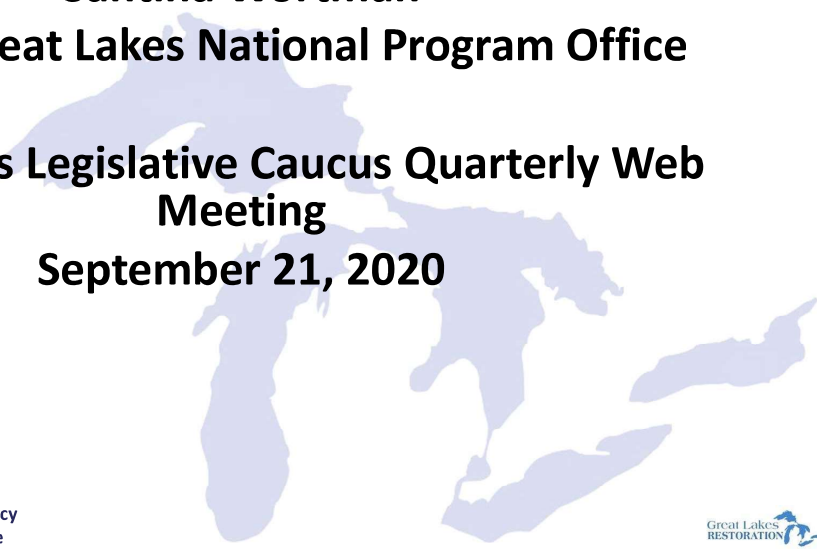


Meeting the Binational Goals for Nutrient Management in the Region: 2020 Update

Santina Wortman
US EPA Great Lakes National Program Office

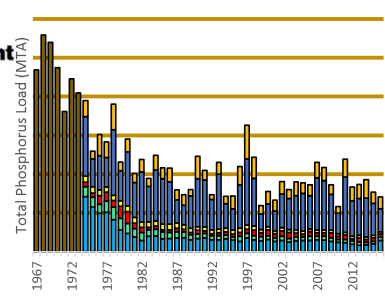
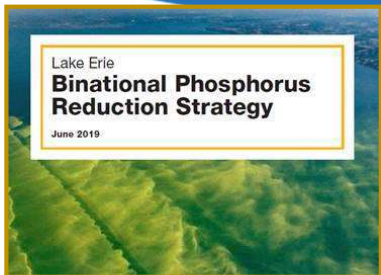
Great Lakes Legislative Caucus Quarterly Web Meeting
September 21, 2020



U.S. Environmental Protection Agency
Great Lakes National Program Office

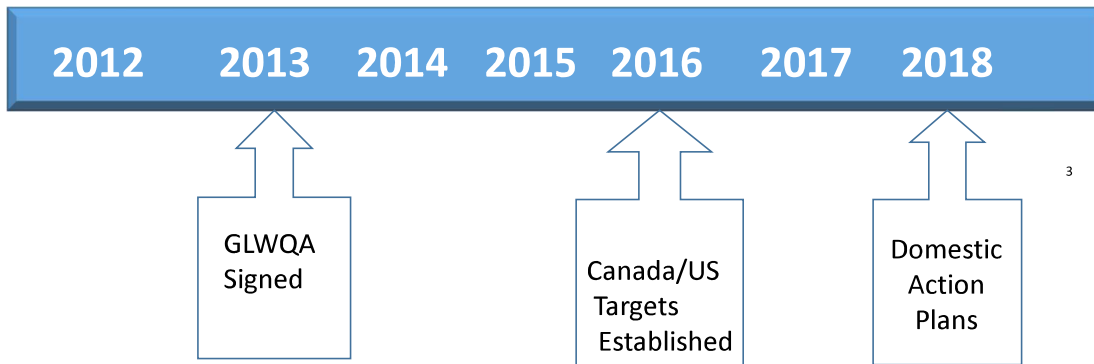


Lake Erie remains the highest priority under GLWQA Annex 4



The U.S. and Canada committed to:

- ✓ Review, revise and/or develop concentration and loadings objectives for offshore and nearshore waters of Great Lakes **starting with Lake Erie**
- ✓ Establish allocations by country
- ✓ Establish load reduction targets for priority watersheds that have significant or localized impact
- ★ ➤ Develop and implement P reduction plans for each country ★
- Monitor and report progress, and adaptive management



5-Year Action Plans (2018-2023)

Key documents included in the 5-Year Action Plans (2018-2023):

