Crowne Plaza Riverfront Hotel
St. Paul, Minnesota

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

Quarterly Meeting

November 19, 2014

Agenda

with
Background
and
Supporting Materials

Quarterly Meeting

St. Paul, Minnesota

UPPER MISSISSIPPI RIVER RESTORATION ENVIRONMENTAL MANAGEMENT PROGRAM COORDINATING COMMITTEE

November 18-19, 2014

AGENDA

Tuesday, November 18 Partner Pre-Meetings

3:45 – 5:15 p.m.	**Corps of Engineers**
3:45 – 5:15 p.m.	**Department of the Interior**
3:45 – 5:15 p.m.	**States**

Wednesday, November 19 UMRR-EMP Coordinating Committee

Time	Attachment	Topic	Presenter
8:00 a.m.		**Welcome and Introductions**	***Tim Yager**, USFWS*
8:05	**A1-12**	**Approval of Minutes of August 6, 2014 Meeting**	
8:10		**UMRR-EMP Regional Management**	***Marv Hubbell**, USACE*
	B1-5	▪ FY 2014 Fiscal Report and Milestones ▪ FY 2015 Fiscal Update and Scope of Work ▪ FY 2016 Progress Report	
	B6-10	▪ 9/18/2014 UMRR-EMP Leadership Summit – Recommendations for strengthening the program	
	B11-12	o Non-federal PPA issue overview and proposed solutions	***Tim Schlagenhaft**, Audubon*
		▪ Public Involvement and Outreach	***All***
9:00		**Long Term Resource Monitoring Program Element**	
	C1-8	▪ Product Highlights	***Mark Gaikowski**, USGS*
		▪ Draft Science Plan	***Barry Johnson**, USGS*
	C9-11	▪ USACE LTRMP Element Update	***Karen Hagerty**, USACE*
	C12	▪ UMRR-EMP Invasive Species Strategy	
		▪ A-Team Report	***Janet Sternburg**, MO DoC*
		▪ Resilience of the Upper Mississippi River Ecosystem	***Jeff Houser**, USGS*
10:15		**Break**	

(Continued)

Wednesday, November 19, 2014
UMRR-EMP Coordinating Committee
(Continued)

Time	Attachment	Topic	Presenter
10:20	**D1-22**	**UMRR Strategic Planning** ▪ Planning Process Update – Broad stakeholder review: process and input received ▪ Draft UMRR Strategic Plan – Recommendations for program name change – Consideration of endorsement ▪ Plan Implementation – New approaches and improvements to program implementation – Use of annual scopes of work	***Marv Hubbell**, USACE*
11:30		**Lunch**	
12:30 p.m.		**Habitat Rehabilitation and Enhancement Projects Element**	
		▪ District Reports	***District HREP Managers***
		▪ Planning New Project Starts for 2017 – Schedule and process	***Marv Hubbell**, USACE*
	E1-8	▪ 2012 Environmental Design Handbook – Insights gained since the 2006 version	***Jon Hendrickson**, USACE*
		▪ HREP Element Highlight: Harpers Slough	***Tom Novak**, USACE*
1:45	**F1**	**Navigation and Ecosystem Sustainability Program** ▪ Information Paper ▪ Update on FY 2014 and FY 2015 Funding	***Marv Hubbell**, USACE and* ***Michael Tarpey**, USACE*
2:10		**Other Business**	
	G1	▪ Future Meeting Schedule	
2:15 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 August 6, 2014 UMRR-EMP CC Meeting

(A-1 to A-12)

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

August 6, 2014
Quarterly Meeting

Holiday Inn & Suites
East Peoria, Illinois

Mark Moore of the U.S. Army Corps of Engineers called the meeting to order at 8:03 a.m. on August 6, 2014. Other UMRR-EMP CC representatives present were Tim Yager (USFWS), Kevin Richards (USGS), Dan Stephenson (IL DNR), Diane Ford (IA DNR), Kevin Stauffer (MN DNR), Janet Sternburg (MO DoC), Jim Fischer (WI DNR), Liz Pelloso (USEPA) on behalf of Ken Westlake, and Jon Hubbert (NRCS). A complete list of attendees follows these minutes.

Minutes of the May 14, 2014 Meeting

Olivia Dorothy noted that Claudia Emken is with the Mississippi River Network, not the Sierra Club as is indicated on page A-2. Kevin Stauffer moved and Diane Ford seconded a motion to approve the draft minutes of the May 14, 2014 meeting with the correction. The motion carried unanimously.

Regional Management

FY 2014 Fiscal Update

Marv Hubbell reported that UMRR-EMP is on schedule to fully execute its FY 2014 appropriation of $31.968 million. Allocations within the program for FY 2014 are as follows:

- Regional Management — $1,000,000
- LTRMP element — $5,225,000
- HREPs element — $25,743,000
  - Regional science support — $1,065,700
  - MVP — $6,980,400
  - MVR — $10,466,500
  - MVS — $7,230,400

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

Hubbell said questions have been raised about UMRR-EMP's spending on science relative to the recent increase in appropriations. He explained that the program's overall spending on science in FY 2014 is $7.754 million, which includes $314,000 for regional management, $5.4 million for base monitoring (includes FY 2013 carry-over funds), $1.065 million for research and analysis to inform restoration, and $325,000 for standardizing the program's habitat project monitoring protocols. In response to a question

from Olivia Dorothy, Hubbell said Section (e)(6) of UMRR-EMP's authorization allows for transferring up to 20 percent of the amounts authorized for the HREP and LTRMP elements.

FY 2015 President's Request

Hubbell reported that the FY 2015 President's budget request for UMRR-EMP is $33.17 million, which is its full annual authorized amount. This funding level is substantially more than its average annual appropriations. Hubbell attributed this increase in funding to the collective contributions of program partners as well as the success in executing the additional funds. Together, all partners increase the program's capabilities and diffuse risk. The partnership also provides a great diversity of ways to accomplish the program's mission.

Agency Leadership Summit Update

Hubbell said Col. Mark Deschenes will host the UMRR-EMP agency leadership summit on September 18, 2014 at Eagle Point Park in Dubuque. The event will include an indoor discussion session in the morning and a field trip to Sunfish Lake in the afternoon. The Bellevue Field Station will provide an electrofishing demonstration during the field trip. Hubbell recalled that the 2013 Implementation Issues Assessment included a recommendation to occasionally engage implementing partners' leaders to inform them of the program's activities and address important issues for the program, including funding and staff resources. Other discussion topics identified by partners include developing messages about UMRR-EMP's compatibility to navigation and the river's other human uses, the draft 2015-2025 UMRR Strategic Plan, and emerging issues affecting the river's ecosystem. Hubbell asked partners to send him suggestions on the discussion topics by August 31. He said a team of volunteers will develop an agenda and consider how to best frame the indoor discussions. Volunteers include Dru Buntin, Jim Fischer, Diane Ford, Marv Hubbell, Kirsten Mickelsen, Tim Schlagenhaft, and Janet Sternburg.

Schlangehaft suggested that the indoor session include a discussion on the indemnification issues in non-federal cost share agreements that limit some partners from becoming project sponsors. Even though the issue is broader than UMRR-EMP, it affects the program's ability to implement projects in some opportune areas. Kevin Stauffer said the issue is problematic for Minnesota and precludes the state from serving as a cost share sponsor.

Diane Ford suggested including a briefing on UMRR-EMP's history, partnership, and accomplishments, similar to Hubbell's March 5, 2014 presentation to the Iowa General Assembly House Natural Resource Committee. Fischer agreed and said it will be important to tell a story of UMRR-EMP's growth throughout its history and demonstrate the value of the partnership and the value of the program to each state. Fischer suggested inviting the agency leaders to speak about their respective agencies' perspectives on the river and the program. Jon Hubbert suggested including displays of other watershed programs and efforts that relate to the program.

In response to a question from Mark Moore, Hubbell said save-the-date invitations were sent to agency leaders on behalf of Col. Deschenes. Jim Fischer asked whether invites should include local conservation organizations, Mississippi River Cities and Towns Initiative (MRCTI), and other groups working on the river. Buntin said MRCTI's fall meeting conflicts with the leadership summit. Previously, the hope was to invite Mayor Roy Buol, MRCTI's co-chair and summit's host city mayor, to speak about the program from a local perspective, as well as from an MRCTI perspective. Col. Descheses supported the notion to engage stakeholders more broadly; however, the summit's goal and discussion topics may not be suitable or productive with a larger audience. He also recognized the value of having the agency leaders together in-person and providing a forum for them to engage directly in the program. The leadership summit includes strategic issues that require more focused attention. This event is an opportunity for strategic

alignment among the partner agencies. Col. Deschenes reiterated the need for UMRR-EMP to do outreach to stakeholders along the river, though perhaps in a separate effort.

Ford suggested providing information on the economic benefits of the program to the states. In response to a question from Ford, Mickelsen recalled that, prior to the event's postponement in June, the summit planning team agreed to table agenda development for the indoor discussion until closer to the event to see which issues are more timely and relevant, especially given the passage of the 2014 Water Resources Reform and Development Act in June 2014. Mickelsen noted that the UMRR-EMP CC had considered the invitees and agreed to invite the program's participating agency leaders only to keep the discussion focused and allow for more time and attention for partners to seek the leaders' input on issues.

Olivia Dorothy asked Hubbell to elaborate on what might be addressed in the discussion about UMRR-EMP's relationship to navigation. Hubbell explained that Congress UMRR-EMP's 1986 authorization included construction of L&D 26's 1,200-foot chamber, with the declaration that the UMRS is a dual purpose river. Hubbell said the program needs to demonstrate that it works in conjunction with the river's navigation system. Mickelsen added that the idea was to seek input from leaders about messaging and how to ensure that the importance of ecosystem restoration is understood and not viewed as competing with navigation dollars. It is critical that partners continually communicate the importance of managing the river in an integrated, balanced fashion so that it does not appear to be a zero-sum game. Ford suggested that a context is provided about how NESP was developed and formed to be a dual-purpose program.

Barry Johnson suggested highlighting the program's development of its science component and the program's science goals as outlined in the 2012-2025 UMRR Strategic Plan, particularly for its use in evaluating river health and resilience. Hubbell agreed and said he anticipates that will be part of the overall program briefing.

Stauffer acknowledged the need to educate senior leaders on UMRR-EMP and agreed that broader stakeholder engagement should occur in a separate effort. Fischer agreed.

In response to a question from Hubbell, Col. Deschenes recommended including some time for discussion at Sunfish Lake to capture leaders' reflections after being in the field.

Public Outreach

Hubbell said Col. Mark Deschenes will host a ground breaking ceremony for the Pool 12 Overwintering HREP on August 20, 2014. Hubbell said a public meeting was convened during the project's formulation stage that proved effective.

Tim Yager said the annual meeting of the Regional Refuge Chiefs will be held in La Crosse and will include a tour of Brownsville.

Jim Fischer said that, by happenstance, three Wisconsin groups coordinated on a boat tour of the river. The groups included orientation training for new DNR employees from across the state, Department of Transportation staff, and DNR Environmental Assessment staff. Fischer said Wisconsin Public Radio aired an interview with Jeff Janvrin on Capoli Slough.

Kevin Richards said Barry Johnson is scheduled to take Anne Castle, USDOI's Assistant Secretary for Water and Science, on a boat tour on the Upper Mississippi River and will discuss UMRR-EMP's restoration and science efforts.

Draft UMRR Strategic Plan

Marv Hubbell said the UMRR-EMP strategic planning team held a web-based conference call on July 14, 2014 to revise the draft 2015-2025 UMRR Strategic Plan based on an internal targeted review of the April 19 version. Under this approach, each team member sought input from groups and/or individuals that he/she represented on the team. The planning team would like to recommend the revised draft 2015-2025 UMRR Strategic Plan, dated July 17, 2014, to the UMRR-EMP CC for approval to use in a broader targeted stakeholder review process. This draft is provided on pages C-1 to C-20 of the agenda packet.

The team also held a conference call on July 16, 2014 to discuss that review process as well as implementation planning for achieving the plan's goals and objectives. Hubbell said the team agreed to create a list of new or improved actions that partners will need to do to achieve the Plan's vision, mission, and goals. This list will be used to describe and communicate the plan's implementation, rather than through an extensive operational plan or through budgeting, which proved to be too complex and potentially problematic. The team agreed to only describe new or improved actions based on the strategic plan in order to focus communication on the things that would change, rather than providing an extensive list of the program's continued functions. Hubbell and Barry Johnson are developing the list of actions and will present it at the November 19, 2014 UMRR-EMP CC quarterly meeting.

Diane Ford moved and Jim Fischer seconded a motion to approve the July 17, 2014 draft 2015-2025 UMRR Strategic Plan for a broader stakeholder review. The motion passed unanimously. Ford applauded the planning team's efforts in developing the plan and overcoming long standing program challenges. Hubbell echoed Ford's sentiment, and expressed appreciation to the team members for their time and resources invested in the planning effort.

Karen Hagerty offered USACE's website as a venue to share the draft Strategic Plan and receive comments. Tim Yager asked for clarification on the review process and how input will be solicited — e.g., a press release. Kirsten Mickelsen explained that the planning team agreed to recommend a targeted review process to obtain input from stakeholders who have an interest in UMRR-EMP's implementation. This process would be similar to the internal targeted review, where individual team members would be responsible for connecting with the interested organizations and individuals in their states or who they work closely with. This approach was chosen because outreach requirements are different within each state and members' affiliations. It also seemed to be the most appropriate process given the likely feedback received from various audiences and the resources involved in seeking and considering input. Hagerty said the UMRR-EMP's website has a placeholder for organizations and individuals to submit feedback. Col. Mark Deschenes observed that there appears to be little downside to a broader public announcement. Hubbell said USACE can draft a general public press release regarding the review for partners to use. USACE will use its website for submitting comments and will also offer a postal mail option. Mickelsen said she will follow up with the planning team regarding timing and logistics with using this approach.

Implementation Issues Assessment

Marv Hubbell reviewed the issue areas addressed in the 2013 Implementation Issues Assessment (IIA) and asked that partners consider which implementation issues merit exploration in the 2016 UMRR-EMP Report to Congress. Hubbell explained that partners agreed to develop the IIA as a follow-on report to the 2010 RTC to address a variety of outstanding policy and programmatic issues and challenges that were not thought to require Congressional action. He said there is sufficient lead time to address these issues in the 2016 RTC. The 2013 IIA issue areas included the following:

1) Land Acquisition
2) Delegated Authority

3) Habitat Project Types
4) Habitat Project Planning and Prioritization
5) Construction Cost Sharing
6) Nonprofits as Cost Share Sponsors
7) Habitat Project Evaluations
8) Capacity for Operation and Maintenance
9) Long Term Resource Monitoring Program Implementation
10) Adaptive Management
11) Emerging Trends and Issues
12) State Participation and Leadership Support

Bob Clevenstine suggested evaluating options to streamline project review that would allow partners to effectively engage. Hubbell said USACE is making improvements in minimizing planning documentation through its national 3x3x3 rule as well as at the programmatic level. However, even more improvement can be made. He suggested that partners continue to work together in exploring ways to accelerate project review. Janet Sternburg agreed that project planning is becoming more efficient. However, Sternburg suggested that partners consider efficiencies in the planning process itself. As an example, Hubbell said USACE is striving to keep team members together working on similar projects, creating substantial efficiencies and reducing planning time. For example, Beaver Island was deliberately scheduled to proceed immediately following Huron Island with the same HREP District staff involved. The projects are very similar and applications from Huron Island could be transferred to Beaver Island.

