Minutes of the
Upper Mississippi River Restoration Program
Coordinating Committee

May 25, 2022
Quarterly Meeting

St. Louis, Missouri

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

Minutes of the February 23, 2022 Meeting

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

Regional Management and Partnership Collaboration

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

FY 2022 Fiscal Update

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

FY 2023 Fiscal Outlook

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

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

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

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

WRDA 2022

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

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

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

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

UMRR Ten-Year Plan

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

or future size. Stephenson recalled from previous discussions the need for increased direction from the UMRR Coordinating Committee to the COT on priority activities and products.

Acres Restored

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

2022 Report to Congress

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

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

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

Status and Trends Report Release

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

2015-2025 Strategic and Operational Plan Review

Stephenson reported that, on September 20, 2021, a survey was distributed to the UMRR partnership at-large regarding the 2015-2025 UMRR Strategic and Operational Plan. The purpose of the survey was to seek input regarding progress achieved since 2015, priorities for the next five years, and the issue areas to include in the 2022 Report to Congress. The survey included questions about respondents' involvement with UMRR and their assessment of UMRR based on the Strategic Plan's four goals.

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

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

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

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

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

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

Goal 3: Engage and collaborate with other organizations and individuals to help accomplish the UMRR vision.
[Note: no success criteria were available for Goal 3]

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

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

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

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

Implementation Issue Papers

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

Communications

UMRR Communications and Outreach Team

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

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

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

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

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

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

Status and Trends Report Strategic Rollout

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

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

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

External Communications and Outreach

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

UMRR Showcase Presentations

MVS HREP Construction Lessons Learned

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

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

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

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

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

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

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

Aging Fish

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

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

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

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

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

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

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

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

Long Term Resource Monitoring and Science

FY 2022 2nd Quarter Report

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

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

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

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

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

Status and Trends 3rd Edition

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

2022 Science Meeting

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

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

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

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

USACE LTRM Report

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

A-Team Report

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

Science Proposal Endorsement

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

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

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

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

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

LTRM Implementation Planning

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

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

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

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

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

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

Habitat Restoration

Angela Deen said MVP's planning priorities include Big Lake – Pool 4, Reno Bottoms, and Lower Pool 10. Feasibility planning continues for Big Lake – Pool 4 focusing on formulating alternatives and a site visit is anticipated for June 2, 2022. Reno Bottoms PDT has evaluated cost-benefit results and the Corps has proposed a Tentatively Selected Plan (TSP). The final report for Lower Pool 10 was submitted to MVD on February 28, 2022. Plans and specs for the project kicked off and a site visit is anticipated for July or August. MVP has four projects in construction including Harpers Slough, McGregor Lake, Bass Ponds, and Conway Lake. Harpers Slough is eighty-five percent complete and low water is needed for final grading and seeding in the spring. McGregor Lake is seventy-five percent complete and a contract for Stage 2 is anticipated to be re-advertised in June and awarded in August. Bass Ponds and Conway Lake are both over ninety-seven percent complete. A ribbon cutting ceremony for Bass Ponds is anticipated this summer. All features are physically complete at Conway Lake and willow planting is

underway. Deen said there is a good balance of project size and geographic distribution across the district. Deen reported that MVP held an Earth Day dedication event on April 22, 2022, at the Driftless Area Education and Visitors Center in Lansing to celebrate and dedicate the completion of both Harpers Slough and Conway Lake. The Facebook live video stream reached 1,400 individuals and was viewed over 500 times. Conway Lake and McGregor Lake HREPs were featured in an Engineering with Nature publication in Wetland Science and Practice for their ongoing research to evaluate vegetation responses and wetland establishment and function to varying depths and mixes of placed sediment. Future efforts include soil sampling at Capoli Slough HREP. The article can be accessed via this link: https://ewn.erdc.dren.mil/wp-content/uploads/2022/04/WSP_EWN_NNBF_Berkowitz_Hurst_2022.pdf. Jim Fischer encouraged utilizing LTRM data in planning Pool 4 Big Lake HREP and noted that the program's best opportunities for integration across elements exists with HREPs in trend pools.

