



Linking Ecological Restoration and Economic Recovery at a Great Lakes Area of Concern: Muskegon Lake, MI

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Great Lakes Commission



Why Here?

Restoration in urban centers: Muskegon Lake AOC



Why Now?

Shifting community priorities



Who and How?

Public engagement and holistic planning

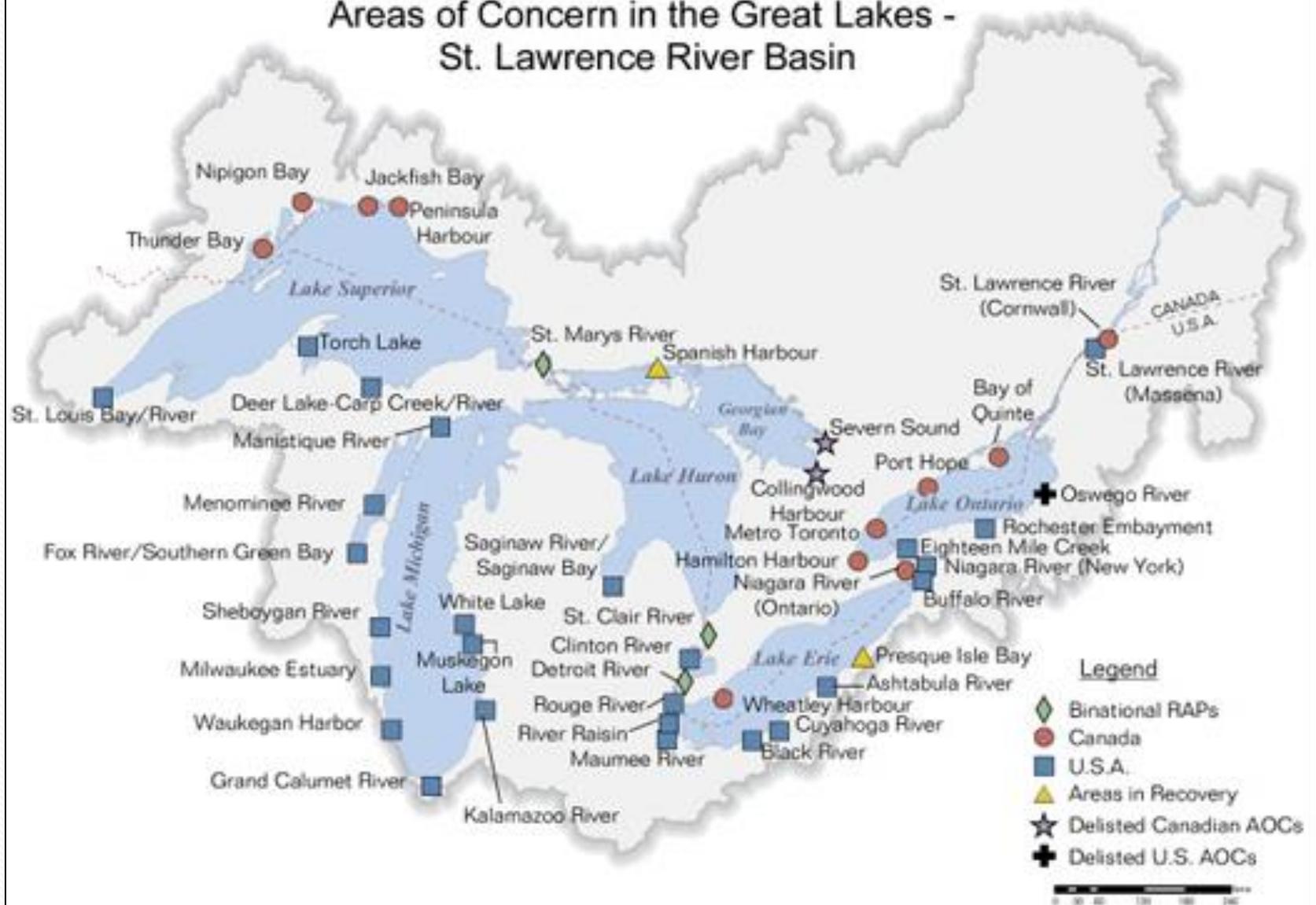


What's Next?

