

Lake Ontario Collaborative Group



Beverley Thorpe

Principle at Thorpe Associates



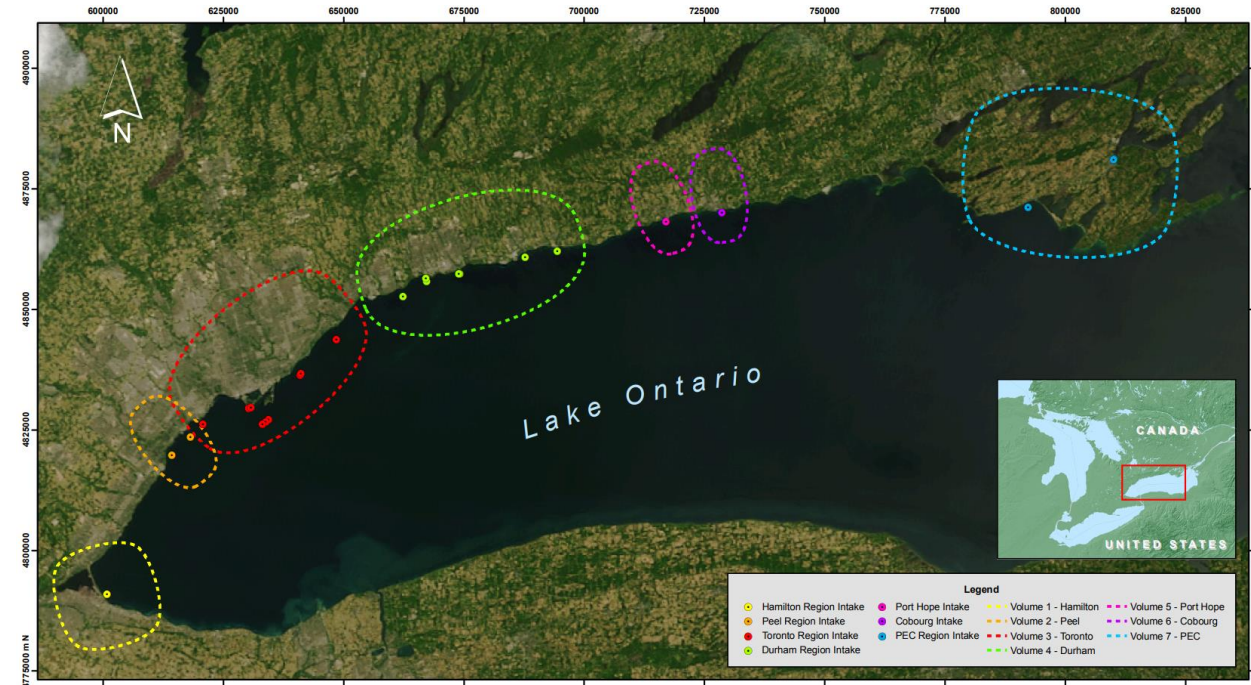


Great Lakes & the Clean Water Act, 2006

Beverley Thorpe, Thorpe Associates

Lake Ontario as a drinking water source

- Lake Ontario provides water to > 6 million people in Ontario
- 19 municipal drinking water plants from the Region of Niagara eastward to Prince Edward County
- Multiple jurisdictions have roles in protecting water quality

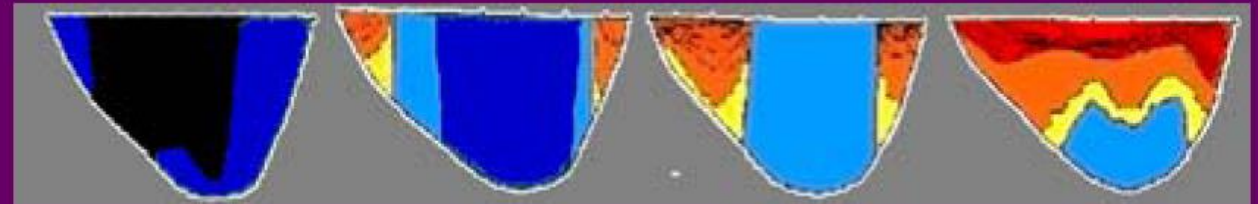


Lake Ontario

- High-quality source but quality can rapidly change
- Complex hydrodynamics
- Need tools to monitor and predict changes

