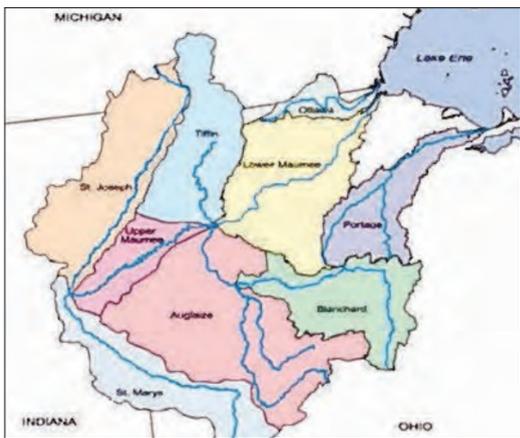




Reconnect with your environment

Learn about environmental issues, their affect on your community and actions for your involvement.



ARMY CORPS OF ENGINEERS

Here are major watersheds for western Lake Erie basin.

Many watersheds drain into basin

By ANNA McCARTNEY
Contributed writer

The Lake Erie basin includes rivers and wetlands that extend miles inland, draining large areas in Michigan, Indiana, Ohio, Pennsylvania and New York in the U.S. and the Canadian province of Ontario. The total Lake Erie drainage basin area is 30,140 square miles; 78,000 square kilometers.

Waters entering Lake Erie via tributaries in these watersheds originate as ground water and surface water runoff, which may carry many natural (e.g., sediment) and man-made (e.g., organic pollutants) compounds.

The western Lake Erie watershed drainage areas in Indiana, Michigan and Ohio are listed below.

Indiana drainage basin: 1,300 square miles, 3,300 square kilometers: In-

cludes the Maumee watershed.

Michigan drainage basin: 5,808 square miles, 15,040 square kilometers: includes the Belle, Black, Clinton, Detroit, Huron, Maumee and Raisin watersheds.

Ohio drainage basin: 11,700 square miles, 30,400 square kilometers: Ottawa-Stoney, Maumee, Cedar-Portage, Sandusky, Huron-Vermilion, Black-Rocky, Cuyahoga, Ashtabula-Charlton, Grand, Blanchard and Chautauqua-Conneaut watersheds.

Sources: Great Lakes Information Network, Wikipedia, and Lake Erie Public Access Guidebook, Rivers Edition.

ANNA McCARTNEY, a communications and education specialist for Pennsylvania Sea Grant, can be reached by e-mail at axm40@psu.edu.



UNIVERSITY OF TOLEDO

The Ottawa River, which drains into North Maumee Bay at the western end of Lake Erie, is just one example of why fixing pollution problems is much more difficult and expensive than preventing them. It should be a constant reminder that keeping human, agricultural and industrial waste out of our waterways is the only sound solution to ensure future generations don't have to pay for avoidable problems.

Cautionary tale

Tab to clean up polluted Ottawa River: millions

By ANNA McCARTNEY
Contributing writer

Many Lake Erie water quality problems could have been and still can be averted if human, agricultural and industrial waste is kept from running into the tributaries that empty into the lake.

There is plenty of evidence that in the past, little thought was given to protecting the tributaries that feed Lake Erie.

The Ottawa River, which drains into North Maumee Bay at the western end of Lake Erie, is just one example of how fixing these problems is much more difficult and expensive than preventing them.

The millions of dollars spent to cap the most notorious landfills along its banks or to remove toxic sediment do not begin to account for the true environmental and economic costs of what has long been considered Ohio's most polluted waterway.

Much of the pollution occurred before environmental laws were passed in the 1970s.

Decades of manufacturing activity and improper waste disposal practices and sewage overflows resulted in the release of hazardous substances into the Ottawa River watershed.

This pollution, which migrated from landfills, industrial facilities and wastewater treatment plants along the riverbanks and in the watershed, contaminated the water, fish and wildlife in the river and adjacent North Maumee Bay. Even after the federal landmark Clean Water Act was passed in 1972 to curb industrial discharges, the river was written off as a sewer.

