Upper Mississippi River Restoration Program Coordinating Committee Quarterly Meeting

March 1, 2023

Highlights and Action Items

UMRR Coordinating Committee Membership

- **Dr. Vanessa Perry was welcomed as Minnesota's new UMRR Coordinating Committee member. Megan Moore has contributed many years to the UMRR Program as an LTRM field station lead as well as Minnesota's representative to the Coordinating Committee. Her expertise, dedication to the UMRS ecosystem and commitment to partnership has contributed significantly to the success of the UMRR Program. Ms. Moore was thanked by the partnership for her many important contributions during her tenure.**

Program Management

- **The FY 23 Consolidated Appropriations Act was enacted on December 29, 2022 that provides $55 million to UMRR.**

- UMRR has obligated over $27 million, or 49 percent, of its $55 million FY 23 funds, as of March 1, 2023. This year marks the first opportunity for the program to budget at the $55 million annual appropriation authorized under WRDA 2020.

- The FY 23 plan of work for UMRR at $55 million 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

- The President's FY 24 budget is anticipated to be released on March 9, 2023. **[Note: The President's FY 24 budget released on March 9, 2023 includes $55 million for UMRR.]**

- **The enactment of WRDA 2022 on December 15, 2022 increased the annual authorized appropriation for UMRR to $90 million. FY 25 will be the first year for the Administration to include an amount greater than $55 million for UMRR in its annual budget proposal. Coordinating Committee members requested undertaking scenario planning to discuss the program and partners' capability in outyears with consideration of Navigation and Ecosystem Sustainability Program (NESP) implementation.**

- **The UMRR 10-year implementation plan includes 24 projects.** It was updated to reflect small changes to project timelines for three projects in St. Louis District including Clarence Cannon, Gilead Slough, and Reds Landing. The schedule will continue to be refined for outyears as more details and specificity on projects becomes available. **This planning tool will be useful in outyear considerations of funding and staffing needs across the partnership particularly as additional projects are initiated.**

- **On January 25, 2023, an *ad hoc* committee established under direction of the UMRR Coordinating Committee met to provide perspectives on approaches, best practices, methods, and tools related to environmental justice in their agency's work**. Participants included many agency personnel specializing in diversity, equity, and inclusion with limited priority experience with UMRR. The *ad hoc* committee also discussed how UMRR currently approaches environmental justice through habitat rehabilitation and enhancement projects. Marshall Plumley shared his observations from the meeting including that though the range of policy and guidance across the partnership varies considerably, environmental justice values are evident throughout. **A follow-up meeting will be scheduled to review and discuss outcomes from the meeting and to consider how to incorporate environmental justice criteria at the outset of the next HREP selection process.**

- **On February 21, 2023, the draft final version of the UMRR 2015-2025 Strategic Plan Review Report was submitted via email to Coordinating Committee members with a request to provide any comments or suggested edits by March 20, 2023. A meeting is anticipated to be scheduled in late March or April to discuss the report in-depth and prioritize actions over the next two years.** The report includes important partner insights and will inform priorities for UMRR in the near term as well as in the next strategic plan.

- **On November 11, 2022, final implementation issue papers were sent to the UMRR Coordinating Committee.** A survey to advance or resolve a suite of options associated with each paper was sent via email on September 21, 2023. **These future actions will be discussed in conjunction with the strategic plan review meeting in late March or April mentioned above.**

- **USACE Headquarters is reviewing the UMRR 2022 Report to Congress prior to transmitting it to Congress.** UMRR Coordinating Committee members received a draft version in November 2022 following which additional letters of support were received and incorporated into the report. **The Corps is drafting a press release and four-page flyer that will be sent to the UMRR Communications and Outreach Team (COT) for review in the near future. Case studies on construction, science, and monitoring activities were developed for the report and can serve as a basis for future outreach efforts.**

- **A UMRR workshop for both HREP and LTRM personnel is anticipated for winter 2023 or spring 2024.**

- **The UMRR Coordinating Committee has set a recurring schedule for HREP selection process to be implemented every five years. The next project identification effort is scheduled to begin in**

2025. The NESP Coordinating Committee has also identified a need for project selection in the near term. A program neutral project selection process is being considered as was done in 2010. Tools to assist in potential project identification are being discussed.

- **Scoping of the next UMRR strategic planning process is anticipated to begin later this year and the strategic planning process is anticipated to occur in FY 24.**

Communications

- **Flyers are complete that describe the condition and trends of the UMRS fisheries, floodplain forests, and sedimentation developed from the most recent Status and Trends Report. The water quality flyer is in final design and the aquatic vegetation flyer is under review by the A-Team and COT. A coordinated release of these flyers is being planned; a survey was distributed to the COT soliciting feedback on draft objectives, strategies, messages, and audiences for the release.**

- **This spring, the UMRR Communications and Outreach Team (COT) will focus on reviewing the draft press release and flyer for the 2022 UMRR Report to Congress.** Sabrina Chandler presented to the COT on initial plans to celebrate the 100th anniversary of the UMR National Wildlife and Fish Refuge in 2024.

UMRR Showcase Presentations

- Julie Millhollin, USACE, presented on the Lower Pool 13 HREP. USFWS is the project sponsor. The project has multiple phases with phase I focused on the southwest corner of the pool and submerged aquatic vegetation (SAV) and phase II of the project focused on water level management and emergent aquatic vegetation. Phase I of the project will increase diving duck habitat by 1992 acres and forest habitat by 535 acres at an estimated cost of $38.8 million. Planning for phase II is beginning.

- Jayme Strange, USGS UMESC, provided an update on the UMRS Topobathy acquisition. Topobathy is the combination of lidar and bathymetry datasets. LiDAR is used to categorize spatial topography of the floodplain and bathymetry quantifies water depth. Topobathy underpins many LTRM science products and activities including models related to flood inundation, forest succession, sediment suspension, wind and wave action, and HEC-RAS. A working group of USGS and USACE experts are developing cost and effort estimates for the acquisition plan to align with Sciencebase and other data storage areas and expect the project to take five to six years. Data acquisition will be supported by both UMRR and NESP. Technology improvements warrant exploring multiple options for acquisition and will require ground truthing.

Habitat Restoration

- MVP's planning priorities include Big Lake – Pool 4, Reno Bottoms, and Robison Lake. A kick-off meeting for Robinson lake was held in January and a public meeting is anticipated to occur in May. The Reno Bottoms feasibility report was approved, and the project will transition to plans and specs with a kick-off value engineering study. The other design priority for MVP is Lower Pool 10, which will use an AE firm for design and engineering during construction. Increased appropriations for UMRR allowed two contract options to be awarded on McGregor Lake HREP. The project has used 500,000 cubic yards of granular material and is a beneficial use success story. MVP initiated a performance evaluation report for the Trempealeau HREP where harmful algal blooms have been problematic.

- MVR's planning priorities include Lower Pool 13 Phases I and II, Green Island, Pool 12 Forestry, and Quincy Bay. Steamboat Island stage II is in design and has completed 65 percent review. MVR has four projects in construction, Beaver Island, Steamboat Island Stage I, Keithsburg Division Stages I and II, and Huron Island Stage III. Construction at Huron Island is complete and ERDC is surveying vegetation and will conduct additional plantings this summer and assessment in September 2023.

- MVS's planning priorities include West Alton Islands and Yorkinut Slough. MVS's design priorities include Harlow Island, Oakwood Bottoms and Crains Island. MVS has three projects in construction: Crains Island Stage I, Piasa and Eagles Nest Stage II, and Clarence Cannons. A contract was awarded for Piasa and Eagles Nest Stage II for side channel excavation and island construction. Other MVS activities include drafting new fact sheets and a flood damage assessment on Swan Lake HREP.

Long Term Resource Monitoring and Science

- Accomplishments of the first quarter of FY 23 include publication of the following manuscripts:
  - *Understanding ecological response to physical characteristics in side channels of a large floodplain-river ecosystem*
  - *Flood regimes alter the role of landform and topographic constraint on functional diversity of floodplain forests*
  - *Survival and Growth of Four Floodplain Forest Species in an Upper Mississippi River Underplanting*
  - *New Records of Spotted Bass, Micropterus punctulatus, within the Mississippi River Basin, Illinois*

- **An LTRM all-hands meeting is scheduled for April 11-13, 2023 in Muscatine.**

- UMRR's LTRM FY 23 budget allocation is $7 million ($5.5 million for base monitoring and $1.5 million for analysis under base) with an additional $6.85 million available for "science in support of restoration and management."

- High priority funding items for science in support of restoration that were presented to the UMRR Coordinating Committee at the November 16, 2022, quarterly meeting total $1,283,150 and include:
  - LTRM balance: $302,060
  - Ecohydrology: $469,970
  - LC processing (last year): $335,240
  - Proposal adjustments: $45,610
  - Macroinvertebrate contaminants: $77,480

  - **New items endorsed by the UMRR Coordinating Committee total $1,281,420 and include:**
    - An herbarium: $22,010
    - Future landscape modeling: $600,140
    - Equipment (FS, UMESC): $659,270

  - **Additional items for consideration include advancing the following four priority FY 22 science proposals totaling $1,550,000:**

- Scoping and vetting new technology and methods for use in future hydrographic and topographic surveys
- Avian associations with management in the UMRS: filling knowledge gaps for habitat management
- Filling in the gaps with FLAMe: Spatial patterns in water quality and cyanobacteria across connectivity gradients and flow regimes in the Lower Impounded Reach of the UMR
- Substrate stability as an indicator of abiotic habitat for the UMR benthic community

— **Remaining FY 23 science in support funds will be used support updated topobathy in conjunction with NESP.**

- The A-Team met on February 3, 2023. The agenda covered the following items:
  — Updating the A-Team Corner and the Corps webpages regarding LTRM information
  — Rotation of the chairpersonship
  — Discussion regarding the A-Team's role in HREP/LTRM integration
  — UMRR program updates including recent discussions on environmental justice, and LTRM implementation planning
  — Identifying areas for conservation and restoration of submerged aquatic vegetation
  — Potential A-Team roles in HREP/LTRM integration
  — Two-page flyers communicating the major findings from the 2022 UMRR LTRM status and trends report
  — Illinois River Biological Field Station staff

  The next A-Team meeting is scheduled for April 19, 2023 in conjunction with the Mississippi River Research Consortium. Matt O'Hara, Illinois DNR, will assume the chair position.

