

Ministry of Agriculture, Food and Rural Affairs

# Building a Circular Economy for Phosphorus

**The Latornell Conference, Session TH3A**

**Nottawasaga Ontario**

**Phil Dick**

November 21, 2019

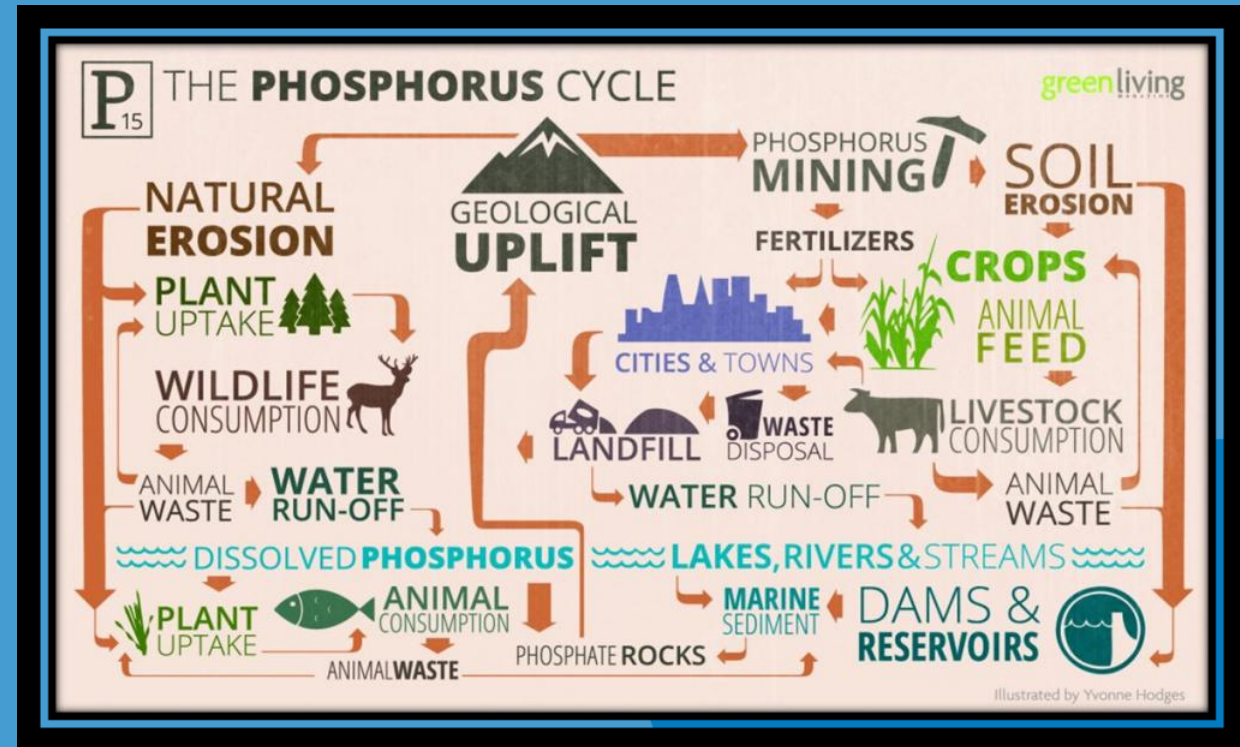
# National Nutrient Recovery and Re-use

A pan-Canadian initiative:

Lead by MECP

Includes:

