



# JOHN REDMOND RESERVOIR

Midwest  
Dredging:  
Successes and  
Challenges

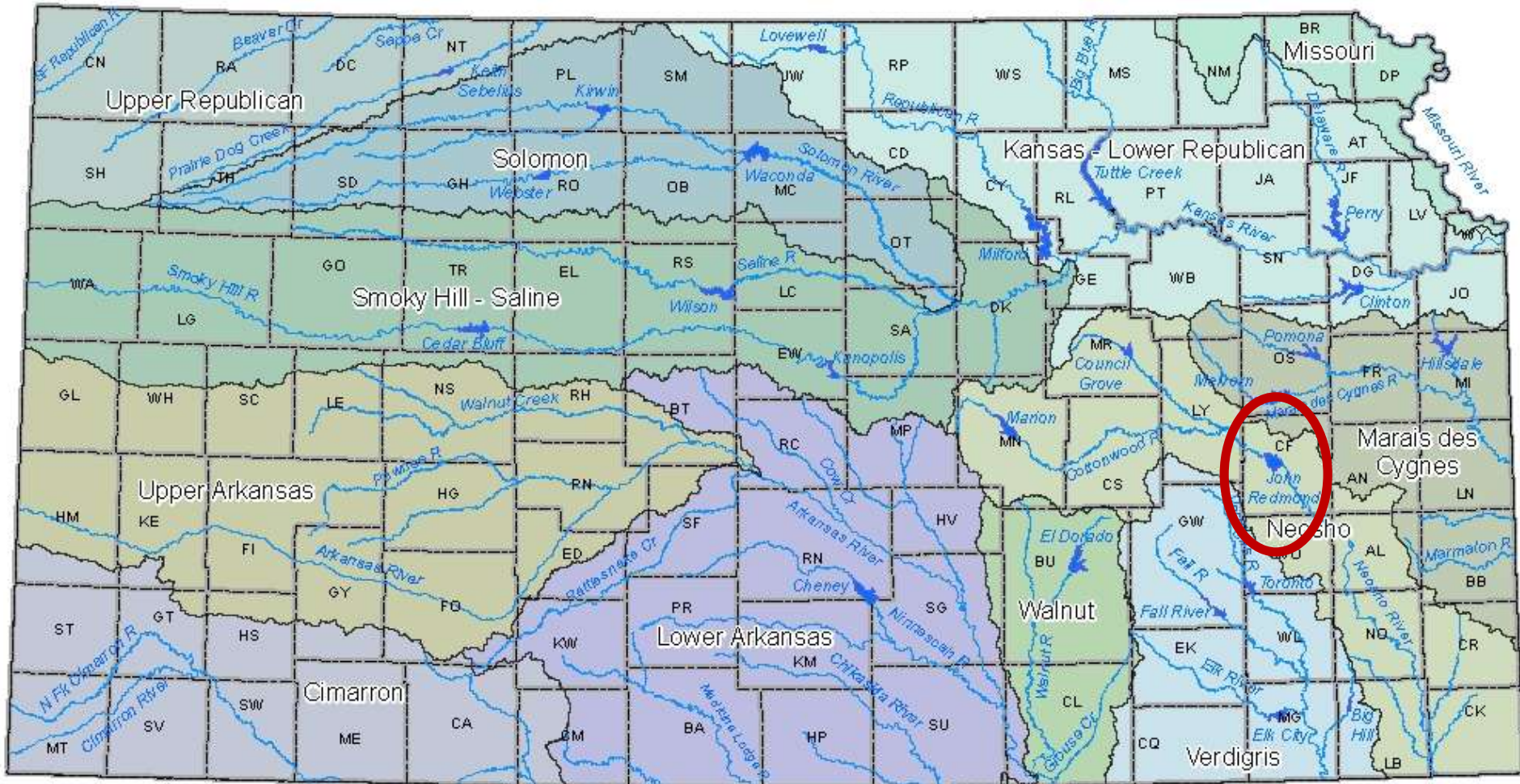
Western Dredging  
Association  
(WEDA)

2013 Midwest  
Chapter Meeting

April 17-19, 2013



# Kansas River Basins and Federal Lakes

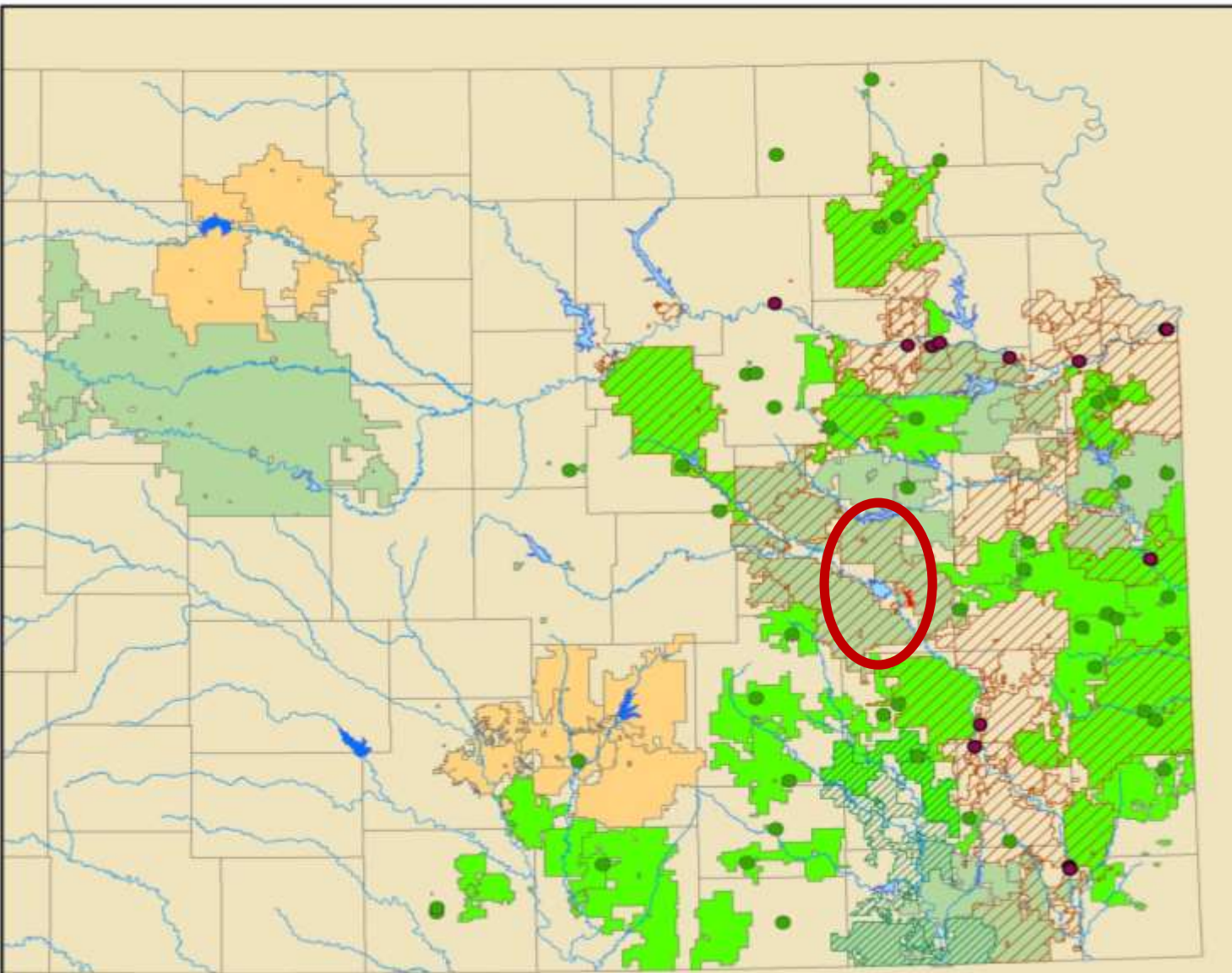


# **SURFACE WATER SUPPLY IN KANSAS**

- **State owned storage in Corps of Engineers lakes**
- **Kansas Water Office operates two programs from state owned storage**
- **Wichita and El Dorado own storage**