- Over the past several months, the *ad hoc* LTRM implementation planning team has drafted objective statements and identified and prioritized information needs using a structured decision-making process. The team is considering the relevance of information needs to both ecosystem understanding and assessment as well as management and restoration along with the depth of current knowledge, cost, opportunity to learn, urgency, and unique capacity of LTRM to address the information need. **The team is planning to report its recommendations for information needs to the UMRR Coordinating Committee at its May 24, 2023 quarterly meeting. Following the Committee's endorsement of information needs, the *ad hoc* group plans to develop in-depth work plan proposals and with associated costs.**

Other Business

- **Dr. Patrick Kelly was hired as the new Wisconsin Field Station Team Leader.**

- **Kraig Hoff, a Wisconsin DNR field operations specialist passed away on Tuesday February 14th, 2023 after a 19-year battle with brain cancer.** As an avid outdoorsman, Kraig loved hunting, fishing, golfing and many other outdoor activities. He dedicated his career to working at the LTRM field station.

Upcoming quarterly meetings are as follows:

- **May 2023 – St. Paul**
  - UMRBA quarterly meeting – May 23
  - **UMRR Coordinating Committee quarterly meeting – May 24**

- **August 2023 – La Crosse**
  - UMRBA quarterly meeting – August 8
  - **UMRR Coordinating Committee quarterly meeting – August 9**

- **October 2023 – St. Louis**
  - UMRBA quarterly meeting – October 24
  - **UMRR Coordinating Committee quarterly meeting – October 25**

UMRR COORDINATING COMMITTEE - REGIONAL MANAGEMENT AND PARTNERSHIP COLLABORATION

Upper Mississippi River Restoration
Leading·Innovating·Partnering

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

1 March 2023

US Army Corps of Engineers

1

REGIONAL MANAGEMENT AND PARTNERSHIP COLLABORATION

- FY 2023 Fiscal Update and FY 24 Outlook
- Environmental Justice
- Strategic and Operation Plan review
- Implementation Issues
- 2022 Report to Congress

2

FY 2023 FISCAL UPDATE AND FY 2024 OUTLOOK

3

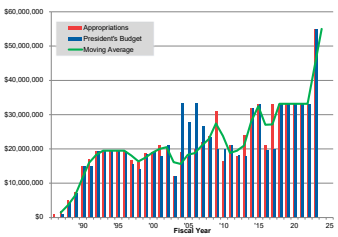
FY 23 APPROPRIATIONS

President's Budget	$55,000,000
House	$55,000,000
Senate	$55,000,000
FINAL APPROPRIATION	$55,000,000

4

FUNDING

- Since 2018, Congress has funded the program to levels matching UMRR's full authorized annual amount of $33.17 million
- WRDA 2020 Authorization $55M
- FY 23 $55 Appropriation
- WRDA 2022 Authorization $90M



5

FINANCIAL REPORTING

UMRR Quarterly Budget Report: St. Paul District
FY2023 Q1; Report Date: Mon Jan 09 2023

Habitat Projects

Project Name	Cost Estimates			FY2023 Financials			
	Non-Federal	Federal	Total	Carry In	Allocation	Funds Available	Actual Obligations
Bass Ponds, Marsh, and Wetland	-	$6,300,000	$6,300,000		-	-	$30,931
Conway Lake	-	$7,413,000	$7,413,000	-	-	-	$2,271
Harpers Slough	-	$13,675,000	$13,675,000	-	-	-	-$262,462
Lower Pool 10 Island and Backwater Complex	-	$17,000,000	$17,000,000		$3,248,000	$3,248,000	$195,837
Lower Pool 4, Big Lake	-	-	-		$550,000	$550,000	$96,389
McGregor Lake	-	$23,550,000	$23,550,000	$183,743	$6,600,000	$6,783,743	$6,929,582
Reno Bottoms	-	$10,000,000	$10,000,000	$34,983	$200,000	$234,983	$118,767
Robinson Lake, MN	-	-	-	$32,325	$550,000	$582,325	-
Total	-	$77,938,000	$77,938,000	$251,051	$11,148,000	$11,399,051	$7,111,315

Habitat Rehabilitation

Subcategory	FY2023 Financials			
	Carry In	Allocation	Funds Available	Obligations
District Program Management		-	-	$72,666
Total		-	-	$72,666

Regional Program Administration

Subcategory	FY2023 Financials			
	Carry In	Allocation	Funds Available	Obligations
Habitat Eval/Monitoring		-	-	$22,288
Total		-	-	$22,288

	Carry In	Allocation	Funds Available	Actual Obligations
St. Paul Total	$251,051	$11,148,000	$11,399,051	$7,206,269

6

FINANCIAL REPORTING

UMRR Quarterly Budget Report: Rock Island District
FY2023 Q1; Report Date: Mon Jan 09 2023

Habitat Projects

Project Name	Cost Estimates			FY2023 Financials			
	Non-Federal	Federal	Total	Carry In	Allocation	Funds Available	Actual Obligations
Beaver Island	-	$25,288,000	$25,288,000	-	$300,000	$300,000	$46,067
Green Island, IA	-	$16,600,000	$16,600,000	$23,581	$400,000	$423,581	$143,901
Huron Island	-	$15,773,000	$15,773,000	$65,698	-	$65,698	$3,766
Keithsburg Division	-	$29,643,000	$29,643,000	-	$6,600,000	$6,600,000	$165,232
Lower Pool 13	-	$25,288,000	$25,288,000	$48,000	$400,000	$448,000	$197,695
Lower Pool 13 Phase II	-	-	-	$21,306	$600,000	$621,306	$92,140
Pool 19 (Fox 27)	-	-	-	$93,705	$600,000	$693,705	$129,673
Pool 12 Overwintering	-	$20,870,822	$20,870,822	$1,598	-	$1,598	-
Quincy Bay, IL	-	-	-	$12,312	$600,000	$612,312	$122,380
Steamboat Island	-	$41,977,000	$41,977,000	-	$5,952,000	$5,952,000	$5,778,131
TBD	-	-	-	-	$50,000	$50,000	-
Total	$7,280,000	$188,899,585	$196,179,585	$341,755	$13,502,000	$13,843,755	$6,557,205

Habitat Rehabilitation

Subcategory	FY2023 Financials			
	Carry In	Allocation	Funds Available	Obligations
District Program Management	-	-	-	$47,135
Total	-	-	-	$47,135

Regional Program Administration

Subcategory	FY2023 Financials			
	Carry In	Allocation	Funds Available	Obligations
Adaptive Management	-	$100,000	$100,000	-
Habitat Eval/Monitoring	-	-	-	$42,919
Model Certification/Regional HREP	-	$100,000	$100,000	-
Public Outreach	-	$50,000	$50,000	$1,893
Regional Program Management	$2,993	$1,369,000	$1,562,993	$180,039
Regional Project Sequencing	-	$125,000	$125,000	-
Total	$2,993	$1,575,000	$1,977,993	$224,451

Regional Science and Monitoring

Subcategory	FY2023 Financials			
	Carry In	Allocation	Funds Available	Obligations
Long Term Resource Monitoring	-	$5,500,000	$5,500,000	$3,930
Science in Support of Restoration/Management	-	$8,350,000	$8,350,000	$15,973
Total	-	$13,850,000	$13,850,000	$19,903

	Carry In	Allocation	Funds Available	Actual Obligations
Rock Island Total	$344,748	$29,327,000	$29,671,748	$6,848,694

7

FINANCIAL REPORTING

UMRR Quarterly Budget Report: St. Louis District
FY2023 Q1; Report Date: Mon Jan 09 2023

Habitat Projects

Project Name	Cost Estimates			FY2023 Financials			
	Non-Federal	Federal	Total	Carry In	Allocation	Funds Available	Actual Obligations
Clarence Cannon	-	$29,800,000	$29,800,000	-	$950,000	$950,000	$40,472
Crains Island	-	$36,562,000	$36,562,000	-	$1,900,000	$1,900,000	$15,389
Gilead Slough	-	-	-	-	$350,000	$350,000	-
Harlow Island	-	$37,971,000	$37,971,000	-	$325,000	$325,000	$8,059
Oakwood Bottoms	-	$29,000,000	$29,000,000	-	$575,000	$575,000	$235,767
Piasa - Eagle's Nest Islands	-	$26,746,000	$26,746,000	$31,151	$8,300,000	$8,331,151	$40,796
West Alton Missouri Islands	-	-	-	$16,510	$425,000	$441,510	$94,780
Yorkinut Slough, IL	-	$8,500,000	$8,500,000	$13,681	$375,000	$388,681	$117,330
Total	-	$168,579,000	$168,579,000	$61,342	$13,250,000	$13,311,342	$552,993

Habitat Rehabilitation

Subcategory	FY2023 Financials			
	Carry In	Allocation	Funds Available	Obligations
District Program Management	-	-	-	$138,927
Total	-	-	-	$138,927

Regional Program Administration

Subcategory	FY2023 Financials			
	Carry In	Allocation	Funds Available	Obligations
Habitat Eval/Monitoring	$450	$1,275,000	$1,275,450	$86,112
Total	$450	$1,275,000	$1,275,450	$86,112

	Carry In	Allocation	Funds Available	Actual Obligations
St. Louis Total	$61,792	$14,525,000	$14,586,792	$777,632

8

FY23 PLAN OF WORK
28.8%

	Budget	Obligations as of 1 February
TOTAL FY22 Program	**$55,000,000**	**$15,822,457**
Regional Administration and Program Efforts	**$ 1,550,000**	**$292,432**
Regional Management	$ 1,280,000	
Program Database	$ 100,000	
Program Support Contract (UMRBA)	$ 120,000	
Public Outreach	$ 50,000	
Regional Science and Monitoring	**$15,450,000**	**$ 246,924**
LTRM (Base Monitoring)	$ 5,500,000	
UMRR Regional Science In Support Rehabilitation/Mgmt. (MIPR's, Contracts, and Labor)	$ 8,350,000	
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**	**$15,283,101**
St. Paul District	$11,148,000	$ 7,370,734
Rock Island District	$13,502,000	$ 6,877,747
St. Louis District	$13,250,000	$ 1,034,620
Model Cert.	$ 100,000	

9

FY23 PLAN OF WORK
49.2%

	Budget	Obligations last 28 days
TOTAL FY22 Program	**$55,000,000**	**$27,036,936**
Regional Administration and Program Efforts	**$ 1,550,000**	**$442,890**
Regional Management	$ 1,280,000	
Program Database	$ 100,000	
Program Support Contract (UMRBA)	$ 120,000	
Public Outreach	$ 50,000	
Regional Science and Monitoring	**$15,450,000**	**$ 4,310,945**
LTRM (Base Monitoring)	$ 5,500,000	
UMRR Regional Science In Support Rehabilitation/Mgmt. (MIPR's, Contracts, and Labor)	$ 8,350,000	
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**	**$22,283,101**
St. Paul District	$11,148,000	$ 7,370,734
Rock Island District	$13,502,000	$ 6,877,747
St. Louis District	$13,250,000	$ 8,034,620
Model Cert.	$ 100,000	

10

FY 24 APPROPRIATIONS

President's Budget	March 9
House	?
Senate	?
FINAL APPROPRIATION	?

