# Upper Mississippi River Restoration Program Coordinating Committee Quarterly Meeting

## February 23, 2022

## Highlights and Action Items

**Program Management**

- **UMRR has obligated over $9.5 million, or 28 percent, of its $33.17 million FY 22 funds, as of February 1, 2022.** Awarding construction contracts in each district and funding science proposals developed during the 2022 science meeting will advance obligation through this fiscal year.

- **On February 17, 2022, Congress passed a third continuing resolution authority (CRA) for fiscal year 2022 extending current funding levels for the federal government until March 11, 2022. District staff are authorized to execute the program at $33.17 million.** The President's FY 22 budget includes $33.17 million for UMRR. The House and Senate Appropriations Committees have both acted on appropriations bills for FY 22 and concurred with the President's recommended amount for UMRR of $33.17 million. The final FY 22 appropriation is not yet known.

- The plan of work for UMRR in FY 22 at a $33.17 million funding scenario is anticipated to be as follows:
  - Regional Administration and Program Efforts – $1,450,000
    - Regional management – $1,180,000
    - Program database – $100,000
    - Program Support Contract – $120,000
    - Public Outreach – $50,000
  - Regional Science and Monitoring – $10,250,000
    - Long term resource monitoring – $5,000,000
    - Regional science in support of restoration – $3,800,000
    - Regional science staff support – $200,000
    - Habitat evaluation (split across three districts) – $1,125,000
    - Report to Congress – $125,000
  - Habitat Restoration – $21,470,000
    - Rock Island District – $6,718,000
    - St. Louis District – $7,502,000
    - St. Paul District – $7,150,000
    - Model certification – $100,000

- **On November 15, 2021, the President signed the Infrastructure Investment and Jobs Act. UMRR capabilities above a $33.17 million annual execution capacity were submitted for the Corps' potential work plan authorized by that bill but did not receive funding.**

- The UMRR 10-year implementation plan was updated to reflect changes to project timelines. Feasibility was extended for Lower Pool 10, Reno Bottoms, and Lower Pool 13. Design schedules for

Harlow Island and Oakwood Bottoms were extended. Keithsburg construction is in progress, but the anticipated construction completion was extended to allow for additional real estate acquisition. Gilead Slough was identified as the next project to begin feasibility in MVS. The schedule will continue to be refined for outyears as more details and specificity on projects becomes available. Colors on the chart were revised for increased legibility for individuals with color vision deficiencies.

- **UMRR has identified 76,110 acres for restoration 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. Some planting will be finalized in spring 2022. **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.**

- On September 20, 2021, a survey was distributed to the UMRR partnership at-large. Preliminary results were shared at the UMRR Coordinating Committee's November 17, 2021 quarterly meeting. **Primary successes of implementing the strategic plan and priority future actions for UMRR were incorporated into the draft Report to Congress. A finalized report on the survey results is anticipated to be submitted to the UMRR Coordinating Committee in March 2022. A meeting will be convened to review and discuss the results.**

- **On January 24, 2022, a draft of the 2022 UMRR Report to Congress was submitted to UMRR Coordinating Committee members for initial review. Partner comments will be consolidated into one document and shared to ensure transparency in report development. On February 4, 2022, the first in-progress review (IPR) was held with MVD and USACE HQ. This provided an opportunity to engage with Headquarters reviewers early in the process. Partners will be asked to coordinate a more in-depth review by their agencies in March-April 2022 and submit letters of support. Letters of support from past reports to Congress will be provided to UMRR Coordinating Committee members.**

- **Draft implementation issue papers will be sent to the UMRR Coordinating Committee in two batches. The first batch will consist of issue papers addressing water level management, project partnership agreements, floodplain rise, and engaging non-traditional sponsors.**

**Communications**

- **The UMRR Communications and Outreach Team (COT) finalized the UMRR program flyer. The flyer was distributed electronically to COT members. COT members were asked to send requests for physical copies of the flyer to Jill Bathke and Rachel Perrine for a future print order. The COT also finalized a video highlighting UMRR history and partnership.** The video is 508 compliant and the YouTube link **(https://www.youtube.com/watch?v=zy-40NiRuF8)** can be by partners shared on social media. The themes of the next three videos are:
  - Success of UMRR
  - Science on the river
  - Future of UMRR

- To support the rollout of the Status & Trends Report 3rd Edition, COT members reviewed key messages and the report release strategy including a coordinated press release. **COT members were asked to affirm their agency's ability to participate in the coordinated press release. 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.

- Andrew Stephenson provided an overview of the UMRR Status and Trends Report rollout strategy. The draft document is included in the meeting agenda packet as attachment C1-C10. The document outlines the purpose, goals, objectives, strategies and tactics, and key messages of the rollout including development of a coordinated press release. The draft press release information identifies common elements that all agencies could use in their communications. **UMRR Coordinating Committee members were invited to provide feedback on the draft document and asked to affirm their agencies interest and ability to participate in the coordinated press release.** A long rollout of the Status and Trends Report is in development. The purpose is to make the tremendous amount of information in the report accessible to key audiences as well as the interested public. **UMRR Coordinating Committee members were asked to submit to Andrew Stephenson any anticipated or potential activities related to content in the report that their agencies may be involved with during 2022.**

**<u>UMRR Showcase Presentations</u>**

- Seth Fopma, IA DNR Bellevue field station, presented on the status of bluegill in Pool 12 backwaters. The Pool 12 Overwintering HREP was developed to address poor winter water quality conditions in Pool 12 backwaters. Winter water quality is primarily dictated by interactions amongst dissolved oxygen (DO), temperature, and flow. Management goals focus on ensuring adequate DO to sustain fish, but not too much to supersaturate the water. Different fish species and different size fish of the same species have different oxygen requirements. Pre-project telemetry showed distribution of crappie around the warmest water with sufficient oxygen while avoiding flow. One main project goal was to increase the diversity of depths in backwaters to provide more year-round fish habitat. Project features included dredging in four backwater lakes, increasing island topographic diversity and forest diversity, as well as managing backwater connectivity. To evaluate the project, the Iowa Department of Natural Resources has conducted annual sampling including pool-wide, day electrofishing in the fall and fyke netting in eight study backwaters once water temperatures fall below 10 degrees Celsius. Fyke net catch per unit effort (CPUE) from 2006 to 2020 includes nearly 29,000 fish from four dredged and four non-dredged backwaters. Approximately 8,500 aging structures have been sampled as well showing almost no fish older than 5 years of age. In Sunfish Lake, over twice as many fish have been captured in the five years of post-construction monitoring than in the 9 years of pre-project monitoring. Comparisons of total fish lengths, shows more even distribution of lengths after construction than before. Black crappie showed a similar trend with increased CPUE post-construction and a shift to larger size distribution after construction. Preliminary analysis is encouraging, but dredging was just recently completed in other project areas and it will take a few more years of monitoring work to conduct post-construction comparisons on all project areas.

- Colin Moratz, USACE RPEDN, provided an overview of the Huron Island HREP in Pool 18. One main goal of the project is to improve both submerged and emergent aquatic vegetation. Most backwaters in the area do not have aquatic vegetation. Emergent vegetation was planted in 40 exclosures and submergent species were planted at two depths in exclosures with three different mesh sizes to assess herbivore impacts. Plants were collected in 2019 from nearby areas including Lake Odessa and Cone Marsh and then grown out by ERDC in Texas. The furthest plants collected were wild celery from Pool 13. Mortality of emergent plants ranged from zero to 100 percent mortality with most having less than fifty percent mortality. There was no mortality observed in 2021 of plants that had survived the first year and overwintered from 2020-2021. Despite extended high water in early 2020, white waterlily and longleaf pondweed survived. Wild celery was planted in 2021. Depth impacted survival of wild celery and shallow areas were more suitable for growth. All wild celery outside of the exclosures succumbed to herbivory. White waterlily and longleaf pondweed expanded outside the exclosures and survived through the growing season. Testing of "vegetative exclosures" by planting wild celery surrounded by waterlily or pondweed is underway. In 2021, volunteer patches of lotus were observed on a shallow shelf next to a dredge cut. Full-scale monitoring of initial plantings will conclude in 2022. Water quality data analysis will be incorporated in the final report to investigate potential growing season stressors (e.g., turbidity). Cage size did not appear to affect herbivory and the most likely herbivores include turtles or grass carp.

**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 will focus on developing measures. Reno Bottoms is continuing in feasibility and is evaluating seven alternatives. Concurrent review was completed for Lower Pool 10 and a final report is anticipated to be submitted to MVD in the coming week. Plans and specs for the project will focus on the southern two-thirds of the project area first. MVP has four projects in construction across a wide range of sizes and cost estimates with the smallest project in construction at $4 million and the largest at over $17 million. McGregor Lake is sixty-five percent complete. Contract terms for phase 2 expired and is anticipated to be re-advertised this summer. Harpers Slough is eighty-five percent complete and low water is needed for final grading and seeding in the spring. Bass Ponds and Conway Lake are both over ninety percent complete. A ribbon cutting ceremony for Bass Ponds is anticipated for May 2022. All features are physically complete at Conway Lake and willows will be planted in the spring. MVP will hold an Earth Day 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.

- MVR's planning priorities include Lower Pool 13, Green Island, Pool 12 Forestry, and Quincy Bay. Cost estimates for projects in feasibility range from $10 million to $40 million. The Lower Pool 13 PDT is working to finalize all costs and benefits for alternatives with an aggressive goal for a tentatively selected plan by the end of March. The Green Island PDT is working on costs, quantities, and benefits for alternatives. The Pool 12 Forestry PDT is addressing District Quality Control comments on chapters one to three and working to identify alternatives. The Quincy Bay PDT is working to schedule a measures workshop in the coming months. MVR's design priorities are Steamboat Island Stages I and II. Steamboat Stage I is a good fit should the program receive additional work plan funds. 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. The contractor at Keithsburg Division Stage II is clearing trees. Eagles are very active in the area. ERDC will assess aquatic vegetation plantings in late-June or July at Huron Island Stage III. The contractor at Beaver Island will complete minor grading and seeding in the spring. MVD approved two more MVR fact sheets and MVR has one more fact sheet to submit.

- MVS has a variety of sized projects as well as diversity in the management requirements of projects. Some are more passively managed and designed to work with the system and others are more

actively and intensively managed. MVS's planning priorities include West Alton Islands and Yorkinut Slough. Feasibility planning continues at West Alton Islands. An IPR with MVD for Yorkinut Slough was held in December 2021 and a habitat workshop was held in January 2022 to discuss alternatives. MVS's design priorities include Piasa & Eagles Nest, Harlow Island, and Oakwood Bottoms. Design for Piasa and Eagles Nest Islands is complete, and the plan is to award hydraulic dredging for Stage II in the fourth quarter of FY 22. Harlow Island Stage 2 plans and specs are anticipated to be completed and ready to advertise in late FY 22, pending funding and priorities. Oakwood Bottoms has four plans and specs packages in development and the project is anticipated to be ready to advertise in the third quarter of FY 22. MVS has three projects in construction. Construction at Crains Island is ahead of schedule and one of two modifications has been completed. Construction of a rock structure at Piasa & Eagles Nest is ongoing. Testing of the new pump station at Clarence Cannon was completed and earthwork on a berm setback will occur in the spring. 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 first quarter of FY 22 include publication of the following manuscripts:
  - *Aquatic vegetation assemblage and diversity dynamics in the Upper Mississippi River over two decades spanning vegetation recovery*. Two main findings include identification of some substantial similarities in how vegetation communities changed over time and the rate of their change over time in Pools 4, 8, and 13. Pools 4 and 8 have been relatively stable, but Pool 13 shows less stability in recent years, which has implication for potential future trajectories of those communities.
  - *Gene flow influences the genomic architecture of local adaptation in six riverine fish species.* This work comes from the genetics portion of the vital rates project and was a proposal funded through the 2020 Science Meeting. The paper examined population structures of six systemic fish species across LTRM study reaches and the extent to which genetics relate to life history of those species. Species that have relatively low gene flow tend to be nest spawners whose eggs are not transported by current and species showing high gene flow were often broadcast spawners which rely on current to disperse eggs. Genetic structures of populations reflect biological processes.

- **The 2022 LTRM Science Meeting was held virtually on February 8-11 and had over 100 participants representing 17 agencies, organizations, and institutions.** The meeting utilized a professional facilitator and virtual tools including Mural and Google Docs for communal work and Padlet for participant introductions. The science meeting is a forum for collaborative development of Science in Support of Restoration projects. It fosters the development of larger projects that more effectively incorporate UMRR LTMR's unique strengths and facilitates a more direct interaction between restoration practitioners, natural resource managers, and research scientists during proposal development. The primary goal was to develop proposals for consideration in FY 22. Other meeting outcomes include ideas for future work and improved connections across the UMRS network of restoration professionals and river/floodplain scientists. The meeting had six working groups that met concurrently. A special session was held to discuss the Lower Pool 13 HREP as a learning opportunity. The full LTRM data record is available for that navigation pool and an HREP is currently being planned. The goal of this session was to understand how to best take advantage of the existing data and expertise of field station staff nearby. The working groups and proposals in development are included below:
  - Hydrology and geomorphology

- Hydrogeomorphic model validation
- Topographic and bathymetric systemic data updates and maintenance
- Evaluating LOCA-VIC-MizuRoute Hydrologic Products for UMRR use (future hydrology)

— Macroinvertebrates

- Assess long term changes and spatial patterns in macroinvertebrates using a modified version of LTRM macroinvertebrate sampling.

— Water plants and water birds

- Wild celery
- Quantifying energy provided by aquatic and floodplain plant communities as waterfowl forage over the past four decades.

— UMRS fisheries

- How do hydrology and temperature interact to affect year class strength of select species representing different habitat classes of fishes?
- What are the environmental growth signatures of these select species and are they closely linked to recruitment?
- How are fluctuations in populations size and recruitment linked to changes in growth and/or mortality?

