

DOLLAR\$ & Sense

Compounding Source Water Improvements

Todd Danielson



**Avon Lake
Regional Water**

Nicole Zacharda



**Great Lakes
Commission
des Grands Lacs**

Kirk Merritt



**OHIO SOYBEAN
COUNCIL** ✓

Tommy Holmes



**American Water Works
Association**

What is the quality of
your source water?



Behind Toledo's Water Crisis, a Long-Troubled Lake Erie

'Do not drink, do not boil' water: Crisis closes out second day with little information



SIGN IN SHOP

NEWS ARTS & LIFE MUSIC SHOWS & PODCASTS SEARCH

ENVIRONMENT
Toledo Residents Cut Off From Water Supply After Tests Show Toxins



https://www.cleveland.com/open/index.ssf/2015/06/ohio_michigan_and_ontario_agre.html

Ohio, Michigan and Ontario agree to work toward lower phosphorus levels in Lake Erie's western basin

Updated Jun 12, 2015; Posted Jun 12, 2015

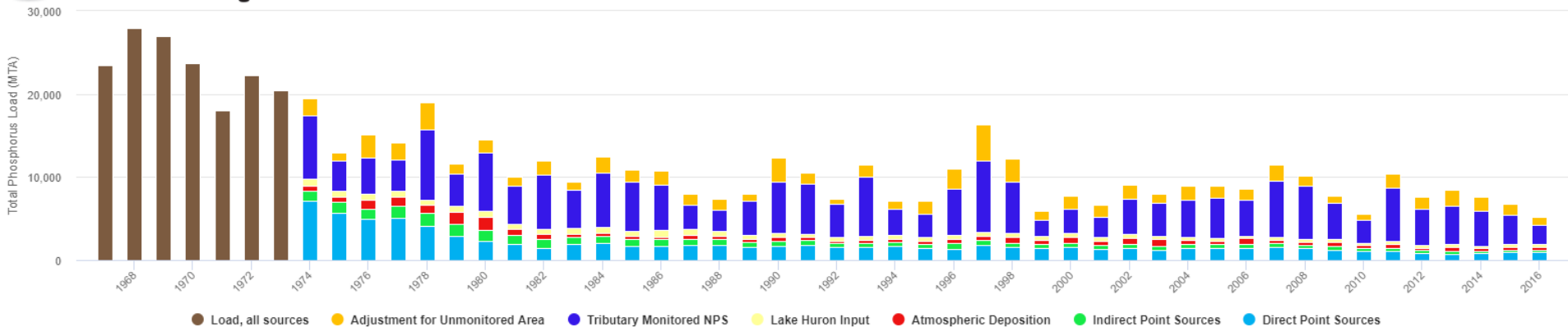
Mean, green and obscene: Algal blooms again making waves on western Lake Erie

Ohio, Michigan and Ontario have committed to work toward a 40 percent reduction in phosphorus runoff in Lake Erie's Western Basin by 2025, with an interim goal of 20 percent by 2020. The phosphorus is a key cause of algal blooms in the lake. (D'Arcy Egan / The Plain Dealer)