In response to a question by Col. Mark Deschenes, Hubbell said UMRR-EMP has not yet undergone a continuous process improvement evaluation. Hubbell explained that USACE approved the 2012 UMRR-EMP Regional Review Plan that guides and streamlines HREP reviews and enhances consistency among Districts. Col. Deschenes suggested that UMRR-EMP CC consider the merits of doing a process improvement evaluation for all or a specific aspect of the program to proactively seek further efficiencies. He said Rock Island District has staff who are trained in LEEN Six Sigma that can facilitate UMRR's effort. The UMRR-EMP CC agreed to explore this issue's potential for inclusion in the 2016 UMRR-EMP Report to Congress.

Hubbell said he would like for partners to continue exploring the issues related to cumulative O&M. This issue is particularly important for USFWS, which is responsible for O&M on about 70 percent of UMRR's completed habitat projects. Tim Yager said Sharron Baylor of USFWS can provide a summary of the agency's O&M costs. Hubbell suggested that this information is presented at a future UMRR-EMP CC quarterly meeting.

Observing the overlap among the 2013 IIA issues, Gretchen Benjamin suggested considering their relationships and integrating them in order to consolidate the number of issues. Jim Fischer agreed that the issues are interrelated, and said now that the FY 2015-2025 UMRR strategic planning process is nearing completion, it is time to consider advancing the IIA recommendations. Todd Strole suggested considering as an issue how to better coordinate with other federal agencies when developing projects. For example, Emiquon East habitat project includes NRCS lands that are subject to easements and other authorities.

Hubbell asked partners to consider what implementation issues merit inclusion in the 2016 UMRR-EMP Report to Congress. The UMRR-EMP CC will discuss potential issues at its November 19, 2014 quarterly meeting.

Habitat Rehabilitation and Enhancement Projects Element

District Reports

St. Louis District

Tim Eagan said MVS anticipates that Clarence Cannon's definite project report (DPR) will be approved by the end of this fiscal year and that design work on the project will begin in early FY 2015. MVS's other planning priorities are Rip Rap Landing and Piasa and Eagles Nest Island. The District recently held an open house for Rip Rap Landing. Planning will likely be initiated soon on the Harlow and Wilkinson Middle River project. Eagan said USFWS is assisting in identifying project opportunities for habitat restoration projects in the Open River reach. In addition, District staff and sponsors for Horseshoe Lake are considering the possibility of moving the project from Section 206 to UMRR-EMP. A meeting is forthcoming to discuss the project's future. Eagan said final construction details on Pools 25 and 26 Islands are nearing completion. He reported that USACE performed emergency modifications to Ted Shanks to repair flood damages; the damages were less than first estimated. In response to a question from Doug Blodgett, Eagan said Illinois DNR is the non-federal sponsor for Rip Rap Landing and that there is a compatible use agreement needed on the project site. USACE is working with the project sponsors and NRCS to develop the agreement.

St. Paul District

Marv Hubbell said Harpers Slough's DPR was approved in July and the District anticipates awarding a construction contract on Stages 1 and 2 of the project this fiscal year. Hubbell noted that high water has slowed construction work on Capoli Slough this summer. Kevin Stauffer said MVP staff have done a great job in keeping North and Sturgeon Lake project advancing. Tim Yager said the District recently held a July 31, 2014 public meeting on the Conway Lake project in Prairie du Chein, Wisconsin.

Jim Fischer noted that Harpers Slough would be a good example to explore how project planning could be better streamlined. Yager agreed, and said planning for Harpers Slough took much longer than typical. In response to a question from Col. Mark Deschenes, Hubbell said UMRR-EMP CC is the appropriate forum to explore process reforms. In addition, the Design Handbook for the HREP element shares insights gained from designing projects that are used to gain efficiencies in project planning. Fischer suggested that an *ad hoc* group be created to identify opportunities to streamline project planning. As a first step, USACE staff could coordinate the river teams' activities. Hubbell said the May 28, 2014 joint conference call with all four river teams' proved successful in sharing programmatic issues and updates in a coordinated fashion and minimizing redundancies of holding four separate meetings, especially for partners who participate on more than one river team. Fischer agreed.

Janet Sternburg asked if there is a consolidated list of potential habitat projects that were previously identified by the river teams. This could be used to determine opportunities for habitat restoration in comparison to what and where UMRR-EMP has already done restoration work. Hubbell said USACE has such a project list and, combined with the program's database and landscape ecology research, can be used to inform the next round of project planning and selection. Karen Hagerty said Chuck Theiling has done analyses to identify restoration gaps along the river.

Col. Deschenes observed that UMRR-EMP is the broadest, most effective interagency partnership in which he has been involved. However, the program should employ continuous process improvements in order to maintain and enhance the partnership. Since UMRR-EMP is a fairly unique partnership, there may not be much precedent for this.

Rock Island District

Hubbell announced that Ellen Milliron is MVR's new HREP Manager. He said MVR plans to initiate construction on Huron Island and Lake Odessa flood recovery this fall and continue its construction efforts on Pool 12 Overwintering Stage I, Fox Island, and Rice Lake Stage I. The District's current planning priorities include Keithsburg and Emiquon East. Hubbell anticipates awarding funds this week to USFWS for continued Pool 12 Overwintering monitoring for adaptive management analyses.

Janet Sternburg requested a presentation at a future quarterly meeting regarding project evaluation report (PER) findings, including the 2012 Environmental Design Handbook. This might help partners who are newer to the program. Sternburg said it would also be useful to understand results of the new biological response monitoring. Hubbell agreed and said he will follow up with USACE staff on a presentation.

New Project Starts

Hubbell said UMRR-EMP will initiate a "data-driven" process in early 2015 for selecting new starts that will be informed by partners' expertise and experience, the FY 2015-2025 UMRR Strategic Plan and other planning documents, and decision support tools. UMRR-EMP will not need new project starts as quickly as previously anticipated, which was assumed to be in 2017. Hubbell said partners should consider lessons learned from previous project selection efforts to make this effort more effective and efficient.

Jon Duyvejonck encouraged partners to consider new habitat projects that would bundle several small-scale features. These features that are relatively little cost can provide substantial benefit. Hubbell recalled that MVD has said it is willing to consider new, innovative approaches to UMRR-EMP's habitat restoration projects.

Emiquon Preserve Floodplain Restoration Project

Hubbell reported that, following controversy over the Emiquon East habitat project's design, partners have recently reached an agreement about the project's design and adaptive management. He explained that, per UMRR-EMP CC's approval at its November 20, 2013 meeting, Emiquon was moved to UMRR-EMP from the Section 206 program because its estimated cost as designed exceeds the Section 206's per project total cost cap. When the project was transferred to UMRR-EMP, its planning was essentially complete with about $250,000 to $350,000 needed to complete its DPR, project partnership agreement, and plans and specs. The UMRR-EMP CC agreed that the project could bypass the typical partnership project identification and sequencing process since it had undergone planning under Section 206 and two placeholders were left for Illinois River habitat projects in UMRR-EMP's last project selection process.

In addition, the project represented a good opportunity for UMRR-EMP as the project is the program's first habitat project cost-share sponsored by a nonprofit, The Nature Conservancy. Hubbell explained that implementation issues that will need to be considered as a result of this project include the process for transferring projects to UMRR-EMP, program involvement in project management following construction, documentation of annual O&M costs, and documentation of site management actions. In addition, a recent agreement for the project includes a commitment from USACE to fund $1 million over a 10-year period for an adaptive management analysis on the project. Hubbell said the August 5, 2014 Upper Mississippi River Basin Association (UMRBA) meeting included a discussion on the Emiquon Preserve habitat project. Following the meeting, UMRBA and TNC hosted a tour of the project.

Doug Blodgett expressed appreciation to UMRBA for including a discussion on the Emiquon project at its meeting yesterday and hosting the tour. Blodgett explained that the Emiquon Preserve is owned by TNC a part of the Emiquon Complex, and is adjacent to USFWS's Chautauqua and Emiquon Refuges as well as Dixon Mounds State Museum. TNC purchased the 5,800 acre site in 2000, after decades of being in row crop production, and operates the property in cooperation with the Thompson Drainage and Levee District. TNC entered into a Wetland Reserve Program (WRP) contract in 2007 and began implementing "faith-based" water level management. This included holding water in the backwater area to restore fishery and wetland habitat. Blodgett explained that, while these efforts are receiving positive biological responses, reliable water management control is necessary to promote vegetation growth, control nuisance fish species, and restore the area's natural hydrology and floodplain connectivity.

Given the urgent need for water control capabilities, Blodgett said TNC was able to secure additional donor funding to construct a water control structure. According to Blodgett, this increases TNC's in-kind contributions to the program to about 60 percent cost share of the project, whereas UMRR-EMP habitat projects require a 35 percent cost share. The new compromised agreement eliminates eight of ten islands. If TNC builds those eight islands, its cost share will essentially grow to 80 percent. In addition, TNC will be responsible for O&M in perpetuity. TNC is now considering whether the new project design and associated costs are beneficial for TNC to remain as a cost-share sponsor, especially given the long term obligations associated. Blodgett acknowledged that TNC is a strong supporter of UMRR-EMP and would like to be the program's first nonfederal cost share sponsor. However, TNC will need to consider whether the benefits of doing so under the new agreement will outweigh the costs.

In response to a question from Col. Mark Deschenes, Blodgett said TNC would perform O&M on the project site, but would not be obligated to USACE's terms. He added that NRCS's WRP contract provides NRCS with the authority to control hydrology on the site. In addition, TNC views Emiquon as a part of the Illinois River and will consider systemic benefits to the river from improvements at Emiquon. Col. Deschenes said Blodgett's overview of the issues is helpful to understanding the TNC's frustrations. He said USACE is trying to be as flexible as possible and hopes that provisions in the 2014 Water Resources Reform and Development Act (WRRDA) will help to provide even more flexibility, include for making reimbursements for in-kind credits. Col. Deschenes observed that it may be worth exploring whether in-kind credits could be credited toward O&M. Blodgett explained that USACE's project partnership agreements (PPAs) require O&M in perpetuity and without a cost or other threshold to limit the obligations. The O&M responsibilities are even more burdensome with the larger, comprehensive adaptive management analyses included in the new project agreement.

In response to a question from Jon Duyvejonck, Blodgett explained that the Levee District would be responsible for O&M at water levels above 435 feet since that would benefit agriculture. TNC would be responsible for O&M below that level since that produce ecosystem benefits. Water levels below 430 feet would require pumping. In response to a question from Kraig McPeek, TNC will maintain responsibility for O&M of the water control structure.

Dru Buntin and Gary Meden said the 2014 WRRDA includes a provision requiring USACE to review its PPAs and it may offer an opportunity to resolve these issues. Meden said the 2014 WRRDA includes a provision allowing nonfederal sponsors to apply excess credits to future projects that they cost share sponsor.

McPeek noted that the new agreement includes an adaptive management analysis. Constructing two of the ten identified islands before the others will allow time for learning and evaluating benefits from the additional islands.

Hubbell recognized that the new agreement allows the project to continue moving forward. And while the agreement has reached consensus with all partners involved, it does require a level of trust on behalf of all involved parties. However, this trust builds on the partnership's longstanding reputation. Dan Stephenson expressed Illinois DNR's support for the project, particularly under the new agreement. Hubbell said the controversy highlights the value of working through the program's partnership coordination mechanisms to sort through difficult issues.

Hubbell said the project will require additional program involvement in project management after construction is completed, additional documentation of annual O&M costs and site management actions, and an explicit adaptive management component. In response to a question from Kirsten Mickelsen, Hubbell said details the adaptive management analysis have not yet been planned. But planning for, and implementation of, the Emiquon East's adaptive management analysis will involve TNC, USACE, Illinois DNR, NRCS, USEPA, and other project partner agencies. USGS could also participate in planning and/or serve as a resource. Hubbell said he anticipates that a USACE staff will need to sort through the ideas and determine the critical monitoring components and key issues to address in the analysis. Duyvejonck agreed that all the agencies need to be involved in the adaptive management analysis and said the analysis will need to be informed by technical experts as well as lessons learned from similar projects, including Lake Chautaqua.

In response to questions from Jim Fischer, Hubbell said $1 million for the project's adaptive management analysis is a preliminary estimate and will follow-up with the relative cost estimated for Emiquon compared to other HREPs with explicit adaptive management analyses. Ellen Milliron said adaptive management is also part of Pool 12 Overwintering's total construction costs.

Kirsten Mickelsen observed that this seems to be a great opportunity to utilize the newly developed UMRR-EMP adaptive management framework and continue to integrate the program's HREP and LTRMP elements. Mickelsen noted that UMRR-EMP's scientists have given substantial thought to how best to implement adaptive management as well as identifying important questions to explore through explicit adaptive analyses. Blodgett said TNC is using the LTRMP element's monitoring protocols when available. Fischer agreed with Mickelsen's comment and said the project could be used to continue refining UMRR-EMP's adaptive management approaches. Gretchen Benjamin encouraged the project's adaptive management team to be established relatively quickly for pre-project monitoring and determine the best placement for the two islands. Hubbell agreed and said some aspects will be more systemic in nature and some will be site-specific given the unique substrate and other factors. Barry Johnson echoed Benjamin's suggestion that the adaptive management team begin formulating the adaptive management analysis as soon as possible. Johnson observed that this will be a high visibility project and will also be an experiment of how we implement adaptive management. Duyvejonck also expressed support for forming the team quickly given that each island will provide different ecological benefits.

LTRMP Element

Product Highlights

Kevin Richards presented UMRR-EMP's LTRMP element accomplishments in FY 2014's third quarter. Richards reported that the second edition of the program's fish monitoring protocols was published. It documents refinements to the methods since 1995. Richards said these refinements are typically discovered through field experience, data analysis, and technological advances. A report describing the fish component's monitoring rationale, strategy, issues, and methods is anticipated to be released in mid-August.

Richards said a scientific review of the Aquatic Habitat Appraisal Guide 2.0 (AHAG) concluded that the model's effectiveness is reduced by its outdated approach. The model is well suited for nine species only, representing two to three guilds. Those species should serve as the basis for the model. Richards said recommendations are to 1) incorporate empirical data from the UMRS into defining the empirical response curves and 2) conduct post-project biological evaluations to test pre-project benefits estimated by AHAG.

Richards reported that a manuscript was published on white-tailed deer winter browse selection and its implications for bottomland forest restoration. He also reported that larval Asian carp were observed in July 2014 in Pool 26 and there were an abundance of mayflies in La Crosse.

In response to a question from Col. Mark Deschenes regarding how UMRR-EMP interfaces with invasive species issues, Hubbell explained that UMRR-EMP is currently developing an invasive species strategy that will outline the program's role in addressing invasive species. UMRR-EMP maintains a base flow of critical monitoring data that provides a basis for understanding the UMRS ecosystem. With that information, managers and researchers can evaluate the implications of invasive species on habitat and native species. Karen Hagerty said she will present the strategy at UMRR-EMP CC's November 19, 2014 meeting. Hagerty explained that USACE's invasive species policy requires that UMRR-EMP promote native species, including by determining impacts of invasive species to the native species and create habitat projects that provide an advantage to native species. Hagerty said UMRR-EMP does not have the authority to provide a direct role in preventing the introduction and establishment of invasive species. In response to a question from Col. Deschenes, Hagerty said there are several cases where invasive species become naturalized and efforts to control them minimize — e.g., common carp, zebra mussels.

Kevin Richards recognized Heidi Langrehr's incredible career and contributions to our understanding of the UMRS ecosystem. Langrehr was a vegetation specialist at Wisconsin DNR and began her career with UMRR-EMP long term resource monitoring in 1989. She passed this summer following a long battle with cancer. Jim Fischer said her love and passion for the river extended into her work. Fischer said Langreher made great contributions to the river and extended his sincere appreciation to her for all of her effort. Langreher was successful in defining methods for monitoring aquatic vegetation on the river and was extremely helpful in providing useful information to managers. Fischer noted that Langreher, in collaboration with Minnesota DNR, created the first submersed aquatic vegetation index in North America.

