

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

**August 9, 2023
Quarterly Meeting**

La Crosse, Wisconsin

Sabrina Chandler of the U.S. Fish and Wildlife Service called the meeting to order at 8:15 a.m. on August 9, 2023. UMRR Coordinating Committee representatives in attendance in-person were Jeff Houser (USGS), Chad Craycraft (IL DNR), Vanessa Perry (MN DNR), Jim Fischer (WI DNR), and Rich Vaughn (NRCS). Brian Chewning (USACE), Matt Vitello (MO DoC), and Randy Schultz (IA DNR) attended virtually. A complete list of attendees follows these minutes.

Minutes of the May 24, 2023 Meeting

Jim Fischer moved and Vanessa Perry seconded a motion to approve the draft minutes of the May 24, 2023 UMRR Coordinating Committee meeting as written. The motion carried unanimously.

Regional Management and Partnership Collaboration

FY 2023 Fiscal Update

Marshall Plumley reported that UMRR has obligated nearly \$45 million of its \$55 million FY 2023 appropriation, as of August 1, 2023. The program is on track to execute over 95 percent of its appropriated funds. Plumley said he has no concerns about the program's ability to obligate its available funds this year, noting that execution rate is an important metric for the program. Plumley expressed appreciation to the partnership for their effectiveness and commitment to the program. Col. Jesse Curry echoed Plumley's sentiments noting that the high execution rate garners attention from Congress and contributes to UMRR's continued funding.

FY 2024 Budget Outlook

Plumley reported that the President's FY 2024 budget and House and Senate Appropriations Committees' FY 2024 energy and water spending measures include \$55 million for UMRR. Plumley said this is the seventh consecutive year that the President's budget and House and Senate appropriations bills have all concurred. The final appropriation is not yet known.

The FY 2024 draft plan of work for UMRR at \$55 million is listed below; it is largely consistent with the FY 2023 program with the addition of regional project sequencing. The draft plan of work reflects efforts on 11 projects in feasibility and 12 projects in design or construction.

- Regional Administration and Program Efforts – \$1,675,000
 - Regional management – \$1,260,000
 - Program database – \$100,000
 - Program Support Contract – \$140,000
 - Public Outreach – \$50,000
 - Regional Project Sequencing – \$125,000

- Regional Science and Monitoring – \$15,325,000
 - Long term resource monitoring – \$5,500,000
 - Regional science in support of restoration – \$8,350,000
 - Regional science staff support – \$200,000
 - Habitat evaluation (split across three districts) – \$1,275,000
- Habitat Restoration – \$38,000,000
 - Rock Island District – \$11,150,000
 - St. Louis District – \$13,700,000
 - St. Paul District – \$13,050,000
 - Model certification – \$100,000

UMRR Ten-Year Plan

Plumley said the UMRR 10-year plan was updated to reflect small changes to project timelines for Green Island, Pool 12 Forestry, and Oakwood Bottoms HREPs. The Pool 18 Forestry HREP was added to the 10-year plan. A new MVS project is scheduled to start feasibility at the end of FY 2023.

Partnership

Plumley reported that, in mid-July 2023, a Corps boat conducting water quality monitoring experienced a mechanical failure that resulted in the crew being stranded. Corps staff reached out to the Iowa field station to request the boat be towed to shore to ensure staff safety. Plumley expressed appreciation to Seth Fopma and Dave Bierman for responding immediately and said it is an example of the many small benefits of a strong partnership.

Environmental Justice

Plumley reported that, at the June 28, 2023 Navigation and Ecosystem Sustainability Program (NESP) Coordinating Committee meeting, partners requested UMRR’s environmental justice approaches be coordinated with similar efforts anticipated through NESP. Plumley said that UMRR continues to consider how to incorporate environmental justice in HREP selection and planning. Plumley reported that, on July 11, 2023, the UMRR Program Planning Team (PPT), consisting of the UMRR Coordinating Committee, District HREP managers, and District River Team chairs, met to discuss updating the UMRR HREP fact sheet template to include preliminary information on disadvantaged communities.

Plumley also reported that, on August 2, 2023, the UMRR Communications and Outreach Team meeting included a presentation from Matt Jones from MVS on environmental justice communications efforts. Plumley said Corps staff can support endeavors to enhance tools or outreach capabilities on environmental justice and it will not be the sole responsibility of river teams. Col. Eric Swenson said that there are many tribal governments within MVP’s geography that have a deep connection to the river. Col. Swenson underscored the value of, and MVP’s priority for, tribal engagement. He emphasized that planning needs to be more inclusive of indigenous knowledge and culture, especially with regards to water resources, which many tribes consider to be sacred. Plumley agreed and explained that UMRR and NESP are working toward a programmatic agreement on cultural resources and project implementation. Plumley said the UMRR Coordinating Committee anticipates meeting in September 2023 to discuss next steps for incorporating environmental justice into the HREP selection process.

HREP Selection Process

Plumley said the UMRR Coordinating Committee has set a recurring schedule for HREP selection processes to be implemented every five years. He reported that, on July 11, 2023, the UMRR PPT met to coordinate the timeframe for the upcoming HREP selection process. The PPT primarily focused on aligning river teams' schedules with NESP requests to maximize efficient use of time. River teams are beginning to set schedules and prepare for workshops.