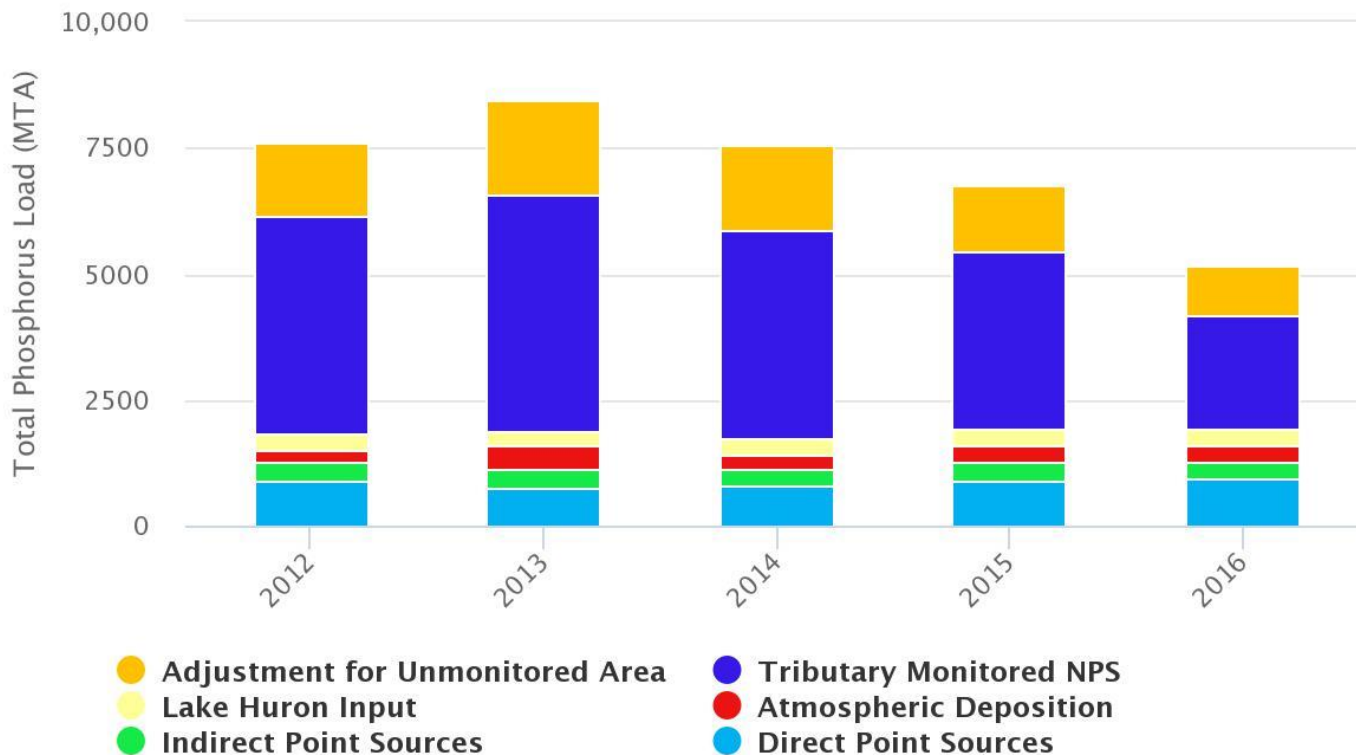
40% P reduction

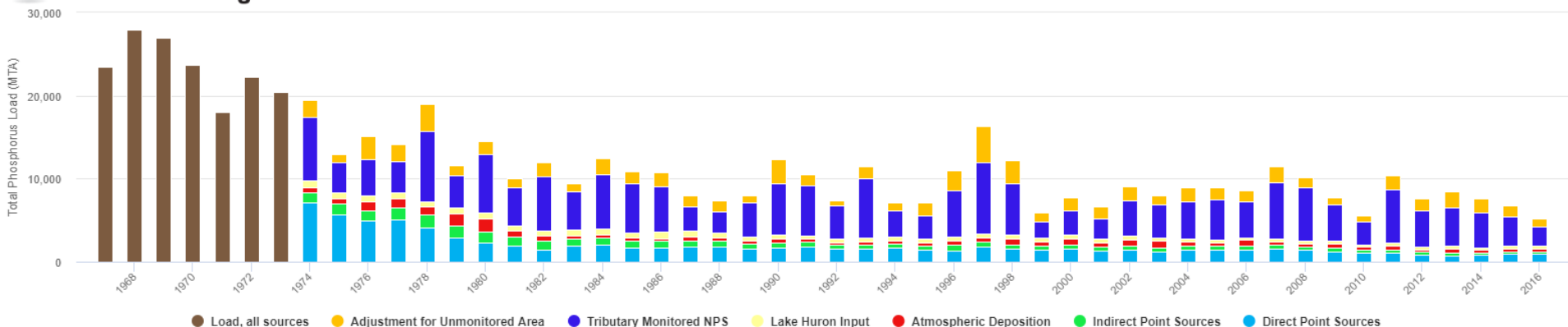
16 [Facebook] [Twitter] [Email] [More] 1.5k shares