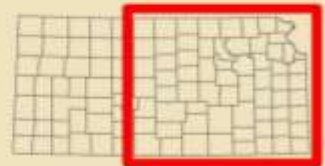
# Federal Lake Water Supply Storage Customers and PWS Served by Multipurpose Small Lakes and Municipal Lakes



## Legend

- MPSL or City Lake
- AD Industry
- Stream
- Market/AD Lake
- Other Contract Lake
- ✚ Water Marketing Industry\*
- Verdigris MOA
- Water Assurance District
- MPSL / City Lake User
- Water Marketing
- Other Contracts
- County

\*Elk City, John Redmond,  
and Milford Lakes

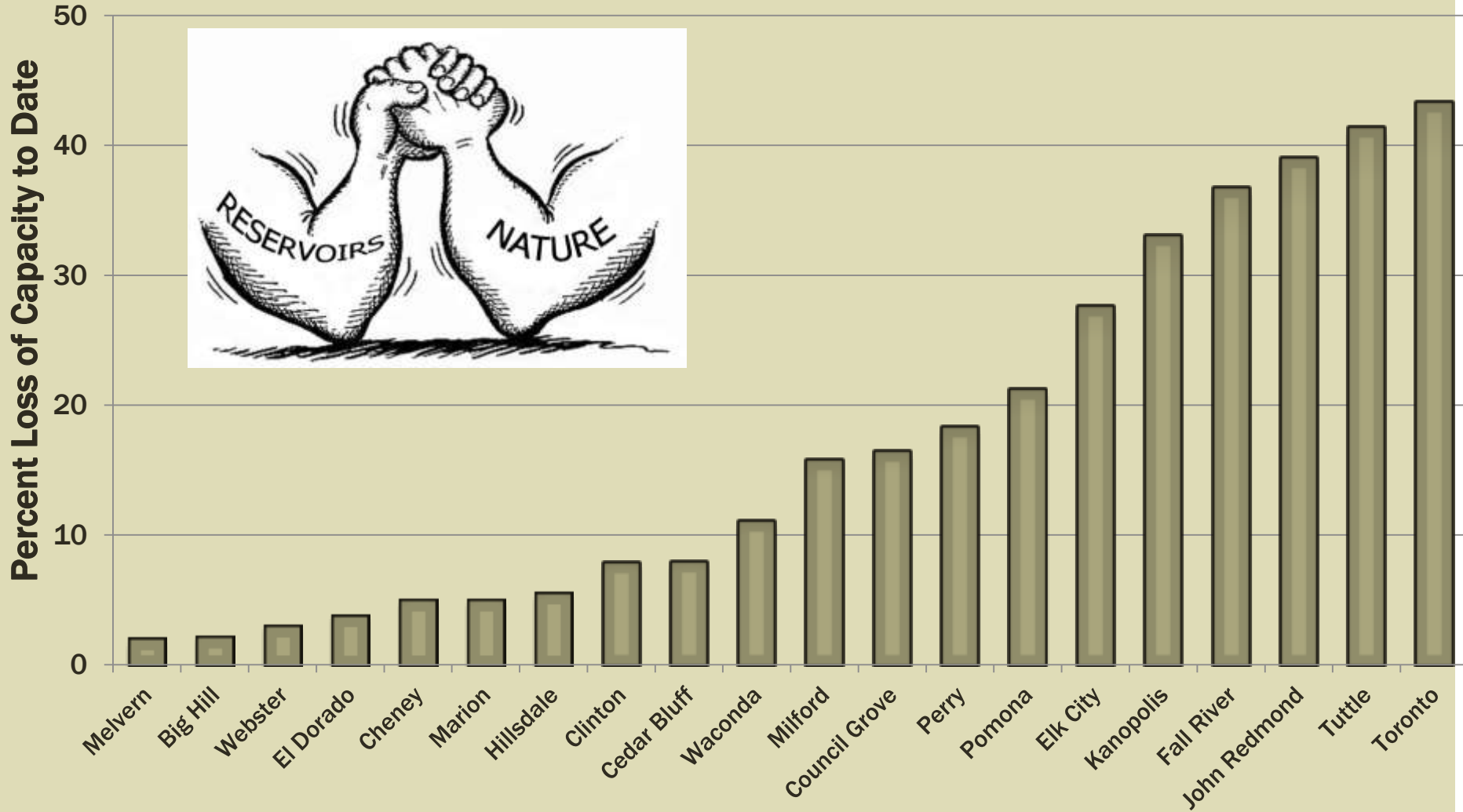


# RESERVOIR WATER USE AND ENERGY PRODUCTION

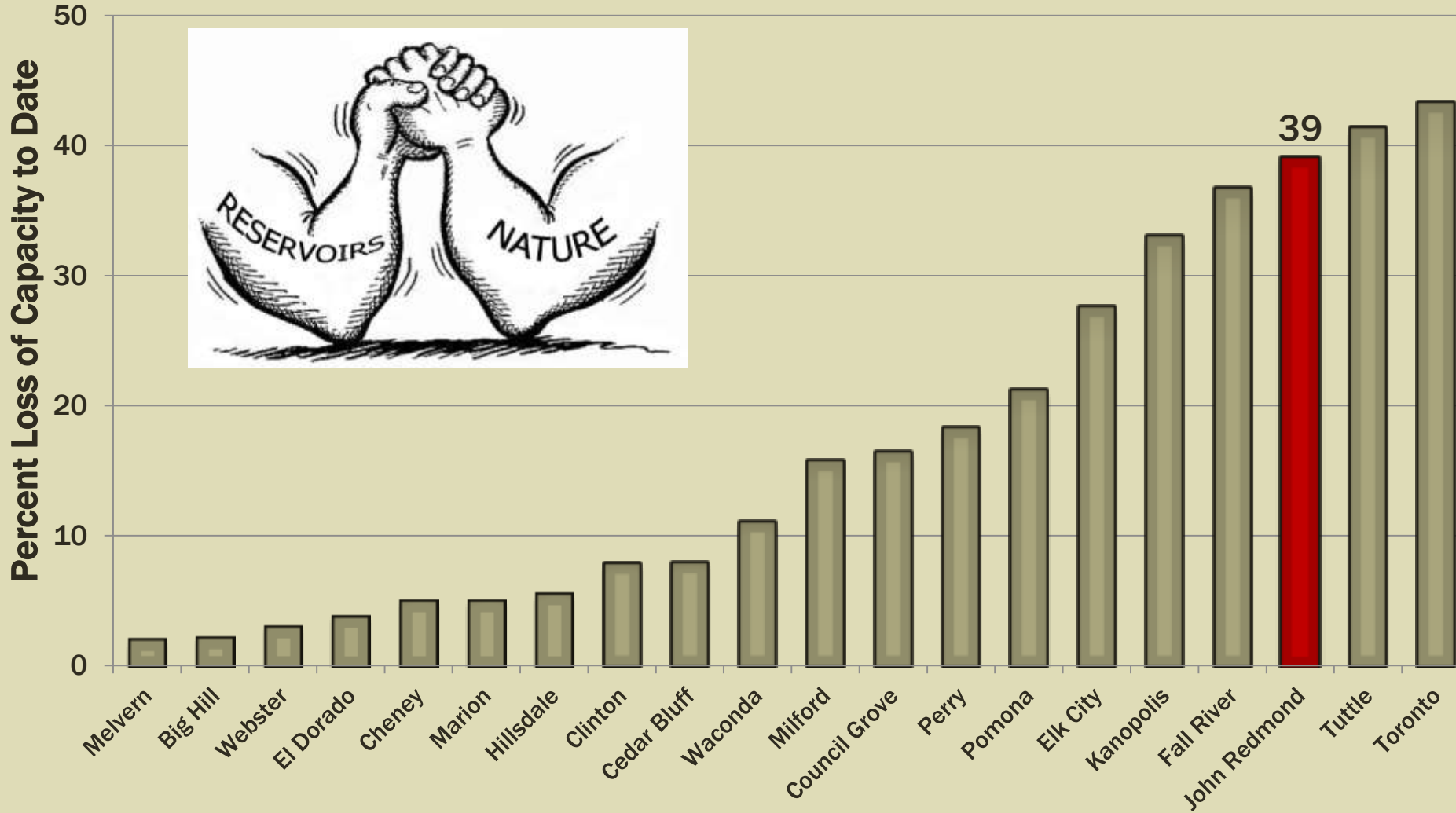
|  |                   |
|--|-------------------|
| <b>Kansas Power Plant Energy Production</b>                      | <b>11821.5 MW</b> |
| <b>Power Plant Energy production through Reservoir water use</b> | <b>6785.5 MW</b>  |
| <b>% Power Plant w/Reservoir Use</b>                             | <b>57.40%</b>     |



