



Binational Lakewide Management Plans (LaMPs) in the Great Lakes

*Canadian Water Resources Association
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*John Marsden
Environment Canada*



Environment
Canada

Environnement
Canada





Great Lakes Transboundary Issues

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- Food Web Changes
 - Loss of Biodiversity
 - Invasive Species
 - Harmful and nuisance algal blooms
 - Toxic Chemicals of Emerging Concern



Transboundary management

- Lakewide Management Plans
 - Lake Ontario Binational Biodiversity Conservation Strategy
 - Lake Superior Aquatic Invasive Species Complete Prevention Plan
- Binational Cooperative Science and Monitoring Initiative



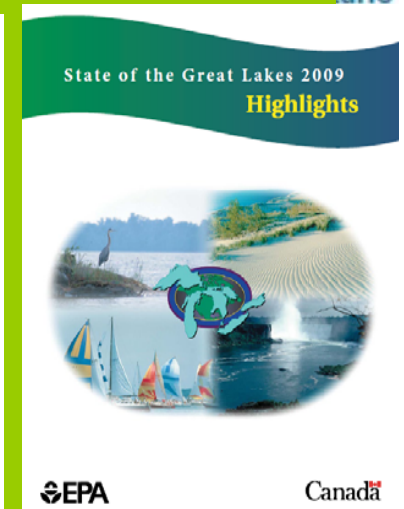
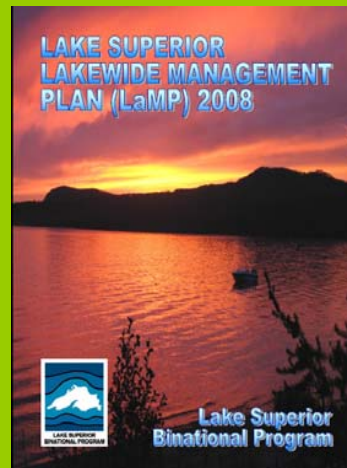
What is a LaMP?

- A plan of action to assess, restore, protect and monitor the ecosystem health of a Great Lake
 - It is used to coordinate the work of all the government, tribal, and non-government partners working to improve the Lake ecosystem
 - Includes a communications/consultation process
- Initially intended to identify critical pollutants that affect beneficial uses of the lakes; present strategies, recommendations and policy options to restore those beneficial uses
- Expanded to address ecosystem health (e.g. fish and wildlife populations and habitat)

- Great Lakes



- Management and Reporting Section



LaMP Management

- LaMP adaptive management framework:
 1. Vision, goals, objectives, targets and indicators are established
 2. Available science is assembled, synthesized, analyzed, and reported;
 3. Information gaps and/or need for additional information are identified;
 4. Ecosystem impairments and threats are identified;
 5. Causal factors for impairments are determined;

LaMP Management (cont'd)

6. Priorities for action and targeted results are identified;
7. Effectiveness of existing programs is assessed;
8. Need for additional actions is identified and advocated;
9. Roles and responsibilities for implementation of actions are identified;
10. Implementation of actions is facilitated to the degree possible
11. Progress toward achievement of targeted results is assessed and reported.

LaMP future

- Some shift in science focus from open waters (offshore) to nearshore – identify, assess and address priority nearshore zones and tributaries, e.g.:
 - Lake Huron Southeast Shore
 - Lake Huron Southern Georgian Bay Coastal Initiative (proposal) (includes Collingwood and Severn)
 - Eastern Georgian Bay embayments (e.g. Sturgeon Bay)
 - Eastern Basin of Lake Erie (Grand River)
 - Central Basin of Lake Erie (Big Otter/Kettle Creeks)
 - Western Lake Ontario (Oakville)



The Beautiful Lake

*A Binational Biodiversity Conservation Strategy for
Lake Ontario*



Prepared by the Lake Ontario Biodiversity Conservation Strategy Working Group
In cooperation with the U.S. – Canada Lake Ontario Lakewide Management Plan

April 2009

Updated July 2009

Project Objective & Scope

Develop bi-national strategies for conserving and restoring the biological diversity of Lake Ontario, including its coastal habitats, pelagic and benthic zones, tributaries, and connecting channels.