By Robert Higgs, cleveland.com, bhiggs@cleveland.com



Total Phosphorus Loading Estimates (MTA) To Lake Erie By Source Type

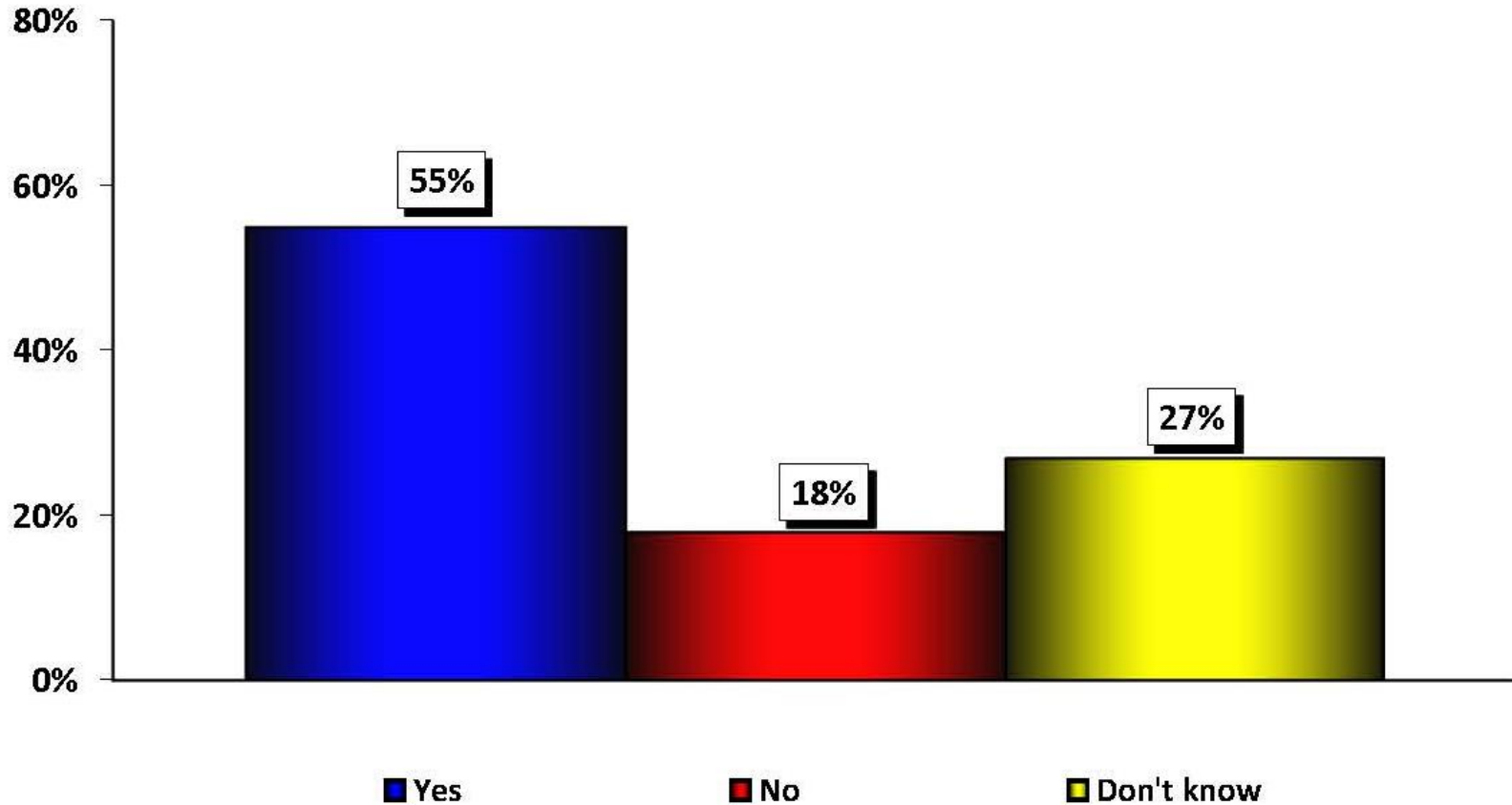




- P delivered to rivers & streams w/in Lake Erie watershed from cultivated cropland = **61% of total load** (OH Lake Erie Task Force II)
- Maumee provides >40% of P load (lakeeriewaterkeeper.org)
- 88% of P in Maumee is from nonpoint sources (Domestic Action Plan 1.1)

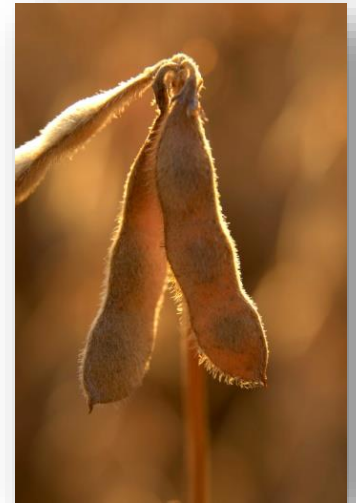
So, what if water
utilities took the lead
in protecting source
water?

Q9. “Would you be willing to have greater protection of the Great Lakes through regulations and their enforcement even if it means that it may increase the cost of certain consumer products?”



OHIO AGRICULTURE AND FOOD INDUSTRY

- Annual economic impact more than \$100 billion
- 1 of every 8 Ohio jobs
- 95%+ of farms are family-owned
- Opportunities – efficient production / growing demand
- Challenges – low prices / low income / trade tensions



OHIO SOYBEAN
COUNCIL ✓

OPTIMIZATION OF NUTRIENT MANAGEMENT

- Edge of Field Research
- Phosphorus Risk Index
- Tri-State Fertilizer Recommendations
- Demonstration Farms
- 4R Retailer Certification
- Farm-level verification program
- Farmer outreach and education



OHIO SOYBEAN
COUNCIL



- Soil sampling / grid sampling
- Variable rate nutrient application
- Fertilizer incorporation
- GPS technology
- Cover Crops, Buffer Strips
- Specialized Equipment



OHIO SOYBEAN
COUNCIL



IMPLEMENTATION CHALLENGES

- Precipitation events can mask impacts of BMPs
- Benefits of BMPs difficult to precisely measure
- Initial costs of equipment, tools, inputs
- Land rental/leasing issues
- Adopting new practices



Great Lakes Commission (based in Ann Arbor, MI)

- Interstate compact agency
- Created by Congress and the Great Lakes States in 1955
- Ontario and Quebec joined as associate members in 1999
- We work for the region by advocating for and building programs benefitting our states and provinces

