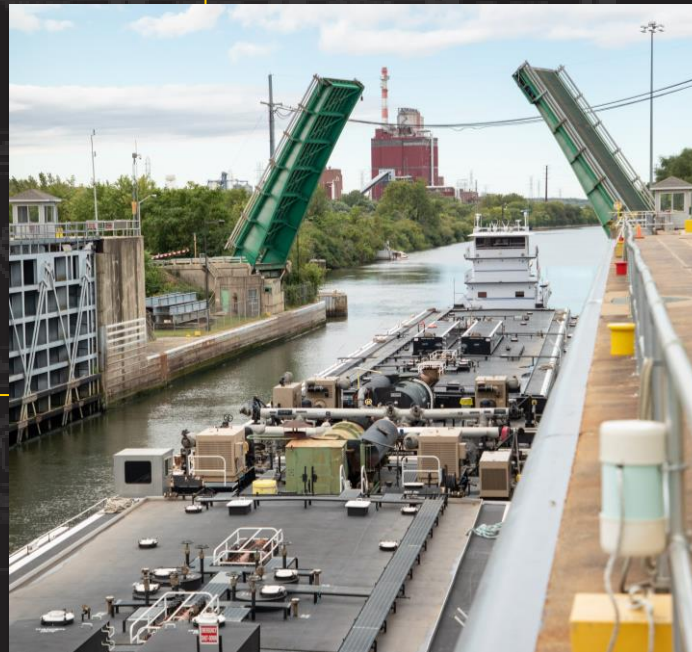


UPPER MISSISSIPPI RIVER RESTORATION – NORTHERN GRAIN BELT PORTS ANNUAL MEETING

Julie Millhollin
Rock Island District

Date: 5 October 2023



U.S. ARMY
US Army Corps
of Engineers®



U.S. ARMY

UPPER MISSISSIPPI RIVER RESTORATION PROGRAM

2



- WRDA 1986 authorized USACE to implement the UMRR to address the impacts of commercial and recreational navigation & rehabilitate degraded habitat
- For the past 35 years, the UMRR program has enhanced multiple-uses of the river and leveraged partnership-led management for ecosystem science and restoration



Primary UMRR Elements

- ❖ Habitat rehabilitation and Enhancement Projects (HREP)
- ❖ Long Term Resource Monitoring (LTRM)



U.S. ARMY

UPPER MISSISSIPPI RIVER RESTORATION PROGRAM



Upper Mississippi River System

- 1,200-mile commercially navigable river network
 - 29 Mississippi River locks & dams
 - Eight Illinois River locks & dams
 - Five National Wildlife Refuges
 - Five states
- Supports a mosaic of diverse and varied terrestrial and aquatic natural habitats, linking the Great Lakes and the Gulf Coast

NATURAL RESOURCES
Habitat projects have restored and connected more than 100,000 acres along the Upper Mississippi River, with an additional 65,000 acres of habitat projects planned for the next decade. These projects provide vital habitat for diverse fish and wildlife species, including rare and endangered species.

FISH & WILDLIFE

| | | |
|---------|------|-------|
| 50 | 154 | 325 |
| | | |
| mussels | fish | birds |

BIRDS
More than 40% of North American migrating birds use the Mississippi River corridor as their migration route. Restoring forests and wetlands improves bird habitat and provides opportunities for hunting and birdwatching.

AQUATIC LIFE
Wetlands and backwater lakes provide habitat for many valued fish and aquatic species. Millions of people enjoy fishing and boating on the Upper Mississippi River System each year.

FORESTS
Forest corridors provide habitat for wildlife species, opportunities for wildlife viewing and hunting, and connect communities and animals to the river. The health of floodplain forests and wet prairies along the river contribute to improved quality of drinkingwater for millions of people.

Legend:
 ◆ LTRM monitoring stations
 ▲ In-progress habitat projects
 ● completed habitat projects



U.S. ARMY



UMRR SUCCESS

- **Partnership Lead** success over 35 years
 - A partnership between a multitude of federal and state agencies, non-governmental organizations, and the public
 - UMRR **advanced the state of scientific monitoring and research** to better understand how the UMRS functions and changes
 - Completed **62 habitat restoration projects** that improved 119,720 acres of habitat in Illinois, Iowa, Minnesota, Missouri, and Wisconsin



