

# **Sediment Management of the Waterway as an Ecological Resource**

by

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- **Recommendation 1 - Encourage beneficial use of sediments through three options for use of dredge materials:**
  - Establish discharge ports through levees at intervals determined by the Corps of Engineers and interested levee districts (internal sediment basins could be cash rented and farmed in one to two years).
  - Use dredge spoil to strengthen and increase the internal/external thickness of levees along the Illinois River.
  - Create new islands and/or increase the topographic diversity.
  
- **Recommendation 2 – Implement backwater lake and side channel sediment management measures at selected locations:**
  - Determine which lakes are priorities in terms of local support, ecological diversity of the corridor; the past and future uses of the lake, as well as the amount, type, and quality of sediment present.
  - Review current lake management programs; develop appropriate sediment removal and disposal techniques.
  - Reduce sediment inflow into the priority lakes from the Illinois River and tributaries.
  - Restore wetlands along shorelines for stabilization and wildlife habitat.

# Background

- The Illinois River is one of the major tributaries of the Mississippi River.
- The Illinois River valley (that includes the main river, backwater lakes, side channels, and floodplain) is a significant ecological resource in the nation.
- Many bottomland lakes along the river valley have lost much of their capacity due to sediment accumulation.



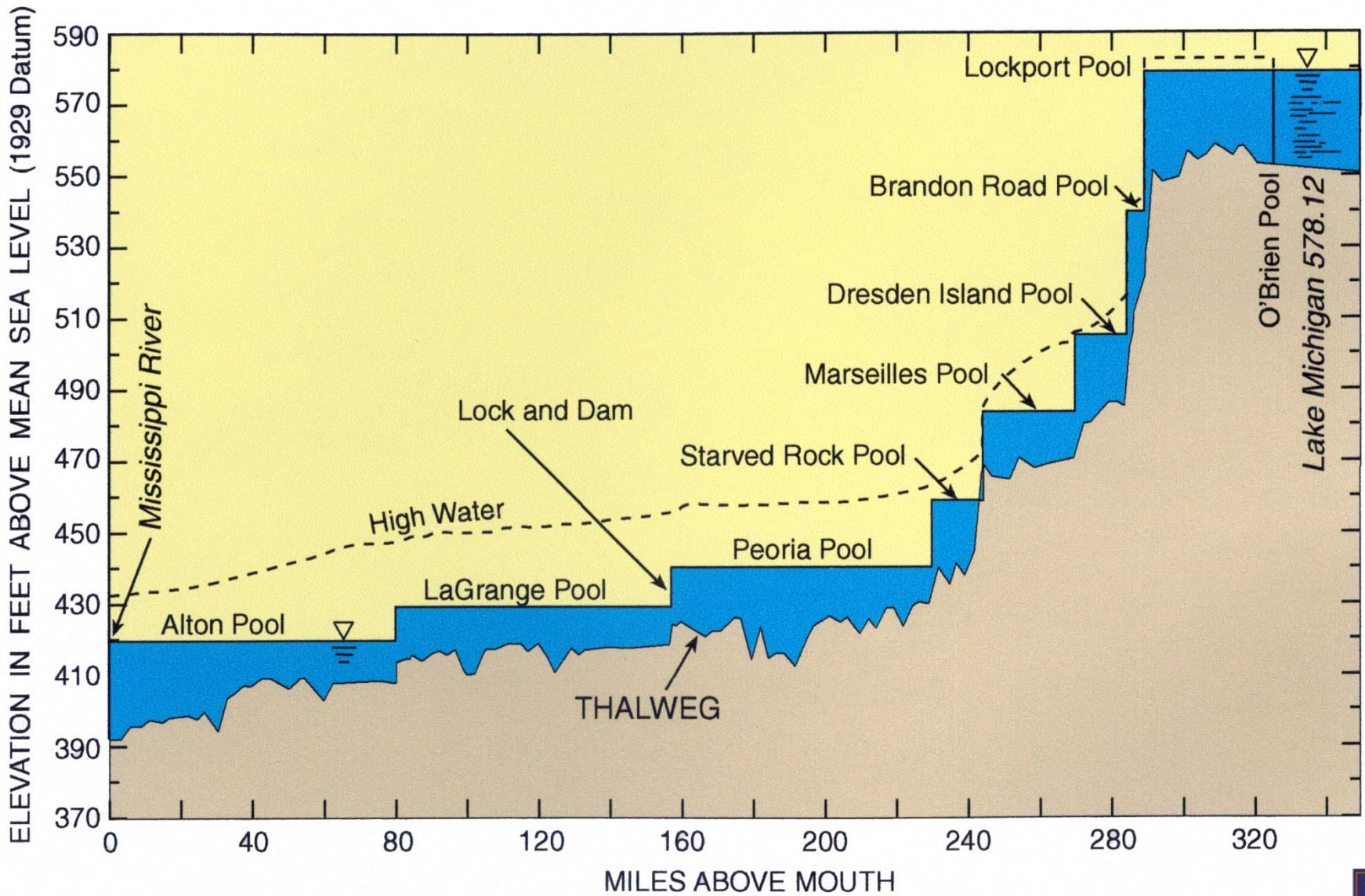
# Background (concluded)

- Erosion and sedimentation has long been recognized as the principal causes for most of the environmental and ecological problems in the Illinois River valley.
- At the present there are many initiatives including the Illinois Rivers 2020, Illinois River Conservation Enhancement Program (CREP), and several others that are addressing the erosion and sedimentation problem in the Illinois River watershed.
- The sediment budget analysis is one of the critical information used for identifying and prioritizing projects in the basin.





