Lake Erie and St. Clair River to Detroit River Ecosystem

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Lake Erie is Unique

- biologically productive
- Carolinian Zone of Ontario
  - 100+ Canadian Species at Risk and 36 globally rare species
- high species richness
- one third of the Great Lakes basin population
- most stress from urbanization and agriculture
- vulnerable to aquatic NIS invasions
  - 144+ NIS in Lake Erie basin

Lake Erie Drainage Basin

St. Clair River – Lake St. Clair – Detroit River

Primary threat to biological integrity: Non-native species

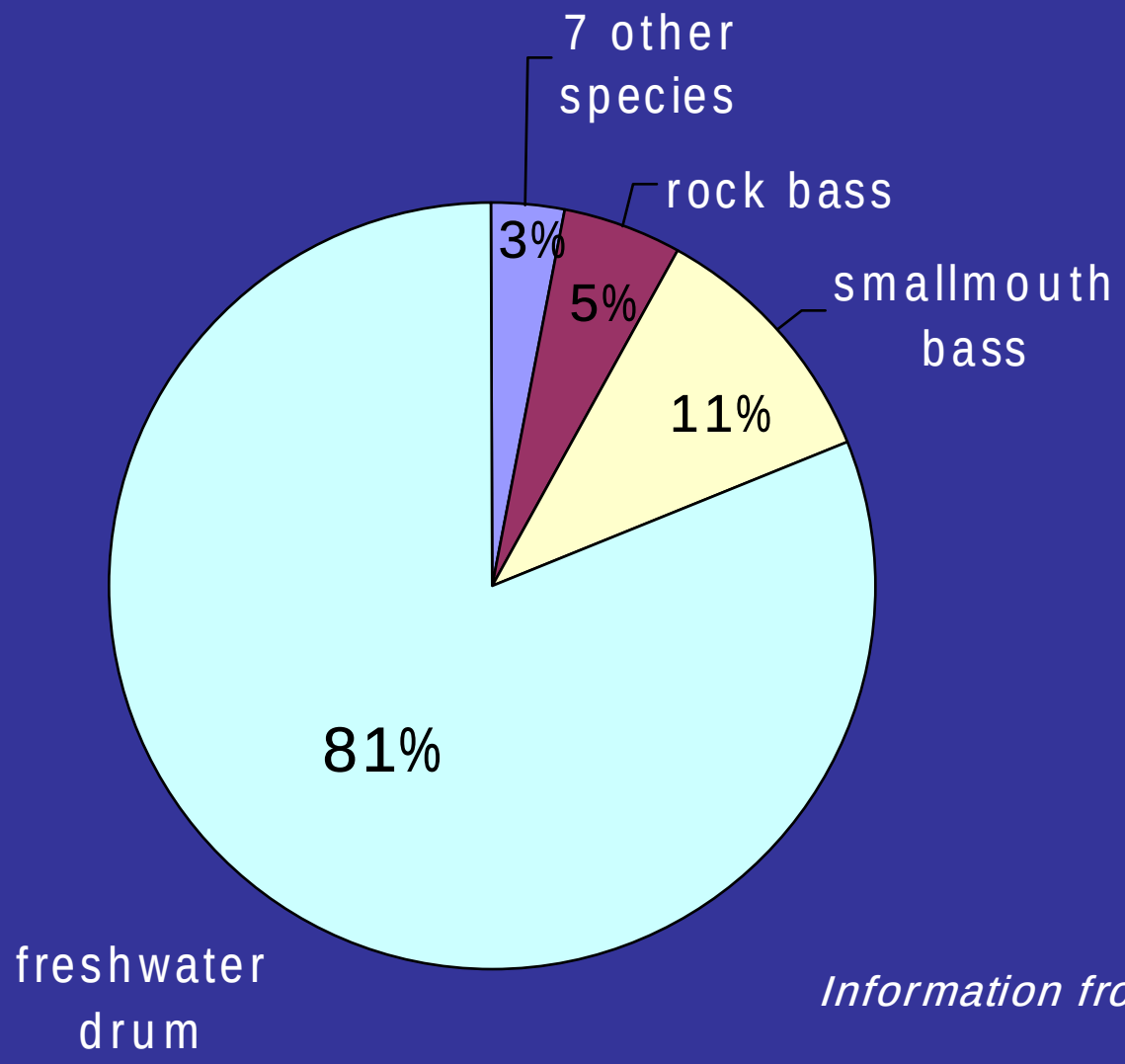
There are currently 34 non-native fish species in Lake Erie.

