

**Hampton Inn Downtown  
St. Paul, Minnesota**

**Upper Mississippi River Restoration Program  
Coordinating Committee**

**Quarterly Meeting**

**August 10, 2022**

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**Agenda  
with  
Background  
and  
Supporting Materials**

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# Upper Mississippi River Restoration Program Coordinating Committee

August 9-10, 2022

## Agenda

### Tuesday, August 9 Partner Quarterly Pre-Meetings

3:30 – 4:45 p.m. Corps of Engineers

3:30 – 4:45 p.m. Department of the Interior

3:30 – 4:45 p.m. States

### Wednesday, August 10 UMRR Coordinating Committee Quarterly Meeting

Time	Attachment	Topic	Presenter
8:00 a.m.		Welcome and Introductions	<i>Brian Chewing, USACE</i>
8:05	A1-A19	Approval of Minutes of May 25, 2022 Meeting	
8:10	B1-B7	Regional Management and Partnership Collaboration <ul style="list-style-type: none"><li>▪ FY 2022 Fiscal Update and FY 2023 Outlook</li><li>▪ 2022 Report to Congress</li><li>▪ Environmental Justice</li><li>▪ Implementation Issues</li></ul>	<i>Marshall Plumley, USACE</i>
9:00		2015-2025 Strategic and Operational Plan Review	<i>Andrew Stephenson, UMRBA</i>
9:20		Break	
9:30		Status and Trends <ul style="list-style-type: none"><li>▪ Report Release</li><li>▪ Media coverage</li><li>▪ Long Rollout</li></ul>	<i>Marshall Plumley, USACE and Jeff Houser, USGS Andrew Stephenson, UMRBA, Sam Heilig, USACE, and Randy Hines, USGS Andrew Stephenson, UMRBA</i>
10:00		Communications <ul style="list-style-type: none"><li>▪ UMRR Communications Team</li><li>▪ External Communications and Outreach Events</li></ul>	<i>Jill Bathke, USACE All</i>

(Continued on next page)

Wednesday, August 10, 2022  
 UMRR Coordinating Committee  
 (Continued)

Time	Attachment	Topic	Presenter
10:30 a.m.		<b>UMRR Showcase Presentations</b> <ul style="list-style-type: none"> <li>▪ LTRM's Spatial Data Component</li> </ul>	<i>Nathan De Jager, USGS</i>
11:00	C1-C3	<b>Program Reports</b> <ul style="list-style-type: none"> <li>▪ Habitat Restoration</li> <li>– District Reports</li> </ul>	<i>District HREP Managers</i>
11:50		<b>Lunch</b>	
12:50 p.m.	C4-C17	<b>Program Reports (Continued)</b> <ul style="list-style-type: none"> <li>▪ Long Term Resource Monitoring and Science</li> <li>– LTRM FY 2022 3rd Quarter Highlights</li> <li>– USACE LTRM Update</li> <li>– A-Team Report</li> <li>– LTRM Implementation Planning Update</li> </ul>	<i>Jeff Houser, USGS</i>  <i>Karen Hagerty, USACE</i> <i>Scott Gritters, IA DNR</i> <i>Jeff Houser and Jennie Sauer, USGS</i> <i>and Karen Hagerty, USACE</i>
1:50		<b>NESP Update</b>	<i>Andrew Goodall, USACE</i>
2:20	D1	<b>Other Business</b> <ul style="list-style-type: none"> <li>▪ Future Meeting Schedule</li> </ul>	
2:30 p.m.		<b>Adjourn</b>	

[NOTE: A site visit to the [Bass Ponds HREP](#) is scheduled for 2:30 to 4:30 p.m. There will be no transportation provided to or returning from the Bass Ponds HREP site.]

**ATTACHMENT A**

**Minutes of the May 25, 2022**  
**UMRR Coordinating Committee Quarterly Meeting**  
*(A-1 to A-19)*

**Minutes of the  
Upper Mississippi River Restoration Program  
Coordinating Committee**

**May 25, 2022  
Quarterly Meeting**

**Virtual Meeting**

Col. Jesse Curry of the U.S. Army Corps of Engineers called the meeting to order at 8:02 a.m. on May 25, 2022. UMRR Coordinating Committee representatives in attendance were Brian Chewning (USACE), Sabrina Chandler (USFWS), Mark Gaikowski (USGS), Chad Craycraft (IL DNR), Randy Schultz (IA DNR), Megan Moore (MN DNR), Matt Vitello (MO DoC), Jim Fischer (WI DNR), and Ken Westlake (USEPA). A complete list of attendees follows these minutes.

**Minutes of the February 23, 2022 Meeting**

Jim Fischer moved and Chad Craycraft seconded a motion to approve the draft minutes of the February 23, 2022 UMRR Coordinating Committee meeting as written. The motion carried unanimously.

**Regional Management and Partnership Collaboration**

Marshall Plumley said UMRR has several ongoing initiatives, including the 2022 UMRR Report to Congress, the third Status and Trends report, developing science proposals as well as project development teams (PDTs) and LTRM field staff working on multiple projects and data collection. Plumley expressed appreciation for the contributions and engagement from all partners.

*FY 2022 Fiscal Update*

Plumley reported that, on March 15, 2022, President Joe Biden signed the FY 2022 Consolidated Appropriations Act that included \$33.17 million for UMRR. Plumley explained that no additional funds were appropriated to UMRR through the Infrastructure Investment and Jobs Act (IIJA) or Corps FY 2022 work plan, released on May 24, 2022. UMRR has obligated over \$16.7 million, or just over 50 percent, of its \$33.17 million FY 2022 funds as of May 1, 2022. Plumley said awarding construction contracts in each district, supporting ongoing day-to-day efforts, and funding science proposals developed during the 2022 science meeting will allow the program to fully obligate its appropriation.

*FY 2023 Fiscal Outlook*

Plumley reported that the President's FY 2023 budget includes \$55 million for UMRR. Of the eight ecosystem restoration projects included in the FY 2023 budget, UMRR received the second highest funding level. The South Florida Ecosystem Restoration (i.e., Everglades) received \$406 million. Plumley said the Administration's support for UMRR is a credit to the partnership and the program's effectiveness. Kirsten Wallace said that the Everglades received considerable funds through IIJA and asked if it would need sustained funding at \$406 million or if that amount funded the project to completion and that funds in outyears could be reapportioned to other ecosystem restoration priorities across the country. Wallace also explained that there may be additional funds in IIJA for ecosystem projects and asked if the Corps would propose UMRR or NESP to receive those funds. Plumley said he would investigate those questions and report back to UMRBA.

The draft FY 2023 plan of work for UMRR at a \$55 million funding scenario is as follows:

- Regional Administration and Program Efforts – \$1,550,000
  - Regional management – \$1,280,000
  - Program database – \$100,000
  - Program Support Contract – \$120,000
  - Public Outreach – \$50,000
- Regional Science and Monitoring – \$15,450,000
  - Long term resource monitoring – \$5,500,000
  - Regional science in support of restoration – \$8,350,000
  - Regional science staff support – \$200,000
  - Habitat evaluation (split across three districts) – \$1,275,000
  - Report to Congress – \$125,000
- Habitat Restoration – \$38,000,000
  - Rock Island District – \$11,148,000
  - St. Louis District – \$13,502,000
  - St. Paul District – \$13,250,000
  - Model certification – \$100,000

Plumley pointed out the most substantial increases to internal program allocations under a \$55 million program. Regional science in support of restoration is scheduled to increase from approximately \$2.5 million to \$8.3 million. Habitat restoration funding in each district is planned to increase from between \$6 million to \$7 million to between \$11 million to \$13 million. Funding for LTRM base monitoring is planned to be increased from \$5 million to \$5.5 million. The intention of LTRM implementation planning is to prioritize information needs should additional funds be available. In response to a question from Jim Fischer, Plumley said LTRM base monitoring at \$5 million is due to guidance but acknowledged that the FY 2023 budget reflects the need to increase funding for base monitoring to accurately reflect the required effort and associated priorities.

#### *WRDA 2022*

Plumley said the Senate Energy and Public Works Committee’s WRDA 2022 measure includes an annual appropriation authorization increase for UMRR HREPs from \$40 million to \$75 million. With LTRM’s annual authorized appropriation level of \$15 million annually, UMRR’s total annual authorized funding level would be \$90 million. Kirsten Wallace indicated that UMRBA is considering a request for increasing LTRM’s authorized funding in WRDA 2022. Wallace said the UMRR LTRM status and trends report will help underscore the value of long term monitoring and research. Jennie Sauer said LTRM implementation areas of focus include additional component monitoring (e.g., macroinvertebrates) and analysis of existing data as well as expanding monitoring efforts through establishment of new field stations or utilizing roving crews to address gaps across the system. In response to a question from Megan Moore, Jeff Houser said the implementation planning group is broadly evaluating information needs and how to address them most effectively. The group is starting with fundamental information needs not currently being addressed. Stephenson said the planning group specifically acknowledges the \$15 million authorized appropriation amount in its opportunity statement. However, the process and framework are meant to be iterative to accommodate future funding scenarios. Mark Gaikowski said the team may be required to broaden its perspective and increase the rate at which they are developing information needs. Megan Moore agreed and recognized that planning for a new field station would be a

significant undertaking. Karen Hagerty recommended that, during its June 5, 2022 meeting, the implementation planning group discuss if it should consider funding levels above \$15 million and whether doing so might affect the process. Plumley concluded that the original intention for LTRM implementation planning is to focus priorities based on the most pressing information needs. In response to a question from Fischer, Wallace said UMRBA will draft language for the UMRBA Board and UMRR Coordinating Committee to review.

Sabrina Chandler explained that the current budget situation for USFWS along with recent staff departures are severely diminishing the agency's capacity. The agency cancelled the search for a Deputy Refuge Manager to replace Tim Yager and is unable to backfill another position that was primarily focused on HREPs. Chandler said that, although the potential for additional funds is great, the Service is not able to sustain the workload now and discussions are needed about partner capacity and expected workloads under increased program funding scenarios. Wallace said the capacity discussion is important for NESP implementation as well. Kraig McPeck agreed with Chandler and Wallace and suggested expanding the small group currently discussing NESP capacity to address capacity for both programs and how we might think differently about funding challenges to our various agencies to accomplish the work we hope to do. Chad Craycraft echoed concerns over potential capacity issues should both UMRR and NESP received considerable funding. Wallace reiterated two action items to 1) the UMRR Coordinating Committee will evaluate partner resource needs related to executing the program and 2) UMRBA will draft a needs statement for financial support for UMRBA and the states.

In response to a question from Karen Hagerty, Plumley said the House Transportation and Infrastructure Committee WRDA 2022 measure does not include a provision to increase UMRR's annual authorized funding for HREPs. The Senate and House will reconcile their versions in conference. Wallace added that the Senate Environment and Public Works Committee WRDA 2022 version will be considered by the full Senate, creating some space for submitting a request that members can consider supporting. Plumley agreed and said the process in 2020 was similar, with an increase to HREPs being included first and LTRM language added later in the process.

#### *UMRR Ten-Year Plan*

Plumley reported that updates to the UMRR 10-year implementation plan include extending McGregor Lake HREP construction through FY 2024 and extending design schedules for Harlow Island and Oakwood Bottoms HREPs. The 10-year implementation plan includes 24 projects across all three districts and will continue to be refined for outyears as more details and specificity on project schedules become available. Plumley said that, as NESP also builds a portfolio of projects, outyear plans can be cross-referenced to identify resource bottlenecks and opportunities for efficiency. In response to a request from Fischer, Plumley said he will develop a 10-year plan operating under a \$55 million funding scenario. Plumley said every HREP relies on diesel fuel, barges, heavy equipment, and people and that contract awards in the coming months will provide an indication of the effects of inflation and increased costs on project schedules and completion. Increased funding may result in UMRR increasing the pace of project implementation. However, staff capacity for planning projects may be a limitation. Fischer requested that a similar graphic for NESP be developed. The purpose being to communicate the magnitude of anticipated work to implementing partner agencies' leadership. Rachel Hawes confirmed that a similar graphic will be developed for NESP. Hagerty said increased funding will also amplify the need to resolve issues related to PPAs. Stephenson said that, as a reference for scale, the UMRR 10-year plan has 24 projects across multiple fiscal years and NESP calls for starting feasibility on 23 projects every year. Wallace suggested that the UMRR Communications and Outreach Team (COT) explore how to communicate the magnitude and resource needs. Gaikowski suggested, and Plumley agreed, that the UMRR Coordinating Committee have additional discussion regarding whether \$50,000 for public outreach is the appropriate level of funding to support UMRR at its current or future size. Stephenson recalled from previous discussions the need for increased direction from the UMRR Coordinating Committee to the COT on priority activities and products.

### *Acres Restored*

Plumley said the current schedule of HREP implementation would restore over 76,000 acres between FY 2021 and FY 2031. This estimate assumes continued funding levels of \$33.17 million annually. Decreased funding levels would extend the end date for completing projects while increased appropriations could accelerate these restoration activities. The figure is an important communication tool for multiple audiences and will be included in the UMRR 2022 Report to Congress. Plumley reported that Conway Lake, Pool 12 Overwintering, and Ted Shanks were completed in calendar year 2021. These projects extend over 5,590 acres, bringing UMRR's total acres restored to approximately 112,000. Another four projects are anticipated to be completed in 2022 that will collectively add 9,810 acres to UMRR's total restored or improved habitat. UMRR accounted for one-third of the Corps' national goal of 15,000 acres restored in 2021. Ultimately, 115,657 acres were restored through Corps programs nationally with the Everglades completing approximately 100,000 acres.

### *2022 Report to Congress*

Plumley reported that, on May 6, 2022, the UMRR Coordinating Committee met with the authors of the 2022 UMRR Report to Congress. The purpose was to review the 113 partner comments received as well as draft responses to the major comments. Plumley said the report's graphic design and writing are advancing concurrently. The Corps is currently preparing a transmittal package for submitting the report to MVD for its review. A second In-Progress Review (IPR) with MVD and USACE Headquarters is anticipated to occur in early July. Plumley noted that partners can still submit comments as the report remains in draft form.

The report is approximately 15 days behind schedule due to unforeseeable circumstances. However, the report is still anticipated to be delivered to Congress as scheduled. The original schedule included cushion and reducing turnaround time to address comments from USACE headquarters before resubmitting the finalized report will help make up time. In response to a question from Stephenson, Plumley said the report template will allow quick incorporation of finalized text.

Plumley said the Corps will ask partners to submit letters of support by August 15 that would be enclosed within the final report. Fischer and Matt Vitello expressed appreciation for the transparency and ample opportunities for partner input during development of the report. They also thanked the report authors for their contributions. Plumley echoed the appreciation to all report authors and particularly thanked Jill Bathke, Andrew Stephenson, and Jeff Houser for their contributions to the report. In response to a question from Gaikowski, Plumley said a coordinated press release and social media engagements are anticipated in conjunction with submitting the final Report to Congress.

### *Status and Trends Report Release*

Plumley reported the third LTRM status and trends report is anticipated to be released in late June 2022. The UMRR COT, USACE, and USGS are preparing a draft press release. UMRBA staff and the COT are developing common messages and key findings relevant to partner agencies.