# PROFILE OF THE ILLINOIS RIVER WATERWAY







Bank Erosion along the Right Side (Looking Downstream) of Richland Creek

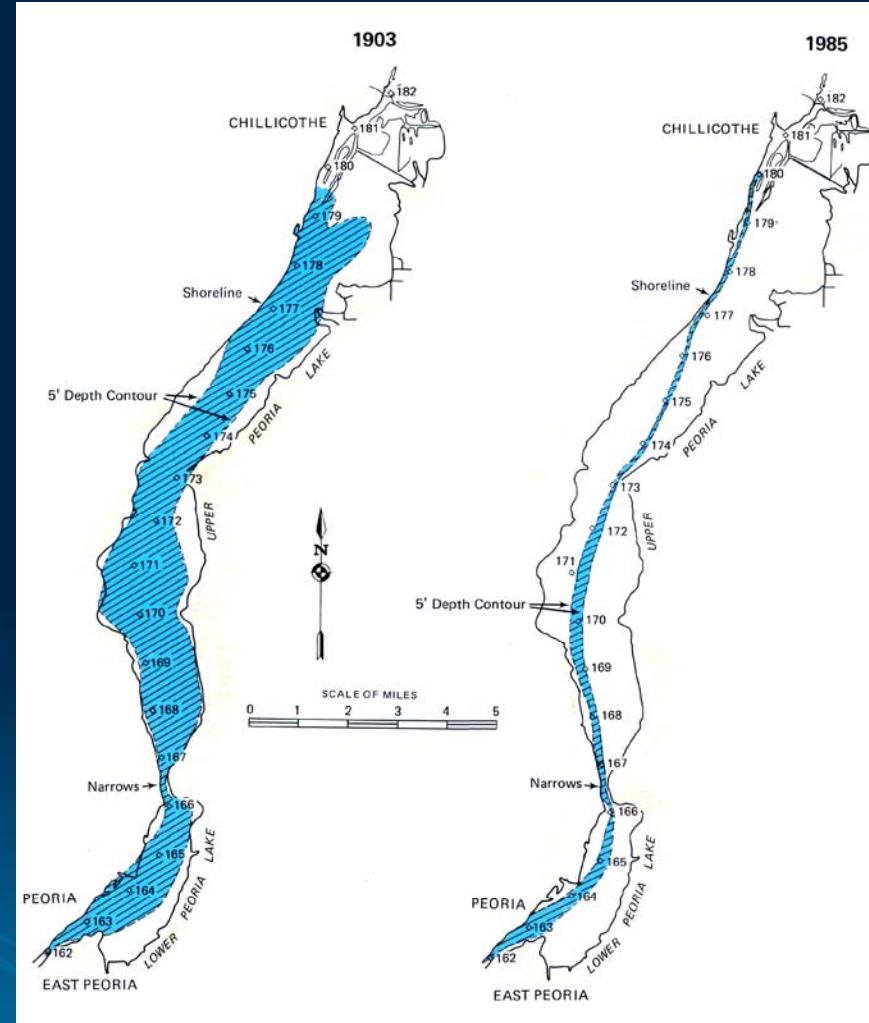
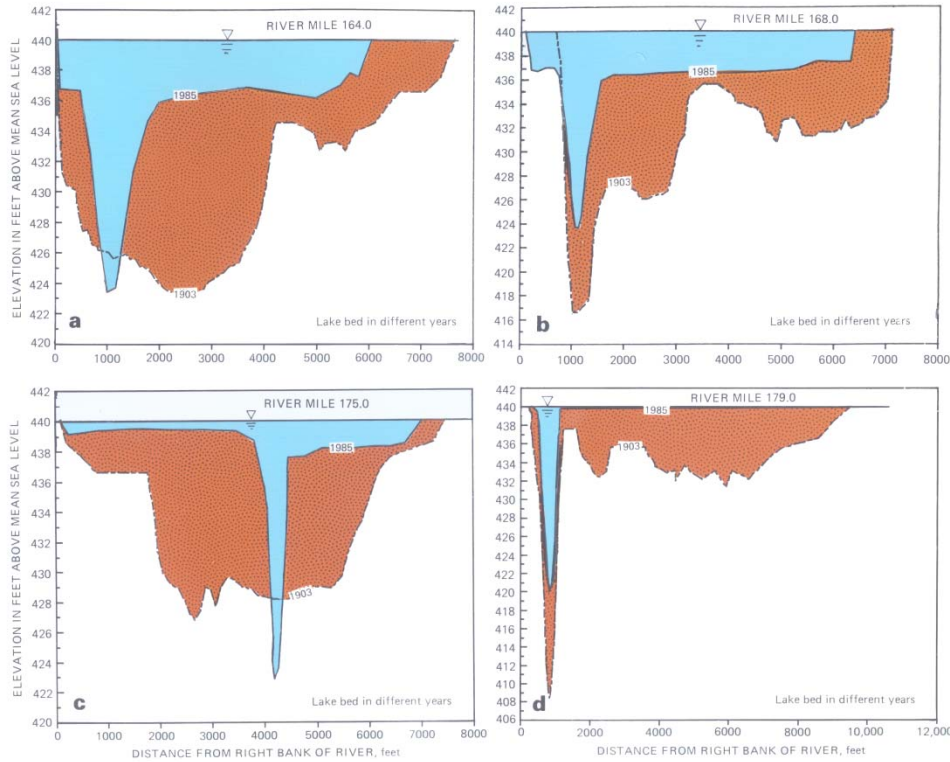


