

**Upper Mississippi River Restoration
Environmental Management Program
Coordinating Committee
(UMRR-EMP CC)**

Quarterly Meeting

February 26, 2014

**Agenda
with
Background
and
Supporting Materials**

**UPPER MISSISSIPPI RIVER RESTORATION
ENVIRONMENTAL MANAGEMENT PROGRAM
COORDINATING COMMITTEE**

February 25-26, 2014

AGENDA

Tuesday, February 25 Partner Pre-Meetings*

- 4:15 – 5:45 p.m. Corps of Engineers**
4:15 – 5:45 p.m. Department of the Interior
4:15 – 5:45 p.m. States

* The pre-meetings will be held at the Stoney Creek Inn in Moline.

Wednesday, February 26 UMRR-EMP Coordinating Committee

Time	Attachment	Topic	Presenter
8:00 a.m.		Welcome and Introductions	Mark Moore, USACE
8:05	A1-13	Approval of Minutes of November 20, 2013 Meeting	
8:10	UMRR-EMP Regional Management		Marv Hubbell, USACE
	B1-5	<ul style="list-style-type: none">▪ FY 14 Fiscal Update▪ FY 15 President's Budget Request	
	B6-7	<ul style="list-style-type: none">▪ Agency Leadership Event Update▪ Public Involvement and Outreach<ul style="list-style-type: none">- March <i>Our Mississippi</i> devoted to UMRR-EMP	
8:40	C1-5	UMRR-EMP Strategic Planning <ul style="list-style-type: none">▪ Overview of Planning Progress To-Date▪ Next Steps▪ Conceptual Overview of the Plan's Strategic Direction▪ Recommendations for Program Name	Marv Hubbell, USACE
9:15		Long Term Resource Monitoring Program Element	
	D1-12	<ul style="list-style-type: none">▪ Product Highlights	Mike Jawson, USGS
	D13	<ul style="list-style-type: none">▪ 2014 Science Coordination Meeting<ul style="list-style-type: none">- Meeting overview- Outcomes and next steps	Barry Johnson, USGS
	D14-16	<ul style="list-style-type: none">▪ USACE's LTRMP Update▪ A-Team Report▪ LTRMP Highlight: Documenting the Use of LTRMP's Fish Monitoring Methodologies Throughout the Midwest	Karen Hagerty, USACE Rob Maher, Illinois DNR Levi Solomon, Illinois Natural History Survey

10:15 a.m. Break
(Continued)

Wednesday, February 26, 2014
 UMRR-EMP Coordinating Committee
 (Continued)

Time	Attachment	Topic	Presenter
10:30		Emerging Trends and Issues	
		<ul style="list-style-type: none"> ▪ Role of UMRR-EMP As It Relates to Invasive Species – e.g., Asian Carp <ul style="list-style-type: none"> – Discuss white paper findings 	<i>Marv Hubbell, USACE</i>
	E1	<ul style="list-style-type: none"> ▪ Other Priority Emerging Trends and Issues to Evaluate in 2014 (IIA recommendation) 	<i>All</i>
11:10		Habitat Rehabilitation and Enhancement Projects	
		<ul style="list-style-type: none"> ▪ District Reports 	<i>District HREP Managers</i>
		<ul style="list-style-type: none"> ▪ Planning New Project Starts for 2017 <ul style="list-style-type: none"> – Schedule and process – Potential new approaches to project identification and designs 	<i>Marv Hubbell, USACE</i> <i>Tom Novak, USACE</i>
	F1-8	<ul style="list-style-type: none"> ▪ 2012 Environmental Design Handbook <ul style="list-style-type: none"> – Insights gained since the 2006 version ▪ HREP Highlight: Pool 12 Overwintering 	<i>Kara Mitvalsky, USACE</i> <i>Ellen Milliron and Julie Millhollin, USACE</i>
12:10	G1	Other Business	
		<ul style="list-style-type: none"> ▪ Future Meeting Schedule 	
12:15 p.m.		Adjourn	

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

ATTACHMENT A

Minutes of the November 20, 2013 UMRR-EMP CC Meeting

(A-1 to A-13)

DRAFT
Minutes of the
Upper Mississippi River Restoration
Environmental Management Program
Coordinating Committee
(UMRR-EMP CC)

November 20, 2013
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 20, 2013. Other UMRR-EMP CC representatives present were Mark Moore (USACE), Mike Jawson (USGS), Dan Stephenson (IL DNR), Diane Ford (IA DNR), Kevin Stauffer (MN DNR), Jim Fischer (WI DNR), and Ken Westlake (USEPA) via phone. A complete list of attendees follows these minutes.

Yager announced that Kevin Foerster was named USFWS's Region 1 Chief of Refuges, starting in December. Yager will serve as acting Refuge Manager of the Upper Mississippi Refuges and will co-chair UMRR-EMP CC's meetings.

Minutes of the August 28, 2013 Meeting

Karen Hagerty requested that Chuck Thieling be added to the list of USACE science project delivery team (PDT) members included in the first paragraph of page A-5. Hagerty also requested that "science coordination" be inserted following LTRMP in the first sentence of the last paragraph on page A-7. Doug Blodgett said that Roger Perk, rather than himself, responded to Kevin Foerster's question in the last sentence of the fifth paragraph on page A-10. With these edits, Kevin Stauffer moved and Diane Ford seconded a motion to approve the draft minutes of the August 28, 2013 meeting. The motion carried unanimously.

Program Management

FY 13 Report Out

Hubbell recalled that FY 13 was a very unique, opportunistic, and challenging year. He said Headquarters released its FY 13 work plan for USACE on June 26, 2013, following the passage of the full-year FY 13 continuing resolution authority (CRA) on March 26, 2013. Thus, UMRR-EMP's final FY 13 appropriation was not known until the fourth quarter. Hubbell said considerable uncertainty in UMRR-EMP's FY 13 appropriation throughout most of the fiscal year made internal budget planning very challenging. In addition, UMRR-EMP's FY 13 final allocation of \$24,131,160 was 42 percent above its planning amount of \$16.986 million. Under UMRR-EMP's FY 13 budget of \$24.13 million, program allocations were as follows:

- Regional Management — \$676,000
- LTRMP — \$5,129,000

- HREPs — \$18,326,640
 - Program model certification and regional support — \$150,000
 - MVP — \$5,564,234
 - MVR — \$8,448,172
 - MVS — \$4,164,234

[Note: In FY 12, MVP transferred \$600,000 to MVS. The FY 13 allocations to MVP and MVS above reflect repayment.]

Hubbell highlighted several important milestones for UMRR-EMP in FY 13, including:

- Continued development of the program’s database
- Major upgrades to the program’s website, including enhanced usability and graphics
- A new process for developing LTRMP’s annual scopes of work and budgets
- Strategic planning for the program’s science and restoration efforts in FY 2015-19
- A newly-formed USACE science project delivery team to identify common science priorities among all three UMR districts as well as enhance transparency and maintain a systemic perspective in the program’s science work
- Spring flooding resulting in about \$7 million to \$8 million in damages to HREP sites
- UMRR-EMP CC endorsement of the 2103 UMRR Implementation Issues Assessment
- UMRR-EMP CC adoption of the Joint Charter of the UMRR-EMP CC, A-Team, and HREP Sequencing Teams
- A June 19 program briefing to OMB staff
- A June Bassmasters’ Tournament in La Crosse where UMRR-EMP was able to leverage significant outreach opportunities

Hubbell emphasized the partnership’s tremendous work in efficiently and effectively implementing habitat and science projects in an especially uncertain budget year. At year-end, the program obligated 99.5 percent of its \$24.13 million appropriation. Hubbell applauded USGS and USACE staff for their exceptional contributions in the last few days of FY 13. He explained that, on September 30, immediately prior to the October 1-16 federal government shutdown, guidance was issued that USACE staff could use any FY 13 carry-over funds to continue work on UMRR-EMP during the shutdown. USACE and USGS staff worked quickly in collaboration to transfer \$600,000 of FY 13 carry-over funds back to USACE. This allowed for continued work on HREPs in all three Districts including maintaining their construction schedules and that will allow for letting two new construction contracts in FY 14. In addition, the field stations worked diligently with assistance from USACE staff to collect long term fish and water quality data. Other work included development of an HREP monitoring design handbook, which will facilitate more detailed comparative analyses among projects. Hubbell said that, since the 16-day federal government shutdown directly affected partner federal agencies, some collaborative efforts were delayed — e.g., UMRR-EMP strategic planning.

FY 14 Appropriations Status and Work Plan

Hubbell said the President’s FY 14 budget request and Senate Appropriations Committee’s FY 14 energy and water spending measure include \$31.986 million for UMRR-EMP. The House approved

\$30.369 million in FY 14 funding for the program. These funding levels are near the program's authorized annual amount of \$33.17 million.

Hubbell said the federal government is currently operating under a CRA that expires on January 15, 2014. He reported that USACE Headquarters issued guidance that UMRR-EMP's planning level under the current CRA is 5 percent less than the President's FY 14 request — i.e., \$30.369 million. Mike Jawson asked whether that planning level would hold should Congress enact another full-year CRA or if it would be UMRR-EMP's last appropriated funding level of \$17.787 million. Hubbell explained that the typical planning level under a given CRA is the lesser amount of the President's request or House or Senate's appropriations measures. For FY 14, that would be \$30.369 million, which coincidentally equals the planning level. Hubbell also noted that funds have already been distributed to USGS and the states for FY 14. Dru Buntin observed that the Administration demonstrated its willingness to shift funds to UMRR-EMP to fund its planning level.

Hubbell outlined UMRR-EMP's FY 14 internal allocations under a \$30.369 million budget, as follows:

- Regional Management — \$1,000,000
- LTRMP — \$5,225,000
- HREPs — \$25,743,000
 - Program model certification and regional support — \$1,000,000
 - MVP — \$6,980,400
 - MVR — \$10,532,200
 - MVS — \$7,230,400

[Note: At the end of FY 13, funds were transferred among Districts to get critical work accomplished and to maximize the amount of funds obligated. The FY 14 HREP allocations to all three Districts reflect rebalancing of those internal transfers.]

Jim Fischer asked why regional administration is being budgeted significantly more than in past years. Hubbell explained that UMRR-EMP is being required to absorb a greater portion of District-wide administrative support and other overhead costs since other programs/projects' budgets are being decreased or defunded. Fischer expressed support for increased funding for public outreach.

Hubbell reiterated that the hard work of UMRR-EMP's collective partnership provides the program with the capability to execute at high funding levels for ongoing years, implementing critical restoration, monitoring, and analysis.

Long Term Resource Monitoring Program

Product Highlights

Mike Jawson said the Department of the Interior was greatly impacted by the October 1-16, 2014 federal government shutdown. Jawson said UMESC was virtually closed, with the exception of a few staff to take care of the animals at the Center. Wisconsin DNR staff that are housed at UMESC had to find office space at another location. Jawson expressed appreciation to field station staff who continued to carry out their monitoring work.

Jawson presented LTRMP's accomplishments in FY 13's fourth quarter. Jawson reported that the Great Rivers Field Station published a manuscript analyzing the water quality and fish data collected in Pool 26 from 1994 to 2004. Jawson said Wisconsin DNR published a summary of its 2012 Pool 8 monitoring data and other empirical data in comparison to historical trends. Hagerty said these summaries reveal

important information, and it is planned that all field stations will begin doing annual monitoring summaries. Jawson said USGS updated the online viewer for LiDAR data, which is available at http://www.umesc.usgs.gov/data_library/gis_data/lidar.html. In addition, Jawson listed the many individual contributions to outreach and assistance to internal and external stakeholders.

Jim Fischer observed that the additional activities are extremely valuable and show how science happens — i.e., the importance of interactions for information transfers. However, while important, these contributions are difficult to portray in a budget context.

USGS-UMESC Science Leadership for UMRR-EMP

Mike Jawson discussed partners' responses to UMESC's survey regarding the future of UMRR-EMP's scientific leadership. The survey was distributed to partners on July 30 and included various questions about the program's current and future science leadership needs, including desired outputs and outcomes. The survey was distributed to 194 individuals that work with UMRR-EMP of which 36 responded. The respondents included representation from all partner agencies, NGOs, and others. Jawson provided the following observations of the survey results:

- Science leadership should be targeted to the partnership; however, there are several other external stakeholders that benefit from the program's science leadership, including nonprofits, other basin states, universities, legislators, and any entity influenced by or influencing the program's efforts.
- The role or purpose of the UMRR-EMP's science leadership should be to collaborate; coordinate; provide vision, direction, and guidance; motivate; question; manage; inform; plan; and interpret data and other information.
- Desired outcomes include information, questions, objectives, evaluations, management, decisions, products, knowledge, effectiveness, priorities, and planning.
- Sixty percent of respondents said the current outputs and reporting formats are not meeting their needs, while 40 percent said the outputs are meeting their needs. Of those who said yes, the desired outputs and reporting formats include data, tools, reports, fact sheets, web-based tools/applications, manuscripts, and analyses. Of those who said no, they indicated a desire for more help with accessing and using the data for management decisions, habitat suitability modeling, and tying together multiple components. In addition, those respondents would like more understandable information as well as more applied information, cause-and-effect relationships, Illinois River information, more location/topic-specific information, spatial analyses, and models and decision tools to directly support managers.
- Desired approaches for UMESC's science leadership are primarily to collaborate, coordinate, and communicate. In addition, desired approaches include more support to, and integration with HREPs; adaptive management; management-oriented; status quo; action; landscape-level leadership; syntheses; scientist-led; less-management, more leadership; and final authority.

Jawson concluded that respondents generally expressed a desire for UMESC to function more as a science consultant or advisor rather than the textbook definition of a leader, which is to show direction, align and influence, and motivate and inspire. In addition, there is a desire for products to be more user friendly and for greater support to HREPs. Jawson acknowledged that the survey was not scientific and said UMESC staff will continue to interpret the results.

Diane Ford thanked Jawson for employing the survey, noting that the process may be difficult but is very valuable. In response to a question from Ford, Jawson said he will send the raw data and list of respondents to the UMRR-EMP CC members. Ford asked if the survey will be used to inform the current strategic planning effort. Jawson said the survey will be used in strategic planning, but it was

primarily meant as a tool for the program's science planning. Hubbell said he prefers that the strategic planning team reviews the survey results. In response to a question from Hubbell, Jawson explained that, in the survey's context, outcome meant the desired endpoint or goal and output meant the product/activity that will help achieve the outcome. However, Jawson explained that those terms were not defined in the survey. Fischer said the survey responses are useful to consider, but expressed caution against reacting too quickly to the results. He acknowledged that the survey was not scientific and there were limited respondents. Fischer also recognized the program's many bright, motivated scientists that we need to ensure are supported. He said bureaucratic processes may prevent them from doing important, innovative science.

LTRMP Science Coordination Meeting

Hubbell said a science coordination meeting is being planned for late February or early March 2014. The meeting will be held over three days, starting at noon on the first day and ending at noon on the third day. Hubbell explained that this meeting will be the initial step in developing a programmatic science plan, which was called for in the FY 2010-14 LTRMP Strategic Plan. Discussions at this first meeting will focus on current science knowledge, critical science questions, opportunities for science that directly relates to habitat restoration, and future LTRMP scopes of work. Partners will also explore how best to integrate the program's various science functions such as objective setting, base monitoring, indicators, habitat monitoring protocols, and more. Johnson said this meeting will serve as the first step in the program's Science Coordination Process, with information sharing about ongoing work and discussions about the 3-year science plan. That 3-year plan will inform annual work plans and serve as a coordination mechanism.

Hubbell said read ahead materials will be developed to focus the coordination meeting's discussions. Fischer expressed support for read ahead materials to help partners prepare for the meeting and requested that the materials be distributed well in advance of the meeting. Johnson added that program researchers will be asked submit a one-page update sharing any learned insights and the meeting will include presentations with greater detail. Fischer suggested that the program's planners and engineers also be invited to participate in the meeting, as a way of eliminating the communication gap.

In response to a question from Kirsten Mickelsen, Hubbell said the meeting dates have not yet been identified. USACE and USGS staff and lead scientists are currently working to set the date, and will announce it shortly. He said partners can contact him or Barry Johnson with any questions related to the meeting.

