

# Upper Mississippi River Restoration Program Coordinating Committee Quarterly Meeting

May 25, 2022

## Highlights and Action Items

### Program Management

- **UMRR has obligated over \$16.7 million, or just over 50 percent, of its \$33.17 million FY 22 funds as of May 1, 2022.** Awarding construction contracts in each district, ongoing day-to-day efforts, and funding science proposals developed during the 2022 science meeting will advance obligation through this fiscal year.
- **The President signed the Consolidated Appropriations Act on March 15, 2022 that included \$33.17 million for UMRR.**
- **The President's FY 23 budget includes \$55 million for UMRR.** Of the eight ecosystem restoration projects included in the FY 23 budget, UMRR is second in funding level only to the South Florida Ecosystem Restoration (Everglades), which received \$406 million.
- **The draft plan of work for UMRR in FY 23 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

**The most substantial changes from the FY 22 plan of work at \$33.17 million include increasing regional science in support of restoration from approximately \$2.5 million to \$8.3 million and increasing habitat restoration funding in each district from between \$6 million to \$7 million to between \$11 to \$13 million.** The ongoing LTRM implementation planning efforts are prioritizing information needs to utilize additional funds most effectively, if appropriated. Additional items under consideration include additional component monitoring (e.g., macroinvertebrates), increased staff to



support additional analysis of existing data, and expanding monitoring efforts through establishment of new field stations or utilizing roving crews to address gaps across the system. In response to concerns raised from the UMRR Coordinating Committee, the Committee will have **additional discussion regarding whether \$50,000 for public outreach is the appropriate level of funding to support UMRR at its current or future size.**

- **The draft Senate WRDA 2022 language includes an annual appropriation authorization increase for the HREP element of UMRR from \$40 million to \$75 million. With LTRM authorized to be appropriated up to \$15 million annually, the total UMRR annual authorized funding level would be up to \$90 million. UMRBA will draft a needs statement of a funding proposal for increased LTRM authorization to act upon with non-federal sponsors. The UMRR Coordinating Committee called for additional discussion regarding implementing partners' capacity to support UMRR should additional funds be appropriated.**
- The UMRR 10-year implementation plan will continue to be refined for outyears as more details and specificity on project schedules becomes available. **Increased appropriations would result in accelerated project schedules and expedite the need for another of the project selection process. A similar graphic for NESP was requested to help demonstrate to implementing partner agency leadership the magnitude of anticipated work across the system. Accelerated funding will amplify the need to resolve issues related to PPAs.**
- **UMRR has estimated that over 76,000 acres will be restored by its habitat projects completed between FY 21 and FY 31. This estimate assumes continued funding levels of \$33.17 million annually.** Decreased funding levels would extend the end date for completing projects and increased appropriations could accelerate these restoration activities. The figure is an important communication tool for multiple audiences and will be included in the 2022 UMRR Report to Congress.
- Construction contracts on three projects, totaling 5,590 acres, were completed in calendar year 2021, increasing UMRR's total acres restored to approximately 112,000 acres through 59 completed projects. These projects include Conway Lake, Pool 12 Overwintering, and Ted Shanks. Another four projects are anticipated to be completed in 2022 that will collectively add 9,810 acres to UMRR's total restored or improved habitat. **UMRR accounted for one-third of the Corps' national goal of 15,000 acres restored in 2021. Ultimately, 115,657 acres were restored nationally with the Everglades completing approximately 100,000 acres.**
- On September 20, 2021, a survey was distributed to the UMRR partnership at-large regarding the 2015-2025 UMRR Strategic Plan. Preliminary results were briefed to the UMRR Coordinating Committee at its November 17, 2021 quarterly meeting. The insights gained regarding the program's successes and partners' priority future actions for UMRR were incorporated into the draft 2022 UMRR Report to Congress. **A finalized report on the survey results is anticipated to be submitted to the UMRR Coordinating Committee in the coming months. A meeting will be convened to review and discuss the results.**
- The UMRR Coordinating Committee and 2022 UMRR Report to Congress authors met on May 6, 2022 to review 113 partner comments and draft responses. Consolidated comments and responses will be provided back to the Coordinating Committee. **A transmittal package to MVD with draft report for review is being prepared and will be routed soon. The next In-Progress Review (IPR) is anticipated to occur in early July. As the report is still in draft form, there will be an additional window to incorporate any needed changes prior to submitting the final report. The report is approximately 15 days behind schedule, but that will not impact final delivery of the report. Partners will be asked to submit letters of support by August 15. Letters of support from past reports to Congress will be provided to UMRR Coordinating Committee members. A coordinated**



press release and social media engagements are anticipated in conjunction with submitting the final Report to Congress.

- **The third LTRM Status and Trends Report is anticipated to be released in late June 2022. The UMRR Communications and Outreach Team (COT) and USACE and USGS public affairs are preparing a draft press release. Common messages and key findings relevant to partner agencies are being developed.**
- Revised draft implementation issue papers with consolidated partner comments and draft responses will be sent to the UMRR Coordinating Committee in two batches. The first batch of papers was sent on May 23 that addressed watershed inputs and climate change, federal easement lands, engaging non-traditional project sponsors, and external communications. **The second batch of papers is scheduled to be sent in June, addressing floodplain regulations, project partnership agreements, and water level management. A meeting is anticipated for mid to late-July to resolve remaining questions and establish broad consensus on recommended actions to address each issue.**

### Communications

- **The UMRR Communications and Outreach Team (COT) implemented a 2022 Earth Day social media campaign.** The campaign consisted of seven posts from April 18 to April 22 and culminated in a Facebook live ribbon cutting for Harpers Slough and Conway Lake HREPs. **Reported metrics from participating partners indicated 20,033 individuals reached on Facebook and 1,492 impressions on Twitter. Metrics have not yet been reported by all participating agencies.**
- To support the rollout of the third LTRM Status & Trends Report, COT members reviewed key messages and the report release strategy including a coordinated press release. **USACE corporate communications will explore options for tracking media inquiries related to the Status and Trends Report. COT members were also asked to identify their agency's events in 2022 that may relate to content included in the report to inform additional engagement and communication opportunities this year.**
- **Priority actions for the COT this year include completing the video series, updating the UMRR Communication and Outreach plan, and developing a communication and outreach materials inventory.** The updated plan will include goals, key messages, and talking points, clearly identify audiences, outreach tactics and spokespersons, and contain agency contacts, past actions, and schedules for future actions. **The first video highlighting UMRR history and partnership is 508 compliant and available via this YouTube link (<https://www.youtube.com/watch?v=zy-40NiRuF8>).** The second video focused on the success of UMRR through HREPs is in development and will be discussed at the next COT meeting. Themes of the other two videos are a) UMRR science and b) partners' vision for UMRR in the future.
- Andrew Stephenson provided an overview of the LTRM Status and Trends Report long rollout strategy. The purpose is to make the tremendous amount of information in the report accessible to key audiences as well as the interested public. **The UMRR Coordinating Committee members were asked to submit any anticipated or potential activities related to content in the report that their agencies may be involved with during 2022.** This effort will be discussed again at the June 1 COT meeting.

### UMRR Showcase Presentations

- Jasen Brown, USACE MVS, presented on the development of a report documenting construction lessons learned from HREPs in St. Louis District, focusing on construction efficiency, right-sized



designs, and sponsor feedback. Sponsors include Illinois Department of Natural Resources, Missouri Department of Conservation, and USFWS. The final report is anticipated to be complete in March 2023. The findings will be incorporated into the UMRR Environmental Design Handbook.

- Hae Kim, Missouri State University, presented on the importance of understanding fish community demographics for management of the UMRS. In fish communities, changes in age demographics are likely reflective of environmental conditions throughout the life of the organism and better understanding of these changes can provide valuable insights into river conditions.

### **Habitat Restoration**

- MVP's planning priorities include Big Lake – Pool 4, Reno Bottoms, and Lower Pool 10. Feasibility planning continues for Big Lake – Pool 4 and Reno Bottoms. MVP submitted the final report for Lower Pool 10 to MVD on February 28, 2022. MVP has four projects in construction, including Harpers Slough, McGregor Lake, Bass Ponds, and Conway Lake. A ribbon cutting ceremony for Bass Ponds is anticipated this summer. MVP held an Earth Day dedication event on April 22, 2022 at the Driftless Area Education and Visitors Center in Lansing, IA to celebrate and dedicate the completion of both Harpers Slough and Conway Lake. Conway Lake and McGregor Lake HREPs were featured in an Engineering with Nature manuscript in *Wetland Science & Practice* for their ongoing research to evaluate vegetation responses and wetland establishment and function to varying depths and mixes of placed sediment. The article can be accessed via this link: [https://ewn.erd.c.dren.mil/wp-content/uploads/2022/04/WSP\\_EWN\\_NNBF\\_Berkowitz\\_Hurst\\_2022.pdf](https://ewn.erd.c.dren.mil/wp-content/uploads/2022/04/WSP_EWN_NNBF_Berkowitz_Hurst_2022.pdf)
- MVR's planning priorities include Lower Pool 13, Green Island, Pool 12 Forestry, and Quincy Bay. The District's design priorities are Steamboat Island Stages I and II. Design of Steamboat Stage I is complete and awaiting available funding. MVR has five projects in construction. Pool 12 Overwintering Stage II is complete, the contract is being closed out, and the PDT is working on a ribbon cutting video.
- MVS's planning priorities include West Alton Islands and Yorkinut Slough. MVS's design priorities include Piasa & Eagles Nest, Harlow Island, and Oakwood Bottoms. MVS has three projects in construction. Construction at Crains Island Stage 1 is anticipated to be complete in the third quarter of FY 22. Other MVS activities include sponsor review of fact sheets, a flood damage assessment on Swan Lake HREP, and summarizing lessons learned from past and current HREP construction efforts.

### **Long Term Resource Monitoring and Science**

- Accomplishments of the second quarter of FY 22 include publication of the following manuscript:  
— *Identifying monitoring information needs that support the management of fish in large rivers.*
- On April 20-22, 2022, the Mississippi River Research Consortium was held in La Crosse, Wisconsin. There were numerous presentations that utilized LTRM data.
- On May 16-20, 2022, the annual Joint Aquatic Sciences Meeting was held in Grand Rapids, Michigan. UMESC scientists presented on how better collaborations lead to better answers, demonstrated by large-scale collaborative success stories.
- All 2021 LTRM data are available online at (<https://umesc.usgs.gov/ltrm-home.html>). The graphical browser includes fisheries data through 2021 and the update for water quality is nearly finished. Vegetation surface maps are updated through 2021.



- The LTRM Water Quality Lab participated in the annual Standard Reference Sample Project to evaluate the performance of USGS, cooperator, and contract analytical laboratories that analyze chemical constituents of environmental samples. **The Water Quality Lab received excellent results for phosphorous and nitrogen.**
- **The third LTRM Status and Trends Report has been approved by the USGS Bureau Approval Officer. The report is anticipated to be released on June 21, 2022.**
- The 2022 LTRM Science Meeting was held virtually on February 8-11, 2022 and had over 100 participants representing 17 agencies, organizations, and institutions. The primary goal was to develop proposals for consideration in FY 22. The meeting convened six working groups that met concurrently and produced 13 science proposals representing over \$5 million in proposed work. A special session was held to discuss the Lower Pool 13 HREP as a learning opportunity. Proposals not selected for funding this year may be considered for future implementation pending an assessment of current information needs, available funding, and adequate revisions to address questions and concerns raised during the 2022 review process.

The proposals developed following the 2022 Science Meeting are included below. The full recommended proposals are available here: <https://umrba.org/document/umrr-coordinating-committee-fy22-science-proposals-funding>.

[Note: The four proposals recommended for funding are bolded.]

— Hydrology and geomorphology

- **Evaluating LOCA-VIC-MizuRoute hydrology data products for scientific management applications in the UMRS**
- Scoping and vetting new technology and methods for use in the future hydrographic and topographic surveys: Strategies and recommendations for updating lidar, bathymetry, and detecting geomorphic change.
- Field validation of automated hydrogeomorphic classification and change mapping in the UMRS Riverscape.

— Macroinvertebrates

- **Assess long term changes and spatial patterns in macroinvertebrates through standardized long-term monitoring.**
- Substrate stability as an indicator of abiotic habitat for the UMR benthic community.

— Water plants and water birds

- Understanding the distributional potential and limits, environmental thresholds, and biogeomorphic feedbacks of wild celery.
- Quantifying available energy provided by several aquatic and floodplain plant communities as waterfowl forage over the past four decades.

— UMRS fisheries

- Biotic and abiotic drivers of recruitment and population growth of UMRS fishes.