Altered habitats favor non-native species

Zebra Mussels

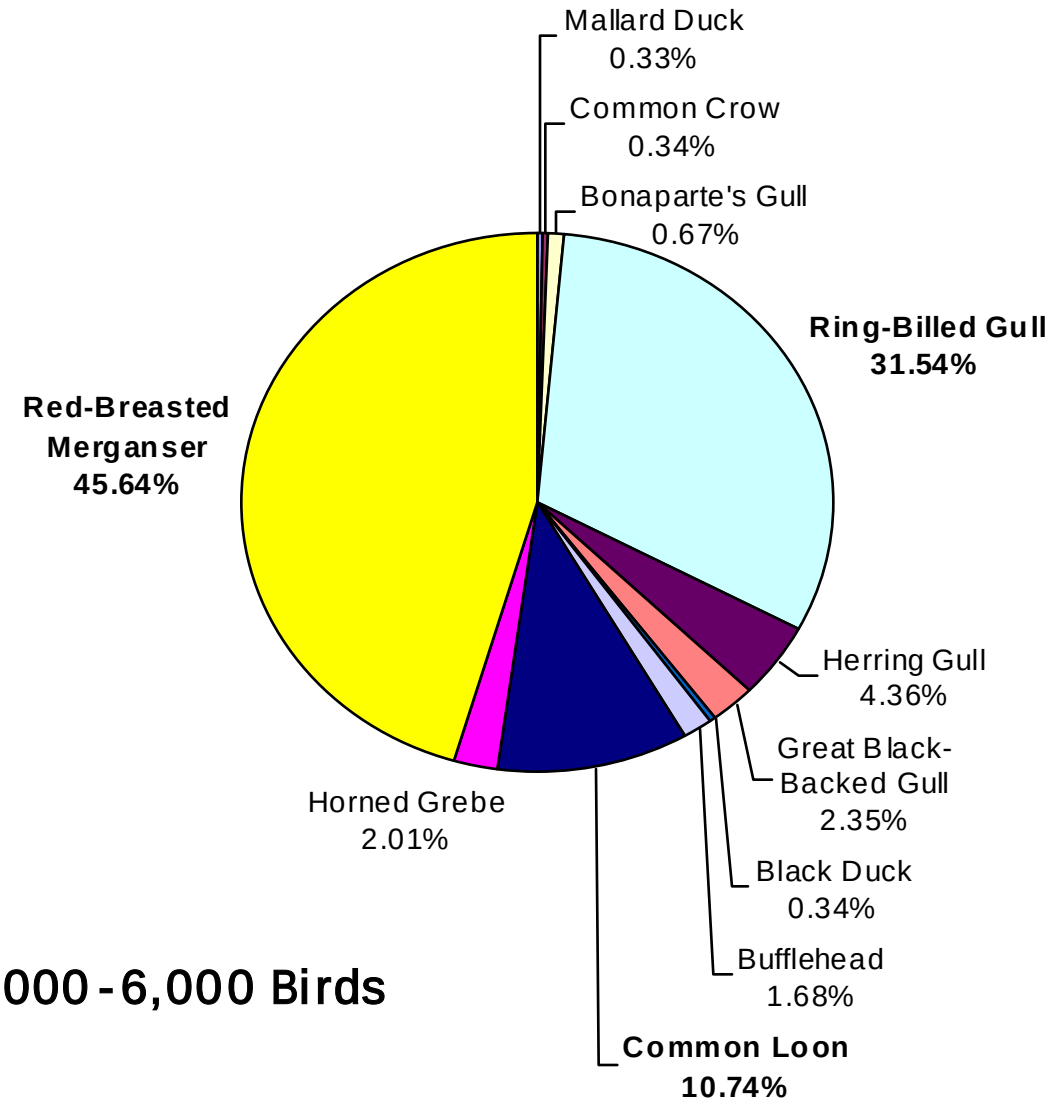
Native Freshwater Mussels

Frequency Of Dead Fish Species Observed Along NY Lake Erie Beaches, September 2001



