

# **Upper Mississippi River Restoration Program Coordinating Committee**

**Quarterly Meeting**

**February 11, 2015**

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**Agenda  
with  
Background  
and  
Supporting Materials**

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# UPPER MISSISSIPPI RIVER RESTORATION PROGRAM COORDINATING COMMITTEE

February 10-11, 2015

## AGENDA

### Tuesday, February 10      Partner Pre-Meetings

- 3:15 – 5:00 p.m.      Corps of Engineers
- 3:15 – 5:00 p.m.      Department of the Interior
- 3:15 – 5:00 p.m.      States

### Wednesday, February 11      UMRR Coordinating Committee

Time	Attachment	Topic	Presenter
8:00 a.m.		Welcome and Introductions	<i>Mark Moore, USACE</i>
8:05	A1-15	Approval of Minutes of November 19, 2014 Meeting	
8:10		Regional Management and Partnership Collaboration	<i>Marv Hubbell, USACE</i>
	B1-5	▪ FY 2015 Fiscal Update and Scope of Work	
		▪ FY 2016 Progress Report	
	B6	▪ Final FY 2015-2025 UMRR Strategic Plan	
		– Follow-On Operational Planning Report	
		▪ Update on Non-Federal PPA Issue	<i>Gary Meden, USACE</i>
	B7-9	▪ LEEN Six Sigma	<i>Nicole Lynch, USACE</i>
		– Overview	
		– Potential Applications for UMRR	
		▪ Program Database: Products and Tools Available to Partners	<i>Michael Dougherty, USACE</i>
		– Overview	
		– Quarterly Financial Statements and Reports	
		– Scanned Historic UMRR Quarterly Agenda Packets	
		– Next Steps	
		○ Database management	
		▪ 2016 Report to Congress: Next Steps re Implementation Issues	<i>Marv Hubbell, USACE</i>
		▪ Public Involvement and Outreach	<i>All</i>
	B10	– Goals and Strategies in FY 2015-2025 UMRR Strategic Plan	
10:45		Break	

(Continued)

Wednesday, February 11, 2015  
UMRR Coordinating Committee  
(Continued)

Time	Attachment	Topic	Presenter
<b>11:00</b>		<b>Habitat Restoration</b>	
		▪ District Reports	<i>District HREP Managers</i>
		▪ Planning New Project Starts for 2017	<i>Marv Hubbell, USACE</i>
		– Schedule and process	
		▪ Habitat Restoration Highlight: Beaver Island's Plans to Restore Mussel Habitat	<i>TBD</i>
<b>12:00 noon</b>		<b>Lunch</b>	
<b>1:00 p.m.</b>		<b>Long Term Monitoring and Science</b>	
	<b>C1-7</b>	▪ Highlights	<i>Jeff Houser, USGS</i>
	<b>C8-10</b>	▪ USACE Science Update	<i>Karen Hagerty, USACE</i>
		▪ Science Highlight: UMR Landscape Ecology	<i>Nate De Jager, USGS</i>
		– Moving Toward Synthesis and Significance	
<b>2:30</b>		<b>Emerging Trends and Issues</b>	
	<b>D1</b>	▪ Draft UMRR Invasive Species Policy Paper	<i>Karen Hagerty, USACE</i>
	<b>D2</b>	▪ Other Topics to Consider Evaluating	<i>All</i>
<b>2:50</b>		<b>Other Business</b>	
	<b>E1</b>	▪ Future Meeting Schedule	
<b>3:00 p.m.</b>		<b>Adjourn</b>	

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

## **ATTACHMENT A**

### **Minutes of the November 19, 2014** **UMRR Coordinating Committee Meeting** *(A-1 to A-15)*

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

**November 19, 2014**  
**Quarterly Meeting**

**Crowne Plaza Riverfront Hotel**  
**St. Paul, Minnesota**

Tim Yager of the U.S. Fish and Wildlife Service called the meeting to order at 8:00 a.m. on November 19, 2014. Other UMRR Coordinating Committee representatives present were Mark Moore (USACE), Mark Gaikowski (USGS), Dan Stephenson (IL DNR), Diane Ford (IA DNR), Kevin Stauffer (MN DNR), Janet Sternburg (MO DoC) via phone, Jim Fischer (WI DNR), Ken Westlake (USEPA) via phone, and Jon Hubbert (NRCS). A complete list of attendees follows these minutes.

**Retirements**

Tim Yager expressed sincere appreciation to Diane Ford and Barry Johnson for their many extraordinary contributions to UMRR. Ford said she will retire on December 19, 2014 and her retirement plans include travel and volunteer advocacy for her favored programs and issues, including Upper Mississippi River issues. Johnson said he is set to retire on December 31, 2014. Johnson has enjoyed working with all those involved in implementing UMRR. His plans are to relax during retirement. Johnson said his position as UMESC Science Director will be split, with Jennie Sauer assuming administrative duties and Jeff Houser providing science leadership.

**Minutes of the August 6, 2014 Meeting**

Diane Ford moved and Dan Stephenson seconded a motion to approve the draft minutes of the August 6, 2014 meeting as prepared. The motion carried unanimously.

**Regional Management**

*FY 2014 Fiscal Update and Milestones*

Marv Hubbell reported that UMRR obligated 99 percent of its FY 2014 appropriation of \$31.968 million. Hubbell expressed sincere appreciation to all partners for their contributions to another successful fiscal year, filled with outstanding accomplishments. Hubbell said the program's ability to execute at 99 percent with appropriations nearly doubling over two years, at a 25 percent increase each year, exemplifies UMRR's exceptional partnership. All partner staff worked diligently and collaboratively to effectively and efficiently execute the funds on important habitat and science projects. The FY 2014 internal allocations are outlined below and more detailed information about obligations and expenditures is provided on pages B-1 to B-5 of the agenda packet. Hubbell noted that USACE staff are planning to incorporate into UMRR's Database the program's fiscal information from all available budget spreadsheets that have been included in quarterly meeting agenda packets over time.

- Regional Management — \$1,000,000
- LTRMP element — \$5,225,000

- HREPs element — \$25,743,000
  - Regional science support — \$1,065,700
  - MVP — \$6,980,400
  - MVR — \$10,466,500
  - MVS — \$7,230,400

[Note: At the end of FY 2013, funds were transferred among UMR Districts to get critical work accomplished and to maximize the amount of funds obligated. The FY 2014 allocations to all three Districts reflect rebalancing of those internal transfers.]

Hubbell recalled that, in spring 2014, USACE received a question from Congress regarding the relative investment of science and monitoring compared to the increase in total program appropriations. He said that, in FY 2014, the program spent a total of \$7.75 million on science. This included \$314,000 on science-related regional management activities, \$5.4 million on long term resource monitoring, and \$2.04 million on science in support of restoration and management. In response to a question from Jim Fischer, Hubbell explained that USACE's science delivery team and science liaisons are funded under the regional management habitat/science integration allocation as well as the District habitat project allocation. This information is reflected directly and indirectly in the budget spreadsheets, which are included in the agenda packet. Karen Hagerty noted that the spreadsheets also include allocation and spending information on habitat project monitoring, long term resource monitoring (Corps staff time), habitat needs assessment, and more. Hagerty said habitat project management plans include schedules and costs for any science on that project, thus serving as a scope of work.

#### *FY 2015 Fiscal Update and Scope of Work*

Hubbell reported that the federal government is currently operating under a continuing resolution authority (CRA) that expires on December 11, 2014. The President's FY 2015 budget request, House's FY 2015 energy and water appropriations measure, and Senate Energy and Water Subcommittee's FY 2015 appropriations markup include \$33.17 million for UMR, the program's full annual authorized amount. Congressional action following the FY 2015 CRA's expiration is unknown. In the interim, Corps Headquarters has directed UMR to execute based on last year's funding, which is \$31.968 million. Under the \$31.170 scenario, the program's FY 2015 internal allocations would be as follows:

- Regional Management — \$1,000,000
- LTRMP element — \$5,500,000
- HREPs element — \$26,670,000
  - Regional science support — \$1,800,000
  - MVP — \$7,491,000
  - MVR — \$9,888,000
  - MVS — \$7,491,000

Hubbell said USACE is increasing resources to enhancing the program Database and inputting program information. This will include incorporating historical budget information, digitizing project features, and other information that will allow for more and better reporting opportunities. He said a presentation on the Database's content and outputs will be provided at the February 11, 2015 UMR Coordinating Committee meeting. In response to a question from Fischer, Hubbell said the Database is still only accessible internally. However, Hubbell said staff can generate and disseminate reports upon request and encouraged partners to send him information requests. In response to a question from Janet Sternburg, Hubbell explained that digitized project features will allow partners to calculate the amount and type of work done among projects and across geographic ranges, including systemically. This

information will help make conclusions about the program's habitat restoration accomplishments relative to its ecological goals and objectives. Hubbell said staff will explain the Database's various uses and tools in more detail at the February 2015 UMRR Coordinating Committee quarterly meeting.

Hubbell said USACE is processing a contract with UMRBA to write the 2016 UMRR Report to Congress (RTC). In response to a question from Buntin, Hubbell said allocations for the RTC are increased from previous reports to account for USACE staff contributions to the report. Buntin said he is eager to get the contract in place given the aggressive schedule that includes engaging partners in the report development and review.

Hubbell said USACE issued FY 2015 service agreements with USGS, USFWS, and the UMRS states in mid-October. Karen Hagerty noted that the land cover/land use (LC/LU) funds are included in the habitat projects line item.

Hubbell explained how District staff estimate and schedule issuances of habitat project obligations, including staff labor and construction contracts. Barry Johnson asked how labor costs of project delivery teams are estimated, noting that Beaver Island has a substantial labor cost in FY 2015. Hubbell said team members scope the work they anticipate accomplishing in the upcoming fiscal year and the required associated costs. The labor costs are primarily USACE staff working on project planning and design. Partners' time is not supported by UMRR funds. However, Hubbell noted that UMRR pays USFWS for a portion of its support in habitat project evaluations.

Hagerty said the A-Team and UMRR science managers are in the process of evaluating FY 2015 projects for science analyses that support restoration and management. She explained that these proposals will be prioritized based on their relationship to the program's mission, ability to advance program goals, level of partner coordination, and transparency. Projects currently underway will be considered a high priority. Completing seamless elevation data and equipment refreshment will also be deemed high priority. Hagerty said the following proposals will be considered medium priority: analyses advancing research frameworks, developing plan formulation models, standardizing project monitoring protocols, and efforts stemming from the UMRR Science Plan. Additional administrative factors will also be considered in selecting proposals.