USACE's LTRMP Element Report

Hagerty said an updated FY 2014 scope of work milestone chart for science in support of restoration and management is included on pages F-10 to F-12 of the agenda packet. She said proposals for FY 2015 UMRR funding for research and analysis in support of restoration and management are due on August 30, 2014.

A-Team Report

Hagerty reported that the A-Team is scheduled to convene a September 4, 2014 conference call to review proposals for research and analysis of UMRR-EMP's long term resource monitoring data. These proposals were due on June 30, 2014.

LTRMP Element Highlight: Asian Carp in the UMR

Rich Pendleton explained that UMRR-EMP's long term monitoring analyses are showing long term changes to fish community structure in the La Grange Reach of the Illinois River following the

establishment of Asian carp in 2000. This includes reduced abundance and condition (i.e., body size). Pendleton said abundance of native species either increased or decreased significantly between pre-establishment (1993-1999) and post-establishment (2000-2013) of Asian carp. Nonmetric multidimensional scaling analyses further support evidence of consistent differences in fish communities pre- and post-invasion, including abundance and condition. Pendleton said other biotic and abiotic factors, such as water levels, may be attributing to the changes in fish community structure. More research is being done to directly identify the greatest relationships between community differences and Asian carp. Pendleton said UMRR-EMP's long term data set is incredibly useful as it is able to show river conditions before and after an invasive species is introduced, by monitoring the river's major ecological attributes.

Jim Fischer asked if the findings can be used to inform future habitat restoration work, potentially by implementing measures that could improve abundance and body condition of native species. Pendleton said more research is needed to make comparisons across habitats. In response to a question from Doug Blodgett, Pendleton said there is no conclusive reason for how Asian carp are affecting certain species, but researchers are evaluating potential relationships. One hypothesis is that Asian carp are out-competing the larval fish that are food for sport fish. In response to a question from Blodgett, Levi Solomon said monitoring data is indicating that Asian carp are reaching their carrying capacity in the La Grange Reach. One indication is that body condition is declining among silver carp. In response to a question from Barry Johnson, Solomon said the monitoring data is also showing declines in growth rates of silver carp. Johnson said biohygenics modeling may provide more conclusive evidence. Solomon agreed and said comparing zooplankton data pre- and post-invasion will be a next step.

Other Business

Future Meetings

The upcoming quarterly meetings are as follows:

- **November 2014 — St. Paul**
  - UMRBA — November 18
  - **UMRR-EMP CC — November 19**
- **February 2015 — Quad Cities**
  - UMRBA — February 10
  - **UMRR-EMP CC — February 11**
- **May 2015 — St. Louis**
  - UMRBA — May 5
  - **UMRR-EMP CC — May 6**

With no further business, the meeting adjourned at 12:17 p.m.

UMRR-EMP CC Attendance List
August 6, 2014

UMRR-EMP CC Members

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

Others In Attendance

Renee Turner	U.S. Army Corps of Engineers, MVD
Gary Meden	U.S. Army Corps of Engineers, MVP
Col. Mark Deschenes	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
Ken Barr	U.S. Army Corps of Engineers, MVR
Karen Hagerty	U.S. Army Corps of Engineers, MVR
Ellen Milliron	U.S. Army Corps of Engineers, MVR
Tim Eagan	U.S. Army Corps of Engineers, MVS
Kraig McPeek	U.S. Fish and Wildlife Service, RIFO
Bob Clevenstine	U.S. Fish and Wildlife Service, UMR Refuges
Jon Duyvejonck	U.S. Fish and Wildlife Service, RIFO
Barry Johnson	U.S. Geological Survey, UMESC
Rich Pendleton	Illinois Natural History Survey
Levi Solomon	Illinois Natural History Survey
Randy Shultz	Iowa Department of Natural Resources
Robert Stout	Missouri Department of Natural Resources
Bryan Hopkins	Missouri Department of Natural Resources
Tom Boland	AMEC
Olivia Dorothy	American Rivers
Tim Schlagenhaft	Audubon Minnesota
Brad Walker	Missouri Coalition for the Environment
Gretchen Benjamin	The Nature Conservancy
Doug Blodgett	The Nature Conservancy
Todd Strole	The Nature Conservancy
Natalie Porter	Prairie Engineers of Illinois
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 FY 14 Year-End Report (9/30/2014)** *(B-1 to B-5)*
- **9/18/2014 UMRR (EMP) Leadership Summit Agenda** *(B-6)*
- **9/18/2014 UMRR (EMP) Leadership Summit Summary** *(B-7 to B-10)*
- **Draft Non-Federal PPA Issue Statement and Proposed Solutions (11/3/2014)** *(B-11 to B-12)*

BUDGET SHEET

UMRR-EMP EXPENDITURES AND ALLOCATIONS

	FY14 ($ 000)				
	CARRY IN FROM FY 13	FY 14 ALLOCA.	TOTAL AVALIABLE TO EXP.	30 Sep 14 ACTUAL EXP.	30 Sep 14 ACTUAL OBLIG.
PROGRAM ELEMENTS					
HABITAT PROJECTS					
HREP PROJECTS	1,075	22,802	23,871	14,771	23,020
ARRA HREP PROJECTS	0	0	0	0	0
HABITAT EVAL/MONITORING	0	570	570	940	949
HABITAT NEEDS ASSESSMENT	0	0	0	0	0
PLANNING/PRIORITIZATION	0	0	0	0	0
USFWS HREP SUPPORT	0	492	492	429	446
PROGRAM COOR.(Includes District Habitat Coordination)	35	2,617	2,652	1,712	1,693
REPORT TO CONGRESS- 2014	0	0	0	0	0
REGIONAL INITIATIVES	0	201	201	192	191
LTRM (Includes LTRM Regional Technical)	0	5,291	5,291	6,166	6,373
ARRA LTRM PROJECTS	0	0	0	0	0
TOTALS	1,110	31,974	33,077	24,209	32,672
TOTALS BY ORGANIZATION					
MVR **	963	11,090	12,047	6,562	10,917
MVP	98	7,690	7,788	3,812	7,713
MVS	49	7,410	7,459	7,235	7,235
USGS	0	5,216	5,216	6,088	6,297
UMRBA Administration	0	75	75	83	64
USFWS (Multi-district funded)	0	492	492	429	446
REPORT TO CONGRESS- 2012	0	0	0	0	0
System Ecological Team (SET)	0	0	0	0	0
TOTAL	1,110	31,974	33,077	24,209	32,672

*1

* 1 Equals Work Allowance amount of $31,974,000. Includes President's Budget of $31,968,000 plus $6k reprogrammed into UMRR in FY14.

30 September 14
FY 2014

ADMINISTRATIVE, LTRM, and Non-Site Specfic Costs

	FY14 ($ 000)				
	CARRY IN	ALLOCA.	TOTAL SCHED EXP.	30 Sep 14 Actual Exp.	30 Sep 14 Actual Obl.
HABITAT (Rollup from district sheets)					
BASELINE MONITORING	0	110	110	634	635
HABITAT PROJ. EVALUATION	0	385	385	302	310
BIO-RESPONSE STUDIES	0	75	75	4	4
USFWS HREP SUPPORT (Multi-district funded)	0	492	492	429	446
PLANNING/SEQUENCING (PRIORITIZATION)	0	0	0	0	0
TOTAL HABITAT	0	1,062	1,062	1,369	1,395
PROGRAM COORDINATION (excludes District Habitat Coor.)					
UMRBA	0	75	75	83	64
System Ecological Team (SET)	0	0	0	0	0
PUBLIC INVOLVEMENT	0	110	110	41	41
EMP PROGRAM ADMINISTRATION	0	630	630	655	655
LTRM REGIONAL TECHNICAL	0	75	75	69	69
REGIONAL INITIATIVES	0	201	201	192	191
PROGRAM MGT TOTAL	0	1,091	1,091	1,040	1,020
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	6,088	6,297
CORPS BATHEMETRY & LiDAR (Multi-district funded)	0	0	0	8	8
ARRA - BATHEMETRY, 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	6,096	6,304

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) CARRY IN	ALLOCA.	TOTAL AVALIABLE TO EXP.	30 Sep 14 Actual Exp.	30 Sep 14 Actual Obl.	(Federal) Scheduled $ To Complete	
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	1,981	-128	2,837	CONSTRUCTION
Conway Lake, IA	462	2,050	2,512		1	113		175	175	141	141	2,258	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	6,200	6,220	499	6,508	14,315	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
Lower Pool 10 Islands/Backwater, IA	920	5,200	6,120		0	0			0	27	27	6,093	DESIGN
McGregor Lake, WI	900	5,600	6,500		0	1		200	200	151	151	6,348	DESIGN
North & Sturgeon Lakes, MN	900	7,600	8,500	3,250	113	1875	18	300	318	297	297	6,328	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	17	17	3,725	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	
HABITAT TOTAL	11,280	98,748	110,028	8,694	3,721	43,812	63	7,065	7,128	3,113	7,013	63,103	
									0				
HABITAT EVAL/MONITORING													
HABITAT NEEDS ASSESSMENT						57			0				
BASELINE MONITORING					15	478		50	50	104	105		
HABITAT PROJ. EVALUATION					173	1633		200	200	138	138		
BIO-RESPONSE STUDIES						1333			0				
USFWS HREP SUPPORT					164	1238		140	140	107	140		
PLANNING/SEQUENCING(PRIORITIZATION)						0			0				
SUBTOTAL	0	0	0	0	352	4,739	0	390	390	349	383	0	
PROGRAM MANAGEMENT													
PROGRAM COORDINATION					273	4432	35	375	410	457	457		
PUBLIC INVOLVEMENT - mipr $					0	0			0				
SUBTOTAL	0.0	0.0	0.0	0.0	273	4,432	35	375	410	457	457	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	53,922	98	7,830	7,928	3,919	7,853	0	
								*1					
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		
TOTAL MVP EXPENDITURES					4,346	53,969	98	7,830	7,928	3,919	7,853		
								*1					
NOTES:													

*1 Equals MVP work allowance of $7,830,400- End of FY14 funding sent from MVR in the amount of $600k. $150,000 (Includes Packback funding to MVR in FY13) & $250,000 (Includes Packback funding from MVR for FY13)

ROCK ISLAND DISTRICT

MVR	PROJECT ESTIMATE DESIGN	CONST	TOTAL W/O NON FED	NON-FED EST	EXP FOR FY 13	EXP THRU FY 13	FY14 ($ 000) CARRY IN	ALLOCA.	TOTAL AVALIABLE TO EXP.	30 Sep 14 Actual Exp.	30 Sep 14 Actual Obl.	(Federal) Scheduled $ To Complete	
HABITAT PROJECTS													
BEAVER ISLAND, IA	1,500	11,000	12,500		94	179	0	248	248	232	283	12,089	PLANNING
FOX ISLAND, MO	700	4,300	5,000		1,463	5,229	0	140	140	446	298	-675	DESIGN
HURON ISLAND, IA	2,100	8,400	10,500		270	1,646	0	3,449	3,449	639	4,001	8,215	PLANNING
LAKE ODESSA, IA	2,470	12,394	14,864		61	15,043	790	3,184	3,974	90	2,655	-269	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	1,811	573	15,061	DESIGN
RICE LAKE, IL	2,800	10,720	13,520	6,825	4,862	10,856		539	539	1,518	1,277	1,146	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	0	0	5,998	PLANNING
STEAMBOAT ISLAND	1,250	6,250	7,500		1	2		364	364	0	0	7,498	PLANNING
KEITHSBURG DIVISION	1,400	4,800	6,200		1	2		99	99	12	12	6,186	PLANNING
DELAIR DIVISION	1,750	7,750	9,500		1	2		7	7	0	0	9,498	PLANNING
SNYDER SLOUGH	1,800	15,000	16,800		1	2		4	4	14	14	16,784	PLANNING
EMIQUON	725	12,575	13,300	6,400	0	0		75	75	232	232	13,067	DESIGN
LAKE ODESSA, IA (Flood Recovery) (supplemental)		5,500	5,500		347	4,742	173		173	174	174	585	FLOOD RECONSTR.
ARRA ODESSA		236	236			158			0			78	ARRA
OTHER HABITAT		0	0			0			0			0	
HABITAT TOTAL	23,618	138,922	162,540	6,825	7,647	82,163	962.9	8,696.0	9,659	5,170	9,519	39,233	
HABITAT													
HABITAT NEEDS ASSESSMENT						0		0	0				
BASELINE MONITORING			268			254			0				
HABITAT PROJ. EVALUATION			938		166	3,364	0	170	170	150	158		
BIO-RESPONSE MONITORING			588			1,036	0	0	0				
USFWS HREP SUPPORT					189	884	0	282	282	166	150		
PLANNING/SEQUENCING(PRIORITIZATION)						39		0	0				
SUBTOTAL	0	0	1,794	0	355	5,577	0	452	452	316	308		
PROGRAM MANAGEMENT													
REGIONAL HREP SCIENCE SUPPORT			3,496	0	175	5,192	0	1,202	1,202	276	277		
PUBLIC INVOLVEMENT	0.0	20.0	20.0		23	204	0	110	110	41	41		
REGIONAL ADMIN				0	360	2,281	0	630	630	655	655		
LTRM REGIONAL TECHNICAL					226	1,744	0	75	75	69	69		
PROGRAM INITIATIVES					272	978	0	201	201	192	191		
SUBTOTAL			3,516	0	1,056	10,399	0	2,218	2,218	1,234	1,233		
REPORT TO CONGRESS					6	96	0	0	0				
LTRM													
CORPS BATHEMETRY & LiDAR(Multi-district funded)						455	0		0	8	8		
ARRA - BATHEMETRY, LiDAR, USGS, & GIS					41	2,811	0		0				
CORPS APE'S ACTIVITIES						165	0		0				
ADDITIONAL LTRM					98	927	0		0	0	-1		
SUBTOTAL	0	0	530	0	140	4,357	0	0	0	8	7		
MIPRS & Contracts													
UMRBA					47	155	0	75	75	83	64		
ITRC					0	0	0	0	0	0	0		
USGS					4,801	14,198	0	5,216	5,216	6,088	6,297		
FY14 Reprogram						0		6					
SUBTOTAL					4,848	14,354	0	5,297	5,291	6,171	6,361		
TOTAL MVR EXPENDITURES					14,052	116,946	962.9	16,663	17,620	12,899	17,428		
								*1					

*1 Equals MVR work allowance of $16,663,200. End of FY14 funding sent to MVP ($600k and MVS $500k) also a Reprogramming action into MVR for $6,000(300,000 (Includes Packback funding from MVS $150k & MVP $150k in FY13) & (250,000 (Includes Packback funding to MVP for FY13)

