

Upper Mississippi River Restoration Program Coordinating Committee Quarterly Meeting

November 16, 2022

Highlights and Action Items

Program Management

- **UMRR achieved an execution rate of 98.4 percent, obligating \$32.927 million of its \$33.17 million FY 22 funds. UMRR averaged a 97.7 percent execution rate from 2017 to 2022.** Regional science and monitoring obligations reflect pre-funding of the FY 23 scope of work to ensure continuity of funding across fiscal years.
- **On September 30, 2022, Congress passed a continuing resolution authority (CRA) extending current funding levels of the federal government until December 16, 2022. The President's FY 23 budget as well as the House and Senate FY 23 energy and water appropriations bills include \$55 million for UMRR. UMRR is proceeding with executing the Program at the \$55 million level. The final FY 23 appropriation is not yet known.**
- **The FY 23 draft plan of work for UMRR at a \$55 million funding scenario is as follows:**
 - Regional Administration and Program Efforts – \$1,550,000
 - Regional management – \$1,280,000
 - Program database – \$100,000
 - Program Support Contract – \$120,000
 - Public Outreach – \$50,000
 - Regional Science and Monitoring – \$15,450,000
 - Long term resource monitoring – \$5,500,000
 - Regional science in support of restoration – \$8,350,000
 - Regional science staff support – \$200,000
 - Habitat evaluation (split across three districts) – \$1,275,000
 - Report to Congress – \$125,000
 - Habitat Restoration – \$38,000,000
 - Rock Island District – \$11,148,000
 - St. Louis District – \$13,502,000
 - St. Paul District – \$13,250,000
 - Model certification – \$100,000

At a \$55 million funding level, regional science in support of restoration would increase from approximately \$3.8 million to \$8.3 million and habitat restoration funding in each district would increase from between \$6 million and \$7 million to between \$11 million and \$13 million.

- **The Senate WRDA 2022 draft language includes an annual appropriation authorization increase for the HREP element of UMRR from \$40 million to \$75 million. With LTRM's authorized**

appropriation level of \$15 million annually, the total UMRR annual authorized funding level would be \$90 million.

- Updates to the UMRR 10-year implementation plan include adding Robinson Lake HREP to MVP, and extending schedules for Green Island, Harlow, and Oakwood Bottoms. **Twelve projects are anticipated to be in feasibility in FY 23, requiring considerable staff time from implementing partners. Increased appropriations would result in accelerated project schedules and expedited need for another project selection process. The next HREP selection process is anticipated to begin in calendar year 2024.** A UMRR and NESP program-neutral selection process was completed in 2009 and may be considered again to make efforts most efficient and complimentary.
- The second in-progress review of the 2022 UMRR Report to Congress with USACE Headquarters was held on August 29, 2022. MVD and USACE HQ then completed an initial review of the draft 2022 UMRR Report to Congress resulting in mostly editorial comments to improve clarity. **The revised report was routed to MVD and USACE HQ on November 9, 2022 for final approval. Marshall Plumley will distribute the finalized report to UMRR Coordinating Committee members in the coming weeks. The delivery of the report to Congress is anticipated in December 2022. A four-page handout will be developed to summarize the report. A small group will be convened to help develop key messages and talking points for the report to help partners communicate about the report release in spring 2023.**
- USACE will continue to fully integrate environmental justice into all aspects of its programs, including planning, design, construction, and operations and management. **Additional USACE guidance on environmental justice is anticipated in late November 2022. Following UMRR CC discussion at the August meeting and at the request of the UMRR Regional Program Manager, UMRBA staff sent an email to the UMRR Coordinating Committee on October 6, 2022 to designate staff from their respective agencies to participate in an *ad hoc* group to consider UMRR's roles in environmental justice.** The *ad hoc* group's first steps will include sharing their respective agencies' perspectives on approaches and best practices, methods, and tools related to environmental justice in their work and discussing how UMRR currently approaches environmental justice through habitat rehabilitation and enhancement projects. **A request for availability for the first discussion is anticipated to be sent in the coming weeks after all agencies have identified participants.**
- On August 31, 2022, the Coordinating Committee met to discuss revisions to the draft implementation issue papers. **On September 21, 2022, UMRBA staff sent an email asking Coordinating Committee members to identify supported and preferred actions to address each issue. On November 10, 2022, UMRBA staff distributed finalized implementation issue papers to the UMRR Coordinating Committee with draft recommendations removed. In the coming months, the Coordinating Committee will convene a meeting to establish broad consensus on the recommended suite of alternatives to address implementation issues and consider lead agency and personnel for each action to be pursued.**
- **A draft of the UMRR 2015-2025 Strategic Plan review report is nearly complete.** The report identifies what the program has done well and priority actions to fulfill the strategic plan. **A finalized report is anticipated to be submitted to UMRR Coordinating Committee members in the coming weeks. A meeting will be convened to review and discuss the results.** This meeting will likely be held on conjunction with the meeting to discuss the implementation issues papers.

Status and Trends

- UMRBA staff are coordinating the development of a series of five two-page flyers related to findings presented in the 2022 UMRR LTRM status and trends report and are creating a plan for disseminating

flyers to the UMRR partnership and media outlets. Topics include fisheries, water quality and nutrients, floodplain forest loss, aquatic vegetation, and sedimentation. **A finalized version of the fisheries flyer was presented to the UMRR Coordinating Committee in the meeting agenda packet and drafts of the sedimentation and floodplain forest loss flyers are in development.** During various stages of development, flyers are reviewed by the report authors, UMRR Communications and Outreach Team, and A-Team members. Final draft versions are presented to the UMRR Coordinating Committee.

Communications

- Using insights gained from the 2022 UMRR LTRM status and trends report release, the UMRR Communications and Outreach Team (COT) developed a set of best practices and drafted a six-month schedule template for similar future efforts. Recommendations include identifying key partners involved and their respective needs early in the process as well as intended communication methods and modes of dissemination to various stakeholder groups. When possible, messages should be tailored to specific geographic areas and anticipated FAQs should be developed prior to a press release.
- Future COT activities include developing communications materials to support publication of the 2022 UMRR Report to Congress, updating the UMRR communications and outreach plan, completing the UMRR video series, creating a communications inventory, and cooperating with advanced communications planning efforts around the 100th Anniversary of the Upper Mississippi River National Wildlife and Fish Refuge in 2024.

UMRR Showcase Presentations

- Jennie Sauer presented LTRM accomplishments in FY 22, as follows:

Partnership

- Collaboration with agencies on newly planned ecological assessment programs on the Columbia and Hudson River systems
- Collaboration with UMRR HREPs, including the Big Lake, Pool 4, and Lower Pool 13
- Successful completion of the UMRR 2022 virtual science meeting with over 100 participants representing 17 different agencies and organizations
- Contributions to future generations of scientists, including the water quality lab hosting 60 interns over the last 30 years and multiple graduate student research projects utilizing LTRM fish data.
- Completion of monitoring of the Illinois Waterway consolidated closure
- LTRM implementation planning efforts

Publications

- Multiple publications based on 29 years of LTRM monitoring of fisheries and water quality and 24 years of aquatic vegetation monitoring, including the 2022 UMRR LTRM status and trends report and subsequent media coverage
- Advancing the UMRS resilience assessment including a new publication using the resist-accept-direct framework
- Development of a manuscript regarding side channel classification based on fish associations with physical metrics currently in review

New Methods, Tools, and Procedures

- Successful upgrade of ScanLog/data transfer to sFTP
- Ongoing renovation of the LTRM water quality lab and temporary move to University of Wisconsin-La Crosse
- Creation of methods for high-accuracy mapping of emergent vegetation (wild rice) using UAS assets
- Land cover/use (LCU) 2020 mapping
- Mapping potential sensitivity to hydrogeomorphic change in the UMRS riverscape and development of supporting GIS database and query tool
- Refining the framework of Upper Mississippi River's ecosystem states based on predictions of plant distribution (and why) on the landscape and areas with high restoration potential
- Systematic analysis of hydrogeomorphic influences on native freshwater mussels including establishing population estimates in Pools 8 and 13
- Modeling projected patterns of forest recruitment and succession with and without inhibition of forest regeneration in areas currently occupied by invasive reed canary grass under different hydrologic scenarios

Continuation of Important Work

- Ongoing work related to vital rates, genetics, and microchemistry of UMRS fishes
- Ongoing efforts to improve understanding of historic, contemporary, and future UMRS hydrology including development of a database template for historic and contemporary daily water service elevations at UMRS USACE gages.
- **Marshall Plumley presented Jennie Sauer with the Commanders Award for Public Service to recognize her exceptional service to UMRR and LTRM over 30 years.**
- District HREP managers presented on HREP accomplishments in FY 22, as follows:
 - MVP's FY 22 accomplishments include three ribbon cuttings to celebrate completion of Bass Ponds, Harpers Slough, and Conway Lake HREPs. Two accomplishments outside of UMRR include beneficially using dredged material at Pigs Eye Lake, a CAP 204 project, to create six islands and selection of Upper Pool 4 Islands as a CAP 1122 pilot project. The project will add islands to upper Lake Pepin. MVP public affairs created five videos and multiple social media posts featuring HREPs and participated in the UMRR Earth Day campaign.
 - MVR's FY 22 accomplishments include advancing feasibility studies on four HREPs, awarding a construction contract for Steamboat Island, and completing construction of Keithsburg Stage I and Stage IIA as well as various components of the Beaver Island HREP. The district developed a ribbon cutting video to celebrate completion of the Pool 12 Overwintering HREP. Aquatic vegetation plantings at Huron Island have been successful and blanket purchase agreements have advanced tree planting and clearing as well as timber inventory efforts in the District. MVR public affairs created three videos and featured multiple social media posts on UMRR and LTRM activities.
 - MVS's FY 22 accomplishments include advancing construction on three HREPs, design on two HREPs, and feasibility on two HREPs. The sediment deflection berm was completed at Crains Island, UMRR's first open river project, and pump stations are nearly complete at Clarence Cannon HREP. The District has drafted three new fact sheets and toured Cypress Creek Refuge

to discuss restoration opportunities with the USFWS Refuge Manager. Site visits to Swan Lake, Cuivre Island, Calhoun Point, and Dresser Island helped identify construction and operation lessons learned. The Swan Lake Flood Damage Assessment letter report was advanced.

Long Term Resource Monitoring and Science

- Accomplishments of the fourth quarter of FY 22 include publication of the following manuscripts and reports:
 - *Annual Summer Submersed Macrophyte Standing Stocks Estimated From Long-Term Monitoring Data in the Upper Mississippi River*
 - *Trophic reorganization of native planktivorous fishes at different density extremes of bigheaded carps in the Illinois and Mississippi Rivers, USA.*
 - *Recommendations report regarding water level management to achieve ecological goals in the Upper Mississippi River System*
- Renovation of the LTRM water quality laboratory, which has temporarily moved to the University of Wisconsin-La Crosse, is ongoing. The laboratory renovation is expected to be completed in July 2023.
- **UMRR is operating under a \$55 million funding scenario for FY 23, in which LTRM is allocated \$13.85 million. Allocations compared to the FY 22 funding level are as follows:**
 - **Base monitoring increases to \$5.5 million from \$5 million**
 - **Science in support restoration (analysis under base) increases to \$1.5 million from \$1.3 million**
 - **Science in support of restoration and management increases to \$6.85 million from \$2.5 million**

The LTRM FY 23 \$7.4 million base monitoring and analysis-under-base program covers field stations, UMESC, and Corps technical and science representatives. Under the continuing resolution funding restrictions, LTRM is funded to continue base monitoring until more appropriations are received. High priority funding items for science in support of restoration total \$1.975 million and include:

- | | |
|--|--|
| — LTRM balance: \$464,671 | — Macroinvertebrate contaminants: \$77,483 |
| — Ecohydrology: \$459,797 | — Herbarium: \$21,000 |
| — LC processing (last year): \$335,238 | — Future landscape modeling: \$588,674 |
| — Proposal adjustments: \$28,884 | |

Remaining funds of approximately \$4.9 million may be used to purchase equipment for field stations and the water quality lab, fund the final year of LCU processing, advance additional FY 22 science proposals, and/or update topobathy. The latter would include financial support from NESP.

- The *ad hoc* LTRM implementation planning team has been tasked with determining research opportunities to expand the understanding of UMRS restoration and management. In part, an objective for this effort is to identify and prioritize research needs under increased potential for additional funding following the authorized increase in WRDA 2022.

Over the past several months, the implementation planning team has drafted objective statements and identified and prioritized information needs in four broad categories: floodplain ecology, hydrogeomorphic change, aquatic ecology, and restoration applications. Possible actions to address information needs include employing short-term research studies, adding capacity for analyzing existing LTRM data, spatially expanding baseline monitoring, and adding new long term monitoring components. **The team held an in-person workshop on September 13-15, 2022 to finalize scoring criteria and information needs. Agencies submitted final scores of information needs on November 10, 2022.** The implementation planning team is scheduled to meet on November 17, 2022 to review scoring results. A small subgroup will develop approximate cost estimates associated with necessary actions to address each information need. The implementation planning team will then discuss how to optimize actions based on scores and estimated costs.

- The A-Team met on October 25, 2022. The agenda covered the following items:
 - Updating the A-Team Corner and the Corps webpages regarding LTRM information
 - Management implications of a resilience assessment of the UMRS, including application of the resist-accept-direct framework
 - The status of aquatic vegetation in Pool 13
 - Potential A-Team roles in HREP/LTRM integration
 - Two-page flyers communicating the major findings from the 2022 UMRR LTRM status and trends report
 - Wisconsin field station staff

As next steps, the A-Team will request that field station staff review information on the A-Team Corner and Corps webpages and submit updated information.

Habitat Restoration

- MVP's planning priorities include Robinson Lake, Big Lake - Pool 4, and Reno Bottoms. A kick-off meeting for Robinson Lake is being planned and will use the same PDT as the Big Lake Pool 4 project. The Reno Bottoms draft report was completed and released for public review. A design contract award for Lower Pool 10 is expected at the end of this month. Construction was completed at Harpers Slough, Bass Ponds, and Conway Lake HREPs. O&M manuals are nearly complete. A contract to complete McGregor Lake HREP construction was awarded at the end of the last fiscal year. Other efforts in the District include development of a Trempealeau HREP letter report outlining repair needs and the development of storymaps for new HREPs.
- MVR's planning priorities include Lower Pool 13, Green Island, Pool 12 Forestry, and Quincy Bay. The District's design priority is Steamboat Island Stage II. MVR has six projects in construction including Pool 12 Overwintering, Beaver Island Stage IB, Steamboat Island Stage I, Keithsburg Division Stages I and II, and Huron Island Stage III. The District is working to turn over the Pool 12 Overwintering Stage II project to the sponsor. A construction contract for Steamboat Island Stage I was awarded on August 31, 2022. A ribbon cutting for Huron Island Stage II was held on September 7, 2022. MVR is working to address sponsor comments on the Upper Pool 13 fact sheet.
- MVS's planning priorities include West Alton Islands and Yorkinut Slough. MVS's design priorities include Piasa & Eagles Nest, Harlow Island, Oakwood Bottoms, and Crains Island. MVS has three projects in construction: Crains Island, Piasa and Eagles Nest, and Clarence Cannon Refuge HREPs. A construction contract award for Stage II of Piasa and Eagles Nest is anticipated for the second quarter of FY 23.