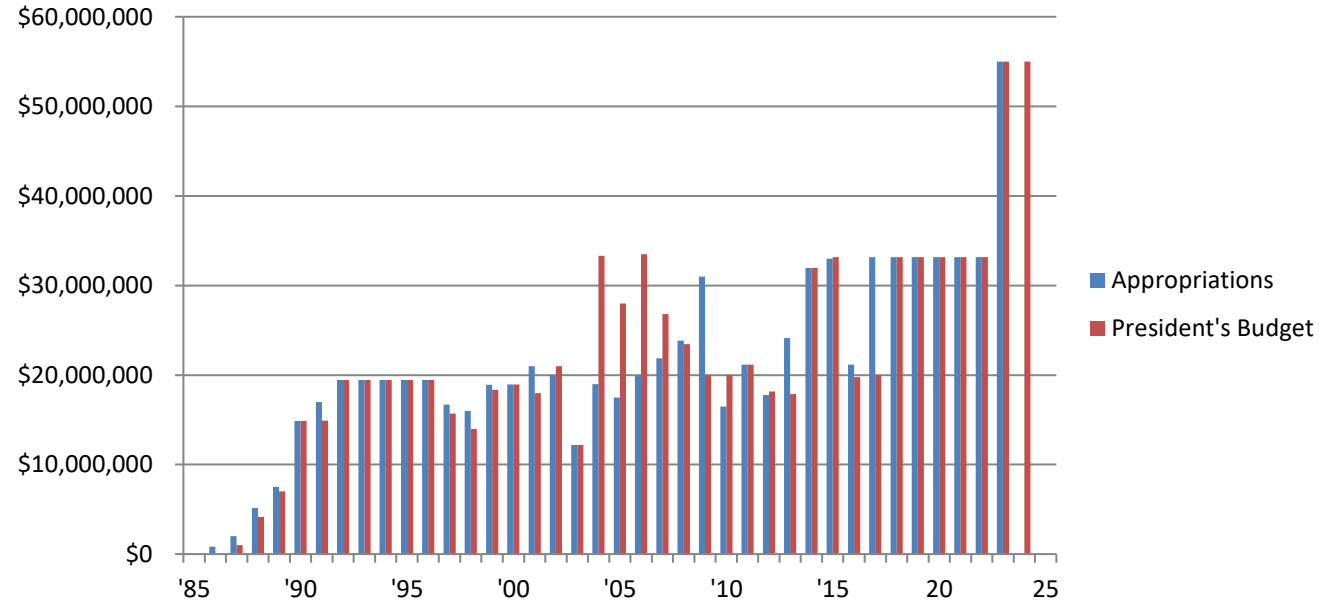


U.S. ARMY



FUNDING

- From 2018-2022, Congress has funded the program to levels matching UMRR’s full authorized annual amount of \$33.17 million
- WRDA 2020 increased Authorization \$55M (HREP = \$40M / LTRM = \$15M)
- FY 23 \$55M Appropriation
- WRDA 2022 Authorization \$90M (HREP = \$75M / LTRM = \$15M)
- FY 24 Presidents Budget \$55M



| Fiscal Year | Total Obligated |
|----------------------------|---------------------|
| 2011- 2016 Average | 97.0 percent |
| 2017 | 92.0 percent |
| 2018 | 99.1 percent |
| 2019 | 99.1 percent |
| 2020 | 98.5 percent |
