Virtual Meeting

Upper Mississippi River Restoration Program Coordinating Committee

Quarterly Meeting

February 23, 2022

Agenda

with
Background
and
Supporting Materials

UPPER MISSISSIPPI RIVER RESTORATION PROGRAM
COORDINATING COMMITTEE

February 23, 2022

8:00 a.m. – 2:30 p.m. CST

Agenda

[**Note:** The states, U.S. Army Corps of Engineers, and the Department of the Interior will arrange their respective pre-meetings via conference call prior to the February 23, 2022 quarterly meeting.]

Time	Attachment	Topic	Presenter
8:00 a.m.		**Welcome and Introductions**	***Brian Chewning**, USACE*
8:05	**A1-16**	**Approval of Minutes of November 17, 2021 Meeting**	
8:10		**Regional Management and Partnership Collaboration**	***Marshall Plumley**, USACE*
	B1-3	▪ FY 2022 Fiscal Update and FY 2023 Outlook – Infrastructure Investment and Jobs Act ▪ 2015-2025 Strategic and Operational Plan Review ▪ 2022 Report to Congress	
9:10		**Communications**	
		▪ UMRR Communications Team – 2022 Action Priorities	***Rachel Perrine and Jill Bathke**, USACE*
	C1-10	▪ Status and Trends Report 3rd Edition Rollout ▪ External Communications and Outreach Events	***Andrew Stephenson,** UMRBA* ***All***
9:50		**Break**	
10:00		**UMRR Showcase Presentations**	
		▪ If You Restore It, Will They Come? Bluegill Status in Pool 12 Backwaters	***Seth Fopma**, Iowa DNR*
		▪ Huron Island	***Collin Moratz**, USACE*
10:45		**Program Reports**	
		▪ Habitat Restoration – District Reports	***District HREP Managers***
11:45		**Lunch**	
12:30 p.m.		**Program Reports (Continued)**	
	D1-13	▪ Long Term Resource Monitoring and Science – LTRM FY 2022 1st Quarter Highlights – 2022 Science Meeting – USACE LTRM Update – LTRM Implementation Planning – A-Team Report	***Jeff Houser**, USGS* ***Karen Hagerty**, USACE* ***Jeff Houser and Jennie Sauer**, USGS and **Karen Hagerty**, USACE* ***Scott Gritters**, IA DNR*
1:30		**NESP Update**	***Andrew Goodall**, USACE*
2:15		**Other Business**	
	E1	▪ Future Meeting Schedule	
2:30 p.m.		**Adjourn**	

[See Attachment E for frequently used acronyms, UMRR authorization (as amended), and UMRR (EMP) operating approach.]

Continued on next page for remote connection information

Remote Connection Information:

February 23
UMRR Coordinating Committee Quarterly Meeting (8:00 a.m. to 2:30 p.m. CST)

- Web and video conferencing:
  https://umrba.my.webex.com/umrba.my/j.php?MTID=mfecaf29c2599731fb044b04c5aa429b9
- Phone connection:
  - Dial-in: 312-535-8110
    [Note: In the event that the call line provided is experiencing a high volume of calls, you may also connect by dialing 469-210-7159.]
  - Access code: 2551 094 7126
  - Password: 1234

ATTACHMENT A

Minutes of the November 17, 2021
UMRR Coordinating Committee Quarterly Meeting

(A-1 to A-16)

DRAFT
Minutes of the
Upper Mississippi River Restoration Program
Coordinating Committee

November 17, 2021
Quarterly Meeting

Virtual Meeting

Sabrina Chandler of the U.S. Fish and Wildlife Service called the meeting to order at 8:00 a.m. on November 17, 2021. UMRR Coordinating Committee representatives on the virtual meeting were Brian Chewning (USACE), 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.

Andrew Stephenson announced that Verlon Barnes retired from NRCS in October 2021 and that Andy Boehnenkamp will assume some of his duties in an interim capacity. NRCS has not yet officially designated a new UMRR Coordinating Committee representative.

Minutes of the August 11, 2021 Meeting

Jim Fischer moved and Randy Schultz seconded a motion to approve the draft minutes of the August 11, 2021 UMRR Coordinating Committee meeting as written. The motion carried unanimously.

Regional Management and Partnership Collaboration

Marshall Plumley said that November 17, 2021 marks the 35th anniversary of UMRR. Plumley reflected on how far the partnership has come from the vision set forth in the Master Plan to the special and unique program that is successfully achieving quality restoration in the Upper Mississippi River System today. Plumley expressed gratitude for the opportunity to serve as program manager, applauded the partnership for this significant milestone, and thanked all those involved in program implementation past and present. Jim Fischer echoed congratulations to all partners for UMRR's success.

FY 2021 Fiscal Update

Plumley said UMRR's FY 2021 plan of work included $33,697,040, including carryover from FY 2020. UMRR achieved an execution rate of 98.77 percent in FY 2021. This is the fourth consecutive year the program has achieved an execution rate above 97 percent and the seventh of the last eight to receive near full funding. Plumley said this was one of the best execution rates within the Corps' nation-wide. It is an important metric within the Corps that is used to gauge program success. These funds represent thousands of hours of hard work by staff of every partner agency to put restoration on the ground and provide some of the best science on large river systems. Plumley expressed appreciation for all who contributed to implementing UMRR. In response to a question from Fischer, Angela Deen said additional expenses related to geo membranes increased the Bass Ponds habitat project cost.

FY 2022 Budget Outlook

Plumley said that, on September 30, 2021, Congress passed a continuing resolution authority (CRA) extending current funding levels for the federal government until December 3, 2021. District staff are operating under the assumption of an $33.17 million allocation in FY 2022. The President's FY 2022 budget includes $33.17 million for UMRR. The House and Senate Appropriations Committees have both acted on appropriations bills for FY 2022 and concurred with the President's recommended amount for UMRR. The final FY 2022 appropriation is not yet known.

The draft plan of work for UMRR in FY 2022 at a $33.17 million funding scenario is anticipated to be as follows:

- Regional Administration and Program Efforts – $1,450,000
  - Regional management – $1,180,000
  - Program database – $100,000
  - Program Support Contract – $120,000
  - Public Outreach – $50,000
- Regional Science and Monitoring – $10,250,000
  - Long term resource monitoring – $5,000,000
  - Regional science in support of restoration – $3,800,000
  - Regional science staff support – $200,000
  - Habitat evaluation (split across three districts) – $1,125,000
  - Report to Congress – $125,000
- Habitat Restoration – $21,470,000
  - Rock Island District – $6,718,000
  - St. Louis District – $7,502,000
  - St. Paul District – $7,150,000
  - Model certification – $100,000

Plumley said that, on November 15, 2021, the President signed the Infrastructure Investment and Jobs Act. UMRR capabilities above a $33.17 million annual execution capacity were submitted for the Corps' potential work authorized by that bill. Project names and funding amounts are anticipated to be released in 30 to 60 days.

UMRR Ten-Year Plan

Plumley reported that the UMRR 10-year implementation plan was updated to reflect changes to project timelines. Project timelines were adjusted later for Conway Lake, Lower Pool 10, Reno Bottoms, Lower Pool 13, Green Island, and Pool 12 Forestry habitat projects. Physical construction was completed at Conway Lake, but some tree planting will extend into FY 2022. The anticipated completion for feasibility was extended for Lower Pool 10, Lower Pool 13, Green Island, Pool 12 Forestry, and Reno Bottoms. Reno Bottoms feasibility was extended to acknowledge some of the challenges the team has been addressing. Lower Pool 13 was scoped as a large, complex project and teams have been identifying priority areas within the project area to address. Anticipated construction completion for Huron Island Stages 2 and 3 was moved forward to mid-way through FY 2022. In response to a question from Fischer, Plumley said eight of the sixteen next generation HREPs recently identified are now included in the 10-year schedule. If UMRR begins to receive additional funds over $33.17 million in future annual appropriations, another HREP selection process may be needed sooner than anticipated to ensure a healthy pipeline of projects. Sabrina Chandler said USFWS staffing levels would be a more limiting factor than project fact sheets if UMRR received additional funds and said other federal agencies may be in a similar position. Plumley agreed, noting that if NESP receives a new start and UMRR receives additional funding, the available talent and expertise to get the work done is something the larger partnership will have to address. Fischer agreed and said that states are in the same position.

Acres Restored

Plumley said the current schedule of HREP implementation would restore 76,110 acres between FY 2021 and FY 2031. In response to a question from Brian Chewning, Plumley confirmed that this estimate assumes continued funding levels of $33.17 million annually. Decreased funding levels would extend the end date for completing projects and increased appropriations could accelerate these restoration activities. The figure is an important communication tool for multiple audiences. Plumley said an alternate scenario based on full authorized funding of $55 million is being developed.

Plumley reported that, from FY 2012 to FY 2020, UMRR accounted for nearly ten percent of all acres restored under the Corps' aquatic ecosystem restoration mission area. Construction on three projects was completed in calendar year 2021 totaling 5,590 acres that collectively increased UMRR's total acres restored to approximately 112,000 acres through 59 completed projects. These projects include Conway Lake, Pool 12 Overwintering, and Ted Shanks.

Potential Construction Completions

Plumley reported that four projects are anticipated to be completed in 2022 that would collectively add 9,810 acres to UMRR's total restored or improved habitat.

2015-2025 Strategic and Operational Plan Review

Plumley reported that on September 20, 2021, a survey was distributed to the UMRR partnership at-large regarding the 2015-2025 Strategic and Operational Plan. The distribution list included 200 individuals. 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. Fifty-eight responses were received for a 29 percent response rate. Analysis is underway and a complete report will be distributed in early 2022. Andrew Stephenson said the presentation of results is still being organized. Response options for questions regarding success criteria ranged from strongly disagree to strongly agree and responses options for priority action questions ranged from not a priority to highest priority. Success criteria responses will likely be compressed into agree and disagree and responses regarding priority actions may be weighted. Ken Westlake and Karen Hagerty noted that some success criteria statements were strongly supported but not universally so. Stephenson said respondents could select "unsure" and noted that additional analysis of the open-ended comments may provide additional insights. Fischer expressed appreciation for the survey and said the results will be useful for shaping the program going forward and for reflecting upon in future years.

