

Lake Erie Fisheries Community Status: 2013



Christopher S. Vandergoot

Sandusky Fisheries Research Station

Ohio Department of Natural Resources, Division of Wildlife

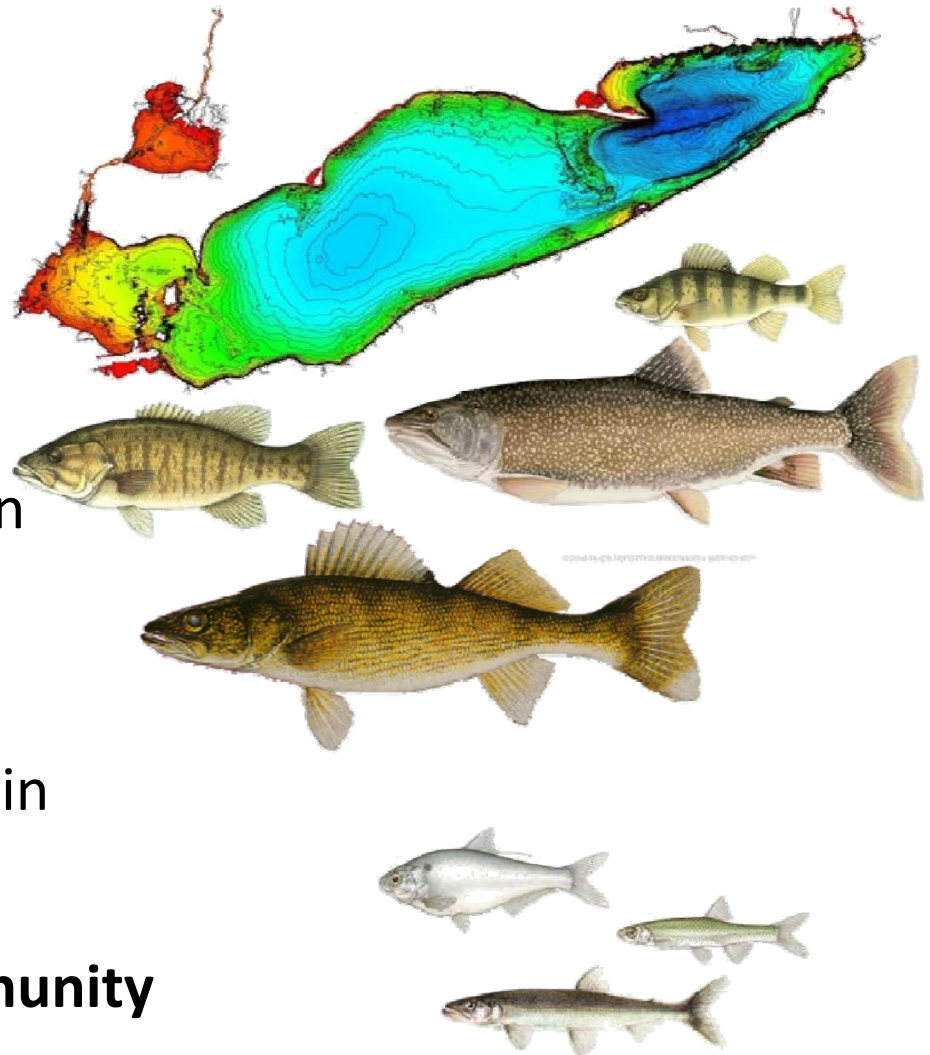


Lake Erie Committee

Great Lakes Fishery Commission

Lake Erie Fisheries Community Status: 2013

- **Background**
 - Physical Environment
 - Fish Community
 - Sampling Programs
- **Predator Trends**
 - Western and Central Basin
 - Eastern Basin
- **Prey Trends**
 - Western and Central Basin
 - Eastern Basin
- **Factors Affecting Fish Community**



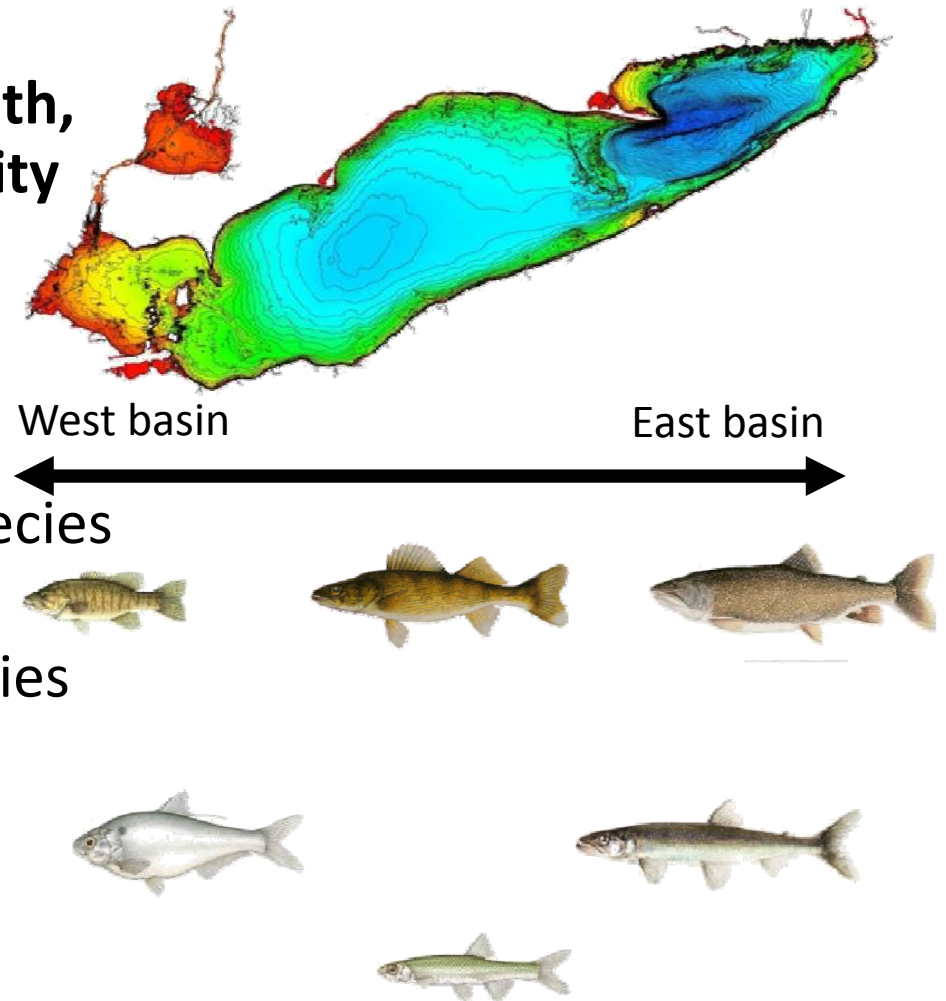
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- West to east gradient in depth, temperature, and productivity

