



Long Term Maintenance Dredging Program  
WEDA Midwest Regional Seminar  
April 10, 2014  
Cincinnati

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# Agenda

- **MWCD Defined - Mission, System, & Challenges**
- The Need for Sediment Management
- Learning from Others
- Taking the First Steps
- Final Thoughts



*Responsible stewards dedicated to providing the benefits of **flood reduction**, **conservation** and **recreational opportunities** in the Muskingum River Watershed .*

# The Flood of 1913



Downtown Massillon, OH

# The Flood of 1913



Downtown Zanesville, OH

# The Flood of 1913



Factory in Zanesville, OH

# The Flood of 1913



Scene in McConnellsville, OH

# The Flood of 1913



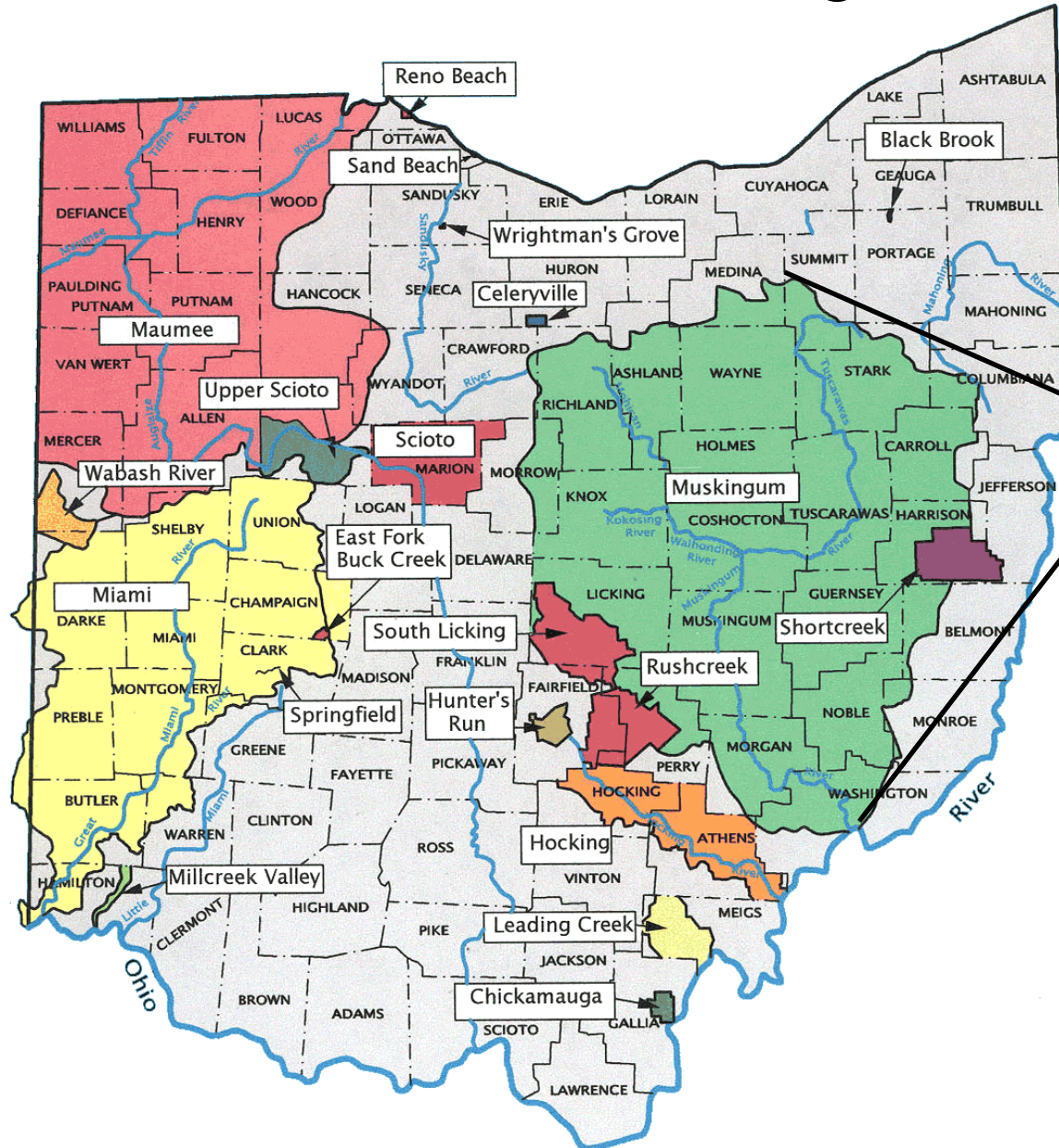
Downtown Marietta, OH



# Ohio Conservancy Districts

- Political subdivisions of State of Ohio
- Chapter 6101, Ohio Revised Code
- Formed by landowner initiative
- Address a variety of water management issues, including flooding