Lake processes

Vertical and horizontal stratification



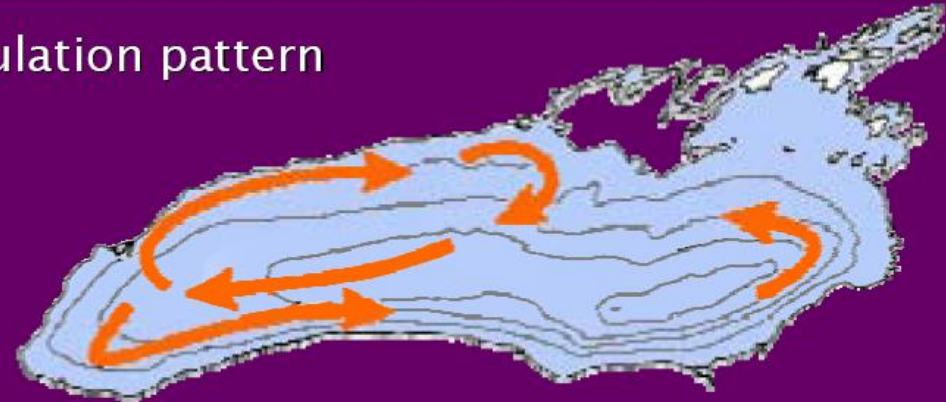
Late April

Mid May

Early June

Late June

Circulation pattern



Source: Forsythe et al. 2004 as modified after Beletsky et al. 1999



Early Collaboration Efforts - Drinking Water

Ontario Water Works Research Consortium 1999

- Collaborative came together as a result of severe taste and odour events in 1998 and 1999
 - Regions of Durham, Peel, Halton and Niagara
 - City of Toronto and Hamilton
 - Environment Canada (NWRI) Scientists
 - Ontario Ministry of Environment Scientists
 - Academia
 - St. Lawrence River Institute, City of Cornwall
 - OCWA

Clean Water Act, 2006

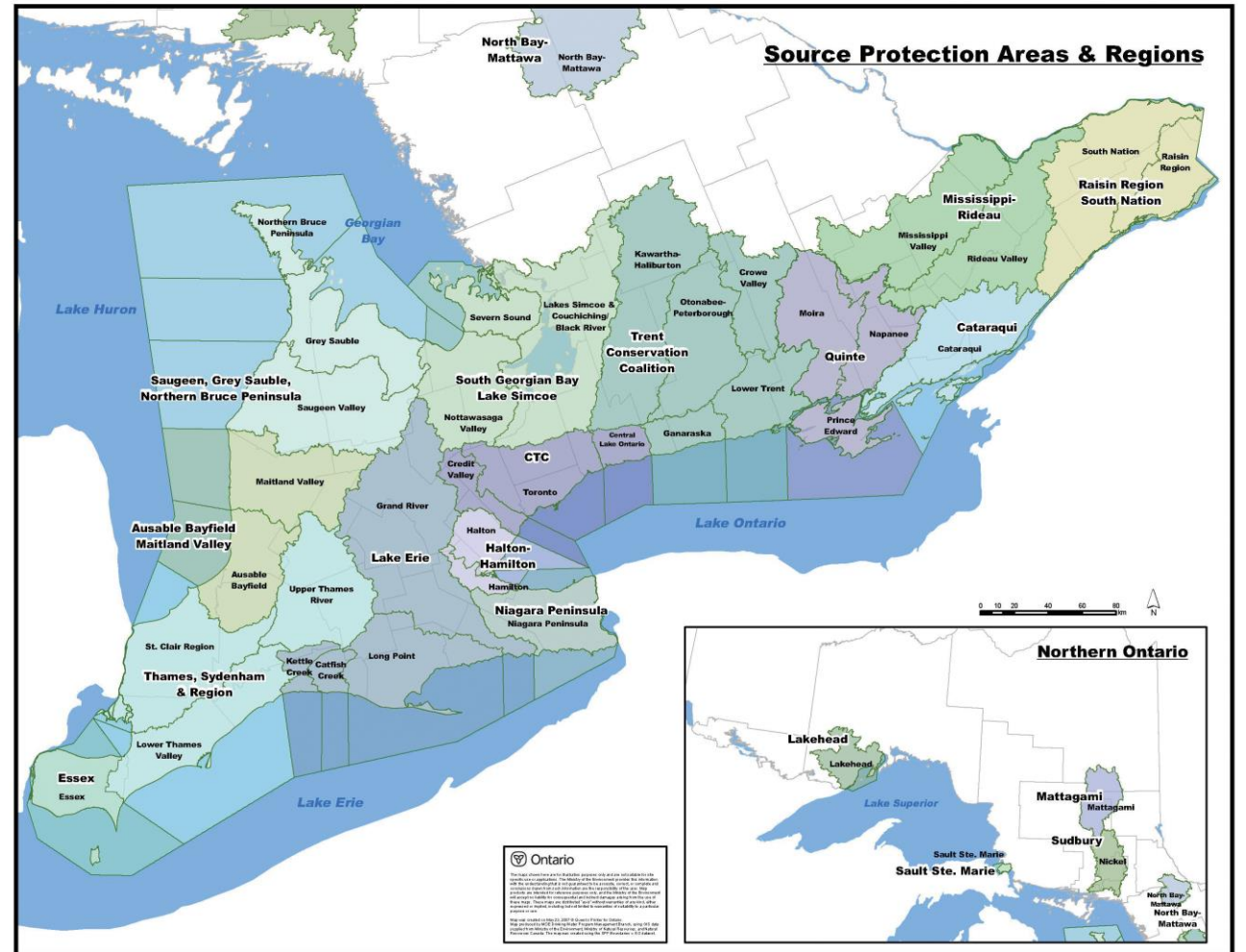
- It requires local communities to:
 - Assess quantity and quality of drinking water sources
 - Identify existing and potential risks
 - Take actions necessary to reduce or eliminate significant threats