### *2015-2025 Strategic and Operational Plan Review*

Stephenson reported that, on September 20, 2021, a survey was distributed to the UMRR partnership at-large regarding the 2015-2025 UMRR Strategic and Operational Plan. The purpose of the survey was to seek input regarding progress achieved since 2015, priorities for the next five years, and the issue areas to include in the 2022 Report to Congress. The survey included questions about respondents' involvement with UMRR and their assessment of UMRR based on the Strategic Plan's four goals. Participants evaluated success criteria for three of the four goals using a five-point Likert-scale from *strongly disagree* to *strongly agree*. Additionally, participants prioritized actions meant to support each



goal also using a five-point scale from *not a priority* to *highest priority*. No success criteria were available for goal 3 – i.e., communications. Preliminary results were briefed to the UMRR Coordinating Committee at its November 17, 2021 quarterly meeting. Stephenson said final results will be presented with *agree* and *strongly agree* response options for success criteria and *not a priority* and *low priority* response options for priority actions combined.

Stephenson reported that a majority of respondents agreed or strongly agreed with each of the following success criteria or indicated the action as a high or highest priority to support each goal:

Goal 1: Enhance habitat or restoration and maintaining a healthier and more resilient UMR ecosystem

- *Success Criteria*
  - Restoration projects provide opportunities for scientific research and inquiry (89%)
  - HREPs enhance the health and resilience of the UMR (85%)
  - UMRR serves as a source of guidance on restoration for similar programs nationally (69%)
  - UMRR is recognized as a premier program in large river restoration (69%)
- *Priority Actions*
  - Centralize HREP data and collect and digitize historic data currently stored in computers and file cabinets (66%)
  - Establish consistent and standardized HREP monitoring (66%)
  - Complete HREP project evaluation reports (PERs) across districts (59%)
  - Define appropriate temporal and spatial scales for determining physical and biotic response of habitat project objectives (56%)

Goal 2: Advance knowledge for restoring and maintaining a healthier and more resilience UMR ecosystem.

- *Success Criteria*
  - Research and monitoring inform restoration and management efforts (84%)
  - UMRR is recognized as a premier program in large river monitoring and science (69%)
  - UMRR serves as a source of guidance on monitoring and science for similar programs nationally (62%)
  - UMRR effectively detects the status and trends of the UMR as related to indicators of ecosystem health and resilience (57%)
- *Priority Action*
  - Connect resilience concepts with ongoing and future restoration work (54%)

Goal 3: Engage and collaborate with other organizations and individuals to help accomplish the UMRR vision.

[Note: no success criteria were available for Goal 3]

- *Priority Action*
  - Link together habitat restoration projects with existing watershed projects and upstream contributors (50%)

#### Goal 4: Utilize a strong, integrated partnership to accomplish the UMRR Vision.

- *Success Criteria*
  - The partnership is supportive of the program and its output (80%)
  - UMRR has a highly engaged regional partnership (79%)
- *Priority Action*
  - Create a narrative around missed-restoration opportunities because of existing policies (57%)

Stephenson said the 2022 UMRR Report to Congress incorporates the insights gained from the survey. A finalized report on the survey results is anticipated to be submitted to the UMRR Coordinating Committee in summer 2022. A meeting will be convened to review and discuss the results. Stephenson requested input from the UMRR Coordinating Committee for any additional analyses – i.e., responses by floodplain reach. Vitello suggested analyzing the Goal 2 success criteria for which most respondents did not agree. In response to a question from Fischer, Stephenson said the dataset could be queried in real time during a future meeting and results would be shown in output tables with percentages.

#### *Implementation Issue Papers*

Stephenson said he submitted to the UMRR Coordinating Committee the first series of implementation issue papers on May 23, 2022. The papers addressed watershed inputs and climate change, federal easement lands, engaging non-traditional project sponsors, and external communications. The second series of papers is anticipated to be submitted in June 2022 that address floodplain regulations, project partnership agreements, and water level management. The UMRR Coordinating Committee is anticipated to meet in mid- to late-July to resolve remaining questions and establish broad consensus on recommended actions.

### **Communications**

#### *UMRR Communications and Outreach Team*

Rachel Perrine reported that, to support the rollout of the third LTRM status and trends report, COT members reviewed key messages and discussed a strategy for disseminating a coordinated press release. COT members were also asked to identify upcoming events that may relate to the report content. The notion being that the key messages from the report could be used in communications related to those other events. In response to questions from Andrew Stephenson and Jim Fischer, Perrine said USACE and USGS communications staff will be the points of contact for media requests. Perrine will ask them about plans to track media inquiries.

Perrine reported that the UMRR COT implemented a 2022 Earth Day social media campaign. The campaign consisted of seven social media posts from April 18 to April 22 as well as a Facebook live ribbon cutting event for Harpers Slough and Conway Lake HREPs. MVR, MVP, UMRBA, and Mississippi River Network collectively reported 20,033 individuals reached on Facebook and 1,492 impressions on Twitter. Other partners who have shared the social media posts have yet to provide metrics information. Fischer said that Wisconsin was able to participate in the social media campaign with the financial support provided to the state. Fischer said he will report on Wisconsin DNR's metrics. Karen Hagerty said the Illinois River Biological Station participated by sharing social media posts. Marshall Plumley said USACE Headquarters shared one of the posts.

In response to a question from Mark Gaikowski, Perrine said numbers were lower for this year's social media campaign than the UMRR 35th anniversary campaign. However, she recognized the additional reach by other partners who have not yet submitted their metrics. Perrine said she does not know how

these numbers compare to Earth Day-related posts by other national ecosystem restoration projects or programs. Perrine said she will provide a template for reporting social media statistics upon request. Sabrina Chandler noted that the USFWS Refuges was unable to participate due to a concurrent internal national level campaign. In response to a question from Chandler, Perrine said “reach” refers to the number of unique users who had one of the posts enter their newsfeed. Chandler said USFWS would typically include a caveat that it is not possible to verify if the person saw it. Stephenson said these social media campaigns are a new way of sharing information about the program and that measuring efficacy of these efforts will be important in the future. He acknowledged that partners are mostly focused on coordinating logistics of shared, multi-agency communications. Stephenson suggested that future social media campaigns also focus on more advanced notice to partner agencies and be scheduled around dates important to the program (e.g., beginning of field sampling) rather than national environmental days that may have higher likelihood of conflict with other campaigns. Col. Curry agreed and said it is important to evaluate these efforts to maximize opportunities and efforts to yield the greatest results and suggested that a good goal would be to see these metrics increase.

Perrine said the COT’s priorities include completing the video series, updating the UMRR Communication and Outreach Plan, and developing an inventory of communication and outreach materials. The updated plan will include goals, key messages, and talking points. It will clearly identify audiences, outreach tactics, spokespersons, agency contacts, past actions, and schedules for future actions. The plan will help identify individual agency needs and support for development of communication products.

The first video highlighting UMRR history and partnership is 508 compliant and available via YouTube (<https://www.youtube.com/watch?v=zy-40NiRuF8>). The second video is in development. It will focus on the success of UMRR through HREPs. Themes of the final two videos are a) UMRR science and b) partners’ vision for UMRR. The communications and outreach materials inventory will serve as a central reference point to reduce duplicative efforts. Stephenson suggested, and Houser agreed, that a central location for photos to support programmatic materials would be very useful in conjunction with the materials inventory. Perrine said the COT will discuss the inventory during its next meeting on June 1, 2022.

#### *Status and Trends Report Strategic Rollout*

Stephenson provided an overview of the UMRR status and trends report long rollout strategy. The purpose is to make the tremendous amount of information in the report accessible to key audiences as well as the interested public. The effort will create digestible pieces and storylines around the content areas included in the report to guide communication activities throughout the year. The UMRR Coordinating Committee members were asked to submit any anticipated or potential activities related to content in the report that their agencies may be involved with during 2022. Several events have been identified from June to December 2022 that may provide opportunities to connect to information from the Status and Trends Report. These include intermittent fish, vegetation, and water quality sampling, fall migration surveys, and MUM-invasive carp sampling and removal efforts among others. Stephenson said the COT will discuss this effort again at the next COT meeting.

Kirsten Wallace said the initial press release was meant as a handshake to media partners and interested public. Throughout the year, a rollout can provide a deeper dive into the report’s findings. Noting that one in four Americans consider themselves a birder or bird hunter, Nat Miller said this is a great opportunity for nonprofit entities to engage in broadening UMRR’s reach. Fischer said the field stations can provide pictures for use in communications products. Gaikowski suggested inviting a reporter to join a fisheries crew during a sampling event and interview the crew. Hagerty noted some field stations (e.g., Illinois River Biological Station) have active social media accounts and are sharing stories and photos that could be expanded upon by the partnership. Gaikowski also noted that crews are active year-round with winter water quality sampling. Stephenson reiterated the value of a central location for

all partners to access properly licensed photos or photos generated from the program's own activities. Hagerty said the 2016 Report to Congress utilized several high quality pictures. She added that HREP teams take photos regularly.

#### *External Communications and Outreach*

Megan Moore reported that Minnesota DNR is working with Viking Cruises to coordinate outreach activities and presentations in Red Wing between July and September. Gaikowski reported that USGS is also working with Viking Cruises to provide similar outreach opportunities.

### **UMRR Showcase Presentations**

#### *MVS HREP Construction Lessons Learned*

Jasen Brown presented the St. Louis District's efforts to document lessons learned from constructing HREPs, focusing on construction efficiency, right-sized designs, and sponsor feedback. The assessment is based on after-action reviews, site visits, and discussions with sponsors from the 10 completed HREPs located in the impounded portions of St. Louis District. These projects collectively benefit over 22,000 acres.

Sponsors provide important understanding of how project features perform over time. MVS project sponsors include Illinois Department of Natural Resources, Missouri Department of Conservation, and USFWS.

Brown said the final report is anticipated to be complete in March 2023. The report will serve as an important reference for new hires and new engineers in MVS and the region and findings will be incorporated into the UMRR Environmental Design Handbook. The MVS staff working on the report include:

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

Brown explained that construction efficiency is important to minimize costs especially as wet environments can create additional challenges for contractors. An example from Ted Shanks HREP was to utilize construction traffic to compact berms. While it has an increased level of risk, it lessens the burden on the construction contractor. Ecosystem projects and flood risk management projects require an assumption of different levels of risk. Flood risk management projects would not accept this level of risk, but it is appropriate for ecosystem projects and reduces project costs.

In response to a question from Andrew Stephenson, Marshall Plumley said MVR has also completed recent PER site visits. Lessons learned will be incorporated into an update of the UMRR Environmental Design Handbook. In response to a question from Jim Fischer, Angela Deen said MVP is focusing on assessing insights for improving HREP construction and design. For example, it is beneficial to integrate team members earlier in project development. Brown agreed that involving team members early in planning is helpful. Brown added that segmenting projects into multiple phases can impact sponsors' O&M responsibilities as well as project operations during subsequent construction phases. Brown said improved communication and inclusion of sponsors in construction contract conversations is also beneficial. Kara Mitvalsky said various lessons learned from HREP implementation are being compiled in a central repository. Mitvalsky requested any additional lessons learned be sent to Plumley and her. Dave Potter said MVP has documented lessons learned across

multiple HREPs in Pools 4 through 9 as part of a collaborative inspection effort in summer 2018 among USACE, Wisconsin DNR, Iowa DNR, Minnesota DNR, USFWS, and UMESC.

### *Aging Fish*

Hae Kim from the Missouri State University presented on the importance of understanding fish community demographics for management of the UMRS. In fish communities, changes in age demographics are likely reflective of environmental conditions throughout the life of the organism and better understanding these changes can provide valuable insights into river conditions. Kim said organisms are regulated by three dynamic rate functions, recruitment, growth, and mortality. Using LTRM fish community data, research objectives are to obtain age estimates across various fish species that collectively encompass broad life-history strategies and trophic levels and that collectively span recreational, commercial, and ecologically important fishes. Quantifying these demographics provides a benchmark for future assessments and insights into the past as it relates to abiotic and biotic river conditions.

Kim provided an overview of a variety of findings from graduate students utilizing LTRM fish community data, as follows:

- Differences were observed in growth and age structure along a longitudinal gradient for channel catfish. Generally, channel catfish were growing slower, but attaining larger sizes and older ages in the northern study reaches. Additionally, there were more erratic recruitment patterns in the upper trend pools.
- Largemouth bass populations across the UMRS have the potential to produce old fish. Ages up to 16 years old were observed.
- Bluegill abundance, growth, and survival have largely been attributed to overwintering habitats. As off-channel, backwater specialists, the abundance and quality of these habitats are likely influencing bluegill growth, age structure, and survival. Persistence and longevity (i.e., up to 9 years of age) of these fish in the northern study reaches is likely related to habitat quality and abundance. The ability of the ecosystem to produce these large old fish is likely reflective of improvements and restoration efforts undertaken by the partnership.
- Gizzard shad represent an important forage fish across the UMRS. As a link to higher trophic levels they play a crucial role in energy and biomass transfer throughout the system. There was variable recruitment observed in the northern study reaches and older individuals in the lower study reaches. In Pools 4 and 8, age structure was largely truncated, and fewer older and larger fish were observed. There is ongoing work to identify factors that may be limiting gizzard shad longevity.
- A freshwater drum collected in 2018 is the oldest aged fish throughout the project at 43 years old. Results should provide valuable additions to the life-history database maintained by the partnership. Long-lived fishes require careful management.

Kim said incorporating age information into the matrix of synergistic relationships observed in the UMRS will improve understanding of the river and aid in measuring observable responses to environmental changes and restoration efforts.

Moreover, this research has afforded many students an opportunity to engage in the scientific process. In doing so, this project is bettering UMRS resources and creating the next generation of scientists and conservationists focused on preserving and maintaining these natural resources. To-date, four graduate students have directly focused their graduate research projects on LTRM fishes. These students are now biologists across the country, working to preserve and protect resources in the way they learned from the UMRS partnership.

Andrew Stephenson expressed appreciation for the emphasis on helping to develop future scientists and noted that more people with a visceral experience in data collection and analysis from UMRP is an excellent way to expand the impact of the program. He added that it underscores the importance of ensuring that LTRM data is accessible for use by everyone. Col. Jesse Curry commended Kim for an excellent presentation and said understanding fish population dynamics can help document the effects of construction of the L&D 22 fish passage project and may help answer questions regarding invasive carp movement. Kim said additional projects focusing on microchemistry and genetics may also help infer fish movement to understand biological response to projects. Jeff Houser commended Kim and expressed appreciation for the broader context through the presentation. Gaikowski suggested recording Kim's presentation in a higher quality format than Webex for posting to the program website.

Gaikowski asked about potential implications associated with increasing winter water temperatures to age structures of largemouth bass, bluegill, and gizzard shad. Kim said availability of suitable overwintering habitats may limit gizzard shad. He noted that largemouth bass had poor growth rates but high longevity in some areas, indicating different duration growing seasons for fish along the river system. Kim also noted that invasive carp have deleterious effects on gizzard shad and other filter feeding organisms.

Hagerty noted that the vital rates project was a product of the 2018 science meeting and that microchemistry was subsequently added to better understand fish populations, isolation, and connection.

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

### *FY 2022 2<sup>nd</sup> Quarter Report*

Jeff Houser reported that accomplishments of the second quarter of FY 2022 include publication of the manuscript, *identifying monitoring information needs that support the management of fish in large rivers*.

Houser reported that, on April 20-22, 2022, the Mississippi River Research Consortium was held in La Crosse. He noted that numerous presentations were provided by LTRM scientists or utilized LTRM data.

Houser said the annual Joint Aquatic Sciences meeting was held on May 16-20, 2022 in Grand Rapids, Michigan. UMESC scientists including Houser, Molly van Appledorn, KathiJo Jankowski, Walter Mooney, John Delaney, and Danelle Larson presented, with one session focused on how collaborations among scientists result in better answers.

Houser reported that all 2021 LTRM data are available online at (<https://umesc.usgs.gov/ltrm-home.html>). The graphical browser includes fisheries data through 2021 and the update for water quality is nearly finished. Vegetation surface maps are updated through 2021. Houser expressed appreciation to Ben Schleifer, LTRM component PIs, and Field Station component specialists for their effort to achieve this milestone.