Plumley said the UMRR Coordinating Committee requested that river teams provide endorsed fact sheets by the third quarter of FY 2025 (Apr – Jun 2025) for implementation in FYs 2026 through 2030. Assuming stable funding of \$55 million, the program will need to initiate feasibility work on 12 HREPs from FY 2026 to FY 2030 to maintain habitat restoration progress and ensure an adequate number of projects in planning, design, and construction. If UMRR is appropriated more than \$55 million in that timeframe (up to the \$90 million annual appropriation authorization), UMRR will need to initiate more projects to achieve program stability at the higher funding level. Plumley noted that the seven approved fact sheets remain. New fact sheets are needed to ensure projects address current habitat needs and reflect partner priorities and sponsor capabilities. Plumley also acknowledged the value of having additional projects in the queue as a contingency in the event that a project is stalled.

Plumley said the goals of the HREP selection process remain as follows: to optimize investment in rehabilitation of fish and wildlife habitat, address UMRS ecological needs at various scales, enhance public understanding and trust in decision-making, and retain necessary flexibility to ensure effective program execution and apply adaptive management principles to project planning, design, and implementation.

Plumley provided an overview of the guidance outlined in the HREP selection process in the UMRR Joint Charter of Consultative Bodies. The PPT agreed to provide the river teams with the following additional guidance beyond the process in the Charter, including:

- Project proposals that physically overlap with completed restoration efforts need to:
 - 1) clearly describe the changed ecological structure, function, and processes from when the prior project was completed, 2) describe the additional habitat benefits that will be gained over and above what was provided by the previous project, and 3) be coordinated with, and agreed upon by, the respective Corps District HREP Manager and the UMRR Regional Program Manager.
- Identify and describe (if applicable) opportunities for the project to address environmental justice criteria related to disadvantaged communities. Corps staff will be available to support this exercise and overall decision-making.

Plumley said the river teams will be asked to use the HNA-II indicators and other LTRM information (e.g., third ecological status and trends report) to develop project proposals, including defining habitat restoration needs and objectives. As a reference, UMRR has a published recording of a webinar overview of HNA-II, which is available online at the following link:

<https://usace.contentdm.oclc.org/utis/getfile/collection/p16021coll11/id/3834>. UMRR is preparing to host a webinar this fall on the 2022 Ecological Status and Trends of the Upper Mississippi and Illinois River Report. [Note: The webinar occurred on Thursday, September 7, 2023.]

In response to a question from Jim Fischer., Plumley explained that adding features to completed projects to increase resilience could be classified as adaptive management and, therefore, could be addressed through PERs. However, Plumley acknowledged that a programmatic discussion of adaptive management is needed to develop a path forward to address problems on existing projects. Fischer agreed and suggested including that explanation in presentations to the river teams. Plumley said he is scheduled to present to the FWWG at its meeting on August 10, 2023 and to other river teams in the coming months.

In response to a question from Vanessa Perry, Plumley said the Corps has created a GIS-based platform to understand the relationship of existing and future HREPs to disadvantaged communities (as defined by the White House Council on Environmental Quality's Climate and Economic Justice Screening Tool) by proximity. Plumley said the tool can help identify outreach opportunities to support project development.

While Perry expressed appreciation for environmental justice being included in project fact sheets, she put forward that proximity alone is not sufficient to evaluate how people are affected by an HREP. She encouraged interaction with communities to understand their current values and perceptions related to project locations and impacts from modifying those locations. Plumley agreed with Perry, recalling Col. Swenson's statements on the value of tribal engagement to improve water resource management.

As an example, Sabrina Chandler noted that the Pool 5 HREP triggered the proliferation of wild rice. In response, USFWS issued harvest permits to the Prairie Island Indian Community. Col. Curry encouraged the UMRR Coordinating Committee to focus on metrics of success for advancing environmental justice goals. Rather than focus on the number of projects, Col. Curry acknowledged the need to evaluate the impacts of those projects to people. He encouraged reaching out to communities identified as benefiting from existing projects to evaluate if and how those benefits have been realized. Plumley said he will share with the UMRR Coordinating Committee a recently released FAQ on environmental justice from USACE Headquarters.

Plumley said the PPT anticipates meeting in October 2023 to discuss updates from the river teams' processes and any adjustments or additional guidance that may be needed.

Strategic Plan Review

Plumley reported that, on July 5, 2023, the final UMRR 2015-2025 Strategic Plan Review Report was submitted via email to the Coordinating Committee. The report describes important partner insights. The report is available at the following link: <https://umrba.org/document/umrr-2015-2025-strategic-plan>. Plumley said the Coordinating Committee intends to use the report's findings to inform its priorities for UMRR in the near and long term, particularly as the Committee develops the program's next strategic plan. Jim Fischer expressed appreciation to all who worked on the report and specifically to Andrew Stephenson for developing the survey and report drafts.

Implementation Issues Assessment

Plumley reported that the UMRR Coordinating Committee met on May 24, 2023 to prioritize its top three or four implementation issues for it to focus attention on addressing or advancing in FY 2024. The group identified that the resolution of PPAs and federal easement lands are critical to long term execution of UMRR and that the issue of water level management has fundamentally changed since the issue paper was drafted – i.e., the construction new start and ongoing implementation of NESP and new authorization language in WRDA 2022.

The Coordinating Committee established small groups to develop a plan of action to address each implementation issue. Plumley said that Coordinating Committee members will meet on August 9, 2023 to discuss updates and priorities for FY 2024. Chad Craycraft said addressing PPA issues would allow many potential HREPs to be implemented. Plumley said UMRR cannot resolve the PPA issue but can identify the impacts of the issue as was done in the 2022 UMRR Report to Congress. Plumley said that PPAs are leaving otherwise available state funds inaccessible and that he is aware that UMRBA is working to address the PPA issue.