- West to east gradient in fish community

- Warm and cool water species dominant in west basin
- Cool and cold water species dominant in east basin
- West to east gradient in diversity

- Nearshore fish community



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Population Surveys

- Lakewide harvest assessment programs
- Lakewide gill net survey
- Lakewide trawling survey
- Lakewide acoustic survey
- Other surveys
 - Lower trophic level
 - Diet assessment



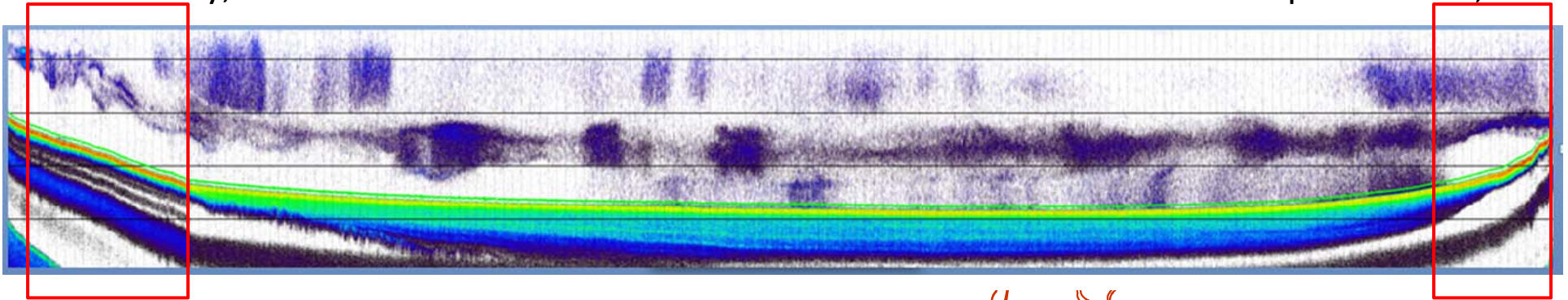
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Population Surveys