# Partridge Creek Delta in 1985



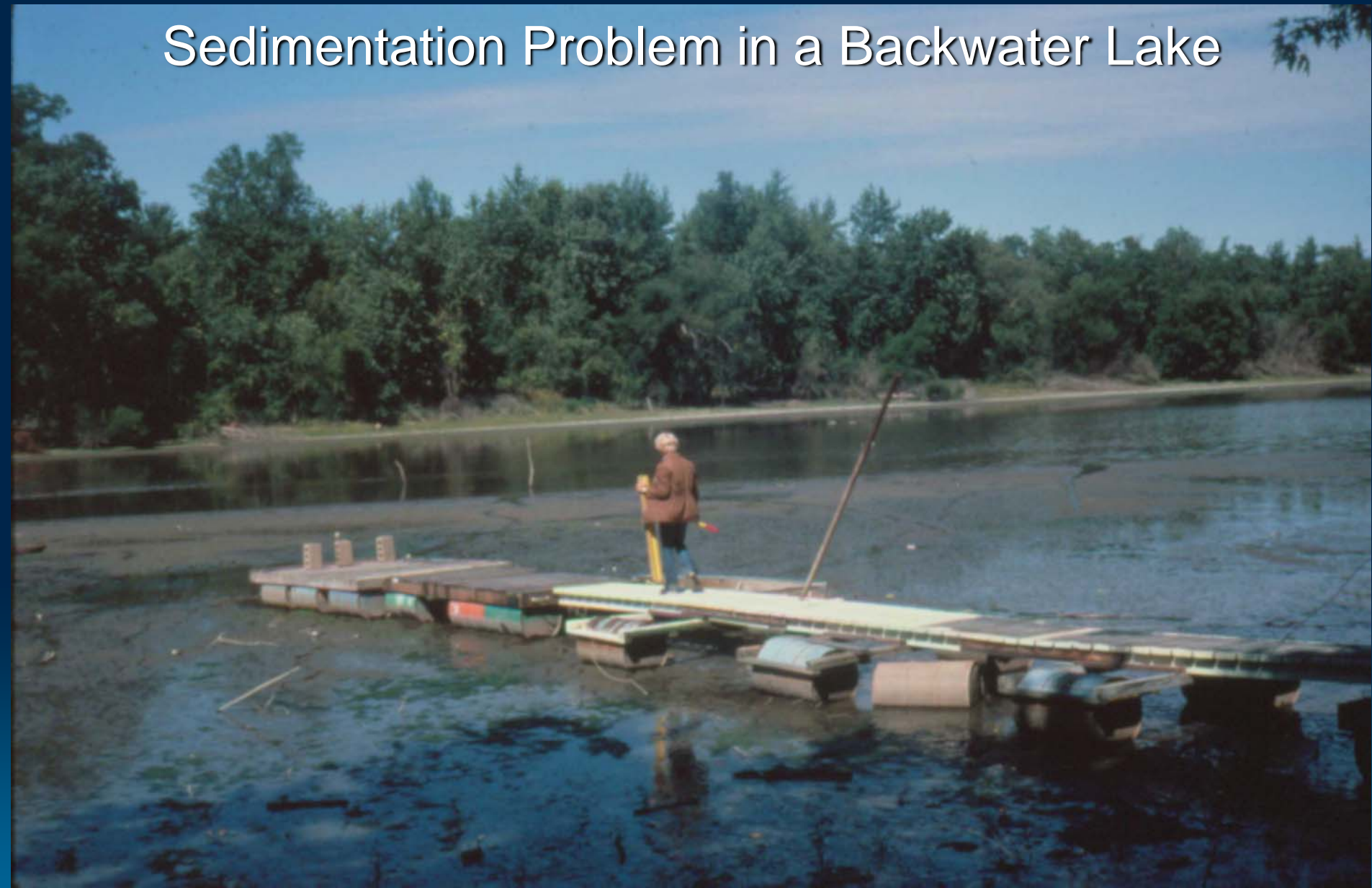


# Sedimentation in Peoria Lake





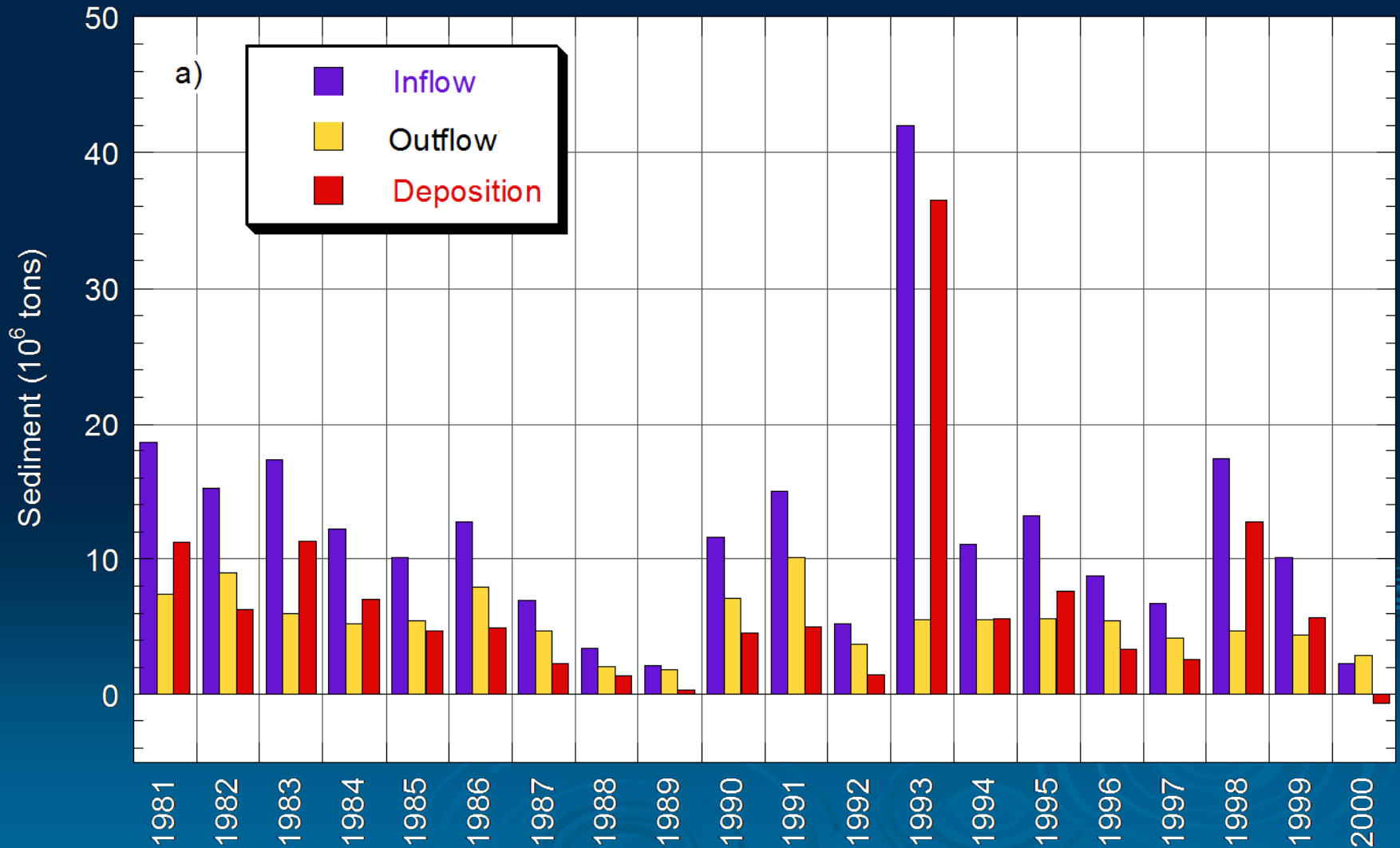
# Sedimentation Problem in a Backwater Lake



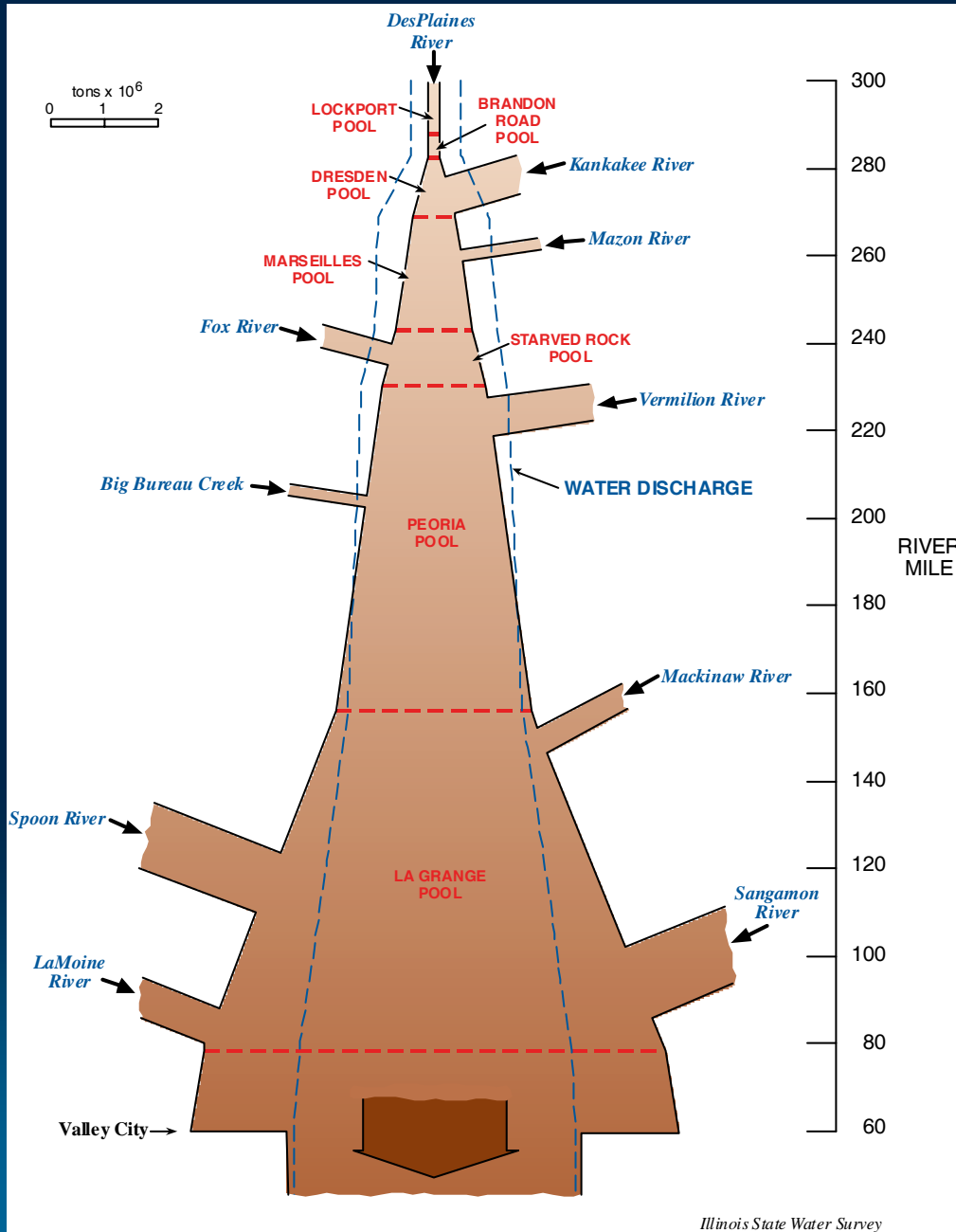
# Backwater Sedimentation



# Sediment Inflow, Outflow, and Deposition



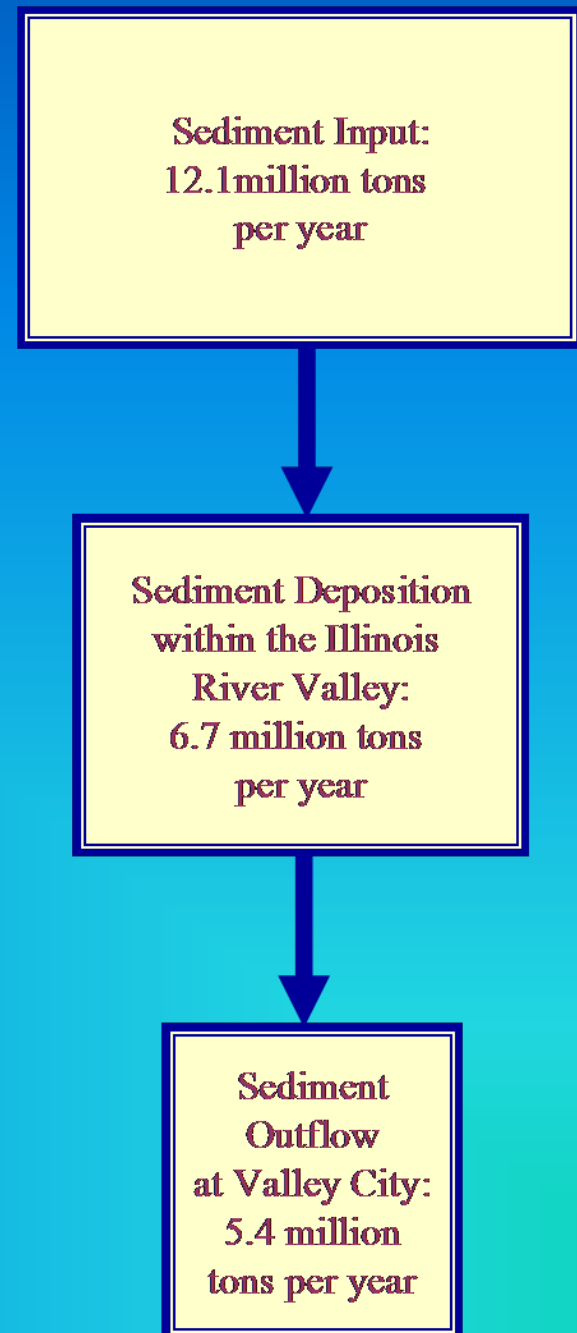




# Sediment Budget of the Illinois River



# Sediment Budget of the Illinois River Valley



# Illinois River Sediment Budget Facts

- Average annual sediment delivery to the Illinois River valley – **12.1 million tons**
- Average annual sediment discharge at Valley City – **5.4 million tons**
- Average annual sedimentation – **6.7 million tons**
- Percent deposited – **55 percent**
- The Spoon and La Moine Rivers had the highest sediment yield rates for the period of analysis.
- The sediment budget for the 1980-2000 period will serve as a basis for measuring our progress towards reducing the sediment delivery to the Illinois River valley.