Report to Congress

ASA(CW) Michael Connor is reviewing the UMRR 2022 Report to Congress prior to transmitting it to Congress. Plumley said that he is responding to questions. The Corps is drafting a press release and four-page flyer that will be coordinated with the UMRR Communications and Outreach Team (COT) for distribution. Case studies on construction, science, and monitoring activities were developed for the report and can serve as a basis for future outreach efforts.

LTRM Program Manager Position

Plumley reported that the Corps completed interviews for the USACE LTRM Program Manager position and obtained an acceptance from a selected candidate. An announcement is anticipated at the end of August. [Note: On August 30, 2023, Plumley announced that Davi Michl will begin as the new USACE Long Term Resource Monitoring Project Manager on September 5, 2023.]

Outyear Funding Scenarios

Plumley reported that, on August 3, 2023, the UMRR Coordinating Committee convened a virtual meeting to discuss out-year funding scenarios, staffing plans, and programmatic priorities for FY 2024. Topics to frame the discussion included the existing portfolio of HREPs and LTRM activities, the pace of initiating new HREPs, partner capacity, additional WRDA changes, and inflation. Plumley said the Committee reviewed implementation scenarios over a long term timeframe at consistent funding levels of \$20 million, \$55 million, and \$90 million. Additional discussions are needed regarding expected staffing levels across agencies to support a higher appropriation and alleviate bottle necks.

UMRR HREP Workshop

Plumley said that a UMRR workshop for both HREP and LTRM personnel is anticipated for spring 2024. UMRBA staff will send a request for availability to UMRR Coordinating Committee members in August. A planning committee kickoff meeting is anticipated to be held in September. Potential workshop topics include monitoring and adaptive management, HREP/LTRM integration, HREP design handbook update, and HREP lessons learned among others.

UMRR Strategic Planning

Plumley said UMRR's next strategic planning process is scheduled to occur in FY 2024. He noted the process for developing the last strategic plan took over two years. Plumley said scoping the next strategic plan effort is anticipated to occur in fall 2023.

Communications

Status and Trends Flyers

Andrew Stephenson reported that the flyers that describe the condition and trends of the UMRS fisheries, floodplain forests, sedimentation, water quality, and aquatic vegetation developed from the most recent ecological status and trends report are now called snapshot summaries. UMRBA staff, in collaboration with the UMRR Communications and Outreach Team, developed a communication toolkit to help partner agencies distribute the snapshot summaries both internally and externally. The communication toolkit includes media pitch templates and two announcement templates to deliver snapshot summaries as well as contact information for media follow up and thumbnail photos relevant to each snapshot summary. High resolution images are available upon request.

The communications toolkit messaging focuses on the fact that record high water occurred in 2023 and UMRR is celebrating a milestone of 30 years of annual monitoring.

Stephenson said that, at the August 2, 2023 UMRR Communications and Outreach Team meeting, personnel from USACE, MN DNR, USGS, UMRBA, and the Mississippi River Network expressed a willingness to participate in coordinated messaging about the release of the snapshot summaries. Stephenson reported that Erin Spry presented to the Mississippi River Network's engagement committee on August 3, 2023, which led to discussion of environmental justice needs within communications efforts and the importance of inviting communities to speak for themselves.

Stephenson said the COT intends to learn from this process to inform any future strategies for using communications toolkits.

Vanessa Perry asked how snapshot summaries can be updated as new information is available. Stephenson said it may be appropriate to think about these summaries remaining relevant for a five-to-ten-year period and said new summaries could be created when the next Status and Trends report is published. Olivia Dorothy asked whether the UMRR Coordinating Committee intends to develop a summary of changing hydrology. Stephenson responded that the UMRR Coordinating Committee had considerable discussion about that and determined that the best approach was to weave changing hydrologic conditions as a thread into each snapshot summary.

Communication and Outreach Team Update

Rachel Perrine reported that the UMRR Communications and Outreach Team (COT) will focus on supporting a press release and flyer for the 2022 UMRR Report to Congress, preparing activities recognizing the 100th anniversary of the UMR National Wildlife and Fish Refuge in 2024, and distributing the ecological status and trends snapshot summaries using the communications toolkit. Perrine said the COT will hold additional future discussions on environmental justice communication.

This fall, the Team anticipates finalizing its framework for considering and developing communications activities as well as developing its priorities for work in FY 2024. Perrine said the COT framework covers membership of the COT, what it works on, and processes for completing work including social media campaigns, printable products, and more. Perrine requested that the UMRR Coordinating Committee send her comments on the COT framework, which is included as Attachment D of the meeting agenda packet, by August 31, 2023. Perrine said that Greg Husak, MN DNR, will present at the September COT meeting on lessons learned from MN DNR communications efforts. Perrine reported that Anne Wurtenberger, in Rock Island District, has taken on the role of co-coordinator for the COT with her.

External Communications and Outreach

Communication and outreach activities in the third quarter of FY 2023 include the following:

- Sabrina Chandler said that a recent Milwaukee Journal Sentinel article highlighted floodplain forest loss including at Reno Bottoms. The article had representation and interviews from many partners and was well-received locally and within USFWS. Angela Deen said the article also appeared in the Minneapolis Star Tribune. Col. Eric Swenson said USACE Headquarters shared the article on its news feed.
- Chandler said participants on the August 8, 2023 MICRA boat tour included many partner agencies and staffers from the offices of Sen. Ron Johnson and Sen. Chuck Grassley.
- Kirsten Wallace said Jeff Houser and Andrew Stephenson presented on LTRM water quality trends and macroinvertebrate sampling at the UMRBA joint Water Quality Executive

Committee and Water Quality Task Force Meeting. The discussion focused on monitoring infrastructure, collaboration, and leveraging resources to address overlapping interests and information needs.

