Virtual Meeting

Upper Mississippi River Restoration Program Coordinating Committee

Quarterly Meeting

August 12, 2020

Agenda

with
Background
and
Supporting Materials

UPPER MISSISSIPPI RIVER RESTORATION PROGRAM
COORDINATING COMMITTEE

August 12, 2020

8:00 a.m. – 12:30 p.m. CDT

AGENDA

[**Note:** The states, U.S. Army Corps of Engineers, and the Department of the Interior will arrange their respective pre-meetings via conference call prior to the August 12, 2020 quarterly meeting.]

Wednesday, August 12 UMRR Coordinating Committee Quarterly Meeting

Time	Attachment	Topic	Presenter
8:00 a.m.		**Welcome and Introductions**	***Brian Chewning**, USACE*
8:05	**A1-15**	**Approval of Minutes of May 20, 2020 Meeting**	
8:10		**Regional Management and Partnership Collaboration**	***Marshall Plumley**, USACE*
	B1-3	▪ FY 2020 Fiscal Update and FY 2021 Outlook	
		▪ Statements of UMRS Significance	
		▪ 2015-2025 Strategic and Operational Plan Review	
	B4-28	▪ 2013 Advisory Groups Charter Review	
		▪ 2022 Report to Congress	
		– Implementation Issues	
		▪ Communications Team and Lower Illinois Pilot Project	***Rachel Perrine**, USACE*
		▪ External Communications and Outreach Events	***All***
9:00		**UMRR Showcase Presentations**	
		▪ Forest Canopy Gaps: Understanding UMRS Forest Health	***Andrew Strassman**, USGS*
		▪ Forest Model Development	***Nate Richards**, USACE*
9:45		**Break**	
10:00	**C1-2**	**USGS Midwest Climate Adaptation Science Center**	***Olivia LeDee**, USGS and* ***Jeff Ziegeweid**, USGS*
10:30		**Program Reports**	
		▪ Habitat Restoration	
		– District Reports	***District HREP Managers***
		– HREP Selection Process Guidance Documents	***Marshall Plumley**, USACE*
	D1-15	▪ Long Term Resource Monitoring and Science	
		– LTRM FY 2020 3rd Quarter Highlights	***Jeff Houser**, USGS*
		– Status and Trends Report 3rd Edition	
		– COVID Updates	
		– USACE LTRM Update	***Karen Hagerty**, USACE*
		– A-Team Report	***Nick Schlesser**, MN DNR*
12:15 p.m.		**Other Business**	
	E1	▪ Future Meeting Schedule	
12:30 p.m.		**Adjourn**	

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

Continued on next page for remote connection information

Remote Connection Information:

August 12
UMRR Coordinating Committee Quarterly Meeting (8:00 a.m. to 12:30 p.m. CDT)

- Web conferencing:
  https://umrba.my.webex.com/umrba.my/j.php?MTID=m2afd81b90923176c4a2b4c880bf86ca7

- Dial-in: 408-418-9388

  [Note: In the event that the call line provided is experiencing a high volume of calls, you may also connect by dialing 312-535-8110 or 469-210-7159.]

  — Access code: 126 831 4824

  — Password: 1234

ATTACHMENT A

Minutes of the May 20, 2020
UMRR Coordinating Committee Quarterly Meeting

(A-1 to A-15)

DRAFT
Minutes of the
Upper Mississippi River Restoration Program
Coordinating Committee

May 20, 2020
Quarterly Meeting

Virtual Meeting

Sabrina Chandler of the U.S. Fish and Wildlife Service called the meeting to order at 8:05 a.m. on May 20, 2020. UMRR Coordinating Committee representatives present on the virtual meeting were Brian Chewning (USACE), Mark Gaikowski (USGS), Randy Schultz (IA DNR), Dave Glover (IL DNR), Megan Moore (MN DNR), Matt Vitello (MO DoC), Jim Fischer (WI DNR), Verlon Barnes (NRCS), and Ken Westlake (USEPA). A complete list of attendees follows these minutes.

Minutes of the February 26, 2020 Meeting

Megan Moore noted the incorrect spelling of "recreational" on page A-3 of draft minutes included in the agenda packet. Ken Westlake moved and Megan Moore seconded a motion to approve the draft minutes of the February 26, 2020 UMRR Coordinating Committee meeting as corrected. The motion carried unanimously.

Regional Management and Partnership Collaboration

Marshall Plumley expressed appreciation for the partnership's flexibility, creativity, and willingness to make the program work during difficult circumstances due to COVID-19. He is tremendously impressed with how the partnership is functioning given that we are unable to meet in-person and are mostly working remotely in our home offices. Plumley noted that HREP PDTs are engaging in new ways to advance projects, LTRM is navigating data collection needs amidst various agency restrictions, and the UMRR Coordinating Committee is meeting virtually.

FY 2020 Budget Outlook

Plumley reported that UMRR obligated over $12 million of its FY 20 funds as of May 18, 2020, with a construction contract recently awarded for Crains Island. Significant upcoming expenditures include science proposals, forest inventory and timber stand improvement in MVR, and Bass Ponds and McGregor HREPs in MVP. According to Plumley, UMRR is in a healthy position to execute funds this year. It is anticipated that UMRR will reach a comparable execution to previous years.

Plumley said the President's FY 2021 budget recommendation for UMRR is $33,170,000. The final FY 2021 UMRR appropriation is unknown. At a $33.17 million funding scenario, internal allocations are anticipated to be as follows:

- Regional Administration and Program Efforts – $1,250,000
- Regional Science and Monitoring – $10,400,000
    - Long term resource monitoring – $5,000,000
    - Regional science in support of restoration – $3,800,000
    - Regional science staff support – $200,000
    - Habitat project evaluations – $1,125,000
    - HNA II/regional project sequencing – $275,000

- Habitat Restoration – $21,520,000
  - Rock Island District – $7,020,000
  - St. Louis District – $7,125,000
  - St. Paul District – $7,275,000
  - Model certification – $100,000

In response to a question from Jim Fischer, Plumley said UMRR and the Everglades are the only two programs exclusively focused on ecological restoration that are receiving FY 2020 construction general funds in the Corps' environmental business line. This makes it even more important that the program executes its funds effectively. Plumley recalled that there were some delays on projects due to high water in 2019, but that the upward trajectory of acres restored speaks well of the program and its execution.

UMRR Ten-Year Plan

Plumley said no changes were made to UMRR's 10-year outlook since the February 26, 2020 UMRR Coordinating Committee quarterly meeting. He noted the Steamboat Island HREP may be accelerated due to completion of the feasibility report ahead of schedule.

ProjectWise

Plumley said the Corps' ProjectWise software will be used for the Pool 13 HREP as a pilot effort to test the program's functionality for various agencies. ProjectWise may be used for the communications pilot following a successful implementation with the Pool 13 project.

COVID-19-Related Challenges

Plumley said some adjustments were made to LTRM monitoring in response to COVID-19 policies at state and federal agencies. He expressed appreciation to USGS, field station, and Corps staff for engaging in conversations and making quick and effective decisions on how to continue operations across five states and federal agencies. Plumley acknowledged Mark Gaikowski, Jeff Houser, Jennie Sauer, and KathiJo Jankowski for helping to organize discussions.

Report to Congress

Plumley said the UMRR Coordinating Committee, District Program Managers, and LTRM managers have a virtual meeting scheduled for June 3, 2020 to discuss development of the 2022 Report to Congress. Plumley introduced Jill Bathke, from MVP, who will help work on the report on behalf of the Corps. Initial discussions will be structured around potential implementation recommendations to partner agencies, Congress, and the Administration. Bathke said she is currently working in the Corps' planning branch and previously worked in the regulatory branch for a number of years and expressed enthusiasm in joining this effort.

Statements of UMRS Significance

Plumley reported that the UMRR Coordinating Committee convened a call on March 24, 2020 to discuss revisions to the statements of UMRS significance and a draft UMRR storyline. He said it is important to boil down the information about the important characteristics of the UMRS into a compelling story. The revised statements are organized into categories the partnership has classified as important, including natural resources, culture, recreation, navigation, partnership, and economy. The document also identifies a set of concerns for the river and threats to areas of significance that may be important for articulating in the 2022 Report to Congress. Plumley said the draft storyline provides

context around the initial authorization of UMRR and will be provided for review in the coming months. Also discussed was the creation of a UMRR motto to succinctly convey the purpose and goal of the program. Mottos proposed for consideration include, but are not limited to, "building resilience through restoration," "restoring a healthy, resilient river ecosystem," and "restoration today for a resilient tomorrow." Andrew Stephenson said the storyline will also help to convey how UMRR is achieving its goals to a variety of audiences.

2015-2025 Strategic and Operational Plan Review

Plumley explained that, as an initial step for reviewing the 2015-2025 UMRR Strategic and Operational Plan, Kirsten Wallace provided an overview of the plan's development on an April 24, 2020 webinar. He said the historical perspective and context were very helpful for individuals who were not involved in the program at that time. Wallace's review highlighted a number of issues that remain to be addressed. Through a survey following the webinar, the UMRR Coordinating Committee compiled its assessment of UMRR's progress since 2015 and of any necessary adjustments or reprioritization of programmatic activities.

The UMRR Coordinating Committee convened a day and a half virtual meeting on May 6-7, 2020. The purpose was to review and discuss the survey results. Meeting attendees observed considerable progress achieved during the last five years regarding objectives set in Goals 1, 2, and 4 – i.e., habitat restoration, knowledge, and partnership. However, there was acknowledgement of ongoing challenges in making progress related to Goal 3 – i.e., communication. In particular, the Committee acknowledged the achievements related to HREP selection, ecological resilience, HNA II indicators, LTRM/HREP integration, and transparency offered among the implementing partners in decision making. Areas for improvement included adaptive management, understanding restoration effects on indicators and resilience, conducting outreach, and meaningfully communicating restoration and science knowledge in relevant and timely ways.

Plumley said the UMRR Coordinating Committee requested that the survey be distributed more broadly among program partners to get a more comprehensive perspective. Jim Fischer expressed appreciation to everyone who participated in the initial Strategic Plan review meeting and said the discussion was valuable. It demonstrated that UMRR has accomplished a lot in the last five years. According to Fischer, the partnership is in a stronger place than when the Plan was developed.

Fischer recalled that an intentional decision was made during development of the Strategic Plan to promote integration across the two program elements – i.e., HREP and LTRM. He was impressed with the improvement made so far and is looking forward to continued improvement. Megan Moore also expressed appreciation for undertaking the Strategic Plan review and said it will help improve the program overall as we are in a strong place now to address the other elements that need attention. Neal Jackson expressed appreciation to Plumley for his comments regarding the importance of outreach and suggested engaging with residents along the river.

Lower Illinois River Communications Pilot Project

Plumley said Rachel Perrine and Jill Bathke will be assisting with UMRR's communication work. Perrine said she has worked for the Corps for 14 years and started her career working on post-construction monitoring of water quality, but has since spent time in regulatory, engineering, and planning for the last five years.

Andrew Stephenson said the Lower Illinois River *ad hoc* communications team reviewed an initial draft framework strategy in October 2019. A revised version based on the initial input will be sent to the group soon for second review. Stephenson described how the effort relates to Goal 3 of the 2015-2025 UMRR Strategic Plan: "engage and collaborate with other organizations and individuals to help

accomplish the UMRR vision." The UMRR Coordinating Committee has called for investment in external communications to help advance UMRR's vision by targeting engagement with individuals or organizations that can positively or negatively influence that vision and focusing on the top primary drivers affecting the ecosystem.

Stephenson recalled that, at a February 27, 2019 meeting, the UMRR Coordinating Committee and Communications Team agreed to develop a communications strategy focusing on total suspended solids (TSS) in the HNA-II Lower Illinois Reach. The following problem statement guiding the pilot project connects conditions in the watershed to the river:

> *Land use changes in the Illinois River basin have led to increased sediment in the river, resulting in severely degraded environmental conditions along the main stem of the Illinois River by increasing TSS and filling backwater areas, side channels, and channel border areas. TSS concentrations within the Lower Illinois River reduce the ability of the system to support growth of native aquatic vegetation and other food and habitat resources for fish and waterfowl species as well as continuing to degrade backwater and off-channel habitat. TSS concentrations will not improve without actions taken within the watershed or tributaries outside the scope of UMRR.*

Stephenson said the problem statement connects conditions in the watershed to the UMRS. The goal of the pilot is to engage with individuals and organizations working in the watershed to address external stressors. Draft messages are being developed, but will need to be tailored to target audiences. Next steps include:

- Involve potential actors in the watershed to review the draft strategy
- Better understand actions being implemented now to reduce sediment and nutrient inputs to the Illinois River.
- Solicit input on draft messages from the UMRR partnership.
- Establish metrics to evaluate success.
- Develop a timeline to guide partners' implementation of outreach actions.

Megan Moore expressed appreciation for the *ad hoc* team's effort and said this could serve as a foundational piece to scale up to the broader UMRS. Moore asked who would implement the plan. Stephenson said the framework suggests that UMRR partners that are already working in the watershed would help to carry out the engagement strategy. In addition, UMRR could provide presentations about HREPs to state-level NRCS groups as a way to help connect in-river work to efforts in the watershed. Chandler said, and Moore agreed, that this effort was a good step forward to advance UMRR's communications objectives.

External Communications

UMRR partners reported on the following communication and outreach activities since the February 26, 2020 UMRR Coordinating Committee meeting:

- Lauren Salvato said that, on April 3, 2020, she was a plenary speaker for the Wisconsin Lakes and Rivers Convention. The theme of the plenary was resilience of the UMRS and she provided information about UMRR's LTRM and HREP elements. Jim Fischer said it was the first year the conference expanded from lakes to include rivers and that it was useful for those working on local waterbodies to understand what is happening on the Upper Mississippi River.

- Fischer said he presented at the Red Cedar River Conference on March 12, 2020 and discussed the history, successes, and future direction of UMRR.

- Kat McCain said she will participate in a virtual outreach activity on June 23, 2020 for the Mighty Mississippi River exhibit as part of the Missouri History Museum's river conservation series. She will discuss UMRR's role in the recovery of ecosystems that have been degraded, damaged, or destroyed.

- Mark Gaikowski said USGS and USACE participated in MRCTI's March 3-5, 2020 capital meeting and discussed issues relevant to UMRR and the river. It was an opportunity to connect with mayors, federal agencies, and congressional staff to highlight the program.

- Plumley said the Steamboat Island HREP feasibility report is out for public review. It is one of the first examples of conducting a virtual public presentation and review for an HREP. The presentation was distributed on social media and has received over 100 views.

- Sabrina Chandler said Gail Carmody visited Port Louisa Refuge in the Savanna District. Carmody serves on the National Wildlife Refuge Association (NWRA) Board, which advocates for the refuges at the Congressional level and engages with the public about refuge activities. Discussion focused on the benefits of UMRR, particularly with respect to HREPs. Carmody was involved in UMRR in the 1980s and appreciated seeing the program's progress since her early involvement.

UMRR Showcase Presentations

Harlow Island

Jasen Brown provided an overview of the Harlow Island HREP. He expressed appreciation to the USFWS as a partner on the project. The property was acquired in 2007 and covers over 1,200 acres in the Middle Mississippi River National Wildlife Refuge (NWR), located approximately 35 miles downstream of St. Louis. The project will be 100 percent federally funded, and would be the first UMRR implemented on the open river. The fact sheet for the Harlow Island was approved in June 2015, the feasibility report was approved in February 2019, and next steps include designing plans and specs and issuing a contract award.

Current problems at Harlow Island include limited topographic diversity, degraded side channel structure and connectivity, habitat fragmentation, and loss of forest community diversity. Forest stands consist of 15-year old cottonwood trees primarily and have no mast producing trees and the soil is not well-suited for growing the desired vegetation. Project objectives include restoring topographic diversity, increasing connected aquatic backwater habitat, increasing acreage protected from coarse sediment deposition, and restoring floodplain forest communities. At the feasibility-level of design, the project will include reforestation and establish topographic diversity through ridges and swales and partially restore a backwater by limiting upstream connectivity in the current side channel. The project would achieve most of these outcomes by building a sediment deflection berm to divert sediment and high velocities away from the protected area behind the berm. This would allow for fine sediment deposition and the building of complex soils capable of supporting wetlands species in swales and hard mast trees on ridges. HEC-RAS 2D modeling shows how the deflection berm would direct flows and promote fine sediment deposition using a passive design that harnesses the rivers existing energy, eliminating the need for pump stations or water control structures.

A draft set of plans and specs is complete and refinements from a value engineering workshop included ridge and swale constructability and a focus on designs based on what nature is already providing. An initial contract will cover 60-70 percent of the work and the total estimated project cost is $8 million to $10 million. Plans and specs are expected to be reviewed by July 2020 and a construction award is anticipated for September 2020 to have construction completed by FY 25, dependent on funding availability.

In response to a question from Andrew Stephenson, Brown said natural indicators and sponsor input drove initial design. Extensive modeling with a supercomputer that was used for Piasa and Eagles Nest HREP was not used for this project. Jim Fischer said it is good to see projects designed that use the energy of the river rather than expensive pumps, ultimately reducing O&M costs. In response to a question from Fischer, Brown said the project is designed so that a 10-year flood event will overtop the berm and a two-year event will hold water in the backwater, allowing for low velocity fine sediment deposition. Sabrina Chandler said she is enthusiastic about the projects in the open river that allow for using nature's energy and incorporating more natural systems. The reduced O&M costs are an added benefit.

Projected Climate Change Impacts and Vulnerabilities in the Upper Mississippi River Basin

John Delaney, USGS-UMESC, provided an overview of projected climate change impacts and vulnerability in the Upper Mississippi River Basin. The Midwest has experienced increases in temperature and precipitation, baseflow, and extreme precipitation and flooding over the 20th century. Climate change projections show further increases in temperature, precipitation, and shifts in seasonality, such as greater precipitation and baseflow earlier in the spring. Delaney discussed the results of recent modeling of changes to temperature and precipitation in the Upper Mississippi River basin sub-watersheds, namely Mississippi Headwaters, Upper Mississippi-Iowa-Skunk-Wapsipincon, and Lower Illinois. The modeling utilized two future climate change scenarios, Representative Concentration Pathways (RCP) 4.5 that assumes moderate investment in green energy and policy changes and RCP 8.5 that assumes no investment to green energy or policy changes. Thirty climate models were incorporated to account for uncertainty in any individual model. Collectively, the modeling results suggest that the Upper Mississippi River basin will experience more precipitation earlier in the spring, especially in the Lower Illinois River, and potentially drier summers in Iowa. Temperature increases in winter and late summer/early fall are also projected for the basin.

USFWS Region 3 conducted a vulnerability assessment for the Refuge lands in the Upper Mississippi River Basin. The vulnerability assessment incorporated measures of exposure, sensitivity, and adaptive capacity of focal resources (i.e., species, habitats) and used climate and hydrology data from the Hydrologic and Water Quality System (HAWQS). HAWQS is a browser-based tool that includes landcover, land use and has the ability to run the Soil and Water Assessment Tool with cloud processing and regionally calibrated models. USGS and USFWS staff met to select preferred indicators for temperature, precipitation, and hydrology. Five indicators were selected for each category as follows:

Temperature	Precipitation	Hydrology
– Annual Mean Temperature	– Annual Precipitation	– Number of High Flow Months
– Warm Days	– Consecutive Wet Days	– Sediment Load
– Growing Season Start	– Maximum 5-Day Rainfall	– Spring Flow
– Fall Temperature	– Wetter Springs	– Runoff
– Freezing Temp Reversals	– Drier Summers	– Total Nitrogen Load

All indicators are calculated as a percent change from the baseline to the future period.