- U.S. ACTION PLAN FOR LAKE ERIE**
- Canada-Ontario Lake Erie Action Plan**
Partnering on Achieving Phosphorus Loading Reductions to Lake Erie from Canadian Sources
February 2018
- State of Michigan Domestic Action Plan for Lake Erie**
- State of Ohio's Domestic Action Plan 1.1**
In accordance with the Great Lakes Water Quality Agreement
- Indiana's Great Lakes Water Quality Agreement (GLWQA)**
DOMESTIC ACTION PLAN (DAP) for the WESTERN LAKE ERIE BASIN (WLEB)
February 2018

U.S. Programs

Great Lakes Water Authority Surpasses State Goal Of Reducing Phosphorus Levels By 40 Percent By 2025



Regional Conservation Partnership Program

Tri-State Effort for Phosphorus Reduction

Western Lake Erie Basin Partnership

Blanchard River DEMONSTRATION FARMS NETWORK

Save Maumee Riparian Buffer Initiative



Making the ditches streams again

Great Lakes RESTORATION



USDA Launches \$41 Million Initiative to Improve Water Quality for Western Lake Erie Basin

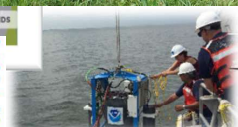


Conservation Effects Assessment Project (CEAP)



H2Ohio

LAKE ERIE ALGAE

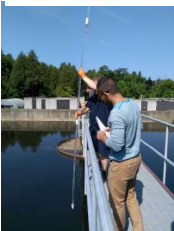


National Center for Water Quality Research
HEIDELBERG UNIVERSITY

USDA United States Department of Agriculture
Natural Resources Conservation Service

Canada-Ontario Programs

Infrastructure Canada



Investing in Canada



Guide: Obtaining Approval for Greenhouse Stormwater Management Facility



London CANADA



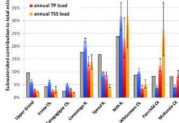
GREAT LAKES PROTECTION INITIATIVE

COMBINING SCIENCE AND ACTION TO TACKLE THE MOST SIGNIFICANT CHALLENGES AFFECTING GREAT LAKES WATER QUALITY AND ECOSYSTEM HEALTH

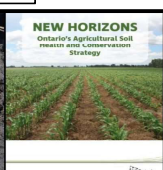
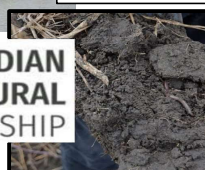


Lake Erie Agriculture Demonstrating Sustainability (LEADS)

Is your farm business located within the Lake Erie or Lake St Clair watersheds? Check to see if you are eligible for enhanced cost-share funding opportunities in this priority, target area

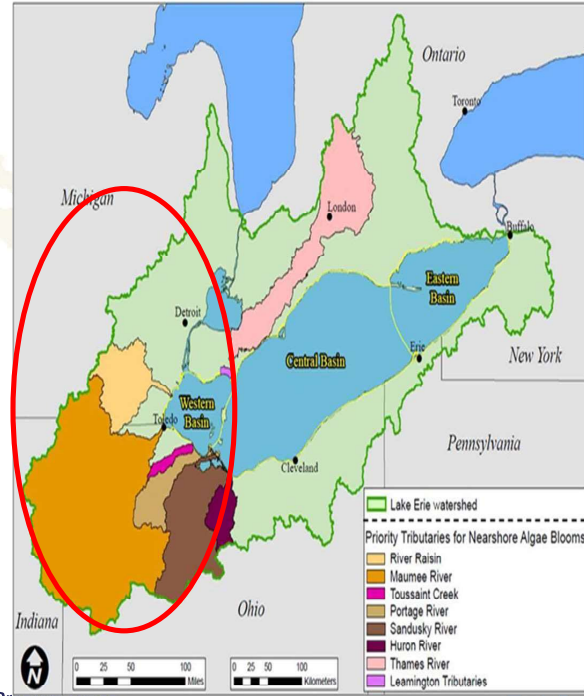


CANADIAN AGRICULTURAL PARTNERSHIP



Domestic Action Plan Efforts

- Enhanced 4R Programs
- Municipal wastewater treatment
- Stream Restoration
- Market-based incentives



U.S. Environmental Protection Agency Great Lakes National Program Office

New Programming in Ohio

In Ohio: H2Ohio Initiative Priorities:

- Prevention – Land-Based Strategies to Protect Waterways
- Water-Based Restoration Through Natural Remedies, Treatment, Technologies, & Innovation
- Science, Research, & Measurement through Monitoring & Protecting Waterways

~\$80M across 2020 & 2021 in Ohio's portion of WLEB!



