



Lake Ontario Ecosystem Status - Biological Integrity -



Canada

Ontario



Credit: Earth Sciences and Image Analysis, NASA-Johnson Space Center.



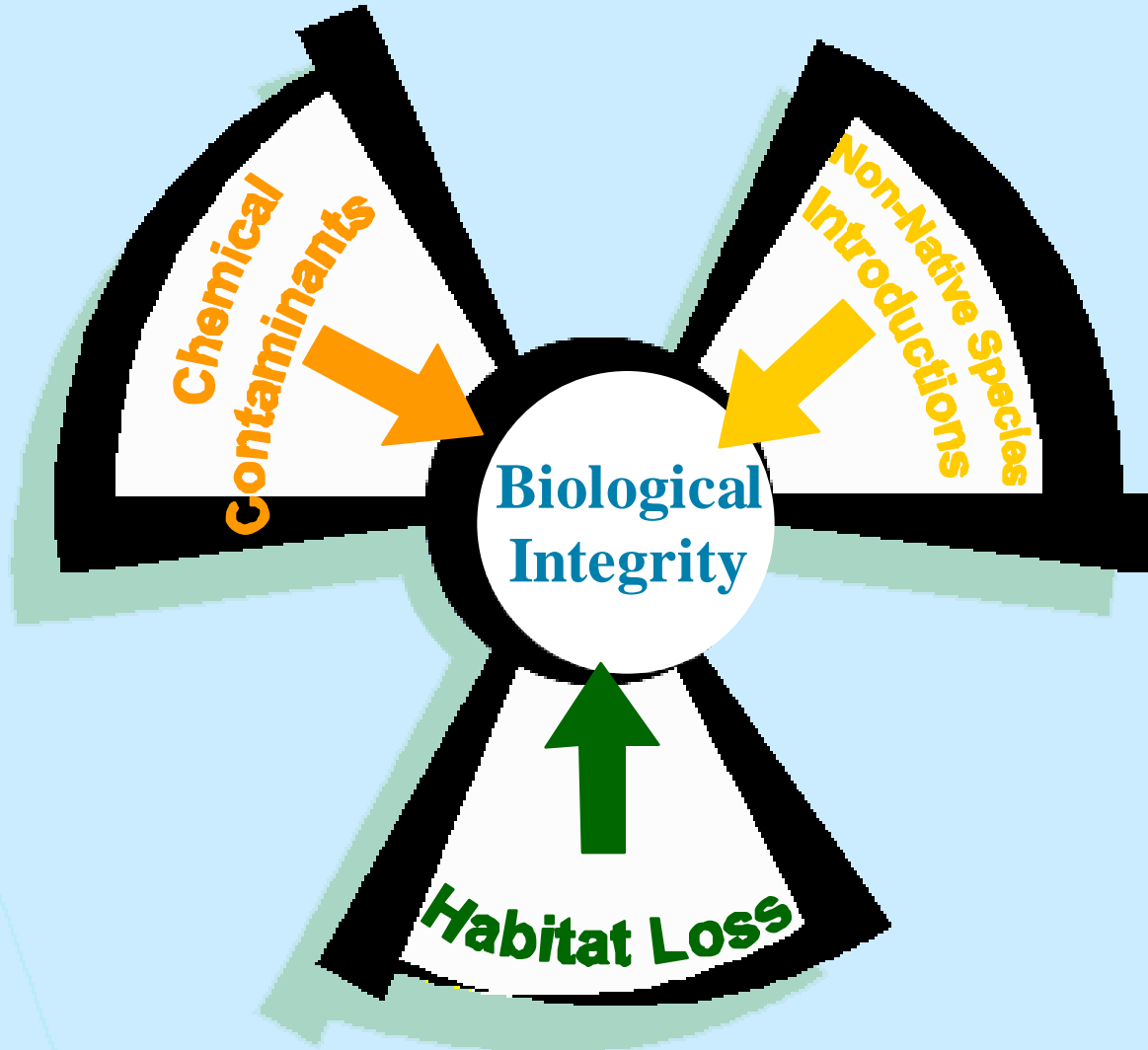
Lake Ontario Basin



Map Credit: Environment Canada

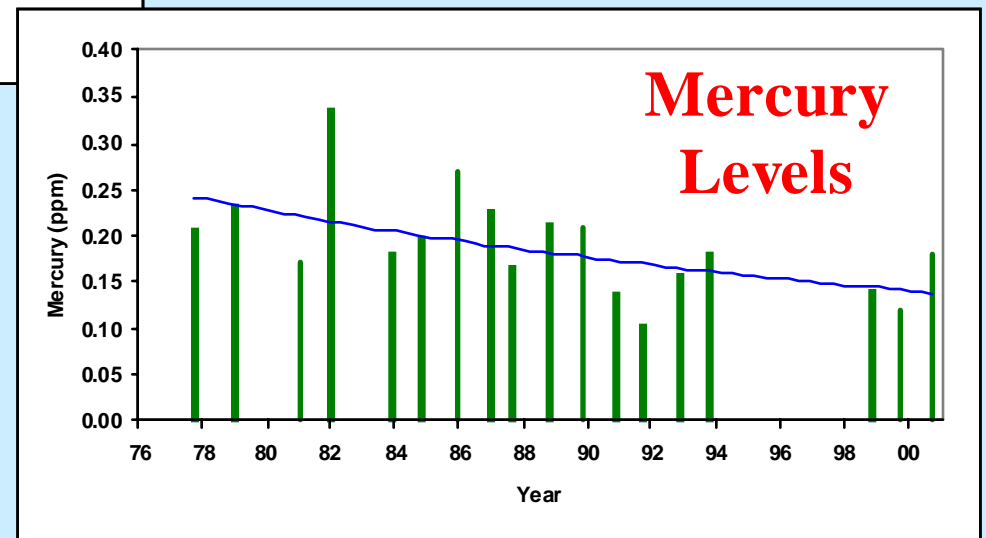
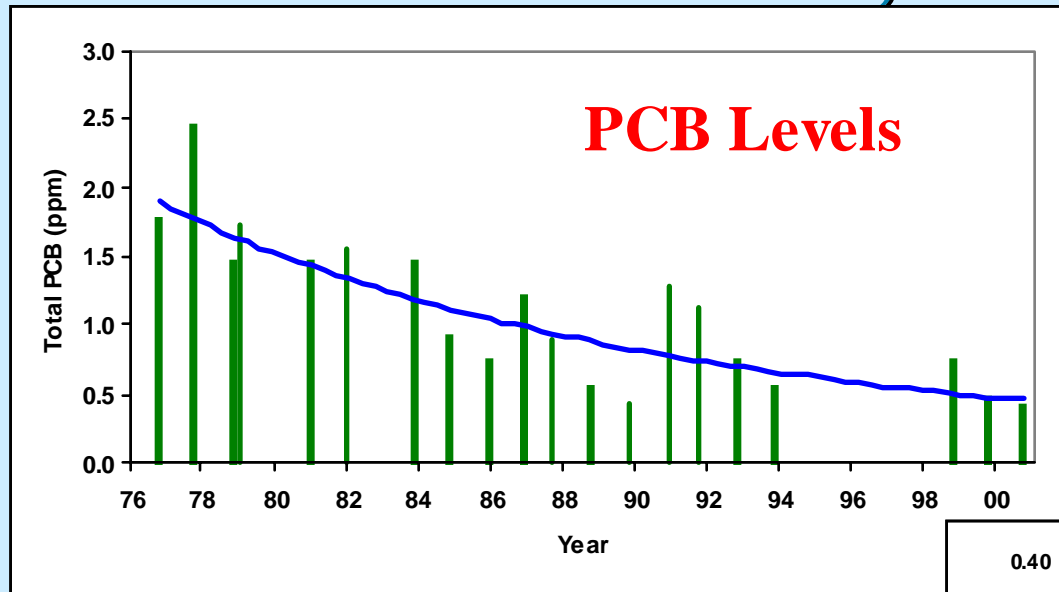