— Nutrients, Phytoplankton, and Harmful Algal Blooms



- Filling in the gaps with Fast Limnological Automated Measurements (FLAMe): Spatial patterns in water quality and cyanobacteria across connectivity gradients and flow regimes in the Lower Impounded Reach of the UMR.
  - **Putting LTRM’s long-term phytoplankton archive to work to understand ecosystem transitions and improve methodological approaches.**
- Floodplain Ecology
- Quantifying Ecosystem Processes in Support of River Restoration and Nutrient Reduction: Interaction of River-Floodplain Connectivity mediated by invasive Reed Canarygrass in the UMRS.
  - Avian use of uncommon forest types of the UMRS: filling knowledge gaps for habitat management.
  - **Assessing Forest Development Processes and Pathways in Floodplain Forests along the Upper Mississippi River using Dendrochronology.**
- UMRR’s LTRM FY 22 budget allocation includes \$6.3 million (i.e., \$5.0 million for base monitoring and \$1.3 million for analysis under base) with an additional \$2.5 million available for “science in support of restoration and management.” At the November 17, 2021, quarterly meeting, the UMRR Coordinating Committee endorsed funding of an outstanding balance on LTRM (\$554,097) as well as FY 22 IWW monitoring (\$32,135) and IWW aerial data collection report (\$25,034). **The bulk of science in support of restoration and management funds, approximately \$1.8 million, will go to proposals from the 2022 science meeting.**
  - **The A-Team met with principal investigators on April 13, 2022 to discuss the science proposals. The A-Team met on April 20, 2022, to review and rank science proposals. The A-Team Chair met with the UMRR LTRM Management Team on May 5, 2022 to discuss final recommendations for science proposals. There was consensus on the three highest priority proposals and the group identified an opportunity to fund a fourth proposal.** To be able to fund a fourth project, the group recommended delaying funding the contaminant portion of the macroinvertebrate proposal until early FY 23. Delayed funding will have no effect on the timeline of the contaminant work as stated in the proposal. In addition, the delay will allow the macroinvertebrate team to address the comments from the proposal review. Additionally, the fifth highest ranked proposal (hydroacoustic methods update) will be referred to the LTRM Spatial Component for methods refinement so that it could be ready for funding in FY 23, if appropriate. **The A-Team Chair recommends endorsement of funding for the top four ranked Science proposals.**
  - **The UMRR Coordinating Committee unanimously endorsed funding the four recommended science proposals at \$1,736,817 in FY 22 as follows:**

Proposal	PI(s)	Cost
Evaluating the LOCA-VIC-mizuRoute hydrology data products for scientific and management applications in the UMRS	Sawyer (MVR) Van Appledorn, Delaney (UMESC)	\$390,528
Assessing forest development processes and pathways in floodplain forests along the UMR using dendrochronology	Windmuller-Campione (UM), Van Appledorn (UMESC), Meier (MVP)	\$326,986



Assessing long term changes and spatial patterns in macroinvertebrates through standardized long-term monitoring

Lamer et al (IRBS), Sobotka (MDC), \$572,145\*  
Giblin (WDNR), DeLain (MDNR),  
Gritters (IDNR), Vander Vorste  
(UWL)

Putting LTRM's long-term phytoplankton archive to work to understand ecosystem transitions and improve methodological approaches

J. Larson, Jankowski (UMESC), \$447,158  
Magee (WDNR), Fulgoni (KWC)

**\* An additional \$115,706 to support the contaminant portion of the macroinvertebrate proposal is anticipated to be funded in FY 23.**

- **The final FY 22 LTRM obligations total \$8,707,386, including \$1,736,817 for the science proposals and \$59,303 for facilitators for LTRM Implementation Planning.**
- **The UMRR Coordinating Committee expressed interest in developing a policy regarding UMRR research funding to advance scientific understanding of emerging contaminants.** The Committee agreed to reference the similar UMRR Invasive Species Policy (2015) linked here: [https://umesc.usgs.gov/ltrmp/documents/2015\\_umrr\\_invasive\\_species\\_policy.pdf](https://umesc.usgs.gov/ltrmp/documents/2015_umrr_invasive_species_policy.pdf).
- The LTRM implementation planning group held their first meeting on March 31, 2022. An opportunity statement for LTRM under the additional funding was drafted to focus the process, as follows: increased funding from \$10.42 million to \$15 million creates an opportunity for new work above base monitoring, analysis, and current research to expand understanding of the UMRS, restoration and management. Portfolios of funding actions that address priority information needs will be developed and reviewed to determine the optimal investment strategy. Draft objectives for implementation planning are to:
  - Provide information that is relevant to:
    - Fundamental health and resilient of the UMRS (monitoring objective).
    - Management and restoration of the UMRS (management objective).
    - Respond to emerging issues (responsiveness objective).
  - Maximize benefits from information for a given cost (efficiency objective).
  - Process objectives (additional considerations): Integrate HREP and LTRM, complement or build upon existing program, and produced LTRM information relevant to partners' priorities.

**The current planning focus is to identify information needs including how the information will be used, what will be measured, the geographic extent of the information need and the primary approach to meet the information need (e.g., additional monitoring, analysis of existing data). Future steps will include prioritizing the information needs based on the objectives, perceived uncertainty, and cost.**

#### **Navigation and Ecosystem Sustainability Program (NESP) Update**

- Andrew Goodall provided a status update on the two NESP projects funded through 2022 Infrastructure Investment and Jobs Act.
  - A project delivery team was established for the new 1,200' lock at L&D 25. An initial construction contract award is anticipated in FY 22. Coordination with the construction industry will begin on June 15, 2022.



- A scope of work to advance the design of the L&D 22 fish passage project from 35 percent to completion is in development. A contract award of design activities is anticipated for FY 22. Pre-project fish monitoring activities are anticipated to begin soon, and fish tags are being procured.
- **NESP partners held a successful in-person meeting in the Quad Cities from April 26-28, 2022.** A draft meeting summary is being reviewed by attendees and will be discussed at the next meeting of NESP's implementing member agencies on June 6, 2022. **NESP partners emphasized shared accountability for federal and state partners for program implementation. Andrew Goodall will send a request to partners regarding resource needs to support NESP activities.**
- **On May 24, 2022, the Corps announced that it allocated an additional \$12.1 million to NESP through its FY 22 work plan, bringing NESP's the total FY 22 funding level to \$57.2 million. FY 22 funds will support the following activities:**
  - Navigation (\$39.2 million)
    - Construction contracts for Lock 14 mooring cell and Moore's Towhead Systemic Mitigation.
    - Begin feasibility on three to seven new systemic mitigation projects.
    - Begin industry coordination on small-scale navigation efficiency measures – mooring cells and switchboats. An initial meeting is anticipated for June 29, 2022 in St. Louis.
    - Design of La Grange 1,200' lock.
  - Ecosystem (\$18 million)
    - Construction contracts for Twin Island, Alton Pool, Pool 2 Wingdam Notching, and Starved Rock.
    - Begin feasibility for the following ecosystem projects:
      - Wacouta Bay (MVP)
      - North-Sturgeon Lake (MVP)
      - Sabula Lakes Pool 13 (MVR)
      - Andalusia Island Complex Pool 16 (MVR)
      - Middle Miss Stone Dike Alterations Phase 1 (MVS)
      - Pool 24 Island Restoration – Denmark and Drift (MVS)
      - Multi-Pool Forest Restoration (MVR or MVP)
      - Systemic Water Level Management (MVS, MVR, MVP)

### **Other Business**

Upcoming quarterly meetings are as follows:

- **August 2022 – St. Paul, MN**
  - UMRBA quarterly meeting – August 9
  - **UMRR Coordinating Committee quarterly meeting – August 10**

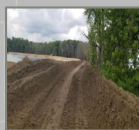


- **November 2022 – Quad Cities**
  - UMRBA quarterly meeting – November 15
  - **UMRR Coordinating Committee quarterly meeting – November 16**
  
- **February/March 2023 – Virtual**
  - UMRBA quarterly meeting – February 28
  - **UMRR Coordinating Committee quarterly meeting – March 1**

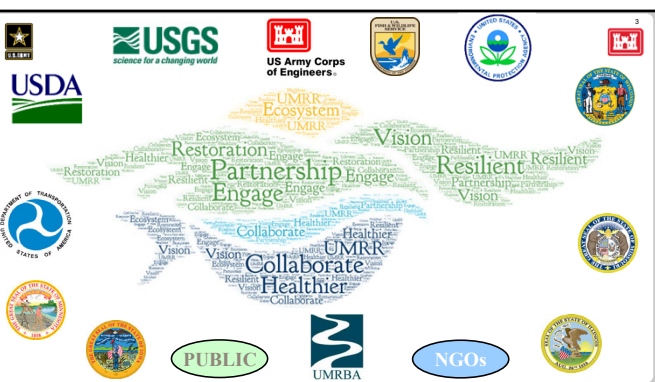


Marshall Plumley  
Regional Program Manager  
St. Paul District  
Rock Island District  
St. Louis District

25 May 2022



- FY 2022 Fiscal Update and FY 23 Outlook
- 2022 Report to Congress
- Status and Trends Report Release



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	\$?



## UMRR Quarterly Budget Report: St. Paul District

OMRR Quarterly Budget Rep  
FY2022 Q2; Report Date: Tue Apr 26 2022

### Habitat Projects

Project Name	Cost Estimates			FY2022 Financials			
	Non-Federal	Federal	Total	Carry In	Allocation	Funds Available	Actual Obligations
Beas Foods and Wells, Maryland		\$6,300,000	\$6,300,000		\$273,500	\$275,000	\$119,819
Cowley Lake	\$7,413,000		\$7,413,000		\$200,000	\$200,000	\$680,170
Harpers Slough	\$13,675,000	\$13,675,000			\$2,400,000	\$2,400,000	
Lower Pool 2 to Inland and Backwater Complex		\$17,000,000	\$17,000,000	\$93,750	\$350,000	\$443,750	\$566,675
Lower Pool 4 & Big Lake					\$10,000	\$10,000	\$139,322
McGregor Lake	\$23,550,000	\$23,550,000		\$8,116,000	\$3,118,000	\$688,674	\$688,674
Reer Bottoms	\$77,238,000	\$10,000,000	\$82,832,000	\$386,500	\$47,322	\$1,163,118	
		\$7,728,000	\$7,728,000		\$148,118		

## Habitat Rehabilitation

Subcategory		FY2022 Financials			
		Carry in	Allocation	Funds Available	Obligations
District Program Management		-	-	-	\$231,196
	<b>Total</b>	-	-	-	\$231,196

## Regional Program Administration

Regional Program Administration				
Subcategory	FY2022 Financials			
	Carry In	Allocation	Funds Available	Obligations
Habitat Eval/Monitoring	-	-	-	\$67,804
<b>Total</b>				\$67,804

	Total	-	-	-	\$67,804
	Carry in	Allocation	Funds Available	Actual Obligations	
St. Paul Total	\$146,116	\$6,718,000	\$6,864,116	\$1,120,723	



## UMRR Quarterly Budget Report: Rock Island District

OMIRK Quarterly Budget Rep  
FY2022 Q2; Report Date: Tue Apr 26 2022

Habitat Projects	

[illegible]

Total	57,280
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**Habitat Rehabilitation**

Habitat Rehabilitation		FY2022 Financials			
Subcategory		Carry in	Allocation	Funds Available	Obligations
District Program Management		-	-	-	\$243,181
	<b>Total</b>	-	-	-	\$243,181

## Regional Program Administration

Subcategory	FY2023 Financials			
	Carry in	Allocation	Funds Available	Obligations
Adaptive Management	-	\$200,000	\$200,000	\$50,503
Habitat Eval/ Monitoring	\$90	\$1,125,000	\$1,125,096	\$153,406
Model Certification/Regional HREF	-	\$100,000	\$100,000	\$13,557
Public Outreach	-	\$80,000	\$80,000	\$17,548

Regional Program Management
Regional Budget Development

Regional Project Sequencing	-	\$125,000	\$125,000	\$19,578
<b>Total</b>	<b>\$96</b>	<b>\$3,000,000</b>	<b>\$3,000,096</b>	<b>\$876,009</b>
<b>Regional Science and Monitoring</b>				
Subcategory	FY2022 Financials			
	Carry In	Allocation	Funds Available	Obligations

Long Term Resource Monitoring	-	\$5,000,000	\$5,000,000	\$4,328,062
Science in Support of Restoration/Management	-	\$3,800,000	\$3,800,000	\$3,137,833
<b>Total</b>	-	<b>\$8,800,000</b>	<b>\$8,800,000</b>	<b>\$6,465,895</b>

Carry In	Allocation	Funds Available	Actual Obligations
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**FINANCIAL REPORTING**

UMRR Quarterly Budget Report: St. Louis District  
FY2022 Q2 Report Date: Tue Apr 26 2022