USACE LTRMP Report

Karen Hagerty said the *ad hoc* LTRMP funding group continues to serve as a forum for partners to discuss budget development. The funding group includes Hubbell and Hagerty (USACE), Johnson and Jennie Sauer (USGS), Tim Yager and Bob Clevestine (USFWS), Walt Popp (Minnesota DNR), John Chick (Illinois Natural History Survey), Diane Ford (Iowa DNR), Janet Sternburg (Missouri DoC), Sara Strassman (Wisconsin DNR), and Mickelsen (UMRBA). In addition, other partners are invited to participate on the team's calls as needed.

Hagerty said the FY 14 budget development process is more straightforward than previous years where the program was planning at various appropriations scenarios. LTRMP is allocated \$5.225 million in FY 14. The states, UMESC, and USGS were asked to base their FY 14 budget requests on their respective FY 13 budget. In addition, individual field stations' travel is being capped at \$1,000.

Hagerty reported that the *ad hoc* LTRMP funding group met via conference call on September 4, 2013 to discuss any adjustments made to UMESC's, USFWS's, and the states' budgets as well as work

priorities. Hagerty said the funding group concurred with the A-Team's recommendations for funding priorities, including necessary equipment refreshment (\$164,131), field station staffs' travel-related expenses to the LTRMP science coordination meeting (\$8,000), and land cover/land use (LC/LU) processing (remaining funds). Any additional funding would be allocated to support the top priority UMRR science proposals. Hagerty explained that, with the estimated \$209,997 in FY 13 carry-over funds, \$153,000 would be available for LC/LU processing.

Hagerty said the *ad hoc* LTRMP funding group is planning to consider future impacts to staff in sustained low funding, the group's potential roles/strategies in addressing low funding, and any relevant recommended action items included in the 2013 Implementation Issues Assessment (IIA). Hagerty acknowledged that a \$5.225 million LTRMP allocation is not sufficient to fully implement base monitoring and that low funding for multiple years is creating significant constraints. She said partners will need to continue to discuss how to address this issue.

Hagerty said USACE and USGS LTRMP managers and the A-Team Chair will convene a call on November 21, 2013 to select which options warrant development of full proposals for funding consideration. It is anticipated that the final funding options will be selected by January 30, 2014. Fischer noted that the project selection process calls for UMRR-EMP CC's review of the A-Team's recommendations. The A-Team had planned on presenting its recommendations to the UMRR-EMP CC at today's meeting. He asked whether the Committee's input will be requested at this point. Stauffer agreed with Fischer's comments and said he would encourage the Committee's review of the proposals. Hubbell said UMRR-EMP CC's input would be valuable at this time. He said the federal government shutdown compressed the schedule. He noted that projects must be completed within the fiscal year and so any delays would further shorten the completion timeframe. Dru Buntin asked if there is an expedient option to share the A-Team's recommendations to the UMRR-EMP CC members and solicit their input, perhaps a brief overview of the top proposals at today's meeting. To avoid any substantial delay and allow for UMRR-EMP CC's review, Mickelsen suggested that Hagerty send a list of the FY 14 LTRMP funding proposals to the UMRR-EMP CC members tomorrow. Hagerty agreed, and the Committee members agreed to respond within one week with any input. The full proposals will then be presented to the UMRR-EMP CC for concurrence at its February 26, 2014 meeting.

Jim Fischer noted that Wisconsin DNR's FY 13 LTRMP carry-over was the result of reduced overhead costs due to the Department's internal reorganization and the retirement of a long-term accountant. Fischer said the carry-over amount is a rough estimate and he will notify USACE of the actual amount shortly.

Fischer acknowledged that increments of LTRMP's base monitoring have been cut several times in the past in the face of funding constraints, reducing its overall capabilities. For example, the program had previously monitored for macroinvertebrates and tributaries. Fischer said the partnership needs to discuss the long term challenges and issues associated with reducing base monitoring over time. Hagerty agreed, and suggested that the strategic planning team discuss this issue.

A-Team Report

On behalf of Rob Maher, Fischer provided the A-Team report. He said the A-Team has reviewed and ranked partners' proposals for FY 14 LTRMP science funds. The A-Team has not met since the UMRR-EMP CC's August 28, 2014 quarterly meeting.

LTRMP Highlight: UMRR-EMP LTRMP Monitoring Data as a Foundation for Learning about a Large, Complicated Ecosystem

Jeff Houser illustrated how the program's long term data can be used to improve implementation and understanding of restoration actions, diversify the program's management toolbox, and identify

emerging threats to the UMR ecosystem. Houser explained that the program's efforts to better understand the UMRS lead to immediate and future applications. Immediately, insights gained about the system are used to enhance implementation and understanding of current management actions. Longer term, a better understanding of the system allows for innovative techniques, actions, or strategies that diversify our management toolbox. In addition, it allows for identifying emerging and potential threats to the ecosystem.

Houser explained that UMRS research faces scientific challenges. One, the UMRS is unique and there are no control options to reference significant analyses. Two, the river system is highly variable temporally (seasonal and long term) and spatially (longitudinal and latitudinal). However, there are ecological approaches and technical methods that are used in combination to address these challenges. Scientists use theory/modeling, long term observation, comparative study, and ecosystem experiments to better understand the UMRS.

Houser provided examples of how LTRMP data and associated research have showed how habitat restoration projects might impact total suspended solids (TSS) patterns and dynamics and the implications of nutrient distribution on the UMRS ecological condition. Houser said that, while we might expect TSS to be lower in backwaters than in the main channel, monitoring has indicated that this is not always the case. In fact, LTRMP data has shown that TSS is higher in backwaters than the main channel during low discharge in the summer, likely due to greater wind and wave fetch and less aquatic vegetation in the main channel. Higher backwater TSS is now rare in LTRMP's study reaches where vegetation is abundant, but still occurs in those reaches where vegetation is scarce.

Houser said the program's long term data set now allows for realizing these relationships. He stressed that short term analyses must be treated with caution. Houser explained that LTRMP's monitoring data set now spans a broad range of discharge and vegetation conditions making it possible to yield important discoveries about unexpected patterns. As the data set continues to grow, our ability to detect and understand unexpected patterns will improve. Houser explained that the results about TSS show that creating a "backwater-like" habitat can be affected by river discharge and vegetation. During low discharge, TSS may be higher in the "backwater-like" areas than in the main channel, especially if vegetation is scarce.

Houser explained that excessive nutrient concentrations (i.e., phosphorus and nitrogen) lead to blue-green algal blooms and duckweed/filamentous algae mats (i.e., metaphyton). Blue-green algae blooms become abundant under low nitrogen-high phosphorus conditions. The blooms decrease aesthetics and food quality and release toxins. When conditions are favorable (i.e., low current velocity and submersed aquatic vegetation present), dense surface mats of metaphyton can form that reduce light penetration and dissolved oxygen below the mats, impede recreational uses, and may impact submersed aquatic vegetation. LTRMP data show that nitrogen is high in channels and low in backwaters, conversely phosphorus is low in channels and high in backwaters. Thus, blue-green algal blooms mostly occur in backwaters, where there are low nitrogen-high phosphorus conditions. LTRMP data indicate that this pattern is consistent throughout the UMRS.

In conclusion, Houser said LTRMP data provide clear explanations of spatial and temporal patterns; information on processes influencing these patterns, especially when combined with additional analytical approaches; and spatial and temporal context for short term studies and evaluations.

Jeff Stoner observed that the UMRS is a highly complex and unique system and said information transfer is important within the system and with other large river systems. Stoner asked if information exchanges are occurring with other systems. Houser explained that this science is fairly new and the UMRR is on the forefront. These questions are being researched on the Danube River and so there are opportunities to exchange information there. Mike Jawson asked how this research may help to enhance

HREPs. Houser explained that each HREP has a unique design and each are informed in different ways. He said LTRMP staff can be a resource for integrating science knowledge into habitat projects. Jawson said this highlights the need for an extension agent to show how the science can be applied in individual HREPs. Hubbell said the findings on nutrients can be used to inform HREP designs, in general, to not exacerbate the issues — e.g., avoid aggregating a blue-green algae situation with project designs. Houser recognized that UMRR-EMP's data set is easily and largely publically accessible. Scientists are available to help locate and use the data.

Habitat Rehabilitation and Enhancement Projects

District Reports

St. Louis District

Brian Markert said MVS is continuing to work with MVD to advance Rip Rap Landing. The project's land acquisition cost exceeds the 25 percent cap on acquisition cost relative to total project cost. The District's other planning priorities include Clarence Cannon, Piasa, and Eagles Nest Islands. The latter includes a passive design for working with the river to create islands. Markert said MVS and Missouri DoC have divided Ted Shanks into multiple construction awards in order to advance the project under various funding levels. The District is advancing construction on Ted Shanks, Pools 25 and 26 Islands, and Batchtown, which is nearing completion. The evaluation report for Stump Lake is finalized and will be available on UMRR-EMP's website shortly. Calhoun Point is the District's next evaluation priority.

St. Paul District

Marv Hubbell said MVP is finalizing Harpers Slough's definite project report and anticipates designing all three stages of the project and awarding a construction contract for the first stage all in FY 14. MVP is addressing cost share issues associated with North and Sturgeon Lakes and is exploring other design options. Other planning priorities include Conway Lake and McGregor Lake. The District will complete Capoli Slough this spring and host a dedication in late summer.

Rock Island District

Hubbell said MVR's planning priorities are Pool 12 Overwintering Stage II, Huron Island, and Beaver Island. The District's top priority is repairing flood damages to Lake Odessa and adding a spillway to enhance the project's resiliency to flooding from the Iowa River. MVR is also addressing flood damages to Fox Island and Rice Lake. Hubbell showed pictures of the historic flooding on the Illinois River in spring 2013. He said the District's other construction priorities include Pool 12 Overwintering Stage I, Fox Island, and Rice Lake Stage I. Hubbell said that, while the past spring/summer floods limited the number of construction days, the program was still able to execute at nearly 100 percent. This is attributable to the strength of the partnership, flexibility in allocating funds, and extraordinary hard work and diligence of those working on the projects.

Planning New Project Starts for 2017

Hubbell said that, with increased UMRR-EMP funding for restoration work, it is projected that new project starts for planning will be needed in FY 2017-18. Following the FY 2015-19 UMRR-EMP strategic planning process, the UMRR-EMP CC will initiate a "data-driven" process for selecting new starts that will be informed by the strategic plan and other program documents and decision support tools. Hubbell said goals for the selection process will include a) applying systemic data layers and

research and monitoring efforts, b) developing and applying appropriate models, c) applying other decision support tools, and d) refining reach objectives to direct the application of those tools and data.

Hubbell said he will soon seek specific input from UMRR-EMP CC members on the project selection process and then, with partner input, develop a detailed schedule and approach. Future UMRR-EMP CC meetings will focus on developing the process.

Jim Fischer expressed support for linking past efforts and for the selection process goals, especially for making the process more data-driven. He said models alone will not be sufficient to provide the information needed and the process will require other decision support tools and data. Mike Jawson agreed with Fischer's comment, and said partners will need to make value judgments about the model outputs.

Emiquon Preserve Floodplain Restoration Project

Hubbell recalled that, at UMRR-EMP CC's August 28, 2013 meeting, he gave an overview of the Emiquon Preserve Floodplain Restoration Project and discussed the possibility of transferring the project from the Section 206 authority into UMRR-EMP. Emiquon Preserve is owned by TNC as part of the Emiquon Complex, and is adjacent to USFWS's Chautauqua and Emiquon Refuges as well as Dixon Mounds State Museum. The estimated cost for the floodplain restoration project as designed exceeds Section 206's total project cost limit. Project plans are nearly complete and it would be construction ready within a relatively short timeframe. Hubbell said the total project cost is estimated at \$18 million. But since the planning is essentially completed, the cost to UMRR-EMP would be \$4.2 million for construction and \$250,000-\$350,000 to complete its definite project report, project partnership agreement, and plans and specs. Hubbell said this project would fill one of the two spots that partners reserved for habitat projects on the Illinois River in the reach planning process.

Hubbell said Illinois DNR submitted a letter in September 2013 approving the project transfer to UMRR-EMP. Since then, USACE staff have evaluated and confirmed the adequacy of the project's pump station design. Hubbell said this would be UMRR-EMP's first project cost-shared with a nonprofit. TNC plans to showcase Emiquon Preserve as a centerpiece of its North American water initiative. Hubbell said that, pending UMRR-EMP CC's approval of the transfer, it is anticipated that project construction would likely begin in the first half of FY 16. He said a slight delay in Huron Island Stage III would be the only implication to MVR's current project sequence.

Doug Blodgett said TNC hopes Emiquon will serve as a model for future non-federal sponsored water resource projects. In addition, TNC is implementing adaptive management on the project that will inform future floodplain connectivity restoration efforts. There are defined targets and criteria to evaluate project success. Hubbell noted that, as a recommendation in the 2013 Implementation Issues Assessment (IIA), the UMRR-EMP CC supported considering projects with a nonprofit cost share sponsor. In the IIA, the UMRR-EMP CC recognized that there would be several implementation questions to resolve. However, in this case, Hubbell said USACE and TNC have already addressed these questions in the project's planning under the 519 program.

Diane Ford said Iowa is supportive of this project moving forward under UMRR-EMP. However, she expressed concern with the potential precedent this would set given that the project was not evaluated through the program's established project identification and sequencing process. Hubbell agreed that the concerns are valid, but recalled that the 2008 reach planning process left two placeholders for Illinois River projects and partners have been working to identify those projects. Ford expressed support for Emiquon filling one of those placeholders since that is what the partnership agreed to do. She said the project will be a great opportunity for the program.

Jim Fischer expressed support for UMRR-EMP implementing the Emiquon floodplain restoration project, particularly for having nonprofits involved as a cost share sponsor. Fischer asked if there may be important elements missing in the project's design since it did not go through review by the District-based partner planning teams. Hubbell explained that the project has been under consideration for several years in Illinois. He said there has been a lot of debate about how the Emiquon floodplain restoration project should be formulated and its role on the Illinois River. Blodgett recognized that, with more experts now focused on the project, there are opportunities to continue to modify the design. He reiterated that the project has undergone substantial review. There is significant interest in the Emiquon Preserve; it is a RAMSAR wetland and is one of the most studied wetlands. TNC has, and continues to, monitor and model the project area. Since the project is undergoing adaptive management, there is a willingness to make modifications to the project design in response to the monitoring results. Blodgett explained that the ecological response to TNC's efforts at Emiquon to-date has been positive, and said TNC thinks that this project can do substantially better in partnership with USACE and UMRR-EMP, in particular. TNC hopes that this project can create a better model for floodplain restoration.

Dan Stephenson said Illinois had shared Fischer's concerns until USACE and TNC explained how the project has been formulated and reviewed as well as opportunities to modify the design. Illinois now supports the project moving forward under UMRR-EMP. Kevin Stauffer said Minnesota supports the project's advancement under UMRR-EMP. Stauffer said he hopes that this project will lead to more restoration projects involving a nonprofit cost share sponsor.

Ken Westlake said the project is adjacent to USFWS refuge lands and Illinois DOT wetland bank mitigation lands, noting that the project is part of a much larger integrated habitat complex for a wide range of species.

In response to a call for a motion from Tim Yager, Stephenson moved and Fischer seconded a motion to endorse the advancement of the Emiquon restoration project under UMRR-EMP. The motion passed unanimously. On behalf of the UMRR-EMP CC, Yager said the Committee is looking forward to this new collaboration with TNC and enhancing the habitat on the Illinois River.

Program Bulletin

Public Outreach Committee

Marv Hubbell recalled that, at its August 28, 2013 meeting, the UMRR-EMP CC agreed to form a public outreach committee to identify and implement outreach opportunities for the program. Thus far, the committee includes Randy Hines from USGS and Jody Christenson from NRCS. Tim Yager said he will contact Hubbell with one or two USFWS staff to participate on the committee. [Note: Following the meeting, Sharonne Baylor of USFWS volunteered to serve on the committee.]

