NIE

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Stormwater workshop looks at best practices

By ANNA MCCARTNEY
Contributing writer

Stormwater creates serious problems that are best addressed by a separate regional stormwater program.

Increasing impervious surfaces such as roads, sidewalks, highways, rooftops, and parking lots add to the amount of stormwater runoff and toxic pollutants that, when discharged to a stream or lake, threaten aquatic life and human health. This urban stormwater runoff is one of the most significant causes of water pollution and flooding problems in the United States.

In 2010, polluted runoff — which can carry a cocktail of pollutants from urban centers and agricultural areas — caused 351 closing/advisory days, while sewage spills and overflows caused 64 closing/advisory days at Great Lakes beaches. Flooding was also a serious problem in many areas.

A number of engineered and managed natural systems have evolved to remove, reduce, retard, or prevent targeted stormwater and pollutants from reaching receiving waters in the most cost-effective manner.

These "best management practices" (BMPs) for low-impact development are part of the U.S. Environmental Protection Agency's (USEPA) effort to regulate the release of pollutants into natural aquatic environments through water quality standards set forth by the National Pollutant Discharge Elimination System (NPDES).

Property owners, builders, engineers, real estate agents, landscapers, municipal officials or anyone interested in learning about new stormwater regulations and the BMPs should attend the "Managing Municipal Stormwater Workshop" sponsored by Penn State Cooperative Extension, Pennsylvania Sea Grant and Environment Erie.

USGS

Addressing stormwater problems will help ease pollution and flooding.

BEFORE YOU GO

What: "Managing Municipal Stormwater Workshop" — new stormwater regulations and best management practices to reduce flooding and protect water quality
When: April 17 and 18 from 8:30 a.m. to 4 p.m. — RSVP deadline to register is April 2.
Cost: $40 (includes lunch)
Register online at: http://environmenterieworkshops.ticketleap.com/stormwater-erie/ or contact Matt Pluta at 835-8069 or Scott Sjolander at (814) 333-7440.

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▲ **Navier Ball**
Harding Elementary School, fifth grade

▲ **Tristen Boam**
Harding Elementary School, fifth grade

PA DEP CZMP

The city of Erie spent more than $100 million to fix the aging combined sewer system that in the past dumped untreated sewage and stormwater into Lake Erie. But 70 percent of the nation's combined sewer systems in need of upgrade are in the Great Lakes states. It will take many billions of dollars the communities don't have to fix the failing systems. To see a map of CSO discharge volume for 48 cities bordering the Great Lakes, go to www.greatlakesmapping.org/great_lake_stressors/7/combined-sewer-overflows.

Overflow alert

How aging sewage systems threaten Great Lakes

By ANNA MCCARTNEY
Contributing writer

Where does your wastewater go when you flush the toilet or take a shower? Does it go to a century-old treatment plant or a septic system on your property?

What about the rain and snowmelt from your roof and driveway and the roads and parking lots you use each day? Does it seep into the ground or does it rush off to the nearest storm drain or stream?

Many cities across the country have aging combined wastewater and stormwater systems that can't handle the larger amount of stormwater runoff that results from increased development and more frequent precipitation.

During heavy rainstorms, impervious surfaces dramatically increase the water flowing through these systems. When this happens, control devices release some of the flow (a combination of polluted stormwater and untreated sewage) into area waterways to prevent urban flooding and damage to wastewater treatment facilities.

