Hampton Inn-Gateway Arch
St. Louis, Missouri

Upper Mississippi River Restoration Program Coordinating Committee

Quarterly Meeting

May 25, 2016

Agenda

with
Background
and
Supporting Materials

UPPER MISSISSIPPI RIVER RESTORATION PROGRAM
COORDINATING COMMITTEE

May 24-25, 2016

AGENDA

Tuesday, May 24 Partner Quarterly Pre-Meetings

4:15 –6:00 p.m. **Corps of Engineers**

4:15 – 6:00 p.m. **Department of the Interior**

4:15 – 6:00 p.m. **States**

Wednesday, May 25 UMRR Coordinating Committee Quarterly Meeting

Time	Attachment	Topic	Presenter
8:00 a.m.		**Welcome and Introductions**	***Sabrina Chandler***, *USFWS*
8:05	**A1-17**	**Approval of Minutes of February 24, 2016 Meeting**	
8:10		**Regional Management and Partnership Collaboration** ▪ FY 2016 Fiscal Update ▪ FY 2017 Appropriations Status	***Marv Hubbell***, *USACE*
	B1	▪ August 8, 2016 - 30 Years of UMRR Success Event ▪ Draft 2016 UMRR Report to Congress – Second Draft Partner Review Comments – Overview of Third Draft Report – Next Steps	***Kirsten Mickelsen,*** *UMRBA*
		▪ USACE UMRR Database Update – Report on New Approach for Delineating Boundaries	***Michael Dougherty,*** *USACE*
9:00		**External Communications**	
	C1-4	▪ Final Logo Design and Tagline ▪ Recommendations for Future UMRR External Communications ▪ Planned Outreach Focusing on UMRR	***Angie Freyermuth****, USACE*
	C5-12	▪ Potential Opportunities to Help (AWI) Raise the Upper Mississippi's Grade	***Marv Hubbell***, *USACE*
		▪ Public Outreach and Involvement Activities	***All***
9:45		**Break**	
10:00	**D1-13**	**Long Term Resource Monitoring and Science**	
		▪ FY 2016 2nd Quarter Highlights	***Jeff Houser***, *USGS*
		▪ USACE Science Update	***Karen Hagerty****, USACE*
		▪ A-Team Report	***Shawn Giblin****, WI DNR*
		▪ Ecological Resilience Conceptual Models	***Jeff Houser***, *USGS*

(Continued)

Wednesday, May 25, 2016
UMRR Coordinating Committee Quarterly Meeting
(Continued)

Time	Attachment	Topic	Presenter
11:30 a.m.		**Lunch**	
12:30 p.m.		**Habitat Restoration**	
		▪ District Reports	***District HREP Managers***
	E1	▪ September 27-29, 2016 UMRR Habitat Project Workshop – Objectives and planned logistics	***Marv Hubbell****, USACE*
		▪ Lean Six Sigma	***Marv Hubbell****, USACE*
		▪ Habitat Needs Assessment II (HNA II) – Draft Project Management Plan	***Tim Eagan****, USACE*
		▪ Planning New Project Starts – Plans for Initiating the Process for Selecting the Next Generation of Habitat Projects	***Marv Hubbell****, USACE*
		▪ HREP Highlight: Connection of Upper Reach Restoration and Lower Reach Habitat Conditions	***Dave Herzog****, Missouri DoC*
2:00	**F1-3**	**Integration of Ongoing Ecological Resilience and HNA II, with Selecting the Next Generation of Habitat Projects**	***Marv Hubbell****, USACE*
2:30		**Other Business**	
	G1	▪ Future Meeting Schedule	
2:45 p.m.		**Adjourn**	

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

ATTACHMENT A

Minutes of the February 24, 2016
UMRR Coordinating Committee Quarterly Meeting

(A-1 to A-17)

DRAFT
Minutes of the
Upper Mississippi River Restoration Program
Coordinating Committee

February 24, 2016
Quarterly Meeting

InterContinental St. Paul Riverfront
St. Paul, Minnesota

Don Balch of the U.S. Army Corps of Engineers called the meeting to order at 8:00 a.m. on February 24, 2016. Other UMRR Coordinating Committee representatives present were Tim Yager (USFWS) on behalf of Sabrina Chandler, Jennie Sauer (USGS) on behalf of Mark Gaikowski, Dan Stephenson (IL DNR), Randy Schultz (IA DNR), Kevin Stauffer (MN DNR), Janet Sternburg (MO DoC), Jim Fischer (WI DNR), Ken Westlake (USEPA), and Marty Adkins (NRCS). A complete list of attendees follows these minutes.

Minutes of the November 18, 2015 Meeting

Randy Schultz moved and Janet Sternburg seconded a motion to approve the draft minutes of the November 18, 2015 UMRR Coordinating Committee meeting as written. The motion carried unanimously.

Regional Management and Partnership Collaboration

FY 2016 Fiscal Report

Marv Hubbell reported that, on December 18, 2015, Congress enacted the FY 2016 Consolidated Appropriations Act, which funds UMRR at $19.787 million and includes $20 million for the Corps' environmental restoration and compliance (ERC) programs and projects. Hubbell said the Corps published its FY 2016 work plan on February 9, 2016 that allocates an additional $1.387 million of the ERC money to UMRR. This brings UMRR's total FY 2016 budget to $21.174 million.

Hubbell discussed UMRR's FY 2016 internal allocations under the $21.174 million planning scenario, as follows:

- Regional Administration and Programmatic Efforts — $891,000
- Regional Science and Monitoring — $6,567,000
  - Long term resource monitoring — $4,500,000
  - Regional science in support of restoration — $963,000
  - Regional science staff support — $129,000
  - Habitat project evaluations — $975,000
- Habitat Restoration — $13,716,000
  - Regional project sequencing — $250,000
  - MVP — $3,631,000
  - MVR — $6,318,000
  - MVS — $3,515,000

[Note: The District habitat restoration funds are not reflective of the historical split based on river mileage, and instead are reflective of the project priorities as identified in the budget process.]

Hubbell introduced Heather Schroeder who works diligently and quickly to keep track of UMRR spending and update the program's financial spreadsheets, which allows the District to readily respond to Headquarters' questions about rates of execution and additional spending capacity. Hubbell said he is working with Schroeder to revamp the fiscal spreadsheets that are typically included in the UMRR Coordinating Committee's quarterly meeting agenda packets, in order to make them more readable and transparent to all implementing partners and the public.

FY 2017 President's Budget

Hubbell reported that the President's FY 2017 budget request includes $20 million for UMRR. Hubbell expressed appreciation to District staff for working incredibly hard to successfully compete with other Corps ecosystem restoration projects for limited resources. He also thanked Dru Buntin and Gretchen Benjamin for their efforts in communicating to the Administration about the non-federal support for UMRR.

Buntin explained that the earmarks ban prevents members from increasing the funding levels for individual programs and projects above the President's budget. Congress instead appropriates a large sum of money to its major budget categories. Non-federal sponsors can advocate that Congress appropriate sufficient funding in those categories to adequately fund these categories, such as the Corps' ecosystem restoration programs and projects that would include UMRR. Non-federal sponsors can then communicate to Headquarters, ASA(CW), and OMB staff the importance of allocating some of the additional discretionary funding to particular programs and projects. This budgeting process creates a more circuitous route for non-federal sponsors to advocate for specific funding needs. Buntin acknowledge the successful efforts of Olivia Dorothy in gathering support of the many nonprofit interest groups that support UMRR to create a powerful voice in D.C. this year.

Major Steps Toward Achieving UMRR's Strategic Vision: A Framework for Near Term Activities and Long Range Plans

Hubbell acknowledged that there are several ongoing new initiatives as a result of the 2015-2025 UMRR Strategic Plan. There is a need to provide clarity in their respective contributions to the plan's implementation and how they relate and inform each other. Hubbell outlined a road map for implementing the Strategic Plan that includes the following steps:

1) Advance the 2015-2025 UMRR Strategic and Operational Plans' guidance for program implementation regarding the four goals for enhancing restoration and advancing knowledge of the UMRS ecosystem, engaging and collaborating with other key individuals and organizations in-river and in the watershed, and facilitating a strong, unified interagency partnership in implementing the program.
2) Define ecological resilience concepts as they apply to the UMRS ecosystem, including developing quantifiable indicators of ecosystem resilience to measure the status and trends of various resilience attributes.
3) Renew the UMRR Habitat Needs Assessment (HNA) that incorporates the best available knowledge and ecological resilience concepts.
4) Identify a suite of new habitat projects that improve the UMRS ecosystem's health and resilience, using the Project Planning and Sequencing Framework and reflecting insights gained from the renewed HNA.
5) Formulate and construct the identified suite of habitat projects, using ecological resilience and health principles.

6) Evaluate and learn from constructed habitat projects in an effort to inform future restoration and management of the UMRS ecosystem.

7) Evaluate UMRR's progress in advancing the 2015-2025 UMRR Strategic Plan and continue to learn and improve as a program and in implementing restoration and science techniques.

Jim Fischer asked how the ecological resilience and the HNA efforts will inform the selection of the next generation of projects. Hubbell explained that the two efforts should allow for considering habitat projects within a broader framework of ecological needs such as at the pool and geomorphic and floodplain reach scales. The selection process will certainly still rely on the input of restoration practitioners. Resilience concepts will examine multiple scales and provide direction on the different needs and actions for making various factors more or less resilient. We learned that the 2000 HNA was valuable in collectively identifying habitat needs that resulted in effective projects. The 2000 HNA also identified several information needs that have since been acquired. Partners have requested that a new HNA is developed in preparation for selecting the next generation of habitat projects, in order to intentionally develop management and project objectives that are based on habitat needs at various spatial scales. Jeff Houser added that there is overlap in terms of people serving on both the ecological resilience and HNA *ad hoc* teams so there will be some inherent connections and integration. The idea behind UMRR exploring resilience concepts is to get a better handle on the fundamental drivers affecting the things that are valued (e.g., habitat) and understanding how management actions can augment or alter those drivers to improve and sustain the valued things.

Fischer and Marty Adkins suggested developing a one- or two-page summary that outlines how these efforts will be integrated and used to inform the identification and selection of the next generation of habitat projects. This is also help to communicate the intentions of these efforts within partners' respective agency leadership and other staff.

Hubbell said this road map has received positive feedback from OMB and Corps leadership, noting that these efforts help to show UMRR's relevance and need well into the future. Mike Griffin expressed concern that the conceptual models will not consider multiple factors in selecting placement of habitat projects and strongly urged that any models developed are only used as a tool in decision making and not as the ultimate controlling factor. Often times, there are value decisions that models cannot determine, such as deciding whether UMRR should work to save the best habitat or rehabilitate the worst. Hubbell concurred, and stressed that the ultimate identification and sequencing of projects will rely on the experience and expertise of restoration practitioners. The human factor is essential to interpreting model outputs and understanding what is being presented. Houser said the questions about protecting the best or rehabilitating the worst are subjective, and that data can help restoration practitioners lessen the subjectivity.

Kraig McPeek acknowledged that there will be a challenge in simplifying and presenting how these concepts shape the what, why, and how of UMRR's habitat projects and overall implementation to the general public. McPeek suggested developing simplified messages for engaging with the public and communicated to agency leadership about this process and any outcomes.

Fischer recalled that, at the November 18, 2015 UMRR quarterly meeting, MVD District commander Craig Baumgartner suggested evaluating a no-action alternative. In response a question from Fischer, Hubbell said that a no-action alternative is being considered and will be examined.

Regarding Fischer and Adkins earlier suggestion, Eagan said he will work with the HNA and ecosystem resilience leads to develop a one-or two-page summary of how the efforts are integrated and will inform the next generation of UMRR habitat projects. Eagan noted that there is a lot of interconnectedness among the discrete products. Janet Sternburg suggested adding the roles and membership of any workgroups and subgroups to help with internal agency discussions. In addition, it should outline a communications scheme to facilitate integration among the various ongoing efforts and avoid working

in silos. Houser added that the communications scheme should also consider how the river teams will be involved. Adkins and Sternburg suggested considering how the efforts will connect with local stakeholders and watershed programs and projects.

Kirsten Mickelsen suggested considering how nonprofit organizations are involved given that they can now serve as cost-share sponsors of habitat projects. Hubbell emphasized Mickelsen's suggestion, noting that strong nonprofit and public support is essential to UMRR's ultimate success and existence. Jennie Sauer suggested developing a simple web page for the two teams to access documents and other information and to communicate planned next steps.

Draft FY 2015-2025 UMRR Strategic Operational Plan

Hubbell recalled that the UMRR Coordinating Committee endorsed the 2015-2025 UMRR Strategic Plan at its November 19, 2014 quarterly meeting, and at the same time, called for an operational plan to identify the implementation actions necessary to best achieve the Strategic Plan's goals and objectives. An *ad hoc* team developed the draft 2015-2025 Strategic Operational Plan, as included on pages B-7 to B-33 of the agenda packet, and is recommending it for the UMRR Coordinating Committees consideration of endorsement.

According to Hubbell, major outcomes of the operational plan include the development of a communications plan and a revised HNA; increased transparency among implementing agencies and to the Administration, Congress, and public; and greater utilization of the UMRR Coordinating Committee for facilitating interagency endeavors and communication. Recommendations specific to habitat projects include:

- Enhanced communication and coordination with the river teams
- Facilitate more detailed discussions of habitat projects at UMRR Coordinating Committee quarterly meetings
- Provide web-based access to UMRR Coordinating Committee quarterly meetings to allow more people to participate
- Make greater use and accessibility to the UMRR program database
- Utilize the HNA II Committee to address issues
- Hold biennial restoration/science meetings
- Refine communications tools including fact sheets
- Reach a common understanding of how adaptive management concepts are applied to UMRR's habitat projects

In response to a request from Don Balch, Jim Fischer moved and Randy Schultz seconded a motion to approve the draft 2015-2025 UMRR Strategic Operational Plan, dated January 29, 2016. The motion carried unanimously.

Hubbell expressed appreciation to the individuals who contributed time and resources in participating in the 2015-2025 UMRR strategic and operational planning efforts.

2016 UMRR Report to Congress

Hubbell said a second draft of the 2016 UMRR Report to Congress (RTC) is scheduled for distribution in early to mid-March. Hubbell said he will request MVD's and Headquarters' input on the draft report, focusing the request most specifically on the draft conclusions and policy recommendations to Congress. He said this report will be an important document to demonstrate UMRR's successes and future relevance.

UMRR Branding Design Concepts

Marv Hubbell explained that the 2015-2025 UMRR Strategic Plan elevates the need and value of external engagement and outreach to the same degree as restoration, science, and partnership communication and coordination. Goal 3 includes coordinating with relevant programs and projects, communicating about UMRR's justification and the river's ecological importance to the public and decision makers, and sharing information nationally and internationally. UMRR involves a tremendous amount of information and numerous venues for reaching target audiences, including collaborative meetings, public open houses, and non-federal partners discussions with Congress. Today's discussion regarding branding with a logo and tagline are exciting for the program as they will serve as an interface with the public and other external organizations and individuals.