11

WRDA 2022 CHANGES TO UMRR

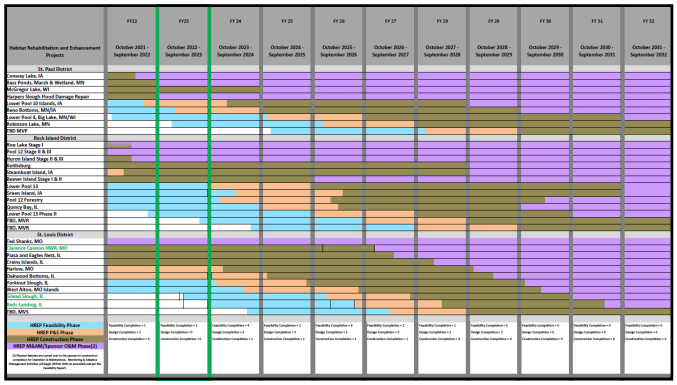
SEC. 8345. UPPER MISSISSIPPI RIVER RESTORATION PROGRAM.

Section 1103(e)(3) of the Water Resources Development Act of 1986 (33 U.S.C. 652(e)(3)) is amended by 21 striking ''$40,000,000'' and inserting ''$75,000,000''.

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

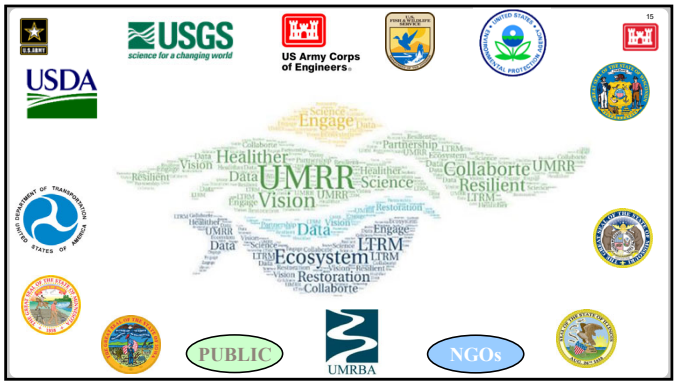
$90,000,000

12

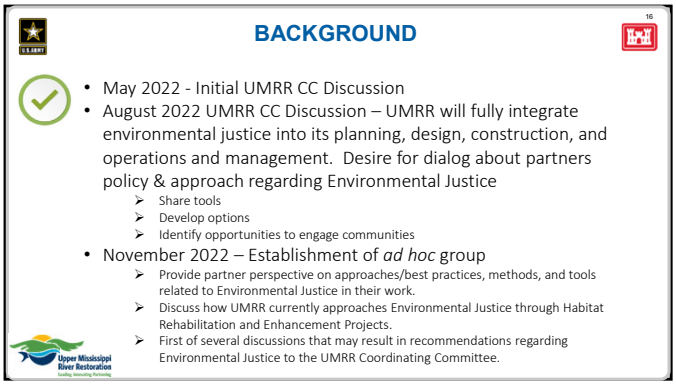


13

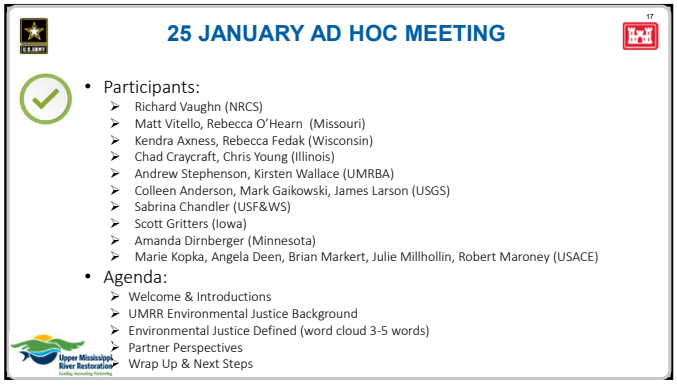
14



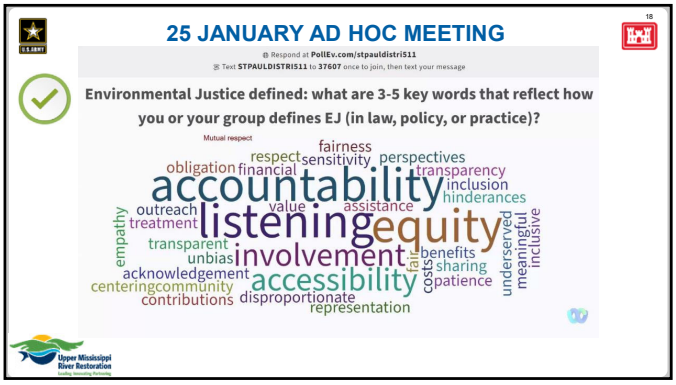
15



16



17



18

OBSERVATIONS

- Policy and guidance vary but EJ values are evident
- Access(ability)
- Recruitment
- Climate Change/EJ Intersection
- Trust
- Connections
- Compensation
- Regional community engagement
- Participation is a promise
- Being part of the community is the best way to make conservation work
- Sense of place
- Natural resource values are changing
- Respect & dignity
- Quality of life
- Proactive instead of just avoidance

19

MOVING FORWARD

- Meeting summary, tools, to participants and UMRR CC in March
- Schedule CC discussion
- Engaging others

20

2015 -2025 STRATEGIC AND OPERATIONAL PLAN REVIEW

21

2015 - 2025 STRATEGIC AND OPERATIONAL PLAN REVIEW

- Report nearing completion
  - September 20, 2021, survey distributed to the UMRR partnership at-large regarding the 2015-2025 Strategic and Operational Plan.
  - 200 individuals from state and federal agencies and non-governmental organizations involved in implementation of UMRR.
  - Fifty-eight responses were received for a 29 percent response rate.
  - The survey included questions about respondents' involvement with UMRR and their assessment of UMRR based on the Strategic Plan's four goals.
  - Participants evaluated success criteria for three of the four goals.
  - Participants prioritized actions meant to support each goal

22

2015 - 2025 STRATEGIC AND OPERATIONAL PLAN REVIEW

- Program Success

Goal 1 Enhance Habitat

- ✓ *Restoration projects provide opportunities for scientific research and inquiry*
- ✓ *HREPs enhance the health and resilience of the UMR*
- ✓ *UMRR serves as a source of guidance on restoration for similar programs nationally*
- ✓ *UMRR is recognized as a premier program in large river restoration*

Goal 2 Advance Knowledge

- ✓ *Research and monitoring inform restoration and management efforts*
- ✓ *UMRR is recognized as a premier program in large river monitoring and science*
- ✓ *UMRR serves as a source of guidance on monitoring and science for similar programs nationally*
- ✓ *UMRR effectively detects the status and trends of the UMR as related to indicators of ecosystem health and resilience*

Goal 3 Communications

[no success criteria were available for Goal 3]

Goal 4 Partnership

- ✓ *The partnership is supportive of the program and its output*
- ✓ *UMRR has a highly engaged regional partnership*

23

2015 - 2025 STRATEGIC AND OPERATIONAL PLAN REVIEW

- Priority Actions

Enhance Habitat

- *Centralize HREP data and collect and digitize historic data currently stored in computers and file cabinets*
- *Establish consistent and standardized HREP monitoring*
- *Complete HREP project evaluation reports (PERs) across districts*
- *Define appropriate temporal and spatial scales for determining physical and biotic response of habitat project objectives*

Advance Knowledge

- *Connect resilience concepts with ongoing and future restoration work*

Communications

- *Link together habitat restoration projects with existing watershed projects and upstream contributors*

Partnership

- *Create a narrative around missed-restoration opportunities because of existing policies*

24

MOVING FORWARD

- Review Report provided 21 February with request for availability for a follow-on discussion in April.
- Request: By March 20, please provide any comments or suggested edits you may have on the attached final report.

25

IMPLEMENTATION ISSUES

26

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:

Issues:

- Project Partnership Agreements (PPAs)*
- Engaging non-traditional sponsors
- Land Acquisition
- Floodplain Regulations
- External Communications
- Federal Easement Lands
- Watershed Inputs and Climate Change
- Water Level Management

*Requires action by Congress to address

27

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:

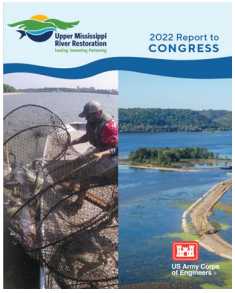
- Establish broad consensus on UMRR CC recommendations on issues and suite of options/alternatives to address implementation issues (future actions table)
- Consider lead agency/personnel for each option should it be pursued.
- Outline next discussion to determine preferred option for each implementation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

28

2022 REPORT TO CONGRESS

29

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
- American Rivers
- Mississippi Interstate Cooperative Resource Association

30

ODDS & ENDS

- HREP Workshop
- Future HREP Project Identification
- UMRR Strategic Plan

31

DISCUSSION

32

UMRR
Status and Trends Report Flyers

Andrew Stephenson

March 1, 2023

1

Status and Trends Flyers

Overview:

To promote the findings of the Ecological Status and Trends of the Upper Mississippi & Illinois Rivers report, five fact sheets are being developed. These will communicate key learnings from the report and be used in multiple ways to educate various stakeholder groups.