Erie P Market Project Overview

Motivation

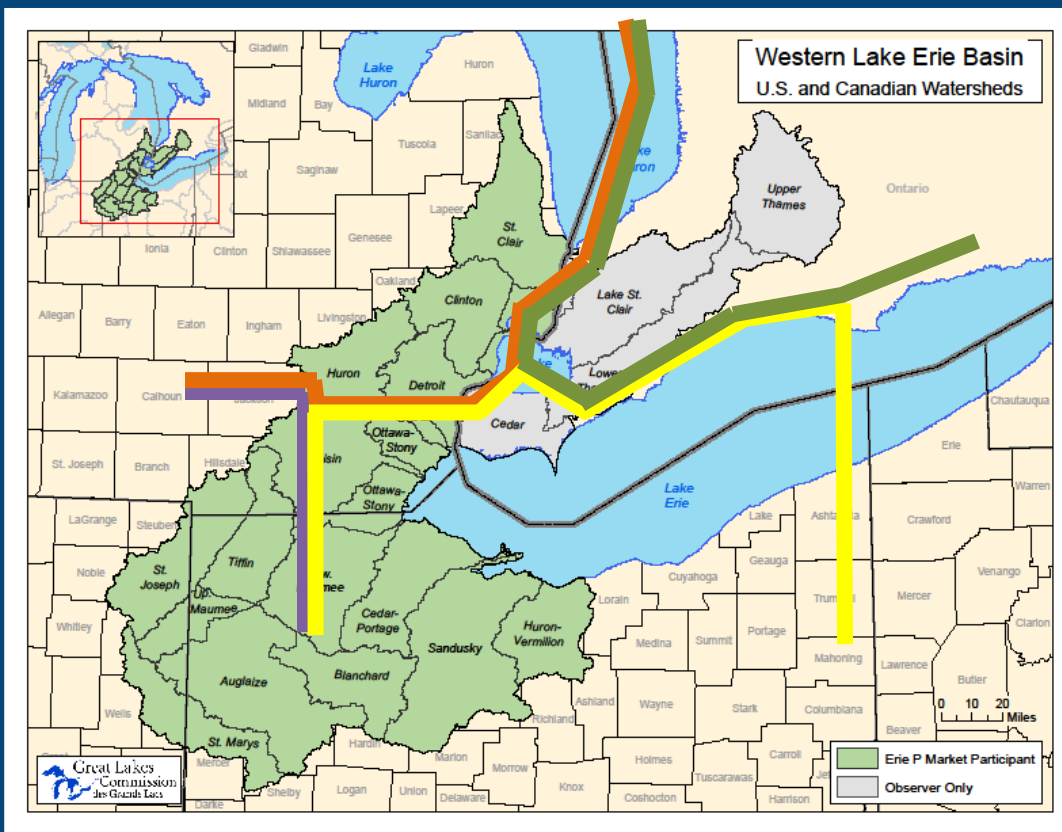
- Created to see if water quality trading can be used to help address nutrient pollution in the Western Lake Erie Basin (WLEB), which has resulted in **harmful algal blooms** during the late summer months.

Objectives:

- Build consistent approach to Water Quality Trading in the WLEB (the Framework)
- Test the Framework to see how it works through pilot “trades”
- Consider how project results can inform other WLEB phosphorus reduction efforts



A Watershed-Based Program Working Across Political Boundaries



- The WLEB is partially located within 3 US States
 - Michigan
 - Indiana
 - Ohio
- And 1 Canadian Province
 - Ontario

Trading and Stewardship Crediting

- **Uses Market Structures to Pay for Performance**
- **Incentivizes Enrollment of High-Priority Ag Land**
 - Instead of a flat-rate incentive per practice installed, payments are based on modeled load reduction outcomes.
 - Farmers with land that has the highest phosphorus load reduction potential will achieve the greatest environmental benefits and generally receive larger financial incentives by enrolling.