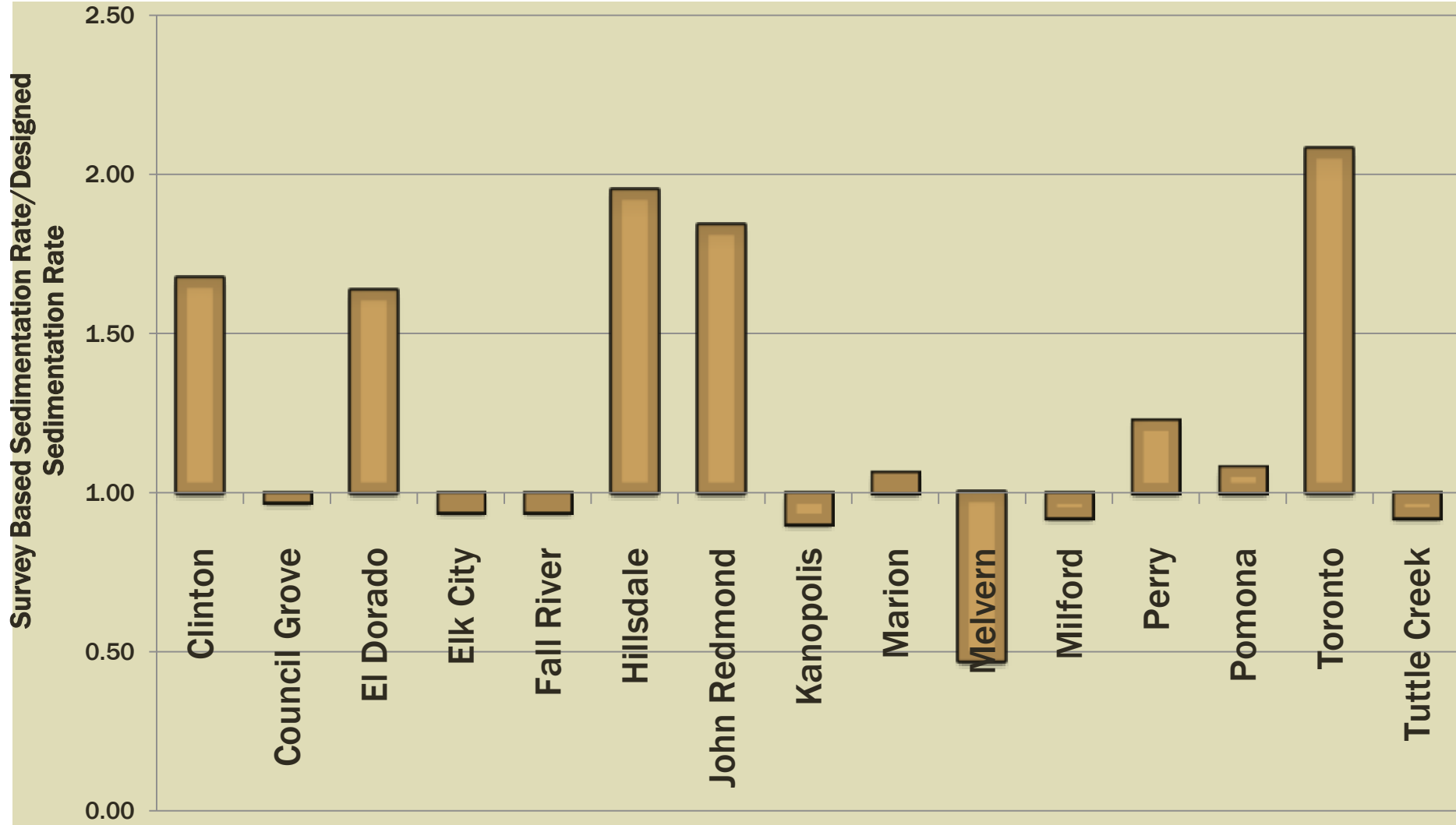
# KANSAS RESERVOIR LOSS OF CAPACITY



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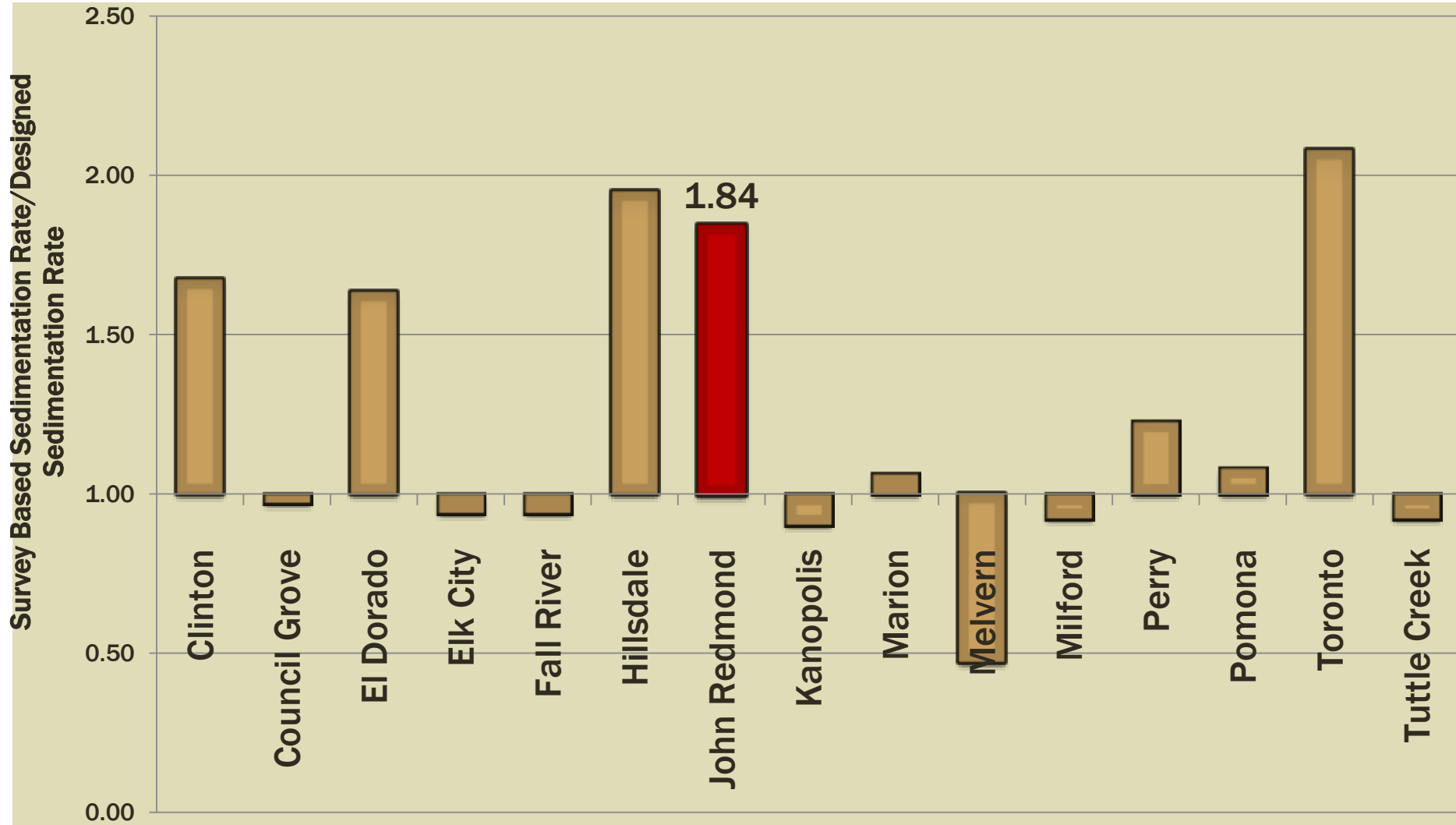