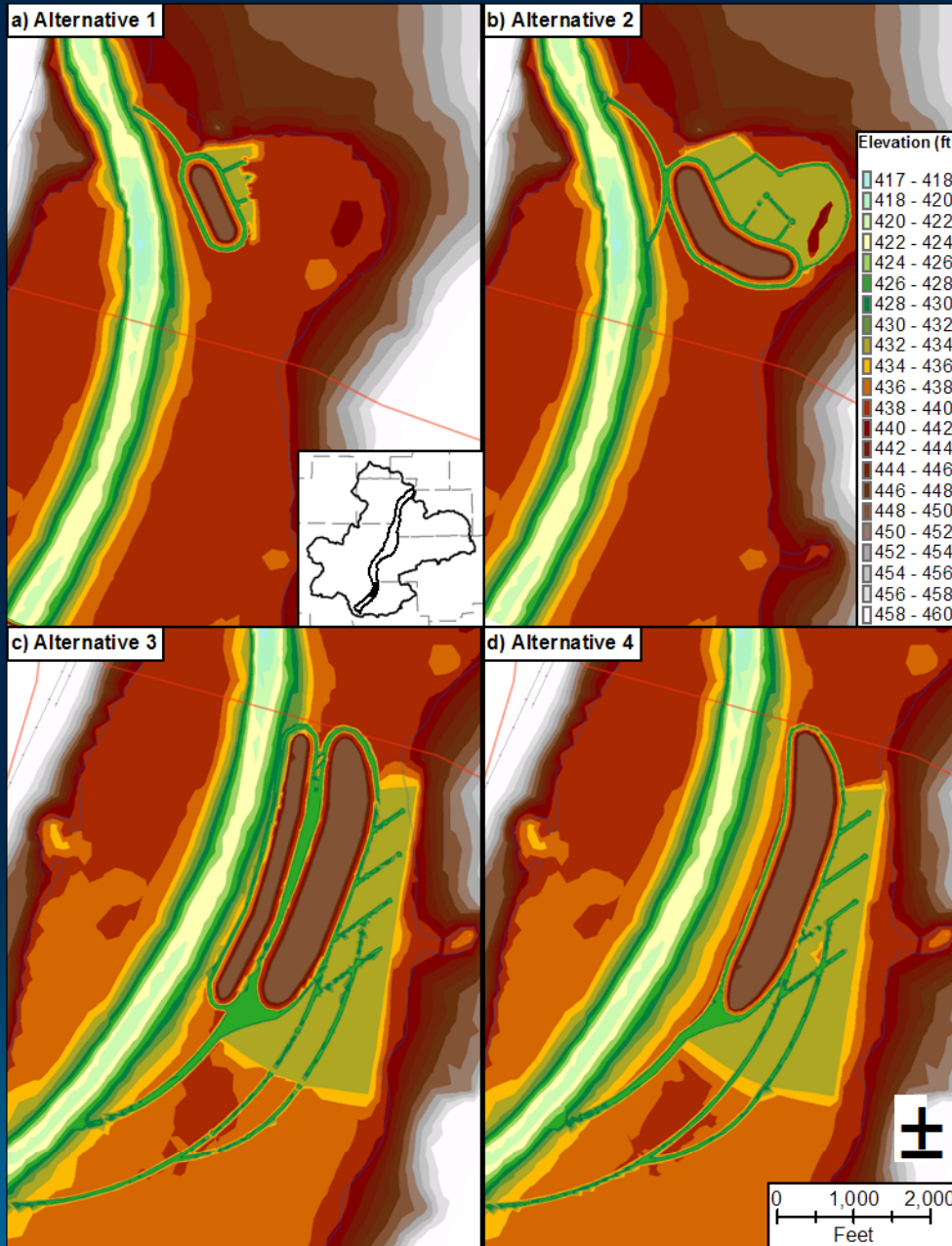




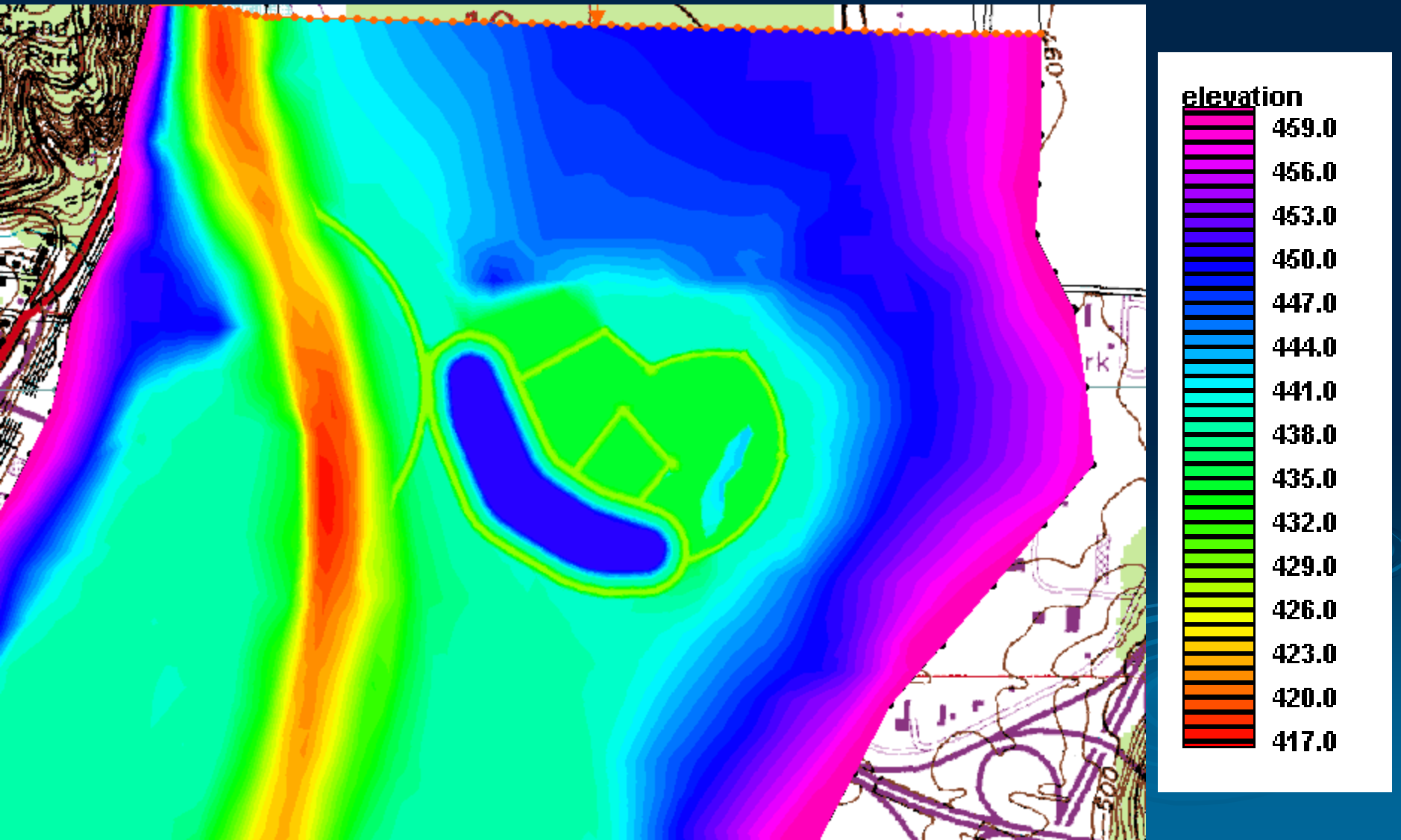
Man-made island(s) built in 1994  
near Chillicothe in Upper Peoria Lake