LTRM and HREP Special Reports

- Mike Spear, INHS, presented on fish community response to decreased vessel traffic on the Illinois Waterway. Consolidated extended closure of eight locks and dams in 2020 spurred a multi-agency monitoring effort from 2019 to 2021 to assess changes in river conditions from decreased navigation traffic. This was a unique ecosystem-scale opportunity to assess anthropogenic impacts of vessel traffic to a large river using a before/after/control impact study design. Three variables were evaluated including vessel traffic intensity, water quality, and fish communities in the main channel for direct impacts, side channels without direct traffic, and backwaters separated from noise and turbidity. Navigation pools showed a 50 percent to 100 percent decrease in vessel traffic during the closure. Turbidity was lower in the main channel and side channel habitats during the closure year of 2020. In addition, catch of sound-sensitive and rheophilic fish taxa as well as Gizzard shad increased in main and side channel habitats as compared to the backwater “quasi-control” condition.
- Collin Moratz, USACE, presented an update on aquatic vegetation plantings at the Huron Island HREP. ERDC provided support from FY 18 to FY 20 to establish native aquatic vegetation at the project site. ERDC used flood tolerant native plant species of regional provenance and monitored plantings for adaptive management purposes. Herbivory exclosures were installed and initial specimens planted in August 2019. Assessments in 2020 indicated some mortality due to 2019 flooding, but also that some species had established outside exclosures. An assessment June 2021 showed unprotected arrowhead recruitment, additional spread of longleaf pondweed from exclosures, and good to high survival of ten species in exclosures. An additional planting was conducted in July 2021. An assessment in September 2021 showed high survival of 13 species in exclosures and rushes and arrowheads observed in unprotected areas. From July 26-28, 2022 a three day field campaign was conducted with ERDC, MVR, and Iowa DNR to establish larger exclosures with additional plantings. During an assessment on September 21, 2022, pens showed 70 percent to 99 percent coverage with some plants spreading from exclosures showing signs of herbivore damage. Overall, there was limited spread observed for both emergents and SAV beyond protected exclosures, likely due to herbivory pressure both aquatic and from terrestrial herbivores. One remaining question is whether a critical mass can be reached, whereby unprotected plant communities are robust to herbivory.

Other Business

Upcoming quarterly meetings are as follows:

- **February/March 2023 – Virtual**
 - UMRBA quarterly meeting – February 28
 - **UMRR Coordinating Committee quarterly meeting – March 1**
- **May 2023 – St. Paul, MN**
 - UMRBA quarterly meeting – May 23
 - **UMRR Coordinating Committee quarterly meeting – May 24**
- **August 2023 – La Crosse, WI**
 - UMRBA quarterly meeting – August 8
 - **UMRR Coordinating Committee quarterly meeting – August 9**

UMRR COORDINATING COMMITTEE - REGIONAL MANAGEMENT AND PARTNERSHIP COLLABORATION

Marshall Plumley
Regional Program Manager
St. Paul District
Rock Island District
St. Louis District

16 November 2022

 **Upper Mississippi River Restoration**
Leading. Innovating. Partnering.




 **U.S. Army Corps of Engineers**

1


REGIONAL MANAGEMENT AND PARTNERSHIP COLLABORATION

- FY 2022 Fiscal Update and FY 23 Outlook
- 2022 Report to Congress
- Environmental Justice
- Implementation Issues
- Strategic and Operation Plan review

 **Upper Mississippi River Restoration**
Leading. Innovating. Partnering.

2


FY 2022 FISCAL UPDATE AND FY 2023 OUTLOOK

 **Upper Mississippi River Restoration**
Leading. Innovating. Partnering.

3

FY 22 APPROPRIATIONS

President's Budget	\$33,170,000
House	\$33,170,000
Senate	\$33,170,000
FINAL APPROPRIATION	\$33,170,000
Infrastructure Bill	\$0
FY 22 Workplan	\$0

 **Upper Mississippi River Restoration**
Leading. Innovating. Partnering.

4

FINANCIAL REPORTING

UMRR Quarterly Budget Report: St. Paul District
FY2022 Q4, Report Date: Tue Oct 11 2022

Habitat Projects

Project Name	Non-Federal	Federal	Total	Carry In	Allocation	Funds Available	Actual Obligations
Bass Ponds, Marsh, and Wetland		\$6,300,000	\$6,300,000		\$275,000	\$275,000	\$666,899
Conroy Lake		\$7,413,000	\$7,413,000		\$200,000	\$200,000	\$346,923
Harpers Slough		\$13,675,000	\$13,675,000		\$2,400,000	\$2,400,000	\$27,690
Lower Pool 10 Inland and Backwater Complex		\$17,000,000	\$17,000,000	\$93,793	\$350,000	\$443,793	\$153,197
Lower Pool 4, Big Lake					\$10,000	\$10,000	\$438,341
Madreaga Lake	\$23,550,000	\$23,550,000	\$47,100,000	\$3,118,000		\$4,236,000	\$4,200,615
Revo Bottoms	\$10,000,000	\$10,000,000	\$20,000,000	\$52,323	\$417,323	\$469,646	\$465,685
Total	\$77,938,000	\$77,938,000	\$155,876,000	\$146,116	\$6,718,000	\$6,864,116	\$14,797,330

Habitat Rehabilitation


Subcategory	Carry In	Allocation	Funds Available	Obligations
District Program Management			\$623,927	\$623,927
Total			\$623,927	\$623,927

Regional Program Administration

Subcategory	Carry In	Allocation	Funds Available	Obligations
Habitat Eval/Monitoring			\$775,858	\$775,858
Total			\$775,858	\$775,858

St. Paul Total

Carry In	Allocation	Funds Available	Actual Obligations
\$146,116	\$6,718,000	\$6,864,116	\$6,319,538

 **Upper Mississippi River Restoration**
Leading. Innovating. Partnering.

5

FINANCIAL REPORTING

UMRR Quarterly Budget Report: Rock Island District
FY2022 Q4, Report Date: Tue Oct 11 2022

Habitat Projects

Project Name	Non-Federal	Federal	Total	Carry In	Allocation	Funds Available	Actual Obligations
Beaver Island		\$25,288,000	\$25,288,000		\$1,000,000	\$1,000,000	\$200,120
Green Island, IA		\$15,000,000	\$15,000,000	\$12	\$500,000	\$500,012	\$624,923
Harvey Island		\$15,775,000	\$15,775,000		\$1,000,000	\$1,000,000	\$92,140
Hoffmeyer Island		\$25,443,000	\$25,443,000	\$19,488	\$3,800,000	\$3,819,488	\$897,761
Lower Pool 13 (Pond 1)		\$25,288,000	\$25,288,000	\$1,039	\$600,000	\$601,039	\$644,707
Lower Pool 13 (Pond 2)					\$500,000	\$500,000	\$10,997
Lower Pool 13 (Pond 3)				\$48,000	\$500,000	\$548,000	\$455,061
Lower Pool 13 (Pond 4)					\$500,000	\$500,000	\$1,127
Overmilling		\$20,870,822	\$20,870,822	\$3,247	\$500,000	\$503,247	\$2,490
Rock Island, IL	\$7,380,000	\$13,435,753	\$20,815,753	\$118,025	\$1,180,025	\$1,298,050	\$5,500
Rock Island, IL		\$41,977,000	\$41,977,000		\$300,000	\$300,000	\$3,891,396
Total	\$7,380,000	\$158,893,585	\$166,273,585	\$229,711	\$7,580,025	\$7,739,711	\$6,385,938

Habitat Rehabilitation

Subcategory	Carry In	Allocation	Funds Available	Obligations
District Program Management			\$480,927	\$480,927
Total			\$480,927	\$480,927

Regional Program Administration


Subcategory	Carry In	Allocation	Funds Available	Obligations
Adaptive Management		\$200,000	\$200,000	\$88,145
Habitat Eval/Monitoring	\$200	\$1,110,000	\$1,110,200	\$133,141
Model Certification/Regional MRP		\$100,000	\$100,000	\$19,423
Public Outreach		\$500,000	\$500,000	\$20,000
Regional Program Management		\$1,400,000	\$1,400,000	\$1,028,907
Regional Project Sequencing		\$1,000,000	\$1,000,000	\$27,212
Total	\$200	\$3,200,000	\$3,200,200	\$1,288,615

Regional Science and Monitoring

Subcategory	Carry In	Allocation	Funds Available	Obligations
Long Term Resource Monitoring		\$5,000,000	\$5,000,000	\$6,423,127
Science in Support of Restoration/Management		\$3,800,000	\$3,800,000	\$3,728,464
Total		\$8,800,000	\$8,800,000	\$10,151,591

Rock Island Total

Carry In	Allocation	Funds Available	Actual Obligations
\$229,711	\$19,302,000	\$19,531,711	\$19,340,263

 **Upper Mississippi River Restoration**
Leading. Innovating. Partnering.

6

FINANCIAL REPORTING						
UMRR Quarterly Budget Report: St. Louis District FY2022 Q4, Report Date: Tue Oct 11 2022 Habitat Projects						
Project Name	Cost Estimates			FY2022 Financials		
	Non-Federal	Federal	Total	Carry In	Allocation	Funds Available
Clarence		\$29,800,000	\$29,800,000	-	\$750,000	\$750,000
Craters Island		\$36,562,000	\$36,562,000	\$28,498	\$1,900,000	\$1,928,498
Hayden Island		\$37,971,000	\$37,971,000	-	\$325,000	\$325,000
Oakwood		\$29,000,000	\$29,000,000	\$8,750,000	\$675,000	\$1,098,396
Plains - Eagle's Nest Islands		\$26,746,000	\$26,746,000	-	\$2,575,000	\$3,524,891
West Alton		-	-	-	\$450,000	\$450,000
Yorkburg		\$8,500,000	\$8,500,000	\$9,349	\$425,000	\$434,349
St. Louis Total		\$168,379,000	\$168,379,000	\$37,841	\$7,150,000	\$7,187,841
Habitat Rehabilitation						
Subcategory	FY2022 Financials			Actual Obligations		
	Carry In	Allocation	Funds Available	Carry In	Allocation	Funds Available
District Program Management						\$709,457
Total						\$709,457
Regional Program Administration						
Subcategory	FY2022 Financials			Actual Obligations		
	Carry In	Allocation	Funds Available	Carry In	Allocation	Funds Available
Habitat Eval/Monitoring						\$303,481
Total						\$303,481
St. Louis Total						
	\$37,841	\$7,150,000	\$7,187,841			\$7,267,499

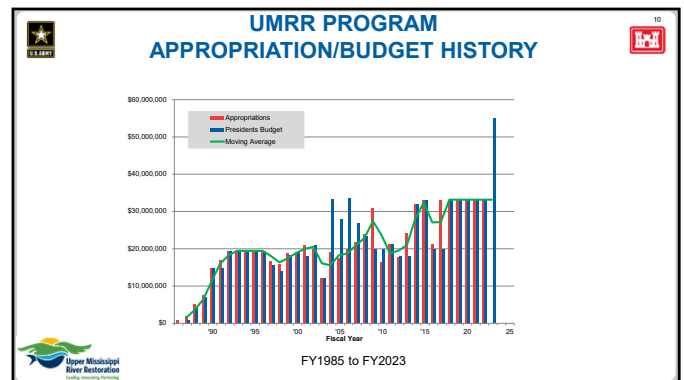
7

FY22 PLAN OF WORK			
	Budget	Obligations 4th Qtr	
TOTAL FY22 Program	\$33,583,764	\$32,927,400	
Regional Administration and Program Efforts	\$1,450,000	\$1,115,245	
Regional Management	\$1,160,000		
Program Database	\$100,000		
Program Support Contract (UMRBA)	\$120,000		
Public Outreach	\$50,000		
Regional Science and Monitoring	\$10,250,096	\$11,410,061	
LTRM (Base Monitoring)	\$5,000,000		
UMRR Regional Science In Support Rehabilitation/Mgmt.	\$3,800,000		
(MIPR's, Contracts, and Labor)			
UMRR Regional (Integration, Adapt. Mgmt.)	\$200,000		
Habitat Evaluation (split between MVS,MVR,MVP)	\$1,125,096		
Report to Congress	\$125,000		
District Habitat Rehabilitation Efforts (Planning and Construction)	\$21,883,668	\$20,402,094	
St. Paul District	\$6,864,116		
Rock Island District	\$7,731,711		
St. Louis District	\$7,187,841		
Model Cert.	\$100,000		

8

EXECUTION	
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

9





10

FY 23 APPROPRIATIONS	
President's Budget	\$55,000,000
House	\$55,000,000
Senate	\$55,000,000
FINAL APPROPRIATION	\$?
FY 23 Workplan	\$?

11

FY23 DRAFT PLAN OF WORK	
	Budget
TOTAL FY22 Program	\$55,000,000
Regional Administration and Program Efforts	\$1,550,000
Regional Management	\$1,280,000
Program Database	\$100,000
Program Support Contract (UMRBA)	\$120,000
Public Outreach	\$50,000
Regional Science and Monitoring	\$15,450,000
LTRM (Base Monitoring)	\$5,500,000
UMRR Regional Science In Support Rehabilitation/Mgmt.	\$8,350,000
(MIPR's, Contracts, and Labor)	
UMRR Regional (Integration, Adapt. Mgmt.)	\$200,000
Habitat Evaluation (split between MVS,MVR,MVP)	\$1,275,000
Report to Congress	\$125,000
District Habitat Rehabilitation Efforts (Planning and Construction)	\$38,000,000
St. Paul District	\$11,148,000
Rock Island District	\$13,502,000
St. Louis District	\$13,250,000
Model Cert.	\$100,000

12


POTENTIAL WRDA 2022 CHANGES TO UMRR

Senate SEC. 317. UPPER MISSISSIPPI RIVER SYSTEM ENVIRONMENTAL MANAGEMENT PROGRAM.

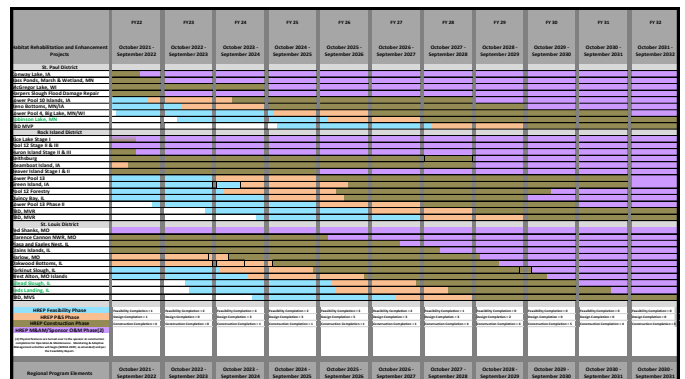
Section 1103(e)(3) of the Water Resources Development Act of 1986 (33 U.S.C. 652(e)) is amended by striking "\$40,000,000" and inserting "\$75,000,000".

HREP \$75,000,000 + LTRM \$15,000,000

\$90,000,000



13





14





2022 REPORT TO CONGRESS




15


REPORT TO CONGRESS: PROGRESS




- 1st Draft Review completed 34 comments received
- 2nd Draft Review 113 comments received including those from NGO's
- 6 May discussion to review comments and draft responses
- MVD Review backcheck Aug 5
- 29 August In Progress Review w/ partners, MVD, and HQ
- HQ USACE Review of the Draft Report (Aug/Oct)
- Prepare Final Report (Oct)




- MVD & HQ Final Approval (Nov/Dec)
- Delivery to Congress (Dec)



16





2022 Report to CONGRESS





Leading


- Implemented the UMRR program as outlined in the adopted Joint Charter and the goals and objectives of the 2015-2025 Strategic Plan.
- Provided critical insight and understanding of the UMRS through monitoring, research, and modeling to inform management of the UMRS.
- Promoted a common vision, sense of purpose, transparency, and accountability among the program partners.