Topics will include:

- ✓ Fisheries
- ✓ Floodplain forest loss
- ✓ Sedimentation
- Water quality and nutrients (designed, now in final review)
- Aquatic vegetation (A-Team and COT review of designed version)

2

Fisheries

Key Messages: Fisheries

- Native fish populations have increased in some pools with improved water clarity and more aquatic vegetation.
- Recreational fish have increased in some pools despite changes in fishing methods and technology as well as species targeted by anglers.
- Invasive bigheaded carps now dominate the fish community in the lower reaches of the river system leading to declines in native fish.
- Forage fish are declining throughout much of the river network

3

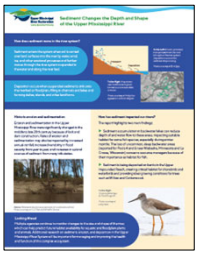
Floodplain Forest Loss

Key Messages: Floodplain Forest Loss

- Floodplain forests are declining due to longer periods of flooding, human modifications to the river and other environmental changes.
- More water means greater stress on floodplain forests which will likely result in additional floodplain forest decline in the coming years.
- Management practices and restoration efforts will ensure the river system continues to provide habitat for wildlife and connect human communities to the river.

4

Sedimentation



Key Messages: Sedimentation

- Sediment can reduce depth of and water flow to backwater lakes, impacting suitable habitat for some fish species, which concerns resource managers
- Sediment deposited on banks is creating critical habitat for shorebirds and waterbirds and provides ideal growing conditions for some trees
- Sediment suspended in the water can affect water clarity, impacting aquatic plant communities

5

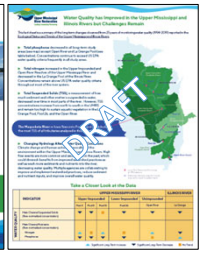
S&T Flyers

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

6

Water Quality – Final Review



Key Messages: Water Quality

—TBD

7

Aquatic Vegetation – A-Team and COT review

Key Messages: Aquatic Vegetation

—TBD

8

S&T Flyer Rollout

February 1, 2023 - UMRR Communications and Outreach Team Meeting

Presented draft:

- Objectives
- Strategies
- Audiences
- Messages
- Tactics
- Timelines

Survey COT for feedback.

February 8-28

9

S&T Flyer Rollout

Objectives:

- Communicate the key findings from the Status & Trends Report
- Provide communication tools which can be used by UMRR partners to offer consistent messages health and future of the river system.
- Educate stakeholders about the health and future of the river system

10

S&T Flyer Rollout

Strategies:

- Leverage the narrative and talking points to create more consistent communications. Utilize partners and agencies to broaden that reach.
- Create a templated approach to the rollout that will ensure alignment of messaging and ease of sharing
- Use storytelling to relay key messages, making findings relatable (read: not technical) to all targeted audiences

11

S&T Flyer Rollout

Audiences:

- Policymakers – Legislators (state and federal)
- Agency Leadership (state and federal)
- General public (recreation, anglers, students, farmers, landowners)
- Conservation / Environmental groups
- Media, particularly key publications (developing media list)

12

S&T Flyer Rollout – Key Messages

Overall Narrative:

— Twenty-five years of long-term resource monitoring data illustrates the fundamental role of science in management of large floodplain river systems.

— The river is changing and long-term monitoring across the system has allowed us to observe those changes

— There is more water more of the time.

— The UMRS is large and diverse with many regional differences

Topic specific messages

13

S&T Flyer Rollout

Tactics:

— How and where the fact sheets are to be distributed

— How to broaden the communications through print, digital, social media, events and community outreach.

Timeline:

— A more detailed timeline will be developed after input from the COT and partners. For now, target deadlines are as follows:

— March: Finalize all fliers

UMRBA to use finished fact sheets in Capitol Hill visits (personal meetings.)

Share finished fact sheets with partners and NGOs – UMRCC meetings

— May/June: External Distribution

— June/July: Social media campaign begins

14

UMRR COT Feedback - Audience

Rank what audience should be prioritized in Status and Trends outreach.

— UMRR Partner Agency staff and leadership

What groups/ audiences are we missing in targeted outreach? Any ideas how to reach them?

— Individuals and entities who affect UMRR's vision that may be somewhat or unfamiliar with the ecosystem:

- Navigation industry,
- Agriculture,
- Levee districts
- Academia,
- Landscape-focused NGOs,
- Other Federal and State agencies – e.g., NIDIS, HTF, USGS water division (streamgaging)
- Local communities
- Underrepresented groups such as minorities and economically disadvantaged communities

15

UMRR COT Feedback – Providing Information

How should we provide information on the Status and Trends to your highest priority audience?

— Bite-size messaging designed to be shared and packaged in various ways

— A live Q&A if audience(s) express a desire for discussion or questions

— Include in Congressional briefing packets and discussions.

— Email to relevant state and federal offices.

What UMRR-basin outreach events are you attending in 2023 (name and date, if possible)?

— Open houses, groundbreaking/ribbon cutting events, quarterly meetings, Hill visits, various regional and national meetings

16

Next Steps

Finalize remaining 2-page flyers:

- Water Quality and Nutrients (Final review)
- Aquatic Vegetation (A-Team and COT review of designed version)

Incorporate additional feedback from COT members to develop digital and print distribution plan

17

UMRR COMMUNICATION AND OUTREACH TEAM
Update

1

Spring 2023 COT Focus Areas

- Be responsive to the achievement of UMRR Strategic Plan - Goal 3 & updates to COT communications plan

  Engage and collaborate with other organizations and individuals to help accomplish the Upper Mississippi River Restoration vision.

- Communications surrounding 2022 UMRR Report to Congress
- Cooperation with UMR NWFR 100th Anniversary and Communications Support
- UMRR Environmental Justice Communication

2

Spring 2023 Focus Areas

- LTRM Status and Trends Report Flyers
  - Review upcoming draft flyers (Water Quality and Aquatic Vegetation)
  - Complete survey on communication and resources for S&T Report findings
  - Assist with dissemination beginning in May/June
- Other LTRM Support
  - Complete survey on priorities, communication needs, and helpful resources for S&T Report findings

3

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

4

LOWER POOL 13 HABITAT REHABILITATION AND ENHANCEMENT PROJECT (HREP)

UPPER MISSISSIPPI RIVER RESTORATION (UMRR) PROGRAM

UMRR-CC
01 March 23



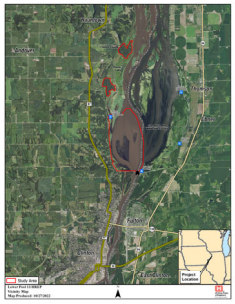
US Army Corps of Engineers

1

LOWER POOL 13 HREP - LOCATION

2

US Army Corps of Engineers



- Whiteside & Carroll Counties, IL and Clinton County, IA
- River Miles 522.5 to 529
- Part of the Upper Mississippi River National Wildlife and Fish Refuge
- One of the widest open river sections on the Upper Mississippi River
- Project lands are Federally-owned
- Consists of backwater lakes, sloughs, flowing channels, and impounded water

PUBLIC

USGS science for a changing world

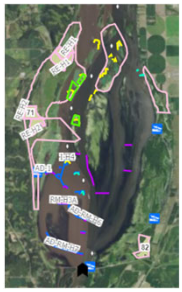
Upper Mississippi River Restoration

2

PROJECT DEVELOPMENT

3

- HREP fact sheet approved in May 2018
- Kickoff charrette & site visit occurred May 2019
- Original fact sheet laid out features to address:
  - Lack of quality overwintering sites
  - Floodplain forest decline
  - Island loss
  - Wind fetch/wave action
  - Flow diversity
  - Lack of seasonal water variation (WLM)
- Team developed & placed features using existing LTRM data
- In summer 2021, Team determined re-scoping and prioritization of objectives needed to occur to bring the study within the scope of an HREP project



3

RESCOPING

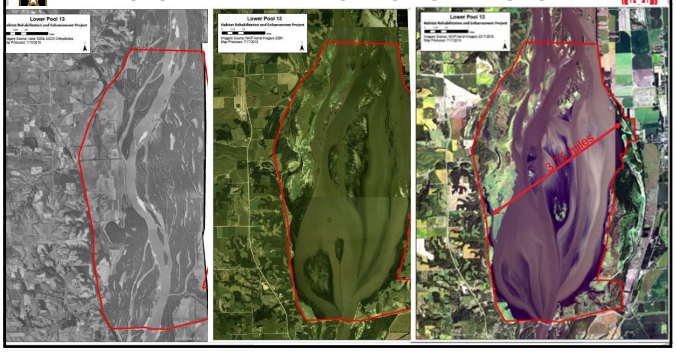
4

- Team prioritized a section of the original project area – "SW Corner"
- Area supports one of the smaller beds of wild celery within the pool; potentially more at risk of disappearing completely
- Separated submerged aquatic veg (SAV) & emergent veg goals at this point
  - **Pool 13 HREP** - Feasibility report addressing SAV
  - **Pool 13 HREP Phase II** - Feasibility report addressing EAV
    - WLM and overwintering as potential features


4

HISTORICAL AND EXISTING CONDITIONS

5

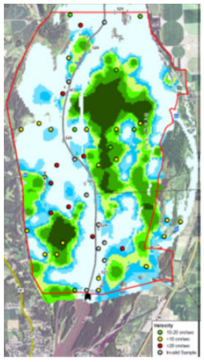


5

AQUATIC VEGETATION

6

- Pool 13 supports an abundance of aquatic vegetation
  - > 13 species of submergent vegetation
    - Wildcelery (*Vallisneria americana*)
  - > 7 species of emergent/rooted floating-leaf
- Novel system
- Represents tremendous resource for migrating waterfowl

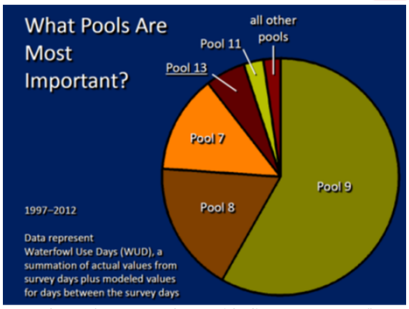



Upper Mississippi River Restoration

6

CANVASBACKS

- *Aythya valisineria*
- Upper Mississippi River National Wildlife & Fish Refuge ***Priority Resource of Concern***
- ***North American Waterfowl Management Plan Priority Species (Regional & Continental)***
- Pool 13 provides area to feed and rest during migration
- Wildcelery winter buds are favorite food, provide energy/fat needed during migration



Slide pulled from presentation by Steve Winter (USFWS) given at Pool 13 HREP kickoff charette (May 2019)

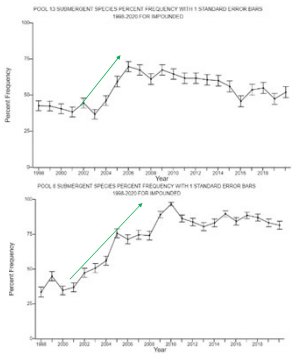
7

WHY NOW?