2022 Report to Congress

Plumley provided an overview of completed and ongoing programmatic activities, which will be highlighted in the UMRR 2022 Report to Congress. Completed activities include the Habitat Needs Assessment II and Statements of Significance. In-progress activities include the strategic plan review, LTRM status and trends report, desired future conditions, HREPs, and LTRM activities. The strategic plan review and LTRM status and trends report are nearly complete. Ongoing development of a desired future conditions statement is drawing from existing partnership documents. Future activities include partnership recommendations for improving UMRR implementation. Plumley reported that the first progress update meeting for the UMRR 2022 Report to Congress was held on August 23, 2021. Lead authors provided details regarding their chapter and section content. Chapters will be assembled into a draft report document in December 2021 and shared with partners for initial review in January 2022. Partner comments will be consolidated into one document and shared to ensure transparency in report development. The first in-progress review (IPR) with MVD and USACE Headquarters is anticipated for late-January 2022. This will provide an opportunity to engage with Headquarters reviewers early in the process and allow adequate time to make any necessary modifications. In response to questions from Stephenson and Fischer, Plumley said the initial January

review will include report authors and Coordinating Committee members and that partners will be asked to coordinate a more in-depth review by their agencies in March-April 2022. Plumley said that a call to discuss implementation issues was rescheduled from November 10, 2021 to November 17, 2021, following conclusion of the UMRR Coordinating Committee quarterly meeting. The next progress update meeting is scheduled for November 29, 2021.

UMRR Joint Charter Review

Plumley reported that Stephenson sent a September 10, 2021 email to the UMRR Coordinating Committee members routing the Joint Charter of the Upper Mississippi River Restoration Coordinating Committee, Analysis Team, and Habitat Rehabilitation and Enhancement Projects Selection Process Teams to UMRR Coordinating Committee members for electronic signatures. On November 3, 2021, the Coordinating Committee completed electronic signatures of the Joint Charter. Plumley expressed appreciation for the effort from the A-Team, District River Teams, and Coordinating Committee to update the Joint Charter. This is the first update since 2013 and helps set the sideboards for how various aspects of the program operate.

Communications

UMRR Communications and Outreach Team

Rachel Perrine said the UMRR Communications and Outreach Team's last monthly meeting on October 6, 2021 focused on UMRR 35th anniversary actions, the LTRM status and trends report, and a UMRR flyer. Jill Bathke said the COT has three ongoing initiatives to recognize and celebrate UMRR's 35th anniversary including finalizing the program flyer, developing a pull-down banner for public and groundbreaking events, and a video series. The team finalized the flyer design and content in October 2021. The flyer is geared toward a general audience with limited knowledge of UMRR and will highlight the value of the UMRS and benefits of UMRR in the context of water, wildlife, and way of life. The final version includes state department logos instead of state seals. The INHS logo will be added, and an electronic version of the flyer will be distributed to the partnership. The pull-down banner is anticipated to be completed in late 2021. The themes of the first four videos are:

1. What is UMRR: history and partnership
2. Success of UMRR
3. Science on the river
4. Future of UMRR

The team completed a draft of the first video highlighting UMRR history and partnership and played it for the UMRR Coordinating Committee. Comments on the video can be submitted to Bathke. Kirsten Wallace applauded the video and the team's efforts and said the authenticity of messages comes across clearly and that she is excited to share the final product. Bathke said the COT also developed a set of UMRR fast facts around three key messages related to the UMRS, UMRR, and LTRM and HREPs.

— UMRS Key Message: The Upper Mississippi River System (UMRS), which includes the Upper Mississippi River, Illinois River, and tributaries, is an excellent example of river management in the United States that balances many uses.

— UMRR Program Key Message: For over 35 years, the Upper Mississippi River Restoration (UMRR) program has enhanced and restored degraded habitat and natural resources in the internationally important Upper Mississippi River System (UMRS).

— LTRM/HREP Elements Key Message: Collection of water quality, vegetation, and fish community data within the Upper Mississippi River System (UMRS) helps the Upper Mississippi River Restoration (UMRR) program understand the river ecosystem so it can target habitat restoration and management actions to benefit the river and the public.

Each key message has supporting facts that can be referenced prior to public meetings and other engagements to ensure the partnership is sharing a consistent message. The COT sees this as a starting point for developing additional messages. COT members have the full document and can share it with their agencies. The COT is considering options for supporting the strategic rollout of the third UMRR LTRM status and trends report in the coming months.

Perrine said FY 2021 COT accomplishments include:

- Established team goal
- Created an updated UMRR program flyer
- Supported UMRR Coordinating Committee on the development of a storyline
- Initiated development of a communication and outreach materials inventory
- Created and executed an Earth Day social media campaign "Restore Our Earth"
- Created and distributed materials for UMRR 35th Anniversary – program flyer, video series, key messages

Perrine and Bathke expressed appreciation to the UMRR Coordinating Committee for support and COT members for their time and effort on the team's activities. Plumley expressed appreciation to Perrine and Bathke for their leadership and to partners for their willingness to engage on the COT. Hagerty, Fischer, and Sabrina Chandler echoed Plumley's sentiments. Ken Westlake agreed and said the products tell the UMRR story in a clear and engaging way.

External Communications and Outreach

Communication and outreach activities in the fourth quarter of FY 2021 include the following:

- Marshall Plumley said he and Brian Markert have had opportunities to engage with folks working on the Lower Mississippi River including an ongoing ecosystem restoration study in Memphis District as part of a larger Lower Mississippi River habitat restoration effort. Plumley said he shared lessons learned from a mature program and said it has helped to strengthen relationships on the Mississippi River as a whole. He expressed appreciation to Gretchen Benjamin for helping make the connection.

- Jim Fischer said, on November 3, 2021, he presented to Wisconsin floodplain managers on UMRR and Pool 8 HREPs. Jeff Janvrin presented to the UMRCC fish tech section on post-project fisheries response and observation on dissolved oxygen saturation in Spring Lake HREP in Pool 5. Fischer said Sara Strassman provided updates on HREPs and LTRM at the August and November 2021 Mississippi River Parkway Commission meetings. Shawn Giblin and Strassman submitted a report to the Wiki Climate Change page on the Mississippi River. Fischer noted the value of UMRR building resilience in the river ecosystem, considering how HREPs are implemented to be resilient to climate change. Fischer said he has also been working with Wisconsin's Office of Great Waters to renew their Mississippi River web presence. They are developing a business case that will be sent for division approval and would help enhance their capability to share UMRR news. Fischer said LTRM field station staff are wrapping up their season and have ample opportunities at boat landings to engage and educate the curious public about UMRR and LTRM, including by distributing UMRR business cards. Andrew Stephenson expressed appreciation for the effort to

improve the web presence. Fischer said the Wisconsin DNR communications staff responded with enthusiasm and agreed there was a great deal of Mississippi River work that should be highlighted.

- Sabrina Chandler reported that USFWS recently acquired land at the Port Louisa Refuge near the Keithsburg HREP through funding from Migratory Bird Conservation Fund. Chandler provided a presentation overviewing the type of habitat on the property, planned habitat restoration, and anticipated use of the property to the Migratory Bird Conservation Committee, which is chaired by the Secretary of the Interior. Chandler noted that the property is complementary to ongoing restoration at the Keithsburg HREP. In response to a question from Sen. Martin Heinrich of New Mexico about the restoration project, Chandler said she had a unique opportunity to discuss UMRR HREPs with an important audience that included multiple Senators and others. Sen. Heinrich expressed interest in the work and asked follow-up questions.

- Mark Gaikowski said Jeff Houser, KathiJo Jankowski, and Danelle Larson presented overviews of the LTRM status and trends report, LTRM water quality, and aquatic invasive species, respectively, at the Upper Mississippi River Conference in October 2021. Randy Hines discussed UMRR and LTRM during interviews regarding recent joint MUM invasive carp removal efforts.

- Kirsten Wallace said UMRBA and UMESC were invited to present at the December 13 and 14, 2021 Hypoxia Task Force (HTF) meeting. The presentation will focus on UMRR LTRM nutrient trends and UMRBA's *How Clean is the River* report. It will provide a good portrayal of federal and state agencies working together on the Upper Mississippi to collect this information and use it in decision making. One of the primary goals is to help connect LTRM data with investment and activities in the watershed. The HTF meets twice each year and includes leadership from many agencies.

- Megan Moore said Rob Burdis from the Minnesota LTRM field station presented to the UMRCC water quality tech section regarding his zooplankton research and Eric Lund presented to an internal Minnesota DNR audience regarding the integration of LTRM and HREPs.

UMRR Showcase Presentations

FY 2021 LTRM Accomplishments

Jennie Sauer overviewed FY 2021 LTRM accomplishments. Sauer said that Attachment D of the meeting agenda packet includes a chart of LTRM milestones. She expressed appreciation to all the technicians, field station leaders, and others who have contributed to data collection and analysis. Base monitoring accomplishments include:

- **Fisheries component:** LTRM has the most extensive fisheries dataset for a great river in the world, which includes 28 years of standardized scientific data capturing fish community. Abundance and diversity of fisheries is high despite invasion of bigheaded carp species. There are multiple publications underway. Upcoming work includes QA/QC, net mending, fish sorting, and report writing. Additional fisheries projects include vital rates, smallmouth buffalo recruitment, vegetation and fish response to environmental pool management, and large woody debris occurrence.
- **Aquatic vegetation component:** LTRM has the largest aquatic vegetation dataset in the world, which includes 22 years of data, capturing plant community changes and recovery of aquatic vegetation in the Upper Impounded Reach. Multiple publications are underway. In 2021, abundance and diversity of aquatic vegetation is high despite new and concerning invasion of flowering rush. The first alert of flowering rush, an invasive species, came from the LTRM field stations in 2020. Detections from LTRM observations in Pools 4, 8, and 13 are being submitted to EddMapS. A predictive model of SAV presence is being developed and

preliminary findings suggest 88 percent prediction accuracy with nine variables, including water quality data, demonstrating integration of LTRM components data.