# Ohio Conservancy Districts



MWCD covers about 20% of the state

# The Beginning: Flood Control

- \$22 million in 1934 for 14 dams
- Official Plan Approved by Conservancy Court
- Originally to be “Dry Structures” (Miami CD)
- Flood Control Act of 1939: Dams to USACE
- MWCD Responsible for Reservoir Areas

# Arthur Morgan (1878-1975)

First MWCD Chief Engineer

- Miami Conservancy District
- Muskingum Watershed Conservancy District
- Tennessee Valley Authority (Roosevelt)



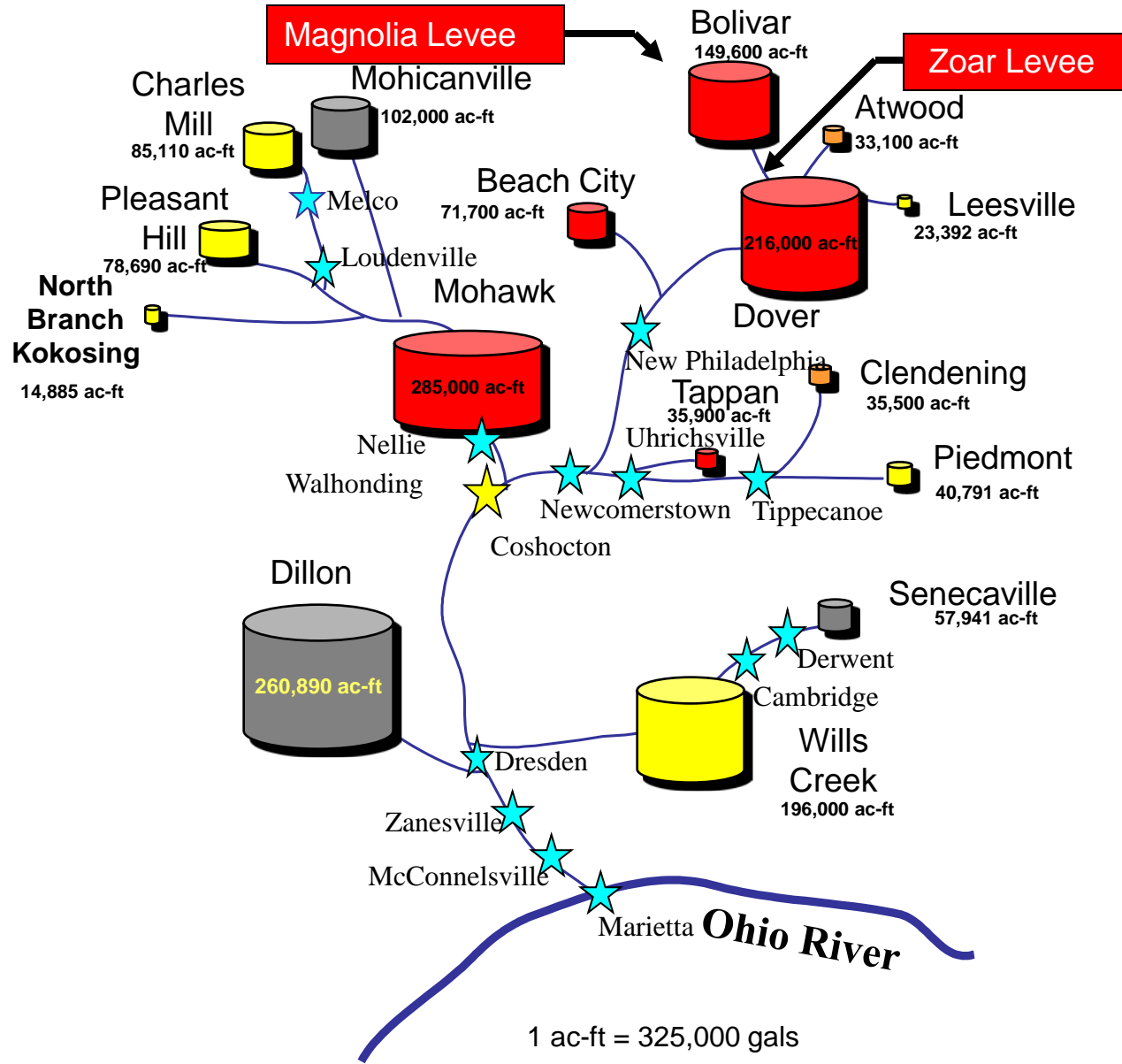
*At the time of construction, these among  
the largest flood control systems in the  
world.*