8

Pool 13

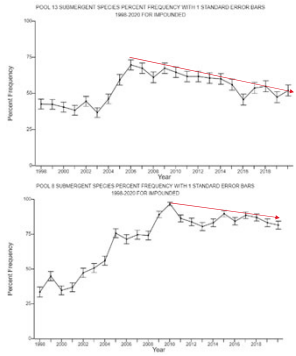
Pool 8



9

Pool 13

Pool 8



10

POOL 13 HREP – SAV FOCUS

PROBLEMS

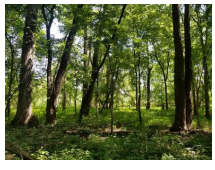
- Poor water clarity caused by upstream suspended sediment load and resuspension of bottom sediments due to wind driven wave action, negatively affects aquatic vegetation.
- Pattern of increased flooding has resulted in reduced recruitment of native tree species and an increase in prevalence of invasive species.

11

POOL 13 HREP – SAV FOCUS

PROJECT OBJECTIVES

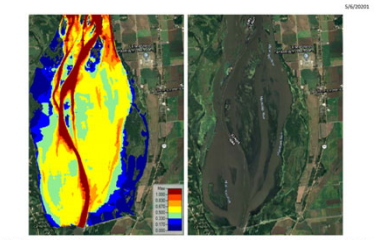
1. Restore and enhance submerged aquatic vegetation and habitat
2. Restore and enhance floodplain forest diversity and habitat.



12

MANIPULATION OF VELOCITIES

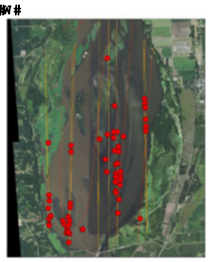
- Existing conditions shown
- Utilized design criteria to improve acreage of suitable velocities for Vallisneria



Yin Vallisneria threshold of .5 ft/s

13

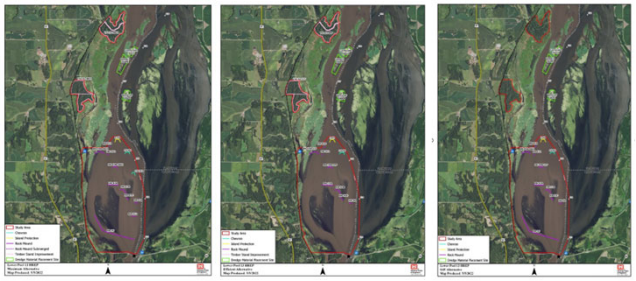
CANVASBACKS & LOW ELEVATION 'ISLANDS'



Unable to influence/reduce wind fetch, but will reduce wave action and resuspension of sediment

14

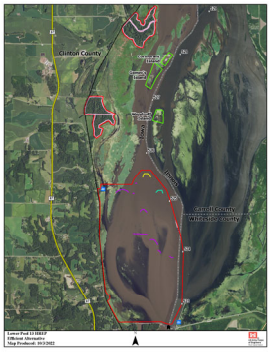
FINAL ARRAY



15

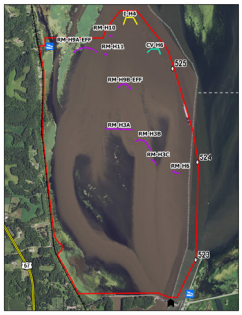
TSP – EFFICIENT ALTERNATIVE

Project Benefits	
Diving duck habitat	~1992 acres
Floodplain forest habitat	535 acres



16

RIVER STRUCTURES AND ISLAND FEATURE



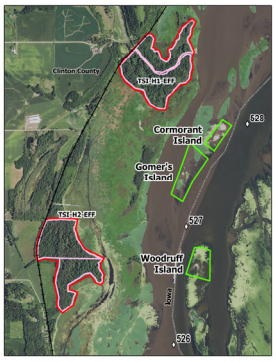
Chevron, island, and rock mounds to reduce velocities and wave energy

17

FORESTRY ACTIVITIES

Tree thinning improves light conditions and planting increases species and age diversity

Dredged material beneficially used for island habitat



18

NEXT STEPS

Tentatively Selected Plan	May 2022
Public Review of Draft Report	November 2022
Concurrent Review	February 2023
Cultural Survey	Spring 2023
Final Feasibility Report	Fall 2023
Design	2023-2025
Construction	2025- 2033

19

QUESTIONS

20

USGS
science for a changing world

UPPER MISSISSIPPI RIVER SYSTEM (UMRS) TOPOBATHY

Jayme Strange – U.S. Geological Survey – UMESC

03/01/2023

U.S. Department of the Interior
U.S. Geological Survey

1

WHAT IS IT AND WHY IS IT IMPORTANT:

- Combined Datasets: Bathymetry and Lidar
- Full systematic elevation dataset
- Hydrodynamic models
  - Flood Plain
  - River Ecosystem

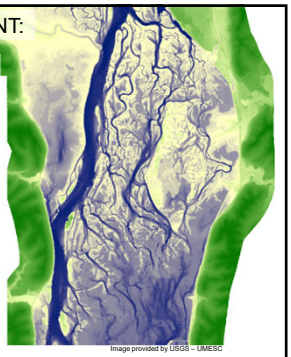


Image provided by USGS – UMESC

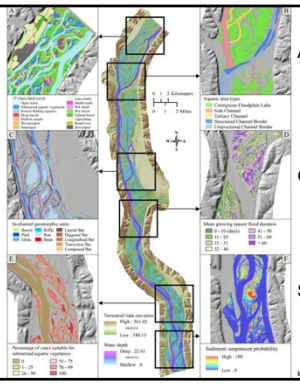
USGS

2

Land Cover

Hydrogeomorphic

Submersed Aquatic



Aquatic Areas

Growing Season

Sediment Suspension

Image provided by USGS – UMESC

USGS

3

WHERE/WHEN:

- Bluff-to-Bluff
- Upper Mississippi River: Navigational Pool 1 to the confluence of the Ohio River
- The entire Illinois River
  - Des Plaines River
  - Chicago Sanitary and Ship Canal
- Bathymetry: 1989-2010
- Lidar: 2008-2011

Image provided by USGS – UMESC

USGS

4

Weak Points:

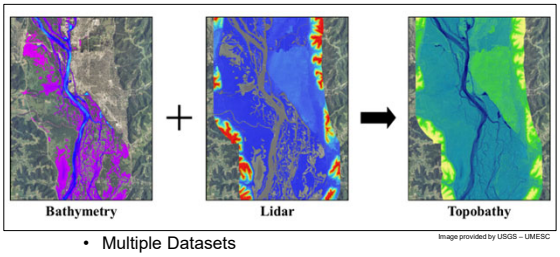


Image provided by USGS – UMESC

- Multiple Datasets
- Bathymetry to Elevation, Datum Transformation
- Lidar Breaklines/Classification
- Interpolation

USGS

5

Current Issues:

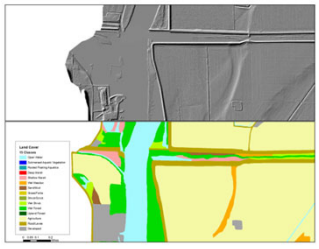


Image provided by USGS – UMESC

- Flown during high water in 2011.
- Areas of no data within study area boundary.

USGS

6

2023 APPROACH:

- Working Group Teams at USGS & USACE
- Data Acquisition Plan
  - Timeline
  - Lidar Specifications
  - Bathy Specifications
  - Dissemination of data

	Objectives	Products
Year 1 – Prepare for systemic data collection	• Highlight priority areas for lidar and bathymetry surveys • Inventory recent surveys • Develop footprint of current topobathy and make it publicly available. • Meet with partners and develop standard protocols for contractors. • Begin data collection of Illinois River if collection conditions are met.	Footprint of current topobathy
Year 2 – Data Collection	• Lidar collection of whole system. Bathymetric collection of Illinois River.	
Year 3 – Data Collection	• Bathymetric data collection of reference reach 2. • Topobathy processing begins at UMESC.	Updated lidar products served if systemic lidar is flown.
Year 4 – Data Collection	• Bathymetric data collection of reference reach 3. • Topobathy processing continues.	Updated footprints (if needed).
Year 5 – Data Collection	• Bathymetric data collection of reference reach 4. • Topobathy processing continues	Updated footprints (if needed).
Year 6 – Wrap up	• Any final bathymetric collections completed in this year. • Topobathy processing is complete by end of fiscal year. • Research and development of models begin this year. Any reports are drafted for findings.	Updated topobathy and footprints. Research and development done for any pilot projects and update models.

USGS

7

Lidar Specs:

- 3DEP Lidar Standards

Table 1. Aggregate nominal pulse spacing and density.

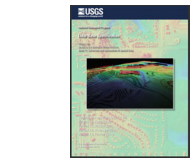
Quality level	Aggregate nominal pulse spacing (m)	Aggregate nominal pulse density (pls/m²)
QL0	≤0.35	≥8.0
QL1	≤0.35	≥8.0
QL2	≤0.71	≥2.0
QL3	≤1.41	≥0.5

Table 2. Relative vertical accuracy for light detection and ranging swath data.