- **Water quality component:** Includes 28 years of data to capture spatially and temporally dynamic water quality changes in response to watershed changes. Multiple publications are underway. In 2021, continued chloride monitoring and phytoplankton research will occur. The LTRM water quality lab at UMESC conducts over 50,000 analyses per year, maintaining high standards demonstrated through voluntary participation in standards comparison tests with other USGS labs.
- **Other:** Activities under base monitoring also include the UMRR LTRM all-hands meeting that was held March 30-31, 2021; expansion of LTRM fisheries sampling designs, methods, and procedures to all UMR navigation pools bordering the state of Illinois; efficient and effective data management and uploading; maintenance of graphical browsers for easy access of summarized data; and involvement in HREP PDTs.

Science in support of restoration and management research activities include:

- Understanding constraints on submerged aquatic vegetation distribution in the UMRS
- Interpretation of 2020 systemic land cover/land use data
- Refining Upper Mississippi River's ecosystem states framework
- Midwest climate change vulnerability assessment
- UMRS resilience assessment
- Ecohydrology projects
- Improving our understanding of historic, contemporary, and future UMRS hydrology
- Developing a better understanding of geomorphic changes
- Systemic analysis of hydrogeomorphic influences on native freshwater mussels
- Combining genetics, otolith microchemistry, and vital rate estimation to inform restoration and management of fish populations in the UMRS
- Understanding physical and ecological differences among side channels of the UMRS
- Development of a standardized monitoring program for vegetation and fish response to environmental pool management practices in the UMRS
- IWW lock closure fisheries and vegetation monitoring
- Wild celery winter bud dynamics in Pools 4, 8, and 13 of the UMR
- Reforesting UMRS forest canopy openings occupied by invasive species
- Forest response to multiple large-scale inundation events
- Using dendrochronology to understand historical forest growth, stand development, and gap dynamics

Karen Hagerty and Matt Vitello applauded the LTRM field stations and UMESC staff for the outstanding science contributions from LTRM. Andrew Stephenson, Jim Fischer, and Sabrina Chandler agreed, and Stephenson noted it is a monumental point for science on the river. Fischer said there is a great deal of work behind the scenes, including the barcode system during QA/QC to ensure high data integrity. Megan Moore expressed appreciation for the LTRM year-in-review and said that it confirms why she has so much pride in the program. Moore also said another great addition in planning has been the focal areas, which have helped to develop the knowledge and story of the river. Hagerty

noted that providing accessibility to the information via the website and graphical browser has been a big achievement as well.

FY 2021 HREP Accomplishments

HREP District Managers summarized FY 2021 HREP accomplishments in their respective districts. Angela Deen said MVP awarded two construction contracts for Harpers Slough repairs and McGregor Lake. Repair of three flood-damaged islands at Harpers Slough was a new challenge for the program. The district coordinated closely with MVD on the best approach and drafted a letter report and plans and specs for the repair. Because the repair contract was lower than expected, the district was able to combine savings with funds from MVR to award the third option on the McGregor Lake contract. The Reno Bottoms HREP team developed two feasibility tools to help data-driven decision making, the USGS forest succession model and floodplain forest HEP model. The forest succession model generated maps incorporating climate change, invasive species, and land-use change that were used to formulate alternatives and the floodplain forest HEP model will be used to calculate ecosystem benefits. Reno Bottoms is the first project in the district with a forest focus, but the district has additional forest-focused projects in the queue and will utilize these models again. A successful drawdown at Bass Ponds resulted in excellent vegetation establishment, including wild rice. All five of the districts next generation fact sheets have been approved and the district has initiated feasibility for the first of these projects, Lower Pool 4 Big Lake. The district used a variety of methods to engage with stakeholders. These included traditional press releases on five contract awards and public review notices as well as new methods such as distributing posters and flyers at boat launches, increased signage at HREPs during construction, online videos for public comment, answering questions at a groundbreaking via Facebook Live, and participating in the UMRR Earth Day social media campaign "Restore our Earth." Davi Michl said MVR is also using the new Forestry Habitat Suitability Index model on Pool 12 Forestry HREP. In response to a question from Stephenson, Deen said final grading and seeding at Harpers Slough will occur in 2022.

Julie Millhollin reported that MVR advanced feasibility for three projects, including Lower Pool 13, Green Island, and Pool 12 forestry. The PDT finished identifying the western area for Lower Pool 13 and looked at water level management. A virtual open house was held for Green Island. The PDT is drafting the first three chapters of the feasibility report, held a measures workshop, and is addressing comments to move to alternatives identification. The district's design priorities included Steamboat Island Stage 1 and Keithsburg Division Stage 2a. Design of Steamboat Island is nearly complete. A design contract was awarded in September 2021 for Keithsburg Stage 2A. The project was divided into smaller pieces including building and tree clearing and pump and fuel trailers to facilitate contract awards. The district had four projects in construction. Construction began on the spillway at Keithsburg Division Stage 1 following delay from an eagle nest. Dredging is complete and placement sites are drying prior to shaping at Beaver Island Stage 1B. Pool 12 Overwintering construction was completed, and the project is being closed out. ERDC planted aquatic plants at Huron Island and monitoring is ongoing. Blanket Purchase Agreements (BPAs) with the US Forest Service facilitated 57 acres of containerized trees and shrubs at Pool 12 Overwintering and planting of 3,500 bare root seed tress and 4,000 containerized herbaceous plants at Huron Island. Two contracts were awarded for future timber stand improvement (TSI) and planting work at Beaver Island. Three separate contracts were completed for timber inventory activities. MVR created three YouTube videos to facilitate open houses and utilized Facebook and Twitter to communicate about UMRR including by participating in the UMRR Earth Day social media campaign.

In response to a question from Andrew Stephenson, Millhollin said the District is trying to create a ribbon cutting video for Pool 12 and will likely continue to create videos for public open houses in the future. Deen said pre-pandemic open houses were sparsely attended and that videos can reach a broader audience on their own time. MVP plans to utilize additional videos and social media posts in the future. In response to a question from Fischer, Deen said video links are available on the District website but

not on the program's "Find an HREP" page. Jill Bathke said links for Reno Bottoms are in both places. Fischer said the "Find an HREP" tool is useful for finding all the information on a project and suggested including links to the open house videos if not already done. Karen Hagerty agreed, noting that project storymaps are an improvement over static pages. Hagerty offered to explore the capability. Perrine suggested that future open houses should be advertised as interactive to encourage attendance even if a video is available. Fischer asked Millhollin if cuttings from TSI could be used for habitat purposes. Millhollin said flood damaged trees may not serve well as large woody debris because they break apart when chopped down, but that she would follow-up with a forester regarding the amount of suitable wood for habitat creation from TSI activities and report back. In response to another question from Fischer, Millhollin said contracts vary, but cuttings are usually burned on site or hauled off site, depending on how easy or hard areas are to access with equipment. Fischer suggested future consideration of using trees for habitat by anchoring in aquatic areas.

Brian Markert expressed appreciation to all implementing partners and said the strength and diversity of program partners help to make the program a success. Like the other districts, MVS has emphasized social media and videos to facilitate PDTs and stakeholder interaction over the last year. Markert reported that MVS completed construction at Ted Shanks HREP. Ted Shanks was one of the first projects to incorporate hydrogeomorphic analysis. Markert recognized the contributions of all PDT members, past and present, retired and still working, who helped make the project a success including retired site manager Mike Flaspohler, staff from Ducks Unlimited and Greenbrier Wetland Services, and USACE-Vicksburg District staff. The district advanced construction on three projects: Crains Island, Clarence Cannon, and Piasa and Eagles Nest. The sediment deflection berm, dike removals, and wetland excavation were completed at Crains Island. The pump station at Clarence Cannon is nearly complete and the berm setback was advanced to sixty-five percent. Low water slowed construction of Piasa and Eagles Nest. Design contracts are ready to advertise for Piasa and Eagles Nest Stage 2, Crains Island Stage 2, and Harlow Island Stage 1. The value engineering workshop was completed for Oakwood Bottoms and four plans and specs packages are being prepared. Feasibility planning was advanced for Yorkinut Slough and West Alton Islands. An in-progress review for Yorkinut Slough will be scheduled with MVD and a virtual kickoff meeting was held for West Alton Islands. MVD approved four of the MVS's six next generation fact sheets.

Long Term Resource Monitoring and Science

FY 2021 4th Quarter Report

Jeff Houser reported that accomplishments of the fourth quarter of FY 2021 include publication of the following manuscripts and completion report:

- *The ecology of river ice*. This paper was the product of an American Geophysical Union (AGU) Chapman Conference that brought together researchers focused on ice dynamics and river ecology. KathiJo Jankowski was a lead author on this literature review that integrated knowledge of current and future ice processes with what is known about ecological processes and communities. Houser said ice, its ecological effects, and our knowledge of both are not uniform across river networks. There is more extensive study of ice dynamics in larger rivers (economic importance, visible from satellites) but more ecology research in small streams (easier to work in over winter).
- *Warmer winters increase the biomass of phytoplankton in a large floodplain river*. Winter productivity is important in sustaining phytoplankton populations through the winter, but we know little about how it varies across habitats and reaches of the UMRS or how it will respond to warming temperatures. This manuscript addressed how winter and summer chlorophyll compare, if winter chlorophyll dynamics are similar across river reaches and lotic-lentic areas, and identified environmental drivers of winter chlorophyll dynamics. Results showed that, on

average, winter chlorophyll was lower than in summer, but not always. Winter chlorophyll was equal to or greater than summer levels in some areas and was highest in the backwaters. Winter chlorophyll dynamics over time were similar in main channel and impounded areas but were distinct in backwaters. The biggest effect was attributed to the number of freezing degree days. As winters warm, productivity can be expected to increase.

— *Spatial and temporal dynamics of phytoplankton assemblages in the Upper Mississippi River*. This study used phytoplankton samples from the UMRR-LTRM 2006-2009 data in Pools 8, 13, and 26 to assess algal community changes spatially. The three most common genera of phytoplankton (*Aulacoseira, Aphanizomenon, and Microcystis*) were all indicators of eutrophication. The main channel was dominated by cyanobacteria or diatoms. Backwaters were similar, but typified by flagellated species, which are important to larval fish. Nutrient limitation was not common, and discharge was more important for community composition. One-tenth of samples could be classified as a moderate-to-severe cyanobacteria bloom.