September 2014
FY 2014

ST LOUIS DISTRICT

MVS	PROJECT ESTIMATE DESIGN	PROJECT ESTIMATE CONST	TOTAL W/O NON FED	NON-FED EST	EXP FOR FY 13	EXP THRU FY 13	FY14 ($ 000) CARRY IN	ALLOCA.	TOTAL AVALIABLE TO EXP.	30 Sep 14 Actual Exp.	30 Sep 14 Actual Obl.	(Federal) Scheduled $ To Complete	
HABITAT													
BATCHTOWN MGMT, IL	3,220	14,875	18,095	145	177	16,535		200	200	261	261	1,299	CONSTRUCTION
CLARENCE CANNON, MO	2,637	27,180	29,817		397	1,018		675	675	484	484	28,315	DESIGN
EAGLES NEST & PIASA IS., IL	1,057	4,500	5,557		81	216		325	325	216	216	5,125	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	54	54	8,141	DESIGN
HARLOW ISLAND	750	3,750	4,500		22	38		100	100	22	22	4,440	DESIGN
RIP RAP LANDING	1,373	10,553	11,926	1,207	49	669		430	430	79	79	11,178	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	272	272	1,399	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	4,805	4,854	5,004	5,004	16,886	CONSTRUCTION
WILKINSON ISLAND	1,250	2,730	3,980	0		868		30	30	8	8	3,104	DESIGN
WEST ALTON ISLAND	805	5,727	6,532		2	17			0			6,515	DESIGN
HORSESHOE LAKE	1,520	12,750	14,270		0	0		100	100	40	40	14,230	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	48	48	-48	
HABITAT TOTAL	29,539	169,926	199,465	1,614	3,976	48,167	49	7,035	7,084	6,488	6,488	144,810	
HABITAT EVAL/MONITORING													
HABITAT NEEDS ASSESSMENT	1,000		1,000			0							
BASELINE MONITORING					65	842		60	60	530	530		
HABITAT PROJ. EVALUATION					18	652		15	15	14	14		
BIO-RESPONSE MONITORING					9	1,180		75	75	4	4		
USFWS HREP SUPPORT					53	458		70	70	156	156		
PLANNING/SEQUENCING(PRIORITIZATION)						4			0				
SUBTOTAL	1,000	0	1,000	28,347	145	3,136	0	220	220	704	704		
PROGRAM MANAGEMENT													
PROGRAM COORDINATION					205	2,086		225	225	199	199		
PUBLIC INVOLVEMENT					0	0			0				
SUBTOTAL	0	0	0	0	205	2,086	0	225	225	199	199		
LTRM													
LTRM COORDINATION					0	0			0				
ADDITIONAL LTRM					0	0			0				
SUBTOTAL	0	0	0	0	0	0	0	0	0	0	0		
DIRECT MVS EXPENDITURES	30,539	169,926	200,465	29,961	4,326	53,389	49	7,480	7,529	7,391	7,391		
								*1					
MIPR EXPENDITURES													
LTRM mipr for Travel					0	444	0		0	0	0		
LTRM Bathemetry & Technical cross chrg					0	28	0		0	0	0		
MIPR/ Cross charge totals					0	472	0		0	0	0		
TOTAL MVS EXPENDITURES					4,326	53,861	49	7,480	7,529	7,391	7,391		
NOTES:								*1					

*1 Equals MVS work allowance of $7,480,400 - End of FY14 funding sent from MVR in the amount of $500k (150,000 (Includes Packback funding to MVR in FY13)

Riverfront Pavilion, Eagle Point Park
Dubuque, Iowa

UPPER MISSISSIPPI RIVER RESTORATION (ENVIRONMENTAL MANAGEMENT PROGRAM) LEADERSHIP SUMMIT

September 18, 2014

AGENDA for the INDOOR SESSION

Objectives:

- Enhance Upper Mississippi River Restoration's visibility within partners' leadership
- Communicate to leaders about their staffs' involvement in improving the Upper Mississippi River's ecological health
- Facilitate dialogue among Upper Mississippi River Restoration implementing agency leaders on key issues and opportunities for action

Time	Topic	Presenter
9:30 a.m.	**Registration**	
10:00	**Welcoming Remarks and Introductions**	***Col. Mark Deschenes***, *USACE and* ***UMRR-EMP Agency Leaders***
10:30	**UMRR's History and Successes**	***Marvin Hubbell***, *USACE*
10:50	**Implementation Issues Discussion**	
	• Opportunities and Challenges for State Partners	***Jim Fischer***, *Wisconsin DNR*
	• Opportunities and Challenges for Meeting Multiple River Uses	***Tim Yager***, *USFWS*
	• Opportunities and Challenges of Cost-Share Agreements	***Tim Schlagenhaft***, *Audubon and* ***Janet Sternburg***, *Missouri DoC*
12:00 noon	**Brown Bag Lunch Presentation:** ***UMRR's Successes in Restoration and Science***	***Jeff Janvrin***, *Wisconsin DNR and* ***Jeff Houser***, *USGS*
12:45 p.m.	**Break**	
1:00 to 3:00 p.m.	**Sunfish Lake Tour**	

Upper Mississippi River Restoration (Environmental Management Program) Leadership Summit

September 18, 2014

Participants

LTC Torrey Diciro, USACE, MVD
Mark Moore, USACE, MVD
COL Mark Deschenes, USACE, MVR
Marv Hubbell, USACE, MVR
Karen Hagerty, USACE, MVR
Brian Markert, USACE, MVS
Sabrina Chandler, USFWS, UMR Refuge
Tim Yager, USFWS, UMR Refuge
Mark Gaikowski, USGS, UMESC
Barry Johnson, USGS, UMESC
Jeff Houser, USGS, UMESC
Ken Westlake, USEPA, Region 5
Jon Hubbert, NRCS, Iowa
Chuck Gipp, Iowa DNR
Kelley Myers, Iowa DNR
Diane Ford, Iowa DNR
Randy Shultz, Iowa DNR
Mike Griffin, Iowa DNR
Dave Bierman, Iowa DNR
Dan Stephenson, Illinois DNR
Barb Naramore, Minnesota DNR
Keith Parker, Minnesota DNR
Kevin Stauffer, Minnesota DNR
Janet Sternburg, Missouri DoC
Scott Gunderson, Wisconsin DNR
Dan Baumann, Wisconsin DNR
Jim Fischer, Wisconsin DNR
Jeff Janvrin, Wisconsin DNR
Mark Martell, Audubon Minnesota
Tim Schlagenhaft, Audubon Minnesota
Robert Sinkler, The Nature Conservancy
Gretchen Benjamin, The Nature Conservancy
Doug Blodgett, The Nature Conservancy
Dru Buntin, UMRBA
Kirsten Mickelsen, UMRBA

Welcoming Remarks

Col. Mark Deschenes welcomed leaders and staff from UMRR's implementing partners to the summit. Col. Deschenes said UMRR's strong partnership collaborations throughout its history have been, and continue to be, fundamental to its numerous successes. UMRR has highly effective interagency coordination mechanisms that are unmatched. The program has a proven track record of delivering important benefits regionally and nationally. UMRR is now receiving appropriations of $33.17 million, which is its authorized annual appropriation limit; while most USACE programs and projects are facing declining budgets. Col. Deschenes attributed UMRR's increased appropriations to the substantial contributions and dedication of all its program partners.

Each of the agency leaders introduced their staff and provided an overview of their agency's involvement in UMRR and interest in the program.

UMRR's History and Successes

Marv Hubbell provided an overview of UMRR's history and successes in restoration and science since the program's inception. Hubbell explained that interdisciplinary and interagency teams of federal and state agencies, nongovernmental organizations, and private entities worked together in the program's early years to think through how best to build restoration projects on the river and how best to monitor and evaluate the river's key ecological indicators. These interdisciplinary, interagency teams have

continued to work together over time to refine and continuously improve UMRR's restoration and science techniques.

Hubbell described the river ecosystem's national significance, as well as the river's dual-purpose authority with commercial navigation. UMRR was authorized in 1986, as the first large river ecosystem restoration, science, and monitoring program in the nation, to address severe degradation following the construction and operation of the 9-foot navigation channel. The program is now celebrating 28 years. Hubbell briefly described the program's various coordinating mechanisms and its funding and resource allocations throughout its history. UMRR is finalizing its first programmatic strategic plan, which focuses on advancing a vision of "a healthier and more resilient Upper Mississippi River ecosystem that sustains the river's multiple uses."

Implementation Issues Discussion

Opportunities and Challenges for State Partners

Issue overview: Jim Fischer said UMRR is finally realizing its hard work and accomplishments with substantially increased appropriations in the last couple years, at a time when most other USACE programs and projects have experienced declining budgets. With this increased funding, UMRR has a great opportunity to yield significant ecological and economic benefits locally, regionally, and nationally. As an example, a habitat restoration project in Stoddard, Wisconsin produced many ancillary benefits to the community including an improved boat landing and over $103,000 spent locally on trucking and fuel, food and beverage, and living allowances. Construction crews consisted of individuals from surrounding communities that received direct wages, who then spent their wages and produced positive indirect benefits to the local economies. However, the increased funding has created challenges to state staff in maintaining and even enhancing their ongoing, active participation and leadership in the program's implementation. The states contribute in many important ways to the program's implementation, including project planning and design teams, construction consultation, water quality permitting, pre- and post-construction monitoring, operation and maintenance on project lands they manage, as well as participating in the program's partner coordinating teams. The UMRR Coordinating Committee has explored this issue before and recommended the following:

- Consider options for reducing meeting times and overlap
- Integrate functions to streamline participation in all aspects of river management
- Engage partner agency leaders on a more regular basis by a) keeping them informed on the program's issues and successes and b) seeking their guidance on program challenges that require higher-level decisions

Fischer said that UMRR Coordinating Committee members, today, would like to seek leaders' input on how to maximize opportunities for increased ecological and economic benefits with the additional funding while maintaining and enhancing states' ongoing, active participate in the UMRR.

Issue discussion: Agency leaders discussed opportunities to employ continuous process improvement evaluations for parts of the program, such as LEEN Six Sigma. While these efforts require significant front-end investments, they result in substantial savings making the effort worthwhile. The program has realized many efficiencies through its design handbooks, LTRMP element strategic planning efforts, USACE's 3x3x3 planning rule, the Regional Database, among other knowledge-transfer, consistency improvement, and documentation efforts. However, nothing has been done to the extent of a continuous process improvement evaluation. Col. Mark Deschenes said Rock Island District will contribute staff

time of an expert trained in LEEN Six Sigma to facilitate UMRR's effort. Program partners would need to define the scope and partners would need to commit to engaging in the process and implementing the recommendations.

In addition, agency leaders expressed the need for an economic analysis of the Upper Mississippi River ecosystem and UMRR's outputs. UMRBA is currently working with USFWS, Mississippi River Cities and Towns Initiative, and Walton Foundation to do an economic profile of the river that would be comparable to the Lower Mississippi River Conservation Committee's profile for the Lower Mississippi River.

Opportunities and Challenges for Meeting Multiple River Uses

Issue Overview: Tim Yager explained the history of the Upper Mississippi River Refuge and the influence of the 9-foot channel navigation project on the Upper Mississippi River System. The Refuge's primary focus has been on restoring the riverine habitat for fish and wildlife. Recreation in the Refuge brings about $1.2 million in revenue to the region annually and employs 150 people. The Upper Mississippi River Conservation Committee (UMRCC) published a 2000 report, *A River That Works and a Working River*, which provides several recommendations for enhancing the river's ecological health in the context of a "working river" for navigation. Examples of activities to do so include a) operating dams to provide seasonal flood pulse effect and periodic low flows to improve nutrient base and plant growth and succession, and b) managing channel maintenance and disposal to support ecosystem objectives. In addition, ecosystem restoration projects can help maintain the navigation channel by reducing sedimentation and providing sites for dredged material disposal (e.g., islands). Yager emphasized the need to continually work with navigation interests to support the river's dual purposes.

Issue Discussion: In response to a request from Mark Moore, Gretchen Benjamin said she will follow up with him regarding water level management techniques and partners' past and ongoing efforts. Agency leaders recognized that placement of dredged material is a near term issue that needs to be addressed and pool plans need to be updated.

Opportunities and Challenges of Cost-Share Agreements

Issue Overview: Tim Schlagenhaft presented the issues facing non-federal partners in signing USACE's cost-share agreements, including for UMRR habitat projects. In recent years, the cost share agreements have become very restrictive legally. For example, the agreements include provisions that indemnify non-federal sponsors making them liable for unanticipated costs, including costs for damages resulting from design flaws by USACE and its contractors. The agreements now include provisions requiring project sponsors to maintain the projects in perpetuity, rather than the life of the project, without providing a definition or cost ceiling. This issue is precluding important opportunities to improve the river's health in areas that are in serious need of restoration. Schlagenhaft offered several suggestions for addressing the issue, including:

- Reinstate language allowing for flexibility in annual appropriations, such as "subject to appropriations"
- Provide an end-term for operation and maintenance obligations, such as 50 years
- Construct projects in phases to minimize cost overruns
- Provide greater specificity regarding operation and maintenance costs and requirements upfront in the project plans, rather than post-construction

Issue Discussion: Participants discussed the issues related to signing cost share agreements, including indemnification and perpetual operation and maintenance, as well as the implications to advancing UMRR's restoration goals. USACE leaders from MVD and MVR expressed willingness to work with

non-federal sponsors in defining the issues and identifying ways to address them. Leaders at the summit requested that UMRR Coordinating Committee members develop a brief summary of the various issues. The states and other potential UMRR non-federal sponsors will then convene a call with USACE staff to discuss the issues and possible measures to resolve them.

Brown Bag Lunch Presentation: *UMRR's Successes in Restoration and Science*

Jeff Houser provided a historical context for UMRR's monitoring and science efforts. Houser explained that partners concluded in the 1982 Comprehensive Master Plan that the Upper Mississippi River System is complex and there is a lack of information and communication making resource management difficult. Thus the Master Plan recommended a long term resource monitoring effort that was then authorized under UMRR in 1986. UMRR's interagency partnership provides the necessary network of infrastructure, expertise, and collaboration that has made the science efforts world-renowned. Now, the program has over 20 years of data in six study reaches that span the broad range of conditions within the UMRS. The data is centrally stored and publically accessible in raw, summarized, and graphical formats. Extensive analyses of the long term data, along with associated research, have substantially improved our understanding of the Upper Mississippi River ecosystem and informed management of it.

Houser said UMRR's analyses indicate that the Upper Mississippi River ecosystem has experienced increases in water clarity in the main stem and tributaries, vegetation distribution and abundance in northern key pools, indicators of blue-gill abundance in northern study reaches, and abundance of Asian carp in the Illinois River. Houser said the program has moved beyond documenting trends and has made substantial progress in increasing our understanding of the Upper Mississippi River ecosystem. In the near term, the science informs current management actions and allows for evaluating effects of habitat projects on vegetation, fish, and water quality. In the long term, the science provides information for diversifying UMRR's management toolbox and identifying and evaluating threats to the ecosystem, including algal blooms and invasive species. Continued monitoring will only serve to enhance the program further by providing information necessary to detect changes in the ecosystem (and allow for early protection); a context for short-term, site-specific studies and evaluation of restoration efforts; and expanded knowledge of a range of conditions.

Jeff Janvrin showcased UMRR's accomplishments in restoring the Upper Mississippi River ecosystem. UMRR has completed 55 restoration projects, restoring over 100,000 acres of critical habitat. The program currently has 35 habitat projects in planning. Janvrin explained how the construction and operation of the 9-foot channel on the Upper Mississippi River affected the river's ecosystem by showing land cover maps of pre-impoundment to the present. Many different tools are used to address various ecological needs — e.g., island building, water level management, secondary channel modifications, aeration, shoreline protection. Lessons learned and observations of previous habitat projects are incorporated into future projects, enhancing restoration effectiveness and efficiencies and increasing the number of objectives for each project. Janvrin explained how the program's monitoring, research, and analyses inform habitat project planning and design. For example, through monitoring and research, managers and scientists were able to determine the necessary criteria for overwintering fish to survive that lead to better overwintering habitat projects and greater fish responses.