Kevin Bluhm provided an overview of the draft logo designs and taglines and the process of, and feedback received through, partnership consultation since the November 18, 2015 UMRR Coordinating Committee meeting. Partnership consultation included interviews with 24 individuals of UMRR partner federal and state agencies and nonprofits, and web-based conference calls on January 25, 2016 and February 8, 2016. Bluhm also provided this information in a hard copy packet to meeting participants, and was emailed to the UMRR distribution list on February 16, 2016. Bluhm offered the following logo designs and taglines for the UMRR Coordinating Committee's consideration:

Logo options:

Option A: Infinity logo

Option B: Landscape logo

Option C: Water logo

Tagline options:

1) 30 years of Partnering, Restoring, Innovating
2) Partnering · Restoring · Innovating
3) Reviving Our River
4) New Thinking for a Natural Treasure
5) [No Tagline]

Bluhm provided a few examples of communications tools using each logo to illustrate its portrayal, including in various sizes. Bluhm said that, in a poll of February 23, 2016 UMRBA meeting participants, the landscape logo had 47 percent of the votes, the infinite logo had 36 percent, and the water logo had 17 percent. According to Bluhm, UMRR could greatly benefit from a concerted, strategic external communications effort that would reach various audiences and tell the story of the program's successes and relevance to the nation, particularly to people outside of the UMRS region.

Colin Wellenkamp requested more frequent communications of key messages about UMRR's accomplishments and planned near-term implementation in order for MRCTI and other groups to elevate the program on the national stage.

In response to a question from Olivia Dorothy, Kevin Bluhm said the landscape logo had enough tone differences to have the best appearance in black and white print. Bluhm said the infinity logo is more difficult to see in black and white print. Ken Westlake suggested adding more features to help distinguish the raptor, such as feathers. Bluhm noted that smaller details may get lost in smaller sizes.

Marty Adkins expressed preference for the infinity and landscape logos. Doug Blodgett noted that the infinite logo fits well with the ongoing ecosystem resilience effort. Bluhm said UMRR's website and other communications pieces can explain how the program interprets the logo and the inclusion of certain aspects. Kim Schneider observed that the infinity logo represents the program's history, integrating the past, present, and future. Jim Fischer said the infinity logo is a current fad in the teenage culture and wondered whether it would be too trendy. Brian Johnson suggested modifying the line in the infinite logo to have a few separated lines. Westlake mentioned that the water logo does not include provide a complete message about the scope of restoration, particularly because biota is missing. Olivia said the bird and fish in the landscape logo do not look like UMRS species. She also observed that the water logo would not be easily understood or recognized on its own.

Kevin Stauffer acknowledged that the general public will likely not be as concerned about the particular features on the bird or fish. Randy Shultz expressed preference for the landscape logo, recognizing that it may be more meaningful and relatable to the general public. Schneider offered that the landscape logo has forward movement in the abstract. Janet Sternburg expressed preference for the font used in the landscape logo, and said she is not particularly fond of the infinite logo. Kirsten Mickelsen said she likes the landscape logo as it has depth and is dynamic, and links in recreationists and other various river users. Mike Griffin recognized to keep it simple and bold. Griffin said he prefers the infinite logo and that the landscape logo may inadvertently suggest that UMRR works in the uplands.

Kara Mitvalsky said she employed a small poll among engineers who associated the infinite logo with a tattoo. Mitvalsky cautioned against thinking too much about the appearance of the fish and bird, noting that the features likely will not be as important beyond today's meeting participants.

Kraig McPeek suggested portraying the fish as a catfish from the top-down. McPeek suggested considering future audiences and trends that will resonate with them, such as the infinity logo. Schneider said it is a balance between iconic species and a general river feel. The graphics designer attempted to model a sturgeon but with less detail. Nicole Manasco observed that yellow is more attractive than other colors making the landscape logo stand out in comparison to the infinite and water logos. Karla Sparks recognized that the landscape logo is very similar to the National Mississippi River Museum and Aquarium's logo. Jeff Houser recognized that initial reactions are likely the most valuable indicators. Doug Blodgett said the infinite logo indicates the perpetual need for UMRR on the UMRS and relevance of the program to everyone.

Tom Boland said he prefers the landscape logo because it is simple yet bold and generically descriptive. Ann Guissinger recalled that Corps' initial guidance was to target an outreach campaign to the general public as the primary audience. The thought was to illustrate the natural beauty and wilderness associated with the UMRS. Dorothy explained that UMRR works on an iconic river that is home to many iconic species. For that reason, she prefers that the species' features are reflected in the logo.

Bluhm discussed the challenges in refining and selecting a tag line. The branding development team tested words like "mighty" to reflect the culture and history of the UMRR with Mark Twain's words, or innovative to showcase the program's cutting edge restoration and science. The team also cited taglines used in other large ecosystem restoration programs. So far, feedback received tells us that words like

reviving and rewilding are too radical and would require a lot of education about their meaning for UMRR. The proposed taglines provide an array of options – new age, new thinking, or a three-word phrase.

Schultz said he prefers option 2, and cautioned against highlighting "30 years" in the logo. Bluhm explained that the "30-year" tagline option would only be used in the Anniversary year. It could be used as a hook in news stories to capture attention and create pieces around UMRR's history and maturity. Don Balch recognized that restoration is already captured in the logo options and so he suggested using a tagline with broader key messages, rather than being redundant. Bluhm noted that option two could be effectively integrated with one of the logos to provide those broader encompassing messages. Manasco and Westlake suggested adding resilience or sustaining in the tagline paired with the infinite logo. Janet Sternburg acknowledged that the general public may not be familiar with terms like ecological resilience or restoration, and instead suggested "habitat for generations" or "resilience: habitat for generations." Dorothy expressed support for the word "innovative" given that adaptive management and learning are priorities for the program. Schneider mentioned that innovation is also captured in the tagline option four, "new thinking for a natural treasure."

Doug Blodgett suggested broadening the tagline to reflect the diverse array of program partners, such as "for everyone, forever." Angie Freyermuth expressed preference for tagline option two as the three words (partnering, restoring, innovating) align with the 2015-2025 UMRR Strategic Plan.

Bluhm said next steps to consider for UMRR include the consistent use of branding tools in documents and outreach communications tools, a social media campaign, media relations outreach and hosting, development of a photo and video library, website and education materials, and dedicated communications staff. Dru Buntin emphasized the need for a dedicated effort and lead staff person to successfully implement an outreach campaign. Mickelsen asked about the potential role(s) for the 2015-2025 Strategic Plan's proposed communications team. Bluhm said the Corps and UMRR Coordinating Committee will need to consider a dedicated funding stream to support a communications and outreach staff person. Hubbell said this and other recommendations for the program's future communications and outreach strategies will be presented at the May 25, 2016 UMRR quarterly meeting, with a formal recommendation report included in the agenda packet. The Corps is still planning to establish a multi-partner communications team to consider messaging and outreach strategies.

In response to a question from Schultz, Bluhm said the Everglades has a dedicated communications staff person and has allocated $5 million in the first year and then $3 million each year after. The Everglades has many communications challenges, including serving bilingual communities. Mitvalsky recognized the relative ease and low-cost of social media as a communications outlet, where many partners can contribute.

UMRR Database

Michael Dougherty reported that District staff are currently in the process of recalibrating the project boundaries of all UMRR's completed habitat projects based on maps and other information. This effort is meant to 1) ensure acreages reported in the 2016 UMRR Report to Congress are accurate, 2) use a consistent mapping definition for all UMRR habitat projects, 3) align with the highest resolution geospatial data, and 4) correct minor mapping inconsistencies between UMRS Districts and early and current habitat projects. Dougherty explained that the process for delineating boundaries and mapping capabilities have evolved substantially over the years, creating some discrepancies and minor inaccuracies in project boundary delineations. Staff are using the projects' feasibility study area to determine the acres benefited, and have developed a white paper to outline the process for future use. This is the Corps' standardized approach to delineating boundaries for all of its projects nationally.

Dougherty explained that each UMRS District completed an internal review of its respective projects and will soon distribute the proposed updated boundaries to project sponsors for review. He said the Corps evaluated project boundaries based on a suite of references, including goals, objectives, maps, and diagrams in feasibility reports, as-build drawings, O&M manuals, current and historic aerial photos, real estate boundaries, and LiDAR-derived terrain surfaces. The white paper provides "best management practices" or a guide for project boundary delineation process. Dougherty illustrated how realignment of Bertom McCartney Lakes project boundary using more sophisticated mapping software and to reflect the study area detailed in its feasibility report. Dougherty pointed out that the project delineation is now based on the studied area in the feasibility report, not the area benefitted or constructed. He acknowledged that more information about biological responses is needed in order to define benefited areas.

Dougherty said the next step is to seek project sponsor input on the updated project delineations and asked if one week would be sufficient review time. Tim Yager said more review time would be needed. USFWS would like to compare the new delineations with its GIS data. Hubbell noted that the white paper will be foundational to helping sponsors review the updates and said it will be included in the Corps' transmittal seeking input on the specific project boundaries. Doughtery said he will send USFWS and the states' UMRR Coordinating Committee members the project boundary delineation white paper and the updated project boundaries with a request for their review.

In response to a question from Dru Buntin, Hubbell confirmed that UMRR's total acres restored will remain above 100,000 and thus will not be problematic for previous acreage reporting. In response to Kara Mitvalsky about delineating pool-scale projects, Dougherty said the boundaries will include the areas under direct analysis. For example, the delineations for Pool 11 Islands would include the analyzed areas around Mud and Sunfish Lakes. He emphasized that there may certain anomalies that the Districts will need to make judgment decisions. In response to a question from Kirsten Mickelsen, Dougherty explained that all the Corps' ecosystem restoration programs and projects report acres restored based on feasibility areas. Hubbell said this standard approach will ensure consistency in reporting project acres throughout planning, design, and construction in subsequent budget documents. Brian Johnson said UMRR reported 8,300 acres restored in FY 2015, when the total Corps' ecosystem restoration acres was 10,000.

UMRR's 30th Year of Success Event

Hubbell said District staff have begun initial planning discussions for the UMRR's 30th year of success event. It will likely be held in August 2016 in La Crosse in conjunction with the Mississippi River Commission's low water inspection trip and the UMRR's quarterly meeting. Hubbell explained his preference to focus the event on UMRR's inception as a means for compromise and facilitate a multi-purpose management approach on the river, and a comparison of what exists today to what existed before the program was authorized and what we have learned about the UMRS ecosystem as a result of the program.

In response to a request from Hubbell, Jennie Sauer and Jeff Houser (USGS), Tim Yager (USFWS), Jim Fischer (WI DNR), Gretchen Benjamin (TNC), and Kirsten Mickelsen and Dru Buntin (UMRBA) volunteered to serve on a planning committee for the UMRR's 30th year of success. Any other individuals interested in volunteering are asked to contact Marv Hubbell. The planning committee will provide a proposed plan at the UMRR Coordinating Committee's May 25, 2016 meeting.

Long Term Resource Monitoring and Science

FY 2016 2nd Quarter Highlights

Jeff Houser reported that accomplishments of the first quarter of FY 2016 include:

- Publication of the fish habitat suitability models on the internet at http://www.umesc.usgs.gov/data_library/fisheries/habitat_models.html.
- Completion of the spatial query tool, which includes long term resource monitoring, land cover, and bathymetric data. It is available at http://www.umesc.usgs.gov/ltrmp/spatial_data_query_tool.html.
- Publication of 1) a technical report, Accuracy assessment/validation methodology and results of 2010–11 land-cover/land-use data for Pools 13, 26, La Grange, and Open River South, Upper Mississippi River System; and 2) a General Classification Handbook for Floodplain Vegetation in Large River Systems.

Houser explained that, which anticipated implications for name changes were very minor, there has actually been a substantial amount of work to update files on the USGS's UMRR website. Since the changes in naming convention from EMP to UMRR and LTRMP to LTRM, USGS has completed substantial work in changing naming instances on its UMRR LTRM website. When the name changes occurred in November 2015, there were 14,917 instances of long term resource monitoring and 69,467 instances of LTRMP in 13,340 web files. As of February 1, 2016, there were 7,986 instances of long term resource monitoring and 52,827 instances of LTRMP in 12,174 web files.

2016 Science Coordination Meeting

Houser reported that the February 16-18, 2016 UMRR Long Term Resource Monitoring Science Meeting was attended by 50 interagency program partners. The meeting included a series of presentations and discussions about where we've been – research completed and ongoing work, where we are – updates on current research frameworks, and where we are going – ideas for new frameworks and future work. In addition, the meeting included discussions on assessing the UMRS's resilience and the HNA II. Kirsten Mickelsen said the meeting was very productive and informative, and expressed appreciation to Houser and Jennie Sauer for their efforts in making the meeting successful. Hubbell agreed, and said he was impressed by the sense of integration among the scientists and restoration practitioners. Ken Barr also offered thanks to Houser and Sauer.

Developing Ecological Resilience Conceptual Models

Houser provided an overview of UMRR's effort to define and apply the concepts of ecological resilience to the UMRS. A workgroup convened a January 5-7, 2016 workshop to discuss the theoretical definitions of resilience and begin to brainstorm how conceptual models might be used to understand resilience at different spatial scales, at different locations, and in terms of different ecosystem processes. The meeting was facilitated by two experts in the field of ecological resilience, Lance Gunderson and Allyson Quinlan. Based the meeting's discussions, a suite of draft conceptual models is being developed with input from many various program partners. Houser said he is scheduled to present at the March 15-17, 2016 Upper Mississippi River Conservation Committee (UMRCC) meeting about the ecological resilience concepts and the framework and possible applications for conceptual models of resilience for the Upper Mississippi River ecosystem. The intention is to seek feedback and initial reactions from the restoration practitioners, particularly about the ability to relate the conceptual models to restoration and management. Houser said he will provide more refined, draft conceptual models of UMRS ecological resilience at the May 25, 2016 UMRR Coordinating Committee quarterly meeting.

USACE Science Update

Karen Hagerty said total available for science in FY 2016 is $5.463 million, including $312,774 in FY 2014 and FY 2015 carry-over mostly due to unfilled vacancies. Hagerty said that $5.463 million is allocated in the FY 2016 SOWs, with $4.5 million for long term resource monitoring and 963,000 for analysis under base funding. With $180,745 remaining, the UMRR LTRMP management team agreed to allocate $28,386 to continued telemetry work to support the Pool 12 Overwintering habitat project's adaptive management analysis and $52,000 for Corps staff participation in the ecological resilience effort. That left $100,359 in available money for science analyses in support of restoration. The UMRR LTRMP management team includes Hubbell, Hagerty, Mark Gaikowski, Houser, and Jennie Sauer. Since the November 18, 2015 UMRR Coordinating Committee meeting, Hagerty and the UMRR LTRMP management team discussed the merits of employing a request for proposals but thought that the amount of funding available was too little to warrant the efforts. Instead, the team agreed to allocate the funds to 1) ongoing, partner-endorsed efforts (namely the $55,980 to spatial patterns of mussels and $7,775 to fish trajectory analysis) and 2) $33,130 for a proposal from Wisconsin DNR to evaluate biological shifts due to invasion by curly-leaf pondweed.

Hagerty acknowledged that the team's approach deviated from the established process for expending salary savings and partnership coordination on allocating science funding. She said Houser consulted with each of the field stations in advance of today's meeting. Houser also worked with the Illinois Havana field station to improve an FY 2015-submitted proposal, but that proposal still has some unresolved issues. Hagerty noted that Deanne Drake presented on Wisconsin's curly-leaf pondweed proposals at the February 16-18, 2016 UMRR Science Meeting. Hagerty apologized that the established coordination policy was not followed this year. She asked for the Committee's endorsement in moving forward with the funding allocations.