Lake Ontario - An Ecosystem in Transition



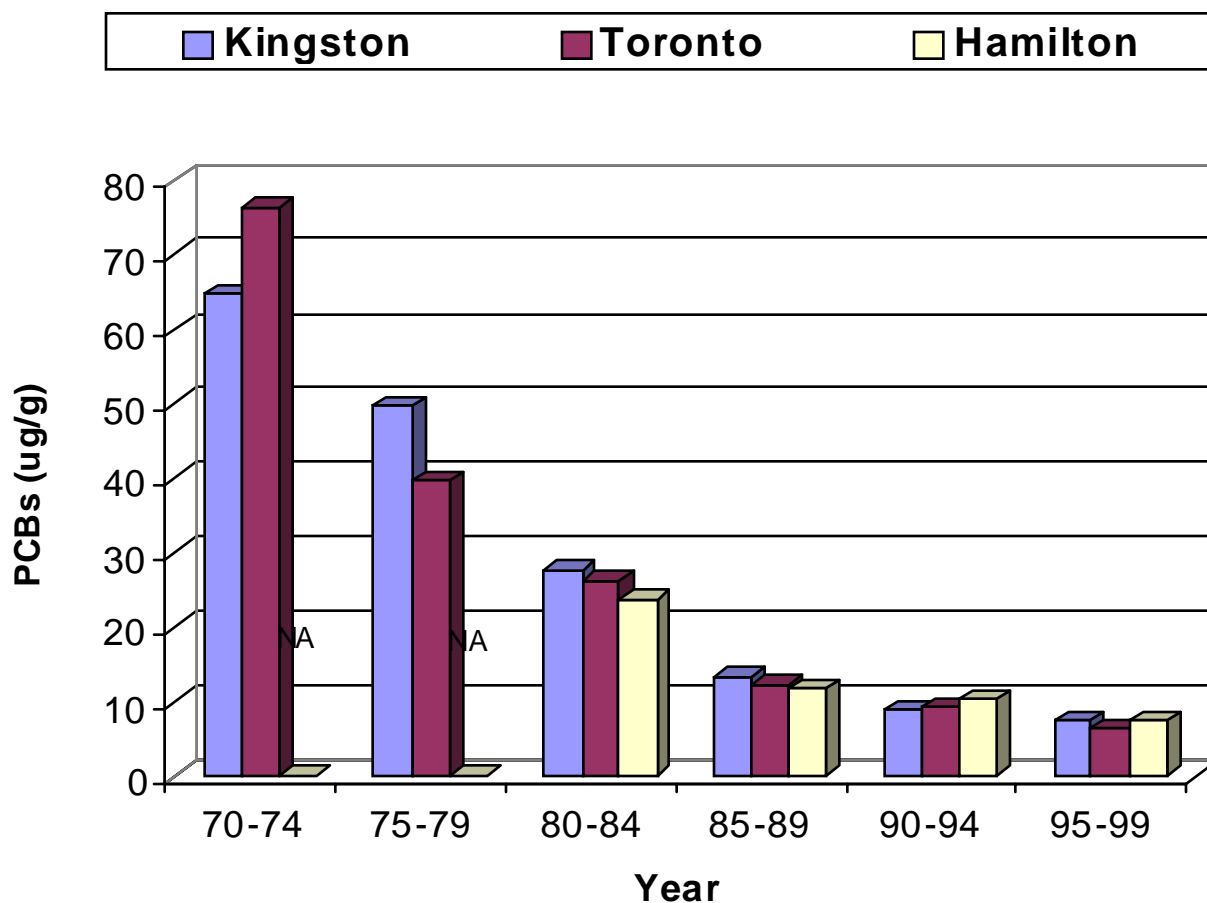


Total PCB and Mercury Levels in Coho Salmon from the Credit River, 1976-2001





PCB Concentrations in Herring Gull Eggs from Lake Ontario Colonies, 1970 - 1999



Credit: Environment Canada



Credit: John Mitchell



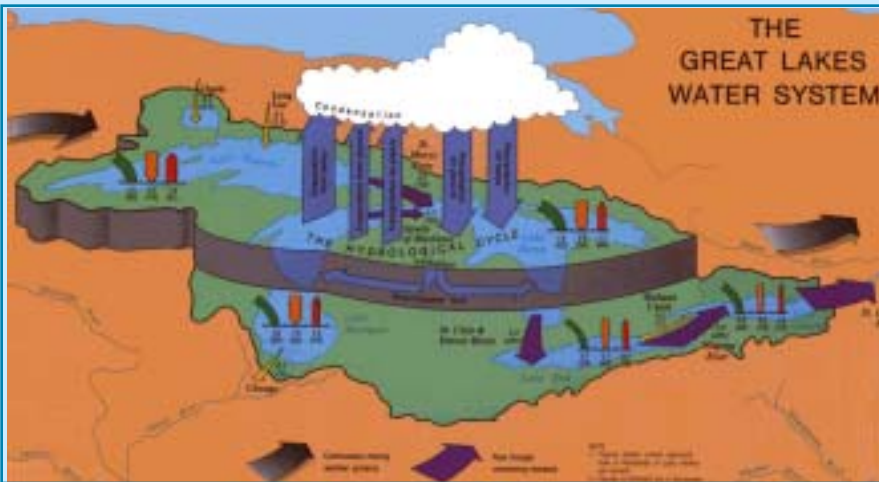
Chemical Contaminants

- ▶ Emerging Issues:
 - New Chemicals (PBDEs)
- ▶ Management Considerations:
 - Trackdown Activities
 - Out-of-Basin Sources (upstream, atmospheric)



Credit: USEPA

Credit: Environment Canada,
USEPA Great Lakes National Program Office





Non-native Species

- ▶ Zebra & quagga mussels have caused the lake to have 2 new impairments:
 - Benthos
 - Nearshore Phytoplankton
- ▶ Impacts are:
 - Food web disruption,
 - Displacement of native species
 - Health of fisheries