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

Brian Markert said MVS's planning priorities include West Alton Islands and Yorkinut Slough with a TSP for Yorkinut Slough anticipated in the fourth quarter of FY 2022. MVS's design priorities include Piasa & Eagles Nest, Harlow Island, and Oakwood Bottoms. Design for Piasa and Eagles Nest Islands is complete and the plan is to award hydraulic dredging for Stage II in the fourth quarter of FY 2022. Harlow Island Stage 2 plans and specs are anticipated to be completed and ready to advertise in late FY 2022, pending funding and priorities. Oakwood Bottoms has four plans and specs packages in development and the project is anticipated to be ready to advertise in the first quarter of FY 2023. MVS has three projects in construction. Construction at Crains Island Stage 1 is anticipated to be complete in the third quarter of FY 2022. Construction of a rock structure at Piasa & Eagles Nest is ongoing. The new pump station at Clarence Cannon is operational and modifications to the channel will occur in the third quarter of FY 2022. Other MVS activities include sponsor review of fact sheets, a flood damage assessment on Swan Lake HREP, and summarizing lessons learned from past and current HREP construction efforts. In response to a question from Stephenson, Markert said new refuge managers have precipitated discussions of potential future HREP fact sheets. Plumley said the program wide HREP selection process was envisioned to occur on a five-year basis, but should the program receive additional funds that would advance project completion, a new process may be needed sooner.

Navigation and Ecosystem Sustainability Program

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

— A project delivery team was established for the new 1,200-foot lock at L&D 25. An initial construction contract award is anticipated in FY 2022. Coordination with the construction industry will begin on June 15, 2022.

— A scope of work is being developed to complete the design of the L&D 22 fish passage project . A contract for design activities is anticipated to be awarded in FY 2022. Pre-project fish monitoring activities are anticipated to begin soon. Fish tags are being procured.

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

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

— Navigation ($39.2 million)
  - Construction contracts for Lock 14 mooring cell and Moore's Towhead Systemic Mitigation.
  - Begin feasibility on three to seven new systemic mitigation projects.
  - Begin industry coordination on small-scale navigation efficiency measures – mooring cells and switchboats. An initial meeting is anticipated for June 29, 2022 in St. Louis.
  - Design of La Grange 1,200' lock.

— Ecosystem ($18 million)
  - Construction contracts for Twin Island, Alton Pool, Pool 2 Wingdam Notching, and Starved Rock.
  - Begin feasibility for the following ecosystem projects:
    - Wacouta Bay (MVP)
    - North-Sturgeon Lake (MVP)
    - Sabula Lakes Pool 13 (MVR)
    - Andalusia Island Complex Pool 16 (MVR)
    - Middle Miss Stone Dike Alterations Phase 1 (MVS)
    - Pool 24 Island Restoration – Denmark and Drift (MVS)
    - Multi-Pool Forest Restoration (MVR or MVP)
    - Systemic Water Level Management (MVS, MVR, MVP)

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

Other Business

Upcoming quarterly meetings are as follows:

- **August 2022 – St. Paul, MN**
  - UMRBA quarterly meeting – August 9
  - **UMRR Coordinating Committee quarterly meeting – August 10**
- **November 2022 – Quad Cities**
  - UMRBA quarterly meeting – November 15
  - **UMRR Coordinating Committee quarterly meeting – November 16**
- **February/March 2023 – Virtual**
  - UMRBA quarterly meeting – February 28
  - **UMRR Coordinating Committee quarterly meeting – March 1**

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

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

UMRR Coordinating Committee Virtual Attendance List
May 25, 2022

UMRR Coordinating Committee Members

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

Others In Attendance

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

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