Exposure indicators and sensitivity were combined to represent potential impact. Adaptive capacity is greater in more diverse areas and is represented by a suite of metrics, including topographic diversity, percent cultivated land cover, and projected increase in developed land cover. The assessment provides each metric to 2050. Potential impact and adaptive capacity were mapped. High vulnerability areas identified were Southwest Minnesota, Iowa, and the Illinois River. Chautauqua NWR and Emiquon NWR ranked second and sixth, respectively, of seventy-two USFWS Refuge properties in terms of vulnerability. Some limitations to the model are that hydrology estimates are based only on temperature and precipitation, the metrics/weights are tailored for USFWS purposes, and it is calibrated regionally

and not locally. Next steps include creating an online interactive vulnerability map and developing refuge-specific and regionally-based adaptation strategies.

Mark Gaikowski said that, although this work was not conducted as part of UMRR, the findings are directly relevant to the program and are of interest to the partners. As USGS stands up a new climate adaptation science center (CASC), there will be opportunities to expand the assessment to examine ecological restoration and science needs as well as societal impacts. Climate change will be affecting us in the future and this collaborative work is important to consider. Sabrina Chandler agreed that the work has broad applicability to UMRR. Kirsten Wallace commended Delaney on the work and noted how it relates to Goal 3 of the Strategic Plan. In response to questions from Megan Moore, Delaney said the data is still preliminary but would be shareable following completion of the necessary review. Gaikowski said USGS will make the slides shareable and send the PowerPoint to the UMRR Coordinating Committee. Matt Vitello suggested having a future discussion on incorporating the Midwest CASC into planning and communications. Jeff Houser said one of the recommended science proposals concerned a vulnerability assessment with respect to vegetation on the river. Jennie Sauer noted potential connections to the UMRBA-USACE Section 729 planning effort as well.

Long Term Resource Monitoring and Science

FY 2020 2nd Quarter Report

Jeff Houser said accomplishments of the second quarter of FY 20 include publication of the following manuscripts:

- Conceptualizing alternate regimes in a large floodplain-river ecosystem: water clarity, invasive fish, and floodplain vegetation
- Quantifying and mapping inundation regimes within a large river-floodplain ecosystem for ecological and management applications

Status and Trends 3rd Edition

Houser reported that the LTRM Status and Trends Report chapter authors met virtually on April 1, 2020 to discuss initial results and figures and to finalize details on formatting and layout. The authors also met May 8, 2020 to discuss presentation and discussion of the results. Draft chapters are scheduled to be distributed to chapter leads in early June 2020. Much of the focus to date has been on chapters two and four that contain new analytical changes. The vegetation chapter is outlined, but requires information from chapters two and four before it can be completed. The report is anticipated to be completed in time to contribute substantially to the 2022 UMRR Report to Congress.

Houser said that, in response to COVID-19, a series of conference calls were held with field station staff to coordinate LTRM data collection activities to allow for social distancing and comply with various state and federal agency policies. Water quality sampling was the first LTRM data collection effort to be affected. UMRR Coordinating Committee members were notified of relevant decisions as they were finalized. Fixed site sampling was suspended on April 6 and April 20, 2020. Due to differing state policies, Iowa and Missouri were the only states able to sample for spring water quality SRS data collection. SRS fisheries and vegetation sampling protocols are being reviewed for June 2020 sampling activities. LTRM component leads are engaging in ongoing calls as policies continue to change rapidly. Additional projects that may be impacted by COVID-19 restrictions include the fisheries vital rates project, zooplankton project, large woody debris, field testing of ScanLog, and vegetation, fisheries, and water quality sampling for the Illinois Waterway Closure monitoring.

Karen Hagerty acknowledged the importance of completing vegetation sampling on the Illinois Waterway this year to capture the effects of reduced navigation traffic. Hagerty suggested contacting UMRCC vegetation experts or USACE employees who may not be under travel restrictions to complete that field work. Jim Fischer said Wisconsin DNR is working on a phased plan for returning to work that is consistent with the Governor's Badger Bounce Back Plan. In draft form, the first phase includes any work that can be done by a single person. The second phase may include work that could be done in a boat while maintaining physical separation or safe distancing. The decision will be made in consultation with the Wisconsin Department of Health Services. Fischer expressed appreciation to Gaikowski and USGS staff that made it possible for Wisconsin field station crews to access the field station shed at UMESC and said Wisconsin DNR staff are preparing nets and gear for use.

Mark Gaikowski said he is anticipating the release of the USGS plans for returning to standard operations, which will be used to formulate a plan for transitioning UMESC staff to onsite work at the facility. Ultimately, UMESC's plan will be reviewed by the Regional Director. Gaikowski said more vehicle requests are being made and approved recently. USGS has some approved procedures regarding close quarters operations of multiple individuals in a boat or car and can share those procedures with other agencies. Jennie Sauer said continued discussion is needed with all agencies regarding PPE, multiple people in boats, and both COVID-19 and typical safety considerations. Megan Moore said Minnesota DNR is also working on a phased approach to safe working operations and expressed appreciation to Gaikowski for his willingness to share plans as they may help inform Minnesota's field station work. Jim Fischer agreed. In response to a comment from Gaikowski, Houser said Brian Ickes was engaging in conversations with the fish component staff regarding appropriate safety considerations when sampling with nets.

USACE LTRM Report

Karen Hagerty said UMRR's FY 20 LTRM allocation under full funding includes $6.3 million – i.e., $5 million for base monitoring and $1.3 million for analysis under base. An additional $2.5 million is available for science in support of restoration and management. These funds will cover previously approved proposals that include monitoring during the Illinois Waterway closure, development of wind fetch products, moving LTRM spatial data to web mapping services, continuing ecohydrology work for two years, and reintroducing chloride monitoring for three years (2020-2023) to allow comparisons to historic data and establish change over time. Remaining funding available for science proposals developed at the science meeting in January 2020 increased from $1.9 million to $2 million due to additional carryover. Eight proposals have been recommended for funding totaling $1,985,855.

FY 2020 Science Proposals

Houser explained that the recommended proposals are products of the January 14-16, 2020 UMRR Science Meeting. Working groups developed proposal ideas during virtual pre-meetings and during the in-person meeting that were then further refined after the meeting. Initial proposal drafts were requested by February 28, 2020 for light technical and funding reviews. Final proposals were submitted to the A-Team on March 23, 2020. A-Team representatives held a meeting on April 7 with proposal PIs to ask questions and clarify any issues. On April 22, 2020, the A-Team met to discuss and compile agency rankings based on criteria developed in previous years and further refined this year. On April 27, 2020, the UMRR LTRM Management Team met with the A-Team chair to discuss final recommendations with rankings from USGS and USACE. The UMRR Coordinating Committee received all 13 science proposals that were ranked in advance of the quarterly meeting. Houser provided a brief overview of the proposals developed under each working group. The UMRR LTRM Management Team recommended the following eight proposals for endorsement by the UMRR Coordinating Committee:

Side channels

- Understanding physical and ecological differences among side channels of the Upper Mississippi River System

Vegetation and wildlife

- Refining our Upper Mississippi River's ecosystem states framework

Hydrologic and geomorphic changes

- Mapping Potential Sensitivity to Hydrogeomorphic Change in the UMRS Riverscape and Development of Supporting GIS Database and Query Tool
- Improving our understanding of historic, contemporary, and future UMRS hydrology by improving workflows, reducing redundancies, and setting a blueprint for modelling potential future hydrology

Water quality and eutrophication

- Understanding landscape-scale patterns in winter conditions in the Upper Mississippi River System

Floodplain ecology

- Forest response to multiple large-scale inundation events

UMRS fish community dynamics

- Augmenting the UMRR fish vital rates project with greater species representation for genetics and otolith microchemistry
- Functional UMRS fish community responses and their environmental associations in the face of a changing river: hydrologic variability, biological invasions, and habitat rehabilitation

Olivia Dorothy asked if the floodplain forest proposal considered flood conveyance capacity in floodplain forest projects or if any proposal might help clarify interactions between the floodplain forests, groundwater recharge, and impacts on flood conveyance. Houser said the current proposal is not considering conveyance, but rather how forest mortality is distributed in response to flooding. Houser agreed that the effects of floodplain forest projects on conveyance capacity would be good to research.

A-Team Report

Nick Schlesser reported that the A-Team met via webinar on April 22, 2020. Topics discussed were an update on LTRM Land cover/Land use aerial imagery collection from Kevin Hop, concern about decreases in abundance of mayflies and potential monitoring needs, the impact of COVID-19 on agency policies and work anticipated for the 2020 field/work season, and a summary of how high water in 2019 had impacted projects and the UMR system in general. Schlesser said the main focus of this meeting was the ranking of the UMRR science proposals. In response to concerns over the 2018-2019 ranking procedure related to addressing ties and the presence of PIs during ranking discussions, the A-Team refined the ranking method this year. The new approach included a revised scoring sheet attached to proposal recommendations, corresponding excel workbook to help with the collection of scores and to reduce data entry concerns, and holding a separate meeting to provide feedback to PIs before the final ranking. In general, the refined ranking methods were considered an improvement and the ranking by the A-Team largely matched the ultimate ranking when combined with USGS and USACE rankings. The A-Team unanimously approved the science proposal rankings. However, concerns were expressed by Wisconsin DNR and the USFWS regarding the ability of vegetation-related projects to compete for funding due to their non-uniform distribution in the UMR. This and other challenges will be discussed further at the A-Team's upcoming summer meeting. Schlesser said the A-Team is committed to continually improve the science proposal ranking process.

Megan Moore said she heard positive feedback from participants regarding the new ranking process and appreciated allowing PIs to adjust proposals in response to feedback and questions prior to the final ranking. Moore echoed the concerns regarding funding vegetation component proposals and noted that vegetation was deemed important enough to be called out in the 2010-2014 strategic plan. She added

that, although a project under each focal area was funded this year, that may not be the case in future years. Schlesser said more discussion is needed to determine how to better assess any regional project considerations and that, under reduced funding, it would be difficult to fund a project under each focal area. Houser said three of four vegetation proposals were recommended for funding in 2019 and that multiple years of science proposal funding should be considered to determine if a problem exists. He noted that three or four projects were at the top of every agency's list this year. Schlesser agreed that recommendations were largely similar before and after combining USGS, USACE, and A-Team rankings. Jim Fischer said he appreciated the changes in the scoring and evaluation process and encouraged the A-Team to review the ranking process to ensure that science funding continues to support and address the most critical knowledge gaps. Karen Hagerty and Fischer expressed appreciation to Nick Schlesser for revising the ranking spreadsheet and said it was a tremendous asset to the process.

Science Proposal Endorsement

Hagerty requested the UMRR Coordinating Committee's endorsement of all eight science proposals and said they all have strong support in the partnership and add to our knowledge and understanding of the river. Jim Fischer moved and Randy Schultz seconded a motion to endorse the proposals as recommended by the A-Team and UMRR LTRM Management Team. The motion carried unanimously.

FWWG/RRF Project Recommendation

Marshall Plumley recalled that the UMRR Coordinating Committee endorsed 16 new HREP fact sheets at the February 26, 2020 quarterly meeting and that the FWWG/RRF reported that one additional fact sheet was still in development at that time. Stephen Winter said the Pool 8 Poolwide Forest Restoration HREP had a different timeline than the other fact sheets advanced by the RRF as it was developed to replace a previous draft fact sheet. The fact sheet is primarily forestry work over a large area of Pool 8 and may include timber stand improvement, plantings, and topographic diversity with dredge material. Sabrina Chandler noted that pages D1-11 of the agenda packet include the fact sheet. Plumley reported that the FWWG developed the fact sheet and the RRF formally endorsed the project proposal at its May 14, 2020 meeting. Megan Moore moved and Jim Fischer seconded a motion to endorse the Pool 8 Poolwide Forest Restoration HREP. The motion carried unanimously.

Habitat Restoration

District Reports

Angela Deen said MVP's planning priorities include Reno Bottoms and Lower Pool 10. The Lower Pool 10 TSP is anticipated to be selected in August 2020. The District's design priorities include McGregor Lake and Bass Ponds. The revised design for McGregor Lake will consider constructing floodplain forest at varying elevations to avoid high water concerns. Construction contracts are anticipated to be awarded this year for McGregor Lake and Bass Ponds. Construction on Conway Lake is scheduled to begin in May 2020.

Plans to evaluate repairs to Harpers Slough were delayed due to COVID-19 and that damage to a third island will be included in the letter report. MVP is working with project sponsors to condense and prepare four fact sheets for submission to MVD. Deen said McGregor Lake provides a good example of beneficially using dredged material. The project utilized 70,000 cubic yards of material from the navigation channel. Using the sand from that area was critical to alleviating channel management constraints in the reach. Using the material also reduces HREP costs.

In response to a question from Andrew Stephenson, Deen said damages at two of five Harlow Island's islands were found in the original assessment and that one of its other three islands also shows signs of

damage. MVP is planning for a repair bid in spring at the earliest. Contingencies would be added to account for other possibilities.

Julie Millhollin reported that MVR's planning priorities include Steamboat Island, Lower Pool 13, and Green Island. Due to COVID-19 restrictions, planning activities were conducted virtually, including a public presentation for Steamboat Island, a site visit for Green Island, and a mini-charette that is planned for Lower Pool 13 in June 2020. Design work for Keithsburg Division Stage II is 65 percent complete and a Corps technical review is scheduled for June 2020. Redesign of features delayed progress, but a contract is anticipated for early next year. Construction was completed on Pool 12 Stage II rock structure, tree planting and timber stand improvement are out for bid, and the contract for Stage III is being closed out. Work on Keithsburg Division Stage I is paused until July due to detection of an eagle nest. Construction activities continue at Huron Island Stages II and III, but COVID-19 travel restrictions may cause delays. Contactors are dredging at Beaver Island. MVR is working with project sponsors to finalize six fact sheets before submission to MVD.

Brian Markert said MVS is working with the U.S. Forest Service to finalize the feasibility report for Oakwood Bottoms and anticipates submitting the report in September 2020 to MVD. A planning charette for Yorkinut Slough was held virtually and a draft report was produced that will inform the feasibility study. Planning for West Alton Islands may begin this year or early FY 21, pending resources. Design is anticipated to be complete for Piasa and Eagles Nest and Harlow Island in July 2020 and contract awards are possible in the fall pending funding availability. Contractor remobilization to Crains Island was delayed due to heightened hydrograph. Water control structures at Clarence Cannon Refuge are being turned over to the sponsor as they are completed. Contractors have COVID-19 safety precautions in place and are able to continue work. Warranty work for a pump station at Ted Shanks is underway. MVS is finalizing six fact sheets for submission to MVD with some currently undergoing final sponsor review. Markert explained that new water control structure designs at Clarence Cannon are easier to operate and maintain than traditional stop logs and should enhance the USFWS's ability to manage water. The new pump station designs have four pumps which deliver the necessary gallons per minute, but have a greater ability to function long-term, than large single pumps.

Ken Westlake said that all scoping requests and environmental assessments for projects in the NEPA process in Illinois, Minnesota, and Wisconsin should be sent to him at USEPA in Chicago while those in Iowa and Missouri should be sent to Joshua Tapp in Kansas City.

Marshall Plumley said he was impressed with the Yorkinut Slough team's ability to conduct a productive virtual planning charette, both from his experience participating in some of the meetings and the positive comments he heard from others. Sabrina Chandler agreed and said the six to eight sessions over two to three weeks was a tremendous effort and showed that a lot of thought was put into pre-planning to ensure success. Chandler said she was skeptical that a virtual meeting would work well given the difficulty of in-person charettes. However, she was amazed by the active participation and diversity of tools used to make the meeting the most successful virtual meeting she has participated in. Plumley said he received positive feedback regarding the virtual site visit held for Green Island and thanked Iowa DNR staff for their work and information gathering required to make that a success. He said both meetings are examples of how the program has adapted to the current circumstances and that a webinar to reflect on lessons learned and to share useful tools for preparing and conducting similar meetings would be beneficial to the program. Chandler noted the value of in-person meeting, but said it is critical to move projects forward and would be good to learn from the recent success so they could be repeated.

HREP Selection Process: Insights and Improvements

Marshall Plumley said the UMRR Program Planning Team (UMRR Coordinating Committee, the District River Team Chairs, District Program Managers) convened a meeting on May 6, 2020 with

USGS and NGO partners to discuss insights and improvements to the recent HREP selection process and guidance documents. District River Team chairs provided summaries of and reflections on their respective processes and provided feedback on questions regarding the guidance documents. Plumley said the feedback indicated some confusion over the composition of the Program Planning Team (PPT), concern about restricting river teams to a specific number of fact sheets, and that the guidance to use a structured decision-making process was too rigid. Additional discussion is needed to determine how to better utilize the Science Support Team (SST) in future iterations. In the Process, Goals, and Responsibilities guidance document, the need for additional descriptions for each river team was identified and a suggestion was made to add the governance structure of the teams to help non-traditional sponsors or those unfamiliar with the river team processes. Regarding the Selection Process Diagram, Plumley said additional time would be allowed for teams to do their work and that the short timeline did not aid in outreach to non-traditional sponsors.

Plumley said some recommendations for improving future efforts included:

- Limit fact sheets to four pages with option for additional information as an appendix
- Develop relationships with non-traditional sponsors before next HREP selection process
- Provide clear ecological and non-ecological criteria for ranking process, but allow for other criteria prioritized by river teams to be incorporated
- Promote deeper understanding of HNA-II indicators
- Determine ways to better utilize the Science Support Team
- Better align timing of fact sheet development with regular work and field work

In response to a comment from Matt Mangan, Plumley said the three-to-five fact sheet limitation was somewhat arbitrarily established based on an estimation as to how many projects might be completed in the five-year planning horizon. Angela Deen recalled that limiting fact sheets was also intended to ensure that projects remain relevant as older approved fact sheets may not be relevant to the current needs of the program. Sabrina Chandler concurred and said the desire to avoid stagnant projects was an important consideration for creating a limit. Andrew Stephenson said the timeframe was also limiting because teams were developing their respective processes and then implementing them within the timeframe. Plumley agreed and said there are efficiencies to gain in future iterations. Megan Moore said it was helpful to have the after-action review of the HREP selection process to document lessons learned. Jim Fischer said pushing toward a more data-informed selection process should be accompanied by more uniformity among the river team processes and that promoting increased interaction among the river teams would be beneficial.