| 2021 | 98.8 percent |
| 2022 | 98.5 percent |
| 2017 - 2022 Average | 97.7 percent |



U.S. ARMY

HABITAT REHABILITATION AND ENHANCEMENT PROJECTS



Submerged and Emergent Aquatic Vegetation Restoration MVP, MVR, and MVS



Pool 8 Island Restoration MVP



Beaver Island Protection MVR

**1986-2022: 62 Completed Projects
119,720 Acres**



McGregor Lake Beneficial Use Island Creation MVP



Pool 12 Forest Restoration MVR



Clarence Cannon Water Control Structure MVS



Lake Odessa Water Level Management MVR

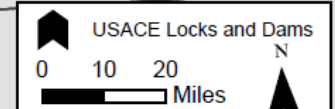
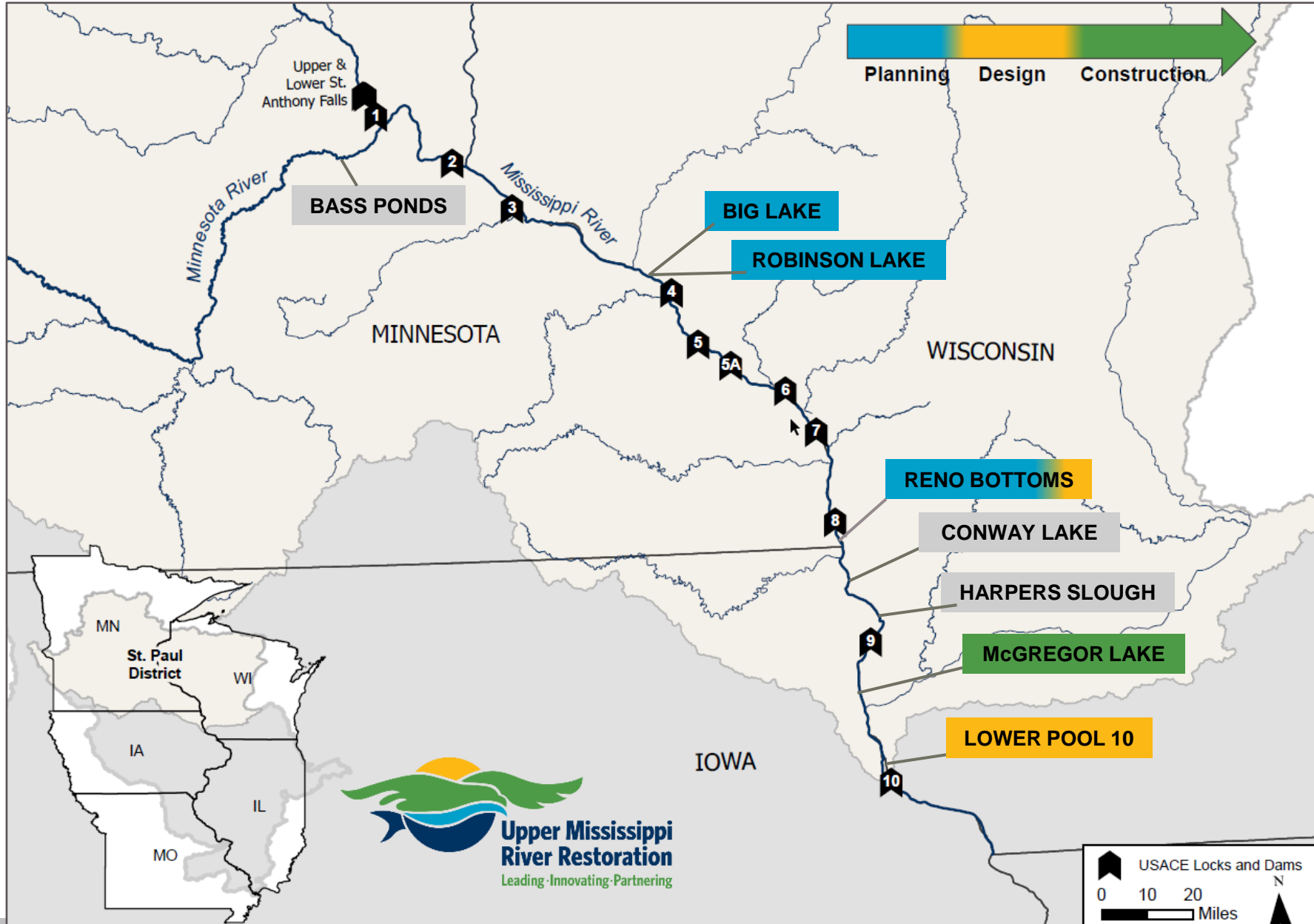