17





Executive Summary



Innovating

- Assessed and detected changes in the fundamental health and resilience of the UMRS.
- Defined ecological resilience and appropriate indicators to measure status and trends in the UMRS.
- Renewed UMRR's Habitat Needs Assessment and identified the suite of habitat projects to improve UMRS ecosystem health and resilience.
- Addressed key ecological needs at various spatial scales.
- Formulated and constructed 7 habitat restoration projects benefiting approximately 15,400 acres of nationally significant aquatic, wetland, forest, island, side channel and backwater habitats.



18

Partnering

- Actively exchanged information with UMRS watershed, national, and international partners.
- Evaluated and learned from constructed habitat restoration projects.
- Applied adaptive management principles to address risk and uncertainty.
- Collaborated with partners to further inform issues related to project partnership agreements.

19

Conclusions and Recommendations

Recommendations in the 2022 RTC:

- Apply defined ecological resilience concepts.
- Apply the UMRR Habitat Needs Assessment II.
- Continue to identify and construct habitat projects that improve the Upper Mississippi River Systems ecosystem health and resilience.
- Evaluate and learn from constructed habitat projects to inform future restoration and management.
- Engage the partnership in 2024 in preparing the next UMRR Strategic Plan.

20

Conclusions and Recommendations

Recommendations in the 2022 RTC:

- Apply adaptive management principles to address risk and uncertainty.
- Assess, and detect changes in, the fundamental health and resilience of the Upper Mississippi River ecosystem by continuing to monitor and evaluate its key ecological components.
- Provide critical insights and understanding regarding a range of key ecological questions... in order to inform and improve management and restoration of the Upper Mississippi River ecosystem.

21

Conclusions and Recommendations

Recommendations in the 2022 RTC:

- Work with key organizations and individuals in the Upper Mississippi River watershed.
- Provide information to organizations and individuals whose actions and decisions affect the Upper Mississippi River ecosystem.
- Promote a common vision and sense of purpose, transparency, and accountability among UMRR's implementing partner agencies.
- Implement UMRR as outlined in Joint Charter.
- The Corps and non-federal sponsors should continue to work together to further inform issues related to execution of PPA's.

22

UMRR 2022 Report to Congress

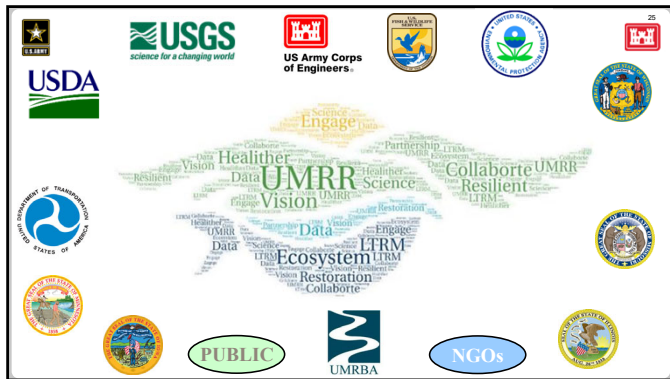
Letters of Support

- U.S. Fish and Wildlife Service
- U.S. Geological Survey
- U.S. Environmental Protection Agency
- Upper Mississippi River Basin Association
- Missouri Department of Conservation
- Iowa Department of Natural Resources
- Minnesota Department of Natural Resources
- Wisconsin Department of Natural Resources
- Illinois Department of Natural Resources
- The Nature Conservancy
- Audubon of Minnesota, Iowa & Missouri

23

ENVIRONMENTAL JUSTICE

24



25

THOUGHTS FROM AUGUST

- USACE will continue to fully integrate environmental justice into all aspects of its programs, including planning, design, construction, and operations and management. This includes UMRR.
- Dialog about partners policy & approach regarding Environmental Justice
 - Share tools
 - Develop options
 - Identify opportunities to engage communities

26

THOUGHTS FROM AUGUST

- ad hoc* group
 - Provide partner perspective on approaches/best practices, methods, and tools related to Environmental Justice in their work.
 - Discuss how UMRR currently approaches Environmental Justice through Habitat Rehabilitation and Enhancement Projects.
 - First of several discussions that may result in recommendations regarding Environmental Justice to the UMRR Coordinating Committee.
 - October 6 e-mail to CC soliciting participants
 - USFWS
 - Illinois
 - Iowa
 - Missouri
 - Minnesota
 - Wisconsin
 - UMRBA

27

IMPLEMENTATION ISSUES

28

IMPLEMENTATION ISSUES

Purpose: To identify and describe the variety of issues that have the potential to affect the most efficient implementation of UMRR in the future.

Process: With each Report to Congress (RTC), there has been an attempt to ID and discuss the status of issues that may hinder implementation of UMRR. Last completed an IIA in 2013, updated for 2016 RTC, and held some discussions in 2017. In 2021, the UMRR Coordinating Committee identified the following issues for paper development, including updating three existing issues papers and drafting some new ones:

<ul style="list-style-type: none"> Project Partnership Agreements (PPAs)* Engaging non-traditional sponsors Land Acquisition Floodplain Regulations 	<ul style="list-style-type: none"> External Communications Federal Easement Lands Watershed Inputs and Climate Change Water Level Management
---	--

* Requires action by Congress to address

29

IMPLEMENTATION ISSUES

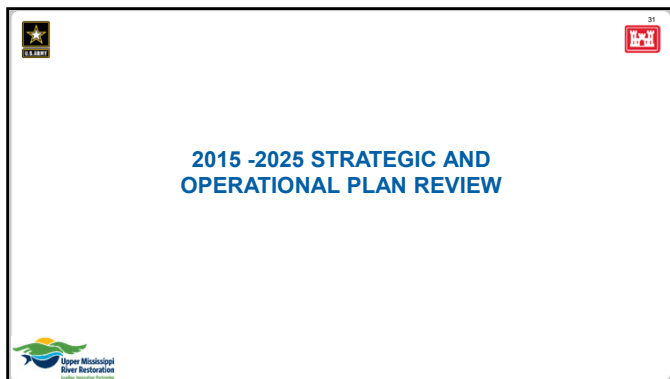
Timeline:

- November 2021, the UMRR Coordinating Committee reviewed draft problem statements.
- March 2022, the UMRR Coordinating Committee reviewed draft papers and provided comments.
- August 2022, the UMRR Coordinating Committee met to:
 - Review comments and draft responses and resolve unanswered questions
- November 2022 Final Issue Papers distributed minus recommendations

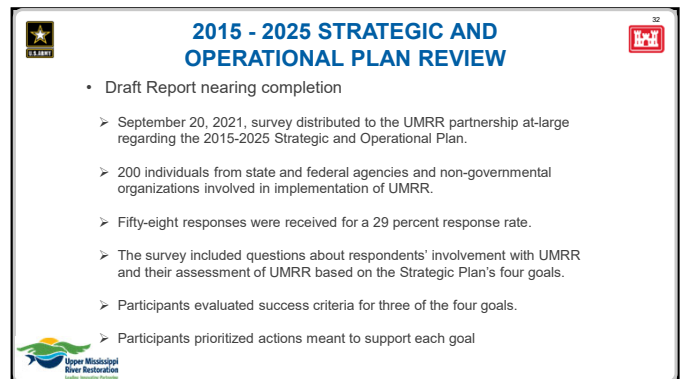
Next Steps:

- Establish broad consensus on UMRR CC recommendations on issues and suite of options/alternatives to address implementation issues (future actions table)
- Consider lead agency/personnel for each option should it be pursued.
- Outline next discussion to determine preferred option for each implementation issue and incorporate with the Strategic Plan Review discussion.

30



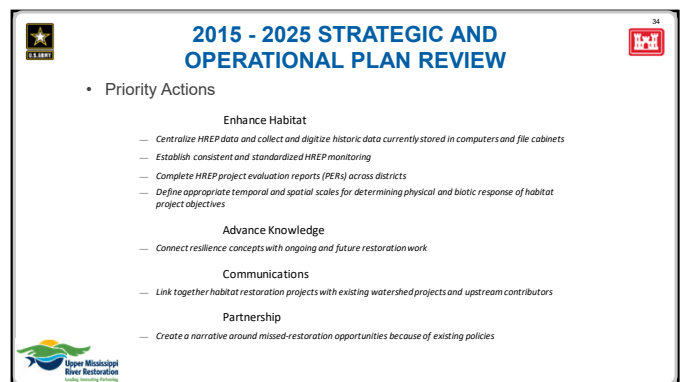
31



32



33



34



35



UMRR Status and Trends Report Long Rollout

1

Long Rollout

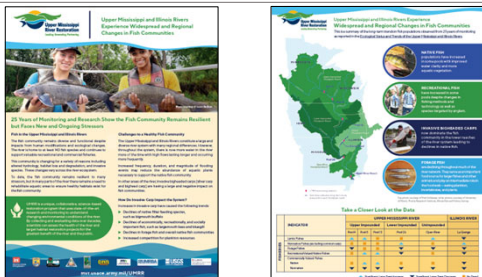
UMRBA is coordinating development of a series of four 2-page flyers related to findings presented in the Ecological Status and Trends report and creating a plan for disseminating flyers to the UMRR partnership and media outlets.

Topics will include:

- ✓ Fisheries
- Floodplain forest loss (in design)
- Sedimentation (in review)
- Aquatic vegetation
- Water quality and nutrients

2

Fisheries



Meeting Agenda Packet Attachment C

3

Development Process

- UMRBA drafts flyer content
- Report authors review draft content
- A-Team and COT review revised content
- Flyer sent for final design
- Submit final version to UMRR Coordinating Committee for endorsement

4

Key Findings

Fish Communities: The river system continues to support diverse and abundant fishes. However, invasive carps have substantially affected the river ecosystem where they have become common.

Forest Loss: Floodplain Forest loss has occurred across most of the system.

Water Quality: Concentrations of nutrients, notably nitrogen and phosphorus, remain high, exceeding U.S. Environmental Protection Agency benchmarks. However, total phosphorus concentrations has declined in many of the studied river areas.

Sedimentation: TBD

Aquatic Vegetation: TBD

5

Key Findings

Sedimentation: DRAFT

Sediment accumulation has changed the river structure by creating new floodplain land areas and reducing depths in backwater areas. These changes affect the quality and availability of habitat for fish and wildlife.

The loss of deep backwater areas can reduce suitable habitat for some fish species, especially for overwintering.

New landforms with sandy substrates can be important habitats for shorebirds and waterbirds and offer ideal conditions for the establishment of important tree species such as willows and cottonwoods.

6

Key Findings

Aquatic Vegetation: DRAFT

Aquatic vegetation diversity has improved in the Upper Impounded Reach of the Upper Mississippi River. However, aquatic vegetation diversity remains low or unknown in other reaches of the river.

Long-term monitoring reveals that improvements in aquatic vegetation are tied to lower nutrient loads in the water, better water clarity, and a decline in common carp.

The increase in submersed aquatic vegetation and water clarity in much of the Upper Impounded Reach represents a significant improvement in the ecological condition of the Upper Mississippi River System.

Aquatic vegetation helps sustain clearer water, provides important habitat for many aquatic animals, and is an important food source for migrating waterfowl

7

Next Steps



Next 2-page flyers:

- Floodplain forest loss (Complete design)
- Sedimentation (A-Team and COT review)

Ongoing:

- Request for photos w/ photo credit information shared


8



UMRR COMMUNICATION AND OUTREACH TEAM

Update

Jill Bathke
St. Paul District- Plan Formulation



1

UMRR Joint Press Release Best Practices

- Developed & disseminated best practices based on 2022 Status and Trends Release

Key Takeaways:

Participation


- Identify key partners in press release and identify their needs early on
- Identify best dissemination and communication methods for non-UMRR river groups

Messaging



- Key message development, including accessibility and accuracy, is time well-spent
- Keep language plain and clear
- Identify and confirm technical and/or communication prior to distribution of press release
- Develop a FAQ document before press release, if possible
- Tie key messages to areas of effect

Press Relationships

- Continue to build relationships with the Mississippi River Basin Ag & Water Desk

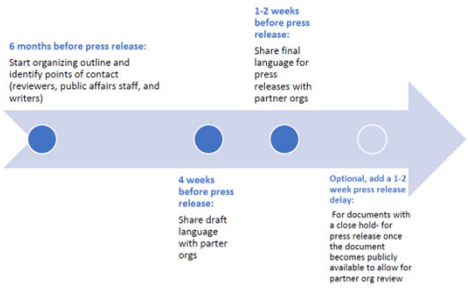


2

UMRR Joint Press Release Best Practices

Timing




6 months before press release:
Start organizing outline and identify points of contact (reviewers, public affairs staff, and writers)

4 weeks before press release:
Share draft language with partner orgs

1-2 weeks before press release:
Share final language for press releases with partner orgs

Optional, add a 1-2 week press release delay:
For documents with a close hold- for press release once the document becomes publicly available to allow for partner org review



3






Winter 2023: COT Next Steps

- Encourage wider partner participation
- Cooperation with UMR NWFR 100th Anniversary Communications
- Communications surrounding 2022 UMRR Report to Congress
- Strategic Plan Update Communications
- UMRR video series
- Create communications inventory




4





UMRR Communication and Outreach Team

Points of Contact:

Jill Bathke
USACE-RPEDN-PD-F @ MVP
Jill.C.Bathke@usace.army.mil

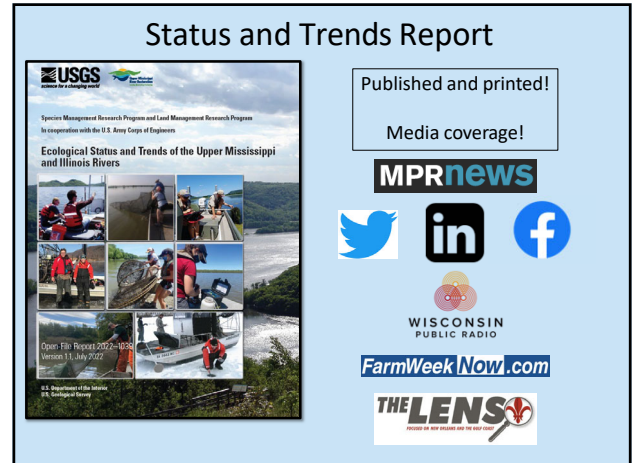
Rachel Perrine
USACE-RPEDN-PD-F @ MVR
Rachel.E.Perrine@usace.army.mil



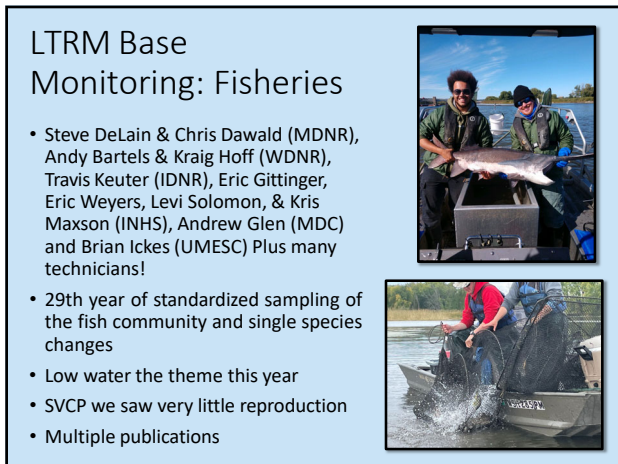
5



1



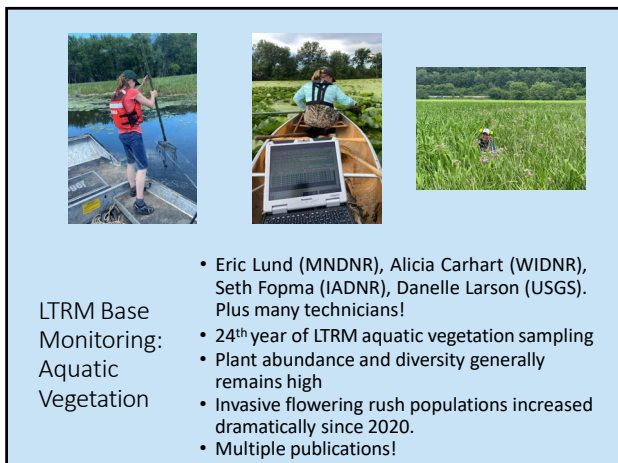
2



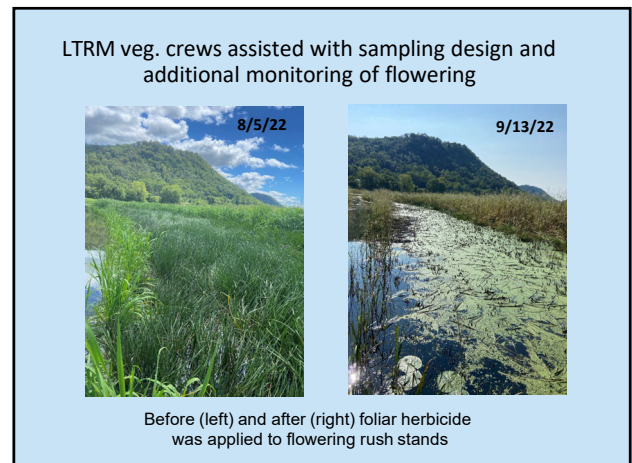
3



4



5



6

Pattern of Wild Rice Colonization and Retreat Dataset: Benjamin Finley (USGS)