Designed to Maximize Participation

Originally envisioned for *Compliance Trades* only

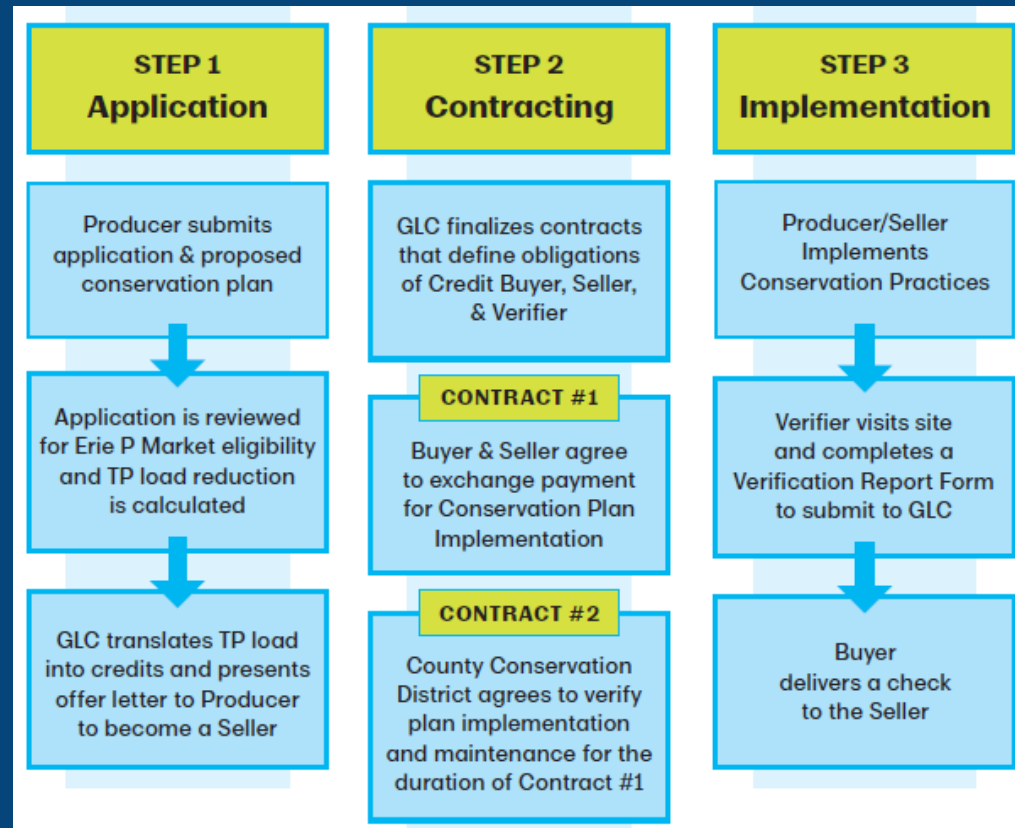
- Cost-effective option for NPDES permittees operating under phosphorus limits to achieve regulatory compliance
- A demand analysis revealed a current lack of compliance drivers.

Expanded to also include *Stewardship Trades*

- Stewardship credits can be purchased by any individual or organization with an interest in improving WLEB water quality, opening up the market to a diverse array of potential buyers

Piloting the Framework

- Three contracts were signed to generate credits using the Erie P Market Framework in the Summer of 2018.
- Contracts were signed with farmers in the Ohio and Michigan to install conservation practices on both owned and leased land.
- Through a separate agreement GLC is compensating the County Conservation District for their credit verification services.



Piloting the Framework: Results

- Installed Conservation Practices
 - Grassed Waterways
 - Filter Strip
 - Cover Crops
 - No-Till
- **536 Acres** of Ag land in conservation
- **1,200 Pounds of Total Phosphorus** will be prevented from entering tributaries to the WLEB over a 5-year period



Aerial shot of newly installed grassed waterway in Ohio

Erie P Market Next Steps

- Short Term:
 - The Great Lakes Commission used remaining grant funds to act as the “interim buyer” of credits.
 - Individuals or organizations may purchase credits
 - **\$30 per credit = 1 pound of Total Phosphorus** prevented from entering the WLEB
- Long Term Vision:
 - Expand the Erie P Market to create a WQT stewardship market that serves the entire Great Lakes Basin

Realizing the Long-Term Vision

- Instead of “build it and they [buyers] will come”
Recruit buyers first!
- Right now: Looking for utilities to commit to a small purchase and advise us as we build the program.
 - What do you need?
 - Where do you need it?
 - What are you willing to pay per pound?

Making the business case
for investment in
upstream water quality

AWWA's Involvement in the Farm Bill

AWWA's Advocacy on the [2018 Farm Bill](#) helped to:

1. Make source water protection an explicit goal of conservation programs
2. Require that NRCS invite utilities to participate on state, local committees
3. Increase federal cost share of projects
4. Spend at least 10% of conservation funding on source water protection – An astonishing \$4 billion over the next 10 years!



Recent Examples with Utility Involvement (RCPP)

Location	Total Value	Primary Source Water Protection Target(s)
Arkansas (White River)	\$8 million	Sediment and phosphorus
Georgia (Savannah River Basin)	\$3.3 million	Land conservation to protect quality
Illinois (Otter Lake)	\$1.7 million	Nutrients and sediment
Iowa (Middle Cedar)	\$4 million	Nitrate reduction
Kansas (Milford Lake)	\$8 million	Cyanobacterial bloom risk
North Carolina (Mills River)	\$1.5 million	Streambank restoration and safer agrichemical mixing



Key Take-Aways

These actions will help increase the targeting of funds for source water protection:

1. Get to know the NRCS state, area, district [conservationists](#).
2. Sign up for [state technical committees](#) and local workgroups and contribute their knowledge of source water issues and concerns.
3. Partner with their [conservation districts](#) and others with established track records in their watersheds.
4. When/where ready and appropriate, be part of [RCPP](#), [NWQI](#), [CIG](#), or other projects.



By banding together,
utilities could actually
make a great
difference.

