGS gauging stations in East Berlin and Bridgeport should allow for the calculation of nutrient exports.

Waterbody	Period of measure	Phosphate (mg/L)	Nitrate (mg/L)
Rock creek	last 3 mo.	2.09	3.8
	2011-16	0.91	2.02
	2005-10	0.43	4.91
	2005-2016	0.71	2.97
Marsh creek	last 3 mo.	1.74	2
	2011-16	0.81	1.5
	2005-10	0.72	2.23
	2005-2016	0.78	1.85
Conewago creek	last 3 mo.	2.25	0.07
	2011-16	n/a	n/a
	2005-10	0.39	5.51
	2005-2016	0.76	4.78

Did you know?

Forested stream segments remove 200 to 800% more nitrogen than non-forested segments according to the Stroud Water Research Center in a 2004 study published in the *PNAS*.

A single Eastern White Pine planted on the northwest corner of a home in Gettysburg 30 years ago will generate winter energy savings of \$73 in 2017. The same tree by intercepting 2,100 gallons of rainfall will generate \$16 in stormwater benefits according to the US Forestry Service's iTree (www.itreetools.org).

In October 2016, the USDA, the Commonwealth and the EPA committed \$28.7 million in new funding to accelerate pollution reduction investments in agriculture. Adams is among the five PA counties identified by the Chesapeake Bay Foundation for prioritization.

Useful links:

For technical know-how on establishing forest buffers go to:

http://conservationtools.org/library_items/612-Chesapeake-Bay-Riparian-Handbook-A-Guide-for-Establishing-and-Maintaining-Riparian-Forest-Buffers

and

<http://www.cbf.org/document.doc?id=257>

To get the latest update on the progress of the Chesapeake Bay Program see the recently released 2016 annual report of the Chesapeake Bay Foundation.

<http://www.cbf.org/about-the-bay/state-of-the-bay-report-2016>

Plant more trees, eat more crabs

Siltation and excess nutrients are among the threats to aquatic life, municipal water supplies, fish consumption and water recreation in Adams County. Just ask a resident of Lake Heritage where advisories against swimming and fish consumption have been issued the past two summers because of harmful blue green algal blooms. These blooms are fed by accumulating stocks of phosphate and silt that are mainly the result of storm water runoff from surrounding residential and agricultural land uses.

PADEP found that 22 percent of the streams assessed in Adams county were polluted. These assessments revealed silt as the most common pollutant. Siltation of our waterways occurs when land use changes from green filtering forest land to agricultural or residential land uses. Reforestation of buffer strips along streams can reestablish many of the ecological benefits of forests.

Buffers recycle nutrients, reduce runoff erosion and increase groundwater infiltration, resulting in clearer streams and lakes. When planted to native species they maintain the life cycles of local insects, bugs, and birds that have co-evolved over the eons here in Adams County. They also provide connective corridors which are important for maintaining the genetic diversity of wildlife populations.

Buffers are most ecologically efficient when planted to native trees species, however lakefront owners may wish to preserve their waterfront viewscape by planting low growing native shrubs and deep-rooted warm weather grasses along the waterfront. As an added benefit, grass buffers are effective barriers to local geese whose droppings have also contributed to the algal blooms of Lake Heritage.

Riparian buffers can be an important tool to help protect these sources of drinking water. The municipal water supplies of Gettysburg and New Oxford draw on the Marsh Creek and the South Branch Conewago Creek watersheds respectively.

Riparian buffers will also contribute to Pennsylvania's commitments to the Chesapeake Bay program. It is estimated that 32% of sediment pollutants in the Chesapeake Bay originate in Pennsylvania and Adams county is one of five priority counties for the Bay Program.

Planting buffers along the streams and lakes of Adams County will not only improve our local waters but those of the Chesapeake water men who so graciously provide us with fresh rockfish, crabs and oysters in return. So plant a buffer and eat more crabs.