

Protecting Our Waters: Preventing Toxic and Nuisance Algae in Lake Simcoe and Lake Ontario

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Canada
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du Canada

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Presentation Outline

- 01** Lake Simcoe FEI
- 02** Great Lakes FEI - Lake Ontario Nutrients
- 03** Summary




Lake Simcoe Freshwater Ecosystem Initiative



MAIN FOCUS

Preventing toxic and nuisance algae by reducing phosphorus loads to Lake Simcoe



ACTION

Supporting targeted action by others through a new funding program

COLLABORATION

Collaboration and coordination with Ontario and other partners

Lake Simcoe FEI



Decrease loadings of phosphorus to the lake and inform action in other freshwater basins in Canada

Innovative and new approaches or technologies to reduce phosphorus loads

Implementing and evaluating the **effectiveness** of Best Management Practices and other approaches to reduce phosphorus loads

Prioritizing projects for which **lessons learned** also have applicability to other freshwater basins

Lake Simcoe FEI: Projects

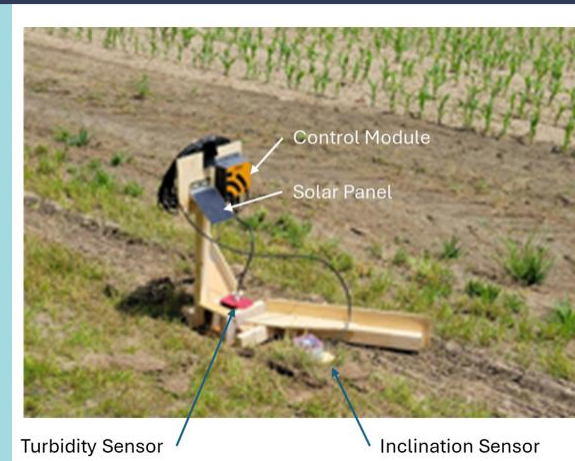
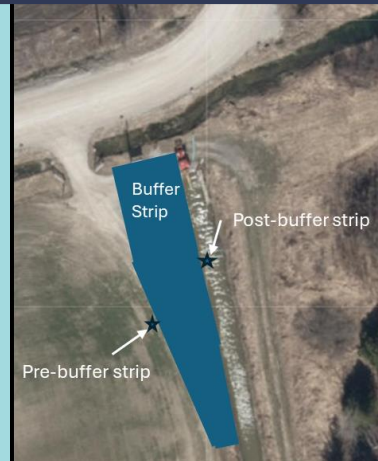




Title: **Demonstration of Effective BMPs to Reduce the Transfer of Phosphorus to the Lake Simcoe Drainage Area**

Recipient: **Holland Marsh Growers Association**

Description:

- Project will reduce phosphorus loads to Lake Simcoe by promoting sustainable farming practices and using innovative approaches to reduce phosphorus runoff.



 **Environment and Natural Resources in Canada** 
Mar. 6 · 🌐


Lake Simcoe, there is some wind in the sails! 🌊

Today we have announced over \$1 million in projects that will tackle phosphorus pollution head-on. 🏆

One project to profile is the Holland Marsh Growers Association. Which will reduce **#phosphorus** loading to the lake by promoting sustainable farming practices and using innovative approaches. 🌱🚜

We love to see it! 🌟 Learn more about the projects: <https://ow.ly/6PJb50VcaoK>

Holland Marsh Growers Association



🔍

Lake Simcoe FEI: Projects

Title: **One size does not fit all places or times: an approach to future proofing and location tailoring Beneficial Management Practices (BMPs) in the Lake Simcoe Watershed**


Recipient: **Lake Simcoe Region Conservation Authority**

Description:

- Project will reduce phosphorus loads to Lake Simcoe by prioritizing agricultural BMPs and assessing their effectiveness under climate change.



Lake Simcoe Region Conservation Authority - LSRCA's Post ✕


 **Lake Simcoe Region Conservation Authority - LSRCA**
April 15 · 🌐

There's still space available and we want to hear from you!


No one knows the land better than the farmers that work with it, so researchers from Toronto Metropolitan University and University of Waterloo want to hear from you about the recent history of the area, experiences farming and using on-farm Best Management Practices, and other information to help guide Lake Simcoe Region Conservation Authority in supporting the farming community while improving water quality in the lake.

Join us for a light meal and open discussion on Tuesday April 22 from 12:30-3:30pm at the E-G Sports Complex in Sharon or online April 22 from 7-9pm.

Register now at bit.ly/simcoefarms or call at 905-895-1281.






Calling Lake Simcoe area farmers!



No one knows the land better than the farmers that work with it, so we need to hear from you!