In response to a question from Chandler, Plumley said the HREP selection process guidance documents will be revised to include the recommendations and be provided for review at the August 12, 2020 UMRR Coordinating Committee meeting. Finalized guidance documents will be incorporated into the review of the 2013 UMRR Advisory Group Charter in October 2020. Plumley explained that the charter defines the roles and responsibilities for implementing the program, including the UMRR Coordinating Committee, Analysis Team (A-Team), and HREP Planning and Sequencing Framework Teams and contains documents on the past HREP selection process. Opening the Charter provides an opportunity to consider other potential updates to the roles and responsibilities of the Advisory Groups. Karen Hagerty said the Charter is available on the UMRR website under key documents. In response to a question from Chandler, Stephenson said a meeting would be scheduled to discuss the role of the Science Support Team prior to the August 12, 2020 quarterly meeting. In response to a question from Plumley, Fischer said it is important to codify changes to the program and help the partnership retain documents that display those changes.

Other Business

Kirsten Wallace said that, in light of uncertainty around COVID-19, the UMRBA Board determined the August 11, 2020 UMRBA quarterly meeting would be held remotely. She said an in-person meeting might be possible for those able to travel, but that the states would prefer the UMRR meeting to be held virtually as well. Jennie Sauer said UMESC is not currently open, but could speak with Mark Gaikowski about the necessary timeline to open for the meeting. Sabrina Chandler said it would be best to follow the recommendation of the UMRBA Board in this case and hold the meeting virtually. Megan Moore, Jim Fischer, and Randy Schultz expressed support for the decision.

Upcoming quarterly meetings are as follows:

- **August 2020 – Remote**
  - UMRBA quarterly meeting – August 11
  - **UMRR Coordinating Committee quarterly meeting – August 12**
- **October 2020 – St. Paul**
  - UMRBA quarterly meeting – October 27
  - **UMRR Coordinating Committee quarterly meeting – October 28**
- **February 2021 – TBD: Dubuque, Quad Cities, or Muscatine**
  - UMRBA quarterly meeting – February 23
  - **UMRR Coordinating Committee quarterly meeting – February 24**

UMRR Coordinating Committee Virtual Attendance List

May 20, 2020

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
Dave Glover	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
Verlon Barnes	Natural Resources Conservation Service
Ken Westlake	U.S. Environmental Protection Agency, Region 5

Others In Attendance

Thatch Shephard	U.S. Army Corps of Engineers, MVD
Jim Cole	U.S. Army Corps of Engineers, MVD
Ben Robinson	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
Jon Hendrickson	U.S. Army Corps of Engineers, MVP
Chris Erickson	U.S. Army Corps of Engineers, MVP
Clayton Tallman	U.S. Army Corps of Engineers, MVP
Jonathan Sobiech	U.S. Army Corps of Engineers, MVP
Marshall Plumley	U.S. Army Corps of Engineers, MVR
Andy Barnes	U.S. Army Corps of Engineers, MVR
Kim Thomas	U.S. Army Corps of Engineers, MVR
Karen Hagerty	U.S. Army Corps of Engineers, MVR
Jodi Creswell	U.S. Army Corps of Engineers, MVR
Nate Richards	U.S. Army Corps of Engineers, MVR
Erica Stephens	U.S. Army Corps of Engineers, MVR
Kara Mitvalsky	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
Anthony Heddelsten	U.S. Army Corps of Engineers, MVR
John Menard	U.S. Army Corps of Engineers, MVR
Rachel Hawes	U.S. Army Corps of Engineers, MVR
Roger Perk	U.S. Army Corps of Engineers, MVR
Brian Markert	U.S. Army Corps of Engineers, MVS
Brandon Schneider	U.S. Army Corps of Engineers, MVS
Jasen Brown	U.S. Army Corps of Engineers, MVS
Katy Smith	U.S. Army Corps of Engineers, MVS
Kat McCain	U.S. Army Corps of Engineers, MVS
Brian Johnson	U.S. Army Corps of Engineers, MVS
Rachel Steiger	U.S. Army Corps of Engineers, MVS
Lane Richter	U.S. Army Corps of Engineers, MVS
Rachel Steiger	U.S. Army Corps of Engineers, MVS
Kraig McPeek	U.S. Fish and Wildlife Service, IIFO
Sara Schmuecker	U.S. Fish and Wildlife Service, IIFO
Tyler Porter	U.S. Fish and Wildlife Service, IIFO

Matt Mangan	U.S. Fish and Wildlife Service, IIFO
Tim Yager	U.S. Fish and Wildlife Service, UMR Refuges
Stephen Winter	U.S. Fish and Wildlife Service, UMR Refuges
Neal Jackson	U.S. Fish and Wildlife Service, UMRCC
Jeff Houser	U.S. Geological Survey, UMESC
Jennie Sauer	U.S. Geological Survey, UMESC
KathiJo Jankowski	U.S. Geological Survey, UMESC
Danelle Larson	U.S. Geological Survey, UMESC
Molly Van Appledorn	U.S. Geological Survey, UMESC
Benjamin Finley	U.S. Geological Survey, UMESC
Jennifer Dieck	U.S. Geological Survey, UMESC
Kristen Bouska	U.S. Geological Survey, UMESC
John Delaney	U.S. Geological Survey, UMESC
Jayme Strange	U.S. Geological Survey, UMESC
Sandra Morrison	U.S. Geological Survey, GLSC
Jason Daniels	U.S. Environmental Protection Agency, Region 7
Chad Craycraft	Illinois Department of Natural Resources
Kirk Hansen	Iowa Department of Natural Resources
Nick Schlesser	Minnesota Department of Natural Resources
Chris Wieberg	Missouri Department of Natural Resources
Coreen Fallat	Wisconsin Department of Agriculture, Trade and Consumer Protection
Mike Halsted	Wisconsin Department of Transportation
Doug Blodgett	The Nature Conservancy
Olivia Dorothy	American Rivers
Marian Muste	University of Iowa
Rick Stoff	Stoff Communications
Paul Rohde	Waterways Council, Inc.
Angela Love	Wood
Tom Boland	Wood
Kirsten Wallace	Upper Mississippi River Basin Association
Andrew Stephenson	Upper Mississippi River Basin Association
Mark Ellis	Upper Mississippi River Basin Association
Lauren Salvato	Upper Mississippi River Basin Association

ATTACHMENT B

Regional Management and Partnership Collaboration

- **UMRR Quarterly Budget Reports (7/29/2020)** *(B-1 to B-3)*

- **Joint Charter of the UMRR-EMP Coordinating Committee, Analysis Team, and HREP Planning and Sequencing Framework Team (8/2013)** *(B-4 to B-19)*

- **UMRR HREP Selection Process for Charter (7/29/2020):**
  - **Goals, Roles, and Responsibilities** *(B-20 to B-22)*
  - **Diagram and Schedule** *(B-23)*
  - **Directions for River Teams** *(B-24)*
  - **Fact Sheet Template** *(B-25 to B-26)*
  - **Nonprofit Sponsorship Letter** *(B-27 to B-28)*

UMRR Quarterly Budget Report: Rock Island District

FY2020 Q3; Report Date: Fri Jul 24 2020

Habitat Projects

Project Name	Cost Estimates			FY2020 Financials			
	Non-Federal	Federal	Total	Carry In	Allocation	Funds Available	Actual Obligations
Beaver Island	-	$25,288,000	$25,288,000	-	$2,955,000	$2,955,000	$2,017,798
Green Island, IA	-	$16,600,000	$16,600,000	$46,000	$450,000	$496,000	$279,637
Huron Island	-	$15,773,000	$15,773,000	-	$100,000	$100,000	$474,035
Keithsburg Division	-	$29,643,000	$29,643,000	$83,658	$2,550,000	$2,633,658	$663,385
Lower Pool 13	-	$25,288,000	$25,288,000	$45,522	$425,000	$470,522	$335,219
Pool 12 (Forestry)	-	-	-	-	$400,000	$400,000	$90,912
Pool 12 Overwintering	-	$20,870,822	$20,870,822	-	$50,000	$50,000	-$93,354
Rice Lake, IL	$7,280,000	$13,459,763	$20,739,763	-	-	-	$7,289
Steamboat Island	-	$41,977,000	$41,977,000	-	$350,000	$350,000	$424,633
Total	$7,280,000	$188,899,585	$196,179,585	$175,180	$7,280,000	$7,455,180	$4,199,554

Habitat Rehabilitation

Subcategory	FY2020 Financials			
	Carry In	Allocation	Funds Available	Obligations
District Program Management	-	-	-	$431,512
Total	-	-	-	$431,512

Regional Program Administration

Subcategory	FY2020 Financials			
	Carry In	Allocation	Funds Available	Obligations
Adaptive Management	-	$200,000	$200,000	$36,579
Habitat Eval/Monitoring	-	$1,125,000	$1,125,000	$167,578
Model Certification/Regional HREP	-	$100,000	$100,000	$14,391
Public Outreach	-	$50,000	$50,000	$2,149
Regional Program Management	-	$1,200,000	$1,200,000	$885,104
Regional Project Sequencing	-	$375,000	$375,000	$51,988
Total	-	$3,050,000	$3,050,000	$1,157,789

Regional Science and Monitoring

Subcategory	FY2020 Financials			
	Carry In	Allocation	Funds Available	Obligations
Long Term Resource Monitoring	-	$5,000,000	$5,000,000	$72,120
Science in Support of Restoration/Management	-	$3,800,000	$3,800,000	$2,901,313
Total	-	$8,800,000	$8,800,000	$2,973,434

	Carry In	Allocation	Funds Available	Actual Obligations
Rock Island Total	$175,180	$19,130,000	$19,305,180	$8,762,288

UMRR Quarterly Budget Report: St. Louis District

FY2020 Q3; Report Date: Fri Jul 24 2020

Habitat Projects

Project Name	Cost Estimates			FY2020 Financials			
	Non-Federal	Federal	Total	Carry In	Allocation	Funds Available	Actual Obligations
Clarence Cannon	-	$29,800,000	$29,800,000	$4,325	$1,500,000	$1,504,325	$708,050
Crains Island	-	$36,562,000	$36,562,000	-	$3,330,000	$3,330,000	$3,351,079
Harlow Island	-	$37,971,000	$37,971,000	-	$425,000	$425,000	$204,669
Oakwood Bottoms	-	$29,000,000	$29,000,000	$38,103	$310,000	$348,103	$612,636
Piasa - Eagle's Nest Islands	-	$26,746,000	$26,746,000	-	$335,000	$335,000	$245,046
Rip Rap Landing	$2,848,000	$6,464,000	$9,312,000	-	$75,000	$75,000	$23,894
Ted Shanks	-	$29,506,000	$29,506,000	-	$300,000	$300,000	$119,518
Yorkinut Slough, IL	-	$8,500,000	$8,500,000	$749	$325,000	$325,749	$196,641
Total	$2,848,000	$214,049,000	$216,897,000	$46,872	$6,940,000	$6,986,872	$5,461,533

Habitat Rehabilitation

Subcategory	FY2020 Financials			
	Carry In	Allocation	Funds Available	Obligations
District Program Management	-	-	-	$293,069
Total	-	-	-	$293,069

Regional Program Administration

Subcategory	FY2020 Financials			
	Carry In	Allocation	Funds Available	Obligations
Habitat Eval/Monitoring	-	-	-	$90,182
Total	-	-	-	$90,182

	Carry In	Allocation	Funds Available	Actual Obligations
St. Louis Total	$46,872	$6,940,000	$6,986,872	$5,844,784

UMRR Quarterly Budget Report: St. Paul District

FY2020 Q3; Report Date: Fri Jul 24 2020

Habitat Projects

Project Name	Cost Estimates			FY2020 Financials			
	Non-Federal	Federal	Total	Carry In	Allocation	Funds Available	Actual Obligations
Bass Ponds, Marsh, and Wetland	-	$6,300,000	$6,300,000	-	$100,000	$100,000	$4,328,853
Conway Lake	-	$7,413,000	$7,413,000	-	$300,000	$300,000	$146,152
Harpers Slough	-	$13,675,000	$13,675,000	-	-	-	$81,766
Lower Pool 10 Island and Backwater Complex	-	$17,000,000	$17,000,000	$29,702	$450,000	$479,702	$364,938
McGregor Lake	-	$23,550,000	$23,550,000	$32,067	$5,950,000	$5,982,067	$611,150
Reno Bottoms	-	$10,000,000	$10,000,000	-	$300,000	$300,000	$245,941
Total	-	$77,938,000	$77,938,000	$61,769	$7,100,000	$7,161,769	$5,778,799

Habitat Rehabilitation

Subcategory	FY2020 Financials			
	Carry In	Allocation	Funds Available	Obligations
District Program Management	-	-	-	$834,145
Total	-	-	-	$834,145

Regional Program Administration

Subcategory	FY2020 Financials			
	Carry In	Allocation	Funds Available	Obligations
Habitat Eval/Monitoring	-	-	-	$200,452
Regional Program Management	-	-	-	-
Total	-	-	-	$200,452

	Carry In	Allocation	Funds Available	Actual Obligations
St. Paul Total	$61,769	$7,100,000	$7,161,769	$6,813,396

UPPER MISSISSIPPI RIVER RESTORATION - ENVIRONMENTAL MANAGEMENT PROGRAM

Joint Charter of the Upper Mississippi River Restoration - Environmental Management Program Coordinating Committee, Analysis Team, and Habitat Rehabilitation and Enhancement Projects Planning and Sequencing Framework Teams

Introduction

The Upper Mississippi River Restoration Environmental Management Program (UMRR- EMP) is authorized under Section 1103 of the Water Resources Development Act of 1986, and as amended in 1990, 1992, 1999, and 2007, which charges the U.S. Army Corps of Engineers (Corps) with implementing the Program in consultation with the Department of the Interior and the states of Illinois, Iowa, Minnesota, Missouri, and Wisconsin. Three major interagency initiatives, the Upper Mississippi River Restoration Environmental Management Program Coordinating Committee (UMRR-EMP CC), the Analysis Team (A-Team), and the Habitat Rehabilitation and Enhancement Projects (HREP) Planning and Sequencing Framework Teams (Framework Teams), are key mechanisms for this consultation and facilitate implementation of the UMRR-EMP. This charter, executed by the Program's partner agencies, describes the purpose, membership, roles and responsibilities, and operation of the UMRR-EMP CC, A-Team, and Framework Teams.

Authority

The UMRR-EMP CC, A-Team, and Framework Teams are consistent with the UMRR-EMP authority established under Section 1103 of the 1986 WRDA, as amended. Each member agency of the three major initiatives participates under the auspices of its own authorities governing interagency coordination and management of the Upper Mississippi River System (UMRS). Participation does not restrict any individual agency's authority to issue permits, manage programs, manage lands, operate projects, or fulfill other individual agency mandates. The views expressed and actions taken by individual agency representatives and by the UMRR-EMP CC, A-Team, or Framework Teams are not binding on any agency.

Upper Mississippi River Restoration
Environmental Management Program Coordinating Committee

Purpose:

The Upper Mississippi River Restoration Environmental Management Program Coordinating Committee (UMRR-EMP CC) is the over-arching body for coordinating issues related to all aspects of the Upper Mississippi River Restoration Environmental Management Program (UMRR-EMP). In this role, the UMRR-EMP CC provides the U.S. Army Corps of Engineers (Corps) with the partner agencies' perspectives on UMRR-EMP policy, budget, and implementation.

Membership:

The following federal and state agencies are official members of the UMRR-EMP CC:

Federal	State
U.S. Army Corps of Engineers	Illinois Department of Natural Resources
U.S. Fish and Wildlife Service	Iowa Department of Natural Resources
U.S. Geological Survey	Minnesota Department of Natural Resources
Natural Resources Conservation Service	Missouri Department of Conservation
U.S. Environmental Protection Agency	Wisconsin Department of Natural Resources
U.S. Maritime Administration	

Each member agency will appoint an official representative to the UMRR-EMP CC. In the event that an agency's official representative is unable to participate in an UMRR-EMP CC meeting, the agency may designate another staff person to serve in that capacity on a substitute basis.

Roles and Responsibilities:

The major roles of the UMRR-EMP CC include the following:

1. Provide a forum for the UMRR-EMP partner agencies and other interested parties to discuss policy, programmatic, and budgetary issues related to Program implementation.
2. Identify and communicate the official member agencies' perspectives on UMRR-EMP policy, programmatic, and budgetary issues to the Corps and other implementing agencies.
3. Seek to establish a consensus among the member agencies on major issues related to Program priorities and direction.
4. Review fiscal performance, project implementation, product quality, and other key measures of Program performance.
5. Provide guidance regarding the implementation of specific UMRR-EMP projects and studies when requested by a member agency or other interested party.
6. Foster coordination between the UMRR-EMP and other federal and state agency programs.

In serving these roles, the UMRR-EMP CC's specific responsibilities include the following:

1. Provide guidance to the A-Team regarding the UMRR-EMP CC 's perspectives and priorities. Seek and consider the A-Team's input regarding scientific and technical matters, in part by including an A-Team report as part of UMRR-EMP CC meetings.

2. Provide guidance to the Framework Teams regarding the UMRR-EMP CC 's HREP planning and sequencing perspectives and priorities. Seek and consider the Framework Teams' input regarding matters related to project planning and sequencing, in part by including a Framework Team report as part of UMRR-EMP CC meetings, as needed.
3. Discuss and provide input on pending projects, studies, and products at UMRR-EMP CC meetings.
4. Provide a forum for interested stakeholders and members of the public to address the Committee at its regularly scheduled meetings.

The responsibilities of the official representatives of the UMRR-EMP CC include the following:

1. Consult with the UMRR-EMP CC regarding policy, programmatic, and budgetary issues and ensure that the Committee has the background information necessary to consider those issues.
2. Determine and communicate their agency or state's full range of interests and perspectives related to issues being addressed by the UMRR-EMP and reflect those interests and perspectives to the UMRR-EMP CC.
3. Ensure that other key people within their agency or state are aware of important decisions and developments related to the UMRR-EMP CC.
4. Coordinate review of key documents within their agency or state and communicate the results of that review as appropriate.
5. Respect the perspectives of other UMRR-EMP partner agencies and stakeholders and attempt to further the consensus positions of the UMRR-EMP CC to the extent possible.
6. Representatives must be prepared to fully participate at each quarterly meeting.

Operation:

The Corps' official representative, from the MVD, to the UMRR-EMP CC will co-chair the Committee with the U.S. Fish and Wildlife Service's official representative, from Region 3. If needed, each co-chair can appoint a designated representative in the event that they are not able to serve as co-chair at an UMRR-EMP CC meeting.

The Corps' MVD has delegated overall regional Program management responsibility to the Corps' Rock Island District but retains Program oversight responsibility. The Regional Program Manager is responsible for managing the Program on behalf of the Corps, and, as such, provides a Program report and update, and ensures that the official documents and records of the UMRR-EMP CC are developed and maintained.

The Upper Mississippi River Basin Association (UMRBA), under contract with the Corps, will be responsible for preparing meeting announcements, agendas, meeting summaries, and minutes and making meeting arrangements. Other UMRR-EMP CC communications, including communication with the A-Team, will be coordinated by the Corps. Each UMRR-EMP CC member agency will be responsible for all costs associated with its personnel's participation in UMRR-EMP CC meetings and activities. The UMRR-EMP CC will typically meet on a quarterly basis, or as needed, with the time and location of meetings to be determined by the Committee. The Committee may schedule additional meetings and/or conference calls as necessary.

