

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

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 key 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