

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

Areas of Concern

- 1 St. Clair River
- 2 Clinton River
- 3 Detroit River
- 4 Rouge River
- 5 River Raisin
- 6 Maumee River
- 7 Black River
- 8 Cuyahoga River
- 9 Ashtabula River
- 10 Presque Isle Bay
- 11 Buffalo River
- 12 Wheatley Harbour







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



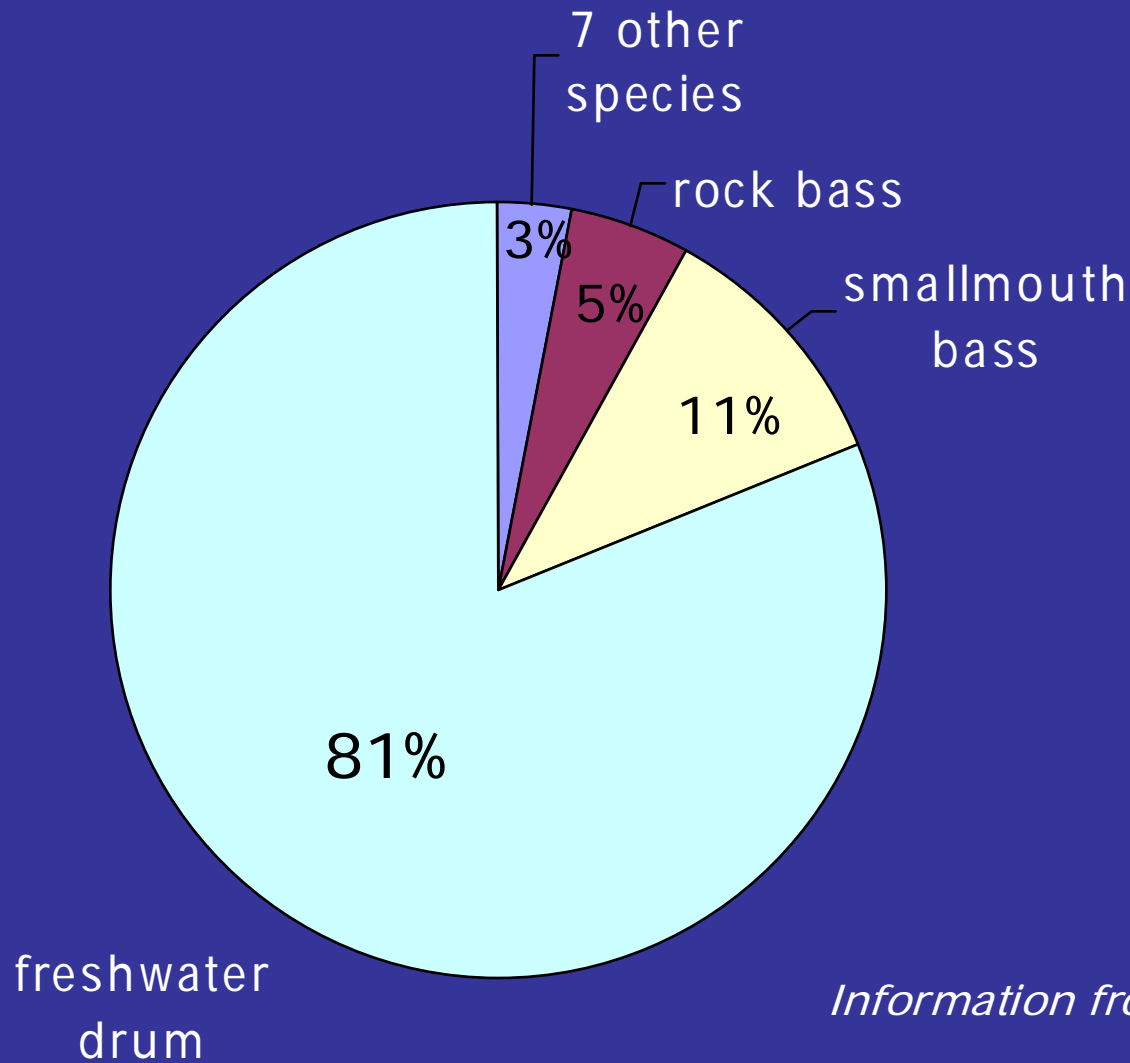
Zebra Mussels



Native Freshwater
Mussels

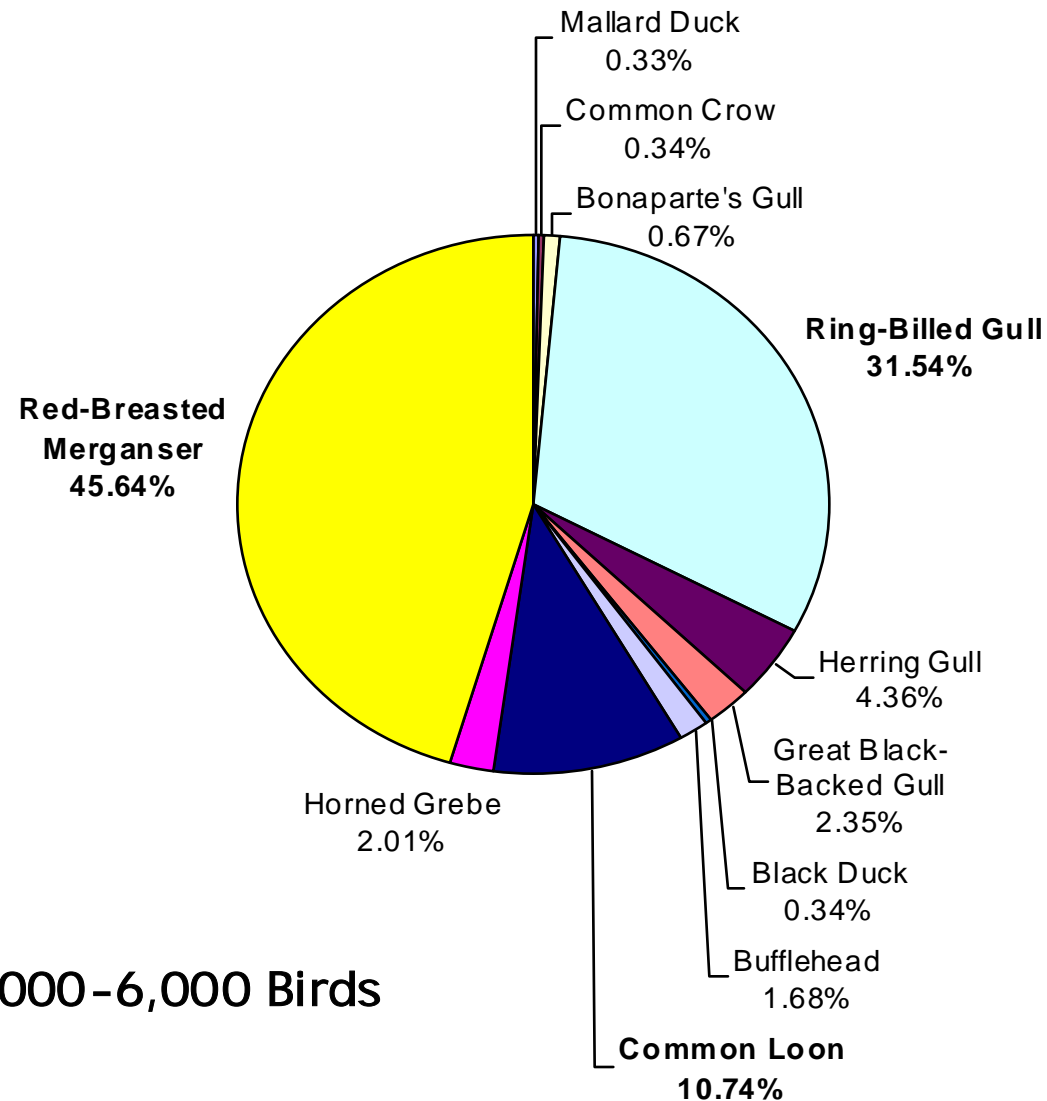


Frequency Of Dead Fish Species Observed Along NY Lake Erie Beaches, September 2001