AAFC, EC, OMAFRA,  
UBC, Laval

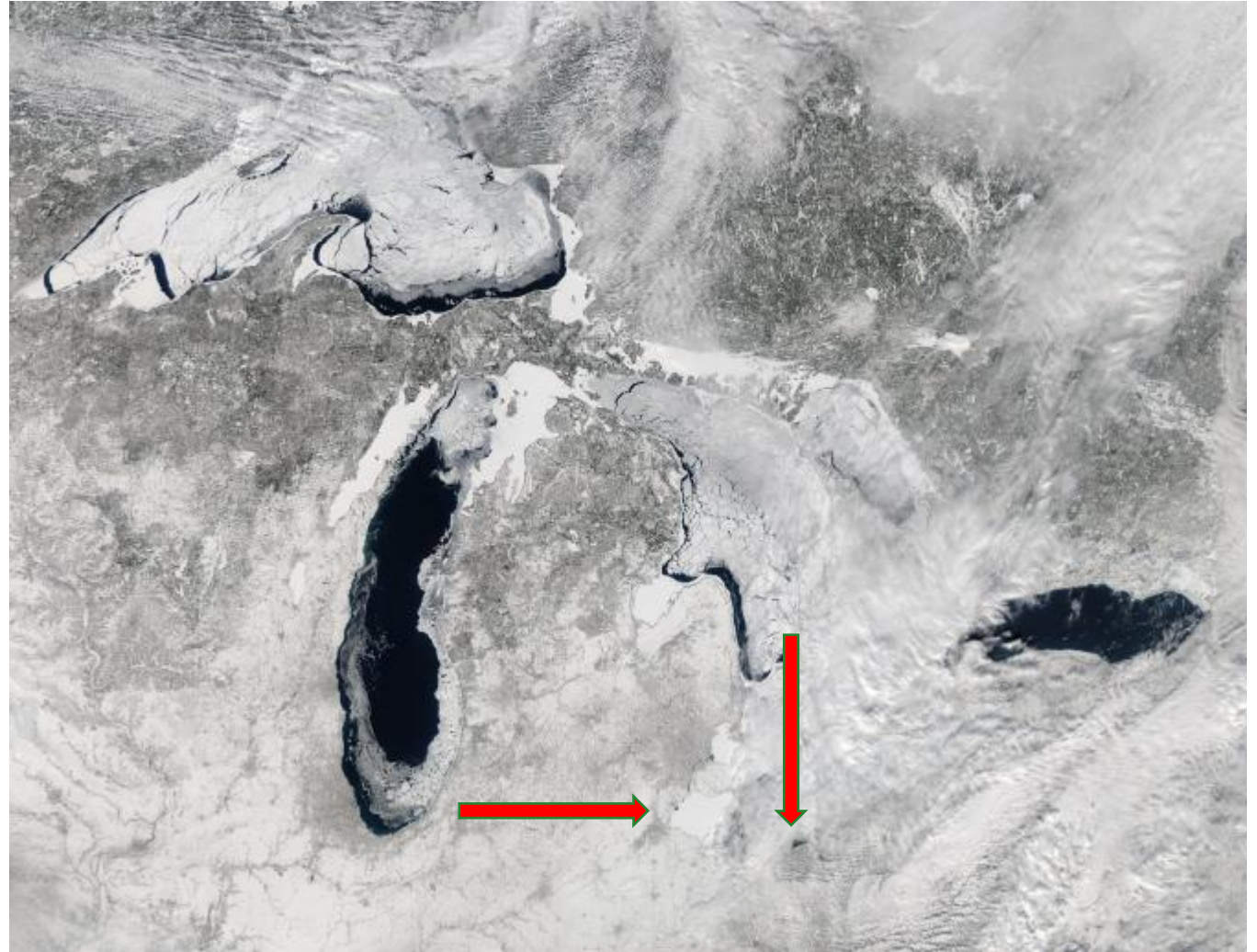


Source: [http://www.greenlivingaz.com/2013/11/06/phosphorus\\_study/](http://www.greenlivingaz.com/2013/11/06/phosphorus_study/)

- Began mapping phosphorus flows, 2015
- Two International Forums, worked with Everglades Foundation
- Seeking to establish a national platform similar to the EU platform: <http://www.eu-nutrient-recovery.eu/scope-in-print/enews>

# Characterizing Phosphorus and Algae Blooms

1. Ontario imports phosphorus
2. Leakage costs farmers money
3. Algae blooms need P, N, heat, no turbidity and sunlight
4. P is active at 12.4C
5. Lake Erie's Western Basin polynyas are not natural



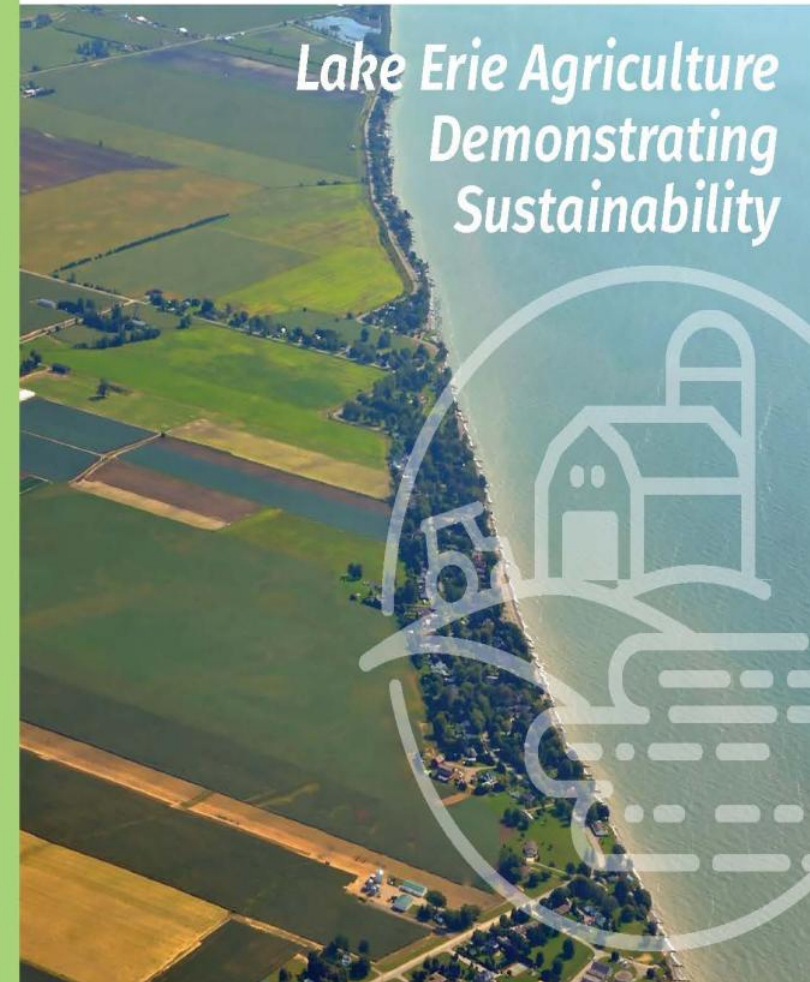
Source: NASA

# OMAFRA and Stewardship

Actions align with Ontario's Environmental Plan

Agricultural leakage is diffuse and non-point source

- Erosion control, cover crops, precision agriculture and nutrient management reduce leakage
- Livestock concentrations are nodal
  - Transportation costs limit nutrient distribution
  - Nutrient extraction and interception technologies are in development



# The Phosphorus Industry

Existing recovered nutrients such as Ostara and struvite are ultimately consumer products

- Agricultural use is element specific

Recovery of single element, commercially-scaled volume is needed for industry and agriculture

- Municipal systems make phosphorus inert
- Elemental extraction technologies are in development
- Recovered P must compete with rock phosphate



Source: [plantcaretoday.com](http://plantcaretoday.com)

# Thank You

Phil Dick  
Business Resource Specialist  
Business Development Branch  
OMAFRA  
Phone: 519 829 0900  
Email: phil.dick@ontario.ca