Our Mississippi – UMRR-EMP Edition

Hubbell said that, in response to UMRR-EMP CC's support at its August 28, 2013 quarterly meeting, USACE is developing the edition of *Our Mississippi* specifically devoted to UMRR-EMP. The edition will reflect the breadth of the program, including featuring the diverse array of program partners.

“Fly-Over” Mapping Tool

Hubbell said COL Mark Deschenes suggested UMRR-EMP develop an interactive geospatial “fly-over” mapping tool of the UMRS system that would highlight UMRR-EMP projects and partner offices, including the field stations. The mapping tool would utilize Google Earth and would cost approximately \$10,000 to develop.

UMRR-EMP Strategic Planning

Hubbell reported that, due to the federal government shutdown, the November 5-7, 2013 UMRR-EMP strategic planning session was canceled and rescheduled for January 6-8, 2014. The January 2014 session will consider a revised draft plan and how best to engage the broader partnership in the near future.

Planning for Member Agency Leadership Meeting

Hubbell said an event with UMRR-EMP partner agencies' upper level leaders is being planned for Wednesday, June 18, 2014 in Dubuque. The event will include a discussion session and a tour of Pool 11 Sunfish Lake. The group of volunteers planning the event will finalize basic logistics and distribute "save-the-date" invitations soon. Dan Stephenson said he would like to extend an invitation to Illinois' Lieutenant Governor's Regional Office. Diane Ford said she would like to invite Iowa's Governor's Office Regional Liaison. Dru Buntin suggested that Dubuque Mayor Roy Buol, who co-chairs the Mississippi River Cities and Towns Initiative (MRCTI), be invited to the event. In response to a question from Mike Jawson, Hubbell said COL Mark Deschenes will host the event. Brig. Gen. Peter DeLuca will be invited.

UMRR-EMP Database

Hubbell said District staff continue to develop the UMRR-EMP Database. So far, it has received positive feedback for gathering information about projects and associated funding that is useful for Congressional outreach. Hubbell asked for any feedback on the Database's features and overall usefulness. Ford said the Database is a very valuable tool, and suggested that it includes economic value data on the natural resources being restored. She said the Governors and agencies leaders are focused on economic value. There are several resources at our disposal, including USFWS's new study on the economics of its refuges and Iowa's economic studies on natural resources. Jim Fischer agreed, and said MRCTI is also interested in assessing the economics of the river's natural resources.

Fact of the Quarter

Hubbell said UMRR-EMP is directly implemented out of 13 offices, including three USACE districts, six field stations, three USFWS offices, and UMESC.

Public Involvement and Outreach

Jim Fischer said Jeff Janvrin is working with Wisconsin DNR's Central Office to create a YouTube video showcasing UMRR-EMP's restoration work. Wisconsin DNR is developing a layperson's article on Pool 8's "state of the ecosystem." Fischer said the Mississippi Parkway Committee, which includes all states along the Great River Road, is exploring key elements of the river and linking economics, ecology, and river restoration. He said there is a potential to highlight UMRR-EMP.

Mike Jawson suggested that a display of UMRR-EMP is included at the upcoming dedication of the Genoa fish hatchery and visitors center. Yager expressed support for the suggestion.

Hubbell said Janvrin and Chuck Theiling are currently working on a summary report of constructed HREPs to submit as a manuscript. He said the results could be included in the 2016 UMRR-EMP Report to Congress.

Yager said Rich King gave a boat tour of the island restoration in Pool 9 to Friends of Pool 9 and other public organizations and individuals. Yager said USFWS staffs the Brownsville overlook and is prepared to talk about UMRR-EMP and its efforts in Pool 9.

Other Business

Future Meetings

The upcoming quarterly meetings are as follows:

- **February 2014 — Quad Cities**
 - UMRBA Board — February 25
 - **UMRR-EMP CC — February 26**

- **May 2014 — St. Louis**
 - UMRBA — May 13
 - **UMRR-EMP CC — May 14**

- **August 2014 — La Crosse**
 - UMRBA Board — August 5
 - **UMRR-EMP CC — August 6**

[Note: Subsequent to the meeting, the location for the August 2014 quarterly meetings was changed to Peoria.]

With no further business, the meeting adjourned at 11:42 a.m.

**UMRR-EMP CC Attendance List
November 20, 2013**

UMRR-EMP CC Members

Mark Moore	U.S. Army Corps of Engineers, MVD
Tim Yager	U.S. Fish and Wildlife Service, UMR Refuges
Mike Jawson	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
Jim Fischer	Wisconsin Department of Natural Resources
Ken Westlake	U.S. Environmental Protection Agency, Region 5 [By phone]

Others In Attendance

Derek Ingvalson	U.S. Army Corps of Engineers, MVP
Terry Birkenstock	U.S. Army Corps of Engineers, MVR
Tom Crump	U.S. Army Corps of Engineers, MVR
Tom Hodgini	U.S. Army Corps of Engineers, MVR
Marvin Hubbell	U.S. Army Corps of Engineers, MVR
Karen Hagerty	U.S. Army Corps of Engineers, MVR
Ken Barr	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
Kat McCain	U.S. Army Corps of Engineers, MVS
Matt Cosby	U.S. Army Corps of Engineers, MVS
Jeff Stoner	U.S. Geological Survey, Midwest Region
Jeff Houser	U.S. Geological Survey, UMESC
Walt Popp	Minnesota Department of Natural Resources
Jeanne Daniels	Minnesota Department of Natural Resources
Tom Boland	AMEC
Bill Sypchalla	Barr Engineering
Don Powell	SEH Inc.
Olivia Dorothy	Izaak Walton League
Brad Walker	Missouri Coalition for the Environment
Doug Blodgett	The Nature Conservancy
Dru Buntin	Upper Mississippi River Basin Association
Dave Hokanson	Upper Mississippi River Basin Association
Kirsten Mickelsen	Upper Mississippi River Basin Association

ATTACHMENT B

UMRR-EMP Regional Management

- **UMRR-EMP Spreadsheets thru 1st Quarter of FY 14 (12/13)**
(B-1 to B-5)

- **June 18, 2014 Partners' Leadership Event**
 - **Draft invitation letter** *(B-6)*
 - **Save the date** *(B-7)*

UMRR-EMP EXPENDITURES AND ALLOCATIONS

FY14 (\$ 000)						
	CARRY IN FROM FY 13	FY 14 ALLOCA.	TOTAL AVAILABLE TO EXP.	31 Dec 13 ACTUAL EXP.	31 Dec 13 ACTUAL OBLIG.	
PROGRAM ELEMENTS						
HABITAT PROJECTS						
HREP PROJECTS	1,075	22,796	23,871	5,236	4,790	
ARRA HREP PROJECTS	0	0	0	0	0	
HABITAT EVAL/MONITORING	0	570	570	93	92	
HABITAT NEEDS ASSESSMENT	0	0	0	0	0	
PLANNING/PRIORITIZATION	0	0	0	0	0	
USFWS HREP SUPPORT	0	492	492	140	0	
PROGRAM COOR. (Includes District Habitat Coordination)	35	2,617	2,652	382	459	
REPORT TO CONGRESS- 2014	0	0	0	0	0	
REGIONAL INITIATIVES	0	201	201	45	45	
LTRM (Includes LTRM Regional Technical)	0	5,291	5,291	1,544	2,349	
ARRA LTRM PROJECTS	0	0	0	0	0	
TOTALS	1,110	31,968	33,077	7,441	7,735	
TOTALS BY ORGANIZATION						
MVR **	963	12,184	13,147	-12	729	
MVP	98	7,090	7,188	1,374	222	
MVS	49	6,910	6,959	4,374	4,374	
USGS	0	5,216	5,216	1,529	2,335	
UMRBA Administration	0	75	75	36	74	
USFWS (Multi-district funded)	0	492	492	140	0	
REPORT TO CONGRESS- 2012	0	0	0	0	0	
System Ecological Team (SET)	0	0	0	0	0	
TOTAL	1,110	31,968	33,077	7,441	7,735	

*1

* 1 Equals Work Allowance amount of \$31,968,000 (President's Budget)

Dec 2013
FY 2014

ADMINISTRATIVE, LTRM, and Non-Site Specific Costs

	FY14 (\$ 000)				
	CARRY		TOTAL	31 Dec 13	31 Dec 13
	IN	ALLOCA.	SCHEM EXP.	Actual Exp.	Actual Obl.
HABITAT (Rollup from district sheets)					
BASELINE MONITORING	0	110	110	35	35
HABITAT PROJ. EVALUATION	0	385	385	58	57
BIO-RESPONSE STUDIES	0	75	75	0	0
USFWS HREP SUPPORT (Multi-district funded)	0	492	492	140	0
PLANNING/SEQUENCING (PRIORITIZATION)	0	0	0	0	0
TOTAL HABITAT	0	1,062	1,062	233	92
PROGRAM COORDINATION (excludes District Habitat Coord.)					
UMRBA	0	75	75	36	74
System Ecological Team (SET)	0	0	0	0	0
PUBLIC INVOLVEMENT	0	110	110	0	37
EMP PROGRAM ADMINISTRATION	0	630	630	141	143
LTRM REGIONAL TECHNICAL	0	75	75	15	15
REGIONAL INITIATIVES	0	201	201	45	45
PROGRAM MGT TOTAL	0	1,091	1,091	238	314
REPORT TO CONGRESS (includes all organizations)	0	0	0	0	0
LTRM					
CORPS LTRM MANAGEMENT	0	0	0	0	0
LTRM (USGS & STATES)	0	5,216	5,216	1,529	2,335
CORPS BATHOMETRY & LiDAR (Multi-district funded)	0	0	0	0	0
ARRA - BATHOMETRY, LiDAR, & GIS (Multi-district funded)	0	0	0	0	0
CORPS APE'S ACTIVITIES	0	0	0	0	0
CORPS LTRM TECHNICAL SUPPORT (MSP)	0	0	0	0	-1
SUBTOTAL	0	5,216	5,216	1,529	2,334

ST. PAUL DISTRICT

MVP	PROJECT ESTIMATE DESIGN CONST		TOTAL W/O NON FED	NON-FED EST	EXP FOR FY 13	EXP THRU FY 13	FY14 (\$ 000)					(Federal) Scheduled \$ To Complete		
							CARRY IN	ALLOCA.	TOTAL AVAILABLE TO EXP.	31 Dec 13	31 Dec 13			
										Actual Exp.	Actual Obl.			
HABITAT PROJECTS														
Ambrough Slough, WI	504	2,165	2,669	116	0	2669			0			0	COMPLETE	
Capoli Slough, WI	500	8,750	9,250		3,112	4432	25	140	165	946	-206	3,872	CONSTRUCTION	
Conway Lake, IA	462	2,050	2,512		1	113		175	175	32	32	2,367	DESIGN	
Finger/Clear Lakes, MN	401	1,044	1,445		0	183			0			1,262	COMPLETE	
Harpers Slough, IA	1,500	15,000	16,500		474	1686	20	5,600	5,620	98	98	14,716	DESIGN/CONST	
Lake Winneshiek, WI	620	4,380	5,000		0	9		25	25			4,991	DESIGN	
Lock and Dam 3 Fish Passage	922	15,000	15,922	5,250	9	932			0			14,990	DESIGN	
Long Lake Restoration, WI	63	434	497		0	466			0			31	COMPLETE	
Long Meadow Lake, MN	482	600	1,082		0	1083			0			-1	COMPLETE	
McGregor Lake, WI	900	5,600	6,500		0	1		200	200	35	35	6,464	DESIGN	
North & Sturgeon Lakes, MN	900	7,600	8,500	3,250	113	1875	18	300	318	78	78	6,547	DESIGN	
Polander Lake, MN	645	2,488	3,133		0	3133			0			0	COMPLETE	
Pool 8 Phase III, WI	950	18,700	19,650		12	15908		25	25	12	12	3,730	COMPLETE	
Pool 8 ARRA	0	178	178		0	267			0			-89	COMPLETE	
Pool Slough, IA	390	373	763	78	0	763			0			0	COMPLETE	
Spring Lake Isl, WI	166	4,231	4,397		0	4398			0			-1	COMPLETE	
Trempealeau NWR, WI	955	4,880	5,835		0	5819			0			16	COMPLETE	
ARRA PLANING, ENG & DESIGN	0	75	75	0	0	75			0			0		
Other Habitat (Carry over)	0	0	0	0	0	0			0			0		
HABITAT TOTAL	10,360	93,548	103,908	8,694	3,721	67,819	63	6,465	6,528	1,201	49	58,895		
HABITAT EVAL/MONITORING														
HABITAT NEEDS ASSESSMENT						57			0					
BASELINE MONITORING					15	478		50	50	32	32			
HABITAT PROJ. EVALUATION					173	1633		200	200	34	34			
BIO-RESPONSE STUDIES						1333			0					
USFWS HREP SUPPORT					164	1238		140	140	80	0			
PLANNING/SEQUENCING(PRIORITIZATION)						0			0					
SUBTOTAL	0	0	0	0	352	4,739	0	390	390	146	66	0		
PROGRAM MANAGEMENT														
PROGRAM COORDINATION					273	4432	35	375	410	107	107			
PUBLIC INVOLVEMENT - mipr \$					0	0			0					
SUBTOTAL	0.0	0.0	0.0	0.0	273	4,432	35	375	410	107	107	0		
LTRM														
LTRM COORDINATION						455	0	0	0					
ADDITIONAL LTRM						484	0	0	0					
SUBTOTAL	0	0	0	0	0	939	0	0	0	0	0	0		
DIRECT MVP EXPENDITURES				8,694	4,346	77,929	98	7,230	7,328	1,454	222	0		
MIPR & CROSS CHARGE LABOR EXPENDITURES														
Mipr for LTRM Travel					0	15.1			0	0	0			
Cross charge Labor Technical & Bathemetry					0	31.7			0	0	0			
MIPR TOTALS (Includes Public Involvement)					0	47	0	0	0	0	0	0		
TOTAL MVP EXPENDITURES					4,346	77,976	98	7,230	7,328	1,454	222			
*1														
NOTES:														
*1 Equals MVP work allowance of \$7,230,400 (150,000 (Includes Packback funding to MVR in FY13) & (250,000 (Includes Packback funding from MVR for FY13))														