- Chandler said she had had a visit from Rep. Mariannette Miller-Meeks regarding the Pool 13 HREP. She said there is significant interest on the project from Congress and state legislatures.
- Jim Fischer said he participated in the Wisconsin DNR’s Office of Communications’ supervisors fireside chat and was able to highlight UMRR. Fischer said Dr. Patrick Kelly also provided information on LTRM science monitoring at the Wisconsin field station. Fischer said he met with Wisconsin DNR’s non-point source coordinator regarding the Hypoxia Task Force and nutrient reduction strategy and highlighted UMRR and shared the Status and Trends snapshot summaries communication toolkit. Fischer said Wisconsin DNR has a new landing page for the Mississippi River and invited feedback.
- Andrew Stephenson said he will be presenting on the history and success of UMRR and the UMRS partnership in bringing resources to the region at a MICRA symposium at the American Fisheries Conference in Grand Rapids, Michigan on August 20-24, 2023.

Long Term Resource Monitoring and Science

FY 2023 3rd Quarter Report

Jeff Houser reported that accomplishments of the third quarter of FY 2023 include publication of the following manuscripts and completion report:

- *Reconstructing Missing Data by Comparing Interpolation Techniques: Applications for Long-Term Water Quality Data*
- *Quantifying Ecosystem States and State Transitions of the Upper Mississippi River System Using Topological Data Analysis*
- *Low-Complexity Floodplain Inundation Model Performs Well for Ecological and Management Applications in a Large River Ecosystem*
- *Upper Mississippi River Restoration Future Hydrology Meeting Series*

Houser reported that the LOCA-VIC-mizuRoute data product evaluation appears unsuitable for application in the Upper Mississippi River because it underestimated discharge and did not capture seasonal hydrographs. Houser said that a partnership workshop will be held in Spring 2024 to discuss results in-depth, reframe the purpose of the undertaking, and lay out next steps. Olivia Dorothy asked how the future hydrology meeting series relates to NOAA downscale climate modeling efforts. Kirsten Wallace said UMRBA is involved in and ensuring connection between both efforts. Wallace said USACE needs certain parameters to ensure models can be certified and that other basin efforts, such as a flow frequency study, may help inform downscale modeling outcomes for the greatest utility of the final product.

Houser reported that Molly Van Appledorn and Nate De Jager presented to the Society of Wetland Scientists on “Advancing the science and management of the Upper Mississippi River System floodplain by characterizing and mapping inundation regimes.” The purpose of the presentation was to convey the biophysical complexity of the UMRS floodplain, to demonstrate two methods of summarizing and mapping inundation, and to show how the work is integrated into management applications and the UMRR program.

Houser reported that UMRR convened a meeting on August 3-4, 2023 related to vital rates at the Kibbe Field Station. The purpose was to share findings and develop objectives and approaches for integrating project components.

Houser announced that the next UMRR Science Meeting will be held January 16-18, 2024 at UMESC. Two webinars will be held on September 25, 2023 and October 5, 2023 from 12-1:30 p.m. to update the partnership on recently completed and ongoing research projects that have been funded through UMRR science proposals.

Houser reported that the timeline to complete LC/LU dataset processing has been extended into FY 2026 due to staff departures. He said processing of Pool 17 will be moved forward due to ongoing study needs for floodplain forest. Processing of Pools 20 and 21 will be delayed accommodating Pool 17 advancement. The Upper Open River and ILWW will be processed in FY 2026.

In response to a question from Stephenson, Houser said that interviews have been conducted for the vacant UMRR Long Term Resource Monitoring (LTRM) Branch Chief position at UMESC. Houser anticipates announcing the candidate selection very soon.

Lower Pool 13 HREP Associated Research Project

Houser provided an overview of the Lower Pool 13 HREP Associated Research Project (HARP). Staff from USGS, IA DNR, USACE, and USFWS are collaborating on the project. Houser said the effort began with a brainstorming session at the 2022 UMRR Science Meeting to identify a portfolio of physical and ecological responses and interactions of importance in the Pool 13 project area. Physical drivers include sediment resuspension, upstream turbidity, substrate composition, and velocity. Ecological responses include aquatic vegetation and mussels. Houser explained the genesis of the Pool 13 HREP. In Pool 13, prevalence of submersed aquatic vegetation, especially wild celery, increased from 1998 to 2008 but has since declined. Water clarity in Pool 13 has exceeded criteria established for maximum TSS that permit submersed aquatic vegetation in more than half of years since 1994. Concerns regarding further loss of wild celery prompted natural resource managers to propose an HREP to improve conditions for submersed aquatic vegetation by altering water clarity and velocity. Additionally, resource managers recognized the opportunity to diversify flow and substrate characteristics in the project area to benefit mussels.

Houser said that four objectives were identified for the Lower Pool 13 HARP, including:

- Objective 1 - Pilot a radar wave monitoring system to measure existing (pre-project) wave conditions in Lower Pool 13
- Objective 2 - Evaluate relationships between wind, waves, and turbidity, and assess the relative contributions of upstream sources and local resuspension to turbidity in the project area
- Objective 3 - Assess spatial patterns and quantify relationships among wild celery, turbidity, and wave dynamics
- Objective 4 - Estimate substrate stability and population size, density, and species richness of mussels pre-project.

