

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

**May 25, 2016
Quarterly Meeting**

**Hampton Inn
St. Louis, Missouri**

Tim Yager of the U.S. Fish and Wildlife Service, on behalf of Sabrina Chandler, called the meeting to order at 8:00 a.m. on May 25, 2016. Other UMRR Coordinating Committee representatives present were Don Balch (USACE), Jeff Houser (USGS) on behalf of Mark Gaikowski, Dan Stephenson (IL DNR), Tim Hall (IA DNR) on behalf of Randy Shultz, Kevin Stauffer (MN DNR), Janet Sternburg (MO DoC), Jim Fischer (WI DNR), Ken Westlake (USEPA) via phone, and Marty Adkins (NRCS). A complete list of attendees follows these minutes.

Minutes of the February 24, 2016 Meeting

Jim Fischer moved and Kevin Stauffer seconded a motion to approve the draft minutes of the February 24, 2016 UMRR Coordinating Committee meeting as provided. The motion carried unanimously.

Regional Management and Partnership Collaboration

FY 2016 Fiscal Report

Marv Hubbell reviewed UMRR's FY 2016 internal allocations under the \$21.174 million planning scenario, as below. This amount includes \$1.387 million in additional funding that the Corps allocated to UMRR in its FY 2016 work plan. Hubbell said the additional funding was disbursed in each of the broad categories below: regional administration and programmatic efforts, regional science and monitoring, and habitat restoration.

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

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

FY 2017 President's Budget

Hubbell said the President's FY 2017 budget request includes \$20 million for UMRR, which is matched by the House Appropriations Committee and the Senate Appropriations Committee in their respective FY 2017 energy and water appropriations measures. In addition, the House Appropriations Committee included \$25 million in additional FY 2017 funding in the Corps' construction account for ecosystem restoration or compliance programs and projects. The Senate Appropriations Committee included \$40 million in FY 2017 funding for that line item. UMRR is eligible to receive the additional ecosystem restoration or compliance funding through a competitive process per the Corps' work plan allocations.

FY 2018 President's Budget

Hubbell reported that District staff are developing capability reports for the FY 2018 budget.

UMRR's "30 Years of Service" Commemoration

Hubbell said UMRR's 30 years of service commemoration is scheduled for August 8, 2016 in late afternoon or early evening. Holding the event later in the day alleviates scheduling conflicts for Corps staff and agency leaders involved with the Mississippi River Commission's low water inspection tour, and facilitates public participation in the event. An *ad hoc* interagency team is currently developing an agenda and key messages and securing logistics.

Hubbell mentioned that Corps staff have been deliberating about the appropriate name for the event that is not too boastful about its longevity but that showcases UMRR's many successful achievements over its first 30 years and its relevance in making the UMRS a healthier and more resilient ecosystem.

2016 UMRR Report to Congress

Kirsten Mickelsen thanked many UMRR partners for their contributions to the report's content and writing, as well as photos and other images. Mickelsen reflected that the report represents the breadth and depth of the program's many aspects and its contributions to the region and nation.

Mickelsen reported that the second partnership review of the 2016 UMRR Report to Congress (RTC) was employed between March 14 and April 16, and a request for a third, final review was emailed from Margie Daniels on May 16. Comments from the May 16 review draft are due on June 10. Simultaneously, a formal Corps review is ongoing and comments are requested by June 30. Should any major comments be received, a partnership conference call will be convened in July. She said the only major modification in the third draft report is the executive summary. Instead of a traditional executive summary format, it pulls out the most important key messages of UMRR's successful implementation and makes the case for the program's relevance well into the future. Mickelsen said that the anticipated publication schedule is to incorporate professional graphics from July to September 15, submit an electronic reviews draft to Corps leadership on September 15, and ground mail hard copies to MVR on November 1 for wider distribution. She acknowledged that this is an incredibly tight timeline.

Mickelsen explained that the report provides a great deal of detailed information about UMRR's implementation in order to ensure transparency and accountability for all of the efforts that the program funds. Given that many readers will simply skim through the report, Mickelsen said she is working with program partners to provide short sound bites associated with pictures, figures, and tables. She showed a couple of examples.

In response to a question from Jim Fischer, Mickelsen explained that District staff are seeking Headquarters' and Division's input on the policy recommendations including the UMRR/NESP Transition Plan. Fischer cautioned against any statement that may indicate dissatisfaction with UMRR.