While acknowledging that this is a small amount of funding, Janet Sternburg expressed concern of setting precedent of allocating science funding without partner consideration and opportunity for all field stations to compete for funding. Kevin Stauffer echoed Sternburg's comments and requested email correspondence early-on when situations like these arise. Houser and Hagerty explained that the amount of salary savings from Wisconsin DNR was significant and an anomaly. There is a process for addressing salary savings, but this became a grey area when the amount of savings was realized. Tim Yager asked if there is time to the Committee to do a quick review of proposals. Sauer confirmed that Houser did connect with each of the field stations to seek other options for utilizing the available money. Jim Fischer said he will abstain from the voting since the Wisconsin field station would be receiving the funding in question.

Houser said it will be a priority this year for him to develop a smoother contingency planning process. Sternburg commented that these types of complications are not new, and noted that the process for allocating science funding changes every few years. Marty Adkins suggested developing requests for proposals as a way to be prepared to execute funding quickly and based on program priorities.

Scott Gritters said the A-Team has reviewed the mussels and fish trajectory analyses, but not the curly-leaf pondweed research. In response to a question from Gritters, Hagerty confirmed that no other proposals were put forward. Houser reiterated that the curly-leaf pondweed proposal was discussed at the February 2016 UMRR Science Meeting. In response to a question from Sternburg, Hagerty said all equipment needs have been funded. Tim Yager expressed support for this research for informing management.

Hubbell proposed that the Committee consider endorsing the allocation of the mussels and fish trajectory work, and that the Corps follow-up in an email explaining the curly-leaf pondweed proposal to give Committee members more time to consider the request and consult within their agencies and respective field stations. Hubbell expressed desire to get contracts let for the first two science efforts.

Stauffer moved and Sternburg seconded a motion to endorse the allocation of $55,980 to spatial patterns of mussels and $7,775 to fish trajectory analysis as these are continuing research efforts, and to consult with their respective agency staff and provide Karen Hagerty, with a vote of yay or nay in an email within a week of whether to fund the curly-leaf pondweed proposal. [Note: Subsequent to the meeting, the Committee endorsed the recommendation to fund the curly-leaf pondweed proposal in FY 16.]

A-Team Report

Shawn Giblin reported that A-Team met via web-based conference call on January 28, 2016. The call focused on the ongoing efforts that integrate science and restoration, including discussion on ecological resilience, HNA II, and fish indicators. The next A-Team meeting is scheduled for April 27, in conjunction with the Mississippi River Research Consortium in La Crosse. Giblin said the A-Team will continue to include presentation and discussions related to restoration and how science informs restoration. For example, hydraulic connectivity is a potential future agenda item.

Giblin also mentioned the challenges to UMRR's habitat project cost share sponsors associated with railroad trespass issues. In some areas, it is illegal to cross tracks and that is preventing public access to habitat restoration sites that have become important recreational areas.

Science Highlight: Management-Relevant Fish Habitat Models for the UMRS

Brian Ickes presented on new and improved fish habitat suitability models that incorporate UMRR's long term resource monitoring data and use a statistical approach to predict the sample-site probability of occurrence of 28 UMRS fish species. Ickes acknowledged the interagency partnership effort involved. Ickes explained that UMRR's habitat projects require a pre-project assessment of predicted benefits for a range of scenarios that are typically derived from models. These models must be certified by the Corps in order to be used in such planning. The UMRR's Aquatic Habitat Appraisal Guide (Guide) is a frequently-used regional community model that estimates species-specific response curves to predict habitat-related benefits from proposed management actions. However, a 2011 Corps scientific review of the Guide concluded that it was outdated, included too many uncertainties, and lacked necessary field validation, and recommended 1) incorporating long term resource monitoring data to improve the response curves and 2) conducting post-project biological evaluations to assess the accuracy of the predictions.

In response, UMRR undertook an effort to address these criticisms and apply long term resource monitoring data to quantify the relation of species distribution to environmental variables. The ultimate objective was to create a statistical modeling approach to predicting the sample-site scale probability of occurrence of 28 UMRS fish species. Ickes compared the differences between the old (AHAG 1.0) and new Guides (AHAG 2.0). Whereas the AHAG 1.0 was based on professional judgment that required users to input value changes and weight importance in a spreadsheet, AHAG 2.0 is based on the best large river fisheries data in the world, is predictive, and directly links the species response (i.e., occurrence) to the environmental variables that actually determine site occupancy. AHAG 2.0 is spatially-explicit, can be used regionally beyond the long term resource monitoring study reaches, and is reproducible. Validation test can be performed and AHAG 2.0 offers a much cleaner, easier interface. It also applies to more species than were available in AHAG 1.0.

Ickes discussed the methodology used for long term resource fish monitoring and how that data is populated and analyzed to predict occurrences as a function of 17 different environmental variables. Model outputs include both predicted equations and maps of probable occurrence. Ickes said 33 regional models passed the goodness of fit test and nine species yielded good regional fits for both lotic and generalist regions. Good fits for lentic species were only achieved in the upper reaches of the UMRS. Ickes illustrated the information provided by the mapping outputs through two examples of rock bass and bluegill probable occurrence in Pool 8.

Ickes explained that the model offers an objective approach to habitat project planning. The maps can be used to evaluate habitat suitability, assess pool and study reach scale species-specific habitat suitability, and identify species upon which suitability assessments should be based. The maps can also provide information on the influence of environmental variables on species occurrence in particular sites and how habitat restoration can meet quantitative goals for improving site occurrence by adjusting the environmental variables.

Ickes said the full manuscript about the development and use of AHAG 2.0 is available at http://pubs.usgs.gov/mis/ltrmp2014-t002/pdf/ltrmp2014-t002.pdf, and maps and raster data is available at http://www.umesc.usgs.gov/data_library/fisheries/habitat_odels.html.

Bob Clevenstine asked how the AHAG 2.0 may support the Habitat Needs Assessment (HNA) II effort. Ickes explained that the first HNA was based on professional judgment. The AHAG 2.0 models provide a less subjective approach to modeling habitat and associated probability of occurrence. Ickes said the equations relating environmental factors and specific species occurrence can be used to make conclusions about habitat needs and restoration opportunities. Kraig McPeek recognized the brilliance of UMRR's founding partners in creating the long term resource monitoring sampling methods and scheme and building the database that now allows for making scientific conclusions that are so important to fish and wildlife habitat restoration and management that would not otherwise be possible.

UMRR Branding Design Concepts (Continued)

A poll was taken where each meeting participant was asked to place dots on their preferred tagline and logo as presented on large poster displays. By a very large margin, tagline option 2 was selected – leading, innovating, partnering. Participants used a green and yellow dot, where the green dot represented the first choice and the yellow dot the second choice. The landscape logo won by total votes, receiving 38 while the infinite logo received 37. However, the infinite logo had more first-choice dots of 23 versus 17 for the landscape logo.

After removing the water logo, participants discussed preferences between the two and which would resonate more with the public and eventually sided with the landscape logo. Marty Adkins moved and Janet Sternburg seconded a motion to select the landscape logo, with some minor adjustments to the bird and fish. In response to a request from Don Balch, Randy Schultz moved and Jim Fischer seconded a motion to select tagline option two – leading, innovating, partnering.

Bluhm said that the contractor will submit a high resolution logo image once the graphics modifications are finalized that can be used in small and large visuals. Kara Mitvalsky requested guidelines for using the logo in standard program documents.

Habitat Restoration

Thank You to Gary Meden

Marv Hubbell expressed a sincere thank you to Gary Meden for his incredible, steady leadership not only to the UMRR but also to Upper Mississippi River management more broadly for the Rock Island District. Meden is retiring on February 29, 2016, and his leadership and guidance will surely be missed. Dennis Hamilton will be MVR's new Deputy for Programs and Project Management.

Keithsburg Division

Karla Sparks (USACE) and Cathy Henry (USFWS) presented on the Keithsburg Division habitat project, which is located in Pool 18 and within the Port Louisa National Wildlife Refuge. Sparks introduced the project and said the 1,400-acre habitat project is currently under feasibility.

Henry provided a brief historical overview of the site's management. Land use dominated by logging and agriculture in the 1800s, the Keithsburg drainage district formed in 1906 and constructed the levee that surrounds the project site and allowed for farming. The Corps purchased the site in 1941 and then transferred management authority to the USFWS in 1945. The Service then established it as a Refuge in 1958 and has been primarily managed for migratory waterfowl, T&E species, and wetlands. Some farming remained on the site until 1984 and water control structures were added in the 1960s and 1970s. The 1993 flood cause a large break in the south levee that allows for some connectivity. However, water level management capability remains limited. Tributary rivers exist just north and south of the Port Louisa Refuge.

In a 2009 workshop for the Keithsburg Division project, Henry said participants gathered many data sources to use in resource issue identification and project planning, as well as information needs. This includes an HGM assessment, contaminant assessment, USFWS water resource inventory and assessment, water quality sampling, wildlife surveys, forest inventories, and fisheries sampling. Henry explained that vegetation is a primary resource issue at Keithsburg, with large blooms of blue-green algae and duckweed stemming from high inputs of nutrients from the northern portion of the project area. And, declines in forest area began in 1995 and continue today.

Henry said water management capability is needed to provide more natural water regimes, including helping to ensure that drawdowns can be effectively implemented when relatively minor to modest late summer flood events occur. The objective would be to manage for periodic drying periods, with alternating flooding over seasons and years. She mentioned that the closest USFWS office is 45 minutes from the project site and therefore management capabilities should be kept in mind as project features are considered. For example, a fuel pumping every day would not be feasible.

Sparks provided the planned scheduled for project development over the next six months and year. In the next six months, this includes a workshop to discuss project features, perform preliminary quantities for levee upgrades and geotechnical borings, address real estate requirements, and employ various modeling and sampling needs. Over the next year, team will hold a public meeting, complete a biological assessment and floodplain analysis, develop the draft feasibility report, and complete environmental assessment coordination. Sparks anticipates that design work will be completed in late spring 2017 and a construction award will occur in FY 2018 or FY 2019.

In response to a question from Marty Adkins, Sparks explained that the planning team considered opening the leveed area to the river like Horseshoe Ben, but ultimately decided against it because of potential negative implications to the high quality fisheries habitat. The desire is to keep invasive species such as Asian carp out of the project area. Henry added that preservation of aquatic vegetation in the area is also important. Darron Niles noted that there are concerns of button bush invasion. Sparks and Henry mentioned that there are NRCS easements surrounding the project site and that USFWS is hopeful that more lands will be enrolled in conservation programs the future.

District Reports

<u>Rock Island District</u>

Hubbell reported that MVR is replacing Boston Bay with Turkey River Bottoms in the planning queue and is considering constructing DeLair habitat project before Boston Bay as well based on USFWS's

preference. MVR's design work is focusing on Huron Island Stage II and Pool 12 Overwintering Stage III. The District is fully funding construction of Huron Island Stages I and II and Pool 12 Overwintering Stage III in FY 16. Rice Lake habitat project sustained some damages to the electrical box in the water control structure pumps as a result of two historic floods this year on the Illinois River. The Corps anticipates repairing the damages soon. Sparks noted that construction of Rice Lake was scheduled for last year, but the major flooding prevented any work from occurring. She also reported that the Corps is currently reshaping Pool 12 Sunfish Lake to rectify a potential problem from underestimating the amount of material required at the top of the berm to create the proper slope.

St. Paul District

Hubbell said MVP is doing about $1 million to $2 million additional dredging work in North and Sturgeon Lakes. Tim Yager said a dedication ceremony for Capoli Slough is scheduled for May 13 in Ferryville, Wisconsin.

St. Louis District

Brian Markert reported that MVS's current planning priorities are Rip Rap Landing, Piasa and Eagles Nest Islands, and Harlow and Open River Islands. The District is working on performance evaluation reports for Calhoun Point, Dresser Island, and Clarksville Refuge. MVS continues design work on Clarence Cannon and Ted Shanks and construction on Ted Shanks, Pools 25 and 26 Islands, and Batchtown. It is anticipated that Batchtown will be closed out in FY 16.

Lean Six Sigma

Hubbell anticipates that, at the May 25, 2016 UMRR Coordinating Committee quarterly meeting, District staff will present on the four stages of habitat project development that the Committee agreed to evaluate using Lean Six Sigma techniques for potential process improvements, as well as a proposed process for undertaking the evaluation. The four stages include initial feasibility planning, evaluation of the existing ecological condition, plan formulation, and draft environmental assessment report. As requested by the Committee, the Corps will develop fact sheets that explain these stages in greater detail including partners' roles.

Habitat Needs Assessment II

Tim Eagan reported that, since the November 18, 2015 UMRR Coordinating Committee meeting, he and the tri-team chairs have been working together to develop a project management plan (PMP) for the HNA II effort. The tri-team chairs include Eagan, Sara Schmuecker, and Nate De Jager. The planned scope, interagency coordination teams, and timeline of the HNA II development are included in the agenda packet. Eagan clarified that this effort is not intended to identify or select the next generation of habitat, but rather create an information source for that effort. In response to a request from the UMRR Coordinating Committee, Eagan said he will send the Committee an email outlining the scope and purpose of an HNA technical team with a request for members to name an individual from their respective agency to serve on the team.

Sternburg mentioned that travel costs will likely be challenging for state agencies. She said travel reimbursement from the Corps or holding other UMRR meetings in conjunction is helpful. Jim Fischer reiterated the need for a brief summary that outlines how the ecological resilience and HNA II efforts will be integrated and used to inform the identification and selection of the next generation of habitat projects.

USFWS Natural Resources Inventory

Schmuecker presented on the USFWS's newly updated Natural Resource Inventory (NRI). The inventory is used for land-use planning; impact assessment; environmental permit review; natural area selection, design, and stewardship; and resource management. Schmuecker provided an overview of resources inventoried and data layers available. She explained that the interface is very user friendly and accessible, and makes substantial improvements from the previous 1984 version. She illustrated the many customized maps and visualizations that the NRI offers, with point descriptions of the geographic area. Instructions for using the NRI are available on page D-4 of the agenda packet. Schmuecker said questions and input can be directed to her.

McPeek applauded Schmuecker on her efforts to revamp the NRI to a sophisticated, user-friendly interface that has many important applications to river management, including planning, permitting, and spill response.

Habitat Project Workshop

Kara Mitvalsky announced that the Corps and USFWS are teaming up to co-chair an HREP workshop in late August or September 2016. These workshops used to be held biennially. The last one was held in 2006. The workshops provide an opportunity for sharing lessons learned and discussing issues associated with project development. Mitvalsky said more information will be provided at the May 25, 2016 UMRR Coordinating Committee meeting.

Other Business

Future Meetings

The upcoming quarterly meetings are as follows:

- **May 2016 — St. Louis**
  - UMRBA quarterly meeting — May 24
  - **UMRR Coordinating Committee quarterly meeting — May 25**
- **August 2016 — La Crosse**
  - UMRBA quarterly meeting —August 9
  - **UMRR Coordinating Committee quarterly meeting — August 10**
- **November 2016 — Twin Cities**
  - UMRBA quarterly meeting — November 15
  - **UMRR Coordinating Committee quarterly meeting — November 16**

With no further business, the meeting adjourned at 2:55 p.m.