The scope of recommended actions includes the watersheds of tributaries to the extent that they affect the biodiversity of the lake.



Project Team

- Conservation Ontario
- Cornell University
- Environment Canada
- Environmental Protection Agency
- Department of Fisheries and Oceans
- NYSDEC
- NYS Department of State
- Nature Conservancy of Canada
- Ontario Ministry of Natural Resources
- Parks Canada
- SUNY Environmental Science and Forestry
- SUNY Brockport
- US Army Corps of Engineers
- The Nature Conservancy

- Tug Hill Commission
- US Fish and Wildlife Service
- University of Guelph
- St. Regis Mohawk Tribe
- Ducks Unlimited

Funding:

EPA GLNPO, EPA Region 2
Canada-Ontario Agreement
Environment Canada
The Nature Conservancy
The Nature Conservancy of Canada



Lake Ontario Biodiversity Conservation Targets

1. Benthic offshore system
 2. Offshore pelagic system
 3. Nearshore zone
 4. Coastal wetlands
 5. Coastal terrestrial systems
 6. Native migratory fish
 7. Rivers, estuaries & connecting channels
 8. Islands
- 



Where do these strategies need to be implemented?

- Identified the **places** where strategies will most benefit coastal wetlands; nearshore zone; rivers, estuaries, and connecting channels; coastal terrestrial habitats; and migratory fishes
- Drafted criteria to assess biological significance and condition
- Worked with experts to review criteria
- Used GIS to assess criteria
- Expert review at 4th workshop (priority places for “mappable” targets + priority strategies for those places)