# Alternatives for potential island sites for Lower Peoria Lake



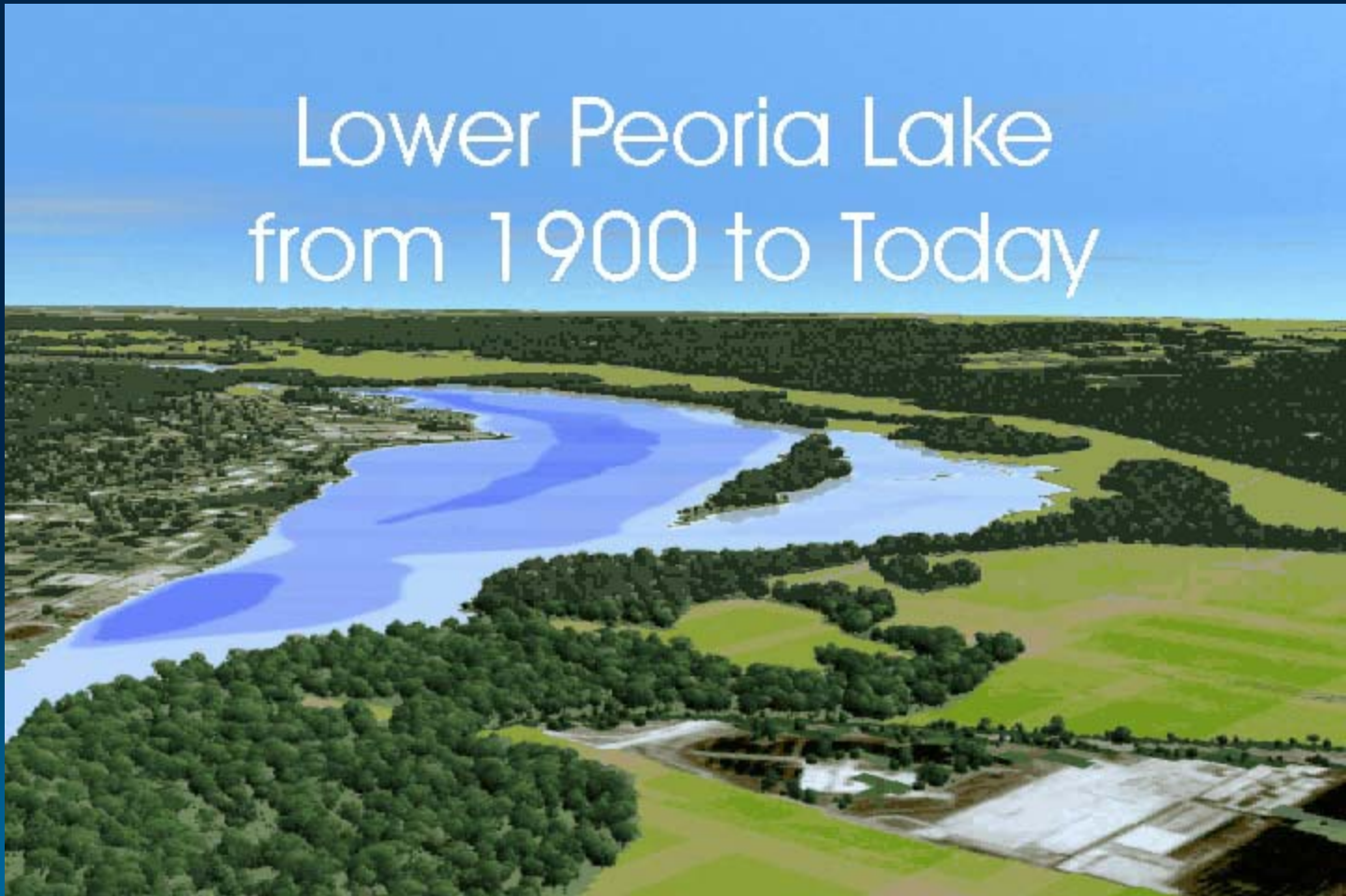
# Preferred Island Location





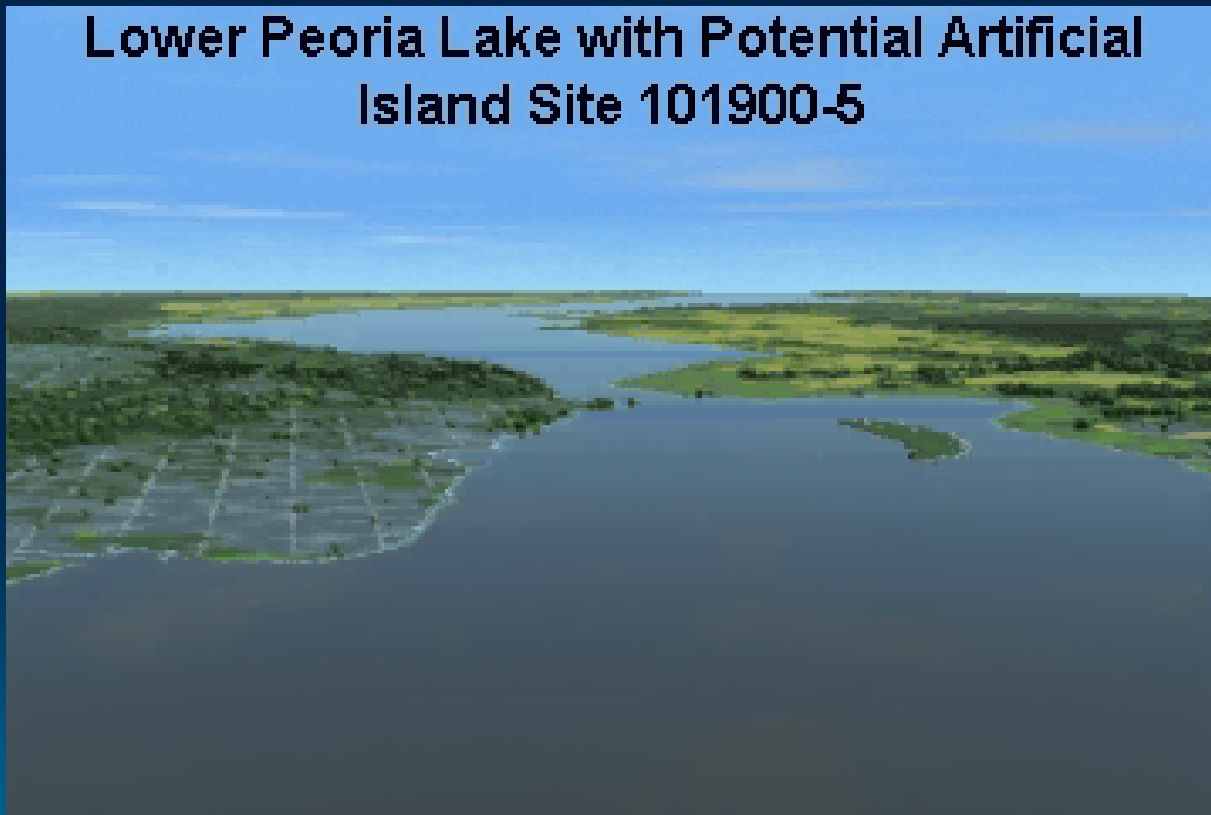
# Historical Change in Lower Peoria Lake since 1900

