

Upper Mississippi River Restoration Program Coordinating Committee

Quarterly Meeting

August 5, 2015

**Agenda
with
Background
and
Supporting Materials**

UPPER MISSISSIPPI RIVER RESTORATION PROGRAM COORDINATING COMMITTEE

August 4-5, 2015

AGENDA

Tuesday, August 4 Partner Pre-Meetings **Stoney Creek Hotel**

- 3:45 – 5:30 p.m. Corps of Engineers
3:45 – 5:30 p.m. Department of the Interior
3:45 – 5:30 p.m. States

Wednesday, August 5 UMRR Coordinating Committee **UMESC**

Time	Attachment	Topic	Presenter
8:00 a.m.		Welcome and Introductions	<i>Gregory Miller, USACE</i>
8:05	A1-14	Approval of Minutes of May 6, 2015 Meeting	
8:10	B1-5	Regional Management and Partnership Collaboration <ul style="list-style-type: none">FY 2015 Progress ReportFY 2016 Appropriations StatusFY 2017 Appropriations Outlook<ul style="list-style-type: none">Headquarters' UMRR "Deep Dive" TourHeadquarters' Increased Emphasis on "Efficient Funding"2016 UMRR Report to Congress Review ScheduleDraft UMRR Strategic Operational Planning Update	<i>Marv Hubbell, USACE</i>
	B6-7	<ul style="list-style-type: none">Lean Six Sigma<ul style="list-style-type: none">Priority Programmatic Areas to Evaluate	<i>Nicole Lynch, USACE</i>
9:30		External Communications and Outreach <ul style="list-style-type: none">Strategic Plan Goal 3 Recommendations: Establishment of an External Communications Team and Development of a Plan<ul style="list-style-type: none">Initial Contract for Branding and Messaging in FY 15	<i>Marv Hubbell, USACE</i>
	C1-5 C6-11	<ul style="list-style-type: none">Public Involvement and Outreach Activities<ul style="list-style-type: none">August 23-28 International Society for River Science Conference in La CrosseOther Relevant Activities	<i>All</i>
10:15 a.m.		Break	

(Continued)

Wednesday, August 5, 2015
UMRR Coordinating Committee
(Continued)

Time	Attachment	Topic	Presenter
10:30 a.m.		Long Term Resource Monitoring and Science	
	D1-7	▪ Highlights	<i>Jeff Houser, USGS</i>
	D8-11	▪ USACE Science Update	<i>Karen Hagerty, USACE</i>
		▪ A-Team Report	<i>Shawn Giblin, WI DNR</i>
		▪ Use of NextGeneration Sequencing (eDNA) to Inform UMRR's Long Term Resource Monitoring Efforts	<i>Grace McCalla, USGS</i>
		▪ Science Highlight: Spatial and Temporal Dynamics of Phytoplankton in Pools 8, 13, and 26	<i>John Manier, USGS</i>
11:45		Lunch	
12:45 p.m.		Habitat Restoration	
		▪ District Reports	<i>District HREP Managers</i>
		▪ Planning New Project Starts: Identifying Projects to Enhance Ecological Resilience	<i>Marv Hubbell, USACE</i>
1:30	E1-6	Implementation Issues Assessment (IIA) Annual Review	<i>Marv Hubbell, USACE</i>
		▪ Annual Review of Progress in Advancing the IIA Recommendations	
		▪ Partners' Priorities in FY 2016	
1:50		Other Business	
	F1	▪ Future Meeting Schedule	
2:00 p.m.		Adjourn	

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

ATTACHMENT A

Minutes of the May 6, 2015 **UMRR Coordinating Committee Meeting** *(A-1 to A-14)*

DRAFT
Minutes of the
Upper Mississippi River Restoration Program
Coordinating Committee

May 6, 2015
Quarterly Meeting

Hampton Inn-Gateway Arch
St. Louis, Missouri

Tim Yager of the U.S. Fish and Wildlife Service called the meeting to order at 8:00 a.m. on May 6, 2015. Other UMRR Coordinating Committee representatives present were Mark Moore (USACE), 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) via phone, Ken Westlake (USEPA) via phone, and Jon Hubbert (NRCS). A complete list of attendees follows these minutes.

Minutes of the February 11, 2015 Meeting

Bob Clevensine offered a correction to the third paragraph of page A-10 of the February 11, 2015 UMRR Coordinating Committee meeting minutes. The correction would clarify that Huron Island is located on General Plan lands owned by the Corps and managed under terms of successive cooperative agreements between the Corps, USFWS, and Iowa DNR. The project MOU places responsibility for operation, maintenance, repair, rehabilitation, and replacement (OMRR&R) with the Iowa DNR. Marv Hubbell requested that, on page A-1 of the draft minutes, the amount of FY 2015 funding allocated to habitat project evaluations be corrected to \$655,000. Dan Stephenson moved and Randy Shultz seconded a motion to approve the draft minutes of the February 11, 2015 meeting as corrected. The motion carried unanimously.

Regional Management and Partnership Collaboration

FY 2015 Budget Update and Scope of Work

Marv Hubbell reported that UMRR's FY 2015 work plan has been slightly revised since the February 11, 2015 quarterly meeting. The program's updated internal allocations are as follows:

- Regional Administration and Programmatic Efforts – \$861,000
- Regional Science and Monitoring – \$8,126,000
 - Long term resource monitoring – \$5,495,000
 - Regional science in support of restoration – \$1,907,000
 - Regional science staff support – \$69,000
 - Habitat project evaluations – \$655,000
- Habitat Restoration – \$24,183,000
 - Regional project sequencing – \$70,000
 - MVP – \$7,234,000
 - MVR – \$9,645,000
 - MVS – \$7,234,000

Hubbell said the program's FY 2015 habitat project obligation rate is currently 45 percent, with MVP at an 88 percent obligation rate, and is on track to obligate all habitat project-related funds by the end of FY 2015. Hubbell said the program's science funding is also expected to be fully obligated by the end of the fiscal year.

FY 2016 and 2017 Appropriations Progress Report

Hubbell said that, on May 1, 2015, the House approved \$19.787 million for UMRR in its FY 2016 energy and water appropriations bill. This represents a decrease of \$13.383 million from FY 2015, and is a result of increased competition from other USACE ecosystem restoration projects for construction funding, particularly the Everglades and Chesapeake Bay. Hubbell acknowledged that the final appropriation is unknown. And, there may also be additional funding available in USACE's work plan for UMRR above the enacted appropriation.

Hubbell said District staff are developing recommendations for UMRR's FY 2017 budget. As a next step, the three UMR Districts and MVD will discuss budget priorities before submitting the proposal to Headquarters for review. [This discussion topic continues after the following discussion on partner advocacy.]

Partner Advocacy

Dru Buntin of UMRBA and Gretchen Benjamin of TNC discussed their visits with House members and the Administration this spring. While there is strong bipartisan support for UMRR in Congress, the earmark ban prevents members from increasing UMRR's appropriation above the President's budget request for the program. Benjamin said several UMR House delegation members submitted FY 2016 appropriations requests to fund UMRR at its full annual authorized level of \$33.17 million, but these requests were denied as they are considered earmarks. According to Benjamin, the primary reason that the Administration decreased its funding request for UMRR, compared to the past few years, is the result of increased competition from other ecosystem restoration programs that are now construction-ready. Congress and the Administration remain very supportive of the program. Benjamin and Buntin said they are hopeful that the final FY 2016 energy and water appropriations measure will include additional construction funding for USACE's ecosystem restoration programs that the Administration could then allocate to UMRR. They are planning to work with Senate delegation members to include sufficient funding for an additional funding line item in its FY 2016 energy and water appropriations measure.

Benjamin said the Administration indicated its preference for the Everglades' approach to discussing its budget priorities and funding requirements. The Everglades' non-federal sponsors have provided the Administration with the funding levels necessary to optimally implement the program's planned restoration projects and the benefits that would be lost if that funding is not provided. The Administration suggested that UMRR non-federal partners present its budget requests in the same way, rather than simply requesting a lump sum. Benjamin and Buntin have contacted District staff to request these figures for future use in discussions with the Administration and Congress. Hubbell emphasized the importance of the partnership's great working relationships and communication exchanges. This feedback will help District staff improve its budget communication and documentation to the Administration as well as to partners. In response to a question from Jim Fischer, Benjamin explained that the Administration requested a detailed explanation of what funding amount is necessary to optimally deliver projects and implement the program — i.e., to most effectively and efficiently complete projects. The Administration cited the Everglades' five-year budget plan. Hubbell acknowledged that this is a slightly different approach to USACE's arrangement of its budget documents, whereas before the program was asked to provide implementation scenarios at various funding increments. He said UMRR's budget documents have always been kept internal prior to publication of the Presidents' budgets. So District staff will need to communicate with Headquarters about the program's approach going forward.

Jennie Sauer asked whether the Administration provided any perspectives regarding science-related performance metrics. Buntin said he and Benjamin asked that question while expressing concern over the continuing decreases in funding for long term resource monitoring relative to the program's overall budget. The Administration was not specific in its preference for reporting on science efforts and is relatively open about how it is done. However, Buntin and Benjamin observed the importance of defining the context for the program's science activities and explaining how the science contributes to the program's overall goals and restoration work. Hubbell emphasized the importance of the FY 2015-2025 UMRR Strategic Plan for explaining the importance of science for generating knowledge of the river's ecosystem and restoration approaches to improve its health and resilience. Benjamin said she and Buntin were able to use the Strategic Plan in their meeting with the Administration to illustrate how all of UMRR's work ties together, and the value of the long term resource monitoring and six field station network. It seemed to resonate well.

Recognizing that the term resilience is receiving considerable attention from the Administration, Charlie Hanneken said the 2015-2025 UMRR Strategic Plan is an asset from Headquarters' perspective. Hanneken observed that the Strategic Plan will allow the partnership to place a five-year plan in context of larger, longer-range goals. Hubbell noted that this discussion is very valuable to the program, as Corps staff will use this feedback to improve its budgeting documents and presentation.

Fischer asked for clarification on whether the Administration's focus on optimal spending will require changing UMRR's budget presentation or how habitat projects are packaged and constructed. Hubbell said the answer may include a little of both. USACE staff will have to consider its annual allocation of habitat project funds among the three Districts, considering workload capabilities, risk distribution, and execution efficiencies. All of these factors contribute to optimal project completion in the near term and long term. For example, MVP executed a contract for Harpers Slough in the first quarter of FY 2016 that obligated most of its available funding for this fiscal year. This contracting approach resulted in considerable cost savings. MVS will employ a similar approach to contracting the construction of Ted Shank's pump station.

FY 2016 and 2017 Appropriations Progress Report (Continued)

Hubbell reported that, under the \$19.787 million funding scenario for FY 2016, UMRR's internal program allocations would be as follows:

- Regional Administration and Programmatic Efforts – \$741,000
- 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 – \$12,479,000
 - Regional project sequencing – \$100,000
 - MVP – \$3,425,000
 - MVR – \$4,745,000
 - MVS – \$4,209,000

[Note: The District habitat project 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 noted that the combined allocations for long term resource monitoring and regional science in support of restoration equal the partner-calculated costs to implement base monitoring.

Hubbell reported that sequestration is scheduled to take effect on October 1, 2015 per the 2011 Budget Control Act. Should this occur, UMRR would receive a five percent cut from its final FY 2016 appropriation. In response to a question from Janet Sternburg, Hubbell said federal agencies will not know in fact whether sequestration will occur until an FY 2016 appropriations bill is enacted. It is also possible that UMRR could receive additional funding through USACE's work plan allocations.

Hubbell said he convened conference calls on February 19, 2015 and March 24, 2015 with the long term resource monitoring field station leaders, UMESC, UMRR Coordinating Committee members, and UMRBA staff regarding FY 2016 budget planning. He has not yet consulted with the program's *ad hoc* funding committee. Hubbell asked the UMRR Coordinating Committee for its preference on USACE's future communications with partners regarding FY 2016 budget matters. The Committee expressed support for continuing to engage with the individuals who participated on the two calls earlier this year, noting that many of the individuals overlap with the *ad hoc* funding committee.

Jennie Sauer said UMESC is preparing its FY 2016 scope of work earlier than usual in order to be prepared should end-of-year FY 2015 funds become available. This means that UMESC is asking that the field stations submit their budget proposals earlier as well. Hubbell expressed appreciation for the advanced work on the FY 2016 science scope of work, noting the importance of having plans in place to quickly execute funds and on projects that are based on partners' priorities. Hubbell said UMRR's network of federal and state agencies and nonprofit partners is an incredible asset, including for providing flexibility in resource allocation and the necessary expertise for the program's implementation. Sauer requested that Hubbell provide UMESC with USACE's plans regarding habitat project evaluations so that science staff can identify opportunities to assist in their development. Hubbell agreed and said he is looking forward to greater coordination among all UMRR partners. He said USACE is increasing its emphasis on determining biological responses to project features and will likely seek assistance from science staff in formulating monitoring strategies.

2015-2025 UMRR Strategic Operational Plan

Hubbell reported that the 2015-2025 UMRR Strategic Operational Planning Team held conference calls on April 9, 2015 and April 28, 2015 to refine implementation actions for Goals 1 and 2 of the Strategic Plan. The team's next call is scheduled for May 26, 2015 to discuss Goals 3 and 4. The team will then share the draft operational plan with partners for review. Kirsten Mickelsen said the team is striving to balance the level of detail necessary to provide partners with adequate direction for implementing the program to achieve the goals and objectives while also encouraging innovation and providing flexibility. She said the team members agreed to share the plan with select individuals within their respective agencies to see if the plan makes sense and strikes the correct balance.

Lean Six Sigma

Hubbell recalled that Nicole Lynch, MVR's process improvement specialist, presented on Lean Six Sigma concepts at the UMRR Coordinating Committee's February 11, 2015 meeting, and provided initial direction for selecting programmatic areas to examine. Hubbell said this effort is an outcome of the September 18, 2014 UMRR Leadership Summit where partner agency leaders' discussed challenges of their staff to be fully engaged as UMRR's appropriations have increased but their respective resources remain limited. The leaders suggested employing a Lean Six Sigma evaluation on selected pieces of the program to identify efficiency improvements. Included on page B-6 of the agenda packet is a questionnaire worksheet to solicit recommendations for focusing and organizing a Lean Six Sigma evaluation.

Janet Sternburg recalled that MVR Commander Col. Mark Deschenes recommended, at the August 6, 2014 UMRR Coordinating Committee meeting, that UMRR implement a Lean Six Sigma evaluation to address concerns raised regarding habitat project planning and design and to proactively seek efficiencies in implementation. Sternburg suggested evaluating ways to streamline the planning process, clearly document and communicate milestones achieved (e.g., decision points), and reduce the level of review on these projects as they are relatively low risk. She acknowledged that the program has made great strides in improving efficiencies in project planning, but said there are still opportunities to save time and money. Noting that the program has successfully completed a comprehensive evaluation of its long term resource monitoring, Sternburg said it is now time to do an evaluation of the program's habitat project planning.