— Nutrients, Phytoplankton, and Harmful Algal Blooms

- Long-term trends in phytoplankton communities in the UMRS
- Filling in the gaps with Fast Limnological Automated Measurements (FLAMe)

— Floodplain Ecology

- Forest dendrochronology
- Wildlife (bird) use of the UMRS floodplain
- Relationships among flood inundation, vegetation patterns, and soil nutrient dynamics

**Draft proposals and budgets are due to Jennie Sauer and Karen Hagerty on March 18, 2022, for budget review. Final proposals are due April 4, 2022 to the A-Team, USACE, and USGS for review and ranking. A list of recommend proposals will be submitted to the UMRR Coordinating Committee for consideration of endorsement at the May 25, 2022 quarterly meeting.**

- **Other ongoing LTRM activities include winter water quality sampling, processing of phytoplankton and fish samples, contributing to the 2022 UMRR Report to Congress, LTRM implementation planning, and preparing the water quality lab for a temporary move to UW La Crosse while the lab is renovated.**

- **The Status and Trends Report 3rd Edition has completed USGS' Science Publishing Network (SPN) review and is ready to undergo Center Director review.** After the Center Director review is complete, the Bureau Approving Official (BAO) will review the document and the finalized text and figures will be sent to desk top publishing for final formatting. After final review of the formatted report is complete, it will be ready for release. **The report is anticipated to be released in late-March to early-April 2022.**

- UMRR's LTRM FY 22 budget allocation will follow FY 21 allocations if the program receives $33.17 million in funding. That is, $6.3 million ($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 $1.7 million, will go to proposals from 2022 science meeting. Any remaining funds could be used to support the last year of LCU processing.

- **WRDA 2020 raised the UMRR authorized funding level to $55 million, which increases LTRM from $10.42 million to $15 million. The UMRR Coordinating Committee directed an *ad hoc* group to develop a facilitated process to identify priority science needs currently being unmet and priority actions to address those needs to inform future LTRM spending should UMRR receive additional funds. The *ad hoc* LTRM implementation planning team has held recurring bi-weekly meetings with the selected facilitators, Max Post van der Burg and Dave Smith from USGS. The Team is preparing for the first official group meeting to be held March 31, 2022, from 1-3 p.m. The meeting will be virtual. The first meeting will focus on expectations, format of the workshops, discussion of a problem statement, and logistics. It is expected that the entire implementation planning process with the large group will take place over the next year. Workshop participants were selected to represent the diversity of partners and aspects of the program and will be asked to communicate outward to their respective agencies. Participants include:**

| | | | |
|---|---|---|---|
| Jeff Houser* | Karen Hagerty* | Jim Fischer* | Kirk Hansen |
| Jennie Sauer* | Davi Michl | Madeline Magee | Jim Lamer |
| Kristen Bouska | Rob Cosgriff | Nick Schlesser* | Matt Vitello* |
| Nate De Jager | Steve Winter | Rob Burdis | Molly Sobotka |
| Robb Jacobsen | Matt Mangan | Neil Rude | Andrew Stephenson* |

*Denotes member of *ad hoc* planning team

- The A-Team did not meet this quarter, but A-Team members participated in the 2022 Science Meeting. The A-Team has discussed updates to the A-Team corner on the LTRM website via email. The A-Team is planning to meet after April 4, 2022, to review science proposals. The next regular meeting of the A-Team is anticipated for mid-May 2022. Scott Gritters is updating the A-Team email distribution list.

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

- **On January 19, 2022, NESP received a construction new start and construction general appropriations through the Infrastructure Investment and Jobs Act (IIJA). The two projects funded through IIJA were the Lock 25 new 1200-foot lock and the Lock and Dam 22 Fish Passage. USACE will immediately begin developing a plan for completion of both projects, with a goal to begin construction as quickly as possible. NESP will alter the future of the UMRS to ensure it remains a vital transportation and ecosystem corridor.**
  - **The new 1200-foot lock at L&D 25 was fully funded at $732 million and is 100 percent federal funded – i.e., is not subject to typical Inland Waterway Trust Fund cost-sharing requirement.** The primary purpose of the project is to improve efficiency, reliability, and safety for navigation traffic as well as to add operational redundancy at Lock 25. When complete, the new lock will reduce per lockage times from two and half hours or more to approximately 45 minutes.
  - **Lock and Dam 22 Fish Passage was partially funded at $97.1 million. This funding will allow for completion of design and initiation of construction.** The primary purpose of the

project is to increase access to upstream mainstem river and tributary habitats. When complete, the fish passage structure will permanently restore the connection between river pools for native fish species. Increased access to upriver habitats will result in an increase in the size and distribution of 30 native migratory fish populations. **The overall project cost is approximately $137 million with remaining unfunded project elements primarily for post-construction monitoring and adaptive management.**

- **The twelve "Group 1" project fact sheets were approved by MVD.**

- **Funding for NESP is included in the House and Senate FY 22 appropriations measures at $22.5 million and $45.1 million, respectively.** Should NESP receive those funds, the program will focus on partner consultation, program coordination, and advancing construction ready projects and a subset of the Group 1 projects.

- Additional navigation and ecosystem projects that are construction ready for FY 22 include:

  Navigation (Total $12.5M)
  - Lock 14 Mooring Cell
  - Moore's Towhead Systemic Mitigation

  Ecosystem (Total $10M)
  - Pool 2 Wingdam Notching
  - Twin Islands Island Protection
  - Alton Pool Side Channel and Island Protection
  - Starved Rock Habitat Restoration and Enhancement

**Other Business**

- **Ken Westlake is retiring from US EPA at the end of April 2022.** He is helping the agency identify how best to staff UMRBA and UMRR functions that he has staffed over the last 12 years.

Upcoming quarterly meetings are as follows:

- **May 2022 – St. Louis**
  - UMRBA quarterly meeting – May 24
  - **UMRR Coordinating Committee quarterly meeting – May 25**

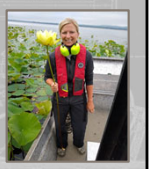
- **August 2022 – TBD**
  - UMRBA quarterly meeting – August 9
  - **UMRR Coordinating Committee quarterly meeting – August 10**

- **November 2022 – TBD**
  - UMRBA quarterly meeting – November 15
  - **UMRR Coordinating Committee quarterly meeting – November 16**

**UMRR COORDINATING COMMITTEE - REGIONAL MANAGEMENT AND PARTNERSHIP COLLABORATION**

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

Upper Mississippi River Restoration
Leading·Innovating·Partnering



23 February 2022

U.S. ARMY
US Army Corps of Engineers

## REGIONAL MANAGEMENT AND PARTNERSHIP COLLABORATION



- FY 2022 Fiscal Update and FY 23 Outlook
  - Infrastructure Investment and Jobs Act
- 2015-2025 Strategic and Operational Plan Review
- 2022 Report to Congress



USGS science for a changing world
US Army Corps of Engineers
USDA


PUBLIC
UMRBA
NGOs

## FINANCIAL REPORTING



**UMRR Quarterly Budget Report: St. Paul District**
FY2022 Q1; Report Date: Tue Jan 11 2022

**Habitat Projects**

| Project Name | Cost Estimates | | | FY2022 Financials | | | |
|---|---|---|---|---|---|---|---|
| | Non-Federal | Federal | Total | Carry In | Allocation | Funds Available | Actual Obligations |
| Bass Ponds, Marsh, and Wetland | | $6,300,000 | $6,300,000 | | $275,000 | $275,000 | $39,605 |
| Conway Lake | | $7,413,000 | $7,413,000 | | $200,000 | $200,000 | $7,488 |
| Harpers Slough | | $13,675,000 | $13,675,000 | | $2,400,000 | $2,400,000 | $160,740 |
| Lower Pool 10 Island and Backwater Complex | | $17,000,000 | $17,000,000 | $93,793 | $350,000 | $443,793 | $53,892 |
| Lower Pool 4, Big Lake | | | | | $10,000 | $10,000 | $62,875 |
| McGregor Lake | | $23,550,000 | $23,550,000 | | $3,118,000 | $3,118,000 | $265,163 |
| Reno Bottoms | | $10,000,000 | $10,000,000 | $52,323 | $365,000 | $417,323 | $58,217 |
| Total | | $77,938,000 | $77,938,000 | $146,116 | $6,718,000 | $6,864,116 | $647,980 |

**Habitat Rehabilitation**

| Subcategory | FY2022 Financials | | | |
|---|---|---|---|---|
| | Carry In | Allocation | Funds Available | Obligations |
| District Program Management | | | | $64,749 |
| Total | | | | $64,749 |

**Regional Program Administration**

| Subcategory | FY2022 Financials | | | |
|---|---|---|---|---|
| | Carry In | Allocation | Funds Available | Obligations |
| Habitat Eval/Monitoring | | | | $27,879 |
| Total | | | | $27,879 |

| | Carry In | Allocation | Funds Available | Actual Obligations |
|---|---|---|---|---|
| St. Paul Total | $146,116 | $6,718,000 | $6,864,116 | $760,608 |

## FINANCIAL REPORTING



**UMRR Quarterly Budget Report: Rock Island District**
FY2022 Q1; Report Date: Tue Jan 11 2022

**Habitat Projects**

| Project Name | Cost Estimates | | | FY2022 Financials | | | |
|---|---|---|---|---|---|---|---|
| | Non-Federal | Federal | Total | Carry In | Allocation | Funds Available | Actual Obligations |
| Beaver Island | | $25,288,000 | $25,288,000 | | $1,038,000 | $1,038,000 | $35,194 |
| Green Island, IA | | $14,600,000 | $14,600,000 | $12 | $560,000 | $560,012 | $37,490 |
| Huron Island | | $15,773,000 | $15,773,000 | | $160,000 | $160,000 | $2,698 |
| Kalmbach/Fig Division | | $29,443,000 | $29,443,000 | $19,489 | $3,629,000 | $3,648,489 | $155,150 |
| Lower Pool 13 | | $25,288,000 | $25,288,000 | $1,039 | $600,000 | $601,039 | $128,658 |
| Pool 12 (Forestry) | | | | $88,200 | $500,000 | $588,200 | $120,926 |
| Pool 12 Dredging | | $20,870,822 | $20,870,822 | | | | -$1,065 |
| Quince Bay, IL | | $13,499,763 | $20,739,763 | $2,947 | $500,000 | $502,947 | $89,017 |
| Rice Lake, IL | $7,280,000 | $41,977,000 | $41,977,000 | $118,025 | | $118,025 | $2,413 |
| Ukrainetown Island | | | | | $325,000 | $325,000 | $100,250 |
| Total | $7,280,000 | $188,899,585 | $196,179,585 | $229,711 | $7,502,000 | $7,731,711 | $776,701 |

**Habitat Rehabilitation**

| Subcategory | FY2022 Financials | | | |
|---|---|---|---|---|
| | Carry In | Allocation | Funds Available | Obligations |
| District Program Management | | | | $34,169 |
| Total | | | | $34,169 |

**Regional Program Administration**

| Subcategory | FY2022 Financials | | | |
|---|---|---|---|---|
| | Carry In | Allocation | Funds Available | Obligations |
| Adaptive Management | | $106,000 | $106,000 | $689 |
| Habitat Eval/Monitoring | $96 | $1,125,000 | $1,125,096 | $43,788 |
| Model Implementation/Regional HREP | | $100,000 | $100,000 | $3,958 |
| Public Outreach | | $50,000 | $50,000 | $6,898 |
| Regional Program Management | | $1,400,000 | $1,400,000 | $123,831 |
| Regional Project Sequencing | | $125,000 | $125,000 | $3,344 |
| Total | $96 | $3,000,096 | $3,000,096 | $182,408 |

**Regional Science and Monitoring**

| Subcategory | FY2022 Financials | | | |
|---|---|---|---|---|
| | Carry In | Allocation | Funds Available | Obligations |
| Long Term Resource Monitoring | | $5,000,000 | $5,000,000 | $4,116,404 |
| Science in Support of Restoration/Management | | $3,800,000 | $3,800,000 | $65,971 |
| Total | | $8,800,000 | $8,800,000 | $4,376,375 |

| | Carry In | Allocation | Funds Available | Actual Obligations |
|---|---|---|---|---|
| Rock Island Total | $229,807 | $19,302,000 | $19,531,807 | $5,563,743 |

## FINANCIAL REPORTING



**UMRR Quarterly Budget Report: St. Louis District**
FY2022 Q1; Report Date: Tue Jan 11 2022

**Habitat Projects**

| Project Name | Cost Estimates | | | FY2022 Financials | | | |
|---|---|---|---|---|---|---|---|
| | Non-Federal | Federal | Total | Carry In | Allocation | Funds Available | Actual Obligations |
| Clarence Cannon | | $29,800,000 | $29,800,000 | | $750,000 | $750,000 | $74,193 |
| Crains Island | | $36,562,000 | $36,562,000 | $28,498 | $1,900,000 | $1,928,498 | $305,584 |
| Harlow Island | | $37,971,000 | $37,971,000 | | $325,000 | $325,000 | $7,000 |
| Oakwood Bottoms | | $29,000,000 | $29,000,000 | | $675,000 | $675,000 | $253,642 |
| Plaza - Eagle's Nest Islands | | $26,746,000 | $26,746,000 | | $2,575,000 | $2,575,000 | $2,061,204 |
| West Alton Missouri Islands | | | | | $450,000 | $450,000 | $31,560 |
| Yorktout Slough, IL | | $8,500,000 | $8,500,000 | $9,343 | $425,000 | $434,343 | $69,790 |
| Total | | $168,579,000 | $168,579,000 | $37,841 | $7,150,000 | $7,187,841 | $2,803,173 |

**Habitat Rehabilitation**

| Subcategory | FY2022 Financials | | | |
|---|---|---|---|---|
| | Carry In | Allocation | Funds Available | Obligations |
| District Program Management | | | | $99,355 |
| Total | | | | $99,355 |

**Regional Program Administration**

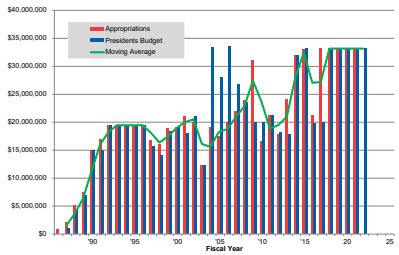
| Subcategory | FY2022 Financials | | | |
|---|---|---|---|---|
| | Carry In | Allocation | Funds Available | Obligations |
| Habitat Eval/Monitoring | | | | $63,781 |
| Total | | | | $63,781 |

| | Carry In | Allocation | Funds Available | Actual Obligations |
|---|---|---|---|---|
| St. Louis Total | $37,841 | $7,150,000 | $7,187,841 | $2,966,309 |