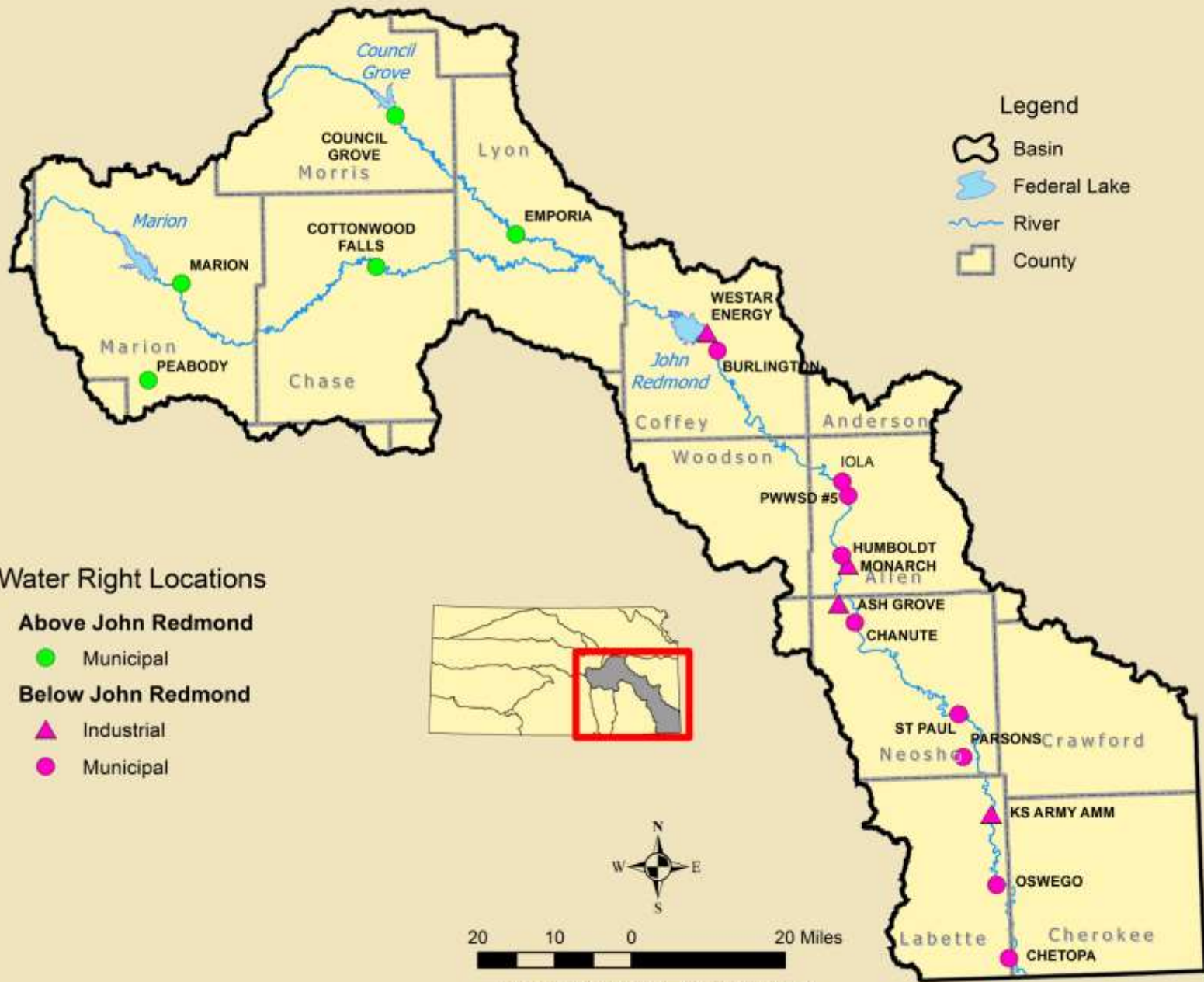
# RATE OF SEDIMENTATION





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**Legend**

-  Basin
-  Federal Lake
-  River
-  County

**Water Right Locations**

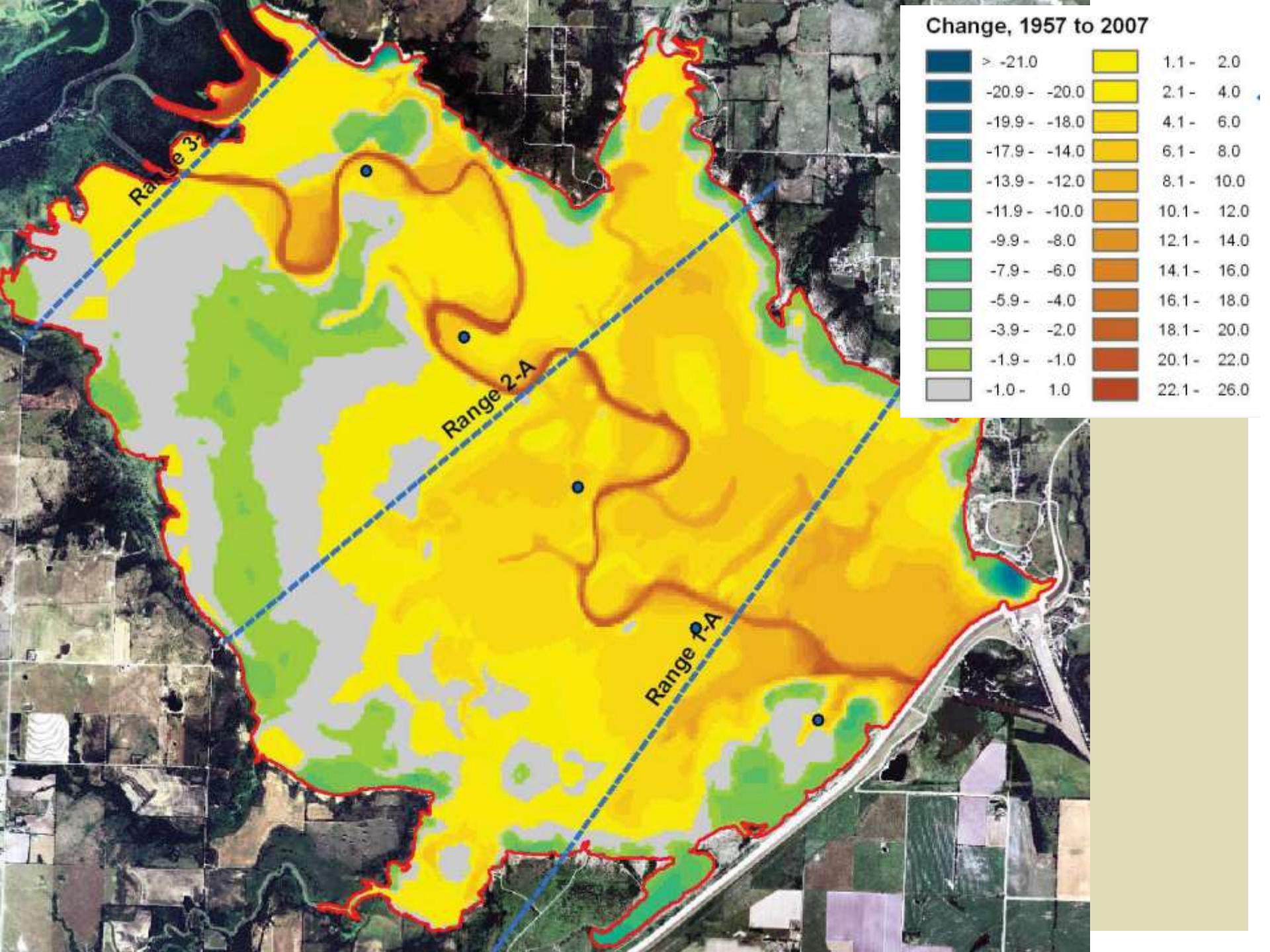
**Above John Redmond**

-  Municipal

**Below John Redmond**

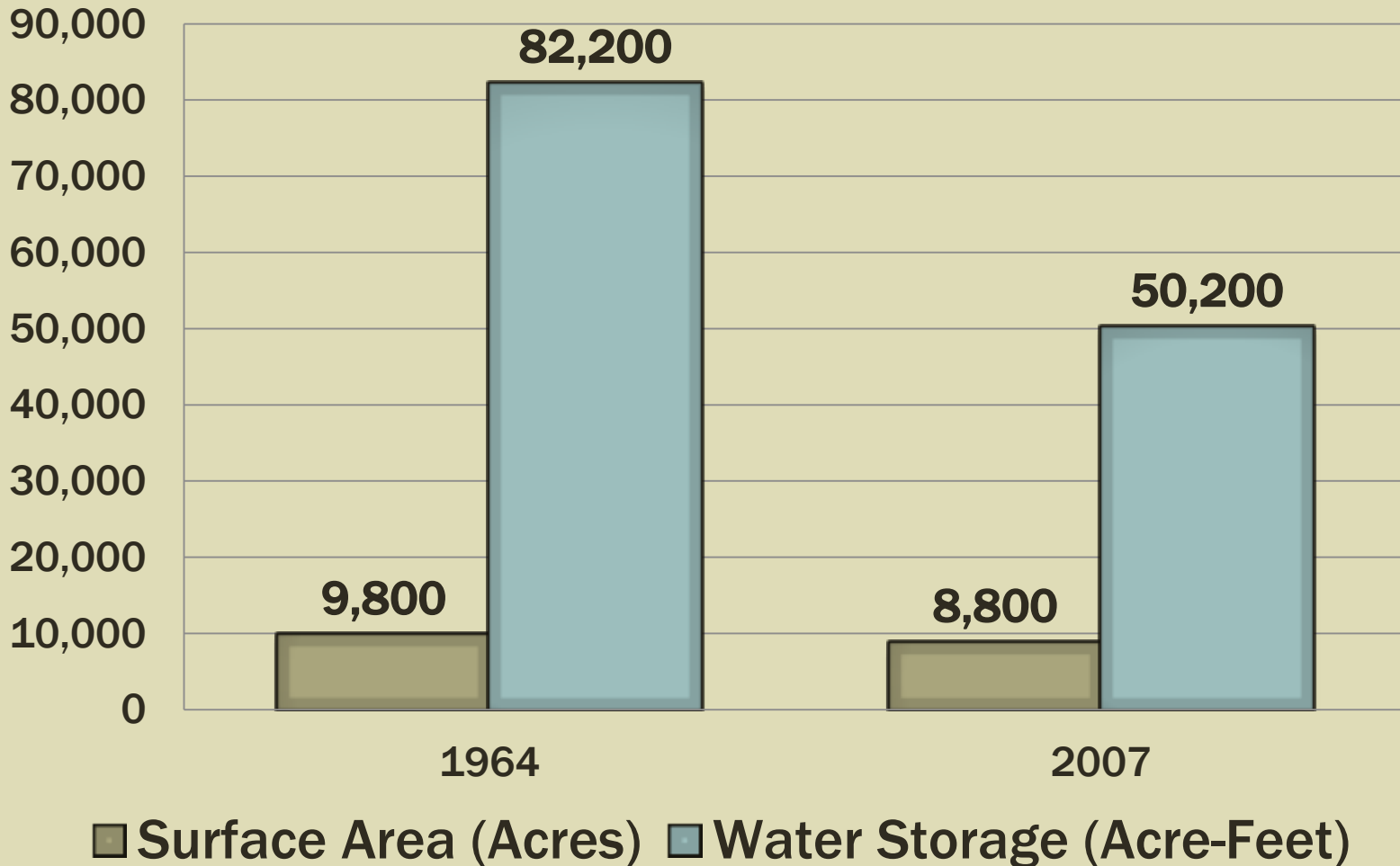