UMRR Coordinating Committee Attendance List
February 24, 2016

UMRR Coordinating Committee Members

Don Balch	U.S. Army Corps of Engineers, MVD
Tim Yager	U.S. Fish and Wildlife Service, UMR Refuges [On behalf of Sabrina Chandler]
Jennie Sauer	U.S. Geological Survey, UMESC [On behalf of Mark Gaikowski]
Dan Stephenson	Illinois Department of Natural Resources
Randy Shultz	Iowa Department of Natural Resources
Kevin Stauffer	Minnesota Department of Natural Resources
Janet Sternburg	Missouri Department of Conservation
Jim Fischer	Wisconsin Department of Natural Resources
Marty Adkins	Natural Resources Conservation Service
Ken Westlake	U.S. Environmental Protection Agency, Region 5

Others In Attendance

Thatch Shepard	U.S. Army Corps of Engineers, MVD
Terry Birkenstock	U.S. Army Corps of Engineers, MVP
Kevin Bluhm	U.S. Army Corps of Engineers, MVP
Ken Barr	U.S. Army Corps of Engineers, MVR
Michael Dougherty	U.S. Army Corps of Engineers, MVR
Marvin Hubbell	U.S. Army Corps of Engineers, MVR
Karen Hagerty	U.S. Army Corps of Engineers, MVR
Angie Freyermuth	U.S. Army Corps of Engineers, MVR
Nicole Manasco	U.S. Army Corps of Engineers, MVR
Kara Mitvalsky	U.S. Army Corps of Engineers, MVR
Darron Niles	U.S. Army Corps of Engineers, MVR
Heather Schroeder	U.S. Army Corps of Engineers, MVR
Karla Sparks	U.S. Army Corps of Engineers, MVR
Chuck Theiling	U.S. Army Corps of Engineers, MVR
Brian Johnson	U.S. Army Corps of Engineers, MVS
Brian Markert	U.S. Army Corps of Engineers, MVS
Tim Eagan	U.S. Army Corps of Engineers, MVS
Kat McCain	U.S. Army Corps of Engineers, MVS
Bob Clevenstine	U.S. Fish and Wildlife Service, UMR Refuges
Cathy Henry	U.S. Fish and Wildlife Service, UMR Refuges
Kraig McPeek	U.S. Fish and Wildlife Service, RIFO
Aleshia Kenney	U.S. Fish and Wildlife Service, RIFO
Sara Schmuecker	U.S. Fish and Wildlife Service, RIFO
Jeff Houser	U.S. Geological Survey, UMESC
Brian Ickes	U.S. Geological Survey, UMESC
Dave Bierman	Iowa Department of Natural Resources
Andy Fowler	Iowa Department of Natural Resources
Mike Griffin	Iowa Department of Natural Resources
Scott Gritters	Iowa Department of Natural Resources
Kirk Hansen	Iowa Department of Natural Resources
Adam Thiese	Iowa Department of Natural Resources
Robert Stout	Missouri Department of Natural Resources
Lorisa Smith	Missouri Department of Natural Resources
Shawn Giblin	Wisconsin Department of Natural Resources [On the phone]
Olivia Dorothy	American Rivers

Tom Boland	AMEC Foster Wheeler
Ann Guissinger	Gulf South Research Corporation
Colin Wellenkamp	Mississippi River Cities and Towns Initiative
Brad Walker	Missouri Coalition for the Environment
Kim Schneider	Schneider Communications
Don Powell	SEH Inc.
Gretchen Benjamin	The Nature Conservancy
Doug Blodgett	The Nature Conservancy
Dru Buntin	Upper Mississippi River Basin Association
Dave Hokanson	Upper Mississippi River Basin Association
Kirsten Mickelsen	Upper Mississippi River Basin Association

ATTACHMENT B

UMRR Regional Management

- **UMRR 30 Years of Service Commemoration: Save the Date August 8, 2016 Email (5/9/2016)** *(B-1)*

From: Margie Daniels <mdaniels@umrba.org>
Sent: Monday, May 09, 2016 12:43 PM
Subject: Save the date: UMRR 30 years of service commemoration

Upper Mississippi River Restoration
Leading · Innovating · Partnering

SAVE THE DATE

AFTERNOON OF AUGUST 8, 2016

RIVERSIDE PARK · LA CROSSE, WISCONSIN

After 30 Years of Success….
Hear the story of how history shaped UMRR & how UMRR is shaping the story of the Upper Mississippi!

Contact: Marv Hubbell, UMRR Program Manager, at 309-794-5248, marvin.e.hubbell@usace.army.mil

ATTACHMENT C

External Communications

- **UMRR Brand Guidelines (3/2016)** *(C-1 to C-4)*
- **AWI's Mississippi River Watershed Report Card (10/2015)**
  (C-5 to C-12)

Upper Mississippi River Restoration

Brand Guidelines

MARCH 2016

Logo Files

Your logo has been designed to work for various sizes and applications, on both light and dark backgrounds. It should always appear in its entirety as shown below. Do not crop or angle it.

You may choose to use the logo with its tagline. These files are organized in a separate folder: "Logo with Tagline" and include the word "tag" in the filename.

Choosing the Correct Format

It's important to choose the proper file format for each application. Logos are organized in folders to help you choose the correct file. When in doubt, consult with your service provider to determine which file format will produce the best results. When a "vector" file is requested, choose the .ai, .eps, or .pdf format. The UMRR logo contains four colors when printing on a light background, or five if white is required (as in embroidery applications on dark backgrounds). For this reason, printing in Pantone inks is not practical. All color applications should use CMYK process inks.

PROFESSIONAL PRINTING: FULL COLOR, 4-COLOR PROCESS, CMYK
Print > CMYK Vector > .ai – .eps – .pdf

PROFESSIONAL PRINTING: GRAYSCALE, BLACK INK ONLY
Print > Black White Vector > .ai – .eps – .pdf

DESKTOP PRINTING: FULL COLOR
Print > CMYK Vector > .ai – .eps – .pdf

DESKTOP PRINTING: MICROSOFT WORD
Print > MS Word > .wmf

SCREEN APPLICATIONS: WEB, EMAIL, POWERPOINT, TELEVISION
White Background
Screen-RGB Raster > .jpg
Transparent Background
Screen-RGB Raster > .png

EMBROIDERY & SCREEN PRINTING
Print > CMYK Vector > .ai – .eps – .pdf
(Each CMYK color is specified as a spot color for these applications.)

SIGNAGE, VEHICLE GRAPHICS & BILLBOARDS
Print > CMYK Vector > .ai – .eps – .pdf

Logo Application

The UMRR logo is not symmetrical. Centered applications be avoided for this reason. Alignment should be guided by the lettering as shown below.

Type is left-aligned with the word "Upper" in this example.

Ic tempera tasped magnihil expliquis sinim intio. Et quossit volupit laboribus dolentist, volupit est, corepel endam, sim quiandest. Nem harchillesto magnam eum qui aut ut qui corem inctur maiore, que doluptatem quidelest eum acesti.

Voluptatiora volorerum as ratur? Torepra tiosam eum ipsapiendita quate nonserum et enimoles solorpore in plique nos mi, ium eatus repelen isquatent. Quis sent ut id magnimusdae nihi.

Typography

No special fonts are required to use the UMRR logo, because the lettering has been "outlined." The logo features a single typeface, Whitney Condensed Bold (Semibold for the tagline). This is part of a large font (family of typefaces) that includes Regular and Condensed widths and various weights. If you wish to match the type, the font must be licensed for each workstation and may be purchased from **typography.com/fonts/whitney/**

Whitney Condensed Bold

ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz
1234567890

When only standard Windows fonts are available for use in UMRR-branded documents, use Georgia in its various styles as a complement to the logo. (Do not try to match the logo using Arial, Helvetica, or similar sans serif fonts.)

Georgia

ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz
1234567890

Color

The UMRR logo uses four colors: navy blue, turquoise, green, yellow (and white, in some applications). Different color specs will be required for different printing methods or screen display.

PROFESSIONAL & DESKTOP PRINTING: GRAYSCALE or BLACK & WHITE

When output is limited to black ink only, choose the black or white files for best quality.

PROFESSIONAL PRINTING: SPOT INKS

When professional printers want to perfectly match a color, they use Pantone inks. Because of the number of colors in the UMRR logo, this printing method is impractical and should not be used. Pantone color specs are provided for matching other elements to the color logo (e.g., fabrics or vinyl graphics material)

PROFESSIONAL PRINTING: FULL COLOR, 4-COLOR PROCESS, CMYK

CMYK stands for cyan, magenta, yellow, black: the four inks used in full-color printing. This is also the color model used by most desktop printers and copiers.

SCREEN APPLICATIONS: RGB & HEX COLOR

Screens use light to transmit color. Because each user has a different monitor, perfect color consistency in screen applications is completely impossible. However, results can be controlled to a certain extent by using RGB (red, green, blue) color values as well as hexadecimal colors, a model used in web design.

	PRINT		SCREEN	
	PANTONE	CMYK	RGB	HEX
	648	100/64/5/53	0/50/99	#003263
	361	75/20/100/0	80/155/72	#509B48
	7460	100/10/15/0	2/158/198	#029ec6
	116	0/30/100/0	253/184/18	#fdb812

Uniting people, land and water across 31 states

America's WATERSHED Initiative

Mississippi River Watershed Report Card

D+

ECOSYSTEMS *Recreation*
WATER SUPPLY
Economy Transportation
Flood control & risk reduction

The Mississippi River Watershed IS America's Watershed

The fourth largest watershed in the world, the Mississippi River Watershed carries the waters from the Rocky Mountains in the west, the north woods of Minnesota and the Appalachian mountains in the east, down to the delta wetlands in Louisiana and the Gulf of Mexico. Thousands of miles of rivers and streams, thousands of communities and millions of people make this watershed America's Watershed. America's history, America's environment, America's prosperity and America's future depend on the waters that flow though our heartland rivers.

We are America's Watershed Initiative

America's Watershed Initiative is a collaboration working with hundreds of business, government, academic, and civic organizations to find solutions for the challenges of managing the Mississippi River and the more than 250 rivers that flow into it. Only by working together—coordinated, focused and for the long term—will we make meaningful progress to raise the grades for America's Watershed, for our future, and for our children's future.

America's Watershed provides benefits for people and nature

America's Watershed is vast. It encompasses all or part of 31 U.S. States and two Canadian provinces. The rivers in America's Watershed provide drinking water for millions of people. Water flowing in these rivers is used to produce more than half of America's goods and services, including agricultural products worth more than $50 billion annually, and much of America's energy production, including nearly 25% of our nation's hydropower. The transportation network in America's Watershed moves millions of tons of goods safely, reliably, and efficiently, generating billions in economic benefit. And the system's rivers and wetlands provide unique wildlife, habitat and recreational opportunities.

Progress in the America's Watershed Initiative goals

The Report Card measured six broad goals for America's Watershed – Ecosystems, Flood Control & Risk Reduction, Transportation, Water Supply, Economy, and Recreation. The Report Card indicates how well we are currently meeting each one of these goals, using real data and relevant information that was identified by experts in these fields. Over time, as we adapt our management strategies for the Mississippi River Watershed, the Report Card can track our progress in achieving our objectives.

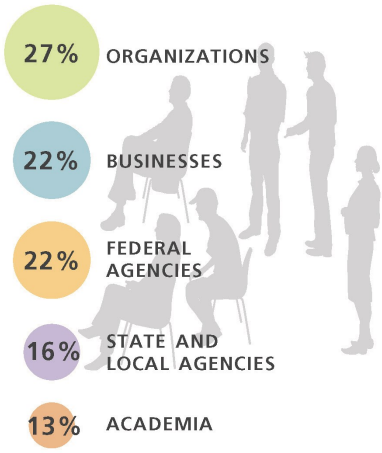
Working together for the watershed

America's Watershed Initiative has worked with leaders, stakeholders, and experts from more than 400 businesses, organizations, agencies, and academic institutions to develop the Report Card.

The goal for the Report Card is simple—provide decision-makers, watershed leaders, and the public with easy-to-understand information about the state of the watershed's health to aid them in developing a collaborative approach to managing America's Watershed.

From the start, the groups working together to support America's Watershed Initiative had three key goals for the Report Card project:

- Bring together key leaders, stakeholders, and experts representing all of the basins and sectors to develop a single and shared document to measure the current status of six broad goals for the watershed;
- Build a Report Card supported by data that will help us to identify successes, opportunities for improvement, and areas needing additional research;
- Use this tool to identify opportunities for collaboration and to build a shared vision for the watershed.



Sectors and organizations participated in Report Card basin workshops.

The Report Card team traveled to every basin and to Washington, D.C. for more than a dozen major workshops, meetings, and summits paired with webinars to bring together diverse experts with broad perspectives to develop the Report Card. While each workshop and meeting was different, the importance of the rivers and waters to every sector and in each basin was clear. Significant feedback was received after sharing the Preliminary Report Card Fall 2014 and from additional expert review teams formed to improve the preliminary results. This final Report Card is built upon this feedback and engagement.

In addition to the grades for the six goals and information about each of the basins, the project also includes additional reports, analysis, and background information about data sources and methodology shared on America's Watershed Initiative website in technical papers and other documents. (AmericasWatershed.org/ReportCard)

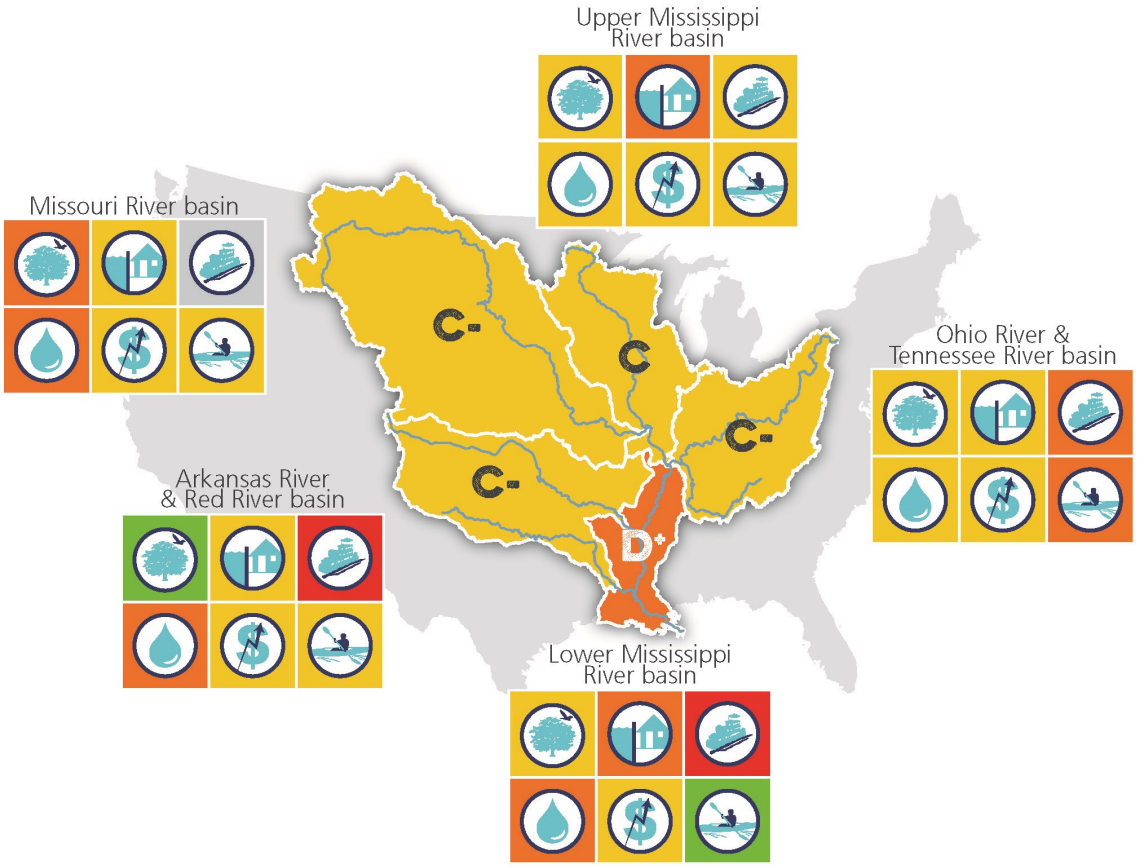
Workshop participants identify resources and threats in the Mississippi River Watershed as they relate to the six goals. Image courtesy of A. Freyermuth.