Information from NYSDEC

Percent Mortality On NY Lake Erie Shoreline By Species Observed - Fall 2000

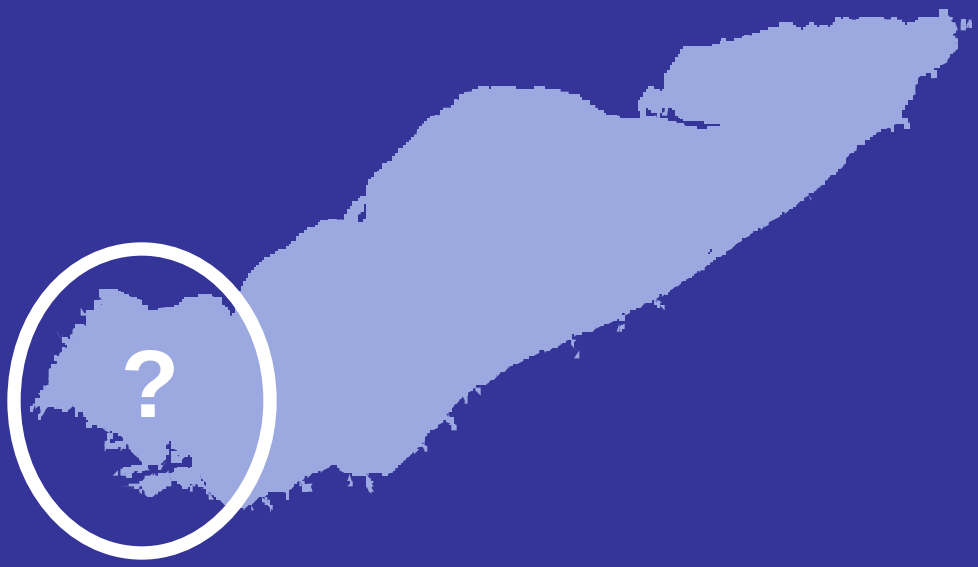


Mortality: 5,000 - 6,000 Birds

Non-native Zooplankton