# Dust Bowl Era Led to MWCD Reservoirs

The Dust Bowl



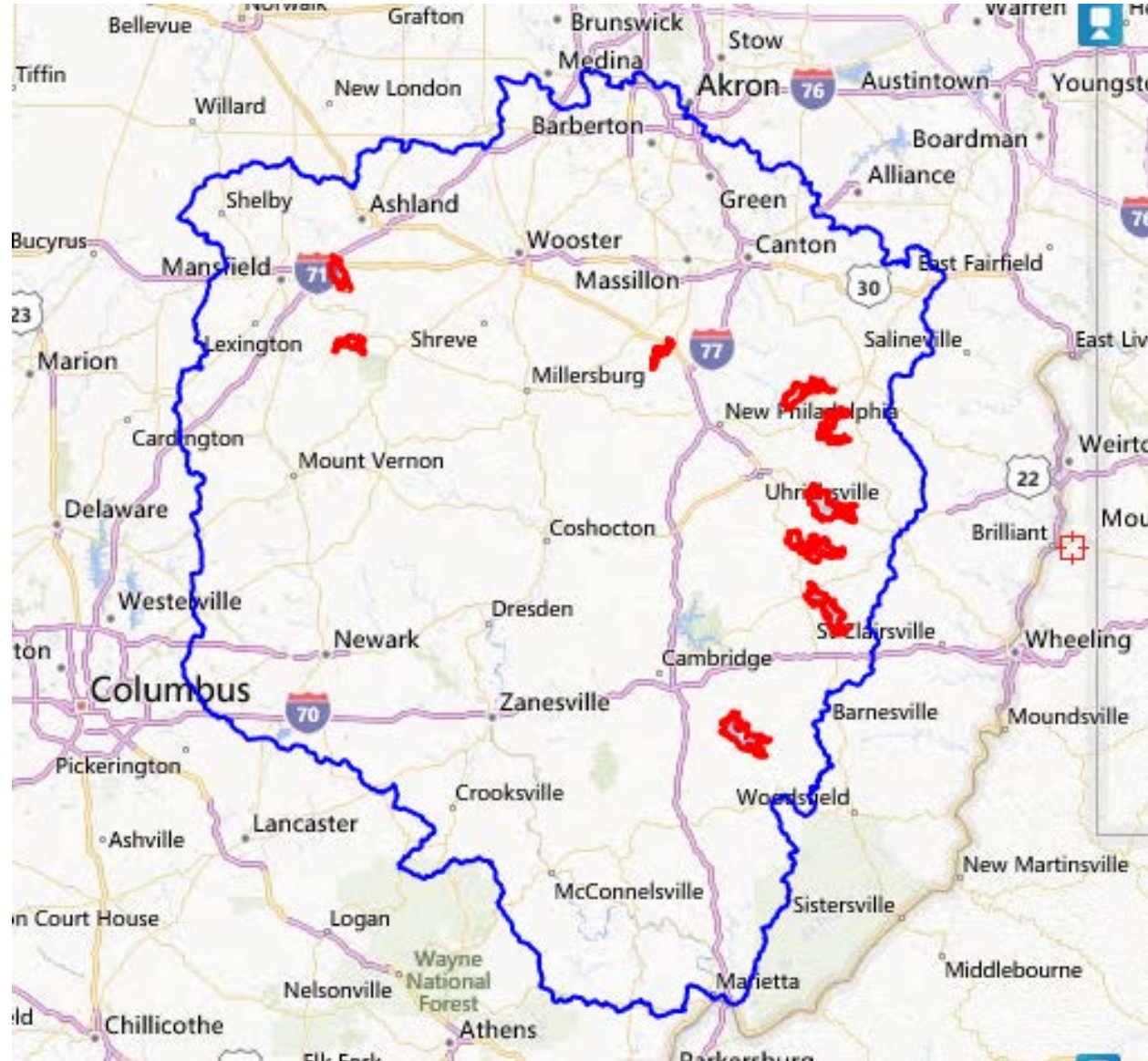
# Muskingum Basin Projects



Flood Damages Prevented = \$8.3 B, FY07 dollars

# MWCD Reservoirs

1. Charles Mill
2. Pleasant Hill
3. Beach City
4. Atwood
5. Leesville
6. Tappan
7. Clendening
8. Piedmont
9. Seneca



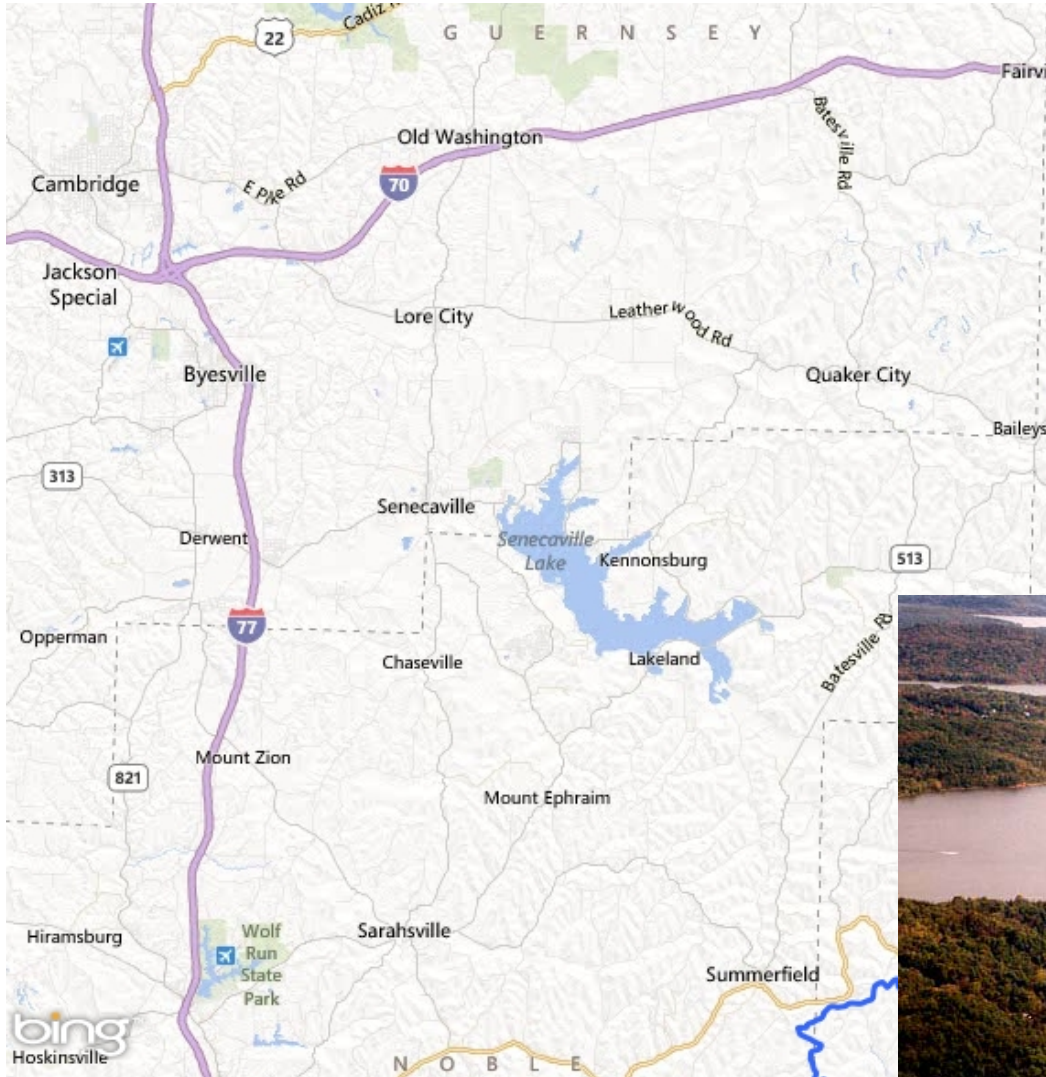
# Multi-Purpose Reservoirs

- Flood Control
- Recreation
  - Boating
  - Fishing
  - Swimming
- Water Supply





# Seneca Lake



# Recreation



# Maintenance Needs

- Age of System and Infrastructure
- Dam Safety/Dam Safety Assurance
- Sedimentation
- Erosion
- Water Quality Threats

# U.S. Army Corps of Engineers

- 5 projects in Muskingum River Watershed listed as 'urgent' ( $\geq$  DSAC II)
- MWCD committed to be local sponsor for dam safety and dam safety assurance projects
- Estimated federal contribution greater than **\$750 M**
- Estimated MWCD contribution of greater than **\$150 M**