Proposed Action Sites, Lake Ontario Biodiversity Strategy

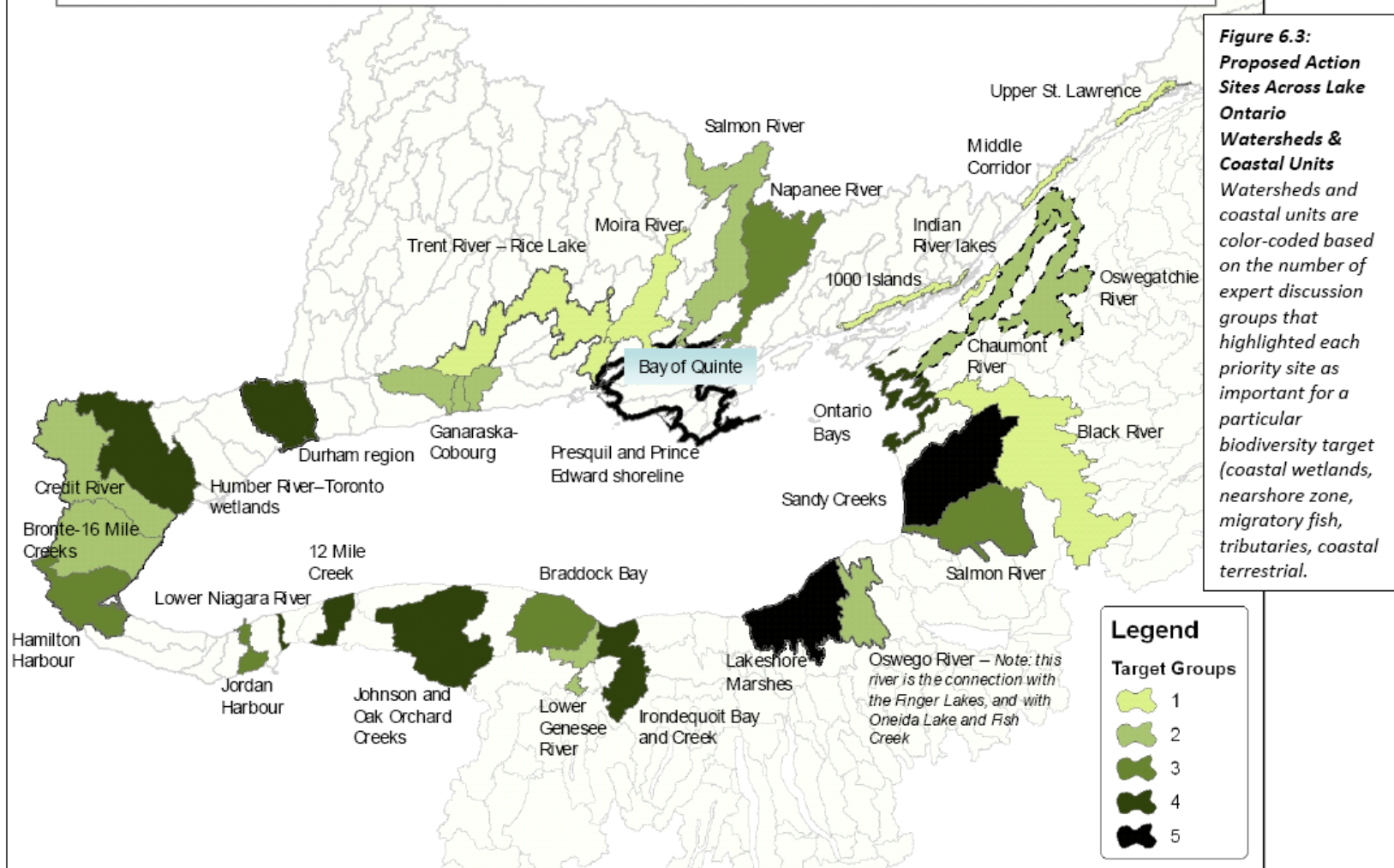


Figure 6.3:
Proposed Action Sites Across Lake Ontario Watersheds & Coastal Units
 Watersheds and coastal units are color-coded based on the number of expert discussion groups that highlighted each priority site as important for a particular biodiversity target (coastal wetlands, nearshore zone, migratory fish, tributaries, coastal terrestrial).