Hubbell agreed with Sternburg's observation that there are opportunities to improve the habitat project planning process. He acknowledged partners' substantial contributions throughout the planning phase and the need to make the most efficient use of their time. The program has made substantial progress in planning projects more efficiently and meeting USACE's 3x3x3 planning rule, but there is more room for improvement. Hubbell suggested that partners breakdown the elements of project planning and select areas to focus on that have flexibility to be modified. Monique Savage noted that there are several planning requirements and approval needs that are out of the Districts' control. Savage emphasized the need to first understand those things that partners cannot address.

Sternburg said her comments are based on completed projects where there were major inefficiencies. For example, there may be significant lag between when a fact sheet is submitted, approved, and initiated. Then once initiated, there may be staff turnover, USACE staff pulled to emergency missions, or disagreements on decision points that force repetitive discussions and evaluations. Sternburg noted that turnover in partners' staff also trigger these same issues. Fischer echoed Sternburg's comments, and said it would be helpful to better document and hold to decisions and other milestones. He recognized that much of USACE's planning requirements are mandated and agreed with suggestions to identify areas that partners can improve.

Tim Yager suggested addressing the processes and requirements for incremental cost-benefit analyses. Yager volunteered to develop a one page summary of the issues. Kirsten Mickelsen said involvement of project sponsors throughout project design could be a potential area to evaluate. Jon Hubbert suggested addressing how best to coordinate project partnership agreements with other key players in order to identify constraints and any other potential issues.

Lynch offered that she could help partners outline the project planning process and identify key areas to address through a Lean Six Sigma evaluation, and then work through these areas through small stages. Hubbell requested that partners send him any additional recommendations for programmatic areas to address through Lean Six Sigma by May 29, 2015.

2016 UMRR Report to Congress

Hubbell reported that, on February 27, 2015, USACE awarded a \$75,000 contract to UMRBA to prepare the 2016 UMRR Report to Congress. This includes serving as the primary author on the full report, facilitating partnership collaboration in the report's development as well as two reviews, graphic design, and printing. Under a separate support services agreement, UMRBA staff have been working with USACE and USGS to define compelling messages about UMRR's science efforts that stem from the 2015-2025 UMRR Strategic Plan. This includes the value of the long term resource monitoring database, network of six field stations, and research and analysis findings and capabilities. These messages will be used in the 2016 UMRR RTC, as well as other communications and outreach efforts.

Hubbell outlined the anticipated development schedule for the RTC. He said that a first draft plan is scheduled to be distributed for partner review in August 2015, with a second review anticipated for late December 2015. Headquarters and MVD's official review is scheduled for spring 2016, with a final report incorporating graphics submitted to Headquarters in November 2016. The report outline is anticipated to include an introductory section of UMRR's history and background and chapters dedicated to UMRR's accomplishments in enhancing restoration, accomplishments in advancing knowledge, the interagency partnership, implementation issues, and conclusions and recommendations.

In response to a question from Sternburg, Kirsten Mickelsen said the report will describe the UMRR's 2015-2025 Strategic Plan, including its four goals and strategies. Jennie Sauer asked if partners' contributions to the program's implementation would be provided in the report. Mickelsen said that, similar to the previous UMRR RTCs, partner contributions will be described in a variety of ways. The report will document partners' in-kind and other resource contributions since 2010 and describe how partners are involved in the program's implementation in various areas of the report. In response to a question from Sauer, Mickelsen explained that, in addition to the formal reviews, various partners will be contacted to help develop portions of the report on which they have expertise. For example, Jeff Houser with UMESC is currently helping to develop the structure and content of the science accomplishments chapter and he will be working with the field stations and other UMRR science staff to get input. This will occur on an *ad hoc* basis. Gretchen Benjamin advised partners to be honest with their estimated contributions, and not underestimate them. She suggested including overhead and travel costs, as well as monitoring equipment.

Mickelsen explained that the RTCs are an opportunity for program partners to articulate implementation issues and articulate any policy recommendations. The UMRR Coordinating Committee held an April 2, 2015 conference call to identify any policy recommendations to include in the RTC. As a result, the Committee agreed to include policy recommendations related to project partnership agreements and the UMRR/NESP Transition Plan. A summary of these issues as agreed to by the Committee is provided on pages B-7 to B-9 of the agenda packet. Mickelsen noted that there have already been full partnership discussions and agreements on issue resolutions for PPAs and the Transition Plan and therefore are fairly straightforward from a USACE and partnership perspective. Kevin Stauffer expressed support for these two policy recommendations as described in the write-up and offered no changes. Jim Fischer recognized challenges of articulating when a transition to NESP would be appropriate. Mickelsen explained that the Transition Plan, which USACE submitted to Congress in 2012, outlines expectations for a seamless transition. Since the RTC is a USACE document submitted to Congress, it will simply articulate those same expectations and will not add much detail beyond that. Karen Hagerty pointed to the last sentence of the Transition Plan's recommendation write-up in the packet, which states "The program's non-federal partners advocate that NESP should be funded at levels well above UMRR's authorized level before a transition occurs so that NESP is an enhancement to UMRR's current implement." The UMRR Coordinating Committee agreed that that statement would be appropriate and relevant to include in background information of the Transition Plan. Hubbell said he will coordinate with MVD and Headquarters regarding the report's articulation of the Transition Plan.

External Communication and Outreach

External Communications Plan (Goal 3)

Kevin Bluhm said that, per Hubbell's request, he developed a proposed process for developing UMRR public outreach messages and images. The goal of this effort would be "to build a toolbox of communication materials that will help all stakeholders unify and enhance reporting and communicating in the UMRR program." A communications committee would be convened in June 2015 to lead the effort, but will involve program partners as the messages, images, and tools are developed. Bluhm said he plans to seek partners' perspectives through a questionnaire this summer and use the responses to

identify theme analyses and trends, and then develop communications tools including concept designs for imaging and key messages. Bluhm said he will present these results and the identified themes and trends at the UMRR Coordinating Committee's August 5, 2015 meeting. Then, throughout fall 2015, the communications committee will refine the messages and develop external communications plans with more specific detail, as well as more detailed designs of the images and key messages. At the UMRR Coordinating Committee's November 18, 2015 meeting, Bluhm anticipates sharing draft communications tools and messages and facilitating a discussion about partners' priorities for their use. Bluhm emphasized the importance of having strong, compelling, unified, and consistent messages for communication about the program externally. He said the Everglades program serves as a great model for external communications, and the communications committee will consider the Everglades program's successes. Bluhm asked partners to contact him by May 29 if they are interested in participating on the communications committee.

Gretchen Benjamin asked which aspects of the Everglades program Bluhm sees UMRR incorporating. Bluhm said there is a lot to be learned from the Everglades program's successes in external communication, including its methods and toolbox, utilization of social media, branding, and education tools to engage young audiences. Everglades used professional firms to develop its communications materials and UMRR would likely benefit from doing that as well. Bluhm said UMRR's external communications toolbox would require multiple layers with cross-platforms for communicating to multiple, diverse audiences. Bluhm acknowledged that UMRR could greatly benefit from equipping all partners with soundbites and other messages and images to tell the program's story, including its breadth and depth of work, in their various interactions with various external audiences. He said UMRR needs to consider how to best utilize the social media revolution to its advantage.

In response to a question from Karen Hagerty, Bluhm said the communications committee will develop a program logo as part of imaging. The committee will first seek input from partners on the program's external communications needs and sequence activities based on agreed-upon priorities. Benjamin said the Everglades invested a significant amount of resources upfront to develop its communications messages and images, with an ongoing commitment to support outreach and engagement. She asked what USACE anticipates spending on external communications initially and on an ongoing basis. Bluhm said Everglades spent over \$2 million in two or three years for external communications, but its scope was much larger than UMRR's current proposal. Everglades faces different challenges, including serving English- and Spanish-speaking audiences. But, through the program's communications efforts, it has received significant visibility and rewards. According to Bluhm, while these external communications efforts have a cost, they can produce lasting and larger benefits. In response to a question from Tim Eagan, Bluhm estimated that the Everglades allocates between \$82 million and \$110 million annually to external communications and outreach.

Ken Barr suggested that the communications committee contact the USFWS's communications coordinator for the Eastern Tallgrass Prairie and Big Rivers Landscape Conservation Cooperative (LCC). Bluhm said he anticipates that the committee will reach out to communications specialists working on programs and projects relevant to the UMRS.

Hubbell said he anticipates that the UMRR communications committee will include representation from USFWS, Randy Hines from USGS, and Karla Sparks from USACE, as well as other partner volunteers. Sauer suggested that one or two state representatives serve on the committee. Bluhm agreed and said he hopes that the committee will include representation from various partners while remaining manageable in size. Stauffer offered to identify a staff member from Minnesota DNR to participate on the committee.

Ken Westlake emphasized the need for UMRR to have explicit approaches for seeking and incorporating input from the public and other stakeholders, so that external communication functions

as a two-way street. Bluhm agreed and said UMRR's external communications efforts should operate in an interactive mode that facilitates feedback and check-ins. Jim Fischer said he found the public to be less engaged in UMRR's implementation when seeking input on a draft version of the 2015-2025 UMRR Strategic Plan. Fisher expressed support for reinvigorating public engagement in the program. He said personal boat tours of the UMRS with USACE and USGS headquarters' leadership and restoration and science staff have proven successful ways to facilitate dialogue and express important messages in ways that are resonating. Bluhm said school tours on the river have also been successful. He also noted that there are opportunities for UMRR to coordinate with *Our Mississippi*. Fischer encouraged using social media as a means for connecting to the public. Bluhm agreed, and said USACE has had several success stories from using Twitter and other social media sites, including the Great Lakes and Mississippi River Interbasin Study (GLMRIS).

In response to a question from Hagerty, Bluhm recognized the challenges with developing and maintaining websites as a primary forum for external communications, including maintaining relevance over short and long timeframes. But he said the communications committee would consider how the UMRR website can help advance the program's external communications objectives.

Brian Markert acknowledged that external communication is often not a primary focus for USACE. Markert expressed optimism for Bluhm's proposed path forward and the potential benefits to UMRR.

Jerica Richardson emphasized the importance of considering the different needs and communications approaches for various audiences, including local governments and other entities (economic development, recreation), state and federal agencies, and the general public. Bluhm agreed, and suggested that the communications committee first develop tools and messages that are relevant to many audiences to achieve some quick and relatively easy successes in order to gain momentum. Bluhm said he intends for the UMRR's branding effort to involve greater partnership collaboration and input than *Our Mississippi's* branding effort, which was under time constraints. He emphasized the importance for all partners to be involved in branding development so that the entire partnership has ownership over the ultimate products.

In response to questions from Kirsten Mickelsen and Fischer, Hubbell said Bluhm's proposal relates only to public engagement right now. Following this effort, UMRR will focus more on the UMRR Strategic Plan's objectives related to external outreach to other UMRS-relevant programs and projects. Stauffer suggested that Bluhm participate in the UMRR strategic operational planning discussion regarding Goal 3, or the "external engagement and collaboration" goal.

Public Involvement and Outreach Activities

Hubbell said the August 2015 Biennial Symposium of the International Society for River Science (ISRS) is scheduled for August 23-28, 2015 at UMESC. Benjamin said she is serving on the Symposium's Steering Committee. The Symposium will focus on the connectivity of large river systems, including how human uses such as commercial navigation have affected the UMRS and are projected to shape the Amazon. Speakers will talk about restoration efforts to improve rivers' ecological health. Benjamin said Hubbell has agreed to present on UMRR's experiences and accomplishments in river restoration and science, highlighting that UMRR serves as a premier aquatic ecosystem restoration program. Hubbell said he is pleased that UMRR will be showcased in this Symposium and can be a leader for other regions. He said this is a great opportunity to demonstrate the program's relevance. Sauer said Jeff Houser is also scheduled to moderate dialogue among national and international scientists about large-scale, long-term data sets in a session titled "Big rivers, big data."

Hubbell said Illinois has asked him to participate, on behalf of UMRR, at the Illinois Nutrient Monitoring Council's May 13, 2015 meeting. Sauer noted that USGS's Illinois Water Science Center is setting up a continuous monitoring "super station" as part of Illinois' Nutrient Monitoring Strategy.

Fischer reported that Wisconsin Natural Resources Magazine published a feature in its April 2015 edition about Wisconsin DNR's UMRR long term resource monitoring field station.

Karen Hagerty asked that partners send her any articles published about UMRR to upload on the program's website.

Habitat Rehabilitation and Enhancement Projects

District Reports

St. Louis District

Brian Markert said the St. Louis District has been very active in advancing UMRR habitat projects. Markert expressed appreciation to project sponsors for their continued involvement as UMRR's increased appropriations in the past few years have resulted in accelerated timelines. He said District staff and Illinois DNR are scheduled to meet soon regarding Rip Rap Landing. Design work on that project is pending receipt of a sponsor support letter from Illinois DNR. MVS continues planning work on Piasa and Eagles Nest Islands and Harlow and Wilkinson Islands. Markert said District staff are doing post-project monitoring on Calhoun Point. The District's design efforts continue on Clarence Cannon and Ted Shanks, and construction continues on Ted Shanks and Pools 25 and 26 Islands. Marv Hubbell noted that the accelerated funding has allowed for completing feasibility studies for habitat projects within three years. Gretchen Benjamin asked if contracting out parts of the habitat project development is desired under increased appropriations. Markert said that contracting is occurring in some instances when appropriate.

St. Paul District

Marv Hubbell said MVP is planning to complete the feasibility report for North and Sturgeon Lakes this fiscal year. The District initiated construction on Harpers Slough this spring and plans to finalize construction on Capoli Slough Islands this fall. Kevin Stauffer explained that new flood risk reduction regulations are challenging North and Sturgeon Lakes' design planning. An alternative design has not yet been selected.

Rock Island District

Hubbell said MVR is maintaining an aggressive habitat project schedule, with five projects in planning, two in design, and six in construction. The District will initiate planning on Keithsburg soon, followed by Boston Bay. In response to a question from Ken Westlake, Hubbell explained that The Nature Conservancy requested that the Emiquon East habitat project is suspended until the project partnership agreement issues are resolved. These issues are beyond UMRR's control. Hubbell said District staff are evaluating reshaping Sunfish Lake for tree preservation given the potential uplisting of the northern long eared bat's status to endangered. Bryan Hopkins requested that a presentation is given at a future UMRR Coordinating Committee quarterly meeting about the northern long-eared bat's use of UMRR habitat projects and how the tree preservation requirements per its potential endangered status might affect the construction of projects. Hubbell agreed, and said it may be worthwhile for USACE, USFWS, and other partners to consider this issue systemically. He said some monitoring for the bat species is being conducted at habitat project sites. Kraig McPeck agreed with Hubbell's suggestion to examine the effects systemically and said the bat is likely to be uplisted. Thus it should be on partners' radar as an emerging issue that will likely need to be addressed. Hubbell noted that UMRR's current policy is to avoid cutting trees during sensitive time periods.