Habitat Projects

Project Name	Cost Estimates			FY2022 Financials			
	Non-Federal	Federal	Total	Carry In	Allocation	Funds Available	Actual Obligations
Clarence		\$29,800,000	\$29,800,000		\$750,000	\$750,000	\$161,693
Crooks Island		\$36,562,000	\$36,562,000	\$28,490	\$1,900,000	\$1,928,490	\$335,774
Hawthorn Island		\$37,971,000	\$37,971,000		\$553,000	\$553,000	\$91,128
Oakwood		\$29,000,000	\$29,000,000		\$675,000	\$675,000	\$548,877
Phena - Eagle's Nest Islands		\$26,746,000	\$26,746,000		\$2,575,000	\$2,575,000	\$2,697,605
West Allen					\$450,000	\$450,000	\$98,970
Missouri							
Islands							
Peninsula		\$8,500,000	\$8,500,000	\$9,343	\$425,000	\$434,343	\$165,482
Stough, IL							
<b>Total</b>		\$168,579,000	\$168,579,000	\$37,843	\$7,150,000	\$7,187,843	\$4,017,929

Habitat Rehabilitation

Subcategory	FY2022 Financials			
	Carry In	Allocation	Funds Available	Obligations
District Program Management				\$270,422
<b>Total</b>				\$270,422

Regional Program Administration

Subcategory	FY2022 Financials			
	Carry In	Allocation	Funds Available	Obligations
Habitat Eval/Monitoring				\$156,611
<b>Total</b>				\$156,611

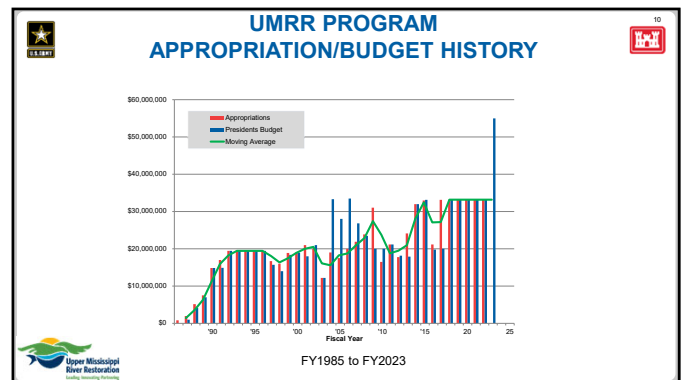
	Carry In	Allocation	Funds Available	Actual Obligations
St. Louis Total	\$37,843	\$7,150,000	\$7,187,843	\$4,442,562

**FY22 PLAN OF WORK**

	Budget	Obligations 1 May
<b>TOTAL FY22 Program</b>	<b>\$33,170,000</b>	<b>\$16,723,802</b>
<b>Regional Administration and Program Efforts</b>	<b>\$ 1,450,000</b>	<b>\$ 759,647</b>
Regional Management	\$ 1,180,000	
Program Database	\$ 100,000	
Program Support Contract (UMRBA)	\$ 120,000	
Public Outreach	\$ 50,000	
<b>Regional Science and Monitoring</b>	<b>\$10,250,000</b>	<b>\$ 6,963,766</b>
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)	\$ 1,125,000	
Report to Congress	\$ 125,000	
<b>District Habitat Rehabilitation Efforts (Planning and Construction)</b>	<b>\$21,470,000</b>	<b>\$ 9,000,389</b>
St. Paul District	\$ 6,718,000	
Rock Island District	\$ 7,502,000	
St. Louis District	\$ 7,150,000	
Model Cert.	\$ 100,000	

**FY 23 PRESIDENTS BUDGET**

South Florida Ecosystem Restoration, FL	\$406,982,000
Upper Mississippi River Restoration	\$ 55,000,000
Brandon Road LD	\$ 47,880,500
Columbia River Fish Mitigation	\$ 29,175,000
Missouri River Shish and Wildlife Recovery	\$ 25,211,500
Poplar Island, MD	\$ 21,345,000
Louisiana Coastal Area Ecosystem Restoration	\$ 4,500,000
Chesapeake Bay Oyster Recovery, MD	\$ 3,500,000
<b>Total</b>	<b>\$593,594,000</b>



**FY23 DRAFT PLAN OF WORK**

	Budget
<b>TOTAL FY22 Program</b>	<b>\$55,000,000</b>
<b>Regional Administration and Program Efforts</b>	<b>\$ 1,550,000</b>
Regional Management	\$ 1,280,000
Program Database	\$ 100,000
Program Support Contract (UMRBA)	\$ 120,000
Public Outreach	\$ 50,000
<b>Regional Science and Monitoring</b>	<b>\$15,450,000</b>
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
<b>District Habitat Rehabilitation Efforts (Planning and Construction)</b>	<b>\$38,000,000</b>
St. Paul District	\$11,148,000
Rock Island District	\$13,502,000
St. Louis District	\$13,250,000
Model Cert.	\$ 100,000

**POTENTIAL WRDA 2022 CHANGES TO UMRR**

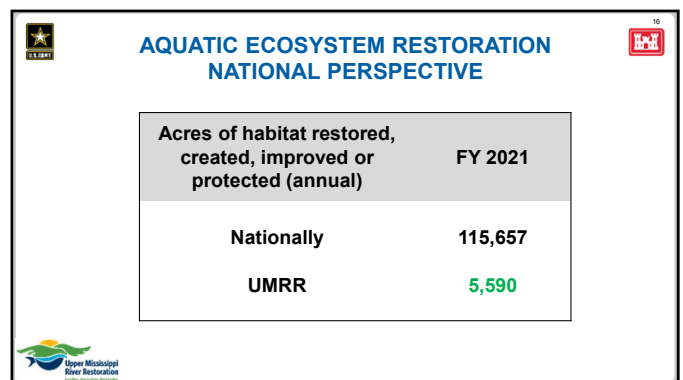
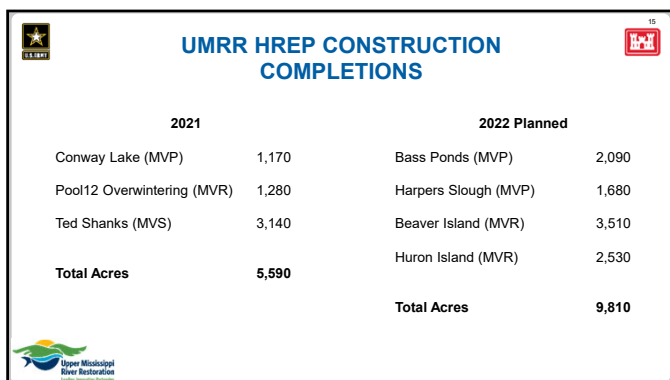
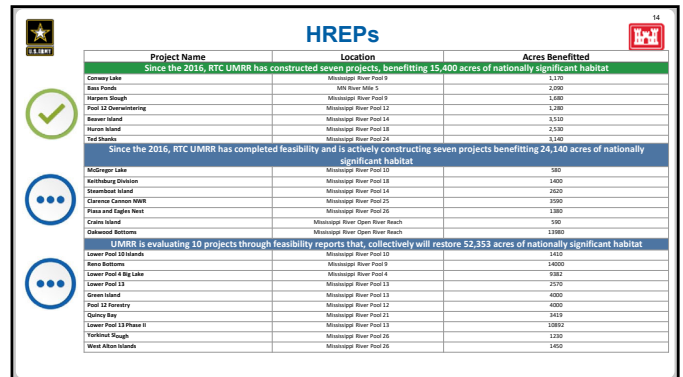
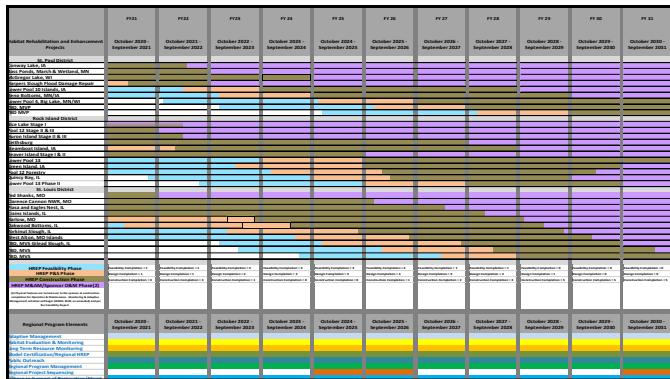
Senate SEC. 317. UPPER MISSISSIPPI RIVER SYSTEM ENVIRONMENTAL MANAGEMENT PROGRAM.

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**







**executive summary**

This systemic program provides a well-balanced combination of habitat restoration activities, along with monitoring and research. UMRR has pioneered many new and innovative engineering and planning techniques for ecosystem restoration in large river systems. In addition, the systemic element of the UMRR program has resulted in some of the most advanced techniques for monitoring and research on the river. Scientific monitoring, engineering design and environmental modeling have been used to assess the health of the river and to develop restoration plans. The results of this research have been used to inform the restoration of the UMRR and other large river systems.

**Lead**

- Implemented the UMRR program as outlined in the original draft charter and the goals and objectives of the 2005 Strategic Plan.
- Developed critical vision and understanding of the UMRR through monitoring, research, and modeling to inform management of the UMRR.
- Provided a common vision, sense of purpose, transparency, and accountability among the program partners.

**Research**

- Assessed and detected changes in the fundamental health and resilience of the UMRR.
- Identified ecological resilience and adaptive indicators to measure status and trends in the UMRR.
- Developed UMRR habitat needs assessment and identified the nature of habitat projects that will improve UMRR ecosystem health and resilience.
- Addressed key ecological needs at various spatial scales.
- Formulated and constructed seven habitat projects.

**Outcomes**


- Worked with watershed, national and international partners with UMRR to provide and exchanging information.
- Established and learned from constructed habitat projects.
- Applied adaptive management principles to address local uncertainty.
- Continued partnership and collaboration to further inform needs related to project partnership agreements.

**Program Success Since the 2016 Report to Congress**

This is the UMRR program's 8th report to Congress. The program is required to submit these reports every 16 years and to include information detailing accomplishments and any recommendations for modifications to policy or legislative measures to improve the Program's implementation. The UMRR program has led, innovated, and demonstrated ecosystem restoration, monitoring, and scientific research in a watershed.

The following goals have been achieved since the 2005 Report to Congress:

- Implemented the UMRR program as outlined in the original draft charter and the goals and objectives of the 2005 Strategic Plan.
- Developed critical vision and understanding of the UMRR through monitoring, research, and modeling to inform management of the UMRR.
- Provided a common vision, sense of purpose, transparency, and accountability among the program partners.
- Assessed and detected changes in the fundamental health and resilience of the UMRR.
- Identified ecological resilience and adaptive indicators to measure status and trends in the UMRR.
- Developed UMRR habitat needs assessment and identified the nature of habitat projects that will improve UMRR ecosystem health and resilience.
- Addressed key ecological needs at various spatial scales.
- Formulated and constructed seven habitat projects.
- Worked with watershed, national and international partners with UMRR to provide and exchanging information.
- Established and learned from constructed habitat projects.
- Applied adaptive management principles to address local uncertainty.
- Continued partnership and collaboration to further inform needs related to project partnership agreements.



**Report to Congress Chapter Themes**

- Chapter 1: Strategic Partnership and Vision
- Chapter 2: Enhancing Habitat
- Chapter 3: Addressing River Science in Support of Restoration
- Chapter 4: Implementation Issues
- Chapter 5: Conclusions and Recommendations

**DRAFT RTC: PROGRESS**

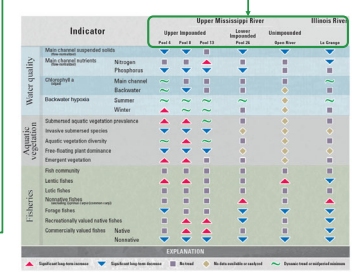
- 1<sup>st</sup> Draft Review completed 34 comments received
- 2<sup>nd</sup> Draft Review 113 comments received including those from NGO's
- 6 May discussion to review comments and draft responses
- Transmittal package to MVD prepared and routing
- Provide consolidated comments/responses back to the UMRR CC
- MVD Review of the Draft Report
- In Progress Review (early July)
- HQ USACE Review of the Draft Report

**RTC Schedule**

	Start Date	Finish Date	Activity
Draft		Feb 2022	Draft RTC Complete
	28 Mar 2022	29 Apr 2022	UMRR State & Agency Review
		Apr 2022	Letters of Support
	9-27 May 2022	6-28 Jun 2022	Mississippi Valley Division Review
Final	20-Jun 11 July 2022	18-Jul 11 Aug 2022	HQ/ASA(CW) Draft Report Review
	1-12 Aug 2022	30 Aug 2022	Final Draft RTC Complete
	31 Aug 2022	29 Sep 2022	Mississippi Valley Division Review
	10 Oct 2022	8 Nov 2022	HQ/ASA (CW) Final Review & Approval
	21 Nov 20 2022	30 Nov 2022	Final delivery of RTC

**LTRM 3<sup>rd</sup> Status and Trends Report**

- The 2022 *Ecological Status and Trends Report* summarizes analyses of **two and a half decades of long-term monitoring** data from the UMRS
- Has allowed UMRR staff and partners an incomparable ability to detect long-term trends, understand variation over time, and observe complex river patterns.
- The emphasis of the 2022 *Status and Trends* report is the detailed water quality, aquatic vegetation, and fisheries data from six unique study areas