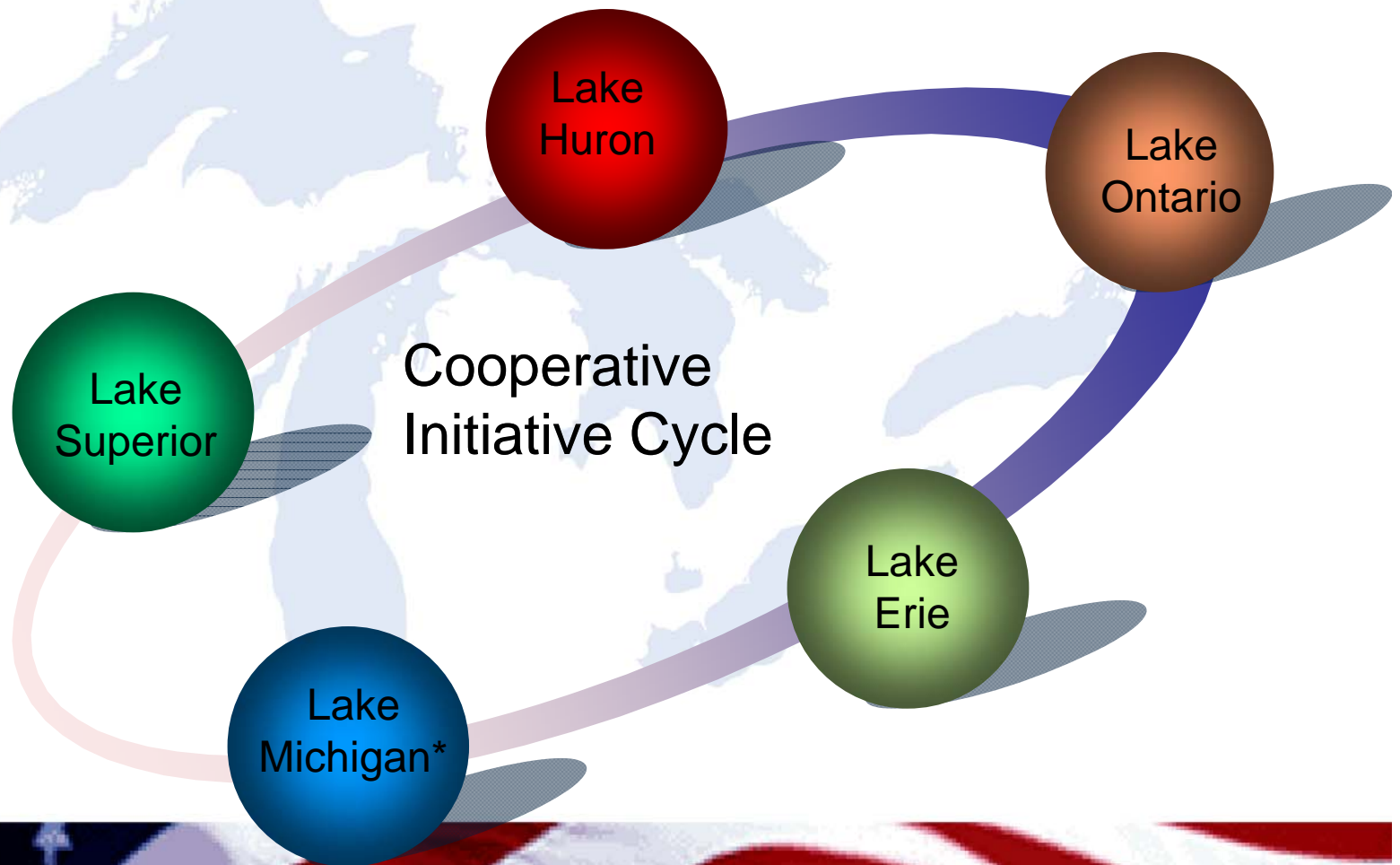
Next Steps

- Report and recommendations being reviewed by LaMP Work Group
- Develop formal LaMP biodiversity action plan
- Move to implementation phase promoting watershed & coastal zone restoration plans and actions in 2010.

Cooperative Science and Monitoring Initiative

- Cooperative Monitoring Initiative (CMI) started in 2002 to coordinate monitoring
- Expanded mandate of CMI to include research coordination resulted in CSMI in 2006
- In 2009, connecting channels (including St. Lawrence) were added to CSMI process
- CSMI follows a 5 year rotational cycle
- CSMI does NOT set priorities

Rotational Cycle



* Canada will participate in another lake

CSMI Steering Committee

- Cdn Co-Chair: Environment Canada
- US Co-Chair: U.S. EPA-GLNPO
- Member agencies
 - USGS
 - DFO
 - MNR
 - MOE

What happened in 2009?

- **Lake Ontario** – Data being worked up from 2008 field year
- **Lake Erie** – Field Year
- **Lake Superior** – Workshop to scope out issues for 2011 field year
- **Lake Huron** – Reporting out at Special Session at IAGLR
- **Lake Michigan** – Planning year for field year 2010

What is going on in 2010?

- **Lake Ontario** – Reporting out at Special Session at IAGLR 2010
- **Lake Erie** – Data being worked up from 2009 field year
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Lake Superior AIS Complete Prevention Plan

Vectors & Pathways

Maritime Commerce

- Ballast water
- Hull / anchor / superstructure fouling

Water Recreation

- Boating
- Diving

Agency Activities

- Stocking/hatcheries
- Research & assessment
- Harbour & navigation maintenance
- Coast Guard activities

Tourism & Development

- Cruising vessels
- Ecotours
- Float planes & helicopters

Organisms in Trade

- Pets/aquariums
- Aquatic plants
- Shoreline & habitat restoration
- Live food fish

Canals & Diversions

- Lift locks
- Canals
- Compensating works

Illegal Activities

- Plant release
- Unauthorized introductions
- Import of live bait

Fishing & Aquaculture

- Fishing equipment
- Live bait
- Aquaculture facilities
- Charter fishing



Conclusions

- LaMPs are an effective transboundary water management framework for:
 - Assessing the state of the aquatic ecosystem
 - Identifying priorities for science and action
 - Facilitating binational partnerships
 - Developing strategies to address issues
 - Reporting on progress