## FY22 DRAFT PLAN OF WORK

| | Budget | Obligations 1 Feb |
|---|---|---|
| **TOTAL FY22 Program** | **$33,170,000** | **$9,539,738** |
| **Regional Administration and Program Efforts** | **$ 1,450,000** | **$ 429,429** |
| Regional Management | $ 1,180,000 | |
| Program Database | $ 100,000 | |
| Program Support Contract (UMRBA) | $ 120,000 | |
| Public Outreach | $ 50,000 | |
| **Regional Science and Monitoring** | **$10,250,000** | **$4,645,770** |
| LTRM (Base Monitoring) | $ 5,000,000 | |
| UMRR Regional Science In Support Rehabilitation/Mgmt. (MIPR's, Contracts, and Labor) | $ 3,800,000 | |
| UMRR Regional (Integration, Adapt. Mgmt.) | $ 200,000 | |
| Habitat Evaluation (split between MVS,MVR,MVP) | $ 1,125,000 | |
| Report to Congress | $ 125,000 | |
| **District Habitat Rehabilitation Efforts (Planning and Construction)** | **$21,470,000** | **$4,464,539** |
| St. Paul District | $ 6,718,000 | |
| Rock Island District | $ 7,502,000 | |
| St. Louis District | $ 7,150,000 | |
| Model Cert. | $ 100,000 | |

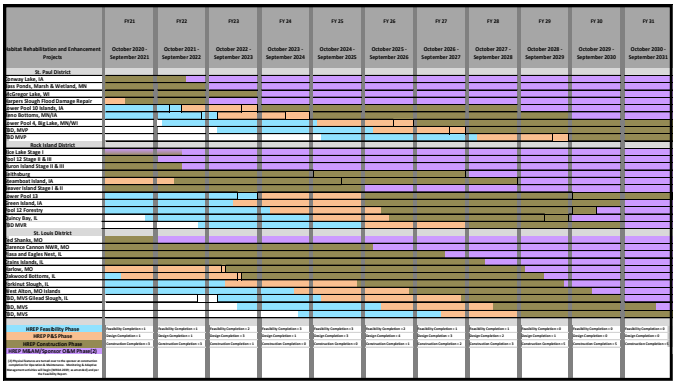
## UMRR PROGRAM APPROPRIATION/BUDGET HISTORY



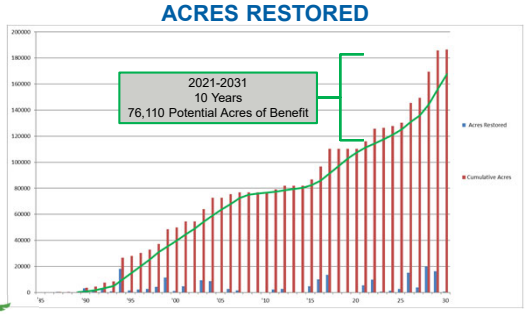

FY1985 to FY2020

## FY 22 APPROPRIATIONS

| | |
|---|---|
| President's Budget | $33,170,000 |
| House | $33,170,000 |
| Senate | $33,170,000 |
| FINAL APPROPRIATION | ? |
| Infrastructure Bill | $0 |




## ACRES RESTORED




FY1985 to FY2031

## UMRR HREP CONSTRUCTION COMPLETIONS

| 2021 | | 2022 Planned | |
|---|---|---|---|
| Conway Lake (MVP) | 1,170 | Bass Ponds (MVP) | 2,090 |
| Pool12 Overwintering (MVR) | 1,280 | Harpers Slough (MVP) | 1,680 |
| Ted Shanks (MVS) | 3,140 | Beaver Island (MVR) | 3,510 |
| | | Huron Island (MVR) | 2,530 |
| **Total Acres** | **5,590** | | |
| | | **Total Acres** | **9,810** |

# HREPs

| Project Name | Location | Acres Benefitted |
|---|---|---|
| **Since the 2016, RTC UMRR has constructed seven projects benef tting 15,400 acres of nationally significant habitat** | | |
| Conway Lake | Mississippi River Pool 9 | 1,170 |
| Bass Ponds | MN River Mile 5 | 2,090 |
| Harpers Slough | Mississippi River Pool 9 | 1,680 |
| Pool 12 Overwintering | Mississippi River Pool 12 | 1,280 |
| Beaver Island | Mississippi River Pool 14 | 3,510 |
| Huron Island | Mississippi River Pool 18 | 2,530 |
| Ted Shanks | Mississippi River Pool 24 | 3,140 |
| **Since the 2016, RTC UMRR has completed feasibility and is actively construct ng seven projects benef tting 24,140 acres of nationally significant habitat** | | |
| McGregor Lake | Mississippi River Pool 10 | 580 |
| Keithsburg Division | Mississippi River Pool 18 | 1400 |
| Steamboat Island | Mississippi River Pool 14 | 2620 |
| Clarence Cannon NWR | Mississippi River Pool 25 | 3590 |
| Fiasa and Eagles Nest | Mississippi River Pool 26 | 1380 |
| Crains Island | Mississippi River Open River Reach | 590 |
| Oakwood Bottoms | Mississippi River Open River Reach | 13980 |
| **UMRR is eva uat ng 12 projects through feasibility reports that, collectively will restore 60,675 acres of nationally significant habitat** | | |
| Lower Pool 10 Islands | Mississippi River Pool 10 | 1410 |
| Reno Bottoms | Mississippi River Pool 9 | 14000 |
| Lower Pool 4 Big Lake | Mississippi River Pool 4 | 9382 |
| Lower Pool 13 | Mississippi River Pool 13 | 10892 |
| Green Island | Mississippi River Pool 13 | 4000 |
| Pool 12 Forestry | Mississippi River Pool 12 | 4000 |
| Quincy Bay | Mississippi River Pool 21 | 3419 |
| Lower Pool 13 (Water Level Management) | Mississippi River Pool 13 | 10892 |
| Yorkinut Slough | Mississippi River Pool 26 | 1230 |
| West Alton Islands | Mississippi River Pool 26 | 1450 |



# 2015 - 2025 STRATEGIC AND OPERATIONAL PLAN REVIEW

- Next Steps
  - Incorporating the main successes and broad priorities identified from the survey into the 2022 Report to Congress



# 2015 - 2025 STRATEGIC AND OPERATIONAL PLAN REVIEW

*Goal 1: Enhance Habitat for Restoring and Maintaining a Healthier and More Resilient Upper Mississippi River Ecosystem*

- Updated and expanded the Habitat Needs Assessment to identify enhancement and protection opportunities
- Updated the process for selecting HREPs including identifying ways to involve additional key individuals and organizations more formally
- Updated the UMRR Environmental Design Handbook with insights from various interdisciplinary experts to ensure project features most effectively advance project goals and objectives

*Goal 2: Advance Knowledge for Restoring and Maintaining a Healthier and More Resilient Upper Mississippi River Ecosystem*

- Continued long term resource monitoring (LTRM) of key ecological components to assess and detect changes in UMR ecosystem health and resilience
- Quantified ecosystem health in the third LTRM status and trends report
- Facilitated interdisciplinary integration through information exchange meetings among scientists and restoration practitioners
- Collected and analyzed the 2020 land cover/land use dataset
- Developed research frameworks that integrate science monitoring, research, analyses, and restoration efforts
- Improved understanding of current and emergent stressors to the health and resilience of the UMRS through continued development of novel, informative, and analytical methods

*Goal 3: Engage and Collaborate with Other Organizations and Individuals to Help Accomplish the Upper Mississippi River Restoration Vision*

- Established a communications and outreach team
- Developed communications strategies and materials for UMRR as well as program priorities such as LTRM status and trends information, UMRR's 35th Anniversary, and watershed-focused programs

*Goal 4: Utilize a Strong, Integrated Partnership to Accomplish the Upper Mississippi River Restoration Vision*

- Continued to utilize positive internal communication practices across the partnership that foster trust and collaboration and promote transparency and accountability.
- Reaffirmed partners' commitment to the purpose, membership, roles and responsibilities, and operations of UMRR's consultative bodies outlined in the Joint Charter.
- Facilitated more frequent exchanges between UMRR partners and various coordinating entities, including restoration practitioners, scientists, the A-Team, and District river teams



# 2015 - 2025 STRATEGIC AND OPERATIONAL PLAN REVIEW

- Next Steps
  - Incorporating the main successes and broad priorities identified from the survey into the 2022 Report to Congress
  - Finalize the results of the survey and report for review (March)
  - Follow up discussion with the UMRR CC



# REPORT TO CONGRESS: AT A GLANCE

**Forward**

**History and Background**

**Chapter 1-** Strategic Partnership and Vision (Partnership focus)

**Chapter 2-** Enhancing Habitat (HREP focus)

**Chapter 3-** Improving River Restoration and Management Through Increased Understanding of the River System (LTRM focus)

**Chapter 4-** Recommendations

**Chapter 5-** Conclusion

**Features**
- Plain language
- Clear graphics
- Updated UMRS & UMRR timelines
- Case Studies on LTRM science, HREPs, and Partnership to summarize success



# DRAFT RTC: PROGRESS

- Rough draft complete for EC → Chapter 3
- Review by the UMRR coordinating committee complete

| CC Review Example Comments | Proposed Resolution |
|---|---|
| Use of restoration v. rehabilitation | Follow 2016 RTC and Legislative wording & define "restoration" in Chapter 1 |
| Add detail on referenced groups (e.g. River Teams) and docs (e.g. Master Plan) | Will add language developed for the Charter |
| Add list of partnering agencies to HREP case studies | Concur. Agencies will be added. |
| More consistency on how the quality of the UMRS is discussed & HREP goals and objectives | Add context of a modified and managed river system |
| Incomplete discussion of certain legislative, coordination and ecological events | Additional information will be added |
| Many helpful editing comments & visual ideas | Will be incorporated |

- Provide consolidated comments and responses back to the UMRR CC
- Chapters 4 & 5 will be developed after further discussion by the partnership

## 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 May 2022 | 6 Jun 2022 | Mississippi Valley Division Review |
| | 20 Jun 2022 | 18 July 2022 | HQ/ASA(CW) Draft Report Review |
| Final | 1 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 |



## DISCUSSION

Upper Mississippi River Restoration

# UMRR COMMUNICATION AND OUTREACH TEAM

## Update

Jill Bathke and Rachel Perrine,
USACE-RPEDN-PD-F

## COT Activities – Timeline

- **Fall 2021-present**: UMRR Video Series
- **October 2021-present**: Support for 2022 Status & Trends Report Rollout
- **December 2021**: Final Program Flyer
- **December 2021-present**: 2022 Action Priorities

## UMRR Video Series

- UMRR History **Complete**!
  https://www.youtube.com/watch?v=zy-40NiRuF8

Upcoming…

- Success of UMRR
- Science on the River
- Future of UMRR

## 2022 Status & Trends Report Rollout

- Review Key Messages
- Review Report Release Strategy
- Affirm Participation in a Press Release
- Opportunities for “Long Rollout” Participation





## 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

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

# UMRR Status and Trends Report Strategic Rollout

## Status and Trends 3rd Edition

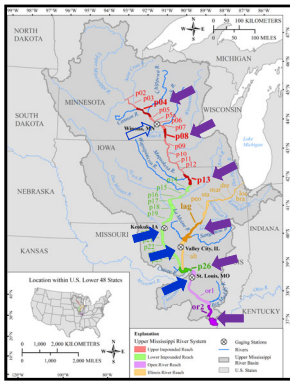
**Background:**

Upper Mississippi River Restoration (UMRR) program will publish its third status and trends assessment of the Upper Mississippi River System in March 2022. This report is a significant accomplishment for UMRR and includes important information about the river ecosystem. The report synthesizes 25 years of long term resource monitoring data and identifies statistically significant trends in ecological conditions of the UMRS.

**Report Purpose:**

Provide a broadly accessible and concise description of what we have learned about changes in the UMRS from three decades of monitoring and analysis.

Illustrate the fundamental role of long-term monitoring in the science and management of large floodplain river systems.




## UMRS Status and Trends 1993 – 2019: Indicator Sections, Leads, and Data

- **Hydrology** (*Molly Van Appledorn*)
  - Four USGS gages
- **Geomorphology** (*Molly Van Appledorn and Jim Rogala*)
  - UMRR LTRM research results
- **Land cover** (*Nathan De Jager*)
  - UMRR LTRM Systemic Land Cover Data
- Long-term data from the UMRR LTRM Study Reaches
  - **Water Quality** (*KathiJo Jankowski*)
  - **Aquatic vegetation** (*Danelle Larson*)
  - **Fisheries** (*Brian Ickes*)

### UMRR Status and Trends Report Release

**Problem/Opportunity:**
The Upper Mississippi River Restoration (UMRR) program will publish its third status and trends assessment of the Upper Mississippi River System in March/April 2022. This report is a significant accomplishment for UMRR and includes important information about the river ecosystem. The report synthesizes 25 years of long term resource monitoring data and identifies statistically significant trends in ecological conditions of the UMRS.

**Purpose:**
1) Promote a broadly accessible and concise description of what we have learned about changes in the UMRS from three decades of monitoring and analysis.
2) Illustrate the fundamental role of long-term monitoring in the science and management of large floodplain river systems.
3) Increase stakeholder awareness of changes that have occurred widely across the system and those that have occurred only in parts of the system.

**Communication Goals:**
Inform and educate all interested parties with accurate and timely information.
Provide communication tools which can be used by UMRR partners to offer consistent synchronized messaging about the third status and trends report.

**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

**Strategies and Tactics:**
Strategy: Create tools and products to encourage target audiences to engage with the information in the third status and trends report, understand the fundamental role of long-term monitoring in the management of the UMRS, and to increase appreciation of the UMRS as a large and diverse river system with many regional differences.
Tactics:
Targeted presentations focused on federal and state agencies working together on the Upper Mississippi River System to collect information and use it in decision making.
Coordinated press release across UMRR partner agencies to include common elements and unique elements.
Create an animated GIF for use on social media and partner websites to educate audiences about the high-level takeaways from the report.