Cercopagis

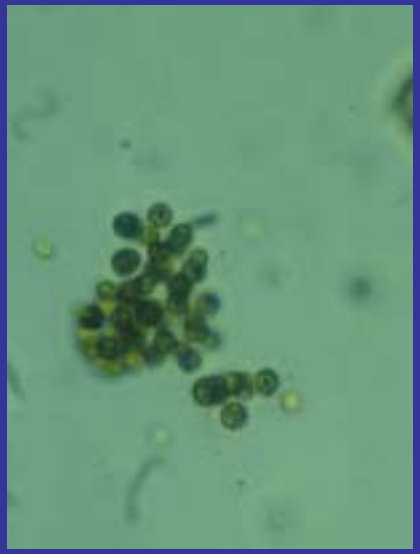
Non-native Introductions



Nutrient concentrations and cycling

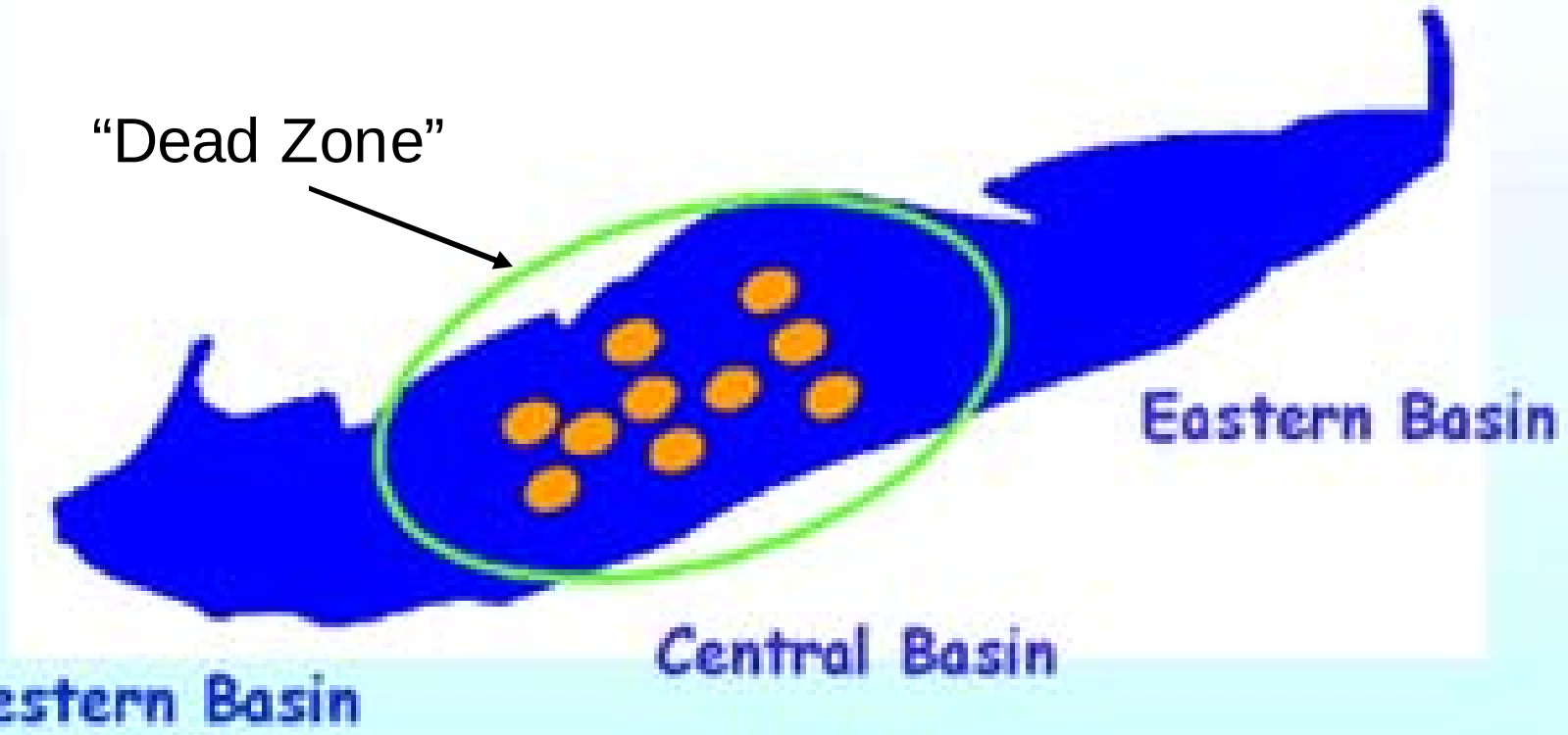
Zebra
Mussels

?