Community Revitalization: Socio economic impacts

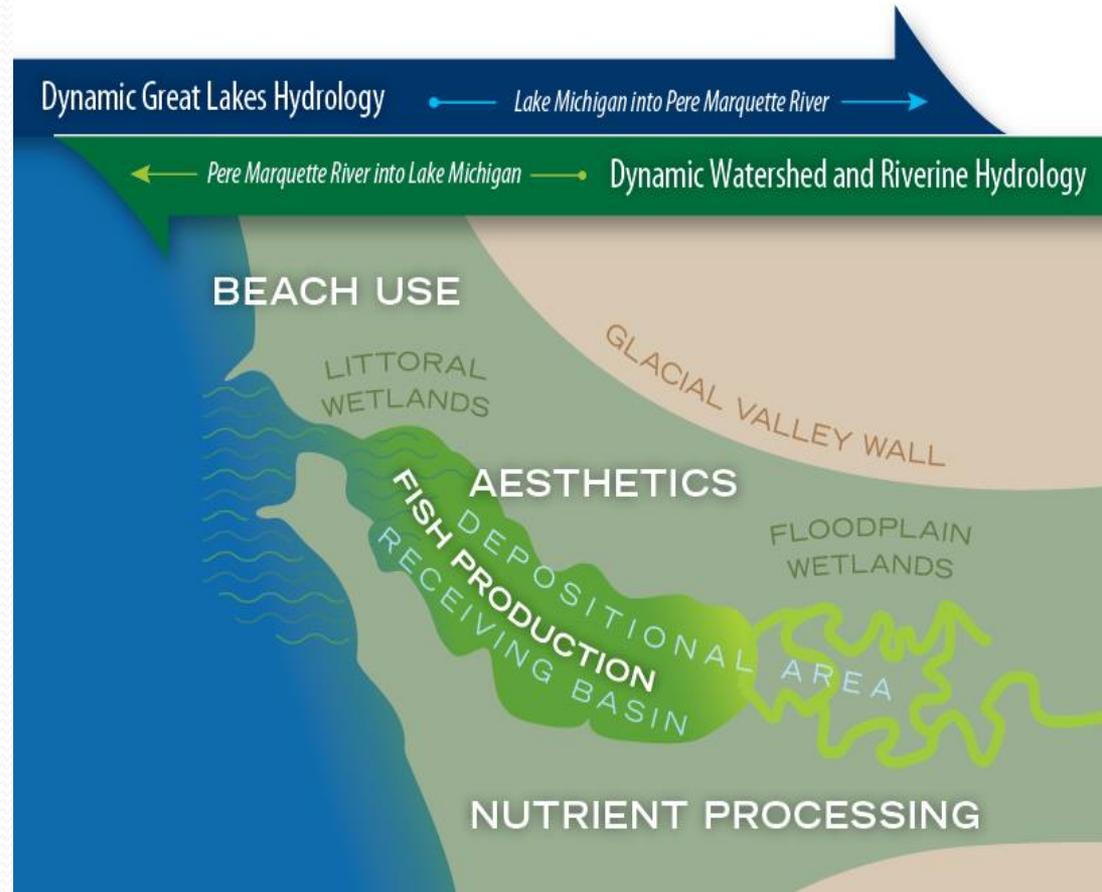
Why Here?

Areas of Concern in the Great Lakes - St. Lawrence River Basin



Great Lakes Rivermouths

- 92% of AOCs are Rivermouths
- Dynamic, resource-rich areas
- Focal points for settlement
- Centers of urbanization, industrial development and recreation