Houser reported that the LTRM Water Quality Lab participated in the annual Standard Reference Sample Project to evaluate the performance of USGS, cooperator, and contract analytical laboratories that analyze chemical constituents of environmental samples. The Water Quality Lab received excellent results for phosphorous and nitrogen. Houser commended the lab for their excellent ongoing work. In response to a question from Andrew Stephenson, Xiaoli (Shirly) Yuan confirmed that the Water Quality Lab plans to participate in the USGS Standard Reference Sample Project during their temporary placement at UW-La Crosse. Mark Gaikowski said the equipment manufacturers were contracted to move and calibrate the equipment to ensure continuity of high-quality work from the water quality lab.

### *Status and Trends 3<sup>rd</sup> Edition*

Houser reported the USGS Bureau Approval Officer has approved the agency's publication of the third LTRM status and trends report. The report is anticipated to be released on June 21, 2022.

### *2022 Science Meeting*

Houser recalled that the 2022 LTRM Science Meeting was held virtually on February 8-11, 2022. Over 100 people participated in the meeting, representing 17 agencies, organizations, and institutions. The primary goal of the meeting was to develop proposals for consideration in FY 2022. The meeting convened six working groups that met concurrently and produced 13 science proposals representing over \$5 million in proposed work. A special session was held in conjunction with the science meeting for the purposes of evaluating the Lower Pool 13 HREP as a learning opportunity. Houser said a proposal was not generated from that session, but that the discussion and input have been summarized and assembled and will be distributed to meeting participants soon. Proposals that were not selected for funding this year may be considered in future years pending their ability to advance prioritized information needs and available funding.

Houser provided an overview of the proposals developed following the 2022 Science Meeting included below and a detailed description of the four proposals recommended for funding in bold. The full recommended proposals are available here: <https://umrba.org/document/umrr-coordinating-committee-fy22-science-proposals-funding>. [Note: The recommended proposals and subsequent UMRR Coordinating Committee approval is documented in the A-Team Report provided below.]

- Hydrology and geomorphology
  - Evaluating LOCA-VIC-MizuRoute hydrology data products for scientific management applications in the UMRS
  - Scoping and vetting new technology and methods for use in the future hydrographic and topographic surveys: Strategies and recommendations for updating lidar, bathymetry, and detecting geomorphic change.
  - Field validation of automated hydrogeomorphic classification and change mapping in the UMRS Riverscape.
- Macroinvertebrates
  - Assess long term changes and spatial patterns in macroinvertebrates through standardized long-term monitoring.
  - Substrate stability as an indicator of abiotic habitat for the UMR benthic community.
- Water plants and water birds
  - Understanding the distributional potential and limits, environmental thresholds, and biogeomorphic feedbacks of wild celery.
  - Quantifying available energy provided by several aquatic and floodplain plant communities as waterfowl forage over the past four decades.
- UMRS fisheries
  - Biotic and abiotic drivers of recruitment and population growth of UMRS fishes.
- Nutrients, Phytoplankton, and Harmful Algal Blooms

- Filling in the gaps with Fast Limnological Automated Measurements (FLAMe): Spatial patterns in water quality and cyanobacteria across connectivity gradients and flow regimes in the Lower Impounded Reach of the UMR.
  - Putting LTRM’s long-term phytoplankton archive to work to understand ecosystem transitions and improve methodological approaches.
- Floodplain Ecology
- Quantifying Ecosystem Processes in Support of River Restoration and Nutrient Reduction: Interaction of River-Floodplain Connectivity mediated by invasive Reed Canarygrass in the UMRS.
  - Avian use of uncommon forest types of the UMRS: filling knowledge gaps for habitat management.
  - Assessing Forest Development Processes and Pathways in Floodplain Forests along the Upper Mississippi River using Dendrochronology.

### *USACE LTRM Report*

Karen Hagerty said UMRR’s LTRM FY 2022 budget allocation includes \$6.3 million (i.e., \$5.0 million for base monitoring and \$1.3 million for analysis under base) with an additional \$2.5 million available for “science in support of restoration and management.” At the November 17, 2021, quarterly meeting, the UMRR Coordinating Committee endorsed funding of an outstanding balance on LTRM (\$554,097) as well as FY 2022 IWW monitoring (\$32,135) and IWW aerial data collection report (\$25,034). The bulk of science in support of restoration and management funds, approximately \$1.8 million, will go to proposals from the 2022 science meeting.

### *A-Team Report*

Scott Gritters said the A-Team met on April 13, 2022 with the respective principal investigators of the 2022 science proposals as discussed in the LTRM report provided above. The A-Team subsequently met on April 20, 2022 to review and rank the submitted science proposals. Gritters expressed appreciation to all partners involved in the A-Team review process including proposal investigators for the diversity and wealth of knowledge demonstrated in the proposals as well as A-Team members for their substantial time commitment and thoughtful review, Nick Schlessler for improving the ranking excel spreadsheet, Andrew Stephenson for assistance and note taking, and the LTRM Management Team. The A-Team Chair met with the UMRR LTRM Management Team on May 5, 2022 to discuss final recommendations for science proposals. There was consensus on the three highest priority proposals and the group identified an opportunity to fund a fourth proposal. To be able to fund a fourth project, Gritters said the group recommended delaying funding the contaminant portion of the macroinvertebrate proposal until early FY 2023. Delayed funding will have no effect on the timeline of the contaminant work as stated in the proposal. In addition, the delay will allow the macroinvertebrate team to address the comments from the proposal review. Additionally, the fifth highest ranked proposal (i.e., hydroacoustic methods update) will be referred to the LTRM spatial component for methods refinement so that it could be ready for funding in FY 2023, if appropriate. Gritters said that, as the A-Team Chair, he recommends endorsement of funding for the top four ranked science proposals. Hagerty also applauded Schlessler for the improved Excel spreadsheet and said proposal ranking criteria are included on page B-13 of the meeting agenda packet. Hagerty said the associated budget for the recommended proposals are provided on page B-14 of the agenda packet. Hagerty noted that the macroinvertebrate budget does not reflect the recommendation to delay funding for the contaminant portion of the proposed work.



**Science Proposal Endorsement**

Karen Hagerty requested that the UMRR Coordinating Committee consider endorsement of all four science proposals. Megan Moore applauded all submitted proposals for their relevance to UMRR science priorities. Andrew Stephenson clarified that an additional \$115,706 to support the contaminant portion of the macroinvertebrate proposal is anticipated to be funded in FY 2023. Mark Gaikowski acknowledged the common thread of contaminants across many proposals and suggested that a policy be developed regarding UMRR research funding to advance scientific understanding of emerging contaminants similar to the UMRR Invasive Species Policy (2015) linked here: [https://umesc.usgs.gov/ltrmp/documents/2015\\_umrr\\_invasive\\_species\\_policy.pdf](https://umesc.usgs.gov/ltrmp/documents/2015_umrr_invasive_species_policy.pdf). Hagerty recommended looking at contaminants in the context of effects to fish, wildlife, and associated habitat. Jim Fischer and Gaikowski suggested incorporating the discussion into the ongoing LTRM implementation planning process focused on identifying the critical knowledge needs to inform management and rehabilitation. Kirsten Wallace suggested reviewing the 2008 joint workshop among UMRR, NESP, and Clean Water Act staff. Lauren Salvato said the UMRBA Water Quality Executive Committee and Water Quality Task Force are planning to revise the UMR Interstate Water Quality Monitoring Plan. There may be a potential opportunity to utilize LTRM’s research related to emerging contaminants and macroinvertebrates. Salvato noted that there is no baseline monitoring on the river for emerging contaminants.

Matt Vitello moved and Megan Moore seconded a motion to endorse funding the four recommended science proposals at \$1,736,817 in FY 2022 as listed below. The motion carried unanimously.

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

\* An additional \$115,706 to support the contaminant portion of the macroinvertebrate proposal is anticipated to be funded in FY 2023.

Hagerty expressed appreciation to the UMRR Coordinating Committee for its endorsement of the science proposals. Hagerty reported the final FY 2022 LTRM obligations total \$8,707,386, including \$1,736,817 for the science proposals and \$59,303 for facilitators for LTRM implementation planning.

*LTRM Implementation Planning*

Sauer reported that the LTRM implementation planning group held their first meeting on March 31, 2022 and has since held bi-weekly meetings with facilitators. Participants include:

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

Facilitators include Dave Smith and Max Post van der Burg. Both facilitators are USGS staff.

The group drafted an opportunity statement for LTRM under the additional funding to focus the process, as follows: increased funding from \$10.42 million to \$15 million creates an opportunity for new work above base monitoring, analysis, and current research to expand understanding of the UMRS, restoration and management. Portfolios of funding actions that address priority information needs will be developed and reviewed to determine the optimal investment strategy. Draft objectives for implementation planning are to:

- Provide information that is relevant to:
  - Fundamental health and resilience of the UMRS (monitoring objective).
  - Management and restoration of the UMRS (management objective).
  - Respond to emerging issues (responsiveness objective).
- Maximize benefits from information for a given cost (efficiency objective).
- Process objectives (additional considerations): Integrate HREP and LTRM, complement or build upon existing program, and produce LTRM information relevant to partners' priorities.

The current planning focus is to identify information needs including how the information will be used, what will be measured, the geographic extent of the information need, and the primary approach to meet the information need (e.g., additional monitoring, analysis of existing data). Conceptual models from the resilience assessment are being referenced to provide additional structure and a framework for information needs. Future steps will include prioritizing the information needs based on the objectives, perceived uncertainty, and cost. Sauer expressed appreciation for the participants' engagement and energy in the process.

### **Habitat Restoration**

Angela Deen said MVP's planning priorities include Big Lake – Pool 4, Reno Bottoms, and Lower Pool 10. Feasibility planning continues for Big Lake – Pool 4 focusing on formulating alternatives and a site visit is anticipated for June 2, 2022. Reno Bottoms PDT has evaluated cost-benefit results and the Corps has proposed a Tentatively Selected Plan (TSP). The final report for Lower Pool 10 was submitted to MVD on February 28, 2022. Plans and specs for the project kicked off and a site visit is anticipated for July or August. MVP has four projects in construction including Harpers Slough, McGregor Lake, Bass Ponds, and Conway Lake. Harpers Slough is eighty-five percent complete and low water is needed for final grading and seeding in the spring. McGregor Lake is seventy-five percent complete and a contract for Stage 2 is anticipated to be re-advertised in June and awarded in August. Bass Ponds and Conway Lake are both over ninety-seven percent complete. A ribbon cutting ceremony for Bass Ponds is anticipated this summer. All features are physically complete at Conway Lake and willow planting is underway. Deen said there is a good balance of project size and geographic distribution across the district. Deen reported that MVP held an Earth Day dedication event on April 22, 2022, at the Driftless Area Education and Visitors Center in Lansing to celebrate and dedicate the completion of both Harpers Slough and Conway Lake. The Facebook live video stream reached 1,400 individuals and was viewed over 500

times. Conway Lake and McGregor Lake HREPs were featured in an Engineering with Nature publication in Wetland Science and Practice for their ongoing research to evaluate vegetation responses and wetland establishment and function to varying depths and mixes of placed sediment. Future efforts include soil sampling at Capoli Slough HREP. The article can be accessed via this link: [https://ewn.ercd.dren.mil/wp-content/uploads/2022/04/WSP\\_EWN\\_NNBF\\_Berkowitz\\_Hurst\\_2022.pdf](https://ewn.ercd.dren.mil/wp-content/uploads/2022/04/WSP_EWN_NNBF_Berkowitz_Hurst_2022.pdf). Jim Fischer encouraged utilizing LTRM data in planning Pool 4 Big Lake HREP and noted that the program's best opportunities for integration across elements exists with HREPs in trend pools.

Julie Millhollin said MVR's planning priorities include Lower Pool 13, Green Island, Pool 12 Forestry, and Quincy Bay. The Lower Pool 13 PDT completed the tentatively selected plan milestone on May 2, 2022. The Green Island PDT is working on costs, quantities, and benefits for alternatives. The Pool 12 Forestry PDT held a planning workshop on April 25, 2022 to prioritize areas and potential features. The Quincy Bay PDT is working on measures and is planning a public open house on August 18, 2022. MVR's design priorities are Steamboat Island Stages I and II. Design of Steamboat Stage I is complete and awaiting available funding. Design of Steamboat Stage II began and a site visit was held on May 17, 2022. 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 I has paused work due to an eagle in a nest and may resume work in July. The contractor at Keithsburg Division Stage II is placing material for a storage building. ERDC will assess aquatic vegetation plantings in late-June, July and September at Huron Island Stage III. A video ribbon cutting is being planned for Huron Island. The contractor at Beaver Island will complete minor grading and seeding in the spring. MVR is working to address sponsor comments on the Upper Pool 13 fact sheet.

Brian Markert said MVS's planning priorities include West Alton Islands and Yorkinut Slough with a TSP for Yorkinut Slough anticipated in the fourth quarter of FY 2022. 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 2022. Harlow Island Stage 2 plans and specs are anticipated to be completed and ready to advertise in late FY 2022, 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 first quarter of FY 2023. MVS has three projects in construction. Construction at Crains Island Stage 1 is anticipated to be complete in the third quarter of FY 2022. Construction of a rock structure at Piasa & Eagles Nest is ongoing. The new pump station at Clarence Cannon is operational and modifications to the channel will occur in the third quarter of FY 2022. 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. In response to a question from Stephenson, Markert said new refuge managers have precipitated discussions of potential future HREP fact sheets. Plumley said the program wide HREP selection process was envisioned to occur on a five-year basis, but should the program receive additional funds that would advance project completion, a new process may be needed sooner.

### **Navigation and Ecosystem Sustainability Program**

Andrew Goodall provided a status update on the two NESP projects funded through 2022 Infrastructure Investment and Jobs Act.

- A project delivery team was established for the new 1,200-foot lock at L&D 25. An initial construction contract award is anticipated in FY 2022. Coordination with the construction industry will begin on June 15, 2022.
- A scope of work is being developed to complete the design of the L&D 22 fish passage project. A contract for design activities is anticipated to be awarded in FY 2022. Pre-project fish monitoring activities are anticipated to begin soon. Fish tags are being procured.

Goodall reported that NESP partners held a successful in-person meeting in the Quad Cities on April 26-28, 2022. A draft meeting summary is being reviewed by attendees and will be discussed at the next meeting of NESP's implementing member agencies on June 6, 2022. NESP partners emphasized shared accountability for federal and state partners for program implementation. Goodall said he will send a request to partners regarding resource needs to support NESP activities.

Goodall reported that, on May 24, 2022, the Corps announced that it allocated an additional \$12.1 million to NESP through its FY 2022 work plan, bringing NESP's the total FY 2022 funding level to \$57.2 million. FY 2022 funds will support the following activities:

- Navigation (\$39.2 million)
  - Construction contracts for Lock 14 mooring cell and Moore's Towhead Systemic Mitigation.
  - Begin feasibility on three to seven new systemic mitigation projects.
  - Begin industry coordination on small-scale navigation efficiency measures – mooring cells and switchboats. An initial meeting is anticipated for June 29, 2022 in St. Louis.
  - Design of La Grange 1,200' lock.
  