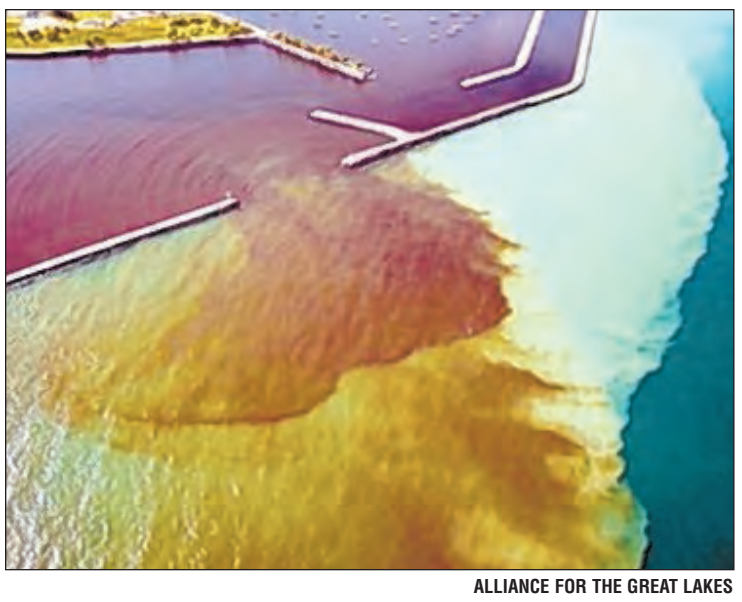
Imagine watching water flow over Niagara Falls for 15 hours — about 41 billion gallons. This is equivalent to the amount of untreated sewage and polluted stormwater released into the Great Lakes by Detroit, Cleveland, Buffalo, Milwaukee and Gary, Ind., between January 2010 and January 2011.

These are just five of nearly 200 Great Lakes communities in the U.S. portion of the basin that routinely discharge untreated sewage into the lakes. Combined sewer overflows, or CSOs, are one of the biggest challenges to the restoration of the Great Lakes and tributaries because they increase nutrients and pollutants in the water. CSOs force beach closures, prompt health advisories, harm wildlife and hurt tourism.

Nutrients can also come from a variety of other sources, including fertilizers carried by stormwater from farmlands and residential areas, manure, septic systems, and even atmospheric deposition of nitrogen from combustion of fossil fuels.

USGS

Toxic harmful algal blooms and "dead zones" in Lake Erie are expected to increase because of the increased precipitation forecast for the region unless action is taken to reduce agricultural and stormwater runoff. The runoff increases nutrients that feed the algae.



ALLIANCE FOR THE GREAT LAKES

Combined sewer overflows threaten public health and the environment and are an economic liability to Great Lakes communities because they discharge untreated sewage and runoff into nearby lakes and rivers, polluting valuable water resources.

Efforts to control and reduce nutrients such as nitrogen and phosphorus have failed across the nation. A study by the U.S. Geological Survey showed that concentrations have remained the same or increased in many streams and aquifers since the early 1990s.

Excessive levels of these nutrients have adverse effects, including algal blooms and oxygen depletion. New outbreaks of blue-green toxic algae have plagued western Lake Erie since 2008. A thick coat of toxic algae in 2011, during the wettest spring on record, covered one-sixth of Lake Erie's waters and contributed to its expanding dead zone, which in bad years covers up to a third of the entire lake bottom.

These problems not only affect health and the environment, they are also economic liabilities for Lake Erie and many other Great Lakes communities. Because aging infrastructure and stormwater management problems cross community boundaries and borders, a Great Lakes basin-wide solution is needed to address these issues.

It will take many billions of dollars to fix and replace aging sewer systems and it will take a renewed commitment by farmers, industry, municipal officials, property owners and citizens to meet the requirements of the Clean Water and the Clean Drinking Water Acts.

Ask your federal, state and local elected officials what they are doing to address aging infrastructure and protect this country's greatest freshwater asset from stormwater pollution. Learn more about what you can do at the upcoming "Managing Municipal Stormwater" workshop on April 17 and 18. See side article for details.

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Check out these websites to learn more:

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http://gallery.usgs.gov/audios/372
http://greatlakesbeaches.usgs.gov/
www.paseagrant.org

Climate change is expected to increase the frequency of intense spring rain storms in the Great Lakes region throughout this century and will likely add to the number of harmful algal blooms and "dead zones" in Lake Erie.

Find the long-range weather forecast and determine how it differs from past years. Has precipitation gone up in your area?

Some regions are suffering from a lack of rain. Do more research at www.climate.gov/#climateWatch and see how different regions compare.

Which problem is worse, too much water or too little water? Send your ideas and include possible solutions to axm40@psu.edu for possible publication in the "your space" feature.