Turning Back to the Water

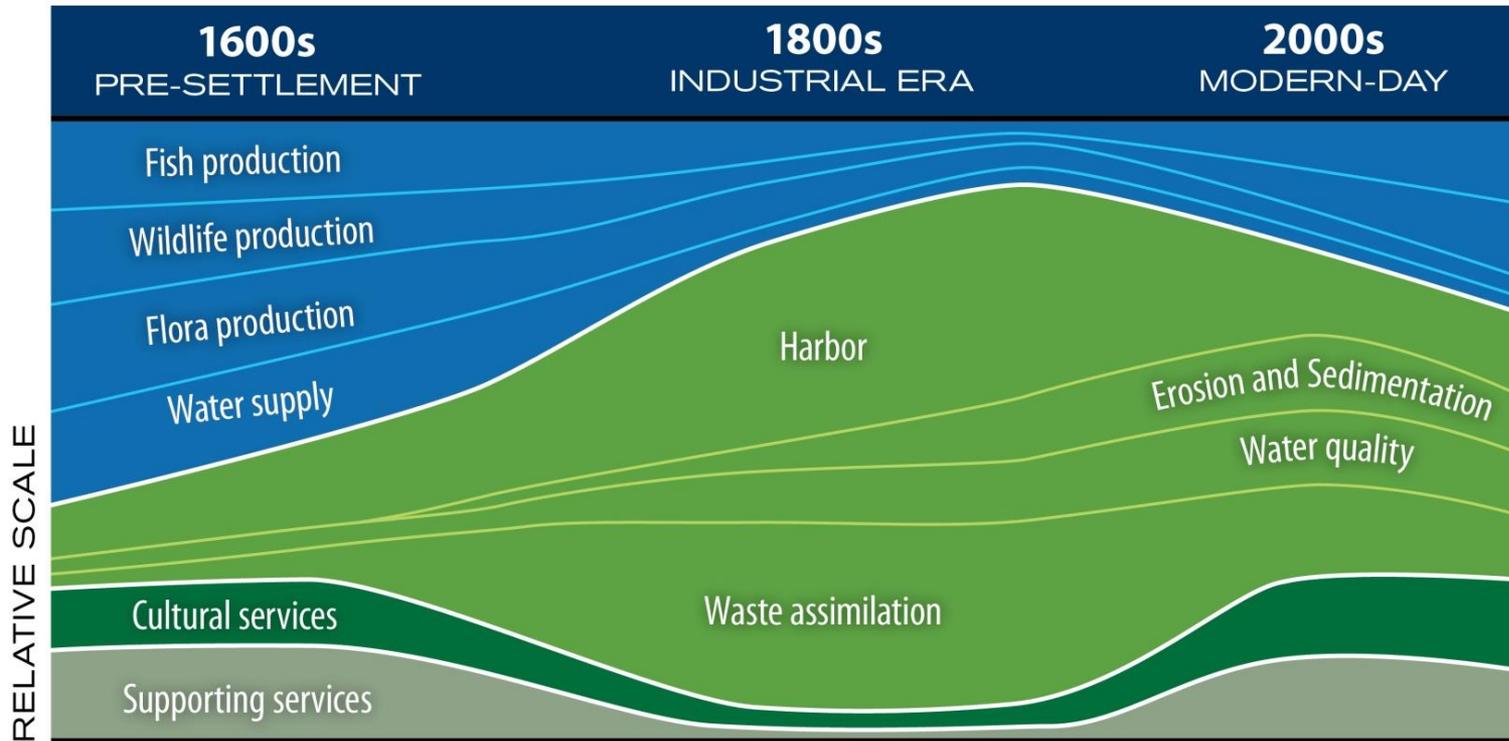
- Restoration in urban areas affects ecosystem services for people
- Restoration can result in significant economic benefits
- Can contribute to redevelopment
- Can contribute to community identity - Place



Why Now?

Shifting community priorities

Rivermouth Ecosystem Services



Are valued differently at different times

Selection for one or more services is often at the expense of others

Why Here?

Restoration in urban centers: Muskegon Lake AOC



Muskegon 1880s



Muskegon Lake Shoreline during the Lumber Era

Muskegon 1940s



Post World War II Industrial Era

Muskegon 2000s



**27% of open water and coastal wetland area lost to filling, BUT
Shuttered factories provide opportunity for restoration and development**

MUSKEGON: Capacity and Vision

- Institutions of Higher Education
- State and Federal Partners
- Local Leaders
- Industry Leaders
- Watershed and County Organizations
- Citizen Volunteers
- Place-based Education



AOC Planning Process

- Community driven
- Measureable restoration targets
- Funding for implementation and monitoring
- Long-term engagement

Muskegon Lake Area of Concern
*Fish and Wildlife Habitat Restoration
and Beneficial Use Impairment Removal Strategy*
December 18, 2008



Overview of Restoration Targets for Pelletizing

The Focus Area Approach
For purposes of setting the fish and wildlife-related BUI targets contained in this strategy, the AOC was divided into four distinct Focus Areas. This approach allowed the development of restoration targets to be set based on the unique aquatic habitat characteristics and differences in the feasibility of restoration based on past, present and future land uses and zoning within each Focus Area. The Muskegon Lake Area of Concern (AOC) Fish and Wildlife Habitat and Populations Beneficial Use Impairments (BUI) will be restored when restoration work listed for each of the four (4) habitat Focus Areas meets targeted goals for BUI removal. The Muskegon Lake Fish and Wildlife Habitat Restoration Plan identifies: 1) Quantifiable habitat restoration targets for each Focus Area 2) Potential landowner restoration partners 3) Restoration Sites within each Focus Area 4) Feasible restoration practices to restore sites within each Focus Area 5) Timetables 6) Estimated funding needs.