Hagerty said UMRR scientists submitted 29 proposals totaling \$4,012,513 for FY 2015. There is between \$1.5 million and \$1.9 million available for this work. Hagerty reported that, in late September 2014, USACE obligated \$540,536 in FY 2015 funds for completing seamless elevation data (\$420,343), publishing NED-ready LiDAR products (\$93,063), and for radio-telemetry fish tags as part of the Pool 12 Overwintering adaptive management analysis (\$27,130). Based on the A-Team's input, USACE and USGS science managers and the A-Team Chair will select which science projects warrant development of full proposals for funding consideration. Hagerty said she will send the recommended list of those projects to the UMRR Coordinating Committee for review in early December. She anticipates that the selected science projects will be funded in February 2015. Hagerty requested partners' feedback on the process for selecting science projects, as it is intended to focus UMRR's science on the partnership's highest priorities.

Hubbell said that, given the FY 2015-2025 UMRR Strategic Plan's goal of increasing communication, transparency, and accountability within the program partnership, he offered more details on UMRR's budget in today's presentation, including obligation and expenditures and anticipated future work. In response to a question from Hubbell, UMRR Coordinating Committee members said the information was helpful and the appropriate amount of detail.

### *FY 2016 Progress Report*

Hubbell said District staff are working with MVD in responding to Headquarters' questions about UMRR's FY 2016 budget. He said Headquarters only feedback thus far is that there will be increased competition for funds in FY 2016 among USACE's ecosystem restoration programs and projects. It is anticipated that USACE will issue guidance for developing the FY 2017 budget in December 2014, with a deadline for submitting initial budget requests in late spring 2015.

Dru Buntin offered that, given the increased competition for USACE's ecosystem funds, the states express support to the Administration for UMRR's FY 2015 appropriation and encourage continued funding at this level. Buntin asked whether such a communication might be helpful. Col. Mark Deschenes explained that UMRR remains in high standing with Headquarters. However, Everglades and other ecosystem restoration programs are beginning to offer projects that are construction-ready and therefore might compete with UMRR. Col. Deschenes said Headquarters places a high value on stakeholder engagement and input. The state UMRR Coordinating Committee members requested that UMRBA send a letter to OMB and Headquarters on their behalf expressing appreciation for the FY 2015 appropriation and communicating that that level of funding is necessary to efficiently execute the program.

### *Agency Leadership Summit Update*

Hubbell reported that Col. Deschenes hosted the September 18, 2014 UMRR Agency Leadership Summit at Eagle Point Park in Dubuque. The summit gathered the program's implementing partners' leaders and staff to discuss the program's history, achievements, and implementation issues that require higher-level policy considerations. The implementation issues discussed include:

- a) Maximizing opportunities for increased ecological and economic benefits at authorized funding levels while maintaining and enhancing states' ongoing, active participation;
- b) Working within the context of a multi-use river system; and
- c) Issues facing non-federal partners in executing project partnership agreements (PPAs).

A summary of the indoor session, including presentations on the program's history and successes as well as issue discussions, is included on pages B-7 to B-10 of the agenda packet. Col. Deschenes and Hubbell expressed appreciation to the presenters, as well as Iowa DNR and USFWS staff for organizing and hosting the tour of Sunfish Lake. Iowa DNR set a great tone. Col. Deschenes said the discussions resulted in great dialogue that led to action-oriented solutions. Diane Ford said the leadership summit was a great experience that energized partner agency leaders. Ford suggested that similar events be held periodically.

Tim Schlagenhaft presented an overview of the issues facing non-federal partners in executing PPAs and the September 18 leadership discussion. Schlagenhaft said the PPAs have become very restrictive legally. The agreements include provisions that indemnify USACE, making the non-federal sponsors fully liable for unanticipated costs, including costs for damages resulting from design flaws by USACE and its contractors. The agreements also now include provisions requiring project sponsors to maintain the projects in perpetuity, rather than the life of the project, without providing a definition or cost ceiling. Schlagenhaft emphasized that these issues are precluding important opportunities to improve the river's health in areas that are in serious need of restoration.

Schlagenhaft said that, at the summit, USACE leaders expressed willingness to work with the program's non-federal sponsors to resolve the issues and acknowledged that, unless the issues are resolved, UMRR habitat projects and other USACE projects will be affected. In response to Col. Deschenes' request at the Summit, UMRR state staff and candidate nonprofit groups (i.e., The Nature Conservancy and



Audubon) have since developed a summary of the challenges facing non-federal sponsors in executing PPAs and recommendations for resolving the issues. The recommendations are to:

- Modify the hold and save clause to a more equitable, shared approach to liability that does not extend beyond the liabilities that already exist under applicable constitutions and laws.
- Include language providing that unanticipated costs for project construction are subject to a) future appropriations for the project or b) the nonprofit's availability of funds for the project. In addition, construct projects in phases when appropriate to limit cost overruns.
- Provide greater specificity regarding operation, maintenance, repair, replacement, and rehabilitation (OMRR&R) and requirements in PPAs, rather than providing those requirements post-construction. PPA provisions related to OMRR&R should include:
  - A defined end-term that is based on the expected useful life of the project's construction features.
  - Language providing that unanticipated costs are subject to a) the state's future appropriations for the project or b) the nonprofit's availability of funds for the project.
  - Adaptive management provisions to address risk and uncertainty regarding project outcomes and the need and ability to perform OMRR&R obligations depending on whether the project features perform as intended.

Gary Meden expressed appreciation to Schlagenhaft for his presentation and to the program's non-federal partners for their efforts to identify potential solutions. Meden said District staff are committed to working with partners to help resolve the issues. He explained that, upon request, states are now able to include language in the PPAs that additional costs are subject to appropriation. USACE staff are considering similar language for nonprofits. Chris Erickson echoed Meden's comments and said the issue is challenging for other USACE programs as well. Erickson suggested that partners engage with non-federal sponsors involved in other USACE programs and projects to create an even stronger message to the Administration and Congress about the needs to modify the PPA language. Kevin Stauffer said, as the UMRR Coordinating Committee, it makes sense for members to speak specifically to the issues related to UMRR and then invite others to join the message and add to it.

Hubbell noted that The Nature Conservancy recently withdrew the Emiquon East Habitat Project due to the several issues, including the responsibilities and obligations as stipulated in the PPA and the requirements of the existing NRCS Wetlands Reserve Program lands on the site. Hubbell added that USACE staff should reconsider which PPA model that UMRR uses, noting that UMRR currently uses the continuing authorities program model for aquatic ecosystem habitat projects. He said partners can also communicate these issues in the 2016 UMRR Report to Congress.

Buntin said that, on behalf of UMRR's non-federal sponsors, UMRBA will formally transmit the PPA issue summary to Col. Deschenes by the end of November and seek his preference for how to work together in addressing the issues. He also noted that Section 1013 of WRRDA 2014 directs the National Academy of Public Administration to review USACE's PPA templates and recommend improvements. UMRBA will seek opportunities to engage in that review process.

Mark Moore encouraged partners to site specific examples of projects that are not being advanced due to the PPA issues. Schlagenhaft said he is encouraged by the attention currently being placed on resolving the PPA issues.

Col. Deschenes encouraged partners to continue pressing on this issue while it is highly visible. Col. Deschenes said he has informed MVD Commander Maj. Gen. Michael Wehr about the issues during his recent visit to Rock Island. As a next step, Col. Deschenes anticipates meeting with Steve Stockton at Headquarters to discuss potential statutory changes where he will share the UMRR issue

summary. He noted that these issues will also likely affect public-private partnerships (PPAS) and these discussions will need to be considered when developing WRRDA 2014 implementation guidance. Buntin said Congressional members have expressed willingness to offer legislative changes. He said a meeting with USACE leadership would be helpful. UMRBA is willing to work with partners to resolve the issues.

In response to a question from Dan Stephenson, Col. Deschenes said he would assume these issues are likely affecting USACE programs and projects in other regions. However, he has not yet heard of any specific examples. Col. Deschenes said UMRR is a great partnership that is well respected and that he anticipates that this partnership will likely generate solutions that can be applied elsewhere. Buntin said that, as the federal government continues to prioritize projects that leverage resources with non-federal entities, these issues will become more acute and the urgency to resolve them will only increase.

Hubbell noted that leaders at the Leadership Summit also agreed that the UMRR Coordinating Committee should consider implementing continuous improvement evaluations, such as the LEEN 6 Sigma techniques. Hubbell said USACE staff will give a presentation at the February 11, 2015 UMRR Coordinating Committee meeting on continuous process improvement techniques. Jim Fischer expressed appreciation to Col. Deschenes for supporting this initiative.

#### *Public Outreach*

Jim Fischer said the external review of the FY 2015-2025 UMRR Strategic Plan offered an opportunity to engage with the public.

Tim Yager said the volunteer organization, Swan Watch, which coordinates through USFWS held a bird watch event this fall. The event overlooked Pool 8 Islands and staff highlighted UMRR's restoration efforts. Yager said the 2014 annual meeting of the Regional Refuge Chiefs was held in La Crosse in October and included a tour of Brownsville. Sharonne Baylor presented an overview of UMRR.

Hubbell said District staff briefed MVD Commander Maj. Gen. Michael Wehr on UMRR during his recent visit to Rock Island.

In response to a question from Col. Deschenes, Hubbell said UMRR does not yet have a media relations strategy and has done outreach based on individual project accomplishments. However, the FY 2015-2025 UMRR Strategic Plan includes a goal to engage strategically with external stakeholders, including the public. Col. Deschenes encouraged partners to take advantage of various media opportunities, such as interviews with local public media. Jeff Houser echoed Col. Deschenes suggestion and said Wisconsin Public Radio almost always publishes stories of USGS's press releases. Houser said La Crosse has an enormous amount of public interest in the Mississippi River. That medium offers high benefit for relatively little investment. Dru Buntin noted that the FY 2015-2025 UMRR strategic planning team envisioned developing a communications plan to focus UMRR's public engagement and outreach.

Barry Johnson said UMESC will be co-hosting an international large rivers summit in August 23-28, 2015 in La Crosse. The summit will be an opportunity to share UMRR's restoration and science accomplishments. More information on the summit can be found at <http://www.uwlax.edu/conted/isrs2015/>. In response to a question from Mark Gaikowski, Buntin said he will talk with the UMRBA Board about the Association's potential sponsorship of the summit.

## **LTRMP Element**

### *Product Highlights*

Barry Johnson presented UMRR's long term resource monitoring accomplishments in FY 2014's fourth quarter. Johnson reported that two manuscripts were published regarding 1) how Asian carp might be increasing nutrient-rich food resources for benthic feeders and 2) characteristics of American eel populations. Because Asian carps' assimilation efficiency is low, they egest energy-rich fecal pellets that are showing to be a food source for benthic fishes or invertebrates. In addition, a completion report was published describing the recent ecological shift in Pool 4. Johnson explained that, between 2005 and 2011, Pool 4 has experienced low flow as well as increased frequency of submersed vegetation of 29 percent in upper Pool 4 and 36 percent in lower Pool 4, as well as increases in relative abundances of fish associated with vegetation. These results indicate that vegetation and fish can respond to changes in habitat conditions.