However, many concerned citizens, community groups, business and

government organizations have worked hard to improve the river's quality. During the last decade, progress has been made. In 2010, one of the largest cleanups in Great Lakes history removed nearly 300,000 tons of contaminated sediment in Ohio's hottest spot for industrial pollutants at a cost of \$47 million.

In 2012, another restoration effort that began in 2005 was also completed when the University of Toledo finished a final phase of the university's Ottawa River project on the main campus.

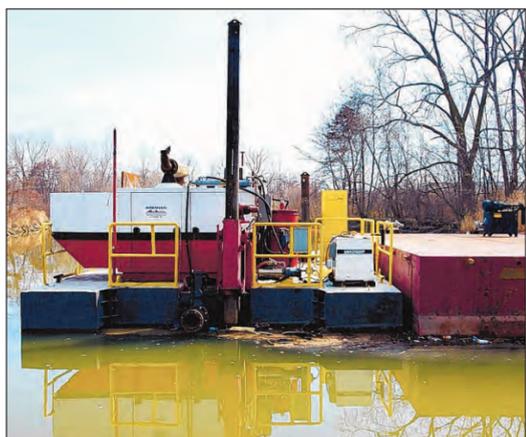
Finally in May 2012, the state of Ohio lifted some, though not all, of the river's "do not eat fish" advisories that had been in place for 21 years.

In 2011, some advisories against making skin contact with river water were also lifted for the first time in 20 years. Yet in some areas both advisories still remain in effect.

To be sure, the Ottawa River has a long way to go before claims can be made that it is free of pollution. The river's story should, however, be a constant reminder of the expense and difficulty that come from dealing with problems left by past generations and why prevention is the only sound solution for protecting the water that feeds Lake Erie, the source of drinking water for millions.

Keeping human, agricultural and industrial waste out of our waterways ensures that future generations can swim and fish and benefit from the greatest source of freshwater in the world.

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LAKE SCIENTIST

In 2010, one of the largest cleanups in Great Lakes history removed nearly 300,000 tons of contaminated sediment in the Ottawa River at a cost of \$47 million.



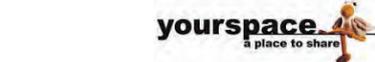
FWS

Industrial pollutants contributed to deformed pike in the Ottawa River.



UNIVERSITY OF TOLEDO

In May 2012, this warning sign is being taken down after the state of Ohio lifted a 21-year long advisory at this site. Advisories still remain in effect in some sections of the Ottawa River.



CONTRIBUTED PHOTO

North East Middle School teacher Ian Williams and his students learn about the environment at TREC.

Fish stories impress North East students

By ANNA McCARTNEY
Contributed writer

North East Middle School students, who had a meaningful watershed experience at the Tom Ridge Environmental Center through the PA Sea Grant/NOAA BWET watershed service-learning project, shared what they learned.

"We get most of the fish we eat through Aquaponics." — **Meghan Grantham 6th grade**

"Aquaponics recycles the water from the fish tanks to the plants. The nutrients are used by the plants and then the water returns to the fish tanks." — **Skyler Sanders, 8th grade**

"It was really cool learning about how fish and plants live and work

together." — **Rylan Quiros, 6th grade**

"Steelhead and brook trout are very sensitive to certain types of bacteria." — **Ethan Dimperio 7th grade**

"Sturgeon can live up to 150 years old and they don't start laying egg until they are 25 years old." — **Alexis Burkhart, 8th grade**

"A nice-sized female trout can lay up to 1,500 eggs." — **Tanner Smiley, 8th grade**

"Some fish are adapted to cold water and others to warm water." — **Courtney Alexander, 7th grade**

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Check out these websites to learn more:

- www.great-lakes.net/lakes/erie.html
- www.epa.gov/greatlakes/erie.html
- www.lakeerieimprovement.org/tributaries/
- www.paseagrant.org

Fishing plays a huge role in bringing millions of dollars to the Erie region. However, many citizens and lawmakers do not seem to make the connection between a healthy environment and healthy economy. Examine the editorials and letters to the editor and use them as a model to write your own letter alerting the public about the importance of protecting Lake Erie and its tributaries. Send it to axm40@psu.edu for possible publication.