U.S. ARMY



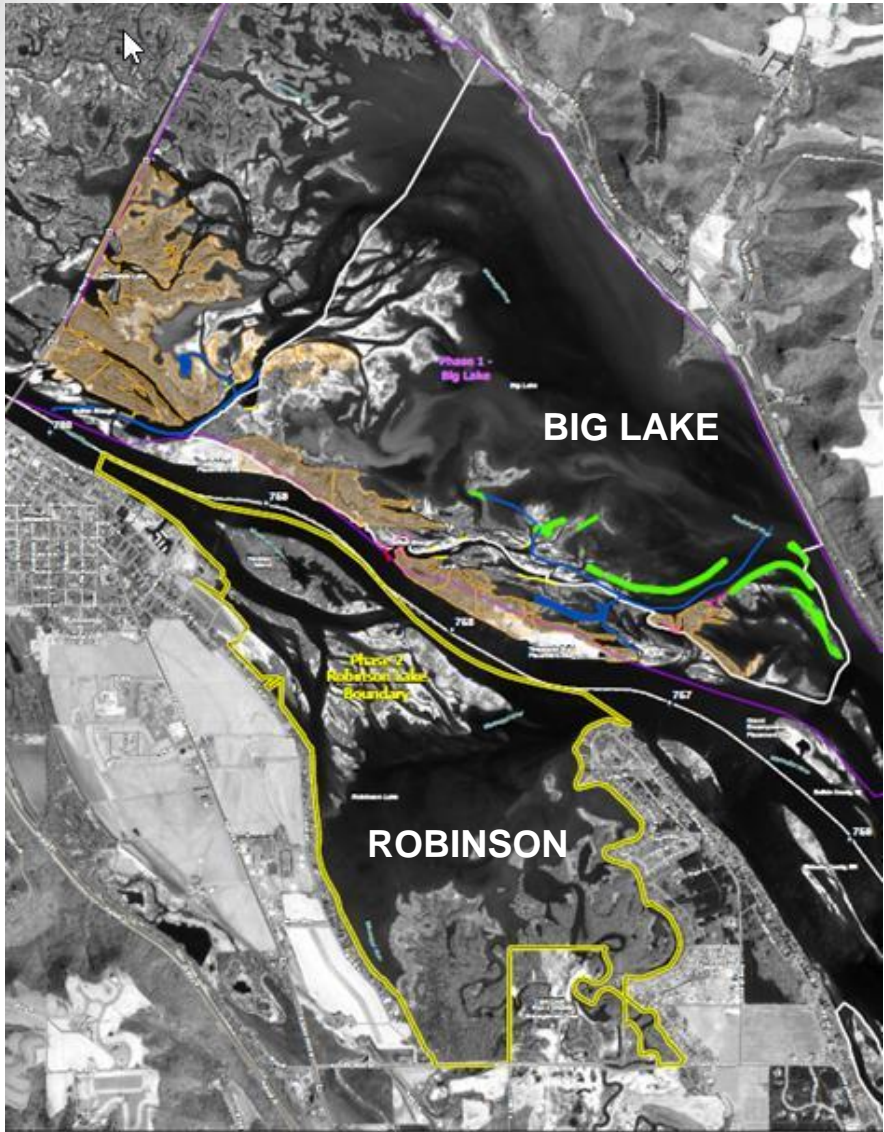
HREP ACTIVITY





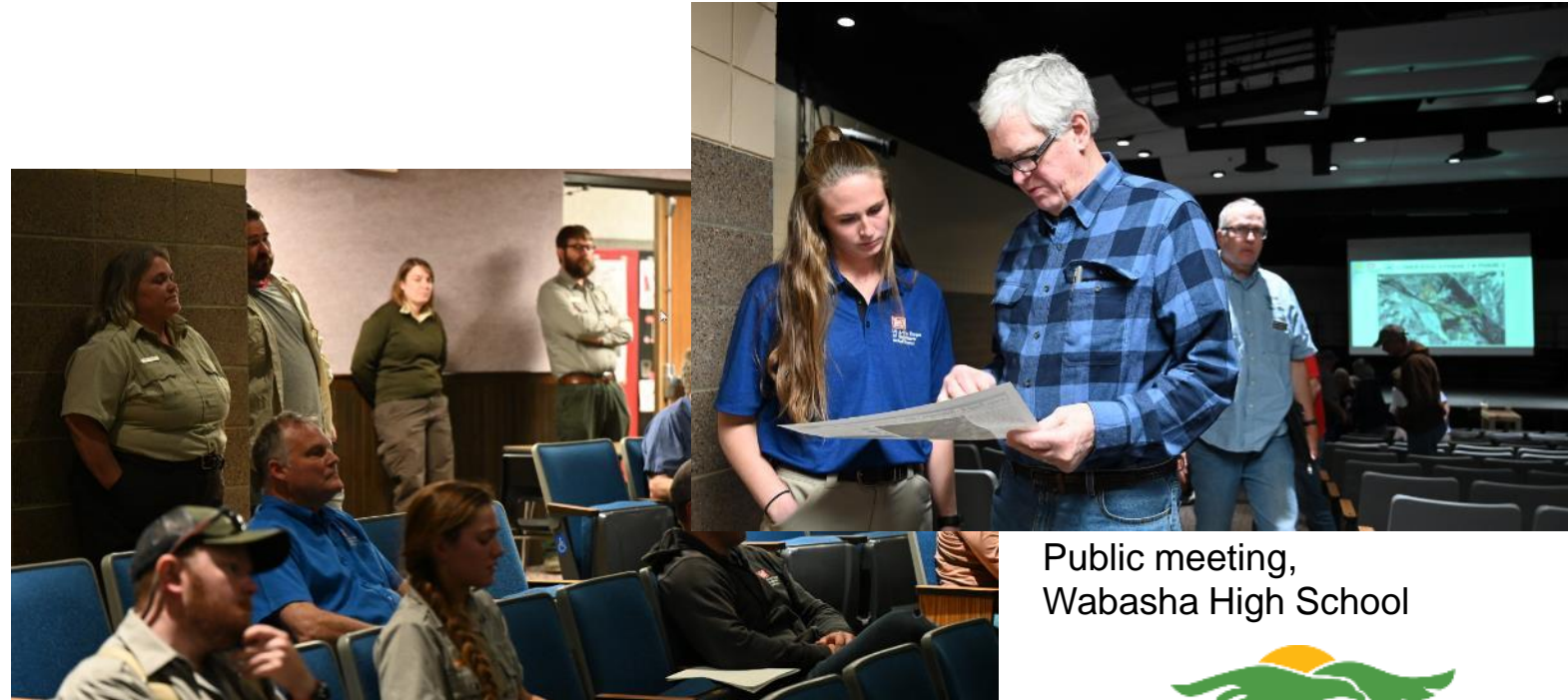
U.S. ARMY

ROBINSON & BIG LAKE HREPS



Status: 2 Feasibility Reports underway

- Robinson Lake – Developing measures and alternative plans
- Big Lake – Tentatively Selected Plan approved, internal reviews of draft Feasibility Report, public review this Fall