- Ecosystem (\$18 million)
  - Construction contracts for Twin Island, Alton Pool, Pool 2 Wingdam Notching, and Starved Rock.
  - Begin feasibility for the following ecosystem projects:
    - Wacouta Bay (MVP)
    - North-Sturgeon Lake (MVP)
    - Sabula Lakes Pool 13 (MVR)
    - Andalusia Island Complex Pool 16 (MVR)
    - Middle Miss Stone Dike Alterations Phase 1 (MVS)
    - Pool 24 Island Restoration – Denmark and Drift (MVS)
    - Multi-Pool Forest Restoration (MVR or MVP)
    - Systemic Water Level Management (MVS, MVR, MVP)

In response to questions from Matt Vitello and Kirsten Wallace, Goodall said the FY 2022 Corps work plan provided funds for systemic and site-specific mitigation projects. Of the additional funding, \$7.91 million is allocated from the Treasury and \$4.262 million from the Inland Waterways Trust Fund. In response to a question from Mark Gaikowski, Goodall said additional programmatic priorities such as adaptive management will be advanced. Goodall noted that a next step for the partnership is to determine the composition of an adaptive management team.

## **Other Business**

Upcoming quarterly meetings are as follows:

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

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

Sabrina Chandler reiterated her appreciation for partners' patience as USFWS Refuges are understaffed for the foreseeable future.

With no further business, Chad Craycraft moved and Matt Vitello seconded a motion to adjourn the meeting. The motion carried unanimously, and the meeting adjourned at 2:43 p.m.

**UMRR Coordinating Committee Virtual Attendance List  
May 25, 2022**

**UMRR Coordinating Committee Members**

Brian Chewning	U.S. Army Corps of Engineers, MVD
Sabrina Chandler	U.S. Fish and Wildlife Service, UMR Refuges
Mark Gaikowski	U.S. Geological Survey, UMESC
Chad Craycraft	Illinois Department of Natural Resources
Randy Schultz	Iowa Department of Natural Resources
Megan Moore	Minnesota Department of Natural Resources
Matt Vitello	Missouri Department of Conservation
Jim Fischer	Wisconsin Department of Natural Resources
Ken Westlake	U.S. Environmental Protection Agency, Region 5

**Others In Attendance**

Jim Cole	U.S. Army Corps of Engineers, MVD
Thatch Shepard	U.S. Army Corps of Engineers, MVD
Leann Riggs	U.S. Army Corps of Engineers, MVD
Jim Lewis	U.S. Army Corps of Engineers, MVD
Angela Deen	U.S. Army Corps of Engineers, MVP
Jill Bathke	U.S. Army Corps of Engineers, MVP
David Potter	U.S. Army Corps of Engineers, MVP
Kim Thomas	U.S. Army Corps of Engineers, MVR
Marshall Plumley	U.S. Army Corps of Engineers, MVR
Leo Keller	U.S. Army Corps of Engineers, MVR
Karen Hagerty	U.S. Army Corps of Engineers, MVR
Julie Millhollin	U.S. Army Corps of Engineers, MVR
Davi Michl	U.S. Army Corps of Engineers, MVR
Kara Mitvalsky	U.S. Army Corps of Engineers, MVR
Rachel Perrine	U.S. Army Corps of Engineers, MVR
Andrew Goodall	U.S. Army Corps of Engineers, MVR
Rachel Hawes	U.S. Army Corps of Engineers, MVR
Casey Lewis	U.S. Army Corps of Engineers, MVR
Col. Jesse Curry	U.S. Army Corps of Engineers, MVS
Brian Markert	U.S. Army Corps of Engineers, MVS
Jasen Brown	U.S. Army Corps of Engineers, MVS
Brandon Schneider	U.S. Army Corps of Engineers, MVS
Abby Hoyt	U.S. Army Corps of Engineers, MVS
Tyler Jones	U.S. Army Corps of Engineers
Joe Summerlin	U.S. Environmental Protection Agency, Region 7
Steve Schaff	U.S. Environmental Protection Agency, Region 7
Sara Schmuecker	U.S. Fish and Wildlife Service, IIFO
Lauren Larson	U.S. Fish and Wildlife Service, IIFO
Matt Mangan	U.S. Fish and Wildlife Service, IIFO
Kraig McPeck	U.S. Fish and Wildlife Service, UMR Refuges
Sharonne Baylor	U.S. Fish and Wildlife Service, UMR Refuges
Laura Muzal	U.S. Fish and Wildlife Service
Jeff Houser	U.S. Geological Survey, UMESC
Jennie Sauer	U.S. Geological Survey, UMESC
Jennifer Dieck	U.S. Geological Survey, UMESC
Kristen Bouska	U.S. Geological Survey, UMESC
Danelle Larson	U.S. Geological Survey, UMESC
Dave Glover	Illinois Department of Natural Resources

Jim Lamer	Illinois Natural History Survey
Scott Gritters	Iowa Department of Natural Resources
Kirk Hansen	Iowa Department of Natural Resources
Steve Galarneau	Wisconsin Department of Natural Resources
Lindsay Brice	Audubon
Nat Miller	Audubon
Tom Poer	HNTB
Rick Stoff	<i>Our Mississippi</i>
Hae Kim	Missouri State University
Kirsten Wallace	Upper Mississippi River Basin Association
Andrew Stephenson	Upper Mississippi River Basin Association
Mark Ellis	Upper Mississippi River Basin Association
Lauren Salvato	Upper Mississippi River Basin Association
Natalie Lenzen	Upper Mississippi River Basin Association

## **ATTACHMENT B**

### **Regional Management and Partnership Collaboration**

- **UMRR Quarterly Budget Reports (7/21/2022)** *(B-1 to B-3)*
- **UMRR Ten Year Outlook FY 21 – FY 31 (7/21/2022)** *(B-4 to B-7)*



# UMRR Quarterly Budget Report: St. Paul District

FY2022 Q3; Report Date: Mon Jul 18 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	\$187,398
Conway Lake	-	\$7,413,000	\$7,413,000	-	\$200,000	\$200,000	-\$439,973
Harpers Slough	-	\$13,675,000	\$13,675,000	-	\$2,400,000	\$2,400,000	-\$48,578
Lower Pool 10 Island and Backwater Complex	-	\$17,000,000	\$17,000,000	\$93,793	\$350,000	\$443,793	\$106,885
Lower Pool 4, Big Lake	-	-	-	-	\$10,000	\$10,000	\$245,028
McGregor Lake	-	\$23,550,000	\$23,550,000	-	\$3,118,000	\$3,118,000	\$1,004,280
Reno Bottoms	-	\$10,000,000	\$10,000,000	\$52,323	\$365,000	\$417,323	\$281,927
<b>Total</b>	-	\$77,938,000	\$77,938,000	\$146,116	\$6,718,000	\$6,864,116	\$1,336,967

## Habitat Rehabilitation

Subcategory	FY2022 Financials			
	Carry In	Allocation	Funds Available	Obligations
District Program Management	-	-	-	\$546,449
<b>Total</b>	-	-	-	\$546,449

## Regional Program Administration

Subcategory	FY2022 Financials			
	Carry In	Allocation	Funds Available	Obligations
Habitat Eval/Monitoring	-	-	-	\$225,364
<b>Total</b>	-	-	-	\$225,364

	Carry In	Allocation	Funds Available	Actual Obligations
<b>St. Paul Total</b>	\$146,116	\$6,718,000	\$6,864,116	\$2,108,780

# UMRR Quarterly Budget Report: Rock Island District

FY2022 Q3; Report Date: Mon Jul 18 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	\$139,858
Green Island, IA	-	\$16,600,000	\$16,600,000	\$12	\$500,000	\$500,012	\$520,050
Huron Island	-	\$15,773,000	\$15,773,000	-	\$160,000	\$160,000	\$35,858
Keithsburg Division	-	\$29,643,000	\$29,643,000	\$19,488	\$3,829,000	\$3,848,488	\$545,779
Lower Pool 13	-	\$25,288,000	\$25,288,000	\$1,039	\$600,000	\$601,039	\$589,056
Pool 12 (Forestry)	-	-	-	\$88,200	\$500,000	\$588,200	\$371,135
Pool 12 Overwintering	-	\$20,870,822	\$20,870,822	-	-	-	<b>-\$9,059</b>
Quincy Bay, IL	-	-	-	\$2,947	\$500,000	\$502,947	\$386,061
Rice Lake, IL	\$7,280,000	\$13,459,763	\$20,739,763	\$118,025	-	\$118,025	\$5,520
Steamboat Island	-	\$41,977,000	\$41,977,000	-	\$325,000	\$325,000	\$320,225
<b>Total</b>	<b>\$7,280,000</b>	<b>\$188,899,585</b>	<b>\$196,179,585</b>	<b>\$229,711</b>	<b>\$7,502,000</b>	<b>\$7,731,711</b>	<b>\$2,904,483</b>

## Habitat Rehabilitation

Subcategory	FY2022 Financials			
	Carry In	Allocation	Funds Available	Obligations
District Program Management	-	-	-	\$391,267
<b>Total</b>	-	-	-	<b>\$391,267</b>

## Regional Program Administration

Subcategory	FY2022 Financials			
	Carry In	Allocation	Funds Available	Obligations
Adaptive Management	-	\$200,000	\$200,000	\$50,503
Habitat Eval/Monitoring	\$96	\$1,125,000	\$1,125,096	\$251,421
Model Certification/Regional HREP	-	\$100,000	\$100,000	\$21,985
Public Outreach	-	\$50,000	\$50,000	\$24,669
Regional Program Management	-	\$1,400,000	\$1,400,000	\$889,404
Regional Project Sequencing	-	\$125,000	\$125,000	\$49,689
<b>Total</b>	<b>\$96</b>	<b>\$3,000,000</b>	<b>\$3,000,096</b>	<b>\$1,287,671</b>

## Regional Science and Monitoring

Subcategory	FY2022 Financials			
	Carry In	Allocation	Funds Available	Obligations
Long Term Resource Monitoring	-	\$5,000,000	\$5,000,000	\$4,335,920
Science in Support of Restoration/Management	-	\$3,800,000	\$3,800,000	\$3,648,992
<b>Total</b>	-	<b>\$8,800,000</b>	<b>\$8,800,000</b>	<b>\$7,984,912</b>

	Carry In	Allocation	Funds Available	Actual Obligations
<b>Rock Island Total</b>	<b>\$229,807</b>	<b>\$19,302,000</b>	<b>\$19,531,807</b>	<b>\$12,568,333</b>

# UMRR Quarterly Budget Report: St. Louis District

FY2022 Q3; Report Date: Mon Jul 18 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	\$238,161
Crains Island	-	\$36,562,000	\$36,562,000	\$28,498	\$1,900,000	\$1,928,498	\$370,197
Harlow Island	-	\$37,971,000	\$37,971,000	-	\$325,000	\$325,000	\$16,761
Oakwood Bottoms	-	\$29,000,000	\$29,000,000	-	\$675,000	\$675,000	\$799,105
Piasa - Eagle's Nest Islands	-	\$26,746,000	\$26,746,000	-	\$2,575,000	\$2,575,000	\$3,494,399
West Alton Missouri Islands	-	-	-	-	\$450,000	\$450,000	\$240,116
Yorkinut Slough, IL	-	\$8,500,000	\$8,500,000	\$9,343	\$425,000	\$434,343	\$316,247
<b>Total</b>	-	\$168,579,000	\$168,579,000	\$37,841	\$7,150,000	\$7,187,841	\$5,474,986

## Habitat Rehabilitation

Subcategory	FY2022 Financials			
	Carry In	Allocation	Funds Available	Obligations
District Program Management	-	-	-	\$393,760
<b>Total</b>	-	-	-	\$393,760

## Regional Program Administration

Subcategory	FY2022 Financials			
	Carry In	Allocation	Funds Available	Obligations
Habitat Eval/Monitoring	-	-	-	\$271,091
<b>Total</b>	-	-	-	\$271,091

	Carry In	Allocation	Funds Available	Actual Obligations
<b>St. Louis Total</b>	\$37,841	\$7,150,000	\$7,187,841	\$6,139,837

	FY21	FY22	FY23	FY 24	FY 25	FY 26	FY 27	FY 28	FY 29		FY 31
Habitat Rehabilitation and Enhancement Projects							2027	October 2027 - September 2028	October 2028 - September 2029	October 2029 - September 2030	October 2030 - September 2031
Conway Lake, IA											
Bass Ponds, Marsh & Wetland, MN											
McGregor Lake, WI											
Harpers Slough Flood Damage Repair											
Lower Pool 10 Islands, IA											
Reno Bottoms, MN/IA											
Lower Pool 4, Big Lake, MN/WI											
TBD, MVP											
TBD MVP											
Rice Lake Stage I											
Pool 12 Stage II & III											
Huron Island Stage II & III											
Keithsburg											
Steamboat Island, IA											
Beaver Island Stage I & II											
Lower Pool 13											
Green Island, IA											
Pool 12 Forestry											
Quincy Bay, IL											
Lower Pool 13 Phase II											
TBD, MVR											
TBD, MVR											
Ted Shanks, MO											
Clarence Cannon NWR, MO											
Piasa and Eagles Nest, IL											
Crains Islands, IL											
Harlow, MO											
Oakwood Bottoms, IL											
Yorlut Slough, IL											
West Alton, MO Islands											
TBD, MVS Gilead Slough, IL											
TBD, Reds Landing, IL											
TBD, MVS											
	Feasibility Completion = 1	Feasibility Completion = 1	Feasibility Completion = 3	Feasibility Completion = 4	Feasibility Completion = 2	Feasibility Completion = 4	Feasibility Completion = 2	Feasibility Completion = 1	Feasibility Completion = 0	Feasibility Completion = 0	Feasibility Completion = 0
	Design Completion = 1	Design Completion = 1	Design Completion = 1	Design Completion = 3	Design Completion = 3	Design Completion = 4	Design Completion = 3	Design Completion = 3	Design Completion = 2	Design Completion = 0	Design Completion = 0
	Construction Completion = 3	Construction Completion = 4	Construction Completion = 0	Construction Completion = 1	Construction Completion = 1	Construction Completion = 1	Construction Completion = 2	Construction Completion = 3	Construction Completion = 5	Construction Completion = 5	Construction Completion = 3
<b>HREP M&amp;AM/Sponsor O&amp;M Phase(2)</b>											
(2) Physical features are turned over to the sponsor at construction completion for Operation & Maintenance. Monitoring & Adaptive Management activities will begin (WRDA 2039; as amended) and per the Feasibility Report.											
											October 2030 - September 2031
Adaptive Management											
Habitat Evaluation & Monitoring											
Long Term Resource Monitoring											
Model Certification/Regional HREP											
Public Outreach											
Regional Program Management											
Regional Project Sequencing											
Science in Support of Restoration/Mgmt.											