The Report Card is not a goal unto itself—it's a tool to bring together leaders from around the Mississippi River Watershed to develop a shared vision for the future and create awareness about the opportunities and challenges that face our states and nation. This shared vision will be used to identify and form partnerships to advance solutions to these critical water management challenges. Knowing what's important and how to measure it is the foundation to improve the watershed.

For more information on America's Watershed Initiative Report Card and the Report Card development process, visit ***AmericasWatershed.org/ReportCard***

The Report Card was built in the five basins

The Report Card team worked with experts in a multi-year process to analyze data and provide grades for the six goals in each of the main basins that make up the Mississippi River Watershed—the Upper Mississippi River Basin, the Lower Mississippi River Basin, the Ohio River & Tennessee River Basin, the Arkansas River & Red River Basin, and the Missouri River Basin. Data was analyzed and grades assigned for each basin and for the entire watershed. Not surprisingly, grades for several goals showed consistency throughout the watershed, and some showed significant variety reflecting the diversity of the watershed.



The Report Card reveals challenges ahead

The Mississippi River Watershed Report Card conveys many inherent challenges in managing the watershed for the six broad goals of America's Watershed Initiative. Pressures on these goals will likely increase in coming decades, as demands for water increase, infrastructure ages, and our climate changes.

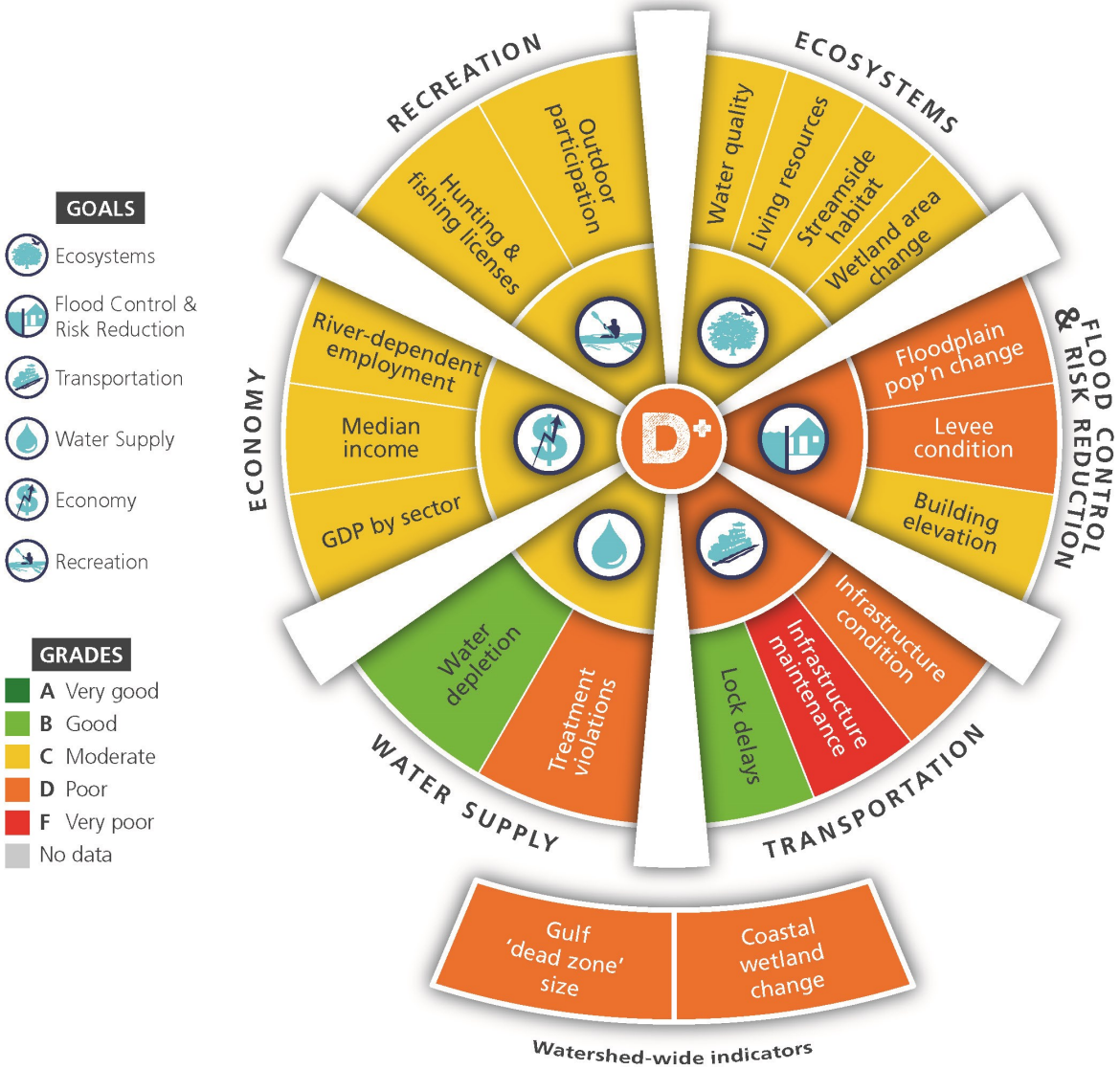
The region faces interconnected challenges

Regional changes from economic growth, land development, and changes in weather will add pressure to already stressed infrastructure and natural resources. Clean water for habitat, water supplies, and recreation impacted by pollution will continue to be under pressure due to increased demands on the watershed from population growth, agriculture, transportation, and land development. Groundwater supplies already in decline by overuse will be further affected by increases in irrigation and more severe droughts. Locks and dams already in weakened condition from maintenance funding shortfalls will be stressed further by more intense weather events, suggesting that failures could be more frequent and costly.

Connected goals require coordinated management

The six goals identified by America's Watershed Initiative are as highly interconnected as the challenges facing the watershed. Decisions affecting one goal will impact the others, but we don't need to advance one goal at the expense of others. Management of the Mississippi River Watershed to meet its challenges requires a mindset of opportunity—a coordinated approach that integrates multiple stakeholder needs, instead of an approach that advocates for single objectives independently.

Mississippi Watershed Results



The Mississippi River Watershed can and must do better

The Mississippi River is the backbone of America. Our economy and the future of our country depend on sustaining a healthy, functioning watershed. Overall the Mississippi River Watershed earned a D+; a poor result. The grades reveal a number of challenges—the Transportation and Flood Control & Risk Reduction goal areas, and the watershed-wide indicators for Coastal Wetlands Loss and the Hypoxic "Dead Zone" in the Gulf of Mexico all received D scores.

The Report Card results demonstrate that we are underinvesting to meet the six goals for the Mississippi River Watershed. Our current trajectory is unsustainable and we must work together to dramatically raise the grade for most of the goals. Realistic, timely and innovative funding and collaborative actions must be pursued and implemented.

The Mississippi River Watershed has diminished as a healthy and sustaining water resource over the last several decades. To raise the grade, we need integrated management to reflect the relationships between the different goals and basins, and increased participation by partners and stakeholders working together on specific actions to improve the watershed.

The Mississippi River Watershed is a world-class asset to our nation, and we need to significantly improve information and management systems to make more informed and efficient decisions to improve its condition.

Goals and indicators used in Americ

America's Watershed Initiative (AWI) worked with a variety of river users and stakeholders to identify six broad goals for the Mississippi River Watershed.

GOALS	INDICATORS	
GOAL: Ecosystems *Support and enhance healthy and productive ecosystems* C The Report Card measured ecosystem condition in rivers and streams, and the effectiveness of wetland restoration and protection. Analysis shows more variability than any other goal—some areas show positive changes while others have significant challenges. The industrialized eastern portion of the watershed and the Lower Mississippi River show the greatest adverse impacts to living resources. Poor water quality is a result of high nutrient concentrations in agricultural and industrial parts of the watershed, and this is a contributing factor to the low oxygen, "dead zone" zone in the Gulf of Mexico.	*Water quality* Nutrient (nitrogen and phosphorus) levels in rivers and streams in the watershed. *Streamside habitat* Condition of stream and river habitat in the ecosystem.	*Living resources* Condition of aquatic animal communities living in the ecosystem. *Wetland area change* Percent change in wetland area in each basin.
GOAL: Flood control and risk reduction *Provide reliable flood control and risk reduction* D+ The Report Card measured trends in the number of people at risk, the condition of flood protection infrastructure, and community preparedness. The results are poor, especially because people continue to move into the floodplain. Risks from severe river floods are highest in the eastern portion of the watershed and along the Lower Mississippi River, although intensive investment in flood control infrastructure avoided huge losses from the record flood in 2011.	*Floodplain population change* Change in number of people living in areas most at risk for flooding compared to the change in number of people living in a basin. *Building elevation* Community adoption of requirements to elevate structures above mapped flood levels.	*Levee condition* Status of levees inspected by the U.S. Army Corps of Engineers.
GOAL: Transportation *Serve as the nation's most valuable river transportation corridor* D- The Report Card evaluated transportation system performance, the condition of locks and dams, and the funding for maintenance for the inland navigation system. Locks and dams are in poor condition across the Mississippi River basin, and a lack of funding for infrastructure maintenance means that multiple failures may be imminent. River transportation currently functions with some delays, but as these systems continue to deteriorate, catastrophic failures resulting in severe economic, public safety, and water security problems can be expected to occur.	*Infrastructure condition* Condition of critical infrastructure at locks and dams. *Lock delays* Amount of time in 2013 that locks in a basin were unavailable compared to the best-performing year between 2000 and 2012.	*Infrastructure maintenance* Adequacy of maintenance funding for navigation infrastructure on a pass/fail basis.


JAY HARROD


U.S. ARMY CORPS OF ENGINEERS


ROBERT J. HURT


BYRON JORJORIAN

a's Watershed Initiative Report Card

The goals are the key foundation for the Report Card. Indicators were identified for each goal using feedback from stakeholders at the basin workshops.

GOALS	INDICATORS	
GOAL: Water supply *Maintain supply of abundant, clean water* The Report Card assessed the safety of municipal water supplies and available quantity and quality of surface water across the watershed. As expected, scores show that less water is available in the west, which receives significantly less rainfall than the eastern portion of the watershed. Even where water is abundant, however, municipal water supply systems are not performing well. A disappointing finding is that key information is lacking on the status of groundwater resources and the suitability of surface waters for designated uses.	*Treatment violations* Percent of the population served by community water systems that did not report any violations in 2013.	*Water depletion* Water use compared to the total amount of water naturally available from precipitation and stream flow (minus losses from natural evaporation).
GOAL: Economy *Support local, state, and national economies* The Report Card graded watershed basins against the rest of the nation using statistics on per capita income, employment, and productivity in river-related sectors of the economy. Results reflect general economic conditions nationwide and differ only slightly between basins. Additional data is required to better analyze the economy directly tied to watershed and river management. The Mississippi River basin exports water in various ways (through crops and products) that tend to support economic development elsewhere to a greater extent than within the basin. As water stress increases, greater pressures will be placed on this resource, with potentially harmful economic effects.	*GDP by sector* Gross domestic product (GDP) for river-dependent industries in each state for 2013 compared to the national average. *River-dependent employment* Number of people employed in river-dependent sectors in each state in 2013 compared to the national average.	*Median income* 2013 per capita income by state compared to the national average.
GOAL: Recreation *Provide world-class recreational opportunities* The Report Card graded the number of people participating in various outdoor recreational activities. The rivers and streams of the Mississippi River basin provide many opportunities for recreation, with positive economic impacts. However, participation in most areas is at or below the recent past. Much more needs to be done to support current and emerging recreational opportunities through effective management of natural resources. Additional information is also needed to evaluate some recreational uses.	*Hunting and fishing licenses* Recent sales of licenses, tags, stamps, and permits for hunting and fishing compared to the 10-year historical range.	*Outdoor participation* Recent hunting, fishing, and birding activity and national park visitation compared to the 20-year historical range.
Watershed-wide indicators The Report Card also included indicators that are relevant to review at the scale of the whole watershed, including wetland area change in the Mississippi River delta and the annual area of low oxygen water (a.k.a,. the hypoxic zone or "dead zone") that forms in the northern Gulf of Mexico south of the River's mouth.	*Coastal wetlands change* Coastal wetlands have been lost every year since measures began in 1932. The rate of wetland loss is declining, but with land subsidence and sea level rise accelerating, much more effort will be needed to reverse wetland loss.	*Gulf "dead zone" size* For the last five years, the size of the hypoxic zone has not decreased towards the Hypoxia Task Force target. Reducing the size of the hypoxic zone will require reduction of nutrients from multiple sources throughout the watershed.

For more information about the Goals, Indicators and Scoring, go to AmericasWatershed.org/ReportCard.

We must work together to scale up solutions for improving water quality and quantity, safety, and the health of America's Watershed so that we advance in the 21st century

- Advocate for $1 billion annually in new public and private investment to ensure that America's Watershed continues to drive our national economy, and protect the livelihoods and environments of future generations.
- Encourage greater collaboration and improved information to better manage an increasingly complex system for multiple benefits. We support a more transparent, integrated approach for decision-making, where stakeholders are engaged at a watershed scale in setting goals based on best available information.
- Recognize and support local leaders who develop and implement solutions and invite their continuing participation as partners. The longer we wait to invest in raising the grade, the more it will cost us and future generations.

America's Watershed Initiative is committed to Raise the Grade in America's Watershed

Spread the word

We are communicating the results of the Report Card widely with business, political, and media leaders in all basins throughout the watershed. The Report Card is a tool to communicate the status of six broad goals for our nation's most important watershed. The results reveal that our current trajectory is unsustainable. We will use the Report Card to continue our efforts to build a shared voice to improve the future of the Mississippi River Watershed. We will release additional reports based on the data in the Report Card, and we will seek partners to continue the analysis in the Report Card in greater detail in the basins and for specific goals.

Help spread the word!

Grow the collaboration

We will recruit additional partners to strengthen the collaboration to raise the grades for the Mississippi River Watershed. We will seek leaders from all the basins and goal areas to ensure that the collaboration is strong and diverse. We want to grow America's Watershed Initiative to include voices committed to finding collaborative solutions to watershed challenges.

Join us!

Focus on action

We will develop and work to advance a coordinated and shared action agenda to raise the grade in the Mississippi River Watershed. We will work together to achieve a collective impact from strategic investments in the watershed, and we'll work together to improve decision-making and leverage the great efforts undertaken by many groups in the watershed.

Together we will raise the grade!

Attendees at the America's Watershed Initiative Summit in Louisville, Kentucky, in 2014. Image courtesy of J. Harrod.

Developing a comprehensive watershed Report Card is an important component of America's Watershed Initiative. It will help the public and policy-makers get information about the status and trends in achieving objectives for six broad management goals. Results from the Report Card will help develop a roadmap for collaborative actions to improve the 31-state Mississippi River Watershed and encourage people and organizations to engage in issues affecting the watershed.