- Created method for high-accuracy mapping of emergent vegetation using UAS assets
- Field work completed over lower-Pool 8 study areas
- Photo orthomosaic imagery created
- Formal spatial accuracy assessment ongoing
- Report on inter-decadal change in-progress



Task SD7

7



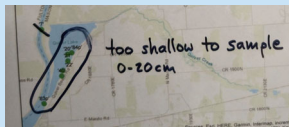
LTRM Base Monitoring: Water Quality

- Rob Burdis (MDNR), John Kalas (WDNR), Ashley Johnson (IDNR), Lori Soeken-Gittinger, Sara Sawicki (INHS), Luke Zuklic (MDC), and Kathi Jo Jankowski (UMESC). Plus many technicians!
- 28 years of data to capture spatially and temporally dynamic water quality changes in response to watershed changes
- In 2022, continued chloride monitoring and phytoplankton research
- Multiple publications

8

Water Quality

- WQ analysis in lab on-going
- Successful upgrade of ScanLog/data transfer to sFTP (major kudos to Ben Schlifer)
- ~950 samples are set to be shipped to contractor for phytoplankton ID samples from 2007-2021



Quivire Lake (Sara Sawicki, INHS-IRBS)



Marquette Island
(Luke Zuklic, MDC, Big Rivers)

9



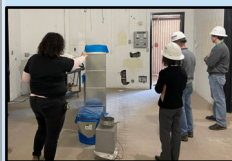
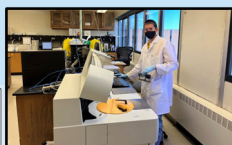
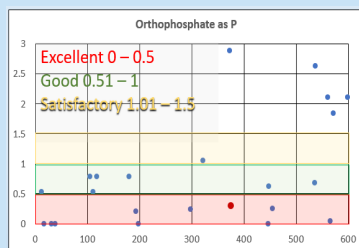
Steph Szuru, WDNR

10

LTRM WQ Laboratory

Xiaoli Yuan, John Manier, Derek Craig (USGS), and Technicians

More than 60,000 analyses run
USGS Standard Reference
Renovation and move to UW-L



11

LTRM WQ Laboratory

Learn something new everyday!

- More than 320 Quality Control Reports completed

Future generation: Part I

- More than 60 interns through WQ lab the last 30 years
- Land O'Lakes
- National Park Service
- Minnesota Pollution Control Agency
- Sigma Aldrich
- Multiple PhD students



12

Goal 3

Engage and Collaborate with Other Organizations and Individuals to Help Accomplish the UMRR Vision

- Brian Ickes (USGS) collaborating with agencies on newly planned ecological assessment programs on the Columbia and Hudson River systems

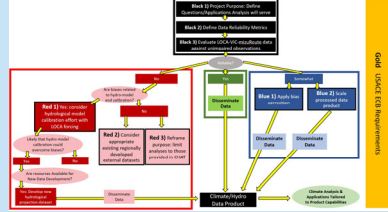


13

Improving our understanding of historic, contemporary, and future UMRS hydrology

Molly Van Appledorn, USGS UMESC and Lucie Sawyer, USACE MVR

- Database template developed for historic and contemporary daily water service elevations at UMRS USACE gages. ~95% of data
- Draft of the LTRM Report "UMRR Future Hydrology Meeting Series"



14

Land Cover/Use (LCU) 2020 mapping

Erin Hoy, Julia (Rose) Bruce, Andrew Strassman, Janis Ruhser, Benjamin Finley (USGS)

- Pools 4, 8, 13, 26, Open River South completed and on-line.
- Pools 9, 12, and La Grange Pool under USGS review.
- Groundtruthing for Pools 1-3, 5-7, St Croix and MN River were completed




15

Mapping Potential Sensitivity to Hydrogeomorphic Change in the UMRS Riverscape and Development of Supporting GIS Database and Query Tool

Angus Vaughan, USGS UMESC; Faith Fitzpatrick, USGS Upper Midwest WSC; Jayme Strange, UMESC; Molly Van Appledorn, UMESC

- GIS-based analyses were successful at identifying a range of hydrogeomorphic units
- The approach was successfully piloted in Pools 8, 10, and Pool 14



16

Systematic analysis of hydrogeomorphic influences on native freshwater mussels

Teresa Newton, Robert Francis, Danielle Schultz, Jason Rohweder, Nate DeJager, Nathan Johnson (USGS)

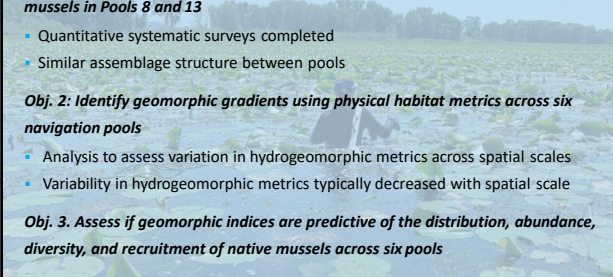
Obj. 1. Estimate the distribution, abundance, diversity, and recruitment of native mussels in Pools 8 and 13

- Quantitative systematic surveys completed
- Similar assemblage structure between pools

Obj. 2: Identify geomorphic gradients using physical habitat metrics across six navigation pools

- Analysis to assess variation in hydrogeomorphic metrics across spatial scales
- Variability in hydrogeomorphic metrics typically decreased with spatial scale

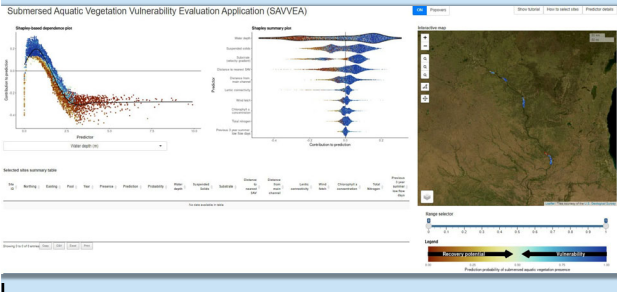
Obj. 3. Assess if geomorphic indices are predictive of the distribution, abundance, diversity, and recruitment of native mussels across six pools



17

Refining our Upper Mississippi River's ecosystem states framework

Danelle Larson, John Delaney, Jason Rohweder (UMESC), Alicia Carhart (WDNR), Wako Bungula (University of Wisconsin- La Crosse)



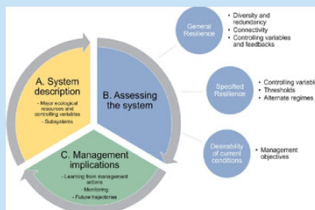
18

UMRS Resilience Assessment

Kristen Bouska (UMESC)

- [New publication: Resisting-Accepting-Directing: Ecosystem Management Guided by an Ecological Resilience Assessment](#)

- Analysis of general & specified interactions underway
- "Lessons Learned & Future Directions" manuscript in prep



19

Vital Rates, Genetics, and Microchemistry of UMRS Fishes

Andy Bartels (WDNR), Kristen Bouska (UMESC), Quinton Phelps (MSU), Greg Whitley (SIU), Jim Lamer (IRBS), Mark Davis (UIUC), Milton Tan (UIUC), Jim Lamer (IRBS), Wes Larson (NOAA)

- Analyses wrapping up and manuscripts in preparation
 - Genetic analyses of regional species almost completed
 - Largemouth Bass vital rate publication in review
 - Natal origins paper to be submitted by Dec.
- Monthly meetings among PIs to develop synthesis paper and management report



20

Future generation: Part II

Kylie B. Sterling – Spring 2022

- Largemouth Bass in the Upper Mississippi River: An Evaluation of Management Strategies and Understanding Potential Factors Influencing Dynamic Rate Functions
- Initial Employment: U.S. Geological Survey – Columbia, MO

Elaine Ewigman – Anticipated Fall/Winter 2022

- Population Dynamics and Habitat Use of Gizzard Shad *Dorosoma cepedianum* in the Upper Mississippi River
- Initial Employment: Oklahoma Dept. of Wildlife Conservation – Aquatic Nuisance Species Coordinator

Aaron Muehler – Anticipated Spring 2023

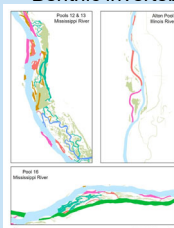
- Recruitment Dynamics of UMRS Fishes

21

Understanding physical and ecological differences among side channels of the UMRS

Molly Sobotka (MDC), Kristen Bouska (UMESC), Todd Slack (ERDC), Heather Theel (ERDC), Ross VanderVorst (UWL)

- Manuscript on side channel classification based on fish associations with physical metrics currently in review
- Benthic invertebrate identification underway (UWL)



Cluster	Volume	Average depth	Shoreline development index	Wet forest shoreline	Connectivity	Sediment	Associated fish responses
Red	↓	↓	↓	↓	↓	↓	Young-of-year littorinoglyphid richness, adult richness at low flow
Orange	↓	↓	↓	↓	↓	↓	-
Green	↓	↓	↓	↓	↓	↓	Young-of-year gonophyllid richness, adult richness at low flow
Blue	↓	↓	↓	↓	↓	↓	Young-of-year littorinoglyphid richness, adult richness at low and high flow
Pink	↓	↓	↓	↓	↓	↓	Young-of-year littorinoglyphid richness, adult richness at low flow

22

Collaboration with HREPs



- All Lake City LTRM staff attended a meeting with Refuge Winona District Manager, Mary Stefanski, in March 2022 to share data and perspectives on Big Lake, Pool 4

- Initiated workgroup to develop a research proposal capitalizing on Learning Opportunities from Lower Pool 13 HREP PDT Bierman and Seth, Houser, Bouska

Photo Nicole Ward, MDNR

23

Patterns of forest regeneration following removal of invasive Reed Canarygrass under different simulated hydrological scenarios

Nathan R. De Jager, Jason J. Rohweder, Molly Van Appledorn, Enrika Hlavecek (UMESC), Andy Meier, Megan McGuire (USACE)

- Used the Landis-II forest simulation model to project patterns of forest recruitment and succession with and without inhibition of forest regeneration in areas currently occupied by invasive Reed Canarygrass
- Two different future 100-year hydrologic scenarios: a future like the past 40 years and a future with an increasing trend in flooding probability.

MEMORANDUM FOR Commanders, St. Paul, Rock Island, and St. Louis Districts, U.S. Army Corps of Engineers (Attn: Ms. Monique Savage, CEMVP-PD-F)

SUBJECT: Approval for Regional Use – LANDIS-II Forest Succession Model in the

24

Upper Mississippi River Restoration Program Long Term Resource Monitoring

Who We Are • Components • Data and Tools • Reports • UMRS • Search

Reports and Publications

Bouska, K. L., N. R. De Jager, and J. N. Houser. 2022. Resisting-Accepting-Directing: Ecosystem management guided by an ecological resilience assessment. *Environmental Management*. <https://doi.org/10.1007/s00267-022-01667-y> [Abstract](#)

Bouska, K. L., D. M. Larson, D. C. Drake, E. M. Lund, A. M. Carhart, and K. R. Bales. 2022. Aquatic vegetation dynamics in the Upper Mississippi River over 2 decades spanning vegetation recovery. *Freshwater Science* 41:1. <https://www.sciencedirect.com/science/article/pii/S0196723622000000> Data available [here](#) [Abstract](#)

Dieterman, D. J., S. A. Delany, C. R. Donahue, A. Herberg. 2022. Darter (Family: Percidae) Abundance in Deep-Water Habitats of the Upper Mississippi River. *Natural Areas Journal*, 42(2), 139-144. <https://doi.org/10.3375/22-38> [Abstract](#)

Houser, J. M., ed. 2022. Ecological status and trends of the Upper Mississippi and Illinois Rivers: U.S. Geological Survey Open-File Report 2022-1039, 199 p. <https://doi.org/10.3133/ofr20221039>

Guthrie, J. W., R. S. Jones, J. H. Chick. 2022. Evidence of alternative trophic pathways for fish consumers in a large river system in the face of invasion. *River Res Appl* 2022:1-12. DOI: 10.1002/rma.2892 [Abstract](#)

Shi, Y., K. L. Bouska, G. J. McKinney, W. Dokaj, A. Bartels, M. W. McPhee, and W. A. Larson. 2022. Gene flow influences the genomic architecture of local adaptation in six riverine fish species. *Molecular Ecology* <https://doi.org/10.1111/mec.15117> [Abstract](#)

Solomon, L. E., A. F. Casper, K. A. Maxson, J. T. Lamer, T. W. Ford, K. D. Blodgett, T. Hobson, D. Perry, N. T. Grider, R. B. Hilsbeck, T. R. Cook, K. S. Irons, M. A. McClelland and T. M. O'Hara. 2022. A Case Study of Large Floodplain River Restoration: Two Decades of Monitoring the Menominee Preserve and Lessons Learned Through Water Level Fluctuations and Uncontrolled Reconnection to a Large River. *Wetlands* 42, 59 (2022). <https://doi.org/10.1007/s13297-022-01581-3> [Abstract](#)

Windmuller-Campione, M. A., L. F. Reuling, M. Van Appledorn, D. M. Nielsen, and A. R. Meier. 2022. What is a stand? Assessing the variability of composition and structure in floodplain forest ecosystems across spatial scales in the Upper Mississippi River. *Forest Ecology and Management*, Volume 520, <https://doi.org/10.1016/j.foreco.2022.120385> [Abstract](#)

25

Presentations

Mississippi River Research Consortium

16th Annual Emiquon Science Symposium

26

Skype a Scientist

Molly Van Appledorn (USGS)

- Connects professional scientists with students
- North East Regional School of Biotechnology and Agriscience, 10th grade biology class.
- Andover Elementary, 4th and 5th grade students in advanced science classes.

27

UMRR 2022 Virtual Science Meeting

- > 100 participants
- USACE, USGS, USFWS, USDA
- MDNR, WDNR, IADNR, INHS, ILDNR, MDC, UMRBA, NGRREC
- UW-Madison, UW-La Crosse, Missouri State University, University of Minnesota
- National Audubon Society

28

LTRM Implementation Planning

29

Illinois Waterway Closure

Vessel traffic significantly reduced during 2020 lock closure

2021 - 2020

Upper Illinois

Lower Illinois

30



Thank you to the LTRM Partnership!!