	FY21	FY22	FY23	FY 24	FY 25	FY 26	FY 27	FY 28	FY 29	FY 30	FY 31
Habitat Rehabilitation and Enhancement Projects	October 2020 - September 2021	October 2021 - September 2022	October 2022 - September 2023	October 2023 - September 2024	October 2024 - September 2025	October 2025 - September 2026	October 2026 - September 2027	October 2027 - September 2028	October 2028 - September 2029	October 2029 - September 2030	October 2030 - September 2031
<b>St. Paul District</b>											
Conway Lake, IA											
Bass Ponds, Marsh & Wetland, MN											
McGregor Lake, WI											
Harpers Slough Flood Damage Repair											
Lower Pool 10 Islands, IA											
Reno Bottoms, MN/IA											
Lower Pool 4, Big Lake, MN/WI											
TBD, MVP											
TBD MVP											

Habitat Rehabilitation and Enhancement Projects	FY 24										FY 31	
					October 2023 - September 2024							October 2030 - September 2031
Rice Lake Stage I												
Pool 12 Stage II & III												
Huron Island Stage II & III												
Keithsburg												
Steamboat Island, IA												
Beaver Island Stage I & II												
Lower Pool 13												
Green Island, IA												
Pool 12 Forestry												
Quincy Bay, IL												
Lower Pool 13 Phase II												
TBD, MVR												
TBD, MVR												

	FY21	FY22	FY23	FY 24	FY 25	FY 26	FY 27	FY 28	FY 29	FY 30	FY 31
Habitat Rehabilitation and Enhancement Projects	October 2020 - September 2021	October 2021 - September 2022	October 2022 - September 2023	October 2023 - September 2024	October 2024 - September 2025	October 2025 - September 2026	October 2026 - September 2027	October 2027 - September 2028	October 2028 - September 2029	October 2029 - September 2030	October 2030 - September 2031
St. Louis District											
Ted Shanks, MO											
Clarence Cannon NWR, MO											
Piasa and Eagles Nest, IL											
Crains Islands, IL											
Harlow, MO											
Oakwood Bottoms, IL											
Yorkinut Slough, IL											
West Alton, MO Islands											
TBD, MVS Gilead Slough, IL											
TBD, Reds Landing, IL											
TBD, MVS											

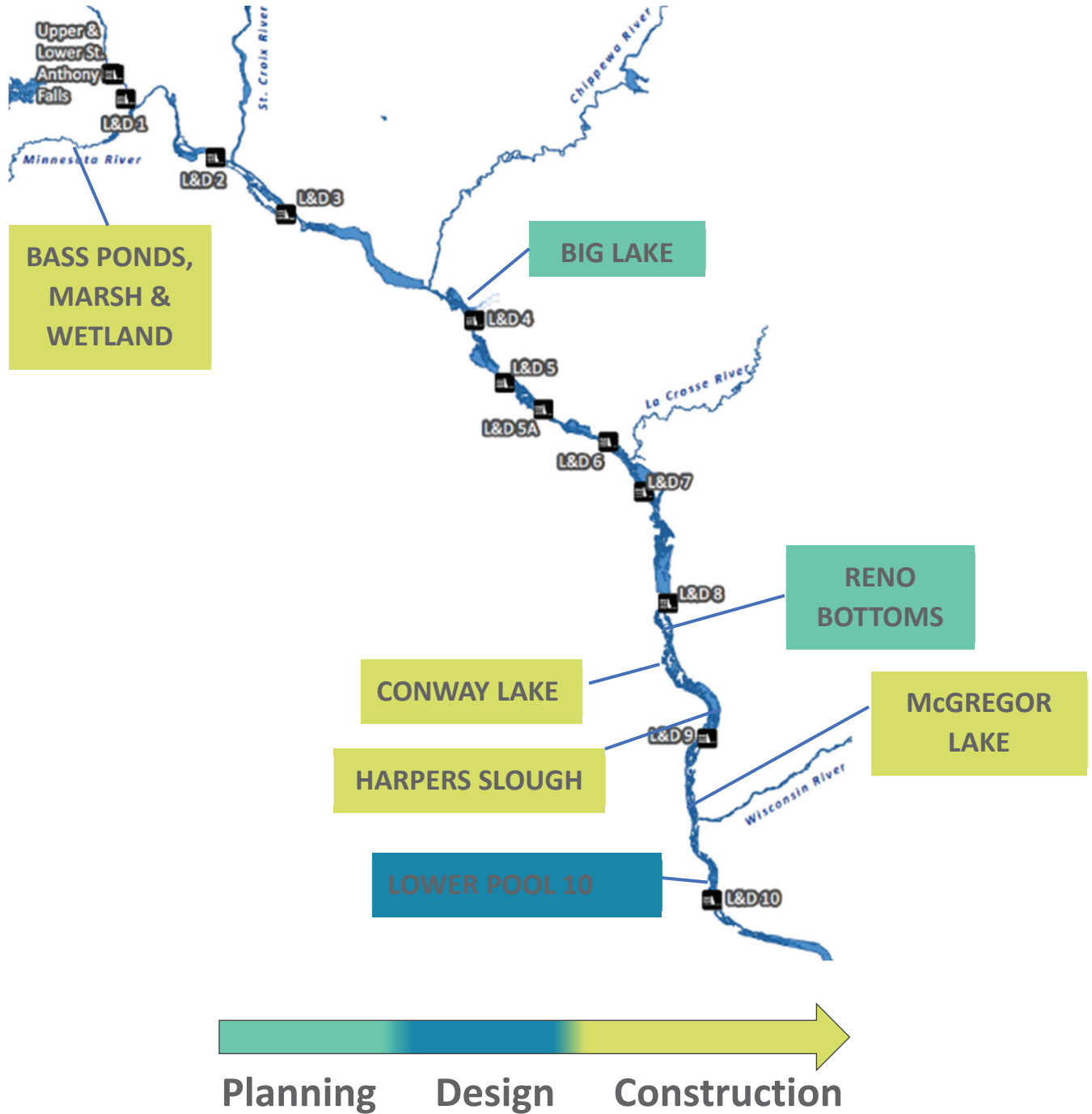
## **ATTACHMENT C**

### **Program Reports**

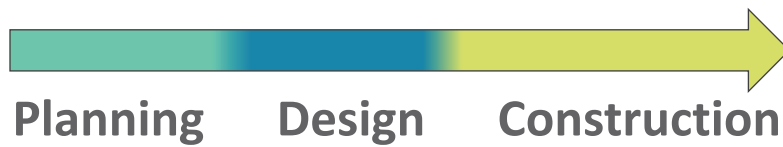
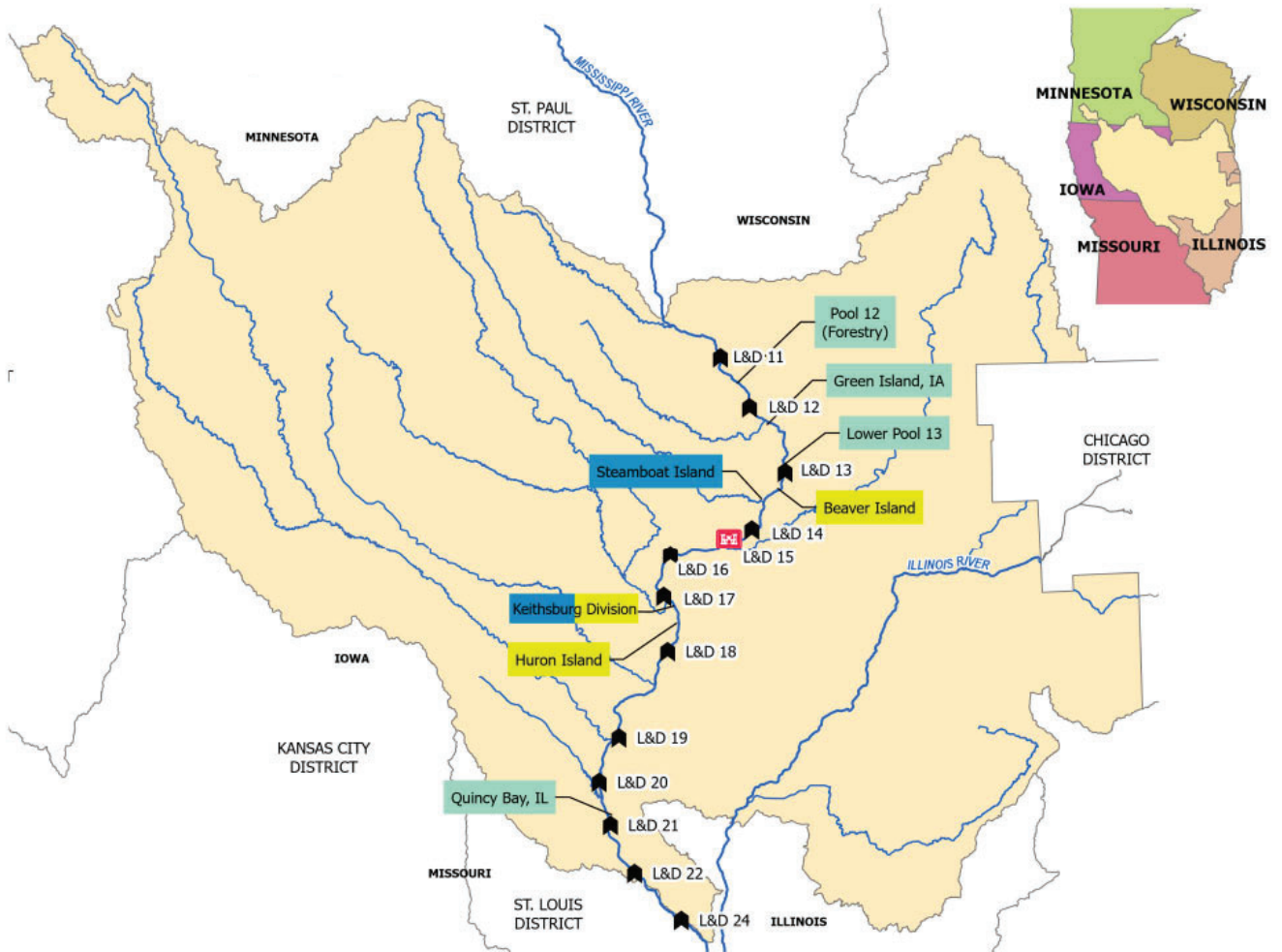
- **Habitat Restoration**
  - **District HREP Status** *(C-1 to C-3)*
  
- **Long Term Resource Monitoring and Science**
  - **Base Monitoring Scope of Work thru 3rd Quarter of FY 2022 (7/15/2022)** *(C-4 to C-7)*
  
  - **FY 2022 UMRR Science Activities in Support of Restoration and Management (7/15/2022)** *(C-8 to C-16)*
  
  - **FY 2014 and FY 2015 UMRR Science Activities in Support of Restoration and Management (7/26/2022)** *(C-17)*



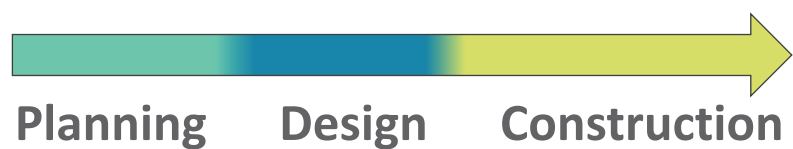
# ST. PAUL DISTRICT CURRENT HREP PROJECTS



# ROCK ISLAND DISTRICT CURRENT HREP PROJECTS



# ST. LOUIS DISTRICT CURRENT HREP PROJECTS



Upper Mississippi River Restoration  
Long Term Resource Monitoring Element  
FY2022 Base Scope of Work

Tracking number	Milestone	Original Target Date	Modified Target Date	Date Completed	Comments	Lead
<b>Aquatic Vegetation Component</b>						
2022A1	Complete data entry and QA/QC of 2021 data; 1250 observations.					
	a. Data entry completed and submission of data to USGS	30-Nov-2021		30-Nov-2021		Lund, Carhart, Fopma
	b. Data loaded on level 2 browsers	15-Dec-2021		15-Dec-2021		Schlifer
	c. QA/QC scripts run and data corrections sent to Field Stations	28-Dec-2021		28-Dec-2021		Sauer, Schlifer
	d. Field Station QA/QC with corrections to USGS	15-Jan-2022		15-Jan-2022		Lund, Carhart, Fopma
	e. Corrections made and data moved to public Web Browser	30-Jan-2022		30-Jan-2022		Larson, Schlifer, Caucutt
2022A2	Web-based: Creating surface distribution maps for aquatic plant species in Pools 4, 8, and 13; 2021 data	31-Jul-2022				Larson, Schlifer
2022A3	Wisconsin DNR annual summary report 2021 that combines current year observations from LTRM with previous years' data, for the fish, aquatic vegetation, and water quality components.	30-Sep-2022				Bartels, Hoff, Kalas, Carhart
2022A4	Complete aquatic vegetation sampling for Pools 4, 8, and 13 (Table 1)	31-Aug-2022				Lund, Carhart, Fopma
2022A5	Pool 4: Graphical summary and maps of aquatic vegetation current status and long-term trends.	30-Dec-2022				Lund
2022A6	Pool 8: Graphical summary and maps of aquatic vegetation current status and long-term trends.	30-Dec-2022				Carhart
2022A6	Pool 13: Graphical summary and maps of aquatic vegetation current status and long-term trends.	30-Dec-2022				Fopma
<b>Intended for distribution</b>						
Manuscript: Estimated annual summer submersed aquatic macrophyte standing stocks (1998 - 2018) in three large reaches of the Upper Mississippi River. (2020A8; accepted by <i>Journal of Fish and Wildlife Management</i> , IP-122160)						
<b>Fisheries Component</b>						
2022B1	Complete data entry, QA/QC of 2021 fish data; ~1,590 observations					
	a. Data entry completed and submission of data to USGS	31-Jan-2022		31-Jan-2022		DeLain, Dawald, Bartels, Hine, Kueter, Gittinger, West, Solomon, Maxson
	b. Data loaded on level 2 browsers; QA/QC scripts run and data corrections sent to Field Stations	15-Feb-2022		15-Feb-2022		Ickes, Schlifer
	c. Field Station QA/QC with corrections to USGS	15-Mar-2022		15-Mar-2022		DeLain, Dawald, Bartels, Kueter, Hine, Gittinger, West, Solomon, Maxson
	d. Corrections made and data moved to public Web Browser	30-Mar-2022		30-Mar-2022		Ickes and Schlifer

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Upper Mississippi River Restoration  
Long Term Resource Monitoring Element  
FY2022 Base Scope of Work

Tracking number	Milestone	Original Target Date	Modified Target Date	Date Completed	Comments	Lead
2022B2	Update Graphical Browser with 2021 data on Public Web Server.	31-May-2022		31-May-2022		Ickes and Schlifer
2022B3	Complete fisheries sampling for Pools 4, 8, 13, 26, the Open River Reach, and La Grange Pool (Table 1)	31-Oct-2022				DeLain, Dawald, Bartels, Kueter, Hine, Gittinger, West, Solomon, Maxson
2022B4	IDNR Fisheries Management State Report: Fisheries Monitoring in Pool 13, Upper Mississippi River, 2020-2021. Includes Pool 12 Overwintering HREF Adaptive Management Fisheries Response	30-Jun-2022		30-Jun-2022		Kueter
2022B5	Sample collection, database increment on Asian carp age and growth: collection of cleithral bones	31-Jan-2022		31-Jan-2022		Solomon, Maxson
2022B8(D)	Database increment: Stratified random day electrofishing samples collected in Pools 9–11	30-Sep-2022				Kueter
2022B9(D)	Database increment: Stratified random day electrofishing samples collected in Pools 16–18	30-Sep-2022				Kueter
<b>Intended for distribution</b>						
LTRM Completion report, compilation of 3 years of sampling: Fisheries (2009R1Fish; Chick et al.) (in USGS review; minor grammatical corrections needed then will be posted on LTRM Fish page)						
Manuscript: A synthesis on river floodplain connectivity and lateral fish passage in the Upper Mississippi River (2021B11; Submitted to USGS review; IP-123678)						
LTRM Fact Sheet: Tree map tool for visualizing fish data, with example of native versus non-native fish biomass (2013B16) (Programming code for TreeMap being re-written; once completed Fact Sheet will be completed)						
<b>Water Quality Component</b>						
2022D1	Complete calendar year 2021 fixed-site and SRS water quality sampling	31-Dec-2021		31-Dec-2021		Jankowski, Burdis, Kalas, Johnson, L. Gittinger, Kellerhals, Sobotka
2022D2	Complete laboratory sample analysis of 2021 fixed site and SRS data; Laboratory data loaded to Oracle data base.	15-Mar-2022		15-Mar-2022		Yuan, Schlifer
2022D3	1st Quarter of laboratory sample analysis (~12,600)	30-Dec-2021		30-Dec-2021		Yuan, Manier, Burdis, Kalas, Johnson, L. Gittinger, Cook, Sobotka
2022D4	2nd Quarter of laboratory sample analysis (~12,600)	30-Mar-2022		30-Mar-2022		Yuan, Manier, Burdis, Kalas, Johnson, L. Gittinger, Kellerhals, Sobotka
2022D5	3rd Quarter of laboratory sample analysis (~12,600)	29-Jun-2022		29-Jun-2022		Yuan, Manier, Burdis, Kalas, Johnson, L. Gittinger, Kellerhals, Sobotka
2022D6	4th Quarter of laboratory sample analysis (~12,600)	28-Sep-2022				Yuan, Manier, Burdis, Kalas, Johnson, L. Gittinger, Kellerhals, Sobotka
2022D7	Complete QA/QC of calendar year 2021 fixed-site and SRS data.					