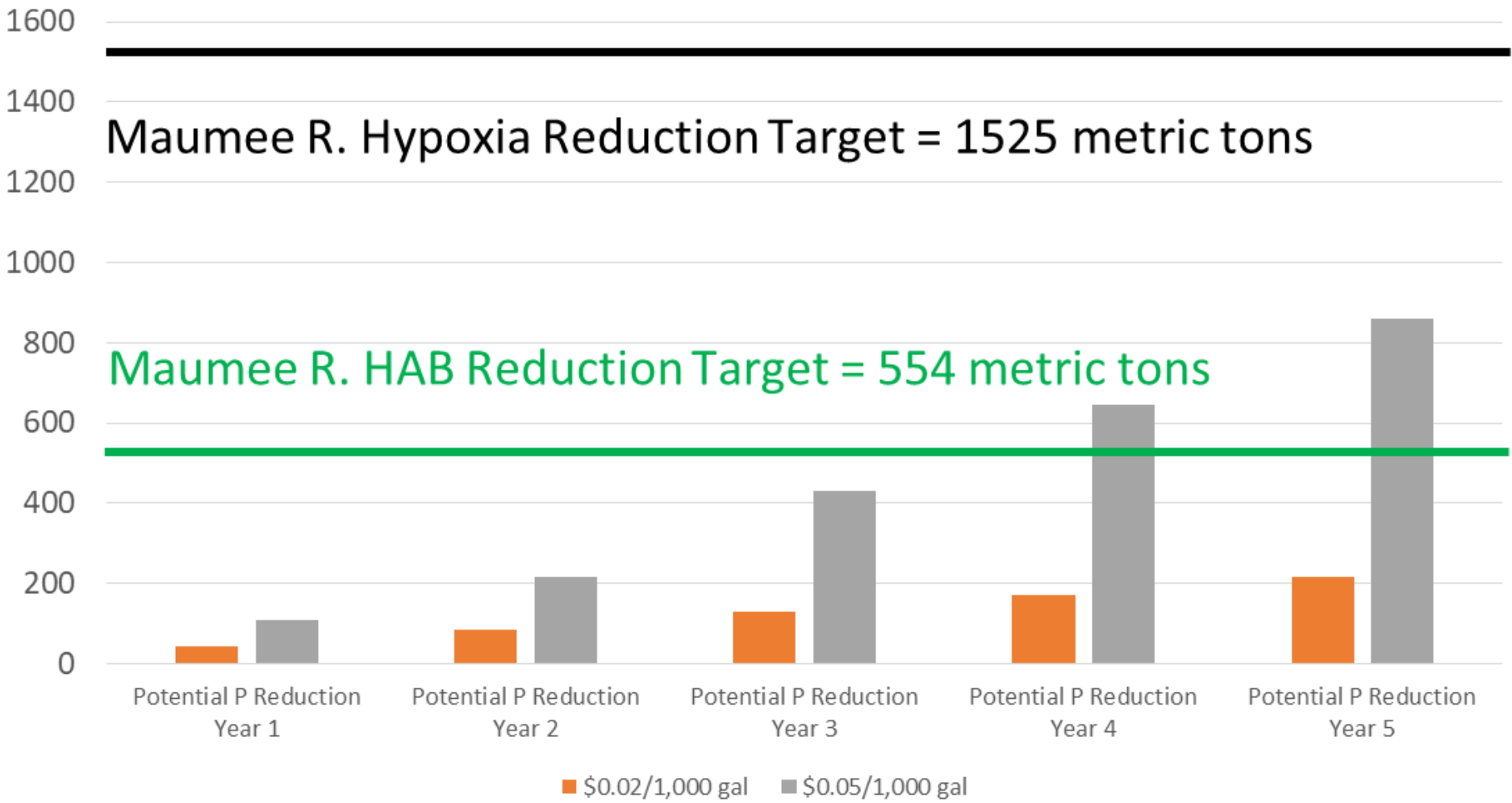
Important data...

- Water utilities withdraw ~140 trillion gallons/yr from Lake Erie (OEPA data)
- Median water rate in OH = \$6.37/1,000 gal
- 25th percentile rate in OH = \$4.68/1,000 gal (2017 OEPA Sewer & Water Rate Survey)

What if...