Microcystis

Lake Erie
Location of Central Basin Sampling Stations

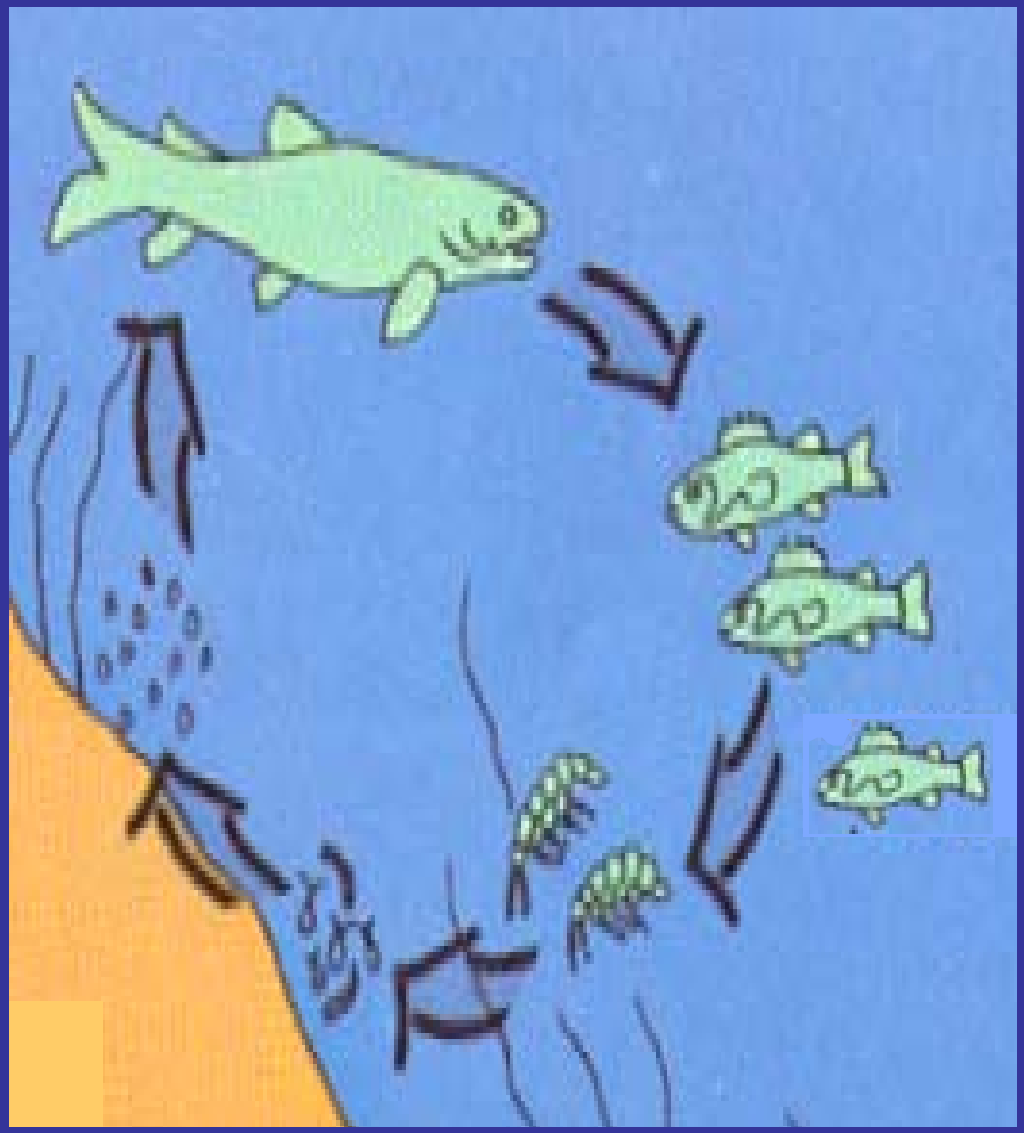


HABITAT	WHERE IMPAIRED
Islands	OH, likely in ON
Sand/Cobble Beaches	Sand: OH, PA, NY, ON; Cobble: ?
Unconsolidated shore bluffs	PA, likely in NY, ON
Interdunal wetlands	OH, PA, ON
Sand dunes	OH, PA, NY, ON
Submerged macrophytes	PA, NY, ON
Floating macrophytes	NY, ON, likely OH, PA
Emergent macrophytes	MI, PA, NY, likely OH, ON
Wet meadow	OH, PA, NY, ON
Mesic prairie	OH, ON, likely PA
Shrub swamp	OH, ON, likely NY, PA
Bogs and fens	OH, PA, NY, ON
Upland marsh	OH, NY, likely PA, ON
Mesic forest	NY, ON, oak-hickory in OH, beech-maple in PA
Swamp forest	OH, PA, NY, ON