ROCK ISLAND DISTRICT

MVR	PROJECT DESIGN	ESTIMATE CONST	TOTAL W/O NON FED	NON-FED EST	EXP FOR FY 13	EXP THRU FY 13	FY14 (\$ 000)					(Federal) Scheduled \$ To Complete			
							CARRY IN	ALLOCA.	TOTAL AVAILABLE TO EXP.	31 Dec 13	31 Dec 13				
										Actual Exp.	Actual Obl.				
HABITAT PROJECTS															
BEAVER ISLAND, IA	1,500	11,000	12,500		94	179	0	248	248	21	21	12,300	PLANNING		
FOX ISLAND, MO	700	4,300	5,000		1,463	5,229	0	140	140	-205	-19	-24	DESIGN		
HURON ISLAND, IA	2,100	8,400	10,500		270	1,646	0	3,449	3,449	119	119	8,735	PLANNING		
LAKE ODESSA, IA	2,470	12,394	14,864		61	15,043	790	4,284	5,074	4	4	-183	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		542	2,127		580	580	69	69	16,803	DESIGN		
RICE LAKE, IL	2,800	10,720	13,520	6,825	4,862	10,856		539	539	-421	99	3,085	DESIGN		
TURKEY RIVER BOTTOMS	2,900	15,800	18,700		2	2		4	4	0	0	18,698	PLANNING		
BOSTON BAY	900	5,100	6,000		1	2		4	4	1	1	5,998	PLANNING		
STEAMBOAT ISLAND	1,250	6,250	7,500		1	2		364	364			7,498	PLANNING		
KEITHSBURG DIVISION	1,400	4,800	6,200		1	2		99	99			6,198	PLANNING		
DELAIR DIVISION	1,750	7,750	9,500		1	2		7	7			9,498	PLANNING		
SNYDER SLOUGH	1,800	15,000	16,800		1	2		4	4			16,798	PLANNING		
EMIGUON	725	12,575	13,300	6,400	0	0		75	75	28	28	13,271	DESIGN		
LAKE ODESSA, IA (Flood Recovery) (supplemental)		5,500	5,500		347	4,742	173		173	86	86	673	FLOOD RECONSTR.		
ARRA ODESSA		236	236			158			0			78	ARRA		
ARRA FOX ISLAND		55	55			55			0			0	ARRA		
ARRA RICE LAKE		782	782			642			0			140	ARRA		
ARRA HURON		6	6			6			0			0	ARRA		
OTHER HABITAT		0	0			0			0			0			
HABITAT TOTAL	23,618	139,062	162,680	6,825	7,647	82,163	962.9	9,796.0	10,759	-298	408	39,233			
HABITAT															
HABITAT NEEDS ASSESSMENT						0		0	0						
BASELINE MONITORING			268			254		0	0						
HABITAT PROF. EVALUATION			938		166	3,364	0	170	170	17	16				
BIO-RESPONSE MONITORING			588			1,036	0	0	0						
USFWS HREP SUPPORT					189	884	0	282	282	60	0				
PLANNING/SEQUENCING (PRIORITYIZATION)						39		0	0						
SUBTOTAL	0	0	1,794	0	355	5,577	0	452	452	77	16	0			
PROGRAM MANAGEMENT															
REGIONAL HREP SCIENCE SUPPORT			3,496	0	175	5,192	0	1,202	1,202	66	66				
PUBLIC INVOLVEMENT	0.0	20.0	20.0		23	204	0	110	110	0	37				
REGIONAL ADMIN				0	360	2,281	0	630	630	141	143				
LTRM REGIONAL TECHNICAL					226	1,744	0	75	75	15	15				
PROGRAM INITIATIVES					272	978	0	201	201	45	45				
SUBTOTAL			3,516	0	1,056	10,399	0	2,218	2,218	268	306				
REPORT TO CONGRESS					6	96	0	0	0						
LTRM															
CORPS BATHOMETRY & LIDAR (Multi-district funded)						455	0	0	0						
ARRA - BATHOMETRY, LIDAR, USGS, & GIS					41	2,811	0	0	0						
CORPS APE'S ACTIVITIES						165	0	0	0						
ADDITIONAL LTRM					98	927	0	0	0	0	-1				
SUBTOTAL	0	0	530	0	140	4,357	0	0	0	0	-1				
MIPRS & Contracts															
UMRBA					47	155	0	75	75	36	74				
ITRC					0	0	0	0	0	0	0				
USGS					4,801	14,198	0	5,216	5,216	1,529	2,335				
SUBTOTAL					4,848	14,354	0	5,291	5,291	1,565	2,409				
TOTAL MVR EXPENDITURES					14,052	116,946	962.9	17,757	18,720	1,613	3,139				
*1															
*1 Equals MVR work allowance of \$17,757,200 (300,000 (Includes Packback funding from MVS \$150k & MVP \$150k in FY13) & (250,000 (Includes Packback funding to MVP for FY13)															

ST LOUIS DISTRICT

MVS	PROJECT ESTIMATE		TOTAL W/O NON FED	NON-FED EST	EXP FOR FY 13	EXP THRU FY 13	FY14 (\$ 000)					(Federal) Scheduled \$ To Complete		
	DESIGN	CONST					CARRY IN	ALLOCA.	TOTAL AVAILABLE TO EXP.	31 Dec 13				Actual Obl.
										Actual Exp.	Actual Obl.			
HABITAT														
BATCHTOWN MGMT, IL	3,220	14,875	18,095	145	177	16,535		200	200	3	3	1,557	CONSTRUCTION	
CLARENCE CANNON, MO	2,637	27,180	29,817		397	1,018		675	675	40	40	28,759	DESIGN	
EAGLES NEST & PIASA IS., IL	1,057	4,500	5,557		81	216		325	325	25	25	5,316	FACT SHEET	
GLADES WETLAND, IL	3,218	14,000	17,218			0		35	35			17,218	DESIGN	
GODAR WETLAND, IL	1,317	6,885	8,202		7	7		35	35	4	4	8,191	DESIGN	
HARLOW ISLAND	750	3,750	4,500		22	38		100	100	4	4	4,458	DESIGN	
RIP RAP LANDING	1,373	10,553	11,926	1,207	49	669		430	430	13	13	11,244	DESIGN	
POOL 24 ISLANDS	1,373	8,119	9,492			8			0			9,484	DESIGN	
POOLS 25/26, MO	875	1,600	2,475		38	804		150	150	244	244	1,427	CONSTRUCTION	
REDS LANDING,	621	2,863	3,484			0			0			3,484	DESIGN	
SCHENIMANN CHUTE, MO	691	2,800	3,491			396		100	100			3,095	DESIGN	
SWAN LAKE, IL	2,377	13,246	15,623	262	93	15,204		50	50			419	CONSTRUCTION	
TED SHANKS, MO	4,405	25,101	29,506		3,110	7,616	49	4,305	4,354	4,000	4,000	17,890	CONSTRUCTION	
WILKINSON ISLAND	1,250	2,730	3,980	0		868		30	30			3,112	DESIGN	
WEST ALTON ISLAND	805	5,727	6,532		2	17			0			6,515	DESIGN	
CYPRESS SLOUGH	1,520	12,750	14,270		0	0		100	100			14,270	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	14	14			14			0			0		
HABITAT TOTAL	29,539	169,926	199,465	1,614	3,976	48,167	49	6,535	6,584	4,333	4,333	146,965		
HABITAT EVAL/MONITORING														
HABITAT NEEDS ASSESSMENT	1,000		1,000			0								
BASELINE MONITORING					65	842		60	60	3	3			
HABITAT PROJ. EVALUATION					18	652		15	15	7	7			
BIO-RESPONSE MONITORING					9	1,180		75	75					
USFWS HREP SUPPORT					53	458		70	70					
PLANNING/SEQUENCING(PRIORITIZATION)						4			0					
SUBTOTAL	1,000	0	1,000	28,347	145	3,136	0	220	220	10	10			
PROGRAM MANAGEMENT														
PROGRAM COORDINATION					205	2,086		225	225	31	31			
PUBLIC INVOLVEMENT					0	0			0					
SUBTOTAL	0	0	0	0	205	2,086	0	225	225	31	31			
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	30,539	169,926	200,465	29,961	4,326	53,389	49	6,980	7,029	4,374	4,374			
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					4,326	53,861	49	6,980	7,029	4,374	4,374			
NOTES:														
*1 Equals MVS work allowance of \$6,980,400 (150,000 (Includes Packback funding to MVR in FY13))														

[Date]

Address

RE: June 18, 2014 Upper Mississippi River Restoration-Environmental Management Program Partners' Leadership Event

Dear _____:

On behalf of the U.S. Army Corps of Engineers, I would like to invite you to a June 18, 2014 event of the Upper Mississippi River Restoration-Environmental Management Program (UMRR-EMP's). The program's Coordinating Committee, which is its forum for interagency consultation on budget and policy matters, is planning this event to gather its partners' leadership to promote the program and discuss relevant issues with you. The Committee's membership includes the U.S. Corps of Engineers; U.S. Fish and Wildlife Service; U.S. Geological Survey; the five states of Illinois, Iowa, Minnesota, Missouri, and Wisconsin; and U.S. Environmental Protection Agency, Natural Resources Conservation Service, and U.S. Maritime Administration. The Committee is also inviting the leadership of key nonprofit and industry partners who are actively engaged in UMRR-EMP's implementation and public outreach.

The event will include an indoor discussion session in the morning and a boat tour to Pool 11 Sunfish Lake in the afternoon. At the indoor portion of the event, the Committee would like to share the program's successes and its importance to the Upper Mississippi's ecological health as well as ancillary benefits to other river uses. The Committee would also like to discuss your agency's man-power, financial, and policy needs as it relates to UMRR-EMP's implementation. In addition, the Committee would like seek your input on how best to discuss with external stakeholders about the program's restoration work in the context of multi-purpose management of the river and on a two or three specific action items regarding select policy-level issues affecting UMRR-EMP as well as important opportunities to enhance the program — e.g., coordination with other federal, state, and public programs and projects. The afternoon boat tour will showcase how the UMRR-EMP combines a broad range of innovative restoration techniques with state-of-the-art monitoring and research to best address the river's critical habitat and other ecological needs. This event is particularly timely in that Congress has been increasing its annual appropriations over the past few years, and is now being funded near its full annual authorized amount at \$31.986 million.

Please see the enclosed "save-the-date" invitation for location details and other information. You will receive more details closer to the event, including background information on the program and issues for discussion. In the meantime, please contact the UMRR-EMP Manager Marvin Hubbell (309-794-5428, marvin.e.hubbell@usace.army.mil) or your agency's Committee member _____.

We, at the U.S. Army Corps of Engineers, certainly recognize that this program's success is directly attributable to the partnership's steadfast dedication and we truly appreciate your contributions to the program's successful implementation.

Best regards,

Mark Deschenes
Colonel, U.S. Army Corps of Engineers
District Engineer

Front of
"Save the
Date"

Upper Mississippi River Restoration Partners' Leadership Event

June 18, 2014



Uniquely and effectively combining ecosystem restoration and scientific monitoring and research to reestablish a healthy and resilient Upper Mississippi River ecosystem that supports long term sustainability of its multiple uses

Back of
"Save the
Date"

Upper Mississippi River Restoration Environmental Management Program

You're Invited to a Partners' Leadership Event

On behalf of the Upper Mississippi River Restoration-Environmental Management Program Coordinating Committee (UMRR-EMP CC), Rock Island District's Commander Colonel Mark Deschenes invites you to a partners' leadership event on June 18, 2014 in Dubuque, Iowa.

More detailed information is forthcoming. In the meantime, please contact Marvin Hubbell (309-794-5428, marvin.e.hubbell@usace.army.mil) or your agency's representative to the program, TBD (contact info).

June 18, 2014
Eagle Point Park
Dubuque, Iowa

9:30 A.M. ~ REGISTRATION &
WELCOMING RECEPTION

10 A.M. ~ INDOOR DISCUSSION SESSION

12 NOON ~ LUNCH

1-3 P.M. ~ SUNFISH LAKE BOAT TOUR
(TRANSPORTATION PROVIDED)



ATTACHMENT C

FY 2015-19 UMRR Strategic Plan

- **Summary of Progress To-Date and Next Steps** *(C-1 to C-3)*
- **Overview of Draft Plan**
 - **Conceptual direction** *(C-4)*
 - **Draft plan outline (2/7/14)** *(C-5)*

Upper Mississippi River Restoration Environmental Management Program

FY 2015-19 Strategic Plan Overview of Process and Progress To Date

Goal of the FY 2015-19 UMRR-EMP Strategic Planning Process: To focus the efforts of the UMRR-EMP to ensure that it remains regionally relevant, nationally significant, internationally engaged, and technically sound.

Objective of the Planning Process: To develop a five-year programmatic strategic plan that:

- 1) Establishes priorities and actions to ensure that UMRR-EMP accomplishes its authorized purposes.
- 2) Guides program partners in identifying and effectively addressing key policy and technical issues facing the program.
- 3) Continues to effectively integrate UMRR-EMP's science and restoration efforts.
- 4) Identifies and examines foreseeable challenges to program implementation, including dynamic regional and national factors — e.g., aquatic nuisance species, federal budget processes, and appropriation levels.
- 5) Positions UMRR-EMP to continue as an exemplary leader among large aquatic ecosystem programs nationally and internationally.

Major Assumptions:

- 1) The Objective outlined above reflects the core items that are necessary to address in the Strategic Plan.
- 2) The Plan will articulate partners' long term vision for UMRR-EMP, which will reflect its authorization, and define implementation priorities for advancing that vision in FY 15-19.
- 3) Basic administrative provisions and program infrastructure will remain in place.
 - A. UMRR-EMP is authorized as a continuing authority, meaning that the program is not bound to a specific end-point and will remain operational as long as Congress appropriates funding to the program.
 - B. Any recommendations to change the Corps' existing national policies and procedures will need to be coordinated with the appropriate Corps entity — e.g., Headquarters or Division.
 - C. All partner agencies/organizations have their own missions, procedures, and policies. Any recommendations to change their existing procedures or policies will need to be coordinated with the appropriate entity.
 - D. The existing network of offices and biological field stations will remain in place.
 - E. The Corps will continue to coordinate closely with all program partners through identified advisory bodies.
 - F. The purpose of this planning efforts is enhance effectiveness and not to downsize the program.
- 4) The Plan will build upon and incorporate partner-supported planning and other documents. These include, but are not limited to, the LTRMP Operating Plan, the Joint Charter for UMRR-EMP's coordinating groups, and the Implementation Issues Assessment. See References below.

- 5) The process should focus on identifying and addressing key issues related to ecosystem restoration, monitoring, assessment and research within the UMRR-EMP. However, it should remain cognizant of other existing and potential new restoration and science programs on the UMRS, including NESP, 519 on the Illinois River, and other federal and state initiatives.

Planning Team: The UMRR-EMP strategic planning team will coordinate directly with UMRR-EMP CC members and partners to ensure that the Strategic Plan is consistent with the Committee's goals and priorities. The team's composition reflects representation from the various program partners and functions, and has been an effective, efficient, and dynamic work group. The team members include:

Marv Hubbell, USACE
Karen Hagerty, USACE
Brian Johnson, USACE
Kat McCain, USACE
Tom Novak, USACE
Bob Clevenstine, USFWS
Jon Duveyjonck, USFWS
Jeff Stoner, USGS
Mike Jawson, USGS
Barry Johnson, USGS
Jeff Houser, USGS
Ken Westlake, USEPA
Rob Maher, Illinois DNR
Mike Griffin, Iowa DNR
Kevin Stauffer, Minnesota DNR
Janet Sternburg, Missouri DoC
Jim Fischer, Wisconsin DNR
Gretchen Benjamin, The Nature Conservancy
Kirsten Mickelsen, UMRBA
Dru Buntin, UMRBA

Brian Stenquist and Beth Carlson from Minnesota DNR are providing professional facilitation services for the strategic planning effort — i.e., guiding discussions and assisting in the planning process. UMRBA is providing support services for the process, including preparing meeting arrangements and materials and developing draft meeting summaries. In addition, Kara Mitvaslsky from USACE has been taking notes during the meetings.

Planning Process:

- 1) April 9-11, 2013 in La Crosse: Through SWAT and PAIR analyses, the planning team identified seven issues areas to explore further: defining success, ecosystem restoration, ecosystem monitoring, collaboration, communication, funding, and integration. The team formed subgroups to develop brief papers that explore each issues, including summarizing the background and identifying potential action items for the program to address/advance the issue over the plan's duration.
- 2) June 18-20, 2013 in Rock Island: The planning team discussed the seven issue papers (see April meeting above) and brainstormed important elements of a vision and mission statement for the program as well as short- and long-term goals and funding implications. The team also developed a rough draft outline of a strategic plan, with four goals related to enhancing knowledge and habitat, collaboration with external stakeholders, and coordination among the organizations that actively participate in implementing UMRR-EMP. In addition, the outline has an introductory section that

includes a vision, mission, assumptions, and guiding principles. Subgroups were formed to develop the plan's components.

- 3) August 22, 2013 conference call: The planning team discussed the draft strategic plan components and planned for the next in-person meeting that was scheduled for November 5-7, 2013. Subgroups then continued to refined their draft plan sections.
- 4) January 6-8, 2014: The planning team reviewed the draft plan sections and discussed remaining issues and questions. The team agreed to share a one-page draft outline of its plan with the UMRREMP CC at its February 26, 2014 meeting for initial input. Subgroups made final revisions to their draft plan sections. UMRBA will now integrate the draft sections to create a unified voice. The draft plan will be shared with partners in late spring for review. [Note: This meeting was scheduled for November 5-7, 2013, but was postponed to January 2014 due to the October 1-16, 2013 partial federal government shutdown.]

Key Points from the 4th Meeting of the UMRR-EMP Strategic Planning Committee

By Marvin Hubbell

The UMRR-EMP Strategic Planning Committee has made steady progress in the development of the strategic plan. The meeting on January 6-8 was especially productive because the Committee was able to identify and address several pivotal issues that are foundational to the future of the Program. Those three issues were the development of: 1) a cohesive Vision Statement that unifies the actions of the Program; 2) proposed that the Partnership embrace and consistently use the name of Upper Mississippi River Restoration Program; and 3) embracing enhanced integration within the Program.