**Key Messages:**
1) The status and trends report provides a broadly accessible and concise description of what we have learned about changes in the UMRS from nearly three decades of monitoring and analysis.
2) Long-term monitoring provides baseline data that helps identify ecological trends, drivers in the system, and restoration needs and can help evaluate the impacts of future ecosystem disturbances.
3) Long-term monitoring provides river managers with the data and science needed for effective multipurpose management for this nationally significant navigation and ecosystem.
4) The UMRS is a large and diverse river system with many regional differences. Long-term monitoring across the system has allowed us to observe changes that have occurred widely across the system and those that have occurred only in parts of the system.
   a) Water Quantity: Throughout the system, there is more water, more of the time. High flows are lasting longer and are occurring more frequently throughout the system.
   b) Water Quality: The UMRS remains eutrophic in many reaches with excessive nutrients (nitrogen and phosphorus), but there is evidence of improvement in TP concentrations in some reaches.
   c) Water Clarity: In most of the system, water clarity has increased.
   d) Forest Loss: Floodplain forest area has declined across most of the system.

### UMRR Status and Trends Report Release

**Background:**
The Upper Mississippi River System (UMRS) is one of this nation's unique natural resources. The ecosystem provides habitat to a wide array of fish and wildlife species distributed among a complex assortment of flowing channels, floodplain lakes, backwaters, wetlands, and floodplain forests. With an ecosystem as diverse and complex as the UMRS, many of its processes and their interrelationships are not well known. Long-term monitoring provides baseline data that has helped to identify some of these processes and understand their interrelationships.

The 2022 Ecological Status and Trends Report is the third produced by the UMRR program. It summarizes analyses of two and a half decades of long-term monitoring data from the UMRS. Twenty-five years of long term monitoring data allows UMRR staff and partners to detect long-term trends, understand variation over time, and observe complex river patterns. The 2022 Status and Trends report includes detailed water quality, aquatic vegetation, and fisheries data from six unique study areas as well as select UMRS data for possible drivers of UMRS ecological dynamics, including hydrology, geomorphology, and land cover. These data provide river managers with the data and science needed for effective multipurpose management for this nationally significant navigation and ecosystem.

**Milestones:**
1986 – Congress recognized the UMRS as a nationally significant ecosystem and commercial navigation system. The 1986 WRDA authorized the Upper Mississippi River Restoration Program (UMRR). LTRM funding authorized at $5.08 million/year.
1989 – First collection of UMRR LTRM Land Cover/Land Use data
1993 – LTRM begins sampling with random stratified design.
1998 – First Ecological Status & Trends Report
1999 – The 1999 WRDA reauthorized UMRR as a continual and expanded program and combined the authority for a computerized inventory and analysis system with the monitoring element and added applied research. LTRM authorized funding increased to $10.42 million/year.
2008 – Second Ecological Status & Trends Report
2020 – The 2020 WRDA, LTRM authorized funding increased to $15 million/year.
2022 – Third Ecological Status & Trends Report

### UMRR Status and Trends Report Release

**General Talking Points:**

- The Upper Mississippi River Restoration (UMRR) program will publish its third status and trends assessment of the Upper Mississippi River System in March/April 2022. This report is a significant accomplishment for UMRR and includes important information about the river ecosystem.
- The report synthesizes 25 years of long term resource monitoring data into a broadly accessible and concise description of what we have learned about changes in the UMRS from nearly three decades of monitoring and analysis.
- The report identifies statistically significant trends in ecological conditions of the UMRS. It includes information on water quality, aquatic vegetation, and fisheries data from six unique study areas as well as select system-wide data for possible drivers of UMRS ecological dynamics, including hydrology, geomorphology, and land cover.
- The UMRS is a large and diverse river system with many regional differences. Long-term monitoring across the system has allowed us to observe changes that have occurred widely across the system and those that have occurred only in parts of the system.
  - Water Quantity: Throughout the system, there is more water, more of the time. High flows are lasting longer and are occurring more frequently throughout the system.
  - Water Quality: The UMRS remains eutrophic in many reaches and nutrient concentrations (Total Nitrogen and Total Phosphorus) exceed EPA benchmarks. But there is evidence of improvement in Total Phosphorous (TP) concentrations in some reaches.
  - Water Clarity: In most of the system, water clarity has increased in the main channel. In some areas of the river, this increase in water clarity was associated with a large increase in the abundance of aquatic plants.
  - Forest Loss: Floodplain forest area has declined in most of the system. High water conditions extending later into the growing season are damaging the river's floodplain forests. New hardwood trees are unable to establish and mature, leaving significant gaps in the forest canopy.
- Long-term monitoring provides river managers with the data and science needed for effective multipurpose management for this nationally significant navigation and ecosystem.

## UMRR Status and Trends Report Release

**Supplemental Information:**

UMRR program

- In 1986, Congress recognized the UMRS as a nationally significant ecosystem and commercial navigation system. To address the impacts of commercial and recreational navigation and rehabilitate degraded habitat, the 1986 Water Resources Development Act authorized the USACE to implement the Upper Mississippi River Restoration Program (UMRR).
- The UMRR program partnership includes a multitude of federal and state agencies, non-governmental organizations, and the public, which work hand-in-hand to implement all aspects of the program. Recognizing the inherent value of multi-agency and interdisciplinary cooperation, Congress assigned specific roles to USACE, USGS, USFWS, UMRBA, and the five Upper Mississippi River states. This partnership has allowed the program to be highly functioning, dynamic, and comprehensive.
- UMRR was the first federal program to combine ecosystem restoration, monitoring, and science on a large river system. Since it's authorization, UMRR has focused primarily on two of the six initially authorized elements: 1) habitat rehabilitation and enhancement projects and 2) long term resource monitoring, research, and analysis.
- For the past three decades, the first large river ecosystem restoration, science, and monitoring program in the Nation has successfully enhanced multiple-uses of the river and leveraged partnership-led management for ecosystem science and restoration of 112,000 acres.

LTRM datasets:

- Annual monitoring focuses on assessing the overall health and resilience of the ecosystem to inform its restoration and management.

  Fisheries component: LTRM has the most extensive fisheries dataset for a great river in the world, which includes 28 years of standardized scientific data capturing fish community. Abundance and diversity of fisheries is high despite invasion of bigheaded carp species.

  Aquatic vegetation component: LTRM has the largest aquatic vegetation dataset in the world, which includes 22 years of data, capturing plant community changes and recovery of aquatic vegetation in the Upper Impounded Reach of the UMRS. In 2021, abundance and diversity of aquatic vegetation is high despite new and concerning invasion of flowering rush, an invasive species.

  Water quality component: LTRM has collected 28 years of data to capture spatially and temporally dynamic water quality changes in response to watershed changes.

## UMRR Status and Trends Report Release

**Supplemental Information** *(continued):*

- A key part of LTRMs data collection is the network of six, state agency operated field stations across the five Upper Mississippi River System states: Illinois, Iowa, Minnesota, Missouri, and Wisconsin.
- The staff at these field stations collect the long term water quality, vegetation, and fisheries data from the six study reaches of the UMRS each year and contribute their expertise to analysis, interpretation, and publication of the long-term data.
- Field station locations:

  Lake City, MN

  La Crosse, WI

  Bellevue, IA

  Havana, IL (Illinois River Biological Station)

  Alton, IL (Great Rivers Field Station)

  Cape Girardeau, MO (Open River & Wetlands Field Station)
- The USGS-Upper Midwest Environmental Science Center (UMESC) is in La Crosse, WI.
- **Additional information needs can be directed to:**
  Jeff Houser, LTRM Science Director
  Email: jhouser@usgs.gov
  Phone: 608-781-6262


## UMRR Status and Trends Report Release
Q&As

**Where is the report available?**

The report is available on the UMRR program website and LTRM websites.

UMRR website: **www.mvr.usace.army.mil/UMRR**

LTRM website: **https://umesc.usgs.gov/ltrm-home.html**

**Who can I contact for more information?**

Additional information needs can be directed to:
Jeff Houser, LTRM Science Director
Email: jhouser@usgs.gov
Phone: 608-781-6262

## UMRR Status and Trends Report Release
Q&As

**What is UMRR?**

The Upper Mississippi River Restoration (UMRR) program is the first comprehensive program for ecosystem restoration, scientific research, and monitoring on a large river system in the Nation and the world. The research and monitoring are executed through Long Term Resource Monitoring (LTRM), and restoration is achieved through construction of Habitat Rehabilitation and Enhancement Projects (HREPS).

**What is LTRM?**

Long Term Resource Monitoring (LTRM), combines environmental monitoring, research, systemic data acquisition, and modeling to provide a solid scientific foundation upon which many agencies base management actions and policy for the Upper Mississippi River System.

**Why is Long Term Resource Monitoring important?**

The LTRM information is used extensively by natural resource managers, planners, administrators, scientists, academics, legislators, and the general public for improved understanding, problem solving, targeted ecosystem restoration and informed decision-making about the issues important to the UMRS.

**How is LTRM funded?**

Congress appropriates funds to UMRR through the U.S. Army Corps of Engineers, which then transfers funds to the other federal and state implementing partners to support their legislative responsibilities. LTRM is implemented by the U.S. Geological Survey (USGS) in cooperation with the five UMRS states: Illinois, Iowa, Minnesota, Missouri, and Wisconsin.

**What information is included in the report?**

The 2022 Status and Trends report includes detailed water quality, aquatic vegetation, and fisheries data from six unique study areas as well as select UMRS data for possible drivers of UMRS ecological dynamics, including hydrology, geomorphology, and land cover. These data provide river managers with the data and science needed for effective multipurpose management for this nationally significant navigation and ecosystem.

**When were the other two status and trends reports published?**

Previous reports on the status and trends of the UMRS were published in 1998 and 2008.

## UMRR Status and Trends Report Release
Q&As *(continued)*

**How is LTRM data collected?**

Monitoring is conducted from six state-operated field stations, located on the Upper Mississippi River in Pool 4 (Lake City, Minnesota), Pool 8 (La Crosse, Wisconsin), Pool 13 (Bellevue, Iowa), Pool 26 (Alton, Illinois), and the Open River reach (Cape Girardeau, Missouri), as well as the La Grange Pool of the Illinois River (Havana, Illinois).

**Why does LTRM monitor water quality?**

Water quality monitoring: temperature, dissolved oxygen, plant nutrients, and water clarity are critical determinants of habitat suitability.

**Why does LTRM monitor aquatic vegetation?**

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

**Why does LTRM monitor fish communities?**

Fish monitoring: the UMRS supports a diverse community of fishes that are critical components of the ecosystem, and support important cultural, recreational, and commercial activities [Photo]. The UMRS fish community contains some fishes of ancient evolutionary lineage (e.g., paddlefish, shovelnose sturgeon and pallid sturgeon have been around for ~ 70 million years). Because of the north-south orientation of the Upper Mississippi River, fishes have been able to move north and south to adapt to the long term fluctuations in climate.

**Why does LTRM collect landcover data?**

LTRM collects landcover data every 10 years and maintains a systemic data set of floodplain and river bottom elevation. Land cover data consists of maps of vegetation and developed lands. Mapping the vegetation provides information on food availability, nesting/spawning habitat, and shelter for fish and wildlife. Land cover data also provides insight into human effects within the floodplain.

## UMRR Status and Trends Report Release
Q&As *(continued)*

**How is the amount of water in the system measured?**

Data were collected using four USGS river gages that monitor continuous flow of the river and the amount of water moving through the system (discharge). The flow of the river is fundamental and affects all the other things we think about and care about in the river.

**What other water quality information is in the report?**

**Why is the water becoming clearer?**

**What caused the forests to decline?**

**What are some specific examples of how this monitoring info is being used? (Examples that are relevant to non-technical audiences and river users)**

## UMRR Status and Trends Report Release
Engagement Strategy

| Genera updates & Information shar ng | | | | |
|---|---|---|---|---|
| **Item** | **Method of Delivery** | **Frequency** | **Audience** | **Description** |
| Coordinated press release | press, web, e-mail | One time | Public - agency partners, congressional interests, NGOs, any other interested parties | Announcement of release of the report |
| Social Media | web | One time | Public - agency partners, congressional interests, NGOs, any other interested parties | Post using general talking points and high level report results; potentially create animated GIF |
| Congressional updates | in person, webinar, telephone | as needed | Members of Congress and staff | Briefings on the report content with time allotted for Q&A. |
| Stakeholder updates | in person, webinar, telephone | as needed | Agency partners, NGOs | Briefings on the report content with time allotted for Q&A. |

## UMRR Status and Trends Report Release
Proposed Schedule

| Date | Action |
|---|---|
| **Report release date anticipated March-April 2022** | **Distribute coordinated press releases** |
| **After release date (TBD)** | Share animated GIF of high-level report results (i.e., general talking points) |
| **As needed** | Respond to inquiries and requests for briefings |
| | |
| | |

**Notes:**
Outreach activities have included:
- Meeting presentations (Internal)
- Conference presentations (External)

Future:
Press release
A "glossy" report summary (~4 pages) is anticipated in the future.

## UMRR Status and Trends Report Release
Coordinated Press Release

| Agency | Common elements | Unique elements |
|---|---|---|
| USACE | This report is a significant accomplishment for UMRR and identifies important trends in the ecological conditions of the UMRS | • HREPs - Restoration continues to advance the good trends and mitigate future risks of hydrology and invasive species.<br>• Pulls together interdisciplinary partners to address issues. |
| USGS | The report synthesizes 25 years of long term resource monitoring data into a broadly accessible and concise description of what we have learned about changes in the UMRS from nearly three decades of monitoring and analysis. | • Science – may want to emphasize the scientific integrity, robustness of data and analysis.<br>• Possibly include field stations? |
| UMRBA | | • Value of the partnership |
| USFWS | The UMRS is a large and diverse river system with many regional differences. Long-term monitoring across the system has allowed us to observe changes that have occurred widely across the system and those that have occurred only in parts of the system. | • Trends in the refuge system<br>• Partnership with the Corps improves the refuges<br>• How their work helps improve conditions systemically where there is not refuge lands |
| USEPA | Annual monitoring to assess the overall health and resilience of the ecosystem is fundamental to its restoration and management. | • |
| States | | • |
| Other? (NRCS?) | | • |

## UMRR Coordinating Committee members

Draft set of slides

We would appreciate any feedback on report release strategy from UMRR Coordinating Committee members.