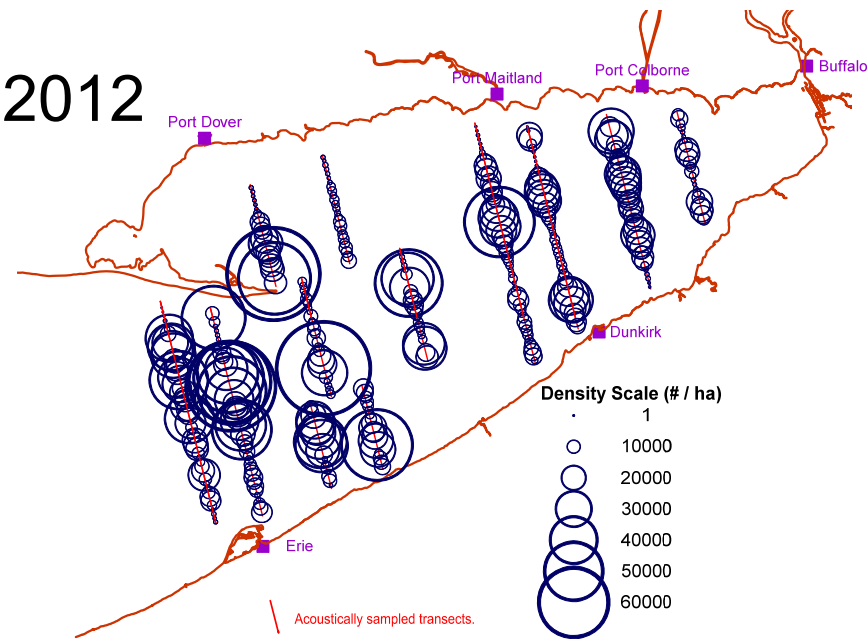
Port Stanley, ON

57850

Fairport Harbor, OH

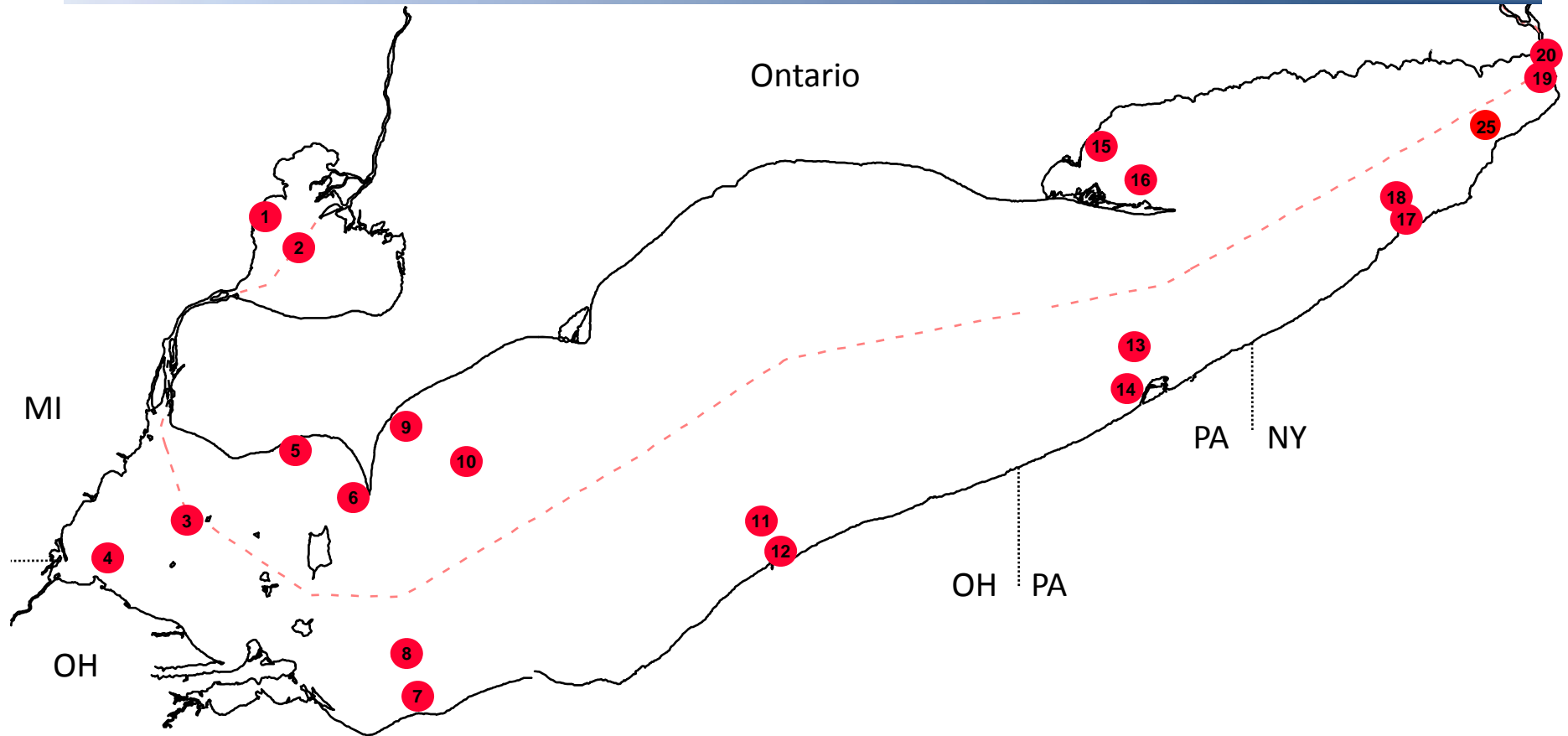


2012



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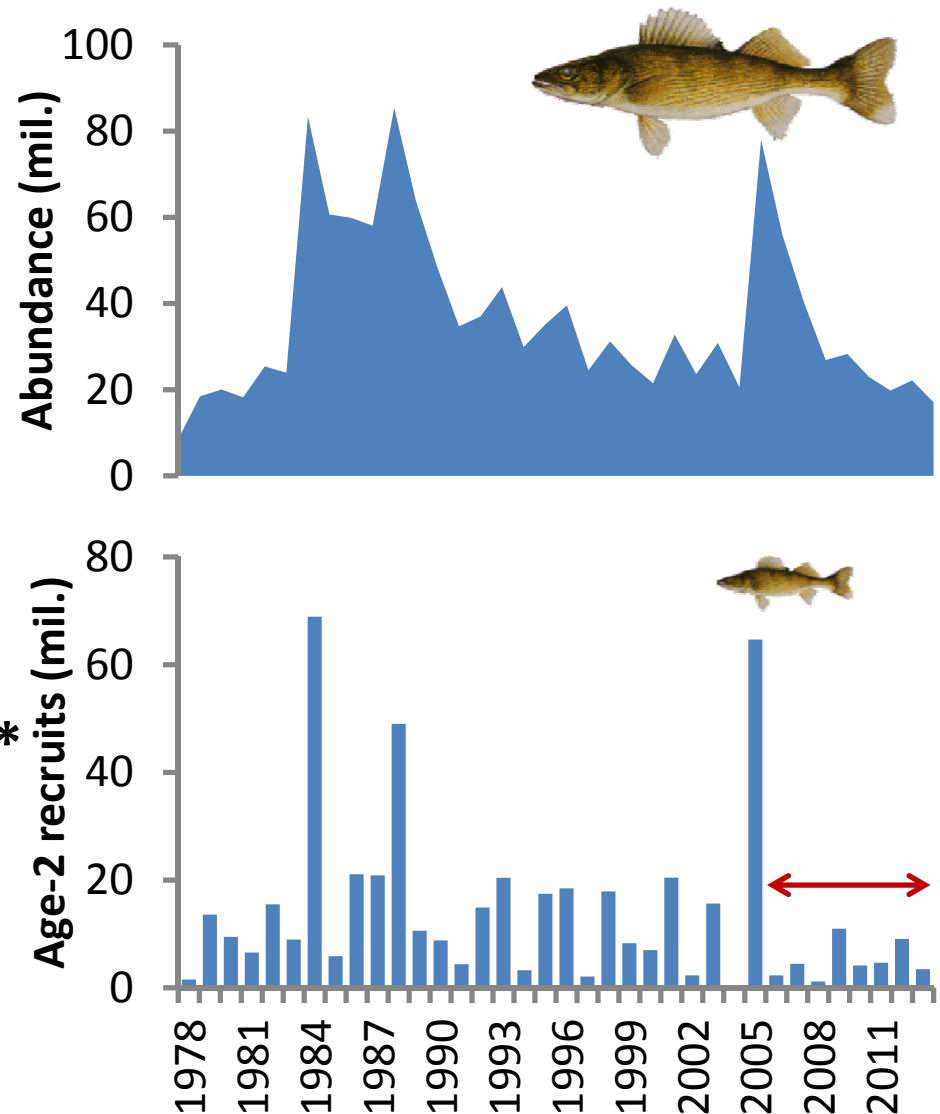
Lower Trophic Level Survey



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Predator Trends (West-central)