Lower Peoria Lake  
from 1900 to Today

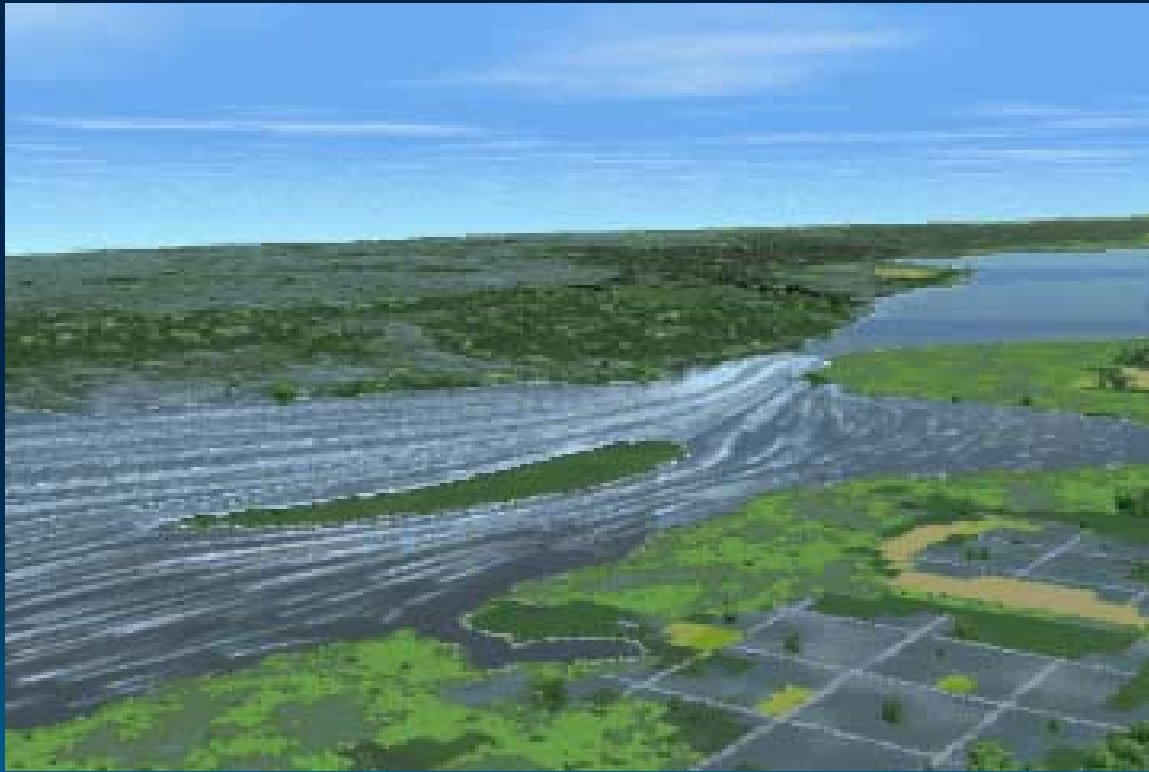


# Lower Peoria Lake with Man-Made Island

**Lower Peoria Lake with Potential Artificial  
Island Site 101900-5**



# Lower Peoria Lake with Man-Made Island



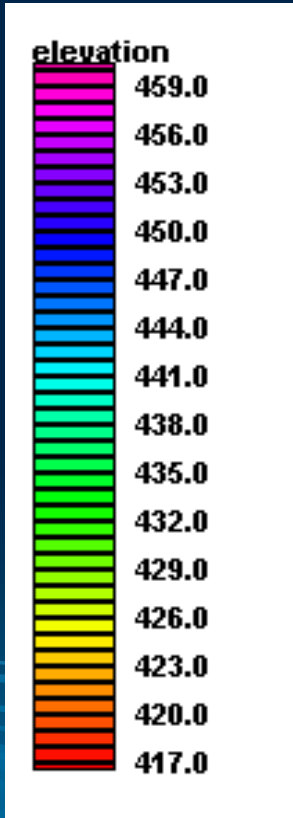
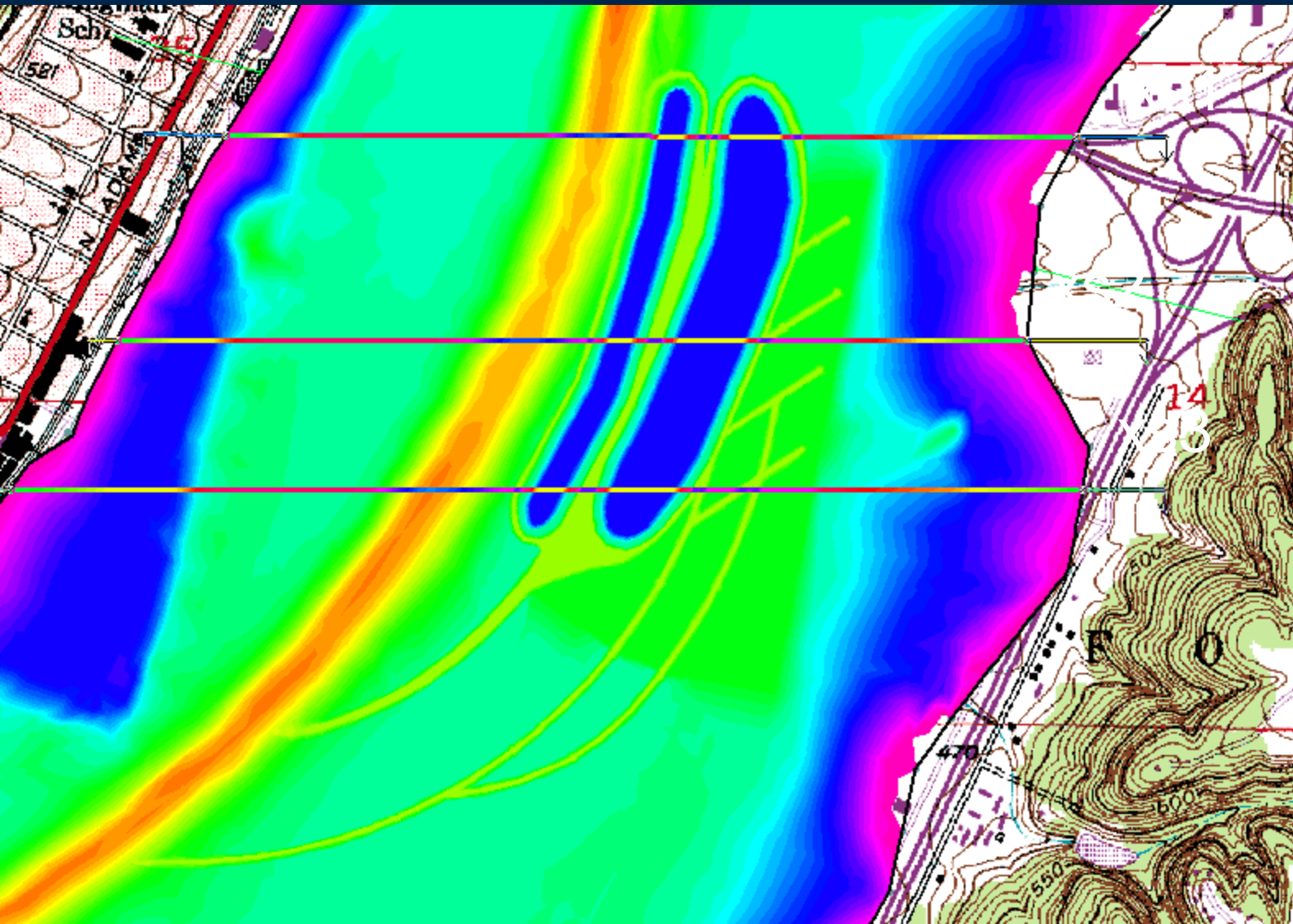
# Lower Peoria Lake with No Islands