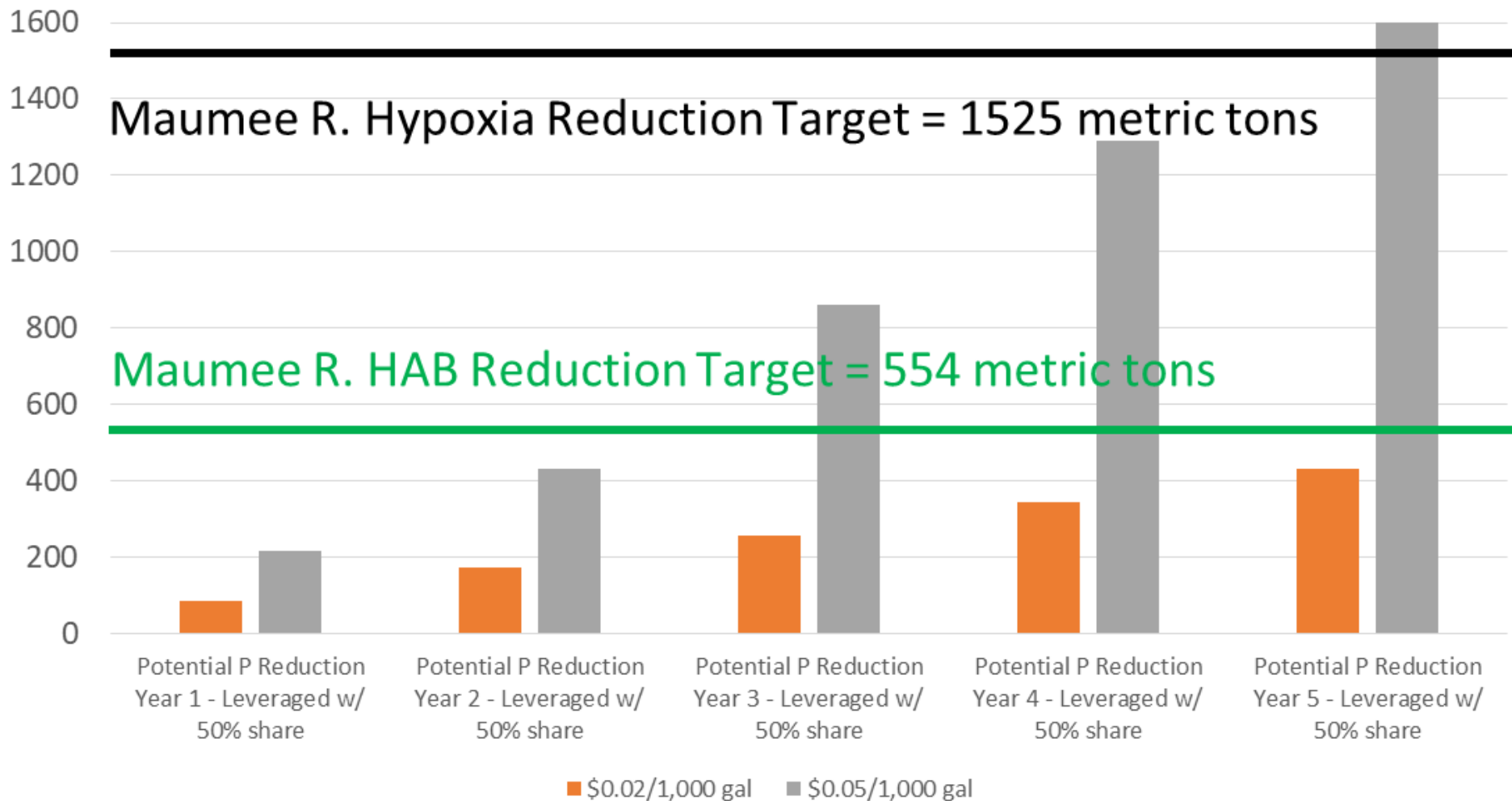
- Water utilities dedicated \$0.02/1,000 gal or \$0.05/1,000 gal to source water protection (0.4% - 1.1% impact on effective rates)
- That could generate **\$2.8 million/yr - \$7.1 million/yr**

Maumee R. Phosphorus Reduction Targets/Potential (Metric Tons)



Binational Workgroup stated 40% reduction in Maumee R. P would maintain cyanobacteria @ appropriate levels
(Nutrient Annex Subcommittee 6/15)

Maumee R. Phosphorus Reduction Targets/Potential (Metric Tons)



Possibilities if water utility investment can be leveraged through 50% cost share

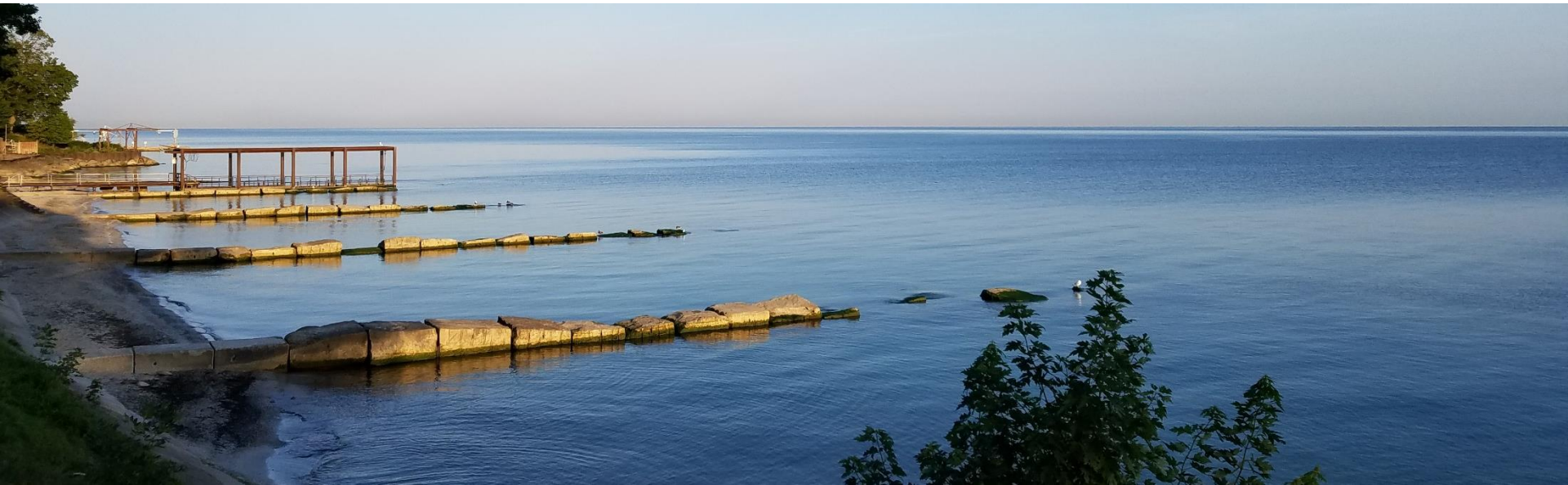
This could mean...