Quality level	Smooth surface repeatability, RMSD$_z$ (m)	Swath overlap difference, RMSD$_{dz}$ (m)
QL0	≤0.03	≤0.04
QL1	≤0.06	≤0.08
QL2	≤0.06	≤0.08
QL3	≤0.12	≤0.16

Image provided by USGS – UMESC

Heidemann, Hans Karl, 2018, Lidar base specification (ver. 1.3, February 2018): U.S. Geological Survey Techniques and Methods, book 11, chap. B4, 101 p., https://doi.org/10.3133/tm11b4



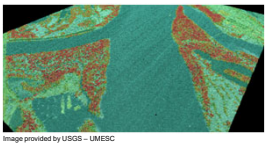


Image provided by USGS – UMESC

USGS

8

Bathy Specs:

- High-Resolution Bathymetry
  - Standards

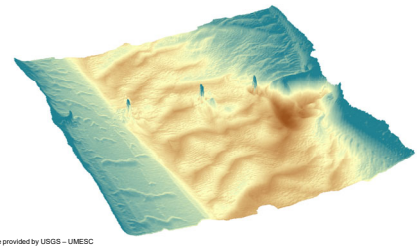


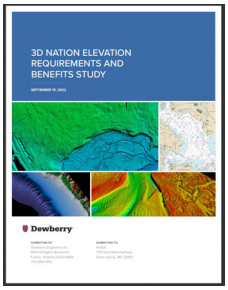
Image provided by USGS – UMESC

USGS

9

Bathy Specs:

- 3D Nation Elevation
  - Capture inland, nearshore, and offshore topographic and bathymetric elevations
    - Data requirements
    - Benefits



USGS

10

Data Collection:

TCX Photogrammetric Mapping

Technical Center of Expertise Photogrammetric Mapping

Image provided by USACE

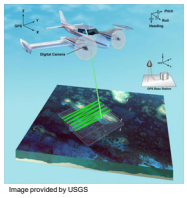


Image provided by USGS

Image provided by USGS – UMESC

USGS

11

Data Processing and Dissemination:

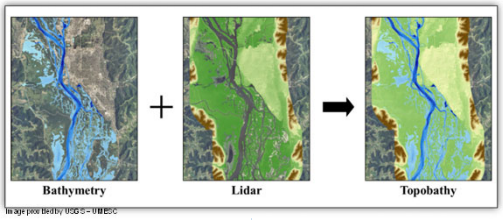


Image provided by USGS – UMESC

ScienceBase

USGS

12

WHAT IS NEXT:

- Topobathy lidar
  - Vegetation or bottom?
  - Accuracy compared to hydroacoustics?
- Backwater sedimentation research
- Applications

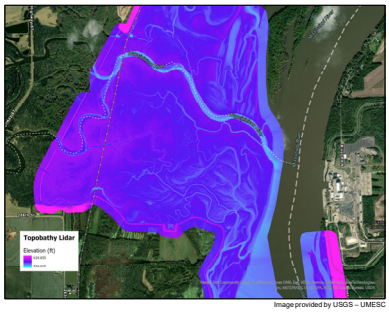


Image provided by USGS – UMESC

USGS

13

Upper Mississippi River Restoration
Leading · Innovating · Partnering

https://pubs.er.usgs.gov/publication/fs20163097

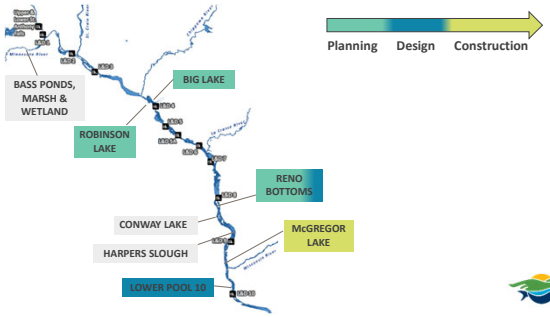
USGS

14

HABITAT RESTORATION – DISTRICT REPORTS

33

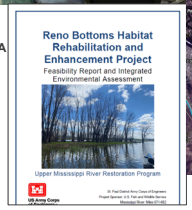
ST. PAUL DISTRICT (MVP)



34

PLANNING

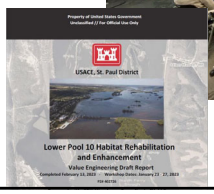
- **Robinson Lake – Pool 4, MN**
  - Agency kick-off
  - Initial plan formulation
  - Public Meeting (May)
- **Big Lake – Pool 4, MN/WI**
  - Identified 8 alternatives
  - Determining quantities, costs, and habitat benefits
- **Reno Bottoms HREP – Pool 9, MN/IA**
  - Completed Concurrent Reviews
  - Final Report approval
  - Transitioning to plans & specs



35

DESIGN

- **Reno Bottoms HREP – Pool 9, MN/IA**
  - Initiating Design
  - Value Engineering Study
- **Lower Pool 10 HREP – Pool 10, IA**
  - Completed VE Study with AE
  - Drafting SOW for P&S for Stage I
  - 3 Construction stages being planned



36

CONSTRUCTION

- **McGregor Lake HREP – Pool 9, WI**
  - Stage I: 95% Complete
  - Stage II: Awarded base bid (Sept)
    - Awarded Option 1 (Nov)
    - Awarded remaining options (Feb)
- **Harpers Slough HREP – Pool 9, IA**
  - Completing O&M Manual
  - Project Turnover
- **Bass Ponds, Marsh & Wetland HREP – MN River**
  - Completing O&M Manual
  - Project Turnover
- **Conway Lake HREP – Pool 9, IA**
  - Completing O&M Manual
  - Project Turnover

McGregor Lake – Before & After

37

ROCK ISLAND DISTRICT (MVR)

PLANNING

- **Pool 12 Forestry – Pool 12, IA/IL/WI**
  - PDT working on quantities, cost and starting HEP modeling for all alternatives
- **Green Island – Pool 13, IA**
  - TSP meeting with MVD is scheduled for Apr 3rd
- **Lower Pool 13 – Pool 13, IA/IL**
  - Virtual Public Q&A Webex happened on Nov 17th
  - ATR, Public Review and Policy reviews are completed
  - PDT is waiting on Cultural survey – spring
- **Lower Pool 13 Phase II – Pool 13, IA/IL**
  - Planning workshop is scheduled for Apr 4th
- **Quincy Bay – Pool 21, IL**
  - PDT working on quantities, cost and starting HEP modeling for alternatives

DESIGN

- **Steamboat Island Stage II – Pool 14, IA/IL**
  - 65% DQC/BCOE – PDT addressing comments

CONSTRUCTION

- **Beaver Island Stage IB, Pool 14, IA/IL**
  - Contractor has remob to site
- **Steamboat Island Stage I – Pool 14, IA/IL**
  - Tree clearing is scheduled for the week of Mar 5th
- **Keithsburg Division Stage I, Pool 18, IL**
  - Contractor demob from site – eagles (Photo)
- **Keithsburg Division Stage II, Pool 18, IL**
  - Awaiting on contractor's response on the tie rods
- **Huron Island, Stage III - ERDC, Pool 18, IA**
  - Spring growth survey is scheduled for Jun 21st
  - Supplemental plantings is scheduled for Jul 18th
  - Survival survey is scheduled for Sep 13th

FACTSHEETS

- Still addressing sponsor comments on Upper Pool 13

38

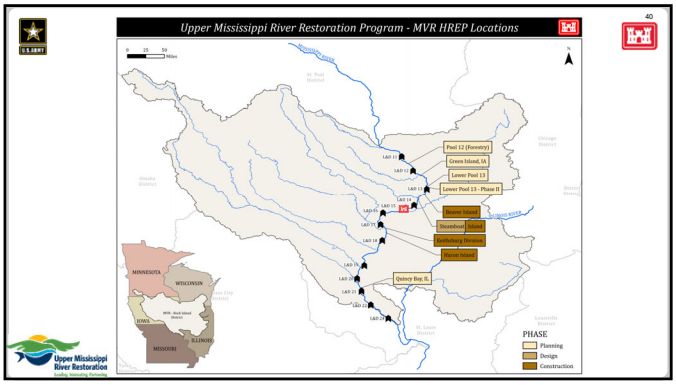
ROCK ISLAND DISTRICT

39

Keithsburg Division Stage I

Toe of the spillway

39



40

ST. LOUIS DISTRICT (MVS)

41

PLANNING –

West Alton Islands, MO, HREP (Pool 26)
- Continue Feasibility Planning
- H&H finishing quantities, updated costs,
- CEICA scheduled to start mid March

Yorkinut Slough, IL HREP (IL River)
- Continue Feasibility Planning
- Completed TSP Feb 2023
- DQC underway
- Cultural survey Task Order pending

DESIGN –

Harlow Island, IL HREP (Open River)
- Initiated Stage 2, P&S 2nd Quarter FY23

Oakwood Bottoms, IL, HREP (Open River)
- Complete P&S packages 3rd Quarter FY23
- 1) Pump Station, 2) Well Pumps, & 3) North & South Units Earthwork / Water Control Structures

Crains Island, IL HREP (Open River)
- Stage 2 Earthwork and Excavation, Complete BCOES Review on P&S 3rd Quarter FY23

CONSTRUCTION –

Crains Island, IL HREP (Open River)
- Channel Cleanout Acquisition 3rd Quarter FY23

Piasa & Eagles Nest, IL HREP (Pool 26)
- Stage II – Side Channel Excavation and Island Construction
- Contract Awarded 2 Feb 2023 $11.0M
- Task Order 1 Issued 21 Feb 2023 $7.0M

Clarence Cannon Refuge, MO (Pool 25)
- Exterior Berm (Levee) Setback
  - Construction Continues

Other Activities
- FS, INDR/TNC, FWS - New Fact Sheets Drafted
- Swan Lake Flood Damage Assessment
- Letter Report Draft 2nd Quarter FY23

41

ST. LOUIS DISTRICT

Berm Setback 85% Complete

42

Clarence Cannon HREP
Berm Setback

42

MVS HREP PROJECTS

Planning Design Construction

43

43

LTRM Science Highlights

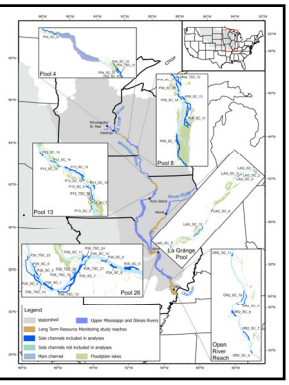
UMRR Coordinating Committee Quarterly Meeting
March 2023
Virtual

1

Understanding ecological response to physical characteristics in side channels of a large floodplain-river ecosystem. *Science of the Total Environment*

Kristen Bouska (USGS UMESC), Molly Sobotka (MDC)
Todd Slack (USACE ERDC), Heather Theel (USACE ERDC)
https://authors.elsevier.com/a/1gbwlB8ccyT81

Life history need	Hypothesis	Response variables
Nursery	Young of year fishes will be more abundant and diverse in shallow, low velocity and more physically diverse side channels compared to deep, high velocity, and less complex side channels with potential differences based on reproductive guild	Species richness of young-of-year reproductive guilds (i.e., lithopelagophil, lithophil, polyphil, speleophil) per unit effort day electrofishing
Foraging	More physically diverse side channels provide and retain more abundant and diverse foraging resources and support greater fish diversity compared to more homogenous side channels	Adult species richness of fishes per effort day electrofishing
Refugia	Under high-flow conditions, fishes will seek more physically diverse side channels with less connectivity that provide protection from displacement Under low-flow conditions, fishes will seek larger, more physically diverse side channels that support varied resources and maintain flow-through conditions	Adult species richness of fishes per effort day electrofishing