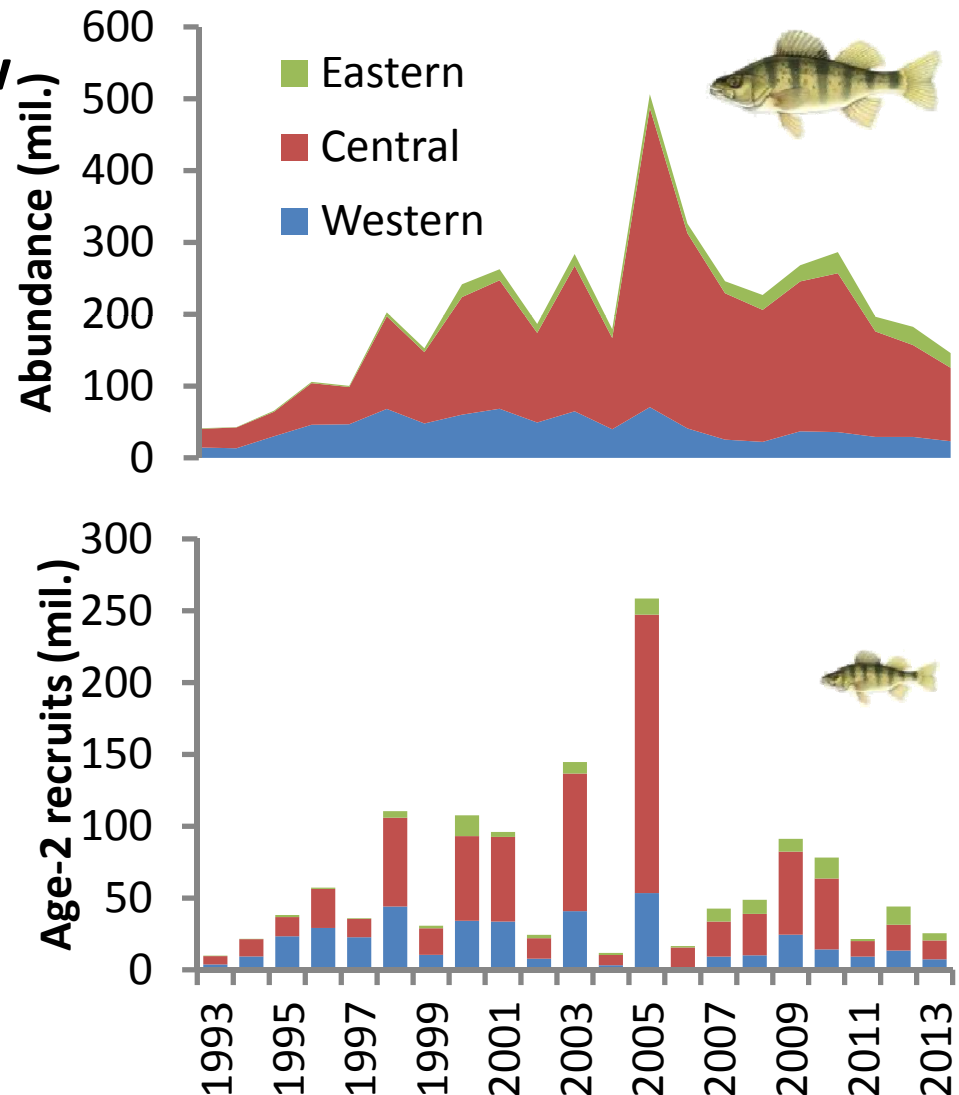
- Declines in walleye abundance
- 2003 year-class still dominant
- Highly variable recruitment
- Recent recruitment mediocre
- Changes in spatial structure*
- Growth rates increasing
 - confounded by abundance?



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Predator Trends (Lakewide)

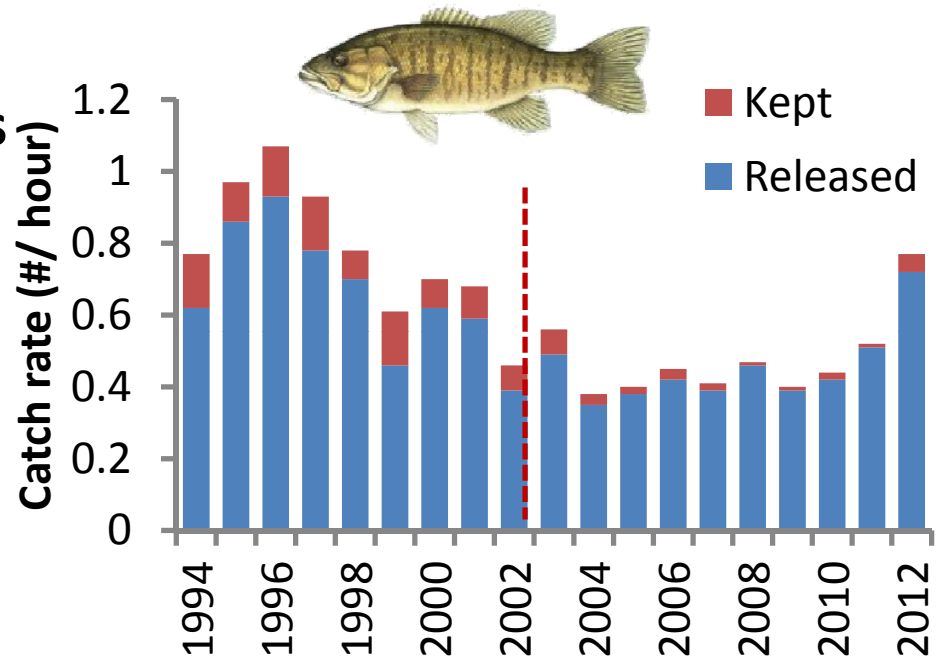
- Lakewide declines in yellow perch abundance
- Majority of population in central basin
- Highly variable recruitment
- Movement patterns?



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Predator Trends (West-central)

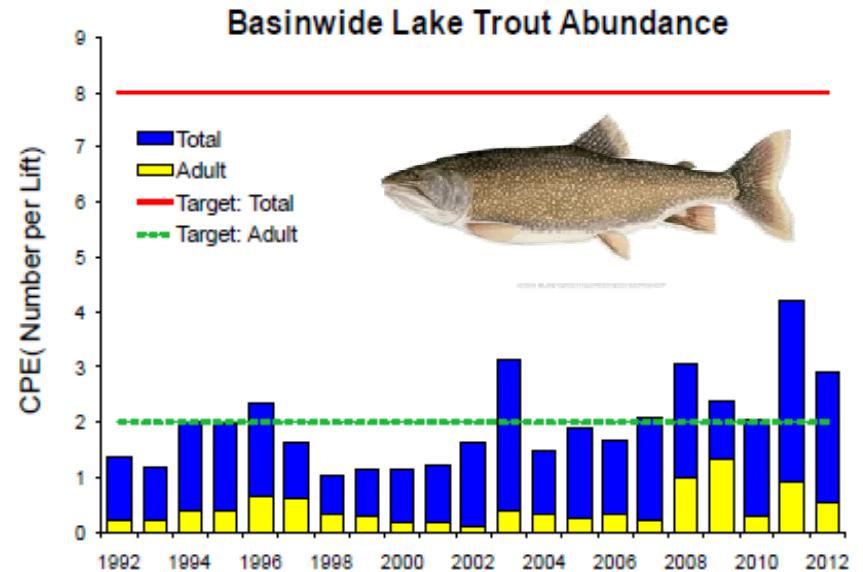
- Declines in smallmouth bass abundance
- Spring closure enacted 2003
- Round goby nest predation
- Potential cormorant predation
- Increased abundance in other areas due to warming
- Lack survey information