UMRR Database

Hubbell reported that District staff published new, recalibrated maps of UMRR's completed habitat project boundaries as well as a white paper that provides mapping guidelines and methodologies for defining project boundaries. The white paper and new, recalibrated maps are available at <http://www.mvr.usace.army.mil/Missions/EnvironmentalProtectionandRestoration/UpperMississippiRiverRestoration/HabitatRestoration/FindanHREPPProject.aspx>. Two web-based conference calls are scheduled to facilitate an interactive review of the redefined boundaries and guidelines, and to ask questions regarding the boundary data and white paper. Marked-up PDFs and other comments can also be submitted to Marv Hubbell (marvin.e.hubbell@usace.army.mil) or Michael Dougherty (michael.p.dougherty@usace.mil.usace). The webinar dates and call-in information is as follows:

- Dates: June 8 and 15 at 10 a.m.
- Call-in details:
 - Web-connection: <https://www.webmeeting.att.com>
Access code: 3926936
 - Phone connection: 877-873-8018
Access code: 3926936
Security code: 1111

Hubbell confirmed that the redrawn boundaries have resulted in relatively little change in the total number of acres restored that the Corps has been reporting for UMRR. Ken Westlake asked if changes in the river's geomorphology over time have affected the boundaries and acreage totals. Hubbell and Tim Eagan explained that the mapped boundaries surround the planning area described in the feasibility report. That area extends beyond the project features and therefore has a stable footprint. In response to a question from Fischer, Hubbell said examining the project's area of influence may be a future endeavor for the program. This is a first step to obtaining consistency among UMRR habitat projects' reported acreages benefited. Defining the criteria and process for determining and evaluating the area of influence will require careful consideration. For example, the answer will vary significantly if targeting certain fish or wildlife species. Fischer suggested that standardizing project goals and objectives among floodplain reaches would allow for comparing and adding such acreage totals in the future.

In response to a question from Janet Sternburg, Hubbell said the database is not yet accessible to partners. District staff have been focused on inputting the data first and then will explore external accessibility capabilities. However, Hubbell urged partners to contact him with any information requests utilizing the database. In response to Sternburg's comment that partners may not be fully aware of the available information, Karen Hagerty suggested that District staff host a webinar on the database's capabilities. Sternburg supported Hagerty's suggestion.

External Communications and Outreach

Final Logo Design and Tagline

Angie Freyermuth reported that graphics for the new UMRR logo are finalized with the slight modifications to the design as requested by the UMRR Coordinating Committee at its February 24, 2016 quarterly meeting. Freyermuth said she sent a May 3, 2016 email to the Coordinating Committee, A-Team, field station leads, and key Corps staff with high resolution images of the logo in various file formats as well as guidelines for using the logo. She requested that the new logo is used going forward on all UMRR-related publications and outreach material using the standardized protocols. Consistent use of the logo is important for brand recognition and valuation.

Communications Team

Freyermuth requested that, by May 30, partners send her 1) any relevant, captivating pictures to include in an accomplishments book that would showcase UMRR's successes over its first 30 years, and 2) names of interested individuals to serve on the UMRR Communications Team. In FY 2017, ideas for improving UMRR's communications and outreach include redesigning and revamping UMRR presentations, updating signage at habitat project sites and field stations, establishing a virtual recreational trail(s) with informational material about UMRR, and launching a UMRR quarterly newsletter.

Marty Adkins emphasized the need to engage land owners in the watershed whose management of private lands affect nutrient loading into the UMRS and its ecological health. It is important to communicate to the public in the watershed about their direct connection to the UMRS ecosystem, as well as the value of the UMRS as a transportation corridor and for economic development. Adkins responded to a question from Hubbell about how best to engage watershed stakeholders by suggesting that conversations with interested public occur deliberately and outside of UMRR quarterly meetings.

In response to a question from Janet Sternburg, Freyermuth said the accomplishments book is pulling a mixture of higher-level and micro-level achievements that are described in the 2016 UMRR RTC. Sternburg asked Freyermuth if she was seeking information from UMRR engineers about how the program's restoration techniques are now being used across the country. Jeff Houser said that many individuals outside of the program are impressed with the flow of long term monitoring and other science information among all agencies working on the UMRS. Houser said this information flow was a recognized need in the 1982 UMRS Master Plan.