Johnson said USGS staff hosted an October 27, 2014 webinar to describe UMRR's long term resource monitoring database structure, applications, and visualization tools as well as how to access the information. The webinar was open to interested stakeholders, with announcements sent to UMRR partners and various river-related mailing lists. An estimated 50 to 60 people participated, including federal agency, state, and nonprofit, academic and other representatives, with about half of the participants not directly involved in UMRR's implementation. The webinar included an overview of the database by Jennie Sauer followed by presentations on each of the component areas by the respective component specialists. Johnson said USGS plans to hold similar webinars periodically. Improvements identified from the October 27 webinar include planting questions among participants to trigger discussion, preparing more pre-planned examples of ways to use the data, and only focusing on one or two components per webinar.

Johnson also listed the many individual contributions to outreach and assistance to internal and external stakeholders.

### *Draft Science Plan*

Johnson explained that, as an outgrowth of the February 15-17, 2014 UMRR Science Meeting, staff from UMESC and the five states developed a three-year science plan that focuses UMRR's efforts related to aquatic vegetation, native mussels, landscape patterns, water quality, fish, statistics, and other program-wide science needs. The three-year plan is intended to serve as link between the FY 2015-2025 UMRR Strategic Plan and annual scopes of work. Johnson presented an initial draft FY 2015-2017 UMRR Science Plan, which outlines the program's science priorities as provided in the FY 2015-2025 UMRR Strategic Plan, research frameworks for various monitoring components, and other partnership planning documents. He shared an example from the science plan of a three-year implementation strategy to evaluate the effects of habitat projects on native mussel communities. Johnson said he will distribute the draft plan to the UMRR Coordinating Committee for input.

Marv Hubbell said a science plan has great potential as a tool for better organize the program's science activities by connecting concepts and ideas. Col. Mark Deschenes asked to what extent UMRR addresses nutrient levels in the Upper Mississippi and contributions to the lower Mississippi River and Gulf of Mexico. Jeff Houser explained that habitat projects directly improve nutrient levels in the immediate surrounding area, that in turn increase the success of project outcomes. Hubbell added that water quality monitoring includes nutrients. Col. Deschenes added that the UMRR monitoring information on nutrients can help inform the overall discussion of the Midwest's nutrient contributions to the Gulf of Mexico. Jim Fischer suggested that the science plan include a brief description on the relevance of the science activities to restoration and management.

### *USACE's LTRMP Element Report*

Karen Hagerty said an updated FY 2014 scope of work milestone chart for science in support of restoration and management is included on pages C-9 to F-11 of the agenda packet. Hagerty said she will develop a similar scope of work for FY 2015 and make it available on USACE's UMRR website.

### *Draft UMRR Invasive Species Policy*

Hagerty presented a draft UMRR Invasive Species Policy, dated October 31, 2014, that is included on page C-12 of the agenda packet. The policy explains UMRR's roles and responsibilities regarding invasive species, given its authorization, Corps policy, and other national invasive species policies. The roles and responsibilities include reporting/communicating findings, researching impacts on native species and the ecosystem, and designing habitat projects in ways that provide advantages to native species, as well as communicating UMRR's role in understanding historic and existing conditions of the UMRS ecosystem.

In response to a question from Ken Westlake, Hagerty requested that partners send her input on the draft plan by January 16, 2015. Based on that input, Hagerty will present a revised version to the UMRR Coordinating Committee at its February 11, 2015 meeting for consideration of endorsement.

In response to a question from Janet Sternburg, Hagerty said this policy paper replaces the invasive species white paper approach to outline and prioritize research questions, which had extended beyond UMRR's authorization. She explained that it appeared the most immediate need is to document and communicate UMRR's roles and responsibilities in addressing invasive species.

Kevin Stauffer suggested that a statement be added that the state laws and regulations related to invasive species will be followed, when applicable. Stauffer said he will send draft language to Hagerty.

### *A-Team Report*

Sternburg reported that the A-Team met in person on November 6, 2014 in Rock Island. The team discussed the FY 2015-2025 UMRR Strategic Plan and FY 2015 proposals for long term resource monitoring research and analysis. The proposal leads were available via conference call to respond to questions and comments. Sternburg said the A-Team has submitted its ranking of proposals. She noted that Hagerty had already described the process for ranking and selecting the proposals earlier in the meeting. Sternburg observed that partners generally like this process for selecting science research and analysis projects. She reported that Mike McClelland from Illinois DNR will serve as the A-Team Chair starting in April 2015.

### *Science Highlight: Resilience of the Upper Mississippi River Ecosystem*

Jeff Houser explained that, after considerable debate about its meaning and relevance, the UMRR strategic planning team agreed to use the term resilience in the statement about partners' vision for the river ecosystem. The vision is for "a healthier and more resilient Upper Mississippi River ecosystem that sustains the river's multiple uses." Houser explained that, although the concept of ecosystem resilience has been around for nearly 40 years, it has primarily been discussed only within the academic community. And, while there has been recent interest in using the term, there are only a few examples of it being applied in a natural resource management context. Houser articulated that applying the concepts to UMRR's implementation will be challenging.

Houser explained that the term resilience has multiple meanings. The two most prominent meanings are engineering resilience (or stability) and ecological resilience (or long-term persistence). Engineering resilience represents the ability or tendency of a system to return to its original stable state, or equilibrium, following a disturbance. Houser provided an example of a ball in a cup returning to the middle after being shaken. Where the cup is the ecosystem and the ball represents components that respond to disturbances in the ecosystem, such as water quality or vegetation abundance. The shape of the cup is determined by changing variables in the system, such as floodplain elevation, catchment land use, or diversity of biota. In a system where there is more than one equilibrium, or ecosystem, the ecological resilience is the ability or tendency to move between systems to a different equilibrium state following disturbance. A change in the system's characteristics would alter its resilience. For example, a taller cup would make the ball more resilient from moving to a different cup when shaken.

Houser explained that partners will need to consider several factors for applying ecological resilience to UMRR's implementation, including:

- What are ecological characteristics of greatest interest — e.g., water clarity, bluegill abundance?
- What ecological disturbances are of greatest concern — e.g., climate change, large flood events, species invasion, modifications for commercial navigation?
- What defines the current "state" of the UMRS ecosystem? Perhaps defined by bathymetry or distribution of floodplain elevation, hydrologic regime, fish and vegetation species and community composition, basin land use, and so on.
- Is the current "state" of the ecosystem acceptable? Is it acceptable in some areas and not others?
- What do we know about other states that are possible given the myriad of management constraints?
- What would the UMRS look like in 25, 50, 100 years with no additional management actions? Which of those changes would we most want to prevent?

Houser provided a few illustrations of how shifts in ecological components and drivers may have altered the ecosystem resilience over time and where the current state may be. He overviewed various characteristics of the UMRS's longitudinal orientation and connectivity and lateral diversity that define its ecological resilience, as well as examples of management options to influence its ecological resilience.

Houser said this information will provide a context to define restoration goals and objectives as well as metrics to monitor progress related to the river's ecological significance. Houser explained that resilience-based management:

- Views events in a regional, rather than local, context
- Emphasizes heterogeneity
- Recognizes ignorance rather than presuming sufficient knowledge
- Does not require a precise capacity to predict the future, but rather a qualitative capacity to devise systems that can absorb and accommodate future events
- Recognizes that ecosystems are moving targets with multiple potential futures that are uncertain and unpredictable
- Allows for addressing gradual changes that affect resilience rather than focus all effort trying to control disturbance and fluctuations

Jon Duyvejonck noted that partners will also need to identify any impediments to achieving a desired state. Tim Schlagenhaft suggested that floodplain connectivity could be a major factor in ecological resilience that partners spend relatively little resources addressing. Schlagenhaft said it would be helpful to better understand the importance of various drivers on ecosystem resilience in order to prioritize management goals. Houser said there will be differences in drivers and their relative influence among the river floodplain and geomorphic reaches.

Jim Fischer recognized that, while science and monitoring can define the current state and the influence of various drivers, defining a desired end state is a social question that will present a unique challenge. Houser agreed and acknowledged that the UMRS, as well as other ecosystems, are social-economic systems as well. Bob Clevenstine advised that, given the social and economic implications, an outreach component is a part of any effort to define ecological resilience. Johnson said ecological resilience is a term that is resonating among the public and public officials. He applauded Houser for his explanation of how the concept of ecological resilience can be applied to the UMRS. Johnson observed that the UMRR is well-suited to be the leader in applying and making useful the concept of ecological resilience in a management context. Marv Hubbell thanked Houser for his presentation. Hubbell said the partnership will need to be prepared to select the program's next generation of habitat projects based on the UMRS's ecological resilience.

### **Draft FY 2015-2025 UMRR Strategic Plan**

Marv Hubbell recalled that, at the November 2012 quarterly meeting, the UMRR Coordinating Committee agreed to develop a strategic plan for the entire program that would 1) articulate a partnership vision to guide the program's implementation, 2) ensure continued delivery of products and services that are nationally significant and regionally relevant, 3) create a plan that would encompass the program's entire range of activities, and 4) reinforce the program's commitment to regional partnership and collaboration with others beyond the program. Hubbell said the plan outlines the program's key approaches to enhancing restoration and advancing knowledge necessary for a healthier and more resilient Upper Mississippi River ecosystem that sustains the river's multiple uses. The plan also fosters UMRR's longstanding commitment to internal and external communication and collaboration among the many organizations and individuals that are working for a better UMR ecosystem.

Hubbell said the strategic planning team included 21 UMRR partners that represented a broad range of program activities. The planning effort was initiated in April 2013 and included seven committee meetings. Hubbell said the planning team employed an internal targeted review of an April 11, 2014 draft UMRR Strategic Plan where each team member was responsible for obtaining feedback from the groups or individuals it represents on the team. At its August 2014 quarterly meeting, the UMRR Coordinating Committee approved a July 17, 2014 revised draft UMRR Strategic Plan, which reflected the internal review, for use in a broader targeted stakeholder review. Under this broader review, the team members were responsible for seeking input from interested organizations or individuals within their respective state or with whom they work closely. A revised draft, dated October 14, 2014, that reflects comments from the broad stakeholder review is included on pages D-3 to D-22 of the agenda packet. Hubbell said the strategic planning team is recommending that the UMRR Coordinating Committee endorse the plan as provide in the agenda packet.