-  Industrial
-  Municipal







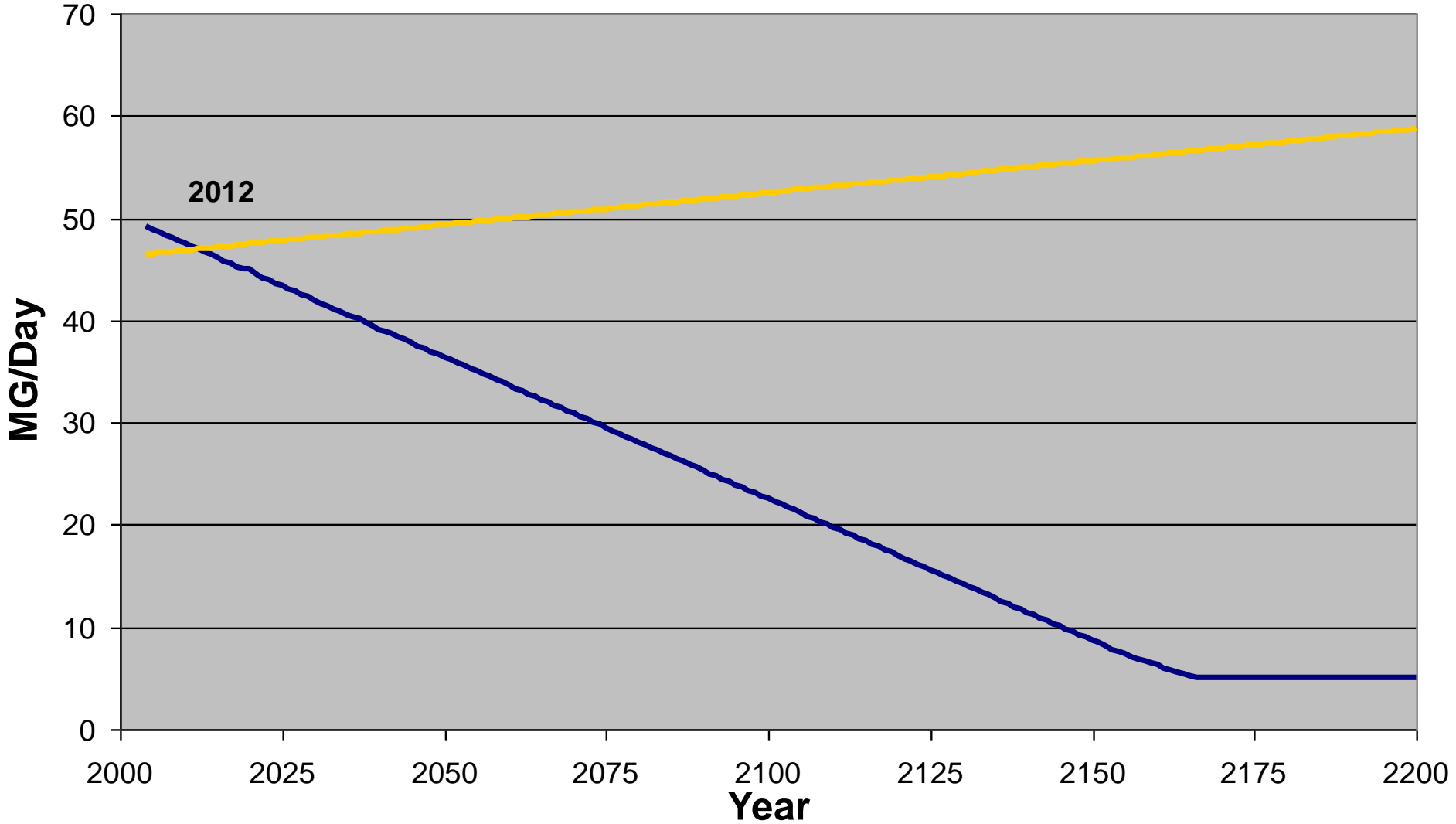
# LOST SURFACE AREA & CAPACITY





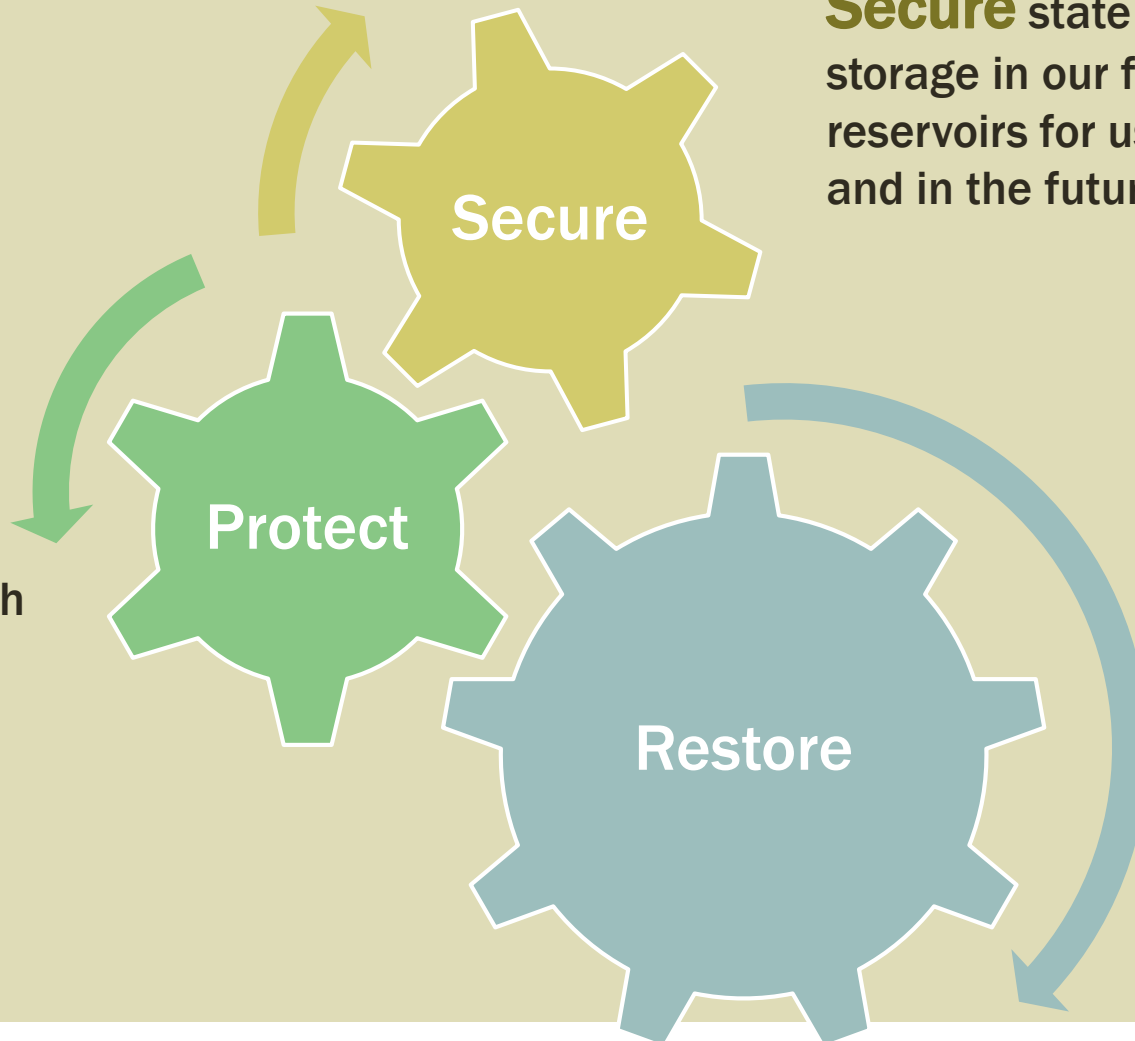
# Neosho Basin Projected Water Supply Storage and Demand

Supply (MGD) Demand (MGD)



# RESERVOIR SUSTAINABILITY INITIATIVE

**Protect** our