Jim Fischer said the Mississippi River Parkway Commission could be a great resource for developing the recreational trail. In addition, Fischer said LTRMP field stations often receive questions from the public at boat landings. He suggested that the communications team consider creating generic business cards with key informational resources for passing out when interacting with the public. Ken Westlake suggested adding UMRR signage at marinas, boat landings, overlooks, and other recreational areas. In response to a question from Tim Yager, Freyermuth clarified that the recreation trail would be a virtual, interactive map that highlighted access points and habitat projects. Once that is developed, UMRR may consider developing water and hiking trails for the public to explore.

In response to a question from Brian Johnson, Freyermuth said that the *Our Mississippi* is published three times a year. The summer edition will feature UMRR's "30 years of service" celebration. Freyermuth explained that a UMRR quarterly newsletter would be a supplement to *Our Mississippi* and would be used for Congressional visits and other outreach. She added that *Our Mississippi* does not always feature UMRR.

Hubbell reported that Col. Craig Baumgartner, MVR's Commander, directed Freyermuth to spend a significant amount of time on UMRR outreach. It is a tremendous opportunity for the program to utilize her expertise. Hubbell expressed appreciation to Freyermuth for her work on this effort.

Dru Buntin recalled Hubbell's explanation that, in light of the FY 2017 budget discussions, there has been concern from some Corps leadership about how a celebration recognizing UMRR's existence for 30 years might be perceived. Buntin discussed the challenges in creating messages of UMRR's importance and significance while maintaining a low profile. In developing the 2015-2025 UMRR Strategic Plan, partners talked extensively about the need to better communicate UMRR's achievements in order to show the program's national relevance. Buntin emphasized that, while he understands the concerns about highlighting the fact that UMRR has been funded for 30 years, failing to aggressively highlight the great work accomplished by the partnership through UMRR would risk the program's future funding given the extremely competitive nature of limited national ecosystem restoration dollars.

There has been a lot of groundbreaking work, research, as well as a great deal of in-kind contributions from program partner organizations that have resulted in UMRR's accomplishments, and given the increasing competition for limited resources, UMRR will need to pursue a robust, integrated communications strategy in order to remain competitive. Buntin explained that, while he understands that some of this concern is related to the conflicting timing with the Mississippi River Commission's low water inspection tour, it was Corps staff that had recommended holding the UMRR's 30th anniversary event in conjunction with the tour during discussion at the November 17, 2015 breakfast meeting with the UMRBA Board. Buntin suggested that these kinds of challenges are the types of issues that the communications team could help address.

Sternburg added that existing ecological challenges and UMRR's ability to address them also needs to be communicated. Partners need to be prepared to answer questions such as "when will UMRR be done?" Hubbell agreed and said UMRR's monitoring and science information will help answer that question. Hubbell mentioned that John Anfinson will provide that foundation in his remarks at the program's August 8, 2016 30th anniversary event. Hubbell emphasized that a major science restoration program on a large river ecosystem is a major undertaking and it is important to continue for the purposes of integrated management of the river to support multiple uses. Adkins suggested communicating about UMRR in ways that will energize targeted audiences by telling them how UMRR helps to advance their respective goals.

America's Watershed Initiative 2016 Raise the Grade Conference

Hubbell said the Mississippi River Conference is scheduled to meet in the Quad Cities on October 13-14, 2016. A focus of the meeting will be on the metrics used in the America's Watershed Initiative's (AWI's) Raise the Grade Report Card. District staff plan to encourage the use of UMRR's tremendous amount of long term monitoring data and other information to develop key messages that more accurately reflect the current ecological state on the UMR and UMRR's role in "raising the grade."

In response to a question from Janet Sternburg, Buntin said TNC is hosting the event and UMRBA is on the AWI's Steering Committee and will be helping to plan the event. Olivia Dorothy said the Report Card has many shortcomings. In particular, the metrics used do not accurately reflect the condition on the river but were chosen because they might have the information available in all the subwatersheds. Dorothy indicated that she will be submitting comments on the Report Card and is willing to share them before the October event. Brad Walker said he has also followed the Report Card's development since the beginning and has provided comments.