Sponsor Involvement in Project Planning and Design

Hubbell and Tim Yager discussed how the Pool 12 Overwintering habitat project underscored the need to better document and understand decision points in the planning and design process. Throughout the planning phase, it is common for partners to misinterpret decisions or request a reexamination of agreed-upon decisions. Although the reasons may be very valid, reevaluating questions may result in significant cost escalations and project delays. In addition, planning for the project has generated interest in exploring how UMRR can better address emerging or increasing ecological problems that are affecting the river's ecological health and resilience, such as sedimentation, floodplain forest diversity, and climate change. Yager explained that USFWS is increasingly concerned with the state of the UMRS floodplain and would like to focus more attention on restoring that habitat since the river floodplain is a crucial flyway for many important migratory waterfowl. In addition, the Service would like partners to examine the ongoing and increasing sedimentation challenges facing the river ecosystem's health.

McPeck added that these factors (such as sedimentation) will need to be considered as UMRR strives to improve the resilience of the UMRS's ecological health. Janet Sternburg said NESP's Feasibility Study examines sedimentation and associated restoration tools and should be used as a reference. Sternburg also noted that reach planning resulted in specific habitat projects, such as water level management, that should be considered, rather than going back to the drawing board. She also emphasized the need to coordinate more with NRCS on project identification and selection. Jon Hubbert agreed with the need to examine ways to address sedimentation, but acknowledged that the issues are very complex and there are not simple solutions. For example, sedimentation is a challenging discussion nationally as the needs are different in various regions (e.g., Missouri River and UMR's open river reach). The different messages about whether sedimentation is too much or is lacking is sometimes perceived as conflicting. Jim Fischer also expressed agreement with the need to examine sedimentation challenges, including in-stream erosion. Fischer said sediment loads have been decreasing with improved agricultural practices. UMRR's island designs have also improved to better increase sediment resuspension. Fischer said that, while he agrees with the need to improve the UMRS's floodplain forests, the aquatic areas remain in need of restoring.

Hubbell noted that USACE issued a new requirement for habitat projects to consider the implications of climate change, including increased flood frequencies.

Planning New Starts: Identifying Projects to Enhance Ecological Resilience

Hubbell reported that, in April 2015, USACE has executed a contract with USGS to lead an interdisciplinary team that will define indicators of ecosystem health and resilience and link the indicators to the process of identifying habitat projects. It is anticipated that the team will begin this effort in spring or summer 2015 and complete the project at the end of FY 2017. Jeff Houser anticipates that the team will include staff from USFWS, USGS, and a state field station. The team will lay the groundwork for developing a conceptual model for UMRR's application of resilience concepts. At a fall or early winter 2015 workshop, the team will facilitate a larger partnership conversation on the resilience conceptual model. The model will utilize UMRR's long term resource monitoring data and will be used to inform the program's habitat restoration, including updates to the habitat needs assessment. Jennie Sauer reported that USGS is currently soliciting applications for a part time staff person to help lead this effort.

In response to a question from Monique Savage, Houser said he does not have a preconceived idea for invitees to the workshop, but said he anticipates it will mostly be attended by LTRMP staff and some habitat project staff with relevant expertise. In response to a question from Savage, Sauer said UMRR's land cover data as well as other habitat project monitoring data and other information will be incorporated

into the conceptual model. In addition, other relevant non-UMRR data sources will be used – e.g., USACE’s UMRS forestry data. Houser said he anticipates this will be a broad, interactive process. The interagency team will serve as a small advisory group that will frequently seek input from various partners throughout the process.

Hubbell said a team to identify the next generation of habitat projects will be convened in fall 2015. This resilience effort will be very important to informing that process.

Habitat Restoration Highlight: Harlow and Open River Islands

Tim Eagan presented on the potential designs of three open river restoration opportunities, including Harlow Island, Crains Island, and Wilkinson Island. In terms of habitat restoration, the open river faces many challenges given the limited sponsor availability and willingness. In addition, the open river experiences highly variable flood levels, lacks side channel connectivity, has a low forest community diversity, and lacks ridges and swale systems. MVS recently completed a qualitative inventory of existing resources. A project delivery team was established in December 2014 to consider restoration opportunities, and has identified three promising island projects including Harlow Island, Crains Island, and Wilkinson Island.

Eagan said the initial plans for Harlow Island includes two miles of side channel excavation and reconnection, 2.5 miles of sediment deflection berms, degradation of three miles existing agricultural levees, and 150 acres of reforestation. Together, these actions are intended to reconnect the side channel, create backwater habitat, and increase forest diversity. Crains Island would include two miles of side channel excavation and reconnection and 75 acres of reforestation as a means to reconnect side channel and increase forest diversity. For Wilkinson Island, the plans include creating backwater habitat and increasing forest diversity through the construction of 1.5 miles of sediment deflection berms, degradation of 3 miles of existing agricultural levees, and 225 miles of reforestation.

As next steps, Eagan said the project delivery team will:

- 1) continue evaluating problems and opportunities,
- 2) host a value engineering and planning charrette workshop in July 2015,
- 3) define and measure all project alternatives and then determine a tentatively selected plan for public review, and
- 4) complete the feasibility report with an integrated environmental assessment.

Long Term Resource Monitoring and Science

Highlights

Jeff Houser reported on LTRMP’s major activities and accomplishments in the second quarter of FY 2015. Houser said a completion report was published that describes the spatial and temporal dynamics of submersed aquatic vegetation (SAV) and metaphyton communities in Pool 4. The research concluded that there has been a community shift over time of native SAV species increasing in richness and abundance. The research shows that vegetation communities can better recover when river conditions improve.

Houser said a seamless elevation data set, termed “topobathy,” has been developed that merges LiDAR and bathymetry data. UMESC hosted a long term resource monitoring component meeting in La Crosse on April 14-15, 2015. One primary objective was to ensure that consistent sampling methods are being applied across field stations in order to maintain high data integrity.

USACE Science Update

Karen Hagerty said that, in FY 2015, the program's science in support of restoration work will include research, analysis, model development, and the identification of ecosystem resilience indicators. The specific activities are listed on pages D-12 to D-13 of the agenda packet.

Update on UMRR Invasive Species Policy Paper

Hagerty reported that the UMRR Coordinating Committee has finalized an invasive species policy for the program. The policy's primary purpose is to communicate to implementing partners about UMRR's roles and responsibilities related to invasive species. Hagerty recalled that, at the UMRR Coordinating Committee's February 11, 2015 meeting, the Committee endorsed the policy paper with a couple of minor corrections. The revised policy paper as agreed on by the Committee via email is included on page D-14 of the agenda packet.

A-Team Report

Shawn Giblin explained his intentions as the recently named A-Team Chair, which are to focus the Team's discussions on data syntheses, such as threshold analyses and defining measurable outcomes to improve the river's ecological integrity.

Science Highlight: Asian Carp Influences on Native Fishes on the UMR

Quinton Phelps presented analyses of UMRR's monitoring data showing the impacts of Asian carp on native fish species by comparing pools with high and moderate abundance and no presence of Asian carp, as well as pre- and post-invasion data. Phelps explained that there are many parameters needed to thoroughly evaluate the forces that influence the fish community to make informed management decisions, including the role of invasive species on native fishes. He emphasized the importance of understanding the various factors that influence the structure and function of the UMRS's ecosystem, including invasive species. Long term resource monitoring data that incorporates pre- and post-invasion can provide the best insight regarding such influence. Phelps said the upper three study reaches have not been invaded by silver carp and therefore serve as a control. The lower three study reaches have established silver carp populations.

Phelps provided background about the introduction of Asian carps to the Midwest and the traits that make the fish a great invader. He said silver carp are widely understood to alter habitats, compete with native species, and disrupt the ecosystem. However, the actual effects remain largely unknown since Asian carp are fairly recent invaders. To understand these effects better, researchers recently explored the following research questions: what are the effects of silver carp invasion?, what are the effects of silver carp in UMRS floodplain lakes?, if there is negative interaction between silver carp and native fishes, is competition the mechanism driving this relationship?

Phelps explained the research objectives, methods, and results, as described below:

1. Objective: To compare native planktivore relative abundance before and after invasion.

Results: Using beyond before-after-control-impact analyses with data collected between 1993 and 2013, the data indicate that, following silver carp invasion, gizzard shad and bigmouth buffalo had significant declines in mean catch per year.

2. Objective: To evaluate short-term fish community changes in Mississippi River floodplain lakes with varying densities of silver carp.

Results: Sampling four UMR floodplain lakes to compare present/absence of dominant taxa, the results show that there is no change in fish community where there is not silver carp invasion, minor changes where there is moderate invasion, and drastic changes where there is high invasion (or abundance).

3. Objective: To determine if competition exists between gizzard shad/bigmouth buffalo and silver carp in a controlled setting, and whether that competition is direct or indirect.

Results: Comparing growth and survival of young-of-youth of silver carp, bigmouth buffalo, and gizzard shad in a laboratory as well as post-hoc behavioral experiments, the results indicate that silver carp out-compete the other fish because they are more effective at consuming prey.

Phelps concluded that there are multiple lines of evidence that suggest Asian carp may be impacting fish community composition and thus historic function. He said future study efforts could include evaluating potential management strategies that could effectively minimize effects on the UMRS, determining what stretches of the UMRS are the most important to invasive carp reproduction, the effects of Asian carp on the diets of piscivores and whether that alters community composition, and evaluating early life history and its role in recruitment and management efforts.

In response to a question from Ken Dalrymple, Phelps said UMRS scientists are making substantial progress in terms of evaluating control techniques and will likely be moving forward with implementing some control technologies soon.

Other Business

Bob Clevensine announced that Bob Delaney recently passed away. Clevensine recognized Delaney's significant contributions to the UMRR and the UMRS. He will be missed. Meeting participants took a moment of silence in his memory.

Future Meetings

The upcoming quarterly meetings are as follows:

- **August 2015 — La Crosse**
 - UMRBA — August 4
 - **UMRR Coordinating Committee — August 5**
- **November 2015 — St. Paul**
 - UMRBA — November 17
 - **UMRR Coordinating Committee — November 18**
- **February 2016 — Quad Cities**
 - UMRBA — February 23
 - **UMRR Coordinating Committee — February 24**

With no further business, the meeting adjourned at 12:57 p.m.

**UMRR Coordinating Committee Attendance List
May 6, 2015**

UMRR Coordinating Committee Members

Mark Moore	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 [On the phone]
Jon Hubbert	Natural Resources Conservation Service
Ken Westlake	U.S. Environmental Protection Agency, Region 5 [On the phone]

Others In Attendance

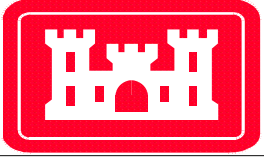
Charlie Hanneken	U.S. Army Corps of Engineers, Headquarters
Kevin Bluhm	U.S. Army Corps of Engineers, MVP
Ken Barr	U.S. Army Corps of Engineers, MVR
Karen Hagerty	U.S. Army Corps of Engineers, MVR
Marvin Hubbell	U.S. Army Corps of Engineers, MVR
Nicole Lynch	U.S. Army Corps of Engineers, MVR [On the phone]
Mike Feldmann	U.S. Army Corps of Engineers, MVS
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
Monique Savage	U.S. Army Corps of Engineers, MVS
Jerica Richardson	U.S. Army Corps of Engineers, MVS
Bob Clevestine	U.S. Fish and Wildlife Service, UMR Refuges
Ken Dalrymple	U.S. Fish and Wildlife Service, UMR Refuges
Jon Duyvejonck	U.S. Fish and Wildlife Service, RIFO
Kraig McPeck	U.S. Fish and Wildlife Service, RIFO
Jason Wilson	U.S. Fish and Wildlife Service, UMR Refuges
Jeff Houser	U.S. Geological Survey, UMESC
Dave Herzog	Missouri Department of Conservation
Quinton Phelps	Missouri Department of Conservation
Harry Bozoian	Missouri Department of Natural Resources
Bryan Hopkins	Missouri Department of Natural Resources
Lorisa Smith	Missouri Department of Natural Resources
Robert Stout	Missouri Department of Natural Resources
Shawn Giblin	Wisconsin Department of Natural Resources
Tom Boland	AMEC Foster Wheeler
Brad Walker	Missouri Coalition for the Environment
Gretchen Benjamin	The Nature Conservancy
Todd Strole	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 Spreadsheets thru 3rd Quarter of FY 15 (6/30/2015)**
(B-1 to B-5)
- **Lean Six Sigma**
 - **Memo from Marv Hubbell seeking recommendations** *(B-6)*
 - **HREP development stages** *(B-7)*

UMRR-EMP EXPENDITURES AND ALLOCATIONS

FY15 (\$ 000)						
		CARRY IN FROM FY 14	FY 15 ALLOCA.	TOTAL AVAILABLE TO EXP.	30 June 15 ACTUAL EXP.	30 June 15 ACTUAL OBLIG.
PROGRAM ELEMENTS						
HABITAT PROJECTS						
HREP PROJECTS		223	23,309	23,526	16,356	14,781
ARRA HREP PROJECTS		0	0	0	0	0
HABITAT EVAL/MONITORING		0	475	475	392	384
HABITAT NEEDS ASSESSMENT		0	0	0	139	0
PLANNING/PRIORITIZATION		0	0	0	0	0
USFWS HREP SUPPORT		0	370	370	271	331
PROGRAM COOR. (Includes District Habitat Coordination)		0	3,240	3,240	1,430	1,471
REPORT TO CONGRESS- 2014		0	0	0	6	81
REGIONAL INITIATIVES		0	201	201	135	138
LTRM (Includes LTRM Regional Technical)		0	5,575	5,575	4,948	4,273
ARRA LTRM PROJECTS		0	0	0	0	0
TOTALS		223	33,170	33,387	23,682	21,540
TOTALS BY ORGANIZATION						
MVR *		26	12,443	12,463	9,104	2,855
MVP		75	7,361	7,436	2,480	7,104
MVS		122	7,421	7,543	6,815	6,820
USGS		0	5,500	5,500	4,947	4,273
UMRBA Administration		0	75	75	59	76
USFWS (Multi-district funded)		0	370	370	271	331
REPORT TO CONGRESS- 2012		0	0	0	6	81
System Ecological Team (SET)		0	0	0	0	0
TOTAL		223	33,170	33,387	23,682	21,540

*1

* 1 Equals Work Allowance amount of \$33,170,000.