Source: Pixabay

Clean Water Act, 2006

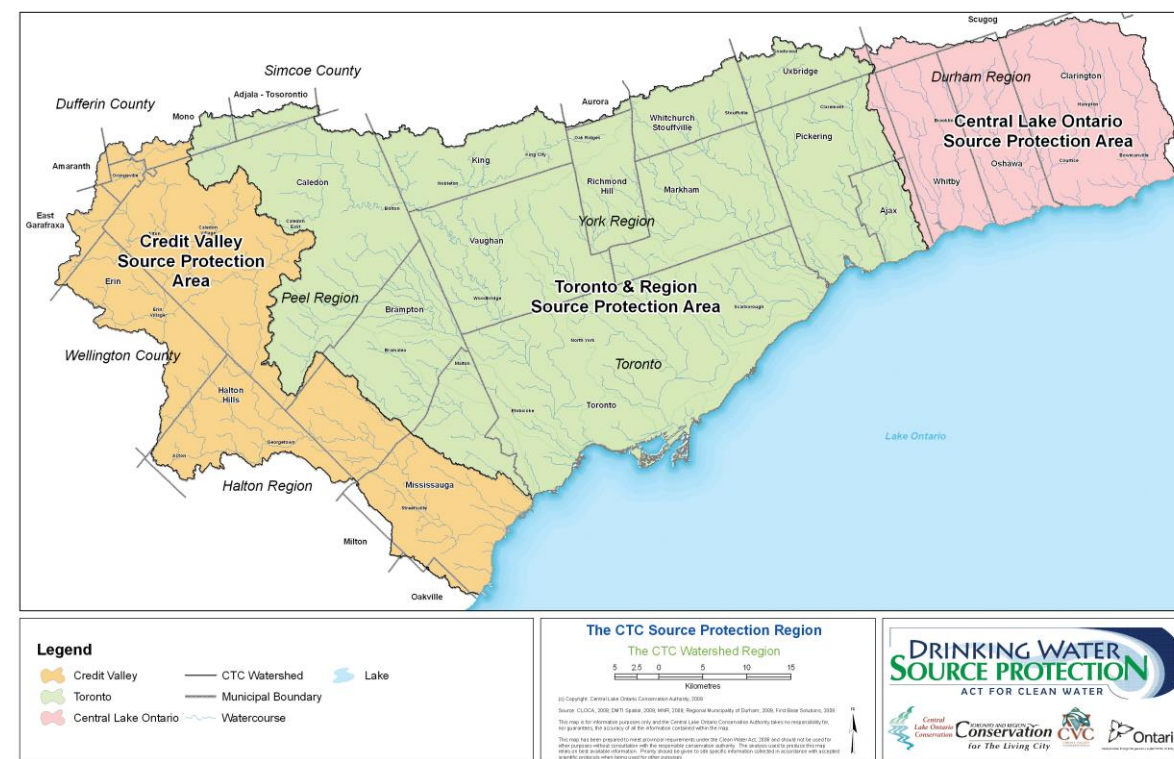
- Conservation authorities grouped into source protection regions:
 - 5 covered most of Lake Ontario
 - Collaborated to identify existing and potential risks in Lake Ontario
 - However, did not develop consistent policies to protect Lake Ontario