Public Outreach and Engagement

Tim Yager reported that a dedication of Capoli Slough was held on May 13, 2016 and was attended by 40-50 local public, including a large school group. The event was publicized in *Dredging Today*. Yager said the article attracted national attention at the USFWS's Headquarters office.

Long Term Resource Monitoring and Science

FY 2016 2nd Quarter Highlights

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

- Publication of 1) a fact sheet of UMRS landscape ecology and 2) a trend analysis methods development report.
- Serving all of the 2015 long term resource monitoring data on USGS's UMRR web site.
- A statistics class held at UMESC on April 12-14, 2016, which was attended by 14 partners.

Houser explained that the fact sheet describes UMRR's research on landscape ecological research, including indicators used to inform regional restoration priorities and how connecting landscape patterns with ecological processes allows for predicting the likely effects of restoration. The research is generating valuable information about the spatial arrangement of various land cover and habitat types, such as the diversity of aquatic areas. Another example is using the landscape pattern research to inform where flooding conditions could support various floodplain plant communities. Houser noted that the report regarding trend analysis methods found that relatively simple linear regression and state-space random walk models performed best for estimating multi-year temporal trends for LTRMP fish (catch per unit effort) and aquatic vegetation (occurrence).

In response to a question from Jim Fischer, Houser said that USGS is nearly finished with reworking the Java script for the long term resource monitoring data. Houser said it is sometimes a big effort to keep up with evolving technologies. Jennie Sauer added that the anticipated dates for completing the Java script updates are provided in the milestones chart that is included in the agenda packet.

In response to a question from Marv Hubbell, Houser said the 2015 monitoring data showed high turbidity in the lower floodplain reaches and that vegetation continues to do well. He explained that hydrology seemed to drive the difference in turbidity among the upper and lower floodplain reaches.

Marty Adkins asked if the tree diversity index is being used to define the optimal vegetation conditions on habitat projects. Nate De Jager said that involves a complex answer and that he would follow up with Adkins. Karen Hagerty mentioned that Corps foresters use the index to target higher elevations for forest restoration. In response to a question from Ken Westlake, De Jager said the flood inundation model is used to determine the areas that will experience certain flood durations and to identify the appropriate vegetation species that will survive in those conditions. Tim Yager mentioned that the UMRS water level management task force is considering opportunities to implement drawdowns in order to reduce the flood inundation time period during the growing season.

USACE Science Update

Hagerty said the total funding available for science in FY 2016 is \$5.463 million, including \$312,774 in FY 2014 and FY 2015 carry-over mostly due to unfilled vacancies. Hagerty said that \$5.463 million is allocated in the FY 2016 SOWs, with \$4.5 million for long term resource monitoring and 963,000 for analysis under base funding. With \$180,745 remaining, the UMRR LTRMP management team agreed to allocate \$28,386 to continued telemetry work to support the Pool 12 Overwintering habitat project's adaptive management analysis and \$52,000 for Corps staff participation in the ecological resilience effort. That left \$100,359 in available money for science analyses in support of restoration. Hagerty recalled the discussion at the February 24, 2016 quarterly meeting and reported that, via email correspondence following that meeting, the UMRR Coordinating Committee endorsed a proposal by the LTRM Management Team to allocate the remaining \$33,130 FY 2015 carry-over money to Wisconsin DNR for evaluating biological shifts due to invasion by curly-leaf pondweed.

Hubbell said UMRR also funded the ecological resilience work, the HNA II, and other science research. Hagerty added that the landscape research was also funded in FY 2016.

A-Team Report

Shawn Giblin reported that the April 27, 2016 A-Team meeting included a series of connectivity-related presentations, including fish indicators of ecosystem health, hydraulic connectivity engineering and hydraulics perspectives, USFWS National Wildlife Refuge System's O&M for hydraulic connectivity, how hydraulic connectivity drives water quality and habitat outcomes from both a northern and southern perspective. Giblin overviewed each of the presentations and observed that the A-Team meetings

provide a great opportunity for engineers and biologists to discuss ideas and to synthesize information that is being learned. The A-Team meetings also provide important opportunities to showcase progress that has been made in understanding the effects of various levels of connectivity and to show how these concepts can, and have been, applied to UMRR habitat projects. Giblin said the next A-Team meeting will focus on water depths.