Non-Federal Project Partnership Agreements
Issue Perspectives from UMRR's Non-Federal Cost Share Sponsors

(Draft November 3, 2014)

Background

On September 18, 2014, Col. Mark Deschenes hosted a Upper Mississippi River Restoration (UMRR) Leadership Summit to gather the program's implementing partners' leaders and staff to discuss the program's history, achievements, and implementation issues that will require higher-level policy considerations. One of these issues discussed was the challenges for non-federal partners to sign Project Partnership Agreements (PPAs) that may hinder the program's ability to construct fish and wildlife habitat projects in areas of critical restoration need. At the meeting, Col. Deschenes and MVD leadership expressed a willingness to work with the non-federal sponsors in defining the issues and identifying ways to resolve them. Leaders at the summit requested that the UMRR Coordinating Committee develop a brief summary of the issues. USACE and the UMRS states and other candidate non-federal sponsors will convene a call to reflect on the summary and identify next steps. This is a working paper that will serve as a basis for discussion and a record for partners' future reference.

Relevant Policy

The Upper Mississippi River Restoration's authorization requires that a non-federal cost share sponsor provide
35 percent of the total construction cost of habitat projects, including planning and design work. Section 906(e) of the 1986 Water Resources Development Act as amended allows for full federal funding of UMRR's habitat projects that are either located on lands managed as a national wildlife refuge, are intended to benefit a federally-listed threatened or endangered (T&E) species, or provide a national benefit — e.g., a treaty species. However, as a matter of policy and priorities over successive Administrations, USACE has only approved full federal funding for projects located on national wildlife refuge lands. In accordance with Section 107(b) of the 1992 Water Resources Development Act, operation, maintenance, repair, replacement, and rehabilitation (OMRR&R) of habitat projects is the responsibility of the agency that manages the land. Section 2003 of the 2007 Water Resources Development Act amended the 1970 Flood Control Act to expand the non-federal interests eligible to sponsor water resource projects to include nonprofit entities. On April 5, 2012, USACE Headquarters issued implementation guidance confirming that nonprofits can serve directly as non-federal sponsors of USACE's civil works water resource projects, including UMRR's habitat projects. The implementation guidance outlines specific eligibility standards for candidate nonprofits.

A PPA is a legally binding agreement between USACE and a non-federal project sponsor that describes the project and stipulates both partners' obligations. UMRR uses USACE's continuing authorities program's (CAP's) PPA model for aquatic ecosystem restoration projects, which was developed in 2006 and last revised on October 15, 2014. The PPA is pursuant to Section 206 of the 1986 Water Resources Development Act (33 U.S.C. 2330).

Issue Statement

USACE's cost share agreements are very restrictive legally. In recent years, USACE's interpretation of the law has become even more restrictive making it more difficult for non-federal sponsors to sign cost share agreements as the provisions conflict with states' constitution and law and nonprofit organizations' policies. The long term requirements are now also too burdensome for many non-federal cost share sponsors to accept.

Below are descriptions of the two primary issues that are preventing non-federal sponsors from signing PPAs under UMRR. There are many important opportunities to improve the river's health in areas that are in serious need of restoration, but that are located outside of national wildlife refuge lands and thus require a non-federal cost share sponsor and signed PPA. These issues need to be resolved in order for UMRR to fully optimize its restoration capabilities.

- Indemnification: PPAs include an overly broad indemnification provision that makes non-federal sponsors fully liable for damages resulting from the planning, design, construction, operation, and maintenance of the project, including costs for damages resulting from design flaws by USACE and its contractors. This can result in substantial unanticipated costs for non-federal sponsors that may be completely out of their control. This provision conflicts with some states' constitution and laws that prohibit them from indemnifying another party.
- Operation, Maintenance, Repair, Replacement, and Rehabilitation: PPAs no longer include a time limit or cost ceiling related to the non-federal sponsors' requirement to maintain the project, essentially requiring that OMRR&R is done in perpetuity. [Note: USACE's policy governing cost share agreements with nonprofits specifies that OMRR&R is done in perpetuity.] Previously, UMRR's non-federal sponsors were required to provide OMRR&R for the life of the project, which was typically stipulated to be 50 years. In addition, the specific requirements for OMRR&R are not provided to the non-federal sponsor until project completion. Thus, the non-federal sponsor signs the PPAs before USACE provides complete information regarding OMRR&R obligations.

Proposed Solutions

The Upper Mississippi River System (UMRS) states and candidate nonprofit cost share sponsors suggest the following modifications to the current PPA model in order to allow them to cost share on UMRR habitat projects.

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

In addition, UMRR's non-federal cost share sponsors would encourage USACE to involve all candidate non-federal sponsors in its efforts to improve the PPA template and preparation, negotiation, and approval process, per Section 1013 of the 2014 Water Resources and Reform Development Act.

While this summary describes the issues in the context of UMRR's habitat projects, partners certainly recognized that these issues affect other USACE programs and projects and resolving the issues will require coordinating beyond UMRR.

DRAFT

ATTACHMENT C

Long Term Resource Monitoring Program Element

- **LTRMP Element Scope of Work thru 4th Quarter (10/31/2014)** *(C-1 to C-8)*
- **FY 14 UMRR-EMP Science Activities in Support of Restoration and Management (10/21/2014)** *(C-9 to C-11)*
- **Draft UMRR (EMP) Invasive Species Policy (10/31/2014)** *(C-12)*

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		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		31-Mar-14		Sauer
	b. Reviews completed	15-Apr-14		15-Apr-14		Moore, Langrehr, Petersen, Sauer, Yin
	c. Submit final update	30-Jun-14		30-Jun-14		Sauer
	d. Placement on Web with PDF	31-Jul-14		21-Jul-14		Sauer, Caucutt
2014A3	Complete aquatic vegetation sampling for Pools 4, 8, and 13 (Table 1)	31-Aug-14		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		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		22-Aug-14		Fischer, Langrehr, Bartels, Giblin, Hoff
2014A6	Annual Field Station Data Summary Report Template Development	30-Sep-14	30-Sep-15			Hagerty, Popp, Bierman, Chick, Herzog, Casper
2014A7	Final draft report: Identification of maximal flow velocity threshold for colony of Vallisneria americana along the channel border of the Upper Mississippi River (2013A8)	15-Sep-14			TBD; see 2013A8	Yin
On-Going						
2012A6	Draft LTRMP completion report: Fifteen years (1998–2011) of aquatic vegetation in Pool 4 of the Upper Mississippi River.	30-Jun-12	30-Apr-14	30-Jun-14		Moore
2013A8	Draft report: Identification of maximal flow velocity threshold for colony of *Vallisneria americana* along the channel border of the Upper Mississippi River–Extension of modeling capabilities for aquatic vegetation (contract award July 2013)	15-Jun-14	30-Dec-14		Having technical issues with model work; Yao Yin will be meeting with contractor to discuss	Yin
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) (In USGS Review)						
WI DNR annual 2012 data summary report (2013A5; Fischer, Langrehr, Bartels, Giblin, Hoff) http://dnr.wi.gov/water/wsSWIMSDocument.ashx?documentSeqNo=86352298						

Tracking number	Milestone	Original Target Date	Modified Target Date	Date Completed	Comments	Lead
Fisheries Component						
2014B1	Complete data entry, QA/QC of 2013fish 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, Pendleton
	b. Data loaded on level 2 browsers; QA/QC scripts run and data corrections sent to Field Stations	15-Feb-14		15-Feb-14		Schlifer
	c. Field Station QA/QC with corrections to USGS	15-Mar-14		15-Mar-14		DeLain, Bartels, Bowler, Ratcliff, Gittinger, West, Solomon, Pendleton
	d. Corrections made and data moved to public Web Browser	30-Mar-14		30-Mar-14		Sauer and Schlifer
2014B2	Update Graphical Browser with 2013 data on Public Web Server.	31-May-14		31-May-14		Sauer, DeLain, Bartels, Bowler, Ratcliff, Gittinger, West, Solomon, Pendleton, Schlifer
2014B3	Complete fisheries sampling for Pools 4, 8, 13, 26, the Open River Reach, and La Grange Pool (Table 1)	31-Oct-14		31-Oct-14		Ickes, DeLain, Bartels, Bowler, Ratcliff, Gittinger, West, Solomon, Pendleton
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		15-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		24-Jul-14		Ickes
2014B6	Summary letter on Asian carp age and growth: collection of cleithral bones	31-Jan-14	31-Jan-15			Solomon, Casper
2014B7	Preliminary analysis and summary letter: Asian Carp Age and Growth	30-Sep-14		31-Jan-14		Solomon, Pendleton, Casper
2014B8	Letter Summary: Native fish community response to Asian Carp reduction efforts	30-Sep-14		N/A	Dropped from SOW. Funded through other sources	Casper, Pendleton, Solomon
2014B9	Letter Summary: Exploring Years with Low Total Catch of Fishes in Pool 26	30-Sep-14		3-Oct-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		30-Nov-14	Presentation at MRRC	West, Sobotka, Hupfeld, Phelps
2014B12	Database increment, Letter summary: Collection and archiving of age and growth structure for selected species in the La Grange Reach of the Illinois River	30-Sep-14	31-Jan-15			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		26-Feb-14		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

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		25-Aug-14		Bowler
2014B15(D)	Database increment: Stratified random day electrofishing samples collected in Pools 9 – 11	30-Sep-14		30-Sep-14		Bowler
2014B16(D)	Database increment: Stratified random day electrofishing samples in Pools 16–18	30-Sep-14		10-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		28-Jul-14	Published	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		5-Aug-14	Published	Ickes, Sauer, Richards, Bowler, and Schlifer
2014B19	Summary report: Pool 12 Overwintering HREP adaptive management fisheries response monitoring	30-Sep-14		30-Jan-14		Bierman, Bowler
2014B20	Summary Letter. LTRMP fish component hoop net study inal year: results from comparative in situ bait trials seeking comparable substitute bait for LTRMP hoop net sampling. (see 2012B16)	30-Sep-14		15-May-14		Ickes,DeLain, Bartels, Bowler,Ratcliff and Gittinger, Solomon and Pendleton, West
2014AC1	Fish community structure: Assemble data set for analysis	30-Jan-14		30-Jan-14		Solomon, Pendleton, Casper
2014AC2	Fish community structure: Complete all analyses	30-Oct-14				Solomon, Pendleton, Casper
2014AC3	Fish community structure: Present results	TBD				Solomon, Pendleton, Casper
2014AC4	Fish community structure: Draft manuscript	30-Dec-14				Solomon, Pendleton, Casper
On-Going						
2006B6	Draft manuscript: Spatial structure and temporal variation of fish communities in the Upper Mississippi River. (Dependent on 2008B9 acceptance into journal)	30-Sep-11	30-Sep-15			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)	30-Dec-09	30-Sep-15			Chick
2012B8	Draft manuscript: Influence of Asian carp on planktivorous fish	30-Sep-12	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) (Published Iowa DNR's Fisheries Management Investigations)						

Tracking number	Milestone	Original Target Date	Modified Target Date	Date Completed	Comments	Lead
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) http://pubs.usgs.gov/mis/ltrmp2014-t001/						
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) (The American Midland Naturalist, 171(1):165-171. 2014.)						
LTRMP fisheries component procedures manual (2013B5; Ratcliff, Gittinger, Ickes) (http://pubs.usgs.gov/mis/ltrmp2014-p001)						
Manuscript: Determining environmental history of three sturgeon species in the Upper, Middle, and Lower Mississippi Rivers. (2013B22; Phelps) (submitted to USGS)						
Manuscript: Comparing commercial and recreational harvest characteristics of paddlefish *Polyodon spathula* (Walbaum, 1792) in the Middle Mississippi River (2013B24; Phelps) J. Appl. Ichthyol. (On-line First) DOI: 10.1111/jai.12552						
Manuscript: Sauger life history in the lower portion of the Upper Mississippi River (2013B20, Phelps). The Prairie Naturalist 46:44–47.						
Manuscript: Age-0 sturgeon habitat associations in the free flowing portion of the Upper Mississippi River (2012B5; Tripp, Phelps, Herzog) (submitted to UMESC)						
Manuscript: development of an Asian Carp Size Structure Index and Application through Demonstration (Phelps, Willis) (2013) North American Journal of Fisheries Management, 33:(2) 338-343						
LTRMP technical report: Ickes, B.S., Sauer, J.S., Richards, N., Bowler, M., and Schlifer, B., 2014, Spatially explicit habitat models for 28 fishes from the Upper Mississippi River System (AHAG 2.0) (ver. 1.1, July 2014): A technical report submitted to the U.S. Army Corps of Engineers' Upper Mississippi River Restoration-Environmental Management Program, Technical Report 2014–T002, 89 p., http://pubs.usgs.gov/mis/ltrmp2014-t002/						
Manuscript: Hupfeld, R. N., Q. E. Phelps, M. K. Flammang and G. W. Whitledge. 2014. Assessment of the effects of high summer water temperatures on Shovelnose sturgeon and potential implications of climate change. River Res. Applic. (On-line First) DOI: 10.1002/rra.2806						
LTRMP Program report: Ickes, B.S., Sauer, J.S., and Rogala, J.T., 2014, Monitoring rationale, strategy, issues, and methods: UMRR-EMP LTRMP Fish Component. A program report submitted to the U.S. Army Corps of Engineers' Upper Mississippi River Restoration-Environmental Management Program, Program Report LTRMP 2014–P001a, 29 p., http://pubs.usgs.gov/mis/ltrmp2014-p001a/						
Manuscript: Phelps, Quinton E., Sara J. Tripp, David P. Herzog, and James E. Garvey. 2014. Temporary Connectivity: The Relative Benefits of Large River Floodplain Inundation in the Lower Mississippi River. Restoration Ecology. On-Line First. doi: 10.1111/rec.12119						
Manuscript: Yallaly, Kasey L., Justin R. Seibert & Quinton E. Phelps. 2014. Synergy between silver carp egestion and benthic fishes. Environmental Biology of Fishes. On-line First						
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		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		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		29-Jun-14		Yuan, Kreiling, Manier, Burdis, Giblin, Kueter, L. Gittinger, Cook, Sobotka

Tracking number	Milestone	Original Target Date	Modified Target Date	Date Completed	Comments	Lead
2014D6	4th Quarter of laboratory sample analysis (~12,600)	28-Sep-14		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		30-Mar-14		Schlifer, Rogala, Houser
	b. Field Station QA/QC; USGS QA/QC.	15-Apr-14		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		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		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		16-May-14		Rogala
2014D11	Letter Summary: Evaluation of water quality data from an automated sampling platform	30-Sep-14		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		22-Oct-14		Houser
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-14		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	30-Sep-14		Draft manuscript will be completed by mid-November and then sent out to MN DNR for internal review.	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	30-Jan-14		Presentation given at UMRR Science Meeting 2014; Combined with 2014D11	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.) (Submitted to Freshwater Biology; 18 June)						
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) (Submitted to Journal; 8-1-2014)						

Tracking number	Milestone	Original Target Date	Modified Target Date	Date Completed	Comments	Lead
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, Vol. 34 (3): :413–425						
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		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		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
Statistical Evaluation						
2014E1	Final draft completion report: Long-term trend reporting, water quality component (2013E1)	30-Sep-14		5-Sep-14		Gray, Houser, Rogala
2014E2	Water quality web page: Depiction of trend estimates on water quality graphical browser pages	30-Sep-14		10-Oct-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) (In USGS Review)						
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) Journal of Aquatic Plant Management 50: 91-100						
Manuscript: Inferring decreases in among- backwater heterogeneity in large rivers using among-backwater variation in limnological variables (2010E1, Rogala, Gray, Houser) (in journal review)						
Completion Report: summer water temperature in the Upper Mississippi River (2012E2). Gray, Robertson, Houser, Rogala. (in USGS review)						
Completion report: An assessment of trends in water temperature in La Grange Pool (2012E3; Gray, Robertson, Rogala, Houser) (in USGS review)						
Manuscript: Gray B.R., M.D. Holland, F. Yi, and L.A.H. Starcevich. 2013. Influences of availability on parameter estimates from site occupancy models, with application to submersed aquatic vegetation. Natural Resource Modeling 26: 526-545.						
Data Management						
2014M1	Update vegetation, fisheries, and water quality component field data entry and correction applications.	30-May-14		28-Apr-14		Schlifer