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

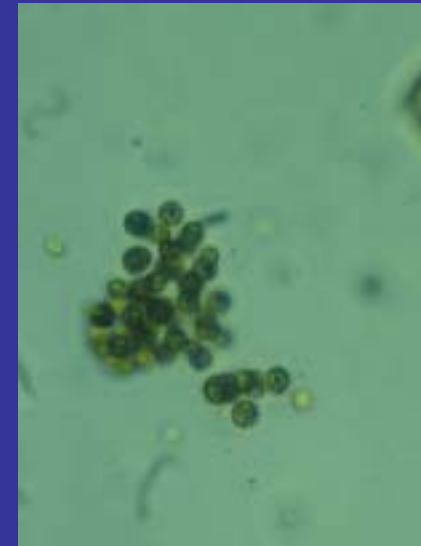
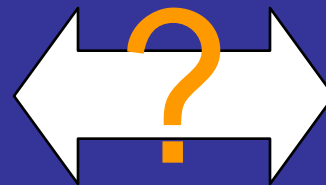
Non-native Introductions



Nutrient concentrations and cycling



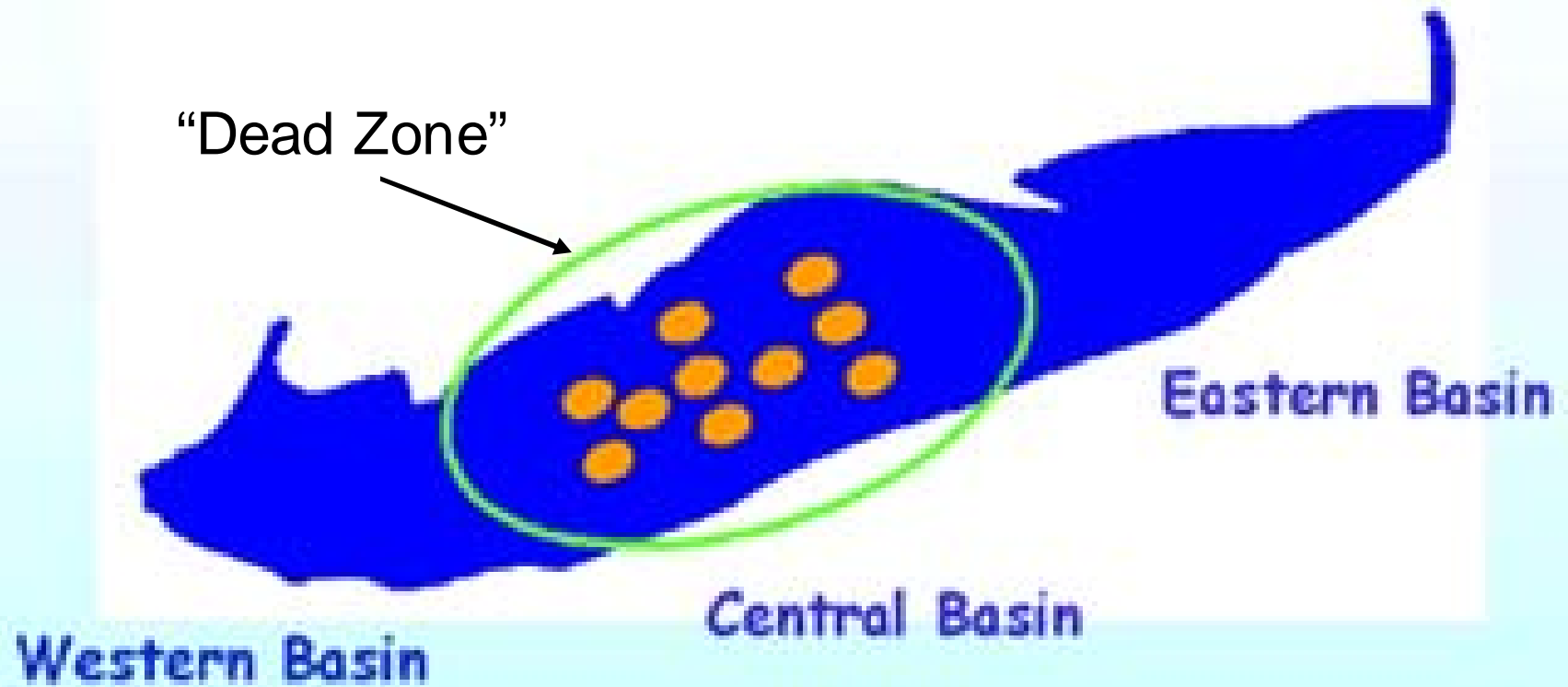
Zebra
Mussels



Microcystis

Lake Erie

Location of Central Basin Sampling Stations

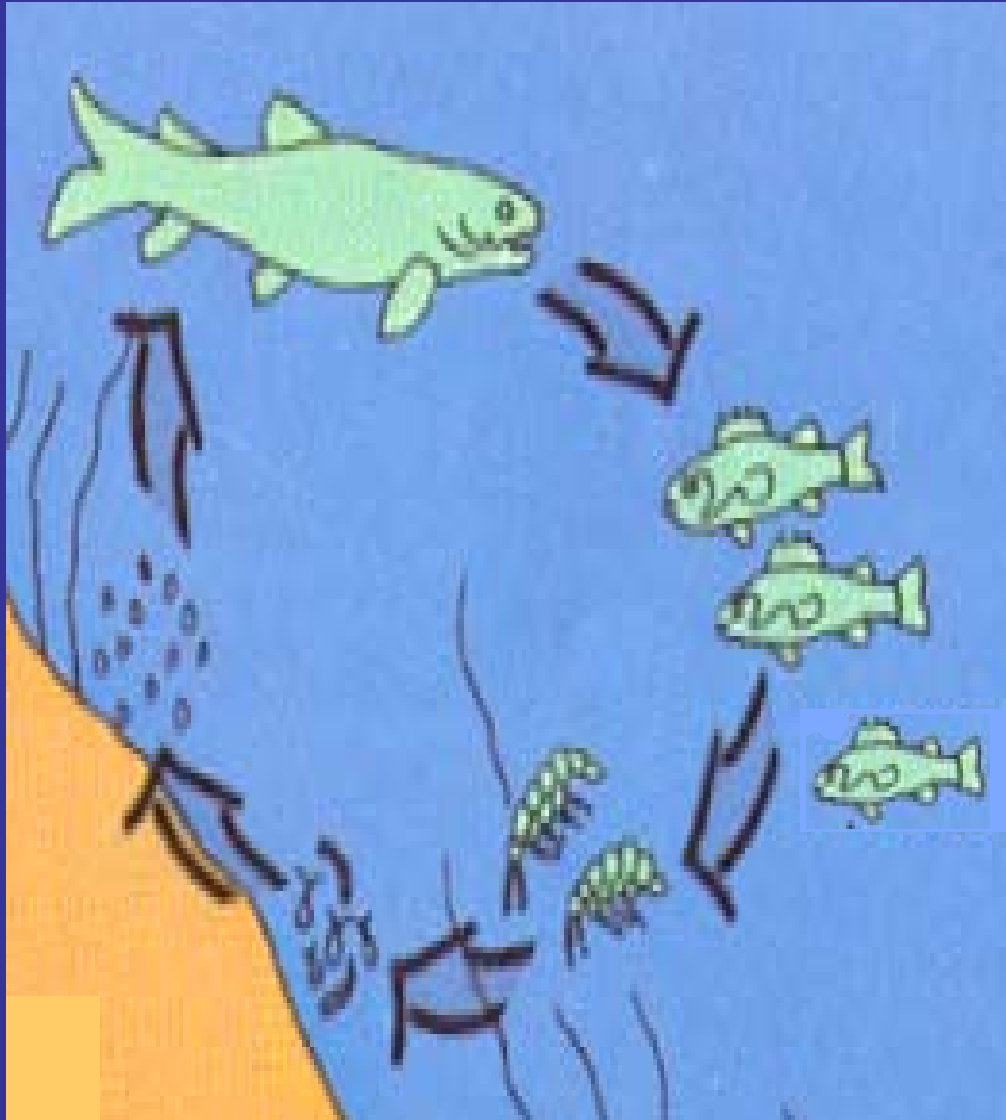


HABITAT	WHERE IMPAIRED
Islands	OH, likely in ON
Sand/Cobble Beaches	Sand: OH, PA, NY, ON; Cobble: ?
Unconsolidated shore bluffs	PA, likely in NY, ON
Interdunal wetlands	OH, PA, ON
Sand dunes	OH, PA, NY, ON
Submerged macrophytes	PA, NY, ON
Floating macrophytes	NY, ON, likely OH, PA
Emergent macrophytes	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