'30 June 2015
FY 2015

ADMINISTRATIVE, LTRM, and Non-Site Specific Costs

	FY15 (\$ 000)				
	CARRY IN	ALLOCA.	TOTAL SCHED EXP.	30 June 15 Actual Exp.	30 June 15 Actual Obl.
HABITAT (Rollup from district sheets)					
BASELINE MONITORING	0	85	85	75	75
HABITAT PROJ. EVALUATION	0	315	315	317	309
BIO-RESPONSE STUDIES	0	75	75	0	0
USFWS HREP SUPPORT (Multi-district funded)	0	370	370	271	331
PLANNING/SEQUENCING (PRIORITIZATION)	0	0	0	0	0
TOTAL HABITAT	0	845	845	663	715
PROGRAM COORDINATION (excludes District Habitat Coord.)					
UMRBA	0	75	75	59	76
System Ecological Team (SET)	0	0	0	0	0
PUBLIC INVOLVEMENT	0	60	60	1	1
EMP PROGRAM ADMINISTRATION	0	630	630	539	546
LTRM REGIONAL TECHNICAL	0	75	75	0	0
REGIONAL INITIATIVES	0	201	201	135	138
PROGRAM MGT TOTAL	0	1,041	1,041	734	760
REPORT TO CONGRESS (includes all organizations)	0	0	0	6	81
LTRM					
CORPS LTRM MANAGEMENT	0	0	0	0	0
LTRM (USGS & STATES)	0	5,500	5,500	4,947	4,273
CORPS BATHOMETRY & LiDAR (Multi-district funded)	0	0	0	0	0
ARRA - BATHOMETRY, LiDAR, & GIS (Multi-district funded)	0	0	0	0	0
CORPS APE'S ACTIVITIES	0	0	0	0	0
CORPS LTRM TECHNICAL SUPPORT (MSP)	0	0	0	0	0
SUBTOTAL	0	5,500	5,500	4,948	4,273

ST. PAUL DISTRICT

MVP	PROJECT DESIGN	ESTIMATE CONST	TOTAL W/O NON FED	NON-FED EST	EXP FOR FY 14	EXP THRU FY 14	FY15 (\$ 000)						(Federal) Scheduled \$ To Complete	
							CARRY IN	ALLOCA.	TOTAL AVALIABLE TO EXP.	30 June 15	30 June 15			
										Actual Exp.	Actual Obl.			
HABITAT PROJECTS														
Capoli Slough, WI	500	8,750	9,250		1981	6413		200	200	319	156	6,950	CONSTRUCTION	
Conway Lake, IA	462	2,050	2,512		141	254		275	275	159	168	2,212	DESIGN	
Harpers Slough, IA	1,500	15,000	16,500		499	2185	75	6,106	6,181	1,257	6,132	14,744	CONSTRUCTION	
Lake Winneshiek, WI	620	4,380	5,000			9			0			5,000	DESIGN	
Lower Pool 10 Islands/Backwater, IA	920	5,200	6,120		27	0			0			6,093	DESIGN	
McGregor Lake, WI	900	5,600	6,500		151	152		30	30	3	22	6,346	DESIGN	
North & Sturgeon Lakes, MN	900	7,600	8,500	1,100	297	2172		300	300	308	330	7,895	DESIGN	
ARRA PLANING, ENG & DESIGN	0	75	75	0		75			0			75		
Other Habitat (Carry over)	0	0	0	0		0			0			0		
HABITAT TOTAL	5,802	48,655	54,457	1,100	3,096	11,260	75	6,911	6,986	2,046	6,808	49,315		
									0					
HABITAT EVAL/MONITORING														
HABITAT NEEDS ASSESSMENT						57			0	139	0			
BASELINE MONITORING					104	582		25	25	1	1			
HABITAT PROJ. EVALUATION					138	1771		75	75	78	79			
BIO-RESPONSE STUDIES						1333			0					
USFWS HREP SUPPORT					107	1345		130	130					
PLANNING/SEQUENCING (PRIORITIZATION)						0			0					
SUBTOTAL	0	0	0	0	349	5,088	0	230	230	218	80	0		
PROGRAM MANAGEMENT														
PROGRAM COORDINATION					457	4889		350	350	216	216			
PUBLIC INVOLVEMENT - mipr \$						0			0					
SUBTOTAL	0.0	0.0	0.0	0.0	457	4,889	0	350	350	216	216	0		
LTRM														
LTRM COORDINATION						455	0	0	0					
ADDITIONAL LTRM						484	0	0	0					
SUBTOTAL	0	0	0	0		939	0	0	0	0	0	0		
DIRECT MVP EXPENDITURES				1,100	3,902	22,176	75	7,491	7,566	2,480	7,104	0		
*1														
MIPR & CROSS CHARGE LABOR EXPENDITURES														
Mipr for LTRM Travel						15.1			0	0	0			
Cross charge labor Technical & Bathemetry						31.7			0	0	0			
MIPR TOTALS (Includes Public Involvement)						47	0	0	0	0	0			
TOTAL MVP EXPENDITURES					3,902	22,223	75	7,491	7,566	2,480	7,104			
*1														
NOTES:														
*1 Equals MVP work allowance of \$7,491,000														

ROCK ISLAND DISTRICT

MVR	PROJECT ESTIMATE DESIGNCONST		TOTAL W/O NON FED	NON-FED EST	EXP FOR FY 14	EXP THRU FY 14	FY15 (\$ 000)						(Federal) Scheduled \$ To Complete	
							CARRY IN	ALLOCA.	TOTAL AVAILABLE TO EXP.	30 June 15 Actual Exp.	30 June 15 Actual Obl.			
HABITAT PROJECTS														
BEAVER ISLAND, IA	1,500	11,000	12,500		232	411			540	540	469	419	11,799	PLANNING
FOX ISLAND, MO	700	4,300	5,000		446	5,675			140	140	264	107	4,291	DESIGN
HURON ISLAND, IA	2,100	8,400	10,500		639	2,285			773	773	2,665	201	7,195	PLANNING
LAKE ODESSA, IA	2,470	12,394	14,864		90	15,133			650	650			14,774	DESIGN
POOL 11 ISLANDS, WI	1,548	14,469	16,017			10,157				0			16,017	CONSTRUCTION
POOL 12 OVER WINTER, IA	2,500	16,500	19,000		1,811	3,939			6,393	6,393	3,072	501	14,117	DESIGN
RICE LAKE, IL	2,800	10,720	13,520	6,825	1,518	12,374		26	539	565	1,151	50	10,852	DESIGN
TURKEY RIVER BOTTOMS	2,900	15,800	18,700		0	2			4	4			18,700	PLANNING
BOSTON BAY	900	5,100	6,000		0	2			4	4			6,000	PLANNING
STEAMBOAT ISLAND	1,250	6,250	7,500		0	2			25	25			7,500	PLANNING
KEITHSBURG DIVISION	1,400	4,800	6,200		12	14			250	250	241	241	5,947	PLANNING
DELAIR DIVISION	1,750	7,750	9,500		0	2			4	4			9,500	PLANNING
SNYDER SLOUGH	1,800	15,000	16,800		14	16			4	4	0	0	16,786	PLANNING
EMIGUON	725	12,575	13,300	6,400	232	233			20	20	9	9	13,058	DESIGN
LAKE ODESSA, IA (Flood Recovery) (supplemental)		5,500	5,500		174	4,915				0	92	92	5,235	FLOOD RECONSTR.
ARRA ODESSA		236	236			158				0			236	ARRA
OTHER HABITAT		0	0			0				0			0	
HABITAT TOTAL	23,618	138,922	162,540	6,825	5,170	87,333		26.0	9,346.0	9,372	7,962	1,620	39,233	
HABITAT														
HABITAT NEEDS ASSESSMENT						0			0	0				
BASELINE MONITORING			268			254				0				
HABITAT PROJ. EVALUATION			938		150	3,514			225	225	189	180		
BIO-RESPONSE MONITORING			588			1,036			0	0				
USFWS HREP SUPPORT					166	1,049			170	170	150	210		
PLANNING/SEQUENCING (PRIORITYIZATION)						39			0	0				
SUBTOTAL	0	0	1,794	0	316	5,893		0	395	395	339	390		
PROGRAM MANAGEMENT														
REGIONAL HREP SCIENCE SUPPORT			3,496	0	276	5,469			1,900	1,900	272	289		
PUBLIC INVOLVEMENT	0.0	20.0	20.0		41	244			60	60	1	1		
REGIONAL ADMIN				0	655	2,936			630	630	539	546		
LTRM REGIONAL TECHNICAL					69	1,813			75	75				
PROGRAM INITIATIVES					192	1,170			201	201	135	138		
SUBTOTAL			3,516	0	1,234	11,633		0	2,866	2,866	947	974		
REPORT TO CONGRESS					0	96		0	0	0	6	81		
LTRM														
CORPS BATHOMETRY & LIDAR(Multi-district funded)					8	463		0		0	0	0		
ARRA - BATHOMETRY, LIDAR, USGS, & GIS					0	2,811		0		0				
CORPS APE'S ACTIVITIES						165		0		0				
ADDITIONAL LTRM					0	927		0		0	0	0		
SUBTOTAL	0	0	530	0	8	4,365		0	0	0	0	0		
MIPRS & Contracts														
UMRBA					83	239		0	75	75	59	76		
ITRC					0	0		0	0	0	0	0		
USGS					6,088	20,286		0	5,500	5,500	4,947	4,273		
FY14 Reprogram						0			6					
SUBTOTAL					6,171	20,525		0	5,581	5,575	5,006	4,349		
TOTAL MVR EXPENDITURES					12,898	129,845		26.0	18,188	18,208	14,260	7,414		
*1 Equals MVR work allowance of \$18,188,000														
*1														

ST LOUIS DISTRICT

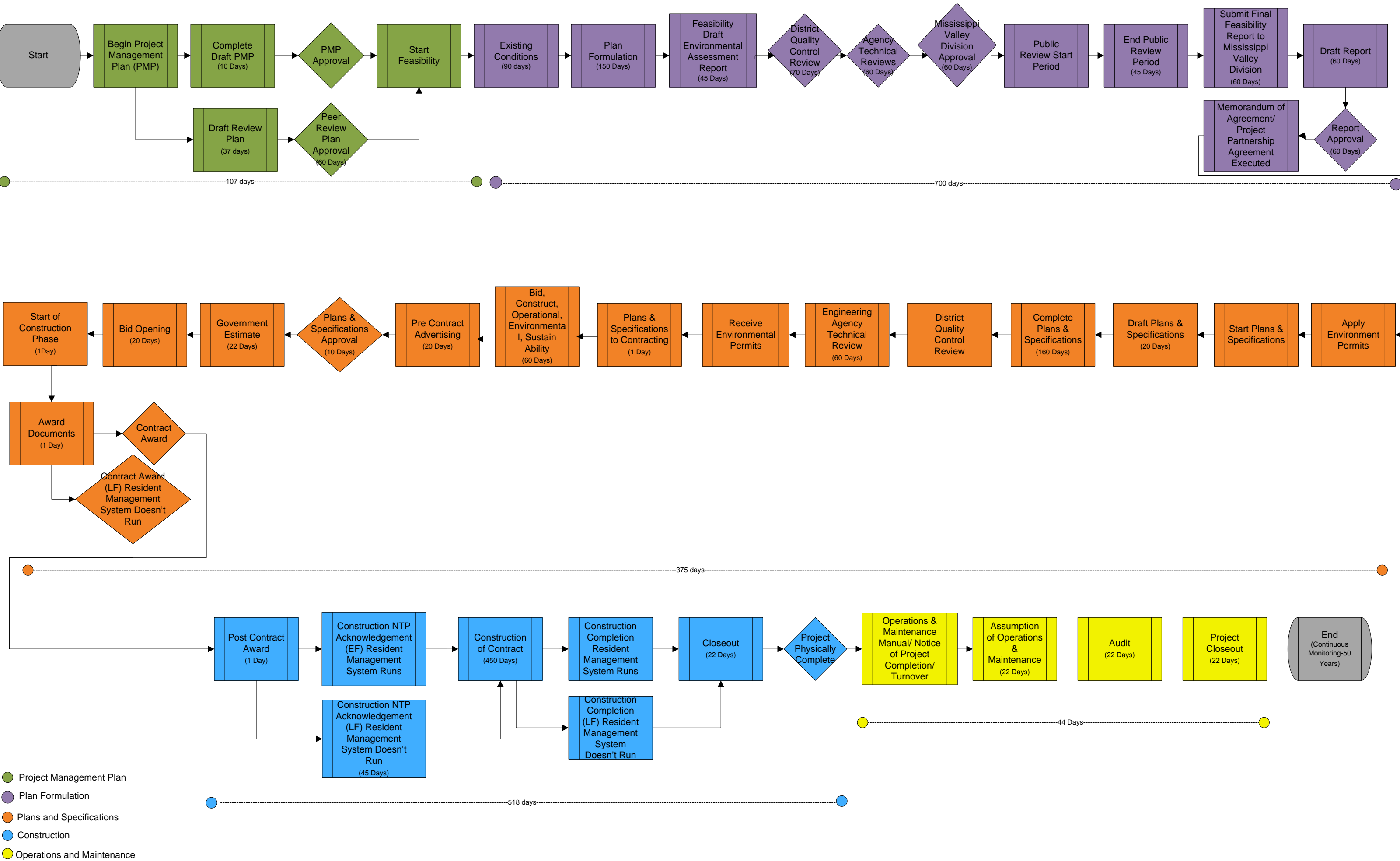
MVS			TOTAL W/O NON FED	NON-FED EST	EXP FOR FY 14	EXP THRU FY 14	FY15 (\$ 000)						(Federal) Scheduled \$ To Complete	
	PROJECT ESTIMATE						CARRY IN	ALLOCA.	TOTAL AVAILABLE TO EXP.	30 June 15 Actual Exp.	30 June 15 Actual Obl.			
	DESIGN	CONST												
HABITAT														
BATCHTOWN MGMT, IL	3,220	14,875	18,095	145	261	16,796		100	100	76	76	1,223	CONSTRUCTION	
CLARENCE CANNON, MO	2,637	27,180	29,817		484	1,502		950	950	896	896	27,419	DESIGN	
EAGLES NEST & PIASA IS., IL	1,057	4,500	5,557		216	432		350	350	312	312	4,813	FACT SHEET	
GLADES WETLAND, IL	3,218	14,000	17,218			0		100	100	37	37	17,181	DESIGN	
HARLOW ISLAND	750	3,750	4,500		22	60		400	400	332	332	4,108	DESIGN	
RIP RAP LANDING	1,373	10,553	11,926	1,207	79	748		100	100	19	19	11,159	DESIGN	
POOL 24 ISLANDS	1,373	8,119	9,492			8		10	10			9,484	DESIGN	
POOLS 25/26, MO	875	1,600	2,475		272	1,076		100	100	158	158	1,241	CONSTRUCTION	
REDS LANDING,	621	2,863	3,484			0		10	10			3,484	DESIGN	
SCHENIMANN CHUTE, MO	691	2,800	3,491			396		10	10			3,095	DESIGN	
SWAN LAKE, IL	2,377	13,246	15,623	262		15,204		25	25			419	CONSTRUCTION	
TED SHANKS, MO	4,405	25,101	29,506		5,004	12,620	122	4,861	4,983	4,386	4,386	12,500	CONSTRUCTION	
WILKINSON ISLAND	1,250	2,730	3,980	0	8	876		10	10			3,104	DESIGN	
WEST ALTON ISLAND	805	5,727	6,532			17		10	10	0	5	6,515	DESIGN	
HORSESHOE LAKE	1,520	12,750	14,270		40	40		10	10	10	10	14,220	DESIGN	
FT. CHARTRES SIDE CHANNELS, IL	650	2,650	3,300			44			0			3,256	DESIGN	
ESTABLISHMENT CHUTE SC, MO	650	2,250	2,900			24			0			2,876	FACT SHEET	
KASKASKIA OXBOWS, IL	750	3,500	4,250			0			0			4,250	FACT SHEET	
ARRA RIPRAP LANDING	0	319	319			319			0			0	ARRA	
ARRA BATCHTOWN	0	3,405	3,405			3,261			0			144	ARRA	
ARRA SWAN LAKE	0	1,109	1,109			1,109			0			0	ARRA	
(Other Unexpended Carryover)	0	184	184		48	62			0	122	122	0		
HABITAT TOTAL	28,222	163,211	191,433	1,614	6,434	54,594	122	7,046	7,168	6,348	6,353	130,491		
HABITAT EVAL/MONITORING														
HABITAT NEEDS ASSESSMENT	1,000		1,000			0								
BASELINE MONITORING					530	1,372		60	60	74	74			
HABITAT PROJ. EVALUATION					14	666		15	15	50	50			
BIO-RESPONSE MONITORING					4	1,184		75	75		0			
USFWS HREP SUPPORT					156	614		70	70	121	121			
PLANNING/SEQUENCING(PRIORITIZATION)						4			0					
SUBTOTAL	1,000	0	1,000	28,347	704	3,840	0	220	220	245	245			
PROGRAM MANAGEMENT														
PROGRAM COORDINATION					199	2,285		225	225	343	343			
PUBLIC INVOLVEMENT					0	0			0					
SUBTOTAL	0	0	0	0	199	2,285	0	225	225	343	343			
LTRM														
LTRM COORDINATION					0	0			0					
ADDITIONAL LTRM					0	0			0					
SUBTOTAL	0	0	0	0	0	0	0	0	0	0	0			
DIRECT MVS EXPENDITURES	29,222	163,211	192,433	29,961	7,337	60,719	122	7,491	7,613	6,936	6,941			
MIPR EXPENDITURES														
LTRM mipr for Travel					0	444	0		0	0	0			
LTRM Bathemetry & Technical cross chrg					0	28	0		0	0	0			
MIPR/ Cross charge totals					0	472	0		0	0	0			
TOTAL MVS EXPENDITURES					7,337	61,191	122	7,491	7,613	6,936	6,941			
NOTES:														
*1 Equals MVS work allowance of \$7,491,000														