— *Evaluation of a "trace" plant density score in LTRM vegetation monitoring*. The project assessed the benefits of increasing the resolution of rake scores in a way that would also be compatible with current and past sampling. LTRM data show that rake scores of 1 represent a wide range of plant masses. This study determined that rake scores of trace (i.e., 0.08), 1, and >1 were differentiated by mass for unbranched morphology (i.e. Vallisneria) and branched (all other species). Authors recommend that trace rake scores be adopted as permanent in LTRM methods to better connect vegetation and biomass.

Status and Trends 3rd Edition

Houser reported that the UMRR LTRM Status and Trends Report 3rd Edition is being reviewed by USGS' Science Publishing Network (SPN) to produce a final version of the report in calendar year 2022. A small group is planning for a strategic rollout for report.

2022 Science Meeting

Houser said planning for the 2022 LTRM Science Meeting is underway. The meeting is anticipated to be held virtually in February 2022, pending results of an upcoming scheduling poll.

Houser said that two webinars describing ongoing research within the Upper Mississippi River Restoration (UMRR) program and its long term resource monitoring (LTRM) element will be held on December 2 and December 7, 2021. These webinars will provide updates on research projects supported by UMRR science in support of restoration funds. Each webinar will consist of a series of eight five-minute presentations, with time afterwards for questions to all speakers and discussion. Karen Hagerty said that interested individuals could email Houser or herself for the webinar information.

Land Cover/Land Use Processing

Jennifer Dieck reported that land cover/land use (LCU) processing is underway. Mapping has been completed for Pools 4, 8, 13, 26, and half of open river south and is underway for La Grange Pool. An unexpected retirement has reduced mapping capacity. Andrew Strassman is expected to complete La Grange Pool in December and begin the second half of open river south in FY 2022. Field work has been completed for Pools 9, 10, 11, 12, and Alton Pools. The A-Team was asked to provide feedback regarding which of those pools should be prioritized for mapping in FY 2022. USGS is moving forward with recruitment to hire another mapper.

USACE LTRM Report

Karen Hagerty said UMRR's LTRM FY 2022 budget allocation will follow FY 2021 allocations if the program receives $33.17 million in funding. That is, $6.3 million ($5.0 million for base monitoring and $1.3 million for analysis under base) with an additional $2.5 million available for "science in support of restoration and management." Under the continuing resolution, base monitoring has only been partially funded. The bulk of science in support of restoration and management funds, approximately $1.7 million, will go to proposals from 2022 science meeting. Existing funding commitments for three projects total $740,000. Funds may also be used to support LCU processing. In response to a question from Andrew Stephenson, Hagerty said that the LCU staffing vacancy does not affect the ability to fund processing work.

LTRM Implementation Planning

Hagerty reported that the *ad hoc* LTRM implementation planning team has held recurring bi-weekly meetings with the selected facilitators, Max Post van der Burg and Dave Smith from USGS. *Ad hoc* team members include:

Jim Fischer	Mark Gaikowksi	Marshall Plumley	Kirsten Wallace
Matt Vitello	Jeff Houser	Karen Hagerty	Andrew Stephenson
Nick Schlesser	Jennie Sauer		

The team is currently working to refine the problem statement and identify twenty potential participants representing the diverse partnership for workshop involvement. If held virtually, it is anticipated that implementation planning workshops would consist of a series of two to three hour calls over six to seven weeks. Jennie Sauer expressed appreciation to the planning team members and said the large planning process will benefit from input from the whole partnership.

A-Team Report

Scott Gritters said the A-Team met via webinar on November 3, 2021. Topics discussed include UMRR updates, recent LTRM science publications, detection and management of flowering rush, reinstating macroinvertebrate monitoring, continued impacts of COVID-19 on agency policies and practices, and an introduction to staff at the Open River Field Station by Dave Herzog. Gritters said agencies varied considerably with current COVID-related restrictions with some fairly regulated and others not. Gritters reported that Danelle Larson and Steve Winter led a discussion on flowering rush including initial detection and potential management actions. Flowering rush was first detected by LTRM in 2000, is now found mostly upstream of Pool 13, and was observed in seven percent of sampling sites in Pool 13 during 2021. It can occur in monotypic stands or mixed with other vegetation and expresses differently when dormant under high water or blooming under low water conditions. When dormant, it can be hard to identify as it resembles *Valisnaria*. Submersed application of the chemical Diquat has been identified as a possible means to manage flowering rush, but differences in state regulations and approval processes for chemical application have limited the areas where it can currently be implemented. Gritters said Jim Lamer provided an update on proposal development for reinstating the macroinvertebrate component of LTRM. It included a power analysis to estimate sampling requirements for statistically defensible analyses and compare to previous sampling efforts. Agencies and field stations indicated a willingness to conduct sampling if it were in line with past macroinvertebrate sampling requirements. Lamer's analysis suggested that backwater and impounded areas could be adequately sampled, but that side channel and main channels may not be suitable. In response to a question from Stephenson, Gritters said rock bag sampling may be a tool to add to the arsenal to have a systemic assessment of invertebrates. In response to a question from Lauren Salvato, Hagerty said macroinvertebrates will be a focal area at the next science meeting. Jim Fischer expressed appreciation to Gritters and Lamer for leading that discussion but questioned if the macroinvertebrate proposal should be considered as part of the science meeting or LTRM implementation planning. Hagerty agreed and said it will be a part of those discussions as well. Sabrina Chandler said the Refuge submitted an internal proposal to receive USFWS funds to address

flowering rush and that conversations with states on permitting issues are ongoing. She added that the refuge and federal requirements have high bars for approval and funding to apply chemicals for management purposes. Fischer said it may be worthwhile to have discussions about a Memorandum of Agreement between the Refuge and states for rapid response and to avoid permitting challenges. Chandler welcomed those discussions and any additional suggestions or aid in facilitating permit requests. [Note: The A-Team's next meeting is anticipated to be held in conjunction with the 2022 Science Meeting.]

Navigation and Ecosystem Sustainability Program

Andrew Goodall said the focus for NESP during FY 2021 has been to advance projects to construction readiness. Navigation and ecosystem projects that will be construction ready for FY 2022 include:

Navigation (Total $12.5M)
- Lock 25 Lockwall Modifications
- Lock 14 Mooring Cell
- Moore's Towhead Systemic Mitigation

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

A map of construction ready projects under NESP can be found on the NESP website at: https://www.mvr.usace.army.mil/Missions/Navigation/NESP/. Goodall said the NESP authorization requires advancing both large scale (e.g., L&D 25 Lockwall Modifications) and small scale (e.g., L&D 14 Mooring Cell) navigation projects, not one then the other. NESP projects were submitted for inclusion in the Corps' potential work plan associated with the Infrastructure Investment and Jobs Act. Project names and funding amounts are anticipated to be released in 30 to 60 days. Goodall expressed appreciation to the District-based River Teams that were asked to identify additional ecosystem projects for implementation under NESP. Twenty-nine projects across three districts were identified as priority projects. Twelve "Group 1" projects were selected for fact sheet development and have been sent to MVD for approval. A map of these projects is being developed and will be posted to the USACE NESP webpage once complete.

Carryover funds from FY 2021 will be used to continue advancing L&D 25 design work and L&D 22 fish passage. The L&D 22 Fish Passage Improvement Project Implementation Report is being transmitted to USACE Headquarters for approval by Chief of Engineers. Fish passage projects are the only projects that need to be submitted to that level and Lieutenant General Spellmon has indicated interest in delegating approval to MVD in the future. The L&D 22 fish passage team is continuing fish passage coordination, specifically regarding pre-project monitoring to inform adaptive management after construction is completed. The Fish Passage Science Panel will meet on November 29 and December 15, 2021 to plan and hold a virtual charette to determine necessary pre-project monitoring to inform an adaptive management plan for the project. Fish Passage Science Panel members include:

Mark Cornish, USACE
Collin Moratz, USACE
Rachel Hawes, USACE
Kara Mitvalsky, USACE
Tara Gambon, USACE
Kevin Haupt, USFWS
Sara Schmuecker, USFWS
Marybeth Brey, USGS
Andrea Fritts, USGS
Grace Loppnow, MN DNR
Ben Larson, MN DNR
Dave Heath, WI DNR
Ryan Hupfeld, IA DNR
David Glover, IL DNR
Matt O'Hara, IL DNR
Travis Moore, MO DoC
Annie Hentschke, MO DoC
John West, MO DoC
TBD, EPA

An updated monitoring and adaptive management plan is anticipated in January 2022. Initiation of monitoring activities is expected to begin in February 2022 and monitoring is expected to occur from March to September 2022. In response to a question from Karen Hagerty, Goodall and Rachel Hawes said a contract action is anticipated for monitoring activities. In response to a question from Andrew Stephenson, Goodall said that two years of pre-project monitoring is desired, but not required in the authorization. Stephenson expressed appreciation for the emphasis on pre-project monitoring as adaptive management is a keep feature of this fish passage project and future NESP projects.

Habitat Restoration

Angela Deen said MVP's planning priorities include Lower Pool 4, Reno Bottoms, and Lower Pool 10. A kickoff meeting for Lower Pool 4 was held virtually. Reno Bottoms is continuing in feasibility with formulation of alternatives. District quality control was completed for Lower Pool 10 and a final report is anticipated to be submitted to MVD in early 2022. MVP has four projects in construction totaling 5,000 acres. McGregor Lake is sixty-five percent complete. The next task at McGregor Lake is to divide Option 2 into smaller pieces, re-advertise by summer, and award at the end of FY 2022. Harpers Slough, Bass Ponds, and Conway Lake are all over eighty-five percent complete. Low water is needed at Harpers Slough for final grading and seeding in the spring. Bass Ponds is nearly complete, a pre-final inspection was held on November 16, 2021, and a ribbon cutting ceremony is anticipated for May or June 2022. A tree planting contract was awarded for Conway Lake and may be scheduled to coincide with Earth Day celebrations. The District is also wrapping up three project evaluation reports.