Tim Yager asked the UMRR Coordinating Committee for any discussion on the plan and a potential endorsement by the Committee. Jim Fischer said defining operational actions to implement the Strategic Plan that are understood by all partners will be very important to its success. Public groups commenting through the broad stakeholder review also stressed this point. Fischer suggested that the Strategic Plan include an explicit intention to develop an implementation plan. Kevin Stauffer agreed. In response to a question by Hubbell, the UMRR Coordinating Committee said their preference is for a brief description of an operational plan, rather than a detailed description of the approach. Diane Ford

moved and Dan Stephenson seconded a motion to endorse the FY 2015-2025 UMRR Strategic Plan with the additional language explaining next steps to develop a follow-on implementation document and inclusion of Col. Mark Deschenes' introduction letter. The motion was approved by a voice vote. Kirsten Mickelsen said she will send an updated version to the UMRR Coordinating Committee for approval.

In response to a question from Mickelsen, the UMRR Coordinating Committee agreed to convene a call within the next month to set up an *ad hoc* group that would make recommendations to the Committee of actions for implementing the Strategic Plan. A progress update will be given at the February 11, 2015 UMRR Coordinating Committee meeting.

## **Habitat Rehabilitation and Enhancement Projects Element**

### *District Reports*

#### St. Louis District

Brian Markert reported that MVS has completed plans for Rip Rap Landing and said design work on the project is pending sponsor support letters. MVS's planning priorities are Piasa and Eagles Nest Islands and Harlow and Wilkinson Islands. Markert said Clarence Cannon is the District's primary design effort, while the District is also finalizing designs for Ted Shanks' pump station. Final construction on Batchtown and Pools 25 and 26 Islands is nearing completion. The District is still considering options for the next generation of habitat projects. Markert said District staff obtained LiDAR data on some specific projects for use in design work. That data are currently being processed. In response to a question from Jennie Sauer, Markert explained that planning for these habitat projects requires LiDAR at a finer resolution — i.e., 1 foot.

#### St. Paul District

Tom Novak reported that MVP awarded a \$12.3 million construction contract for Harpers Slough, with a \$6 million base contract awarded in the last weeks of FY 2014 and two options totaling \$5.9 million awarded in October. Construction on Capoli Slough is wrapping up. Novak said the District's planning priorities include North and Sturgeon Lakes, Conway Lake, and McGregor Lake.

In response to question from Sauer, Novak said all three UMRS Districts are planning to input habitat project monitoring data into the UMRR Regional Database.

#### Rock Island District

Hubbell explained that MVR is accelerating its planning efforts on Keithsburg and Beaver Island, with Beaver Island being the highest priority. He said design work continues on Pool 12 Overwintering Stage II and Huron Island Stage II. USACE staff anticipate that construction of Huron will be initiated in FY 2016, Beaver Island in FY 2018, and Keithsburg in FY 2019. The District is also continuing construction work on several habitat projects. Given that Emiquon East has been withdrawn, MVR is able to accelerate work on other habitat projects. Performance evaluations are underway for the Bertom and McCartney, Pool 11 Overwintering, and Chautauqua habitat projects.

### *New Project Starts*

Hubbell said UMRR will initiate a "data-driven" process in the second quarter of FY 2015 for selecting new habitat project starts. The planning effort will be informed by partners' expertise and experience, the FY 2015-2025 UMRR Strategic Plan and other planning documents, and decision support tools.

UMRR will not need new project starts as quickly as previously anticipated, which was assumed to be in 2017. Hubbell said partners should consider lessons learned from previous project selection efforts to make this effort more effective and efficient. He will provide a more detailed process scope and timeline at the UMRR Coordinating Committee's February 11, 2015 meeting.

### *Environmental Design Handbook*

Jon Hendrickson presented on the content and lessons learned described in the 2012 UMRR Environmental Design Handbook. Hendrickson explained that the 2012 version is an update to the 2006 Handbook, which was created to document and communicate lessons learned about restoration techniques and habitat project planning. The Handbook, developed in collaboration with UMRR partners, documents the details the program's use of project features and design methodologies, as well as lessons learned in project planning and engineering. The Handbook is available online at [http://www.mvr.usace.army.mil/Portals/48/docs/Environmental/EMP/HREP/EMP\\_Documents/2012%20UMRR%20EMP%20Environmental%20Design%20Handbook%20-%20FINAL.pdf](http://www.mvr.usace.army.mil/Portals/48/docs/Environmental/EMP/HREP/EMP_Documents/2012%20UMRR%20EMP%20Environmental%20Design%20Handbook%20-%20FINAL.pdf). Hendrickson overviewed the Handbook's content and layout and described how partners can use the Handbook to inform future project planning. Hendrickson also explained how the document illustrates the connections between system, reach, and project ecological objectives, project criteria, and management actions.

Jim Fischer noted that Table 2-6, on pages E-1 to E-7 of the agenda packet, indicate that UMRR will promote the use of dredged material in its habitat projects. In response to a question from Fischer, Hendrickson said MVP considers the use of dredged material in constructing habitat projects and does so when it makes sense, depending on the material's content. Material from backwaters is typically best to use, rather than from the main channel. He said North and Sturgeon Lake is aiming to use material from the main channel.

### *Habitat Project Highlight: Harpers Slough*

Tom Novak presented on the selected project features for Harpers Slough habitat project and explained how they will work towards advancing ecological goals and objectives for the site. Harpers Slough is approximately 3,500 acres located in Pool 9 on USFWS lands. Novak said project construction will be initiated spring 2015 and is anticipated to be completed in FY 2019. He illustrated historic conditions and the ecological issues occurring in the project site, particularly arising from a loss of islands. Through the construction of new islands, it is anticipated that the islands will protect the existing islands, restore habitat including for vertebrate species, reduce wave action, alter flows, and improve the extent and quality of aquatic vegetation. Specifically, the project goals are to maintain and/or enhance habitat in backwaters for migratory waterfowl birds, create habitat for migratory and resident vertebrates, enhance channel habitat for riverine fish and mussel species, and create and maintain protected lacustrine habitat for backwater fish species. Novak provided an overview the five alternative project designs and the selected plan. Novak said lessons learned from Capoli Slough were incorporated into Harpers Slough design and construction. He overviewed how two-dimensional flows of overwintering and flood stage impacts.

In response to a question from Jim Fischer, Novak expressed a need to improve habitat evaluation models. Hubbell agreed and said partners can request the use of a new model as part of a project feasibility study. He observed that developing a model that can accurately capture project benefits has been challenging. Kat McCain explained that the use of project design models has been challenging. USACE is currently transitioning from using community-based models, such as the aquatic habitat appraisal guide (AHAG), to habitat-based models. McCain said there will be overlapping issues with using the two model types. Hubbell mentioned that environmental benefits were not historically required. However, now with more sophisticated technology, there are more demands on estimating



and evaluating project outcomes. Dave Potter added that some models are not conducive to post-project monitoring and it should be an ability of any new model. Hubbell said partners may consider this as part of the science plan.

### **Navigation and Ecosystem Sustainability Program**

Michael Tarpey reported that MVD reallocated \$50,000 to the Navigation and Ecosystem Sustainability Program (NESP) in FY 2014. Today's presentation is meant to provide a brief historical overview of NESP and update partners on NESP's plans with current and any future funds. Tarpey overviewed NESP's feasibility study and authorization, including the navigation and ecological problems the program is designed to address. Tarpey recalled that USACE ASA(CW) has not yet advanced a Chief's Report for the program due to uncertainties in economic forecasts on the navigation component. The ASA(CW) has requested further economic analysis to support a positive Chief's Report.

Tarpey explained that the Inland Waterways Trust Fund's (IWTF's) revenue shortfalls have limited construction and major rehabilitation of the nation's inland waterways infrastructure. Given other national priorities, it is estimated that IWTF monies will not be available for UMRS infrastructure projects authorized in NESP until 2037. However, Tarpey explained that NESP's planned infrastructure improvements are still needed now to improve the system's reliability and efficiency and in the future to support traffic growth.

Tarpey reported that MVD reallocated \$50,000 in FY 2014 funds for the purposes of developing a plan to update cost estimates and economics of constructing the navigation improvements. He asked partners to contact him with any questions and suggestions to consider in updating cost estimates.

Markert observed that industry is anticipating increasing traffic on the UMRS given the significant backlog in shipping the Midwest's agriculture products to export markets. Tarpey agreed and said the Panama Canal expansion is likely to expand the geographic area that uses the UMRS. Tim Schlagenhaft asked if the benefits received are estimated to make the investments now worthwhile, given the significant costs of building new locks, until estimated growth trends are proven. Tarpey said investment now will at least buy down the risk by having the infrastructure available to accommodate shipping demand when it does emerge and reduce the lag time associated with designing and building the new locks. Marv Hubbell noted that the current state of the infrastructure is such that investment to replace the locks will be required regardless. Dru Buntin agreed with Tarpey's comment and said the UMRS Governors wrote an August 20, 2014 letter to the President seeking funds for NESP to start planning on at least one lock so that the system is prepared to accommodate future growth. The letter also asked that small scale measures that are construct-ready are implemented. Buntin acknowledged that this summer's closure of L&D 26's main chamber proved the economic value of having a second chamber. Given the current constraints in rail and truck shipping, the states, Congress, and industry are joining in support for NESP.

Jon Duyvejonck expressed concern that the comparable progress provision in NESP's ecosystem component is not being considered. Kirsten Mickelsen said UMRBA has been emphasizing the need for comparable progress with the state DOTs and others when discussing the history of the river's dual purpose authority, NESP's authorization, and P3s. Buntin added that it is challenging to consider how the comparable progress will influence P3s, including how a private investor might advance an ecological restoration project. In response to a comment by Hubbell about the UMRR/NESP Transition Plan, Buntin suggested that partners are far from the point at which there will be a need for a transition. However, partners will need to keep the provisions in mind going forward.

## **Other Business**

### *Future Meetings*

The upcoming quarterly meetings are as follows:

- **February 2015 — Quad Cities**
  - UMRBA — February 10
  - **UMRR Coordinating Committee — February 11**
- **May 2015 — St. Louis**
  - UMRBA — May 10
  - **UMRR Coordinating Committee — May 11**
- **August 2015 — La Crosse**
  - UMRBA — August 4
  - **UMRR Coordinating Committee — August 5**

With no further business, the meeting adjourned at 2:20 p.m.