To: UMRR Coordinating Committee
From: Marv Hubbell, UMRR Program Manager

The attached flow chart is a stylized depiction of the major phases, activities, and key decision points of a typical UMRR Program Habitat Rehabilitation and Enhancement Project (HREP). The chart is color coded to depict the major project phases: (Project Management Plan (PMP), Feasibility Study, Plans and Specifications, Contract award and construction, development of an Operations and Maintenance Manual (O & M), and carrying out HREP O & M). The blocks identify major activities in their preferred sequence. Each of these blocks has a brief description and anticipated time to complete. Note that nearly all of the activities have more than one action required. Finally, the diamonds depict key decision points in the process.

The attached flow chart anticipates a period of about 3.2 years from initiation of a PMP to the award of a construction contract. Construction periods vary based on amount and complexity of construction.

Requested Action: At several past UMRR Coordinating Committee meetings, Committee members have expressed a strong desire to identify possible efficiency improvements a part(s) of the HREP process through a Lean Six Sigma process improvement evaluate. Please review this flow chart [on page B-7 of the agenda packet] and recommend the areas where you think there is an opportunity for process improvements using the tenets of Lean Six Sigma.



ATTACHMENT C

Public Involvement and Outreach Activities

- **The Gazette Article: Environmental restoration building up on the Upper Mississippi (July 6, 2015)** *(C-1 to C-5)*
<http://thegazette.com/subject/news/government/environmental-restoration-building-up-on-the-upper-mississippi-20150706>
- **Draft Agenda for the 4th Biennial Symposium of the International Society for River Science (ISRS)** *(C-6 to C-11)*
<http://www.uwlax.edu/conted/isrs2015/pdf/2015-ISRS-Program-draft.pdf>

Environmental restoration building up on the Upper Mississippi

Five projects in the works

Orlan Love, The Gazette
July 6, 2015

A recent funding surge for environmental restoration projects on the Upper Mississippi River will benefit fish, wildlife and recreationists.

The Upper Mississippi River Restoration Program “has been fully funded for the past three years, and we have a lot going on right now,” said Kirk Hansen, a Department of Natural Resources fisheries research biologist at Bellevue.

“We have more projects going on right now than we’ve ever had. It’s exciting,” said DNR fisheries biologist Scott Gritters, who also is stationed at Bellevue.

“We’ve had three really good funding years in a row,” said Marv Hubbell, who administers Habitat Restoration and Enhancement Projects for the Army Corps of Engineers.

The Corps, the U.S. Fish and Wildlife Service and natural resource departments in Iowa, Illinois, Minnesota, Missouri and Wisconsin work cooperatively on the restoration program.

It had been funded at an annual level of about \$16 million for several years and that amount was expected for fiscal year 2013, Hubbell said.

“We actually got \$24.5 million for FY13, and the federal appropriation increased to \$32 million in FY14 (fiscal year 2014) and to \$33.17 million in FY15,” he said.

The increased funding, coupled with several “absolutely shovel-ready” projects along Iowa’s eastern border, he said, has resulted in five major projects underway in the Corps’ Rock Island District, which encompasses 314 miles of the Mississippi — much of it along Iowa’s border.

Such projects typically involve dredging to increase the depth in backwaters that have filled with sediment since the construction of the lock and dam system in the 1930s.

Iowa DNR research has established that the loss of suitable overwintering spots — backwaters with sufficient depth, oxygen content and lack of current — is a major limiting factor in the survival and subsequent reproduction of bass, bluegill, crappies and sunfish.

In most cases the dredge spoils are used to build islands and berms that provide wildlife habitat while obstructing the erosive forces of waves.

Revegetation

Dredging and the building of islands and berms are key components of the nearly completed Sunfish Lake project on pool 12 above Bellevue and of the Harpers Slough project that got underway in April on lower pool 9.

Two miles of channels will be dredged in the 300-acre Sunfish Lake backwater, restoring about 16 acres of deep backwater channels.

The dredge spoils have been used to build berms that will help keep sediment out of the lake, and trees will be planted on the berms to enhance the flood plain forest habitat.

On pool 9, the Corps is constructing seven islands and three emergent wetlands within the 2,200-acre Harpers Slough backwater.

The islands — built with dredge spoils from the main channel and the slough — will be revegetated and armored with rock to prevent erosion. The nearly 100 acres of new islands will limit wave action, protecting and enhancing aquatic vegetation, and the backwater dredging will create deeper holes for overwintering fish habitat.

Work on the \$11.9 million Harpers Slough project will continue over the next few years.

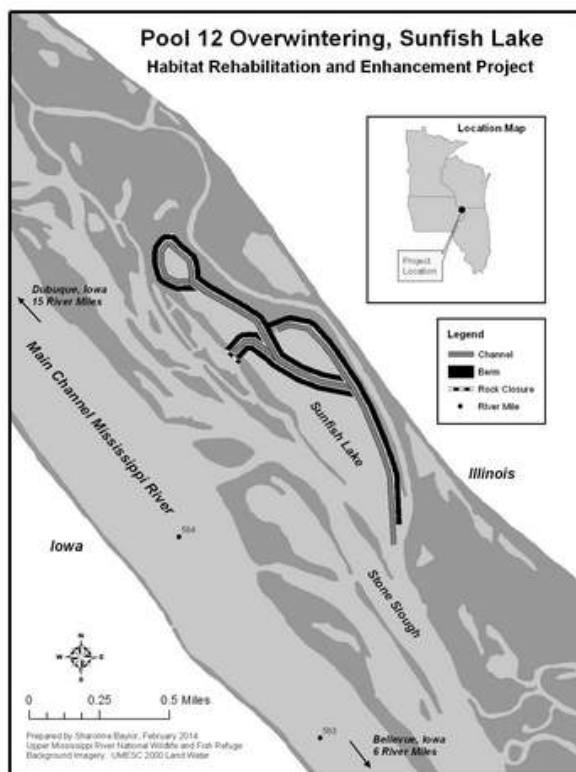
Similar projects are underway or in development for the Beaver Island complex near Clinton, the Huron Island complex in pool 18 and at Lake Odessa in Louisa County.

Gritters said the projects will incorporate an innovative approach to increasing the diversity of river bottom forests, which have come to be dominated by water-tolerant silver maples in the decades since the construction of the lock and dam system.

“We’re going to build the islands and berms high enough to support oaks and other mast-producing trees, which will benefit wildlife and the overall health of the ecosystem,” he said.



A pair of trumpeter swans lounge Thursday, March 31, 2011, along a Mississippi River backwater near Guttenberg. The pair, part of the Iowa Department of Natural Resources reintroduction program, have been nesting and raising young in the area for the past few years, according to DNR fisheries technician Kevin Hanson. The swan on the left wears a clearly visible identification band around its neck. (Orlan Love/The Gazette)



This U.S. Fish and Wildlife Service map details the nearly complete dredging and berm-building project at Sunfish Lake in pool 12 of the Mississippi above Bellevue. The project, which cost more than \$5 million, will improve overwintering habitat for fish, limit wave erosion and increase the diversity of river bottom forests.



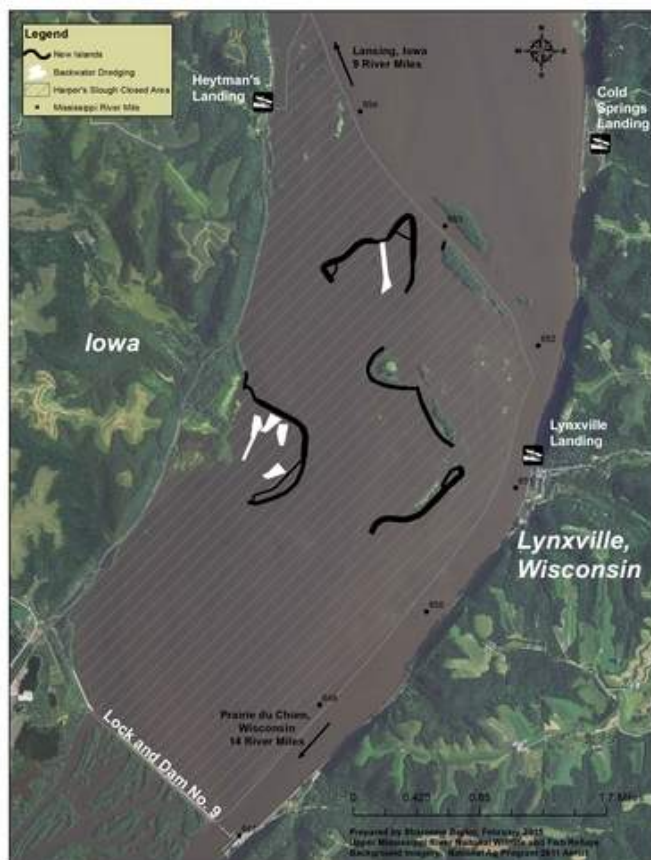
Employees of Newt Marine Services of Dubuque use heavy equipment recently to build islands in Harpers Slough in the lower part of pool 9 of the Mississippi River. The project, which began in April, consists primarily of backwater dredging and the construction of seven islands encompassing more than 100 acres. U.S. Fish and Wildlife Service photo



Islands under construction in Harpers Slough on pool 9 of the Mississippi River will provide wildlife habitat and increased plant diversity while breaking up destructive wave action. The Harpers Slough project is one of five major environmental restoration projects underway in the Corps' Rock Island District, which encompasses 314 miles of the Mississippi — much of it along Iowa's border. U.S. Fish and Wildlife Service photo



Kathy Steinhagen (left) and her son Clint, 12, both of Waconia, Minn., take pictures of where the Wisconsin River meets the Mississippi River from the overlook at Pikes Peak State Park on Thursday, July 1, 2010, in near McGregor, Iowa. (Jim Slosiarek/SourceMedia Group News)



This U.S. Fish and Wildlife Service map details the \$11.9 million dredging and island-building project underway in Harpers Slough in pool 9 of the Mississippi River between Lansing and Harpers Ferry.

Sunday, August 23, 2015

All events located in the La Crosse Center unless otherwise noted.

TIME	EVENT Room or location
8 - 1:00	Tour of Perot State Part (special event registration required) Meet at La Crosse Center
8:30 - 4:30	Workshop: An Introduction to R (special event registration required) UL-Boardroom A
8:30 - 4:30	Workshop: Introduction to MesoHABSIM (special event registration required) UL-Boardroom B
12 - 5	Tour of Perot State Part (special event registration required) Meet at La Crosse Center
12 - 5	Public Exhibits (free, no registration) Riverside Park
2 - 4	Cruise of Mississippi River on the Riverboat Cal Fremling (by invitation) Riverside Park
4 - 8	Registration Lobby
5:15-6:45	Opening Reception (complimentary for conferees and invitees) UL-Ballroom
7 - 8:30	Opening Ceremony & Keynote Speaker Chad Pregracke North Hall

Monday, August 24, 2015

All events located in the La Crosse Center unless otherwise noted.

TIME	EVENT Room			
7:30 - 4:30	Registration LL-Lobby			
7:30 - 8:30	Continental Breakfast (complimentary) UL-Ballroom Foyer			
8:30 - 9:40	Plenary Session: "Keeping 'the ecology' in River Connectivity" Margaret Palmer UL-Ballroom			
9:40 - 10:20	Refreshment Break (complimentary) LL-South Hall A			
10:20 - 11:40	Divesting River Management Infrastructure--Ecological Implications and Conservation Approaches. Part I Moderator: L. Craig	Modeling Changes withing River Ecosystems Moderator:	Ecohydraulics of Mollusks and Other Benthic Macroinvertebrates in Rivers. Part I Moderators: S. Zigler, T. Newton	Restoration of Large River Ecosystems. Part I Moderator:
12:00 - 1:30	Lunch (complimentary) Speaker: Tim Kabat "Mississippi River Cities and Towns Initiative" LL-South Hall A			
1:40 - 3:00	Divesting River Management Infrastructure--Ecological Implications and Conservation Approaches. Part II Moderator: L. Craig	Fluvial Geomorphic Response to Landscape Disturbance -- A Tribute to the Life & Career of James C. Knox. Part I Moderators: C. Belby, F. Fitzpatrick	Ecohydraulics of Mollusks and Other Benthic Macroinvertebrates in Rivers. Part II Moderators: S. Zigler, T. Newton	Restoration of Large River Ecosystems. Part II Moderator:
3:00 - 3:40	Refreshment Break (complimentary) LL-South Hall A			
3:40 - 4:40	Plenary Session: "Shifting Habitat Mosaic of River Ecosystems" Jack Stanford UL-Ballroom			
5:00 - 6:30	Poster & Exhibit Social (complimentary) LL-South Hall A			

Tuesday, August 25, 2015

All events located in the La Crosse Center unless otherwise noted.