Julie Millhollin said MVR's planning priorities include Lower Pool 13, Green Island, Pool 12 Forestry, and Quincy Bay. The Lower Pool 13 PDT has identified alternatives for the western area. The Green Island PDT hopes to finalize alternatives in the coming months. The Pool 12 Forestry PDT held a measures workshop in September and is addressing public comments on chapters one to three. An in-person kickoff meeting and site visit for Quincy Bay was held in October 2021. MVR's design priorities are Keithsburg Division Stage 2 and Steamboat Island Stage I. The 100 percent review for Steamboat Island started on November 2, 2021. MVR has four projects in construction. Pool 12 Overwintering Stage 2 is complete, and the contract is being closed out. The contractor at Keithsburg Division Stage 1 started working on the spillway. ERDC completed aquatic vegetation monitoring at Huron Island Stage 3 in September 2021. The contractor at Beaver Island continues to work on shaping the placement sites. MVR is addressing sponsor comments on the Upper Pool 13 and Multi Pool Habitat Protection fact sheets prior to submitting to MVD. MVD is reviewing the Geneva and Hershey Island fact sheet.

Brian Markert said MVS's planning priorities include West Alton Islands and Yorkinut Slough. Several site visits were conducted at West Alton Islands and feasibility planning continues. Measures and alternatives development is progressing well for Yorkinut Slough and an IPR is being scheduled with MVD. 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 Stage 2. 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 for advertising in the third quarter of FY 2022. Construction at Crains Island is ahead of schedule and one of two modifications has been completed. Construction of a rock structure at Piasa & Eagles Nest has begun and Stage 2 dredging will follow. Work on the pump station and berm setback are ongoing at Clarence Cannon. Other MVS activities include a flood damage assessment on Swan Lake HREP and summarizing lessons learned from past and current HREP construction efforts. Markert said that turnover and retirement has led to few staff being familiar with legacy projects and said there is a larger regional effort to capture and share lessons learned from HREP planning and construction. In response to a question from Ken Westlake, Markert said that Illinois DNR and TNC collectively own nearly an entire levee district and have expressed a desire to move an older CAP project to UMRR. Extensive data is available for the area of interest, but the agencies will need to

develop a fact sheet. In response to another question from Westlake, Markert said it was his understanding that the project would move to UMRR, not NESP, but that decision resides with sponsors.

Other Business

Upcoming quarterly meetings are as follows:

- **February 2022 – TBD**
  - UMRBA quarterly meeting – February 22
  - **UMRR Coordinating Committee quarterly meeting – February 23**
- **May 2022 – TBD**
  - UMRBA quarterly meeting – May 24
  - **UMRR Coordinating Committee quarterly meeting – May 25**
- **August 2022 – TBD**
  - UMRBA quarterly meeting – August 9
  - **UMRR Coordinating Committee quarterly meeting – August 10**

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 1:45 p.m.

UMRR Coordinating Committee Virtual Attendance List
November 17, 2021

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
Ben Robinson	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
Chris Erickson	U.S. Army Corps of Engineers, MVP
Dave Potter	U.S. Army Corps of Engineers, MVP
Jill Bathke	U.S. Army Corps of Engineers, MVP
Marshall Plumley	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
Rachel Hawes	U.S. Army Corps of Engineers, MVR
Rachel Perrine	U.S. Army Corps of Engineers, MVR
Megan Medinger	U.S. Army Corps of Engineers, MVR
Andrew Goodall	U.S. Army Corps of Engineers, MVR
Brian Markert	U.S. Army Corps of Engineers, MVS
Brian Johnson	U.S. Army Corps of Engineers, MVS
Jasen Brown	U.S. Army Corps of Engineers, MVS
Greg Kohler	U.S. Army Corps of Engineers, MVS
Brandon Schneider	U.S. Army Corps of Engineers, MVS
Robin Schoemehl	U.S. Army Corps of Engineers, MVS
Katy Smith	U.S. Army Corps of Engineers
Sara Schmuecker	U.S. Fish and Wildlife Service, IIFO
Matt Mangan	U.S. Fish and Wildlife Service, IIFO
Tim Yager	U.S. Fish and Wildlife Service, UMR Refuges
Neal Jackson	U.S. Fish and Wildlife Service, UMRCC
Lincoln Oliver	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
JC Nelson	U.S. Geological Survey, UMESC
Molly Van Appledorn	U.S. Geological Survey, UMESC
KathiJo Jankowski	U.S. Geological Survey, UMESC
Jason Rohweder	U.S. Geological Survey, UMESC
Jayme Strange	U.S. Geological Survey, UMESC

Scott Gritters	Iowa Department of Natural Resources
Kirk Hansen	Iowa Department of Natural Resources
Kevin Stauffer	Minnesota Department of Natural Resources
Steve Galarneau	Wisconsin Department of Natural Resources
Sara Walling	Wisconsin Department of Agriculture, Trade and Consumer Protection
Kim Lutz	America's Watershed Initiative
Doug Daigle	Lower Mississippi River Sub-basin Committee
Mike Klingner	Upper Mississippi, Illinois, and Missouri Rivers Association
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

ATTACHMENT B

Regional Management and Partnership Collaboration

- **UMRR Quarterly Budget Reports (1/11/2022)** *(B-1 to B-3)*

UMRR Quarterly Budget Report: St. Paul District

FY2022 Q1; Report Date: Tue Jan 11 2022

Habitat Projects

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

Habitat Rehabilitation

Subcategory	FY2022 Financials			
	Carry In	Allocation	Funds Available	Obligations
District Program Management	-	-	-	$84,749
Total	-	-	-	$84,749

Regional Program Administration

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

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

UMRR Quarterly Budget Report: Rock Island District

FY2022 Q1; Report Date: Tue Jan 11 2022

Habitat Projects

Project Name	Cost Estimates			FY2022 Financials			
	Non-Federal	Federal	Total	Carry In	Allocation	Funds Available	Actual Obligations
Beaver Island	-	$25,288,000	$25,288,000	-	$1,038,000	$1,038,000	$35,194
Green Island, IA	-	$16,600,000	$16,600,000	$12	$500,000	$500,012	$137,490
Huron Island	-	$15,773,000	$15,773,000	-	$160,000	$160,000	$2,698
Keithsburg Division	-	$29,643,000	$29,643,000	$19,488	$3,829,000	$3,848,488	$155,150
Lower Pool 13	-	$25,288,000	$25,288,000	$1,039	$600,000	$601,039	$128,658
Pool 12 (Forestry)	-	-	-	$88,200	$500,000	$588,200	$120,926
Pool 12 Overwintering	-	$20,870,822	$20,870,822	-	-	-	-$1,005
Quincy Bay, IL	-	-	-	$2,947	$500,000	$502,947	$89,017
Rice Lake, IL	$7,280,000	$13,459,763	$20,739,763	$118,025	-	$118,025	$2,413
Steamboat Island	-	$41,977,000	$41,977,000	-	$325,000	$325,000	$100,250
Total	$7,280,000	$188,899,585	$196,179,585	$229,711	$7,502,000	$7,731,711	$770,791

Habitat Rehabilitation

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

Regional Program Administration

Subcategory	FY2022 Financials			
	Carry In	Allocation	Funds Available	Obligations
Adaptive Management	-	$200,000	$200,000	$589
Habitat Eval/Monitoring	$96	$1,125,000	$1,125,096	$43,788
Model Certification/Regional HREP	-	$100,000	$100,000	$3,958
Public Outreach	-	$50,000	$50,000	$6,898
Regional Program Management	-	$1,400,000	$1,400,000	$323,831
Regional Project Sequencing	-	$125,000	$125,000	$3,344
Total	$96	$3,000,000	$3,000,096	$382,408

Regional Science and Monitoring

Subcategory	FY2022 Financials			
	Carry In	Allocation	Funds Available	Obligations
Long Term Resource Monitoring	-	$5,000,000	$5,000,000	$4,310,404
Science in Support of Restoration/Management	-	$3,800,000	$3,800,000	$65,971
Total	-	$8,800,000	$8,800,000	$4,376,375

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

UMRR Quarterly Budget Report: St. Louis District

FY2022 Q1; Report Date: Tue Jan 11 2022

Habitat Projects

Project Name	Cost Estimates			FY2022 Financials			
	Non-Federal	Federal	Total	Carry In	Allocation	Funds Available	Actual Obligations
Clarence Cannon	-	$29,800,000	$29,800,000	-	$750,000	$750,000	$74,393
Crains Island	-	$36,562,000	$36,562,000	$28,498	$1,900,000	$1,928,498	$305,584
Harlow Island	-	$37,971,000	$37,971,000	-	$325,000	$325,000	$7,000
Oakwood Bottoms	-	$29,000,000	$29,000,000	-	$675,000	$675,000	$253,642
Piasa - Eagle's Nest Islands	-	$26,746,000	$26,746,000	-	$2,575,000	$2,575,000	$2,061,204
West Alton Missouri Islands	-	-	-	-	$450,000	$450,000	$31,560
Yorkinut Slough, IL	-	$8,500,000	$8,500,000	$9,343	$425,000	$434,343	$69,790
Total	-	$168,579,000	$168,579,000	$37,841	$7,150,000	$7,187,841	$2,803,173

Habitat Rehabilitation

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

Regional Program Administration

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

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

ATTACHMENT C

Communications

- **Status and Trends Report 3rd Edition Rollout (2/2022)** *(C-1 to C-10)*

UMRR Status and Trends Report Release

Problem/Opportunity:

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

Purpose:

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

Communication Goals:

Inform and educate all interested parties with accurate and timely information.

Provide communication tools which can be used by UMRR partners to offer consistent synchronized messaging about the third status and trends report.

Communication Objectives:

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

Strategies and Tactics:

Strategy: Create tools and products to encourage target audiences to engage with the information in the third status and trends report, understand the fundamental role of long-term monitoring in the management of the UMRS, and to increase appreciation of the UMRS as a large and diverse river system with many regional differences.

Tactics:
Targeted presentations focused on federal and state agencies working together on the Upper Mississippi River System to collect information and use it in decision making.
Coordinated press release across UMRR partner agencies to include common elements and unique elements.
Create an animated GIF for use on social media and partner websites to educate audiences about the high-level takeaways from the report.

Key Messages:

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

UMRR Status and Trends Report Release

Background:

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

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

Milestones:

1980 – Six state field stations established

1986 – Congress recognized the UMRS as a nationally significant ecosystem and commercial navigation system. The 1986 WRDA authorized the Upper Mississippi River Restoration Program (UMRR). LTRM funding authorized at $5.08 million/year.