Implementation of the strategy will restore fish and wildlife habitat and guide the removal of two fish and wildlife-related BUIs, to ultimately delist Muskegon Lake as an AOC. Restoration Sites are aggregated within each Focus Area to culminate in meeting measurable BUI restoration and removal targets.

EXHIBIT 4
Muskegon Lake AOC Focus Areas



SOURCE: GVSU Arctic Water Resource Institute
Data modified from Michigan Center for Geographic Information, 2005 Aerial

Prepared for
Muskegon Lake Watershed Partnership

MLWP
Muskegon Lake
Watershed Partnership

ARRA 2009 - NOAA Habitat Restoration \$10 Million Award

Goals:

- Implement the Fish and Wildlife Restoration Plan
- Restore ecological benefits for fish and wildlife
- Make progress toward removal of BUIs
- Create and retain jobs
- Improve short and long-term economic conditions
- Maintain public involvement and community outreach



Restoration Objectives

- 27 acres of emergent wetland
- 24 acres of open lake habitat
- 10,000 feet of shoreline
- 182,000 tons of fill material



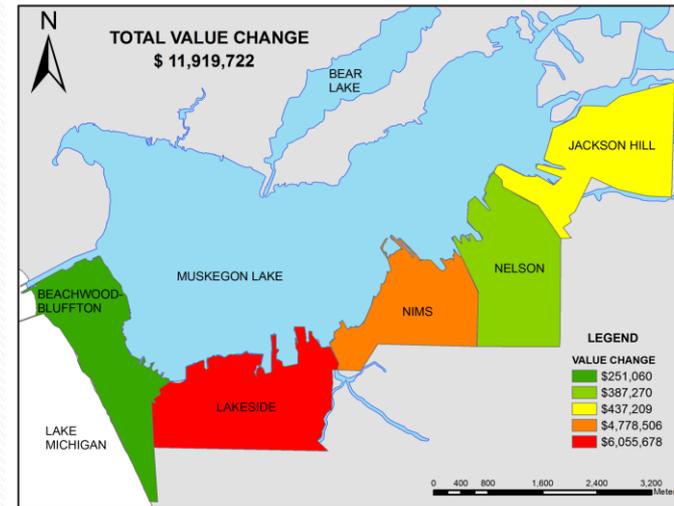
Socioeconomic Objectives

- Create 35,000 labor hours
- Determine impact of restoration on economy
 - Conduct Socioeconomic Analysis
 - Used unique attributes of Muskegon
 - Housing Values, Recreation Values, Use and Non-Use Values



Measuring the Value of Restoration

- \$10 million federal investment
 - \$12 million increased property values
 - \$600,000 new tax revenue annually
 - \$1 million new recreation spending annually
- \$66 million in economic benefits expected over 15 years



Isely, P., Hause, C., and E. Sterrett Isely. (2012).

The Future for Muskegon

- Restoring Muskegon Lake will help build a foundation for renewed economic vitality
- Conservation leaders will guide ecological integrity
- Engaged and empowered community will help ensure long-term sustainability and help balance ecological health and economic development



Linking Ecological Restoration and Economic Recovery: Restoring Urban Waterfront Communities

Why Here?

AOCs are population centers with potential to provide a diverse suite of ecosystem services

Why Now?

Regional strategy to create jobs, stimulate economic development and invest in freshwater resources and waterfront communities

How and Who?

Locally led and developed by the community; holistic restoration planning with measurable objectives and long-term sustainability

What's Next?

