

Water Quality Monitoring Programs in Lake Erie Basin

Environmental Monitoring and Reporting Branch
Ontario Ministry of the Environment

LEMN Research Needs Workshop

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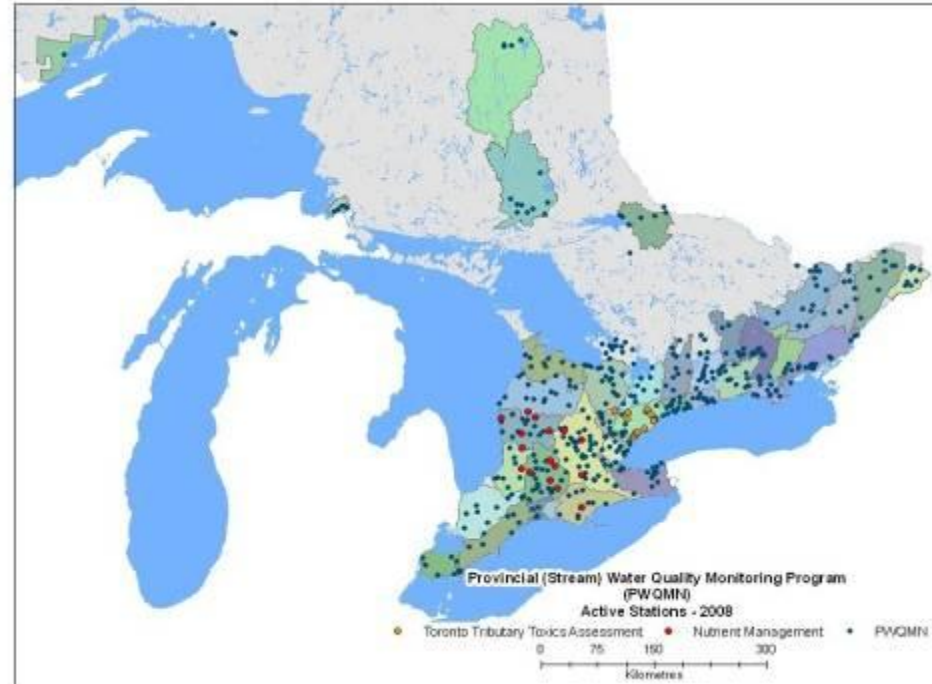
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Protéger notre environnement.*