Whenever possible, the UMRR-EMP CC will attempt to achieve unanimous consent among the official representatives present on questions before the Committee. When this is not possible, each

official member agency represented at the meeting will have one vote for the purpose of determining the UMRR-EMP CC 's position. A two thirds majority of the members present is required for formal recommendations. However, the meeting minutes will reflect all positions articulated by UMRR-EMP CC representatives and the Corps will consider all input received in making decisions regarding Program implementation.

Analysis Team

Purpose:

The Analysis Team (A-Team) addresses technical matters related to implementing the Long Term Resource Monitoring Program (LTRMP) component of the Upper Mississippi River Restoration Environmental Management Program (UMRR-EMP). The A-Team serves as an advisory body to the UMRR-EMP Coordinating Committee (UMRR-EMP CC) and advises the U.S. Army Corps of Engineers (Corps) and the U.S. Geological Survey (USGS) directly on technical issues that do not raise policy or budgetary concerns.

Membership:

The following federal and state agencies are official members of the A-Team:

Federal	State
U.S. Fish and Wildlife Service	Illinois Department of Natural Resources
Natural Resources Conservation Service	Iowa Department of Natural Resources
U.S. Environmental Protection Agency	Minnesota Department of Natural Resources U.S.
Army Corps of Engineers*	Missouri Department of Conservation
U.S. Geological Survey*	Wisconsin Department of Natural Resources

* Non-voting members

Each member agency will appoint an official representative to the A-Team. In the event that an agency's official representative is unable to participate in an A-Team meeting, the agency may designate another staff person to serve in that capacity on a substitute basis. The Corps and the USGS are non-voting members of the A-Team (denoted by asterisk). The Team Leaders from each of the six LTRMP Field Stations, or their representatives, and the Component Specialists from USGS cannot be official A-Team representatives, however, they are expected to attend and participate in the A-Team, as appropriate.

Roles and Responsibilities:

The major roles of the A-Team include the following:

1. Provide a forum for the UMRR-EMP partner agencies and other interested parties to discuss technical issues related to LTRMP implementation.
2. Identify and communicate the official member agencies' perspectives on LTRMP technical issues to the Corps, USGS, and UMRR-EMP CC.
3. Advise the UMRR-EMP CC regarding the technical implications of policy, programmatic, and budget decisions affecting the LTRMP.
4. Seek to establish a consensus among the member agencies on priorities for LTRMP components, projects, activities, and research. Provide guidance regarding how the LTRMP can best further those priorities.
5. Promote the timely and effective reporting of LTRMP results and information to partner agencies, interested stakeholders, and the general public.

In serving these roles, the A-Team's specific responsibilities include the following:

1. Determine and articulate partner information needs for use in prioritizing and implementing the LTRMP.
2. Respond to UMRR-EMP CC, Corps, and USGS requests for information and perspectives regarding the LTRMP. Provide A-Team briefings at UMRR-EMP CC meetings.
3. Review, provide comments, and recommendations on major LTRMP guidance documents, including, but not limited to, strategic plans, research frameworks, scopes of work, and monitoring methods and protocols, and forward such recommendations to UMRR-EMP CC for consideration.
4. Review and provide comments on major LTRMP publications, LTRMP website, and other information dissemination efforts, when requested.
5. Provide advance notice and written summaries of its meetings to all official agency representatives and other interested parties upon request.
6. Ensure that interested stakeholders and members of the public have an opportunity to address the team at its regularly scheduled meetings.

The responsibilities of official agency representatives to the A-Team include the following:

1. Consult with the A-Team regarding LTRMP technical issues and ensure that the team has the background information necessary to consider those issues.
2. Determine and communicate their agency or state's full range of interests and perspectives related to the LTRMP and reflect those interests and perspectives in the positions they take as an official representative to the A-Team.
3. Ensure that their agencies' UMRR-EMP CC representative, LTRMP Field Station staff, and other key people within their agency or state are aware of important recommendations and developments related to the LTRMP.
4. Coordinate review of key documents within their agency or state and communicate the results of that review as appropriate.
5. Respect the perspectives of other UMRR-EMP partner agencies and stakeholders and attempt to further the consensus positions of the A-Team to the extent possible.
6. Representatives must be prepared to fully participate and provide technical expertise at each meeting.

Operation:

The chair of the A-Team will rotate among the team's state agency members on a two-year basis. Agencies have the option of declining the chair**.** Official agency representatives will serve as chair in the following order: Iowa Department of Natural Resources, Wisconsin Department of Natural Resources, Illinois Department of Natural Resources, Missouri Department of Conservation, and Minnesota Department of Natural Resources.

The A-Team will typically meet on a quarterly basis, or as needed, with the time and location of meetings to be determined by the team. The A-Team chair will be responsible, in consultation with the Corps and USGS, for preparing meeting announcements and agendas. The USGS will be responsible for making meeting arrangements. The A-Team chair, or his/her identified delegate, will be responsible for preparing minutes of A-Team meetings. The A-Team chair will be responsible for

working with the UMRR-EMP CC to ensure appropriate coordination and communication between the A-Team and the UMRR-EMP CC. The USGS will facilitate other A-Team communications as requested by the A-Team chair. Each A-Team member agency will be responsible for all costs associated with its official representative's participation in A-Team meetings and activities.

Whenever possible, the A-Team will attempt to achieve unanimous consent among the official representatives present on questions before the Committee. When this is not possible, each official member agency represented at the meeting will have one vote for the purpose of determining the A-Team's position. A two thirds majority of the members present is required for formal recommendations. However, the meeting minutes will reflect all positions articulated by A-Team representatives. The Corps, USGS, and UMRR-EMP CC will consider all input from A-Team member agencies in making decisions regarding Program and/or LTRMP implementation.

Habitat Rehabilitation and Enhancement Project (HREP)
Planning & Sequencing Framework Teams

The UMRR-EMP CC officially endorsed the Habitat Rehabilitation and Enhancement Project (HREP) Planning and Sequencing Framework (Framework) in 2003 (copy enclosed). The Framework identifies and outlines responsibilities for the following teams:

District Ecological Teams (DET) (one in each of the three UMR Districts on the Mississippi River and one on the Illinois River)
System Ecological Team (SET)
Program Planning Team (PPT)

The signatory agencies to this Charter agree that the 2003 Framework will serve as the governing document for the DETs, SET, and PPT until such time as the signatories elect to update the 2003 Framework or modify the Charter to more fully address the teams' roles and responsibilities.

HREP Planning and Sequencing Framework

I. Goals of HREP Planning and Sequencing Process

- To ensure that EMP habitat projects address UMRS ecological needs at pool, reach, and system scales by building on existing HREP prioritization mechanisms and integrating the HNA and other planning efforts into project evaluation.

- To enhance public understanding and trust in the decision-making process by making HREP evaluation criteria explicit and consistent.

- To retain the flexibility necessary to ensure efficient, effective program execution and to apply adaptive management principles to project planning, design and implementation.

II. Overview of HREP Planning and Sequencing Process

Below is a general overview of the proposed four-stage HREP planning and sequencing process. This process seeks to build upon the existing HREP selection process to create a more systemic, comprehensive approach that is transparent and accessible to project partners and stakeholders. The ecological merits of proposed projects will remain the most important factor in determining HREP priorities. Other factors to be considered will include project-specific administrative issues and consistency with overall program goals. It is important to emphasize that project implementation will not proceed rigidly in strict order of numerical rankings. Flexibility is essential; and the Corps of Engineers, in consultation with the program partners, will need to exercise reasonable judgment to resolve unexpected issues, respond to unforeseen opportunities, and ensure efficient program execution.

Fact Sheet Development:

The Fact Sheets will be developed in accordance with the attached Fact Sheet template. The developer of the Fact Sheet for a specific proposed HREP project will provide the requested information; to the extent it is available. The acquisition of new data or mapping is not required for Fact Sheet creation. However, it is expected that well thought-out projects, with information on cost and an assessment of how the project meets site specific, pool, reach and possibly system goals, will be presented. An ecological criteria checklist is also in the Fact Sheet template. This checklist (also shown as Table 1 later in this framework) will help identify the ecological factors that are being addressed by each proposed project.
This framework process addresses only the requirements for a project fact sheet. The way in which projects are initially conceived and identified, how the public is involved, and the role of potential project "sponsors" is not addressed. All of those pre-fact sheet steps are assumed to be the responsibility of the District in collaboration with EMP partner agencies.

Stage I - District Ecological Evaluation:

This first stage of the HREP planning and sequencing process is designed to review and sequence project fact sheets at the District level. A District Ecological Team (DET) will evaluate projects based on ecological factors at the pool and reach scales. In addition, the Team will identify anticipated system ecological benefits of the projects. Ecological evaluations will be completed annually by each District Team but may be postponed if a sufficient number of projects have previously been identified for planning and construction.

- The District Ecological Teams (DETs) will consist of MVP's Fish and Wildlife Work Group (FWWG), MVR's Fish and Wildlife Interagency Committee (FWIC), and MVS's River Resource Action Team - Technical Section (RRAT-tech). The relationship of the FWWG, FWIC and RRAT-tech to the River Resources Forum (RRF), the River Resources Coordinating Team (RRCT) and River Resource Action Team Executive Board (RRAT-exec) will not be affected by this HREP sequencing process. The DET's will be responsible for coordinating with their respective committee and receiving their concurrence on recommendations as is the current policy of each committee.

- Natural processes and ecological sequencing of projects will be considered as part of the Stage 1 evaluation. Ecological Evaluation Criteria will be used to determine how each project addresses pool, reach, and system goals. A draft set of Ecological Evaluation Criteria is shown in Table 1. (The criteria will have to be addressed in checklist form during the Fact Sheet creation.) The matrix in Table 2 may be used by the DETs to help visualize the regional distribution of the project objectives as the matrix will be used in Stage II to visualize the system distribution.

- The three District Ecological Teams will use similar, but not necessarily identical, Ecological Evaluation Criteria. The DETs will have the flexibility to tailor the criteria to reflect differences within the river system. Such modifications will be done in concurrence with the corresponding regional team (RRF, RRCT, or RRAT-exec.), and the System Ecological Team (described below) to ensure there is sufficient compatibility among the three Districts' criteria. The draft criteria were partially drawn from the districts' existing or previously used ranking processes, but will require consideration of the Habitat Needs Assessment (HNA), Pool Plans, and Navigation Study Objectives database and other pertinent databases to evaluate ecological habitat needs at the pool and reach scale.

- The DETs will each retain flexibility and discretion on how to address public involvement, preparation and submission of Fact Sheets, coordination and review procedures in their portions of the UMRS.

- The DETs are expected to use the Habitat Needs Assessment (HNA) to demonstrate how the proposed project will help fill the ecological habitat needs. The HNA Query tool will be used to help describe existing habitat conditions, review available Long Term Resource Monitoring Program (LTRMP) data and produce graphics as needed.

- The results of the DET evaluations, including the ecological sequencing of projects, will be forwarded to the Stage II - System Ecological Team (SET) for sequencing at a system level. The DETs will be encouraged to forward innovative projects that address significant resource needs at a pool or systemic scale, but which may not fit perfectly into the current program structure. The

DETs will document their considerations for sequencing projects and provide a summary of how a project meets ecological needs at various spatial scales. This documentation will also be forwarded to the SET.

Stage II - System Ecological Evaluation:

Once proposed project sequencing has been identified at the pool and reach scale at the District level (Stage I), the System Ecological Team will conduct a system-level evaluation and sequencing of the projects forwarded by the DETs. The purpose of the system evaluation will be to judge which projects best meet system ecological needs and goals.

- System criteria will consist of the following but may be modified with the concurrence of UMRR-EMP CC:
  - Measures of how well the project meets system needs as identified in the HNA, Long Term Resource Monitoring Program trends data, Environmental Pool Plans and Navigation Study Environmental Objectives
  - Consistency with other habitat goals such as those identified in master plans, the North American Waterfowl Management Program, state watershed and river programs, national hypoxia/nutrient plans, etc.
  - Natural river process considerations, such as hydrology, flow distribution, floodplain connectivity, etc.
  - Sequencing of projects on the basis of their anticipated ecological and geomorphic interrelationships
  - Considerations of the project's habitat sustainability and long term durability

- The System Ecological Team will consist of an interdisciplinary team of scientists and managers from state and Federal agencies and academia, with support from the District Ecological Teams. Team size is anticipated to be 4-6 members with suggested disciplines to include:
  - Geomorphology
  - Hydrology
  - Limnology/Water Quality
  - Wildlife ecology/management
  - Fish ecology/management
  - Wetlands
  - Forestry

- The project evaluation criteria presented above (Table 1) will be used to organize complex ecological characteristics in a spatially organized spreadsheet (Table 2). The matrix can be used to visualize project objectives and their distribution with shaded cells or can be scored to assist project sequencing.

- The system ecological evaluation will be based on the information contained in project fact sheets and the District Ecological Teams' evaluations. All projects will be forwarded to Stage III with the District and System Teams' recommendations. In addition, the System Team will provide feedback to the District Teams, including a narrative outlining factors that were used to determine project sequencing and recommendations for modification of the project if necessary. This system evaluation will be done annually but may be postponed if sufficient number of projects have

previously been identified for planning and construction (determination made by Program Planning Team – Stage 3).

- The SET will work closely with the DETs and District HREP managers. The DETs and managers may be contacted for technical input, project clarifications, and results of public involvement or background information as needed.

Stage III - Program Planning:

Once the best ecological projects have been identified (those that best meet pool, reach and system needs), it is reasonable to shift the evaluation criteria to the question of which administrative *mix* of projects is best, rather than attempting to identify which *individual* project is best.

- The Program Planning Team will develop an "HREP Program Plan" based upon the high priority ecological projects resulting from the previous two-stage ecological screening process and documented considerations of the DETs and SET.

- The Program Planning Team will include; the EMP-CC members representing the States, Corps of Engineers, Geological Survey, and Fish and Wildlife Service; each District's HREP manager; and the Division EMP liaison. The EMP Program Manager will lead the Program Planning Team. The District HREP managers will prepare and recommend the HREP Program Plan for review and concurrence by the entire Program Planning Team.

- In selecting among the sequenced ecological projects, the Program Planning Team will use a variety of policy and administrative considerations to determine an optimal project mix. These considerations will include:
  - Combination of innovative and proven techniques
  - Variety in types of measures
  - Geographic distribution
  - Yearly funding
  - Maintaining minimum district delivery capability
  - Cost sharing
  - Public support
  - Readiness (NEPA, permits, land availability)
  - Leveraging non-EMP funds
  - Compatibility with other river uses
  - O&M requirements

- The Program Planning Stage will have two separate phases – initiation of Definite Project Reports (DPRs) and identification of a preferred implementation sequence.
  - Initiation of DPR: This phase will identify which habitat projects should proceed to plan formulation.
  - Identification of preferred implementation: This phase will identify a preferred implementation sequencing for approved DPRs.

- The Program Planning Team in developing its recommendations, will consult, as necessary, with the RRF, RRCT, RRAT-exec., project sponsors, SET and others regarding various factors affecting project implementation (including technical input, project clarifications, results of public involvement or background information as needed). The Team's recommended package of

projects (i.e., the HREP Program Plan) will be forwarded to Mississippi Valley Division (MVD) for consideration. MVD will retain final approval authority.

Stage IV – COE Management:

- MVD would retain ultimate responsibility and final approval authority on all programming and budgetary decisions.
- Authority may be delegated to the Districts for projects less than $1 million.

Table 1. <u>Draft</u> Ecological criteria to evaluate Habitat Rehabilitation Projects. (The DETs have flexibility to tailor the criteria with concurrence with the regional teams and SET).

Geomorphology	**Habitat**
Channel formation	Floodplain-river connectivity
Channel sedimentation	Longitudinal aquatic connectivity
Channel migration	Forest corridors
Filling between wingdams	Riparian buffers
Island erosion	Forest blocks
Backwater formation	Grassland blocks
Backwater sedimentation	Wetland blocks
Bathymetric diversity	Wetland patches
Sediment quality	
Backwater delta formation	**Biota**
Tributary delta formation	Plants species
Wind-wave erosion of islands	Animal species
Island dissection	Representative spp./guilds
Island formation	T&E Species
Island migration	Game species
Topographic diversity	Conservation targets
Upland Watershed Dynamics	Recovery plans
	Proximity of critical habitat
Water Quality	Proximity of life requisite habitat
Water clarity	
Suspended sediment	**Hydrology and Hydraulics**
Nutrients	Water stage regulation
Oxygen	Floodwater distribution
Natural toxicity (ammonia)	Current velocity
Contaminants	Flow distribution
Temperature	Water retention time
	Isolation/desiccation
	Natural hydrograph

Table 2. UMRS Habitat Rehabilitation and Enhancement Projects listed from upstream to downstream with the draft ecological criteria they address. [This table may be populated and used by the DETs and SET to visualize ecological characteristics, project objectives and their distribution in a spatial format. The DETs and SET have flexibility in the use of this table and to tailor the criteria (from Table 1) with concurrence from the regional teams and SET].

Essential Ecosystem Characteristic/ Ecological Critera	Rice Lake, MN	Long Meadow Lake, MN	Goose Lake, MN	Peterson Lake, MN	Indian Slough, WI	Finger Lakes, MN	Island 42, MN	Whitewater River, MN	Spring Lake Peninsula, WI	Spring Lake Islands, WI	Polander Lake, MN	Small Scale Drawdown, WI	Trempealeau Refuge, WI	Long Lake, WI	Lake Onalaska, WI	East Channel, WI/MN	Pool 8 Islands, Phase I, WI	Pool 8 Islands, Phase II, WI	Pool Slough, IA/MN	Blackhawk Park, WI	Lansing Big Lake, IA	Conway Lake, IA	Capoli Slough, WI	Pool 9 Island, WI	Cold Springs, WI	Harpers Slough, IA/WI	Ambrough Slough, WI	Bussey Lake, IA	Guttenberg Ponds, IA	Miss River Bank Stabilization, IA/MN/WI	Bertom-McCartney Lakes, WI	Pool 11 Islands, IA/WI	Peosta Channel, IA	Pool 12 Overwintering, IA-IL	Pleasant Creek,IA	Brown's Lake, IA	Spring Lake, IL	Potters Marsh, IL	Princeton Refuge, IA	Andalusia Refuge, IL	Big Timber, IA	Lake Odessa, IA	Huron Island, IA	Gardner Division, IL	Cottonwood Island, MO	Monkey Chute, MO	Bay Island, MO	Peoria Lake, IL	Banner Marsh, IL	Rice Lake, IL	Chautauqua Refuge, IL	Clarksville Refuge, MO	Alton Pool, IL	Pharrs Island, MO	Angle Blackburn, MO	Norton Woods, MO	Stag & Keeton Islands, MO	Sandy Chute, MO	Batchtown Mgmt. Area, IL	Pools 25 & 26, MO	Cuivre Island, MO	Dresser Island, MO	Stump Lake, IL	Swan Lake, IL	Calhoun Point, IL	Osborne Side Channel, IL	Least Tern, MO	Stone Dike Alterations, MO/IL	Schenimann Chute, MO	Fort Chartres Side Channel
Geomorphic Reach																																																																							
Floodplain Reach																																																																							
Corps District																																																																							
River Mile																																																																							
Geomorphology																																																																							
Channel formation																																																																							
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Plants species																																																																							
Animal species																																																																							
Representative spp./guilds																																																																							
T&E Species																																																																							
Game species																																																																							
Conservation targets																																																																							
Recovery plans																																																																							
Proximity of critical habitat																																																																							
Proximity of life requisite habitat																																																																							

Executed this 28th day of August, 2013 on behalf of the Upper Mississippi River Restoration Environmental Management Program's partner agencies by the undersigned official agency representatives to the Upper Mississippi River Restoration Environmental Management Program Coordinating Committee.