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Upper Mississippi River Restoration  
Long Term Resource Monitoring Element  
FY2022 Base Scope of Work

Tracking number	Milestone	Original Target Date	Modified Target Date	Date Completed	Comments	Lead
	a. Data loaded on level 2 browsers; QA/QC scripts run; SAS QA/QC programs updated and sent to <u>Field Stations with data.</u>	30-Mar-2022		30-Mar-2022		Schlifer, Jankowski
	b. Field Station QA/QC; USGS QA/QC.	15-Apr-2022		15-Apr-2022		Jankowski, Burdis, Kalas, Johnson, L. Gittinger, Kellerhals, Sobotka
	c. Corrections made and data moved to public Web Browser	30-Apr-2022		30-Apr-2022		Schlifer, Jankowski
2022D8	Complete FY2020 fixed site and SRS sampling for Pools 4, 8, 13, 26, Open River Reach, and La Grange Pool	30-Sep-2022				Jankowski, Burdis, Kalas, Johnson, L. Gittinger, Kellerhals, Sobotka
2022D9	WEB-based annual Water Quality Component Update w/2021 data on Server.	30-May-2022		30-May-2022		Schlifer, Jankowski
2022D10	Operational Support to the UMRR LTRM Element. Serve as in-house Field Station for USGS for consultation and support on various LTRM-wide topics	30-Sep-2022				Kalas, Hoff, Bartel, Carhart
<b>On-Going</b>						
2019D12	Draft LTRM Completion Report: Assessment of Phytoplankton Samples collected by the Upper Mississippi River Restoration Program-Long Term Resource Monitoring Water Quality Component	30-Dec-2019	30-Jul-2022		Lead (Fulgoni) took new position	Jankowski
2020D12	Final LTRM Completion Report: Assessment of Phytoplankton Samples collected by the Upper Mississippi River Restoration Program-Long Term Resource Monitoring Water Quality Component	30-Mar-2021	30-Dec-2022			Jankowski
<b>Intended for distribution</b>						
Completion report, compilation of 3 years of sampling: Water Quality (2009R1WQ; Giblin, Burdis) (in USGS review; minor grammatical corrections needed then will be posted on LTRM WQ page)						
Manuscript: Nutrients and dissolved oxygen in the UMRS: improving our understanding of winter conditions and their implications for structure and function of the river (2014D12; Houser) (under revision)						
<b>Spatial Data Component</b>						
2022SD1	Orthorectification of scanned photos (Rock Island District - Mississippi River)	30-Sep-2022				Strange
2022SD2	Flight Plan Content/Data Pack	31-Dec-2021		31-Dec-2021		Finley
2022SD3	Fact Sheet or website text on UAS Rapid Response Imaging	30-Jun-2022		30-Jun-2022		Finley
2022SD4	Aerial Thermal Application Completion Report	30-Sep-2022				Finley
2022SD5	Spatial Point Repository Tool of UMRS	30-Sep-2022				Finley
2022SD7	Pattern of Wild Rice Colonization and Retreat	30-Sep-2022				Finley
2022SD8	Maintenance ArcGIS server	30-Sep-2022				Fox, Rohweder

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Upper Mississippi River Restoration  
Long Term Resource Monitoring Element  
FY2022 Base Scope of Work

Tracking number	Milestone	Original Target Date	Modified Target Date	Date Completed	Comments	Lead
2022SD9	3D Digital Environment from Aerial Imagery using Structure from Motion Workflow Documentation (Job aid)	31-Mar-2022		31-Mar-2022		Finley
2022LD10	Active Remote Sensing Capability Addition to Crewed Aerial Survey Assets 2022	30-Jun-2022		30-Jun-2022		Finley
2022SD11	Draft Report: Report to Congress Sections	30-Sep-2022				De Jager
2022SD12	Data Set: Land Cover Change in the UMRS Key Pools 1989-2020	30-Sep-2022				De Jager
2022SD13	Final 3D Vegetation Mapping Solution SOP (draft 2021SD2)	31-Mar-2022	8/31/2022		delayed due to shortages of hardware (chips and graphics devices). New technic being explored using an extension for ArcGIS Pro	Finley
2022SD14	Survey Capability and Historic Spatial Database for LCU Mapping in-house report (draft 2021D6)	31-Mar-2022		31-Mar-2022		Finley
<b>On-Going</b>						
2021SD7	Topobathy strategic plan	30-Sep-2022				Strange, De Jager
2021SD10	Draft Report: Evaluating effects of alternative flooding scenarios on forest succession and landcover in the UMRS.	30-Sep-2021	30-Sep-2022		Changing to a manuscript	De Jager
<b>Data Management</b>						
2022M1	Update vegetation, fisheries, and water quality component field data entry and correction applications.	30-May-2022		30-May-2022		Schlifer
2022M2	Load 2021 component sampling data into Database tables and make data available on Level 2 browsers for field stations to QA/QC.	30-Jun-2022		30-Jun-2022		Schlifer
2022M3	Assist LTRM Staff with development and review of metadata and databases in conjunction with publishing of reports and manuscripts	On-going				Schlifer
<b>Status and Trends 3rd edition</b>						
2021ST3	Revised draft to UMESC Center Director and USGS Bureau Approving Official	23-Apr-2021	21-Feb-2022	4-May-2022	Edit text and figures received by USGS Publishing network; final author review on-going	All
2021ST4	Final publication	28-May-2022		21-Jun-2022		All
2020ST4	Draft S&T3 Fact Sheet	TBD			Tied to completion of S&T3	All
<b>Equipment Inventory</b>						
2021ER1	Property inventory and tracking	15-Nov-2022				LTRM staff as needed

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Upper Mississippi River Restoration  
 Long Term Resource Monitoring Element  
 FY2022 Science in Support of Restoration and Management Scope of Work

Tracking number	Milestone	Original Target Date	Modified Target	Date Completed	Comments	Lead
<b>Developing and Applying Indicators of Ecosystem Resilience to the UMRS</b>						
2022R1	Updates provided at quarterly UMRR CC meeting and	Various				Bouska, Houser
2022R2	Submit manuscript that investigates associations between general and specified resilience for peer review publication	30-Sep-2022				Bouska
<b>On-Going</b>						
2021R3	Submit resilience assessment synthesis manuscript for peer review publication	30-Mar-2021	30-Sep-2022			Bouska
2021R4	Submit resilience assessment synthesis fact sheet for	30-Sep-2021	30-Sep-2022			Bouska
2021R5	Submit manuscript that investigates associations between general and specified resilience for peer review publication	30-Sep-2021	31-Dec-2021	31-Dec-2021	Changed from manuscript that investigates associations between general and specified resilience in FY21	Bouska
<b>Landscape Pattern Research and Application</b>						
2022LP1	Data Analysis: 2020 Land Cover Change					Rohweder and De Jager
2022LP2	Data Analysis: Reed canary grass habitat suitability modeling using forestry data, flood inundation metrics, and landscape patterns.	30-Sep-2022				Delaney and Rohweder
2022LP3	Draft Report: Reed canary grass habitat suitability modeling using forestry data, flood inundation metrics, and landscape patterns.	30-Sep-2022				Delaney, De Jager, Van Appledorn, Bouska, Rohweder
<b>On-Going</b>						
2021LP4	Data Development: Developing seasonal aquatic areas maps to support aquatic habitat mapping and	30-Sep-2021	30-Sep-2022			Rohweder
2021LP1	Geospatial analyses in support of the Forest Gap project	30-Aug-2021	30-Sep-2022		Field work for analysis delayed due to Covid-19	Rohweder
Manuscript: Review of Landscape Ecology on the UMR; De Jager; 2016L3						
<b>Eco-hydrologic Research</b>						
2022EH1	Spatial analyses of backwater sedimentation patterns through time to support vulnerability	30-Sep-2022				Van Appledorn, Rohweder, DeJager
2022EH2	Characterization of hydrologic/flooding regimes of non-forested areas to support eco-hydrologic modeling efforts	30-Sep-2022				Van Appledorn

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Upper Mississippi River Restoration  
Long Term Resource Monitoring Element  
FY2022 Science in Support of Restoration and Management Scope of Work

Tracking number	Milestone	Original Target Date	Modified Target	Date Completed	Comments	Lead
<b>On-Going</b>						
2020EH02	Submit manuscript of temporal patterns in UMRS inundation regimes for peer review	30-Sep-2021	30-Sep-22		Delayed due to ST3 priority switch	Van Appledorn, De Jager, Rohweder
2021EH01	Draft manuscript of temporal and spatial trends of large wood in the UMRS and potential eco-hydrologic drivers	30-Sep-2021	30-Sep-22			Van Appledorn, Jankowski
2021EH02	Draft manuscript of UMRS floodplain forest classification	30-Sep-2021	30-Jun-23			Van Appledorn, De Jager
Development of UMRS inundation model query tool; Van Appledorn, Fox, Rohweder, De Jager; 2019EH03						
Manuscript: Van Appledorn, M., De Jager, N.R. Considerations for improving floodplain research and management by integrating inundation modeling, ecosystem studies, and ecosystem services (2016L5; see 2019EH01) (Resubmitted to journal after revisions)						
<b>Intended for distribution</b>						
Manuscript: Modeling and mapping inundation regimes for ecological and management applications: a case study of the Upper Mississippi River floodplain, USA; Van Appledorn, De Jager, Rohweder <i>Research and Applications, Early View On-Line Special Edition</i> . <a href="http://dx.doi.org/10.1002/rra.3628">http://dx.doi.org/10.1002/rra.3628</a> Location of supporting data: <a href="https://doi.org/10.5066/F7VD6XRT">https://doi.org/10.5066/F7VD6XRT</a>						
<b>Acquisition and Interpretation of Imagery for Production of 2020 UMRS Land Cover/Land Use Data and Pool-Based Orthomosaics</b>						
2020LCU3	Image processing, stereo model development, orthorectification, pool-based mosaicking, image interpretation, automation, QA/QC, and serving of 2020 LCU datasets for remaining 50% of Open River South, the Alton Pool of the Illinois River, and Pools 9-12	1-Sep-2022				Dieck, Strassman
<b>Aquatic Vegetation, Fisheries, and Water Quality Research</b>						
<b>Intended for Distribution</b>						
Manuscript: Evidence of functionally defined non-random fish community responses over 25 years in a large river system (Ickes; 2019B13 replacing 2015B17 and 2016B17; (Not accepted at journal, resubmitting to <i>Hydrobiologia</i> )						
Manuscript: The ecology of ice across the river continuum (New tracking number 2021RC1) Sharma, S., Meyer, M.F., Culpepper, J., Yang, X., Hampton, S., Berger, S.A., Brousil, M.R., Fradkin, S.C., Higgins, S.N., Jankowski, K.J., Kirillin, G., Smits, A.P., Whitaker, E.C., Yousef, F., Zhang, S. 2020. Integrating Perspectives to Understand Lake Ice Dynamics in a Changing World. <i>Journal of Geophysical Research: Biogeosciences</i> . 125: e2020JG005799.						
Manuscript: Warmer winters increase phytoplankton biomass in a large floodplain river. Jankowski, K. J., J. N.Houser, M. D. Scheuerell, and A. P. Smits. 2021. Warmer winters increase the biomass of phytoplankton in a large floodplain river. <i>Journal of Geophysical Research: Biogeosciences</i> . Volume 126, Issue 9. <a href="https://doi.org/10.1029/2020JG006135">https://doi.org/10.1029/2020JG006135</a> . Data available at: <a href="https://umesc.usgs.gov/data_library/water_quality/water_quality_page.html">https://umesc.usgs.gov/data_library/water_quality/water_quality_page.html</a>						
<b>Statistical Evaluation</b>						
<b>Intended for distribution</b>						
Manuscript: Inferring decreases in among- backwater heterogeneity in large rivers using among-backwater variation in limnological variables (2010E1; IP-027392; Gray; in journal review)						
Manuscript: Model selection for ecological community data using tree shrinkage priors; Gray, Hefley, Zhang, Bouska; (2017FA2: IP-111931; in revision with <i>Ecological Applications</i> )						
Manuscript: Probabilities of detecting submersed aquatic vegetation species using a rake method may vary with biomass; 2020E1; Completed; <i>Aquatic Botany</i> , 171:103375, <a href="https://doi.org/10.1016/j.aquabot.2021.103375">https://doi.org/10.1016/j.aquabot.2021.103375</a>						

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Upper Mississippi River Restoration  
 Long Term Resource Monitoring Element  
 FY2022 Science in Support of Restoration and Management Scope of Work

Tracking number	Milestone	Original Target Date	Modified Target	Date Completed	Comments	Lead
<b>Pool 12 Overwintering HREP Adaptive Management Fisheries Response Monitoring</b>						
2022P13d	Age determination of bluegills	1-Feb-2022		1-Feb-2022		Kueter
2022P13e	In-house project databases updated	31-Mar-2022		31-Mar-2022		Kueter
<b>Pool 4 - Peterson Lake HREP Water Quality Monitoring -- Pre and Post-Adaptive Management Evaluation</b>						
2022PL1	Summary letter: Describing 2022 monitoring and future work	Dec. 2022				Burdis, Lund
<b>Science Meeting</b>						
<b>FY18 Funded Science in Support of Restoration and Management Proposals</b>						
<b>Conceptual Model and Hierarchical Classification of Hydrogeomorphic Settings in the UMRS</b>						
2019CM4	GIS data base and query tool	31-Dec-2019	On-going		Prototype developed	Fitzpatrick, Hendrickson, Sawyer, Strange
2019CM5	Submit draft LTRM Completion report on hydrogeomorphic conceptual model and hierarchical	31-Dec-2019	30-Mar-2022			Fitzpatrick, Hendrickson, Sawyer, Strange
2019CM6	Submit Final LTRM Completion report on hydrogeomorphic conceptual model and hierarchical	30-Jun-2020	30-Dec-2022			Fitzpatrick, Hendrickson, Sawyer, Strange
<b>Water Exchange Rates and Change in UMRS Channels and Backwaters, 1980 to Present</b>						
2019WE4	Submit Final LTRM Completion Report	30-Mar-2020	30-Dec-2021			Hendrickson
<b>Intrinsic and extrinsic regulation of water clarity over a 950-km longitudinal gradient of the UMRS</b>						
2019IE3	Submit Draft manuscript	30-Mar-2020	30-Mar-23		Pls determined that to move forward biomass information is needed. Will continue work once biomass model complete. Original Lead author (Drake) resigned from WDNR.	Carhart and others
<b>Systemic analysis of hydrogeomorphic influences on native freshwater mussels</b>						
2019FM7	Complete statistical analyses and prepare geospatial	30-Sep-2021	30-Sep-2022		Delayed since lead technician who was to perform most of the analyses took a new position; new hire in place	Teresa Newton, Jason Rohweder
2019FM8	Draft LTRM completion report	30-Sep-2021	30-Sep-2022			Teresa Newton
2019FM9	Final LTRM completion report	30-Jan-2023				Teresa Newton
<b>Using dendrochronology to understand historical forest growth, stand development, and gap dynamics</b>						
2022DD1	Draft manuscript: Floodplain forest structure and the recent decline of <i>Carya illinoensis</i> (Wangenh.) K. Koch (northern pecan); Part 2	30-May-2022	TBD			Harley
2022DD2	Draft manuscript: Floodplain forest structure and the recent decline of <i>Carya illinoensis</i> (Wangenh.) K. Koch (northern pecan); Part 3	30-May-2022	TBD			Maxwell