**DISCUSSION**




Upper Mississippi River Restoration


**HABITAT RESTORATION – DISTRICT REPORTS**

Upper Mississippi River Restoration





**ST. PAUL DISTRICT (MVP)**



**PLANNING**

- **Big Lake – Pool 4, MN/WI**
  - Developed measures, formulating alternatives
  - LTRM Meeting
  - Site Visit (June 2)
- **Reno Bottoms HREP – Pool 9, MN/IA**
  - PDT evaluated cost/benefit results
  - Corps proposed a Tentatively Selected Plan
- **Lower Pool 10 HREP – Pool 10, IA**
  - Submitted Final Report to MVD (28 Feb)

**DESIGN**


- **Lower Pool 10 HREP – Pool 10, IA**
  - Kicked-off Plans & Specs, Stage I
  - Value Engineering Study
  - Site visit (July-Aug)

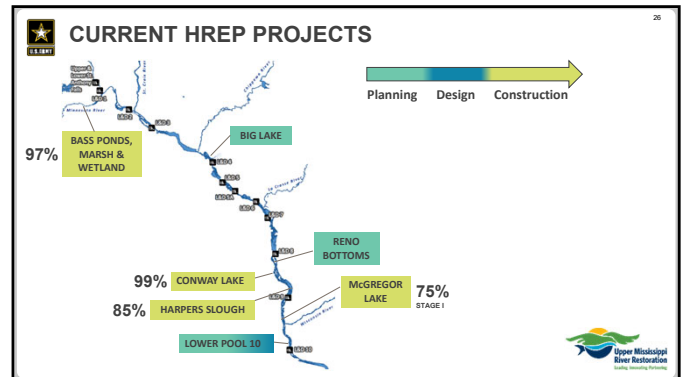
**CONSTRUCTION**


- **Harpers Slough HREP – Pool 9, IA**
  - 85% Complete, Final grading & seeding
- **McGregor Lake HREP – Pool 9, WI**
  - Stage I: 75% Complete
  - Stage II: Advertise (June); Award (August)
- **Bass Ponds, Marsh & Wetland HREP – MN River**
  - 97% Complete, Stoplog Demonstration
  - Upcoming Dedication Event
- **Conway Lake HREP – Pool 9, IA**
  - 99% Complete, Tree planting underway

**Other Activities**


- Earth Day Dedication Event (Harpers & Conway)
- PERs: Pool Slough site visit






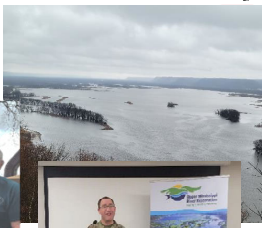




**ST. PAUL DISTRICT**



**Conway Lake & Harpers Slough Project Dedication**







**ST. PAUL DISTRICT**



**Engineering With Nature - Publication**

**IMPROVING WETLAND RESTORATION**

New Initiatives Improve Wetland Restoration Outcomes: Engineering with Nature and the Use of Natural and Nature-Based Features


*Joseph F. Berbenick\* and Nina S. Dorst†*





**Big Lake HREP – Measures Workshop**







**ROCK ISLAND DISTRICT (MVR)**



**PLANNING**

- **Lower Pool 13 – Pool 13, IA/IL**
  - TSP milestone meeting completed on May 2nd
  - DQC review scheduled for June
- **Green Island – Pool 13, IA**
  - PDT working on cost, quantities, and benefits for all alternatives and benefits.
- **Pool 12 Forestry – Pool 12, IA/IL/WI**
  - Planning workshop was held on April 25th to work on priority areas and potential features (photo)
- **Quincy Bay – Pool 21, IL**
  - PDT working on measures
  - Planning a public open house on August 18th

**DESIGN**


- **Steamboat Island Stage II – Pool 14, IA/IL**
  - Starting design. Site visit on May 17th (photos)
- **Steamboat Island Stage I – Pool 14, IA/IL**
  - Completed design – waiting on funding


**CONSTRUCTION**

- **Pool 12 Overwintering, Pool 12, IL**
  - Stage II** – Construction is closing out the contract
  - PDT is working on ribbon cutting video
- **Beaver Island Stage IB, Pool 14, IA/IL**
  - Contractor moved off-site for the winter. Spring seeding still left.
- **Kelthsburg Division Stage I, Pool 18, IL**
  - Eagle in nest. Construction might start in July
- **Kelthsburg Division Stage II, Pool 18, IL**
  - Contractor working on placing material for the storage building. (photos)
- **Huron Island, Pool 18, IA**
  - Stage III** – ERDC is planning site visits in June, July and September


**FACTSHEETS**

- Still addressing sponsor comments on Upper Pool 13






**ROCK ISLAND DISTRICT**

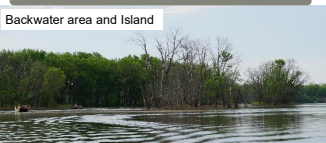


**Pool 12 Forestry – Workshop**




**Steamboat Site Visit**


Backwater area and Island




Steamboat PDT



Discussion - features







**ROCK ISLAND DISTRICT**

**Keithsburg Division Stage II**



Storage yard cleared

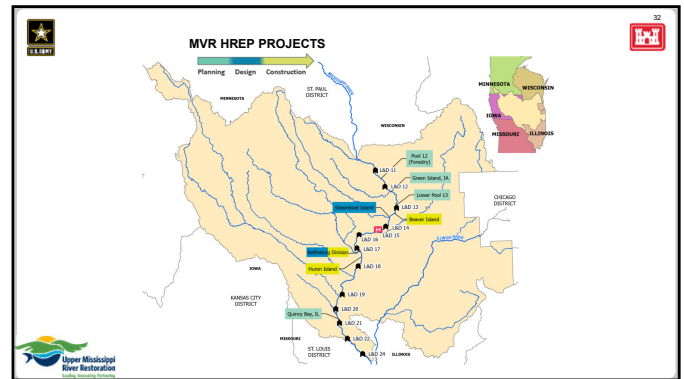


Material being placed in the storage yard



Trees stockpiled for removal

Upper Mississippi River Restoration  
Leading. Learning. Restoring.



**ST. LOUIS DISTRICT (MVS)**

**PLANNING –**

**West Alton Islands, MO, HREP (Pool 26)**

- Continue Feasibility Planning
- Completed IPR 3<sup>rd</sup> Quarter FY22

**Yorkinut Slough, IL HREP (IL River)**

- Continue Feasibility Planning
- Evaluating Alternatives – TSP 4<sup>th</sup> Quarter FY22

**DESIGN –**

**Piasa & Eagles Nest, IL HREP (Pool 26)**

- Award Stage 2, Channel Excavation
- P&S 4<sup>th</sup> Quarter FY22

**Harlow Island, IL HREP (Open River)**

- Initiate Stage 2, P&S 4<sup>th</sup> Quarter FY22

**Oakwood Bottoms, IL, HREP (Open River)**

- Complete 4 P&S packages 1<sup>st</sup> Quarter FY23
- Pump Station, Well Pumps, North Units Earthwork & Water Control Structures, South Units Earthwork & Water Control Structures

**CONSTRUCTION –**

**Crains Island, IL HREP (Open River)**

- Complete Stage 1, 3<sup>rd</sup> Quarter FY22

**Piasa & Eagles Nest, IL HREP (Pool 26)**

- Rock Structure Construction

**Clarence Cannon Refuge, MO (Pool 25)**

- Pump Station – operational, modifications to channel 3<sup>rd</sup> Quarter FY22
- Exterior Berm Setback

**Other Activities**

- FS, INDR/TNC, FWS - New Fact Sheet
- Swan Lake Flood Damage Assessment
- HREP Construction Lessons Learned

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**ST. LOUIS DISTRICT**

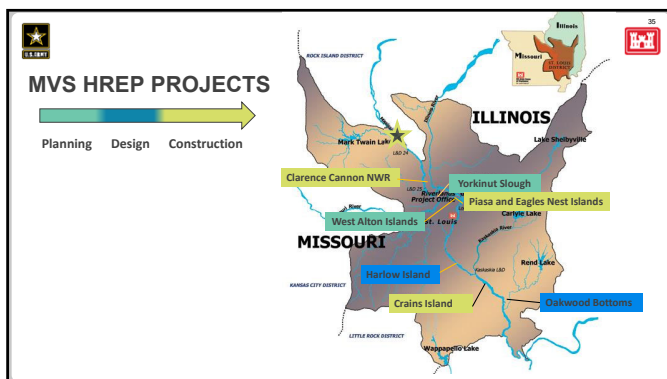
**Piasa & Eagles Nest Islands HREP Stage I**






Piasa & Eagles Nest Islands HREP Stage I

Upper Mississippi River Restoration  
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## UMRR Strategic Plan Review Broad Partnership Survey Results

May 25, 2022

### Purpose

In the summer of 2021, the UMRR Coordinating Committee requested an interim review of the UMRR 2015-2025 Strategic Plan by the broad program partnership. This serves as a valuable check-in on the progress UMRR has made in achieving the goals and objectives of the Plan as well as affords the Partnership an opportunity to prioritize activities through 2025.

#### Survey:

A survey was designed and distributed in fall 2021 to a broad group of UMRR partners.

Respondents were asked to evaluate how well UMRR has implemented actions and addressed needs outlined in the 2015-2025 UMRR Strategic Plan.

### Survey Elements

- Information about respondents' involvement with UMRR
- Goal 1. Enhance habitat for restoring and maintaining a healthier and more resilient Upper Mississippi River ecosystem.
- Goal 2. Advance knowledge for restoring and maintaining a healthier and more resilient Upper Mississippi River ecosystem.
- Goal 3. Engage and collaborate with other organizations and individuals to help accomplish the Upper Mississippi River Restoration vision.
- Goal 4. Utilize a strong, integrated partnership to accomplish the Upper Mississippi River Restoration vision.

### Demographics

#### Agency

Predominant floodplain reach

Years involved with UMRR

Participation in UMRR-related activities over last three years (e.g., Coordinating Committee Member, A-Team, River Teams, Science Meetings, HREP PDTs)

#### Other:

Role in and understanding of HREP and LTRM elements

Familiarity with Strategic Plan.

### Success Criteria and Priority Actions

#### Success Criteria:

Please indicate your level of agreement or disagreement with each of the following statements...

- 5-pt scale from Strongly disagree to Strongly agree
- Unsure, Prefer not to respond.

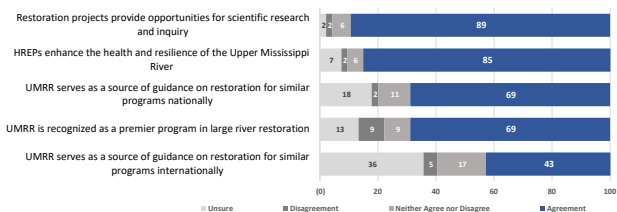
#### Priority Actions:

Please indicate the level of priority you believe the program should place on each of the following actions in support of Goal X of the strategic plan.

- 5-pt scale (Not a priority Low priority Priority High priority Highest priority)
- Unsure, Prefer not to respond.

### Goal 1 Success Criteria

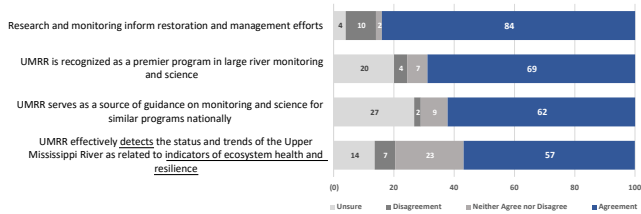
Enhance habitat for restoring and maintaining a healthier and more resilient Upper Mississippi River ecosystem.





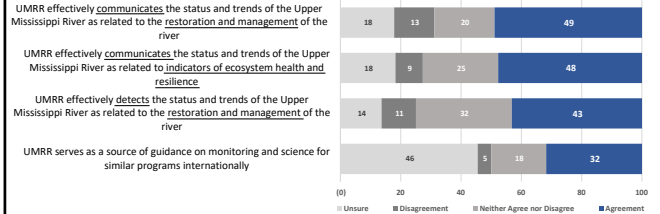
## Goal 2 Success Criteria (1 of 2)

Advance knowledge for restoring and maintaining a healthier and more resilient Upper Mississippi River ecosystem



## Goal 2 Success Criteria (2 of 2)

Advance knowledge for restoring and maintaining a healthier and more resilient Upper Mississippi River ecosystem



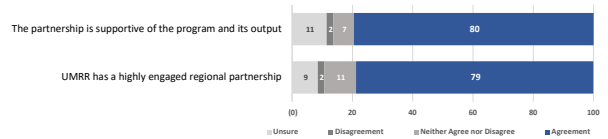
## Goal 3 Success Criteria

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

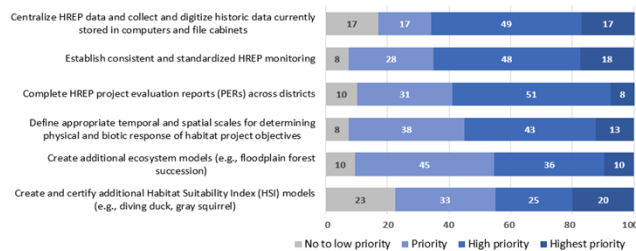
No questions asked

## Goal 4 Success Criteria

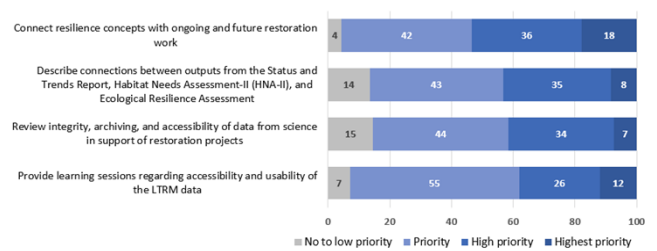
Utilize a strong, integrated partnership to accomplish the Upper Mississippi River Restoration vision.