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Predator Trends (East)

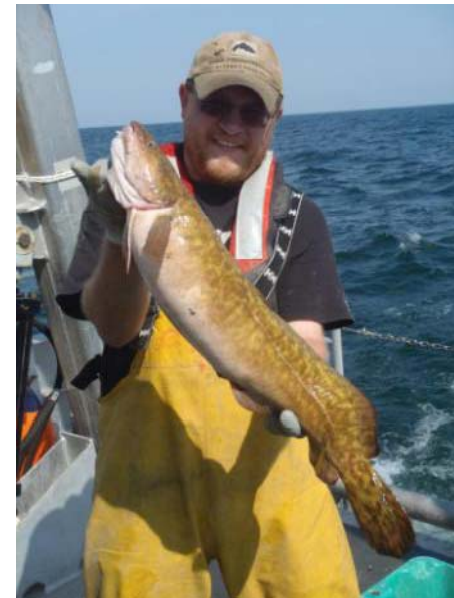
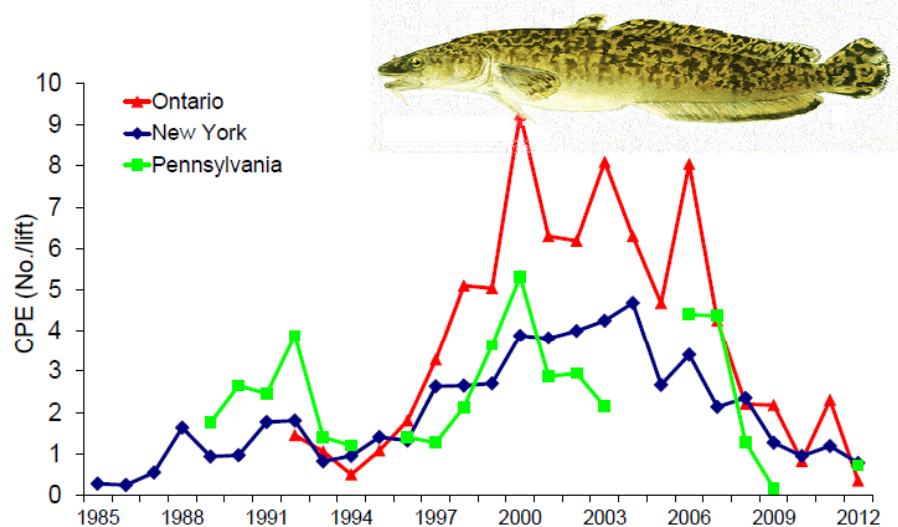
- Population sustained via stocking/ limited natural reproduction
- Abundance below target levels
- Sea lamprey abundance on rise
- Alternative strains evaluated
- Experimental stocking in WB and CB basins



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Predator Trends (East)

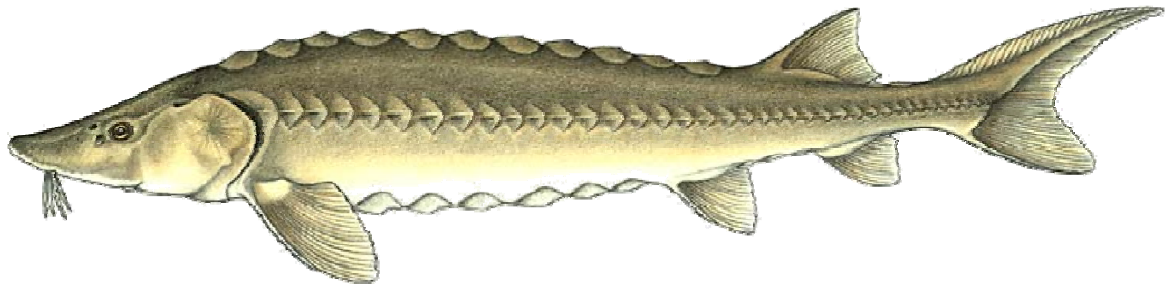
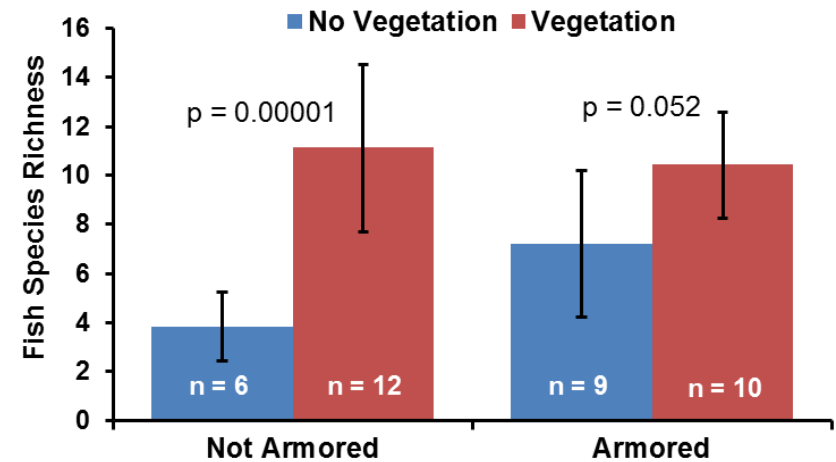
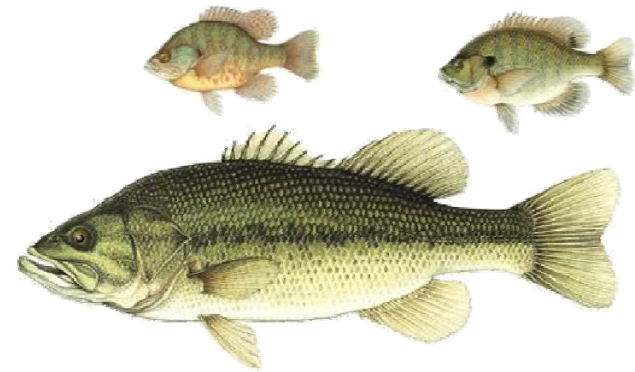
- Population sustained via natural reproduction
- Abundance levels declined recent years
- Sea lamprey abundance on rise?