1989 – First collection of UMRR LTRM Land Cover/Land Use data

1993 – LTRM begins sampling with random stratified design.

1998 – First Ecological Status & Trends Report

1999 – The 1999 WRDA reauthorized UMRR as a continual and expanded program and combined the authority for a computerized inventory and analysis system with the monitoring element and added applied research. LTRM authorized funding increased to $10.42 million/year.

2008 – Second Ecological Status & Trends Report

2020 – The 2020 WRDA increased authorized LTRM funding to $15 million/year.

2022 – Third Ecological Status & Trends Report

UMRR Status and Trends Report Release

General Talking Points:

- The Upper Mississippi River Restoration (UMRR) program will publish its third status and trends assessment of the Upper Mississippi River System in March 2022. This report is a significant accomplishment for UMRR and includes important information about the river ecosystem.
- The report synthesizes 25 years of long term resource monitoring data into a broadly accessible and concise description of what we have learned about changes in the UMRS from nearly three decades of monitoring and analysis.
- The report identifies statistically significant trends in ecological conditions of the UMRS. It includes information on water quality, aquatic vegetation, and fisheries data from six unique study areas as well as select system-wide data for possible drivers of UMRS ecological dynamics, including hydrology, geomorphology, and land cover.
- The UMRS is a large and diverse river system with many regional differences. Long-term monitoring across the system has allowed us to observe changes that have occurred widely across the system and those that have occurred only in parts of the system.

  Water Quantity: Throughout the system, there is more water, more of the time. High flows are lasting longer and are occurring more frequently throughout the system.

  Water Quality: The UMRS remains eutrophic in many reaches and nutrient concentrations (Total Nitrogen and Total Phosphorus) exceed EPA benchmarks. But there is evidence of improvement in Total Phosphorous (TP) concentrations in some reaches.

  Water Clarity: In most of the system, water clarity has increased in the main channel. In some areas of the river, this increase in water clarity was associated with a large increase in the abundance of aquatic plants.

  Forest Loss: Floodplain forest area has declined in most of the system. High water conditions extending later into the growing season are damaging the river's floodplain forests. New hardwood trees are unable to establish and mature, leaving significant gaps in the forest canopy
- Long-term monitoring provides river managers with the data and science needed for effective multipurpose management for this nationally significant navigation and ecosystem.

UMRR Status and Trends Report Release

Supplemental Information:

UMRR program

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

LTRM datasets:

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

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

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

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

UMRR Status and Trends Report Release

Supplemental Information *(continued)*:

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

  Lake City, MN

  La Crosse, WI

  Bellevue, IA

  Havana, IL (Illinois River Biological Station)

  Alton, IL (Great Rivers Field Station)

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

UMRR Status and Trends Report Release

Q&As

What is UMRR?

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

What is LTRM?

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

Why is Long Term Resource Monitoring important?

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

How is LTRM funded?

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

What information is included in the report?

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

When were the other two status and trends reports published?

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

UMRR Status and Trends Report Release

Q&As *(continued)*

How is LTRM data collected?

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

Why does LTRM monitor water quality?

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

Why does LTRM monitor aquatic vegetation?

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

Why does LTRM monitor fish communities?

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

Why does LTRM collect landcover data?

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

UMRR Status and Trends Report Release

Engagement Strategy

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

UMRR Status and Trends Report Release

Proposed Schedule

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

Notes:

Outreach activities have included:

- Meeting presentations (Internal)
- Conference presentations (External)

Future:

Press release

A “glossy” report summary (~4 pages) is anticipated in the future.

UMRR Status and Trends Report Release

Coordinated Press Release

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

ATTACHMENT D

Program Reports

- **Long Term Resource Monitoring and Science**
  - **Base Monitoring Scope of Work thru 1st Quarter of FY 2022 (2/4/2022)** *(D-1 to D-4)*
  - **FY 2022 UMRR Science Activities in Support of Restoration and Management (2/4/2022)** *(D-5 to D-12)*
  - **FY 2014 and FY 2015 UMRR Science Activities in Support of Restoration and Management (1/27/2022)** *(D-13)*

Tracking number	Milestone	Original Target Date	Modified Target Date	Date Completed	Comments	Lead
Aquatic Vegetation Component						
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				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
Intended for distribution						
Manuscript: Estimated annual summer submersed aquatic macrophyte standing stocks (1998 - 2018) in three large reaches of the Upper Mississippi River. (2020A8; accepted by Journal of Fish and Wildlife Management, IP-122160)						
Fisheries Component						
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				Ickes, Schlifer
	c. Field Station QA/QC with corrections to USGS	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				Ickes and Schlifer

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				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	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
Intended for distribution						
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)						
Water Quality Component						
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				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				Yuan, Manier, Burdis, Kalas, Johnson, L. Gittinger, Kellerhals, Sobotka
2022D5	3rd Quarter of laboratory sample analysis (~12,600)	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.					

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 Field Stations with data.	30-Mar-2022				Schlifer, Jankowski
	b. Field Station QA/QC; USGS QA/QC.	15-Apr-2022				Jankowski, Burdis, Kalas, Johnson, L. Gittinger, Kellerhals, Sobotka
	c. Corrections made and data moved to public Web Browser	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				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
On-Going						
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-Jun-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
Intended for distribution						
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)						
Spatial Data Component						
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				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 Dataset	30-Sep-2022				Finley
2022SD8	Maintenance ArcGIS server	30-Sep-2022				Fox, Rohweder
2022SD9	3D Digital Environment from Aerial Imagery using Structure from Motion Workflow Documentation	31-Mar-2022				Finley

Tracking number	Milestone	Original Target Date	Modified Target Date	Date Completed	Comments	Lead
2022LD10	Active Remote Sensing Capability Addition to Crewed Aerial Survey Assets 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				Finley
2022SD14	Survey Capability and Historic Spatial Database for LCU Mapping in-house report (draft 2021D6)	31-Mar-2022				Finley
On-Going						
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
Data Management						
2022M1	Update vegetation, fisheries, and water quality component field data entry and correction applications.	30-May-2022				Schlifer
2022M2	Load 2020 component sampling data into Database tables and make data available on Level 2 browsers for field stations to QA/QC.	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
Status and Trends 3rd edition						
2021ST3	Revised draft to UMESC Center Director and USGS Bureau Approving Official	23-Apr-2021	21-Feb-2022		Edit text and figures received by USGS Publishing network; final author review on-going	All
2021ST4	Final publication	28-May-2022				All
2020ST4	Draft S&T3 Fact Sheet	TBD			Tied to completion of S&T3	All
Equipment Inventory						
2021ER1	Property inventory and tracking	15-Nov-2022				LTRM staff as needed

Tracking number	Milestone	Original Target Date	Modified Target Date	Date Completed	Comments	Lead
Developing and Applying Indicators of Ecosystem Resilience to the UMRS						
2022R1	Updates provided at quarterly UMRR CC meeting and A team meeting as appropriate	Various				Bouska, Houser
2022R2	Submit manuscript that investigates associations between general and specified resilience for peer review publication	30-Sep-2022				Bouska
			On-Going			
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 USGS peer review	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 anuscript that investigates associations between general and specified resilience in FY21	Bouska
Landscape Pattern Research and Application						
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
			On-Going			
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						
Eco-hydrologic Research						
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

Tracking number	Milestone	Original Target Date	Modified Target Date	Date Completed	Comments	Lead
On-Going						
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-Dec-21			Van Appledorn, Jankowski
2021EH02	Draft manuscript of UMRS floodplain forest classification	30-Sep-2021	30-Jun-22			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)						
Intended for distribution						
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 Research and Applications, Early View On-Line Special Edition. http://dx.doi.org/10.1002/rra.3628 Location of supporting data: https://doi.org/10.5066/F7VD6XRT)						
Acquisition and Interpretation of Imagery for Production of 2020 UMRS Land Cover/Land Use Data and Pool-Based Orthomosaics						
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
Aquatic Vegetation, Fisheries, and Water Quality Research						
Intended for Distribution						
Manuscript: Estimated annual summer submersed aquatic macrophyte standing stocks (1998 - 2018) in three large reaches of the Upper Mississippi River. (2020A8; accepted by Journal; Drake, Lund, Bales, Kreiling; IP-122160)						
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 Hydrobiologia)						
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. Journal of Geophysical Research: Biogeosciences. 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. Journal of Geophysical Research: Biogeosciences. Volume 126, Issue 9. https://doi.org/10.1029/2020JG006135. Data available at: https://umesc.usgs.gov/data_library/water_quality/water_quality_page.html						
Statistical Evaluation						
Intended for distribution						
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 Ecological Applications)						
Manuscript: Probabilities of detecting submersed aquatic vegetation species using a rake method may vary with biomass; 2020E1; Completed; Aquatic Botany, 171:103375, https://doi.org/10.1016/j.aquabot.2021.103375						

Tracking number	Milestone	Original Target Date	Modified Target Date	Date Completed	Comments	Lead
Pool 12 Overwintering HREP Adaptive Management Fisheries Response Monitoring						
2022P13d	Age determination of bluegills	1-Feb-2022				Kueter
2022P13e	In-house project databases updated	31-Mar-2022				Kueter
2021P13f	Made available to program partners via Fish Mgmt. State report (2021B4) (2021 and 2021)	30-Sep-2021	30-Jun-2022			Kueter
Pool 4 - Peterson Lake HREP Water Quality Monitoring – Pre and Post-Adaptive Management Evaluation						
2022PL1	Summary letter: Describing 2022 monitoring and future work	Dec. 2022				Burdis, Lund
Science Meeting						
FY18 Funded Science in Support of Restoration and Management Proposals						
Conceptual Model and Hierarchical Classification of Hydrogeomorphic Settings in the UMRS						
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 classification system	31-Dec-2019	30-Mar-2022			Fitzpatrick, Hendrickson, Sawyer, Strange
2019CM6	Submit Final LTRM Completion report on hydrogeomorphic conceptual model and hierarchical classification system	30-Jun-2020	30-Dec-2022			Fitzpatrick, Hendrickson, Sawyer, Strange
Water Exchange Rates and Change in UMRS Channels and Backwaters, 1980 to Present						
2019WE4	Submit Final LTRM Completion Report	30-Mar-2020	30-Dec-2021			Hendrickson
Intrinsic and extrinsic regulation of water clarity over a 950-km longitudinal gradient of the UMRS						
2019IE3	Submit Draft manuscript	30-Mar-2020	30-Mar-23	PIs 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
Systemic analysis of hydrogeomorphic influences on native freshwater mussels						
2019FM7	Complete statistical analyses and prepare geospatial maps	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
Using dendrochronology to understand historical forest growth, stand development, and gap dynamics						
2022DD1	Draft manuscript: Floodplain forest structure and the recent decline of Carya illinoinensis (Wangenh.) K. Koch (northern pecan); Part 2	30-May-2022				Harley