Agencies affirm that they do plan to:

- Develop a press release on the status and trends report,
- Could and would use the common elements in their press release
- Identify what unique elements they may also include, if not the draft ones in the previous slide.

## Schedule

Anticipated release

March/April release of report

Published on LTRM and UMRR websites

Considerations

Date and timing of release (embargoed?)

Preferred days or dates for release (Monday/Thursday)

Agency approval for social media

Time for press to respond to release

## Long Rollout

The S&T report is "three decades" in the making and provides a very good opportunity to direct UMRR's communications over the course of this year, not just around the report release.

Can create similar versions of slides for each of the content areas included in the report to help develop:

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

Inform development of a scope of work and guide activities throughout the year

## 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:

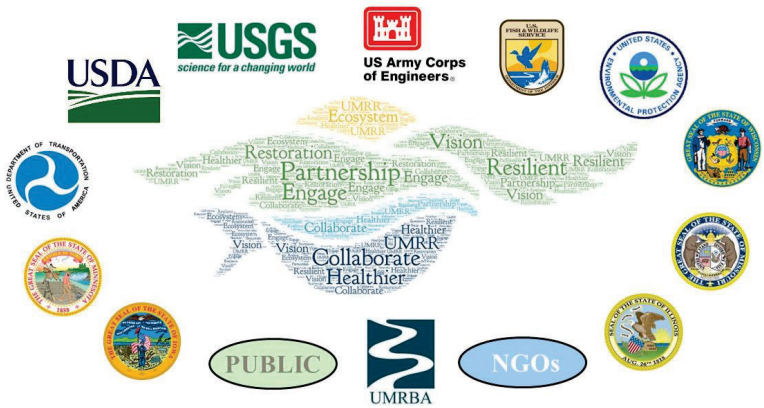
- Field Stations begin 2022 LTRM field work
- Coordinated MUM activities for 2022
- Inclement weather (field crews still sampling!)
- Completion of habitat projects.

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.

## Next Steps

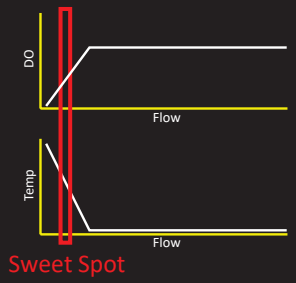
As a reminder, the report includes findings on:

- Hydrology: annual discharge, duration of high flows, and monthly discharge
- Geomorphology: new landform surface area, backwater bed elevation
- Landcover: forest cover (patch, dominant, interior, and core forest)
- Water quality: main channel suspended solids and nutrients (Nitrogen and Phosphorus), Chlorophyll a, backwater hypoxia
- Aquatic vegetation: submersed aquatic vegetation prevalence, invasive submersed species, aquatic vegetation diversity, free-floating plant dominance, emergent vegetation
- Fisheries: fish community, lentic fishes, lotic fishes, nonnative fishes, forage fishes, recreationally valued native fishes, commercially valued fishes (native and nonnative)
- The report also includes detailed chapters on long-term changes in water clarity and vegetation in the UMRS and how the UMRR-LTRM played a key role in tracking the impacts of bigheaded carp in the UMRS.

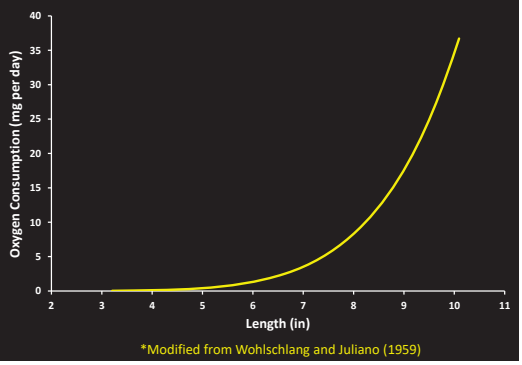

## Poor Winter Water Quality

- Dissolved oxygen
- Temperature
- Flow
- These water quality variables are not independent

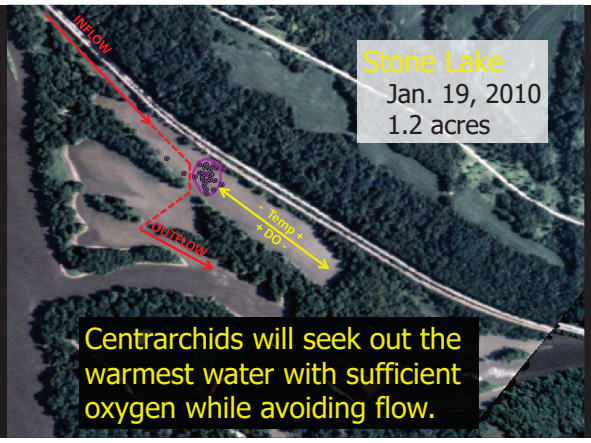


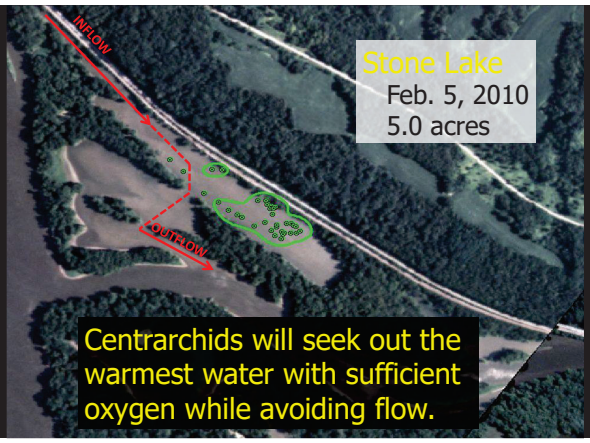

## Bluegill Oxygen Consumption (1.7°C)

- Dissolved oxygen
- Temperature
- Flow
- These water quality variables are not independent

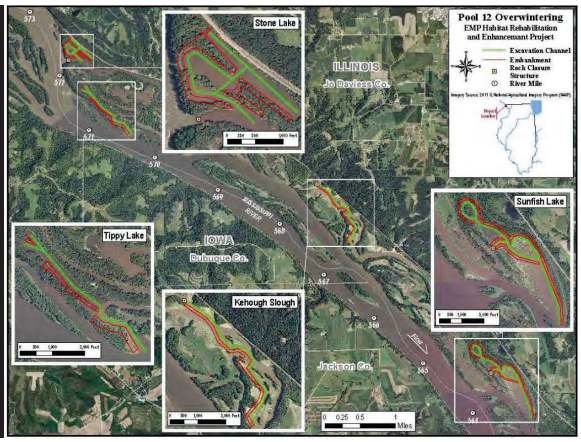



*Modified from Wohlschlang and Juliano (1959)



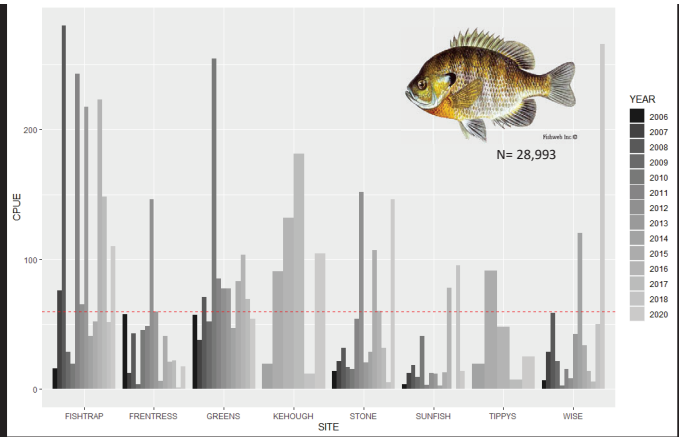


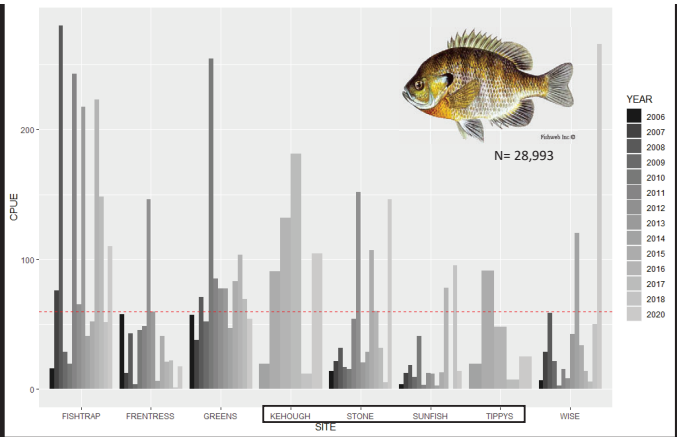

- Dredging in four backwater lakes
- Increase island topographic/ forestry diversity
- Manage backwater connectivity

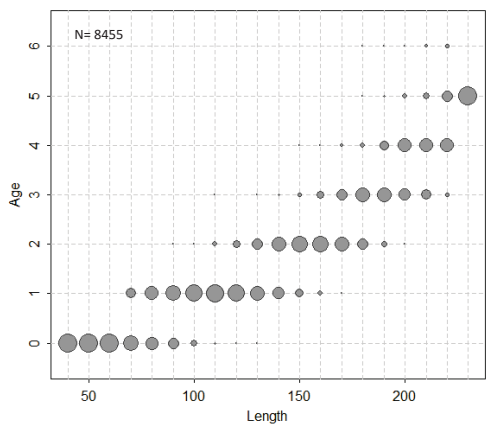



# Annual Sampling Components

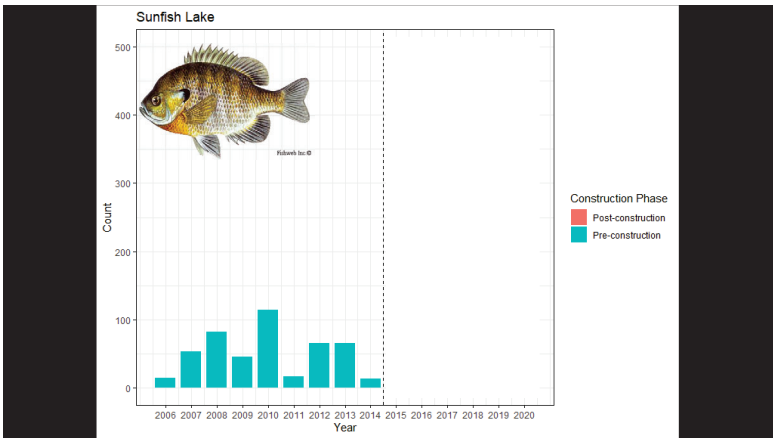
- Fall: pool-wide, day electrofishing
- Pre-ice: Fyke netting in eight study backwaters
  - Water temperatures < 10 °C