## Goal 1 Top Priority Actions

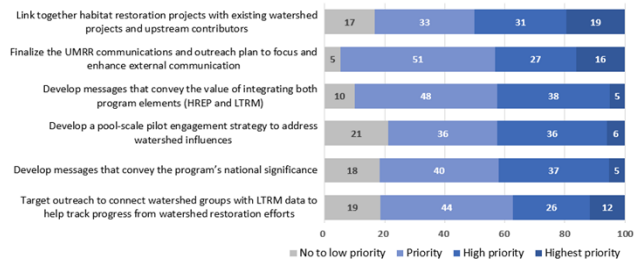


## Goal 2 Top Priority Actions

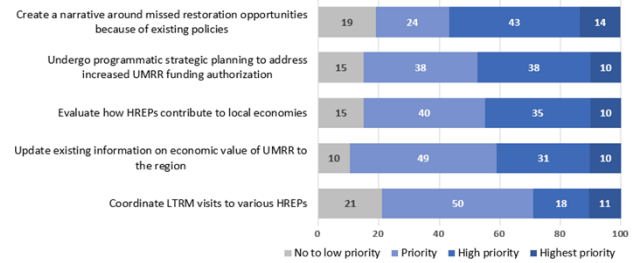




## Goal 3 Top Priority Actions



## Goal 4 Top Priority Actions



## Next Steps

Summary of the open-ended results.

Consider additional analyses?

The data is in a format where we can now do additional analyses.

- Predominant floodplain reach
- Coordinating Committee Member responses in aggregate or compared to all other respondents








## UMRR COMMUNICATION AND OUTREACH TEAM Update

Rachel Perrine  
USACE-RPEDN-PD-F




## COT Recent Activities

### 2022 Earth Day Social Media Campaign



### Support for Status & Trends Report







## 2022 Earth Day Social Media Campaign





## 2022 Earth Day Social Media Campaign


Date	Subject	Facebook				Twitter	
		Reach	Likes	Shares	Comments	Impressions	Engagements
4/18/2022	Program Flyer Post	2844	57	6	0	316	16
4/19/2022	UMRR History Video	2206	42	7	2	242	14
4/20/2022	Habitat Restoration/PBUD	3354	66	9	1	242	13
4/21/2022	LTRM	5509	75	7	2	333	23
4/22/2022 (a.m.)	Harpers Slough	2539	34	4	0	359	14
4/22/2022 (p.m.)	MVP Ribbon Cutting FB Live	1434	37	7	2	N/A	N/A
4/22/2022 (p.m.)	MVP Ribbon Cutting Photo	2147	65	4	9	N/A	N/A
	<b>Campaign Total</b>	<b>20,033</b>	<b>376</b>	<b>44</b>	<b>16</b>	<b>1,492</b>	<b>80</b>





## 2022 Status & Trends Report Rollout


- Key Messages
- Joint USACE/USGS Press Release
- "Long Rollout" of Report



## 2022 Status & Trends Report Rollout

### Joint USACE/USGS Press Release



### NEWS RELEASE

U.S. ARMY CORPS OF ENGINEERS BUILDING STRONG™

Release No. F722-05-02  
Date: July 26, 2022  
Contact: U.S. Army Corps of Engineers, Rock Island District  
Corporate Communications  
60201 1-202-691-6911  
309-754-4275

Media Contact: 60505  
303-426-8884  
60505@usace.army.mil

#### Upper Mississippi and Illinois Rivers Experiencing Widespread and Regional Changes

A national report represents more than 25 years of data and will inform river management and investments in the coming years.


USACE and USGS, in partnership with others, have released a report regarding the **Ecological Status and Trends of the Upper Mississippi and Illinois Rivers**.

The Status and Trends report is the first of its kind produced as part of the Upper Mississippi River Restoration (UMRR) program and provides information on long-term changes in water quality, aquatic vegetation and fish from six study areas spread across the Upper Mississippi and Illinois Rivers. The report also summarizes trends in possible drivers of long-term changes in the river including river discharge and floodplain land cover.

#### Press Release Goals:

- 1) Announce the release of the Status & Trends Report
- 2) Use as a starting point for additional communications for partners

Media inquiries will be directed to the appropriate partners, as needed, for additional information







## 2022 Action Priorities



UMRR Video Series  
Update Communication and Outreach Plan  
Communication and Outreach Materials Inventory



## COMMUNICATION & OUTREACH PLAN UPDATE



### Goal:

Updated communication and outreach plan that represents agency and organization communication efforts and needs

- ✓ Upfront goals, key messages, and talking points
- ✓ Clearly ID audiences, outreach tactics and spokesperson(s)
- ✓ Have agency contacts, past actions, and schedules in one place



## UMRR Communication and Outreach Team



### Points of Contact:

Jill Bathke  
USACE-RPEDN-PD-F @ MVP  
[Jill.C.Bathke@usace.army.mil](mailto:Jill.C.Bathke@usace.army.mil)

Rachel Perrine  
USACE-RPEDN-PD-F @ MVR  
[Rachel.E.Perrine@usace.army.mil](mailto:Rachel.E.Perrine@usace.army.mil)







## UMRR Status and Trends Report Long Rollout

May 25, 2022

## Opportunity and Objectives

### Opportunity Statement:

UMRR will publish its third status and trends assessment of the Upper Mississippi River System in June 2022. This report is a significant accomplishment for UMRR and includes important information about the river ecosystem. This report represents more than 25 years of data and will inform river management and investments in the coming years.

### Communication Objectives:

- 1) Encourage target audiences to engage with the information in the third status and trends report
- 2) Encourage target audiences to understand the fundamental role of long-term monitoring in restoration and management of the UMRS
- 3) Increase stakeholder awareness and appreciation of the UMRS as a large and diverse river system with many regional differences

## Long Rollout

Create digestible pieces for each of the content areas included in the report to guide communication activities throughout the year and help develop:

Web/report and content	Photos and videos
Media and social media	Events
Points of contact	Timeline

## Key Findings

**Water Quantity:** There is more water in the river more of the time with high flows lasting longer and occurring more frequently throughout the system.

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

**Water Clarity:** In parts of the river system, water has become clearer and aquatic plants more abundant improving habitat for some fish and wildlife.

**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.

**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.

## Long Rollout – Events Calendar

Date	Event description	Agency
June	La Crosse LTRM Field Station Report: Summary of Findings for 2021 Field Season (includes most of the S&T topic areas)	WI DNR
	Aquatic vegetation and fisheries sampling begins, Biweekly WQ trend sampling (field stations)	
	Lake Unit gamefish population sampling	WI DNR
July - August	Goose Banding	WI DNR
	WQ Summer "snapshot sampling" (150 SRS sites in 2-week window), Vegetation sampling wraps up, Biweekly WQ trend sampling	
	UMRCC vegetation sampling	
	UMRRC wetland sampling (amphibian surveys)	WI DNR
	Duck Banding	WI DNR
September	WQ sampling projects	WI DNR
	Drive the Great River Road month marketing promotion	
October	Fall Migration surveys	
	WQ Summer "snapshot sampling" (150 SRS sites in 2-week window), Fisheries sampling wraps up, Biweekly WQ trend sampling	
	MUM-invasive carp sampling and removal	WI DNR
November - December	Fisheries team identifying ~10,000 minnows collected over the field season (lab work), Data verification and analyses, report writing (may be reports or manuscripts to highlight, draft data graphics, show how scientists analyze the data and learn about the UMRS ecology)	

## Next Steps

### Request:

UMRR Coordinating Committee members are asked to identify any anticipated or potential activities related to content in the report that their agencies may be involved with during 2022

### Examples:

- Field Stations begin 2022 LTRM field work
- Coordinated MUM activities for 2022
- Inclement weather (field crews still sampling!)
- Completion of habitat projects.

Specific dates are not necessary at this point as we are identifying the portfolio of opportunities for us to tie in messaging related to the status and trends report.

Will discuss at June 1 COT meeting.



## UMRR CONSTRUCTION LESSONS LEARNED

### UMRCC BRIEFING

Jasen Brown, PE  
May 25, 2022



## PURPOSE

To document common...

- problems encountered
- lessons learned
- successful practices

...from completed ecosystem restoration projects within the St. Louis District



## PARTNERING AGENCIES

- U.S. Fish and Wildlife Service (USFWS)
- Illinois Department of Natural Resources (IDNR)
- Missouri Department of Conservation



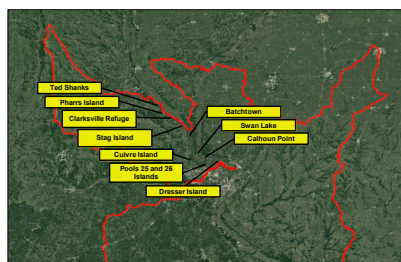
## MVS TEAM

Jasen Brown – MVS UMRR Engineering Lead  
Sarah Miller – Operations  
Mark Games – Construction  
Ken Dalrymple – Rehired Annuitant  
Asher Leff – Civil  
Kyla James / Tom Lytle – Mechanical  
Emily Navin – Geotech  
Danny Graves - Electrical



## MVS CONSTRUCTED HREP'S

- 10 Completed Projects
- Just over 22,000 Acres Restored



## REPORT CONTENT

Content and Lessons Learned from MVS projects.


Focus on...

- Construction Efficiency
- Right-Sized Designs
- Sponsor Feedback

Integrate content into the larger UMRR Environmental Design Handbook.







7

## INTEGRATION W/ UMRR DESIGN HANDBOOK

MVS Island Design Lessons Learned

- Chapter 9

MVS Water Control Structure Lessons Learned

- Chapter 5, Section C, Parts 3&4

MVS Pump Station Lessons Learned

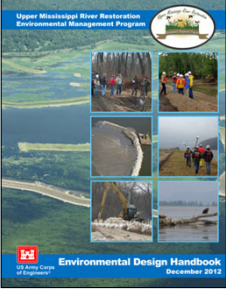
- Chapter 5, Section D, Part 2

MVS Dredging Lessons Learned

- Chapter 6


MVS River Training Structures Lessons Learned

- Chapter 7



Upper Mississippi River Restoration  
Environmental Management Program

Environmental Design Handbook  
December 2015



Upper Mississippi River Restoration  
Leading Smarter Planning



8

## SCHEDULE

Task	Finish Date
Complete Site Visits	Sep 2022
Complete Draft Appendices	Dec 2022
Complete Draft Report	Jan 2023
Final Report	March 2023



Upper Mississippi River Restoration  
Leading Smarter Planning



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## QUESTIONS?





Upper Mississippi River Restoration  
Leading Smarter Planning







## National and Global Perspectives



## Relating to Natural Resources



## Upper Mississippi River System

"A Working River in Need"

Multiple uses



## National Significance

Upper Mississippi River Restoration program partnership

Monitor (LTRM) and Restore (HREPs)

Restoration to combat degradation



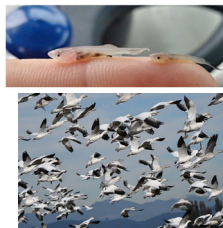
## Partnerships

Migratory Birds

Various Aquatic Life

Forests and Floodplains

Protects a "Nationally Significant Resource"



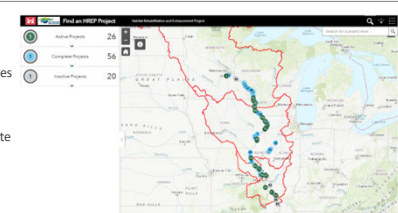
## Management

Restoration - >100,000 acres restored and connected

>35 years

56 completed HREPs to date

Need: Biological Responses



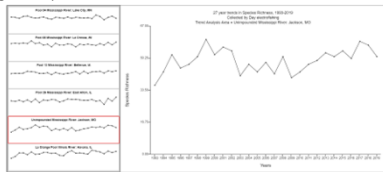


## Identifying Needs and Research

LTRM – trends and abundances over time

Extensive database

Provides insights into past and allows inferences into future

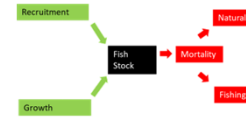


## Changes Over Time - Responses

Measuring responses

Age demographics changes

Growth rates, birth rates, recruitment, mortality, longevity, etc.