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Upper Mississippi River Restoration  
 Long Term Resource Monitoring Element  
 FY2022 Science in Support of Restoration and Management Scope of Work

Tracking number	Milestone	Original Target Date	Modified Target	Date Completed	Comments	Lead
<b>Forest canopy gap dynamics: quantifying forest gaps and understanding gap – level forest regeneration</b>						
Manuscript: Forest canopy gap dynamics: quantifying forest gaps and understanding gap - level forest regeneration in Upper Mississippi River floodplain forests (2019FG5, MEIER et al.); Gap data found at: <a href="https://www.sciencebase.gov/catalog/item/5f3299a682cee144fb30dd02">https://www.sciencebase.gov/catalog/item/5f3299a682cee144fb30dd02</a>						
<b>Investigating vital rate drivers of UMRS fishes to support management and restoration</b>						
2019VR8	Data set complete (data delivered to Ben Schlifer, physical structures delivered to BRWFS)	30-Sep-2021	30-Aug-22		Pandemic has slowed progress on many aspects of age and growth. Ageing complete, working to apply that to raw LTRM catch data in a standard and consistent way. We will have mean length at ages, catch curves, and growth curves for all species	Quinton Phelps
<b>On-Going</b>						
2019VR10	Submit draft manuscript (Drivers of vital rates)	31-Dec-2021	30-Sep-23			Quinton Phelps, Kristen Bouska
2019VR11	Submit draft manuscript (Microchemistry)	31-Dec-2021	31-Dec-22		Delayed by having to make several repairs to mass spectrometer; instrument down-time slowed our progress. In June completed analysis of otolith samples from all LTRM fish to be used in the project. The remaining steps data analysis and writing.	Greg Whitledge
<b>Intended for distribution</b>						
Manuscript: vital rates of Channel Catfish, led by Colby Gainer (MS student) in review with the North American Journal of Fisheries Management; 2019VR9						
<b>FY19 Funded Science in Support of Restoration and Management</b>						
<b>Development of a standardized monitoring program for vegetation and fish response to Environmental Pool Management practices in the Upper Mississippi River System</b>						
2019epm3/4	Thesis by Courtney Weldon (formerly LTRM Completion Report)	30-Jun-2021	30-Jun-22	30-Jun-22	Courtney successfully defended her thesis, and it will be deposited with the UIUC library and ACES (Department of Agriculture and Consumer Economics)	Weldon, Chick, and Richter
<b>Combining genetics, otolith microchemistry, and vital rate estimation to inform restoration and management of fish populations in the UMRS</b>						
<b>Intended for distribution</b>						
Manuscript documenting the findings from genetic analyses of the six regional species has been accepted to the journal Molecular Ecology; Dr. Yue Shi						
<b>Reforesting UMRS forest canopy openings occupied by invasive species</b>						
2019ref3	Draft LTRM Completion	30-Apr-2021	30-Dec-22			Guyon and Cosgriff
2019ref4	Final LTRM Completion	30-Sep-2021	30-Jun-23			Guyon and Cosgriff
<b>A year of zooplankton community data from the habitats and pools of the UMR</b>						
2019zoo2	Draft LTRM Completion report on utility of zooplankton community monitoring for HREP assessment	30-Dec-2020	TBD			Sobotka

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Upper Mississippi River Restoration  
 Long Term Resource Monitoring Element  
 FY2022 Science in Support of Restoration and Management Scope of Work

Tracking number	Milestone	Original Target Date	Modified Target	Date Completed	Comments	Lead
2019zoo3	Final LTRM Completion report on utility of zooplankton community monitoring for HREP assessment	30-Jun-2021	TBD		Sample collection delayed because of Covid-19 state protocols; zooplankton ID delayed; Fulgoni took new position	Sobotka
2019zoo4	Draft LTRM Completion report on detailing differences between pools and habitats. Report will also investigate the potential impacts of Asian carp on the zooplankton community	30-Dec-2020	TBD			Sobotka
2019zoo5	Final LTRM Completion report on detailing differences between pools and habitats. Report will also investigate the potential impacts of Asian carp on the	30-Jun-2021	TBD			Sobotka
<b>FY19 Funded Illinois Waterway 2020 Lock Closure</b>						
<b>Pre- and Post-Maintenance Aerial Imagery for Illinois River's Alton through Brandon Lock and Dams, 2019-2021.</b>						
2022IWW	Complete the imagery review and reporting	30-Aug-2022				Strassman
<b>Fish Community Response to the 2020 Illinois Waterway Lock Closure</b>						
2022FSH1	Draft Manuscript: Fisheries and WQ	31-Dec-22				Lamer
<b>FY20 Funded Science in Support of Restoration and Management</b>						
<b>Mapping Potential Sensitivity to Hydrogeomorphic Change in the UMRS Riverscape and Development of Supporting GIS Database and Query Tool</b>						
2021HG5	Complete annual project summary	31-Dec-2021	30-Mar-22			Strange, Fitzpatrick
2021HG6	Submit draft LTRM Completion report on hydrogeomorphic change GIS database and query system	31-Dec-2021	30-Sep-22			Vaughn, Strange, Fitzpatrick, Van Appledorn, USACE core team
2021HG7	Submit Final LTRM Completion report on hydrogeomorphic change GIS database and query tool.	30-Mar-2022	31-Dec-22			Vaughn, Strange, Fitzpatrick, Van Appledorn, USACE core team
<b>Improving our understanding of historic, contemporary, and future UMRS hydrology by improving workflows, reducing redundancies, and setting a blueprint for modelling potential future</b>						
2021HH1	Historic and Contemporary Hydrologic Database Release and Documentation	30-Sep-2021	30-Sep-22		Awaiting final data delivery from USACE Water Control Chiefs (2 of 3 districts have submitted historic data and documentation; 1 district has submitted documentation only); awaiting USACE hydrologic data server switch completion for accessing contemporary data	M. Van Appledorn, L. Sawyer
2021HH2	Draft LTRM Completion Report: document database and documentation development steps, database capabilities, and quantitative summaries of the hydrologic regime through time	30-Dec-2021	31-July-2022	Dependent on data acquisition from USACE		M. Van Appledorn, L. Sawyer

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Upper Mississippi River Restoration  
 Long Term Resource Monitoring Element  
 FY2022 Science in Support of Restoration and Management Scope of Work

Tracking number	Milestone	Original Target Date	Modified Target	Date Completed	Comments	Lead
2021HH3	Final LTRM Completion Report: document database and documentation development steps, database capabilities, and quantitative summaries of the	31-Mar-2022	30-Sept-2022			M. Van Appledorn, L. Sawyer
2021HH4	Developing Future Hydrologic Scenarios Workshop: topics include identify appropriate future climate and/or land-use scenarios for use in a UMRS watershed model, existing hydrologic modeling resources and capabilities, and logistics for completing a climate-changed hydrologic modeling	30-Dec-2021		27-Jan-2022		M. Van Appledorn, L. Sawyer
2021HH5	Draft LTRM Completion Report (Scenarios): This report will serve as the blueprint for modeling future hydrology to be undertaken with future funding opportunities.	31-Mar-2022	31-Aug-2022		delayed due to science meeting priority switch and 1-month delay in completion of meeting series, undergoing final edits	M. Van Appledorn, L. Sawyer
2021HH6	Final LTRM Completion Report (Scenarios): This report will serve as the blueprint for modeling future hydrology to be undertaken with future funding	30-Jun-2022	30-Sept-2022			M. Van Appledorn, L. Sawyer
<b>Understanding physical and ecological differences among side channels of the Upper Mississippi River System</b>						
2021SC3	Manuscript on side channel classification scheme submitted for peer review	30-Sep-2022				Sobotka, Strange, Bouska, McCain, Theel
2021SC4	Final report on UMRR management implications submitted for USGS review	30-Sep-2022				Sobotka & McCain
2021SC5	Manuscript on benthic invertebrate associations with side channel characteristics submitted for USGS and peer review	30-May-2023				Sobotka & Vander Vorste
<b>Refining our Upper Mississippi River's ecosystem states framework</b>						
2021SS8	TDA Mapper, regime shifts	1-May-2022		1-May-2022		Bungula, student, Larson
2021SS9	Draft the STM, share with stakeholders	1-Sep-2022				Larson
2021SS10	Technical report, vulnerability assessment tool, and	1-Sep-2022				All
<b>Augmenting the UMRR fish vital rates project with greater species representation for genetics and otolith microchemistry</b>						
2021VR3	Submit draft manuscript (genetics)	31-Dec-2022				Davis, Tan, Lamer
2021VR4	Submit draft manuscript (genetics -	31-Dec-2022				Davis, Tan, Lamer
2021VR5	Submit draft manuscript (constructing management	31-Dec-2022				Bartels, Bouska, Davis, Lamer, Larson, Phelps, Tan, Whittedge

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Upper Mississippi River Restoration  
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FY2022 Science in Support of Restoration and Management Scope of Work

Tracking number	Milestone	Original Target Date	Modified Target	Date Completed	Comments	Lead
<b>Functional UMRS fish community responses and their environmental associations in the face of a changing river: hydrologic variability, biological invasions, and habitat rehabilitation</b>						
2021FF2	Draft manuscript: "Has large scale ecosystem rehabilitation altered functional fish community expressions in the Upper Mississippi River"	30-Sep-2021	30-Sep-2022		Delayed with other priorities such as S&T Report writing	Ickes and Gatto
2021FF3	Draft Manuscript: "Why aren't bigheaded carps ( <i>Hypophthalmichthys</i> sp.) everywhere in the Upper Mississippi River System?"	30-Sep-2021	30-Sep-2022			Ickes and Gatto
<b>Understanding landscape-scale patterns in winter conditions in the Upper Mississippi River System</b>						
2021WL1	System wide spatial layers of habitat conditions	30-Sep-2022				Mooney, Dugan, Magee
2021WL2	Draft manuscript: Landscape scale controls on overwintering habitat in a large river	30-Sep-2022				Mooney, Dugan, Jankowski, Magee
2021WL3	Draft manuscript: Response of oxygen dynamics to	30-Sep-2023				Jankowski, Dugan, Burdis, Kalas, Kueter
2021WL4	Draft Manuscript: Patterns in sediment characteristics and oxygen demand across a winter	30-Sep-2023				Perner, Kreiling, Jankowski, Giblin
<b>Forest Response to Multiple Large-Scale Inundation Events</b>						
2021FR3	Technical Report	1-Jun-2022				Cosgriff, Guyon, De Jager
<b>FY22 Funded Science in Support of Restoration and Management</b>						
2023dendro1	Finalize the scanning of 1,100 tree cores uploaded into DendroElevator	30-Nov-2023				Windmuller-Campione
2023dendro2	Annual summary	31-Dec-2023				Windmuller-Campione and Van
2023dendro3	Coordination and scheduling for three to five virtual meetings; Meetings will address current objectives outlined in Activity 3 and future	1 March – 31 May 2024				Windmuller-Campione and Van Appledorn
2023dendro4	Draft manuscript – Age data of floodplain forests of the Upper Mississippi River	30-May-2024				Windmuller-Campione and Van Appledorn
2023dendro5	Draft Manuscript – Growth dynamics of silver maple of the Upper Mississippi River	30-Sep-2024				Windmuller-Campione and Van Appledorn
2023dendro6	Final report writing, edits on manuscript, and completion of all data storage	30-Nov-2024				Windmuller-Campione and Van Appledorn
<b>Evaluating the LOCA-VIC-mizuRoute hydrology data products for scientific and management applications in the UMRS</b>						
2023Hydro1	LOCA-VIC-mizuRoute data product evaluation	31 June 2023				Sawyer and Van Appledorn
2023Hydro2	LTRM project management team update on evaluation results	31 June 2023				Sawyer and Van Appledorn
2023Hydro3	ECB 2018-14 compliance completion	30-Sep-2023				Sawyer and Van Appledorn
2023Hydro4	Annual update: Year 1	31-Dec-2023				Sawyer and Van Appledorn
2023Hydro5	UMRS projected hydrology data and documentation release	30-Sep-2024				Sawyer and Van Appledorn
2023Hydro6	UMRR webinar on UMRS projected hydrology data release	31-Dec-2024				Sawyer and Van Appledorn

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Upper Mississippi River Restoration  
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 FY2022 Science in Support of Restoration and Management Scope of Work

Tracking number	Milestone	Original Target Date	Modified Target	Date Completed	Comments	Lead
2023Hydro7	Virtual workshop or LTRM project team update for red pathway outcomes	31-Mar-2024				Sawyer and Van Appledorn
2023Hydro8	Draft LTRM completion report	30-Sep-2024				Sawyer and Van Appledorn
2023Hydro9	Final LTRM completion report	30-Dec-2025				Sawyer and Van Appledorn
<b>Putting LTRM's long-term phytoplankton archive to work to understand ecosystem transitions and improve methodological approaches</b>						
2023Phyto1	System-wide phytoplankton community dataset	30-Sep-2023				Jankowski
2023Phyto2	Draft Manuscript: Phytoplankton community composition over the past 20 years in the Upper Mississippi River: distribution of harmful taxa and relationships with environmental trends	30-May-2024				Jankowski and others
2023Phyto3	Draft Manuscript: Relating phytoplankton communities to distinct vegetation recovery trajectories in Pools 4 and 13	30-May-2024				Jankowski and others
2023Phyto4	Report: Assessment of FloCam for use on archived and fresh phytoplankton samples for	30-Mar-2024				Larson, James
2023Phyto5	Draft Manuscript: Comparison of trends captured by microscopy and FlowCam phytoplankton community analysis	30-May-2024				Larson, James
<b>Assessing long term changes and spatial patterns in macroinvertebrates through standardized long-term monitoring</b>						
2023inv1	Field collection of macroinvertebrates	14-Jun-2023				State field station staff
2023inv2	Laboratory identification of macroinvertebrates	30-Aug-2023				TBD
2023inv3	Screening level mayfly tissue analysis	30-Sep-2023				Giblin
2023inv4	Annual summary	31-Dec-2023				Lamer
2023inv5	a. Data entry completed and submission of data to USGS (Includes contaminant data)	31-Jan-2024				State field station staff, Giblin
2023inv6	b. Data loaded on level 2 browsers; QA/QC scripts	15-Feb-2024				Lamer, Schlifer
2023inv7	c. Field Station and contaminant QA/QC with corrections to USGS	15-Mar-2024				State field station staff, Giblin
2023inv8	d. Corrections made and data moved to public Web Browser	30-Mar-2024				Lamer, Schlifer
2023inv9	Field collection of macroinvertebrates	14-Jun-2024				State field station staff
2023inv10	Laboratory identification of macroinvertebrates	30-Aug-2024				TBD
2023inv11	Screening level mayfly tissue analysis	30-Sep-2024				Giblin
2023inv12	Annual summary	31-Dec-2024				Lamer
2023inv13	a. Data entry completed and submission of data to USGS (Includes contaminant data)	31-Jan-2025				State field station staff, Giblin
2023inv14	b. Data loaded on level 2 browsers; QA/QC scripts	15-Feb-2025				Lamer, Schlifer
2023inv15	c. Field Station and contaminant QA/QC with corrections to USGS	15-Mar-2025				State field station staff, Giblin
2023inv16	d. Corrections made and data moved to public Web Browser	30-Mar-2025				Lamer, Schlifer
2023inv17	Draft LTRM Completion report or manuscript on contaminant sampling	30-Sep-2025				Giblin

