

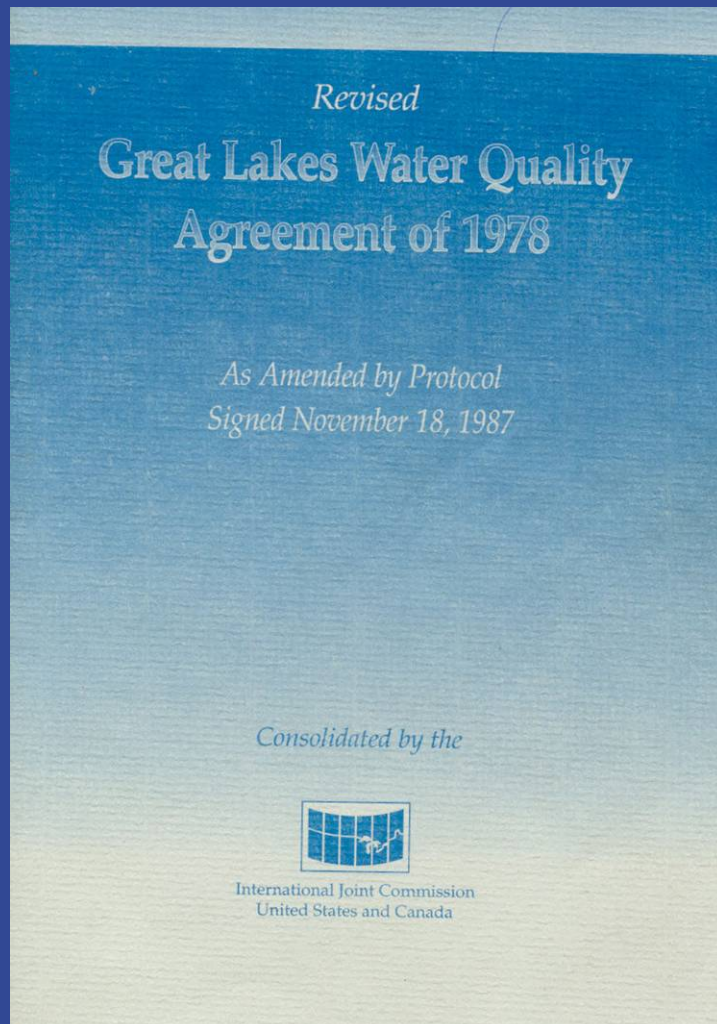


# Improving Binational Coordination of Monitoring in the Great Lakes

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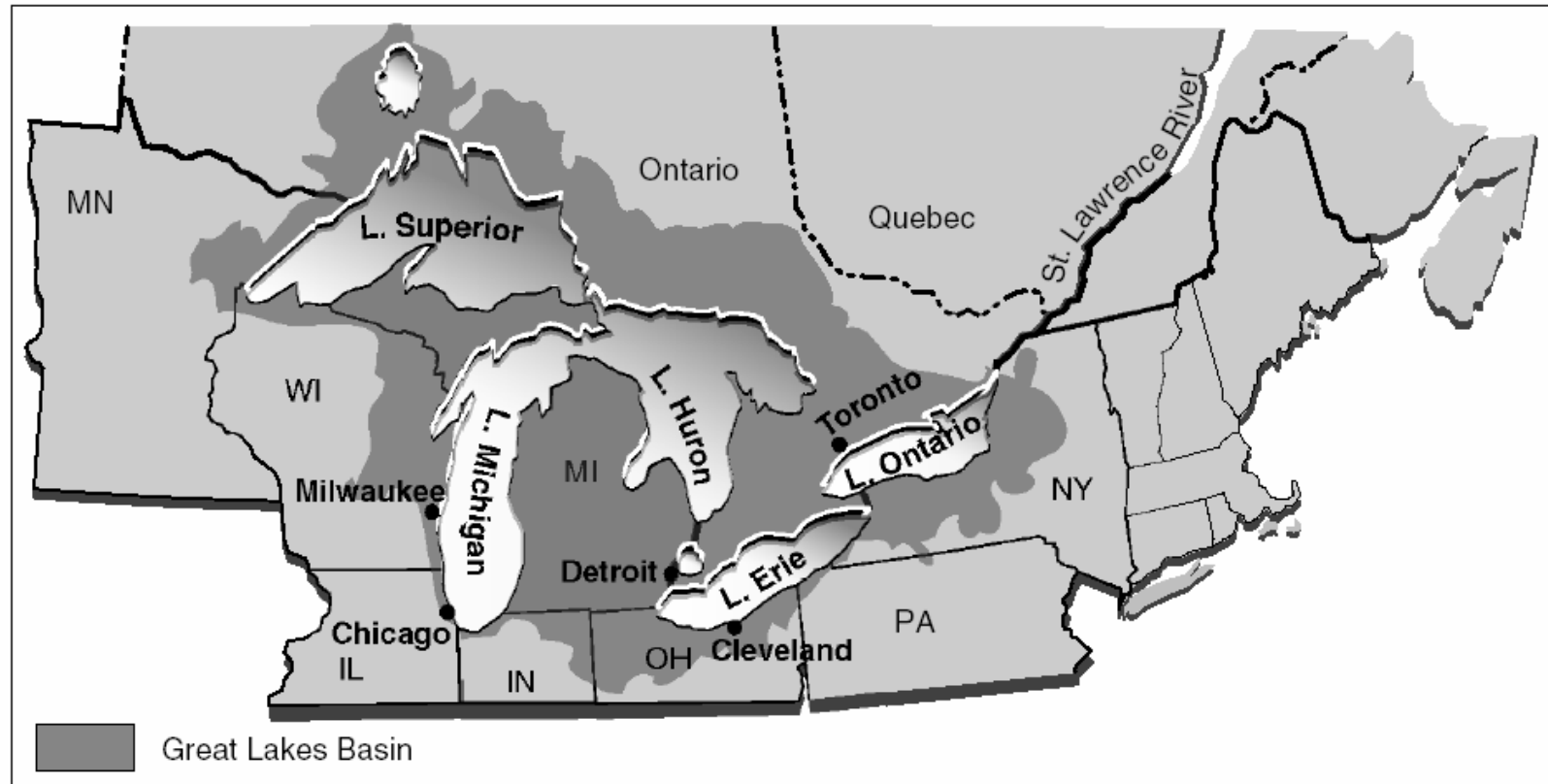
# Monitoring to meet GLWQA needs....



- Extensive requirements throughout GLWQA, eg., sources, presence, loadings, impacts, trends
- Emerging problem identification and assessment
- Various abiotic and biological media
- Support research, modeling, restoration, lake management
- All levels of government

# ...involves multiple agencies

Great Lakes Basin Area in the United States and Canada



Source: GAO.

# Lack of Coordination

*“... responsibilities for various types of monitoring are dispersed ... there is therefore a strong need for co-ordination and for someone to be accountable ... there is no overall focus and little horizontal coordination..” 1999 Report of CESF*

*“The governments recognize that more effective and more efficient coordination of monitoring efforts among the various jurisdictions and agencies could be achieved.” IJC Eleventh Biennial Report, September 2002*

*“...coordinating...monitoring activities among the many participating organizations within the United States, and between the United States and Canada is a significant challenge.” GAO, September 2004*