Houser said the Lower Pool 13 HARP will provide data products including baseline, pre-project information for post-construction assessments on the effects of specific project features as well as a minimum of four manuscripts on:

- Wind, wave, turbidity interactions
- Contributions of sediment resuspension and upstream delivery to local turbidity
- Spatial patterns in, and correspondence among, wave dynamics, turbidity, and aquatic vegetation
- Linkages between native freshwater mussel assemblages and substrate stability

Houser reported that, at its July 24, 2023 meeting, the A-Team recommended funding for all four objectives of the Lower Pool 13 HARP. Marshall Plumley said that at the 2019 UMRR planning and design workshop, there was intentional discussion regarding integration of the two program elements, HREP and LTRM. As a result, LTRM and field station staff were embedded in the Pool 13 HREP PDT, which provided the environment for new questions that had not previously been considered. Plumley said the Lower Pool 13 HARP is the fruition of intentional desire of the partnership to align program staff on one effort and that it has tremendous learning potential for this project and applicability to other areas. Plumley expressed appreciation for the team and partnership's support and effort on this project.

Houser requested the UMRR Coordinating Committee endorse funding for all four objectives as outlined on page E-26 of the meeting agenda packet. Olivia Dorothy asked if climate change was included in the scope of the project, noting that wind velocity is expected to increase with a warming climate. Kristen Bouska said this project will help improve our understanding of these relationships now but does not explicitly address climate change. Houser said that by studying impacts of wave direction and characteristics as well as the impacts of discharge on biological conditions, we may be able to better infer climate change impacts on these relationships. Plumley said HREP feasibility studies assess changing conditions related to flow and climate, which are incorporated into project designs. Sabrina Chandler USFWS is the project sponsor and is required to incorporate climate adaptation and resilience planning into project design.

Jim Fischer said that the Pool 13 HARP supports the 2015-2025 Strategic Plan goals and integrating science and restoration. Fisher moved and Chad Craycraft seconded a motion to endorse \$1,085,726 in funding to support implementation of all four objectives with \$827,886 coming from FY 2023 funds. The motion passed unanimously. Jeff Houser acknowledged the contributions of Bouska and others in developing the project, as well as mussel experts for high-speed mapping and the USACE Detroit District for information on the wave radar. Chandler said this will set a new standard for incorporating LTRM into HREPs and similar efforts are already underway in other PDTs.

USACE LTRM Report

Marshall Plumley said UMRR's LTRM FY 2023 budget allocation is \$7 million (\$5.5 million for base monitoring and \$1.5 million for analysis under base) with an additional \$6.85 million available for "science in support of restoration and management."

Plumley reviewed high priority funding items for science in support of restoration that were endorsed by the UMRR Coordinating Committee during or prior to the March 1, 2023 quarterly meeting totaling \$2,502,149 including:

- LTRM balance: \$331,508
- Ecohydrology: \$469,973
- LC processing (last year): \$335,238
- Vital Rates consolidated report: \$52,788
- Establishing an herbarium: \$21,649
- Macroinvertebrate contaminants: \$77,483
- Future landscape modeling: \$600,136
- Equipment (FS, UMESC): \$659,268
- Proposal adjustments: (\$45,894)

Plumley reviewed four priority FY 2022 science proposals totaling \$1,626,797 that were endorsed by the UMRR Coordinating Committee during the May 24, 2023 quarterly meeting including:

- Scoping and vetting new technology and methods for use in future hydrographic and topographic surveys
- Avian associations with management in the UMRS: filling knowledge gaps for habitat management

- Filling in the gaps with FLAMe: Spatial patterns in water quality and cyanobacteria across connectivity gradients and flow regimes in the Lower Impounded Reach of the UMR
- Substrate stability as an indicator of abiotic habitat for the UMR benthic community

Plumley said that the endorsed Pool 13 HARP, proposed initial work on two information needs, pending endorsement by the Coordinating Committee, and topobathy pilot studies (\$314,000) will utilize the remaining FY 2023 science in support funds totaling \$2,730,711. Plumley said no carryover LTRM funds are anticipated. The LTRM appropriation for FY 2024 is anticipated to be known by February 2024.

A-Team Report

Matt Vitello presented the A-Team update on behalf of Matt O'Hara. Vitello reported that the A-Team met on July 24, 2023. The A-Team congratulated Karen Hagerty for her years of service and upcoming retirement on July 31, 2023. Vitello said that Mark Gaikowski announced his promotion to USGS Deputy Regional Director for Science and said a permanent center director will be sought to fill his vacated position. In the interim, Jeff Houser will be the USGS representative for UMRR. Vitello reported that Karen Hagerty provided the HREP and LTRM programmatic updates and Jim Lamer provided an update on a framework to digitize and catalog otoliths collected through the vital rates project. Andrew Stephenson provided an update on the two-page snapshot summaries communicating the major findings from the 2022 UMRR LTRM status and trends report.