Endemic Species

Lake Erie

Water Snake

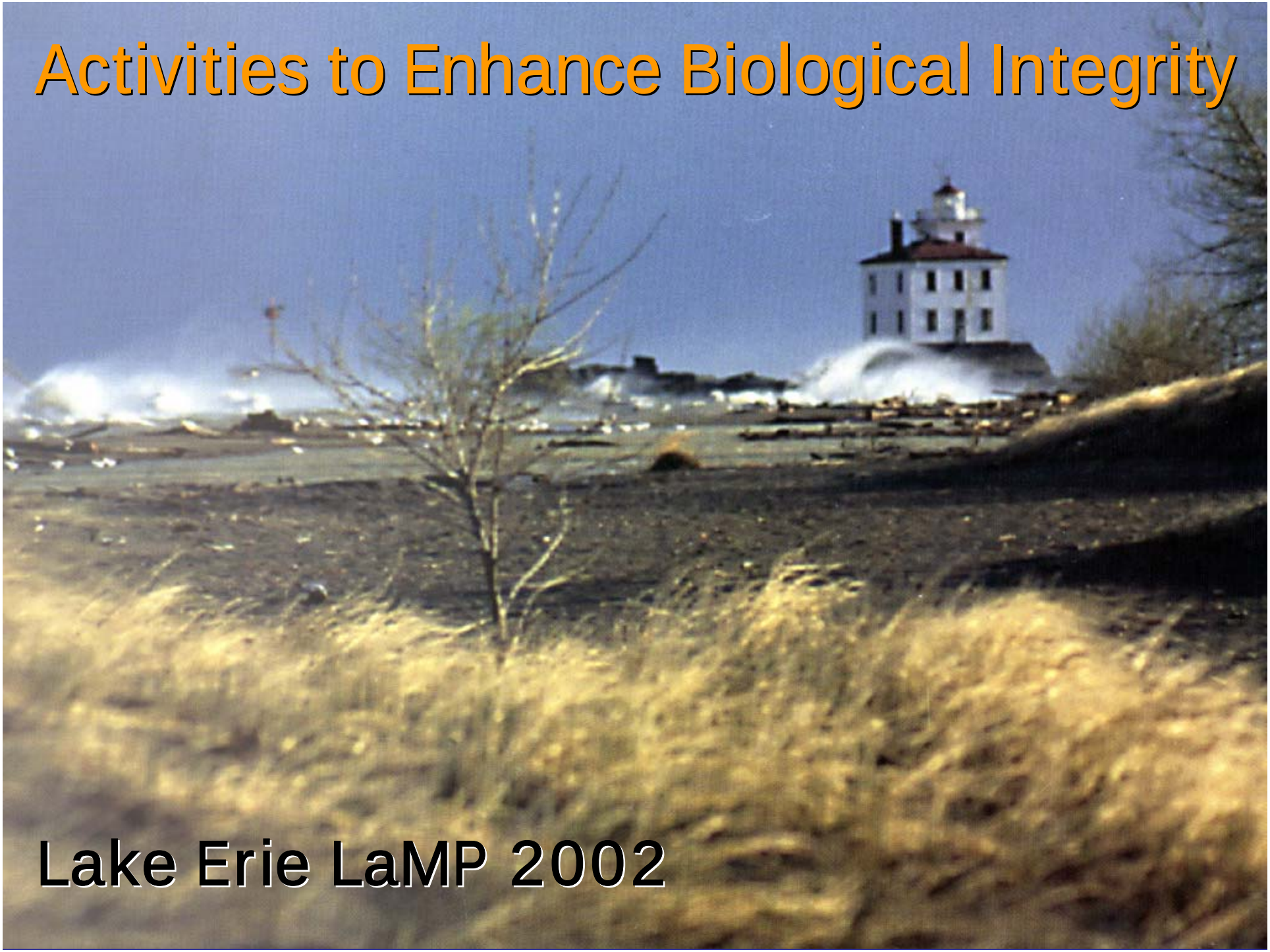


Contaminants continue to cycle through the sediments and the food web

Lake Sturgeon - Making A Comeback

Mayflies

Activities to Enhance Biological Integrity



Lake Erie LaMP 2002

Activities to Enhance Biological Integrity

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- St. Clair River habitat and non-point source improvement projects
- Lake St. Clair Coastal Habitats Restoration Conservation Project
- Ontario Environmental Farm Plan & Ontario Rural Clean Water Programs

Activities to Enhance
Biological Integrity

Activities to Enhance Biological Integrity

What actions are needed to understand and improve the biological integrity of Lake Erie and the St. Clair River to Detroit River Ecosystem?

Actions Needed

1. Minimize and control non-native species.

Actions Needed

2. Promote the protection and restoration of habitats across jurisdictions.

Actions Needed

3. Implement activities that manage nutrients.

Actions Needed

4. Improve data collection to facilitate informed decisions.

Biological Integrity

Lake Erie:

mixed to mixed deteriorating

St. Clair River – Lake St. Clair - Detroit River Ecosystem:

mixed