CTC Source Protection Plan

- CTC SPP was approved by the Minister in 2015 and came into effect in January 2016
- Contains lake-based policies that are directed to Peel, Durham and Toronto

CTC = Grouping of
Credit Valley, Toronto and Region
and Central Lake Ontario
Conservation Authorities



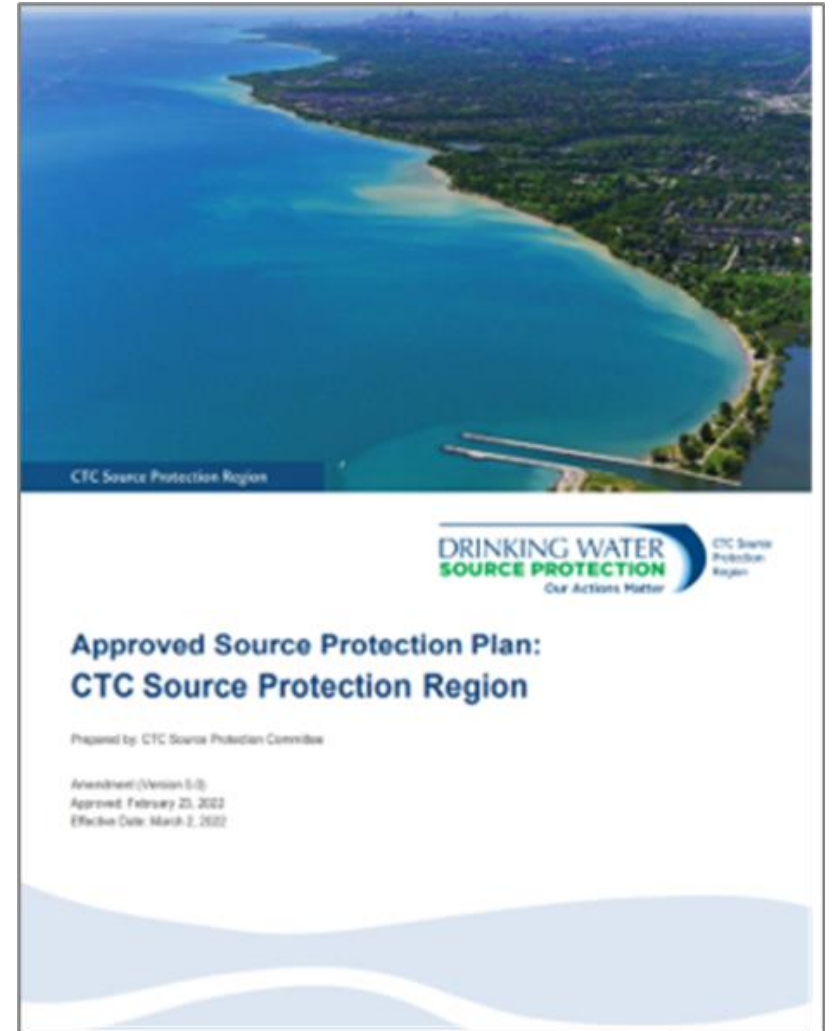


Lake-based general policies

- **LO-G-1 – Improve emergency communications**
- **LO-G-2 – Work collaboratively** - MECP and municipalities with Environment Canada to undertake listed actions to protect municipal drinking water in the western basin of Lake Ontario
- **LO-G-3 – Fund** Peel, Durham and Toronto are required to participate in the partnership, fund and implement the identified ***activities***.

CTC SPP Lake Ontario *Activities*

- Near-shore water quality monitoring
- Install continuously recording current meters
- Maintain and further develop a 3D lake circulation and water quality model
- Apply the model to assess threats
 - At the time of spill
 - Scenarios





Source Water Collaboration Established

- MECP – Municipal TOR March 2017
- Memorandum of Understanding amongst PDT 2019
- Governance
- Program management and support
- Municipal-specific investment in monitoring infrastructure
- Shared model development, operations and maintenance, data sharing and management
- Lake Ontario Water Quality Forecasting System – proof of concept (2022)
- LOWQFS spans Lake Ontario intakes from Mississauga to Whitby for now

Lake Ontario Collaborative Group & Partners