Public meeting,
Wabasha High School





U.S. ARMY

RENO BOTTOMS HREP

Status: Plans & Specs underway

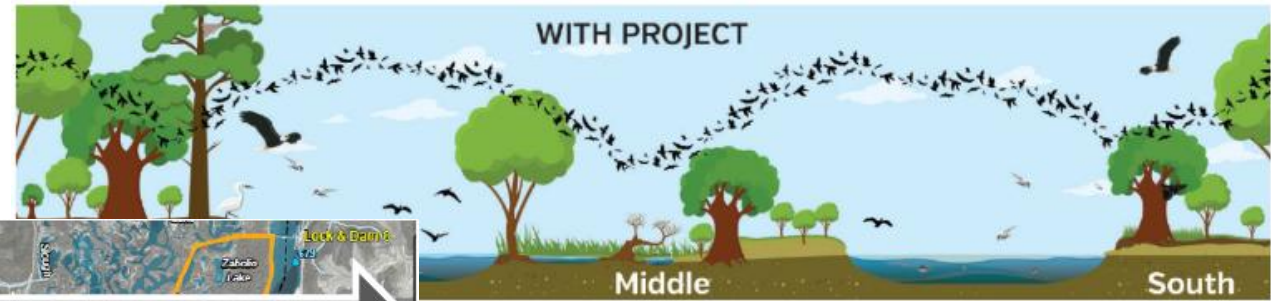
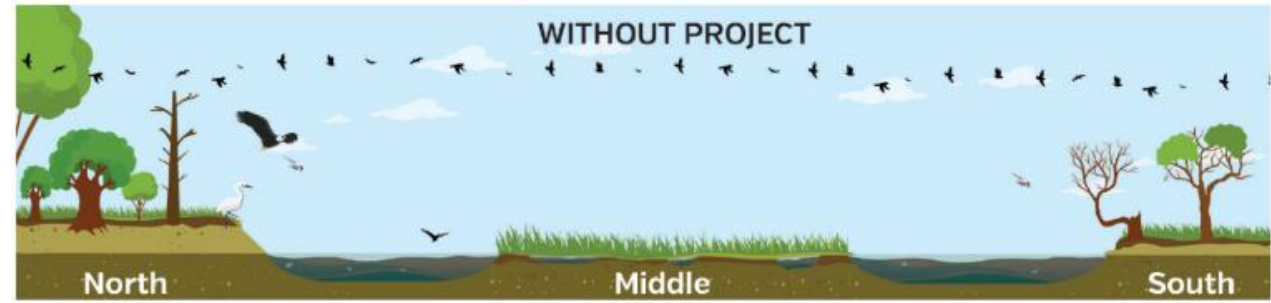
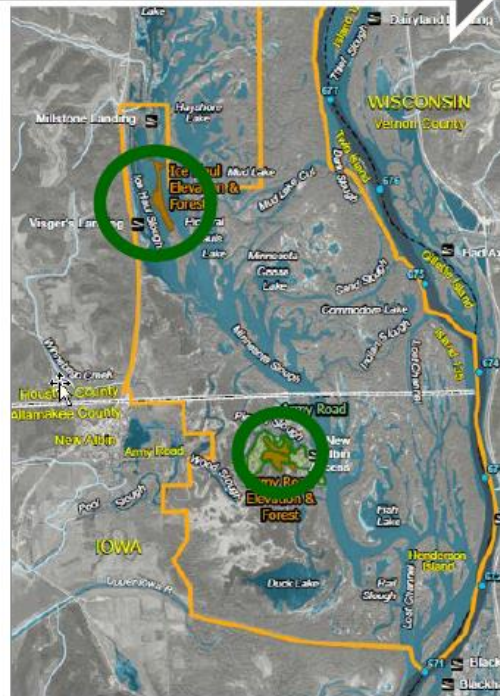
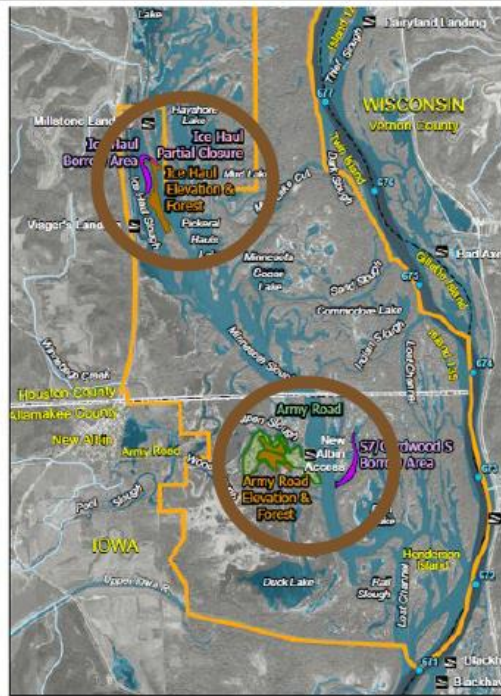
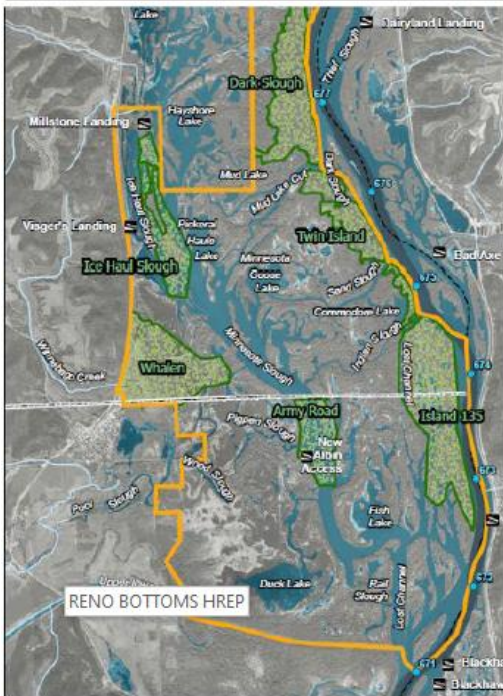
- Value Engineering Study completed
- AE Design award Q1
 - 3 Construction Stages:



Forestry →

Earthwork →

Tree planting



Tree Mortality





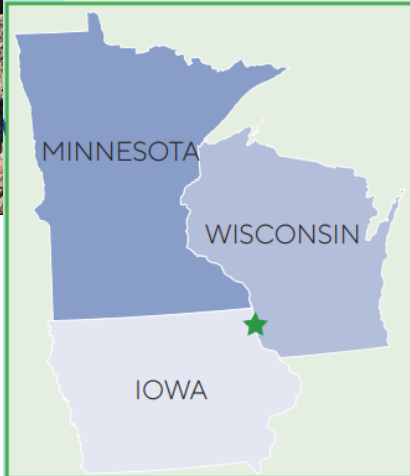
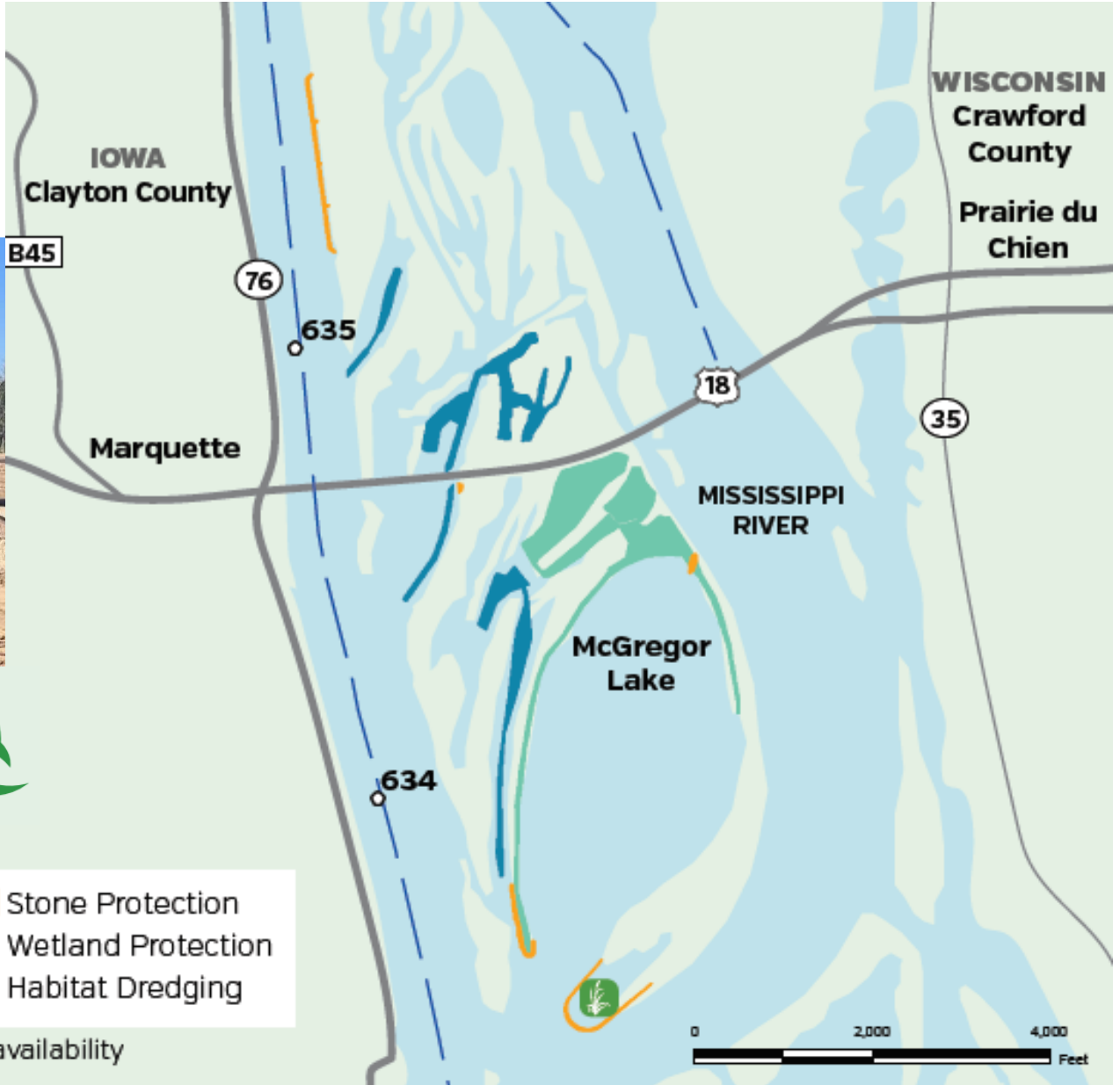
U.S. ARMY



MCGREGOR LAKE HREP

Status: Active Construction

- Fall: thin layer placement
- Completion scheduled for next year



Proposed Project Features

- River Mile
- Navigation Channel
- Floodplain Forest
- Stone Protection
- Wetland Protection
- Habitat Dredging

Features are subject to funding availability



U.S. ARMY

➤ *Project dedications last year*

HARPERS & CONWAY COMPLETED



Status:

- Tree plantings completed
- Both projects successfully turned over to the USFWS for operation & maintenance
- Conway Lake: follow-up vegetation control for 1 more year





U.S. ARMY

FUTURE HREP SELECTION

12



- Optimize investment in restoring, rehabilitating, and maintaining the quantity and quality of fish and wildlife habitat leading to a healthier and more resilient Upper Mississippi River ecosystem.
- Ensure that UMRR habitat projects address UMRS ecological needs at pool, reach, and system scales by building on existing HREP sequencing mechanisms and integrating the Habitat Needs Assessment-II (HNA-II) and other planning efforts into project selection.
- Enhance public understanding of and trust in the decision-making process by making HREP evaluation criteria explicit, transparent, and consistent.
- Retain the flexibility necessary to ensure efficient, effective program execution and apply adaptive management principles to project planning, design, and implementation.





FUTURE HREP SELECTION



- **What:** UMRR is seeking input on new projects for potential implementation in the 2026 -2030 timeframe.
- **Overall schedule:** Now through May 2025.
- **What are we looking for?:** What are the environmental problems or opportunities you are aware of in a particular part of the river (erosion, sedimentation, forest loss, wetland loss or degradation, etc.).
- **Who do I contact?:** UMRR-MVR-HREP@usace.army.mil or 309-794-5447