Restoration recognized as a driver of economic development, and fully integrated into community economic revitalization

Partners:

American Recovery and Reinvestment Act - 2009

NOAA – Great Lakes Restoration Program

West Michigan Shoreline Regional Development Commission

Muskegon River Watershed Assembly

Muskegon Lake Watershed Partnership

USEPA –Great Lakes National Program Office

Michigan DEQ

Michigan DNR

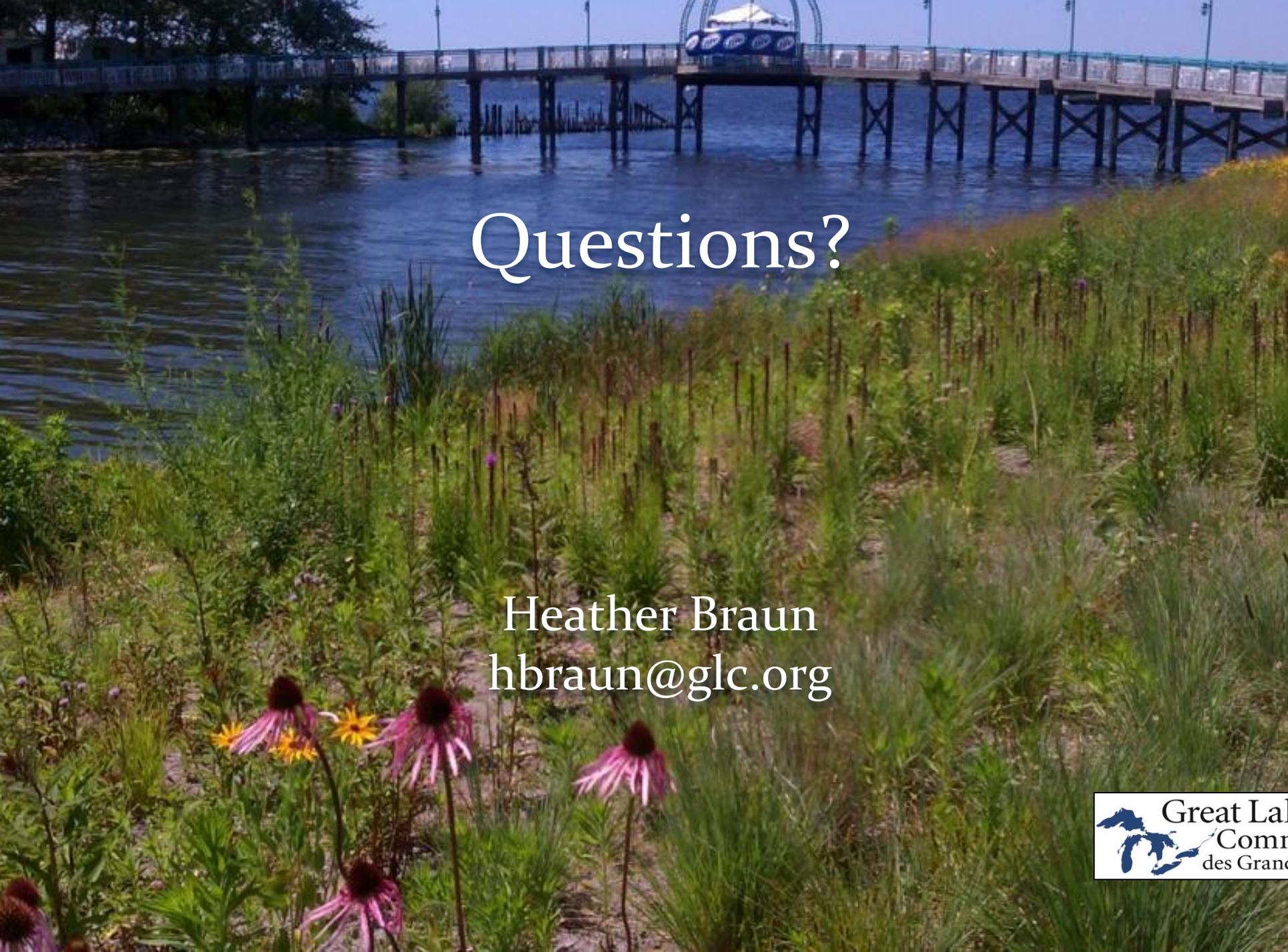
Grand Valley State University – AWRI

City of Muskegon

Muskegon County Conservation District

Public and Private Landowners

USGS -Great Lakes Science Center



Questions?

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