Mark Moore, UMRR-EMP CC Representative
U.S. Army Corps of Engineers

Dan Stephenson, UMRR-EMP CC Representative
Illinois Department of Natural Resources

Kevin Foerster, UMRR-EMP CC Representative
U.S. Fish and Wildlife Service

Diane Ford, UMRR-EMP CC Representative
Iowa Department of Natural Resources

Mike Jawson, UMRR-EMP CC Representative
U.S. Geological Survey

Kevin Stauffer, UMRR-EMP CC Representative
Minnesota Department of Natural Resources

Juan Hernandez
Natural Resources Conservation Service

Janet Sternburg, UMRR-EMP CC Representative
Missouri Department of Conservation

Ken Westlake, UMRR-EMP CC Representative
U.S. Environmental Protection Agency

James Fischer, UMRR-EMP CC Representative
Wisconsin Department of Natural Resources

vacant, UMRR-EMP CC Representative
U.S. Maritime Administration

Upper Mississippi River Restoration (UMRR) Program
Habitat Rehabilitation and Enhancement Project

Goals of HREP Selection and Sequencing Process

- Optimize investment in restoring, rehabilitating, and maintaining the quantity and quality of fish and wildlife habitat leading to a healthier and more resilient Upper Mississippi River ecosystem.

- Ensure that UMRR habitat projects address UMRS ecological needs at pool, reach, and system scales by building on existing HREP sequencing mechanisms and integrating the HNA-II and other planning efforts into project selection.

- Enhance public understanding of and trust in the decision-making process by making HREP evaluation criteria explicit, transparent, and consistent.

- Retain the flexibility necessary to ensure efficient, effective program execution and apply adaptive management principles to project planning, design, and implementation.

Roles and Responsibilities

UMRR Coordinating Committee – Provide direction and guidance to the PPT (including as members) both initially and in the development of the FY 2021-2025 UMRR Next Generation HREP Implementation Strategy, including endorsement and transmittal to Mississippi Valley Division (MVD).

Program Planning Team (PPT) – Structure the overall HREP selection and sequencing process and provide guidance to the District-based, executive and technical-level river teams (herein referred to as District River Teams or DRTs). Establish program priorities, facilitate engagement of Science Support Team (SST) members with the DRTs, evaluate project proposals based on ecological and implementation merit, consult with the District HREP managers regarding administrative factors, and review the draft FY 2021-2025 UMRR Next Generation HREP Implementation Strategy. Provide briefings at the UMRR Coordinating Committee meetings and seek input and concurrence from the Committee. Membership includes the UMRR Program Manager (Marshall Plumley), the UMRR Coordinating Committee, District HREP Managers, and District-based river team chairs or their designee. Note that the UMRR Program Manager leads the PPT.

Science Support Team (SST) – Provide expertise and decision support visualizations and tools as requested by the PPT and DRTs as they develop the fact sheet template, consider restoration opportunities and advance project proposals. Ensure the project proposals incorporate the best available knowledge and assist in articulating how the proposed projects will advance ecological goals and habitat needs at various spatial scales. Membership includes experts in the areas of ecological resilience, landscape ecology, hydraulics and hydrology, GIS, HNA-II, fisheries, forestry, and vegetation among others.

District River Teams (DRTs) – Through a thorough, interdisciplinary vetting process, the three (or four) DRTs evaluate habitat objectives within their respective Districts (St. Paul - MVP,

Rock Island - MVR, St. Louis - MVS), formulate restoration ideas, develop project proposals, and sequence the project proposals based on merit. DRTs will also engage the candidate cost share sponsors and the public as appropriate. Membership consists of MVP's Fish and Wildlife Work Group (FWWG), MVR's Fish and Wildlife Interagency Committee (FWIC), and MVS's River Resource Action Team - Technical Section (RRAT-tech) and their respective executive-level river teams. District river team chairs can structure the DRTs as desired – whether as a full river team or as an ad hoc group.

The relationship of the FWWG, FWIC and RRAT-tech to the River Resources Forum (RRF), the River Resources Coordinating Team (RRCT) and River Resource Action Team Executive Board (RRAT-exec) will not be affected by this HREP sequencing process. The DRTs will be responsible for coordinating with their respective committee and receiving their concurrence on recommendations as is the current policy of each committee.

River Team structure

MVP
RRF - River Resources Forum
FWWG - Fish and Wildlife Work Group

MVR
RRCT - River Resources Coordinating Team
FWIC - Fish and Wildlife Interagency Committee

MVS
RRAT Exec - River Resources Action Team Executive
RRAT Tech - River Resources Action Team Technical

The *River Resources Forum (RRF)* provides a mechanism for all Federal and State agencies with management or regulatory responsibilities within the floodplain along the commercially navigable sections of the Mississippi River and its tributaries in the St Paul District to facilitate the coordination of their programs and activities; and to provide an opportunity for other interested parties to express their concerns and views to the agencies.

The *Fish and Wildlife Work Group (FWWG)* enhances the exchange of fish and wildlife related technical information and provides a forum for early coordination between Federal and State agencies by field level technical experts and resource managers on issues pertaining to, and assigned by the River Resources Forum (RRF). The FWWG deliberates, provides technical comments and information on matters concerning design and sequencing of studies and projects, alternatives being considered, methods, data needs and related items on topics that are reported to, and assigned by the RRF.

The *River Resources Coordinating Team (RRCT)* provides a mechanism for all Federal and State agencies with management or regulatory responsibilities along the Mississippi River and

tributaries in the Rock Island District area to facilitate the coordination of their programs and activities; and allow other interested parties to express their concerns and view to the agencies.

The *Fish and Wildlife Interagency Committee (FWIC)* enhances the exchange of fish and wildlife related technical information and provides a forum for early coordination between Federal and State agencies. Field level technical experts and resource managers deliberate and provide technical comments and information on matters concerning design and sequencing of studies and projects, alternatives being considered, methods, data needs, and related items on topics that are reported to, and assigned by the RRCT.

The *River Resources Action Team (RRAT)* provides a mechanism for all Federal and State agencies with management or regulatory responsibilities within the navigable reaches of the Upper Mississippi River within the U.S. Army Corps of Engineers, St. Louis District to facilitate the coordination of their programs and activities in matters dealing with fish and wildlife resources; and for planning, prioritizing, and operating UMRS projects/actions.

The RRAT operates at two administrative levels; the RRAT Technical Team and the RRAT Executive Team. The RRAT Technical Team is composed of individual representatives from each agency that lend special expertise and knowledge regarding particular programs and projects. The RRAT Executive Team is composed of representatives of each agency with knowledge of their respective agency's policies, authorities, and budgetary processes to make operational decisions on particular projects and programs.

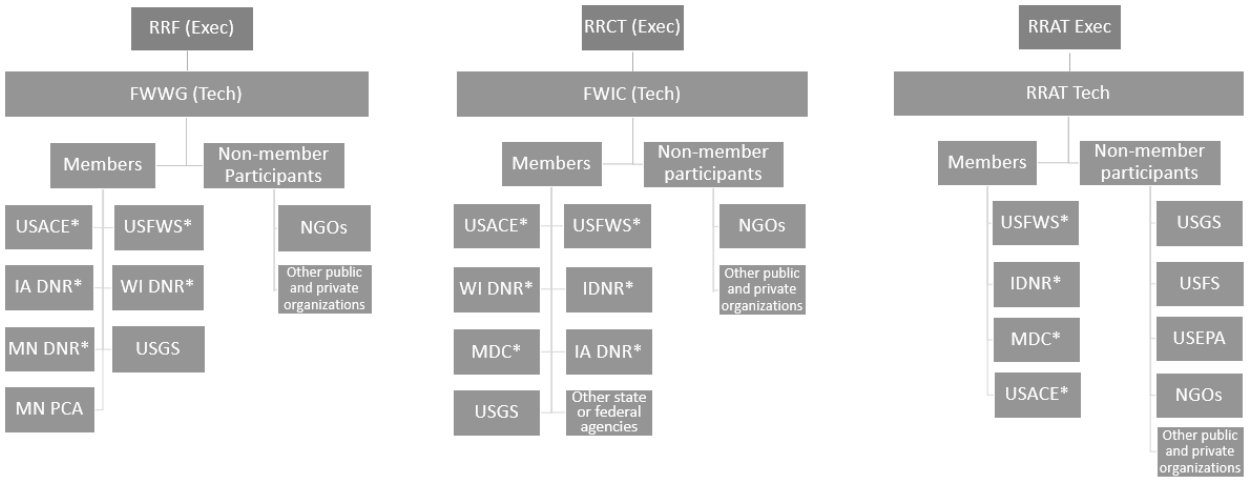


Figure 2. Organizational structure of the District River Teams.
** Denotes voting members.*

UMRR HREP Selection Process Diagram & Schedule

Process Prep

2-3 months prior to process initiation

Objective:

Review and distribute guidance and references to facilitate river teams in their development and sequencing of UMRR habitat projects.

Actions:

— PPT reviews guidance documents with District River Team Chairs

— Establish schedule for implementing Framework

— Develop new, or update existing, guidance materials and references; and serve in central location

— SST presents on newly available knowledge

Notes:

Preparation may consist of a webinar re: science, modeling tools, etc. that can aid in deliberations of project locations and objectives.

In developing recommendations, PPT will consult, as necessary, with the RRF, RRCT, RRAT-exec., project sponsors, SST and others.

HREP Proposal Development

*6 months (fall-winter)**

Objective:

Develop project fact sheets with clear explanations of how project will advance ecological goals and habitat needs at various spatial scales.

Actions:

— DRTs engage federal and non-federal project sponsors** in collaborative fact sheet development process

— Hold inter-DRT meeting as necessary

— DRTs engage with SST as necessary

— Fact sheets should be developed in consideration of the indicators identified and evaluated during the HNA-II development

— DRTs rank project fact sheets

— Submit proposed projects and sequencing to UMRR Coordinating Committee for consideration

— Submit projects to MVD for approval

Notes:

* Schedule subject to change

**NGO-sponsored projects require voting river team member noted as “champion.”

Implementation and Amendments

Ongoing

Objective:

Maintain flexibility through a process to facilitate amendments to the HREP Implementation Strategy.

Actions:

— Program Management Team develops a plan that considers ecological merit and administrative factors for effective and efficient exertion of UMRR appropriations.

— Summarize how recommended sequence of projects advances ecological goals at various spatial scales

— Work with project sponsors to identify and resolve potential issues to project implementation

— Assess pool, reach, and system conditions to determine changing needs or threats

— Provide annual opportunity for candidate non-federal sponsors to propose project ideas

— Secure approval of any amendments through UMRR Coordinating Committee and MVD

Notes:

Maintaining flexibility in order to take advantage of restoration opportunities is important to ensuring a robust, seamless sequence of HREPs are available to implement.

Upper Mississippi River Restoration (UMRR) Program
Habitat Rehabilitation and Enhancement Project

Selection and Sequencing FY 2020-2025 UMRR HREPs
Directions for River Teams

The Program Planning Team (PPT) is requesting river teams to engage in a collaborative process for UMRR HREP project idea generation. Project proposals should consider the indicators as described and prioritized by District-based river teams in the HNA-II reports. The PPT requests that the river teams place greater weight on projects that can address the top four priority HNA-II indicators – i.e., aquatic functional classes, floodplain functional class, floodplain vegetation, and aquatic vegetation.

Each river team is asked to develop projects of varying size and complexity to ensure a diverse array of projects to promote efficient and flexible obligation of program funds. Additional direction will be provided by the PPT based on program goals, anticipated funding levels, and other considerations. Thresholds on size of projects - e.g., dollar amount or acres, will be determined based on programmatic needs.

Specific instructions are as follows:

- Limit fact sheets to four pages (excluding maps), pointing to references such as technical reports, other project fact sheets, white papers, and journal articles to support statements as needed.
- Projects should be developed in consultation with federal, state, and nonprofit organization sponsors. Nonprofit organization participation will be facilitated through a “champion” voting member on the river team.
- Decision support tools can be developed as needed and upon request, following initial collaborative project development process. Data layers are available for agency use and Corps GIS experts can be made available to assist river teams as needed.
- Use decision logs and record discussions throughout the process to ensure transparency and adequate understanding and buy-in and to inform future project selection efforts.
- Invite candidate cost-sharing nonprofit organizations to consider submitting an HREP proposal. The PPT has provided the river teams with a template invitation letter. Other references for how to engage nonprofit organizations throughout the planning process include the UMRR HREP Selection Process Diagram Schedule, UMRR HREP Selection Goals, Roles, and Responsibilities, and UMRR HREP Fact Sheet Template.
- Describe whether and how projects will maintain (e.g., ensure indicator remains green) or improve (e.g., move the indicator from red to yellow) for each respective HNA-II indicator. A Corps planner will be available to support this exercise and overall decision-making.
- Structured decision-making exercises can be used as needed. Past iterations have utilized evaluation matrices and paired-comparisons for project ranking.

Upper Mississippi River Restoration (UMRR) Program
Habitat Rehabilitation and Enhancement Project

Project Name
Pool, River, State(s), Corps District

Location

— General description (side channel, backwater lake, island(s), etc.)

— River mile reach, left or right descending bank, geomorphic reach

— Nearest town and distance

— Current land use/ownership (national wildlife refuge, state wildlife management area, Corps project land, private, etc.)

Existing resources

— General description of the existing habitats and conditions (vegetation communities, current velocities, dissolved oxygen, etc.), including how long it has been this way

— List primary plant communities, fish and wildlife species that are known to exist in the area (generic, when?), including any rare or unique habitats or species, and noxious or invasive species

— Pool and cluster group from the HNA-II in which the project is located

— Current status of the HNA-II indicators for the pool and cluster

Problem identification

— Describe changes in habitat conditions that have occurred including a description of monitoring that quantifies the changes

— Factors influencing these habitat changes

— Examples of the species/communities affected by the habitat changes

— Describe forecasted future habitat conditions without habitat protection or restoration

Project Goals

— Identify the area where different habitat types (and/or health) are desired

— Describe the desired future conditions for each type of habitat

— Describe the primary HNA-II indicators likely to be impacted by the project

— Identify the HNA-II indicators that might be impacted by the project

— Describe how the project would be designed to improve and/or maintain the HNA-II indicators

— Compare/contrast to desired future conditions identified in the HNA-II for the project area

— Identify the species and communities that would benefit from the project

— Describe the relationship(s) to system, reach, and pool needs (relate to pool plans, project sponsor management plans)

Proposed Project Features

— Project description (potential habitat protection and restoration features)

— Alternatives or strategies that may be/have been evaluated or applied

Implementation Considerations

— Opportunities and constraints

— Synergy with other efforts

— Known data needs

— Sequencing requirements

Financial Data

— Rough cost estimates for General design, Construction, and O&M (include basis)

— Potential organizations responsible for project cost sharing (if applicable) and O&MRRR

Status of Project

— Current project phase/actions

— Partnering organizations

Sponsorship

— Who, level of support, etc.

Point(s) of contact

— Name, organization, telephone, email

References

— Examples: prior proposals, LTRM reports, etc.

Attachments

— Examples: map of project area, color aerial photo of project area, etc.

TO: [Name of Nonprofit or Community/County]

FROM: [River Team Chair/Co-Chair]

We understand that your organization may be interested and eligible to serve as a cost-share sponsor of a Upper Mississippi River Restoration (UMRR) Habitat Rehabilitation and Enhancement Project (HREP) on lands that it owns. On behalf of the UMRR Partnership, we are pleased to extend an invitation to you to provide your organization's proposal for sponsoring habitat restoration projects on lands it manages.

The Upper Mississippi River ecosystem benefits from a deeply rooted history of federal-state-local and interdisciplinary partnerships. The ecosystem is complex and requires thoughtful coordination among numerous agencies, organizations, and individuals with varying but related mandates, missions, and talents. Through UMRR, five federal agencies, five states, numerous nongovernmental organizations, and community members all work toward a common goal – a healthy and resilient river. This starts with a thorough evaluation of habitat needs (https://www.mvr.usace.army.mil/Missions/Environmental-Protection-and-Restoration/Upper-Mississippi-River-Restoration/Key-Initiatives/hna2/) and deliberation of the optimal location and objectives for habitat projects that will individually and collectively increase the overall abundance, quality, distribution, and diversity of fish and wildlife habitat as well as improve the river's overall ecological integrity.

UMRR is at the very early stages of developing a plan for sequencing the implementation of habitat restoration projects in federal fiscal years 2021-2025. Deliberations of UMRR project ideas and sequencing are delegated to the federal-state river teams that operate within a U.S. Army Corps of Engineers District. In the [Geographic USACE District], that consultative body is the [Respective District River Team] and is responsible for planning and coordinating on river management. Membership consists of one voting member from a federal or state agency. To assist your efforts in developing your project for consideration, a champion will be assigned to your project by the [Respective River Team].

Additionally, UMRR is implemented through the U.S. Army Corps of Engineers and, therefore, the program's non-federal project sponsors are subject to the agency's cost-share policies. Enclosed are the relevant policies for your reference.

Please contact [insert name] if you have questions about this invitation or wish to discuss potential project ideas.

At this time the [Respective River Team] is planning on holding a meeting to initiate discussion on future HREP project development. The date of the meeting is [Insert any relevant planned meeting]. Future coordination meetings may be scheduled.

UMRR Program Manager: Marshall Plumley, USACE, 309-794-5447, umrr-regional@usace.army.mil

UMRR Habitat Project Cost-Sharing
U.S. Army Corps of Engineers' Relevant Policy

Section 2003 of the 2007 Water Resources Development Act amended the 1970 Flood Control Act to expand the non-federal interests eligible to sponsor water resources projects to include nonprofit entities. On April 5, 2012, USACE Headquarters issued implementation guidance that confirms that nonprofits can serve directly as non-federal sponsors of USACE's civil works water resources projects, including UMRR HREPs. The guidance outlines specific eligibility standards for candidate nonprofits, as follows:

1. Consent from all affected local governments in each jurisdiction throughout the impacted area must be secured in writing.
2. The nonprofit must be incorporated under the laws of the state in which it operates and be exempt from paying federal taxes, under Section 501 of the Internal Revenue Code.
3. The proposed project's purpose and nonprofit's mission must be directly related.
4. The nonprofit must demonstrate the full legal and financial authority and capability to perform the terms of the project partnership agreement and to pay damages, if necessary, in the event of failure to perform. This includes the ability to perform operation, maintenance, repair, rehabilitation, and replacement in perpetuity.
5. For projects with additional purposes, such as recreation or flood risk management, a legally constituted public body must agree to co-sponsor the project.