TIME	EVENT Room			
7:30 - 4:30	Registration LL-Lobby			
7:30 - 8:30	Continental Breakfast (complimentary) UL-Ballroom Foyer			
8:30 - 9:40	Plenary Session: "An Environmental Report Card for the Mississippi River" Bill Dennsion UL-Ballroom			
9:40 - 10:20	Refreshment Break (complimentary) LL-South Hall A			
10:20 - 11:40	Balancing Commercial Naviation with Envrionmental and Societal Uses of River Systems. Part I Moderator: G. Benjamin	Big River, Big Data -- What Are We Learning from Large-scale, Long-term Data Sets from Large River Ecosystems. Part I Moderator: J. Houser	Nutrient Delivery, Transformation and Water Quality. Part I Moderator:	Ecosystem Services in Rivers -- Connecting Upstream to Downstream and People to Their River I Moderator: D. Gilvear
12:00 - 1:30	Lunch (complimentary) Speaker: Martin Hettel LL-South Hall A			
1:40 - 3:00	Balancing Commercial Naviation with Envrionmental and Societal Uses of River Systems. Part II Moderator: G. Benjamin	Big River, Big Data -- What Are We Learning from Large-scale, Long-term Data Sets from Large River Ecosystems. Part II Moderator: J. Houser	Fish Passage Connectivity Tools-- Status and Case Studies. Part I Moderator: S. K. Mckay	Ecosystem Services in Rivers -- Connecting Upstream to Downstream and People to Their River. Part II Moderator: D. Gilvear
3:00 - 3:40	Refreshment Break (complimentary) LL-South Hall A			
3:40 - 5:00	Balancing Commercial Naviation with Envrionmental and Societal Uses of River Systems. Part III Moderator: G. Benjamin	Big River, Big Data -- What Are We Learning from Large-scale, Long-term Data Sets from Large River Ecosystems. Part III Moderator: J. Houser	Fish Passage Connectivity Tools-- Status and Case Studies. Part II Moderator: S. K. Mckay	
6:00	Banquet (complimentary) LL-South Hall A			

Wednesday, August 26, 2015

All events located in the La Crosse Center unless otherwise noted.

TIME	EVENT Room			
7:30 - 4:30	Registration LL-Lobby			
7:30 - 8:30	Continental Breakfast (complimentary) UL-Ballroom Foyer			
8:30 - 9:40	Plenary Session: "Engaging the Public in the Future of Rivers Using the Mississippi as a Model" Jerry Enzler UL-Ballroom			
9:40 - 10:20	Refreshment Break (complimentary) LL-South Hall A			
10:20 - 11:40	Functional Flows -- Designing Flow Regimes in Highly Managed River Systems to Enhance Ecological and Geomorphic Processes. Part I Moderator: S. Yarnell	Connectivity as a Driver of Physical and Biological Processes. Part I Moderator:	TITLE TO BE DETERMINED	Can You Hear Us Yet: Exploring the Diversity and Effectiveness of River Outreach Connections. Part I Moderators: Ken Lubinski, Jerry Enzler
12:00 - 1:30	Lunch (complimentary) Speaker: Reggie McLeod LL-South Hall A			
1:40 - 3:00	Functional Flows -- Designing Flow Regimes in Highly Managed River Systems to Enhance Ecological and Geomorphic Processes. Part II Moderator: S. Yarnell	Connectivity as a Driver of Physical and Biological Processes. Part II Moderator	Fluvial Geomorphic Response to Landscape Disturbance -- A Tribute to the Life & Career of James C. Knox. Part II Moderators: C. Belby, F. Fitzpatrick	Can You Hear Us Yet: Exploring the Diversity and Effectiveness of River Outreach Connections. Part II Moderators: Ken Lubinski, Jerry Enzler
3:00 - 3:40	Refreshment Break (complimentary) LL-South Hall A			
3:40 - 5:00	Environmental Monitoring of Large River Ecosystems Moderator:	Connectivity as a Driver of Physical and Biological Processes. Part III Moderator	Temporal Connectivity -- Benchmarking and Beyond Moderator: M. Reid	
5:00 - 6:30	Exhibit Social (complimentary) LL-South Hall A			
5:00 - 9:00	Excursion to UW-La Crosse Sports Grounds (special event registration required)			

Thursday, August 27, 2015

All events located in the La Crosse Center unless otherwise noted.

TIME	EVENT Room			
7:30 - 2:00	Registration LL-Lobby			
7:30 - 8:30	Continental Breakfast (complimentary) UL-Ballroom Foyer			
8:30 - 9:40	Plenary Session: "Education and Outreach: Understanding the Biogeochemistry of the World's Major Rivers" Bernhard Peuker-Ehrenbrink UL-Ballroom			
9:40 - 10:20	Refreshment Break (complimentary) LL-South Hall A			
10:20 - 11:40	Impacts of Natural and Human Pressures and Assessment of River Ecosystem Health. Part I Moderator:	Rivers & Watersheds -- Making the Connection Between Modeling, Ecology, and Water Quality. Part I Moderator: D. Schnoebelen	Growing Season Drawdowns as a Tool to Restore Critical Components of Historic Hydrologic Regimes in Large Rivers. Part I Moderator: S. Winter	Hydraulic Project Management Moderator:
12:00 - 1:30	Lunch (on your own)			
1:40 - 3:00	Impacts of Natural and Human Pressures and Assessment of River Ecosystem Health. Part II	Rivers & Watersheds -- Making the Connection Between Modeling, Ecology, and Water Quality. Part II Moderator: D. Schnoebelen	Growing Season Drawdowns as a Tool to Restore Critical Components of Historic Hydrologic Regimes in Large Rivers. Part II Moderator: S. Winter	<i>Invasive Species in Riparian Ecosystems</i> Moderator: T. Asaeda
3:00 - 3:40	Refreshment Break (complimentary) LL-South Hall A			
3:40 - 4:40	Plenary Session: "Rivers, Human Conflict, and Water Security" Charles Vorosmarty UL-Ballroom			
4:40 - 5:00	Closing Ceremony, UL Ballroom			
7:00 - 9:00	Beer & Pizza Social on the La Crosse Queen (special event registration required)			

Friday, August 28, 2015**Excursions to regional attractions; all excursions will meet at the La Crosse Center unless otherwise note**

TIME	EVENT Room
8:00 - 1:00	Tour of Pool 8 (special event registration required)
8:00 - 1:00	Tour of the Upper Midwest Environmental Science Center (special event registration required)
8:00 - 5:00	Tour of Winona, Minnesota (special event registration required)
TBD	Tour of Genoa Fish Hatchery (special event registration required)

ATTACHMENT D

Long Term Resource Monitoring and Science

- **Base Monitoring Scope of Work thru 3rd Quarter of FY 15 (7/20/2015)** *(D-1 to D-7)*
- **Update to FY 14 UMRR Science Activities in Support of Restoration and Management (7/20/2015)** *(D-8 to D-10)*
- **FY 15 UMRR Science Activities in Support of Restoration and Management (7/20/2015)** *(D-11 to D-12)*

Upper Mississippi River Restoration
Long Term Resource Monitoring Element
FY2015 Scope of Work

Tracking number	Milestone	Original Target Date	Modified Target Date	Date Completed	Comments	Lead
Aquatic Vegetation Component						
2015A1	Complete data entry and QA/QC of 2014 data; 1250 observations.					
	a. Data entry completed and submission of data to USGS	30-Nov-14		9-Oct-14		Moore, Nissen, Vogeler
	b. Data loaded on level 2 browsers	15-Dec-14		31-Oct-14		Schlifer
	c. QA/QC scripts run and data corrections sent to Field Stations	28-Dec-14		14-Nov-14		Sauer, Schlifer
	d. Field Station QA/QC with corrections to USGS	15-Jan-15		28-Nov-14		Moore, Nissen, Vogeler
	e. Corrections made and data moved to public Web Browser	30-Jan-15		30-Jan-15		Sauer, Schlifer, Caucutt
2015A2	WEB-based annual Aquatic Vegetation Component Update with 2014 data on Public Web Server.					
	a. Develop first draft	30-Mar-15		13-Apr-15		Sauer
	b. Reviews completed	15-Apr-15		15-Apr-15		Moore, Drake, Vogeler, Sauer, Yin
	c. Submit final update	30-Jun-15		30-Jun-15		Sauer
	d. Placement on Web with PDF	31-Jul-15				Sauer, Caucutt
2015A3	Complete aquatic vegetation sampling for Pools 4, 8, and 13	31-Aug-15				Yin, Moore, Nissen, Vogeler
2015A4	Web-based: Creating surface distribution maps for aquatic plant species in Pools 4, 8, and 13; 2014 data	31-Jul-15				Yin, Rogala, Schlifer
2015A5	Wisconsin DNR annual summary report 2014 that combines current year observations from LTRMP with previous years' data, for the fish, aquatic vegetation, and water quality components.	30-Sep-15				Fischer, Drake, Bartels, Giblin, Hoff
2015A6	Final draft LTRM completion report: Fifteen years (1998–2012) of aquatic vegetation in Pool 4 of the Upper Mississippi River (2012A6).	31-Dec-14		24-Mar-15	Delivered to UMRR Partnership	Moore
2015A7	Data compilation and analysis: Aquatic macrophyte communities and their potential lag time response to changes in physical and chemical variables in the LTRM vegetation pools	30-Jun-15	30-Sep-15		Delayed due to Walt Popp's retirement and M. Moore serving as acting Team Leader	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-16			See 2015A7	Moore
On-Going						
2013A8	Draft report: Identification of maximal flow velocity threshold for colony of <i>Vallisneria americana</i> along the channel border of the Upper Mississippi River—Extension of modeling capabilities for aquatic vegetation (contract award July 2013)	15-Jun-14	15-Sep-15	17-Jul-15		Yin
2014A7	Final draft report: Identification of maximal flow velocity threshold for colony of <i>Vallisneria americana</i> along the channel border of the Upper Mississippi River (2013A8)	15-Sep-14	TBD			Yin
2014A6	Annual Field Station Data Summary Report Template Development	30-Sep-14	30-Sep-15			Hagerty, Popp, Bierman, Chick, Herzog, Casper
Intended for distribution						
Completion report: LTRMP Aquatic Vegetation Program Review (2007A9; Heglund) Completed 7/1/2015						
LTRMP Technical Report: Ecological Assessment of High Quality UMRS Floodplain Forests (2007APE12; Chick, Guyon, Battaglia) (in USGS review)						
LTRMP 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)						
LTRMP 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)						

Upper Mississippi River Restoration
Long Term Resource Monitoring Element
FY2015 Scope of Work

Tracking number	Milestone	Original Target Date	Modified Target Date	Date Completed	Comments	Lead
Manuscript: A statistical model of species occupancy using the LTRMP aquatic vegetation data (2013A7; Yin) (in USGS review)						
WI DNR annual 2013 data summary report (2014A5; Fischer, Drake, Bartels, Giblin, Hoff) Completed						
Fisheries Component						
2015B1	Complete data entry, QA/QC of 2014 fish data; ~1,590 observations					
	a. Data entry completed and submission of data to USGS	31-Jan-15		31-Jan-15		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-15		15-Feb-15		Schlifer, Ickes
	c. Field Station QA/QC with corrections to USGS	15-Mar-15		15-Mar-15		DeLain, Bartels, Bowler, Ratcliff, Gittinger, West, Solomon, Pendleton
	d. Corrections made and data moved to public Web Browser	30-Mar-15		30-Mar-15		Ickes, Sauer and Schlifer
2015B2	Update Graphical Browser with 2014 data on Public Web Server.	31-May-15		30-Mar-15		Ickes, Sauer, DeLain, Bartels, Bowler, Ratcliff, Gittinger, West, Solomon, Pendleton, Schlifer
2015B3	Complete fisheries sampling for Pools 4, 8, 13, 26, the Open River Reach, and La Grange Pool	31-Oct-15				Ickes, DeLain, Bartels, Bowler, Ratcliff, Gittinger, West, Solomon, Pendleton
2015B4	Summary letter on Asian carp age and growth: collection of cleithral bones	31-Jan-15		6-Jan-15		Solomon, Casper
2015B5	Letter Summary: Exploring Years with Low Total Catch of Fishes in Pool 26	30-Sep-15				Gittinger, Ratcliff, Lubinski, Chick
2015B6	Collection and archiving of age and growth structure for selected species in the La Grange Reach of the Illinois River	31-Jan-15		16-Jan-15		Solomon, Casper
2015B7	Summary report: Pool 12 Overwintering HREP adaptive management fisheries response monitoring	30-Sep-15				Bierman, Bowler
2015B8(L)	Advisory role for Assessment of Asian carp exploitation by native piscivores in the Illinois River (Western Illinois University)	NA (WIU product)				Casper
2015B9	IDNR Fisheries Management State Report: Fisheries Monitoring in Pool 13, Upper Mississippi River, 2014	30-Jun-15		31-Mar-15		Bowler
2015B10(D)	Database increment: Stratified random day electrofishing samples collected in Pools 9 - 11	30-Sep-15				Bowler
2015B11(D)	Database increment: Stratified random day electrofishing samples collected in Pools 16–18	30-Sep-15				Bowler
2014B10	Presentations, draft completion report: Paddlefish population characteristics in the Mississippi river Basin	1-Dec-15				Hupfeld, Phelps
2014B11	Presentations, draft completion report: Examining recruitment patterns in Fishes in the Mississippi River	30-Nov-14		25-Nov-14		West, Sobotka, Hupfeld, Phelps
2015B12	Draft Book Chapter: The Mississippi River: A place for fish past, present, and future	30-Jul-15		30-Jun-15		Ickes, Schramm
2015B12a	Final Book Chapter: The Mississippi River: A place for fish past, present, and future	30-Sep-15				Ickes, Schramm

Upper Mississippi River Restoration
Long Term Resource Monitoring Element
FY2015 Scope of Work