Tracking number	Milestone	Original Target Date	Modified Target Date	Date Completed	Comments	Lead
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		30-Jun-14		Schlifer
2014M3	Webinar on LTRMP data access and use	Fall	27-Oct-14	27-Oct-14		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		30-Sep-14		Strauss, Swanson, (UWL) & De Jager
2014L2	Maps and Metrics: Floodplain inundation duration maps and metrics added to online landscape indicators web browser	30-Sep-14		30-Jun-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		30-Sep-14		De Jager
Intended for distribution						
Manuscript: Cogger, B.J. , De Jager, N.R. and Thomsen, M. 2014. Winter browse selection by white-tailed deer and implications for bottomland forest restoration in the Upper Mississippi River Valley, USA. (2012L4) (Natural Areas Journal. v 34, I 2)						
Fact Sheet: De Jager, N.R. 2013. Landscape Ecology on the Upper Mississippi River: lessons learned, challenges, opportunities (2013L3). (In Press)						
Manuscript: De Jager, N.R. and T.J. Fox. 2013 Curve Fit: a pixel-level raster regression tool for mapping spatial patterns (2013L1) Methods in Ecology and Evolution; British Ecological Society 2013. 4 pp.						
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. American Journal of Botany 99(9): 1572–1576.						
Science Planning						
2013XY	Draft report: Critical questions for advancing ecosystem understanding and management capability on the UMRS	30-Sep-13	31-Dec-14		Progress delayed by federal shutdown.	Johnson
2013XZ	Final Draft Critical Questions report to EMP-CC	20-Nov-13	TBD			Johnson
2014N1	Science Planning Meeting	11-13 Feb 2014		11-13 Feb 2014		Johnson, Sauer, Lowenberg
2014N2	Draft 3-year research plan	15-May-14		9-Jun-14		Johnson, UMESC staff
2014N3	Final Draft research plan to EMP-CC	1-Aug-14	10-Nov-14			Johnson
Involvement of LTRMP with monitoring on other rivers, nationally and internationally						
2014P1	Draft white paper for review	15-Jun-14	15-Nov-14		Progress delayed due to added workload with retirement of Center Director and planning for Center restructuring due to multiple retirements	Johnson
2014P2	Final draft white paper	30-Sep-14	15-Dec-14		See above	Johnson
2014P3	Final Draft white paper to EMP-CC	Nov. 2014	31-Dec-14			Johnson

Tracking number	Milestone	Original Target Date	Modified Target Date	Date Completed	Comments	Lead
Quarterly Activities						
2014QR1	Submittal of quarterly activities	30-Jan-14		30-Jan-14		All LTRMP staff
2014QR2	Submittal of quarterly activities	13-Apr-14		13-Apr-14		All LTRMP staff
2014QR3	Submittal of quarterly activities	13-Jul-14		5-Aug-14		All LTRMP staff
2014QR4	Submittal of quarterly activities	12-Oct-14		15-Oct-14		All LTRMP staff
Science Management						
2014ER1	Property inventory and tracking	15-Nov-14				LTRMP staff as needed

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	30-Nov-14			Robinson, Hoy, Hanson, Langrehr, Ruhser, Nelson
2014V4	Final LTRMP Completion Report on Accuracy Assessment	30-Sep-14		competed; in FSP review		Ruhser, Jakusz
Standardized HREP Non-forested Wetland Plant Sampling Protocol						
2014NFW1	draft NFW monitoring protocol	28-Feb-14		28-Feb-14		McCain
2014NFW2	Final draft NFW monitoring protocol	30-Mar-14		31-Mar-14		McCain
2014NFW3	A-Team review	1-Apr-14		7-Apr-14		McCain
2014NFW4	completed NFW monitoring protocol available	30-Sep-14		completed		McCain
Standardized HREP Forested Wetland Plant Sampling Protocol						
2014FW1	draft FW monitoring protocol	30-Nov-13		30-Nov-13		McCain
2014FW2	Final draft FW monitoring protocol	30-Mar-14		31-Mar-14		McCain
2014FW3	A-Team review	1-Apr-14		7-Apr-14		McCain
2014FW4	completed FW monitoring protocol available	30-Sep-14		completed		McCain
Predictive Model for Aquatic Cover Types						
2014AQ1	Complete hydraulic model of existing conditions	30-Apr-14	11-Jul-14	11-Jul-14		Hendrickson
2014AQ2	Compile vegetation data and develop empirical equations, Stoddard as pilot	31-Aug-14		31-Aug-14		Yin, Rogala, Ingvalson, Potter
2014AQ3	Apply equations to Pool 3 for pre-existing conditions, North & Sturgeon	30-Sep-14	28-Nov-14			Yin, Rogala, Ingvalson, Potter
2014AQ4	Final model and outputs	31-Dec-14				Yin, Rogala, Ingvalson, Potter
UMRS Vegetation Handbook						
2014VH1	Acquire new field images for handbook	30-Sep-14		completed		Dieck, Langrehr, Hoy, Robinson, Ruhser
2014VH2	Draft updates to technical sections and vegetation descriptions	31-Dec-14				Dieck, Langrehr, Hoy, Robinson, Ruhser
2014VH3	Finalize handbook and submit for USGS review	31-Mar-15				Dieck, Langrehr, Hoy, Robinson, Ruhser
Phase 2 Geospatial Data Upgrades						
2014GDU1	Complete geodatabases by pool for the entire UMRS	30-Sep-14				Nelson, Robinson
20144GDU2	Complete KMZ files for river miles, levees, boat access points, wing dams, aquatic areas, and remaining land cover data	30-Sep-14				Nelson, Robinson

Tracking number	Milestone	Original Target Date	Modified Target Date	Date Completed	Comments	Lead
Spatial Data Query Tool						
2014SDQ1	Compile all LTRMP sampling data collected through 2013 and convert to a useable format	1-Aug-14		completed		Rohweder, Fox
2014SDQ2	Create a web-based platform that contains all spatial data; convert all queries to ArcGIS	31-Dec-14				Rohweder, Fox
2014SDQ3	SDQT beta tested and ready for USGS review	31-Mar-15				Rohweder, Fox
UMRS Data Map						
2014DM1	Include all UMRR-EMP data created at UMESC in the data map	30-Sep-14	30-Nov-14			Nelson, Ruhser
2014DM2	Include all UMRR-EMP publications from http://umesc.usgs.gov/reports_publications/ltrmp_rep_list.html in the data map	31-Dec-14				Nelson, Ruhser
2014DM3	Include additional state and federal data references in the data map	31-Mar-15				Nelson, Ruhser
Assessing System-wide Hydrodynamic Model Availability						
2014SHM1	Kick off Email to workshop participants	30-Apr-14		21-Apr-14		Theiling
2014SHM2	Compile list of UMR-IWW hydrologic models	31-May-14		31-May-14		Theiling
2014SHM3	Complete read-aheads	15-Jun-14	14-Jul-14	14-Jul-14		Theiling
2014SHM4	Conduct workshop/webinar	Jul-14	12-Aug-14	21-Aug-14	July dates did not work for attendees	Theiling
2014SHM5	Summarize webinar	31-Jul-14	31-Aug-14	30-Sep-14		Theiling
2014SHM6	Draft white paper	31-Aug-14	15-Aug-14	30-Sep-14		Theiling
2014SHM7	Final white paper	30-Sep-14	31-Dec-14			Theiling
Development of Mussel Vital Rates						
2014MVR1	Brief summary report	30-Sep-15				Newton, Zigler, Davis
2014MVR2	Brief summary report	30-Sep-16				Newton, Zigler, Davis
2014MVR3	Completion report on a vital rates of native mussels at West Newton Chute, UMRS	30-Sep-17				Newton, Zigler, Davis
Validation of Mussel Community Asessment Tool						
2014MCA1	Workshop of mussel experts in UMRS	1-May-15				Newton, Zigler, Dunn, Duyvejonck
2014MCA2	Draft completion report on a validated mussel community assessment tool for use by river managers	1-Dec-15				Newton, Zigler, Dunn, Duyvejonck
2014MCA3	Final completion report on a validated mussel community assessment tool for use by river managers	1-Mar-16				Newton, Zigler, Dunn, Duyvejonck
Effects of Nutrient Concentrations on Zoo- and Phytoplankton						
2014NC1	Counting of phytoplankton samples	13-Mar-15				Giblin, Campbell, Houser, Manier
2014NC2	Database completed and analysis completed	13-Mar-16				Giblin, Campbell, Houser, Manier
2014NC3	Full manuscript completed	13-Mar-17				Giblin, Campbell, Houser, Manier
Ecological Shifts Turbid to Clear States						
2014ES1	Literature review and initial analyses competed	13-Mar-15				Giblin, Ickes, Langrehr, Bartels
2014ES2	Refined analyses and draft manuscrpt prepared	13-Mar-16				Giblin, Ickes, Langrehr, Bartels
2014ES3	Manuscipt submitted for publication	13-Mar-17				Giblin, Ickes, Langrehr, Bartels

Tracking number	Milestone	Original Target Date	Modified Target Date	Date Completed	Comments	Lead
Invasive Carp Population Demographics (#1)						
2014CPD1	Summary letter	31-Jan-15				Phelps, Mccain
2014CPD2	Manuscript	31-Mar-16				Phelps, Mccain
Asian Carps Recruitment Sources (#2)						
2014CRS1	Summary letter	31-Jan-15				Phelps, Mccain
2014CRS2	Manuscript	31-Mar-16				Phelps, Mccain
Effects of Asian Carps on Native Piscivore Diets (#3)						
2014NPD1	Summary letter	31-Jan-15				Phelps, Mccain
2014NPD2	Manuscript	31-Mar-16				Phelps, Mccain
Early Life History of Invasive Carps (#4)						
2014CLH1	Summary letter	31-Jan-15				Phelps, Mccain
2014CLH2	Manuscript	31-Mar-16				Phelps, Mccain

***DRAFT* Upper Mississippi River Restoration (UMRR)**
Invasive Species Policy
October 31, 2014

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

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

1. In addition to the required reporting of new or rare captures or sightings of invasive species by each UMRR partner agency, these new captures or sightings of invasive species will also be reported to the UMRR LTRM leads for the Corps and USGS-UMESC via email and/or phone call within 24 hours and prior to release to the media so that the appropriate level of interagency coordination can take place. Information will include the species captured, the time, location and method of capture along with photographs (if any) and the names of the collectors.

2. Future UMRR research activities on invasive species will focus on understanding the impacts of invasive species on native species and communities, on changes to the ecosystem, and will be used to inform future restoration and management from both a local and system-wide perspective.

3. All HREP projects are formulated to benefit native species and communities. Invasive species of concern will be considered in UMRR HREP planning efforts and in project evaluation reports of existing projects. Management and/or maintenance of existing projects should be adapted to address invasive species impacts and impairments to maintain the ecological value of the project for native species through time.

4. Communicating the UMRR roles in understanding historic and existing conditions of the UMRS ecosystem and how this can be used to evaluate the impact of invasive species on native communities or species is critical for coordinating all efforts within the UMRS on aquatic invasive species effectively.

References:

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

ATTACHMENT D

FY 2015-2025 UMRR Strategic Plan

- **Transmittal to UMRR (EMP) Partners of Final Draft FY 2015-2025 UMRR Strategic Plan (10/24/2014)** *(D-1 to D-2)*

- **Final Draft FY 2015-2025 UMRR Strategic Plan (10/14/2014)** *(D-3 to D-22)*

Margie Daniels

From: Margie Daniels <mdaniels@umrba.org>
Sent: Friday, October 24, 2014 9:29 AM
Subject: Final Draft FY 2015-2025 UMRR Strategic Plan
Attachments: Final Draft FY 15-25 UMRR Strategic Plan 10 13 14.pdf

TO: UMRR-EMP CC Members

CC: UMRR-EMP Partners and Stakeholders

FROM: Marv Hubbell, USACE, UMRR-EMP Program Manager
Strategic Planning Team Members

Recommended Action: In November 2012, the Upper Mississippi River Restoration – Environmental Management Program Coordinating Committee (UMRR-EMP CC) tasked a 21-member interagency strategic planning team with developing a strategic plan to focus UMRR's (EMP) efforts on continuing to deliver products and services that are nationally significant, regionally relevant, internationally engaged, and technically sound. This is the first strategic plan for the entire program. **The attached final draft FY 2015-2025 UMRR Strategic Plan represents the culmination of those efforts, and the planning team is now unanimously recommending it for the UMRR-EMP CC's endorsement at the Committee's November 19, 2014 meeting. The plan refers to the program as UMRR, dropping the historical EMP name, in an effort to match federal budget and appropriations documents.**

Description of the Final Draft Plan: The planning team distributed previous drafts of the strategic plan in 1) an internal targeted review process where each team member obtained input from groups or individuals that the member represented on the team and 2) a public review process that included a USACE press release and targeted outreach to groups and individuals with an interest in UMRR-EMP. The attached final draft of the plan reflects the planning team's consideration of, and response to, the comments received.

The attached Strategic Plan sets a clear direction for the program over the next decade and articulates the partnership's vision for a healthier and more resilient Upper Mississippi River ecosystem that sustains the river's multiple uses. It outlines the program's key approaches to enhancing restoration and advancing knowledge necessary to achieve that vision. This strategic plan also fosters UMRR's longstanding commitment to internal and external communication and collaboration among the many organizations and individuals that are working for a better Upper Mississippi River ecosystem.

The planning team believes this Plan will result in increased effectiveness of the program's habitat restoration projects and applications of science; deeper understandings of the dynamics and details of the river's health and resilience; stronger commitments to the collection, maintenance, and application of long term resource monitoring data to measure the river's health and resilience; an even stronger partnership among the program's implementing partners; and, ultimately, a healthier and more resilient Upper Mississippi River ecosystem because of the program's work.

The Plan is strategic, not operational, in scope. It is a blueprint for the next 10 years that will give decision makers an effective tool for managing the Upper Mississippi River. The UMRR-EMP CC will consider implementation strategies throughout the plan's duration. In addition, program partners directly involved in implementing UMRR (EMP) will use the plan to guide their work, including selecting and planning habitat projects, conducting scientific research, and developing ecological modeling tools.

Thank you for your consideration of the draft FY 2015-2025 UMRR Strategic Plan. Please do not hesitate to contact me if you have any questions prior to November 19.

Thank you,

Marvin Hubbell, Regional Manager
Upper Mississippi River Restoration - Environmental Management Program U.S. Army Corps of Engineers - Rock Island District Clock Tower Building (PM-M) P.O. Box 2004 Rock Island, IL 61204-2004
Phone: (309) 794-5428
Cell: (309) 912-3063
Fax: (309) 794-5710
marvin.e.hubbell@usace.army.mil

Enhancing Restoration and Advancing Knowledge of the Upper Mississippi River

A STRATEGIC PLAN FOR THE UPPER MISSISSIPPI RIVER RESTORATION PROGRAM 2015 – 2025

UMRR-EMP CC REVIEW DRAFT

UMRR-EMP CC REVIEW DRAFT
October 13, 2014

ACKNOWLEDGEMENTS

The U.S. Army Corps of Engineers would like to extend its sincere appreciation to the partners involved in developing this groundbreaking strategic plan for the Upper Mississippi River Restoration program.