FISCAL YEAR 2022 HABITAT REHABILITATION AND ENHANCEMENT PROJECTS ACCOMPLISHMENTS

Angela Deen
Julie Millhollin
Brian Markert
St. Paul District
Rock Island District
St. Louis District

16 November 2022





1

ST. PAUL DISTRICT FY22 ACCOMPLISHMENTS



2

THREE CONSTRUCTION COMPLETIONS

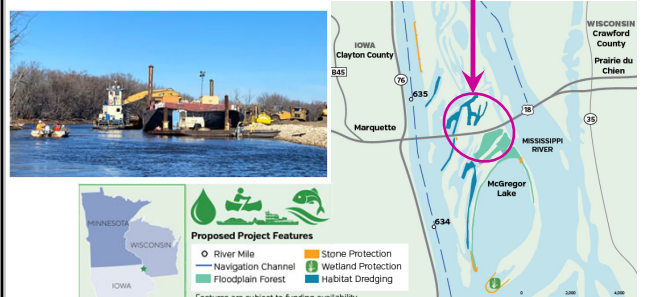
> Harpers Slough HREP – Bass Ponds HREP – Conway Lake HREP



Kevin Wilson (DPM) Conway Lake Larry Quamme (Friends of Pool 9) COL Jensen Kirsten Wallace (UMRBA) Sabrina Chandler (USFWS)

3

AWARDED **STAGE II** OF MCGREGOR LAKE



Proposed Project Features



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

Features are subject to funding availability

4

URBAN SHOWCASE – BASS PONDS HREP

> UMRR-CC August Site Visit
> River Resources Forum
> Public Ribbon Cutting
> Shakopee Mdewakaton Sioux

5

SUCCESSFUL ISLAND REPAIR

> Harpers Slough HREP




6

PUBLIC AFFAIRS OFFICE STATS:

Featured projects/posts

- Harpers/Conway ribbon cutting
- Bass Ponds ribbon cutting
- McGregor HREP
- Reno Bottoms HREP
- Big Lake HREP

Video Analytics

- 5 videos
- 7,926 views
- 637 reactions, comments and shares
- Reached 16,700 people

Videos

Harpers/Conway ribbon cutting: <https://www.facebook.com/usace.saintpaul/videos/1433310160462228>

Bass Ponds ribbon cutting: <https://www.facebook.com/usace.saintpaul/videos/651958586496866>


McGregor construction video – interview: https://www.youtube.com/watch?v=H7y246C82_4

McGregor construction video – short: <https://www.facebook.com/usace.saintpaul/videos/725486441900823>

Big Lake – interview: <https://www.youtube.com/watch?v=foJ9P8YNoSc&t=6s>

Social Media Analytics

- Facebook, Instagram, LinkedIn and Twitter
- 88 posts
- #InvestInOurPlanet UMRR Earth Day campaign
- 32 posts across Facebook, Instagram, LinkedIn and Twitter



7


APPLYING LESSONS LEARNED



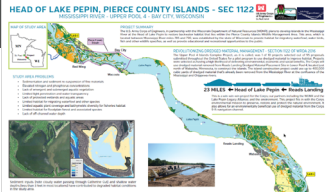
8

APPLYING LESSONS LEARNED

Pigs Eye Lake
CAP 204 Project



Upper Pool 4, Pierce County Islands
Section 1122 Pilot Project



9

**ROCK ISLAND DISTRICT
FY22 ACCOMPLISHMENTS**



10

**ROCK ISLAND DISTRICT (MVR)
ACCOMPLISHMENTS 2022**

PLANNING

Lower Pool 13, HREP, Pool 13, IA/IL

- Advanced feasibility study
- Finalized TSP and Completed DQCR

Green Island HREP, Pool 13, IA

- Advanced feasibility study

Pool 12 Forestry HREP – Pool 12, IA/IL/WI

- Advanced feasibility study

Quincy Bay HREP

- Advanced feasibility study



11

ROCK ISLAND DISTRICT

Pool 12 Overwintering

Pool 12 Overwintering Habitat Restoration and Enhancement Project (HREP)

Project Goals

- 1. Increase the amount of deep water habitat in the backwater slough complex of Pool 12 to provide overwintering fish habitat.
- 2. Increase water diversity in the backwater slough complex of Pool 12.
- 3. Increase sustainability of aquatic habitat in the backwater slough complex of Pool 12 by decreasing sedimentation.
- 4. Increase aerial coverage to areas of forest stands with basal area providing cover to a detriment to commercial species in floodplain forest areas containing the backwater sloughs of Pool 12.

Quick Facts

- Location: River Mile 563.9 - 573.5, in DeKalb County, Illinois
- Length: 9.6 miles
- Size: 32.8 acres of aquatic and 32.8 acres of terrestrial habitat covered
- Total project cost: \$40.7 million

Project Features

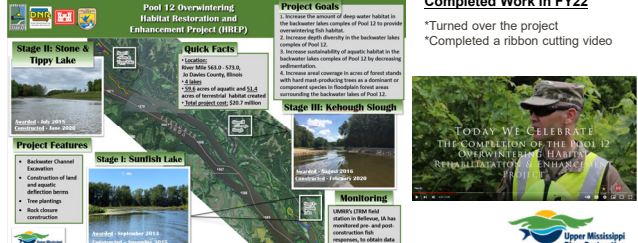
- Backwater Channel Excavation
- Construction of sand and aquatic collection berms
- Tree plantings
- Bank channel construction

Monitoring

USACE's USMR field station in Bellevue, IA has completed pre- and post-construction fish responses to obtain data regarding Project impacts.

Completed Work in FY22

- *Turned over the project
- *Completed a ribbon cutting video



12

ROCK ISLAND DISTRICT

Beaver Island HREP

Completed Work in FY22
 Anchored Logs Installed
 Grading – 90% completed
 Seeding – 75% completed
 More Timber Stand Improvements

13

ROCK ISLAND DISTRICT

Steamboat Island – Stage I

Completed Work in FY22
 *Completed P&S
 *Awarded Construction Contract on August 31st
 *Base Bid – \$3,177,567.00

14

ROCK ISLAND DISTRICT

Keithsburg HREP Stage I

Completed Work in FY22
 *Articulated Concrete Mats-first 500' of the spillway
 *Started the next 500' of the spillway

15

ROCK ISLAND DISTRICT

Keithsburg HREP Stage IIA

Completed Work in FY22
 *Foundation of building
 *Concrete walls of storage building

16

ROCK ISLAND DISTRICT

Huron Island HREP

Completed Work
ERDC SOW - Aquatic Plantings & Monitoring
 *Monitoring visit - June
 *Planting visit - July
 *Monitoring visit - September

17

ROCK ISLAND DISTRICT

BPA (Blanket Purchase Agreement)

Forest Services
 *Lake Odessa – Completed
 -32 acres with 440 trees planted
 *Beaver Island
 -TSI Stand D for \$441,400 – Completed– 74 acres of clearing
 -Plantings for \$546,285 – Post pone placement plantings

Timber Inventory
 *Quincy Bay Inventory – Completed
 -1,000 acres
 *Long Island Inventory – Completed
 -100 acres

18

ROCK ISLAND DISTRICT – UMRR COMMUNICATIONS FY22

Featured Projects/Posts

- River Action Visit to Beaver Island HREP
- UMRR #InvestInOurPlanet Earth Day Overview
- UMRR Celebrates 35 Years of History and Partnership
- President's Budget Announcement for UMRR
- Long-Term Resource Monitoring Activities
- Harper's Slough Before/After Restoration
- Conway Lake/Harper's Slough Ribbon Cutting
- Keithsburg HREP
- Steamboat Island HREP
- Upper Miss. and Illinois River Status and Trends Report
- Pool 12 Overwintering HREP Ribbon Cutting
- Quincy Bay HREP Public Input Opportunity

YouTube Videos

- Three videos created in FY22
- UMRR Celebrates 35 Years of History and Partnership
- Pool 12 Overwintering HREP Virtual Ribbon Cutting
- Quincy Bay HREP Public Input Opportunity
- Videos garnered 482 views, 9 'likes' and 28.8 hours of viewership

Social Media Analytics

- Facebook/Instagram
 - 15,074 users reached
 - 467 likes/reactions
 - 16 comments
 - 58 shares
- Twitter
 - 2,940 users reached
 - 117 engagements (likes, retweets, etc.)
- #InvestInOurPlanet UMRR Earth Week Campaign
 - 12 posts across Facebook & Twitter
 - 6,569 total users reached

19

FACT SHEETS

- MVR Result: 4 (of 5) Fact Sheets
 - Approved on September 2020 – Pool 18 Forestry HREP, Louisa and Des Moines Counties Iowa
 - Approved on November 2020 – Lower Pool 11, Riverine, Backwater HREP, Wisconsin
 - Approved on February 2022– Multi Pool Habitat Protection, Pools 11, 12, 13, 14 and 17 HREP, Wisconsin, Iowa, Illinois
 - Approved on January 2022 – Geneva and Hershey Island HREP, Muscatine, Iowa
 - Not Approved – Upper Pool 13, HREP Jackson County, Iowa and Carroll and Jo Davies Counties, Illinois.

Start a new project in 4th Quarter in FY23

Tier 1 Projects – Multi-Pool Habitat Protection and Lower Pool 11

Tier 2 Projects – Upper Pool 13 and Geneva and Hershey Islands

Tier 3 Project – Pool 18 Forestry

20

ST. LOUIS DISTRICT FY22 ACCOMPLISHMENTS

21

ADVANCED CONSTRUCTION - MVS AWARDED CONSTRUCTION CONTRACTS, TASK ORDERS, AND MODIFICATIONS

CONSTRUCTION

Crains Island, IL HREP (Open River)

- Completed Sediment Deflection Berm, dike removals, and wetland excavation (Stage I), **Our first Open River Project!**

Clarence Cannon Refuge, MO (Pool 25)

- Pump Station 99% complete
- Berm Setback 80% Complete

Piasa & Eagles Nest, IL HREP (Pool 26)

- Completed Stage I Construction

22

ST. LOUIS DISTRICT

Pump Station 99% Complete

**Clarence Cannon HREP
Pump Station**

23

ST. LOUIS DISTRICT

Berm Setback 80% Complete

**Clarence Cannon HREP
Berm Setback**

24



ST. LOUIS DISTRICT

Completed Stage I



Phase 1 Explain Next Islands HREP
Stage One Island and Flow
Modification Construction





25



ADVANCED DESIGNS FOR CONTRACT AWARD



Piasa & Eagles Nest Islands, IL (Pool 26)

Stage 2

- [Sponsor IDNR](#)
- Completed Stage 2 P&S Package
- Delivered to our Contracting Office



Oakwood Bottoms, IL (Open River)

- [Sponsor Forest Service](#)
- Well Pumps Package P&S
 - P&S 85% Complete
- Pump Station Package P&S
 - P&S 85% Complete
- Earthwork Package
 - Combined North and South Packages
- P&S 75% Complete



Oakwood Bottoms Post Construction Map








Upper Mississippi River Restoration
Army Corps of Engineers

26

ADVANCED FEASIBILITY PLANNING


Yorkinut Slough IL River
Sponsor FWS



- Completed Feasibility Modeling
- Completed Alternative Design
- Initiated Cost Development For ICA & TSP
- Coordinated with DU Project
- Transitioned New PDT members
- Site Visits & Sponsor Coordination




West Alton Islands Pools 26
Sponsor MDC
Sponsor FWS

- Refined Project Scope
- Completed Alternatives IPR
- Completed Additional Data Collection
- Formulated Alternatives
- Initiated modeling
- DQC Kickoff













27



ADVANCING UMRR (MVS)

- Build Capacity and Maintain Capability
- **MVS New Work Fact Sheets**
 - ✓ *Drafted - Spunky Bottoms, TNC / IDNR, IL River*
 - ✓ *Drafted - Cape Slough, USFS, MS Open River*
 - ✓ *Drafted - Meredosia Lake, FWS IL River*
 - ✓ *Completed site visit to Cypress Creek Refuge to discuss new fact sheet(s) with FWS Refuge Manager*
- Construction and Operations Lessons Learned
 - Completed site visits to Swan Lake, Cuivre Island, Calhoun Point, and Dresser Island
- Swan Lake Flood Damage Assessment Letter Report advanced. Completed sites visits, measures identified, action alternatives, modeling, and Sponsor coordination
- Public Outreach
 - Completed initial 508 compliance review for 3 feasibility studies that ultimately will be available on the web

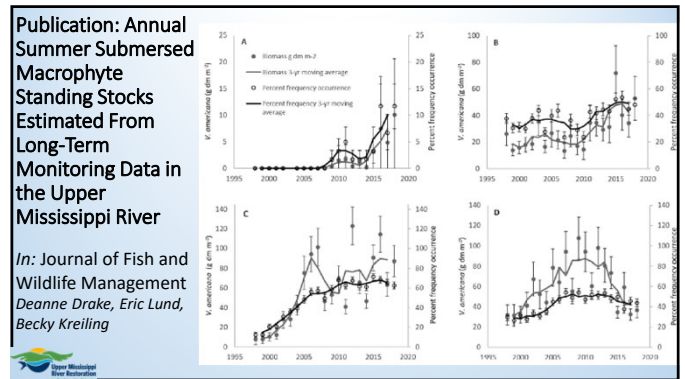






28

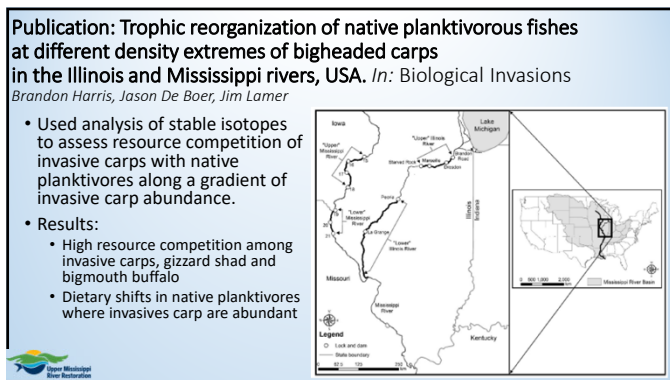
29



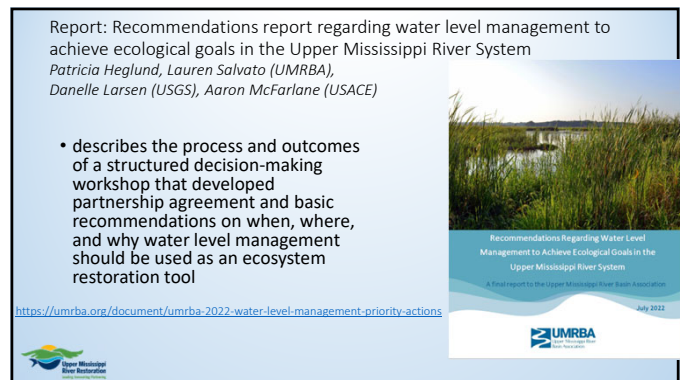
1



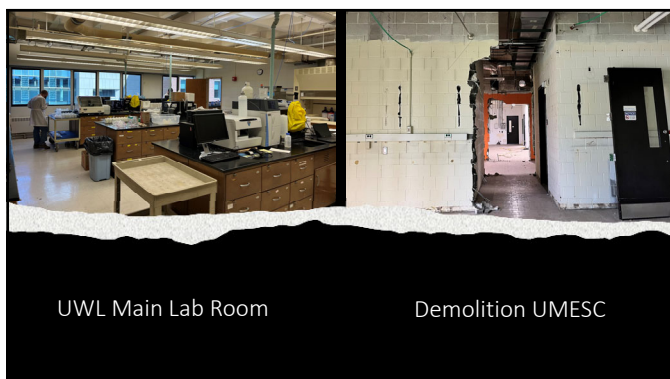
2



3




4





5


UMRR MONITORING AND SCIENCE UPDATE

Karen Hagerty
Rock Island District
16 November 2022





The views, opinions and findings contained in this report are those of the author(s) and should not be construed as an official Department of the Army position, policy or decision, unless so designated by other official documentation.