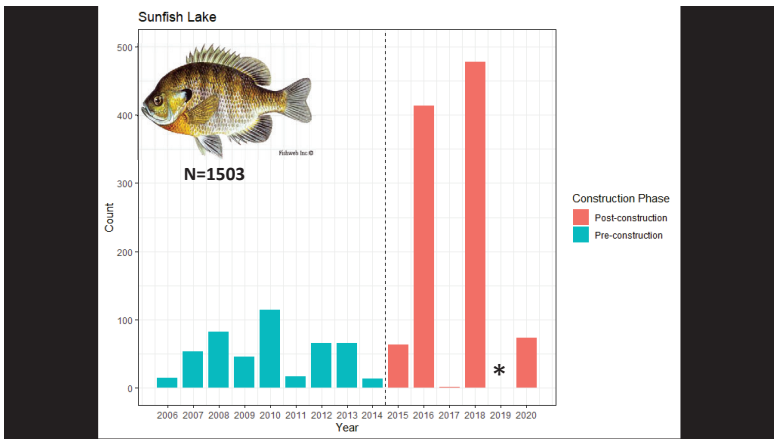


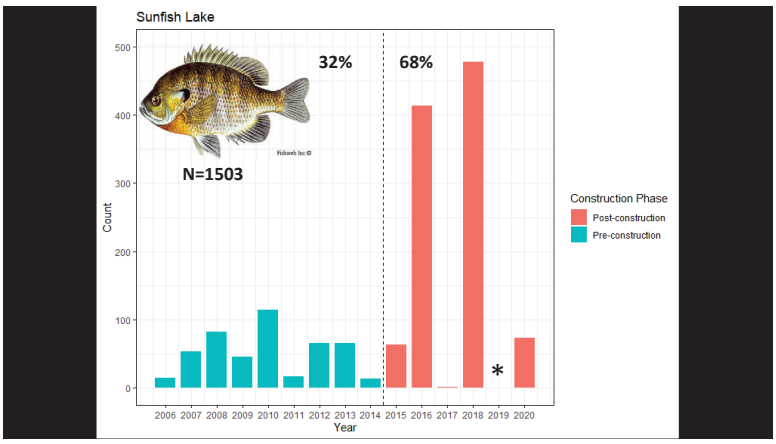



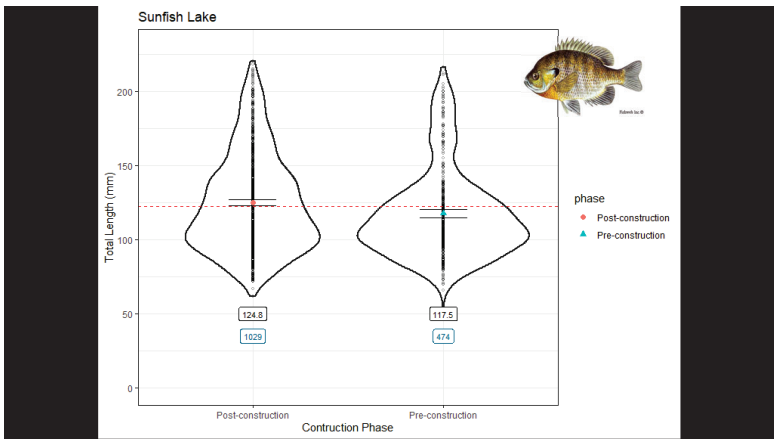



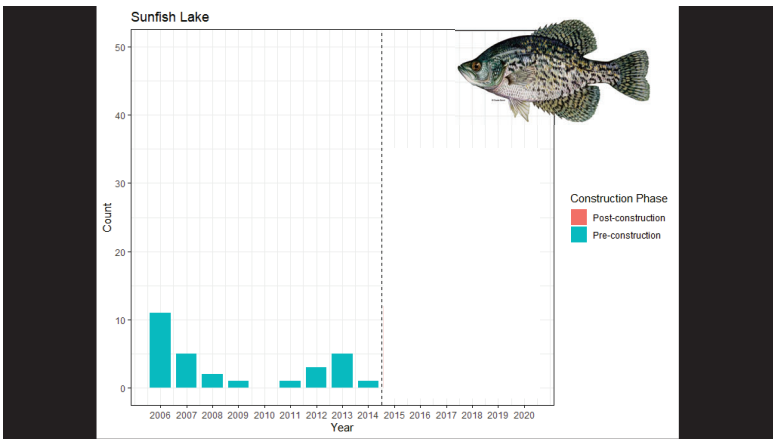

Sunfish Lake

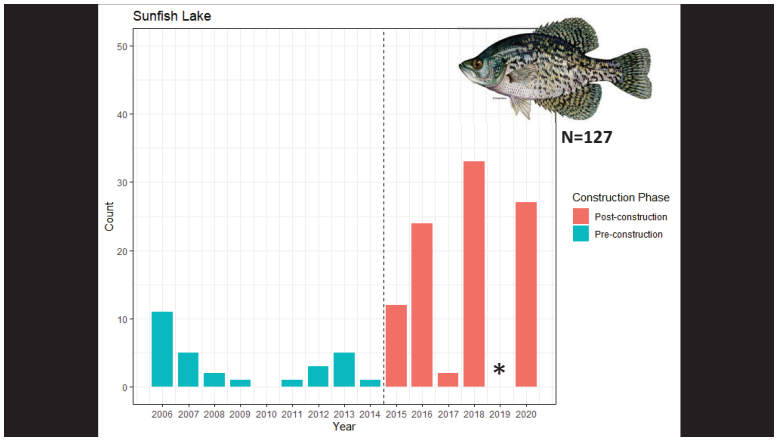

Sunfish Lake
Count
Year
Construction Phase
Post-construction
Pre-construction

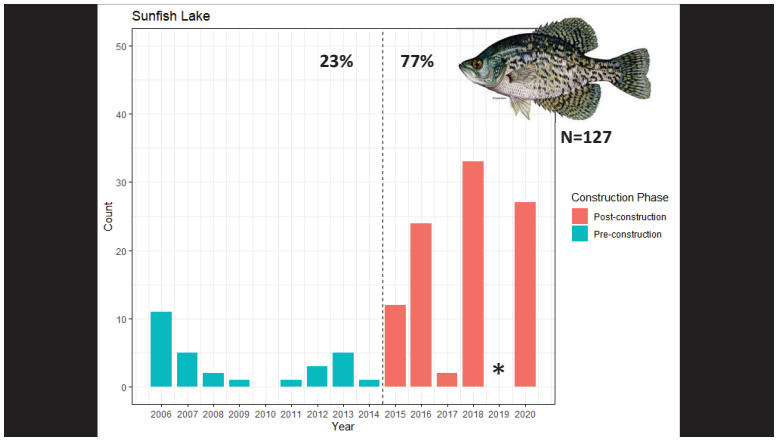

Sunfish Lake
N=1503
Count
Year
Construction Phase
Post-construction
Pre-construction

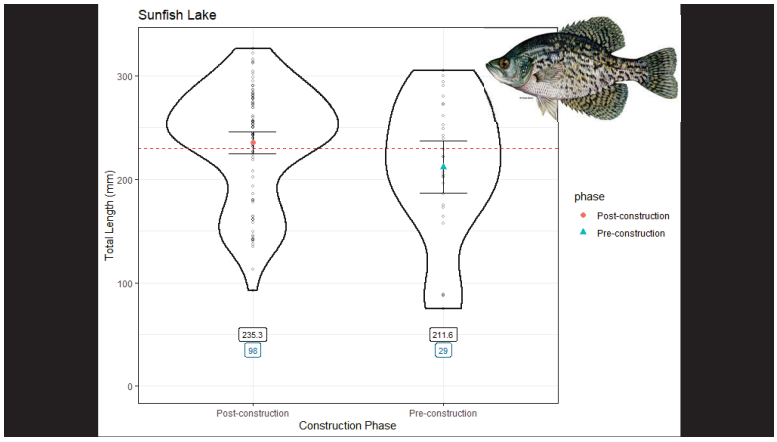

Sunfish Lake
32%
68%
N=1503
Count
Year
Construction Phase
Post-construction
Pre-construction


Sunfish Lake
Total Length (mm)
124.8
1029
117.5
474
Post-construction
Pre-construction
Contruction Phase
phase
Post-construction
Pre-construction


Sunfish Lake
Count
Year
Construction Phase
Post-construction
Pre-construction




## Monitoring Timeline

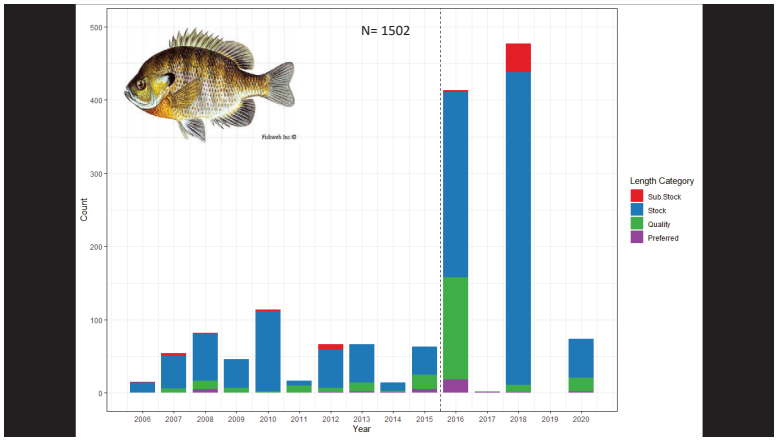
- Post construction sampling:
  - Years 1-5: monitor fisheries changes
  - Years 6-10: after construction comparison

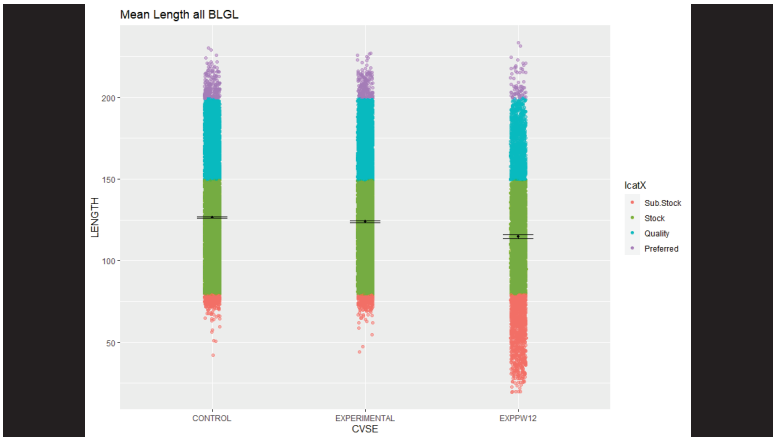
## Questions?

## National Significance of the UMRS and Congress' 1986 Designation for the Mississippi River

Only River in the United States to be formally recognized by Congress "… as a nationally significant ecosystem and a nationally significant commercial navigation system. … shall be administered and regulated in recognition of its several purposes."

Citation: Water Resources Development Act of 1986, Section 1103(a)(2).


N= 1502
Count
Year
Length Category
Sub.Stock
Stock
Quality
Preferred

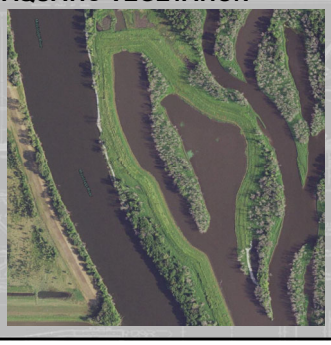

Mean Length all BLGL
LENGTH
CONTROL
EXPERIMENTAL
EXPPW12
CVSE
lcatX
Sub.Stock
Stock
Quality
Preferred

## HURON ISLAND HREP – AQUATIC VEGETATION

Presented by:
Collin Moratz
Environmental Planning Section

U.S. Army Corps of Engineers, Regional Planning and Environmental Division – North

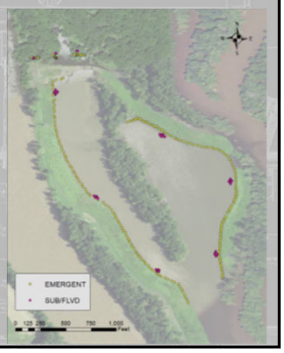
UMRR-CC Quarterly Meeting
23 February 2022



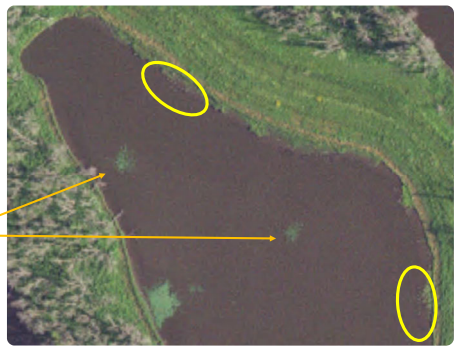
US Army Corps of Engineers

## PLANTING DESIGN

- Plants in exclosures to investigate herbivory and ensure accurate data on survival
- Emergents
  - 40 exclosures – 2' tall w/1.5" square mesh
  - 4/species to ensure all species covered
- Aquatics
  - Three mesh sizes to test different herbivory methods – 2x4, 2x2, 1x0.5 inch
  - Placed at two depths (approx. 1' and 3')




US Army Corps of Engineers



Iowa GIS Server 2021 Orthoimagery

North end of eastern lobe

Volunteer lotus

## PLANTINGS

- August 12-15, 2019
- September 23, 2020
- July 20-21, 2021
- September 15, 2021

US Army Corps of Engineers

## EMERGENT PLANT SURVIVAL

| Common Name | Species | Exclosure survival 9/2020 – 6/2021 | Exclosure Survival 7/2021 – 9/2021 |
|---|---|---|---|
| American water plantain | *Alisma subcordatum* | 3/6 | - |
| River Bulrush | *Bolboschoenus fluviatilis* | 3/3 | 3/4 |
| Buttonbush | *Cephalanthus occidentalis* | 6/6 | 6/6 |
| Needle Spikerush | *Eleocharis acicularis* | 6/6 | 6/9 |
| Floating primrose | *Ludwigia peploides* | 0/6 | 5/5 |
| Pickerelweed | *Pontederia cordata* | 3/6 | 3/5 |
| Softstem bulrush | *Schoenoplectus tabernaemontani* | 3/3 | 3/5 |
| Broadleaf arrowhead | *Sagittaria latifolia* | - | 1/2 |
| Sessilefruit arrowhead | *Sagittaria rigida* | - | 1/2 |
| Broadfruit bur-reed | *Sparganium eurycarpum* | 5/6 | 6/7 |

## FLOATING-LEAFED AND SUBMERSED PLANT SURVIVAL

| Common Name | Species | Exclosure survival 9/2020 – 6/2021 | Exclosure Survival 7/2021 – 9/2021 |
|---|---|---|---|
| American white waterlily | *Nymphaea odorata* | 18/24 | 11/16 |
| Canadian waterweed | *Elodea canadensis* | 5/24 | 7/7 |
| Longleaf pondweed | *Potamogeton nodosus* | 19/24 | 34/36 |
| Wild celery / Eelgrass | *Valisneria americana* | -- | 17/26 |

US Army Corps of Engineers

## HURON ISLAND HREP TAKEAWAYS

- Celery
  - Depth impacted survival: shallow cages were good and deep cages were empty
  - Herbivory took all plants outside exclosures
- White waterlily and longleaf pondweed are expanding outside the exclosures and surviving throughout the growing season
  - Testing “vegetative exclosure” by planting celery surrounded by lily/pondweed
- Full-scale monitoring of initial plantings will conclude in 2022
- Water quality data analysis will be incorporated in final report to investigate potential growing season stressors

# HABITAT RESTORATION – DISTRICT REPORTS

## ST. PAUL DISTRICT (MVP)

**PLANNING**

- **Big Lake – Pool 4, MN/WI**
  - Continue feasibility planning; develop measures
- **Reno Bottoms HREP – Pool 9, MN/IA**
  - Evaluate alternatives, TSP Milestone
- **Lower Pool 10 HREP – Pool 10, IA**
  - Completed Concurrent Review
  - Final Report Submittal

**DESIGN**

- **Lower Pool 10 HREP – Pool 10, IA**
  - Kick-off Plans & Specs

**CONSTRUCTION**

- **Harpers Slough HREP – Pool 9, IA**
  - 85% Complete
  - Final grading & seeding
- **McGregor Lake HREP – Pool 9, WI**
  - 65% Complete
  - Award Stage 2; 4th Quarter FY22
- **Bass Ponds, Marsh & Wetland HREP – MN River**
  - 93% Complete
  - Remaining: stoplog and grate install
- **Conway Lake HREP – Pool 9, IA**
  - 98% Complete
  - Final grading & seeding

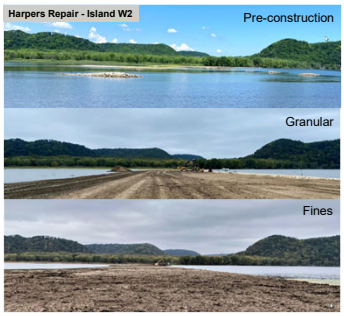
**Other Activities**

- Planning Earth Day Dedication Event (Harpers & Conway HREPs)