The A-Team suggested developing high and low water outreach flyers detailing the long term ecological impacts of historic significant hydrologic events. Bouska presented the updated Lower Pool 13 HARP proposal for the A-Team's endorsement. A-Team representatives unanimously voted to endorse all four proposal objectives. Vitello reported that a follow up meeting was held with Karen Hagerty, Jeff Houser and Matt O'Hara to discuss the proposal and A-team endorsement as well as clarify funding, staffing and timing of the project. Manish Pant updated the A-Team on data collection and data entry upgrades to the reinstated macroinvertebrate component. Three sampling techniques are being used to maximize efficiency of macroinvertebrate collection. Houser provide an update to the A-team regarding results of LTRM implementation planning including recommended information needs to address. With the proposals being funded in three-year segments, A-Team representatives will be provided more details as the proposals evolve with respect to staffing, funding expectations, and start and end dates of projects. Hagerty and Houser provided progress updates on critical USACE and USGS positions searches. Jennifer Dieck presented an update on the mapping and land cover land use project. Staffing issues have caused extended time to the mapping project.

Vitello said the next A-Team meeting will be virtual and is expected to be held in September or October 2023.

LTRM Implementation Planning

Houser reported that, over the past year, the *ad hoc* LTRM implementation planning team has drafted objective statements and identified and prioritized information needs using a structured decision-making process. The team considered the relevance of information needs to both ecosystem understanding and assessment as well as management and restoration along with the depth of current knowledge, cost, opportunity to learn, urgency, and unique capacity of LTRM to address the information need. The team explored various methods for optimizing expected benefits to costs over a 10-year funding period. The team selected a subset of information needs for additional development. For planning purposes, projects will be funded in three-year increments. Houser presented the *ad hoc* LTRM implementation planning team's recommended list of nine information needs for funding in FY 2024 to FY 2026, including:

- Floodplain ecology: Vegetation change across the system
- Floodplain ecology: Terrestrial and aquatic herpetofauna
- Hydrogeomorphic change: Geomorphic trends
- Aquatic ecology: Aquatic vegetation distribution and changes across the system
- Aquatic ecology: Native freshwater mussel distribution
- Aquatic ecology: Macroinvertebrate distribution
- Aquatic ecology: Lower trophic contribution (phyto- and zooplankton)
- Aquatic ecology: River gradients from Pool 14 to Pool 25
- Restoration applications: Learning from restoration and management

[Note: Full descriptions of the recommended information needs are included in pages E-27 to E-65 of the meeting agenda packet.]

Plumley expressed appreciation to the LTRM implementation planning team and to USGS for their leadership in the effort. He said this represents the most significant investment of time, since the establishment of LTRM, to think creatively about how to use potential resources to address information needs. This partnership effort sets the course and direction for LTRM for the next 10 years. Fischer agreed, expressed appreciation to Houser for leading the effort, and noted the approach was pragmatic, democratic, and inclusive. Fischer encouraged the UMRBA Board to review the information needs not currently being pursued as they consider WRDA 2024 priorities and potential advocacy for additional LTRM resources. Vanessa Perry expressed gratitude to the team as well and said this effort is complementary to the Strategic Plan review effort and will help guide future strategic planning. Perry moved and Fischer seconded a motion to endorse the recommended nine information needs for funding in FY 2024 to FY 2026. The motion passed unanimously.

Houser said the *ad hoc* LTRM implementation planning team will present a plan for how to most effectively fund each of the remaining information needs through FY 2026 to the UMRR Coordinating Committee in October 2023. The team recommended two of those information needs for initial funding with FY 2023 funds. Fischer moved and Chad Craycraft seconded a motion to partially fund the following two priority implementation planning science needs with FY 2023 funds totaling \$1,234,516:

- Hydrogeomorphic change: Geomorphic trends
- Aquatic ecology: River gradients from Pool 14 to Pool 25:

The motion passed unanimously. Sabrina Chandler expressed appreciation to the various entities involved and noted these information needs will significantly advance knowledge and restoration efforts on the river.

Habitat Restoration

Angela Deen reported that MVP has obligated 97 percent of its \$11 million FY 2023 funds, as of August 1, 2023. The District was able to fully fund McGregor Lake to construction completion and advance design for the Lower Pool 10 HREP through an AE firm. Deen reported that MVP's planning priorities include Big Lake – Pool 4 and Robinson Lake. The TSP milestone meeting for Big Lake – Pool 4 was held on July 21, 202 and concurrent agency and public report review is anticipated for fall 2023. Deen said Reno Bottoms is in the design phase with three stages in development. The PDT is discussing how to break up forestry work on the project. MVP awarded a design contract in June for Stages 1, 2, and 3 for Lower Pool 10 HREP. Deen reported that mussel surveys at Lower Pool 10's proposed access site detected Higgins' Eye mussels and the PDT is discussion other route options. Deen said that MVP has had three positive

experiences with an AE firm for design. McGregor Lake HREP Stage 1 construction is 95 percent complete, and Stage II was fully awarded. The project employs innovative techniques and beneficial use one-half million cubic yards of granular dredge material. Deen reported that Bass Ponds HREP, Conway Lake HREP, and Harpers Slough HREP have all been closed out and turned over to USFWS. A hydraulic analysis was completed for the Trempealeau Lake HREP, which is being re-evaluated to improve performance where harmful algal blooms have been problematic. In response to a question from Stephenson, Deen said that proposed construction of a culvert under railroad tracks at Trempealeau could improve gravity flow from the river and would be considered adaptive management on the existing HREP. New islands and bathymetric diversity objectives would be a new HREP fact sheet. In response to a question from Fischer, Deen said the monitoring plan will include both areas over a ten-year period.