A nonprofit, municipality or county must also demonstrate its capability to meet the non-federal sponsor requirements articulated in Section 221 of the 1970 Flood Control Act as amended. They include the following:

1. Provide the required 35 percent construction cost share.
2. Provide all lands, easements, relocations, rights-of-way, relocation of utilities and other existing structures, and disposal of dredged or excavated material (LERRDs).
3. Land and project may not be part of a wetland bank or mitigation for another project.
4. Operate, maintain, repair, replace, and rehabilitate the project, or functional portion of the project, using non-federal funds as long as the UMRR is authorized.
5. Maintain the federal government's right to enter the property.
6. Hold and save the federal government free from all damages.
7. Assume all responsibility for hazardous, toxic, and radioactive waste cleanup and liability.
8. Prevent any obstructions or encroachments to the project.
9. Comply with USACE's bookkeeping standards, the project partnership agreement, and all applicable federal and state laws and regulations.

Additionally, the nonprofit sponsor must meet the requirements currently applicable to UMRR non-federal HREP sponsors. These include a letter of intent, self-certification of financial capability, and project partnership agreement. Examples of these documents can be provided upon request by contacting the following:

ATTACHMENT C

USGS Midwest Climate Adaptation Science Center

(C-1 to C-2)

U.S. Geological Survey Midwest Climate Adaptation Science Center (MW CASC)

Mission:

Delivering science to help fish, wildlife, water, land, and people adapt to a changing climate

Goals:

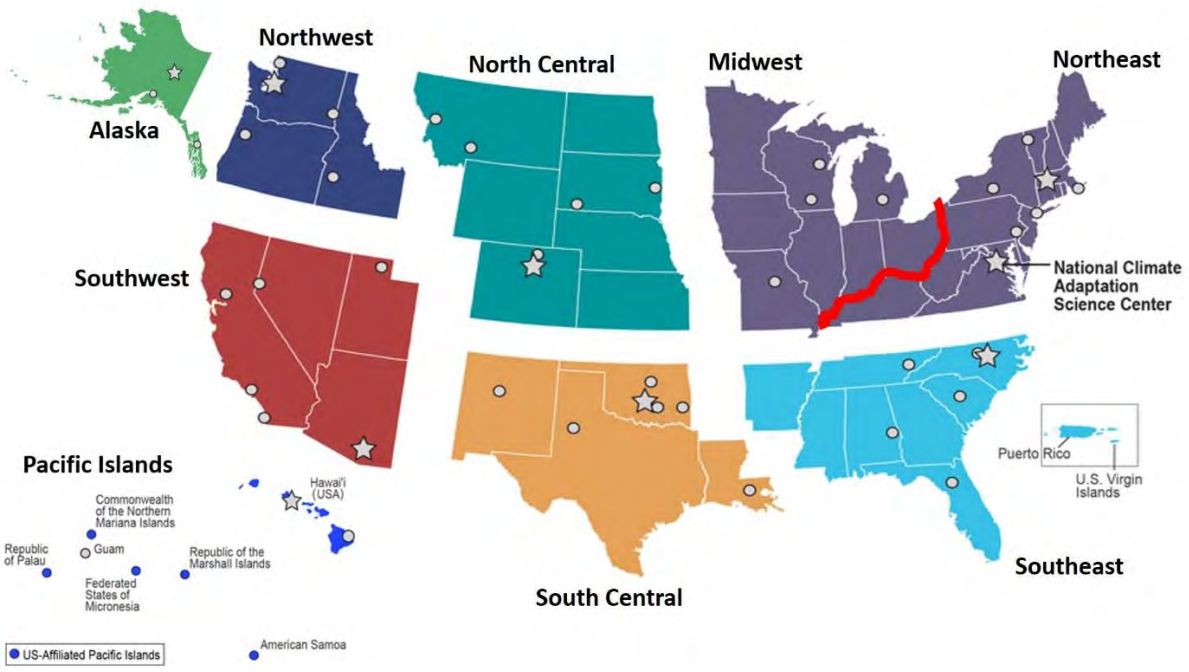
1. Respond to high priority management challenges
2. Foster substantive, sustained engagement between scientists and managers
3. Advance understanding of the impacts of climate change on fish, wildlife, water, and land
4. Science to support sound resource management and adaptation

Structure:

- Nine Regional CASCs + National CASC office in Reston, VA
- The primary components of a regional CASC are:

    1) Host agreement (a federal grant, for a term of five years, to provide facilities, partnerships, travel, and supplies; and for science, educational, outreach, and programmatic capabilities with consortium partners, via sub-awards)
    2) Research awards: funding, awarded by USGS, to consortium members, USGS research centers, or other Federal agencies on an annual basis
    3) Federal personnel: administrative and science services provided by term and permanent USGS staff

CASC Map:



MW CASC Fiscal Year 2020 Highlights:

- Received $4,000,000 to establish a Midwest Climate Adaptation Science Center that addresses threats to natural and human communities in Midwest states (HR 116-100)
- Issued Request for Proposals (RFP) for research projects related to climate impacts and adaptation on natural resources that:
    - Target one or more issues faced by natural and/or cultural resource managers from federal, state, and/or Tribal government
    - Generate knowledge to address targeted issues
    - Engage resource managers in meaningful ways
- Received 95 statements of interest, totaling over $38 million in requests for climate research in the region
- 13 proposals selected for funding in Fiscal Year 2020:
    - **4 Fisheries:** recruitment in Lake Michigan, growth and production of sport fish in lakes, thermal ecology and range decline, stocking supply/demand dynamics
    - **3 Wildlife:** waterfowl habitats and distributions, butterfly declines
    - **3 Forestry:** climate informed restoration, woody invasives, moose management
    - **3 Cultural/societal impacts:** HABs, tribal wild rice management, aquatic invasive species

For more information, contact:

Olivia LeDee, Ph.D.
Acting Director
USGS Midwest Climate Adaptation Science Center
oledee@usgs.gov

ATTACHMENT D

Long Term Resource Monitoring and Science

- **Base Monitoring Scope of Work thru 3rd Quarter of FY 2020 (7/23/2020)** *(D-1 to D-3)*
- **FY 2020 UMRR Science Activities in Support of Restoration and Management (7/23/2020)** *(D-4 to D-13)*
- **FY 2017 UMRR Science Activities in Support of Restoration and Management (7/22/2020)** *(D-14)*
- **FY 2014 and FY 2015 UMRR Science Activities in Support of Restoration and Management (7/22/2020)** *(D-15)*

Tracking number	Milestone	Original Target Date	Modified Target Date	Date Completed	Comments	Lead
Aquatic Vegetation Component						
2020A1	Complete data entry and QA/QC of 2019 data; 1250 observations.					
	a. Data entry completed and submission of data to USGS	30-Nov-2019		30-Nov-2019		Lund, Drake, Bales
	b. Data loaded on level 2 browsers	15-Dec-2019		15-Dec-2019		Schlifer
	c. QA/QC scripts run and data corrections sent to Field Stations	28-Dec-2019		28-Dec-2019		Sauer, Schlifer
	d. Field Station QA/QC with corrections to USGS	15-Jan-2020		15-Jan-2020		Lund, Drake, Bales
	e. Corrections made and data moved to public Web Browser	30-Jan-2020		30-Jan-2020		Larson, Schlifer, Caucutt
2020A2	Web-based: Creating surface distribution maps for aquatic plant species in Pools 4, 8, and 13; 2019 data	31-Jul-2020				Larson, Rogala, Schlifer
2020A3	Wisconsin DNR annual summary report 2019 that combines current year observations from LTRM with previous years' data, for the fish, aquatic vegetation, and water quality components.	30-Sep-2020				Drake, Bartels, Hoff, Kalas, Carhart
2020A4	Complete aquatic vegetation sampling for Pools 4, 8, and 13 (Table 1)	31-Aug-2020				Larson, Lund, Drake, Bales
2020A5	Pool 4: Graphical summary and maps of aquatic vegetation current status and long-term trends.	30-Dec-2019		2-Oct-2019		Lund
2020A6	Pool 8: Graphical summary and maps of aquatic vegetation current status and long-term trends.	30-Dec-2019		6-Sep-2019		Drake, Carhart
2020A7	Web-based: Update software coding for surface distribution maps of aquatic plants	30-Sep-2020				Larson, Rogala
2020A8	Draft manuscript: Estimated annual summer submersed aquatic macrophyte standing stocks (1998 - 2018) in three large reaches of the Upper Mississippi River.	30-Jun-2020				Drake, Lund, Bales, Kreiling
Intended for distribution						
LTRM completion report: Evaluation of a "Trace" Plant Density Score in LTRM Vegetation Monitoring (New Milestone 2020BIO3a; Report under final USGS review)						
Fisheries Component						
2020B1	Complete data entry, QA/QC of 2019 fish data; ~1,590 observations					
	a. Data entry completed and submission of data to USGS	31-Jan-2020		1-Jan-2020		DeLain, Bartels, Bowler, Hine, Gittinger, West, Solomon, Maxson
	b. Data loaded on level 2 browsers; QA/QC scripts run and data corrections sent to Field Stations	15-Feb-2020		15-Jan-2020		Ickes, Schlifer
	c. Field Station QA/QC with corrections to USGS	15-Mar-2020		30-Jan-2020		DeLain, Bartels, Bowler, Hine, Gittinger, West, Solomon, Maxson
	d. Corrections made and data moved to public Web Browser	30-Mar-2020		6-Feb-2020		Ickes and Schlifer
2020B2	Update Graphical Browser with 2019 data on Public Web Server.	31-May-2020		6-Feb-2020		Ickes and Schlifer
2020B3	Complete fisheries sampling for Pools 4, 8, 13, 26, the Open River Reach, and La Grange Pool (Table 1)	31-Oct-2020				DeLain, Bartels, Bowler, Hine, Gittinger, West, Solomon, Maxson
2020B4	Summary Letter: Floodplain fisheries sampling	31-Oct-2020				West
2020B5	IDNR Fisheries Management State Report: Fisheries Monitoring in Pool 13, Upper Mississippi River, 2019	30-Jan-2020		3-Jan-2020		Bowler

Tracking number	Milestone	Original Target Date	Modified Target Date	Date Completed	Comments	Lead
2020B6	Sample collection, database increment on Asian carp age and growth: collection of cleithral bones	31-Jan-2020		31-Jan-2020		Solomon, Maxson
2020B8(D)	Database increment: Stratified random day electrofishing samples collected in Pools 9–11	30-Sep-2020			Canceled for summer 2020 because of Covid-19 sampling issues	Bowler
2020B9(D)	Database increment: Stratified random day electrofishing samples collected in Pools 16–18	30-Sep-2020				Bowler
2020B10	Database increment: Evaluating the Fish Community in a rare Backwater Habitat in the Middle Mississippi River	30 Dec. 2020				West
Intended for distribution						
LTRM Completion report, compilation of 3 years of sampling: Fisheries (2009R1Fish; Chick et al.) (in USGS review; minor grammatical corrections needed then will be posted on LTRM Fish page)						
LTRM Fact Sheet: Tree map tool for visualizing fish data, with example of native versus non-native fish biomass (2013B16) (Programming code for TreeMap being re-written; once completed Fact Sheet will be edited)						
Water Quality Component						
2020D1	Complete calendar year 2019 fixed-site and SRS water quality sampling	31-Dec-2019		31-Dec-2019		Jankowski, Burdis, Kalas, Kueter, L. Gittinger, Kellerhals, Fulgoni
2020D2	Complete laboratory sample analysis of 2019 fixed site and SRS data; Laboratory data loaded to Oracle data base.	15-Mar-2019		15-Mar-2019		Yuan, Schlifer
2020D3	1st Quarter of laboratory sample analysis (~12,600)	30-Dec-2019		30-Dec-2019		Yuan, Manier, Burdis, Kalas, Kueter, L. Gittinger, Cook, Fulgoni
2020D4	2nd Quarter of laboratory sample analysis (~12,600)	30-Mar-2020		30-Mar-2020		Yuan, Manier, Burdis, Kalas, Kueter, L. Gittinger, Kellerhals, Fulgoni
2020D5	3rd Quarter of laboratory sample analysis (~12,600)	29-Jun-2020		29-Jun-2020		Yuan, Manier, Burdis, Kalas, Kueter, L. Gittinger, Kellerhals, Fulgoni
2020D6	4th Quarter of laboratory sample analysis (~12,600)	28-Sep-2020				Yuan, Manier, Burdis, Kalas, Kueter, L. Gittinger, Kellerhals, Fulgoni
2020D7	Complete QA/QC of calendar year 2019 fixed-site and SRS data.					
	a. Data loaded on level 2 browsers; QA/QC scripts run; SAS QA/QC programs updated and sent to Field Stations with data.	30-Mar-2020		30-Mar-2020		Schlifer, Rogala, Jankowski
	b. Field Station QA/QC; USGS QA/QC.	15-Apr-2020		15-Apr-2020		Jankowski, Rogala, Burdis, Kalas, Kueter, L. Gittinger, Kellerhals, Fulgoni
	c. Corrections made and data moved to public Web Browser	30-Apr-2020		15-Apr-2020		Rogala, Schlifer, Jankowski
2020D8	Complete FY2019 fixed site and SRS sampling for Pools 4, 8, 13, 26, Open River Reach, and La Grange Pool	30-Sep-2020				Jankowski, Burdis, Kalas, Kueter, L. Gittinger, Kellerhals, Fulgoni
2020D9	WEB-based annual Water Quality Component Update w/ 2019 data on Server.	30-May-2020		30-May-2020		Rogala, Jankowski
2020D10	Operational Support to the UMRR LTRM Element. Serve as in-house Field Station for USGS for consultation and support on various LTRM-	30-Sep-2020				Kalas, Hoff, Bartel, Drake

Tracking number	Milestone	Original Target Date	Modified Target Date	Date Completed	Comments	Lead
2020D12	Final LTRM Completion Report: Assessment of Phytoplankton Samples collected by the Upper Mississippi River Restoration Program-Long Term Resource Monitoring Water Quality Component	30-Jan-2021				Fulgoni and Jankowski
On-Going						
2019D12	Draft LTRM Completion Report: Assessment of Phytoplankton Samples collected by the Upper Mississippi River Restoration Program-Long Term Resource Monitoring Water Quality Component	30-Dec-2019	30-Sep-2020		Contractor delay	Fulgoni and Jankowski
2017D10	Draft LTRM Completion report: Evaluation of water quality data from automated sampling platforms	30-Sep-2017	30-Sep-2020		Delayed, Lubinski took new position	Soeken-Gittinger, Lubinski, Chick, Houser
Intended for distribution						
Completion report, compilation of 3 years of sampling: Water Quality (2009R1WQ; Giblin, Burdis) (in USGS review; minor grammatical corrections needed then will be posted on LTRM WQ page)						
Manuscript: Nutrients and dissolved oxygen in the UMRS: improving our understanding of winter conditions and their implications for structure and function of the river (2014D12; Houser) (under revision)						
Land Cover/Land Use with GIS Support						
2020LC1	Maintenance ArcGIS server	30-Sep-2020				Hlavacek, Fox, Rohweder
2020LC2	Aerial Photo scanning (ILR)	30-Sep-2020				Hlavacek
2020LC3	Updates on progress for land cover products listed.	30-Sep-2020				Robinson, Finley
Data Management						
2020M1	Update vegetation, fisheries, and water quality component field data entry and correction applications.	30-May-2020		30-May-2020		Schlifer
2020M2	Load 2019 component sampling data into Database tables and make data available on Level 2 browsers for field stations to QA/QC.	30-Jun-2020				Schlifer
2020M3	Assist LTRM Staff with development and review of metadata and databases in conjunction with publishing of reports and manuscripts	On-going				Schlifer
Status and Trends 3rd edition						
2020ST1	Final Outline including specific indicators that will be included in the report.	1-Dec-2019		1-Dec-2019		All
2020ST2	Draft Report for partner review	28-Aug-2020				All
2020ST3	Revised draft to USGS publishing network	15-Dec-2020				All
2020ST4	Draft S&T3 Fact Sheet	30-Mar-2020	TBD		Tied to completion of S&T3	All
Quarterly Activities						
2020QR1	Submittal of quarterly activities	30-Jan-2020		30-Jan-2020		All
2020QR2	Submittal of quarterly activities	13-Apr-2020		13-Apr-2020		All
2020QR3	Submittal of quarterly activities	13-Jul-2020				All
2020QR4	Submittal of quarterly activities	12-Oct-2020				All
Equipment Inventory						
2020ER1	Property inventory and tracking	15-Nov-2020				LTRM staff as needed

Tracking number	Milestone	Original Target Date	Modified Target Date	Date Completed	Comments	Lead
Developing and Applying Indicators of Ecosystem Resilience to the UMRS						
2020R1	Updates provided at quarterly UMRR CC meeting and A team meeting	Various				Bouska, Houser
2020R2	Submit fish regime manuscript for peer-review publication	30-Dec-2019		10-Oct-19	accepted for publication	Bouska
2020R3	Submit aquatic vegetation resilience manuscript to RWG	30-Sep-2020				Bouska
2020R4	Submit draft outline of resilience assessment synthesis to RWG	30-Sep-2020				Bouska
Intended for Distribution						
Manuscript: Bouska, K. L., J. N. Houser, N. R. De Jager, D. C. Drake, S. F. Collins, D. K. Gibson-Reinemer, and M. A. Thomsen. *In Review.* Conceptualizing alternate regimes in a large floodplain-river ecosystem. Journal of Environmental Management Volume 264 https://doi.org/10.1016/j.jenvman.2020.110516						
Assessing recent rates of sedimentation in the backwaters of Pools 4, 8, and 13 to support river restoration and the Habitat Needs Assessment-II						
2018ST1	Reestablishment of horizontal and vertical temporary benchmarks, and a data base for horizontal and vertical benchmarks (Continuation of 2017ST1)	30-Mar-2018	1-Feb-2019	1-Feb-2019	Poor conditions in Pool 13 continue; highwater fall 2019	Rogala, Moore, Kalas, Bierman
2018ST2	Open-water nearshore surveys completed and a database (Continuation of 2017ST2)	31-Dec-2018	2-Jan-2020	2-Jan-2020		Rogala, Moore, Kalas, Bierman
2018ST3	Over-ice surveys completed and a database (Continuation of 2017ST3)	30-Mar-2018	30-Mar-2020			Rogala, Moore, Kalas, Bierman
2018ST4	Draft completion report on sedimentation rates along transects (Continuation of 2017ST4) If surveys in Pool 13 cannot be completed in 2019/2020, the completion report will only include analysis of data from Pools 4 and 8.	30-Sep-2018	30-Mar-2020	5-Feb-2020	Pools 4 and 8	Rogala, Moore, Kalas, Bierman
Landscape Pattern Research and Application						
2020L1	Geospatial analyses in support of the Forest Gap project	30-Aug-2020				De Jager
2020L2	Analysis; Evaluating effects of alternative flooding scenarios on forest succession in the UMRS. Potential manuscript in 2021	30-Sep-2020				De Jager
2020L3	Analysis; Developing a state and transition model for reed canarygrass invasion on the Upper Mississippi River floodplain. Potential manuscript in 2021	30-Sep-2020				De Jager