Hagerty said she has received very positive feedback on the A-Team meeting from District staff. The themed approach to the presentations was very effective. Fischer expressed appreciation to Giblin for his leadership of the A-Team. Barb Kleiss said that similar research is being conducted on the Lower Mississippi River to better understand connectivity, and suggested that there are opportunities to coordinate. Kirsten Mickelsen noted that Giblin provided several important points that would be helpful for communication efforts and suggested that certain soundbites of learned information be shared in a common place so that they are easy to find and use.

Developing Ecological Resilience Conceptual Models

Houser provided an overview of UMRR's effort to-date to define and apply the concepts of ecological resilience to the UMRS. He recalled that the 2015-2025 UMRR Strategic Plan called for UMRR's habitat projects to address ecological resilience and for an increased understanding of the status and trends of the UMRS's ecological resilience. Houser said USGS hired Kristen Bouska in fall 2015 to assist with the resilience effort. He discussed USGS's work thus far to engage UMRR partners in defining conceptual models of lentic, lotic, and floodplain forest subsystems within the UMRS ecosystem:

- Resilience work group meeting in fall 2015
- Informal questionnaire to UMRR partners winter 2015-2016
- Facilitated workshop in January 2016
- UMRR LTRM Science Meeting in February 2016
- UMRCC in Spring 2016

Houser listed the participants involved in the resilience working group including Dave Bierman (Iowa DNR); Dave Herzog (Missouri DoC); Kristen Bouska, Nate De Jager, and Jeff Houser (USGS); Andy Casper (Illinois Natural History Survey); Kirsten Mickelsen (UMRBA); Bob Clevestine, Sara Schmuecker, and Steve Winter (USFWS); Jon Hendrickson, Marv Hubbell, and Nate Richards (USACE); Shawn Giblin (Wisconsin DNR). In addition, the following individuals participated in the January 2016 workshop: Kevin Stauffer (Minnesota DNR); Dru Buntin (UMRBA); Melinda Knutson (USFWS); Brian Ickes, Jim Rogala, and Yao Yin (USGS); Lance Gunderson (Emory University); and Allyson Quinlan (Resilience Alliance).

Houser explained the definition of resilience as “capacity of a system to absorb disturbance and reorganize while undergoing change so as to still retain essentially the same function, structure, identity, and feedbacks.” Main concepts of ecological resilience are:

- Small changes in controlling variables can lead to rapid changes in major ecosystem services to rapid changes in major ecosystem services when the system is near a threshold
- There are multiple possible states, instead of one global equilibrium to which an ecosystem can always return.
- There exists nonlinearity (hysteresis), meaning that an ecosystem cannot always return to its original state.

- Controlling variables and other components of the ecosystem can interact resulting in positive or negative feedbacks – e.g., a positive relationship exists between sedimentation and submersed aquatic vegetation.
- Slow variables, such as sedimentation, play a key role.

Houser explained that resilience is value neutral and must be placed in context. Strong resilience can either maintain a healthy ecosystem or an unhealthy ecosystem in the face of disturbances. On the other hand, low resilience could either shift a healthy ecosystem to an undesirable state or vice versa. For example, the return of a high presence aquatic vegetation in the northern reaches of the UMRS suggests that its vegetation is resilient to stressors. However, in the southern reaches, the vegetation seems to have difficulty reestablishing and therefore the vegetation is either not resilient or it may be resilient to its poor state. Houser said changes in ecological states can occur gradually in a relatively linear fashion, quickly at some threshold point, or hysteresis where an ecosystem cannot simply return back to its original state.

Houser said the workbook, *The Resilience, Adaptation and Transformation Assessment Framework: From Theory to Application*, is being used as a guide to applying ecosystem resilience concepts to the UMRS. The workbook contains three main sections: system description, assessing the system, and adaptive governance and management. Thus far, USGS has lead partners through the first main section, which includes defining the scope, scale, and a “desirable” future condition, the resilience of what to what, the governance and social interactions, and how the ecosystem functions.