  US Army Corps of Engineers



1

UMRR MONITORING & SCIENCE FY22


2 SOWs in FY22

- SOW for LTRM base monitoring
\$5.0M
- SOW for science in support (analysis under base)
\$1.3M

Both SOWs together are equivalent to a fully funded UMRR LTRM element \$6.3M



Science in Support of Restoration & Management
\$2.5M

TOTAL: \$8.8M



2

UMRR MONITORING & SCIENCE FY23

\$33.17 Million UMRR Program


2 SOWs in FY23

- SOW for LTRM base monitoring
\$5.0M
- SOW for science in support (analysis under base)
\$1.3M

Both SOWs together are equivalent to a fully funded UMRR LTRM element \$6.3M



Science in Support of Restoration & Management
\$2.5M

TOTAL: \$8.8M



3

UMRR MONITORING & SCIENCE FY23

\$55 Million UMRR Program


2 SOWs in FY23

- SOW for LTRM base monitoring
\$5.5M
- SOW for science in support (analysis under base)
\$1.5M

Both SOWs together are equivalent to a fully funded UMRR LTRM element \$7.0M

Science in Support of Restoration & Management
\$6.85M

TOTAL: \$13.85M






4

UMRR MONITORING & SCIENCE FY23

LTRM



	Budget (gross)
MN	\$793,118
WI	\$786,026
IA	\$532,987
Great Rivers (IL)	\$532,643
Big Rivers & Wetlands (MO)	\$542,474
IRBS (IL)	\$562,848
Equipment	\$233,986
Component meeting	\$ 10,571
STATES TOTAL (-carry-in)	\$3,934,912
UMESC TOTAL	\$3,400,019
Corps tech/science reps	\$ 63,000
TOTAL FY23 LTRM BUDGET	\$7,397,931



5

UMRR MONITORING & SCIENCE FY23


 

Science in Support of Restoration and Management



High priority items

A. LTRM balance	\$ 464,671
B. Ecohydrology	\$ 459,797
C. LCU processing (last year)	\$ 335,238
D. Proposal adjustments	\$ 28,884
E. Macroinvertebrate contaminants	\$ 77,483
F. Herbarium	\$ 21,000
G. Future landscape modeling	\$ 588,674

Subtotal **\$1,975,747***



6

**UMRR MONITORING & SCIENCE FY23**

Science in Support of Restoration and Management

Remaining funds


\$4,900,000

Other priority items

A. Additional FS equipment, WQ lab

B. Unfunded FY22 proposals

C. Updating topobathy (w/NESP support)



Analysis Team chair update

Scott Gritters
Fish Management Biologist
Iowa Department of Natural Resources
Bellevue, Iowa
Notes from October 25, 2022 meeting



DNR IOWA
 DEPARTMENT OF NATURAL RESOURCES

1

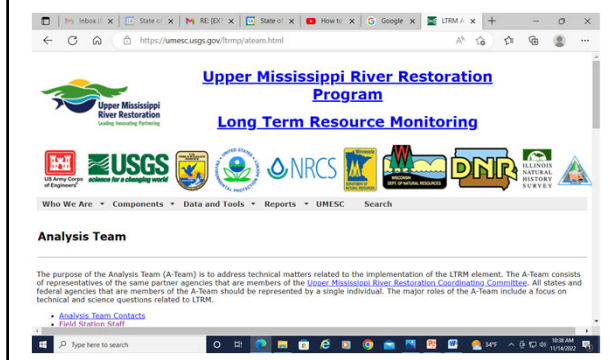
Getting A-team corner UTD

- We display information about the A-team on two different places on the web
- One run by the USGS (A-team corner)
- One run by the Corps (Rock Island Website)
- Discussed how to get UTD on all information displayed especially esp. on A-team corner
- Includes field station information, yearly highlights etc.,
- Some information out of date and of course covid influence

DNR IOWA
 DEPARTMENT OF NATURAL RESOURCES

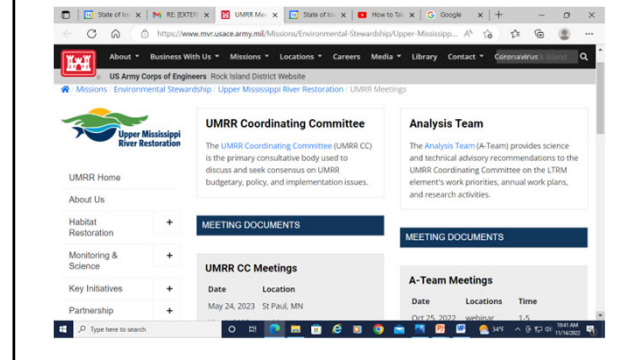
2

A-team corner

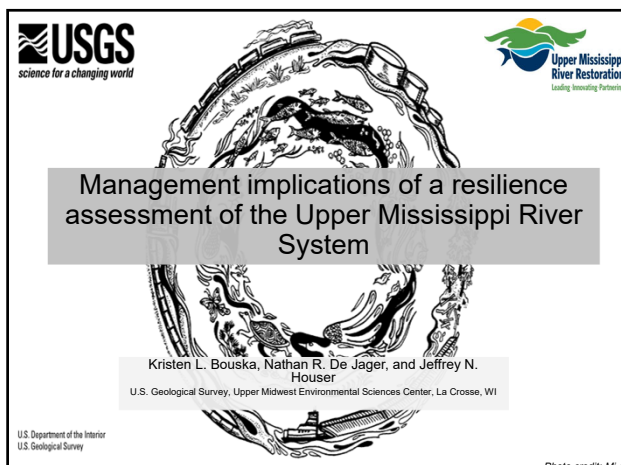


3

Corps Website

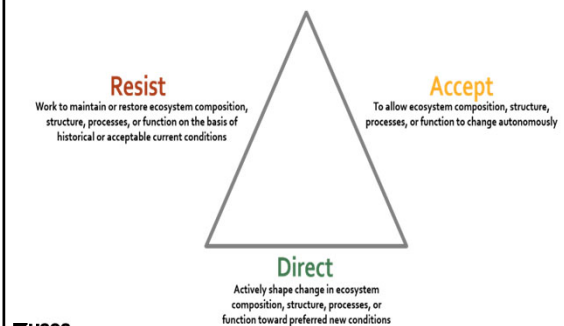


4



5

Resist-Accept-Direct (RAD)



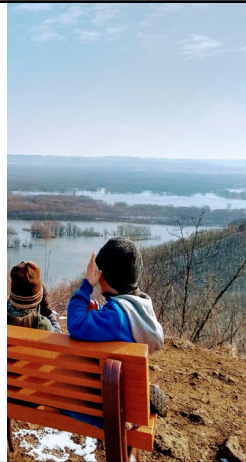
USGS

Adapted from Thompson et al. 2022

6

Conclusions

- Assessing resilience can aid in navigating the resist-accept-direct framework
 - General resilience
 - Distance to thresholds
 - Desirability of conditions
- Understanding trajectories of change and implications on ecological resources can aid in evaluating management actions under future scenarios



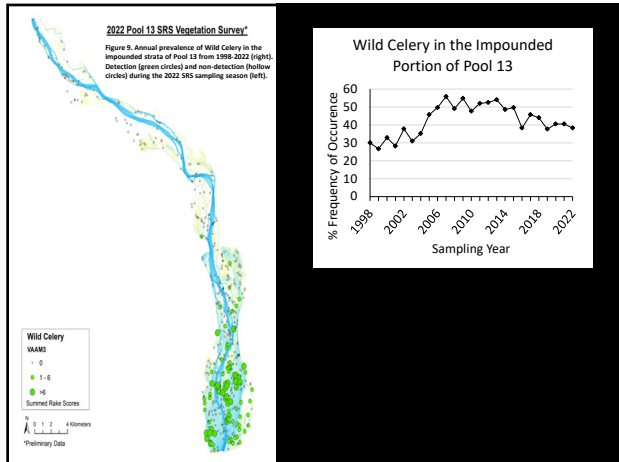
7

2022 Pool 13 Aquatic Vegetation Summary



Seth Fopma
Iowa Department of Natural Resources
Bellevue LTRM Station

8



9

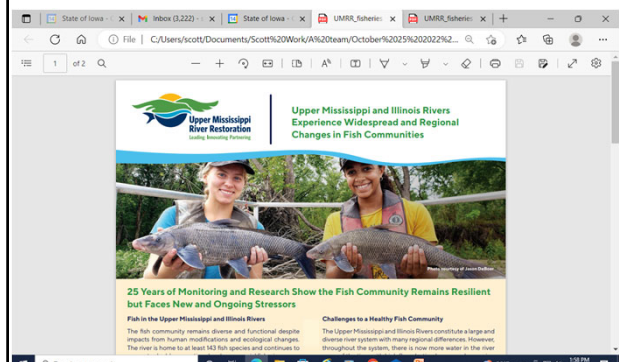
How can A-team help with HREP/LTRM Integration?

- Long discussion
- Each situation HREP is different
- Make sure all on PDT's know what information is available
- Make sure in LTRM trend information is presented early on in the process
- Make sure the PDT's know that the A-team chair or reps will respond to any information needs



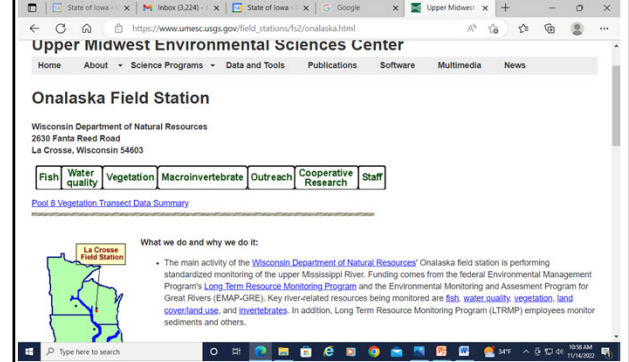
10

UMRBA Brochures



11

Field Station in Focus



12



13

UMRR LTRM Implementation Planning Update

UMRR Coordinating Committee Quarterly Meeting
16 November 2022
Davenport, Iowa



1

Implementation Planning

Why? To prepare for potential increased funding resulting from increased UMRR authorization under WRDA 2020.

Goal: Develop a set of portfolios of actions that best address UMRR management and restoration information needs.

Examples of possible new work include (but are not limited to):

- Short-term, focused research studies
- Increased capacity for analysis of existing LTRM data
- Spatial expansion of baseline monitoring (and associated analyses)
- Addition of long-term monitoring components (and associated analyses)



2

Progress

- Formation of Implementation Planning Group and selection of facilitators
- **March 2022:** Bi-weekly meetings begin
 - Agree on Opportunity Statement
 - Draft Restoration and Management Information needs for the UMRS
 - Draft criteria for assessing information needs.
- **13-15 September:** In-person workshop:
 - Review revisions of information needs document
 - Agree on initial working draft of criteria
 - Discuss and test approach for prioritization of information needs and optimization of portfolios of work.
- **28 October:** Information needs [D-16] and scoring criteria finalized [D-37]
- **10 November:** Scoring of information needs submitted to facilitators



3

Categories of Information Needs [D-16]

- Floodplain ecology
- Hydrogeomorphic change
- Aquatic ecology
- Restoration applications



4

Example Information Needs [D-16]

Floodplain Ecology

- Vegetation change across the system
- Distribution of birds and bats

Hydrogeomorphic change:

- Geomorphic trends
- Evaluation of large woody debris source, transport, and fate

Aquatic ecology

- Mussel distribution
- River gradients

Restoration Applications

- Floodplain vegetation change at the HREP scale
- Soil dynamics and ecosystem processes at the HREP scale



5

Criteria for assessing Information Needs [D-37]

- Relevance/Importance to Ecosystem Understanding and Assessment
- Relevance/Importance to Management and Restoration
- Depth of Current Knowledge (less current knowledge -> higher score)
- Opportunity to Learn
- Urgency
- Unique capacity



6

Next steps [D-15]

- **10 November** – Deadline for submitting scoring of information needs to facilitators
- **17 November** – Facilitators present, and group discusses, results of second round of information need scoring
- **5 December**. Initial, *approximate estimates* of costs of addressing each information need.
- TBD: Optimization of Information Needs based on criteria score and estimated costs.
- TBD: Portfolio development



7

Implementation Planning Group

- | | |
|---------------------------|-----------------------|
| • Kirk Hansen IADNR | • Karen Hagerty USACE |
| • Jim Lamer IRBS | • Matt Mangan USFWS |
| • Molly Sobotka MDC | • Steve Winter USFWS |
| • Matt Vitello MDC | • Kristen Bouska USGS |
| • Rob Burdis MDNR | • Nate De Jager USGS |
| • Nick Schlessler MDNR | • Jeff Houser USGS |
| • Neil Rude MDNR | • Jennie Sauer USGS |
| • Andrew Stephenson UMRBA | • Robb Jacobsen USGS |
| • Davi Michl USACE | • Jim Fischer WDNR |
| • Rob Cosgriff USACE | • Madeline Magee WDNR |

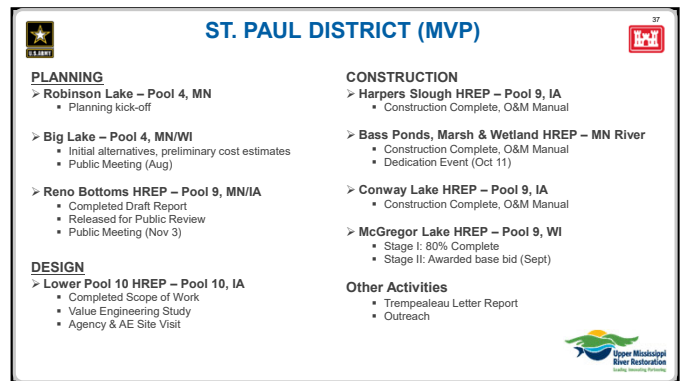
Facilitators:
David Smith (USGS)
Max Post van der Burg (USGS)



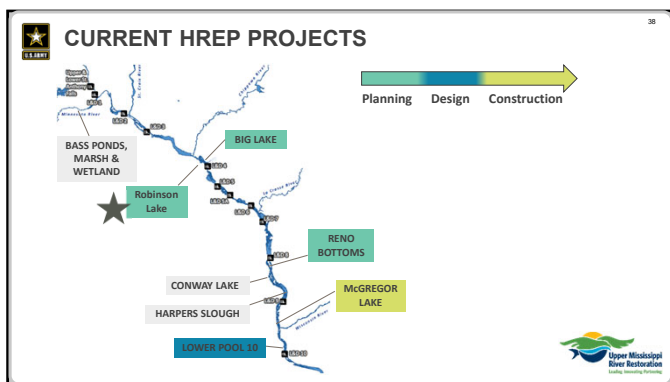
8



36



37



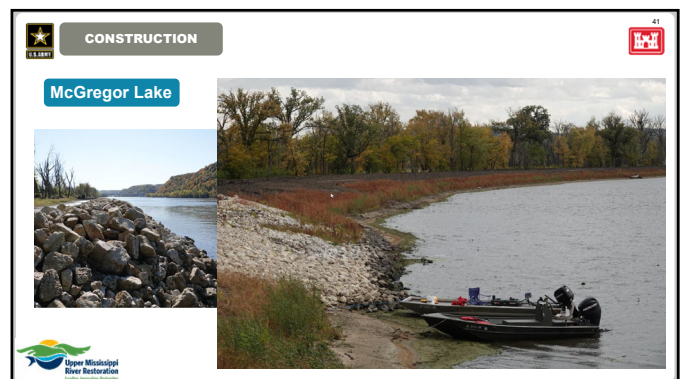
38



39



40



41

ROCK ISLAND DISTRICT (MVR)