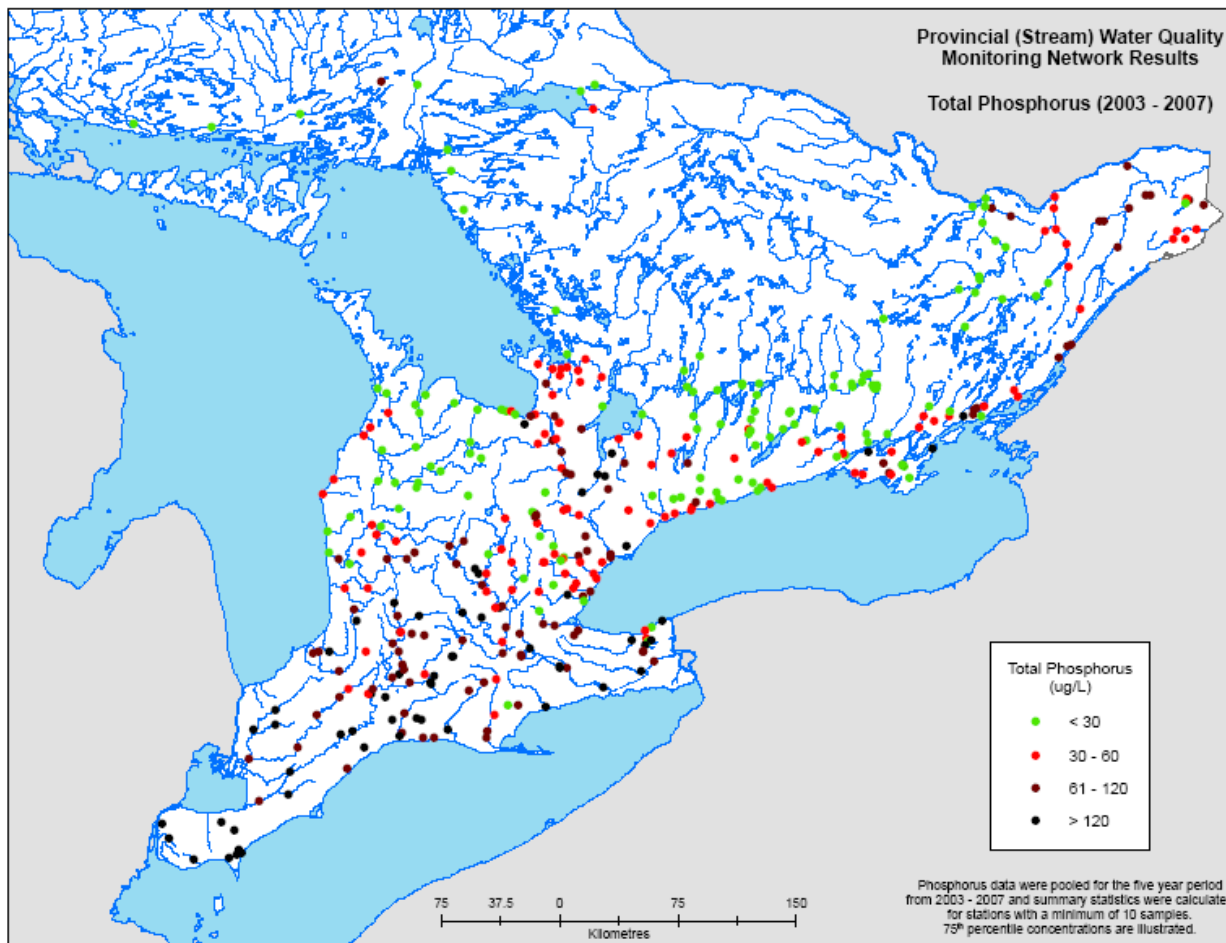
Ontario

Provincial Stream Water Quality Monitoring Network (PWQMN)

- The PWQMN collects surface water quality information from rivers and streams across Ontario.
- The PWQMN started in 1964.
- Currently, water quality is measured at over 400 locations across Ontario.
- Purpose:
 - to document long-term ambient water quality trends
 - to determine the general location and causes of water quality problems, and
 - to measure the effectiveness of pollution control and watershed management programs
- In general, nitrogen and phosphorous are analysed in each PWQMN sample.



Phosphorous Concentration in Stream Water



Nutrient Management Study

- Cooperative project between MOE and CA partners
- PWQMN- broad range of streams and rivers with variety of influences
- Long-term program initiated in 2004 to assess:
 - water quality status in 15 agricultural watersheds
 - influence of the Nutrient Management Act and agricultural practices



Water Quality in the Nearshore of the Central Basin of Lake Erie

Study Objectives

- o characterize water quality and physical conditions in nearshore of the central basin (Ontario)
- o examine influence of three largest tributaries (Ontario) to basin on water quality in the nearshore

Nearshore Field Elements - (in collaboration with EC)

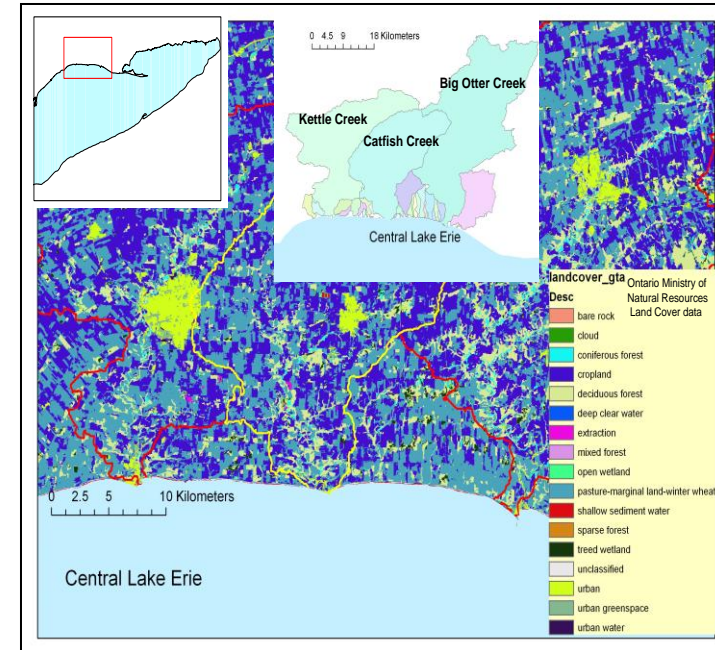
- o five sets of detailed spatial surveys (nearshore/shoreline/lower tributaries) of water quality in 2007
- o deployment of instrumentation (eg. ADCPs, turbidity sensors) April-November 2007

Tributary Monitoring - (in collaboration with GRCA, KCCA, CCCA, LPCA)

- o through-time collection of water quality data at downstream sites in Kettle, Catfish and Big Otter Creek from spring 2007 to fall 2009
- o focus on event sampling in 2009

Lake Hydrodynamic Modelling - (in progress)

- o application of MIKE3 hydrodynamic model over nearshore to predict nearshore circulation and provide insight on significant limnological events (e.g. upwelling events, extreme weather)
- o dispersion modelling of tributary discharge to the nearshore based on tributary monitoring data



Study Area: adjacent to the mouths of Kettle, Catfish and Big Otter Creeks
(*began 2007 and ongoing*)