

Funding

You may qualify for a grant or cost-share opportunity:

- GLASI – Farm Health Check-Up - OSCIA administered
www.ontariosoilcrop.org/oscia-programs/glasi/farmland-health-check-up/
- GLASI – Farmland Health Incentive Program – OSCIA administered
www.ontariosoilcrop.org/oscia-programs/glasi/farmland-health-incentive-program/
- Growing Forward 2 - OSCIA administered
www.ontariosoilcrop.org/oscia-programs/growing-forward-2/
- Species at Risk Farm Incentive Program (SARFIP) – OSCIA administered
www.ontariosoilcrop.org/oscia-programs/species-at-risk-farm-incentive-program/
- Agricultural Improvement Fund – LTVCA administered
www.lowerthames-conservation.on.ca/wp-content/uploads/2015/04/Agricultural-Improvement-Fund.pdf
- Chatham Kent Greening Partnership – LTVCA administered
www.lowerthames-conservation.on.ca/forests-habitat/greening-partnership/

The views expressed herein are those of the Lower Thames Valley Conservation Authority and do not necessarily reflect those of Ontario. Publication date 2016.

Questions

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Phosphorus

An Ongoing Challenge

Phosphorus Why is it a problem again?

Back in the 1970's, phosphorus was identified as the major nutrient that was causing harmful algal blooms and poor water quality. Canadian and American federal, provincial and state agencies took action to limit phosphorus in sewage and detergents. Great Lake water quality improved as a result.

Today, harmful algal blooms have returned, especially in Lake Erie.

So What is Happening?

The Evidence

Too much phosphorus causes algae to grow faster than ecosystems can handle. Significant increases in algae harm water quality, food resources and habitats, and decrease the oxygen that fish and other aquatic life need to survive. Large growths of algae are called algal blooms.

Harmful algal blooms are occurring more frequently in the Great Lakes, especially along the shoreline of Lake Erie. The evidence all points to phosphorus loading as the problem.

This is puzzling because phosphorus load restrictions were working. That is, up until the 1990's!

So What Has Changed?

Climate change affects the Great Lakes causing warmer waters and heavy rainfalls that increase surface runoff, resulting in surges in phosphorus loading and algal blooms. This however, is not the main reason for the present Great Lakes water quality situation.

The Culprits



Zebra and Quagga Mussels photo by Dave Britton

Dreissenid mussels, which include Zebra and Quagga Mussels, are changing the ecology of Lake Erie. Not only have these non-native invasive species taken over fish spawning sites and removed the food source of young native species, they've altered the normal biologic processes of the lake as well.

The dreissenid mussels filter the water so effectively that sunlight can now penetrate deeper through the water column resulting in huge algae blooms.

More sunlight also means an increase in the production of Cyanobacteria. Cyanobacteria create toxins in the water. This results in poorer water quality, beach closures and unhealthy drinking water.

The Impact



Satellite image of a Lake Erie algal bloom, 2013. Credit: NASA image courtesy Jeff Schmaltz, MODIS Rapid Response Team at NASA GSFC

Algal blooms can:

- release toxins that threaten drinking water quality and increase water treatment costs
- occasionally force closures of treatment plants
- clog industrial water intakes
- negatively affect commercial fishing, recreation and tourism
- diminish fish and wildlife habitat and biodiversity

Phosphorus loading can:

- increase harmful algal blooms and resulting toxins
- decrease dissolved oxygen levels causing losses in fish and wildlife habitat and biodiversity
- occur due to land use practices

The Solution

Major Sources of Phosphorus Loading:

- Industrial, commercial, municipal, and individual household wastewater
- Agricultural, residential, and municipal runoff

Agricultural Sources of Phosphorus:

- Runoff of fertilizer and manure application during spring snowmelt and heavy rains
- Soluble phosphorus through tile drainage systems

Incorporating Best Management Practices or BMPs in our land use can make a huge difference.

Recommended BMPs

- Buffer strips
- Cover crops
- Reducing broadcast fertilizing and amount of fertilizer applied
- No fall application of fertilizer
- Using injectors for no-till operations

For information:

www.lowerthames-conservation.on.ca/forests-habitat/mcgregor-creek-education-and-outreach-great-lakes-agricultural-stewardship-initiative/

*Funding opportunities exist.
Read On!*