Leo Keller reported that MVR's planning priorities include Pool 12 Forestry, Lower Pool 13 Phases 1 and 2, Green Island, and Quincy Bay HREPs. The Quincy Bay TSP meeting with MVD is scheduled for August 30, 2023. Keller said Pool 18 Forestry will be the next HREP to enter feasibility in MVR with a kickoff meeting in the fall. Steamboat Island Stage II remains in design and a contract is anticipated for early FY 2024. MVR has four projects in construction: Beaver Island Stage 1B, Steamboat Island Stage 1, Keithsburg Division Stages 1 and 2, and Huron Island Stage 3. Construction at Huron Island is complete; ERDC surveyed vegetation in June and 30 individuals from the Corps, USFWS, and Iowa DNR participated in additional plantings on July 18 and 19, 2023. An assessment of vegetation survival is anticipated to occur in September 2023. Deen said that a forestry multiple award task order contract (MATOC) was awarded on July 7. This contracting method covers timber stand improvement (TSI) including thinning and planting. PER site visits were completed for Spring Lake HREP, Huron Island HPER, and Pool 12 Overwintering. A PER site visit for Pool 11 Island HREP is scheduled for August 30, 2023. Plumley said that initial monitoring of innovative mussel substrate at Beaver Island has documented a positive response showing 20 different mussel species including some state threatened species. Plumley said the lessons learned from this mussel substrate feature can be incorporated into future island protection efforts. Chandler said she has had numerous conversations about the potential for this approach to be applied broadly and expressed appreciation for how this monitoring will inform future restoration efforts.

Brian Markert reported that Col. Andy Pannier is the new St. Louis District Commander. He said that Col. Pannier has a background in biology and is eager to attend the October 2023 UMRR Coordinating Committee meeting. Markert reported that MVS's planning priorities include West Alton Islands and Yorkinut Slough HREPs. Gilead Slough and Reds Landing HREPs were selected to start feasibility in the first quarter of FY 2024. Markert said the Swan Lake flood damage assessment letter report was approved in July and the Meredosia Island fact sheet endorsed by the UMRR Coordinating Committee at the May 24, 2023 quarterly meeting was approved by MVD. Markert reported that MVS's design priorities include Clarence Cannon Stage 4, Crains Island Stage 2, Harlow Island Stage 2, Oakwood Bottoms, and Swan Lake HREPs. MVS has three projects in construction: Crains Island Stage I, Piasa and Eagles Nest Stage II, and Clarence Cannon. The exterior berm (levee) setback at Clarence Cannon is substantially complete with seeding and reforestation to occur this fall. Markert said the contractor is on site at Piasa and Eagles Nest to survey and assemble and place pipe. In response to a question from Mark Ellis, Markert said that conditions at Clarence Cannon should not impact spill response planning in the area that is scheduled for late-August.

UMRR Showcase Presentations

Machine Learning to Evaluate Vulnerability and Restoration Potential of SAV

John Delaney, with USGS, presented on the use of explainable machine learning to evaluate vulnerability and restoration potential of submersed aquatic vegetation (SAV). He said the research goals were to determine 1) if a predictive model could be created to show where SAV occurs, 2) what predictor variables best explain SAV presence, 3) which sites have greater restoration potential, and what

environmental predictors could be manipulated to restore SAV at those sites, and 4) creating an online, interactive tool for researchers and managers to interact with model outputs. The study area included data from Pools 4, 8, and 13 and focused on presence or absence of SAV from 2010 to 2019, when SAV was stable. Ten predictor variables used in the model and identified through a workshop include:

- Water depth (m)
- Suspended solids (mg/L)
- Substrate (type)
- Distance to nearest SAV (m)
- Distance to main channel (m)
- Lentic connectivity (%)
- Weighted wind fetch (km)
- Chlorophyll a concentration (µg/L)
- Total nitrogen(mg/L)
- Previous 3-year summer low flow days (days)

Delaney said the random forest model was 89% accurate and the four most important variables were water depth, suspended solids, substrate, and distance to nearest SAV. Sample sites can be viewed individually to show locally important variables. Sites were classified as SAV present or SAV absent with a cutoff at a prediction probability of 0.5. Delaney said that prediction probabilities approaching 0.5 suggest increasing recovery potential or increased vulnerability to state changes. The online, interactive tool is available at the following link: <https://rconnect.usgs.gov/SAVVEA/>.

In response to a question from Chad Craycraft, Delaney said that no areas downstream of Pool 13 were included because the absence of SAV in those areas could influence the model. Danelle Larson added that there is little data beyond 2004 in those areas with the exception of UMRCC sampling. In response to a question from Vanessa Perry, Larson said she published a paper titled *Quantifying Ecosystem States and State Transitions of the Upper Mississippi River System Using Topological Data Analysis* that includes a multivariate analysis with 10 water quality variables. Jim Fischer applauded Delaney and Larson for their work and deeper analysis of LTRM datasets. Fischer asked if the model could be applied to non-key pools and if it could be used by resource managers in the next project selection process. Delaney said areas below Pool 13 may have variable values outside the range within the current model. Larson noted the three variables for habitat suitability: depth, turbidity, and substrate type or velocity could be affected by HREPs and could inform where projects may be needed and most effective. In response to a question from Houser, Larson provided Pool 13 as an example of where thresholds have been considered and variables projects could affect were identified to consider restoration potential. Fischer suggested including an overview of this tool as a webinar to inform the HREP selection process as it could lead to more resilient projects. Marshall Plumley said the models are very applicable, but that herbivory is not included in the current model. He noted that the Huron Island HREP shows that exclosures allow plants to reestablish in areas that may be outside model predictions.