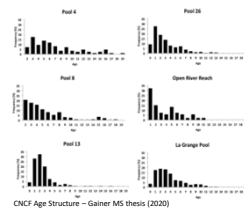
## Cooperative Research

Fulfill knowledge gaps

Obtain age estimates across select fishes (recreational, commercial, and ecologically important fishes)

Quantify population demographics

Better management and understanding biological responses to change (good or bad)



CNCF Age Structure – Gainer MS thesis (2020)

## Ecological and Recreational Importance

Insights into recreationally and economically important fishes



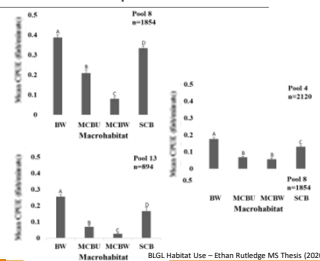
Age (years)	Pool 4	Pool 8	Pool 13
1	119.72	137.32	138.33
2	223.62	218.52	224.33
3	317.69	301.76	319.66
4	376.82	360.86	374.32
5	410	372.83	385.25
6	373.5	382.31	391.64
7	-	405	418
8	435	430.38	446.94
9	-	439.33	472
10	426	437.63	443.83
11	442	440.4	465
12	425	451	-
13	-	464	456
14	443	460	-
15	-	-	-
16	-	460	-

LMBS mean length at age – Kyle Sterling MS Thesis (2022)

## Ecological and Recreational Importance

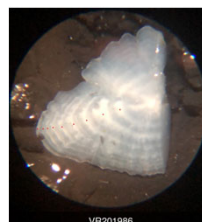
Habitat Specialists – Provides insights in quality and abundance of habitats

BLGL – Backwater specialists



BLGL Habitat Use – Ethan Rutledge MS Thesis (2020)

## Longevity



VR201986



VR201986



## Ecological and Recreational Importance

GZSD – important prey/forage species

Trophic importance

Energy transfer through system

Limiting factors?

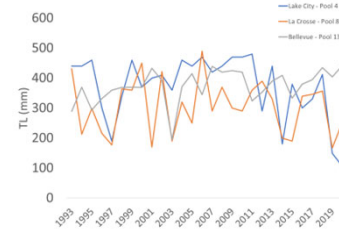


Table 1. Gizzard shad maximum age (in years), recruitment (R), theoretical maximum length (L<sub>∞</sub>), how quickly the fish are reaching asymptotic length (Brodie Growth Coefficient (K)), and total annual mortality percent (%M).

Field Station	Year	Max Age	R <sup>2</sup>	L <sub>∞</sub>	K	%M
(1) Lake City, MN	2018	4	0.86	381	0.44	-
	2019	1	-	-	-	-
	2020	1	-	-	-	-
(2) La Crosse, WI	2018	5	0.87	327	0.41	-
	2019	2	-	-	-	-
	2020	3	-	-	-	-
(3) Bellevue, IA	2018	3	0.82	423	0.41	-
	2019	6	0.83	404	0.38	73
	2020	5	0.83	443	0.34	74
(4) Alton, IL	2018	4	0.87	389	0.37	-
	2019	3	0.82	403	0.34	73
	2020	3	0.90	355	0.45	73
(5) Cape Girardeau, MO	2018	6	0.91	370	0.42	-
	2019	2	0.83	417	0.33	67
	2020	7	0.57	463	0.27	44
(6) Havana, IL	2018	5	0.98	425	0.34	-
	2019	5	0.90	393	0.37	77
	2020	7	0.97	425	0.33	67

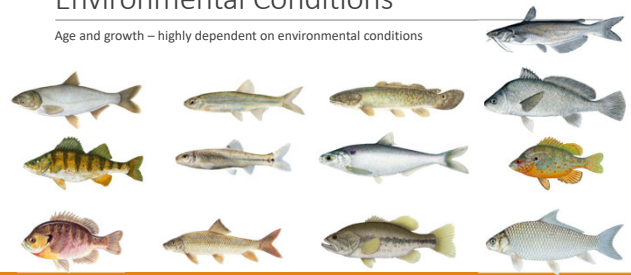
\*Black cells present denote lack of new classes (most have more than 3-year classes)  
Elaine Ewigman MS Thesis (2022)

## Ecological and Recreational Importance

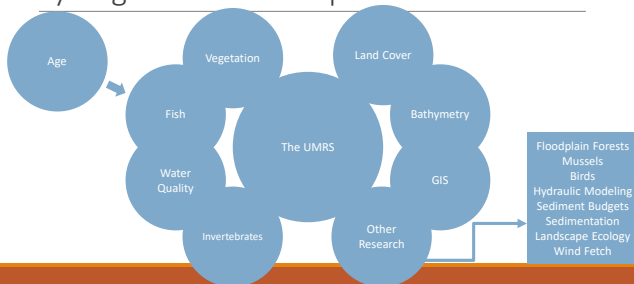


## Environmental Conditions

Age and growth – highly dependent on environmental conditions

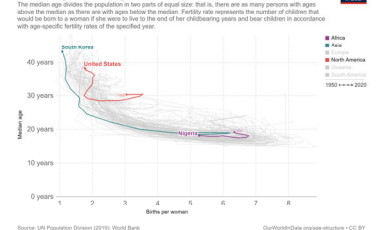


## Synergistic Relationships



## Demographics

Median age vs. births per woman, 1950 to 2020





## Future Scientists

### Graduate Students

Ethan Rutledge – Population Structure and Habitat Use of Bluegill in the Upper Mississippi River, PhD Student University of Massachusetts Amherst

Colby Gainer – Gear Specific Catch Rates and Population Dynamics of Channel Catfish in the Mississippi River, Research Paddlefish Biologist, ODWC

Elaine Ewigman – Gizzard Shad Habitat Use and Population Dynamics, Aquatic Nuisance Species Biologist, ODWC

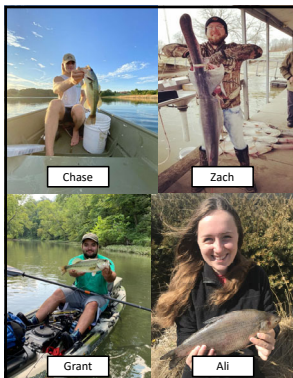
Kylie Sterling – Largemouth Bass in the Upper Mississippi River: An evaluation of Management Strategies and Understanding Potential Factors Influencing Dynamic Rate Functions, Fisheries Biologist, USGS Columbia Environmental Research Center

## Future Scientists

### Research Experiences



## Undergraduate Projects



### Chase Forck

"Feasibility of Ageing and Application to Cyprinid Prey Species in the Upper Mississippi River"

### Zach Cockrum

"Yellow Perch Population Dynamics and Simulation Modeling in the Upper Mississippi River"

### Grant Schmitz

"Largemouth Bass Population Dynamics in the Upper Mississippi River"

### Ali Johnson

"Habitat Use of Gizzard Shad in the Upper Mississippi River"

## Acknowledgements

Field Staff – Bagging and Tagging Fish

Lab personnel – processing fish

Undergraduate and Graduate Students

Kristen Bouska and Andy Bartles

Karen Hagerty, Jennie Sauer, Brian Ickes, Jeff Houser, and many many more folks

The Partnership!



## Acknowledgements



This study is conducted by the U.S. Army Corps of Engineers' Upper Mississippi River Restoration Program Long Term Resource Monitoring (LTRM) element. The LTRM is a cooperative effort between the U.S. Army Corps of Engineers, U.S. Geological Survey, U.S. Fish and Wildlife Service, Illinois Natural History Survey, Iowa Department of Natural Resources, Minnesota Department of Natural Resources, Wisconsin Department of Natural Resources, and Missouri Department of Conservation.



## Questions?










# HABITAT RESTORATION – DISTRICT REPORTS



# ST. PAUL DISTRICT (MVP)

## PLANNING

- **Big Lake – Pool 4, MN/WI**
  - Developed measures, formulating alternatives
  - LTRM Meeting
  - Site Visit (June 2)
- **Reno Bottoms HREP – Pool 9, MN/IA**
  - PDT evaluated cost/benefit results
  - Corps proposed a Tentatively Selected Plan
- **Lower Pool 10 HREP – Pool 10, IA**
  - Submitted Final Report to MVD (28 Feb)

## DESIGN


- **Lower Pool 10 HREP – Pool 10, IA**
  - Kicked-off Plans & Specs, Stage I
  - Value Engineering Study
  - Site visit (July-Aug)

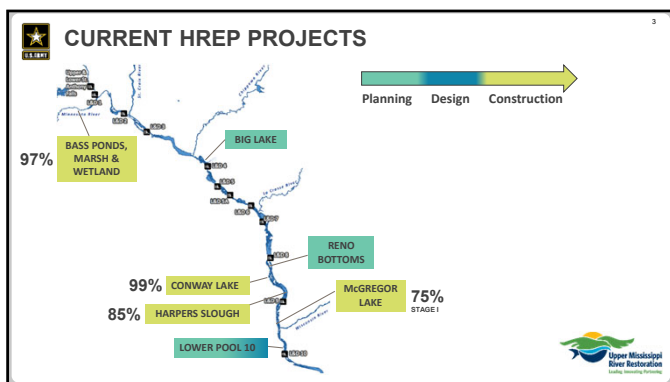
## CONSTRUCTION



- **Harpers Slough HREP – Pool 9, IA**
  - 85% Complete, Final grading & seeding
- **McGregor Lake HREP – Pool 9, WI**
  - Stage I: 75% Complete
  - Stage II: Advertise (June); Award (August)
- **Bass Ponds, Marsh & Wetland HREP – MN River**
  - 97% Complete, Stoplog Demonstration
  - Upcoming Dedication Event
- **Conway Lake HREP – Pool 9, IA**
  - 99% Complete, Tree planting underway

## Other Activities

- Earth Day Dedication Event (Harpers & Conway)
- PERs: Pool Slough site visit


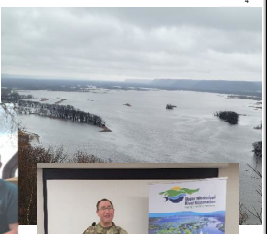





# ST. PAUL DISTRICT

## Conway Lake & Harpers Slough Project Dedication




# ST. PAUL DISTRICT

## Engineering With Nature - Publication

### IMPROVING WETLAND RESTORATION

New Initiatives Improve Wetland Restoration Outcomes: Engineering with Nature and the Use of Natural and Nature-Based Features



Joseph F. Berkowitz<sup>1</sup> and Xia R. Han<sup>2</sup>



## Big Lake HREP - Measures Workshop





# ROCK ISLAND DISTRICT (MVR)

## PLANNING

- **Lower Pool 13 – Pool 13, IA/IL**
  - TSP milestone meeting completed on May 2nd
  - DQC review scheduled for June
- **Green Island – Pool 13, IA**
  - PDT working on cost, quantities, and benefits for all alternatives and benefits.
- **Pool 12 Forestry – Pool 12, IA/IL/WI**
  - Planning workshop was held on April 25<sup>th</sup> to work on priority areas and potential features (photo)
- **Quincy Bay – Pool 21, IL**
  - PDT working on measures
  - Planning a public open house on August 18th

## DESIGN


- **Steamboat Island Stage II – Pool 14, IA/IL**
  - Starting design. Site visit on May 17th (photos)
- **Steamboat Island Stage I – Pool 14, IA/IL**
  - Completed design – waiting on funding

## CONSTRUCTION

- **Pool 12 Overwintering, Pool 12, IL**
  - Stage II** – Construction is closing out the contract
  - PDT is working on ribbon cutting video
- **Beaver Island Stage IB, Pool 14, IA/IL**
  - Contractor moved off-site for the winter. Spring seeding still left.
- **Keithsburg Division Stage I, Pool 18, IL**
  - Eagle in nest. Construction might start in July
- **Keithsburg Division Stage II, Pool 18, IL**
  - Contractor working on placing material for the storage building. (photos)
- **Huron Island, Pool 18, IA**
  - Stage III** – ERDC is planning site visits in June, July and September

## FACTSHEETS

- Still addressing sponsor comments on Upper Pool 13





**ROCK ISLAND DISTRICT**

**Pool 12 Forestry - Workshop**

**Steamboat Site Visit**

Backwater area and Island

Steamboat PDT

Discussion - features

Upper Mississippi River Restoration  
Savory. Stewardship. Partnership.

**ROCK ISLAND DISTRICT**

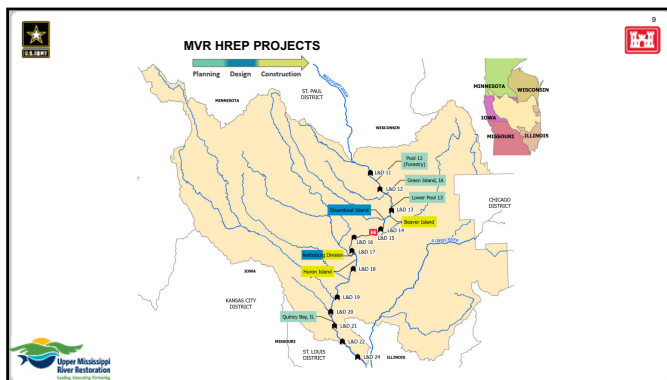
**Keithsburg Division Stage II**

Storage yard cleared

Material being placed in the storage yard

Trees stockpiled for removal

Upper Mississippi River Restoration  
Savory. Stewardship. Partnership.