**Dover Dam**



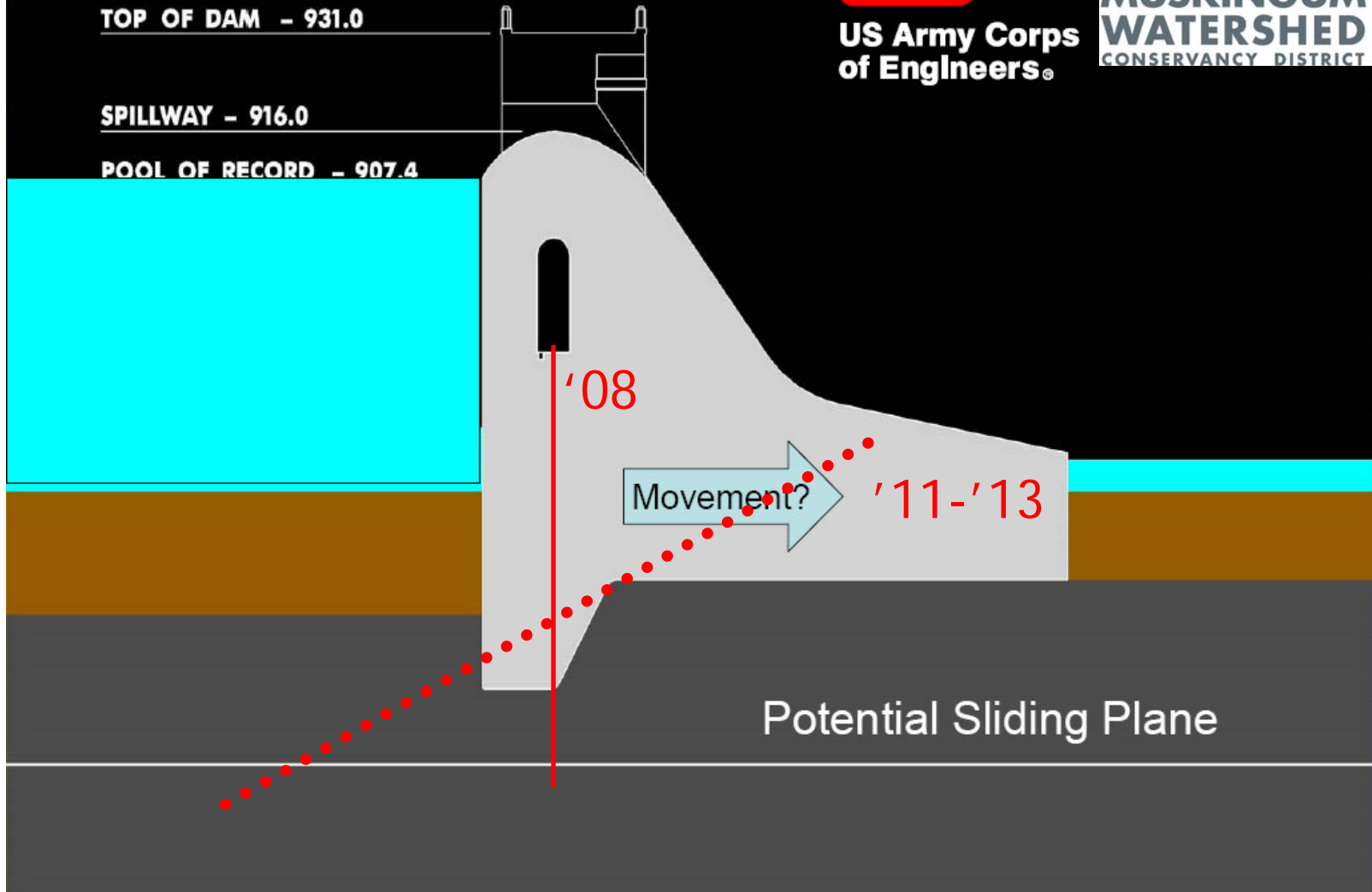
US Army Corps  
of Engineers®



TOP OF DAM - 931.0

SPILLWAY - 916.0

POOL OF RECORD - 907.4



# Dover Dam

# The Flood of 2005



View above Bolivar Dam - January 2005

# The Flood of 2005



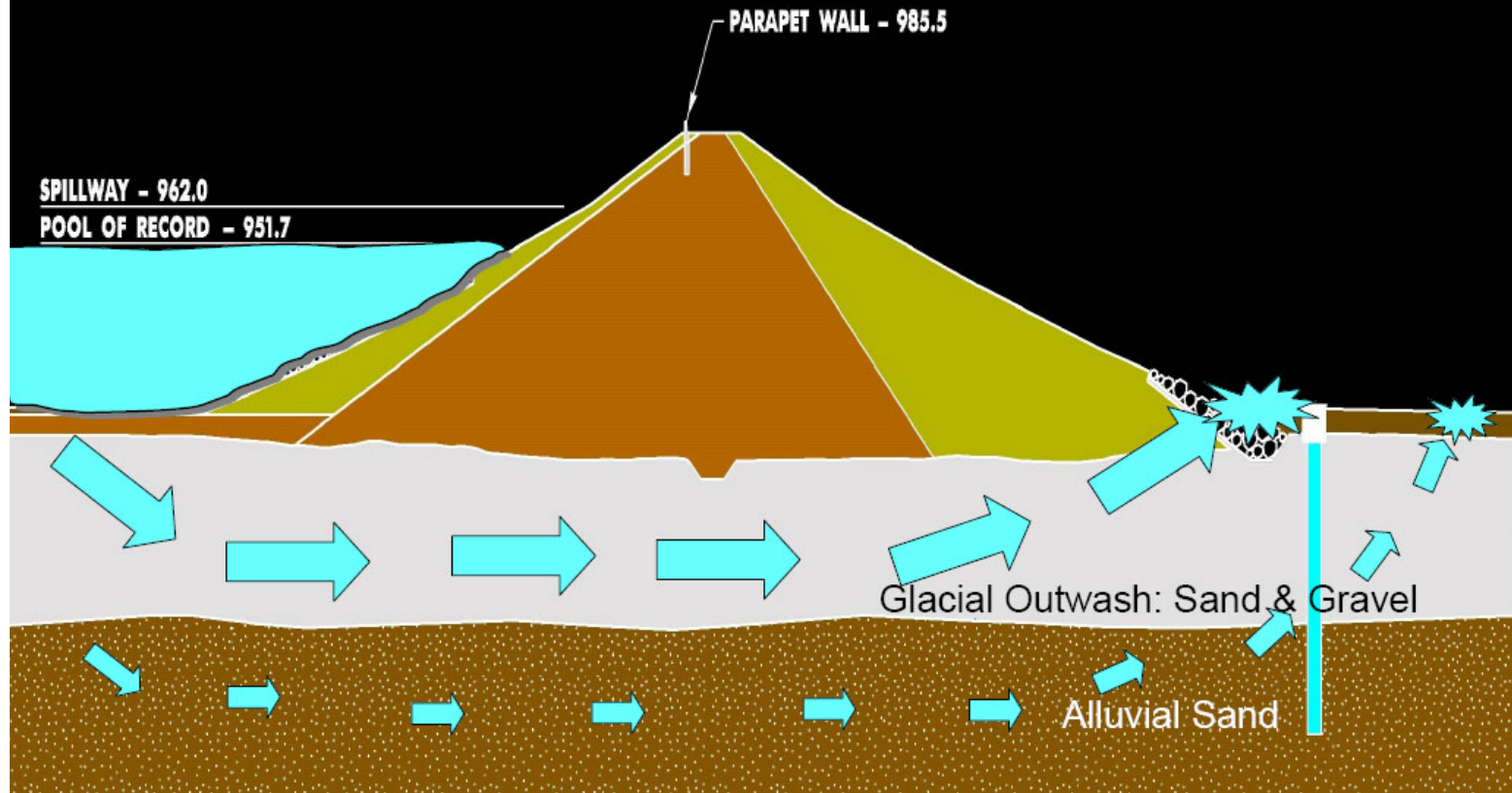
Looking North - Interstate 77 at Bolivar - January 2005