Houser said the purpose of doing the ecological resilience assessment is to 1) improve the understanding of the UMRS’s current ecosystem resilience and the potential for management and restoration actions to affect the resilience of the UMRS, 2) identify potential indicators of ecosystem resilience, and 3) identify areas of uncertainty where additional study is needed to inform management and restoration. UMRR partners agreed to define the UMRS ecosystem as the main stem river and floodplain, with larger scale processes included as external drivers. The analyses will focus at the floodplain reach scale, given the significant differences in ecosystem condition throughout the UMRS. In addition, the analyses will focus on three main ecological systems:

- 1) Lentic: backwater lakes and impounded areas
- 2) Lotic: channels (main and side channels)
- 3) Floodplain (with emphasis on forests)

Houser said the workshop and survey were used to define the major issues affecting the system. Houser listed all of the identified issues. They ranged among altered hydrology, habitat loss and deterioration, sedimentation, impaired recreational access, altered hydrologic connectivity, and so forth.

Houser said the next step is to define a basic relationship of the valued ecological component to its stressor – i.e., the resilience of what to what. This requires determining the critical ecological components of the system and what are the likely shocks/disturbances that the ecosystem will continue to experience. To answer the question of “resilience of what,” the resilience work group identified the valued uses or ecosystem services that are provided by the UMRS (e.g., recreation, water quality) and the ecological components that support those uses or services. Houser showed the timeline that Kristen Bouska developed to visualize the historical pattern of disturbances that have affected the UMRS ecosystem, including eras associated with settlement and opening, navigation and floodplain development, and multi-use management.

Houser explained that the resilience work group then examined the main controlling variables and interactions among them that essentially make the ecosystem function, as well as the interactions across and within scales and feedbacks. USGS staff then synthesized that information into conceptual models

for each of the three sub-ecosystem classifications: lotic, lentic, and floodplain. Houser explained that USGS staff are working with UMRR partners to determine what we know about the relationships between components required to support expected uses and services and the key controlling variables, as well as what we do not know and need to research. The models will also be used to determine past and potential impacts of ecosystem management and restoration of the river.

Houser explained the conceptual model of lentic backwaters, showing how the external drivers, controlling variables, and aggregate factors interact with each other and affect the major uses and services. USGS staff are developing tables to identify the quantifying thresholds between the key controlling variables and major uses and services as well as the associated scientific research. Houser said the models reflect the notion that the resilience of the UMRS ecosystem is dependent on individual and cumulative relationships among various stressors and disturbances and the valued ecological components that they influence.

Houser said the resilience work group will begin working on the second section of the resilience workbook – i.e., assessing the system. This will include assessing alternate regimes (states) of the ecosystem, such as high turbidity and scarce aquatic vegetation versus clear water and abundance aquatic vegetation. The assessment will lead to answers about *specific* resilience (resilience of particular parts of a system to identified disturbances) and *general* resilience (the capacity of the ecosystem to cope with unfamiliar shocks and surprises). The conceptual models form the basis for determining specific resilience. Houser said that the principles for building resilience include maintain diversity and redundancy, manage connectivity, and manage slow variables and feedbacks, and described how UMRR's habitat projects contribute to those principles.

Houser said next steps include populating the models and tables with information, refining the conceptual model diagrams, publishing the system assessment effort to-date and analyzing existing data to better quantify and understand the relationships identified in the conceptual models. Ultimately, the goal is to describe the impacts of UMRR's restoration and management of the ecosystem. Houser said UMRR's long term monitoring data will be the primary reference for quantifying the relationships. The expected outcomes of this work are to assess the current state and trends of the UMRS's ecosystem, including trends in controlling variables, proximity to thresholds of concern, developing indicators of resilience, determining where the system is acceptable and resilience should be enhanced to maintain the state and where the system is unacceptable and resilience should be reduced.

Janet Sternburg expressed her appreciation for Houser's presentation and all of the work put into developing the conceptual models. There has been a lot of progress in a relatively short timeframe and indicated her support for its progress. Jim Fischer echoed Sternburg's sentiment and said he is very impressed with the effort to date. Megan Moore applauded the resilience work group's efforts and said the conceptual models provide a great communications tool for connecting what has been learned, the restoration work to improve the river's condition, and what remains to be done. Houser agreed that the conceptual models can serve as a framework for communication and an important way for examining the long term monitoring data. He added that the A-Team's efforts to pull together interactive conversations about the learned information of external drivers and controlling factors is very useful and fits well into this work. Marty Adkins said he learned a lot from Houser's presentation. This could serve as an important connection to the watershed. Integrating UMRR's work to watershed programs and projects will require a concerted effort.