**ST. LOUIS DISTRICT (MVS)**

**PLANNING –**

**West Alton Islands, MO, HREP (Pool 26)**

- Continue Feasibility Planning
- Completed IPR 3<sup>rd</sup> Quarter FY22

**Yorkinut Slough, IL HREP (IL River)**

- Continue Feasibility Planning
- Evaluating Alternatives – TSP 4<sup>th</sup> Quarter FY22

**DESIGN –**

**Plasa & Eagles Nest, IL HREP (Pool 26)**

- Award Stage 2, Channel Excavation
- P&S 4<sup>th</sup> Quarter FY22

**Harlow Island, IL HREP (Open River)**

- Initiate Stage 2, P&S 4<sup>th</sup> Quarter FY22

**Oakwood Bottoms, IL, HREP (Open River)**

- Complete 4 P&S packages 1<sup>st</sup> Quarter FY23
- Pump Station, Well Pumps, North Units Earthwork & Water Control Structures, South Units Earthwork & Water Control Structures

**CONSTRUCTION –**

**Crains Island, IL HREP (Open River)**

- Complete Stage 1, 3<sup>rd</sup> Quarter FY22

**Plasa & Eagles Nest, IL HREP (Pool 26)**

- Rock Structure Construction

**Clarence Cannon Refuge, MO (Pool 25)**

- Pump Station – operational, modifications to channel 3<sup>rd</sup> Quarter FY22
- Exterior Berm Setback

**Other Activities**

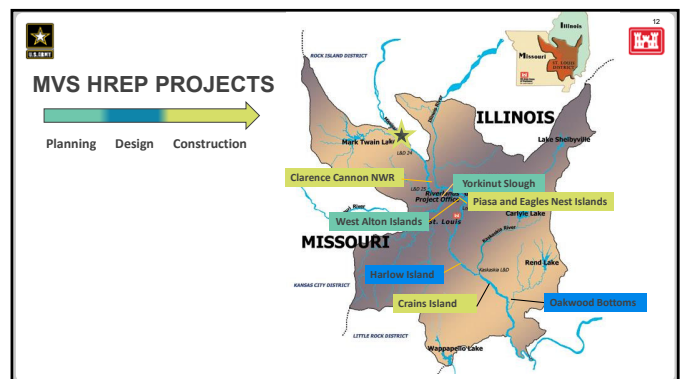
- FS, INDR/TNC, FWS - New Fact Sheet
- Swan Lake Flood Damage Assessment
- HREP Construction Lessons Learned

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Savory. Stewardship. Partnership.

**ST. LOUIS DISTRICT**

**Plasa & Eagles Nest Islands HREP Stage I**

Upper Mississippi River Restoration  
Savory. Stewardship. Partnership.







### Identifying monitoring information needs that support the management of fish in large rivers

*PLoS ONE 17(4):e0267113*  
Counihan, T. D., K. L. Bouska, S. K. Brewer, R. Jacobson, A. F. Casper, C. G. Chapman, I. R. Waite, K. R. Sheehan, M. Pyron, E. R. Irwin, K. Riva-Murray, A. J. McKerrow, and J. M. Bayer

### 2022 Mississippi River Research Consortium

20-22 April in La Crosse, Wisconsin

- MORTALITY AND RECRUITMENT IN LARGE BASS, BLUEGILL, AND BLACK CRAPPIE IN THE EMIQUON PRESERVE
- ENVIRONMENTAL FACTORS DRIVING RECRUITMENT OF FRESHWATER DRUM FROM FOUR LARGE RIVERS
- SPATIOTEMPORAL DRIVERS OF SUITABLE OVERWINTERING HABITAT FOR CENTRARCHID SPECIES IN THE UPPER MISSISSIPPI RIVER SYSTEM
- DO PHYSICAL DIFFERENCES IN THE CHANNELS CONTRIBUTE TO DIFFERENT FISH ASSEMBLAGES IN LARGE RIVERS?
- ILLINOIS WATERWAY FISH COMMUNITY RESPONSE TO AN ECOSYSTEM-SCALE DISTURBANCE IN SHIPPING VESSEL TRAFFIC
- EVIDENCE OF ALTERNATIVE TROPHIC PATHWAYS FOR CONSUMERS IN A LARGE RIVER SYSTEM
- SPATIAL AND TEMPORAL VARIATION IN AQUATIC INSECT EMERGENCE IN POOL 8 OF THE UPPER MISSISSIPPI RIVER
- THE MARSH LAKE ECOSYSTEM PROJECT: WHEN, WHERE, AND HOW OF LARGE WOOD IN THE UPPER MISSISSIPPI RIVER SYSTEM: LESSONS FROM A 25-YEAR DATASET
- THE MARSH LAKE ECOSYSTEM PROJECT: WHEN, WHERE, AND HOW OF LARGE WOOD IN THE UPPER MISSISSIPPI RIVER SYSTEM: LESSONS FROM A 25-YEAR DATASET

### 2022 Joint Aquatic Sciences Meeting

May 16 – 20 in Grand Rapids, Michigan

- Houser** - Collaborating to Better Understand the Ecology of Upper Mississippi River System and Inform Its Restoration and Management
- Van Appledorn** - Can we agree on the future? A multi-agency effort to develop a future hydrology dataset for the Upper Mississippi River
- Jankowski** - Synthesis of long-term trends in river silicon across biomes shows widespread changes but highly variable drivers
- Mooney/Jankowski** – Spatiotemporal Drivers of Suitable Overwintering Habitat for Centrarchid Species in a Large River Network
- Delaney/Larson** - Identifying Areas for Conservation and Restoration of Submersed Aquatic Vegetation in the Upper Mississippi River

### All 2021 LTRM data are available online

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

- Water quality**
  - All 2021 data uploaded
  - Graphical browser update nearly finished
- Vegetation**
  - All 2021 data uploaded
  - Surface maps updated through 2021
- Fisheries**
  - All 2021 data uploaded
  - Graphic browsers updated through 2021

### U.S. GEOLOGICAL SURVEY STANDARD REFERENCE SAMPLE PROJECT

#### PERFORMANCE EVALUATION OF ANALYTICAL LABORATORIES

#### LTRM WQ Lab Standard Reference Sample results

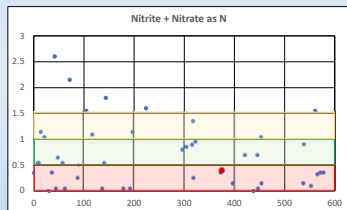
Excellent 0 – 0.5  
Good 0.51 – 1  
Satisfactory 1.01 – 1.5

Red Dot UMRR LTRM WQ Lab Results



U.S. GEOLOGICAL SURVEY STANDARD REFERENCE SAMPLE PROJECT  
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Red Dot UMRR LTRM WQ Lab Results



Update: Ecological Status and Trends of the  
Upper Mississippi and Illinois Rivers

- Approved by Bureau Approval Officer
- Draft page layouts complete
- Page proofs currently undergoing author review
- Planning for 21 June release





# 2022 UMRR Science Proposals



## 2022 UMRR Science Meeting Working Groups

WG1: Hydrology and geomorphology  
*Molly Van Appledorn (UMESC) and Jayme Strange (UMESC)*

WG2: Macroinvertebrates  
*Jim Lamer (INHS) and Molly Sobotka (MDC)*

WG3: Water plants and water birds  
*Danelle Larson (UMESC)*

WG4: UMRS fisheries  
*Brian Ickes (UMESC)*

WG5: Nutrients, Phytoplankton, and Harmful Algal Blooms  
*KathJo Jankowski (UMESC)*

WG6: Floodplain ecology  
*Nathan De Jager (UMESC)*

Plenary Session: Lower Pool 13 HREP  
*(Jeff Hauser (UMESC), Kristen Bouska (UMESC), Danelle Larson (UMESC); presentation by Dillan Laaker (USACE))*



Working Group	Proposal Title
Hydrology and Geomorphology	Evaluating the LOCA-VIC-mizuRoute hydrology data products for scientific and management applications in the UMRS
	Scoping and vetting new technology and methods for use in future hydrographic and topographic surveys: Strategies and recommendations for updating lidar, bathymetry, and detecting geomorphic change
	Field validation of automated hydrogeomorphic classification and change mapping in the UMRS Riverscape
Macroinvertebrates	Assessing long term changes and spatial patterns in macroinvertebrates through standardized long-term monitoring
	Substrate stability as an indicator of abiotic habitat for the UMR benthic community
Water plants and water birds	Understanding the distributional potential & limits, environmental thresholds, & biogeomorphic feedbacks of wild celery
	Quantifying available energy provided by several aquatic and floodplain plant communities as waterfowl forage over the past 4 decades

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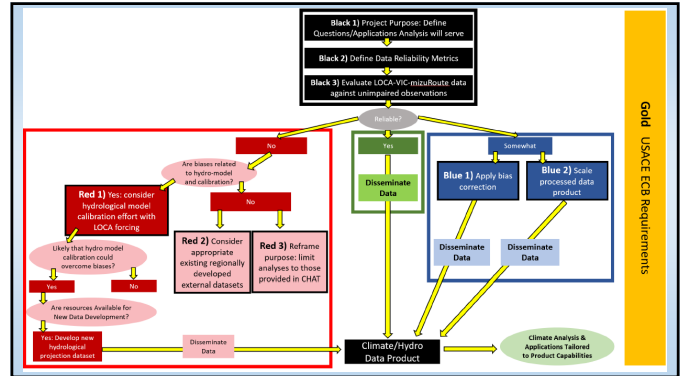
Working Group	Proposal Title
UMRS Fisheries	Biotic and abiotic drivers of recruitment and population growth of UMRS fishes
Nutrients, Phytoplankton, and Harmful Algal Blooms	Filling in the gaps with FLAME: Spatial patterns in water quality and cyanobacteria across connectivity gradients and flow regimes in the Lower Impounded Reach of the Upper Mississippi River
	Putting LTRM's long-term phytoplankton archive to work to understand ecosystem transitions and improve methodological approaches
Floodplain ecology	Quantifying Ecosystem Processes in Support of River Restoration and Nutrient Reduction: Interaction of River-Floodplain Connectivity mediated by invasive Reed Canarygrass in the Upper Mississippi River System (UMRS)
	Avian use of uncommon forest types of the UMRS: filling knowledge gaps for habitat management
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Evaluating the existing hydrology data products (LOCA-VIC-mizuRoute) for scientific and management applications in the UMRS (Lucie Sawyer [USACE]; Molly Van Appledorn and John Delaney [USGS])

- **Objective:** to produce a robust, quantitative dataset of future hydrology projections for the UMRS.
- **Approach:**
  - Assess the suitability of the existing hydrologic data products
  - Apply needed corrections for any biases in the existing hydrologic data products
  - Disseminate the data and its documentation.
  - If existing data set is unsuitable as a quantitative data set, convene workshop to:
    - a) Identify the qualitative comparisons that could be made with existing data
    - b) Plan for a re-calibration of the VIC hydrologic model (or other hydrologic model) to generate custom hydrologic projections for the UMRS.



Gold USACE ECB Requirements

Assessing Forest Development Processes and Pathways in Floodplain Forests along the Upper Mississippi River using Dendrochronology (Marcella Windmuller-Campoine [U. of MN]; Molly Van Appledorn [USGS]; Andy Meier [USACE])

- **Objective:** Address three main topics
  - Current age structure of floodplain forest sites
  - Disturbance history of floodplain forest sites and effects on forest structuring
  - The persistence of different species at floodplain forest sites and the implications for management actions



Assessing Forest Development Processes and Pathways in Floodplain Forests along the Upper Mississippi River using Dendrochronology (Marcella Windmuller-Campoine [U. of MN]; Molly Van Appledorn [USGS]; Andy Meier [USACE])

- **Approach**
  - Use forest inventory data and tree cores collected from a 2018-22 CESU study.
  - >1,100 tree cores will be analyzed using novel digital approach to assess annual tree growth and the year at the tree center.
  - Output will be compared with forest conditions described in existing plot level field data to better understand the roles of historic vs. current conditions in determining forest resilience



Assessing long term changes and spatial patterns in macroinvertebrates through standardized long-term monitoring (J. Lamer, L. Solomon, & Kris Maxons [INHS], M. Sobotka [MDC]; S. Giblin [WDNR])

- **Objectives:**
  - Assess long term changes and spatial patterns in macroinvertebrates across the UMRS
  - Expand invertebrate sampling methods to enable systemic assessment of macroinvertebrates
  - Obtain species level resolution for the first year to develop biotic indices of community status and resilience
  - Assess levels of select contaminants



Assessing long term changes and spatial patterns in macroinvertebrates through standardized long-term monitoring (J. Lamer, L. Solomon, & Kris Maxons [INHS], M. Sobotka [MDC]; S. Giblin [WDNR])

- **Approach:**
  - Follow modified version of previous macroinvertebrate component methods
  - Only sample soft-substrate strata (Pools 4, 8, 13, 26, and La Grange)
  - Add rock bag samplers to sampling in all LTRM study reaches (includes Open River)
  - Determine contaminant levels of polycyclic aromatic hydrocarbons (PAHs), neonicotinoids, pyrethroids and other current-use pesticides in burrowing mayfly tissue for two sampling years.