## ST. PAUL DISTRICT Befores & Afters

Bass Ponds – Blue Lake

Harpers Repair - Island W2




## ROCK ISLAND DISTRICT (MVR)

**PLANNING**

- **Lower Pool 13 – Pool 13, IA/IL**
  - PDT working on cost and benefits for alternatives.
  - TSP tentatively schedule 31 Mar
- **Green Island – Pool 13, IA**
  - PDT working on cost, quantities, and benefits for alternatives.
- **Pool 12 Forestry – Pool 12, IA/IL/WI**
  - PDT addressing DQC comments on Chapters 1-3 PDT working on identifying alternatives
- **Quincy Bay – Pool 21, IL**
  - PDT working on scheduling the measures workshop

**DESIGN**

- **Steamboat Island Stage II – Pool 14, IA/IL**
  - Starting design this FY
- **Steamboat Island Stage I – Pool 14, IA/IL**
  - 100% review scheduled for completion by Ma

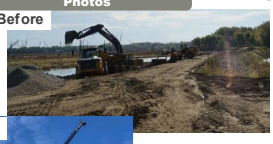
**CONSTRUCTION**

- **Pool 12 Overwintering, Pool 12, IL**
  - ***Stage II –*** Construction is closing out the contract
  - PDT is working on ribbon cutting video
- **Keithsburg Division Stage I, Pool 18, IL**
  - Contractor moved off-site for the winter. (Photos)
- **Keithsburg Division Stage II, Pool 18, II**
  - Contractor working on tree clearing.
- **Huron Island, Pool 18, IA**
  - ***Stage III –*** ERDC is planning a site visit in late June/July
- **Beaver Island Stage IB, Pool 14, IA/IL**
  - Contractor moved off-site for the winter. Spring seeding still left.
- **FACTSHEETS**
  - Still addressing sponsor comments on Upper Pool 13
  - MVD has approved Geneva & Hershey Island and Multi Pool Habitat Protection

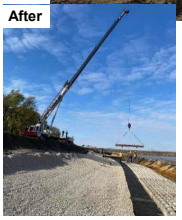
## ROCK ISLAND DISTRICT Photos

KEITHSBURG STAGE I - PHOTOS

Before



After



## ST. LOUIS DISTRICT (MVS)

**PLANNING –**

**West Alton Islands, MO, HREP (Pool 26)**
- Continue Feasibility Planning

**Yorkinut Slough, IL HREP (IL River)**
- Continue Feasibility Planning

**DESIGN –**

**Piasa & Eagles Nest, IL HREP (Pool 26)**
- Award Stage 2, Channel Excavation
- P&S 4th Quarter FY22

**Harlow Island, IL HREP (Open River)**
- Complete Stage 2, P&S 4th Quarter FY22

**Oakwood Bottoms, IL, HREP (Open River)**
- Complete 4 P&S packages 3rd Quarter FY22
- 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, 3rd Quarter FY22

**Piasa & Eagles Nest, IL HREP (Pool 26)**
- Rock Structure Construction

**Clarence Cannon Refuge, MO (Pool 25)**
- Pump Station - completed tests
- Exterior Berm Setback

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

ST. LOUIS DISTRICT

Clarence Cannon HREP Pump Station

Piasa & Eagles Nest Islands HREP

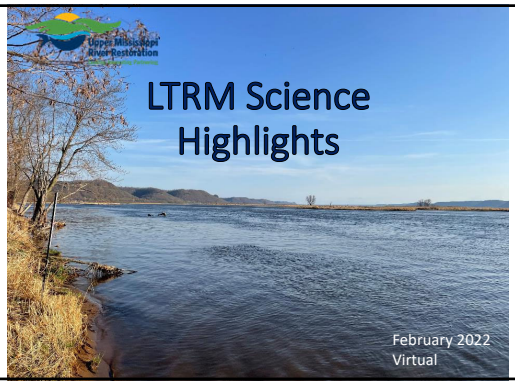
Piasa & Eagles Nest Islands HREP

Upper Mississippi River Restoration



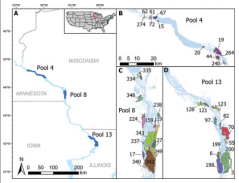
## MVS HREP PROJECTS

Planning Design Construction

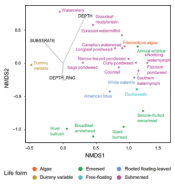



**Publication:** Aquatic vegetation assemblage and diversity dynamics in the Upper Mississippi River over two decades spanning vegetation recovery. *In:* Freshwater Science.

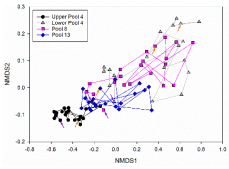
Bouska, K. L., D. M. Larson, D. C. Drake, E. M. Lund, A. M. Carhart, and K. R. Bales.



Contiguous floodplain lake- and pool-scale analyses of aquatic vegetation assemblages



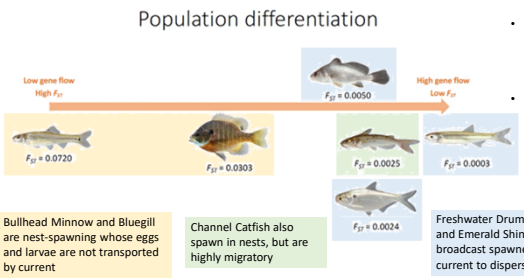
Compositional analyses indicate a strong gradient of diversity (NMDS1) and depth & velocity (NMDS2)



Synchrony in community dissimilarity trends indicate a broad-scale driver of recovery. Although lakes in Pools 4 and 8 indicate more recent community stability, lakes in Pool 13 had less community stability and lower diversity

**Publication**: Gene flow influences the genomic architecture of local adaptation in six riverine fish species. *In:* Molecular Ecology.

Shi, Y., K. L. Bouska, G. J. McKinney, W. Dokai, A. Bartels, M. V. McPhee, and W. A. Larson.




- Examined population structure of six systemic fish species across LTRM study reaches
- Findings generally concur with hypotheses that population structure reflects differences in life history strategies among species

Bullhead Minnow and Bluegill are nest-spawning whose eggs and larvae are not transported by current

Channel Catfish also spawn in nests, but are highly migratory

Freshwater Drum, Gizzard Shad, and Emerald Shiner are broadcast spawners, relying on current to disperse eggs.

## UMRR 2022 Science Meeting

- Virtual meeting
- > 100 participants
- USACE, USGS, USFWS, USDA
- MDNR, WDNR, IADNR, INHS, ILDNR, MDC, UMRBA
- National Great Rivers Research and Education Center
- UW-Madison, UW-La Crosse, Missouri State University, University of Minnesota
- National Audubon Society

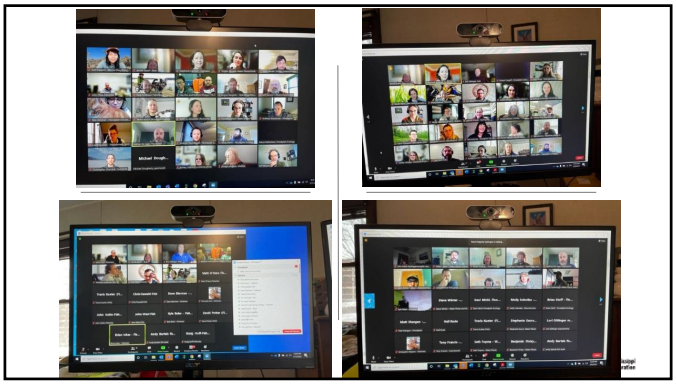
## Meet the participants @ https://padlet.com/jnhcomm/Bookmarks

## 2020 Science Meeting as a forum for developing Science in Support of Management projects

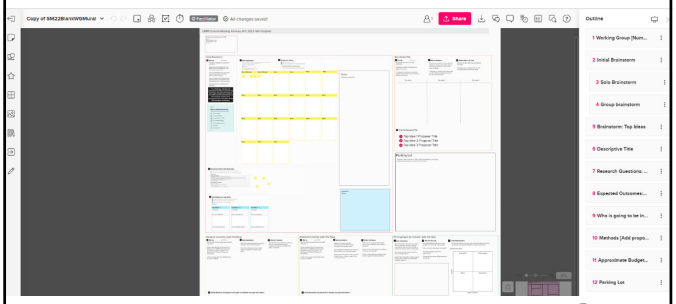
- Foster collaborative approach and larger projects
- More effectively incorporate UMRR LTRM's unique strengths
- Facilitate a more direct interaction between restoration practitioners, natural resource managers, and research scientists during proposal development process

## meeting goals

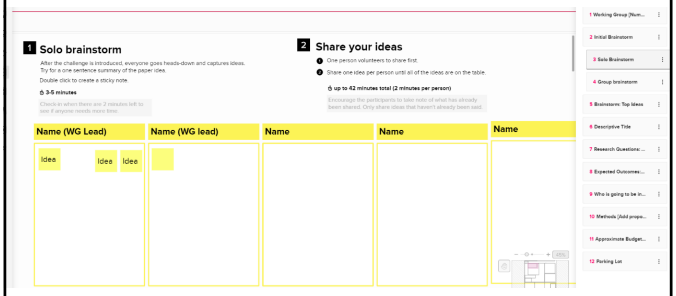
- Primary goal: Develop proposals for consideration in FY 2022.
  - March 18 - Draft proposals and budgets to Jennie Sauer and Karen Hagerty for budget review
  - April 4 - Final proposals to A-team, USACE and USGS for review and ranking
- Other meeting outcomes:
  - Ideas for future work
  - Better network of restoration professionals and river/floodplain scientists



## Virtual Whiteboard Example



## Virtual Whiteboard Example




| 2020 UMRR Science Meeting Working Groups |
|---|
| WG1: Hydrology and geomorphology<br>*Molly Van Appledorn (UMESC) and Jayme Strange (UMESC)* |
| WG2: Macroinvertebrates<br>*Jim Lamer (INHS) and Molly Sobotka (MDC)* |
| WG3: Water plants and water birds<br>*Danelle Larson (UMESC)* |
| WG4: UMRS fisheries<br>*Brian Ickes (UMESC)* |
| WG5: Nutrients, Phytoplankton, and Harmful Algal Blooms<br>*KathiJo Jankowksi (UMESC)* |
| WG6: Floodplain ecology<br>*Nathan De Jager (UMESC)* |
| Plenary Session: Lower Pool 13 HREP<br>*(Jeff Houser (UMESC), Kristen Bouska (UMESC), Danelle Larson (UMESC); presentation by Dillan Laaker (USACE))* |

## *Fisheries*

*Biotic and abiotic drivers of recruitment and population growth of UMRS fishes*

***Workgroup Members***

***USGS**: Brian Ickes*

***USACE**: Kyle Bales, Dave Potter, Angela Deen, Alison Anderson,*

***MN DNR**: Nick Schlesser, Chris Dawald*

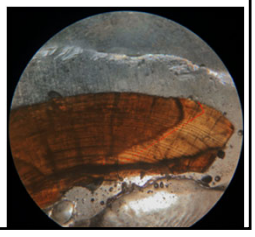
***WI DNR**: Andy Bartels, Kraig Hoff*

***INHS**: John Gatto, Kristopher Maxson, Levi Solomon, Eric Hine, Eric Gittinger, John Chick*

***IA DNR**: Dave Bierman, Ryan Hupfeld, Travis Kueter, Karen Osterkamp*

***IL DNR**: Rebekah Anderson, Matt O'Hara*

***MDC**: John West*



## Main proposal topics

*Three sub projects:*

1. *How do hydrology and temperature interact to affect year class strength of select species representing different habitat classes of fishes? {and what are the mechanisms: growth, direct mortality, etc…}*
2. *What are the environmental growth signatures of these select species and are they closely linked to recruitment? {Biochronology, leveraging vital rates project data}*
3. *How are fluctuations in populations size and recruitment linked to changes in growth and/or mortality?*

## *Floodplain Ecology*

Understanding relationships among floodplain hydrogeomorphic patterns, vegetation and soil processes, and effects on wildlife habitat and nutrient export

***USGS**: Nathan De Jager, Eileen Kirsch, Jason Rohweder, Andrew Strassman*
***USFWS**: Matt Mangan, Bruce Henry,*
***USACE**: Andy Meier, Davi Michl, Brian Stoff*
***USDA**: Brian Miranda*
***UMRBA**: Andrew Stephenson*
***NGRRC**: Lyle Guyon*
***Audobon**: Tara Hohman*
***Univ. of Minnesota**: Marcell Windmuller-Campione*

## Main proposal topics

**Forest Dendrochronology**:

1. What is the age structure of floodplain forest sites, and how does the age structure vary within sites and between sites in the context of local scale environmental variation and regional scale hydrologic patterns?
2. What is the disturbance history of floodplain forest sites, what is role do tree- or gap-level disturbance play in forest structuring relative to flooding events, and are how is species composition influenced by disturbance history relative to flooding?

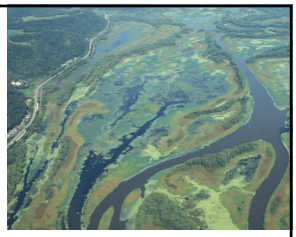
**Wildlife (Bird) use of the UMRS floodplain**

1. Identify and map uncommon or rare forest community types
2. Identify bird use to fill forest management gaps
3. Systematic approach or localized?
4. Answer gaps in our current understanding of forests and birds

**Relationships among flood inundation, vegetation patterns, and soil nutrient dynamics**

1. How do soil physical, chemical, and microbiome conditions relate across areas dominated by different invasive plant communities versus historic forested areas? Is nutrient retention and cycling mediated by different invasive cover? (Lead: Lynn Bartsch )
2. Are soil conditions within the floodplain influenced primarily by age, vegetation conditions, or hydrogeomorphic factors, and do these factors determine suitability for floodplain forest species or communities?