Tracking number	Milestone	Original Target Date	Modified Target Date	Date Completed	Comments	Lead
2015B13	Assemble requisite data: Developing and applying trajectory analysis methods for UMRR Status and Trends indicators	8-Jun-15		8-Jun-15		Ickes
2015B14	Perform Trajectory Analysis: Developing and applying trajectory analysis methods for UMRR Status and Trends indicators	30-Aug-15				Ickes, Minchin
2015B15	Summary letter on results: Developing and applying trajectory analysis methods for UMRR Status and Trends indicators	30-Oct-15				Ickes, Minchin
2015B16	Draft Manuscript: Trajectory Analysis	30-Sep-16				Ickes, Minchin
2014AC2	Fish community structure: complete data analysis	30-Oct-14		30-Oct-14		Solomon, Pendleton, Casper
2014AC3	Fish community structure: present results	TBD		30-Oct-14		Solomon, Pendleton, Casper
2014AC4	Fish community structure: draft manuscript	30-Dec-14	30-Jun-15	30-Jun-15	Submitted to Biological Invasions	Solomon, Pendleton, Casper
On-Going						
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				Chick
2008B9	Draft manuscript: Standardized CPUE data from multiple gears for community level analysis (a previous manuscript was submitted and rejected by the journal, 2006B5; 2008B9 is a revised manuscript) (Chick)	30-Sep-15				Chick
2014B6	Summary letter on Asian carp age and growth: collection of cleithral bones	31-Jan-15		6-Jan-15		Solomon, Casper
2014B12	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-15		31-Jan-15		Solomon, Casper
Intended for distribution						
Completion report: LTRMP Fisheries Component collection of six darter species from 1989–2004. (2006B13; Ridings) (in USGS review)						
Evaluating the effectiveness of a mandatory catch and release regulation on a riverine largemouth bass population (2007B7; Bowler). Iowa Department of Natural Resources, Bureau of Fisheries Conservation & Recreation, Division Fisheries Management Section, 2013 Completion Reports, pp 149-169.						
LTRMP Report: An Evaluation of Macroinvertebrate Sampling Methods For Use In The Open River Reach of The Upper Mississippi River; Kathryn N. S. McCain, Robert A. Hrabik, Valerie A. Barko, Brian R. Gray, and Joseph R. Bidwell (2005C2) (in USGS review)						
LTRMP technical report; Setting quantitative fish management targets for LTRMP monitoring (2008APE2; Sass) (in USGS review)						
LTRMP 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)						
Manuscript: Sauger life history in the lower portion of the Upper Mississippi River (2013B20, Phelps). The Prairie Naturalist 46:44–47						
Manuscript: Age-0 sturgeon habitat associations in the free flowing portion of the Upper Mississippi River (2012B5; Tripp, Phelps, Herzog)						
LTRMP Fact Sheet: Tree map tool for visualizing fish data, with example of native versus non-native fish biomass (2013B16) (in USGS review)						
IA DNR Fisheries Management State Report: Fisheries Monitoring in Pool 13, Upper Mississippi River, 2013 (2014B14). Iowa Department of Natural Resources, Bureau of Fisheries Conservation & Recreation, Division Fisheries Management Section, 2013 Completion Reports, pp 85-115.						
IA DNR Report: Sex-Specific Age Structure, Growth, and Mortality of Black and White Crappie in Pool 13 of the Upper Mississippi River (Bowler, M. C., K. A. Hansen, K. S. Hausmann, and B. J. Reed) 2014. Iowa Department of Natural Resources, Bureau of Fisheries Conservation & Recreation, Division Fisheries Management Section, 2013 Completion Reports, PP 117-125.						
Manuscript: American eel population characteristics in the Upper Mississippi River (2012B7; Phelps) The American Midland Naturalist, 171(1):165-171. 2014.						
LTRMP fisheries component procedures manual (2013B5; Ratcliff, Gittinger, Ickes). http://pubs.usgs.gov/mis/ltrmp2014-p001						

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LTRMP Program report: Ickes, B.S., Sauer, J.S., and Rogala, J.T., 2014, Monitoring rationale, strategy, issues, and methods: UMRR-EMP LTRMP Fish Component. A program report submitted to the U.S. Army Corps of Engineers' Upper Mississippi River Restoration-Environmental Management Program, Program Report LTRMP 2014–P001a. http://pubs.usgs.gov/mis/ltrmp2014-p001a/						
Manuscript: Comparing commercial and recreational harvest characteristics of paddlefish Polyodon spathula (Walbaum, 1792) in the Middle Mississippi River, (2013B24; Phelps) J. Appl. Ichthyol. (On-line First) DOI: 10.1111/jai.12552						
Manuscript: Hupfeld, R. N., Q. E. Phelps, M. K. Flammang and G. W. Whitledge. 2014. Assessment of the effects of high summer water temperatures on Shovelnose sturgeon and potential implications of climate change. River Res. Applic. (On-line First) DOI: 10.1002/rra.2806						
Water Quality Component						
2015D1	Complete calendar year 2014 fixed-site and SRS water quality sampling	31-Dec-14		31-Dec-14		Houser, Burdis, Giblin, Kueter, L. Gittinger, Cook, Sobotka
2015D2	Complete laboratory sample analysis of 2014 fixed site and SRS data; Laboratory data loaded to Oracle data base.	15-Mar-15		30-Mar-15		Yuan, Schlifer
2015D3	1st Quarter of laboratory sample analysis (~12,600)	30-Dec-14		30-Dec-14		Yuan, Manier, Burdis, Giblin, Kueter, L. Gittinger, Cook, Sobotka
2015D4	2nd Quarter of laboratory sample analysis (~12,600)	30-Mar-15		30-Mar-15		Yuan, Manier, Burdis, Giblin, Kueter, L. Gittinger, Cook, Sobotka
2015D5	3rd Quarter of laboratory sample analysis (~12,600)	29-Jun-15		29-Jun-15		Yuan, Manier, Burdis, Giblin, Kueter, L. Gittinger, Cook, Sobotka
2015D6	4th Quarter of laboratory sample analysis (~12,600)	28-Sep-15				Yuan, Manier, Burdis, Giblin, Kueter, L. Gittinger, Cook, Sobotka
2015D7	Complete QA/QC of calendar year 2014 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-15		30-Mar-15		Schlifer, Rogala, Houser
	b. Field Station QA/QC; USGS QA/QC.	15-Apr-15		30-Apr-15		Houser, Rogala, Burdis, Giblin, Kueter, L. Gittinger, Cook, Sobotka
	c. Corrections made and data moved to public Web Browser	30-Apr-15		5-May-15		Rogala, Schlifer, Houser
2015D8	Complete FY2014 fixed site and SRS sampling for Pools 4, 8, 13, 26, Open River Reach, and La Grange Pool (Table 1)	30-Sep-15		30-Sep-15		Houser, Burdis, Giblin, Kueter, L. Gittinger, Cook, Sobotka
2015D9	WEB-based annual Water Quality Component Update w/ 2014 data on Server.	30-May-15		30-May-15		Rogala
2015D10	Letter Summary: Evaluation of water quality data from automated sampling platforms	31 Sept 2015				Soeken-Gittinger, Lubinski, Chick, Houser
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
2015D13	Initial analyses and draft manuscript: Coherence in temporal variation of select water quality parameters across strata and study reaches	1-Sep-15				Houser
2015D14	Draft manuscript: Coherence in temporal variation of select water quality parameters across strata and study reaches	1-Sep-16				Houser
2015D15	Analysis of Lake Pepin rotifers; data from 2012-2014	30-Jun-15				Burdis, Hirsch

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2015D16	Draft manuscript: Temporal trends in water quality and biota in segments of Pool 4, above and below Lake Pepin, UMR; indications of a recent ecological shift (from 2010D6 completion report)	27-Feb-15	30-Sep-15		Delayed due to Walt Popp's retirement and Rob Burdis has lead. Also new analysis being done on data	Popp, Burdis, DeLain, Moore
2014D13	Presentations, draft completion report: A Comparison of Side and Main Channel Fish Community and Water Quality Characteristics	1-Dec-15				Sobotka, West, Phelps
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)						
LTRMP report: Main channel/side channel report for the Open River Reach. (2005D7; Hrabik) (in USGS review)						
Manuscript: Ecosystem metabolism in the main channel and backwaters of the Upper Mississippi River: the role of submersed vegetation and hydraulic connectivity. (2008D8; Houser et al.) (Manuscript revised and resubmitted to journal)						
Manuscript: Lateral contrasts in nutrients, chlorophyll, and suspended solids within the Upper Mississippi River System (2012D10; Houser) (Review comments received from journal)						
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) (submitted for internal review)						
Completion report: Temporal trends in water quality and biota in segments of Pool 4 above and below Lake Pepin, Upper Mississippi River: indications of a recent ecological shift" (2010D6; Popp, Burdis, Moore) Completed						
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						
2014LC1	Updates on progress for land cover products (See SOW)				New progress reported in the quarterly activities. Percent complete updated 30 Sept 2015.	Robinson
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				Robinson, Hoy, Hanson, , Ruhser, Nelson, Jakusz
Statistical Evaluation						
2015E1	Trend lines with confidence bands added to water quality data web summary pages	30-Sep-15				Gray, Schlifer, Houser, Rogala, Yin
2015E2	Draft manuscript: Estimating trends in water temperature data from LTRM data (from 2013E2 completion report)	30-Sep-15		12-Mar-15		Gray, Lyubchich, Gel
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) (Submitted to journal)						
Completion Report: summer water temperature in the Upper Mississippi River (2012E2). Gray, Robertson, Houser, Rogala. (in USGS review)						
Completion report: An assessment of trends in water temperature in La Grange Pool (2012E3; Gray, Robertson, Rogala, Houser) (in USGS review)						
Completion report: Long-term trend reporting, water quality component (2013E1, Gray) http://www.umesc.usgs.gov/documents/publications/2014/gray_b_2014.html						

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Data Management						
2015M1	Update vegetation, fisheries, and water quality component field data entry and correction applications.	30-May-15		30-May-15		Schlifer
2015M2	Load 2014 component sampling data into Oracle tables and make data available on Level 2 browsers for field stations to QA/QC.	30-Jun-15		30-Jun-15		Schlifer
2014M3	Webinar on LTRMP data access and use	27-Oct-14		27-Oct-14		Sauer, Johnson, Houser, Ickes, Yin, Rogala, Schlifer, Lowenberg
Landscape Pattern Research and Application						
2015L1	Data Analysis: Examining changes in land cover and land use 2000-2010.	30-Sep-15				De Jager & Rohweder (UMESC)
2015L2	Draft Manuscript: Draft manuscript: The Upper Mississippi River Floodscape: spatial patterns of flood inundation and associated plant community distributions.	30-Sep-15		10-Feb-15		De Jager, Fox, & Rohweder (UMESC)
2015L3	Data Analysis: Effects of flooding, herbivory, and invasion by reed canarygrass on multivariate elemental cycling in a UMR floodplain forest	30-Sep-15		5-Feb-15	Draft manuscript in review	Kreiling & De Jager (UMESC), Swanson, Strauss & Thomsen (UW-L)
2015L4	Draft Analysis: Effects of flooding, invasion by reed canarygrass, and increased nitrogen deposition on decomposition and nitrogen cycling along the UMR Floodplain	30-Sep-15				Swanson, Strauss, Thomsen (UW-L) & De Jager (UMESC)
2015L5	Data Analysis: Effects of flooding, invasion by reed canarygrass, and increased nitrogen deposition on microbial enzyme activity along the UMR Floodplain	30-Sep-15			Funding by USGS and UMRR	Reich & Hernandez (Carleton), De Jager (UMESC)
2015L6	Presentation: Developing methods to map floodplain functions and ecosystem services	30-Jul-16			Funding by USGS and UMRR	Morlock, Johnson, De Jager
2015L6a	Draft Manuscript: Developing methods to map floodplain functions and ecosystem services	30-Sep-16				Morlock, Johnson, De Jager
2015L7	Draft manuscript: Measuring spatial patterns in floodplains: a step towards understanding the complexity of floodplain ecosystems	30-Sep-15				Scown & Thoms (UNE), De Jager (UMESC)
2015L8	Draft manuscript: The effects of survey technique and vegetation type on measuring floodplain topography from DEM's using surface metrics	30-Sep-15				Scown & Thoms (UNE), De Jager (UMESC)
2015L9	Draft manuscript: Multi-scale measurement of topographic complexity in the Upper Mississippi River floodplain using surface metrics	30-Sep-15				Scown & Thoms (UNE), De Jager (UMESC)
2015L10	Draft manuscript: Comparing the physical complexity of floodplains in different geographical settings.	30-Sep-15				Scown & Thoms (UNE), De Jager (UMESC)
2015L11	Draft manuscript: Draft manuscript: An index of floodplain surface complexity.	30-Sep-15				Scown & Thoms (UNE), De Jager (UMESC)
Intended for distribution						
Manuscript: De Jager, N.R., Swanson, W., Strauss, E.A., Thomsen, M., Yin, Y. In review. Reed canarygrass invasion overrides flood-pulse effects on nitrification in and Upper Mississippi River floodplain forest. Ecosystems (2014L1). (Accepted Wetlands Ecology and Management, New title: Flood Pulse Effects on Nitrification in a Floodplain Forest Impacted by Deer Browsing and Invasion by <i>Phalaris Arundinacea</i>)						

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Manuscript: De Jager, N.R. In Prep. Differences in fish community composition between patches of high TN:TP and low TN:TP: the role of water flow velocity. (2014L3) (Submitted to journal <i>River Research and Applications</i> ; New title: <i>Patchiness in a large floodplain river: associations among hydrology, nutrients, and fish communities</i>)						
Fact Sheet: De Jager, N.R. 2014. Landscape Ecology on the Upper Mississippi River: lessons learned, challenges, opportunities (2013L3). <i>In Press</i>						
Science Planning						
2013XY	Draft report: Critical questions for advancing ecosystem understanding and management capability on the UMRS	30-Sep-13	31-Mar-15			Johnson
2013XZ	Final Draft Critical Questions report to UMRR-CC	20-Nov-13				Johnson
2014N3	Final Draft research plan to UMRR-CC	1-Aug-14	10-Nov-14	10-Nov-14		Johnson
UMRR LTRMP Team Meeting						
2015FM1	Meeting date coordination	31-Oct-14		31-Oct-14		All LTRM Staff
2015FM2	Agenda development	31-Dec-14		31-Dec-14		All LTRM Staff, led by UMESC
2015FM3	Meeting logistics	On-Going		Completed		Sauer
2015FM4	Meeting participation	TBD		Completed		All LTRM Staff
Involvement of LTRMP with monitoring on other rivers, nationally and internationally						
2014P1	Draft white paper for review	15-Jun-14	15-May-15			Johnson
2014P2	Final draft white paper	30-Sep-14				Johnson
2014P3	Final Draft white paper to UMRR-CC	Nov. 2014				Johnson
Quarterly Activities						
2015QR1	Submittal of quarterly activities	30-Jan-15		30-Jan-15		All LTRMP staff
2015QR2	Submittal of quarterly activities	13-Apr-15		13-Apr-15		All LTRMP staff
2015QR3	Submittal of quarterly activities	13-Jul-15				All LTRMP staff
2015QR4	Submittal of quarterly activities	12-Oct-15				All LTRMP staff
Science Management						
2015ER1	Property inventory and tracking	15-Nov-15				LTRMP staff as needed
Mussel Research Framework						
2015MRF1	Establish selection criteria, identify existing data sets, and re-format to a common database suitable for spatial analyses	1-Apr-16				Ries, Newton, De Jager, Zigler
2015MRF2	Brief summary letter, including the compiled dataset, GIS layers, and a map	1-Jun-16				Ries, Newton, De Jager, Zigler

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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	Data are complete and through FSP; Waiting on Science Base for UMR	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
2014GDU2	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		Completed; still needs to be uploaded on-line	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		New ArcGIS server was needed, original server was taken offline because of compliance issue	Rohweder, Fox
2014SDQ3	SDQT beta tested and ready for USGS review	31-Mar-15	30-Sep-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		Working with development team to try and accommodate comments following Corps webex. Tool is functional currently, just working on the branding if possible. May have to be done locally	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	<i>draft</i> 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				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

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Validation of Mussel Community Assessment 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				Newton, Zigler, Dunn, Duyvejonck
2014MCA3	Final completion report on a validated mussel community assessment tool for use by river managers	1-Mar-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				Giblin, Campbell, Houser, Manier
2014NC3	Full manuscript completed	13-Mar-17				Giblin, Campbell, Houser, Manier
Ecological Shifts Turbid to Clear States						
2014ES1	Literature review and initial analyses completed	13-Mar-15		15-Nov-14		Giblin, Ickes, Langrehr, Bartels
2014ES2	Refined analyses and draft manuscript prepared	13-Mar-16			All analyses complete, manuscript in draft and co-author review 2 April 2015	Giblin, Ickes, Langrehr, Bartels
2014ES3	Manuscript 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				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				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				Phelps, McCain