investment and maintain healthy watersheds through conservation easements and streambank planning.



**Secure** state owned storage in our federal reservoirs for use now and in the future.

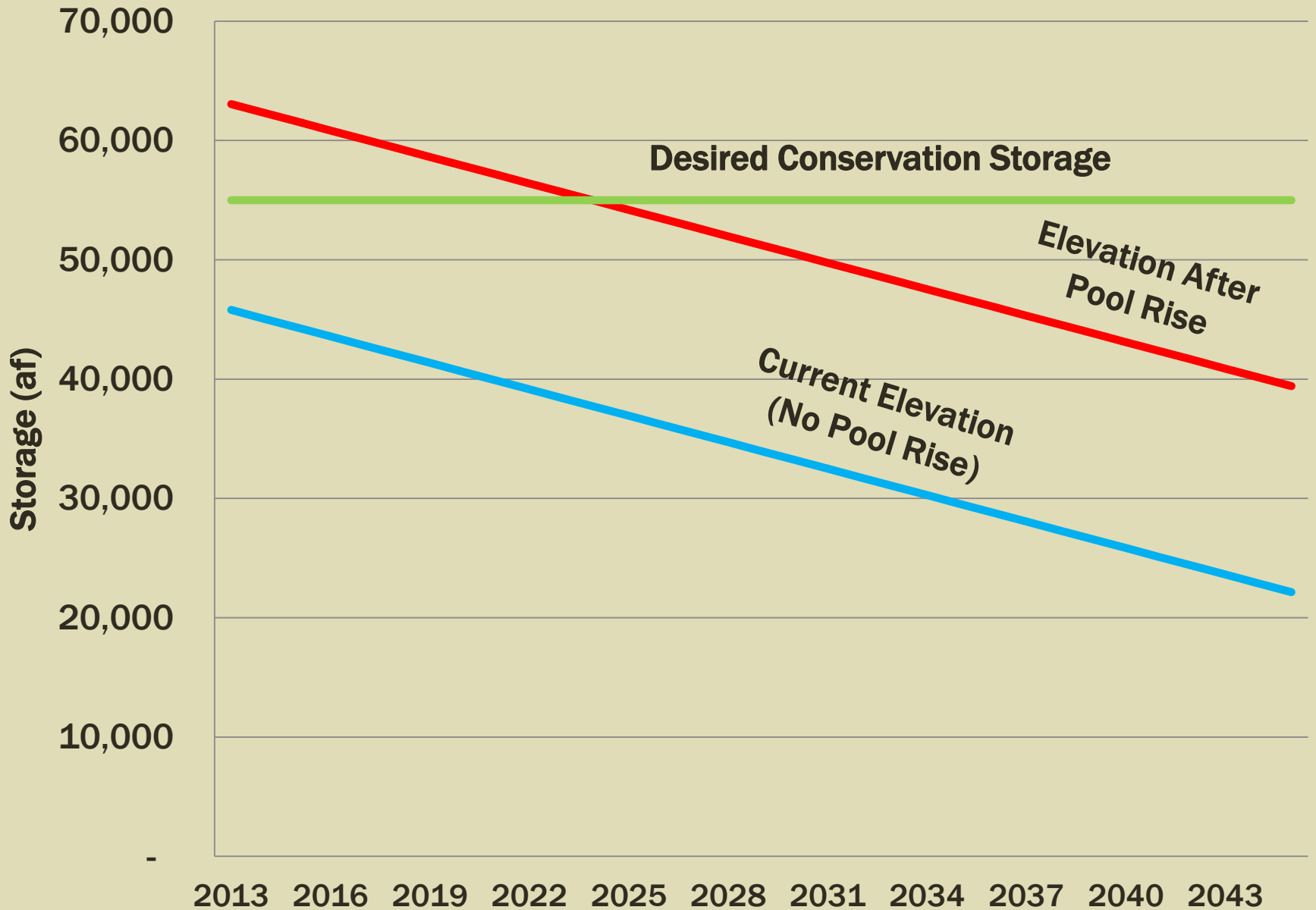
**Restore** impaired streams and riparian areas to extend the life of our reservoirs.