PLANNING

- **Pool 12 Forestry – Pool 12, IA/IL/WI**
 - PDT had a site visit on Oct 26th (photos)
 - PDT is working on finalizing the alternatives
- **Green Island – Pool 13, IA**
 - PDT finalizing cost
- **Lower Pool 13 – Pool 13, IA/IL**
 - ATR – Started on Oct 17th – PDT back checking comments
 - Public Review started Nov 7th
 - Virtual Public Q&A Webex is scheduled for Nov 17th @ 4pm
- **Quincy Bay – Pool 21, IL**
 - PDT had an alternatives workshop on Nov 2nd (photos)
 - PDT has concurrence on the final array of alternatives

DESIGN

- **Steamboat Island Stage II – Pool 14, IA/IL**
 - 35% DQC/BCOE – completed
 - 65% DQC/BCOE – scheduled to start in Jan

CONSTRUCTION

- **Pool 12 Overwintering, Pool 12, IL**
 - Turned project over
- **Beaver Island Stage IB, Pool 14, IA/IL**
 - Contractor working on cleaning up the channel (Photos)
- **Steamboat Island Stage I – Pool 14, IA/IL**
 - Awarded contract on Aug 31st
 - Contractor working on submittals
- **Keithsburg Division Stage I, Pool 18, IL**
 - Construction started on the next 500' of the spillway
- **Keithsburg Division Stage II, Pool 18, IL**
 - Finishing the concrete walls on the storage building
 - Storage building scheduled to arrive on-site Nov 22nd
- **Huron Island, Stage III - ERDC, Pool 18, IA**
 - Ribbon cutting completed on Sep 7th
- **FACTSHEETS**
 - Still addressing sponsor comments on Upper Pool 13

42

ROCK ISLAND DISTRICT

Pool 12 Forestry Site Visit

Quincy Bay Workshop

43

ROCK ISLAND DISTRICT

Beaver Island

Loading Truck at Blue Bell West

Tree Planting

Blue Bell West Placement Site

44

MVR HREP PROJECTS

45

ST. LOUIS DISTRICT (MVS)

PLANNING –

- **West Alton Islands, MO, HREP (Pool 26)**
 - Continue Feasibility Planning
 - H&H modeling nearing completion
 - Sponsor meeting scheduled
- **Yorkinut Slough, IL HREP (IL River)**
 - Continue Feasibility Planning, Site Visit Scheduled
 - Finishing cost for ICA and draft TSP

DESIGN –

- **Piasa & Eagles Nest, IL HREP (Pool 26)**
 - Hydraulic Channel Excavation
 - P&S Complete 4th Quarter FY22
- **Harlow Island, IL HREP (Open River)**
 - Initiate Stage 2, P&S 1st Quarter FY23
- **Oakwood Bottoms, IL, HREP (Open River)**
 - Complete 4 P&S packages 1st & 2nd Quarter FY23
 - Pump Station, Well Pumps, North & South Units
 - Earthwork & Water Control Structures

CONSTRUCTION –

- **Crains Island, IL HREP (Open River)**
 - Stage 2, P&S Update 2nd & 3rd Quarter FY23
- **Crains Island, IL HREP (Open River)**
 - Channel Cleanout Acquisition
- **Piasa & Eagles Nest, IL HREP (Pool 26)**
 - Stage II – Pre-Solicitation issued 26 Oct
 - Contract Award and Task Order 1 Issue Anticipated early 2nd Quarter FY23
- **Clarence Cannon Refuge, MO (Pool 25)**
 - Exterior Berm (Levee) Setback Continues

Other Activities

- FS, INDR/TNC, FWS - New Fact Sheets Drafted
- Letters of Support / Endorsement
- Swan Lake Flood Damage Assessment
- Letter Report Draft 2nd Quarter FY23

46

MVS HREP PROJECTS

47



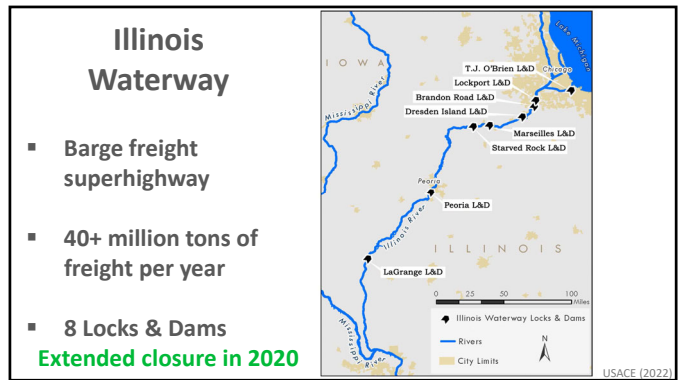
1



2



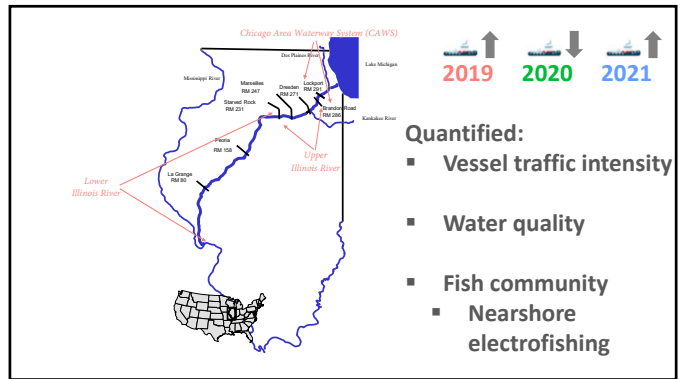
3



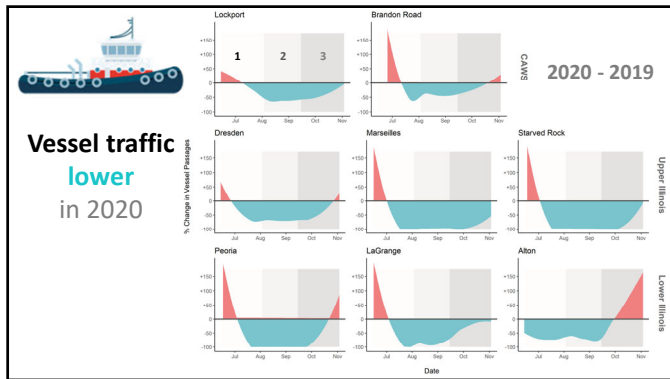
4



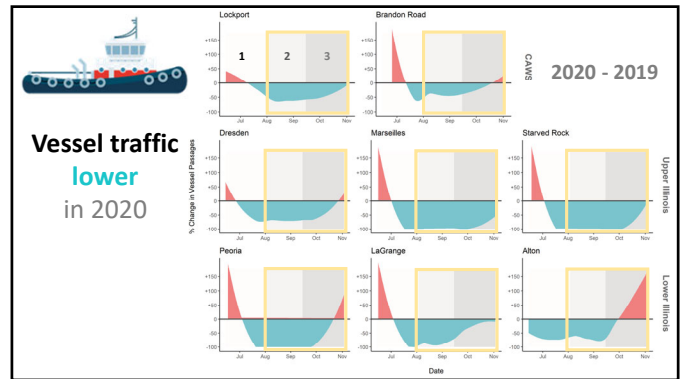
5



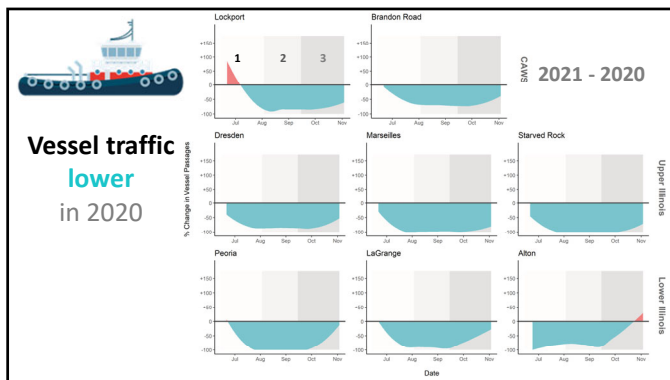
6



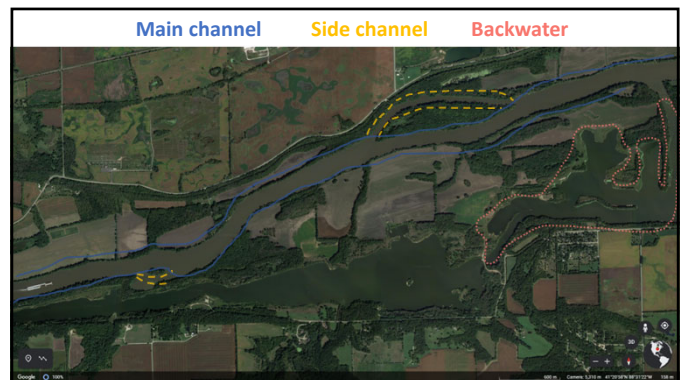
7



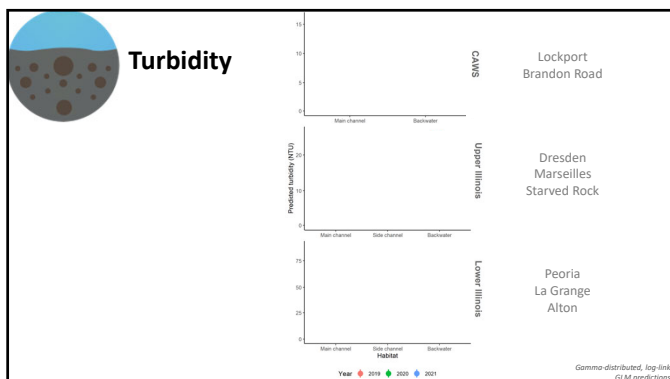
8



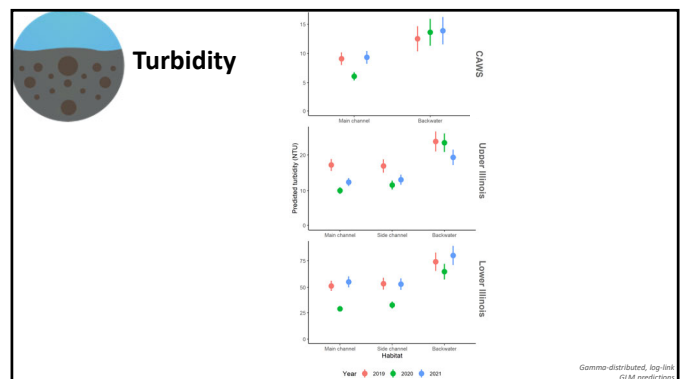
9



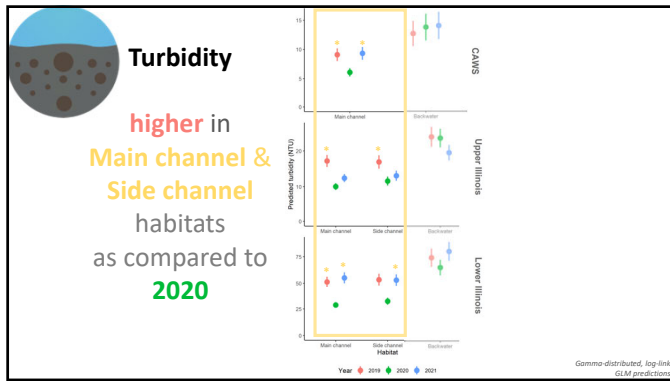
10



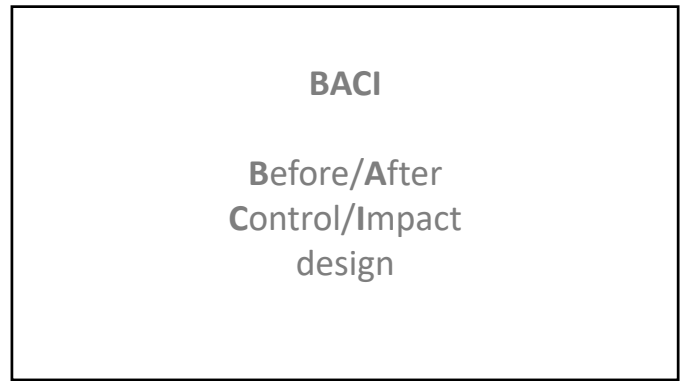
11



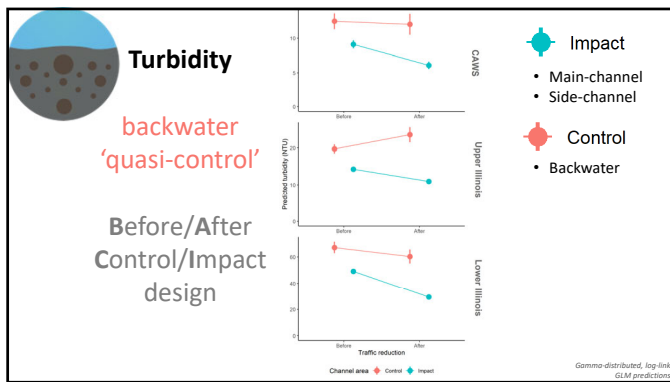
12



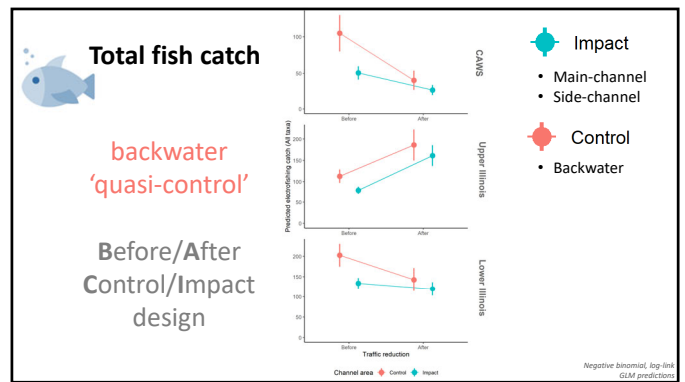
13



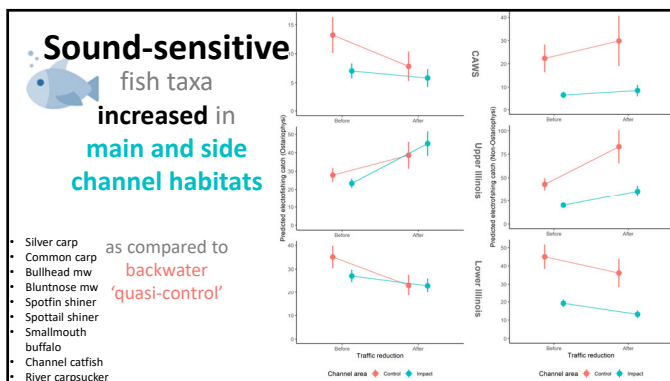
14



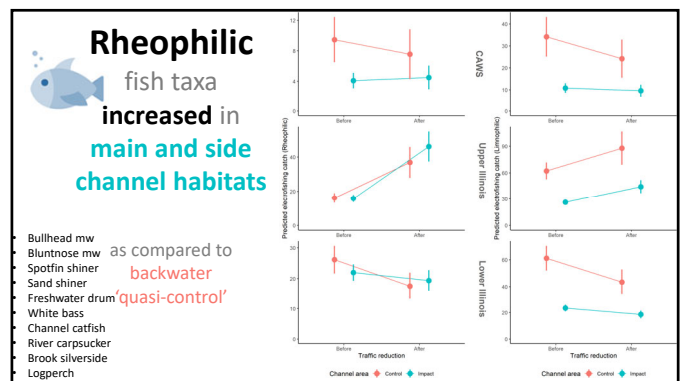
15



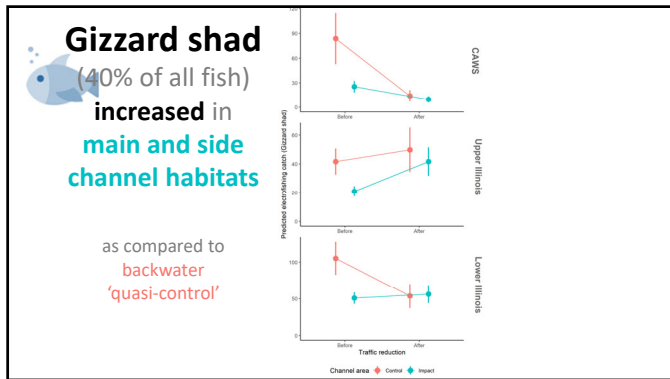
16



17



18



19

Takeaways

- Extended closure of locks and dams in **2020**
 - Ecosystem-scale opportunity to assess anthropogenic impacts of vessel traffic to a large river