H2Ohio h2.ohio.gov



4R Programs Active in All Three WLEB States and Ontario



53
CERTIFIED
BRANCH
FACILITIES

41
FACILITIES IN WLEB



7,100
CLIENTS SERVICED

4

3.19M
TOTAL ACRES

1.94M
ACRES
IN WLEB



Wastewater treatment

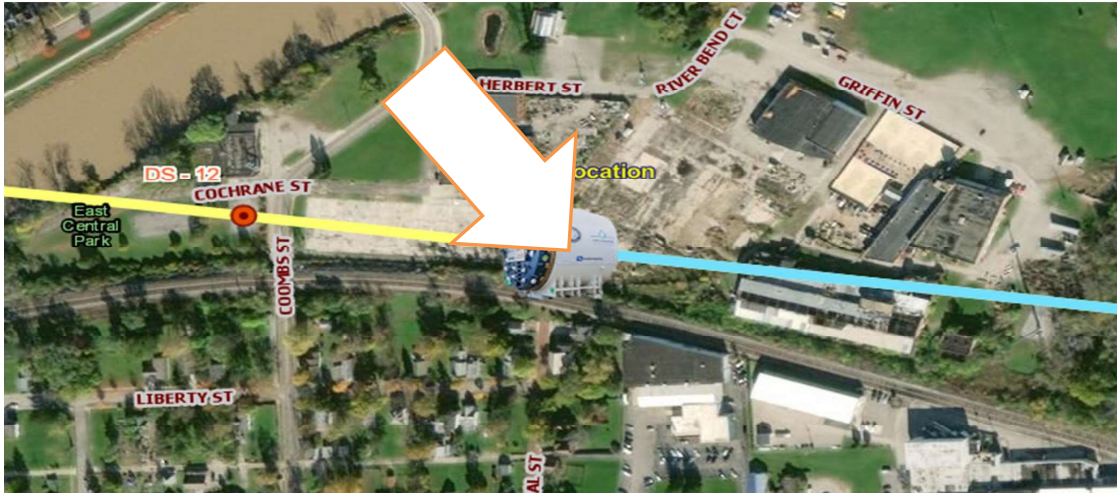
In Ontario, a 0.5 mg/l total phosphorus legal effluent limit will be applied to all wastewater treatment plants in the Lake Erie basin over 1 million gallons per day

In Michigan, discharge limits were reduced for Michigan's four key municipal Wastewater Treatment Plants

The Great Lakes Water Authority (Detroit) has consistently achieved 400 metric tons of Phosphorus reduction from 2008 discharge levels!

Reducing CSOs

The City of Fort Wayne Long Term Control Plan Tunnel Works Project



<https://www.cityoffortwayne.org/tunnel-project-updates.html>

Restore Natural Hydrology

Save Maumee

U.S. Environmental Protection Agency Upper Maumee Watershed Partnership Great Lakes RESTORATION

RIPARIAN BUFFER INITIATIVE

BENEFITS OF BUFFERS ALONG STREAMS

- Trees hold soil in place to help maintain ditches, so they do not fill-in through erosion.
- Trees provide shade, increasing dissolved oxygen available to aquatic life.
- Reduces the impact of floods and stormwater runoff caused by urbanization.
- Reduces soil from eroding into streams, to decrease sedimentation in the water.
- Provides natural filtration to absorb nutrients and pollutants.
- Increases wildlife habitat for aquatic & terrestrial wildlife habitat.
- Tree roots stabilize streambanks & protect property.

A Riparian Area is an area of trees and shrubs or unmowed meadow located along surface water. The Maumee Basin you are standing in right now, is located in the Great Black Swamp. Scientists and experts have identified reforestation of trees along streams, as a way to protect surface water quality. To date, most of the forested corridor next to rivers and streams in Allen County have been removed and need to be reforested. The goal is to encourage native tree and plant growth next to streams and selectively remove invasive plant and shrub species.

RIPARIAN BUFFERS FOR HEALTHY STREAMS

The riparian zone includes the stream channel, stream banks and surrounding floodplain. A riparian buffer is an area of trees and shrubs located along a stream or river, which provides many benefits.