Upper Mississippi River Restoration  
 Long Term Resource Monitoring Element  
 FY2022 Science in Support of Restoration and Management Scope of Work

Tracking number	Milestone	Original Target Date	Modified Target	Date Completed	Comments	Lead
2023inv18	Field collection of macroinvertebrates	14-Jun-2025				State field station staff
2023inv19	Laboratory identification of macroinvertebrates	30-Aug-2025				TBD
2023inv20	Annual summary	31-Dec-2025				Lamer
2023inv21	a. Data entry completed and submission of data to USGS (Includes contaminant data)	31-Jan-2026				State field station staff, Giblin
2023inv22	b. Data loaded on level 2 browsers; QA/QC scripts	15-Feb-2026				Lamer, Schlifer
2023inv23	c. Field Station and contaminant QA/QC with corrections to USGS	15-Mar-2026				State field station staff, Giblin
2023inv24	d. Corrections made and data moved to public Web Browser	30-Mar-2026				Lamer, Schlifer
2023inv25	Draft LTRM Completion report or manuscript on macroinvertebrate sampling, trends, etc.	30-Sep-2026				Lamer

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UMRR Science in Support of Restoration and Management  
 FY2014 and FY2015 Scopes of Work  
 August 2022 Status

Tracking number	Milestone	Original Target Date	Modified Target Date	Date Completed	Comments	Lead
<b>Plankton community dynamics in Lake Pepin</b>						
2015LPP1	Phytoplankton processing; species composition, biovolume	30-Dec-15		22-Oct-15		Burdis
2015LPP2	draft manuscript: Plankton community dynamics in Lake Pepin	30-Sep-16	31-Dec-22		first draft completed, anticipate submission to journal by Dec	Burdis, Manier
<b>Predictive Aquatic Cover Type Model - Phase 2</b>						
2015AQ1	Develop 2-D hydraulic model of upper Pool 4	30-Sep-15		30-Sep-15		Libbey (MVP H&H)
2015AQ2	Apply model to Pool 4 and resolve discrepancies	31-Dec-15	31-Mar-16	31-Mar-16		Yin, Rogala
2015AQ3	Detailed summary of work for Phases I & II	31-Dec-15		NA	Work terminated with resignation of Dr. Yin. Danelle Larson will re-evaluate vegetation modeling in a future time frame	Sauer (for Yin), Rogala, Ingvalson

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## **ATTACHMENT D**

### **Additional Items**

- **Future Meeting Schedule** *(D-1)*
- **Frequently Used Acronyms (4-29-2022)** *(D-2 to D-8)*

**QUARTERLY MEETINGS  
FUTURE MEETING SCHEDULE**

**NOVEMBER 2022**

Quad Cities

November 15 UMRBA Quarterly Meeting

November 16 UMRR Coordinating Committee Quarterly Meeting

**FEBRUARY-MARCH 2023**

Remote Meeting

February 28 UMRBA Quarterly Meeting

March 1 UMRR Coordinating Committee Quarterly Meeting

## Acronyms Frequently Used on the Upper Mississippi River System

AAR	After Action Report
A&E	Architecture and Engineering
ACRCC	Asian Carp Regional Coordinating Committee
AFB	Alternative Formulation Briefing
AHAG	Aquatic Habitat Appraisal Guide
AHRI	American Heritage Rivers Initiative
AIS	Aquatic Invasive Species
ALC	American Lands Conservancy
ALDU	Aquatic Life Designated Use(s)
AM	Adaptive Management
ANS	Aquatic Nuisance Species
AP	Advisory Panel
APE	Additional Program Element
ARRA	American Recovery and Reinvestment Act
ASA(CW)	Assistant Secretary of the Army for Civil Works
A-Team	Analysis Team
ATR	Agency Technical Review
AWI	America's Watershed Initiative
AWO	American Waterways Operators
AWQMN	Ambient Water Quality Monitoring Network
BA	Biological Assessment
BATIC	Build America Transportation Investment Center
BCOES	Bid-ability, Constructability, Operability, Environmental, Sustainability
BCR	Benefit-Cost Ratio
BMPs	Best Management Practices
BO	Biological Opinion
CAP	Continuing Authorities Program
CAWS	Chicago Area Waterways System
CCC	Commodity Credit Corporation
CCP	Comprehensive Conservation Plan
CEICA	Cost Effectiveness Incremental Cost Analysis
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CFS	Cubic Feet Per Second
CG	Construction General
CIA	Computerized Inventory and Analysis
CMMP	Channel Maintenance Management Plan
COE	Corps of Engineers
COPT	Captain of the Port
CPUE	Catch Per Unit Effort
CRA	Continuing Resolution Authority
CREP	Conservation Reserve Enhancement Program
CRP	Conservation Reserve Program

CSP	Conservation Security Program
CUA	Cooperative Use Agreement
CWA	Clean Water Act
CY	Cubic Yards
DALS	Department of Agriculture and Land Stewardship
DED	Department of Economic Development
DEM	Digital Elevation Model
DET	District Ecological Team
DEWS	Drought Early Warning System
DMMP	Dredged Material Management Plan
DNR	Department of Natural Resources
DO	Dissolved Oxygen
DOA	Department of Agriculture
DOC	Department of Conservation
DOER	Dredging Operations and Environmental Research
DOT	Department of Transportation
DPR	Definite Project Report
DQC	District Quality Control/Quality Assurance
DSS	Decision Support System
EA	Environmental Assessment
ECC	Economics Coordinating Committee
EEC	Essential Ecosystem Characteristic
EIS	Environmental Impact Statement
EMAP	Environmental Monitoring and Assessment Program
EMAP-GRE	Environmental Monitoring and Assessment Program-Great Rivers Ecosystem
EMP	Environmental Management Program [Note: Former name of Upper Mississippi River Restoration Program.]
EMP-CC	Environmental Management Program Coordinating Committee
EO	Executive Order
EPA	Environmental Protection Agency
EPM	Environmental Pool Management
EPR	External Peer Review
EQIP	Environmental Quality Incentives Program
ER	Engineering Regulation
ERDC	Engineering Research & Development Center
ESA	Endangered Species Act
EWMN	Early Warning Monitoring Network
EWP	Emergency Watershed Protection Program
FACA	Federal Advisory Committee Act
FEMA	Federal Emergency Management Agency
FERC	Federal Energy Regulatory Commission
FDR	Flood Damage Reduction
FFS	Flow Frequency Study
FMG	Forest Management Geodatabase
FONSI	Finding of No Significant Impact
FRM	Flood Risk Management

FRST	Floodplain Restoration System Team
FSA	Farm Services Agency
FTE	Full Time Equivalent
FWCA	Fish & Wildlife Coordination Act
FWIC	Fish and Wildlife Interagency Committee
FWS	Fish and Wildlife Service
FWWG	Fish and Wildlife Work Group
FY	Fiscal Year
GAO	Government Accountability Office
GEIS	Generic Environmental Impact Statement
GI	General Investigations
GIS	Geographic Information System
GLC	Governors Liaison Committee
GLC	Great Lakes Commission
GLMRIS	Great Lakes and Mississippi River Interbasin Study
GPS	Global Positioning System
GREAT	Great River Environmental Action Team
GRP	Geographic Response Plan
H&H	Hydrology and Hydraulics
HAB	Harmful Algal Bloom
HEC-EFM	Hydrologic Engineering Center Ecosystems Function Model
HEC-RAS	Hydrologic Engineering Center River Analysis System
HEL	Highly Erodible Land
HEP	Habitat Evaluation Procedure
HNA	Habitat Needs Assessment
HPSF	HREP Planning and Sequencing Framework
HQUSACE	Headquarters, USACE
H.R.	House of Representatives
HREP	Habitat Rehabilitation and Enhancement Project
HSI	Habitat Suitability Index
HU	Habitat Unit
HUC	Hydrologic Unit Code
IBA	Important Bird Area
IBI	Index of Biological (Biotic) Integrity
IC	Incident Commander
ICS	Incident Command System
ICWP	Interstate Council on Water Policy
IDIQ	Indefinite Delivery/Indefinite Quantity
IEPR	Independent External Peer Review
IGE	Independent Government Estimate
IIA	Implementation Issues Assessment
IIFO	Illinois-Iowa Field Office (formerly RIFO - Rock Island Field Office)
ILP	Integrated License Process
IMTS	Inland Marine Transportation System
IPR	In-Progress Review
IRCC	Illinois River Coordinating Council

IRPT	Inland Rivers, Ports & Terminals
IRTC	Implementation Report to Congress
IRWG	Illinois River Work Group
ISA	Inland Sensitivity Atlas
IWR	Institute for Water Resources
IWRM	Integrated Water Resources Management
IWS	Integrated Water Science
IWTF	Inland Waterways Trust Fund
IWUB	Inland Waterways Users Board
IWW	Illinois Waterway
L&D	Lock(s) and Dam
LC/LU	Land Cover/Land Use
LDB	Left Descending Bank
LERRD	Lands, Easements, Rights-of-Way, Relocation of Utilities or Other Existing Structures, and Disposal Areas
LiDAR	Light Detection and Ranging
LMR	Lower Mississippi River
LMRCC	Lower Mississippi River Conservation Committee
LOI	Letter of Intent
LTRM	Long Term Resource Monitoring
M-35	Marine Highway 35
MAFC	Mid-America Freight Coalition
MARAD	U.S. Maritime Administration
MARC 2000	Midwest Area River Coalition 2000
MCAT	Mussel Community Assessment Tool
MICRA	Mississippi Interstate Cooperative Resource Association
MDM	Major subordinate command Decision Milestone
MIPR	Military Interdepartmental Purchase Request
MMR	Middle Mississippi River
MMRP	Middle Mississippi River Partnership
MNRG	Midwest Natural Resources Group
MOA	Memorandum of Agreement
MoRAST	Missouri River Association of States and Tribes
MOU	Memorandum of Understanding
MRAPS	Missouri River Authorized Purposes Study
MRBI	Mississippi River Basin (Healthy Watersheds) Initiative
MRC	Mississippi River Commission
MRCC	Mississippi River Connections Collaborative
MRCTI	Mississippi River Cities and Towns Initiative
MRRC	Mississippi River Research Consortium
MR&T	Mississippi River and Tributaries (project)
MSP	Minimum Sustainable Program
MVD	Mississippi Valley Division
MVP	St. Paul District
MVR	Rock Island District
MVS	St. Louis District

NAS	National Academies of Science
NAWQA	National Water Quality Assessment
NCP	National Contingency Plan
NIDIS	National Integrated Drought Information System (NOAA)
NEBA	Net Environmental Benefit Analysis
NECC	Navigation Environmental Coordination Committee
NED	National Economic Development
NEPA	National Environmental Policy Act
NESP	Navigation and Ecosystem Sustainability Program
NETS	Navigation Economic Technologies Program
NGO	Non-Governmental Organization
NGRREC	National Great Rivers Research and Education Center
NGWOS	Next Generation Water Observing System
NICC	Navigation Interests Coordinating Committee
NPDES	National Pollution Discharge Elimination System
NPS	Non-Point Source
NPS	National Park Service
NRC	National Research Council
NRCS	Natural Resources Conservation Service
NRDAR	Natural Resources Damage Assessment and Restoration
NRT	National Response Team
NSIP	National Streamflow Information Program
NWI	National Wetlands Inventory
NWR	National Wildlife Refuge
O&M	Operation and Maintenance
OHWM	Ordinary High Water Mark
OMB	Office of Management and Budget
OMRR&R	Operation, Maintenance, Repair, Rehabilitation, and Replacement
OPA	Oil Pollution Act of 1990
ORSANCO	Ohio River Valley Water Sanitation Commission
OSC	On-Scene Coordinator
OSE	Other Social Effects
OSIT	On Site Inspection Team
P3	Public-Private Partnerships
PA	Programmatic Agreement
PAS	Planning Assistance to States
P&G	Principles and Guidelines
P&R	Principles and Requirements
P&S	Plans and Specifications
P&S	Principles and Standards
PCA	Pollution Control Agency
PCA	Project Cooperation Agreement
PCX	Planning Center of Expertise
PDT	Project Delivery Team
PED	Preconstruction Engineering and Design
PgMP	Program Management Plan



PILT	Payments In Lieu of Taxes
PIR	Project Implementation Report
PL	Public Law
PMP	Project Management Plan
PORT	Public Outreach Team
PPA	Project Partnership Agreement
PPT	Program Planning Team
QA/QC	Quality Assurance/Quality Control
RCRA	Resource Conservation and Recovery Act
RCP	Regional Contingency Plan
RCPP	Regional Conservation Partnership Program
RDB	Right Descending Bank
RED	Regional Economic Development
RIFO	Rock Island Field Office (now IIFO - Illinois-Iowa Field Office)
RM	River Mile
RP	Responsible Party
RPEDN	Regional Planning and Environment Division North
RPT	Reach Planning Team
RRAT	River Resources Action Team
RRCT	River Resources Coordinating Team
RRF	River Resources Forum
RRT	Regional Response Team
RST	Regional Support Team
RTC	Report to Congress
S.	Senate
SAV	Submersed Aquatic Vegetation
SDWA	Safe Drinking Water Act
SEMA	State Emergency Management Agency
SET	System Ecological Team
SMART	Specific, Measurable, Attainable, Risk Informed, Timely
SONS	Spill of National Significance
SOW	Scope of Work
SRF	State Revolving Fund
SWCD	Soil and Water Conservation District
T&E	Threatened and Endangered
TEUs	twenty-foot equivalent units
TIGER	Transportation Investment Generating Economic Recovery
TLP	Traditional License Process
TMDL	Total Maximum Daily Load
TNC	The Nature Conservancy
TSP	Tentatively selected plan
TSS	Total Suspended Solids
TVA	Tennessee Valley Authority
TWG	Technical Work Group
UMESC	Upper Midwest Environmental Sciences Center

UMIMRA	Upper Mississippi, Illinois, and Missouri Rivers Association
UMR	Upper Mississippi River
UMRBA	Upper Mississippi River Basin Association
UMRBC	Upper Mississippi River Basin Commission
UMRCC	Upper Mississippi River Conservation Committee
UMRCP	Upper Mississippi River Comprehensive Plan
UMR-IWW	Upper Mississippi River-Illinois Waterway
UMRNWFR	Upper Mississippi River National Wildlife and Fish Refuge
UMRR	Upper Mississippi River Restoration Program [Note: Formerly known as Environmental Management Program.]
UMRR CC	Upper Mississippi River Restoration Program Coordinating Committee
UMRS	Upper Mississippi River System
UMWA	Upper Mississippi Waterway Association
USACE	U.S. Army Corps of Engineers
USCG	U.S. Coast Guard
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
VTC	Video Teleconference
WCI	Waterways Council, Inc.
WES	Waterways Experiment Station (replaced by ERDC)
WHAG	Wildlife Habitat Appraisal Guide
WHIP	Wildlife Habitat Incentives Program
WIIN	Water Infrastructure Improvements for the Nation Act
WLM	Water Level Management
WLMTF	Water Level Management Task Force
WQ	Water Quality
WQEC	Water Quality Executive Committee
WQTF	Water Quality Task Force
WQS	Water Quality Standard
WRDA	Water Resources Development Act
WRP	Wetlands Reserve Program
WRRDA	Water Resources Reform and Development Act