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Predator Trends (Nearshore)

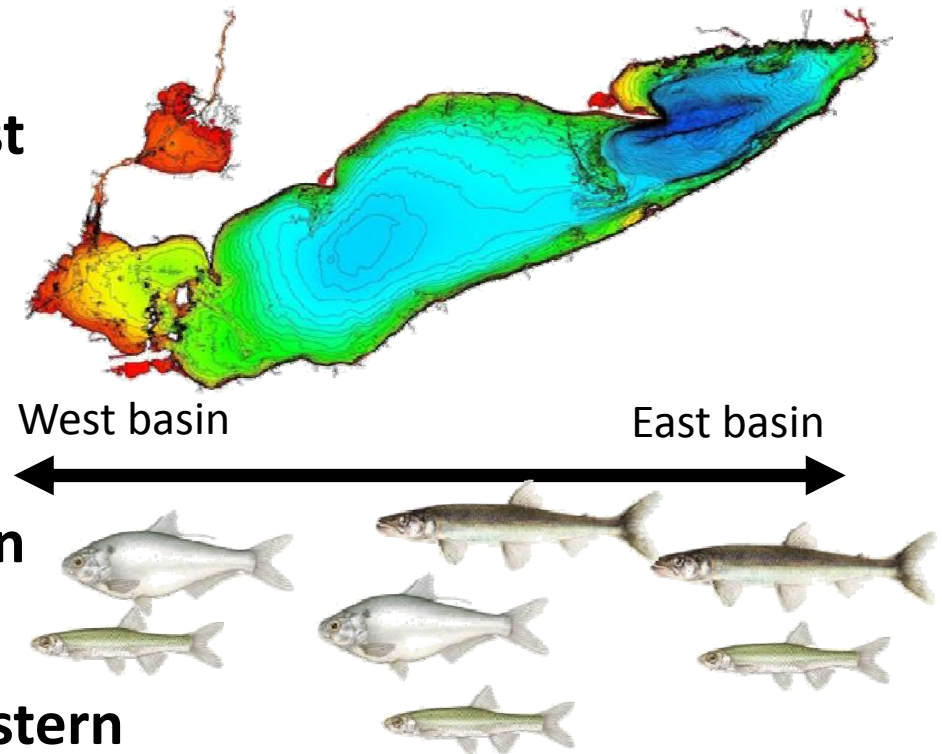
- Increases in largemouth bass
- Increases in sunfish spp.
- Lake sturgeon abundances
- Nearshore community study
 - Vegetation= good



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Forage Fish Trends

- Gradient in forage fish community from west to east
 - Higher diversity in east

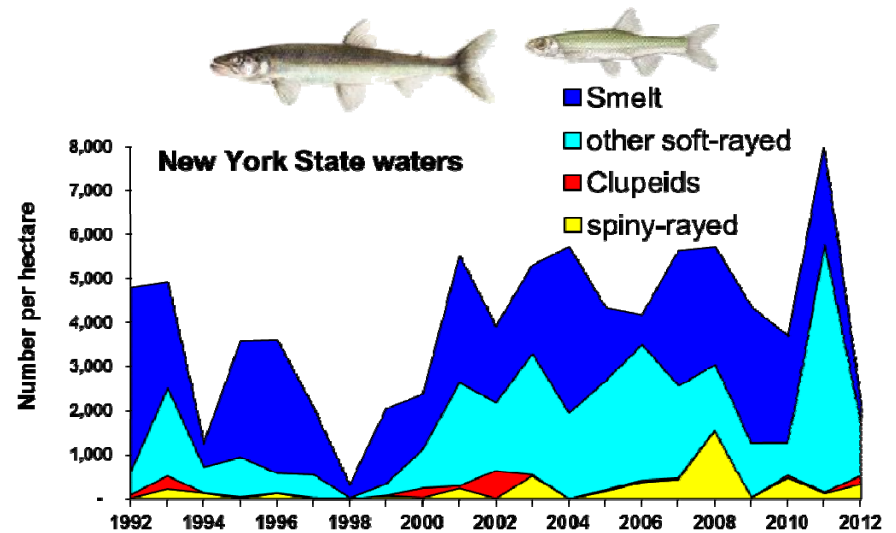
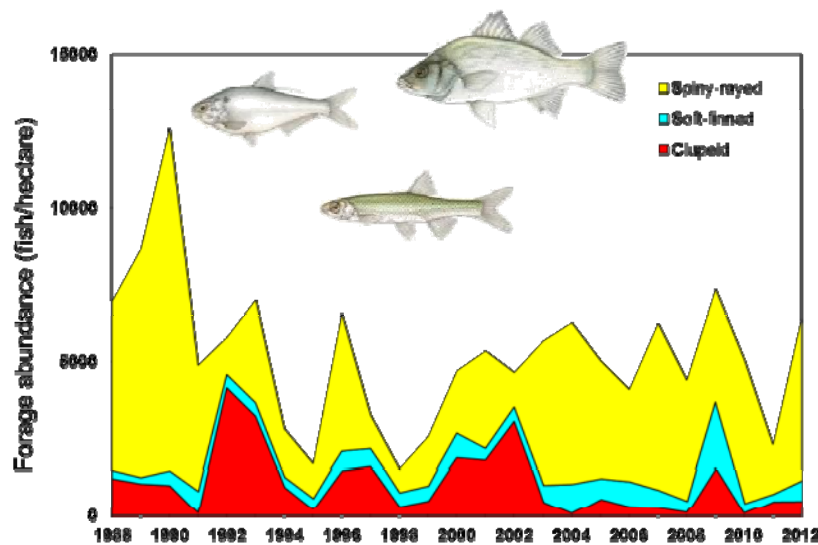
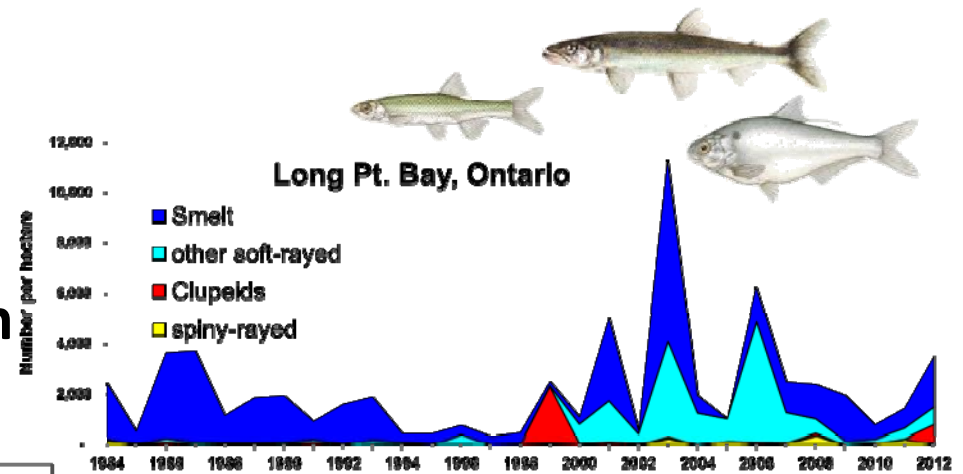


- Clupeids, shiners dominate in western basin
- Rainbow smelt dominate eastern basin
- Nearshore fish community?