Save Maumee Conservancy, Organization volunteers planted 1,000 trees along their creek to improve water quality by protecting water quality. These trees were planted along the stream that Run through Healthwood Park and Moore Park through support of the United States Environmental Protection Agency (EPA), Great Lakes Restoration Initiative (GLRI) and the Ohio Board of Water Control. The stream is within an area of concern within the Western Lake Erie Basin, and this project implements best management practices in high priority areas draining directly into Lake Erie from this stream. Each tree is estimated to reduce sediment runoff by 50 pounds per year per acre, to help improve water quality.

SaveMaumee.Org

Picture courtesy of Black Swamp Conservancy

Market-based incentives

- EPA recently awarded \$1.8M
- First time EPA has requested competitive applications for water-quality trading projects under the GLRI
- Grants include:
 - Delta Institute (Chicago, IL)
 - Conservation Technology Information Center (West Lafayette, IN)
 - NEW Water (Green Bay, WI)
 - Great Lakes Commission (Ann Arbor, MI)
 - Dairy Research Institute (Rosemont, IL)

How will progress be measured?

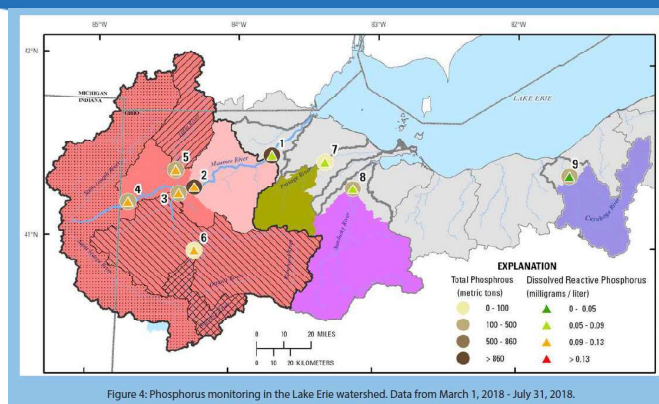
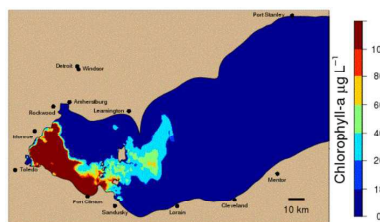


Figure 4: Phosphorus monitoring in the Lake Erie watershed. Data from March 1, 2018 - July 31, 2018.

On the land

In the streams

In the lake



GLERL
Great Lakes Environmental Research Laboratory
CILERI
Center for Inland and Estuarine Research



Blue Accounting ISSUES + RESOURCES NEWS OUR STORY + Q SEARCH

TRACKING PROGRESS TOWARD A HEALTHIER LAKE ERIE

ERIESTAT OVERVIEW GOALS STRATEGIES INVESTMENTS PROGRESS RESOURCES

Approximately 11 million citizens rely on Lake Erie for drinking water. Clean, safe water is essential to Lake Erie's vital role in supporting tourism, commercial and recreational fishing, agriculture, and manufacturing.

Under the Great Lakes Water Quality Agreement, the U.S. and Canada, with the Lake Erie states and province, have agreed to work together to **reduce the amount of phosphorus entering the western and central basins of Lake Erie by 40 percent (from 2008 levels). ErieStat tracks progress toward this goal.** The governments of Michigan, Ohio, and Ontario have further agreed to achieve the reductions for the western basin by the year 2025.

7.3

Severity of the [2019 Lake Erie algal bloom](#). Anything over 4 on the index is considered a "significant" bloom.

[SHARE](#)

9,358

Metric tons of [total phosphorus](#) reaching Lake Erie in the 2018. The target is 6,000 metric tons per year.

[SHARE](#)

3.2 Million

[Acres of land used for agriculture](#) in the Lake Erie basin were influenced by 4R Certified Retailers in 2019.

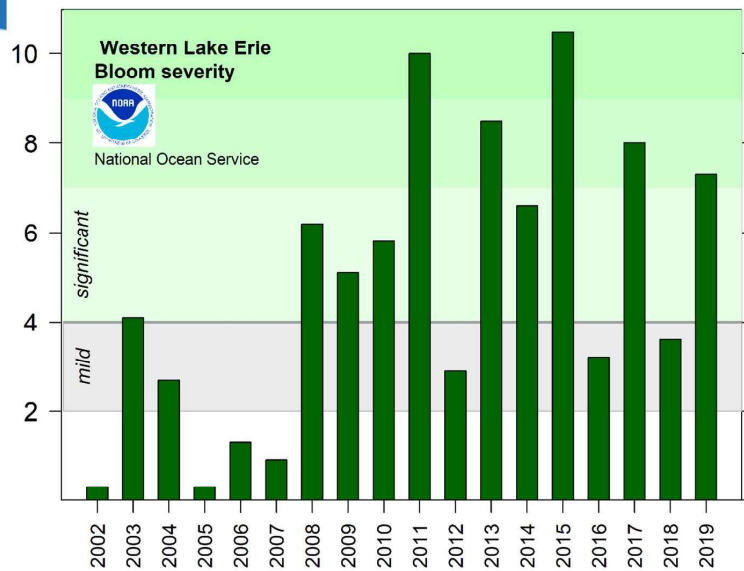
[SHARE](#)