US Army Corps  
of Engineers®

# Cross Section: Bolivar Dam



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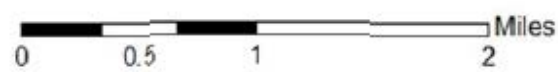
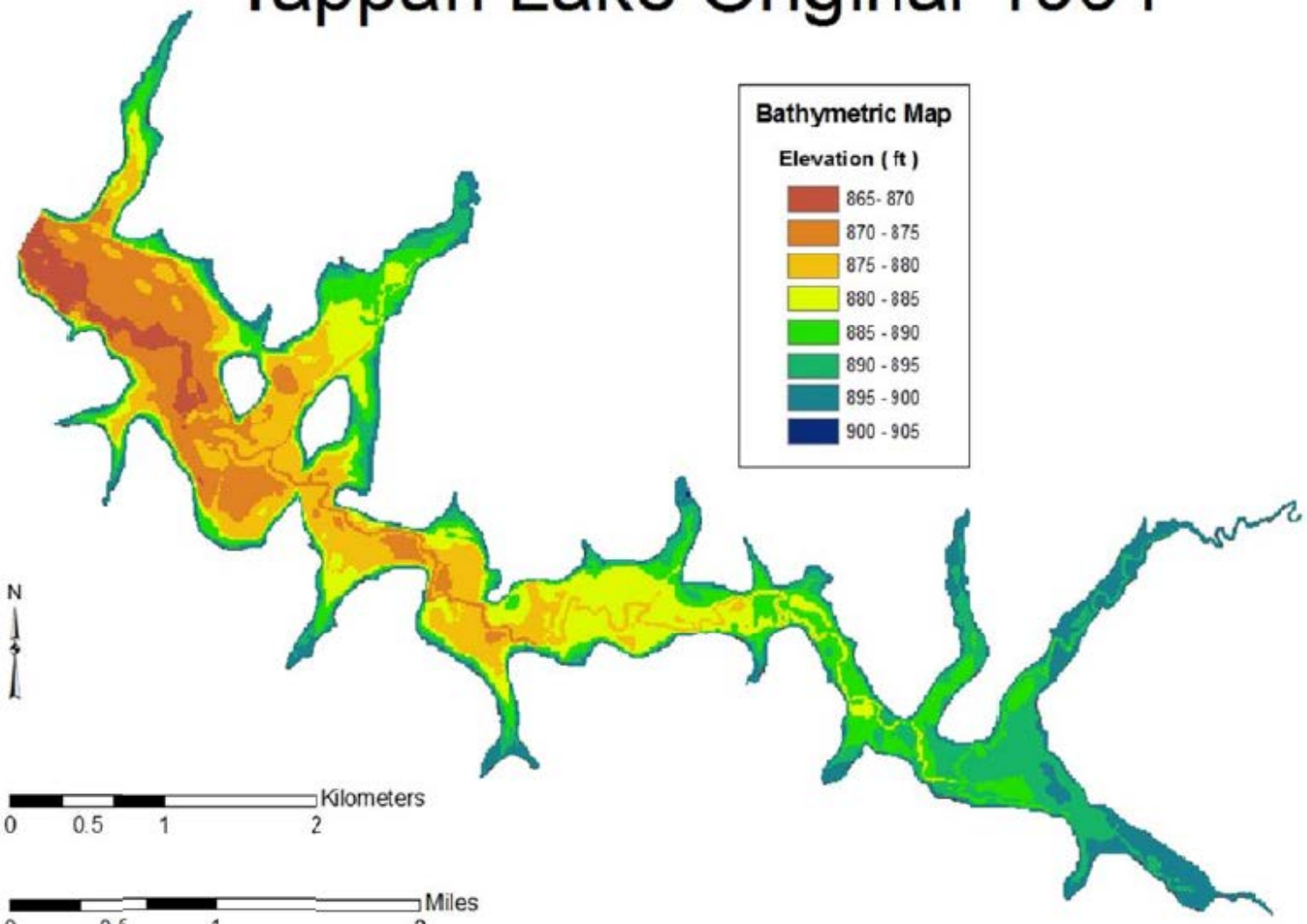
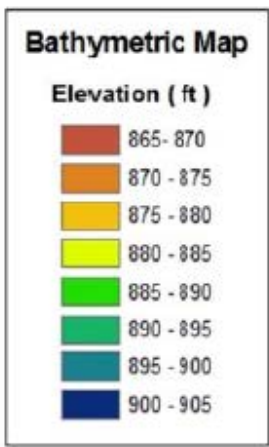
# Reservoir Sedimentation