# The Solution

- Establishment of *Great Lakes Monitoring Inventory*
- Endorsement of *Cooperative Monitoring Initiative* to address Lakewide Management Plan (LaMP) needs on a rotational cycle
  - Provide focus and leadership
  - Coordination and optimization of resources



### *Step 1. Create one-window access to find out what monitoring is conducted*

- ☒ Inventory up and running
- ☒ Incomplete
  - Link to other inventories
  - Harmonize inventories
  - Marketing/outreach

### *Step 2. Information management*

- ☒ Attach files to project submission
- ☒ Web access to binational monitoring information
  - Lakeviews



- *What is Lakeviews?*
  - An **interoperable** system of **distributed** databases **linked** by web services & mapping technologies that serves as a discovery, access, visualization & decision-support tool for monitoring activities and priorities.
- Adoption of best practices & standards:
  - Information stays at source
  - Metadata to describe information
  - Web services to provide access
  - Compliance with International standards (metadata, mapping and services)



# Cooperative Monitoring Initiative

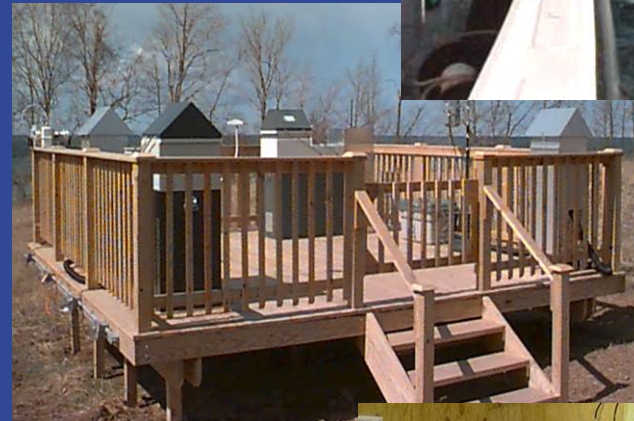
# Cooperative Monitoring: What is it?