# KEY RESERVOIR SUSTAINABILITY ITEMS AT JOHN REDMOND

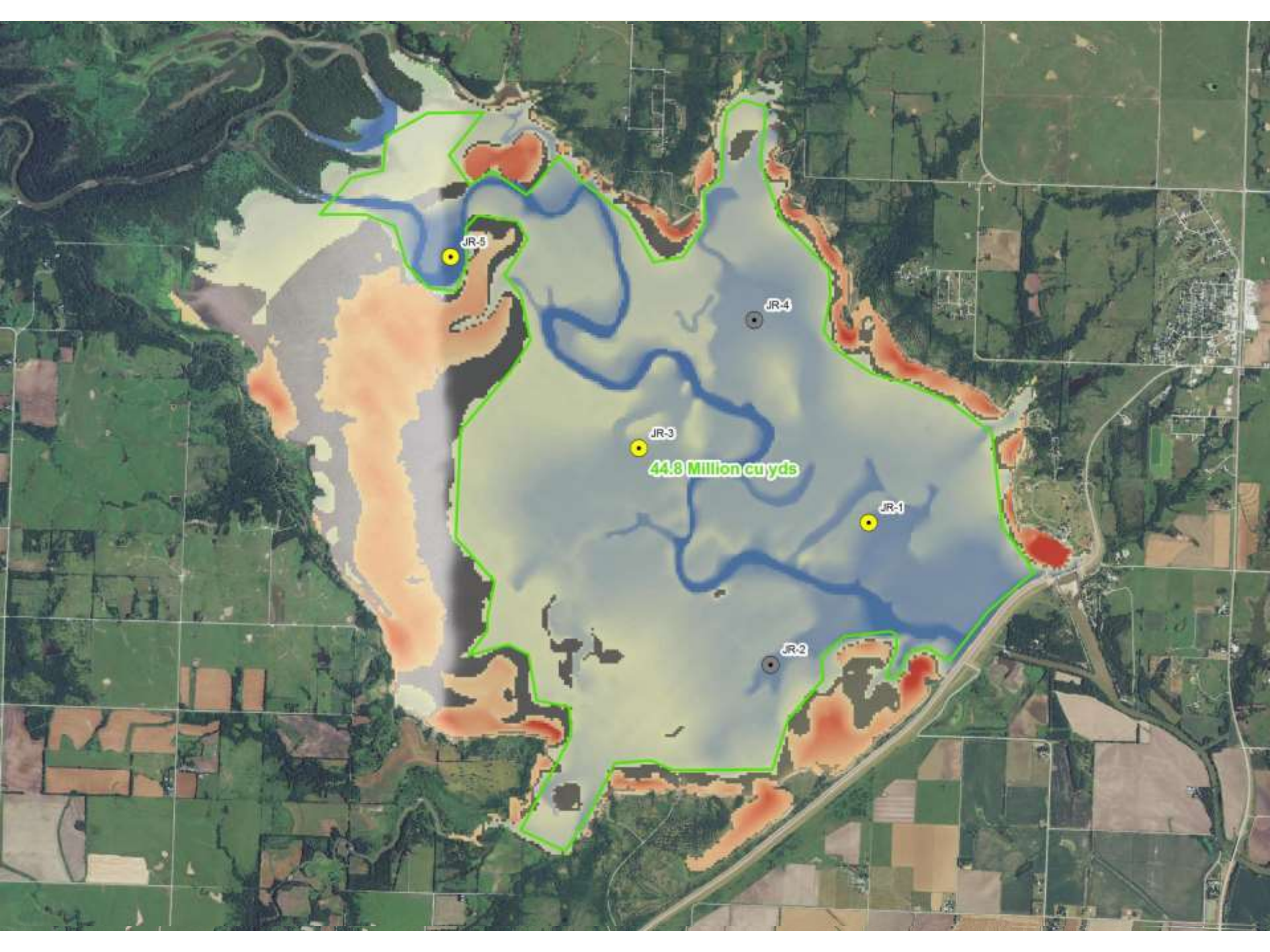
- Streambank Stabilization and other Best Management Practices
- Reallocation and Pool Raise