- Most reservoirs 20-25% sedimented (80 yrs)
- Beach City 98% sedimented
- Prolong useful life of flood control system
- Improve water quality
- Dredging upstream and near-shore
  - No deep water dredging
  - Hydraulic during recreation season
  - Mechanical during winter draw down

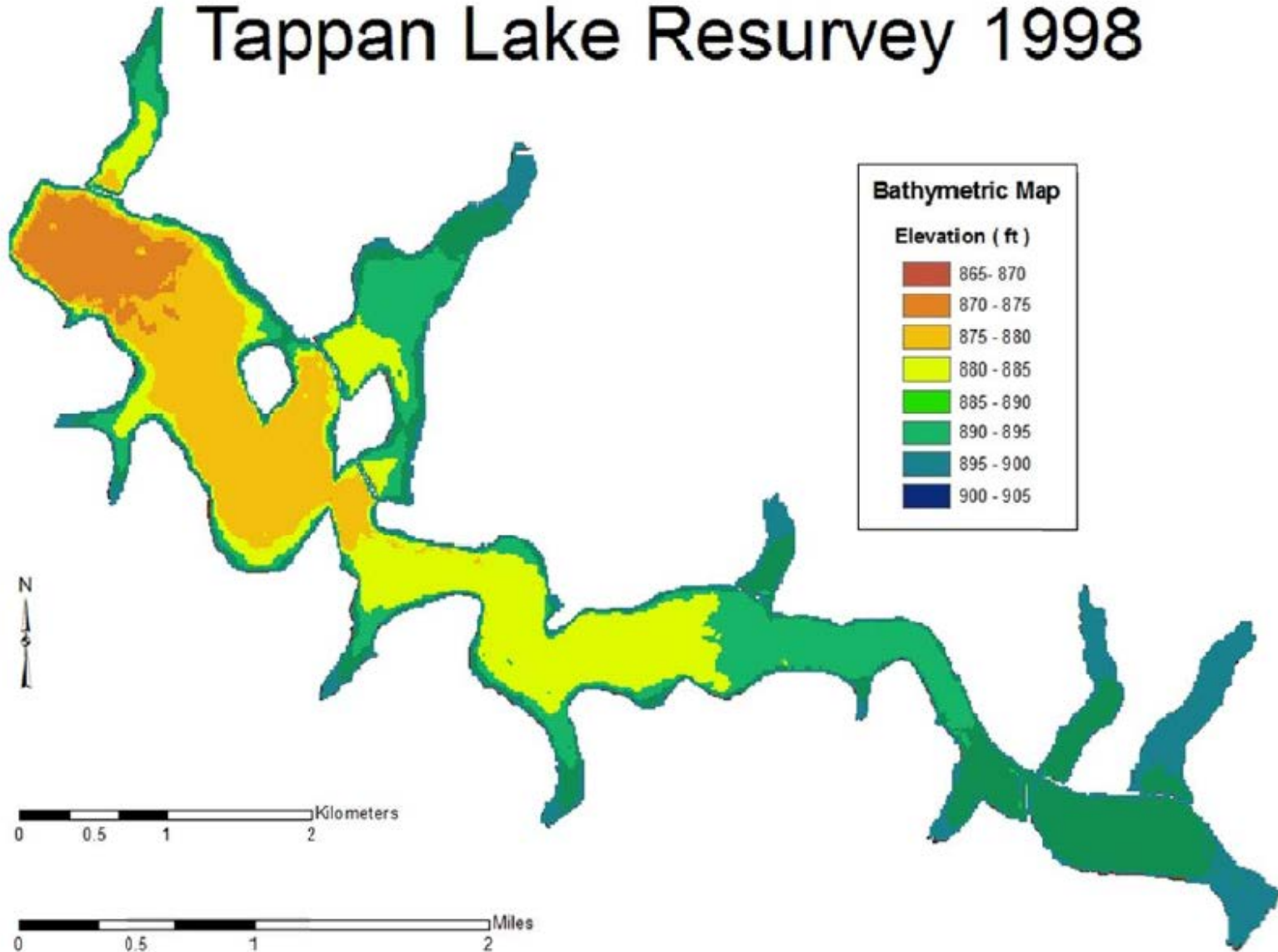
# Tappan Lake



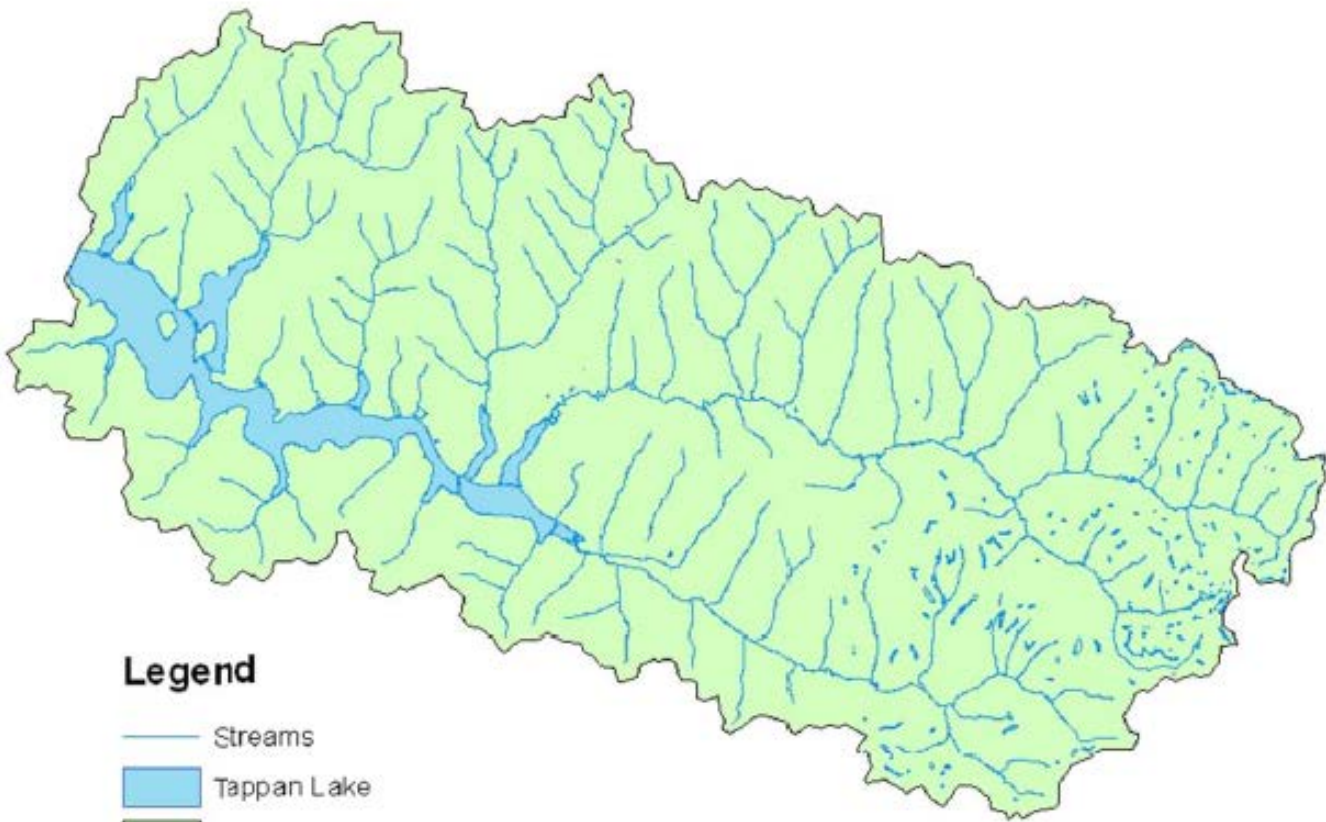
# Tappan Lake Original 1934





# Tappan Lake Resurvey 1998



# Tappan Lake Watershed



## Legend

-  Streams
-  Tappan Lake
-  Watershed



# Shoreline Stabilization



**BEFORE**



# Shoreline Stabilization



**DURING &  
AFTER**

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- Ron Barker - Executive Director
- Ron Rinkenberger - Superintendent  
AKA - "Chicago Rob"



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# First Steps: Consultant Selection

- QBS-based selection for consultants
- Expertise in all shapes and sizes
  - Local/Regional/National
  - Teaming
  - One stop shop
- Great Lakes region rich in expertise

# First Steps: Make or Buy

- Staff up and operate own equipment?
- Contract for dredging services?
  
- Dredging contractors interested
  - National and regional
- High level of interest in MWCD projects

# “Sedimental Journey”





# First Steps: Sediment for Sale

- Clean sediment - no environmental hazard
- Considering all beneficial reuse options
- All options still require placement site(s)
- Mountains of material
- In-water disposal not under consideration

# Final Thoughts

## Inland Lake Dredging:

- Neglecting funding issues, the *biggest concern* is *where to put the sediment*.
- Consider watershed management programs and partnerships to *keep sediment in place*.
- *Reach out* to other agencies with experience - e.g. Fox River Waterway Agency via WEDA.
- *Experienced consultant* is critical.
- WEDA is a great resource.

# Questions?

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