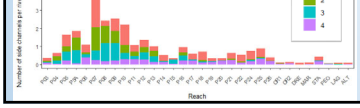
2

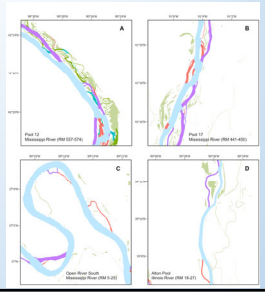
Understanding ecological response to physical characteristics in side channels of a large floodplain-river ecosystem

Kristen Bouska (USGS UMESC), Molly Sobotka (MDC)
Todd Slack (USACE ERDC), Heather Theel (USACE ERDC)

Side channel classification and inventory

Cluster	Average water depth	Shoreline development index	Wet forest shoreline	Sinuosity	Number of side channels	Fish associations: Nursery	Fish associations: Refuge
	↓	↓	↑	↓	446	Lithopelagophil	Low flow
	↓	↑	↑↓	↑	221	Lithophil, Speleophil	Low flow downstream
	↓	↓	↓	↓	241	Polyphil	Low flow downstream
	↑	↓	↑	↓	218	Lithopelagophil	Low flow upstream





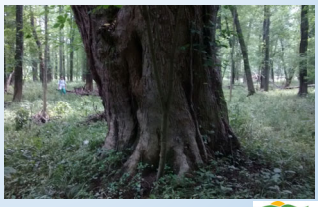
3

Flood regimes alter the role of landform and topographic constraint on functional diversity of floodplain forests. *Ecography*

Molly Van Appledorn (USGS UMESC) and Matthew Baker (University of Maryland)
https://doi.org/10.1111/ecog.06519

Background: Flooding is believed to be an important driver of floodplain forest diversity. Predicting patterns of diversity remains challenging, however. Resolving issues of scale is a necessary step towards better understanding and predicting patterns of forest diversity.

Question: How does the functional diversity of floodplain forest trees relate to regional and local gradients of flooding?



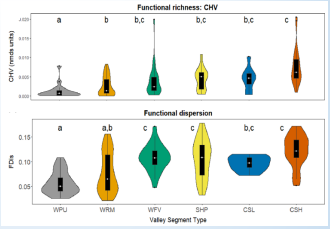
Approach: Analysis of a regional dataset of floodplain forests spanning Michigan's Lower Peninsula

- Sampled across 6 hydrogeomorphic valley types with distinct flood regimes
- Sampled within valleys with transect surveys spanning distinct floodplain landforms
- Survey linked to published trait datasets

4

Results:

- Hydrogeomorphic context matters: functional diversity varied among valley types of differing flood regimes
- Landform positioning matters, but only within context of hydrogeomorphic setting: the degree of constraint on functional diversity imposed by landform relative elevation and distance to the river was dependent on overall river flood regime



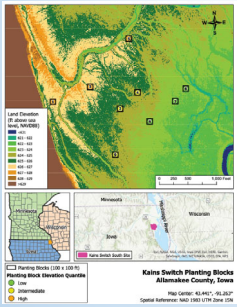
Implications:

- Relative elevation or distance to channel are metrics commonly used to predict patterns of floodplain forest diversity, but they do not translate well across valley types, even within the same river system
- Predictive models of forest functional diversity should be strongest when using environmental variables that integrate local flooding dynamics with overall river hydrology

5

Survival and Growth of Four Floodplain Forest Species in an Upper Mississippi River Underplanting. *Tree Planters' Notes* 65:87–97.

Marcella Windmuller-Campione (U. of MN), Molly Van Appledorn (USGS UMESC), Andrew Meier (USACE), and Laura Reuling (U. of MN)



Question: Is underplanting a viable strategy to counter potential shifts from silver maple forests to open meadows due to aging canopies and invasive species?

- How does planted seedling survival and growth vary across gradients of hydrology in the UMR floodplain?
- How do survival and growth patterns vary across species and stock conditions?

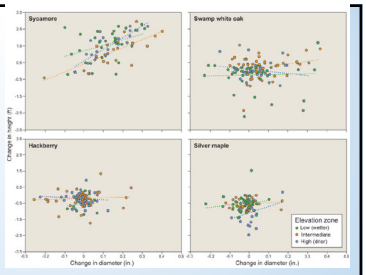
Approach: *in situ* experimental underplanting at Kains Switch (Pool 9) begun in 2020

- 9 plots across an elevation gradient, all with 60% overstory canopy cover
- 64 seedlings planted per plot comprising 4 tree species: swamp white oak, Silver maple, hackberry, and sycamore
- 2-years of growth and survival reported here

6

Results: Survival & growth varied by species, elevation zone, and time

- Swamp white oak had highest survival across the elevation gradient
- Sycamore survived best at high elevations and had positive (and rapid!) growth across elevations
- Silver maple had low survival at moderate and high elevations, but negative growth due to browsing
- Hackberry had high mortality at low elevations



Implications:

- Variable outcomes indicate the importance of considering microsite conditions when matching species to sites
- Swamp white oak had high survival, strong and consistent growth, and low browse - a good candidate for wider use in restoration?

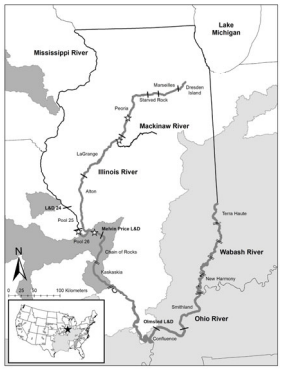
7

New Records of Spotted Bass, *Micropterus punctulatus*, within the Mississippi River Basin, Illinois. *Ecology and Evolution*.
Andrya Whitten, Brandon Harris, Jason, DeBoer, Nerissa McClelland, James Lamer (all IRBS)
https://doi.org/10.1002/ece3.9777

Programs: Long-Term Resource Monitoring element, Illinois Department of Natural Resources, and the Long-term Survey and Assessment of Large River Fishes in Illinois

Findings: We report new records of Spotted Bass in their non-native range of the Illinois Waterway and the Illinois portion of the Upper Mississippi River in addition to collections in their native range in the Illinois sections of the Ohio and Wabash rivers to better understand their current distribution.

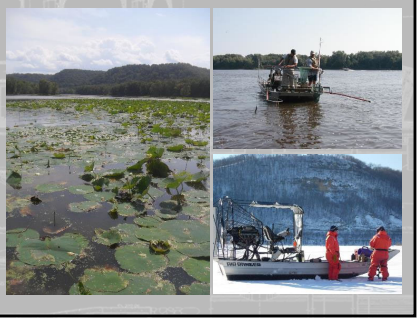
Citation:
Whitten, A.L., B.S. Harris, J.A. DeBoer, N.N. McClelland, and J.T. Lamer. 2023. New records of spotted bass, *Micropterus punctulatus* (Rafinesque, 1819), within the Mississippi River basin, Illinois. *Ecology and Evolution*. 13(1): 1-5. https://doi.org/10.1002/ece3.9777



8

UMRR MONITORING AND SCIENCE UPDATE

Karen Hagerty
Rock Island District
1 March 2023



"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

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

3

$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

3

UMRR MONITORING & SCIENCE FY23

4

LTRM

	Budget (gross)
MN	$693,118
WI	$786,028
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 (ADJUSTED carry-in)	**$3,816,953***
UMESC TOTAL	**$3,405,104**
Corps tech/science reps	$ 70,000
TOTAL FY23 LTRM BUDGET	**$7,292,057***

4

UMRR MONITORING & SCIENCE FY23

5

Science in Support of Restoration and Management

A. LTRM balance	$ 302,060
B. Ecohydrology	$ 469,970
C. LCU processing (last year)	$ 335,240
D. Proposal adjustments	$ 45,610
E. Vital Rates consolidated report	$ 52,790
F. Macroinvertebrate contaminants	$ 77,480
G. Herbarium	$ 22,010
H. Future landscape modeling	$ 600,140
I. Equipment (field stations, UMESC)	$ 659,270
Subtotal	**$2,564,570***

5

UMRR MONITORING & SCIENCE FY23

6

Science in Support of Restoration and Management

A. LTRM balance	$ 302,060
B. Ecohydrology	$ 469,970
C. LCU processing (last year)	$ 335,240
D. Proposal adjustments	$ 45,610
E. Vital Rates consolidated report	$ 52,790
F. Macroinvertebrate contaminants	$ 77,480
G. Herbarium	$ 22,010
H. Future landscape modeling	$ 600,140
I. Equipment (field stations, UMESC)	$ 659,270
Subtotal	**$2,564,570***

6

FY2022 SCIENCE PROPOSALS (PROPOSED)

Scoping and vetting new technology and methods for use in future hydrographic and topographic surveys	Strange (UMESC), Kalas (WI DNR)
Avian associations with management in the UMRS: filling knowledge gaps for habitat management	Hohman (Audubon), Kirsch (UMESC)
Filling in the gaps with FLAMe: Spatial patterns in water quality and cyanobacteria across connectivity gradients and flow regimes in the Lower Impounded Reach of the UMR	Loken, Kreiling, Jankowski (UMESC), Stanley (UW-Madison)
Substrate stability as an indicator of abiotic habitat for the UMR benthic community	Newton (UMESC)
SUB-TOTAL	~$1,550,000

7

UMRR MONITORING & SCIENCE FY23

Science in Support of Restoration and Management

High Priority Items	**$2,564,570**
Remaining Items for FY23	
A. Priority FY22 proposals	$1,550,000
B. Update topobathy (w/NESP support)	remaining $$*

8

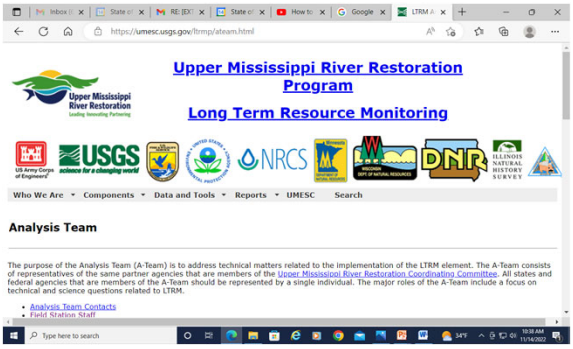
Analysis Team chair update

Scott Gritters
Fish Management Biologist
Iowa Department of Natural Resources
Bellevue, Iowa
Notes from February 3rd 2023 meeting