20

Takeaways

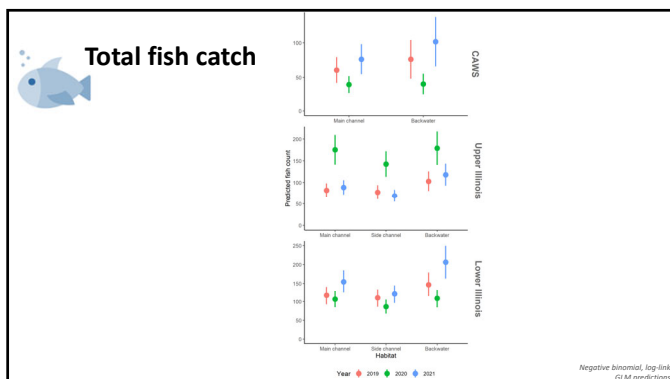
- Extended closure of locks and dams in **2020**
 - Ecosystem-scale opportunity to assess anthropogenic impacts of vessel traffic to a large river

2020 viewed as a short-term "restoration" of high-traffic 2019 and 2021:

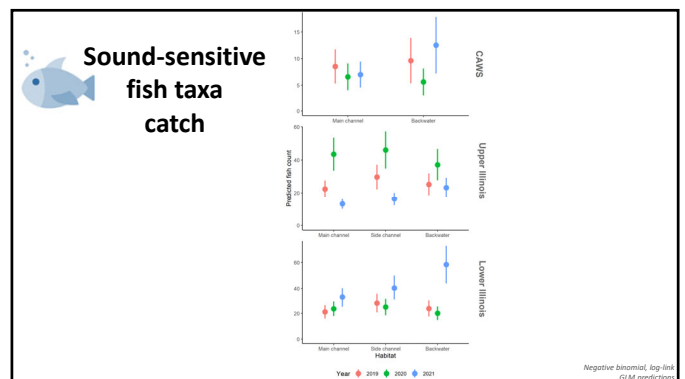
- Reduced** vessel traffic
- Reduced** turbidity
- Increased** fish catch
 - In **main channel** and **side channel** habitats as compared to **backwater** 'quasi-control'
 - Sound-sensitive and Rheophilic taxa, and Gizzard shad

21

22



23



24

Huron Island Complex Habitat Rehabilitation and Enhancement Project Aquatic Vegetation Update

Lynde L. Dodd¹, Ricardo Luna¹, Aaron Schadt¹, and Collin Moratz²

Lewisville Aquatic Ecosystem Research Facility
Rock Island District

UMRR-CC Quarterly Meeting
11/16/2022

¹Research Biologist, Lewisville Aquatic Ecosystem Research Facility, U.S. Army Engineer Research and Development Center (USACE), Lewisville, TX
²Interdisciplinary, Regional Planning and Environment Division, North at Rock Island District, Rock Island, IL

ERDC
US Army Corps of Engineers
Innovative solutions for a safer, better world

1

Huron Island, Goose Lake – Establish, Monitor, and AM of Native Aquatic Vegetation –

Location: Rock Island District, Pool 18, Upper Mississippi River Mile, Des Moines County, Iowa
Purpose: Restore backwater habitat by excavating channels 8–ft. below flat pool, Goal: Provide overwintering/year-round fish habitat
Authorization: Upper Mississippi River Restoration Program (UMRRP) under WRDA 1986
Project Features:

- Construct bathymetric and topographic diversity adjacent to and in backwater areas;
- Construct topographic diversity in non-diverse forested areas;
- Establish native aquatic and floodplain forest vegetation;
- Construct a closure structure in Garner Chute; and
- Protect small side channel island and bankline protection in Huron Chute from erosion.

ERDC Support:

- Develop and implement 3-Year aquatic vegetation establishment plan (~6 acres, > 1 mile shr.)
- Use flood tolerant native plant species of regional provenance
- Monitor employing adaptive management strategies 2-Years

Progress to date:

- FY18 – Site evaluation and propagule collection/initiate culture
- FY19 – Additional propagule collection, propagation/production, initial plantings
- FY20 – Monitor/AM vegetation community development, continue supplemental propagation and outplantings
- FY21 – Monitor/AM vegetation community development, continue supplemental propagation/culture maintenance and outplantings
- FY22 – Monitor/AM vegetation community development, supplemental propagation/culture maintenance and outplantings – Update to MVR

US Army Corps of Engineers • Engineer Research and Development Center

2

FY18-FY20 ERDC support:

FY18 – Initial site evaluation, planting plan, propagule collection, begin culturing plants

- 20 species collected, 15 cultured

FY19 – Additional propagule collection, propagation/production, initial plantings

- August 2019 – herbivory enclosures installed (40)
- 15 spp. (~385 containers)
- Delays/reduced effort from flooding

FY20 – Monitoring, continued propagation/culture maintenance and outplantings; FY20 Report

- Continued delays (COVID)
- September 2020 Assessment/Planting
- Some mortality due to 2019 flooding BUT waterlily, pondweed, spikerush, arrowhead establishing outside excl. (8-50% in excl.)
- 11 species (~140 containers) planted, excl. repaired/repositioned
- Propagule collection – culture
- Vallisneria spiralis*

US Army Corps of Engineers • Engineer Research and Development Center

3

FY21 ERDC support:

FY21 – Monitor/AM vegetation community development, cont. prop./culture maint. and outplantings, FY21 Report

- Continue propagation/culture
- June 2021 Assessment
- Unprotected arrowhead recruitment
- Spread of POND from excl.
- Good to high survival in enclosures (10 spp.)
- July 2021 Planting
- Large effort - 12 spp. (~425 containers)
- New locations near mouth
- September 2021 Assessment/Planting
- Cutgrass obscured shoreline, BUT rushes and arrowheads observed unprotected
- High survival in enclosures (13 spp.)

US Army Corps of Engineers • Engineer Research and Development Center

4

Table 1. Results of native aquatic vegetation establishment efforts for MVR UMRRP Pool 18 Huron Island revegetation, NWFL – Midwest region - all species are OBL - annual species mixed with perennial submersed species. Area not given for installed protected and unprotected transplants, and recruitment of establishing species as of September 2021.

Species	Common name	USDA Code	Habit	Protected				Unprotected				Spread/Recruitment	
				Installed	Transplants	Sept 2021	Plants	Installed	Transplants	Sept 2021	Plants	Culture	Success
<i>Alisma subcordatum</i>	American water plantain	ALSU	Emergent	7	2.0	0.1	0	7	0.06	0	0	0	0
<i>Bolboscheuchzeria palustris</i>	River bulrush	BOFL	Emergent	6	1.8	0.1	3	33	0.13	2	0.063	79	294
<i>Echinochloa crusgalli</i>	Nutsedge	ELAC	Emergent	12	3.5	0.1	6	73	0.59	1	0	4	6
<i>Ludwigia perfoliata</i>	Flowering primrose-willow	LUPF	Emergent	14	4.1	0.1	5	43	0.25	0	0	0	0
<i>Potamogeton nodosus</i>	Potamogeton	POCO	Emergent	12	3.5	0	34	30	0.06	0	0	0	0
<i>Sagittaria arifolia</i>	Broadleaf arrowhead	SALA	Emergent	6	1.8	0	1	47	0.23	11	0.046	238	918
<i>Sagittaria rigida</i>	Scallofist arrowhead	SARR	Emergent	20	5.8	0.1	1	30	0.15	0	0	0	0
<i>Scheuchzeria palustris</i>	Softstem bulrush	SCTA	Emergent	9	2.6	0.1	3	41	0.33	8	0.024	23	92
<i>Sagittaria arifolia</i>	Broadleaf arrowhead	SARR	Emergent	2	0.6	0	6	21	0.17	1	0	8	43
<i>Najas americana</i>	American white waterlily	NYWD	Flowering-leaved	22	14.4	0.2	11	54	0.44	24	0.219	19	31
<i>Cyperus tenuifolius</i>	Common nuttall's	CTOC	Riparian	10	6.6	0.1	6	20	0.16	0	0	0	0
<i>Eleocharis acicularis</i>	Canadian waterweed	ELCA	Submersed	20	12.1	0.3	7	32	0.09	0	0	0	0
<i>Potamogeton nodosus</i>	Longleaf pondweed	POND	Submersed	83	54.5	1.1	34	54	0.48	4	0.006	191	123
<i>Potamogeton amplifolius</i>	Small pondweed	POPU	Submersed	22	14.4	0.2	11	0	0	0	0	0	0
<i>Vallisneria spiralis</i>	American eelgrass	VASM	Submersed	32	21.0	0.3	17	29	0.23	1	0.001	na	na
Total				286	158.5	2.5	124	537	3.56	54	0.262	542	92
Difference													

US Army Corps of Engineers • Engineer Research and Development Center

5

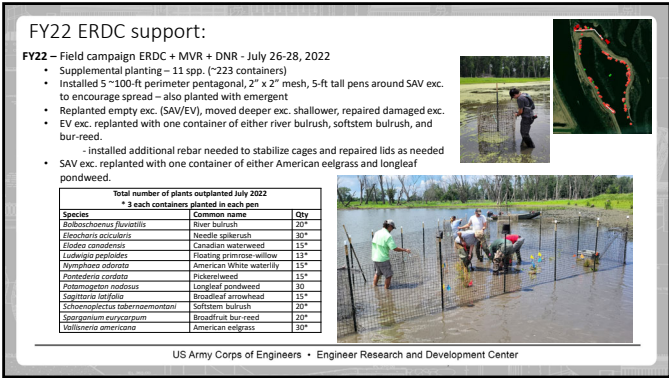
FY22 ERDC support:

FY22 – Monitoring/AM of aquatic vegetation

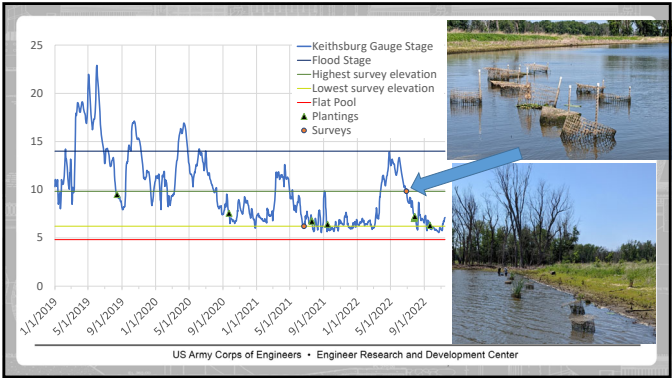
- Native plant culture maintenance/propagation at LAERF
- Vegetation establishment monitoring - assessments 6/28 and 9/21
- Supplemental protected outplantings (pen installations) 7/27
- Project updates to MVR; SOW for continued monitoring
- June - 25-90% cover protected eelgrass, unprotected colonies emergents (bulrush, arrowheads, bur-reed) and SAV (water lilies); recruitment (via seeds or fragments) of emergent (bulrush, arrowhead, bur-reed) and SAV (waterlily and pondweeds)
- July – Demonstrate methods to increase emergent/SAV cover by installing larger protective enclosures (Schadt et al. 2021)

US Army Corps of Engineers • Engineer Research and Development Center

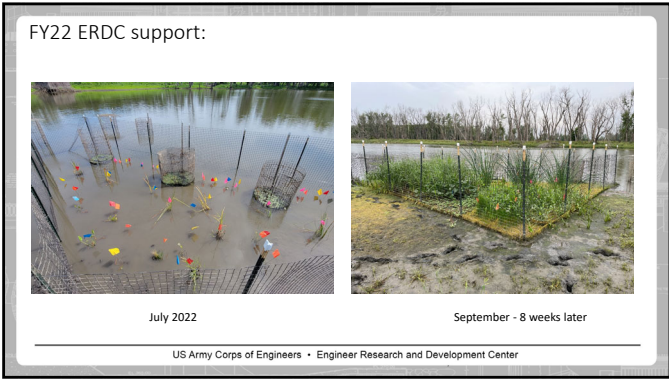
6



7



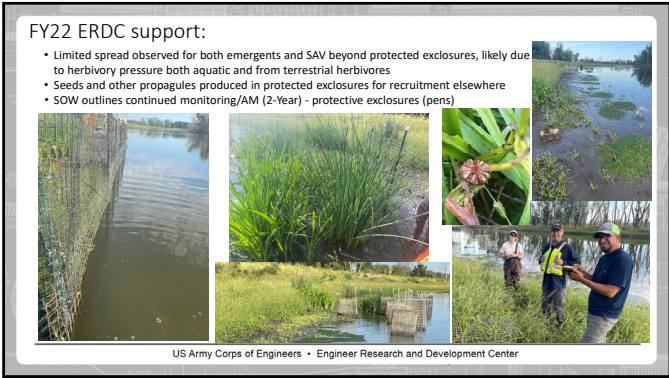
8



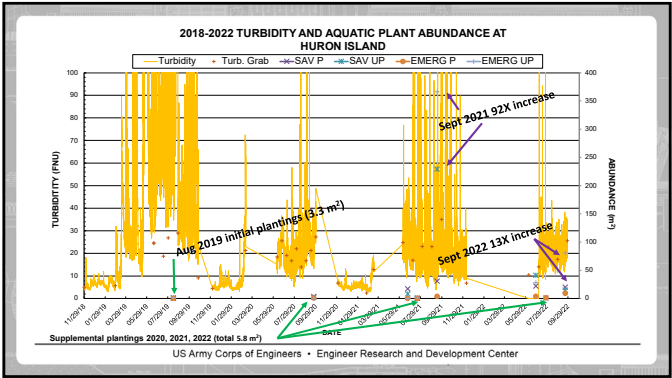
9



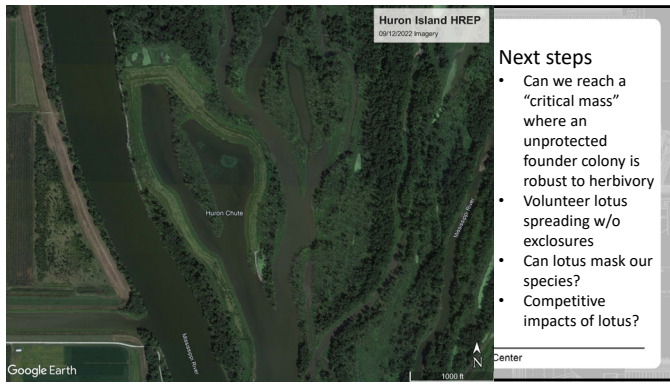
10



11



12



13