America's Watershed Initiative — Uniting people, land and water across 31 states

Support

The Report Card for the Mississippi River Watershed has been developed with the foundational financial support for America's Watershed Initiative from the Caterpillar Foundation, The McKnight Foundation, Ingram Barge Company, and The Nature Conservancy. We also want to thank the many other financial supporters of the AWI 2014 Summit where the PRELIMINARY report card was released for feedback.

AWI Steering Committee

Dru Buntin, Upper Mississippi River Basin Association
Nancy DeLong, DuPont Pioneer
Sean Duffy Sr., Big River Coalition
Stephen Gambrell, U.S. Army Corps of Engineers
Teri Goodmann, City of Dubuque, Iowa
Sue Lowry, State of Wyoming, Upper Missouri Basin
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The Nature Conservancy — Innovation for a better future

University of Maryland Center for Environmental Science

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Ecosystems: Byron Jorjorian; Flood Control & Risk Reduction: U.S. Army Corps of Engineers; Transportation: The Nature Conservancy; Water Supply: USDA NRCS; Economy: U.S. Army Corps of Engineers; Recreation: Karine Aigner.

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ATTACHMENT D

Long Term Resource Monitoring and Science

- **FY 14 UMRR Science Activities in Support of Restoration and Management (5/9/2016)** *(D-1 to D-3)*
- **FY 15 UMRR Science Activities in Support of Restoration and Management (5/9/2016)** *(D-4 to D-5)*
- **Base Monitoring Scope of Work thru 2nd Quarter of FY 16 (5/9/2016)** *(D-6 to D-9)*
- **FY 16 UMRR Science Activities in Support of Restoration and Management (5/9/2016)** *(D-10 to D-13)*

UMRR Science in Support of Restoration and Management
FY2014 Scope of Work
May 2016 Status

Tracking number	Milestone	Original Target Date	Modified Target Date	Date Completed	Comments	Lead
Seamless Elevation Data						
2014LB1	LiDAR Tier 1, processing and meta data, data on line: Pools 15-19, Pool 25 – Open River, Kaskaskia, IL River all pools	30-Mar-15		18-Dec-14		Dieck, Rohweder, Nelson, Fox
2014LB2	LiDAR Tier 3, processing and meta data, data on line: Pools 4, 5, 7, 8, 9, 10, 13, and 21	30-Mar-15		7-Apr-15		Dieck, Rohweder, Nelson, Fox
Land Cover / Land Use data and Accuracy Assessment/Validation for UMRS						
2014V2	Complete remaining 70% of the 2010/11 LCU database for UMR Open River North	30-Sep-14	30-Jan-15	21-Jan-15		Robinson, Hoy, Hanson, Langrehr, Ruhser, Nelson
2014V4	Final LTRMP Completion Report on Accuracy Assessment	30-Sep-14		17-Nov-14	In USGS SPN for Publication	Ruhser, Jakusz
Standardized HREP Non-forested Wetland Plant Sampling Protocol						
2014NFW1	draft NFW monitoring protocol	28-Feb-14		28-Feb-14		McCain
2014NFW2	Final draft NFW monitoring protocol	30-Mar-14		31-Mar-14		McCain
2014NFW3	A-Team review	1-Apr-14		7-Apr-14		McCain
2014NFW4	completed NFW monitoring protocol available	30-Sep-14		completed		McCain
Standardized HREP Forested Wetland Plant Sampling Protocol						
2014FW1	draft FW monitoring protocol	30-Nov-13		30-Nov-13		McCain
2014FW2	Final draft FW monitoring protocol	30-Mar-14		31-Mar-14		McCain
2014FW3	A-Team review	1-Apr-14		7-Apr-14		McCain
2014FW4	completed FW monitoring protocol available	30-Sep-14		completed		McCain
Predictive Model for Aquatic Cover Types						
2014AQ1	Complete hydraulic model of existing conditions	30-Apr-14	11-Jul-14	11-Jul-14		Hendrickson
2014AQ2	Compile vegetation data and develop empirical equations, Stoddard as pilot	31-Aug-14		31-Aug-14		Yin, Rogala, Ingvalson, Potter
2014AQ3	Apply equations to Pool 3 for pre-existing conditions, North & Sturgeon	30-Sep-14	28-Nov-14	completed		Yin, Rogala, Ingvalson, Potter
2014AQ4	Final model and outputs	31-Dec-14		completed		Yin, Rogala, Ingvalson, Potter
UMRS Vegetation Handbook						
2014VH1	Acquire new field images for handbook	30-Sep-14		30-Sep-14		Dieck, Langrehr, Hoy, Robinson, Ruhser
2014VH2	Draft updates to technical sections and vegetation descriptions	31-Dec-14		31-Dec-14		Dieck, Langrehr, Hoy, Robinson, Ruhser
2014VH3	Finalize handbook and submit for USGS review	31-Mar-15		31-Mar-15	In USGS SPN for Publication	Dieck, Langrehr, Hoy, Robinson, Ruhser
Phase 2 Geospatial Data Upgrades						
2014GDU1	Complete geodatabases by pool for the entire UMRS	30-Sep-14	30-Apr-15	4-May-15		Nelson, Robinson
20144GDU2	Complete KMZ files for river miles, levees, boat access points, wing dams, aquatic areas, and remaining land cover data	30-Sep-14	31-Jul-15	30-Sep-15		Nelson, Robinson

Tracking number	Milestone	Original Target Date	Modified Target Date	Date Completed	Comments	Lead
Spatial Data Query Tool						
2014SDQ1	Compile all LTRMP sampling data collected through 2013 and convert to a useable format	1-Aug-14		1-Aug-14		Rohweder, Fox
2014SDQ2	Create a web-based platform that contains all spatial data; convert all queries to ArcGIS	31-Dec-14	30-Aug-15	30-Sep-15		Rohweder, Fox
2014SDQ3	SDQT beta tested and ready for USGS review	31-Mar-15	30-Nov-15	21-Dec-15	New ArcGIS server was needed, original server was taken offline because of compliance issue	Rohweder, Fox
UMRS Data Map						
2014DM1	Include all UMRR-EMP data created at UMESC in the data map	30-Sep-14	30-Nov-14	31-Dec-14	UMESC will update as new datasets come online in the future	Nelson, Ruhser
2014DM2	Include all UMRR-EMP publications from http://umesc.usgs.gov/reports_publications/ltrmp_rep_list.html in the data map	31-Dec-14	9/31/2015	31 Sep 15	The tool still needs UMRR branding, waiting to get logo or something official from Karen. Modifications and updates will continue. Tool will also be linked to the UMESC web page	Nelson, Ruhser
2014DM3	Include additional state and federal data references in the data map	31-Mar-15		30-Jun-15	Not all state and federal data sources have the same metadata available making it more difficult than initially expected. New OMB guidelines will correct this. UMESC will continually updated site as new metatadata are made available	Nelson, Ruhser
Assessing System-wide Hydrodynamic Model Availability						
2014SHM1	Kick off Email to workshop participants	30-Apr-14		21-Apr-14		Theiling
2014SHM2	Compile list of UMR-IWW hydrologic models	31-May-14		31-May-14		Theiling
2014SHM3	Complete read-aheads	15-Jun-14	14-Jul-14	14-Jul-14		Theiling
2014SHM4	Conduct workshop/webinar	1-Jul-14	12-Aug-14	21-Aug-14	July dates did not work for attendees	Theiling
2014SHM5	Summarize webinar	31-Jul-14	31-Aug-14	30-Sep-14		Theiling
2014SHM6	Draft white paper	31-Aug-14	15-Aug-14	30-Sep-14		Theiling
2014SHM7	*draft* Final white paper	30-Sep-14	31-Dec-14	31-Dec-14	draft final submitted 31 Dec 14. Addit	Theiling
2014SHM8	final white paper	1-Apr-15		4-Apr-15		Theiling
Development of Mussel Vital Rates						
2014MVR1	Brief summary report	30-Sep-15		30-Sep-15	completed, in UMESC review	Newton, Zigler, Davis
2014MVR2	Brief summary report	30-Sep-16				Newton, Zigler, Davis
2014MVR3	Completion report on a vital rates of native mussels at West Newton Chute, UMRS	30-Sep-17				Newton, Zigler, Davis

UMRR Science in Support of Restoration and Management
FY2014 Scope of Work
May 2016 Status

Tracking number	Milestone	Original Target Date	Modified Target Date	Date Completed	Comments	Lead
Validation of Mussel Community Asessment Tool						
2014MCA1	Workshop of mussel experts in UMRS	1-May-15		19-Feb-15		Newton, Zigler, Dunn, Duyvejonck
2014MCA2	Draft completion report on a validated mussel community assessment tool for use by river managers	1-Dec-15	1-Mar-16	27-Apr-16	state biologists are still ranking beds as part of validation	Newton, Zigler, Dunn, Duyvejonck
2014MCA3	Final completion report on a validated mussel community assessment tool for use by river managers	1-Mar-16	1-Jun-16			Newton, Zigler, Dunn, Duyvejonck
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	13-Mar-17		Working With UWL staff. Analysis will have to be conducted after academic year.	Giblin, Campbell, Houser, Manier
2014NC3	Full manuscript completed	13-Mar-18				Giblin, Campbell, Houser, Manier
Ecological Shifts Turbid to Clear States						
2014ES1	Literature review and initial analyses competed	13-Mar-15		15-Nov-14		Giblin, Ickes, Langrehr, Bartels
2014ES2	Refined analyses and draft manuscrpt prepared	13-Mar-16		4-Jan-16	reconciling journal review comments	Giblin, Ickes, Langrehr, Bartels
2014ES3	Manuscipt submitted for publication	13-Mar-17				Giblin, Ickes, Langrehr, Bartels
Invasive Carp Population Demographics (#1)						
2014CPD1	Summary letter	31-Jan-15		16-Jan-15		Phelps, Mccain
2014CPD2	Manuscript	31-Mar-16		1-Jul-15	Management of Biological Invasions (2015) Volume 6; http://www.reabic.net/journals/mbi/2015/Accepted.aspx	Phelps, Mccain
Asian Carps Recruitment Sources (#2)						
2014CRS1	Summary letter	31-Jan-15		16-Jan-15		Phelps, Mccain
2014CRS2	Manuscript	31-Mar-16	30-Aug-16			Phelps, Mccain
Effects of Asian Carps on Native Piscivore Diets (#3)						
2014NPD1	Summary letter	31-Jan-15		16-Jan-15		Phelps, Mccain
2014NPD2	Manuscript	31-Mar-16	30-Oct-16			Phelps, Mccain
Early Life History of Invasive Carps (#4)						
2014CLH1	Summary letter	31-Jan-15		16-Jan-15		Phelps, Mccain
2014CLH2	Manuscript	31-Mar-16		1-Jan-16	in press	Phelps, Mccain

UMRR Science in Support of Restoration and Management
FY2015 Scope of Work
May 2016 Status

Tracking number	Milestone	Original Target Date	Modified Target Date	Date Completed	Comments	Lead
Seamless Elevation Data						
2015LB1	Tier 2 LiDAR for Pools 14-19	31-Mar-15		15-Apr-15		Dieck, Hanson
2015LB2	Tier 2 LiDAR for Pool 25-OR & Kaskaskia	30-Jun-15		30-Jun-15	All pools but Pool 26 are complete.	Dieck, Hanson
2015LB2b	Tier 2 LiDAR for Pool 26	30-Jun-15	30-Nov-15	30-Nov-15	It has been discovered that Pool 26 lidar has serious problems. Still working to resolve. Separate line item created.	
2015LB3	Tier 2 LiDAR for the Illinois River	30-Sep-15	30-Nov-15	30-Nov-15	The lidar was not classed to ASPRS specifications, resulting in the need to reclassify a lot of the data	Dieck, Hanson
2015LB4	All remaining Bathymetry	30-Sep-15		1-Apr-15		Dieck, Hanson
2015LB5	Seamless Elevation for Pools 2, 5a, 6, 10-12, St Croix, and Pool 14	31-Dec-15	31-Jan-16	15-Apr-16	All pools completed and in FSP review except for Pool 2 and St. Croix; Pool 2 will be completed once we acquire and process the new lidar data sets for counties in Twin Cities; Target date to complete Pool 2 seamless data set is 12/31/16; no bathmetry data exists for St. Croix so seamless layer cannot be completed.	Dieck, Hanson
2015LB6	Seamless Elevation for Pools 15-19, 20, and 22-24	31-Mar-16		15-Apr-16	Separate line item needs to be created for Pool 19 due to bathymetry issue; Target date to complete Pool 19 is 12/31/2016; All remaining Pools completed and in FSP review.	Dieck, Hanson
2015LB7	Seamless Elevation for Pools 25-OR & Kaskaskia	30-Jun-16				Dieck, Hanson
2015LB8	Seamless Elevation for the Illinois River	30-Sep-16				Dieck, Hanson
Producing NED ready LiDAR products						
2015NED1	Perry County, MO	31-Jul-15		30-Sep-15		Nelson, Dieck
2015NED2	Remaining portions of the middle Mississippi (OR1 & 2)	31-Jul-15		30-Sep-15		Nelson, Dieck
2015NED3	Area of the Upper Mississippi (Pool 25-26)	30-Sep-15	6-Nov-15	22-Jan-16	Data are being hand delivered to the Rolla office 1-29-2016	Nelson, Dieck
2015NED4	Illinois River area	30-Sep-15	11-Dec-15	22-Jan-16	Data are being hand delivered to the Rolla office 1-29-2016	Nelson, Dieck
Pool 12 AM monitoring (crappie telemetry)						
2015AM1	Capture fish and affix radio tags to white crappies in study lakes	1-Nov-14		2-Apr-15		Bierman, Hansen, Bowler, Theiling
2015AM2	Location of tagged fish and update in-house project database	Ongoing through FY		30-Sep-15		Bierman, Hansen, Bowler, Theiling
2015AM3	Complete tracking portion of study	30-Sep-15		30-Sep-15		Bierman, Hansen, Bowler, Theiling
Fish Indicators of Ecosystem Health						
2015FI1	Preliminary set of species identified for the different assemblages by study reach submitted to A-Team as status update and for review	30-Aug-15	10-Feb-16	16-Feb-16	Post doc hiring delay resulted in project delayed	Anderson, Casper, McCain
2015FI2	Draft recommendation for the best attainable or target for each assemblage by study reach submitted to A-Team for Review	1-Oct-15	10-Feb-16	16-Feb-16	For presentation at 2016 UMRR Science Mtg in La Crosse briefing	Anderson, Casper, McCain
2015FI3	Initial draft Project Report submitted to A-Team for review	1-Dec-15	15-Mar-16	30-Mar-16	Incorporate feedback from 2016 UMRR Science Mtg presentation into La Crosse A-team briefing	Anderson, Casper, McCain
2015FI4	Final draft Project Report submitted to A-Team for review and endorsement at July meeting	1-Mar-16	1-Jun-16			Anderson, Casper, McCain
2015FI5	Final draft Project Report submitted to UMRR CC for endorsement at August meeting	15-Jul-16	15-Jul-16			Anderson, Casper, McCain
2015FI6	Final Report	1-Jun-16	30-Aug-16			Anderson, Casper, McCain