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Forage Fish Trends

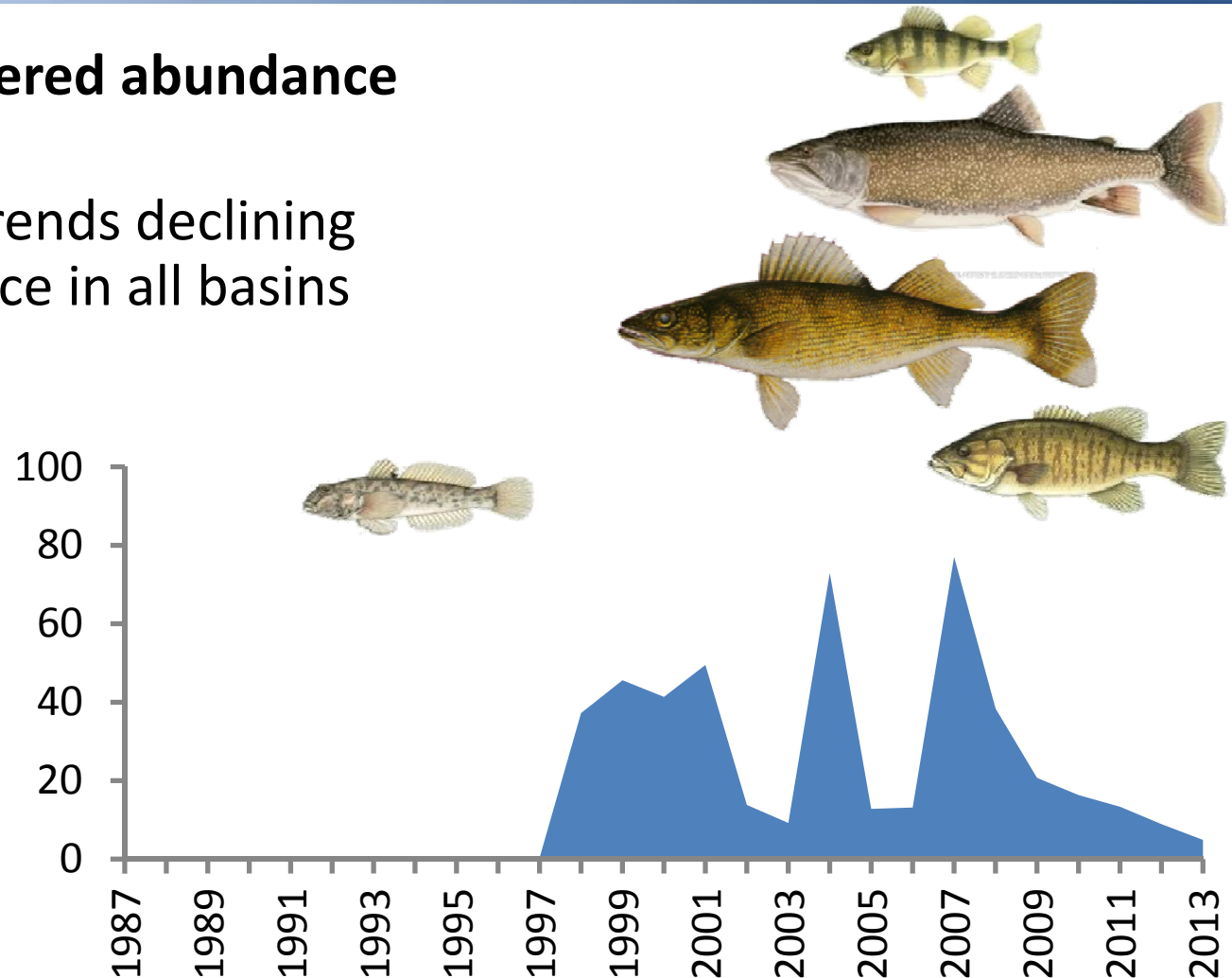
- Functional forage groups
- Decrease in clupeids
- Increase in spiny rayed fish