**UMRR Coordinating Committee Attendance List  
November 19, 2014**

**UMRR Coordinating Committee Members**

Mark Moore	U.S. Army Corps of Engineers, MVD
Tim Yager	U.S. Fish and Wildlife Service, UMR Refuges
Mark Gaikowski	U.S. Geological Survey, UMESC
Dan Stephenson	Illinois Department of Natural Resources
Diane Ford	Iowa Department of Natural Resources
Kevin Stauffer	Minnesota Department of Natural Resources
Janet Sternburg	Missouri Department of Conservation [On the phone]
Jim Fischer	Wisconsin Department of Natural Resources
Ken Westlake	U.S. Environmental Protection Agency, Region 5[On the phone]
Jon Hubbert	U.S. Department of Agriculture, NRCS

**Others In Attendance**

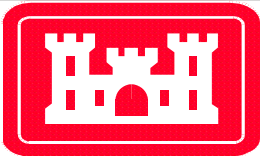
Renee Turner	U.S. Army Corps of Engineers, MVD
Terry Birkenstock	U.S. Army Corps of Engineers, MVP
Jon Hendrickson	U.S. Army Corps of Engineers, MVP
Tom Novak	U.S. Army Corps of Engineers, MVP
David Potter	U.S. Army Corps of Engineers, MVP
Col. Mark Deschenes	U.S. Army Corps of Engineers, MVR
Gary Meden	U.S. Army Corps of Engineers, MVR
Marvin Hubbell	U.S. Army Corps of Engineers, MVR
Ken Barr	U.S. Army Corps of Engineers, MVR
Karen Hagerty	U.S. Army Corps of Engineers, MVR
Michael Tarpey	U.S. Army Corps of Engineers, MVR
Brian Johnson	U.S. Army Corps of Engineers, MVS
Brian Markert	U.S. Army Corps of Engineers, MVS
Tim Eagan	U.S. Army Corps of Engineers, MVS
Kat McCain	U.S. Army Corps of Engineers, MVS
Kraig McPeck	U.S. Fish and Wildlife Service, RIFO
Bob Clevensine	U.S. Fish and Wildlife Service, UMR Refuges
Jon Duyvejonck	U.S. Fish and Wildlife Service, RIFO
Scott Yess	U.S. Fish and Wildlife Service, UMR Refuges
Barry Johnson	U.S. Geological Survey, UMESC
Jeff Houser	U.S. Geological Survey, UMESC
Jennie Sauer	U.S. Geological Survey, UMESC
Robert Stout	Missouri Department of Natural Resources
Tim Schlagenhaft	Audubon Minnesota
Don Powell	SEH, Inc.
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 1st Quarter of FY 15 (12/31/2014)**  
*(B-1 to B-5)*
- **Web Link for UMRR Strategic Plan (FY 2015 – 2025)** *(B-6)*
- **Overview of MVR's Continuous Improvement Program**  
*(B-7 to B-9)*
- **FY 2015 – 2025 UMRR Strategic Plan: Goal 3** *(B-10)*

# **UMRR-EMP EXPENDITURES AND ALLOCATIONS**

FY15 (\$ 000)						
		CARRY IN FROM FY 14	FY 15 ALLOCA.	TOTAL AVAILABLE TO EXP.	31 Dec 14 ACTUAL EXP.	31 Dec 14 ACTUAL OBLIG.
<b>PROGRAM ELEMENTS</b>						
<b>HABITAT PROJECTS</b>						
HREP PROJECTS		223	23,309	23,526	5,817	8,687
ARRA HREP PROJECTS		0	0	0	0	0
HABITAT EVAL/MONITORING		0	475	475	96	87
HABITAT NEEDS ASSESSMENT		0	0	0	0	0
PLANNING/PRIORITIZATION		0	0	0	0	0
USFWS HREP SUPPORT		0	370	370	182	172
PROGRAM COOR. (Includes District Habitat Coordination)		0	3,240	3,240	521	505
REPORT TO CONGRESS- 2014		0	0	0	0	0
REGIONAL INITIATIVES		0	201	201	78	78
LTRM (Includes LTRM Regional Technical)		0	5,575	5,575	1,764	2,992
ARRA LTRM PROJECTS		0	0	0	0	0
<b>TOTALS</b>		<b>223</b>	<b>33,170</b>	<b>33,387</b>	<b>8,458</b>	<b>12,522</b>
<b>TOTALS BY ORGANIZATION</b>						
MVR *		26	12,443	12,463	3,789	815
MVP		75	7,361	7,436	414	6,250
MVS		122	7,421	7,543	2,293	2,293
USGS		0	5,500	5,500	1,763	2,992
UMRBA Administration		0	75	75	16	0
USFWS (Multi-district funded)		0	370	370	182	172
REPORT TO CONGRESS- 2012		0	0	0	0	0
System Ecological Team (SET)		0	0	0	0	0
<b>TOTAL</b>		<b>223</b>	<b>33,170</b>	<b>33,387</b>	<b>8,458</b>	<b>12,522</b>

\*1

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

31 December 14  
FY 2015

# ADMINISTRATIVE, LTRM, and Non-Site Specific Costs

	FY15 (\$ 000)				
	CARRY IN	ALLOCA.	TOTAL SCHED EXP.	31 Dec 14 Actual Exp.	31 Dec 14 Actual Obl.
<b>HABITAT (Rollup from district sheets)</b>					
<b>BASELINE MONITORING</b>	0	85	85	48	48
<b>HABITAT PROJ. EVALUATION</b>	0	315	315	48	39
<b>BIO-RESPONSE STUDIES</b>	0	75	75	0	0
<b>USFWS HREP SUPPORT (Multi-district funded)</b>	0	370	370	182	172
<b>PLANNING/SEQUENCING (PRIORITIZATION)</b>	0	0	0	0	0
<b>TOTAL HABITAT</b>	0	845	845	278	259
<b>PROGRAM COORDINATION (excludes District Habitat Coord.)</b>					
<b>UMRBA</b>	0	75	75	16	0
<b>System Ecological Team (SET)</b>	0	0	0	0	0
<b>PUBLIC INVOLVEMENT</b>	0	60	60	0	0
<b>EMP PROGRAM ADMINISTRATION</b>	0	630	630	154	154
<b>LTRM REGIONAL TECHNICAL</b>	0	75	75	0	0
<b>REGIONAL INITIATIVES</b>	0	201	201	78	78
<b>PROGRAM MGT TOTAL</b>	0	1,041	1,041	247	232
<b>REPORT TO CONGRESS (includes all organizations)</b>	0	0	0	0	0
<b>LTRM</b>					
<b>CORPS LTRM MANAGEMENT</b>	0	0	0	0	0
<b>LTRM (USGS &amp; STATES)</b>	0	5,500	5,500	1,763	2,992
<b>CORPS BATHOMETRY &amp; LiDAR (Multi-district funded)</b>	0	0	0		
<b>ARRA - BATHOMETRY, LiDAR, &amp; GIS (Multi-district funded)</b>	0	0	0	0	0
<b>CORPS APE'S ACTIVITIES</b>	0	0	0	0	0
<b>CORPS LTRM TECHNICAL SUPPORT (MSP)</b>	0	0	0	0	0
<b>SUBTOTAL</b>	0	5,500	5,500	1,764	2,992

## 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 AVAILABLE TO EXP.	31 Dec 14	31 Dec 14			
										Actual Exp.	Actual Obl.			
HABITAT PROJECTS														
Capoli Slough, WI	500	8,750	9,250		1981	6413		200	200	56	41	4,762	CONSTRUCTION	
Conway Lake, IA	462	2,050	2,512		141	254		275	275	41	41	2,358	DESIGN	
Harpers Slough, IA	1,500	15,000	16,500		499	2185	75	6,106	6,181	109	5,937	14,705	CONSTRUCTION	
Lake Winneshiek, WI	620	4,380	5,000			9			0			4,991	DESIGN	
Lower Pool 10 Islands/Backwater, IA	920	5,200	6,120		27	0			0			6,120	DESIGN	
McGregor Lake, WI	900	5,600	6,500		151	152		30	30	3	3	6,496	DESIGN	
North & Sturgeon Lakes, MN	900	7,600	8,500	3,250	297	2172		300	300	110	133	6,515	DESIGN	
ARRA PLANING, ENG & DESIGN	0	75	75	0		75			0			0		
Other Habitat (Carry over)	0	0	0	0		0			0			0		
HABITAT TOTAL	5,802	48,655	54,457	3,250	3,096	11,260	75	6,911	6,986	319	6,155	45,947		
									0					
HABITAT EVAL/MONITORING														
HABITAT NEEDS ASSESSMENT						57			0					
BASELINE MONITORING					104	582		25	25					
HABITAT PROJ. EVALUATION					138	1771		75	75	22	22			
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	22	22	0		
PROGRAM MANAGEMENT														
PROGRAM COORDINATION					457	4889		350	350	73	73			
PUBLIC INVOLVEMENT - mipr \$						0			0					
SUBTOTAL	0.0	0.0	0.0	0.0	457	4,889	0	350	350	73	73	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				3,250	3,902	22,176	75	7,491	7,566	414	6,250	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	414	6,250			
*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.	31 Dec 14 Actual Exp.	31 Dec 14 Actual Obl.			
HABITAT PROJECTS														
BEAVER ISLAND, IA	1,500	11,000	12,500		232	411			540	540	174	152	12,147	PLANNING
FOX ISLAND, MO	700	4,300	5,000		446	5,675			140	140	-124	29	-105	DESIGN
HURON ISLAND, IA	2,100	8,400	10,500		639	2,285			773	773	1,642	62	7,211	PLANNING
LAKE ODESSA, IA	2,470	12,394	14,864		90	15,133			650	650	30	30	-209	DESIGN
POOL 11 ISLANDS, WI	1,548	14,469	16,017			10,157				0			5,860	CONSTRUCTION
POOL 12 OVER WINTER, IA	2,500	16,500	19,000		1,811	3,939			6,393	6,393	1,989	159	14,884	DESIGN
RICE LAKE, IL	2,800	10,720	13,520	6,825	1,518	12,374		26	539	565	-268	45	2,932	DESIGN
TURKEY RIVER BOTTOMS	2,900	15,800	18,700		0	2			4	4			18,698	PLANNING
BOSTON BAY	900	5,100	6,000		0	2			4	4			5,998	PLANNING
STEAMBOAT ISLAND	1,250	6,250	7,500		0	2			25	25			7,498	PLANNING
KEITHSBURG DIVISION	1,400	4,800	6,200		12	14			250	250	11	11	6,187	PLANNING
DELAIR DIVISION	1,750	7,750	9,500		0	2			4	4			9,498	PLANNING
SNYDER SLOUGH	1,800	15,000	16,800		14	16			4	4	0	0	16,799	PLANNING
EMIGUON	725	12,575	13,300	6,400	232	233			20	20	8	8	13,291	DESIGN
LAKE ODESSA, IA (Flood Recovery) (supplemental)		5,500	5,500		174	4,915				0			758	FLOOD RECONSTR.
ARRA ODESSA		236	236			158				0			78	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	3,462	496	39,233	
HABITAT														
HABITAT NEEDS ASSESSMENT						0			0	0				
BASELINE MONITORING			268			254				0				
HABITAT PROJ. EVALUATION			938		150	3,514		225	225	16	7			
BIO-RESPONSE MONITORING			588			1,036		0	0					
USFWS HREP SUPPORT					166	1,049		170	170	10	0			
PLANNING/SEQUENCING (PRIORITYIZATION)						39		0	0					
SUBTOTAL	0	0	1,794	0	316	5,893	0	395	395	26	7			
PROGRAM MANAGEMENT														
REGIONAL HREP SCIENCE SUPPORT			3,496	0	276	5,469		1,900	1,900	80	79			
PUBLIC INVOLVEMENT	0.0	20.0	20.0		41	244		60	60	0	0			
REGIONAL ADMIN				0	655	2,936		630	630	154	154			
LTRM REGIONAL TECHNICAL					69	1,813		75	75	0	0			
PROGRAM INITIATIVES					192	1,170		201	201	78	78			
SUBTOTAL			3,516	0	1,234	11,633	0	2,866	2,866	311	312			
REPORT TO CONGRESS					0	96	0	0	0					
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	16	0			
ITRC					0	0	0	0	0	0	0			
USGS					6,088	20,286	0	5,500	5,500	1,763	2,992			
FY14 Reprogram						0		6						
SUBTOTAL					6,171	20,525	0	5,581	5,575	1,779	2,992			
TOTAL MVR EXPENDITURES					12,898	129,845	26.0	18,188	18,208	5,579	3,807			
*1 Equals MVR work allowance of \$18,188,000														
*1														