Tracking number	Milestone	Original Target Date	Modified Target Date	Date Completed	Comments	Lead
On-Going						
2016L3	Draft Manuscript: Review of Landscape Ecology on the UMR	30-Sep-2016	30-Sep-2020		Delayed due to Indicators Report and HNA	De Jager
Eco-hydrologic Research						
2020EH01	Submit manuscript of UMRS inundation diversity for peer review	30-Sep-2020				Van Appledorn, De Jager, Rohweder
2020EH02	Submit manuscript of temporal patterns in UMRS inundation regimes for peer review	30-Sep-2020				Van Appledorn, De Jager, Rohweder
2020EH03	Analysis of UMRS floodplain forest diversity and development of forest typology	30-Sep-2020				Van Appledorn
On-Going						
Development of UMRS inundation model query tool; Van Appledorn, Fox, Rohweder, De Jager; 2019EH03						
Manuscript: Van Appledorn, M., De Jager, N.R. Considerations for improving floodplain research and management by integrating inundation modeling, ecosystem studies, and ecosystem services (2016L5; see 2019EH01)						
Intended for distribution						
Manuscript: Modeling and mapping inundation regimes for ecological and management applications: a case study of the Upper Mississippi River floodplain, USAVan Appledorn, De Jager, Rohweder Research and Applications, Early View On-Line Special Edition. http://dx.doi.org/10.1002/rra.3628 Location of supporting data: https://doi.org/10.5066/F7VD6XRT)						
Acquisition and Interpretation of Imagery for Production of 2020 UMRS Land Cover/Land Use Data and Pool-Based Orthomosaics						
2020LCU1	Imagery Acquisition	Late Aug. Sept. 2020				Dieck, Hop
2020LCU2	Image processing, stereo model development, orthorectification, pool-based mosaicking, image interpretation, QA/QC, and serving of 2020 LCU datasets for Pools 4, 8, 13, 26, La Grange, and an estimated 80% of the Open River South	1-Sep-2021				Dieck, Hop
2020LCU3	Image processing, stereo model development, orthorectification, pool-based mosaicking, image interpretation, automation, QA/QC, and serving of 2020 LCU datasets for remaining 50% of Open River South, the Alton Pool of the Illinois River, and Pools 9-12	1-Sep-2022				Dieck, Hop
2020LCU4	Image processing, stereo model development, orthorectification, pool-based mosaicking, image interpretation, automation, QA/QC, and serving of 2020 LCU datasets for Pools 1-3, 5-7, the St. Croix and lower Minnesota Rivers, and the Peoria Pool of the Illinois River	1-Sep-2023				Dieck, Hop

Tracking number	Milestone	Original Target Date	Modified Target Date	Date Completed	Comments	Lead
Aquatic Vegetation, Fisheries, and Water Quality Research						
Fisheries						
2020B12a	Final LTRM Completion Report: Developing a biochronology of smallmouth buffalo growth for the Upper Mississippi and Illinois Rivers (tied to 2018SMBF4)	30-Jul-2020				Ickes with Solomon
On-Going						
2019B13	Draft Manuscript: Evidence of functionally defined non-random fish community responses over 25 years in a large river system (replacing 2015B17 and 2016B17)	30-Sep-2019	29-Feb-2020	29-Feb-2020	out for peer review	Ickes
2016B14	Draft completion report: Exploring Years with Low Total Catch of Fishes in Pool 26	30-Sep-2016	30-Jul-2020		Previous co-authors took new job positions	Gittinger, Chick
2020BF1	Iowa Walleye Management Plan 2019; incorporation of LTRM data	30-Nov-2019		30-Nov-2019		Bowler
Water Quality						
2019D12	Draft Summary Paper: Expanding the international engagement and recognition of UMRR LTRM (replacing 2014P1)	30-Sep-2019	TBD		Currently low priority, will revisit when appropriate	Jankowski
2019D13	Draft manuscript: Ice and snow cover affect winter limnological conditions differently across a connectivity gradient in a large floodplain river (replacing 2018D13)	30-Sep-2019	30-Jul-2020		Split in to two papers; second will incorporate connectivity	Jankowski, Rogala, Houser
Intended for Distribution						
Burdis, Rob. Manuscript: Trends in water quality and biota in segments of Pool 4, above and below Lake Pepin (Aquat Sci 82, 27. https://doi.org/10.1007/s00027-020-0703-7M) Working title: Decadal trends and ecological shifts in backwater lakes of a large floodplain river: Upper Mississippi River						
Statistical Evaluation						
2020E1	Draft manuscript. Detection errors	30-Sep-2020				Gray
Intended for distribution						
Draft manuscript: Inferring decreases in among- backwater heterogeneity in large rivers using among-backwater variation in limnological variables (2010E1) in journal review						
Draft manuscript: How well do trends in LTRM percent frequency of occurrence SAV statistics track trends in true occurrence? Gray 2016E2; in journal review						
Manuscript: Model selection for ecological community data using tree shrinkage priors; Gray, Hefley, Zhang, Bouska; (2017FA2; in revision with Ecological Applications)						

Tracking number	Milestone	Original Target Date	Modified Target Date	Date Completed	Comments	Lead
Pool 12 Overwintering HREP Adaptive Management Fisheries Response Monitoring						
Fisheries Population Monitoring						
2020P13a	Collect annual increment of pool-wide electrofishing data	1-Nov-2019		1-Nov-2019		Bowler
2020P13b	Collect annual increment of fyke netting data from backwater lakes	15-Nov-2019		15-Nov-2019		Bowler
2020P13c	Perform otolith extraction from bluegills for aging	1-Dec-2019		1-Dec-2019		Bowler
2020P13d	Age determination of bluegills collected in Fall 2020	1-Feb-2020		Not collected because of highwater fall of 2020		Bowler and Kueter
2020P13e	In-house project databases updated	31-Mar-2020				Bowler
2020P13f	Summary letter compiled and made available to program partners; contained in "2018 UMRR-LTRM Highlights for Bellevue"	30-Sep-2020				Bowler
Pool 4 - Peterson Lake HREP Water Quality Monitoring – Pre and Post-Adaptive Management Evaluation						
2017PL3	Collection of post-construction winter water quality data	Feb. 2020		Feb. 2020		Burdis, DeLain, Lund, Dawald
2017PL4	Collection of post-construction summer water quality data	Aug. 2020				Burdis, DeLain, Lund, Dawald
2017PL5	Summary letter: Tabular and graphical summary of water quality data	Dec. 2020				Burdis, Lund, Moore
UMRR LTRM Science Coordination Meeting						
2020N1	Science Planning Meeting; UMESC	Week Jan. 13, 2020		Completed		All LTRM

Tracking number	Milestone	Original Target Date	Modified Target Date	Date Completed	Comments	Lead
FY18 Funded Science in Support of Restoration and Management Proposals						
Conceptual Model and Hierarchical Classification of Hydrogeomorphic Settings in the UMRS						
2019CM2	Summary of workshop findings and minutes; internal document	31-Dec-2018		30-Jan-2019	Delayed due to Furlough	Fitzpatrick, Henderson, Rogala, Erwin, Sawyer
2019CM3	Presentation to Focal Area 1 workgroup, LTRM researchers, HREP designers, and state resource agency partners	31-Aug-2019	30-Dec-2019	19-Dec-2019		Fitzpatrick, Henderson, Rogala, Erwin, Sawyer, Strange
2019CM4	GIS data base and query tool	31-Dec-2019	On-going		Prototype developed	Fitzpatrick, Henderson, Rogala, Erwin, Sawyer, Strange
2019CM5	Submit draft LTRM Completion report on hydrogeomorphic conceptual model and hierarchical classification system	31-Dec-2019	30-Aug-2020			Fitzpatrick, Henderson, Rogala, Erwin, Sawyer, Strange
2019CM6	Submit Final LTRM Completion report on hydrogeomorphic conceptual model and hierarchical classification system	30-Jun-2020	30-Dec-2020			Fitzpatrick, Henderson, Rogala, Erwin, Sawyer, Strange
Develop a better understanding of geomorphic changes through repeated measurement of bed elevation and overlay of land cover data						
Determine geomorphic changes in selected side channels of selected reaches using hydroacoustics						
2019GC2	Complete geodatabase of previous surveys and begin updating as needed. Begin developing and apply change detection methods.	1-Dec-2018		30-Jan-2019	Delayed due to furlough	Strange, Rogala
2019NEW	Complete Side Channel Surveys	30-Sep-2019	30-Nov-2019	4-Feb-2020	Pool 18 survey data received Feb. 2020	Strange, Wallace, Klingman
2019GC3	Submit draft LTRM Completion report	1-Mar-2020	15-Jun-2020	15-Jun-2020	In USGS review	Rogala, Stone
Establish a network of transects in backwaters to measure sedimentation						
2019GC4	Begin setting monuments at existing transects. Establish, survey and monument new transects as needed	1-Oct-2018	1-Jun-2019	1-Jun-2019		Kalas, Rogala
2019GC5	Establish methods. Determine database structure and begin entering data into database (including transect maps, description of monuments, etc.)	1-Dec-2018		1-Dec-2018		Rogala, Kalas
2019GC6	Complete setting monuments and surveying remaining transects	30-Sep-2020				Kalas
2019GC7	Complete database for all transects.	30-Sep-2020				Kalas
Determine recent planform changes using UMRR LCU datasets						
2019GC8	Submit draft LTRM Completion Report on recent planform changes using UMRR LCU datasets	1-Jul-2019	30 Oct. 2019	4-Nov-2019		Rogala

Tracking number	Milestone	Original Target Date	Modified Target Date	Date Completed	Comments	Lead
Water Exchange Rates and Change in UMRS Channels and Backwaters, 1980 to Present						
2019WE1	Data Analysis	31-Mar-2019	30-Jun-2020		Delayed due to continuous flooding and high water along with other priorities	Hendrickson
2019WE2	Base Maps of Discharge Measurement Location	31-May-2019				Le Claire
2019WE3	Submit draft LTRM Completion Report	30-Sep-2019	30-Jul-2020			Hendrickson
2019WE4	Submit Final LTRM Completion Report	30-Mar-2020	30-Sep-2020			Hendrickson
Intrinsic and extrinsic regulation of water clarity over a 950-km longitudinal gradient of the UMRS						
2019IE1	Database complete	30-Apr-2019		30-Apr-2019		Carhart, Drake, others
2019IE2	Draft analysis and annual progress summary	31-Dec-2019		7-Feb-2020		Drake, Carhart and others
2019IE3	Submit Draft manuscript	30-Mar-2020	TBD	PIs determined that to move forward biomass information is needed. Will continue work once biomass model complete		Drake, Carhart and others
2019IE4	Submit Final manuscript	30-Dec-2020				Drake, Carhart and others
Effectiveness of Long Term Resource Monitoring vegetation data to quantify waterfowl habitat quality						
2019WF3	Collect data in Pool 8 using benthic core sampling	30-Apr-2019		30-Apr-2019		Winter
2019WF4	Submit preliminary report with results from data collected in the summer and fall of 2018, and data collected in the spring of 2019	30-Jul-2019		1-Jul-2019		Schmidt, Straub, Schultz
2019WF5	Collect data in Pools 4, 8, 13 using LTRM methodology	30-Aug-2019		30-Aug-2019		Winter, Lund, Drake, Bales
2019WF6	Collect data in Pools 4, 8, 13 using benthic core sampling	30-Oct-2019		30-Oct-2019		Winter
2019WF7	Conduct final analyses, submit draft LTRM Completion report	30-May-2020	30-Sep-2020	Extra samples taken in Spring 2020, sorting and anlysis also delayed due to Covid-19		Schmidt, Straub, Schultz
2019WF8	Submit Final LTRM Completion Report	30-Sep-2020	30-Dec-2020			Schmidt, Straub, Schultz
Understanding constraints on submersed vegetation distribution in the UMRS: the role of water level fluctuations and clarity						
2019SVD1	Retrieve existing systemic datasets for elevation gages, topobathy and water clarity.	30-Dec-2018		1-Dec-2018		Kalas, Carhart, Rogala,
2019SVD2	Estimate/interpolate photic zone and generate predicted SAV bands systemically.	30-Jun-2019		2-Jul-2019		Kalas, Carhart, Rogala,
2019SVD3	Submit annual progress summary	30-Sep-2019		11-Oct-2019		Kalas, Carhart,

Tracking number	Milestone	Original Target Date	Modified Target Date	Date Completed	Comments	Lead
2019SVD4	Spatial coverages and databases complete, begin draft report.	30-Oct-2019		30-Oct-2019		Kalas, Carhart, Rohweder
2019SVD5	Submit draft manuscript	30-Sep-2020				Kalas, Carhart, Drake, Rogala, Rohweder
2019SVD6	Webpage to house database information	30-Sep-2020				Kalas, Carhart, Rogala, Rohweder
Systemic analysis of hydrogeomorphic influences on native freshwater mussels						
2019FM1	Design pool-wide surveys in Pools 8 and 13	30-Sep-2019		30-Sep-2019		Jim Rogala, Teresa Newton, Mike Davis
2019FM2	Explore existing (and perhaps create additional?) geomorphic indices within the aquatic areas data set that may influence mussel assemblages and begin assessing patterns in mussel assemblages across a gradient of geomorphic conditions in existing data (Pools 3, 5, 6, and 18)	30-Sep-2019	9/30/2020 (will now include all pools)	Delayed since lead technician who was to perform most of the analyses took a new position; new hire in place (Jan. 2020)		Jim Rogala, Jason Rohweder, Teresa Newton
2019FM3	Conduct pool-wide surveys for mussels in Pools 8 and 13	30-Sep-2019	30-Sep-2019	30-Sep-2019		Mike Davis, Teresa Newton
2019FM4	Annual progress summary	30-Dec-2019	15-Feb-2020	7-Feb-2020		Teresa Newton
2019FM5	Calculate pool-wide population estimates of native mussels in Pools 8 and 13, finish assessing patterns in mussel assemblages across a gradient of geomorphic indices (all pools), begin conducting statistical analyses	30-Sep-2020	30-Sep-2021			Jason Rohweder, Teresa Newton, Catherine Murphy
2019FM6	Annual progress summary	30-Dec-2020	30-Dec-2021			Teresa Newton
2019FM7	Complete statistical analyses and prepare geospatial maps	30-Sep-2021	30-Sep-2022			Teresa Newton, Catherine Murphy, Jason Rohweder
2019FM8	Draft LTRM completion report	30-Sep-2021	30-Sep-2022			Teresa Newton
2019FM9	Final LTRM completion report	30-Jan-2023				Teresa Newton
Using dendrochronology to understand historical forest growth, stand development, and gap dynamics						
2019DD1	Annual progress summary	31-Dec-2018		25-Feb-2019		Dr. Harley, Dr. Maxwell, MS students, Ben Vandermyde
2019DD2	Data collection	30-Nov-2018		30-Nov-2018	Sample size low due to high water levels	Dr. Harley, Dr. Maxwell, MS students, Ben Vandermyde, Robert Cosgriff
2019DD3	Growth-ring chronologies and forest vegetation demographic and biophysical data	31-Jul-2019		31-Jul-2019		Dr. Harley, MS students
2019DD4	Plot-level 3-dimensional subsurface floodplain sedimentation maps for each study site	31-Jul-2019		31-Jul-2019		Dr. Maxwell, MS students

Tracking number	Milestone	Original Target Date	Modified Target Date	Date Completed	Comments	Lead
2019DD5	Annual progress summary	31-Dec-2019		6-Feb-2020		Dr. Harley, Dr. Maxwell, MS students, Ben Vandermyde
2019DD6	Baseline dataset for promoting resilience of hard mast forest communities along the UMRS	30-Jun-2020	Delay in field work data collection has significantly altered the anticipated time for analysis.			Dr. Harley, Dr. Maxwell, MS students
2019DD7	Submit draft manuscript	30-Sep-2020				Dr. Harley, Dr. Maxwell, MS students
Forest canopy gap dynamics: quantifying forest gaps and understanding gap – level forest regeneration						
2019FG1	Completion of polygon layer of canopy gaps for Study Area with associated tabular and FGDC-compliant metadata	30-Apr-2019		30-Apr-2019		Strassman, Sattler, Hoy
2019FG2	Annual progress summary	31-Dec-2018		27-Dec-2018		Meier, Strassman
2019FG3	Data collection	31-Oct-2019		31-Oct-2019		Thomsen, Vandermyde, Guyon
2019FG4	Annual progress summary	31-Dec-2019		30-Dec-2019		Meier, Strassman
2019FG5	Submit draft LTRM Completion Report	30-Sep-2020				Guyon, Thomsen, Meier, Strassman
2019FG6	Baseline dataset complete	30-Sep-2020				Guyon, Thomsen, Meier, Strassman, DeJager
2019FG7	Submit draft manuscript	30-Sep-2021				Guyon, Thomsen, Meier, Strassman, DeJager
Investigating vital rate drivers of UMRS fishes to support management and restoration						
2019VR1	Data collection will occur during regular LTRM fish field sampling (Completed)	15-Oct-2018		15-Oct-2018		LTRM Fish Component Leads
2019VR2	Processing of samples	2018 through 2021				Quinton Phelps. Greg Whitledge
2019VR3	Annual progress summary	31-Dec-2018		11-Feb-2019		Andy Bartels, Kristen Bouska, Quinton Phelps
2019VR4	Data collection will occur during regular LTRM fish field sampling	15-Oct-2019		15-Oct-2019		LTRM Fish Component Leads
2019VR5	Annual progress summary	31-Dec-2019		31-Dec-2019		Andy Bartels, Kristen Bouska, Quinton Phelps, Greg Whitledge
2019VR6	Data collection will occur during regular LTRM fish field sampling	15-Oct-2020				LTRM Fish Component Leads
2019VR7	Annual progress summary	31-Dec-2020				Andy Bartels, Kristen Bouska, Quinton Phelps, Greg Whitledge
2019VR8	Data set complete (data delivered to Ben Schlifer, physical structures delivered to BRWFS)	30-Sep-2021				Quinton Phelps
2019VR9	Submit draft manuscript (Vital rates)	31-Dec-2021				Quinton Phelps, Kristen Bouska
2019VR10	Submit draft manuscript (Drivers of vital rates)	31-Dec-2021				Quinton Phelps, Kristen Bouska
2019VR11	Submit draft manuscript (Microchemistry)	31-Dec-2021				Greg Whitledge