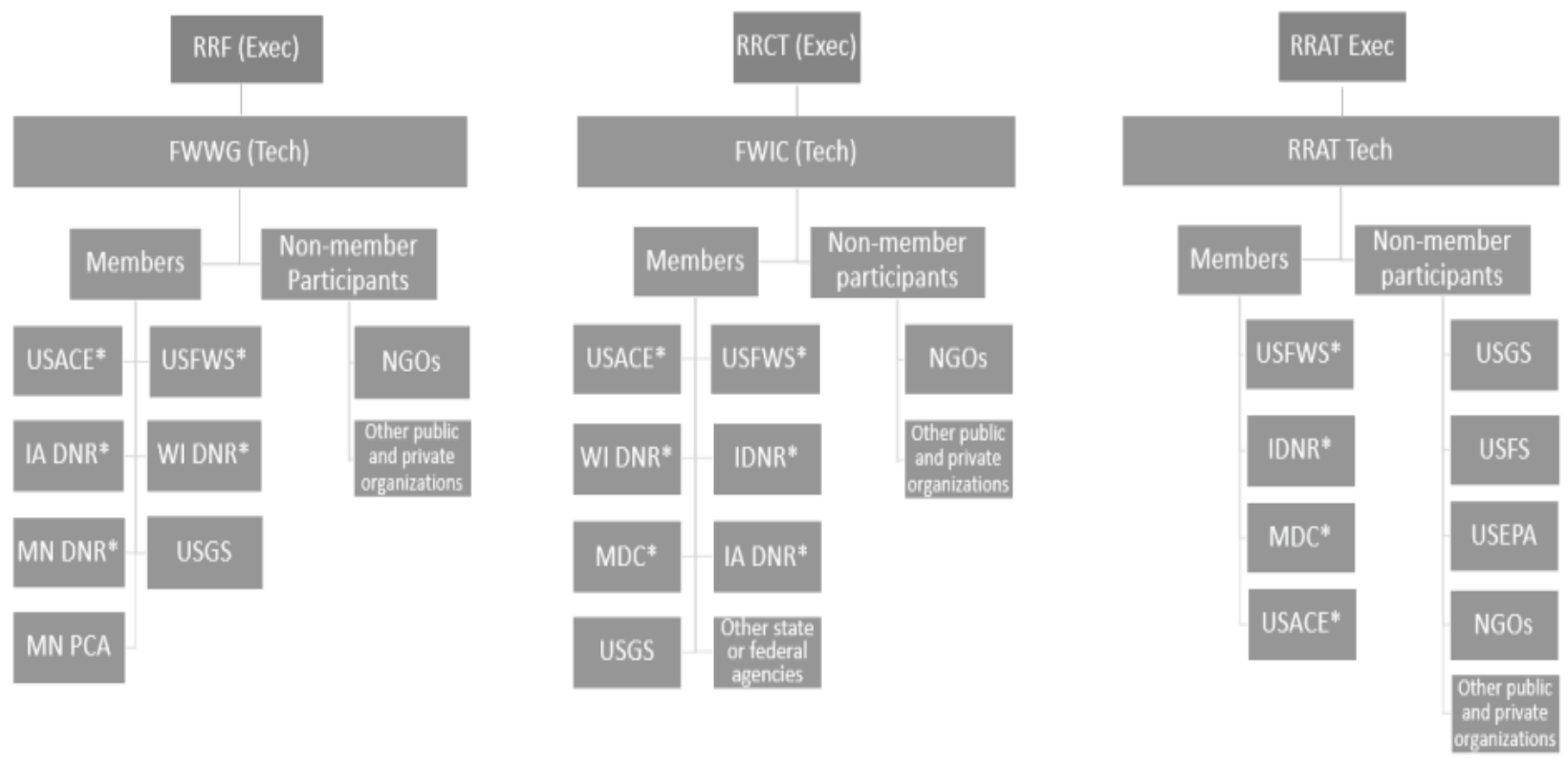


Figure 2. Organizational structure of the District River Teams.
 * Denotes voting members.



U.S. ARMY

LONG TERM RESOURCE MONITORING ELEMENT



Long-term monitoring of 6 study reaches (by 5 state agencies)

- Water quality (1993 - present)
- Aquatic vegetation (1998 - present)
- Fish (1993 – present)

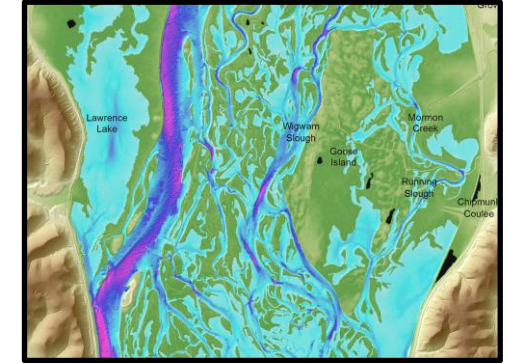
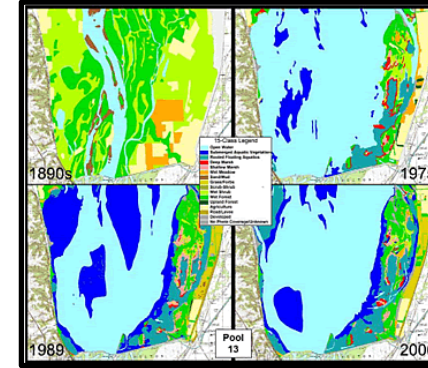


- Assess ecological status and trends of UMRS
- Understand the structure and function of the ecosystem and its ecological resilience
- Inform the restoration and management of the UMRS