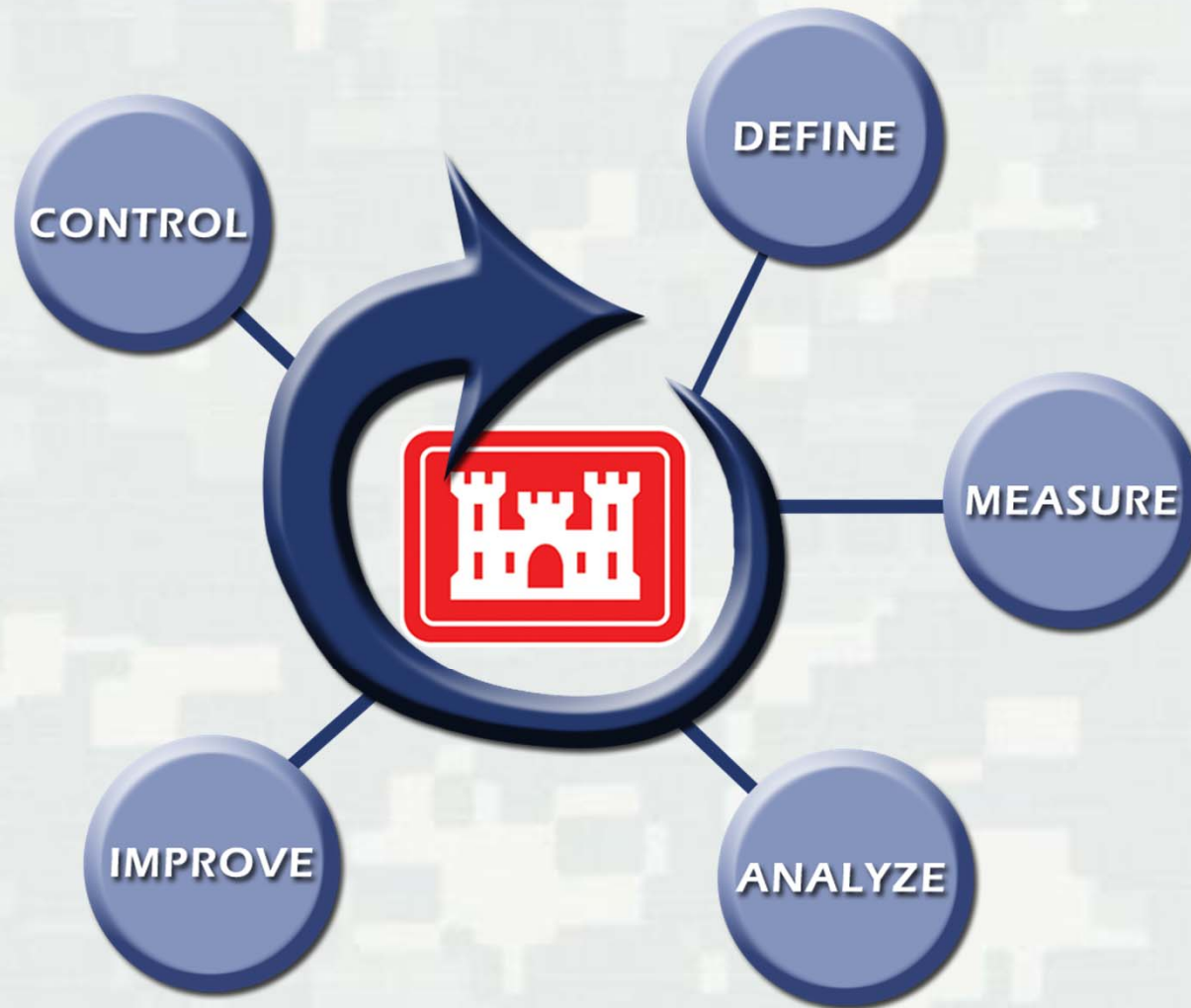
## ST LOUIS DISTRICT

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.	31 Dec 14 Actual Exp.	31 Dec 14 Actual Obl.			
	DESIGN	CONST												
HABITAT														
BATCHTOWN MGMT, IL	3,220	14,875	18,095	145	261	16,796		100	100	45	45	1,515	CONSTRUCTION	
CLARENCE CANNON, MO	2,637	27,180	29,817		484	1,502		950	950	320	320	28,479	DESIGN	
EAGLES NEST & PIASA IS., IL	1,057	4,500	5,557		216	432		350	350	219	219	5,122	FACT SHEET	
GLADES WETLAND, IL	3,218	14,000	17,218			0		100	100	31	31	17,187	DESIGN	
HARLOW ISLAND	750	3,750	4,500			22		400	400	152	152	4,310	DESIGN	
RIP RAP LANDING	1,373	10,553	11,926	1,207	79	748		100	100	2	2	11,255	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	152	152	1,519	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	1,062	1,062	20,828	CONSTRUCTION	
WILKINSON ISLAND	1,250	2,730	3,980	0	8	876		10	10			3,112	DESIGN	
WEST ALTON ISLAND	805	5,727	6,532			17		10	10			6,515	DESIGN	
HORSESHOE LAKE	1,520	12,750	14,270		40	40		10	10	5	5	14,265	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	62	62		48	62			0	48	48	0		
HABITAT TOTAL	28,222	163,089	191,311	1,614	6,434	54,594	122	7,046	7,168	2,036	2,036	141,115		
HABITAT EVAL/MONITORING														
HABITAT NEEDS ASSESSMENT	1,000		1,000			0								
BASELINE MONITORING					530	1,372		60	60	48	48			
HABITAT PROJ. EVALUATION					14	666		15	15	10	10			
BIO-RESPONSE MONITORING					4	1,184		75	75		0			
USFWS HREP SUPPORT					156	614		70	70	172	172			
PLANNING/SEQUENCING(PRIORITIZATION)						4			0					
SUBTOTAL	1,000	0	1,000	28,347	704	3,840	0	220	220	230	230			
PROGRAM MANAGEMENT														
PROGRAM COORDINATION					199	2,285		225	225	199	199			
PUBLIC INVOLVEMENT					0	0			0					
SUBTOTAL	0	0	0	0	199	2,285	0	225	225	199	199			
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	163,089	192,311	29,961	7,337	60,719	122	7,491	7,613	2,465	2,465			
								*1						
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	2,465	2,465			
NOTES:														
*1 Equals MVS work allowance of \$7,491,000														

**Web Link for UMRR Strategic Plan (FY 2015 – 2025)**

<http://umrba.org/ecosystem/umrr-strategic-plan-fy15-25-jan2015.pdf>

# MVR CPI Program



**BUILDING STRONG®**

Slide 1

# CPI Program

## Lean Six Sigma (LSS) Brief Introduction

### ■ “Lean”

- Focus is eliminating non-customer value added waste in a process or service (efficiency and speed)
- Result is reducing service lead times, improving on-time delivery performance, and reducing cost

### ■ “Six-Sigma”

- Term originally comes from statistics
- Statistics help us measure and understand both individual data points, averages, and variation in a process or service
- Primary focus on reducing defects to the customer (effectiveness, quality) and achieving improvements in service quality and cost

### ■ “Lean Six-Sigma”

- Combines the speed and power of both Lean and Six Sigma
- Voice of the customer defines quality
- Eliminating variation to the customer requirements



**BUILDING STRONG®**

Slide 2

# CPI Program

## Project Selection

- **Identify Value Levers**

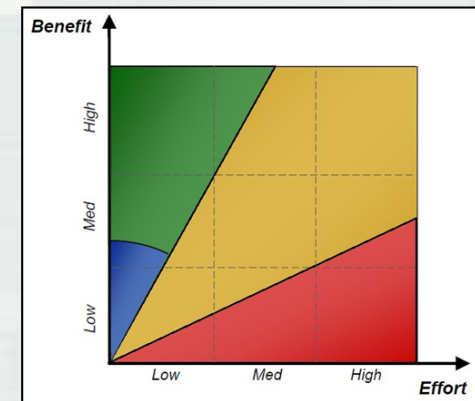
- Organizational strategy is the starting point for opportunity identification
- Better understand your customers requirements to identify the gap between requirements and performance

- **Identify Project Opportunities**

- Translate those opportunities into project ideas

- **Screen Project Opportunities**

- Rank the benefit and effort of each opportunity
- Benefit being, strategic fit and cost savings
- Effort being, resources required, project duration, project risk



- **Define Project**

- High priority project ideas are identified and project sponsor is assigned

- **Project Prioritization**

- List potential project ideas by rank of importance
- Identify projects that could be Rapid Improvement Events (RIE)



**BUILDING STRONG®**

Slide 3

## GOAL 3

### ENGAGE AND COLLABORATE WITH OTHER ORGANIZATIONS AND INDIVIDUALS TO HELP ACCOMPLISH THE UPPER MISSISSIPPI RIVER RESTORATION VISION

The Upper Mississippi River is a large, complex, and dynamic ecosystem that is heavily influenced by human activity throughout its watershed. While UMRR makes significant contributions to enhancing the river ecosystem's health and resiliency, it cannot and should not attempt to meet all management needs for improving river's health. No one agency or program can solely manage this multi-use ecosystem. Rather, successful management of the UMR requires thoughtful and meaningful coordination among numerous agencies, organizations, and individuals with varying mandates and missions. This includes state and federal agencies with responsibilities related to natural resources, water quality, agriculture, transportation, and recreation; non-governmental organizations; industry representatives; academics; and the public. UMRR can aid other programs and projects that have influence on the Upper Mississippi River's condition. For example, UMRR's various datasets are readily available for broad use by Clean Water Act programs and other river managers and researchers. It will be increasingly important for UMRR to work within a watershed context and create synergies with programs and projects that will affect the Upper Mississippi River's health and resilience. In addition, interactions with other organizations and individuals that manage and conduct research nationally and internationally offer UMRR cost efficiencies and insights not otherwise available.