There are three distinguishable recommendations coming from the Strategic Planning Committee for discussion at the February Quarterly EMP-CC meeting. These recommendations are closely linked and reflect a genuine philosophical shift in how this Program will function.

Vision statements associated with strategic planning documents are too often lofty words which have little meaning in day to day management or execution. The Planning Committee nearly went down that path. However, ultimately the group decided that if we were going to say something, we should structure management of the Program accordingly.

The Program Vision is: A healthier and more resilient Upper Mississippi River ecosystem that sustains the river's multiple uses. The key words that the Committee focused on were "healthier and more resilient".

Those words require us to characterize/define the existing health and resiliency of the system, potentially develop new tools to measure both, identify, evaluate, select, and formulate project which contribute to increasing both health and resiliency, and then monitor our progress towards fulfilling the Vision. All of this requires enhanced Program integration because effective restoration, monitoring, research, and reporting must be closely coordinated.

Finally, embracing the name of Upper Mississippi River Restoration Program and dropping any reference to EMP. It seems to be a wise move at this time for multiple reasons: 1) that's how the President, OMB, Corps, and Congress refer to it in the budgeting and appropriations process; 2) it's place based and more descriptive – you know where we are and what we do; 3) an outgrowth of a more integrated program allows us to move away from references to the Program elements that have tended to constrict our thinking and actions and opens up a new era of utilizing all the strengths of the Program to attain the articulated Vision.

On a personal note – I'm very excited about all these changes and I think it will be the foundation to propel us forward in leading large river ecosystem rehabilitation and related scientific endeavors.

ESSENCE OF A DRAFT 2014 STRATEGIC PLAN FOR THE UPPER MISSISSIPPI RIVER RESTORATION PROGRAM

Vision: a healthier and more resilient Upper Mississippi River ecosystem that sustains the river's multiple uses.

Mission: to work within a **partnership** among federal agencies, state agencies, and other organizations; to construct high-performing habitat restoration **projects**; to produce state-of-the-art **knowledge** through monitoring, research, and assessment; to engage other organizations to accomplish the Upper Mississippi River Restoration Program's **vision**.

Goal 1: Enhance habitat for restoring and maintaining a healthier and more resilient UMRS.

- Objective 1: Address key UMRS ecological needs at project, pool, and system scales by advancing partner-prioritized habitat restoration projects that reflect the best available science and partner-developed program restoration objectives.
- Objective 2: Plan and construct effective and innovative structural and non-structural projects to improve habitats and communities, considering benefits at multiple scales.
- Objective 3: Continue to improve restoration effectiveness and ecosystem understanding through the use of monitoring and adaptive management — e.g., incorporate explicit learning objectives into projects.
- Objective 4: Increase understanding and awareness (inside and outside the UMRR) of restoration experiences and successes.

Goal 2: Enhance knowledge for restoring and maintaining a healthy and resilient UMRS.

- Objective 1: Assess, and detect any substantial changes in, the fundamental ecosystem condition of the UMRS by continuing to develop and maintain information on long-term status and trends for aquatic vegetation, water quality, fish, land use/land cover, and bathymetry, which are the river's key ecological drivers. Additional components may be included as resources and priorities allow.
- Objective 2: Continue to build an increased understanding of UMRS ecological processes, functions, structures, and composition. This includes identifying and better understanding current and potential threats to, and stressors of, the UMRS and their effects on the ecosystem.
- Objective 3: Increase understanding and awareness (inside and outside the UMRR program) of data, knowledge, infrastructure capabilities associated with, and generated by, ecosystem monitoring and research.

Goal 3: Engage and collaborate with other organizations to help accomplish the UMRR vision.

- Objective 1: Effectively share UMRR information and knowledge to non-partner organizations whose actions and decisions affect the natural resources of the UMRS.
- Objective 2: Expand and enhance strategic relationships with organizations and individuals whose goals, objectives, and actions complement those of the UMRR partnership.
- Objective 3: Provide decision makers with targeted, easily accessible, and usable information regarding the UMRS ecosystem.
- Objective 4: Develop a communications plan that targets specific external partners and audiences that are best suited to advance the UMRR vision.

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

- Objective 1: Promote a common vision and sense of purpose, transparency, and accountability among partner organizations.
- Objective 2: Implement the UMRR as outlined in the adopted Charter and strategic and operational plans.

Guiding Principles:

- Maintain, support, and work within the UMRR partnership
- Deliver innovative, high-quality projects, products, and services
- Promote focused research and analysis
- Make decisions using the best available science, data, and information
- Routinely disseminate information about UMRR activities and outcomes
- Apply adaptive management principles to continually learn and improve
- Serve as a positive collaborator with other agencies and organizations
- Rehabilitation of the UMRS ecosystem is program's the overarching framework

ATTACHMENT D

Long Term Resource Monitoring Program

- **LTRMP FY 14 Scope of Work thru 1st Quarter (2/7/14)**
(D-1 to D-7)
- **LTRMP Activity List in October – December 2013** *(D-8 to D-12)*
[Note: These activities are not included in the FY 13 LTRMP scope of work.]
- **Agenda of the February 11-13, 2014 UMRR-EMP Science Coordination Meeting** *(D-13)*
- **FY 2014 UMRR-EMP Science Allocations and Proposals**
(D-14 to D-16)

Upper Mississippi River Restoration–Environmental Management Program
 Long Term Resource Monitoring Program Element
 FY2014 Scope of Work

Tracking number	Milestone	Original Target Date	Modified Target Date	Date Completed	Comments	Lead
Aquatic Vegetation Component						
2014A1	Complete data entry and QA/QC of 2013 data; 1250 observations.					
	a. Data entry completed and submission of data to USGS	30-Nov-13		30-Nov-13		Moore, Langrehr, Petersen
	b. Data loaded on level 2 browsers	15-Dec-13		15-Dec-13		Schlifer
	c. QA/QC scripts run and data corrections sent to Field Stations	28-Dec-13		28-Dec-13		Sauer, Schlifer
	d. Field Station QA/QC with corrections to USGS	15-Jan-14		15-Jan-14		Moore, Langrehr, Petersen
	e. Corrections made and data moved to public Web Browser	30-Jan-14				Sauer, Schlifer, Caucutt
2014A2	WEB-based annual Aquatic Vegetation Component Update with 2013 data on Public Web Server.					
	a. Develop first draft	30-Mar-14				Sauer
	b. Reviews completed	15-Apr-14				Moore, Langrehr, Petersen, Sauer, Yin
	c. Submit final update	30-Jun-14				Sauer
	d. Placement on Web with PDF	31-Jul-14				Sauer, Caucutt
2014A3	Complete aquatic vegetation sampling for Pools 4, 8, and 13 (Table 1)	31-Aug-14				Yin, Moore, Langrehr, Petersen
2014A4	Web-based: Creating surface distribution maps for aquatic plant species in Pools 4, 8, and 13; 2013 data	31-Jul-14				Yin, Rogala, Schlifer
2014A5	Wisconsin DNR annual summary report 2013 that combines current year observations from LTRMP with previous years' data, for the fish, aquatic vegetation, and water quality components.	30-Sep-14				Fischer, Langrehr, Bartels, Giblin, Hoff
2014A6	Annual Field Station Data Summary Report Template Development	30-Sep-14				Popp, Bierman, Chick, Herzog, Casper, Hagerty
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				Yin
On-Going						
2012A6	Draft LTRMP completion report: Fifteen years (1998–2012) of aquatic vegetation in Pool 4 of the Upper Mississippi River.	30-Apr-14				Moore
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				Yin
Intended for distribution						
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)						
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)						
WI DNR annual 2012 data summary report (2013A5; Fischer, Langrehr, Bartels, Giblin, Hoff) Distributed; http://dnr.wi.gov/water/wsSWIMSDocument.aspx?documentSeqNo=86352298						

Upper Mississippi River Restoration–Environmental Management Program
 Long Term Resource Monitoring Program Element
 FY2014 Scope of Work

Tracking number	Milestone	Original Target Date	Modified Target Date	Date Completed	Comments	Lead
Fisheries Component						
2014B1	Complete data entry, QA/QC of 2013 fish data; ~1,590 observations					
	a. Data entry completed and submission of data to USGS	31-Jan-14		31-Jan-14		DeLain, Bartels, Bowler, Ratcliff, Gittinger, West, Solomon, Michaels
	b. Data loaded on level 2 browsers; QA/QC scripts run and data corrections sent to Field Stations	15-Feb-14				Schlifer
	c. Field Station QA/QC with corrections to USGS	15-Mar-14				DeLain, Bartels, Bowler, Ratcliff, Gittinger, West, Solomon, Michaels
	d. Corrections made and data moved to public Web Browser	30-Mar-14				Sauer and Schlifer
2014B2	Update Graphical Browser with 2013 data on Public Web Server.	31-May-14				Sauer, DeLain, Bartels, Bowler, Ratcliff, Gittinger, West, Solomon, Michaels, Schlifer
2014B3	Complete fisheries sampling for Pools 4, 8, 13, 26, the Open River Reach, and La Grange Pool (Table 1)	31-Oct-14				Ickes, DeLain, Bartels, Bowler, Ratcliff, Gittinger, West, Solomon, Michaels
2014B4	Final draft fact sheet: Tree map tool for visualizing fish data, with example of native versus non-native fish biomass (2013B16)	30-Sep-14				Schlifer, Sauer
2014B5	Final draft completion report: summary of data extraction & metadata for archiving of UMRS floodplain disturbance histories (2008APE1a/2013B4)	30-Sep-14				Ickes
2014B6	Summary letter on Asian carp age and growth: collection of cleithral bones	31-Jan-14		17-Jan-14		Solomon, Casper
2014B7	Preliminary analysis and summary letter: Asian Carp Age and Growth	30-Sep-14				Solomon, McClelland, Casper
2014B8	Letter Summary: Native fish community response to Asian Carp reduction efforts	30-Sep-14				Casper, McClelland, Solomon
2014B9	Letter Summary: Exploring Years with Low Total Catch of Fishes in Pool 26	30-Sep-14				Gittinger, Ratcliff, Lubinski, Chick
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-Sep-14				West, Sobotka, Hupfeld, Phelps
2014B12	Database increment, Letter summary: Collection and exploratory analysis of age and growth data for catfish in La Grange Pool	30-Sep-14				Solomon, Casper
2013S3	Prepare read ahead (if applicable) on use of LTRMP fish monitoring methods to EMPCC	31-Dec-13		31-Dec-13		Solomon, Casper
2013S4	Present findings at EMP CC and UMRCC and/or MRCC conference (if funding for travel available)	Spring 2014				Solomon, Casper
2014B13(L)	Advisory role for Assessment of Asian carp exploitation by native piscivores in the Illinois River (Western Illinois University)	On-going				Casper

Upper Mississippi River Restoration–Environmental Management Program
 Long Term Resource Monitoring Program Element
 FY2014 Scope of Work

Tracking number	Milestone	Original Target Date	Modified Target Date	Date Completed	Comments	Lead
2014B14	IDNR Fisheries Management State Report: Fisheries Monitoring in Pool 13, Upper Mississippi River, 2013	30-Jun-14				Bowler
2014B15(D)	Database increment: Stratified random day electrofishing samples collected in Pools 9 – 11	30-Sep-14				Bowler
2014B16(D)	Database increment: Stratified random day electrofishing samples in Pools 16–18	30-Sep-14				Bowler
2014B17	Draft LTRMP Program Report: Monitoring Rationale, Strategy, Issues, and Methods (UMRR-EMP LTRMP Fish Component; off-shoot of 2013B5)	30-Jun-14				Ickes, Sauer, and Rogala
2014B18	Final Draft LTRMP Technical Report: Annotated empirical response curves for Upper Mississippi River System fishes” (AHAG 2.0), (2013B28)	30-Sep-14				Ickes, Sauer, Richards, Bowler, and Schlifer
2014B19	Summary report: Pool 12 Overwintering HREP adaptive management fisheries response monitoring	30-Sep-14				Bierman, Bowler
On-Going						
2006B6	Draft manuscript: Spatial structure and temporal variation of fish communities in the Upper Mississippi River. (Dependent on 2008B9 acceptance into journal)	30-Sep-14				Chick
2008B9	Draft manuscript: Standardized CPUE data from multiple gears for community level analysis (a previous manuscript was submitted and not accepted by the journal, 2006B5; 2008B9 is a revised manuscript)	15-Dec-13				Chick
2012B8	Draft manuscript: Influence of Asian carp on planktivorous fish	31-Dec-13		31-Dec-13		Phelps
2013B12	Final draft LTRMP report: Testing the Fundamental Assumption underlying the use of LTRMP fish data: Does variation in LTRMP catch-per-unit-effort data reflect variation in the abundance of fishes? (2007APE3)	22-Nov-13		13-Jan-14		Chick
2013B17	Shovelnose sturgeon habitat use in the UMR (data sets, analysis, presentations, draft manuscript)	31-Dec-13		31-Dec-13		Phelps
2013B19	Channel catfish habitat evaluation (data sets, analysis, presentations, draft manuscript)	31-Dec-13		31-Dec-13		Phelps
2013B26	White Paper: UMRR-EMP LTRMP Capability Related to Asian Carps	31-Dec-13		9-Sep-13		Hubbell, Chick, Casper, Phelps, Solomon, Lubinski
Intended for distribution						
Completion report: LTRMP Fisheries Component collection of six darter species from 1989–2004. (2006B13; Ridings) (In USGS Review)						
Evaluating the effectiveness of a mandatory catch and release regulation on a riverine largemouth bass population (2007B7; Bowler) (proposed for publication in Iowa DNR’s Fisheries Management Investigations)						
LTRMP Report: An Evaluation of Macroinvertebrate Sampling Methods For Use In The Open River Reach of The Upper Mississippi River; Kathryn N. S. McCain, Robert A. Hrabik, Valerie A. Barko, Brian R. Gray, and Joseph R. Bidwell (2005C2) (In USGS Review)						
LTRMP technical report: Relationship of juvenile abundance of select fish species to aquatic vegetation in Navigation Pools 4, 8, and 13 of the Upper Mississippi River, 1998-2007 (2007B5; 2009B5; Popp and DeLain) (In USGS Review)						
LTRMP technical report; Setting quantitative fish management targets for LTRMP monitoring (2008APE2; Sass) (In USGS Review)						
LTRMP Completion report, compilation of 3 years of sampling: Fisheries (2009R1Fish; Chick et al.) (In USGS Review)						
Manuscript: American eel population characteristics in the Upper Mississippi River (2012B7; Phelps) (accepted for publication)						

Upper Mississippi River Restoration–Environmental Management Program
 Long Term Resource Monitoring Program Element
 FY2014 Scope of Work