Loads and bloom severity highly variable each year



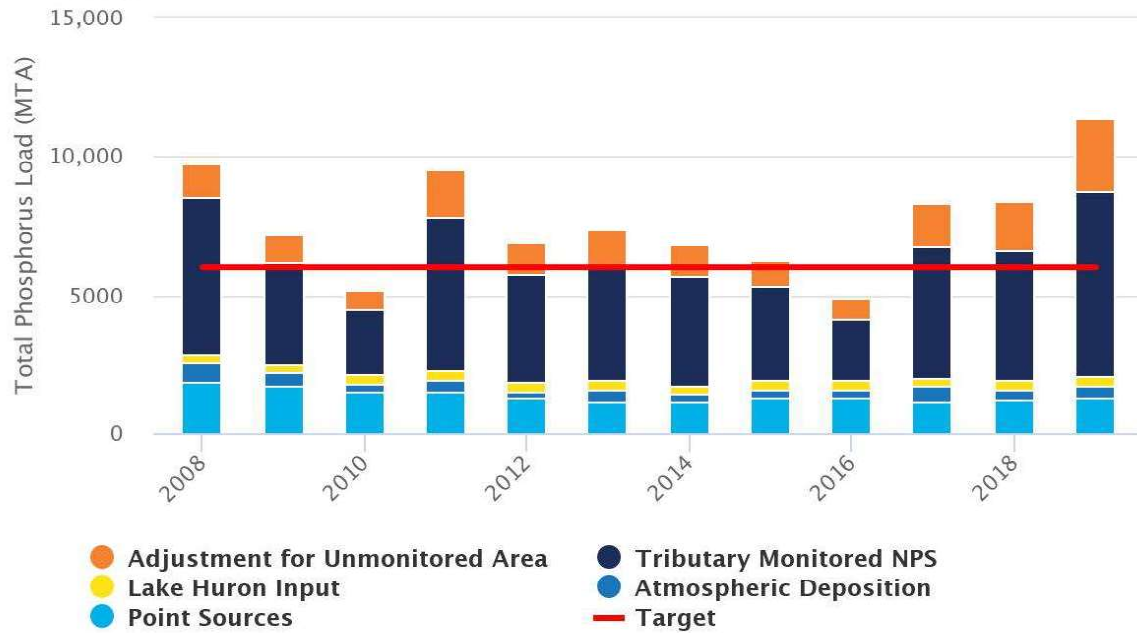
No discernable downward trends

2020 projected to be smaller than 2019, bigger than 2018

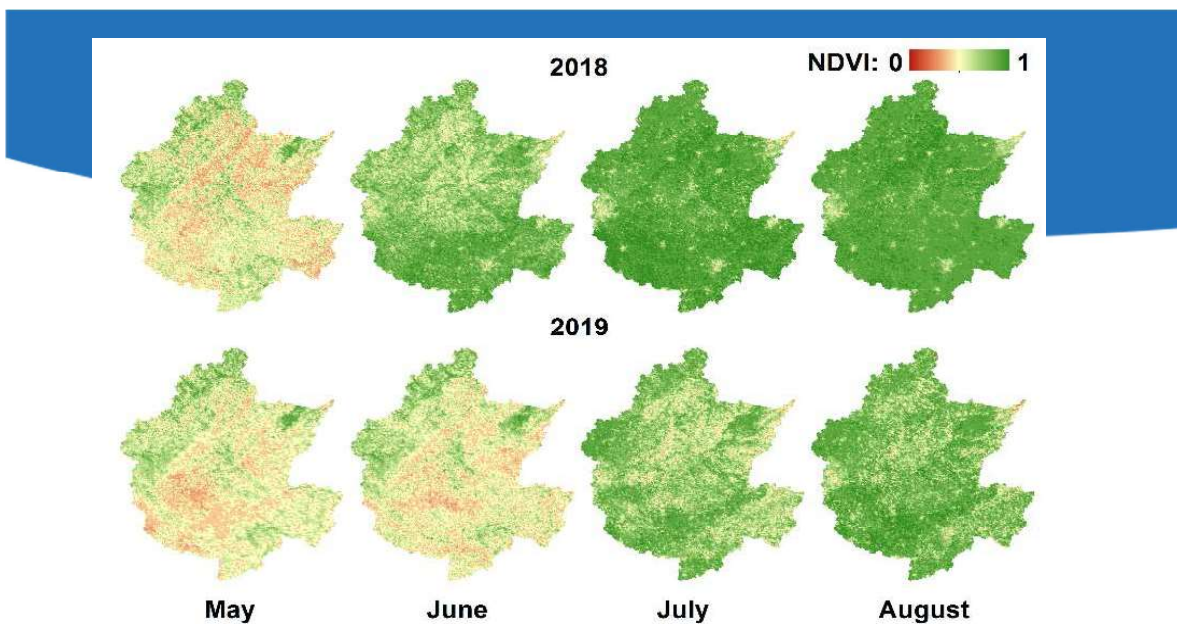




Provisional Total Phosphorus Loading to the Western and Central Lake Erie Basins



17



- 41% of the land went unplanted in 2019 (5% in 2018)
- Only 46% of typical commercial P amounts were sold
- Only 15% of typical manure application from March-May

What did we learn in 2019?

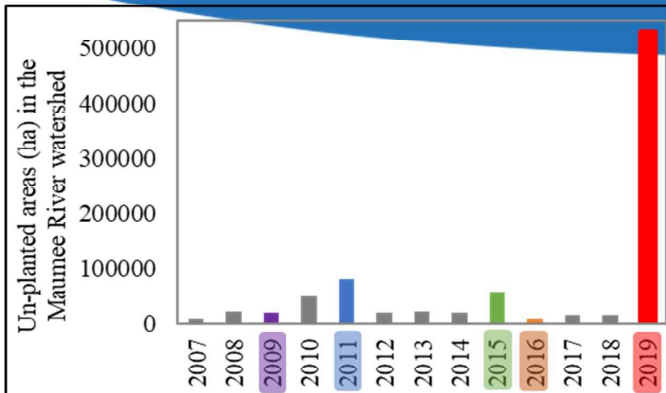


Image credit: Steve Davis, NRCS

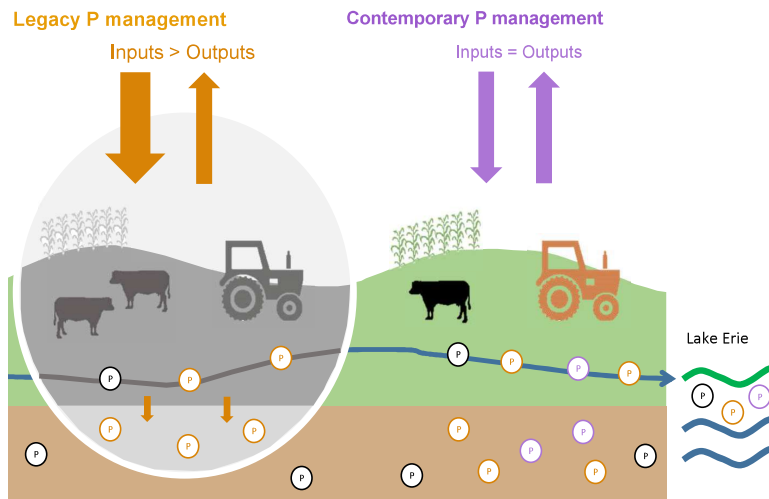
March-July **dissolved P** loads were 30% lower than expected for the flow

Bloom would have been even worse, if based on flow alone.

Clearly, present day inputs have a major impact. But so does legacy P.

Legacy Sources: Why They Matter?

- Legacy P can serve as a chronic source of pollution to surface waters for decades
- Untreated sources of legacy P can mask the effects of present-day conservation efforts
- P management strategies will vary depending on the primary source of P – legacy vs. contemporary, in-field vs. instream



For more information:

Full suite of Domestic Action Plans available at
<https://binational.net/2018/03/07/daplanphosredinlakeerie/>

Track progress at GLC Blue Accounting's Erie Stat
<https://www.blueaccounting.org/issue/eriestat>

Questions? Contact Santina Wortman
wortman.santina@epa.gov
(312) 353-8319