<b>Objective 3.1</b>	<b>Work with key organizations and individuals in the Upper Mississippi River watershed</b>
Strategy 1	Ensure rich collaboration with key organizations and individuals in the Upper Mississippi River watershed in advancing complementary visions, missions, and goals
Strategy 2	With key watershed programs and projects, jointly develop and communicate common messages about the restoration and knowledge needs of the Upper Mississippi River
Strategy 3	Seek knowledge from other organizations and individuals for the purposes of being aware of activities that may influence UMRR's work and enhancing programmatic efforts
Strategy 4	Directly engage relevant organizations or individuals in implementing UMRR's efforts, as appropriate
<b>Objective 3.2</b>	<b>Provide information to organizations and individuals whose actions and decisions affect the Upper Mississippi River ecosystem</b>
Strategy 1	Enhance the delivery and utility of UMRR's knowledge in order to increase understanding of the Upper Mississippi River's ecosystem drivers and means to achieve the UMRR vision
Strategy 2	Provide decision makers with timely, relevant, understandable, and usable knowledge about the needs and tools available to advance the UMRR's vision
<b>Objective 3.3</b>	<b>Exchange knowledge with other organizations and individuals nationally and internationally</b>
Strategy 1	Serve as a resource for similar programs nationally and internationally
Strategy 2	Seek knowledge from other organizations and individuals nationally and internationally to enhance UMRR's efforts in advancing its vision

## **ATTACHMENT C**

### **Long Term Resource Monitoring and Science**

- **Base Monitoring Scope of Work thru 1st Quarter of FY 15 (1/23/2015)** *(C-1 to C-7)*
- **FY 15 UMRR Science Activities in Support of Restoration and Management (1/26/2015)** *(C-8 to C-10)*

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
<b>Aquatic Vegetation Component</b>						
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, Langrehr, 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, Langrehr, Vogeler
	e. Corrections made and data moved to public Web Browser	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				Sauer
	b. Reviews completed	15-Apr-15				Moore, Langrehr, Vogeler, Sauer, Yin
	c. Submit final update	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, Langrehr, 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, Langrehr, 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				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				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				Moore
<b>On-Going</b>						
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	30-Dec-14		Having technical issues with model work; Yao Yin will be meeting with contractor to discuss	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		TBD; see 2013A8	Yin
2014A6	Annual Field Station Data Summary Report Template Development	30-Sep-14	30-Sep-15			Hagerty, Popp, Bierman, Chick, Herzog, Casper
<b>Intended for distribution</b>						
Completion report: LTRMP Aquatic Vegetation Program Review (2007A9; Heglund) (in USGS review)						
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)						



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: Have the recent increases in aquatic vegetation in Pools 5 and 8 been the result of water level management drawdowns, HREPs, or natural fluctuations? (2009APE1a; Yin) (in USGS review)						
Manuscript: A statistical model of species occupancy using the LTRMP aquatic vegetation data (2013A7; Yin) (in USGS review)						
WI DNR annual 2013 data summary report (2014A5; Fischer, Langrehr, Bartels, Giblin, Hoff)						
<b>Fisheries Component</b>						
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				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				Schlifer
	c. Field Station QA/QC with corrections to USGS	15-Mar-15				DeLain, Bartels, Bowler, Ratcliff, Gittinger, West, Solomon, Pendleton
	d. Corrections made and data moved to public Web Browser	30-Mar-15				Sauer and Schlifer
2015B2	Update Graphical Browser with 2014 data on Public Web Server.	31-May-15				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				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
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			Solomon, Pendleton, Casper

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
<b>On-Going</b>						
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				Solomon, Casper
<b>Intended for distribution</b>						
Completion report: LTRMP Fisheries Component collection of six darter species from 1989–2004. (2006B13; Ridings) <a href="#">(in USGS review)</a>						
Evaluating the effectiveness of a mandatory catch and release regulation on a riverine largemouth bass population (2007B7; Bowler). <a href="#">Iowa Department of Natural Resources, Bureau of Fisheries Conservation &amp; Recreation, Division Fisheries Management Section, 2013 Completion Reports, pp 149-169.</a>						
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) <a href="#">(in USGS review)</a>						
LTRMP technical report; Setting quantitative fish management targets for LTRMP monitoring (2008APE2; Sass) <a href="#">(in USGS review)</a>						
LTRMP Completion report, compilation of 3 years of sampling: Fisheries (2009R1Fish; Chick et al.) <a href="#">(in USGS review)</a>						
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). <a href="#">The Prairie Naturalist 46:44–47</a>						
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) <a href="#">(in USGS review)</a>						
IA DNR Fisheries Management State Report: Fisheries Monitoring in Pool 13, Upper Mississippi River, 2013 (2014B14). <a href="#">Iowa Department of Natural Resources, Bureau of Fisheries Conservation &amp; Recreation, Division Fisheries Management Section, 2013 Completion Reports, pp 85-115.</a>						
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. <a href="#">Iowa Department of Natural Resources, Bureau of Fisheries Conservation &amp; Recreation, Division Fisheries Management Section, 2013 Completion Reports, PP 117-125.</a>						
Manuscript: American eel population characteristics in the Upper Mississippi River (2012B7; Phelps) <a href="#">The American Midland Naturalist, 171(1):165-171. 2014.</a>						
LTRMP fisheries component procedures manual (2013B5; Ratcliff, Gittinger, Ickes). <a href="http://pubs.usgs.gov/mis/ltrmp2014-p001">http://pubs.usgs.gov/mis/ltrmp2014-p001</a>						
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. <a href="http://pubs.usgs.gov/mis/ltrmp2014-p001a/">http://pubs.usgs.gov/mis/ltrmp2014-p001a/</a>						
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: <a href="https://doi.org/10.1111/jai.12552">10.1111/jai.12552</a>						
Manuscript: Hupfeld, R. N., Q. E. Phelps, M. K. Flammang and G. W. Whitley. 2014. Assessment of the effects of high summer water temperatures on Shovelnose sturgeon and potential implications of climate change. <a href="#">River Res. Applic. (On-line First) DOI: 10.1002/rra.2806</a>						
<b>Water Quality Component</b>						
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				Yuan, Schlifer

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
2015D3	1st Quarter of laboratory sample analysis (~12,600)	30-Dec-15				Yuan, Manier, Burdis, Giblin, Kueter, L. Gittinger, Cook, Sobotka
2015D4	2nd Quarter of laboratory sample analysis (~12,600)	30-Mar-15				Yuan, Manier, Burdis, Giblin, Kueter, L. Gittinger, Cook, Sobotka
2015D5	3rd Quarter of laboratory sample analysis (~12,600)	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				Schlifer, Rogala, Houser
	b. Field Station QA/QC; USGS QA/QC.	15-Apr-15				Houser, Rogala, Burdis, Giblin, Kueter, L. Gittinger, Cook, Sobotka
	c. Corrections made and data moved to public Web Browser	30-Apr-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				Houser, Burdis, Giblin, Kueter, L. Gittinger, Cook, Sobotka
2015D9	WEB-based annual Water Quality Component Update w/ 2014 data on Server.	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
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				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
<b>Intended for distribution</b>						
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)						

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: 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)						
<b>Land Cover/Land Use with GIS Support</b>						
2014LC1	Updates on progress for land cover products (See SOW)				New progress reported in the quarterly activities. Percent complete updated 30 Sept 2015.	Robinson
<b>Development of 2010–2011 Land Cover/Land Use GIS Database and Aerial Photo Mosaics</b>						
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
<b>Statistical Evaluation</b>						
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				Gray, Lyubchich, Gel
<b>Intended for distribution</b>						
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) <a href="http://www.umesc.usgs.gov/documents/publications/2014/gray_b_2014.html">http://www.umesc.usgs.gov/documents/publications/2014/gray_b_2014.html</a>						
<b>Data Management</b>						
2015M1	Update vegetation, fisheries, and water quality component field data entry and correction applications.	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				Schlifer
2014M3	Webinar on LTRMP data access and use	27-Oct-14		27-Oct-14		Sauer, Johnson, Houser, Ickes, Yin, Rogala, Schlifer, Lowenberg

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
<b>Landscape Pattern Research and Application</b>						
2015L1	Data Analysis: Examining changes in land cover and land use 2000-2010.	30-Sep-15				De Jager & Rohweder (UMESC)
2015L2	Draft Manuscript: Connectivity/Inundation tool for mapping spatial patterns in river-floodplain connectivity.	30-Sep-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				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				Reich & Hernandez (Carleton), De Jager (UMESC)
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)
<b>Intended for distribution</b>						
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). (Submitted to 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> )						
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) (In USGS Review; New title: Patchiness in a large floodplain river: associations among hydrology, nutrients, and fish communities)						
Fact Sheet: De Jager, N.R. 2014. Landscape Ecology on the Upper Mississippi River: lessons learned, challenges, opportunities (2013L3). In Press						
Manuscript: Effects of flood inundation duration on letter decomposition and nitrogen cycling during different states of forest succession ( 2014L1; Strauss, Swanson, De Jager) (In USGS Review)						
Manuscript: Differences in fish community composition between patches of high TN:TP and low TN:TP: the role of water flow velocity (2014L3; De Jager) (In USGS Review)						
<b>Science Planning</b>						
2013XY	Draft report: Critical questions for advancing ecosystem understanding and management capability on the UMRS	30-Sep-13	31-Dec-14			Johnson
2013XZ	Final Draft Critical Questions report to UMRR CC	20-Nov-13	TBD			Johnson
2014N3	Final Draft research plan to UMRR CC	1-Aug-14	10-Nov-14			Johnson

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
<b>UMRR LTRMP Team Meeting</b>						
2015FM1	Meeting date coordination	31-Oct-14				All LTRM Staff
2015FM2	Agenda development	31-Dec-14				All LTRM Staff, led by UMESC
2015FM3	Meeting logistics	On-Going				Sauer
2015FM4	Meeting participation	TBD				All LTRM Staff
<b>Involvement of LTRMP with monitoring on other rivers, nationally and internationally</b>						
2014P1	Draft white paper for review	15-Jun-14	15-Nov-14		Progress delayed due to added workload with retirement of Center Director and planning for Center restructuring due to multiple retirements	Johnson
2014P2	Final draft white paper	30-Sep-14	15-Dec-14		See above	Johnson
2014P3	Final Draft white paper to EMP-CC	Nov. 2014	31-Dec-14			Johnson
<b>Quarterly Activities</b>						
2015QR1	Submittal of quarterly activities	30-Jan-15				All LTRMP staff
2015QR2	Submittal of quarterly activities	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
<b>Science Management</b>						
2015ER1	Property inventory and tracking	15-Nov-15				LTRMP staff as needed