Lower Peoria Lake with No Artificial Islands

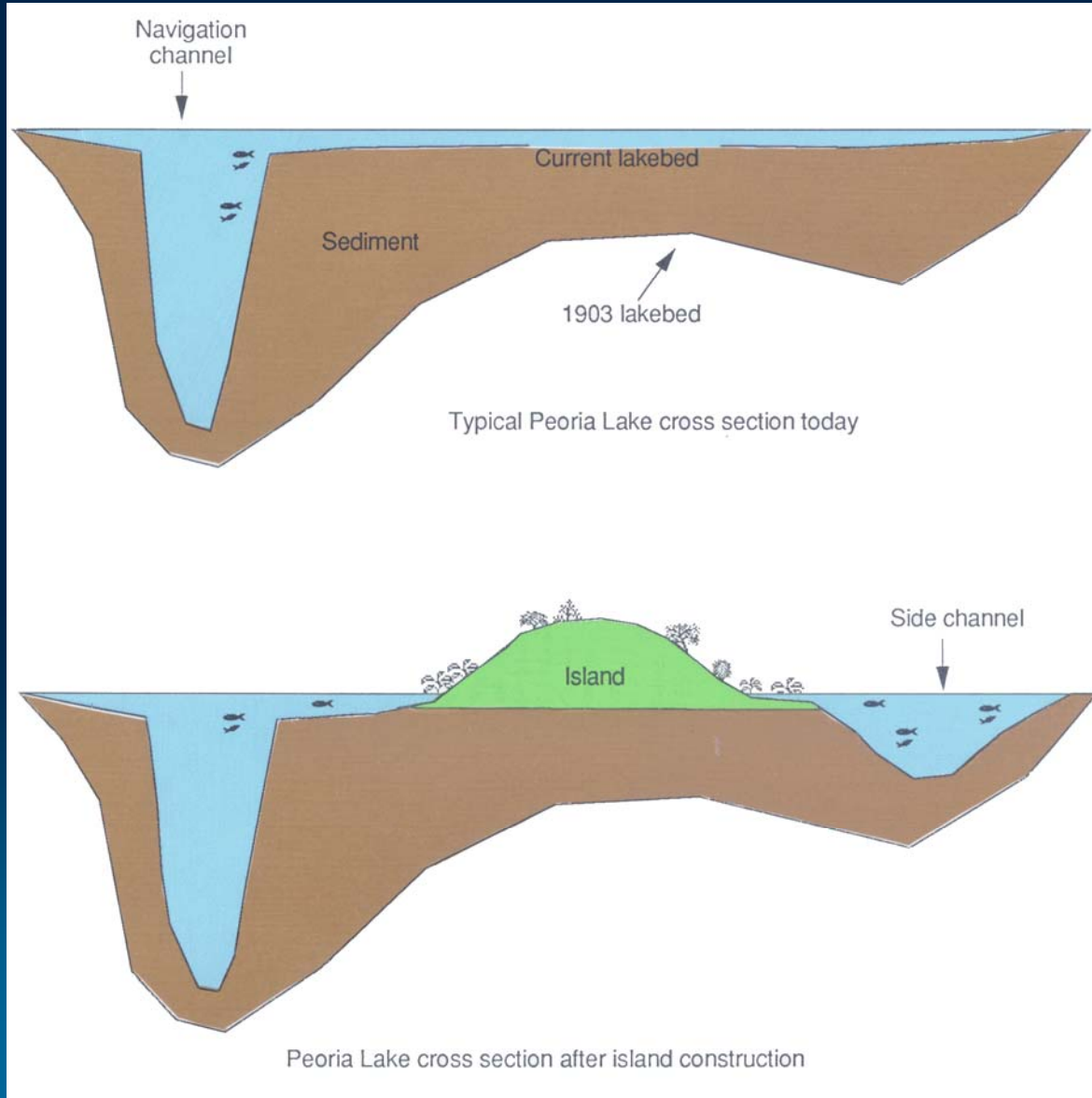




# Alternative Locations



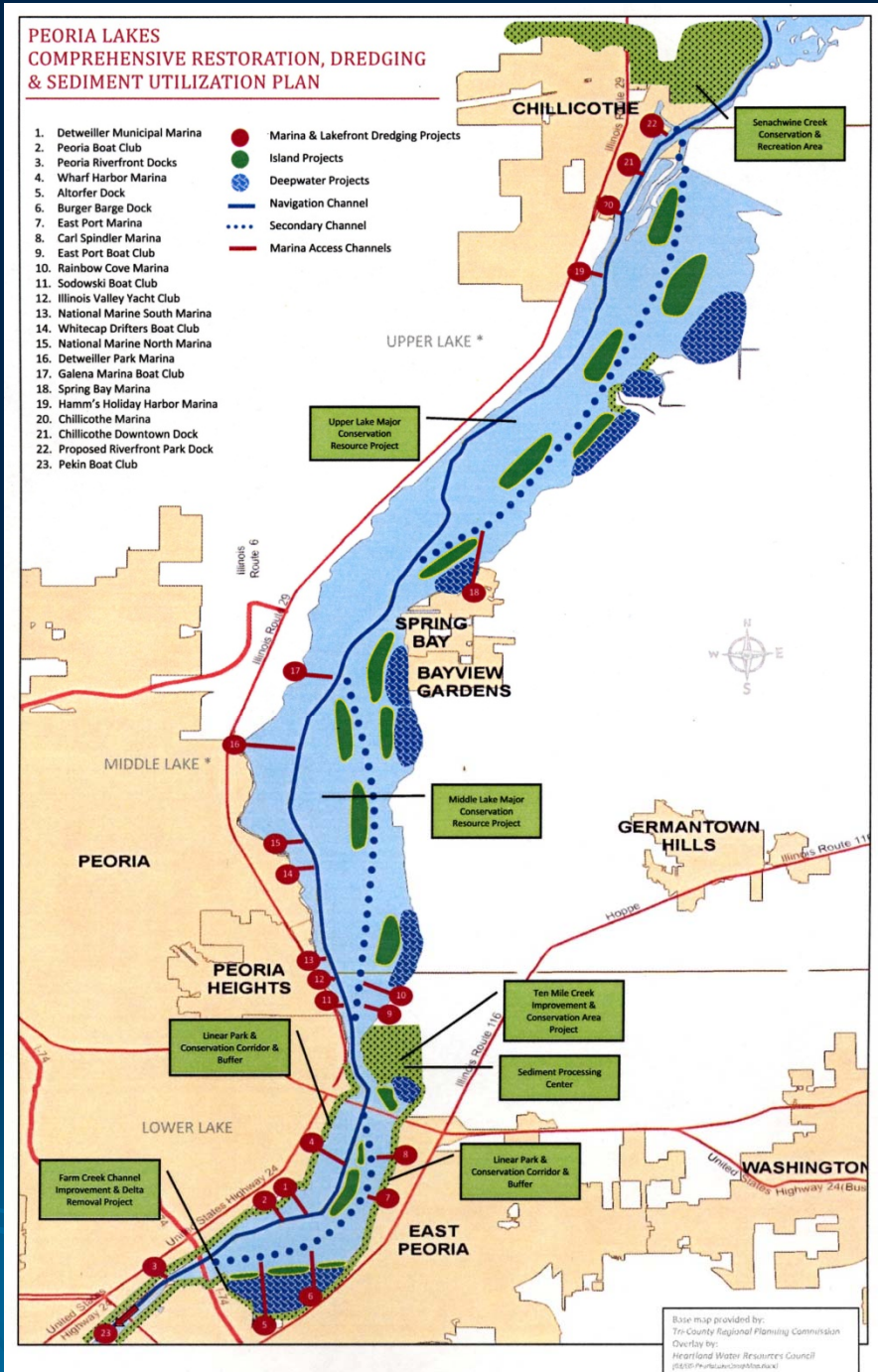
# Conceptual Design of an Island and Side Channel



# Comprehensive Restoration Plan Proposed by Heartland Water Resources Council of Central Illinois

## PEORIA LAKES COMPREHENSIVE RESTORATION, DREDGING & SEDIMENT UTILIZATION PLAN

1. Detweiller Municipal Marina
  2. Peoria Boat Club
  3. Peoria Riverfront Docks
  4. Wharf Harbor Marina
  5. Altorfer Dock
  6. Burger Barge Dock
  7. East Port Marina
  8. Carl Spindler Marina
  9. East Port Boat Club
  10. Rainbow Cove Marina
  11. Sodowski Boat Club
  12. Illinois Valley Yacht Club
  13. National Marine South Marina
  14. Whitecap Drifters Boat Club
  15. National Marine North Marina
  16. Detweiller Park Marina
  17. Galena Marina Boat Club
  18. Spring Bay Marina
  19. Hamm's Holiday Harbor Marina
  20. Chillicothe Marina
  21. Chillicothe Downtown Dock
  22. Proposed Riverfront Park Dock
  23. Pekin Boat Club
- Marina & Lakefront Dredging Projects
  - Island Projects
  - Deepwater Projects
  - Navigation Channel
  - ... Secondary Channel
  - Marina Access Channels