Tracking number	Milestone	Original Target Date	Modified Target Date	Date Completed	Comments	Lead
Plankton community dynamics in Lake Pepin						
2015LPP1	Phytoplankton processing; species composition, biovolume	30-Dec-15		22-Oct-15		Burdis
2015LPP2	draft manuscript: Plankton community dynamics in Lake Pepin	30-Sep-16				Burdis
Estimating trends in UMRR fish and vegetation levels using state-space models						
2015SST1	Draft completion report: Evaluation of trend estimation methods for LTRM fish and vegetation indices	30-Sep-15	15-Dec-15	29-Jan-16	Project delayed by computing challenges.	Gray
2015SST2	Final completion report: Evaluation of trend estimation methods for LTRM fish and vegetation indices	31-Dec-15	15-Mar-16	27-Mar-16		Gray
2015SST3	Provide trend estimates for fish and vegetation web browser pages	30-Sep-16				Gray, Schlifer
Generating and serving presumptive habitat maps for 28 UMRS fish species						
2015FI1	Assemble requisite data resources	28-Feb-15		15-Jan-15		Ickes
2015FI2	Generate “point” maps of predictions	30-Mar-15	15-May-15	15-May-15		Hlavacek
2015FI3	Generate “splines with barriers” interpolated maps	15-May-15	30-Jul-15	on schedule		Hlavacek
2015FI4	Post maps to the UMRR LTRM fish component homepage	15-Jun-15	15-Sep-15	15-Sep-15		Ickes
2015FI5	Issue/publish a brief communication on their availability and prospective usage	15-Sep-15	31-Oct-15	21-Dec-15		Ickes
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	30-Jun-16		Resolving model discrepancy took longer than anticipated. Needs extension of summary deadline	Yin, Rogala, Ingvalson
Landscape Pattern Research on the UMRS: synthesis and significance, FY16-18						
	Milestones will be coordinated through the UMRR annual scope of work process					De Jager
Developing and Applying Indicators of Ecosystem Resilience to the UMRS						
	Milestones will be coordinated through the UMRR annual scope of work process					work group, post doc

Tracking number	Milestone	Original Target Date	Modified Target Date	Date Completed	Comments	Lead
Aquatic Vegetation Component						
2016A1	Complete data entry and QA/QC of 2015 data; 1250 observations.					
	a. Data entry completed and submission of data to USGS	30-Nov-15		30-Nov-15		Moore, Drake, Vogeler
	b. Data loaded on level 2 browsers	15-Dec-15		15-Dec-15		Schlifer
	c. QA/QC scripts run and data corrections sent to Field Stations	28-Dec-15		28-Dec-15		Sauer, Schlifer
	d. Field Station QA/QC with corrections to USGS	15-Jan-16		15-Jan-16		Moore, Drake, Vogeler
	e. Corrections made and data moved to public Web Browser	30-Jan-16		21-Jan-16		Yin, Sauer, Schlifer, Caucutt
2016A2	Web-based: Creating surface distribution maps for aquatic plant species in Pools 4, 8, and 13; 2014 data	31-Jul-16				Yin, Rogala, Schlifer
2016A3	Wisconsin DNR annual summary report 2015 that combines current year observations from LTRM with previous years' data, for the fish, aquatic vegetation, and water quality components.	30-Sep-16				Drake, Bartels, Hoof, Kalas
2016A4	Complete aquatic vegetation sampling for Pools 4, 8, and 13 (Table 1)	31-Aug-16				Yin, Moore, Drake, Vogeler
2016A5	Graphical summary and maps of aquatic vegetation current status and long-term trends.	30 Oct. 2015		12-Oct-15		Moore
Intended for distribution						
LTRM Technical Report: Ecological Assessment of High Quality UMRS Floodplain Forests (2007APE12; Chick, Guyon, Battaglia) (in USGS review)						
LTRM Technical Report; Experimental and Comparative Approaches to Determine Factors Supporting or Limiting Submersed Aquatic Vegetation in the Illinois River and its Backwaters (2008APE5, Sass) (in USGS review)						
LTRM completion report: FY05-07 data--Analysis and support of aquatic vegetation sampling data in Pools 6, 9, 18, and 19 (2008APE4a; Yin) (in USGS review)						
Manuscript: Have the recent increases in aquatic vegetation in Pools 5 and 8 been the result of water level management drawdowns, HREPs, or natural fluctuations? (2009APE1a; Yin) (in USGS review)						
Manuscript: A statistical model of species occupancy using the LTRM aquatic vegetation data (2013A7; Yin) (in USGS review)						
Fisheries Component						
2016B1	Complete data entry, QA/QC of 2015 fish data; ~1,590 observations					
	a. Data entry completed and submission of data to USGS	31-Jan-16		31-Jan-16		DeLain, Bartels, Bowler, Ratcliff, Gittinger, West, Solomon, Pendleton
	b. Data loaded on level 2 browsers; QA/QC scripts run and data corrections sent to Field Stations	15-Feb-16		15-Feb-16		Ickes, Schlifer
	c. Field Station QA/QC with corrections to USGS	15-Mar-16		15-Mar-16		DeLain, Bartels, Bowler, Ratcliff, Gittinger, West, Solomon, Pendleton
	d. Corrections made and data moved to public Web Browser	30-Mar-16		30-Mar-16		Ickes, Sauer, and Schlifer
2016B2	Update Graphical Browser with 2015 data on Public Web Server.	31-May-16				Ickes, Sauer, DeLain, Bartels, Bowler, Ratcliff, Gittinger, West, Solomon, Pendleton, Schlifer
2016B3	Complete fisheries sampling for Pools 4, 8, 13, 26, the Open River Reach, and La Grange Pool (Table 1)	31-Oct-16				Ickes, DeLain, Bartels, Bowler, Ratcliff, Gittinger, West, Solomon, Pendleton
2016B4	Summary Letter: Floodplain fisheries sampling	31-Oct-16				West, Sobotka
2016B5	IDNR Fisheries Management State Report: Fisheries Monitoring in Pool 13, Upper Mississippi River, 2015	30-Jun-16		4-Mar-16		Bowler

Tracking number	Milestone	Original Target Date	Modified Target Date	Date Completed	Comments	Lead
2016B6	Sample collection, database increment, Summary letter on Asian carp age and growth: collection of cleithral bones	31-Jan-16		22-Apr-16		Solomon, Pendleton, Casper
2016B7	Sample collection, database increment, letter summary: Collection and archiving of age and growth structure for selected species in the La Grange Reach of the Illinois River	31-Jan-16		22-Apr-16		Solomon, Pendleton, Casper
2016B8(D)	Database increment: Stratified random day electrofishing samples collected in Pools 9–11	30-Sep-16				Bowler
2016B9(D)	Database increment: Stratified random day electrofishing samples collected in Pools 16–18	30-Sep-16				Bowler
2016B10	Summary Letter: Open River Chevron Dike monitoring	31-Oct-16				West, Sobotka
Intended for distribution						
Completion report: LTRM Fisheries Component collection of six darter species from 1989–2004. (2006B13; Ridings) (in USGS review)						
LTRM technical report; Setting quantitative fish management targets for LTRM monitoring (2008APE2; Sass) (in USGS review)						
LTRM Completion report, compilation of 3 years of sampling: Fisheries (2009R1Fish; Chick et al.) (in USGS review)						
Manuscript: Determining environmental history of three sturgeon species in the Upper, Middle, and Lower Mississippi Rivers. (2013B22; Phelps) (in review Journal of Fish Biology)						
Manuscript: Age-0 sturgeon habitat associations in the free flowing portion of the Upper Mississippi River (2012B5; Tripp, Phelps, Herzog) (in review Journal of Fish Biology)						
LTRM Fact Sheet: Tree map tool for visualizing fish data, with example of native versus non-native fish biomass (2013B16) (in USGS review)						
Water Quality Component						
2016D1	Complete calendar year 2015 fixed-site and SRS water quality sampling	31-Dec-15		31-Dec-15		Houser, Burdis, Kalas, Kueter, L. Gittinger, Kellerhals, Sobotka
2016D2	Complete laboratory sample analysis of 2015 fixed site and SRS data; Laboratory data loaded to Oracle data base.	15-Mar-16		15-Mar-16		Yuan, Schlifer
2016D3	1st Quarter of laboratory sample analysis (~12,600)	30-Dec-16		30-Dec-16		Yuan, Manier, Burdis, Kalas, Kueter, L. Gittinger, Cook, Sobotka
2016D4	2nd Quarter of laboratory sample analysis (~12,600)	30-Mar-16		30-Mar-16		Yuan, Manier, Burdis, Kalas, Kueter, L. Gittinger, Kellerhals, Sobotka
2016D5	3rd Quarter of laboratory sample analysis (~12,600)	29-Jun-16				Yuan, Manier, Burdis, Kalas, Kueter, L. Gittinger, Kellerhals, Sobotka
2016D6	4th Quarter of laboratory sample analysis (~12,600)	28-Sep-16				Yuan, Manier, Burdis, Kalas, Kueter, L. Gittinger, Kellerhals, Sobotka
2016D7	Complete QA/QC of calendar year 2015 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-16		15-Mar-16		Schlifer, Rogala, Houser
	b. Field Station QA/QC; USGS QA/QC.	15-Apr-16		30-Mar-16		Houser, Rogala, Burdis, Kalas, Kueter, L. Gittinger, Kellerhals, Sobotka
	c. Corrections made and data moved to public Web Browser	30-Apr-16		7-Apr-16		Rogala, Schlifer, Houser
2016D8	Complete FY2015 fixed site and SRS sampling for Pools 4, 8, 13, 26, Open River Reach, and La Grange Pool	30-Sep-16				Houser, Burdis, Kalas, Kueter, L. Gittinger, Kellerhals, Sobotka

Tracking number	Milestone	Original Target Date	Modified Target Date	Date Completed	Comments	Lead
2016D9	WEB-based annual Water Quality Component Update w/ 2015 data on Server.	30-May-16				Rogala
2016D10	Draft Completion report: Evaluation of water quality data from automated sampling platforms	30-Sep-16				Soeken-Gittinger,
2016D11	Operational Support to the UMRR LTRM Element. Serve as in-house Field Station for USGS for consultation and support on various LTRM-wide topics	30-Sep-16				Kalas, Hoff, Bartel, Drake
2015D11	Draft report/manuscript: Developing continuous water quality monitoring methods in the UMR	1-Sep-16				Chick, Houser
2015D12	Final report/manuscript: Developing continuous water quality monitoring methods in the UMR	1-Sep-17				Chick, Houser
Intended for distribution						
Completion report: Examining nitrogen and phosphorus ratios N:P in the unimpounded portion of the Upper Mississippi River (2006D9; Hrabik & Crites) (in USGS review)						
LTRM report: Main channel/side channel report for the Open River Reach. (2005D7; Hrabik) (in USGS review)						
Manuscript:Contrasts between channels and backwaters in a large, floodplain river: testing our understanding of nutrient cycling, phytoplankton abundance, and suspended solids dynamics (2012D10; Houser) (Accepted for publication; Freshwater Science)						
Completion report, compilation of 3 years of sampling: Water Quality (2009R1WQ; Giblin, Burdis) (in USGS review)						
Manuscript: Trends in suspended solids, nitrogen, and phosphorus in select upper Mississippi River tributaries, 1991-2011 (Kreiling and Houser, 2013D14) (in USGS review)						
Manuscript: Relationship between the temporal and spatial distribution, abundance, and composition of zooplankton taxa and hydrological and limnological variables in Lake Pepin (2013D17; Burdis)(ready for submission to Journal)						
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) (in USGS review)						
Land Cover/Land Use with GIS Support						
2016LC1	Maintenance ArcGIS server	30-Sep-16				Hlavacek, Fox, Rohweder
2016LC2	Aerial Photo scanning; year 1 key pools	30-Sep-16				Ruhser
2016LC3	Bathymetry footprint	30-Sep-16				Stone, Hanson
2016LC4	Updates on progress for land cover products listed.	New progress reported in the quarterly activities. Percent complete updated 30 Sept 2016.				Robinson
Data Management						
2016M1	Update vegetation, fisheries, and water quality component field data entry and correction applications.	30-May-16				Schlifer
2016M2	Load 2015 component sampling data into Oracle tables and make data available on Level 2 browsers for field stations to QA/QC.	30-Jun-16		30-Mar-16		Schlifer
2016M3	Update Graphical Water Quality SRS Data browser from java applet based to html5 JavaScript plugin free version.	1-Nov-15		1-Nov-15		Schlifer
2016M4	Update Graphical Fisheries Data browser from java applet based to html5 JavaScript plugin free version.	25-Jan-16	30-Jun-16			Schlifer
2016M5	Update Aquatic Vegetation Graphical SRS Data browser from java applet based to html5 JavaScript plugin free version.	1-Mar-16	30-Jul-16			Schlifer
2016M6	Rewrite Fisheries Data Download Query to increase efficiency and performance	1-Jun-16				Schlifer

Tracking number	Milestone	Original Target Date	Modified Target Date	Date Completed	Comments	Lead
Quarterly Activities						
2016QR1	Submittal of quarterly activities	30-Jan-16		30-Jan-16		All LTRM staff
2016QR2	Submittal of quarterly activities	13-Apr-16		13-Apr-16		All LTRM staff
2016QR3	Submittal of quarterly activities	13-Jul-16				All LTRM staff
2016QR4	Submittal of quarterly activities	12-Oct-16				All LTRM staff
Equipment Inventory						
2016ER1	Property inventory and tracking	15-Nov-16				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						
2016R1	Updates provided at each quarterly UMRR-CC meeting and A team meeting	Various				Bouska, Houser
2016R2	Initial meeting of full Resilience Working Group	1-Oct-15		5-Jan-16		Bouska, Houser
2016R3	Draft conceptual model	30-May-16				Bouska, Houser
Landscape Pattern Research and Application						
2016L1	Draft Manuscript: Changes in land cover and land use 2000-2010.	30-Sep-16				De Jager & Rohweder (UMESC)
2016L2	Draft Manuscript: Effects of flooding, invasion by reed canarygrass, and increased nitrogen deposition on decomposition and nitrogen cycling along the UMR Floodplain	30-Sep-16				Swanson, Strauss, Thomsen (UW-L) &
2016L3	Draft Manuscript: Review of Landscape Ecology on the UMR	30-Sep-16				De Jager (UMESC)
2016L4	Draft Manuscript: Reed canarygrass abundance and distribution in the UMR.	30-Sep-16				Miller & Thomson (UW-L), De Jager and Yin (UMESC)
2016L5	Draft Manuscript: Linking flood inundation, ecosystem functions, and ecosystem services: the state of the art.	30-Sep-16				De Jager (UMESC), Morlock (USGS), Johnson (TNC)
2016L6	Data Analysis and Presentation: Spatial patterns of the invasive faucet snail Bithynia tentaculata in Pool 8 of the UMR	30-Sep-16				Weeks & Haro (UW-L), De Jager (UMESC)
On-Going						
2015L6	Presentation: Developing methods to map floodplain functions and ecosystem services	30-Jul-16				Morlock (USGS), Van Appledorn, De Jager
2015L6a	Draft Manuscript: Developing methods to map floodplain functions and ecosystem services	30-Sep-16				Morlock (USGS), Van Appledorn, De Jager
Intended for distribution						
Manuscript: De Jager, N.R., Swanson, W., Strauss, E.A., Thomsen, M., Yin, Y. Flood pulse effects on nitrification in a floodplain forest impacted by herbivory, invasion, and restoration. Wetlands Ecology and Management. (2014L1). (Completed DOI 10.1007/s11273-015-9445-z)						
Manuscript: De Jager, N.R., Houser, J.N., Ickes, B.S. Patchiness in a large floodplain river: associations among hydrology, nutrients, and fish communities. River Research and Applications. (2014L3) (in USGS Review)						
Fact Sheet: De Jager, N.R. 2014. Landscape Ecology on the Upper Mississippi River: lessons learned, challenges, opportunities (2013L3). (Completed; https://pubs.er.usgs.gov/publication/fs20163007)						
Manuscript: De Jager, N.R., Rohweder, J., Yin, Y., Hoy, E. 2015. The Upper Mississippi River floodscape: spatial patterns of flood inundation and associated plant community distributions. Applied Vegetation Science (2015L2). (Completed doi: 10.1111/avsc.12189)						
Manuscript: Kreiling, R.M., De Jager, N.R., Swanson, W., Strauss, E.A., Thomsen, M. 2015. Effects of flooding on ion exchange rates in an Upper Mississippi River floodplain forest impacted by herbivory, invasion, and restoration. Wetlands (2015L3). (in USGS Review)						
Manuscript: Scown, M., Thoms, M. and De Jager, N. R. 'Measuring spatial pattern in floodplains: A step towards understanding the complexity of floodplain ecosystems'. In Press: *River Science: Research and Applications for the 21st Century* . D. J. Gilvear, M. Greenwood, M. Thoms and P. Wood (eds). John Wiley and Sons, UK (2015L7)						
Manuscript: Scown, M. W., Thoms, M. C. and De Jager, N. R. The effects of survey technique and vegetation type on measuring floodplain topography from DEMs. Earth Surface Processes and Landforms. (2015L8) (in USGS Review)						
Manuscript: Scown, M. W., Thoms, M. C. and De Jager, N. R. An index of floodplain surface complexity. Hydrology and Earth Systems Science. (2015L11). (in USGS Review)						