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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. It has been discovered that Pool 26 lidar has serious problems. Still working to resolve. Pool 26 may need to become a separate line item for next FY.	Dieck, Hanson
2015LB3	Tier 2 LiDAR for the Illinois River	30-Sep-15				Dieck, Hanson
2015LB4	All remaining Bathymetry	30-Sep-15				Dieck, Hanson
2015LB5	Seamless Elevation for Pools 2, 5a, 6, 10-12, St Croix, and Pool 14	31-Dec-15				Dieck, Hanson
2015LB6	Seamless Elevation for Pools 15-19, 20, and 22-24	31-Mar-16				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		On schedule	Being bundled for National Geospatial Program 07/17/2015 to assess for NED	Nelson, Dieck
2015NED2	Remaining portions of the middle Mississippi (OR1 & 2)	31-Jul-15		On schedule	Being bundled for National Geospatial Program 07/23/2015 to assess for NED	Nelson, Dieck
2015NED3	Area of the Upper Mississippi (Pool 25-26)	30-Sep-15				Nelson, Dieck
2015NED4	Illinois River area	30-Sep-15				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				Bierman, Hansen, Bowler, Theiling
2015AM3	Complete tracking portion of study	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				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				McCain
2015FI3	Initial draft Project Report submitted to A-Team for review	1-Dec-15				McCain
2015FI4	Final draft Project Report submitted to A-Team for review and endorsement at April meeting	1-Mar-16				McCain
2015FI5	Final draft Project Report submitted to UMRR CC for endorsement at August meeting	15-Jul-16				McCain
2015FI6	Final Report	1-Jun-16				McCain
Plankton community dynamics in Lake Pepin						
2015LPP1	Phytoplankton processing; species composition, biovolume	30-Dec-15				Burdiss
2015LPP2	draft manuscript: Plankton community dynamics in Lake Pepin	30-Sep-16				Burdiss
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				Gray
2015SST2	Final completion report: Evaluation of trend estimation methods for LTRM fish and vegetation indices	31-Dec-15				Gray
2015SST3	Provide trend estimates for fish and vegetation web browser pages	30-Sep-16				Gray, Schlifer

Tracking number	Milestone	Original Target Date	Modified Target Date	Date Completed	Comments	Lead
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			Ickes
2015FI5	Issue/publish a brief communication on their availability and prospective usage	15-Sep-15				Ickes
Predictive Aquatic Cover Type Model - Phase 2						
2015AQ1	Develop 2-D hydraulic model of upper Pool 4	30-Sep-15				Goodfellow (MVP H&H)
2015AQ2	Apply model to Pool 4 and resolve discrepancies	31-Dec-15				Yin, Rogala
2015AQ3	Detailed summary of work for Phases I & II	31-Dec-15				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

ATTACHMENT E

2013 UMRR-EMP Implementation Issues Assessment (IIA): Executive Summary and Partner Recommendations for Future Action *(E-1 to E-6)*

Executive Summary

Program Overview

The Upper Mississippi River Restoration – Environmental Management Program (UMRR-EMP) uniquely and effectively combines ecosystem restoration with scientific monitoring and research. Integrating a broad range of restoration techniques, including approaches that strive to use or mimic the river's natural processes, the program's habitat rehabilitation and enhancement projects (HREPs) have effectively enhanced over 100,000 acres of critical fish and wildlife habitat throughout the Upper Mississippi River System (UMRS). These projects have improved the river's floodplain structure and function, restoring the river's natural processes and counteracting the effects of an aging, impounded river system. The program also informs river management through integrated environmental monitoring, research, and modeling, as well as data management and dissemination. Collectively, this element of the UMRR-EMP is known as the Long Term Resource Monitoring Program (LTRMP). This information is used extensively by resource managers, planners, administrators, scientists, academics, and the general public, enhancing management actions and scientific investigations on the UMRS.

A primary reason for UMRR-EMP's longstanding success is its strong interdisciplinary and interagency partnership, which transcends traditional state and agency boundaries. The U.S. Army Corps of Engineers (USACE) has the ultimate responsibility for managing and executing UMRR-EMP; while the U.S. Fish and Wildlife Service (USFWS); U.S. Geological Survey (USGS); and states of Illinois, Iowa, Minnesota, Missouri, and Wisconsin have their own specific responsibilities under UMRR-EMP. Other federal agencies, nongovernmental organizations, and industry groups are also actively involved in UMRR-EMP implementation. The ongoing commitment from all partners and established coordination mechanisms have been vital to UMRR-EMP's effective and efficient implementation of its restoration and science components.

Purpose of the Implementation Issues Assessment

Section 509(b) of the 1999 Water Resources Development Act directed USACE, in consultation with the Secretary of the Interior and the states of Illinois, Iowa, Minnesota, Missouri, and Wisconsin, to submit a report to Congress (RTC) regarding UMRR-EMP by the end of 2004 and every six years thereafter. These reports must evaluate UMRR-EMP's HREP and LTRMP elements, describe the program's accomplishments, provide an update of the system's habitat restoration needs, and recommend any necessary adjustments to the program's authorization. In UMRR-EMP's 2010 RTC, partners recommended that USACE, in collaboration with program partners, develop this Implementation Issues Assessment (IIA) to address various policy and program implementation issues that were not thought to require Congressional action. The IIA will not be formally submitted to Congress. Partners see the IIA as an important opportunity to address a variety of outstanding issues and challenges, with the goal of enhancing program implementation. The report is meant to document the issues discussed and partners' decisions regarding how best to advance or resolve those issues. The IIA's intended audience includes the Administration, USACE, partners, and external stakeholders.

For each issue, the report includes a concise overview; an outline of relevant policy; and an articulation of partner recommendations, including specific action items. The final section of the IIA outlines the process that partners will use to review progress on its implementation. This section also provides a table of all the action items and their primary leads, approximate timeframes, and relationship (if any) to the pending FY 2015-19 UMRR-EMP Strategic Plan. In 2013-2014, the UMRR-EMP strategic planning team will address many of the IIA's issues in greater detail, as well as other technical implementation priorities and issues for the program.

Progress Review

The UMRR-EMP Coordinating Committee will review progress in advancing the IIA's recommendations and action items at its August quarterly meetings. In addition, the review will consider partners' priorities for advancing the action items in the upcoming year, given anticipated resources and other factors that may influence the partners' ability to act on the recommendations.

Partner Recommendations

The UMRR-EMP Coordinating Committee would like to accomplish the following recommendations in order to maintain and enhance the UMRR-EMP.

Recommendations for maintaining and enhancing the program's overall success include:

- ✓ Advance habitat projects that include land acquisition from willing sellers, where that is the most efficient and effective option.
- ✓ Maintain UMRR-EMP's current delegated authority policy.
- ✓ Implement new and innovative restoration techniques and approaches, in an effort to enhance the program's capacity to address the partner-identified ecosystem goals and objectives.
- ✓ Include more explicit and consistent consideration of state and federal agencies' UMRS-related priorities in the program's habitat project planning and prioritization.
- ✓ Expand the criteria for constructing habitat projects at full federal expense.
- ✓ Consider habitat projects that have a nonprofit cost share sponsor.
- ✓ Improve habitat project evaluations.
- ✓ Pursue options to better enable USFWS and the states to completely and effectively implement HREP operation and maintenance.
- ✓ Seek to increase LTRMP resources, while also preparing strategies to guide implementation.
- ✓ Develop more deliberate and explicit approaches to implementing adaptive management.
- ✓ Evaluate emerging trends and issues that might affect UMRR-EMP's restoration, monitoring, and research efforts.
- ✓ Maintain and enhance the states' ongoing, active participation and leadership in the UMRR-EMP that are essential to program's success.

Future Action

Progress Review

The UMRR-EMP Coordinating Committee will review annual progress in advancing the IIA’s specific action items at its August quarterly meetings, as well as the opportunities created from that progress. In addition, the review will consider partners’ priorities for advancing the action items in the upcoming year, given funding and staffing constraints and other factors that may impact the ability for partners to act on the recommendations. The August meetings will not be a time to revisit and revise the IIA itself, nor the specific partner recommendations and action items. Rather, as UMRR-EMP has historically done, partners will complete a full-scale analysis of the implementation issues in conjunction with the program’s reports to Congress. The next report to Congress is due to be submitted in December 2016.

Partner-Recommended Action Items

The following table is a comprehensive list of partner-recommended action items for advancing or resolving each implementation issue area. The table also identifies associated leads, approximate timeframes for completion, and whether each issue will be addressed in further detail in the upcoming FY 2015-19 UMRR-EMP Strategic Plan. In 2013-2014, the UMRR-EMP strategic planning team will address several of these partner recommendations in greater detail, as well as other technical implementation priorities and issues for the program.

Table 1. Partner Recommendations for Future Action

Issue Number	Issue	Action Items	Lead	Approximate Timeframe	FY 2015-19 UMRR-EMP Strategic Plan
1	Land Acquisition	1.1: Effectively communicate UMRR-EMP's land acquisition policy to USACE staff and program partners, including documenting the policy in all relevant reference materials	UMRR-EMP Program Manager and District HREP Managers	Ongoing	No
		1.2: Address the question of whether non-federal HREP sponsors will be reimbursed if the value of real estate interests they provide exceeds the required 35 percent project cost share	MVD RIT Lead, UMRR-EMP Program Manager, and state UMRR-EMP CC members	1-3 years	No
		1.3: Recommend to USACE Headquarters that the 25 percent cap on land acquisition costs relative to the total project cost be increased to a more reasonable and realistic level	MVD RIT Lead, UMRR-EMP Program Manager, and state UMRR-EMP CC members	2-3 years	No
2	Delegated Authority	Communicate UMRR-EMP's current delegated authority policy	N/A	Completed	No
3	Habitat Project Types	Explore UMRR-EMP's ability to advance a new restoration techniques and approaches through specific project proposals	UMRR-EMP Program Manager	Ongoing	No
4	Habitat Project Planning and Prioritization	4.1: Develop a comprehensive list of state and federal priorities that are relevant to UMRS restoration	UMRR-EMP strategic planning team	1-2 years	Yes
		4.2: Document and communicate the incorporation of ancillary state and federal priorities in HREP planning and prioritization	UMRR-EMP strategic planning team and District HREP Managers	Ongoing	Yes
5	Construction Cost Sharing	Explore options to construct habitat projects at full federal expense through specific project proposals	UMRR-EMP Program Manager	Ongoing	No

	Issue	Recommendation	Lead	Approximate Timeframe	FY 2015-19 UMRR-EMP Strategic Plan
6	Nonprofits as Cost Share Sponsors	6.1: Establish a framework to guide project planning teams in identifying and partnering with candidate nonprofit sponsors	District HREP Managers	2-3 years	No
		6.2: Coordinate with nonprofit organizations to address any questions related to their serving as cost share sponsors	UMRR-EMP Program Manager, UMRR-EMP Coordinating Committee, and nonprofits	Ongoing	No
7	Habitat Project Evaluations	7.1: Increase fiscal and staff resources devoted to project evaluation, including biological response monitoring, adaptive management, and focused research	UMRR-EMP Program Manager and UMRR-EMP strategic planning team	Ongoing	Yes
		7.2: Address implementation questions identified by the UMRR-EMP Coordinating Committee	UMRR-EMP strategic planning team	1-2 years	Yes
		7.3: Clearly define and communicate partners' roles in evaluating habitat projects	UMRR-EMP strategic planning team and District HREP Managers	1-2 years	Yes
8	Capacity for Operation and Maintenance	8.1: Design and construct habitat projects in ways that minimize O&M	Project delivery teams	Ongoing	No
		8.2: Execute site-specific management agreements under which the states or others (e.g., nonprofits) would operate and maintain HREPs on refuge lands	District HREP Managers, USFWS Refuge Managers, and state resource agencies	Ongoing	No
		8.3: Request that the Administration establish a new line item in the USFWS's budget specifically to support its UMRR-EMP HREP O&M obligations	UMRR-EMP Program Manager, USFWS UMR National Fish and Wildlife Refuge Manager, and UMRR-EMP Coordinating Committee	3-5 years	No
		8.4: Explore information needs that partners have identified as necessary to more completely understand, and make any further recommendations to address, HREP O&M resource constraints	UMRR-EMP strategic planning team	1-2 years	Yes

	Issue	Recommendation	Lead	Approximate Timeframe	FY 2015-19 UMRR-EMP Strategic Plan
9	LTRMP Implementation	9.1: Increase UMRR-EMP's fiscal resources to implement its monitoring and research priorities	UMRR-EMP's non-federal partners and UMRR-EMP Program Manager	Ongoing	No
		9.2: Leverage resources with program partners and external stakeholders to advance LTRMP efforts	UMRR-EMP Program Manager and UMRR-EMP strategic planning team	Ongoing	Yes
		9.3: Develop a coordinated strategy for implementing LTRMP in low funding years	UMRR-EMP Program Manager	Ongoing	No
		9.4: Ensure LTRMP's continuation as a world-renowned multi-partner collaborative monitoring and research program.	UMRR-EMP strategic planning team	1-2 years	Yes
10	Adaptive Management	10.1: Ensure compliance with Section 2039 of the 2007 Water Resources Development Act	UMRR-EMP strategic planning team	1-2 years	Yes
		10.2: Define priorities for adaptive management analyses	UMRR-EMP strategic planning team	1-2 years	Yes
		10.3: Establish a framework for deliberate and explicit adaptive management implementation	UMRR-EMP strategic planning team	1-2 years	Yes
11	Emerging Trends and Issues	11.1: Institute a framework for identifying and evaluating emerging trends and issues that might affect UMRR-EMP implementation	UMRR-EMP Program Manager	Ongoing	No
		11.2: Identify foreseeable emerging trends and issues for near term consideration	UMRR-EMP strategic planning team	1-2 years	Yes
12	State Participation and Leadership Support	12.1: Address challenges facing the states in remaining fully engaged in all aspects of UMRR-EMP implementation	UMRR-EMP Program Manager	Ongoing	No
		12.2: Proactively and directly communicate to state and agency leaders on a routine basis about UMRR-EMP	UMRR-EMP Program Manager	Ongoing	No

ATTACHMENT F

Additional Items

- **Future Meeting Schedule** *(F-1)*
- **Frequently Used Acronyms (12/9/14)** *(F-2 to F-7)*
- **UMRR Authorization, As Amended (1/27/15)**
(F-8 to F-11)
- **UMRR (EMP) Operating Approach (5/06)** *(F-12)*

**QUARTERLY MEETINGS
FUTURE MEETING SCHEDULE**

NOVEMBER 2015	
<u>St. Paul, Minnesota</u>	
November 16	UMRBA WQEC Meeting
November 17	UMRBA Quarterly Meeting
November 18	UMRR Coordinating Committee

FEBRUARY 2016	
<u>Quad Cities</u>	
February 23	UMRBA Quarterly Meeting
February 24	UMRR Coordinating Committee

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
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
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
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
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
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

OHW	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
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
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
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.