Rob Maher
Illinois Department of Natural Resources

Mike Griffin
Iowa Department of Natural Resources

Kevin Stauffer
Minnesota Department of Natural Resources

Janet Sternburg
Missouri Department of Conservation

Jim Fischer
Wisconsin Department of Natural Resources

Karen Hagerty
U.S. Army Corps of Engineers

Marv Hubbell
U.S. Army Corps of Engineers

Brian Johnson
U.S. Army Corps of Engineers

Kat McCain
U.S. Army Corps of Engineers

Kara Mitvalsky
U.S. Army Corps of Engineers

Tom Novak
U.S. Army Corps of Engineers

Ken Westlake
U.S. Environmental Protection Agency

Bob Clevenstine
U.S. Fish and Wildlife Service

Jon Duyvejonck
U.S. Fish and Wildlife Service

Jeff Houser
U.S. Geological Survey

Michael Jawson
U.S. Geological Survey

Barry Johnson
U.S. Geological Survey

Jeff Stoner
U.S. Geological Survey

Gretchen Benjamin
The Nature Conservancy

Dru Buntin
Upper Mississippi River Basin Association

Kirsten Mickelsen
Upper Mississippi River Basin Association

The Strategic Planning Team acknowledges and offers its sincere gratitude for the extraordinary work of its two facilitators in the development of this plan:

Beth Carlson
Minnesota Department of Natural Resources

Brian Stenquist
Minnesota Department of Natural Resources

UMRR-EMP CC REVIEW DRAFT

DISTRICT COMMANDER'S LETTER

[Placeholder]

UMRR-EMP CC REVIEW DRAFT

CONTENTS

Acknowledgements i

District Commander's Letter ii

Preamble 1

Vision 5

Mission 5

Goals 5

Assumptions 5

Guiding Principles 6

Defining Success 6

Goal 1: Enhance Habitat for Restoring and Maintaining a Healthier and More Resilient Upper Mississippi River Ecosystem 7

Goal 2: Advance Knowledge for Restoring and Maintaining a Healthier and More Resilient Upper Mississippi River Ecosystem 9

Goal 3: Engage and Collaborate with Other Organizations and Individuals to Help Accomplish the Upper Mississippi River Restoration Vision 11

Goal 4: Utilize a Strong, Integrated Partnership to Accomplish the Upper Mississippi River Restoration Vision 12

Appendix A: Program Authorization 13

UMRR-EMP CC REVIEW DRAFT

PREAMBLE

Strategic Plan Purpose

This strategic plan articulates the Upper Mississippi River Restoration[1] (UMRR) partnership's vision for the Upper Mississippi River[2] that sets a clear direction for the program over the next decade. This 10-year plan focuses UMRR's efforts on continuing to deliver products and services that are nationally significant, regionally relevant, internationally engaged, and technically sound. It outlines the program's key approaches to enhancing restoration[3] and advancing knowledge necessary for a healthier and more resilient Upper Mississippi River ecosystem that sustains the river's multiple uses. This strategic plan is also intended to foster UMRR's longstanding commitment to internal and external communication and collaboration among the many organizations and individuals that are working for a better Upper Mississippi River ecosystem.

Strategic Planning Approach

The UMRR Coordinating Committee established a team of 21 individuals reflecting representation from the various program partners and functions to undergo an integrated strategic planning effort for the entire program. The Committee directed the planning team to develop a programmatic strategic plan that:

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

The planning team first explored a suite of issues affecting UMRR and the Upper Mississippi River itself, from which the team was able to determine focal areas for the program in fiscal year (FY) 2015 to FY 2025. With a defined vision for the Upper Mississippi River and mission statement for UMRR, both firsts for the program, the planning team articulated specific goals, objectives, and strategies to best optimize the program's investment in achieving its mission and advancing its vision.

The strategic plan was built as a partnership document where all partners have a vital role in the program's success in enhancing restoration and knowledge of the Upper Mississippi River. Team members were responsible for representing their respective agency's views. In addition, the planning team solicited and

[1] The Upper Mississippi River Restoration (UMRR) program was originally named the Environmental Management Program (EMP) in its 1986 authorization. However, in 2006, the Office of Management and Budget and Congress began referring to the program as UMRR in their budgeting and appropriations documents.

[2] Per UMRR's authorization, the program's geographic area encompasses the river reaches having commercial navigation channels on the Mississippi River main stem north of Cairo, Illinois; Minnesota River, Minnesota; Black River, Wisconsin; Saint Croix River, Minnesota and Wisconsin; Illinois River and Waterway, Illinois; and Kaskaskia River, Illinois. For the purposes of this strategic plan, the Upper Mississippi River refers to that geographic extent.

[3] The term restoration is interpreted in various ways among resource managers, researchers, policy makers, and the public. The strategic planning team agreed to use the term restoration, rather than other terms, to describe UMRR's efforts to restore, rehabilitate, and enhance habitat for native species, and improve river structures, functions, and processes, that enhance the ecological health and resilience of the Upper Mississippi River. This term matches the program's name.

UMRR-EMP CC REVIEW DRAFT

considered input from all program partners and coordinated with the UMRR Coordinating Committee to provide routine updates and seek feedback at its quarterly meetings. Following the Committee's approval of a draft version at its August 6, 2014 quarterly meeting, the strategic planning team employed a broad stakeholder public review effort. USACE distributed a public review notice and individual team members solicited input from organizations and individuals not directly involved in the program's implementation but who may be interested in the program. [Note: Add more text re UMRR-CC's final review and endorsement here when relevant and details are known.] The UMRR Coordinating Committee will consider implementation strategies throughout the plan's duration. In addition, UMRR partners directly involved in implementing UMRR will use the plan to guide their work, including selecting and planning habitat projects, conducting scientific research, and developing ecological modeling tools.

Program Overview

Authorization

In 1986, Congress declared the Upper Mississippi River as "a nationally significant ecosystem and a nationally significant commercial navigation system." Following from this declaration, in Section 1103 of the 1986 Water Resources Development Act (WRDA), Congress authorized the Upper Mississippi River Restoration program to address the river's ecological needs. UMRR's authorization, as amended, is provided in Appendix A. UMRR became the first federal program to combine ecosystem restoration with scientific monitoring and research on a large river system. [Note: The program was named the Environmental Management Program in its authorization. In 2006, the Office of Management and Budget and Congress began referring to the program as UMRR in its budgeting and appropriations documents.]

Over the program's first 13 years, UMRR proved to be one of this country's premier ecosystem restoration programs, combining close collaboration among federal, state, and public partners; an effective restoration planning process; and a built-in long term monitoring process. This led Congress to reauthorize UMRR in the 1999 WRDA and establish the following two core elements as continuing authorities:

- Planning, construction, and evaluation of fish and wildlife habitat rehabilitation and enhancement projects
- Long term resource monitoring, computerized data inventory and analysis, and applied research

Geographic Setting

Per UMRR's authorization, the program's geographic area encompasses nearly 1,300 river miles along the reaches having commercial navigation channels on the Mississippi River main stem north of Cairo, Illinois; Minnesota River, Minnesota; Black River, Wisconsin; Saint Croix River, Minnesota and Wisconsin; Illinois River and Waterway, Illinois; and Kaskaskia River, Illinois. For the purposes of this strategic plan, the Upper Mississippi River refers to that geographic extent. The Upper Mississippi River basin drains 189,000 square miles and includes major portions of five states: Illinois, Iowa, Minnesota, Missouri, and Wisconsin. The river's floodplain covers approximately 2.6 million acres of land and water in public and private ownership, including 10 National Wildlife Refuges and many other federal, state, and local lands.

The river is unique in that it still retains many of its natural floodplain ecosystem characteristics including flood pulses, floodplain forests, backwaters, and floodplain lakes. However, the Upper Mississippi River basin has been substantially modified since the mid-1800s. The current condition of the Upper Mississippi River is heavily influenced by development for agriculture, flood risk reduction, and navigation. Improvements in wastewater treatment and land use practices have had a positive effect on the river. However, the ecosystem remains under considerable stress and still faces many challenges, including sedimentation, nutrient loading, invasive species, altered hydrology, and floodplain isolation.

UMRR-EMP CC REVIEW DRAFT

Implementation through a Partnership

The Upper Mississippi region has a rich tradition of interagency and interdisciplinary partnership dating back to the 1981 Upper Mississippi River Basin Commission's Master Plan that extends among the river's multiple uses, such as commercial navigation, fish and wildlife, recreation, agriculture, and water supply. The UMRR is a product of this regional collaboration and has been fortunate to build upon and expand it. The ongoing commitments from all partners have been vital to UMRR's effective and efficient habitat restoration and knowledge-building efforts on the Upper Mississippi River.

While the U.S. Army Corps of Engineers (USACE) is ultimately responsible for implementing UMRR, it pursues that mission in a genuine spirit of cooperation with its agency partners and interested stakeholders. Through interagency consultative and coordination bodies,[4] the program partnership works together to consider and address a range of program policy and budget issues, define program priorities and direction, and raise and resolve technical questions. Habitat projects are selected, planned, and designed in a collaborative manner among project planners, engineers, habitat managers, and scientists. Long term resource monitoring, research, and analysis are implemented in coordination among the programs partners. In addition to their involvement in these collaborative mechanisms, individual federal and state agencies have their own specific responsibilities for implementing UMRR:

U.S. Army Corps of Engineers has overall responsibility for UMRR. In brief, this includes overseeing and integrating UMRR's habitat restoration and science; supporting the partner-based forums; preparing budget submissions; recommending annual allocations within the program; developing, constructing, and evaluating habitat projects; and producing scientific reports.

U.S. Fish and Wildlife Service, from its refuges, ecological services field offices, and fisheries resource offices, participates in planning, design, and construction of habitat projects both on and off refuge lands. USFWS is responsible for all operation and maintenance of projects on lands it manages, and participates in pre- and post-project monitoring on its sponsored projects. The service's research and monitoring also informs UMRR science and habitat projects.

U.S. Geological Survey provides science leadership and daily administration of UMRR's long term resource monitoring and other science efforts, through its Upper Midwest Environmental Sciences Center in La Crosse. This includes program planning, coordination, and administration, as well as executing research, data analysis, modeling and decision support, and data maintenance and access. In serving these roles, USGS coordinates closely with USACE, state field stations, and interagency coordination bodies.

The five ***Upper Mississippi River states,*** including Illinois, Iowa, Minnesota, Missouri, and Wisconsin, participate in all aspects of UMRR, including the program's various coordinating committees and all stages of implementing habitat projects and long term resource monitoring. The states are responsible for 35 percent of construction costs and 100 percent operation and maintenance for habitat projects located on lands they manage, and they provide water quality permitting and certification. In addition, the states staff and operate the six field stations with UMRR funding and contribute in a variety of ways to the design and execution of the program's monitoring, research, and analysis.

O***ther federal and state environmental protection, agriculture, and transportation agencies*** are also involved in UMRR's implementation. These include, but are not limited to, U.S. Environmental Protection Agency, U.S. Department of Agriculture Natural Resources Conservation Service, and state water quality

[4] The Joint Charter for the UMRR's advisory groups is available at http://www.mvr.usace.army.mil/Portals/48/docs/Environmental/EMP/HREP/EMP_Documents/EMP-CC%20A-Team%20HPSF%20Charter%20combined%205-15-13.pdf.

UMRR-EMP CC REVIEW DRAFT

programs. These agencies and programs contribute their staff expertise to assist in UMRR's habitat restoration and scientific monitoring and research efforts by providing valuable information and insights.

Nonprofit organizations actively engage in UMRR's implementation in a variety of ways, from providing comments on specific project proposals to engaging in more regional, program-level matters. Some nonprofits, such as The Nature Conservancy, Ducks Unlimited, and the National Audubon Society, may also serve as nonfederal cost-share sponsors of habitat projects. The nonprofits would be responsible for a 35 percent cost share and all operation and maintenance of any such project for the life of UMRR.

The ***general public's*** engagement occurs at varying levels and through various venues. In UMRR's early years, the public was actively involved in the program's authorization in 1986 and subsequent reauthorization as a continuing authority in 1999. The public participates in UMRR through the involvement of local governments; sport, conservation, and nonprofit organizations; and individual participation. In addition, the public is typically involved at the local level in planning for habitat projects, often providing important information about the river functions and processes at site-specific locations.

UMRR REVIEW DRAFT

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 AND STATE AGENCIES AND OTHER ORGANIZATIONS; TO CONSTRUCT HIGH-PERFORMING HABITAT RESTORATION, REHABILITATION, AND ENHANCEMENT 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

GOALS

1. Enhance habitat for restoring and maintaining a healthier and more resilient Upper Mississippi River ecosystem
2. Advance knowledge for restoring and maintaining a healthier and more resilient Upper Mississippi River ecosystem
3. Engage and collaborate with other organizations and individuals to help accomplish the Upper Mississippi River Restoration vision
4. Utilize a strong, integrated partnership to accomplish the Upper Mississippi River Restoration vision

ASSUMPTIONS

Assumptions that provide an underlying foundation for this Strategic Plan's goals and objectives:

1. Conditions in the Upper Mississippi River result from a combination of tributary inputs from the watershed, natural and man-made structures within the river corridor, and management of river flow. Human actions over time, within the river and its watershed, have produced stresses to the river's condition and degraded its ecological health.
2. Existing stresses (e.g., point and nonpoint source pollution, navigation, flood control structures, invasive species) are likely to remain, and new stressors are likely to emerge. Thus the river will continue to degrade without continued management and rehabilitation designed to minimize the effects of stresses. Managing stresses that originate within the watershed will require coordination with other relevant agencies, programs, and land managers to address these challenges at their sources.
3. The man-made infrastructure within the river corridor that supports navigation and other human uses will remain in place for the foreseeable future, but modifications to structures or operations may occur.
4. Upper Mississippi River Restoration's datasets (and other information) will be used to evaluate progress in advancing ecosystem and management objectives, identify future restoration needs, and determine if the Upper Mississippi River is recovered to a quality sufficient to support a healthy and resilient river ecosystem.

UMRR-EMP CC REVIEW DRAFT

Guiding Principles

Core principles to guide implementation of this Strategic Plan:

1. Deliver innovative, high quality projects, products, and services that create value to the Upper Mississippi River Restoration program partners and serve as a knowledge base for the Upper Mississippi River and other river systems nationally and internationally.
2. Promote focused research and analyses of monitoring data to predict how management actions will affect river structure and function and use habitat projects to help evaluate those predictions and improve management capabilities.
3. Make decisions using the best available science, data, and other information that will benefit current and future generations of humans and biota.
4. Routinely disseminate information about program activities and outcomes to program partners and other organizations and individuals to promote transparency and knowledge sharing.
5. Apply the principles of adaptive management to continually learn and improve as a program and in implementing restoration and science techniques.
6. Maintain and support the effective interagency and interdisciplinary partnership through communication and collaboration of the Upper Mississippi River Restoration Coordinating Committee, Analysis Team, and habitat project planning and sequencing teams to ensure high quality program delivery.
7. Serve as a dedicated partner to other agencies and programs in the integrated, multi-purpose management of the Upper Mississippi River and its watershed.

Defining Success

Criteria for evaluating success in achieving this Strategic Plan are as follows:

1. Restoration projects that enhance the health and resilience of the Upper Mississippi River and demonstrate progress in achieving this Strategic Plan's goals and objectives.
2. A highly integrated program in which research and monitoring informs restoration and management efforts and in which restoration efforts are readily available for scientific use.
3. The ability to detect and communicate the status and trends of the Upper Mississippi River as related to indicators of ecosystem health and resilience as well as management objectives.
4. A highly engaged regional partnership that is supportive of the program and its outputs.
5. The Upper Mississippi River Restoration is recognized as a premier program in large river restoration and science and is a source of guidance for similar programs nationally and internationally.