Tracking number	Milestone	Original Target Date	Modified Target Date	Date Completed	Comments	Lead
2022DD2	Draft manuscript: Floodplain forest structure and the recent decline of Carya illinoinensis (Wangenh.) K. Koch (northern pecan); Part 3	30-May-2022				Maxwell

Tracking number	Milestone	Original Target Date	Modified Target Date	Date Completed	Comments	Lead
Forest canopy gap dynamics: quantifying forest gaps and understanding gap – level forest regeneration						
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: https://www.sciencebase.gov/catalog/item/5f3299a682cee144fb30dd02						
Investigating vital rate drivers of UMRS fishes to support management and restoration						
2019VR8	Data set complete (data delivered to Ben Schlifer, physical structures delivered to BRWFS)	30-Sep-2021	30-Mar-22	Pandemic has slowed progress on many aspects of age and growth. Closed labs, buildings and limited employees. Wrapping up on QA/QC on ages and wrapping up the last couple otoliths left.		Quinton Phelps
On-Going						
2019VR10	Submit draft manuscript (Drivers of vital rates)	31-Dec-2021	30-Jun-22			Quinton Phelps, Kristen Bouska
2019VR11	Submit draft manuscript (Microchemistry)	31-Dec-2021	30-Jun-22			Greg Whitledge
Intended for distirbution						
Manuscript: vital rates of Channel Catfish, led by Colby Gainer (MS student) in review with the North American Journal of Fisheries Management; 2019VR9						
FY19 Funded Science in Support of Restoration and Management						
Development of a standardized monitoring program for vegetation and fish response to Environmental Pool Management practices in the Upper Mississippi River System						
2019epm3/4	Thesis by Courtney Weldon (formerly LTRM Completion Report)	30-Jun-2021	30-Jun-22	Field work delayed due to Covid-19 protocols and high water		Weldon, Chick, and Richter
Combining genetics, otolith microchemistry, and vital rate estimation to inform restoration and management of fish populations in the UMRS						
Intended for distirbution						
Manuscript documenting the findings from genetic analyses of the six regional species has been accepted to the journal Molecular Ecology; Dr. Yue Shi						
Reforesting UMRS forest canopy openings occupied by invasive species						
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
A year of zooplankton community data from the habitats and pools of the UMR						
2019zoo2	Draft LTRM Completion report on utility of zooplankton community monitoring for HREP assessment	30-Dec-2020	TBD	Sample collection delayed because of Covid-19 state protocols; zooplankton ID delayed; Fulgoni took new position		Sobotka
2019zoo3	Final LTRM Completion report on utility of zooplankton community monitoring for HREP assessment	30-Jun-2021	TBD			Sobotka
2019zoo4	Draft LTRM Completion report on detailing differences between pools and habitats. Report will also investigate the potential investigate the potential impacts of Asian carp on the zooplankton community.	30-Dec-2020	TBD			Sobotka
2019zoo5	Final LTRM Completion report on on detailing differences between pools and habitats. Report will also investigate the potential investigate the potential impacts of Asian carp on the	30-Jun-2021	TBD			Sobotka

Tracking number	Milestone	Original Target Date	Modified Target Date	Date Completed	Comments	Lead
FY19 Funded Illinois Waterway 2020 Lock Closure						
Pre- and Post-Maintenance Aerial Imagery for Illinois River's Alton through Brandon Lock and Dams, 2019-2021.						
2022IWW	Complete the imagery review and reporting	30-Aug-2022				Strassman
Fish Community Response to the 2020 Illinois Waterway Lock Closure						
2022FSH1	Draft Manuscript: Fisheries and WQ	31-Dec-22				Lamer
FY20 Funded Science in Support of Restoration and Management						
Mapping Potential Sensitivity to Hydrogeomorphic Change in the UMRS Riverscape and Development of Supporting GIS Database and Query Tool						
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
Improving our understanding of historic, contemporary, and future UMRS hydrology by improving workflows, reducing redundancies, and setting a blueprint for modelling potential future						
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
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

Tracking number	Milestone	Original Target Date	Modified Target Date	Date Completed	Comments	Lead
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	30-June-2022		delayed due to science meeting priority switch and 1-month delay in completion of	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 opportunities.	30-Jun-2022	30-Sept-2022			M. Van Appledorn, L. Sawyer
Understanding physical and ecological differences among side channels of the Upper Mississippi River System						
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
Refining our Upper Mississippi River's ecosystem states framework						
2021SS8	TDA Mapper, regime shifts	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
Augmenting the UMRR fish vital rates project with greater species representation for genetics and otolith microchemistry						
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, Whitledge

Tracking number	Milestone	Original Target Date	Modified Target Date	Date Completed	Comments	Lead
Functional UMRS fish community responses and their environmental associations in the face of a changing river: hydrologic variability, biological invasions, and habitat rehabilitation						
2021FF2	Draft manuscript: "Has large scale ecosystem rehabilitation altered functional fish community expressions in the Upper Mississippi River	30-Sep-2021	30-Jun-2022			Ickes and Gatto
2021FF3	Draft Manuscript: "Why aren't bigheaded carps (*Hypophthalmichthys* sp.) everywhere in the Upper Mississippi River System?"	30-Sep-2021	30-Sep-2022			Ickes and Gatto
Understanding landscape-scale patterns in winter conditions in the Upper Mississippi River System						
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
Forest Response to Multiple Large-Scale Inundation Events						
2021FR3	Technical Report	1-Jun-2022				Cosgriff, Guyon, De Jager

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

Tracking number	Milestone	Original Target Date	Modified Target Date	Date Completed	Comments	Lead
Plankton community dynamics in Lake Pepin						
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	30-Jun-22		good progress, presentations this fall	Burdis, Manier
Predictive Aquative Cover Type Model - Phase 2						
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

ATTACHMENT E

Additional Items

- **Future Meeting Schedule** *(E-1)*
- **Frequently Used Acronyms (12/21/2017)** *(E-2 to E-7)*
- **UMRR Authorization, As Amended (1/11/2021)** *(E-8 to E-11)*
- **UMRR (EMP) Operating Approach (5/2006)** *(E-12)*

QUARTERLY MEETINGS
FUTURE MEETING SCHEDULE

MAY 2022	
Location to be determined	
May 24	UMRBA Quarterly Meeting
May 25	UMRR Coordinating Committee Quarterly Meeting

AUGUST 2022	
Location to be determined	
August 9	UMRBA Quarterly Meeting
August 10	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
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
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
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
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
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
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
HAB	Harmful Algal Bloom
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
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
IIA	Implementation Issues Assessment
IIFO	Illinois-Iowa Field Office (formerly RIFO - Rock Island Field Office)
ILP	Integrated License Process
IMTS	Inland Marine Transportation System
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
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
MICRA	Mississippi Interstate Cooperative Resource Association
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
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	Preliminary 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
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
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
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

Upper Mississippi River Restoration Program Authorization

Section 1103 of the Water Resources Development Act of 1986 (P.L. 99-662) as amended by
Section 405 of the Water Resources Development Act of 1990 (P.L. 101-640),
Section 107 of the Water Resources Development Act of 1992 (P.L. 102-580),
Section 509 of the Water Resources Development Act of 1999 (P.L. 106-53),
Section 2 of the Water Resources Development Technical Corrections of 1999 (P.L. 106-109),
Section 3177 of the Water Resources Development Act of 2007 (P.L. 110-114), and
Section 307 of the Water Resources Development Act of 2020 (P.L. 116-260).

Additional Cost Sharing Provisions

Section 906(e) of the Water Resources Development Act of 1986 (P.L. 99-662) as amended by
Section 221 of the Water Resources Development Act of 1999 (P.L. 106-53).

SEC. 1103. UPPER MISSISSIPPI RIVER PLAN.

(a)(1) This section may be cited as the "Upper Mississippi River Management Act of 1986".

(2) To ensure the coordinated development and enhancement of the Upper Mississippi River system, it is hereby declared to be the intent of Congress to recognize that system as a nationally significant ecosystem and a nationally significant commercial navigation system. Congress further recognizes that the system provides a diversity of opportunities and experiences. The system shall be administered and regulated in recognition of its several purposes.

(b) For purposes of this section --

(1) the terms "Upper Mississippi River system" and "system" mean those river reaches having commercial navigation channels on the Mississippi River main stem north of Cairo, Illinois; the Minnesota River, Minnesota; Black River, Wisconsin; Saint Croix River, Minnesota and Wisconsin; Illinois River and Waterway, Illinois; and Kaskaskia River, Illinois;

(2) the term "Master Plan" means the comprehensive master plan for the management of the Upper Mississippi River system, dated January 1, 1982, prepared by the Upper Mississippi River Basin Commission and submitted to Congress pursuant to Public Law 95-502;

(3) the term "GREAT I, GREAT II, and GRRM studies" means the studies entitled "GREAT Environmental Action Team--GREAT I--A Study of the Upper Mississippi River", dated September 1980, "GREAT River Environmental Action Team--GREAT II--A Study of the Upper Mississippi River", dated December 1980, and "GREAT River Resource Management Study", dated September 1982; and

(4) the term "Upper Mississippi River Basin Association" means an association of the States of Illinois, Iowa, Minnesota, Missouri, and Wisconsin, formed for the purposes of cooperative effort and united assistance in the comprehensive planning for the use, protection, growth, and development of the Upper Mississippi River System.

(c)(1) Congress hereby approves the Master Plan as a guide for future water policy on the Upper Mississippi River system. Such approval shall not constitute authorization of any recommendation contained in the Master Plan.