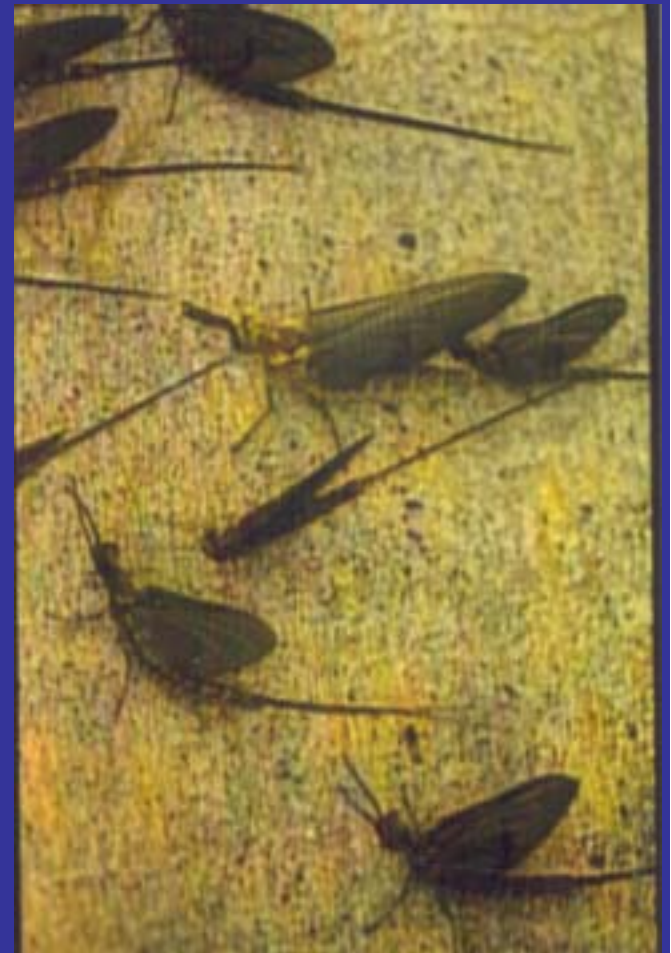




Lake Sturgeon - Making A Comeback



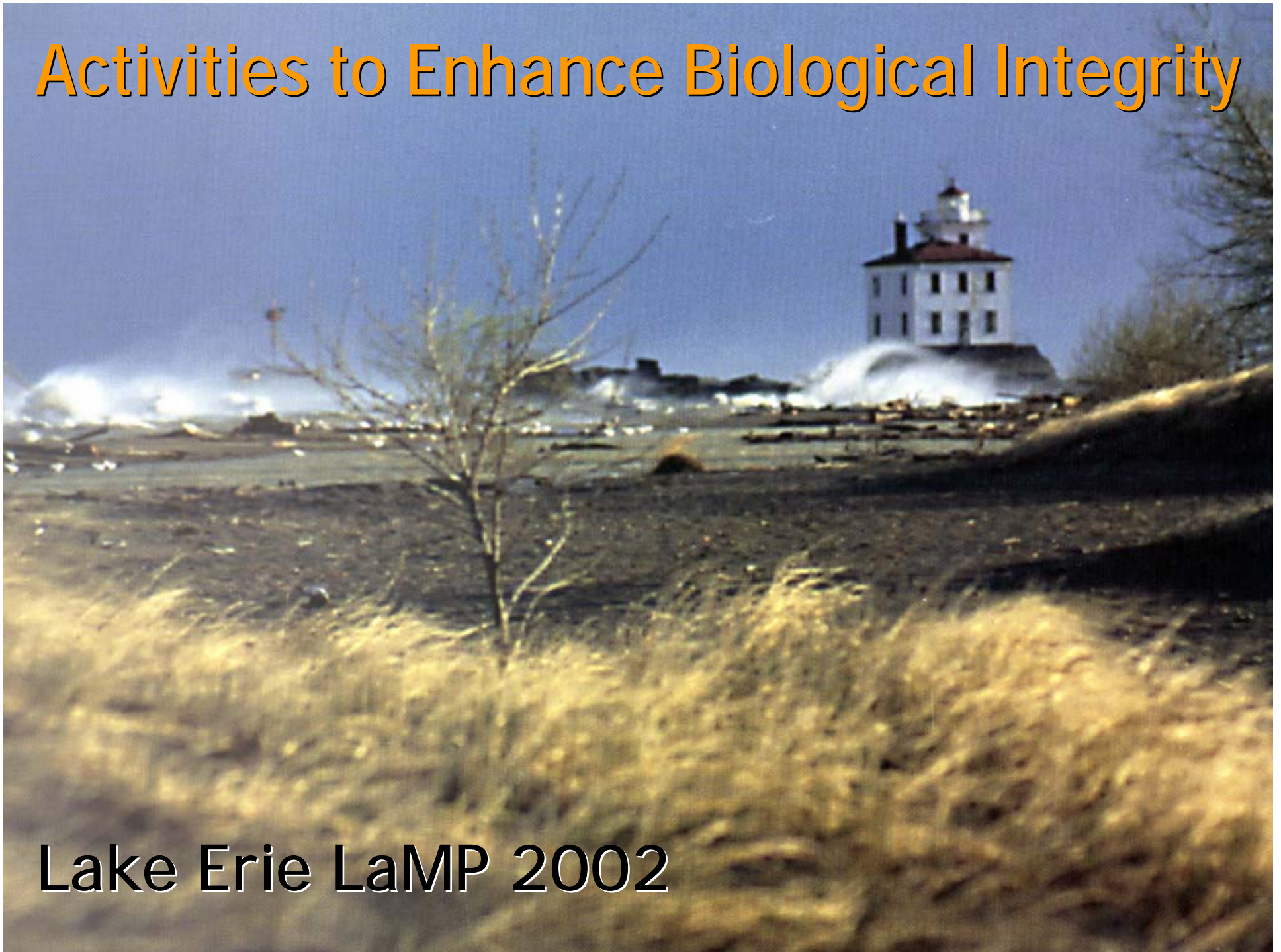
Mayflies





Activities to Enhance Biological Integrity

Lake Erie LaMP 2002



Activities to Enhance Biological Integrity



Activities to Enhance Biological Integrity

- 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