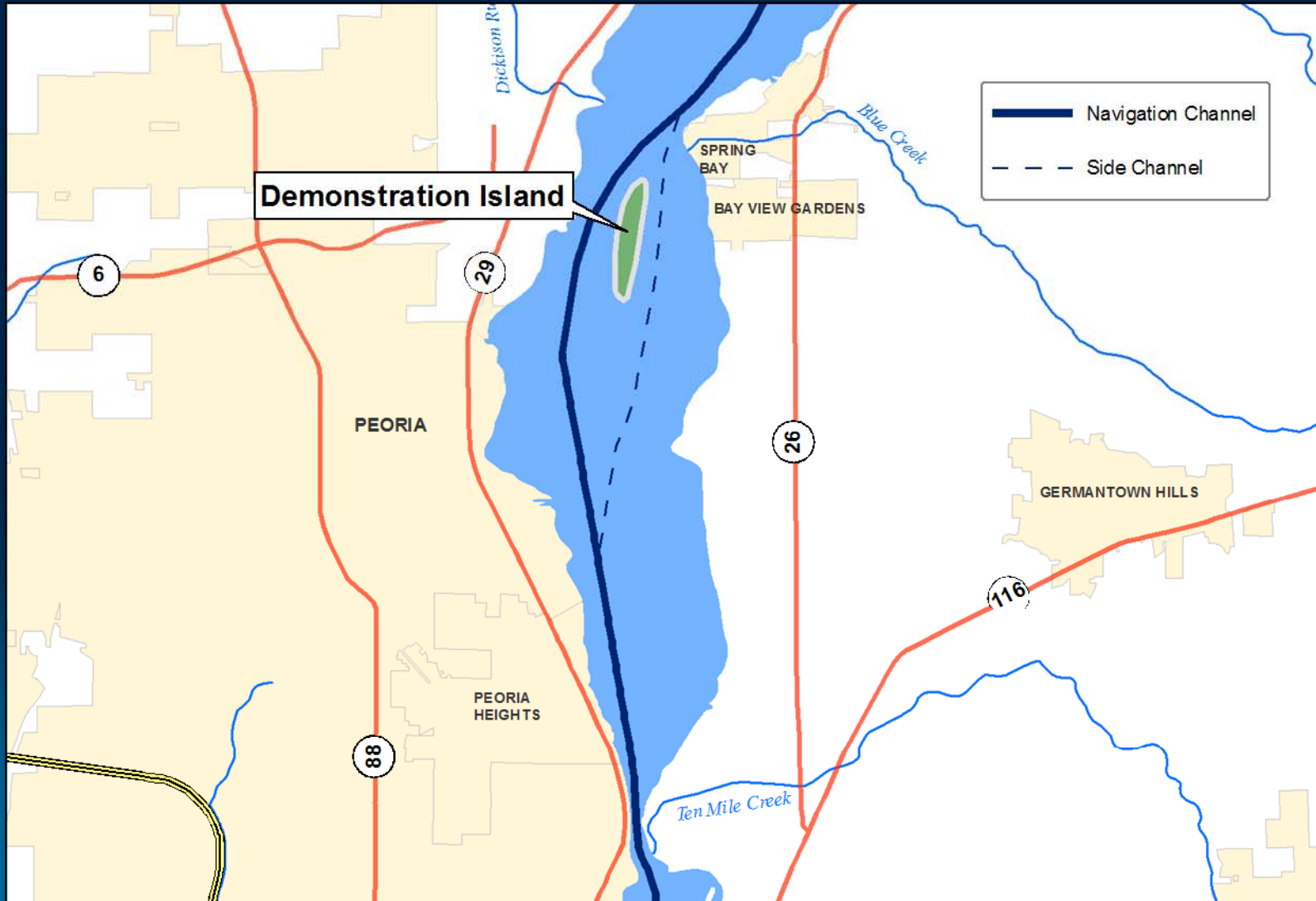


Base map provided by:  
Tri-County Regional Planning Commission  
Overlay by:  
Heartland Water Resources Council  
(565) 767-2424

**\* NOTE:** It is recognized that, if planned properly, the Upper and Middle Lakes could be restored to significant conservation resources with the Lower Lake having both major conservation as well as recreation attributes.

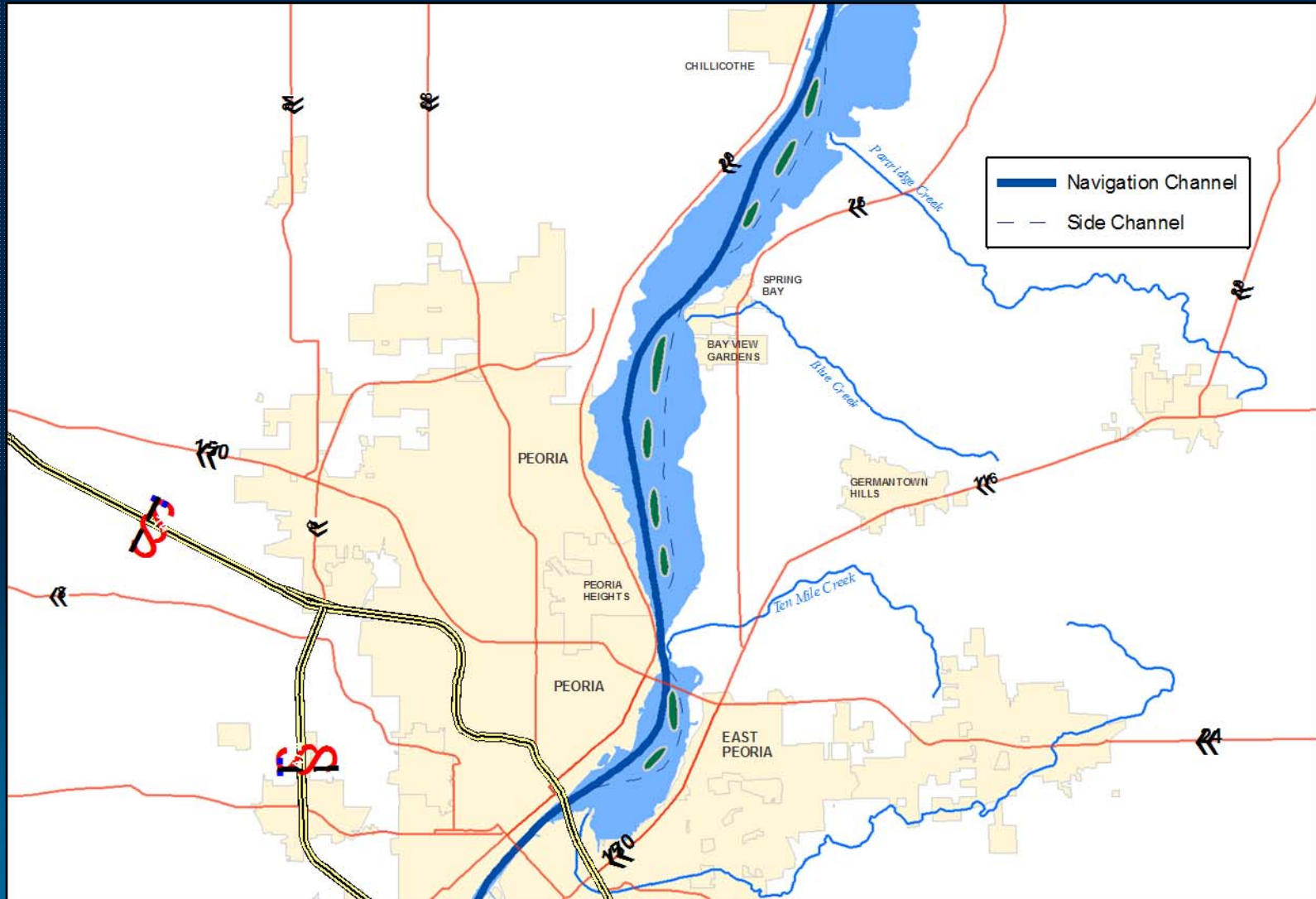


# Proposed Demonstration Island Near Spring Bay





# Alternative Island Locations in Upper and Lower Peoria Lake



***Thank You!***