Tracking number	Milestone	Original Target Date	Modified Target Date	Date Completed	Comments	Lead
FY19 Funded Science in Support of Restoration and Management						
Development of a standardized monitoring program for vegetation and fish response to Environmental Pool Management practices in the Upper Mississippi River System						
2019epm1	Progress Summary	30-Dec-2019	Postponed due to high water			Chick and McGuire
2019epm2	Progress Summary	30-Dec-2020				Chick and McGuire
2019epm3	Draft LTRM Completion	30-Jun-2021				Chick and McGuire
2019epm4	Final LTRM Completion	30-Dec-2021				Chick and McGuire
Combining genetics, otolith microchemistry, and vital rate estimation to inform restoration and management of fish populations in the UMRS						
2019gen1	Progress Summary	30-Dec-2019		31-Dec-2019		Larson, Bartels, Bouska
2019gen2	Progress Summary	30-Dec-2020				Larson, Bartels, Bouska
2019gen3	Draft Manuscript	30-Dec-2021				Larson, Bartels, Bouska
Reforesting UMRS forest canopy openings occupied by invasive species						
2019ref1	Progress Summary	30-Dec-2019		7-Feb-2020	Project delays due to high water in 2019	Guyon and Cosgriff
2019ref2	Progress Summary	30-Dec-2020				Guyon and Cosgriff
2019ref3	Draft LTRM Completion	30-Apr-2021				Guyon and Cosgriff
2019ref4	Final LTRM Completion	30-Sep-2021				Guyon and Cosgriff
A year of zooplankton community data from the habitats and pools of the UMR						
2019zoo1	Progress Summary	30-Dec-2019		2-Jan-2020		Sobotka and Fulgoni
2019zoo2	Draft LTRM Completion report on utility of zooplankton community monitoring for HREP assessment	30-Dec-2020			Sample collection delayed because of Covid-19 state sampling processes	Sobotka and Fulgoni
2019zoo3	Final LTRM Completion report on utility of zooplankton community monitoring for HREP assessment	30-Jun-2021				Sobotka and Fulgoni
2019zoo4	Draft LTRM Completion report on on detailing differences between pools and habitats. Report will also investigate the potential investigate the potential impacts of Asian carp on the zooplankton community.	30-Dec-2020			Sample collection delayed because of Covid-19 state sampling processes	Sobotka and Fulgoni
2019zoo5	Final LTRM Completion report on on detailing differences between pools and habitats. Report will also investigate the potential investigate the potential impacts of Asian carp on the zooplankton community.	30-Jun-2021				Sobotka and Fulgoni
The Role of Large Wood in The Restoration of Habitat in the Upper Mississippi River System						
2019LW1	Progress Summary	31-Dec-2019	14-Feb-2020	12-Feb-2020		Thomsen, Jankowski
2019LW2	Draft LTRM Completion Report	31-Dec-2020				Thomsen, Jankowski
2019LW3	Final LTRM Completion Report	30-Apr-2021				Thomsen, Jankowski

Tracking number	Milestone	Original Target Date	Modified Target Date	Date Completed	Comments	Lead
FY19 Funded Illinois Waterway 2020 Lock Closure						
Aquatic Vegetation: Navigation Closure Study						
2019SAV1	Field sampling - before lock closure	30-Aug-2019		30-Aug-2019		Lund, Drake, Bales, others
2019SAV2	Progress Summary	30-Dec-2019		3-Jan-2020		Lund, Drake, Bales
Pre- and Post-Maintenance Aerial Imagery for Illinois River's Alton through Brandon Lock and Dams, 2019-2020.						
2019AER1	Acquire 4-band aerial imagery 2019	late-August/early-September of 2019		Completed		Lubinski, Robinson, and Hop
2019AER2	Complete Orthomosaics and metadata 2019 Flight	31-Dec-2019		31-Dec-2019	Waiting for upload to ScienceBase	Robinson and Hop
Fish Community Response to the 2020 Illinois Waterway Lock Closure						
2019FSH1	Field sampling - before lock closure	30-Oct-2019		30-Oct-2019		Lamer and Solomon
2019FSH2	Progress Summary	30-Dec-2019		7-Feb-2020		Lamer and Solomon
Water Clarity and the IWW Lock Closures						
2019WC1	Background data collection on barge -driven wave action and sediment suspension	30-Dec-2019		30-Dec-2019		Jankowski (collaborating with Fish and SAV studies)
2019WC2	Spatial survey of phytoplankton biomass	30-Dec-2019		30-Dec-2019		Jankowski (collaborating with Fish and SAV studies)

UMRR Science in Support of Restoration and Management
FY2017 Work Plan Scope of Work
May 2020 Status

Tracking number	Milestone	Original Target Date	Modified Target Date	Date Completed	Comments	Lead
Plankton community dynamics in Lake Pepin - the role of curstacean zooplankton						
2018PLK1	Three year (2012-2014) data set of Lake Pepin crustacean zooplankton data. Crustacean zooplankton samples collected at four fixed sites in Lake Pepin will be processed to obtain species composition and biomass estimates	30-Mar-18	31-May-18	11-Jun-18		Burdis
2018PLK2	Analysis: Data would be paired with existing rotifer (2015D15) and phytoplankton (2015LPP2)	31-Dec-18	30-Jun-20	30-Jun-20	analysis compete	Burdis
4-Band aerial camera acquisistion, integration, and testing for the 2020 LCU mission						
2018CAM1	Collection of test 4-band imagery, evaluation of image quality and image processing using HT Condor distributed processing software.	Summer 2018		30-Sep-18	4-band imgaery collected of various HREP sites between Pools 4 and 14 to test procesing workflow/image quality.	Robinson
2018CAM2	Collection and evaluation of sample floodplain at various resolutions above and below Lock and Dam 13 (where the Upper Mississippi River transitions from a floodplain composed complex aquatic vegetation above to a more channelized system that is largely agrarian in nature below).	Summer 2019		Summer 2019	The FWS remote sensing plane and hardware were lost for the entire year due camera integration issues. HREP imagery collected in 2018 will be resampled to approximate different resolutions for interpretive evaluations.	Robinson
2018CAM3	Draft LTRM Completion report detailing integration and testing procedures and recommendations of optimal image resolution for the 2020 systemic imagery collection.	Fall 2019	31-Mar-20	30-Apr-20	COVID work load challenges	Robinson
2018CAM4	Final LTRM Completion report with sample images detailing integration and testing procedures and recommendations of optimal image resolution and final flight plan for the 2020 systemic imagery collection.	Winter 2019	31-May-20	20-Jul-20	This report was expanded into an LTRM Element Report for online publication and is currently in the IPDS pipeline	Robinson
UMRR LTRM WQ lab modernization						
2018LM1	Contract design work	30-Sep-18	30-Jan-19	29-Jan-19		Goede, Yuan, Sauer
2018LM2	Purchase of walk-in refrigerator/freezer	30-Sep-18	TBD			Yuan
2018LM3	Construction complete	30-Sep-20	TBD			Goede, Yuan, Sauer

UMRR Science in Support of Restoration and Management
FY2014 and FY2015 Scopes of Work
August 2020 Status

Tracking number	Milestone	Original Target Date	Modified Target Date	Date Completed	Comments	Lead
Effects of Nutrient Concentrations on Zoo- and Phytoplankton						
2014NC1	Counting of phytoplankton samples	13-Mar-15		2-Mar-15		Giblin, Campbell, Houser, Manier
2014NC2	Database completed and analysis completed	13-Mar-16	28-Feb-18	28-Feb-18		Giblin, Campbell, Houser, Manier
2014NC3	Full manuscript completed	13-Mar-18	13-Mar-20	13-Mar-20	revised manuscript submitted to journal	Giblin, Campbell, Houser, Manier
Plankton community dynamics in Lake Pepin						
2015LPP1	Phytoplankton processing; species composition, biovolume	30-Dec-15		22-Oct-15		Burdis
2015LPP2	draft manuscript: Plankton community dynamics in Lake Pepin	30-Sep-16	31-Dec-20		staff time in field work due to temp staff shortage	Burdis
Predictive Aquative Cover Type Model - Phase 2						
2015AQ1	Develop 2-D hydraulic model of upper Pool 4	30-Sep-15		30-Sep-15		Libbey (MVP H&H)
2015AQ2	Apply model to Pool 4 and resolve discrepancies	31-Dec-15	31-Mar-16	31-Mar-16		Yin, Rogala
2015AQ3	Detailed summary of work for Phases I & II	31-Dec-15	TBD		PI has resigned. Working to complete this product as soon as feasible	Sauer (for Yin), Rogala, Ingvalson

ATTACHMENT E

Additional Items

- **Future Meeting Schedule** *(E-1)*
- **Frequently Used Acronyms (12/21/2017)** *(E-2 to E-7)*
- **UMRR Authorization, As Amended (1/27/2015)** *(E-8 to E-11)*
- **UMRR (EMP) Operating Approach (5/2006)** *(E-12)*

QUARTERLY MEETINGS
FUTURE MEETING SCHEDULE

Note: These meetings may be held remotely as we will consider state and federal travel policies.

OCTOBER 2020
St. Paul, Minnesota
October 27 UMRBA Quarterly Meeting
October 28 UMRR Coordinating Committee Quarterly Meeting

FEBRUARY 2021
TBD: Dubuque, Quad Cities, or Muscatine
February 23 UMRBA Quarterly Meeting
February 24 UMRR Coordinating Committee Quarterly Meeting

Acronyms Frequently Used on the Upper Mississippi River System

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

DET	District Ecological Team
DEWS	Drought Early Warning System
DMMP	Dredged Material Management Plan
DNR	Department of Natural Resources
DO	Dissolved Oxygen
DOA	Department of Agriculture
DOC	Department of Conservation
DOER	Dredging Operations and Environmental Research
DOT	Department of Transportation
DPR	Definite Project Report
DQC	District Quality Control/Quality Assurance
DSS	Decision Support System
EA	Environmental Assessment
ECC	Economics Coordinating Committee
EEC	Essential Ecosystem Characteristic
EIS	Environmental Impact Statement
EMAP	Environmental Monitoring and Assessment Program
EMAP-GRE	Environmental Monitoring and Assessment Program-Great Rivers Ecosystem
EMP	Environmental Management Program [Note: Former name of Upper Mississippi River Restoration Program.]
EMP-CC	Environmental Management Program Coordinating Committee
EO	Executive Order
EPA	Environmental Protection Agency
EPR	External Peer Review
EQIP	Environmental Quality Incentives Program
ER	Engineering Regulation
ERDC	Engineering Research & Development Center
ESA	Endangered Species Act
EWMN	Early Warning Monitoring Network
EWP	Emergency Watershed Protection Program
FACA	Federal Advisory Committee Act
FEMA	Federal Emergency Management Agency
FERC	Federal Energy Regulatory Commission
FDR	Flood Damage Reduction
FFS	Flow Frequency Study
FONSI	Finding of No Significant Impact
FRM	Flood Risk Management
FRST	Floodplain Restoration System Team
FSA	Farm Services Agency
FTE	Full Time Equivalent
FWCA	Fish & Wildlife Coordination Act
FWIC	Fish and Wildlife Interagency Committee
FWS	Fish and Wildlife Service
FWWG	Fish and Wildlife Work Group
FY	Fiscal Year
GAO	Government Accountability Office
GEIS	Generic Environmental Impact Statement
GI	General Investigations

GIS	Geographic Information System
GLC	Governors Liaison Committee
GLC	Great Lakes Commission
GLMRIS	Great Lakes and Mississippi River Interbasin Study
GPS	Global Positioning System
GREAT	Great River Environmental Action Team
GRP	Geographic Response Plan
HAB	Harmful Algal Bloom
HEL	Highly Erodible Land
HEP	Habitat Evaluation Procedure
HNA	Habitat Needs Assessment
HPSF	HREP Planning and Sequencing Framework
HQUSACE	Headquarters, USACE
H.R.	House of Representatives
HREP	Habitat Rehabilitation and Enhancement Project
HU	Habitat Unit
HUC	Hydrologic Unit Code
IBA	Important Bird Area
IBI	Index of Biological (Biotic) Integrity
IC	Incident Commander
ICS	Incident Command System
ICWP	Interstate Council on Water Policy
IDIQ	Indefinite Delivery/Indefinite Quantity
IEPR	Independent External Peer Review
IIA	Implementation Issues Assessment
IIFO	Illinois-Iowa Field Office (formerly RIFO - Rock Island Field Office)
ILP	Integrated License Process
IMTS	Inland Marine Transportation System
IRCC	Illinois River Coordinating Council
IRPT	Inland Rivers, Ports & Terminals
IRTC	Implementation Report to Congress
IRWG	Illinois River Work Group
ISA	Inland Sensitivity Atlas
IWR	Institute for Water Resources
IWRM	Integrated Water Resources Management
IWTF	Inland Waterways Trust Fund
IWUB	Inland Waterways Users Board
IWW	Illinois Waterway
L&D	Lock(s) and Dam
LC/LU	Land Cover/Land Use
LDB	Left Descending Bank
LERRD	Lands, Easements, Rights-of-Way, Relocation of Utilities or Other Existing Structures, and Disposal Areas
LiDAR	Light Detection and Ranging
LMR	Lower Mississippi River
LMRCC	Lower Mississippi River Conservation Committee
LOI	Letter of Intent
LTRM	Long Term Resource Monitoring

M-35	Marine Highway 35
MAFC	Mid-America Freight Coalition
MARAD	U.S. Maritime Administration
MARC 2000	Midwest Area River Coalition 2000
MICRA	Mississippi Interstate Cooperative Resource Association
MIPR	Military Interdepartmental Purchase Request
MMR	Middle Mississippi River
MMRP	Middle Mississippi River Partnership
MNRG	Midwest Natural Resources Group
MOA	Memorandum of Agreement
MoRAST	Missouri River Association of States and Tribes
MOU	Memorandum of Understanding
MRAPS	Missouri River Authorized Purposes Study
MRBI	Mississippi River Basin (Healthy Watersheds) Initiative
MRC	Mississippi River Commission
MRCC	Mississippi River Connections Collaborative
MRCTI	Mississippi River Cities and Towns Initiative
MRRC	Mississippi River Research Consortium
MR&T	Mississippi River and Tributaries (project)
MSP	Minimum Sustainable Program
MVD	Mississippi Valley Division
MVP	St. Paul District
MVR	Rock Island District
MVS	St. Louis District
NAS	National Academies of Science
NAWQA	National Water Quality Assessment
NCP	National Contingency Plan
NIDIS	National Integrated Drought Information System (NOAA)
NEBA	Net Environmental Benefit Analysis
NECC	Navigation Environmental Coordination Committee
NED	National Economic Development
NEPA	National Environmental Policy Act
NESP	Navigation and Ecosystem Sustainability Program
NETS	Navigation Economic Technologies Program
NGO	Non-Governmental Organization
NGRREC	National Great Rivers Research and Education Center
NICC	Navigation Interests Coordinating Committee
NPDES	National Pollution Discharge Elimination System
NPS	Non-Point Source
NPS	National Park Service
NRC	National Research Council
NRCS	Natural Resources Conservation Service
NRDAR	Natural Resources Damage Assessment and Restoration
NRT	National Response Team
NSIP	National Streamflow Information Program
NWI	National Wetlands Inventory
NWR	National Wildlife Refuge
O&M	Operation and Maintenance

OHWM	Ordinary High Water Mark
OMB	Office of Management and Budget
OMRR&R	Operation, Maintenance, Repair, Rehabilitation, and Replacement
OPA	Oil Pollution Act of 1990
ORSANCO	Ohio River Valley Water Sanitation Commission
OSC	On-Scene Coordinator
OSE	Other Social Effects
OSIT	On Site Inspection Team
P3	Public-Private Partnerships
PA	Programmatic Agreement
PAS	Planning Assistance to States
P&G	Principles and Guidelines
P&R	Principles and Requirements
P&S	Plans and Specifications
P&S	Principles and Standards
PCA	Pollution Control Agency
PCA	Project Cooperation Agreement
PCX	Planning Center of Expertise
PDT	Project Delivery Team
PED	Preliminary Engineering and Design
PgMP	Program Management Plan
PILT	Payments In Lieu of Taxes
PIR	Project Implementation Report
PL	Public Law
PMP	Project Management Plan
PORT	Public Outreach Team
PPA	Project Partnership Agreement
PPT	Program Planning Team
QA/QC	Quality Assurance/Quality Control
RCRA	Resource Conservation and Recovery Act
RCP	Regional Contingency Plan
RCPP	Regional Conservation Partnership Program
RDB	Right Descending Bank
RED	Regional Economic Development
RIFO	Rock Island Field Office (now IIFO - Illinois-Iowa Field Office)
RM	River Mile
RP	Responsible Party
RPT	Reach Planning Team
RRAT	River Resources Action Team
RRCT	River Resources Coordinating Team
RRF	River Resources Forum
RRT	Regional Response Team
RST	Regional Support Team
RTC	Report to Congress
S.	Senate
SAV	Submersed Aquatic Vegetation
SDWA	Safe Drinking Water Act
SEMA	State Emergency Management Agency

SET	System Ecological Team
SONS	Spill of National Significance
SOW	Scope of Work
SRF	State Revolving Fund
SWCD	Soil and Water Conservation District
T&E	Threatened and Endangered
TEUs	twenty-foot equivalent units
TIGER	Transportation Investment Generating Economic Recovery
TLP	Traditional License Process
TMDL	Total Maximum Daily Load
TNC	The Nature Conservancy
TSP	Tentatively selected plan
TSS	Total Suspended Solids
TVA	Tennessee Valley Authority
TWG	Technical Work Group
UMESC	Upper Midwest Environmental Sciences Center
UMIMRA	Upper Mississippi, Illinois, and Missouri Rivers Association
UMR	Upper Mississippi River
UMRBA	Upper Mississippi River Basin Association
UMRBC	Upper Mississippi River Basin Commission
UMRCC	Upper Mississippi River Conservation Committee
UMRCP	Upper Mississippi River Comprehensive Plan
UMR-IWW	Upper Mississippi River-Illinois Waterway
UMRNWFR	Upper Mississippi River National Wildlife and Fish Refuge
UMRR	Upper Mississippi River Restoration Program [Note: Formerly known as Environmental Management Program.]
UMRR CC	Upper Mississippi River Restoration Program Coordinating Committee
UMRS	Upper Mississippi River System
UMWA	Upper Mississippi Waterway Association
USACE	U.S. Army Corps of Engineers
USCG	U.S. Coast Guard
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
VTC	Video Teleconference
WCI	Waterways Council, Inc.
WES	Waterways Experiment Station (replaced by ERDC)
WHAG	Wildlife Habitat Appraisal Guide
WHIP	Wildlife Habitat Incentives Program
WIIN	Water Infrastructure Improvements for the Nation Act
WLMTF	Water Level Management Task Force
WQ	Water Quality
WQEC	Water Quality Executive Committee
WQTF	Water Quality Task Force
WQS	Water Quality Standard
WRDA	Water Resources Development Act
WRP	Wetlands Reserve Program
WRRDA	Water Resources Reform and Development Act

Upper Mississippi River Restoration Program Authorization

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

Additional Cost Sharing Provisions

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

SEC. 1103. UPPER MISSISSIPPI RIVER PLAN.

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

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

(b) For purposes of this section --

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

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

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

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

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

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

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

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

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

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

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

(e) Program Authority

(1) Authority

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

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

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

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

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

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

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

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

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

(3) For purposes of carrying out paragraph (1)(A)(i) of this subsection, there is authorized to be appropriated to the Secretary $22,750,000 for fiscal year 1999 and each fiscal year thereafter.

(4) For purposes of carrying out paragraph (1)(A)(ii) of this subsection, there is authorized to be appropriated to the Secretary $10,420,000 for fiscal year 1999 and each fiscal year thereafter.

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

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

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

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

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

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

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

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

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

(2) Determination.

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

(B) Requirements. The Secretary shall

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

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

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

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

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

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

SEC. 906(e). COST SHARING.

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

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

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

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

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

EMP OPERATING APPROACH

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

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

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

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

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

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