Tracking number	Milestone	Original Target Date	Modified Target Date	Date Completed	Comments	Lead
LTRMP fisheries component procedures manual (2013B5; Ratcliff, Gittinger, Ickes) (submitted to USGS)						
Manuscript: Determining environmental history of three sturgeon species in the Upper, Middle, and Lower Mississippi Rivers. (2013B22; Phelps) (submitted to USGS)						
Manuscript: A pilot evaluation of the commercial and recreational harvest of paddlefish (<i>Polyodon spathula</i>) in Missouri, (2013B24; Phelps) (submitted to the Journal of Applied Ichthyology)						
Manuscript: Sauger life history in the lower portion of the Upper Mississippi River (2013B20, Phelps). (Submitted to Prairie Naturalist)						
Manuscript: Age-0 sturgeon habitat associations in the free flowing portion of the Upper Mississippi River (2012B5; Tripp, Phelps, Herzog) (submitted to UMESC)						
Manuscript: development of an Asian Carp Size Structure Index and Application through Demonstration (Phelps, Willis) (2013) <i>North American Journal of fisheries Management</i> , 33:(2) 338-343						
Water Quality Component						
2014D1	Complete calendar year 2013 fixed-site and SRS water quality sampling	31-Dec-13		31-Dec-13		Houser, Burdis, Giblin, Kueter, L. Gittinger, Cook, Sobotka
2014D2	Complete laboratory sample analysis of 2013 fixed site and SRS data; Laboratory data loaded to Oracle data base.	15-Mar-14				Yuan, Schlifer
2014D3	1st Quarter of laboratory sample analysis (~12,600)	30-Dec-13		30-Dec-13		Yuan, Kreiling, Manier, Burdis, Giblin, Kueter, L. Gittinger, Cook, Sobotka
2014D4	2nd Quarter of laboratory sample analysis (~12,600)	30-Mar-14				Yuan, Kreiling, Manier, Burdis, Giblin, Kueter, L. Gittinger, Cook, Sobotka
2014D5	3rd Quarter of laboratory sample analysis (~12,600)	29-Jun-14				Yuan, Kreiling, Manier, Burdis, Giblin, Kueter, L. Gittinger, Cook, Sobotka
2014D6	4th Quarter of laboratory sample analysis (~12,600)	28-Sep-14				Yuan, Kreiling, Manier, Burdis, Giblin, Kueter, L. Gittinger, Cook, Sobotka
2014D7	Complete QA/QC of calendar year 2013 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-14				Schlifer, Rogala, Houser
	b. Field Station QA/QC; USGS QA/QC.	15-Apr-14				Houser, Rogala, Burdis, Giblin, Kueter, L. Gittinger, Cook, Sobotka
	c. Corrections made and data moved to public Web Browser	30-Apr-14				Rogala, Schlifer, Houser
2014D8	Complete FY2013 fixed site and SRS sampling for Pools 4, 8, 13, 26, Open River Reach, and La Grange Pool (Table 1)	30-Sep-14				Houser, Burdis, Giblin, Kueter, L. Gittinger, Cook, Sobotka
2014D9	WEB-based annual Water Quality Component Update with 2013 data on Public Web Server.	30-May-14				Rogala
2014D10	Final draft fact sheet: Tree map tool for visualizing fish data with example of native versus non-native fish biomass	30 Sept. 2014				Schlifer, Sauer
2014D11	Letter Summary: Evaluation of water quality data from an automated sampling platform	30-Sep-14				Soeken-Gittinger, Lubinski, Chick
2014D12	Draft manuscript: Nutrients and dissolved oxygen in the UMRS: improving our understanding of winter conditions and their implications for structure and function of the river	30-Sep-14				Houser

Upper Mississippi River Restoration–Environmental Management Program
 Long Term Resource Monitoring Program Element
 FY2014 Scope of Work

Tracking number	Milestone	Original Target Date	Modified Target Date	Date Completed	Comments	Lead
2014D13	Presentations, draft completion report: A Comparison of Side and Main Channel Fish Community and Water Quality Characteristics	1-Dec-15				Sobotka, West, Phelps
On-Going						
2013D10	Final draft completion report: changes in substrate, water quality, aquatic vegetation, zooplankton, and fish community from Geomorphic Reach 1 (above Lake Pepin) to Geomorphic Reach 3 (below Lake Pepin) (2010D6)	30-Dec-13		6 Feb. 2014		Popp, De Lain, Burdis, Moore
2013D17	Draft manuscript: Relationship between the temporal and spatial distribution, abundance, and composition of zooplankton taxa and hydrological and limnological variables in Lake Pepin	30-Dec-13			Request submitted to BJ for modification of deadline	Burdis
2013D19	Letter Summary: Assessment of the efficacy of monitoring water quality in the UMRS using a YSI real-time Environmental Monitoring System (Pices Platform) (continued work on 2012D15)	31-Oct-13				Chick, L. Gittinger, Lubinski
Intended for distribution						
Completion report: Examining nitrogen and phosphorus ratios N:P in the unimpounded portion of the Upper Mississippi River (2006D9; Hrabik & Crites) (In USGS Review)						
LTRMP report: Main channel/side channel report for the Open River Reach. (2005D7; Hrabik) (In USGS Review)						
Manuscript: Ecosystem metabolism in the main channel and backwaters of the Upper Mississippi River: the role of submersed vegetation and hydraulic connectivity. (2008D8; Houser et al.) (In review)						
Manuscript Nutrient cycling, connectivity, and free-floating plant abundance in backwater lakes of the Upper Mississippi River. (2009APE3, Houser) River Systems, Volume 21: 1, p. 71–89						
Manuscript: Lateral contrasts in nutrients, chlorophyll, and suspended solids within the Upper Mississippi River System (2012D10; Houser) (In review)						
Completion report, compilation of 3 years of sampling: Water Quality (2009R1WQ; Giblin, Burdis) (In USGS Review)						
Manuscript: Temporal evaluation of factors influencing metaphyton biomass, distribution and composition within UMR backwaters (2010out2a; Giblin et al) Wetlands On-line First DOI 10.1007/s13157-013-0508-8						
Manuscript: Trends in suspended solids, nitrogen, and phosphorus in select upper Mississippi River tributaries, 1991-2011 (Kreiling and Houser, 2013D14) (in USGS review)						
Land Cover/Land Use with GIS Support						
2014LC1	Updates on progress for land cover products (See SOW)				New progress reported in the quarterly activities. Percent complete updated 30 Sept 2014.	Robinson
Development of 2010–2011 Land Cover/Land Use GIS Database and Aerial Photo Mosaics						
2014V1	Complete 30% of the 2010/11 LCU database for UMR Open River North	30-Apr-14				Robinson, Hoy, Hanson, Langrehr, Ruhser, Nelson
2014V2	Complete remaining 70% of the 2010/11 LCU database for UMR Open River North	TBD			Tasks captured by milestones 2014V2 and 2014V4 will be completed under the separate UMRR Science Support SOW	Robinson, Hoy, Hanson, Langrehr, Ruhser, Nelson
2014V3	Complete accuracy assessment and validation analyses	30-Apr-14				Ruhser, Jakusz
2014V4	Final LTRMP Completion Report on Accuracy Assessment	TBD			Tasks captured by milestones 2014V2 and 2014V4 will be completed under the separate UMRR Science Support SOW	Ruhser, Jakusz

Upper Mississippi River Restoration–Environmental Management Program
 Long Term Resource Monitoring Program Element
 FY2014 Scope of Work

Tracking number	Milestone	Original Target Date	Modified Target Date	Date Completed	Comments	Lead
Statistical Evaluation						
2014E1	Final draft completion report: Long-term trend reporting, water quality component (2013E1)	30-Sep-14				Gray, Houser, Rogala
2014E2	Water quality web page: Depiction of trend estimates on water quality graphical browser pages	30-Sep-14				Gray, Houser, Rogala, Schlifer
On-Going						
2013E2	Final draft completion report: an assessment of trends in water temperature in La Grange Pool (2012E3)	30-Dec-13		30-Dec-13		Gray, Robertson, Rogala, Houser
Intended for distribution						
Completion report that describes methods of estimating variance components from LTRMP water quality data (2008E1; Gray) <i>(In USGS Review)</i>						
Manuscript (Changed from Completion Report): Spatial and temporal variation in duckweed and filamentous algal levels in contiguous floodplain lakes of the Upper Mississippi River. Gray and Holland. (2009APE3a) <i>Journal of Aquatic Plant Management 50: 91-100</i>						
Manuscript: Inferring decreases in among- backwater heterogeneity in large rivers using among-backwater variation in limnological variables (2010E1, Rogala, Gray, Houser) <i>(in journal review)</i>						
Completion Report: summer water temperature in the Upper Mississippi River (2012E2). Gray, Robertson, Houser, Rogala. <i>(in USGS review)</i>						
Completion report: An assessment of trends in water temperature in La Grange Pool (2012E3; Gray, Robertson, Rogala, Houser) <i>(in USGS review)</i>						
Data Management						
2014M1	Update vegetation, fisheries, and water quality component field data entry and correction applications.	30-May-14				Schlifer
2014M2	Load 2013 component sampling data into Oracle tables and make data available on Level 2 browsers for field stations to QA/QC.	30-Jun-14				Schlifer
2014M3	Webinar on LTRMP data access and use	Fall				Sauer, Johnson, Houser, Ickes, Yin, Rogala, De Jager, Schlifer, Lowenberg
Landscape Pattern Research and Application (Not base monitoring)						
2014L1	Draft manuscript: Effects of flood inundation duration on litter decomposition and nitrogen cycling during different states of forest succession.	30-Sep-14				Strauss, Swanson, (UWL) &
2014L2	Maps and Metrics: Floodplain inundation duration maps and metrics	30-Sep-14				Rohweder and De Jager
2014L3	2014L3: Draft manuscript: Differences in fish community composition between patches of high TN:TP and low TN:TP: the role of water flow velocity	30-Sep-14				De Jager
Intended for distribution						
Manuscript: Cogger, B.J. , De Jager, N.R. and Thomsen, M. . In Press. Winter browse selection by white-tailed deer and implications for bottomland forest restoration in the Upper Mississippi River valley, USA. (2012L4) <i>(Submitted to Natural Areas Journal)</i>						
Fact Sheet: De Jager, N.R. 2013. Landscape Ecology on the Upper Mississippi River: lessons learned, challenges, opportunities (2013L3). <i>(In Press)</i>						
Manuscript: De Jager, N.R. and T.J. Fox. 2013 Curve Fit: a pixel-level raster regression tool for mapping spatial patterns (2013L1) <i>Methods in Ecology and Evolution; British Ecological Society 2013. 4 pp.</i>						
Manuscript: De Jager, N.R. effects of flood frequency and duration on the allometry of community-level stem size-density distributions in a floodplain forest. <i>American Journal of Botany 99(9): 1572–1576.</i>						
Science Planning						
2013XZ	Final Draft report to EMP-CC	20-Nov-13		20-Nov-13		Johnson
2014N1	Science Planning Meeting	11-13 Feb 2014				Johnson, Sauer, Lowenberg
2014N2	Draft 3-year research plan	15-May-14				Johnson, UMESC staff

Upper Mississippi River Restoration–Environmental Management Program
 Long Term Resource Monitoring Program Element
 FY2014 Scope of Work

Tracking number	Milestone	Original Target Date	Modified Target Date	Date Completed	Comments	Lead
2014N3	Final Draft research plan to EMP-CC	1-Aug-14				Johnson
Involvement of LTRMP with monitoring on other rivers, nationally and internationally						
2014P1	Draft white paper for review	15-Jun-14				Johnson
2014P2	Final draft white paper	30-Sep-14				Johnson
2014P3	Final Draft white paper to EMP-CC	Nov. 2014				Johnson
Quarterly Activities						
2014QR1	Submittal of quarterly activities	30-Jan-14				All LTRMP staff
2014QR2	Submittal of quarterly activities	13-Apr-14				All LTRMP staff
2014QR3	Submittal of quarterly activities	13-Jul-14				All LTRMP staff
2014QR4	Submittal of quarterly activities	12-Oct-14				All LTRMP staff
Science Management						
2014ER1	Property inventory and tracking	15-Nov-14				LTRMP staff as needed

UMRR-EMP
Long Term Resource Monitoring Program FY14 Activities (Living Document)
(Oct.–Dec.)

Publications, Presentations, and Conference Attendance

Bierman participated in several conference calls with LTRMP Team Leaders during the federal shutdown – October, 2013.

Bierman attended a Pool 11 HREP (Mud and Sunfish Lakes) Performance Evaluation Report Planning meeting with Iowa and Wisconsin DNR fisheries management staff and USACE staff – December, 2013.

Popp, W.*, R. Burdis, S. DeLain, and M. Moore. Temporal trends in water quality and biota in segments of Pool 4 above and below Lake Pepin: indications of a recent ecological shift. Presentation at the St. Croix Research Rendezvous, October 15, 2013, Marine on St. Croix, MN.

Popp, W.*, R. Burdis, S. DeLain, and M. Moore. 20+ years of monitoring the Mississippi River: indications of a recent ecological shift. Presentation at the Minnesota DNR's Ecological and Water Resources Division meeting, October 23, 2013, St. Cloud, MN.

Walt Popp attended the UMRR-EMPCC meeting in St. Paul on Nov. 20th.

Rob Burdis, Steve DeLain, Megan Moore, and Walt Popp attended the Minnesota DNR's Ecological and Water Resources Division meeting in St. Cloud, MN on Oct. 22-23.

Walt Popp participated in two field station team leader conference calls during the government shutdown.

John Chick gave a presentation about the Great Rivers Ecological Observation Network (GREON) and LTRMP at the Joint Illinois Rivers Coordinating Council meeting. 10/2013.

John Chick gave a presentation on the Great Rivers Ecological Observatory network to the US Water Alliance at NGRREC. LTRMP data was presented during this talk. 11/2013.

John Chick gave a presentation on the Great Rivers Ecological Observatory network to USACE reps from ERDC at NGRREC. LTRMP data was presented during this talk. 12/2013.

Lori Gittinger attended training provided by Yellow Springs Instruments regarding the new YSI EXO Sondes and associated GREON platform. 11/2013.

Solomon, L. E. The Expanding Influence of the Long Term Resource Monitoring Program (LTRMP). 14th Bi-Annual Governor's Conference on the Management of the Illinois River System. Platform Presentation

Houser, J.N. Increasing our understanding of the UMR: Analysis of UMRR-EMP LTRMP monitoring data as a foundation for learning about a large, complicated ecosystem. EMPCC meeting. 20 November 2013. Minneapolis, MN.

Technical activities and assistance:

Jennifer Sauer provided Liat Lichtman-Bonneville (Urban & Regional Planner, WisDOT) with updated information on the number of tons of cargo shipped annually between Minneapolis and the mouth of the Missouri River.

Yao Yin provided Derek Ingvalson (Corps) with Pool 8 vegetation data collected by the LTRMP.

Larry Robinson updated the LTRMP LiDAR Web pages including updating the graphic showing the LiDAR data that is available for download (http://umesc.usgs.gov/data_library/gis_data/lidar.html)

Jennifer Sauer provided Chris Rogers of the Winona Post references to help answer his question on question about a report on projecting river levels.

B. Ickes served (1-day; Nov 8, 2013) as an invited expert to the USFWS Eastern Tallgrass/Big River LCC. Contributions included advising on fish species that should be considered as surrogate species for conservation planning activities and actions.

B. Ickes reviewed a manuscript authored by S. Crimmins, W. Thogmartin, and P. Boma (USGS/UMESC); topic – species extinction probability modeling.

B. Ickes, B. Schlifer (USGS), J. Rogala (USGS), and J. Fischer (WDNR) submitted a pre-proposal in response to an RFP from USGS Center for Data Integration (CDI). The proposal title was “Novel web-enabled data visualization applications for serially-structured time-ordered data Case study 1: Mississippi River and select tributary hydrology”.

B. Ickes accepted an invitation by the University of Minnesota to deliver an evening keynote lecture as part of the grand reopening of Northrup Auditorium. The lecture will be April 21, 2014. B. Schlifer will accompany Ickes. All resources for participation (Ickes and Schlifer) have been accorded via honorarium (U of MN).

B. Ickes reviewed a manuscript authored by Yao Yin (USGS).

B. Ickes accepted an invitation to be a member of a Board of Directors for a new Environmental Science Program at the University of Wisconsin – Stout. Duties will principally involve advising and guiding the development of the curriculum within the Aquatic Biology concentration of the new program. Four single day meetings at UW-Stout, structured quarterly, beginning April 2014.

B. Ickes shared data summaries from UMRR-EMP LTRMP Fish component data sources, initially compiled by B. Ickes and D. Kirby (IDNR), detailing information on American eel (*Anguilla rostrata*), with the USFWS under a recent data and information call established to consider listing American eel under the 1973 Endangered Species Act.

LTRMP staff assisted Bellevue Research with fall tailwater sauger and walleye population assessments in Pool 13 – October, 2013.

Bowler completed data entry and QA/QC for Pool 12 overwintering HREP project – November, 2013.

Bowler discussed research project with Loras College student Amanda Fitzpatrick on fisheries, invertebrate, and water quality sampling in the Catfish Creek Watershed of Dubuque County, Iowa – November, 2013.