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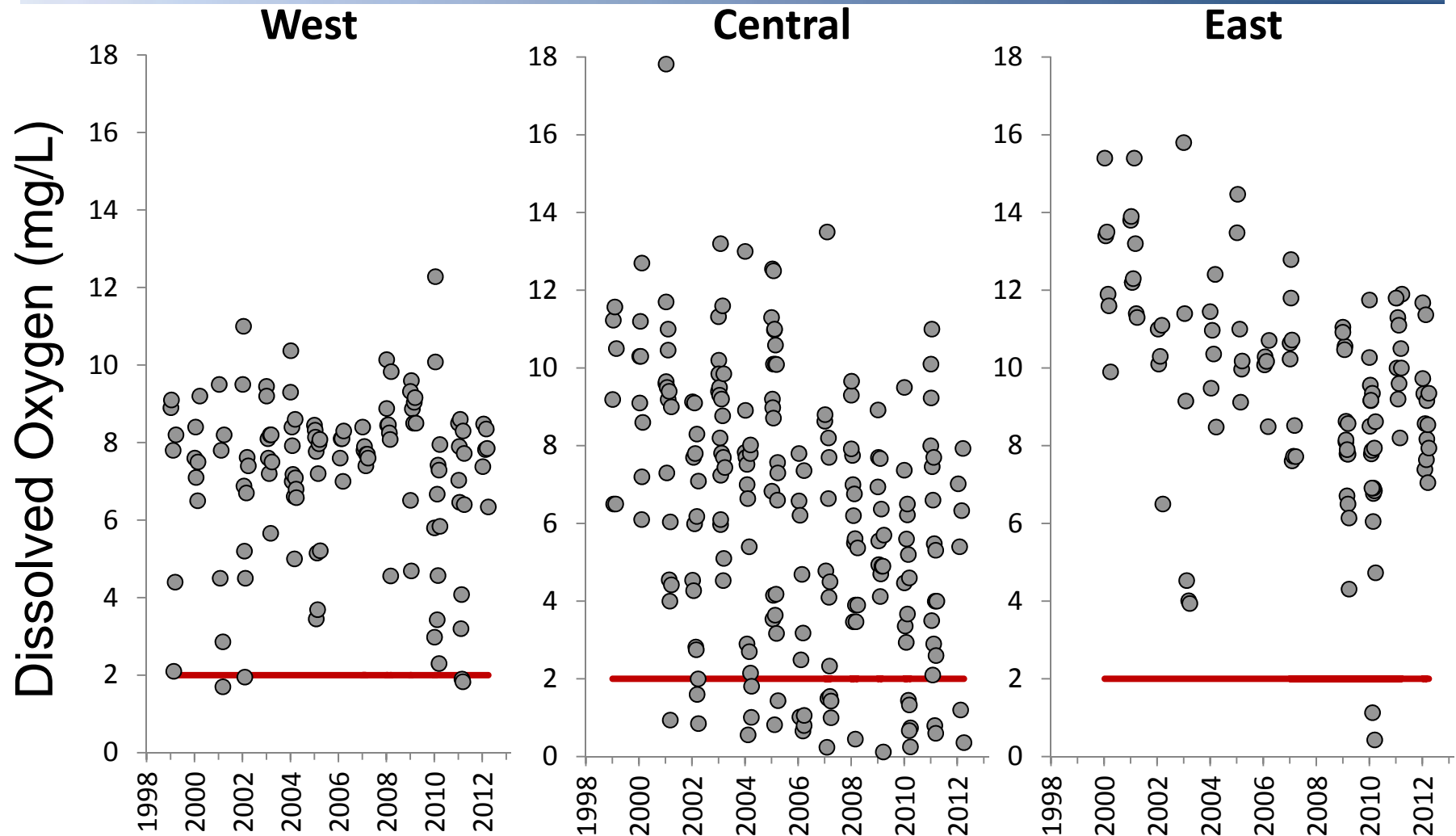
Forage Fish Trends

- Since discovered abundance variable
 - Recent trends declining abundance in all basins



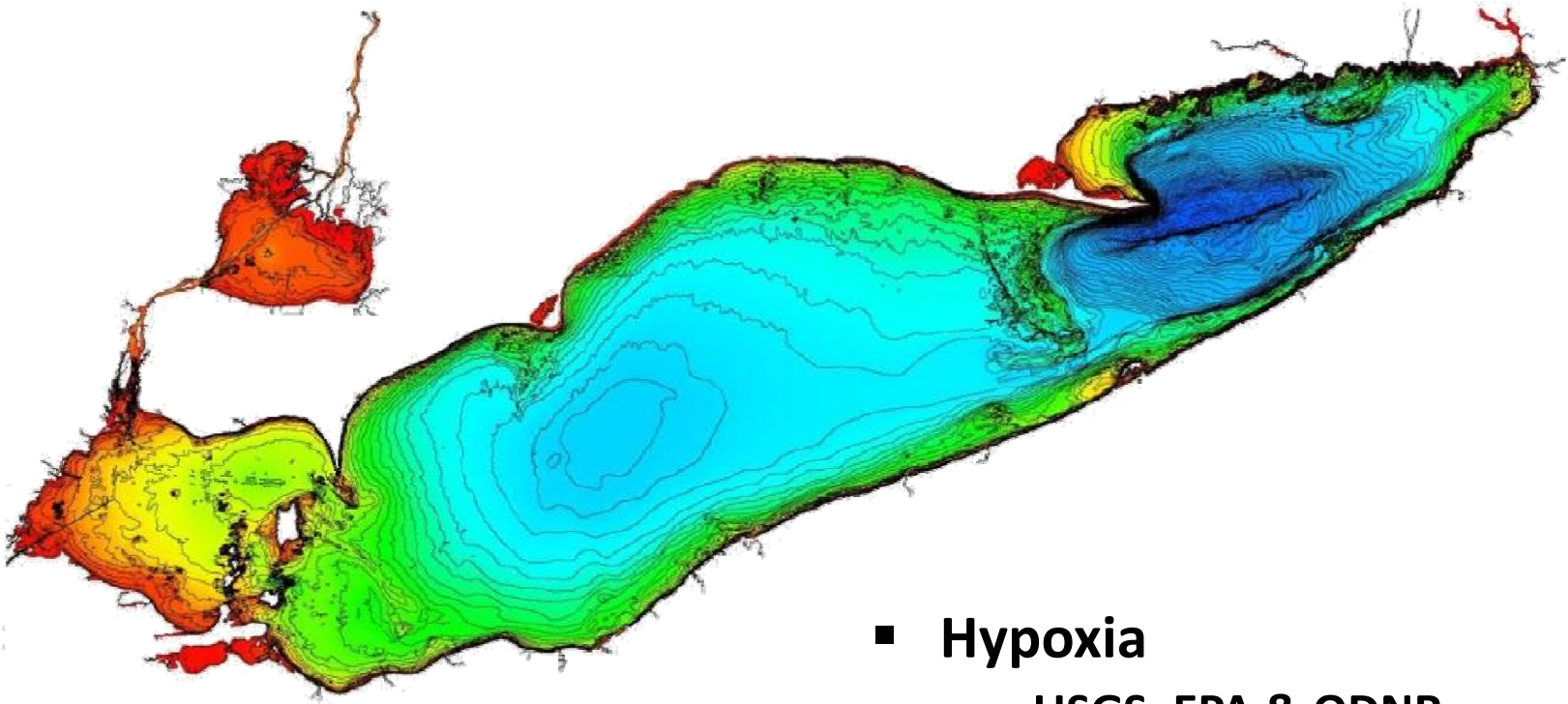
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Lower Trophic Level Trends 2012 Data



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Factors Effecting Fish Community



- Hypoxia
 - USGS, EPA & ODNR
- Phosphorous
 - AEL Ohio State

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Acknowledgements

- Ontario Ministry of Natural Resources
- New York State Department of Environmental Conservation
- Pennsylvania Fish and Boat Commission
- Ohio Department of Natural Resources
- Michigan Department of Natural Resources

- Walleye , Yellow Perch and Forage Task Groups
- Lake Erie Millennium Network