(2) Section 101 of Public Law 95-502 is amended by striking out the last two sentences of subsection (b), striking out subsection (i), striking out the final sentence of subsection (j), and redesignating subsection "(j)" as subsection "(i)".

(d)(1) The consent of the Congress is hereby given to the States of Illinois, Iowa, Minnesota, Missouri, and Wisconsin, or any two or more of such States, to enter into negotiations for agreements, not in conflict with any law of the United States, for cooperative effort and mutual assistance in the comprehensive planning for the use, protection, growth, and development of the Upper Mississippi River system, and to establish such agencies, joint or otherwise, or designate an existing multi-State entity, as they may deem desirable for making effective such

agreements. To the extent required by Article I, section 10 of the Constitution, such agreements shall become final only after ratification by an Act of Congress.

(2) The Secretary is authorized to enter into cooperative agreements with the Upper Mississippi River Basin Association or any other agency established under paragraph (1) of this subsection to promote and facilitate active State government participation in the river system management, development, and protection.

(3) For the purpose of ensuring the coordinated planning and implementation of programs authorized in subsections (e) and (h)(2) of this section, the Secretary shall enter into an interagency agreement with the Secretary of the Interior to provide for the direct participation of, and transfer of funds to, the Fish and Wildlife Service and any other agency or bureau of the Department of the Interior for the planning, design, implementation, and evaluation of such programs.

(4) The Upper Mississippi River Basin Association or any other agency established under paragraph (1) of this subsection is hereby designated by Congress as the caretaker of the master plan. Any changes to the master plan recommended by the Secretary shall be submitted to such association or agency for review. Such association or agency may make such comments with respect to such recommendations and offer other recommended changes to the master plan as such association or agency deems appropriate and shall transmit such comments and other recommended changes to the Secretary. The Secretary shall transmit such recommendations along with the comments and other recommended changes of such association or agency to the Congress for approval within 90 days of the receipt of such comments or recommended changes.

(e) Program Authority

(1) Authority

(A) In general. The Secretary, in consultation with the Secretary of the Interior and the States of Illinois, Iowa, Minnesota, Missouri, and Wisconsin, may undertake, as identified in the master plan

(i) a program for the planning, construction, and evaluation of measures for fish and wildlife habitat rehabilitation and enhancement; and

(ii) implementation of a long-term resource monitoring, computerized data inventory and analysis, and applied research program, including research on water quality issues affecting the Mississippi River (including elevated nutrient levels) and the development of remediation strategies.

(B) Advisory committee. In carrying out subparagraph (A)(i), the Secretary shall establish an independent technical advisory committee to review projects, monitoring plans, and habitat and natural resource needs assessments.

(2) REPORTS. — Not later than December 31, 2004, and not later than December 31 of every sixth year thereafter, the Secretary, in consultation with the Secretary of the Interior and the States of Illinois, Iowa, Minnesota, Missouri, and Wisconsin, shall submit to Congress a report that —

(A) contains an evaluation of the programs described in paragraph (1);

(B) describes the accomplishments of each of the programs;

(C) provides updates of a systemic habitat needs assessment; and

(D) identifies any needed adjustments in the authorization of the programs.

(3) For purposes of carrying out paragraph (1)(A)(i) of this subsection, there is authorized to be appropriated to the Secretary $40,000,000 for fiscal year 1999 and each fiscal year thereafter.

(4) For purposes of carrying out paragraph (1)(A)(ii) of this subsection, there is authorized to be appropriated to the Secretary $15,000,000 for fiscal year 1999 and each fiscal year thereafter.

(5) Authorization of appropriations.—There is authorized to be appropriated to carry out paragraph (1)(B) $350,000 for each of fiscal years 1999 through 2009.

(6) Transfer of amounts.—For fiscal year 1999 and each fiscal year thereafter, the Secretary, in consultation with the Secretary of the Interior and the States of Illinois, Iowa, Minnesota, Missouri, and Wisconsin, may transfer not to exceed 20 percent of the amounts appropriated to carry out clause (i) or (ii) of paragraph (1)(A) to the amounts appropriated to carry out the other of those clauses.

(7)(A) Notwithstanding the provisions of subsection (a)(2) of this section, the costs of each project carried out pursuant to paragraph (1)(A)(i) of this subsection shall be allocated between the Secretary and the appropriate non-Federal sponsor in accordance with the provisions of section 906(e) of this Act; except that the costs of operation and maintenance of projects located on Federal lands or lands owned or operated by a State or local government shall be borne by the Federal, State, or local agency that is responsible for management activities for fish and wildlife on such lands and, in the case of any project requiring non-Federal cost sharing, the non-Federal share of the cost of the project shall be 35 percent.

(B) Notwithstanding the provisions of subsection (a)(2) of this section, the cost of implementing the activities authorized by paragraph (1)(A)(ii) of this subsection shall be allocated in accordance with the provisions of section 906 of this Act, as if such activity was required to mitigate losses to fish and wildlife.

(8) None of the funds appropriated pursuant to any authorization contained in this subsection shall be considered to be chargeable to navigation.

(f) (1) The Secretary, in consultation with any agency established under subsection (d)(1) of this section, is authorized to implement a program of recreational projects for the system substantially in accordance with the recommendations of the GREAT I, GREAT II, and GRRM studies and the master plan reports. In addition, the Secretary, in consultation with any such agency, shall, at Federal expense, conduct an assessment of the economic benefits generated by recreational activities in the system. The cost of each such project shall be allocated between the Secretary and the appropriate non-Federal sponsor in accordance with title I of this Act.

(2) For purposes of carrying out the program of recreational projects authorized in paragraph (1) of this subsection, there is authorized to be appropriated to the Secretary not to exceed $500,000 per fiscal year for each of the first 15 fiscal years beginning after the effective date of this section.

(g) The Secretary shall, in his budget request, identify those measures developed by the Secretary, in consultation with the Secretary of Transportation and any agency established under subsection (d)(1) of this section, to be undertaken to increase the capacity of specific locks throughout the system by employing nonstructural measures and making minor structural improvements.

(h)(1) The Secretary, in consultation with any agency established under subsection (d)(1) of this section, shall monitor traffic movements on the system for the purpose of verifying lock capacity, updating traffic projections, and refining the economic evaluation so as to verify the need for future capacity expansion of the system.

(2) Determination.

(A) In general. The Secretary in consultation with the Secretary of the Interior and the States of Illinois, Iowa, Minnesota, Missouri, and Wisconsin, shall determine the need for river rehabilitation and environmental enhancement and protection based on the condition of the environment, project developments, and projected environmental impacts from implementing any proposals resulting from recommendations made under subsection (g) and paragraph (1) of this subsection.

(B) Requirements. The Secretary shall

(i) complete the ongoing habitat needs assessment conducted under this paragraph not later than September 30, 2000; and

(ii) include in each report under subsection (e)(2) the most recent habitat needs assessment conducted under this paragraph.

(3) There is authorized to be appropriated to the Secretary such sums as may be necessary to carry out this subsection.

(i) (1) The Secretary shall, as he determines feasible, dispose of dredged material from the system pursuant to the recommendations of the GREAT I, GREAT II, and GRRM studies.

(2) The Secretary shall establish and request appropriate Federal funding for a program to facilitate productive uses of dredged material. The Secretary shall work with the States which have, within their boundaries, any part of the system to identify potential users of dredged material.

(j) The Secretary is authorized to provide for the engineering, design, and construction of a second lock at locks and dam 26, Mississippi River, Alton, Illinois and Missouri, at a total cost of $220,000,000, with a first Federal cost of $220,000,000. Such second lock shall be constructed at or in the vicinity of the location of the replacement lock authorized by section 102 of Public Law 95-502. Section 102 of this Act shall apply to the project authorized by this subsection.

SEC. 906(e). COST SHARING.

(e) In those cases when the Secretary, as part of any report to Congress, recommends activities to enhance fish and wildlife resources, the first costs of such enhancement shall be a Federal cost when--

(1) such enhancement provides benefits that are determined to be national, including benefits to species that are identified by the National Marine Fisheries Service as of national economic importance, species that are subject to treaties or international convention to which the United States is a party, and anadromous fish;

(2) such enhancement is designed to benefit species that have been listed as threatened or endangered by the Secretary of the Interior under the terms of the Endangered Species Act, as amended (16 U.S.C. 1531, et seq.), or

(3) such activities are located on lands managed as a national wildlife refuge.

When benefits of enhancement do not qualify under the preceding sentence, 25 percent of such first costs of enhancement shall be provided by non-Federal interests under a schedule of reimbursement determined by the Secretary. Not more than 80 percent of the non-Federal share of such first costs may be satisfied through in-kind contributions, including facilities, supplies, and services that are necessary to carry out the enhancement project. The non-Federal share of operation, maintenance, and rehabilitation of activities to enhance fish and wildlife resources shall be 25 percent.

EMP OPERATING APPROACH

2006 marks the 20th anniversary of the Environmental Management Program (EMP). During that time, the Program pioneered many new ideas to help deliver efficient and effective natural resource programs to the Upper Mississippi River System (UMRS). These included the creation of an effective partnership of five states, five federal agencies, and numerous NGOs; a network of six field stations monitoring the natural resources of the UMRS; and the administrative structure to encourage river managers to use both new and proven environmental restoration techniques.

EMP has a history of identifying and dealing with both natural resource and administrative challenges. The next several years represent new opportunities and challenges as Congress considers authorization of the Navigation and Environmental Sustainability Program (NESP), possible integration or merger of EMP with NESP, and changing standards for program management and execution.

We will continue to learn from both the history of EMP and experience of other programs. Charting a course for EMP over the next several years is important to the continued success of the Program. EMP will focus on the key elements of partnership, regional administration and coordination, LTRMP, and HREPs.

The fundamental focus of EMP will not change, however the way we deliver our services must change and adapt. This will include:

- further refinements in regional coordination and management,
- refinement of program goals and objectives,
- increased public outreach efforts,
- development and use of tools such as the regional HREP database and HREP Handbook,
- exploring new delivery mechanisms for contracting,
- continued refinement of the interface between LTRMP and the HREP program components, and
- scientific and management application of LTRMP information and data.

The focus of these efforts must benefit the resources of the UMRS through efficient and effective management.