**UMRR Science in Support of Restoration and Management**  
**FY2014 Scope of Work**  
**January 2015 Status**

Tracking number	Milestone	Original Target Date	Modified Target Date	Date Completed	Comments	Lead
<b>Seamless Elevation Data</b>						
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				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				Dieck, Rohweder, Nelson, Fox
<b>Land Cover / Land Use data and Accuracy Assessment/Validation for UMRS</b>						
2014V2	Complete remaining 70% of the 2010/11 LCU database for UMR Open River North	30-Sep-14	30-Jan-15		Completed and in USGS FSP review	Robinson, Hoy, Hanson, Langrehr, Ruhser, Nelson
2014V4	Final LTRMP Completion Report on Accuracy Assessment	30-Sep-14		completed	Completed and in USGS FSP review	Ruhser, Jakusz
<b>Standardized HREP Non-forested Wetland Plant Sampling Protocol</b>						
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
<b>Standardized HREP Forested Wetland Plant Sampling Protocol</b>						
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
<b>Predictive Model for Aquatic Cover Types</b>						
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
<b>UMRS Vegetation Handbook</b>						
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				Dieck, Langrehr, Hoy, Robinson, Ruhser
<b>Phase 2 Geospatial Data Upgrades</b>						
2014GDU1	Complete geodatabases by pool for the entire UMRS	30-Sep-14	28-Feb-15		A snag was hit with the 1989 Satellite data. Apparently no metadata was ever created despite having the data online. UMESC is working through old technical reports to compile FGDC metadata for this dataset	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	28-Feb-15		Completed; still needs to be uploaded on-line	Nelson, Robinson

Tracking number	Milestone	Original Target Date	Modified Target Date	Date Completed	Comments	Lead
<b>Spatial Data Query Tool</b>						
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	28-Feb-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				Rohweder, Fox
<b>UMRS Data Map</b>						
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 <a href="http://umesc.usgs.gov/reports_publications/ltrmp_rep_list.html">http://umesc.usgs.gov/reports_publications/ltrmp_rep_list.html</a> in the data map	31-Dec-14	15-Mar-15		Citations are available, however locational information is still being added. Not all titles and abstracts have location info so it is more difficult than initially expected	Nelson, Ruhser
2014DM3	Include additional state and federal data references in the data map	31-Mar-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
<b>Assessing System-wide Hydrodynamic Model Availability</b>						
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	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		draft final submitted 31 Dec 14. Additional review has been requested. Additional milestone has been added but needs date.	Theiling
2014SHM8	final white paper	1-Apr-15				Theiling
<b>Development of Mussel Vital Rates</b>						
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
<b>Validation of Mussel Community Assessment Tool</b>						
2014MCA1	Workshop of mussel experts in UMRS	1-May-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



UMRR Science in Support of Restoration and Management  
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Tracking number	Milestone	Original Target Date	Modified Target Date	Date Completed	Comments	Lead
<b>Effects of Nutrient Concentrations on Zoo- and Phytoplankton</b>						
2014NC1	Counting of phytoplankton samples	13-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
<b>Ecological Shifts Turbid to Clear States</b>						
2014ES1	Literature review and initial analyses completed	13-Mar-15				Giblin, Ickes, Langrehr, Bartels
2014ES2	Refined analyses and draft manuscript prepared	13-Mar-16				Giblin, Ickes, Langrehr, Bartels
2014ES3	Manuscript submitted for publication	13-Mar-17				Giblin, Ickes, Langrehr, Bartels
<b>Invasive Carp Population Demographics (#1)</b>						
2014CPD1	Summary letter	31-Jan-15		16-Jan-15		Phelps, McCain
2014CPD2	Manuscript	31-Mar-16				Phelps, McCain
<b>Asian Carps Recruitment Sources (#2)</b>						
2014CRS1	Summary letter	31-Jan-15		16-Jan-15		Phelps, McCain
2014CRS2	Manuscript	31-Mar-16				Phelps, McCain
<b>Effects of Asian Carps on Native Piscivore Diets (#3)</b>						
2014NPD1	Summary letter	31-Jan-15		16-Jan-15		Phelps, McCain
2014NPD2	Manuscript	31-Mar-16				Phelps, McCain
<b>Early Life History of Invasive Carps (#4)</b>						
2014CLH1	Summary letter	31-Jan-15		16-Jan-15		Phelps, McCain
2014CLH2	Manuscript	31-Mar-16				Phelps, McCain

## **ATTACHMENT D**

### **Emerging Issues and Trends**

- **Draft UMRR Invasive Species Policy (1/22/2015)** *(D-1)*
- **2013 Implementation Issues Assessment (IIA):  
Emerging Trends and Issues** *(D-2)*

**DRAFT Upper Mississippi River Restoration (UMRR)  
Invasive Species Policy  
January 22, 2015**

**Background and UMRR Program Context:** Issues related to the spread and impact of invasive species are currently one of the dominant natural resource issues in the Upper Mississippi River System (UMRS). The UMRR Program strives to understand the ecology of the UMRS in order to restore habitat for native species and communities. UMRR Habitat Rehabilitation and Enhancement Projects (HREPs) provide benefits to native species and communities by restoring riverine and floodplain habitat quality and quantity. The UMRR Long Term Resource Monitoring (LTRM) element collects baseline data to identify the status and trends of the critical river components; fish, water quality, and submerged aquatic vegetation, to document the conditions and changes in those conditions within the UMRS over time. The UMRR LTRM element's research provides insight into ecosystem function and the factors influencing the community structure of fishes and aquatic vegetation.

**Purpose of Policy:** This paper identifies and addresses the UMRR Program's role regarding invasive species within its authorization and the interagency Partnership while considering the national and Corps of Engineers' (Corps) invasive species policies (see references below). All UMRR activities will comply with national and Corps regulations and guidance, and will consider state regulations, as appropriate.

1. Communicating the UMRR roles in understanding historic and existing conditions of the UMRS ecosystem and how this can be used to evaluate the impact of invasive species on native communities or species is critical for coordinating all efforts within the UMRS on aquatic invasive species effectively.
2. Reporting of new or rare captures or sightings of invasive species by each UMRR partner agency is already required per each agency's rules or regulations. In addition, new captures or sightings of invasive species will also be reported to the UMRR LTRM leads for the Corps and USGS-UMESC via email and/or phone call within 24 hours and prior to release to the media so that the appropriate level of interagency coordination can take place. Information will include the species captured, the time, location and method of capture along with photographs (if any) and the names of the collectors.
3. Future UMRR research activities on invasive species will focus on understanding the impacts of invasive species on native species and communities, on changes to the ecosystem, and will be used to inform future restoration and management from both a local and system-wide perspective.
4. All HREP projects are formulated to benefit native species and communities. Invasive species of concern will be considered in UMRR HREP planning efforts and in project evaluation reports of existing projects. Management and/or maintenance of existing projects should be adapted to address invasive species impacts and impairments to maintain the ecological value of the project for native species through time.

**References:**

National Invasive Species Act of 1996  
Invasive Species Executive Order 13112 (1999)  
National Invasive Species Management Plan (2008-2012)  
U.S. Army Corps of Engineers Invasive Species Policy (2009)  
U.S. Army Corps of Engineers Program Management Plan for the Invasive Species Leadership Team and Invasive Species Management CoP and Environmental CoP (2014)

# Emerging Trends and Issues

## Issue Overview

The UMRS, and therefore UMRR-EMP, is subject to various cultural, social, and environmental factors. Several major issues have recently surfaced and become prominent factors on the UMRS, including Asian carp and other invasive species, climate change, hydrokinetic and other energy development, and land use — e.g., frac sand mining. **Going forward, partners recognize the need to more deliberately consider potential effects of various emerging trends and issues on UMRR-EMP's efforts to restore and monitor the river. Additionally, it will be important to understand any potential role for HREPs in enhancing, inhibiting, or offsetting the advancement of these trends and issues; as well as LTRMP's ability to evaluate and document these trends and issues. The certainty and controllability of these trends and issues will vary, and thus too will UMRR-EMP's responses.**

## Relevant Policy

Under UMRR-EMP's authorization, program partners have been successfully implementing habitat projects and conducting scientific monitoring and research efforts on the UMRS. In doing so, partners must routinely consider how emerging trends and issues might affect program implementation and vice versa.

## Partner Recommendation

**UMRR-EMP partners support formally selecting and evaluating emerging trends and issues that might affect UMRR-EMP's restoration, monitoring, and research efforts.**

## Specific Action Items

1. ***Institute a framework for identifying and evaluating emerging trends and issues that might affect UMRR-EMP implementation.*** At the UMRR-EMP Coordinating Committee's February quarterly meetings, partners will consider whether there are specific emerging trends or issues that warrant further evaluation for potential program implications. If any trends or issues are selected, the UMRR-EMP will determine what level of analysis is necessary and who should complete the analysis. In addition, at the February meetings, partners will also discuss analytical results from trends or issues selected in previous years and determine if any further action is needed. [Lead: UMRR-EMP Program Manager. Completion target: ongoing.]
2. ***Identify foreseeable emerging trends and issues for near term consideration.*** The FY 2015-19 UMRR-EMP Strategic Plan will outline emerging trends and issues that partners want the program to evaluate within the Plan's timeframe. [Lead: UMRR-EMP strategic planning team. Completion target: two years.]

## **ATTACHMENT E**

### **Additional Items**

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

**QUARTERLY MEETINGS  
FUTURE MEETING SCHEDULE**

<b>MAY 2015</b>	
<u>St. Louis, Missouri</u>	
May 5	UMRBA Quarterly Meeting
May 6	UMRR Coordinating Committee

<b>AUGUST 2015</b>	
<u>La Crosse, Wisconsin</u>	
August 4	UMRBA Quarterly Meeting
August 5	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

OHWM	Ordinary High Water Mark
OMB	Office of Management and Budget
OMRR&R	Operation, Maintenance, Repair, Rehabilitation, and Replacement
OPA	Oil Pollution Act of 1990
ORSANCO	Ohio River Valley Water Sanitation Commission
OSC	On-Scene Coordinator
OSE	Other Social Effects
OSIT	On Site Inspection Team
P3	Public-Private Partnerships
PA	Programmatic Agreement
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 20<sup>th</sup> 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.