# John Redmond Conservation Storage







JR-5

JR-4

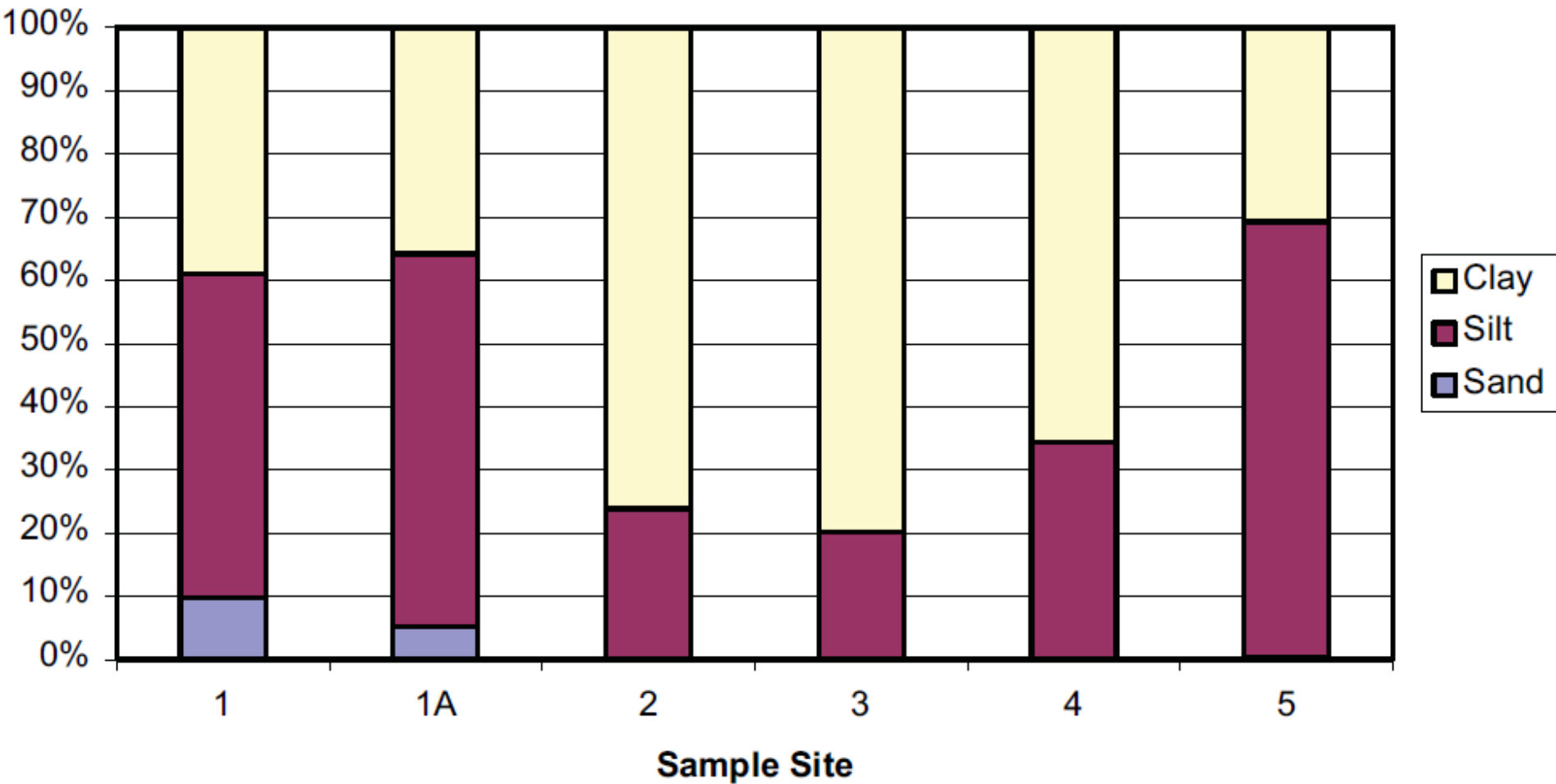
JR-3

44.8 Million cu yds

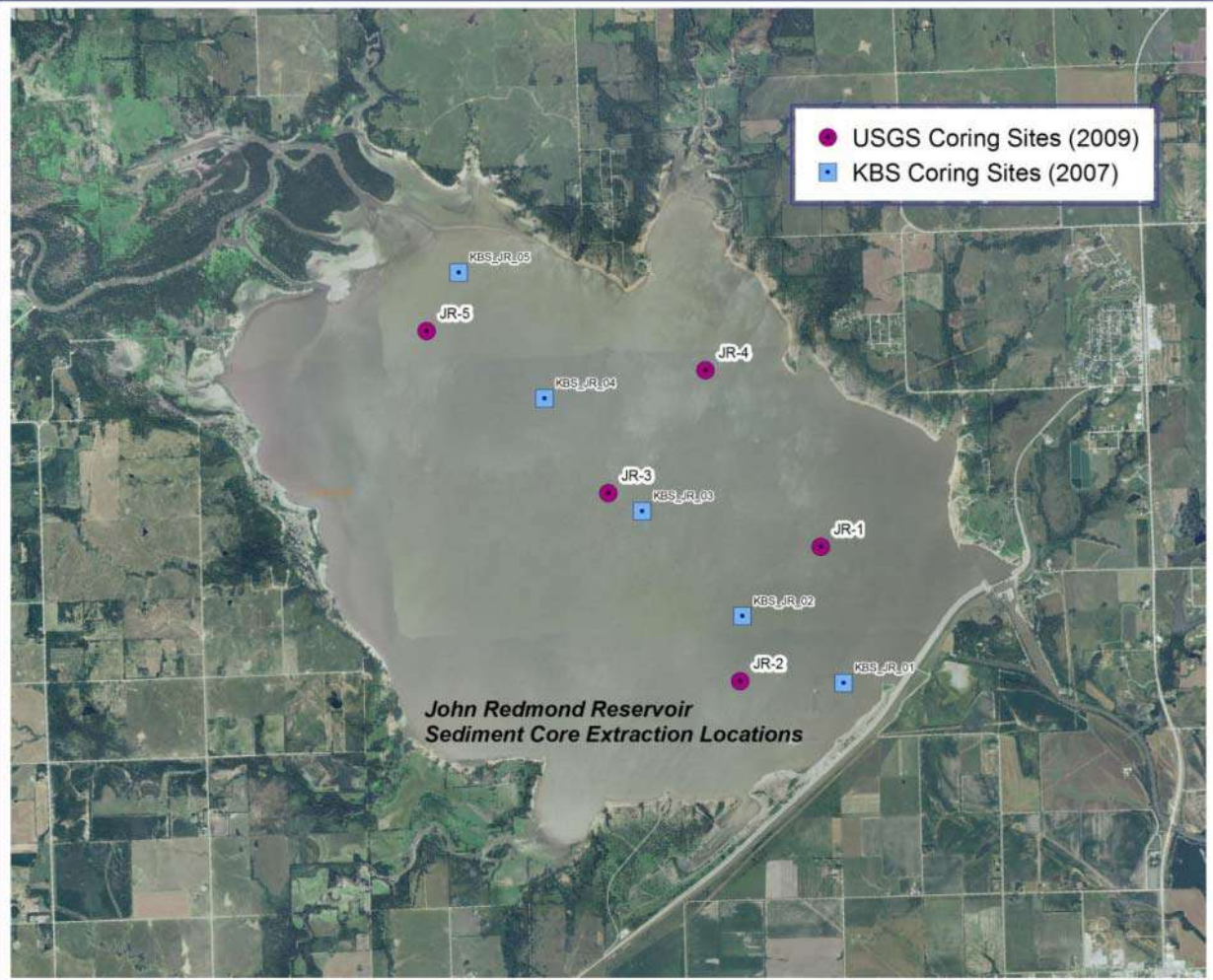
JR-1

JR-2

# SEDIMENT CONTENT







| Coring Site No. | Computed Mean Bulk Density (lb/ft <sup>3</sup> ) |
|-----------------|--|
| JR-1            | 36.6   |
| JR-2            | 36.6   |
| JR-3            | 35.8   |
| JR-4            | 43.8   |

| All Intervals/All Samples            | Arsenic (mg/kg) | Chromium (mg/kg) | Nickel (mg/kg) | Zinc (mg/kg) |
|--------------------------------------|-----------------|------------------|----------------|--------------|
| Median                               | 11              | 80               | 39             | 120          |
| Non-Residential Risk-Based Standards | 38              | 111              | 32,400         | 61,300       |

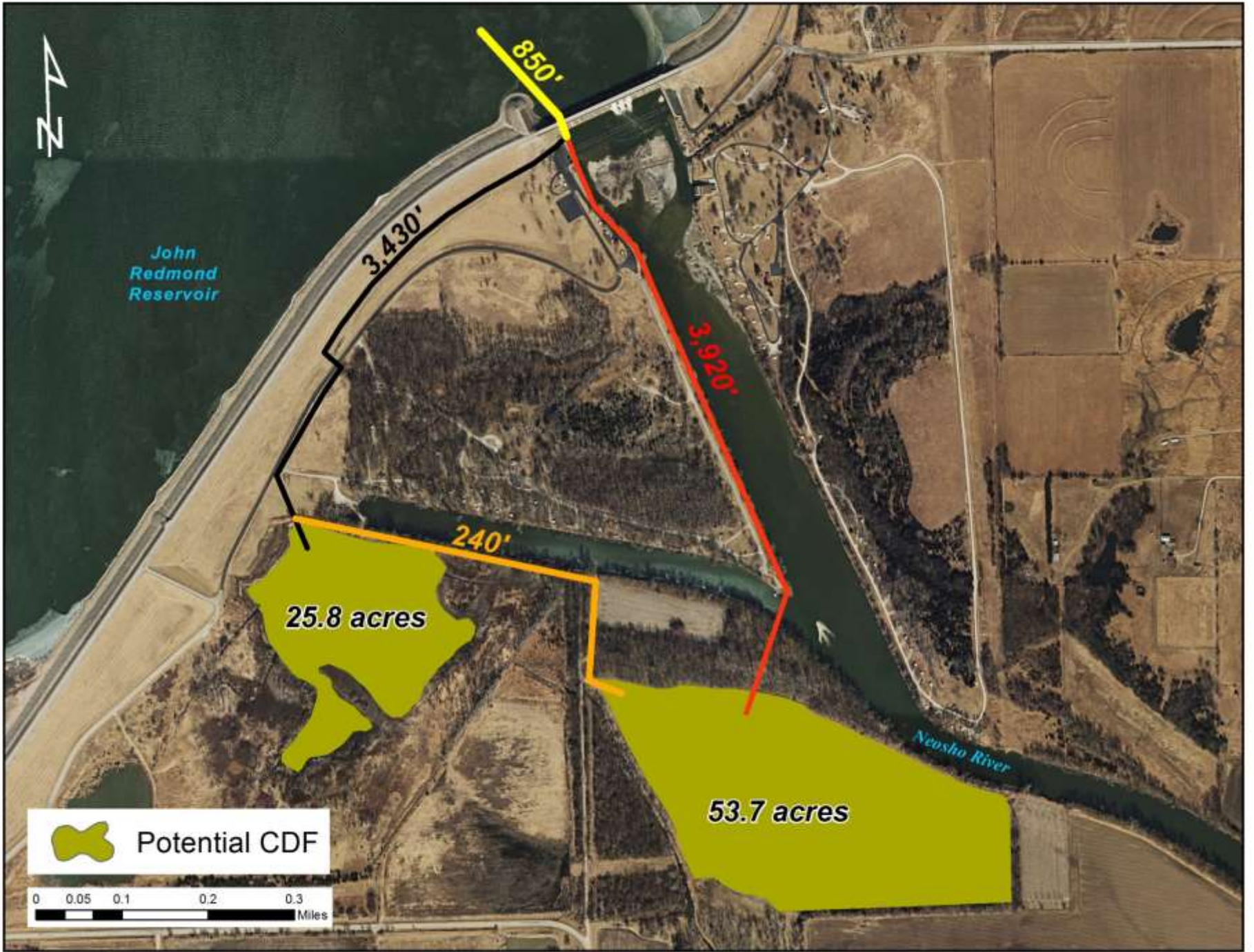
<http://pubs.usgs.gov/sir/2010/5191/pdf/sir2010-5191.pdf>



# SEDIMENT DISPOSAL

Non-Federal Properties





John Redmond Reservoir

3,430'

850'

3,920'

240'

25.8 acres

Neosho River

53.7 acres

 Potential CDF

0 0.05 0.1 0.2 0.3 Miles

# IMPLEMENTATION STEPS

- Environmental Impact Statement (EIS)
- Section 408 Request
- Design-Dredge Procurement
- Legislative Approval/Funding
- Environmental Permitting
- Public Information



# JOHN REDMOND DREDGING

## Successes

- Gained public & legislative understanding
- Opportunity to serve as example for future projects
- Building partnerships

## Challenges

- U.S. Army Corps of Engineers process
- Extensive review = extensive timeline
- Securing long-term funding





# QUESTIONS & DISCUSSION

Susan Metzger  
Kansas Water  
Office



[http://www.kwo.org/projects\\_programs/JohnRedmondDredging.html](http://www.kwo.org/projects_programs/JohnRedmondDredging.html)