LTRMP staff extracted and catalogued 606 bluegill otoliths in conjunction with the Pool 12 overwintering HREP project – November, 2013.

Bowler entered data of catalogued bluegill otoliths – November, 2013.

Bowler entered data from the Beaver Island into the special projects database – November, 2013.

Petersen assisted Green Island Wildlife with collection of CWD samples from Jackson County – December, 2013.

Bierman compiled and submitted 2011 and 2012 data from Upper and Lower Rock Creek fixed site monitoring to Bob Drustrup, IDNR Contaminated Sites section – December, 2013.

Bowler compiled and tabulated data from the six field LTRMP stations and special projects database (1992-2012) to determine catches of age-0 and adult grass carp annual catches for Martin Konrad (Des Moines Fisheries) on potential addition of this species (diploids) to the exotic species list in Iowa – December, 2013.

LTRMP staff completed 21 pool-wide random electrofishing sites and completed 30 fyke netting samples at six different backwater complexes in conjunction with the Pool 12 overwintering HREP projects – October-November, 2013.

Bowler entered incidental turtle catches from Pool 13, 2013 into master dataset – November, 2013.

Bowler provided age assignment and age analysis of Pool 16 white bass 2013 collections to Fairport Management – December, 2013.

Bowler provided mean length at age summaries of bluegill in Pool 12, 2012 to Manchester Management for comparisons to northeast Iowa inland populations – December, 2013.

Megan Moore provided a U.S. Army Corps of Engineers St. Louis District biologist with information on how to record vegetation data collected from HREP monitoring so that it is comparable to LTRM data.

Megan Moore, as UMRCC Wildlife Technical Section chair, coordinated the funding of a graduate student to analyze eight years of UMRCC-collected vegetation data with a professor at Western Illinois University and the UMRCC Executive Board.

Steve DeLain provided technical expertise concerning LTRM electrofishing technique to five U.S. Army Corps of Engineers St. Paul District staff and they in return provided the field assistance that the Lake City Field Station needed to complete period 3 fish sampling.

Steve DeLain provided specific fish species he collected during LTRM sampling to the Minnesota DNR's mussel propagation program.

Walt Popp provided the UMRBA with a cost estimate for vegetation sampling.

Becky Kreiling reviewed a wetland restoration paper for Ecological Restoration.

Giblin provided water quality data to WDNR Fisheries Biologist, Dave Heath in response to questions regarding poor fish community statistics in the Reno Bottoms Area in Pool 9.

Giblin and Kalas conducted gear comparison study between Marsh-McBirney Flo-Mate and Hach FH950. Data were entered and analyzed. Report was submitted to Houser for review.

LTRMP data and technical reports were used extensively by MPCA to develop proposed TSS and TP criteria for MN Rivers and Lake Pepin. <http://www.pca.state.mn.us/index.php/water/water-permits-and-rules/water-rulemaking/new-water-quality-standards-for-river-eutrophication-and-total-suspended-solids.html#technical-support-documents>

Giblin provided manuscript reprint and technical advice to Dr. Griselda Chapparo, University of Buenos Aires, Argentina.

Langrehr met with Megan Moore and Welby Smith (MN state botanist) to discuss wild rice identification.

Langrehr provided maps with the locations of faucet snails and bullfrogs ancillary data recorded during veg SRS sampling to Jim Nissen (USFWS).

Langrehr provided *Sagittaria* species depth maximums to Ruth Nissen (WDNR) for a technical report.

Langrehr provided Pool 11 EMAP vegetation data to Brenda Kelly and Sara Strassman (WI DNR)

Langrehr provided Pool 8 vegetation SRS bootstrapping analysis results to John Sullivan (WI DNR)

Levi Solomon was added to the INHS ad hoc web design committee as Field Station Representative

Blake Bushman, Andy Casper, Rich Pendleton, and Levi Solomon assisted with collection of fish and water quality parameters for Dr. Wen-Tso Lui, Professor of Civil and Environmental Engineering, University of Illinois. Dr. Lui is investigating gut microbiota in relation to the detection of Asian carp.

Outreach

UMESC staff visited with Anne Kinsinger (USGS Associate Director for the Ecosystem Mission Area), Bill Lellis (USGS Deputy Associate Director for the Ecosystem Mission Area) and Mark Hudy (Senior Science Adviser for Fisheries) and Bill Guertal, Midwest Region Deputy Director for Science on December 4-5. They were visiting the Center primarily to gain a better understanding of our program, particularly our fisheries and aquatic resources activities including LTRMP.

Senator Tammy Baldwin and staffers visited UMESC on December 6 to learn about the Center programs including the UMRR LTRMP. This was the first visit to the Center by Senator Baldwin.

Megan Moore organized the agenda and chaired the UMRCC Wildlife Technical Section meeting at the Kibbe Research Station, Warsaw, IL, on Oct. 1-3.

Giblin provided interview for WI Public Radio regarding water quality trends and challenges on the UMR.

Eric Ratcliff and Ben Lubinski presented information about the LTRMP and INHS to approximately 160 high school seniors attending a "Who Works on the River" career fair event at the National Great Rivers Research and Education Center. 11/2013.

Andy Casper and Levi Solomon were interviewed concerning biology of Asian carp and their effects on native ecosystems by Summer Nettles, graduate student in Journalism at Northwestern University.

Andy Casper and Levi Solomon hosted a delegation of Chinese engineers from the Three Gorges Corporation. Included tour of the field station, discussion of mission and sampling techniques of LTRMP and other IRBS programs along with dissemination of past publications, telemetry equipment, and general information. Tour facilitated by Doug Blodgett of The Nature Conservancy.

Agenda for UMRR-EMP Science Meeting, UMESC, La Crosse, WI, 11-13 Feb. 2014

Date	Time		Lead
Tues 2/11/2014	12:30-12:45	Introduction and Objectives of Meeting	Barry Johnson, Marvin Hubbell
	12:45-1:00	Science in UMRR - past and future	Barry Johnson
	1:00-2:00	UMRR Landscape Ecology Research Framework - update Landscape Ecology of the Upper Mississippi River System (N. De Jager, 40 min.) Discussion (20 min.)	Nathan De Jager
	2:00-3:00	UMRR Mussel Research Framework - update (~5 min. each) 1. Poolwide mussel surveys (T. Newton) 2. What scale of analysis is best suited for describing mussel assemblages in the UMRS (T. Newton) 3. Mussels and drawdowns: science to support water level management (T. Newton) 4. Development of vital rates to assess the relative health of UMRS mussel resources (T. Newton, P. Ries) 5. Mussel community assessment tool (S. Zigler) 6. Development of hydrophysical models in support of mussel conservation (S. Zigler) Discussion (20 min.)	Teresa Newton
	3:00-3:30	Break	
	3:30-4:30	UMRR Aquatic Vegetation Research Framework - update 1. Long-term monitoring versus snapshots (Y. Yin, 15 min) 2. Non-Key Pool LTRMP Aquatic Vegetation data on a rotating schedule (H. Langrehr/M. Moore, 10 min.) 3. A systemic look at pool-scale factors limiting SAV presence in the UMR (J. Rogala, 10 Min.) 4. Update on analysis of Fourteen years (1998 – 2011) of SAV in Pool 4 of the Upper Mississippi River (M. Moore, 5 min.) 5. Hypotheses on SAV patterns and processes toward integrating monitoring, research, and Restoration experiments (Y. Yin, 15 min.) Discussion (5-10 min.)	Yao Yin
	Dinner	On your own.	
Wed 2/12/2014	8:00-8:30	Day 1 summary and Day 2 objectives	Johnson, Hubbell
	8:30-11:30	HREP as Learning Opportunities: 1. UMRR Five Year Outlook for Science Needs (M. Hubbell) 2. System Goals and Reach Objectives (C. Theiling) 3. Reach and Project Scale Tools (J. Hendrickson) BREAK 10 Min. 4. Formulation & evaluation of habitat restoration projects (K. McCain, D. Potter, K. Barr) 5. Use of GIS to link science and systemic data for identification of potential restoration areas (M. Dougherty) 6. Initial opportunities (M. Hubbell) Discussion	Hubbell
	11:30-12:30	Lunch in-house	Catered
	12:30-1:45	Water Quality <u>Introduction - where we've been and where we are</u> (15 min.) What we've learned from long term trends, longitudinal and lateral patterns in UMR water quality (J. Houser) What we've learned about effects of nutrients on the UMR (J. Houser) <u>Summaries of ongoing & recent research</u> (5 min. each) Temporal evaluation of factors influencing metaphyton biomass, distribution and composition within UMR backwaters (S. Giblin) Temporal trends in water quality and biota above and below Lake Pepin: indications of a recent ecological shift (W. Popp) Trends in suspended solids, nitrogen, and phosphorus in six UMR tributaries, 1991-2011 (R. Kreiling) Relationships between zooplankton and hydrological and limnological variables in Lake Pepin (R. Burdis) Ecosystem Metabolism in the Middle Mississippi (M. Sobotka) Efficacy of WQ monitoring with YSI real-time monitoring (Pices Platform) (L. Gittinger) Trends in water movement of Upper Mississippi River floodplain lakes (J Rogala) <u>Where to from here?</u> (10 min.) WQ Component PI perspective (J. Houser) Discussion (15 Min)	Jeff Houser
	1:45-2:00	Break	
	2:00-4:00	Fisheries 1. UMRR Fish Research Framework (Ickes) 2. Big Rivers and Wetlands update (Phelps) Discussion	Brian Ickes, Quinton Phelps
	4:00-4:45	Habitat modeling and reference systems for river management (J. Remo)	
	Dinner	Group dinner at Big Al's, downtown La Crosse	
Thurs 2/13/2014	8:00-8:10	Day 2 summary and Day 3 objectives	Johnson, Hubbell
	8:10-8:30	Conceptual modeling for side channel rehabilitation in the Middle Mississippi (A. Casper)	
	8:30-9:00	The Large Rivers Initiative of the USGS Midwest Region (K. Lubinski)	
	9:00-10:00	Important questions in the major areas for next 3-5 years, potential approaches to those Q's, opportunities for collaboration within and outside UMRR-EMP, emerging issues.	Johnson, All
	10:00-10:20	Break	
	10:20-11:30	Continue discussions or use topical breakout groups	All
	11:30-12:00	Re-group, next steps (report back from breakout groups?)	Johnson, All
	12:00	Adjourn	

**UPPER MISSISSIPPI RIVER RESTORATION
SCIENCE SUPPORT for FY2014
STATUS AS OF FEB 2014**

Proposals reviewed and endorsed by A-Team and EMP CC, and funded:

Funded?	Cost	TITLE	Proponent
Y (MIPR Feb 2014)	\$113,276	Seamless elevation data	UMESC, Corps
Y (MIPR Feb 2014)	\$209,319	Land Cover / Land Use data and Accuracy Assessment/Validation for UMRS*	UMESC, Corps
Y (LTRMP SOW, FS travel)	\$8,000	Science planning meeting in winter of FY14	UMESC, Corps
Y (USACE labor \$)	\$5,000	Development of Standardized HREP Non-Forested Wetland Plant Sampling Protocol	Corps
Y (USACE labor \$)	\$5,000	Development of Standardized HREP Floodplain Forest Sampling Protocol	Corps
Y (MIPR Feb 2014, USACE labor+travel)	\$95,547	Predictive Model for Aquatic Cover Types	Corps
NA, work under base LTRMP SOW	\$0	Pool 12 Overwintering HREP adaptive management fisheries response monitoring	IA
TOTAL	\$436,142		

Proposals revised, awaiting endorsement and funding:

Proposal #	Title	Proponent	COST
1	UMRS Vegetation Handbook	UMESC	\$48,648
2	Phase 2 Geospatial Data Upgrades	UMESC	\$17,749
3	Spatial Data Query Tool	UMESC	\$62,246
4	UMRS Data Map	UMESC	\$61,689
5	Assessing system-wide hydrodynamic model availability to support ecosystem restoration (formerly: Conceptualizing a System-Wide Hydrodynamic Model to Support Ecological Investigations)	Corps	\$37,064
6	Development of vital rates to assess the relative health of UMRS mussel resources	UMESC	\$127,604
7	Validation of a Mussel Community Assessment Tool for the Upper Mississippi River System	UMESC	\$95,549
8	Effects of nutrient concentrations and zooplankton on phytoplankton abundance and community composition	WI, UMESC	\$23,516
9	Ecological Shifts in a Large Floodplain River during a Transition from a Turbid to Clear Stable State	WI	\$20,221
10	Asian Carp Activities	MO, Corps	\$70,319
	1. Asian Carps Activities (#4) Invasive carp population demographics in the UMRS: an evaluation of the dynamic rate functions	MO	
	2. Asian Carps Activities (#5) Identifying recruitment sources of Asian carp	MO	
	3. Asian Carps Activities (#6) Effects of Asian Carp on the diets of native piscivores in the UMRS	MO	
	4. Asian Carps Activities (#7) Early life history of invasive carp in the UMR Basin	MO	
11	LTRMP FY14 equipment (med or med+low priorities only)	MN, WI, IA, IL, MO, UMESC	\$99,529
	COST		\$664,133
	Development of an Invasive Species Strategic Framework	Corps	delayed
	1a. Discretization and Validation of Regionalized Fish Probability of Occurrence Models (AHAG 2.0)	Corps, UMESC	withdrawn
	UMRS Hydrogeomorphic Index	Corps	not resubmitted
	Bluegill overwintering model validation	Corps	not resubmitted

Approved and funded proposals	\$ 436,142
Remaining proposals	<u>\$ 664,133</u>
POTENTIAL TOTAL	\$1,100,275

Tracking number	Milestone	Original Target Date	Modified Target Date	Date Completed	Comments	Lead
Seamless Elevation Data						
2014LB1	LiDAR Tier 1, processing and meta data, data on line: Pools 15-19, Pool 25 – Open River, Kaskaskia, IL River all pools	30-Mar-15				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
Land Cover / Land Use data and Accuracy Assessment/Validation for UMRS						
2014V2	Complete remaining 70% of the 2010/11 LCU database for UMR Open River North	30-Sep-14				Robinson, Hoy, Hanson, Langrehr, Ruhser, Nelson
2014V4	Final LTRMP Completion Report on Accuracy Assessment	30-Sep-14				Ruhser, Jakusz
Standardized HREP Non-forested Wetland Plant Sampling Protocol						
2014NFW1	Final draft NFW monitoring protocol	28-Feb-14				McCain
2014NFW2	Draft NFW monitoring protocol	30-Mar-14				McCain
2014NFW3	to A-Team review	1-Apr-14				McCain
2014NFW4	to EMP CC	2-May-14				McCain
2014NFW5	completed NFW monitoring protocol available	30-Sep-14				McCain
Standardized HREP Forested Wetland Plant Sampling Protocol						
2014FW1	Final draft FW monitoring protocol	30-Nov-13				McCain
2014FW2	Draft FW monitoring protocol	30-Mar-14				McCain
2014FW3	A-Team review	1-Apr-14				McCain
2014FW4	to EMP CC	2-May-14				McCain
2014FW5	completed FW monitoring protocol available	30-Sep-14				McCain
Predictive Model for Aquatic Cover Types						
2014AQ1	Complete hydraulic model of existing conditions	30-Apr-14				Hendrickson
2014AQ2	Compile vegetation data and develop empirical equations, Stoddard as pilot	31-Aug-14				Yin, Rogala, Ingvalson, Potter
2014AQ3	Compile vegetation data and develop empirical equations, North & Sturgeon	30-Sep-14				Yin, Rogala, Ingvalson, Potter
2014AQ4	Final model and outputs	31-Dec-14				Yin, Rogala, Ingvalson, Potter

ATTACHMENT E

Emerging Trends

- **2013 IIA Excerpt: Emerging Trends and Issues** *(E-1)*

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 F

Habitat Rehabilitation and Enhancement Projects

- **2012 Environmental Design Handbook Excerpts:**
 - **Lessons learned in implementing UMRR-EMP habitat projects** *(F-1 to F-7)*
 - **Management actions to achieve ecosystem objectives** *(F-8)*

