

EVALUATE SOLUTIONS

You have heard about 4R Nutrient Stewardship. You have seen the impacts of algal blooms. You know that many people are affected by this issue within and outside of the Great Lakes region. Now it is your turn to look at what people have been doing about this situation. Review the list below to see some of the solutions including legislation, conservation group efforts and agricultural advocacy groups.

Choose one of the following solutions to evaluate by completing the following steps:

1. Investigate one of the following solutions provided in the list below.
2. Describe/summarize the solution and include the location, action being taken and consequences.
3. Discuss who is responsible for initiating the solution and who is responsible for carrying it out.
4. State a claim or predict an outcome based on what you have learned.
 - Will this solution work? Is it scalable, meaning can it be used in many places or across a larger area? What are the pros and cons of this solution? Who benefits from this solution? Who will have to change their behavior as a result of this solution?
5. Support your claim with evidence.
 - What EVIDENCE do you have for making the claim above? Is there data to support what you predict? What kind of data and how was it collected? Provide either qualitative or quantitative data
6. Provide reasoning through science.
 - What is the science behind this solution? Why will it work to reduce HABs based on your new knowledge about them?

Possible Solutions to Evaluate:

1. Water Quality Bill: Senate Bill 1 became effective July 3, 2015, prohibits the deposit of dredged material in Lake Erie on or after July 1, 2020, with some exceptions, among other requirements.
 - <https://www.legislature.ohio.gov/legislation/legislation-documents?id=GA131-SB-1>
2. Agriculture Water Quality Bill: SB 150, effective August 21, 2014, requires that beginning September 31, 2017, fertilizer applicators must be certified and educated on the handling and application of fertilizer and authorizes a person who owns or operates agricultural land to develop a voluntary nutrient management plan or request that one be developed on the person's behalf.
 - <https://www.lsc.ohio.gov/documents/gaDocuments/analyses130/14-sb150-130.pdf>
3. State Budget Bill: HB 64, effective June 30, 2015, requires the development of a biennial report on mass loading of nutrients delivered to Lake Erie and the Ohio River from Ohio's

point and nonpoint sources.

- http://epa.ohio.gov/Portals/35/documents/Final%20Nutrient%20Mass%20Balance%20Report_12_30_16pdf.pdf
4. Great Lakes Restoration Initiative Demonstration and Nutrient Reduction Projects: Nine grants totaling over \$12 million were awarded to Ohio. Highlights include: first saturated buffer installed in Ohio; 53 controlled drainage structures installed; 52 whole farm conservation plans developed; 7,500 acres of cover crops planted; and 29 storm water, wetland and stream restoration projects in Cuyahoga County. One example: Blausey Unit, part of the Ottawa National Wildlife Refuge.
 - <http://glpf.org/funded-projects/>
 5. Ohio Clean Lakes Initiative includes a multi-agency, multi-faceted approach to improve water quality and reduce nutrient loading.
 - <http://cleanlakes.ohiodnr.gov/>
 6. Healthy Lake Erie Fund provides farmers with the funding they need to initiate nutrient stewardship on their land.
 - <http://cleanlakes.ohiodnr.gov/home/post/healthy-lake-erie-fund-update>
 7. Western Basin of Lake Erie Collaborative Plan: Goal is to achieve a 40 percent reduction of total and dissolved reactive phosphorus from entering Lake Erie by 2025.
 - <http://epa.ohio.gov/Portals/33/documents/WLEBCollaborative.pdf>
 8. The Nature Conservancy pilot program: Pay-for-performance, which rewards farmers for adopting runoff-management tactics.
 - <https://blog.nature.org/science/2014/04/26/environmental-sustainability-nudges-economics-paul-ferraro/>
 9. The Nature Conservancy assisted in a cross-border partnership to improve dams and water levels of Lake Ontario. Adopted in 2016 by U.S. And Canada.
 - <https://blog.nature.org/science/magazine/outtakes-under-the-surface-of-the-great-lakes/>
 10. Weekly Water Quality updates at:
 - <https://toledo.oh.gov/services/public-utilities/water-treatment/water-quality/>

Source: Ohio EPA Nutrient Management Initiatives in Ohio

<http://www.epa.ohio.gov/Portals/35/wqs/NutrientMangementInitiatives.pdf>