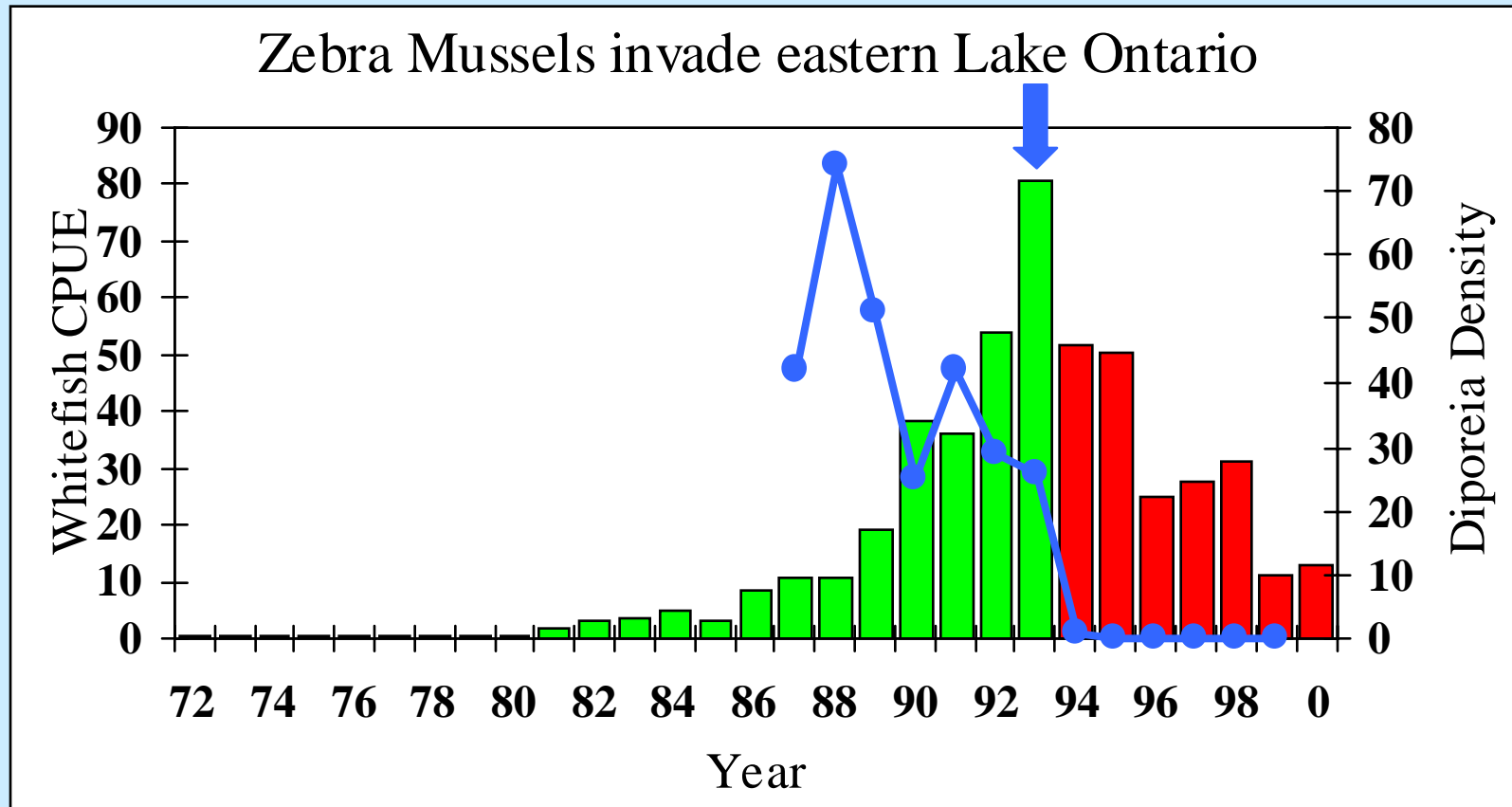
U.S. Fish and Wildlife Service



Credit: Centre for Great Lakes & aquatic Sciences



Lake Ontario Whitefish Abundance



Whitefish data courtesy of Jim Hoyle, OMNR
Diporeia data courtesy of Ron Dermott, DFO

Non-Native Species

- ▶ Emerging Issues:
 - New Invaders (Round Goby, Spiny Water Flea)
 - Botulism (Type E)
- ▶ Management Considerations:
 - Changes Irreversible
 - Future ?





Habitat

- ▶ Loss of quality & quantity of habitat areas
- ▶ Protection and restoration of habitat



Credit: Ontario Ministry of the Environment



Credit: Bay Area Restoration Council



Credit: Environment Canada