Join the discussion at one of our four workshops near you

Event information in caption or visit bit.ly/simcoefarms

Lake Simcoe FEI: Projects



Title: **Nature Based Solutions to Support Phosphorus Reductions to Lake Simcoe**

Recipient: **The Royal Institution for the Advancement of Learning/McGill University**

Description:

- Project will demonstrate and evaluate the effectiveness of three BMPs to reduce phosphorus runoff from urban and agricultural sources in the Lake Simcoe watershed and to engage the community through outreach and events.



Great Lakes Freshwater Ecosystem Initiative



- Targets the most significant environmental challenges affecting Great Lakes water quality and ecosystem health.
- Delivers on Canada's commitments under the GLWQA and COA
- Lake Ontario nutrients activities implemented under **prevent toxic and nuisance algae** priority area

Restore AOCs

Advancing Great Lakes governance, accountability, and reporting mechanisms

Prevent Toxic and Nuisance Algae

Priority Areas for Action

Restore and Protect Critically Important Coastal Areas

Increasing participation of Indigenous Peoples in governance, stewardship and monitoring

Support Community-Based Science

Reduce Releases of Harmful Chemicals

Great Lakes Water Quality Agreement

Printed jointly by the Government of Canada and the United States of America
in Great Lakes Water Quality Agreement, 1978, as amended on October 14, 1985,
and its Successors, 19, 1987.
Signed September 7, 2012.
Revised and signed February 11, 2013.

Canada

Canada-Ontario Agreement on Great Lakes Water Quality and Ecosystem Health
2021



Canada Ontario

Preventing Toxic and Nuisance Algae

Lake Ontario



MAIN FOCUS

Science and assessment to improve understanding and guide targeted action to reduce the occurrence of toxic and nuisance algae.



BINATIONAL COORDINATION

- Review of phosphorus targets
- Update binational phosphorus loads
- Improve understanding of fate of phosphorus
- Identify potential management locations

DOMESTIC COLLABORATION

- Develop a **Canadian Nutrients Strategy**
- Identify chronic algae problem areas
- Identify appropriate management opportunities
- Collaborate with others to fill knowledge gaps

TARGETED ACTION

- Implement new funding sub-stream to **support targeted action** in areas with demonstrated risks and impacts

Great Lakes FEI Funding: Lake Ontario Nutrients Sub-stream



Reduce toxic and nuisance algal blooms through planning, knowledge development and action in locations with demonstrated risk and impacts.

Targeted actions to address known recurring nearshore nuisance/harmful algal blooms

Watershed-scale planning to address known recurring nearshore algal blooms

Targeted science to fill a priority knowledge gap

Lake Ontario Nutrients: Completed Project

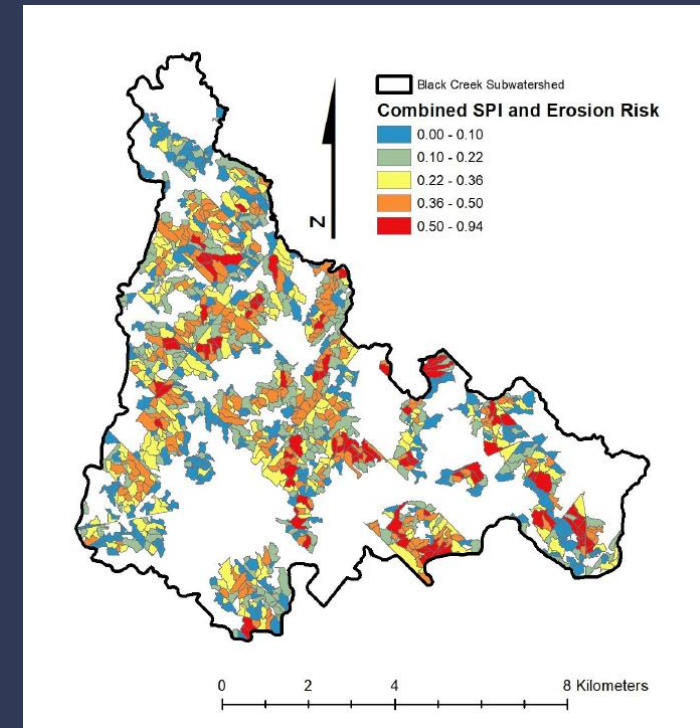


Title: Identifying Sediment-Bound Nutrient Source Areas Within the Credit River Watershed

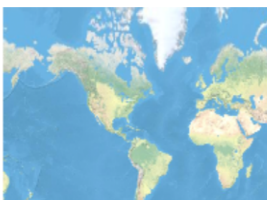
Recipient: Credit Valley Conservation Foundation

Description:

- FEI 2024-2025 project expanded CVC's **Hotspot Identification Tool for Sediment Loss (HIT-S)**
- Open-source ArcGIS tool that identifies high-risk areas for sediment and nutrient loss
- ArcGIS HITS Toolbox and User Manual are available online