- Allowing Ohio ag community to stay competitive
- Cleaner lakes that lead to additional recreation opportunities/ expenditures



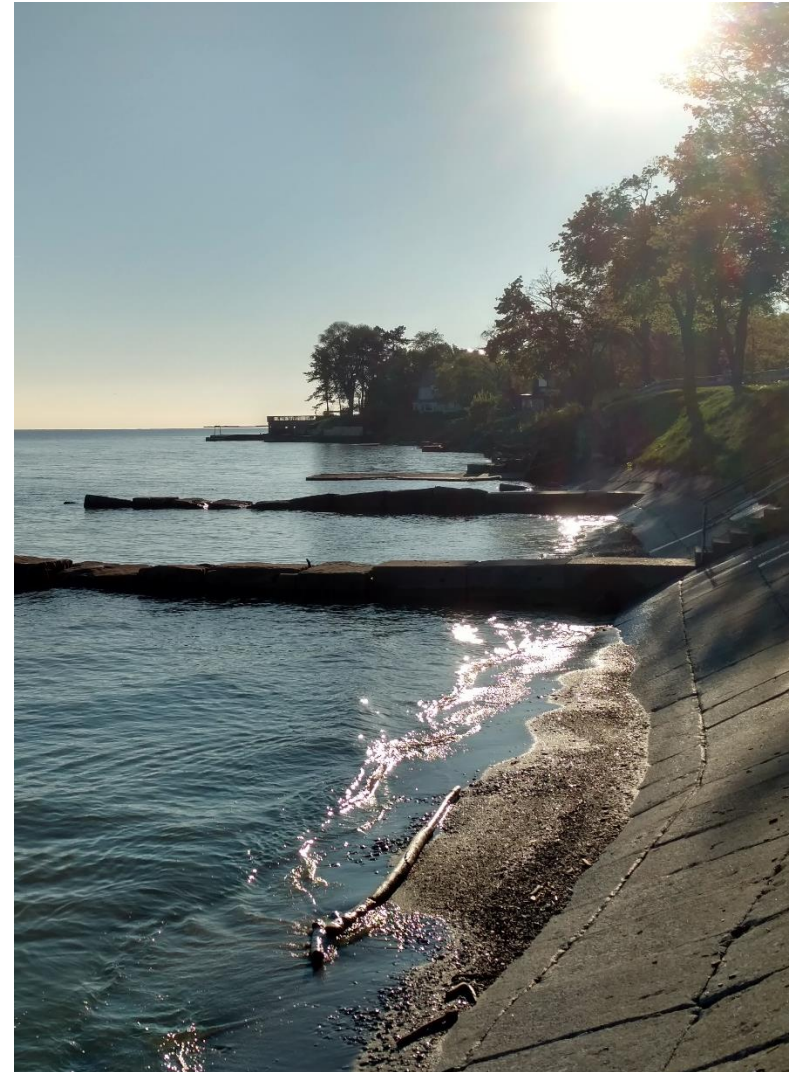
This could mean...

- Potential for reduced wastewater expenditures
- Reduced water treatment expenses
- Reduced risk for water treatment
- Enhanced public image



So, let's work together to...

- Form water utility groups to improve source water quality
- Use the Farm Bill and Regional Conservation Partnerships to leverage our conservation power
- Improve the environment, the economy, and our reputation



Thank you!

DOLLAR\$ & Sense

Compounding Source Water Improvements

Todd Danielson

tdanielson@avonlakewater.org



**Avon Lake
Regional Water**

Nicole Zacharda

nzacharda@glc.org



**Great Lakes
Commission
des Grands Lacs**

Kirk Merritt

kmerritt@soyohio.org



**OHIO SOYBEAN
COUNCIL** ✓

Tommy Holmes

tholmes@awwa.org



**American Water Works
Association**