DEPARTMENT OF NATURAL RESOURCES

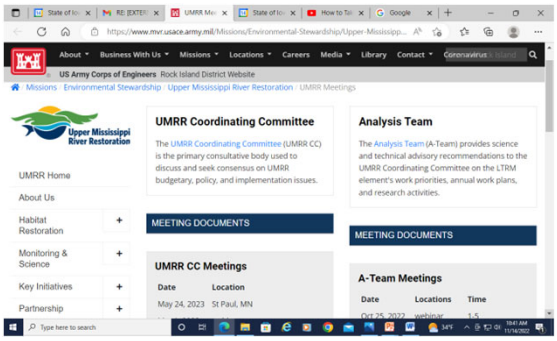
1

Information stored on A-team corner



2

Corps Website



3

Progress made on A-team, USGS website since last meeting

- Some information is out of date and with the covid influence. We continue the process to get caught up
- Some of the field stations have updated their station information on the USGS Analysis Team web site
- We are UTD on all A-team notes and Corps site is UTD
- Future plans in works to revamp USGS website but for now just trying to get all relevant information in correctly

DEPARTMENT OF NATURAL RESOURCES

4

Please note there will be a change in the A-team chairperson

- Scott Gritters will organize the next A-team meeting which will be a "hybrid" meeting held on April 19th
- This will be held in conjunction with the Mississippi Research Consortium
- Meeting will probably be held at USFWS location in Onalaska
- The next chair will take over duties after that meeting
- The rotation moves to Matt O'Hara with the Illinois Department of Natural Resources
- Matt is an experienced Mississippi River rat and should be a great improvement over the present chairperson.
- So in all likelihood, Matt will be delivering the A-team updates starting with the next UMR CC meeting

DEPARTMENT OF NATURAL RESOURCES

5

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

- In-depth discussion at last three A-team meetings
- Not always an easy subject as HREP's are not all the same and not all built solely on "data available"
- We all need to make sure the PDT's know what information is available and it is presented early in the planning process.
- Make sure the PDT's know that the A-team chair or reps are here to respond to any information needs
- Discussions continue and will be on-going. Agency differences on this issue have been expressed. Hopefully, with these discussions the A-Team can continue to be an effective forum to vet issues.

DEPARTMENT OF NATURAL RESOURCES

6

Other items discussed:

- UMRR funding updates- Marshall Plumley
- LTRM updates- Davi Michl
- LTRM science highlights- Jeff Houser
- USGS science forum- Jeff Houser
- Environmental Justice- Marshall Plumley
- LTRM Implementation planning- Jeff Houser
- Field Station in Focus- The people that make up the Illinois biological station- Jim Lamer

IOWA DEPARTMENT OF NATURAL RESOURCES

7

Danelle Larson, USGS

USGS science for a changing world

Upper Mississippi River Restoration

Identifying areas for conservation and restoration of submersed aquatic vegetation in the Upper Mississippi River

Danelle Larson, LTRM aquatic vegetation component lead, U.S. Geological Survey

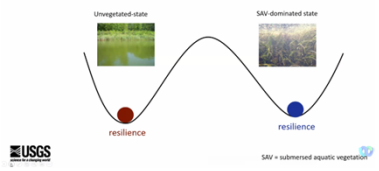
John Delaney, LTRM Biologist, U.S. Geological Survey

U.S. Department of the Interior
U.S. Geological Survey

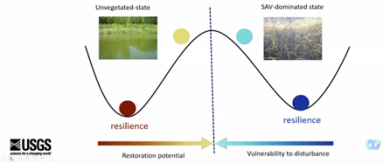
Limited Distribution - *results are preliminary*

8

Upper Mississippi River *Ecosystems States*



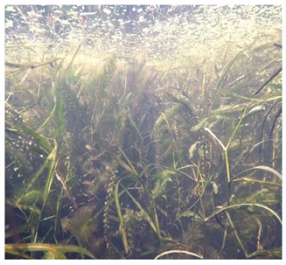
Upper Mississippi River *Ecosystems States*



9

Research Goals

1) Can we create accurate, predictive model of ecosystem states?
   - SAV-state, unvegetated-state, vulnerable, restoration potential
2) What environmental predictor variables best explain SAV presence?
   - Ecological understanding & quantitative restoration targets
3) Which sites have greater restoration potential and why?
4) Create an online, interactive tool for researchers and managers to learn, discuss, & apply adaptive management



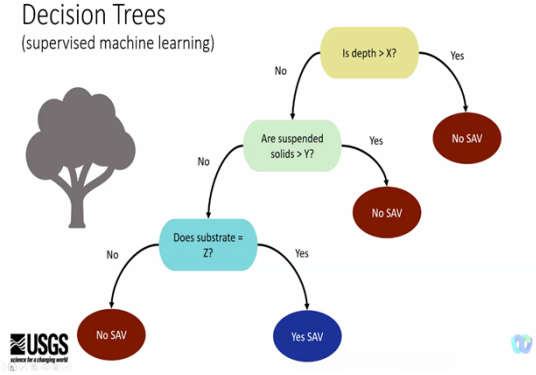
Cool SAV photo by Alicia Carhart, WI DNR

USGS science for a changing world

10

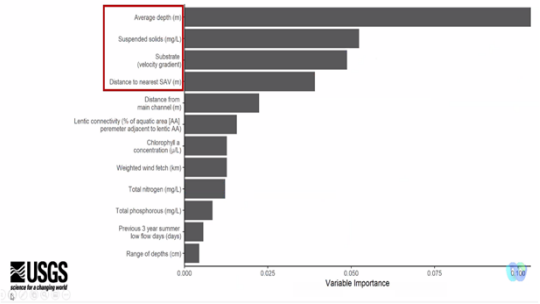
Decision Trees

(supervised machine learning)



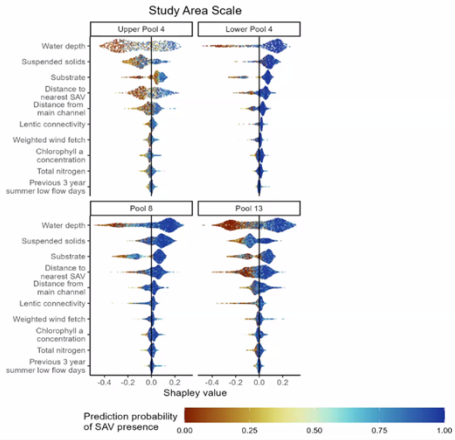
11

4 Predictors Are Important 'State Variables'



USGS science for a changing world

12



13

UMRRA support for Status and Trends brochures- Andrew Stephenson

14

15

UMRR LTRM Implementation Planning Update

UMRR CC Quarterly Meeting
1 March 2023
Virtual

1

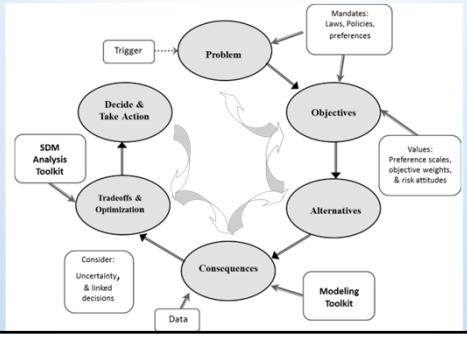
Implementation Planning

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

2

Approach – Structured Decision Making



3

Criteria for assessing Information Needs

- 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

4

Identifying (specifying) the information needs

- What is the Information need?
- How will the information be used?
- What will be measured or what will be the endpoint?
- What will be the geographic extent?
- What will be the primary approach to meet the information need?

5

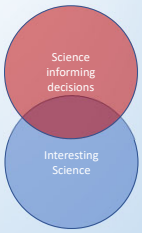
Resulting Categories of Information Needs

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

6

Value-of-information

- Concept in decision science
  - Focus on information for decision making
  - Differs from paying for interesting science
  - *Sometimes* these overlap
- Information that results in changing a decision has higher VoI measurement



7

Qualitative Value-of-information (QVoI)

- Relevance & Importance
  - Ecosystem Understanding and Assessment
  - Management and Restoration
- Depth of Current Knowledge

QVoI

- Cost

Expense

- Opportunity to Learn

Feasibility

- Urgency
- Unique capacity

Tie-breakers

8

Progress since last meeting

- *Approximate* cost estimates for addressing each information need
- Testing and development of optimization approach based on Qualitative Value of Information.

9

Investment analysis

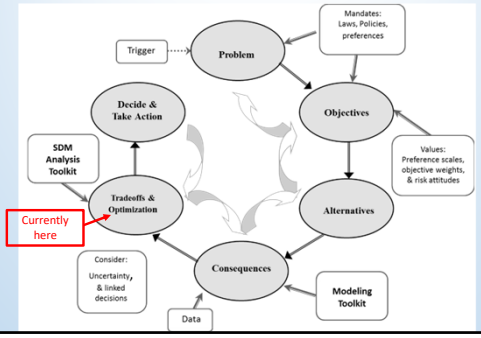
- Invest in highest benefit information needs

*Benefit = QVoI*Feasibility*

- Under a fixed budget
  - Different budgeting approaches

10

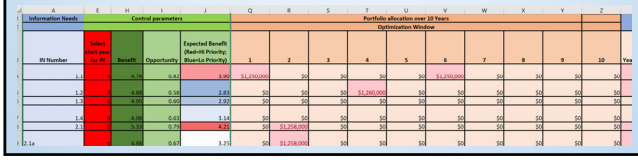
Approach – Structured Decision Making



11

Worksheet

- Choose when to start on resolving information need
- Track costs and remain under budget cap
- Maximize total benefit



12

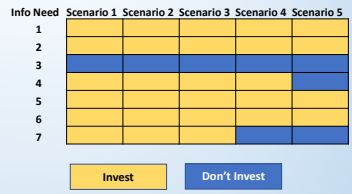
Optimization

- User can "optimize" by hand
  - But dimensionality can make this difficult
- Or use an algorithm to automatically search
  - Evolutionary algorithm
- Useful to compare results of scenarios and approaches

13

What do results look like?

- Compare with intuition
  - Do these results meet what we expected?
  - If not, why?
- This analysis can't really tell you whether to make the decision
- Only serves as a guide



14

What are we doing moving forward

- Discussions about whether participants are comfortable with results based on Qualitative Value of Information approach
- If not, why not and what should be changed?
- Next steps
  - Participatory modeling exercises
  - Moving toward making a recommendation

15

Implementation Planning Group

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

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

16