Table 2-6. HREP Lesson Learned

Topic	Description	Addressing Phase	Evaluation Phase
Access Dredging	Access Dredging should be limited to locations shown on the drawings. Material from access dredging can be used for placement on island depending on material characteristics as determined by soil samples.	Design	Construction
Access Pads	Pool 8 Islands - Access Pads are a construction feature that limits the amount of access dredging required. They can either be left in or removed depending on stakeholders and Government desires. Typical size is max of 100 x 250 ft.	Design	Construction
As-Built Drawings	Closeout Spec should describe the format and detail to be provided with the As-Built Drawings. Meta Data format is needed for As-Built info. to be useful in doing Long Term Monitoring.	Design	Construction/ Long Term Monitoring
Borrow Sources/ Cost Sharing	Channel Granular Borrow Sources - Use Operations (Channel Maintenance) granular borrow sites where possible and quantify savings and work with Operations on Project Cost Sharing.	Planning	Design
Borrow Sources - Locations	Identify Borrow Sources meeting design requirements that are as close to the work area as reasonably possible. Borings should be done where necessary before solicitation to confirm proposed borrow source has material meeting specifications.	Planning	Construction
Construction Schedules	Limited Work Windows - One of greatest challenges is working through all the limited work windows associated with critter requirements - bats, astors, eagle nests, etc. Work windows are also affected by high water durations as well as seeding and planting restrictions. Carefully planning work -developing project activity schedules during planning & design phase is critical to understanding how best to 'package' and contract the work to minimize cost impacts of these restrictions.	Planning/Design	Construction
Construction Schedules	Agency Work Restrictions - Working with the agencies to forego a hunting season can be a cost & time & accident saver. Many projects are constructed in USFWS "closed areas" significantly shortening the length of constructions seasons.	Planning/Design	Construction

Table 2-6. HREP Lesson Learned

Topic	Description	Addressing Phase	Evaluation Phase
Construction Schedules	Splitting up Projects to Match Available Funding. Too often funding availability (or lack thereof) drives a construction schedule rather than when construction can be realistically completed given all the government imposed restrictions. Splitting Projects into stages can result in duplicate contractor mobilizations, construction inefficiencies, (and design inefficiencies). Good planning in how work is staged can eliminate many of the inefficiencies.	Planning/Design	Construction
Contract Types	LPTA (lowest price technically acceptable) or best value type contracts and evaluations of contractor qualifications can be valuable contracting tools for environmental restoration projects to ensure that the contractor is aware of the environment in which they will be constructing (flooding, droughts, coordination with resource agencies)	Contracting	Construction
Differing Site Conditions	Changes routinely occur in the field during a project. Ensure that the design team is aware of these changes as it may greatly affect how the project functions or additional coordination that will be needed with the sponsor. Regular partner or coordination meetings facilitate communication during construction	Construction	Construction
Emergent Wetlands	Pool 8 Stages 2B and 3A - Emergent wetlands elevations should vary between up to 2ft with the mean elevation .5ft below LCP. Wetlands should not be table smooth and should slope toward the sand berm and away from islands. Sand berms (containment dike) are required for hydraulic placement during construction, but the height is left up to contractor. Contractor work plan as required by specification, should describe construction details.	Design	Long Term Monitoring
Erosion Protection	Erosion Protection is required as soon as possible after granular placement begins. Contractor may want to construct the vanes or groins concurrent with granular placement. All islands must be completed in full section at the end of each construction season.	Design	Construction
Fine Material - Depth	Low Islands - minimum of 9" is required for fine materials (these islands have increased access to moisture). Medium or High Islands - Minimum of 12' fine materials is required.	Design	Long Term Monitoring

Table 2-6. HREP Lesson Learned

Topic	Description	Addressing Phase	Evaluation Phase
Geotechnical - General	Borings are an issue on many projects. (1) Get input from construction personnel on locations to take borings. (2) When feasible, some borings should be obtained after the island features, or borrow sites are identified, <i>so the borings are within the footprint of these features.</i>	Planning/Design	Construction
Geotechnical Considerations	Fox Island - Design of water distribution channels did not account for approximately 50% of the channel excavation being comprised of pure sand which isn't conducive to moving water in the volume and distance required to fill existing ponds. Borings on the channel excavation alignments would have been beneficial.	Design	Construction
Geotechnical Considerations	Fox Island - Borings did not account for ground water elevations at critical excavation levels for new water control structure construction. Borings at the structure sites would have been beneficial.	Design	Construction
Geotechnical Considerations	Fox Island - Test bore holes for new well construction failed to identify large cobble and rocks at approximately the 30' depth at both new well locations approximately 1 mile apart. Cost and time escalation was realized and well installation methods were changed dramatically upon the discovery of the cobble.	Design	Construction
Geotechnical Considerations	Sand lenses are quite typical in HREP areas. If at all possible coordinate with local onsite individuals that can verify if locations typically hold water or tend to dry up quickly once high water recedes.	Planning/Design	Construction
Inlet/Outlet Structures	Inlet and outlet channels have routinely had sedimentation challenges. To the greatest extent possible, locate inlet/outlet structures and pump stations closer to the river rather than further away.	Design	Long Term Monitoring
Inlet/Outlet Structures	Ensure that sufficient riprap/bank stabilization is placed around inlet/outlet structures. The tendency is to keep the stabilization to a minimum when going for the maximum is usually the better approach.	Design	Long Term Monitoring
Levees	Shallower berm/embankment/levee slopes equals less muskrat burrowing damage (Spring Lake).	Design	Long Term Monitoring

Table 2-6. HREP Lesson Learned

Topic	Description	Addressing Phase	Evaluation Phase
Moist Soil Units	HREPs that include moist soil units typically hold water for extended periods of time. To the greatest extent possible provide bank stabilization methods above and below the projected water line.	Design	Long Term Monitoring
Partnering - During Planning, Design, and Contraction	Work to involve sponsors and stakeholders during planning and design phase and keep them engaged during construction through use of "Partner Meetings" . These meeting are typically held every 1 to 2 weeks during active construction. Issues raised at the meetings are either resolved immediately, or an action plan is developed to get resolution to not impact construction schedules.	Planning, Design, and Construction	Construction
Partnering - Training	If working with new Contractor or if there is there is need to improve the Partnering Process either with the Contractor or stakeholders, schedule a formal or facilitated Partnering Session	Construction	Construction
Plantings	Fox Island, Banner Marsh, Gardner - Marry up cover crop, seeding requirements and maintenance of tree planting areas to promote tree maturation and survival.	Design	Construction
Plantings	In MVP contracts, willows have proven to be cost effective for shoreline erosion control. Experience has shown that successful planting is limited to the spring (or no later than 15 June). To save money and to engage stakeholders and the public, additional tree planting has been coordinated by OP-RNR after construction.	Design	Construction
Plantings - Trees	Tree planting on narrow, elevated ridges to increase survival rates tends to hinder growth. Close coordination with foresters on the appropriate height and width of planting areas is required to ensure an increase in tree survivability.	Design	Long Term Monitoring
PPA/MOA	PPAs: Coordinate with HQ personnel to ensure the preferred model PPA is used at the outset, don't rely on regs/guidance. Also check the HQ website for required PPA package items because no review is started until all items are received.	Planning	?

Table 2-6. HREP Lesson Learned

Topic	Description	Addressing Phase	Evaluation Phase
Pump Stations	Ensure that pump tests, pump inspections, float tests, surge protectors, humidity devices, etc. (i.e. everything that has to do with pump stations) are checked, inspected, verified and fully accepted before allowing the contractor to proceed on. We have had more problems with pumps than probably all other items	Contract	Construction
Pump Stations	Ensure that all hatches and grating have a procedure in place to lock them open so that the hatches do not close unexpectedly causing a safety hazard.	Design	Construction
Pump Stations	Channels constructed to pump stations or inlet structures have high sedimentation rates. To the greatest extent possible, locate inlet/outlet structures and pump stations closer to the river rather than further away. Build these structures as close to the main channel as possible (Brown's Lake has recurring problem).	Design	Long Term Monitoring
Pump Stations	Electrical equipment and pump stations are subject to damage from high water. Ensure that electrical equipment is placed above the 500 year (or higher if possible) flood level.	Design	Long Term Monitoring
Pump Stations	Chautauqua - Maintenance and/or repair of pump station components requires the dewatering of the pump station sump area. Pump station component maintenance and repair should be examined for user friendliness.	Design	Long Term Monitoring
Pump Station	Ventura Marsh – Consider carefully discharge configurations to address pressurization and soil characteristics. Ensure that soil will rebound when the dewatering system for construction is demolished.	Design	Construction
Real Estate Considerations	Fox Island - Temporary and permanent easements are not in place for reasonable contractor - and eventually user - access to one new water control structure. Assure any and all easements are acquired ahead of construction activities.	Permits	Construction

Table 2-6. HREP Lesson Learned

Topic	Description	Addressing Phase	Evaluation Phase
Real Estate/ Construction Access	Chautauqua and Fox Island - If a contract feature of work is going to require excessive access through a small town (Goofy Ridge, IL and Alexandria, MO) do not rely on a contractor to be required to repave existing streets after several thousand tons of materials have been delivered on those streets. If there is only one way in and one way out via public roads for delivery of construction materials and a contractor is in compliance with all load requirements of those access routes - a contractor can't be held accountable for rehabilitation of those streets/haul routes.	Contract	Construction
Seeding	Pool 8 Islands - Seeding: (1) Keep the seed mix simple since the first overtopping changes the seed mix to what is carried by the river. (2) Seeding in spring is preferable, but successful establishment can be achieved for seeding in all but the 15 June to 15 August time period, if moisture conditions are favorable.	Design	Construction
Seeding - Mulching	Pool 8 Islands - Most specifications require mulching of newly seeded areas. Mulching is the best alternative if it will not result in excessive rutting of seeded areas. Successful establishment has been achieved without mulching.	Design	Construction
Survey	Fox Island & Several Other EMP Projects - Reliance on a single or minimal design cross sections (channel & levee) doesn't always fit the actual field conditions encountered during construction. Design should be applicable to all field conditions.	Design	Construction
Survey	Fox Island - Designed water management water levels do not match existing lake bottom and channel conditions. Assure design and future use is based on recent and accurate survey - especially if the site is subject to frequent flooding.	Design	Construction
Survey	Ensure that surveys are checked and rechecked and the contractor checks and rechecks the surveys. We have had many problems with old surveys, incorrect surveys, pieced together surveys, cheap surveys, etc. It has ALWAYS been worth the money to make sure the surveys are right.	Design	Construction

Table 2-6. HREP Lesson Learned

Topic	Description	Addressing Phase	Evaluation Phase
Survey - Deliverables	It is recommended that survey specifications include: (1) a survey plan as a submittal and (2) list of survey and quantity deliverables. At a minimum, deliverables should include: (a).pre-survey with quantities by feature, (b) interim surveys (as necessary) for payment verification and (c) final surveys with cross sections and quantities within neat lines or required tolerances.	Design	Construction
Surveys - General	Pool 8 Stage 3A - Bathymetry Data used for planning and design is sometimes old and does not represent current conditions. Inaccurate data greatly affects project quantities, site access, and can lead to a differing site condition.	Design	Construction
Water Level Management	Chautauqua - Assure the contract specifically addresses ownership or responsibility of any and all water control structure levels from the construction site to any adjoining rivers. At Chautauqua, nobody (Owner/sponsor, USACE or contractor) wanted to take responsibility for gate openings on a water control structure from the ILWW to the upper lake and eventually that indecision was at least in part cause to a complete loss of that existing structure and construction of a new structure.	Planning	Construction
Water Management Plan	Ensure that the contractor has a detailed water management plan and that the Corps has thoroughly reviewed it for both dewatering and for rising high water. We have had two times (Chautauqua and Banner Marsh) where this has caused major problems.	Construction	Construction
Wells	HREPs with wells need to address iron eating bacteria maintenance/concerns so that waterfowl fully use the ponded water areas constructed	Planning	Long Term Monitoring
Work Conditions	HREPs are constructed in typically wet and potentially flooded areas. Insure that the contractors are fully aware of the normal conditions that exist on the site in a "typical" year.	Design	Construction

*Upper Mississippi River Restoration
Environmental Management Program
Environmental Design Handbook*

Chapter 3

Table 3-2. Linking Ecosystem Objectives and Restoration Actions

Objective	Restoration Action	
A more natural stage hydrograph	Pool-wide drawdown Backwater drawdown	Levee removal
Restored hydraulic connectivity	Backwater restoration Barrier island construction	Levee removal Flow manipulation
Increase storage and conveyance of flood water on the floodplain	Levee removal	Bridge approaches
Restored backwaters	Backwater dredging Plantings Island construction	Flow manipulation Drawdown
Restored secondary channels and islands	Dike alteration Flow manipulation Woody debris	Dredging Drawdown Island construction
Restore sediment transport regime so transport, deposition, and erosion rates and geomorphic patterns are w/ acceptable limits	Side-channel closures Seed island	Tributary sediment traps Flow manipulation
Improved water clarity	Wave dampening Side-channel closures Drawdown sediment consolidation	Plantings Island construction
Naturalize the hydrologic regime of tributaries		
Restored lower tributary valleys		
Reduced sediment loading and sediment resuspension in backwaters	Flow manipulation Wave dampening Drawdown sediment consolidation	Sediment trap Plantings
Restored lateral hydraulic connectivity	See above	
Water quality conditions sufficient to support native aquatic biota and designated uses		
Restored rapids	Channel border bar construction Side channel manipulation	Dam removal Chain-of-Rocks
Restored bathymetric diversity, and flow variability in secondary channels, islands, sand bars, shoals and mudflats	Flow manipulation	Dredging
Reduced nutrient loading from tributaries to rivers		
Reduced contaminants loading & remobilizing in-place pollutants	Use mechanical dredging rather than hydraulic	
Restored floodplain topographic diversity	Dredged material mgmt Flow manipulation/scour	Flow deflectors Island construction
Forest Plan, Floodplain Landscape	Timber stand mgmt Private lands mgmt	Plantings Floodplain restoration

ATTACHMENT G

Additional Items

- **Future Meeting Schedule** (G-1)
- **Frequently Used Acronyms (11/4/13)** (G-2 to G-7)
- **UMRR-EMP Authorization, As Amended (9/24/10)**
(G-8 to G-11)
- **UMRR-EMP Operating Approach (5/06)** (G-12)

**QUARTERLY MEETINGS
FUTURE MEETING SCHEDULE**

MAY 2014	
<u>St. Louis, Missouri</u>	
May 13	UMRBA Quarterly Meeting
May 14	UMRR-EMP Coordinating Committee

AUGUST 2014	
<u>East Peoria, Illinois</u>	
August 5	UMRBA Quarterly Meeting
August 6	UMRR-EMP 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
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 (see UMRR-EMP for current preferred form)
EMP-CC	Environmental Management Program Coordinating Committee (see UMRR-EMP CC for current preferred form)
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
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
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
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
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-EMP	Upper Mississippi River Restoration Environmental Management Program
UMRR-EMP CC	Upper Mississippi River Restoration Environmental Management Program Coordinating Committee
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

Environmental Management Program Authorization

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

Additional Cost Sharing Provisions

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

SEC. 1103. UPPER MISSISSIPPI RIVER PLAN.

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

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

(b) For purposes of this section --

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

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

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

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

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

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

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

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

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

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

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

(e) Program Authority

(1) Authority

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

- (i) a program for the planning, construction, and evaluation of measures for fish and wildlife habitat rehabilitation and enhancement; and
- (ii) implementation of a long-term resource monitoring, computerized data inventory and analysis, and applied research program, including research on water quality issues affecting the Mississippi River (including elevated nutrient levels) and the development of remediation strategies.

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

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

- (A) contains an evaluation of the programs described in paragraph (1);
- (B) describes the accomplishments of each of the programs;
- (C) provides updates of a systemic habitat needs assessment; and
- (D) identifies any needed adjustments in the authorization of the programs.

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

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

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

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

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

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

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

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

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

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

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

(2) Determination.

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

(B) Requirements. The Secretary shall

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

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

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

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

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

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

SEC. 906(e). COST SHARING.

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

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

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

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

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

EMP OPERATING APPROACH

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

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

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

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

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

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