Tracking number	Milestone	Original Target Date	Modified Target Date	Date Completed	Comments	Lead
Mussel Research Framework						
2015MRF1	Spatial patterns of native mussels in the UMRS: Establish selection criteria, identify existing data sets, and re-format to a common data suitable for spatial analysis	1-Apr-16		1-Apr-16		Ries, Newton, De Jager, Zigler
2015MRF22	Spatial patterns of native mussels in the UMRS: brief summary letter, including complied dataset, GIS layers, map	1-Jun-16				Ries, Newton, De Jager, Zigler
	Intended for distribution					
Manuscript: Reis, P., De Jager, N.R., Newton, T., Ziegler, S. Spatial patterns of native freshwater mussels in the UMR. Freshwater Science. (in USGS Review)						
Pool 12 Overwintering HREP Adaptive Management Fisheries Response Monitoring						
2016P13a	Collect annual increment of pool-wide electrofishing data	1-Nov-15		1-Nov-15		Bierman and Bowler
2016P13b	Collect annual increment of fyke netting data from backwater lakes	15-Nov-15		15-Nov-15		Bierman and Bowler
2016P13c	Perform otolith extraction from bluegills for aging	1-Dec-15		1-Dec-15		Bierman and Bowler
2016P13d	Age determination of bluegills collected in Fall 2015	1-Feb-16		1-Feb-16		Bierman and Bowler
2016P13e	In-house project databases updated	31-Mar-16		31-Mar-16		Bierman and Bowler
2016P13f	Summary report compiled and made available to program partners	30-Sep-16				Bierman and Bowler
Statistical Evaluation						
2016E1	Draft manuscript: Trends in summer water temperatures in the LTRM study reaches	30-Sep-16		30-Mar-16	Submitted to Hydrological Processes	Gray
2016E2	How well do trends in LTRM percent frequency of occurrence SAV statistics track trends in true occurrence?	30-Sep-16				Gray, Erickson
	Intended for distribution					
Completion report that describes methods of estimating variance components from LTRMP water quality data (2008E1; Gray) (In USGS review)						
Manuscript: Inferring decreases in among- backwater heterogeneity in large rivers using among-backwater variation in limnological variables (2010E1, Rogala, Gray, Houser) (In USGS review)						
Completion Report: Summer water temperature in the Upper Mississippi River (2012E2). Gray, Robertson, Houser, Rogala. Completed						
Completion report: An assessment of trends in water temperature in La Grange Pool (2012E3; Gray, Robertson, Rogala, Houser) Completed						
Aquatic Vegetation Component						
2016A6	Analysis: Aquatic Plant Response to Large-Scale Island Construction in the Upper Mississippi River.	30-May-16				Drake and Gray
2016A6a	Draft manuscript: Aquatic Plant Response to Large-Scale Island Construction in the Upper Mississippi River.	30-Sep-16				Drake and Gray
2016A7	Draft completion report: How many years did the effects of the 2001-2002 Pool 8 drawdown on arrowheads (*Sagittaria latifolia* and *S. rigida*) last?	30-May-16				Yin
	On-Going					
2015A7	Data compilation and analysis: Aquatic macrophyte communities and their potential lag time in response to changes in physical and chemical variables	30-Jun-16				Moore
2015A8	Draft completion report or manuscript: Aquatic macrophyte communities and their potential lag time response to changes in physical and chemical variables in the LTRM vegetation pools	30-Jun-17				Moore

Tracking number	Milestone	Original Target Date	Modified Target Date	Date Completed	Comments	Lead
Fisheries Component						
2016B12	Draft Manuscript: Benefits of Collaboration among Long Term Fish Monitoring Programs in Large Rivers (Fisheries Journal)	31-Dec-15		22-Oct-15		Counihan, Ickes, Casper, Sauer
2016B13	Draft Manuscript: An Assessment of Long Term Changes in Fish Communities within Large Rivers of the United States (Environmental Monitoring journal)	31-Dec-15		7-Dec-15		Counihan, Ickes, Casper, Sauer
2016B14	Draft completion report: Exploring Years with Low Total Catch of Fishes in Pool 26	30-Sep-16				Gittinger, Ratcliff, Lubinski, Chick
2016B15	Summary letter: Technical Support to River Managers Investigating UMR Walleye Dynamics	30-Sep-16				Andy Bartels, Kraig Hoff, Fish Managers from WI, MN, and IA
On-Going						
2015B5	Letter summary: Exploring years with low total catch of fishes in Pool 26	15-Nov-15	31-Jul-16			Gittinger, Ratcliff, Lubinski, Chick
2015B17	Draft Manuscript: Fish Trajectory Analysis	30-Sep-16				Ickes, Minchin
2014B10	Presentations, draft completion report: Paddlefish population characteristics in the Mississippi river Basin	1-Dec-15		1-Dec-15	Manuscript in review in Fisheries	Hupfeld, Phelps
2006B6	Draft manuscript: Spatial structure and temporal variation of fish communities in the Upper Mississippi River. (Dependent on 2008B9 acceptance into journal)	30-Sep-15	30-Sep-16			Chick
2008B9	Draft manuscript: Standardized CPUE data from multiple gears for community level analysis (a previous manuscript was submitted and not accepted by the journal, 2006B5; 2008B9 is a revised manuscript) (Chick)	15-Dec-15		21-Dec-15		Chick
Water Quality Component						
2016D17	Draft manuscript: Relationship between the temporal and spatial distribution, abundance, and composition of zooplankton taxa and hydrological and limnological variables in Lake Pepin (Reformatting for submission to River Research and Applications)	30-Sep-16				Burdis
On-Going						
2015D13	Initial analysis and draft manuscript: Coherence in temporal variation of select water quality parameters across strata and study reaches	1-Sep-16				Houser
2015D14	Draft manuscript: Coherence in temporal variation of select water quality parameters across strata and study reaches	1-Sep-17				Houser
2015D15	Analysis of Lake Pepin rotifers; data from 2012-2014	30-Mar-16	30-Sep-16			Burdis
2015D16	Draft manuscript: Trends in water quality and biota in segments of Pool 4, above and below Lake Pepin	31-Dec-15	30-Jun-16			Burdis
2014D13	Presentations, draft completion report: A Comparison of Side and Main Channel Fish Community and Water Quality Characteristics	1-Dec-15		25-Feb-16		Sobotka, West, Phelps

Tracking number	Milestone	Original Target Date	Modified Target Date	Date Completed	Comments	Lead
Development of 2010–2011 Land Cover/Land Use GIS Database and Aerial Photo Mosaics						
2015V1	Complete 2010/11 LCU database for UMR Pools 1, 2, 11, 15-17, the Illinois River's Lockport, Brandon, and Dresden Pools, and the Lower Minnesota, Lower St. Croix, and Lower Kaskaskia Rivers.	31-Aug-15		31-Aug-15	Data in review	Robinson, Hoy, Hanson, , Ruhser, Nelson, Jakusz
USACE UMRR LTRM Technical Support						
2016COE1	Quarterly update submitted to the LTRM Management Team	30-Dec-15				McCain, Theiling, Potter
2016COE2	Quarterly update submitted to the LTRM Management Team	30-Mar-16				McCain, Theiling, Potter
2016COE3	Quarterly update submitted to the LTRM Management Team	30-Jun-16				McCain, Theiling, Potter
2016COE4	Quarterly update submitted to the LTRM Management Team	30-Sep-16				McCain, Theiling, Potter
Science Coordination Meeting						
2016N1	Science Planning Meeting	Feb. 2016		Feb. 2016		Houser, Sauer, Lowenberg, Hubbell, and Hagerty
A-Team and UMRR-CC Participation On-going						
Spatial Patterns of native mussels in the UMRS						
2016MRF1	Draft Completion report: Spatial patterns of native mussels in the UMRS	15-Sep-17				Ries, Newton, De Jager, Zigler
2016MRF2	Final completions report: Spatial patterns of native mussels in the UMRS	15-Nov-17				Ries, Newton, De Jager, Zigler
Pool 12 Overwintering HREP Adaptive Management Fisheries Response Monitoring – Pre-construction Biological Response Monitoring; Crappie Telemetry –Kehough Lake						
2016AM1	Capture fish and affix radio tags to white crappies in study lakes	1-Nov-15	1-Nov-15			Bierman, Hansen, Bowler, Theiling
2016AM2	Location of tagged fish and update in-house project database	Ongoing through FY				Bierman, Hansen, Bowler, Theiling
2016AM3	Complete tracking portion of study	30-Sep-16				Bierman, Hansen, Bowler, Theiling
2016AM4	Summary report: Analysis of tracking data and quantification of 80% UDs for Stone, Tippy, and Green lakes	30-Sep-16				Bierman, Hansen, Bowler, Theiling
2016AM5	Summary report: Analysis of tracking data and quantification of 80% UDs for Kehough lake	30-Sep-17				Bierman, Hansen, Bowler, Theiling
Understanding biological shifts in the UMR due to invasion by *Potamogeton crispus*						
2016PC1	Summary letter on FY16 work	30-Sep-16				Drake, Giblin, Nissen, Kalas
2016PC2	Draft manuscript: Understanding biological shifts in the UMR due to invasion by *Potamogeton crispus*	1-Jun-17				Drake, Giblin, Nissen, Kalas
Developing and applying trajectory analysis methods for UMRR Status and Trends indicators – Year 2						
2016B14	Data assembly	30-May-16				Ickes, Minchin
2016B15	Model functional trajectory	30-Sep-16				Ickes, Minchin
2016B16	Summary letter	31-Oct-16				Ickes, Minchin
2016B17	Draft Manuscript	31-Oct-17				Ickes, Minchin

ATTACHMENT E

Draft Outline for September 27-29, 2016 UMRR HREP Meeting

(E-1)

UMRR Habitat Restoration Workshop

September 27-29, 2016
Davenport, Iowa

Draft Objectives and Working Agenda Outline

Objectives

- Build relationships and facilitate dialogue among UMRR's restoration practitioners, planners, engineers, and scientists
- Discuss insights gained about project design, construction, monitoring, and OMRR&R
- Strengthen UMRR's restoration efforts by learning from insights gained as discussed above

Working Agenda - Outline

I. Program overview: history and future

II. Habitat projects and Corps project development process
   a. Types of projects
   b. Relevant federal and state regulations
   c. Relationship between floodplain and geomorphic goals, project objectives, and criteria
   d. Project development process and engagement/consultation

III. Partners: organization and priorities
   a. Organization charts, points of contact, involvement in UMRR, priorities for UMRR

IV. Climate change

V. Forest enhancement design considerations

VI. Soil and sediment design considerations

VII. Construction considerations

VIII. Monitoring
   a. What is being monitored and why

IX. Partner considerations
   a. Flooding, drought, contracting methods and oversight, equipment types, coordination with management requirements, floodplain or permit issues

X. Operations and maintenance
   a. Balance of first construction costs and long term O&MR

ATTACHMENT F

Road Map for Implementation: Ecological Resilience, HNA II, and Next Generation of Habitat Projects

(F-1 to F-3)

UMRR 10 Strategic Plan Roadmap
May 10, 2016

Marvin E. Hubbell - MVR
Upper Mississippi River Restoration (UMRR)
Regional Program Manager

Mississippi Valley – Rock Island District (MVR)
Mississippi Valley – St. Louis District (MVS)
Mississippi Valley – St. Paul District (MVP)

US Army Corps of Engineers
BUILDING STRONG®

UMRR Road Map

- Strategic Plan
  - New Vision and Mission Statements
  - Four Goals
  - Greater emphasis on measuring and reporting progress to HQ and OMB
- Operational Plan
  - Implementation details for Strategic Plan

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UMRR Road Map

- Resilience
  - Supports the new UMRR Vision
  - Operationalize resiliency
  - Development of indicators of ecosystem resiliency
  - Refinement of indicators of ecosystem health
  - Interagency working group (UMESC, IL NHS, FWS, UMRBA, Corps
  - Conceptual linkage of HNA II with the identification of the next generation of rehabilitation efforts

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UMRR Road Map

- Habitat Needs Assessment (HNA II)
  - Update of original HNA completed in 2000
  - Involvement of River Teams (FWWG, FWIC, RRAT tech, IRWG
  - Tri-Chairs (FWS, Corps, FWS)
    - Partnership Working Group

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UMRR Road Map

- Next Generation of Habitat Projects
  - Link habitat needs to project identification and selection
  - Project Planning and Sequencing Framework
- Formulation of future habitat projects
- Post construction evaluation of habitat projects
- Program Evaluation

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ATTACHMENT G

Additional Items

- **Future Meeting Schedule** *(G-1)*
- **Frequently Used Acronyms (5/9/2016)** *(G-2 to G-8)*
- **UMRR Authorization, As Amended (1/27/15)** *(G-9 to G-12)*
- **UMRR (EMP) Operating Approach (5/06)** *(G-13)*

QUARTERLY MEETINGS
FUTURE MEETING SCHEDULE

AUGUST 2016	
La Crosse, Wisconsin	
August 9	UMRBA Quarterly Meeting
August 10	UMRR Coordinating Committee Quarterly Meeting

NOVEMBER 2016	
St. Paul, Minnesota	
November 14	UMRBA WQEC Meeting
November 15	UMRBA Quarterly Meeting
November 16	UMRR Coordinating Committee Quarterly Meeting

Acronyms Frequently Used on the Upper Mississippi River

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
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
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
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
LTRMP	Long Term Resource Monitoring Program
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
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
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
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.]
UMRS	Upper Mississippi River System
UMRSHNC	Upper Mississippi River Sub-basin Hypoxia Nutrient Committee
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

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.