Other Business

Sabrina Chandler said that, following the conclusion of the meeting, the UMRR Coordinating Committee and meeting participants were welcome to tour the recently renovated water quality analysis lab at UMESC.

Kirsten Wallace said that UMRBA has changed the format of calendar invitations for quarterly meetings. Wallace requested that any feedback regarding experiences with the new format be sent to UMRBA staff.

Upcoming quarterly meetings are as follows:

August 2023 – La Crosse

- UMRBA quarterly meeting – August 8
- UMRR Coordinating Committee quarterly meeting – August 9

October 2023 – St. Louis

- UMRBA quarterly meeting – October 24
- UMRB Coordinating Committee quarterly meeting – October 25

May 2024 – Quad Cities

- UMRBA quarterly meeting – May 21
- UMRB Coordinating Committee quarterly meeting – May 22

With no further business, Jim Fischer moved Chad Craycraft seconded a motion to adjourn the meeting. The motion carried unanimously. The meeting adjourned at 2:28 p.m.

UMRR Coordinating Committee Attendance List
August 9, 2023
[Note: This includes in-person and virtual attendees]

UMRR Coordinating Committee Members

Brian Chewning	U.S. Army Corps of Engineers
Sabrina Chandler	U.S. Fish and Wildlife Service
Jeff Houser	U.S. Geological Survey, UMESC
Chad Craycraft	Illinois Department of Natural Resources
Randy Schultz	Iowa Department of Natural Resources
Vanessa Perry	Minnesota Department of Natural Resources
Matt Vitello	Missouri Department of Conservation
Jim Fischer	Wisconsin Department of Natural Resources
Rich Vaughn	Natural Resources Conservation Service

Others In Attendance

Jim Cole	U.S. Army Corps of Engineers, MVD
Thatch Shepard	U.S. Army Corps of Engineers, MVD
Samantha Thompson	U.S. Army Corps of Engineers, MVD
LeeAnn Riggs	U.S. Army Corps of Engineers, MVD
Col. Eric Swenson	U.S. Army Corps of Engineers, MVP
Nathan Wallerstedt	U.S. Army Corps of Engineers, MVP
Angela Deen	U.S. Army Corps of Engineers, MVP
John Henderson	U.S. Army Corps of Engineers, MVP
Col. Jesse Curry	U.S. Army Corps of Engineers, MVR
Marshall Plumley	U.S. Army Corps of Engineers, MVR
Leo Keller	U.S. Army Corps of Engineers, MVR
Julie Millhollin	U.S. Army Corps of Engineers, MVR
Rachel Perrine	U.S. Army Corps of Engineers, MVR
Rachel Hawes	U.S. Army Corps of Engineers, MVR
Marisa Lack	U.S. Army Corps of Engineers, MVR
Jessie Dunton	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
Greg Kohler	U.S. Army Corps of Engineers, MVS
Elisabeth Lang	U.S. Environmental Protection Agency
Whitney King	U.S. Environmental Protection Agency
Kraig McPeck	U.S. Fish and Wildlife Service, IIFO
Sara Schmuecker	U.S. Fish and Wildlife Service, IIFO
Lauren Larson	U.S. Fish and Wildlife Service, IIFO
Matt Mangan	U.S. Fish and Wildlife Service, IIFO
Laura Muzal	U.S. Fish and Wildlife Service
Alex Kasdin	U.S. Fish and Wildlife Service
Mary Stefanski	U.S. Fish and Wildlife Service, Refuges
Jennifer Dieck	U.S. Geological Survey, UMESC
Danelle Larson	U.S. Geological Survey, UMESC
KathiJo Jankowski	U.S. Geological Survey, UMESC
Kristen Bouska	U.S. Geological Survey, UMESC
John Delaney	U.S. Geological Survey, UMESC
JC Nelson	U.S. Geological Survey
Jenn Lacey	U.S. Geological Survey
Mark Gaikowski	U.S. Geological Survey

Rick Pohlman	Illinois Department of Natural Resources
Dave Glover	Illinois Department of Natural Resources
BJ Murray	Illinois Department of Transportation
Brian McCoy	Illinois Department of Transportation
Kirk Hansen	Iowa Department of Natural Resources
Dave Bierman	Iowa Department of Natural Resources
Travis Black	Maritime Administration
Nick Schlessler	Minnesota Department of Natural Resources
Kevin Stauffer	Minnesota Department of Natural Resources
Neil Rude	Minnesota Department of Natural Resources
Megan Moore	Minnesota Department of Natural Resources
Tim Anderson	Wisconsin Department of Agriculture, Trade and Consumer Protection
Scott Roepke	Wisconsin Department of Natural Resources
Jordan Weeks	Wisconsin Department of Natural Resources
Dave Rozeboom	Wisconsin Department of Natural Resources
Patrick Kelly	Wisconsin Department of Natural Resources
Olivia Dorothy	American Rivers
Kim Lutz	America's Watershed Initiative
Brent Newman	Audubon
Lindsay Brice	Audubon
Anshu Singh	Corn Belt Ports
Fritz Funk	Lake Onalaska District
Doug Daigle	Lower Mississippi River Sub-basin Committee
Rick Stoff	Stoff Communications
Karen Hagerty	Illinois Resident
Kirsten Wallace	Upper Mississippi River Basin Association
Brian Stenquist	Upper Mississippi River Basin Association
Andrew Stephenson	Upper Mississippi River Basin Association
Mark Ellis	Upper Mississippi River Basin Association
Ken Petersen	Upper Mississippi River Basin Association
Erin Spry	Upper Mississippi River Basin Association