## *Hydrology and Geomorphology*



***USGS**: Jayme Strange, Molly Van Appledorn, Angus Vaugh, Faith Fitzpatrick, Robert Jacobson, Jess LeRoy,*
***USACE**: Lucie Sawyer, Mike Dougherty, Karen Hagerty, Jon Hendrickson, Keith LeClaire, Brian Markert, Dan McBride, Kaileigh Scott*
***UMRBA**: Kirsten Wallace*
***MN DNR**: Neil Rude*
***WI DNR**: Jeff Janvrin, John Kalas*
***IA DNR**: Kirk Hansen*
***MDC**: Dave Herzog*
***UW La Crosse**: Colin Belby*

## Main proposal topics

***Hydrogeomorphic model validation***

1. How well does the automated mapping methods capture channel and floodplain landforms and change in the UMRS and does performance vary spatially?
2. Do human induced change to geomorphic features influence rates or location of change?

**Topographic and bathymetric systemic data updates and maintenance**

1. What are the science and management needs of topography/bathymetry and best practice of updating this large systemic dataset?

**Evaluating LOCA-VIC-MizuRoute Hydrologic Products for UMRR Use (Future Hydrology*)***

1. Is the LOCA-VIC-MizuRoute hydrologic data product reliable for applications to the UMRS?
2. In what ways, if any, is the hydrologic regime of the UMRS projected to vary under different climate emissions scenarios?
3. What is the Certainty of any projected variations in hydrologic regime, and does that change depending on location within the UMRS?

## Macroinvertebrates

***Group members***

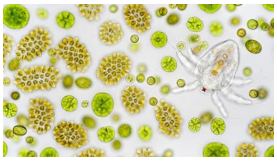
**INHS –** Jim Lamer, Lori Gittinger
**MDC:** Molly Sobotka
**MNDNR:** Steve DeLain
**WIDNR:** Shawn Giblin
**IADNR:** Scotty Gritters
**UMESC -** Teresa Newton, Tony Francis
**FWS –** Lauren Larson, Sara Schmuecker
**UW-LAX –** Ross Vander Horste

## Main proposal topics

- Assess long term changes and spatial patterns in macroinvertebrates using a modified version of LTRM macroinvertebrate sampling
  - Adding additional passive gear (i.e., rock bags/Hester-Dendy) to capture EPT communities for systemic, program-wide comparisons
  - Contaminant tissue analysis (neonics, current-use pesticides)
  - Species-level comprehensive assessment across all RTAs
  - Macroinvertebrate biological index (MBI)

## Nutrients, Phytoplankton, and Harmful Algal Blooms Working Group

- **USGS**: Kathi Jo Jankowski, James Larson, Becky Kreiling, Christopher Churchill, Jennie Sauer, Luke Loken
- **USACE**: Nicole Manasco, Steve Gustafson
- **UMRBA**: Lauren Salvato
- **MN DNR**: Rob Burdis, Nicole Ward
- **WI DNR**: Jeremy King, Madeline Magee
- **IA DNR**: Ashley Johnson
- **Univ.of Wisconsin-Madison**: Rob Mooney
- **Kentucky Wesleyan College**: Jessica Fulgoni



## Main proposal topics

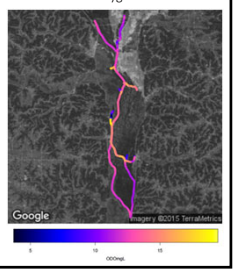
**Long-term trends in phytoplankton communities in the UMRS**

- How have phytoplankton communities changed through time in the main channel of the Upper Mississippi River system?
  - How do long-term trends in phytoplankton communities differ across the longitudinal gradient of the river?
  - How sensitive are communities to changes associated with climate, hydrogeomorphic, and nutrient/sediment trends?
- Are data generated using automated phytoplankton identification equipment (FlowCam) comparable to data generated by microscopy?
  - Is the FlowCam effective at processing old samples? Does storage time affect FlowCam results?
  - Would using the FlowCam be an appropriate strategy for processing new samples? What would be the holding times, preservation requirements, etc.?

**Filling in the gaps with Fast Limnological Automated Measurements (FLAMe)**

- How do select water quality parameters (e.g., chlorophyll, phycocyanin, and turbidity) change longitudinally in the UMR?
- How do select water quality parameters (e.g., chlorophyll, dissolved oxygen, and nitrate) vary across connectivity gradients and flow regimes?
- How do major tributaries influence water quality especially in pools with planned HREPs?

FLAMe measurements of summer dissolved oxygen in Pool 8




## *Water Plants and Water Birds*

**UMESC**: *Danelle Larson, John Delaney, Jen Dieck, Benjamin Finley, Kristen Bouska*

**FWS**: *Steve Winter*

**USACE**: *Dillan Laaker, Eric Hanson, Lane Richter*

**MN DNR**: *Eric Lund*

**WI DNR**: *Stephanie Szura, Alicia Carhart, Jim Fischer*

**IA DNR**: *Seth Fopma*

**INHS**: *Auriel Fournier*

## Main proposal topics

**Wild celery**

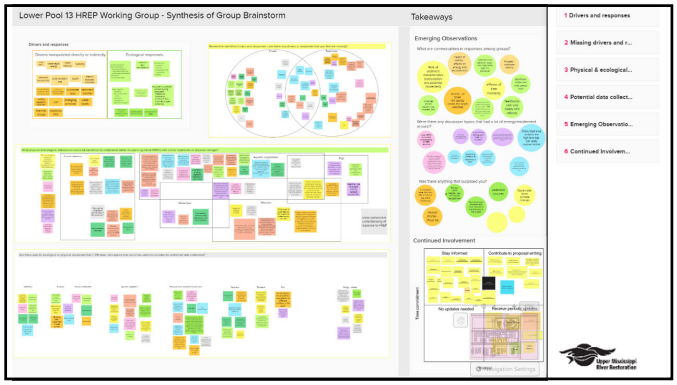
- Identify the range of conditions suitable for wild celery, as well as the limiting factors
- Document response curves of wild celery (e.g., velocity and turbidity thresholds)
- Model wild celery distribution under hypothetical, future scenarios (e.g., drawdowns, HREP features)
- Identify biomass thresholds as HREP targets to achieve resilience

**Quantifying energy provided by aquatic and floodplain plant communities as waterfowl forage over the past 4 decades**

- Assess and map current available energy for waterfowl across the entire UMRS in 6 vegetation community types
- Back-forecast energy predictions over the past four decades to find patterns in energy availability over space and time
- Link energy availability to waterfowl use data

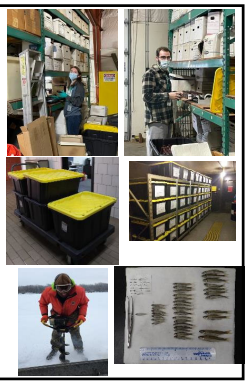
## Lower Pool 13 HREP

- Ecosystem drivers manipulated directly or indirectly
- Anticipated ecological responses
- What's missing?
- What physical and ecological interactions do we need to better understand for planning future HREPS with similar objectives?
- Potential additional data collection?
- Emerging observations?
  - Commonalities among responses?
  - Surprises?
- Continued involvement?




## Other ongoing activities

- Winter WQ sampling
- Processing samples
  - Phytoplankton samples
  - Fish samples
- WQ lab analysis and preparation for temporary move to UW La Crosse during lab renovation
- 2022 Report to Congress
- Implementation Planning



## UMRR Status and Trends Report

1. Entire report has completed publishing network review and is undergoing Center Director review
2. Next:
   1. Bureau Approving Officer review
   2. Desk top publishing (final formatting of report)
   3. Final review of formatted document
   4. Release. (Estimated to be early April)

# UMRR MONITORING AND SCIENCE UPDATE

Karen Hagerty
Rock Island District
23 February 2022





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 <u>together</u> 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



**<u>FULLY FUNDED to date</u>**

**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 FY22



**Science in Support of Restoration and Management**

First priority
- FY22 Science Meeting proposals

## LTRM IMPLEMENTATION PLANNING



## LTRM IMPLEMENTATION PLANNING



Ad Hoc Planning Team:

- LTRM management team
  - (Plumley, Hagerty, Gaikowski, Houser, Sauer)
- Jim Fischer (WI, UMRR CC)
- Matt Vitello (MO, UMRR CC, A-Team)
- Nick Schlesser (MN, A-Team)
- UMRBA (Stephenson, Wallace)

Facilitators:

- Dave Smith, Max Post van der Burg (USGS)

## LTRM IMPLEMENTATION PLANNING



Participants (20):

- LTRM Management team: Houser*, Sauer*, Hagerty*
- USGS: Kristen Bouska, Nate De Jager, Robb Jacobsen
- FWS: Steve Winter, Matt Mangan
- USACE: Davi Michl, Rob Cosgriff
- MN: Nick Schlesser*, Rob Burdis, Neil Rude
- WI: Jim Fischer*, Madeline Magee
- IA: Kirk Hansen
- IL: Jim Lamer
- MO: Matt Vitello* Molly Sobotka
- UMRBA: Andrew Stephenson*

Facilitators:

- Dave Smith, Max Post van der Burg (USGS)

*also on ad hoc team

## LTRM IMPLEMENTATION PLANNING



First meeting: 31 March, 1:00-3:00

At this first meeting, we propose to discuss:

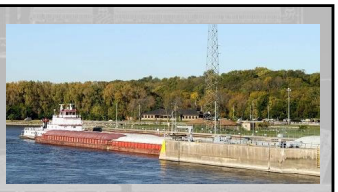
- expectations,
- format of the meetings,
- problem statement,
- logistics

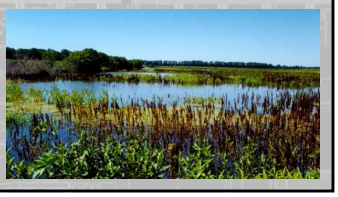
Duration: About 1 year

# NAVIGATION AND ECOSYSTEM SUSTAINABILITY PROGRAM UPDATE

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

UMRR-CC Quarterly Meeting
23 February 2022





US Army Corps of Engineers



## NESP INFRASTRUCTURE INVESTMENT AND JOBS ACT (IIJA) PROJECTS

- The Navigation and Ecosystem Sustainability Program received a construction new start and construction general appropriations on Jan. 19, 2022, through the Infrastructure Investment and Jobs Act. The two projects funded were the Lock 25 1200' Lock and Lock 22 Fish Passage projects at $732M and $97.1M respectively.
- The NESP construction new start and construction appropriations mean that USACE will immediately begin developing a plan for completion of both projects, with a goal to begin construction as quickly as possible.
- The combination of ecosystem and navigation in a single USACE program required many years of coordination with both the navigation and ecosystem partners and it will alter the future of the Upper Mississippi River System (UMRS) to ensure it remains the vital transportation and ecosystem corridor for the next 100+ years.



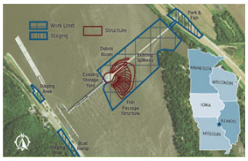
## LOCK 25 NEW 1200' LOCK

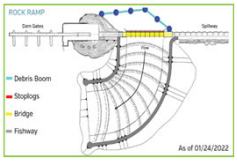
- The Lock 25 new 1200' Lock was fully funded at $732M. This funding will be used to complete design and construct the project. The IIJA waived the Inland Waterways Trust Fund 65%/35% cost-share requirement.
- The primary purpose of the project is to improve efficiency, reliability, and safety for Navigation traffic transiting the facility along with adding additional operational redundancy at Lock 25.
- When complete, the new lock will reduce per lockage times from two and a half hours or more to approximately 45 minutes.




## LOCK AND DAM 22 FISH PASSAGE

- The Lock and Dam 22 fish passage project was funded at $97.1M. This funding will allow for completion of design and initiation of construction.
- The primary purpose of the project is to increase access to upstream mainstem river and tributary habitats. Increased access to upriver habitats will result in an increase in the size and distribution of 30 native migratory fish populations, effectively returning this area of the river to a pre-lock and dam state.
- When complete, the fish passage structure will permanently restore the connection between river pools for native fish species.






## NESP ECOSYSTEM "GROUP 1" PROJECTS

| Project Name | Location | Project Type | River Team | District |
|---|---|---|---|---|
| Andalusia Island Complex | UMR Pool 16 | Backwater Restoration Topographic Diversity Floodplain Restoration Side Channel Restoration | RRCT | MVR |
| Johnson Island | UMR Pool 6 | Backwater Restoration Floodplain Restoration Island & Shoreline Protection | RRF | MVP |
| Liverpool Flowing SideChannel | ILWW - LaGrange | Side Channel Restoration | RRCT | MVR |
| Middle Mississippi River StoneDike Alterations Phase 1 | MMR | Wing Dam/Dike Alteration | RRAT | MVS |
| North-Sturgeon Lake | UMR Pool 3 | Backwater Restoration Topographic Diversity | RRF | MVP |
| Pool 24 Island Restoration -Denmark and Drift Islands Complex | UMR Pool 24 | Backwater Restoration Floodplain Restoration Topographic Diversity Side Channel Restoration Island & Shoreline Protection | RRAT | MVS |
| Pool 25 Side Channels - Clarksville/Carroll Island Complex, Haugens Island/Lower Pool 25 Complex | UMR Pool 25 | Side Channel RestorationDike Alteration | RRAT | MVS |
| Sabula Lakes | UMR Pool 13 | Backwater RestorationIsland Building Island & Shoreline Protection | RRCT | MVR |
| Wacouta Bay | UMR Pool 4 | Backwater Restoration Topographic Diversity Island & Shoreline ProtectionIsland Building | RRF | MVP |
| **Project Name** | **Location** | **Project Type** | **River Team** | **District** |
| Multi-Pool Forest Restoration | UMR Pools 13, 17, 21 | Floodplain RestorationTopographic Diversity | RRCT | MVR |
| Systemic Forest Restoration | UMR Pools 1-10 | Floodplain Restoration | RRF | MVP |
| System Water Level Management – Reduce Water Level Fluctuations | Multiple | Water Level Management - Pool | RRAT | MVS |



## ADDITIONAL CONSTRUCTION READINESS

- **Navigation (Total $2.5M)**
  - Lock 14 Mooring Cell
  - Moore's Towhead Systemic Mitigation
- **Ecosystem (Total $10M)**
  - Pool 2 Wingdam Notching
  - Twin Islands and Alton Pool Island Protection
  - Starved Rock Habitat Restoration and Enhancement
  - Moore's Towhead Systemic Mitigation