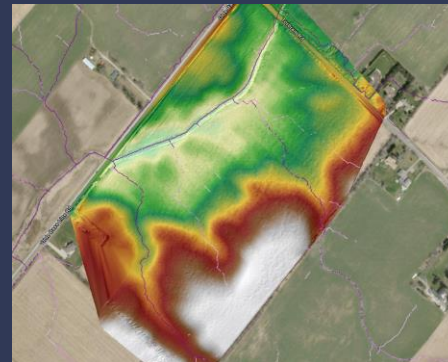
HITS Toolbox (2025)



The Hotspot Identification Tool for the Transport of Sediments (HITS) ArcGIS toolbox was compiled by Credit Valley Conservation to identify hotspots for the transport of sediments and contaminants within areas of interest.

Geoprocessing sample

Item updated: Aug 11, 2025



Lake Ontario Nutrients: New Projects



Title: Grindstone Creek Nutrient Management Plan

Recipient: **The Halton Region Conservation Authority**

Description:

- Project will develop a science-based and actionable nutrient management plan for the Grindstone Creek watershed to support reducing nutrient loads to Hamilton Harbour through the implementation of targeted best management practices.



Lake Ontario Nutrients: New Projects

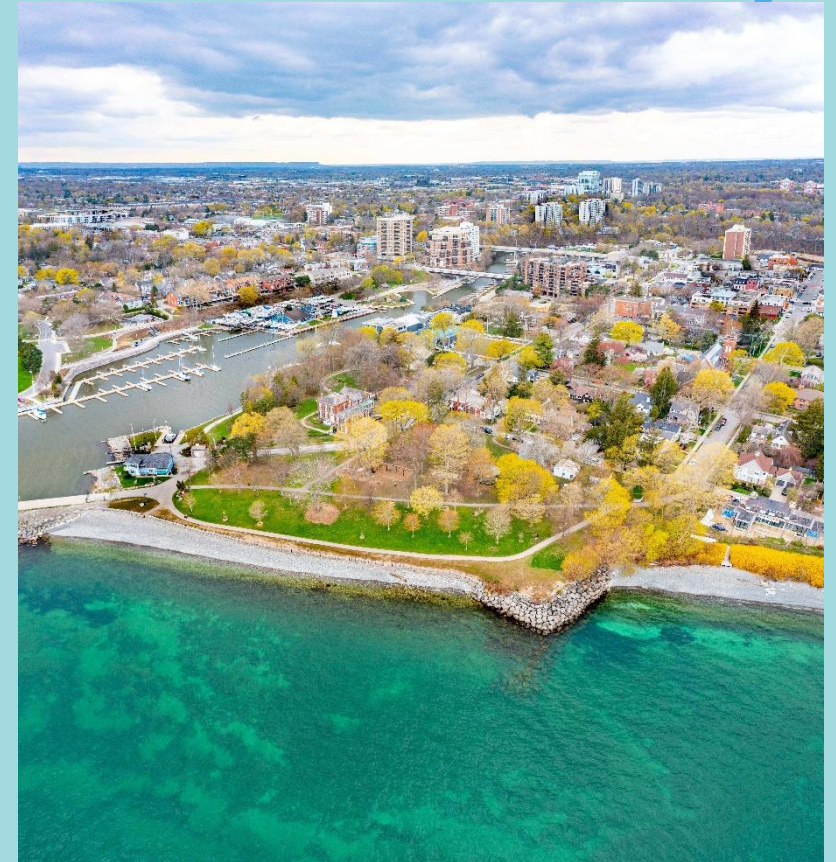


Title: Leveraging Automated Imaging Technologies to Quantify Nuisance Algae Growth and Impacts in the Nearshore and Shoreline of Lake Ontario

Recipient: Toronto Metropolitan University

Description:

- Project will quantify the frequency and magnitude of nuisance benthic algae shoreline biofouling at various spatio-temporal scales to improve understanding of nuisance algae occurrence and management potential.



Lake Ontario Nutrients: New Projects



Title: Bioavailability of Particulate Phosphorus Entering Lake Ontario from Urbanized and Mixed Land Use Watersheds

Recipient: **Toronto and Region Conservation Authority**

Description:

- Project will improve understanding of the characteristics and significance of particulate phosphorus loads from urban/mixed-use watersheds on the nearshore Lake Ontario and its management potential through targeted sampling and analysis.



Summary

- **CWA is supporting actions to prevent toxic and nuisance algae in Lake Simcoe and Lake Ontario**
- **Lake Simcoe**
 - Implementing a funding program to support projects that reduce phosphorus loads
 - Coordinating and collaborating with Ontario and other partners
- **Lake Ontario**
 - Binational and domestic coordination and collaboration to meet commitments in the GLWQA and COA
 - Supporting projects that develop targeted planning, action, and strategic knowledge development



Thank You