- *LaMP leads*
  - Identify priority information needs
- *Steering Committee coordinates*
  - Program designed by binational experts
  - Seek out alternative funding sources
  - Sharing of technology, equipment, expertise
  - Data sharing protocols for reporting
- *Established rotational cycle*

# 2003: Lake Ontario

- *Lake Ontario Lower Foodweb Assessment*
  - assessing changes in the foodweb post-Dreissenid invasion
- *Lake Ontario Atmospheric Deposition Study*
  - improved understanding of air-water exchange and atmospheric loadings to the lake
- *Interagency comparison study for trace organics in water*
  - comparability of data produced by different agencies and reasons for any differences



# 2004: Lake Erie



- *Examined changes to the ecosystem since the invasion of Dreissenids:*
  - *Distribution and abundance of mussels*
  - *Interbasin transport and lake physics*
  - *Changes in nutrient cycling*



Zebra



Quagga



Morphological  
Intermediates?

# Carry-forward project: Lake Erie Tributary P loadings

- Initiated discussions with experts to flush out the nutrient issue in Lake Erie
- Three different components were identified:
  - *Nutrient conditions and algal growth factors in nearshore*
  - *Success of implemented management actions in watersheds*
  - *Tributary loadings of nutrients and its contribution to the whole lake\**
- LaMP Work Group prioritized focus of project
- Binational planning and project design initiated





# 2005/06: Lake Superior



## 2005 Priorities

- *Measurement of LaMP Priority Chemicals in air, precipitation and open lake waters*
- *Lower food web monitoring*
- *Tributary screening for LaMP pollutants*

## 2006 Priorities

- *Additional chemical sampling and analysis*
- *Multi-agency fish intercomparison study*
- *Herptile Monitoring Pilot Study*



# Project Partners



Environment Canada

Ontario Ministry of Natural Resources

Minnesota Department of Natural Resources

Department of Fisheries and Oceans

Environmental Protection Agency

U.S. Fish & Wildlife Service

Ontario Ministry of Environment

University of Minnesota-Duluth

Indiana University

Michigan Technological University

U.S. Geological Survey



# Other Lake Superior Efforts...



- Spatial and seasonal fluctuations of lower trophic levels (abundance, biomass, production)
- Fish distribution (abundance, biomass), community structure, diets, and stable isotope signatures (OMNR)
- Comparative broad-scale picture of food web structure and energy flux (bioenergetics)
- Biomass size spectrum study (MN Sea Grant)
- Food web analysis (GLFC proposal)
- Critical pollutants and emerging chemicals in fish (DFO/EC)
- “Background” sampling in Siskiwit Lake, Isle Royale (EC)
- Support for Consortium for Lake Atmospheric Modelling Studies (EC/U of Guelph/McGill U/McMaster U)
- Index Station Monitoring at 15 stns, seasonally (MOE)
- Monitoring in support of AOCs (MOE)



# 2007: Lake Huron



- Consultations held with LHBP Co-chairs to discuss information needs
- Additional informal meetings being held in Canada and U.S. to uncover additional needs
- Priority-setting exercise at LHBP meeting in February
- Next steps: meet with experts to develop program to address key needs



# Cooperative Monitoring Initiative: Challenges



- Setting priorities:  
*“...so many issues, so little time...”*
- Administrative barriers:
  - Travel restrictions
  - Moving money
  - Security regulations
- No dedicated budget

# Cooperative Monitoring Initiative: Where are we?



**OBJECTIVE:** *Improve binational coordination of monitoring to achieve:*

- ☑ ***Greater awareness***
  - *Sharing of technologies; enhanced networking; continued feedback to LaMP working groups*
- ☑ ***Optimization of programs***
  - *Consensus among experts on project design; evaluation of new technologies; joint work planning and scheduling*
- ☑ ***Improved reporting***
  - *Intercomparison studies (nutrients, trace organics in water and fish); data exchange; joint workshops and reporting*
- ☑ ***Efficiencies***
  - *Extensive piggy-backing on cruises, surveys; sharing of sample extracts*