Putting LTRM's long-term phytoplankton archive to work to understand ecosystem transitions and improve methodological approaches (James Larson and Kathi Jo Jankowski [USGS]; Madeline Magee [WDNR]; Jessica Fulgoni [Kentucky Wesleyan College])

• **Objectives**

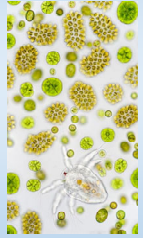
- Examine long-term phytoplankton community change along the longitudinal and lateral gradients of the river
  - How do long-term trends in phytoplankton communities and the occurrence of HABs species differ across the longitudinal and lateral gradients of the river?
  - How sensitive are phytoplankton communities to changes associated with climate, hydrogeomorphic, vegetation, and nutrient/sediment trends?
- Develop streamlined phytoplankton methodological approaches that ensure timely and cost-effective processing of phytoplankton community samples moving forward



Putting LTRM's long-term phytoplankton archive to work to understand ecosystem transitions and improve methodological approaches (James Larson and Kathi Jo Jankowski [USGS]; Madeline Magee [WDNR]; Jessica Fulgoni [Kentucky Wesleyan College])

• **Approach:**

- Compile existing phytoplankton datasets created in previous studies (samples from > 1000 LTRM WQ sites)
- Process additional samples from ~ 925 LTRM WQ sites
- Evaluate the use of an automated phytoplankton identification system (FlowCam) on
  - subset of archived samples that have been fully identified
  - newly collected samples




## Proposals recommended for funding

Working Group	Proposal Title
Hydrology and Geomorphology	Evaluating the LOCA-VIC-mizuRoute hydrology data products for scientific and management applications in the UMRN
Macroinvertebrates	Assessing long term changes and spatial patterns in macroinvertebrates through standardized long-term monitoring
Nutrients, Phytoplankton, and Harmful Algal Blooms	Putting LTRM's long-term phytoplankton archive to work to understand ecosystem transitions and improve methodological approaches
Floodplain ecology	Assessing Forest Development Processes and Pathways in Floodplain Forests along the Upper Mississippi River using Dendrochronology






## UMRR MONITORING AND SCIENCE UPDATE

Karen Hagerty  
Rock Island District  
25 May 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**





## 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**

## UMRR MONITORING & SCIENCE FY22



**FULLY FUNDED to date**

**LTRM**  
 A. Standardized base monitoring \$5,000,000  
 B. Analysis under Base\* \$1,300,000

**Science in Support of Restoration and Management**  
 A. LTRM balance \$ 554,097  
 B. IWW monitoring (FY22) \$ 32,135\*  
 C. IWW aerial data collection report \$ 25,034

**Total \$6,911,266**

\*budget before states carry-in=\$96,970

## UMRR MONITORING & SCIENCE FY2022



PROPOSAL	PI(s)	COST
Evaluating the LOCA-VIC-mizuRoute hydrology data products for scientific and management applications in the UMRS	Sawyer (MVR) Van Appledorn, Delaney (UMESC)	\$390,528
Assessing forest development processes and pathways in floodplain forests along the UMR using dendrochronology	Windmuller-Campione (UM), Van Appledorn (UMESC), Meier (MVP)	\$447,158
Assessing long term changes and spatial patterns in macroinvertebrates through standardized long-term monitoring	Lamer et al (IRBS), Sobotka (MDC), Giblin (WDNR), DeLain (MDNR), Gritters (IDNR), Vander Vorste (UWL)	\$572,145*
Putting LTRM's long-term phytoplankton archive to work to understand ecosystem transitions and improve methodological approaches	J. Larson, Jankowski (UMESC), Magee (WDNR), Fulgioni (KWC)	\$326,986

## UMRR MONITORING & SCIENCE FY22

**FY2022 Funding**

- LTRM/Analysis \$ 6,300,000
- Previous Science support work \$ 611,266
- 4 new science proposals \$ 1,736,817
- Facilitators for LTRM Implementation Planning \$ 59,303

**GRAND TOTAL \$ 8,707,386**



## Analysis Team update

Scott Gritters- Iowa DNR

Current A-team chairperson



Analysis Team was very active this quarter

Science Team meetings February 8 to 11, 2022

Meeting with Proposal Investigators on April 13, 2022

Meeting on A-team Ranking of Science Projects on April 20, 2022

UMRR Management team plus A-team Chairperson meeting on May 5, 2022

Housekeeping, setting notes and A-team corner UTD

Want to concentrate on decisions and recommendations out of the April 20, 2022 A-team meeting and the follow-up with LTRM Management team meeting on May 5, 2022

### Start with "Thank You"

**Proposal Investigators-** The diversity and wealth of knowledge is something that never would have been comprehended during the program's humble beginnings. Partnership is ingrained into the fabric of all proposals. This is how our American public would want our government to operate.

**A-team members-** Substantial time commitment often on short notice but very few complaints from our partners.

**Nick Schlessner-** Development of Excel spreadsheet to rank projects with ability to sort, order projects based on agency, S's, etc.

**Andrew Stephenson-** UMRRBA found his assistance helpful and appreciate his note taking at meetings which is critical to running a smooth meeting.

**Usual suspects-** Marshall Plimley, Jeff Houser, Jennie Sauer and Karen Magerty.

Analysis team did what was asked and put the projects in priority order to the A-team from top to bottom and voted to approve in that order.

1. Assessing long-term changes and spatial patterns in benthic invertebrates through standardized long-term monitoring (Larson et al.)

Macroinvertebrates

2. Linking LTRM's long-term phytoplankton archive to work to understand ecosystem transitions and improve methodological approaches (Larson et al.)

Phytoplankton, HABs

3. Evaluating the LOCA-VIC hydrologic data products for scientific and management applications in the LTRM (Sawyer et al.)

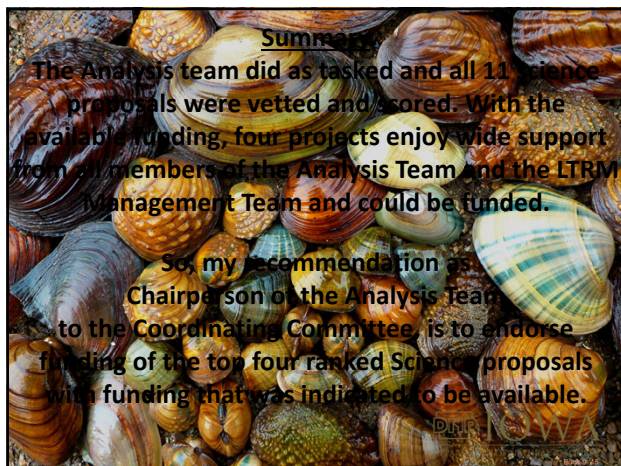
Hydrology and geomorphology

Follow-up meeting on May 5<sup>th</sup> with LTRM Management team myself and Nick Schlessner was productive, noted scoring process went well

Both LTRM management team and A-team Generally agreed on "Top 3" projects

There was money left over and we had a great discussion of projects 4 and 5 on our priority list









## LTRM Implementation Planning Update

### Opportunity statement

- ...increased funding from \$10.42M to \$15M creates an **opportunity for new work** above base monitoring, analysis, and current research..
- ...expand **understanding of UMRS, restoration and management...**
- ...portfolios of funding actions that address **priority information needs...**
- **Invest in:**
  - multiyear projects, baseline monitoring, analysis of existing data

Slides revised from David Smith and Max Post van der Burg (USGS, IP facilitators)



## LTRM Implementation Planning Update

### Draft objectives

- Provide information that is relevant to:
  - fundamental health and resilience of the UMRS (**Monitoring objective**)
  - management and restoration of the UMRS (**Management objective**)
  - respond to emerging issues (**Responsiveness objective**)
- Maximize benefits from information for a given cost (**Efficiency objective**)
- Process objectives (*additional considerations*): Integrate HREP and LTRM; Complement or build upon existing program; Produce LTRM information relevant to partners' priorities



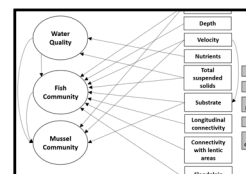
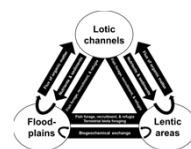
## LTRM Implementation Planning Update

### Identifying (specifying) the information needs Current task

- 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?



## LTRM Implementation Planning Update



What is the information need? (Briefly describe the underlying question or hypothesis to be addressed by the new information)	Major theme	Sub-theme	1. assessing ecosystem health, 2. improving mgmt & restoration, 3. preparing for emerging issues	What will be measured or what will be the endpoint?
What are the consequences of altered connectivity and where are the opportunities for restoration?	Continuity	Connectivity	Improve mgmt & restoration	Relationships between floodplain processes and connectivity and high flows
Effects of restoration projects (HREPs) on muskies (keyway into learning about controlling variable (fishcatch) impact on taxa) (restoration)	External drivers	HREP integration	Improve mgmt & restoration (also indicator of health)	Hydraulics (velocity, substrate stability, critical shear stress), distribution of species across pools/projects, recruitment, size distribution (survival and recruitment)

Bouska et al. 2018. Developing a shared understanding of the Upper Mississippi River: the foundation of an ecological resilience assessment.



## LTRM Implementation Planning Update

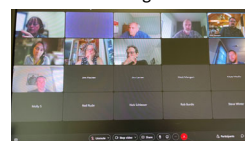
### Information need prioritization Next Step

- Score the information needs based on objectives and quality
- Qualitative value of information:
  - How relevant (important) is each information need to the stated objectives?
  - How much uncertainty is associated with each information need?
  - How feasible is it to reduce the uncertainty?
  - How expensive is it to provide the information?

## Thank you to all participants!

- Kirk Hansen IDNR
- Jim Lamer IRBS
- Molly Sobotka MDC
- Matt Vitello MDC
- Rob Burdis MDNR
- Nick Schlessler 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
- Robb Jacobsen USGS
- Jim Fischer WDNR
- Madeline Magee WDNR

David Smith and Max Post van der Burg  
(USGS, IP facilitators)





## NAVIGATION AND ECOSYSTEM SUSTAINABILITY PROGRAM UPDATE

Andrew Goodall, P.E., P.M.P.  
NESP Program Manager

UMRR-CC Quarterly Meeting  
24 May 2022



U.S. ARMY  
US Army Corps of Engineers

## NESP IJA PROJECT STATUS

- Lock 25 New 1200' Lock
  - Project delivery team established
  - Initial construction contract award in FY22
  - Construction industry coordination to begin 15 June 2022
- Lock and Dam 22 Fish Passage
  - Scope of work development underway for design activities
  - Pre-project fish monitoring activities to begin in the near term – fish tags are being procured

## NESP PARTNER CONSULTATION

- Successful in-person meeting held 26-28 April in the Quad Cities
  - Intent of the meeting was to initiate partner consultation, per Section 8004 of the NESP authorization referenced below:  
*"In carrying out the environmental sustainability, ecosystem restoration, and monitoring activities authorized in this section, the Secretary shall consult with the Secretary of the Interior and the States of Illinois, Iowa, Minnesota, Missouri, and Wisconsin."*
  - Draft report prepared and currently under review by the partner attendees.
  - Partner funding for NESP activities.
  - Shared accountability – Federal and State partners.

## FY22 CONGRESSIONALLY DIRECTED SPENDING

- Navigation
  - Systemic mitigation – 1 to 3 new projects started
  - Small-scale navigation efficiency measures – mooring cells and switchboats. Initial industry coordination meeting tentatively scheduled for 29 June in St Louis
  - LaGrange 1200' lock design
  - Lock 14 mooring cell and Moore's Towhead Systemic Mitigation construction contracts.
- Ecosystem
  - Twin Island, Alton Pool, Pool 2, Starved Rock construction contracts.
- New start ecosystem projects
  - Wacouta Bay (MVP)
  - North-Sturgeon Lake (MVP)
  - Sabula Lakes Pool 13 (MVR)
  - Andalusia Island Complex Pool 16 (MVR)
  - Middle Miss Stone Dike Alterations Phase 1 (MVS)
  - Pool 24 Island Restoration – Denmark and Drift (MVS)
  - Multi-Pool Forest Restoration (MVR or MVP)
  - Systemic Water Level Management (MVS, MVR, MVP)