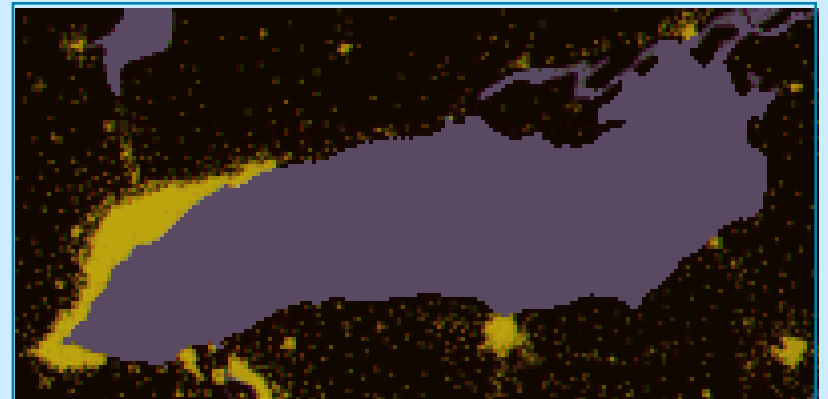


Habitat

- ▶ Emerging Issues:
 - Urban Sprawl
 - Agriculture Intensification
 - Land Use Changes
 - Habitat Fragmentation
- ▶ Management Considerations:
 - Sustainable Development



Credit: Bay Area Restoration Council





Signs of Improvement



Credit: Denis Money

- ▶ Reduction of critical pollutants in fish tissue
- ▶ Waterbird populations recovered & reproducing naturally
- ▶ Bald Eagle, Lake Trout, River Otter and Mink returning to the basin



Credit: Don Simonelli



Credit: Jim Flynn



Future Challenges



Credit: Spirit of Nature, Courtesy of Bay Area Restoration Council