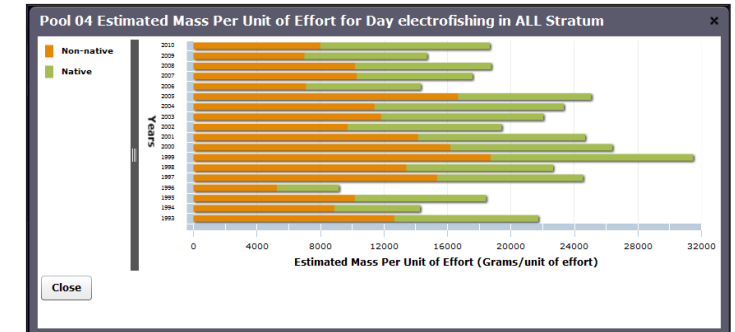
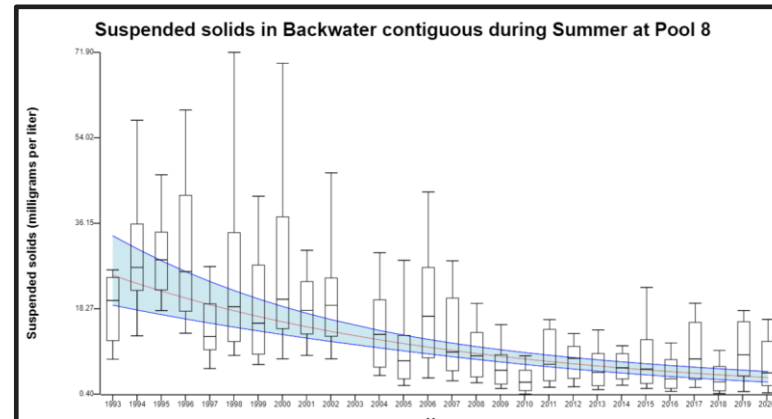
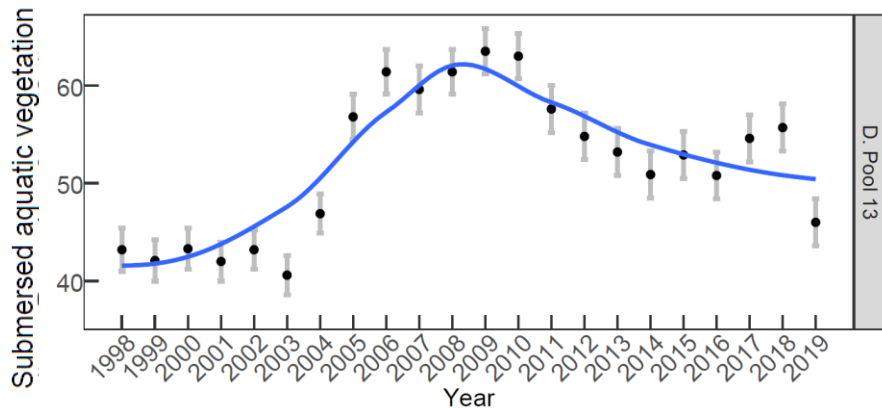
USGS Science Lead

Systemic land cover data--Seamless elevation data



Data and Information Delivery

<https://umesc.usgs.gov/ltrm-home.html>





2022 STATUS AND TRENDS REPORT



- **Twenty-five years of Long-Term Resource Monitoring data** illustrates the fundamental role of science and management of large floodplain river systems.
- The most widespread long-term trend was the **increase in discharge** (the flow rate of water through a given area) observed throughout the Upper Mississippi River System.
- The Upper Mississippi River System is a large and diverse ecosystem with many regional differences. Long term **monitoring has captured changes occurring differently and at different rates** within the river system.

| Indicator | | Upper Mississippi River | | | | Illinois River | | |
|--------------------|---|-------------------------|--------|---------|-----------------|----------------|-----------|---|
| | | Upper Impounded | | | Lower Impounded | Unimpounded | | |
| | | Pool 4 | Pool 8 | Pool 13 | Pool 26 | Open River | La Grange | |
| Water quality | Main channel suspended solids (flow-normalized) | ▼ | ▼ | ■ | ▼ | ▼ | ▼ | |
| | Main channel nutrients (flow-normalized) | Nitrogen | ■ | ■ | ▲ | ■ | ■ | ▼ |
| | | Phosphorus | ▼ | ▼ | ▼ | ▼ | ■ | ■ |
| | Chlorophyll a (algae) | Main channel | ~ | ■ | ■ | ■ | ■ | ~ |
| | | Backwater | ~ | ▼ | ■ | ■ | ◆ | ■ |
| | Backwater hypoxia | Summer | ~ | ~ | ~ | ~ | ◆ | ~ |
| Winter | | ▲ | ~ | ~ | ■ | ◆ | ■ | |
| Aquatic vegetation | Submersed aquatic vegetation prevalence | ▲ | ▲ | ~ | ■ | ◆ | ■ | |
| | Invasive submersed species | ▼ | ▼ | ▼ | ◆ | ◆ | ◆ | |
| | Aquatic vegetation diversity | ~ | ▲ | ~ | ■ | ◆ | ■ | |
| | Free-floating plant dominance | ▼ | ▼ | ▼ | ◆ | ◆ | ◆ | |
| | Emergent vegetation | ▲ | ▲ | ■ | ■ | ◆ | ■ | |
| Fisheries | Fish community | ■ | ■ | ■ | ■ | ■ | ■ | |
| | Lentic fishes | ▲ | ▲ | ■ | ■ | ▲ | ▼ | |
| | Lotic fishes | ■ | ■ | ■ | ■ | ■ | ■ | |
| | Nonnative fishes (excluding <i>Cyprinus carpio</i> [common carp]) | ■ | ■ | ■ | ▲ | ■ | ▲ | |
| | Forage fishes | ▼ | ■ | ■ | ▼ | ▼ | ▼ | |
| | Recreationally valued native fishes | ■ | ▲ | ▲ | ▼ | ■ | ▼ | |
| | Commercially valued fishes | Native | ■ | ▲ | ▲ | ■ | ■ | ▼ |
| | | Nonnative | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ |

EXPLANATION

▲ Significant long-term increase ▼ Significant long-term decrease ■ No trend ◆ No data available or analyzed ~ Dynamic trend or midperiod minimum