UMRR-EMP CC REVIEW DRAFT

GOAL 1 — ENHANCE HABITAT FOR RESTORING AND MAINTAINING A HEALTHIER AND MORE RESILIENT UPPER MISSISSIPPI RIVER ECOSYSTEM

The Upper Mississippi River Restoration (UMRR) uniquely and effectively combines ecosystem restoration with scientific monitoring and research to restore and maintain a healthier and more resilient Upper Mississippi River ecosystem. Integrating a broad range of restoration techniques, including approaches that strive to use or mimic the river's natural processes (e.g., flow regime, sedimentation, successional stages), UMRR habitat projects enhance critical fish and wildlife habitat, restore the river's floodplain structure and function, and counteract the negative effects of human activity throughout the Upper Mississippi River basin. Individually and cumulatively, these projects improve the river's ability to support multiple human and biota uses, including recreation, water supply, and commercial navigation. The process of identifying and sequencing habitat projects is an interagency and public endeavor. The projects are then jointly planned by interdisciplinary teams of partner agencies/organizations, with input from the interested public. The best available science and decision support tools are used throughout project formulation and evaluation to optimize investment and most effectively and efficiently advance UMRR's vision. UMRR continually improves its restoration techniques through adaptive management to enhance restoration effectiveness and efficiency, learning from its long term systemic monitoring, project-specific monitoring, and focused research. Recognizing that the Upper Mississippi River ecosystem is affected in many ways by human activity within the river and its watershed, UMRR engages directly and indirectly with other organizations and individuals whose actions and decisions create synergies and leverage capabilities in advancing UMRR's vision.

Objective 1.1 — **Address key ecological needs at various spatial scales through habitat projects that reflect best available knowledge and advance UMRR's vision**

- Strategy 1: Identify and select habitat projects that will most effectively and efficiently advance UMRR's vision, utilizing an interagency, science-driven, systemic planning approach
- Strategy 2: Plan, design, and construct habitat projects to best, and most efficiently, address their defined objectives and advance the UMRR's vision, using structural and non-structural measures and considering ecological benefits at various spatial scales
- Strategy 3: Perform operation and maintenance on UMRR's habitat projects to ensure key features are working properly and effectively advancing the projects' goals and UMRR's vision

Objective 1.2 — **Apply adaptive management principles to address risk and uncertainty and continually enhance restoration and knowledge of the Upper Mississippi River ecosystem**

- Strategy 1: Refine and implement a framework to operationalize UMRR's adaptive management efforts, including when and how to apply certain adaptive management techniques and documenting, communicating, and integrating the results and conclusions
- Strategy 2: Apply monitoring and adaptive management principles to set learning objectives (for select projects), adjust project designs based on ecological models, evaluate the ecological responses to project features, modify constructed project features if not performing as intended or to enhance effectiveness, assess operation and maintenance activities, and enhance future restoration efforts
- Strategy 3: Employ deliberate and explicit adaptive management analyses (hypothesis testing) using selected habitat projects to explore priority science questions or learning objectives and evaluate the effects of UMRR's restoration efforts on the Upper Mississippi River ecosystem's health and resilience

UMRR-EMP CC REVIEW DRAFT

Strategy 4 Communicate and integrate learned information into future restoration alternatives and scientific investigations to guide and optimize UMRR's investment in enhancing restoration and knowledge of the Upper Mississippi River ecosystem

UMRR DRAFT

GOAL 2 — ADVANCE KNOWLEDGE FOR RESTORING AND MAINTAINING A HEALTHIER AND MORE RESILIENT UPPER MISSISSIPPI RIVER ECOSYSTEM

The Upper Mississippi River Restoration (UMRR) effectively and comprehensively integrates long term monitoring, research, modeling, and data management to provide critical knowledge about the Upper Mississippi River's ecosystem health and resilience, providing a solid foundation upon which to base management actions and policy. With long term data collected over more than 25 years, the UMRR's database is one of the most extensive and comprehensive on any large river system in the world. UMRR's scientific expertise, breadth of information, monitoring protocols, modeling capabilities, and data management and dissemination infrastructure create extensive possibilities to learn about the river's natural functions and processes, human influences, and opportunities to best address critical restoration needs. USACE operates this substantial undertaking in true partnership fashion, with USGS providing scientific leadership and conducting research and analysis and the five partner states operating the six long term resource monitoring field stations and contributing in many ways to UMRR's scientific design and execution. The knowledge derived from UMRR is used extensively by resource managers, planners, administrators, scientists, academics, legislators, and the general public within the Upper Mississippi River region. UMRR also often exchanges knowledge with, and serves as a model for, other large river programs nationally and internationally, and at the same time, obtains valuable information and insights to even further enhance knowledge of the Upper Mississippi River ecosystem.

Objective 2.1 **Assess, and detect changes in, the fundamental health and resilience of the Upper Mississippi River ecosystem by continuing to monitor and evaluate its key ecological components of aquatic vegetation, bathymetry, fish, land use/ land cover, and water quality**

Strategy 1 Evaluate the Upper Mississippi River's ecological status and trends through comprehensive, integrated analyses of key ecological indicators using UMRR's long term data

Strategy 2 Conduct scientific analysis, research, and modeling using UMRR's long term data, and any necessary supplemental data, to gain knowledge about the Upper Mississippi River ecosystem status and trends and process, function, structure, and composition

Strategy 3 Continue to improve the effectiveness of long term data collection, analysis, storage, and dissemination to maintain the data's integrity, long-term consistency, relevance, and usability[5]

Strategy 4 Evaluate additional ecological components as priorities and resources allow to gain an even broader understanding of the Upper Mississippi River ecosystem and expand possibilities for important scientific analyses

Objective 2.2 **Provide critical insights and understanding regarding a range of key ecological questions through a combination of monitoring, additional research, and modeling in order to inform and improve management and restoration of the Upper Mississippi River ecosystem**

Strategy 1 Conduct focused research and analyses to gain critical, management-relevant information about the Upper Mississippi River ecosystem's process, function, structure, and composition as well as the dynamics and interactions among system components

[5] More information on the long term resource monitoring sampling effort and statistics can be found at http://www.umesc.usgs.gov/ltrmp.html.

UMRR-EMP CC REVIEW DRAFT

Strategy 2 Conduct research projects that improve our understanding of critical ecological conditions and processes by examining the effects of select habitat restoration projects on those conditions and processes

Strategy 3 Utilize other information, as needed, to augment UMRR's long term data sets for comprehensive analyses of the river's health and resilience

Strategy 4 Develop and improve ecological models and other decision support tools to enhance science capabilities and understandings, and improve understanding of the potential effects of future management actions

Strategy 5 Effectively communicate to habitat project planners and managers regarding how research findings may be applied to habitat projects

GOAL 3 — ENGAGE AND COLLABORATE WITH OTHER ORGANIZATIONS AND INDIVIDUALS TO HELP ACCOMPLISH THE UPPER MISSISSIPPI RIVER RESTORATION VISION

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

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

UMRR-EMP CC REVIEW DRAFT

GOAL 4 — UTILIZE A STRONG, INTEGRATED PARTNERSHIP TO ACCOMPLISH THE UPPER MISSISSIPPI RIVER RESTORATION VISION

As the federal agency authorized to implement Upper Mississippi River Restoration (UMRR), USACE is accountable for program management and execution. As a result, UMRR has been shaped in many ways by USACE policies and procedures. Yet, UMRR is truly a partnership program. UMRR's authorization directs USACE to implement the program in consultation with the Department of Interior and the five basin states. For the specific purposes of providing interagency coordination, the UMRR Coordinating Committee was established to serve as the program's primary consultative body to discuss and seek consensus on UMRR budgetary and policy issues. In addition, the Analysis Team provides scientific and technical advice and recommendations on Goal 2-related activities, including work priorities and research activities. The planning and sequencing of habitat projects is guided by interagency teams in USACE's three regional Districts (St. Paul, Rock Island, and St. Louis). Partners commit substantial resources to participate in these coordinating groups. This thoughtful and meaningful collaboration has been vital to UMRR's success and now serves as a model for other ecosystem programs regionally, nationally, and internationally.

Objective 4.1 **Promote a common vision and sense of purpose, transparency, and accountability among UMRR partners**

- Strategy 1: Partners carry a strong, unified message regarding UMRR's value, accomplishments, and importance to the region and nation
- Strategy 2: Partners work in collaboration to enhance restoration and knowledge of the Upper Mississippi River to advance UMRR's vision
- Strategy 3: Continually learn and improve as a program and in implementing restoration and science techniques
- Strategy 4: Improve transparency and accountability within the partnership regarding program priorities and budgets
- Strategy 5: Organize and maintain institutional knowledge of UMRR's policy and programmatic efforts

Objective 4.2 **Implement the UMRR as outlined in the program's adopted Joint Charter for the UMRR Coordinating Committee, Analysis Team, and Habitat Planning and Sequencing Framework Teams, as well as the FY 2015-2025 UMRR Strategic Plan**

- Strategy 1: Partner agencies implement program activities in accordance to the adopted Joint Charter
- Strategy 2: Partner agencies collaboratively develop and implement the strategic plan

UMRR-EMP CC REVIEW DRAFT

APPENDIX A: PROGRAM AUTHORIZATION

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).

UMRR-EMP CC REVIEW DRAFT

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.

UMRR-EMP CC REVIEW DRAFT

(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.

UMRR-EMP CORE REVIEW DRAFT

(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.

UMRR-EMP CC REVIEW DRAFT

ATTACHMENT E

2012 UMRR-EMP Environmental Design Handbook

- **Table 2-6: HREP Element Lessons Learned** *(E-1 to E-7)*
- **Table 3-2: Linking Ecosystem Objectives and Restoration Actions** *(E-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 obtained after the island features, or borrow sites are identified, ***so the borings are within the footprint of these features.***	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 to 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	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

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 F

Navigation and Ecosystem Sustainability Program (NESP) Information Paper (10/31/2014)

(F-1)

Information Paper

Navigation & Ecosystem Sustainability Program (NESP)

Overview→

The Navigation and Ecosystem Sustainability Program (NESP) is a long-term, dual purpose program of ecosystem restoration and navigation improvements for the Upper Mississippi River System (UMRS) that will be implemented through integrated, adaptive management.

The UMRS is a Congressional declared "a nationally significant ecosystem and a nationally significant commercial navigation system." The same waters that transport more than 60 percent of America's corn and soybeans are home to 25 percent of North America's fish species and are globally important as a flyway for 40 percent of North America's migratory waterfowl and shorebirds. However, both the river transportation system and the river ecosystem are deteriorating.

The purpose of NESP is the implementation of an integrated, dual-purpose plan to ensure the economic and environmental sustainability of the UMRS.

Challenge→

Navigation: The UMRS is critical to the efficient movement of bulk materials including corn, soybeans, coal, road salt, construction materials, oil, and other products. But the 85+ year-old navigation system has some of the longest lockage delays due to single, undersized 600-foot lock chambers (most tows are 1,200 feet in length) which increases costs and safety risks. The aging system is increasingly unreliable due to downtime for repair of aged gates and machinery. Additionally, the opening of the enlarged Panama Canal is expected to increase traffic on UMRS, further driving the need for long-term strategy for maintaining a reliable and cost-effective inland navigation system.

Ecosystem: Man-made and natural changes in the 1,200-mile long Upper Mississippi River system have seriously altered an ecosystem that boasts 2.7 million acres of bottomland forests, islands, backwaters, side channels and wetlands. Those changes have led to reduced water quality and have threatened species diversity and abundance by shrinking habitat used by 300 species of birds, 57 of mammals, 150 of fish and other wildlife. It's led to a related decline in human access to the system, reducing recreational opportunities for boaters, hunters, trappers, campers, bird watchers and others. The problem is both social and economic; the system supplies fresh water to 30 million residents and tens of thousands of industries. It also generates $6.6 billion dollars in revenue annually from visitors who hunt, fish and recreate on the river and jobs for the more than 100,000 people employed in recreation and tourism within the corridor.

Solution→

After nearly 15 years of in-depth study and evaluation costing approximately $76M, Congress authorized the Navigation and Ecosystem Sustainability Program in the 2007 Water Resources Development Act which provides authority to construct small-scale navigation improvements, seven new 1,200-foot lock chambers, and ecosystem and habitat restoration. NESP is a pivotal mechanism for restoring and sustaining the nation's largest river system through navigation improvements, ecosystem restoration, and dual-purpose operation at a system-wide scale.

Current Status→

NESP funding is not included in the President's FY2015 budget. Minimal funding ($50k) was provided in 2014 to update the construction costs estimates. From 2005 to 2010, approximately $62M was spent planning and designing over 30 ecosystem restoration and navigation projects. No construction funds have been appropriated to date. Construction of several ecosystem and small-scale navigation projects could begin within one year after construction funding is appropriated.

For more information contact→

Michael Tarpey, Regional Program Manager
Michael.J.Tarpey@usace.army.mil
309-794-5593

Or visit→

http://www.mvr.usace.army.mil/Missions/Navigation/NESP.aspx

ATTACHMENT G

Additional Items

- **Future Meeting Schedule** *(G-1)*
- **Frequently Used Acronyms (8/25/14)** *(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

FEBRUARY 2015	
Rock Island, Illinois	
February 10	UMRBA Quarterly Meeting
February 11	UMRR-EMP Coordinating Committee

MAY 2015	
St. Louis, Missouri	
May 5	UMRBA Quarterly Meeting
May 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
CUA	Cooperative Use Agreement
CWA	Clean Water Act

DALS	Department of Agriculture and Land Stewardship
DED	Department of Economic Development
DEM	Digital Elevation Model
DET	District Ecological Team
DNR	Department of Natural Resources
DO	Dissolved Oxygen
DOA	Department of Agriculture
DOC	Department of Conservation
DOER	Dredging Operations and Environmental Research
DOT	Department of Transportation
DPR	Definite Project Report
DQC	District Quality Control/Quality Assurance
DSS	Decision Support System
EA	Environmental Assessment
ECC	Economics Coordinating Committee
EEC	Essential Ecosystem Characteristic
EIS	Environmental Impact Statement
EMAP	Environmental Monitoring and Assessment Program
EMAP-GRE	Environmental Monitoring and Assessment Program-Great Rivers Ecosystem
EMP	Environmental Management Program (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
IRPT	Inland Rivers, Ports & Terminals
IRTC	Implementation Report to Congress
IRWG	Illinois River Work Group
ISA	Inland Sensitivity Atlas
IWR	Institute for Water Resources
IWRM	Integrated Water Resources Management
IWTF	Inland Waterways Trust Fund
IWUB	Inland Waterways Users Board
IWW	Illinois Waterway
L&D	Lock(s) and Dam
LC/LU	Land Cover/Land Use
LDB	Left Descending Bank
LERRD	Lands, Easements, Rights-of-Way, Relocation of Utilities or Other Existing Structures, and Disposal Areas
LiDAR	Light Detection and Ranging
LMR	Lower Mississippi River
LMRCC	Lower Mississippi River Conservation Committee

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

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

SET	System Ecological Team
SONS	Spill of National Significance
SOW	Scope of Work
SRF	State Revolving Fund
SWCD	Soil and Water Conservation District
T&E	Threatened and Endangered
TLP	Traditional License Process
TMDL	Total Maximum Daily Load
TNC	The Nature Conservancy
TSS	Total Suspended Solids
TVA	Tennessee Valley Authority
TWG	Technical Work Group
UMESC	Upper Midwest Environmental Sciences Center
UMIMRA	Upper Mississippi, Illinois, and Missouri Rivers Association
UMR	Upper Mississippi River
UMRBA	Upper Mississippi River Basin Association
UMRBC	Upper Mississippi River Basin Commission
UMRCC	Upper Mississippi River Conservation Committee
UMRCP	Upper Mississippi River Comprehensive Plan
UMR-IWW	Upper Mississippi River-Illinois Waterway
UMRNWFR	Upper Mississippi River National Wildlife and Fish Refuge
UMRR-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.