Marv Hubbell said Houser, USGS staff, and others participating on the work group have done an excellent job putting this all together. According to Hubbell, this work is very important to reexamining where UMRR is headed and having the information available to be accountable and transparent about the successes of habitat projects. It also serves as a powerful example of using science to frame where we need to go with habitat restoration. Houser also expressed appreciation to Kristen Bouska who has done a large amount of the work on the timeline and synthesizing the information as well as to the

partners who have providing input and participated in the effort. Ken Westlake said Houser provided a great presentation and remarked about the tremendous work of putting complex information into an understandable framework.

Habitat Restoration

District Reports

St. Paul District

Chris Erickson reported that MVP transferred \$1.5 million to MVR to advance Pool 12 Overwintering construction, and anticipates using the repayment next year for awarding North and Sturgeon Lakes. The District also anticipates completing Harper's Slough next year. The contractor indicates that construction should be completed in two years rather than the three years originally scheduled. Erickson also summarized the public outreach events associated with the Capoli Slough dedication, including STEM-related activities with local elementary schools.

Rock Island District

Hubbell reported that MVR's FY 2016 planning priorities are Keithsburg and Beaver Island, which is scheduled for completion this fiscal year and a construction start anticipated for FY 2018. MVR will start planning for Delair in FY 2017. Delair is replacing Boston Bay in response to USFWS's preference. Huron Island's design is nearly complete and the project will soon be advertised for a contact bid. Rice Lake was damaged in the summer 2015 flood and repairs should be completed by September 1. Hubbell said that District staff are working to complete three project evaluation reports.

In response to a question from Dru Buntin, Hubbell explained that the Delair project was selected by the District teams and the system ecological team and endorsed by the UMRR Coordinating Committee a few years ago.

St. Louis District

Brian Markert said MVS is advancing planning on Piasa and Eagles Nest Islands and Harlow and Open River Islands. Evaluation reports for Stag Islands and Pharris Islands are nearly complete. MVS anticipates awarding a construction contract for Clarence Cannon in September 2016, and closing out construction on Pools 25 and 25 this fiscal year. Ted Shanks involved the primary construction effort for MVS in FY 2016.

Rip Rap Landing

Brian Market emphasized that the St. Louis District enjoys great working relationships with a diverse set of stakeholders, allowing for implementation of important water resource projects that maintain the principles of integrated, multi-purpose management of the UMRS. Markert showed an 1890 map of the Rip Rap Landing habitat project location and the original Sny Levee District, which is located on the northern portion of the project site. He explained that the area is important for migratory birds, fish spawning and rearing, wildlife habitat, and the continued support of environmental services and uses. However, it has faced many degrading stressors including sedimentation and high nutrient loads, altered hydrology, major flooding, reduced floodplain connectivity and channel constriction from levees, invasive species, lack of forest diversity and hard mast trees, and limited infrastructure to support water level management of the backwaters.

Markert described the selected plan for Rip Rap Landing and how restoration features in the each of the five zones within the project site address important resource issues. Total estimated project cost is

\$9 million. However, the restoration of Dog Island will be funded at full federal expense, reducing the costs in the cost share agreement with Illinois by \$1.133 million to \$6.250 million. Illinois is contributing \$2.886 million in LERRDs credits (lands, easements, rights-of-way, relocation of utilities or other existing structures, and disposal areas). The value of these lands was estimated by the Corps but may be higher given the recent demand for hunting lands in west central Illinois. Market said the estimated average annualized cost for OMRR&R is \$62,098.

Markert reported that, while the draft feasibility study is complete, the Corps and NRCS are still considering legal issues under the existing wetland reserve program (WRP) easement that exists on a portion of the project site. He compared the purposes of the WRP easement on the project site with the Rip Rap Landing's habitat project goals, noting that they are complementary and work towards the same goals of increasing the quality and quantity of fish and wildlife habitat and improving water quality and water level management.

Markert explained that the Corps is working with Illinois DNR and NRCS to determine whether there are opportunities to work within the WRP requirements to show that the appropriate real estate interest has been acquired. All lands must be acquired either by the non-federal sponsor or through fee title. Corps policy (WR 405-1-12) also seems to allow for "a lesser, or easement estate" given the OMRR&R needs. Markert said NRCS typically requests a detailed project design in order to evaluate and issue a compatible use authorization (CUA), but the Corps' draft feasibility report does not provide sufficient detail for a CUA determination. In the interim, NRCS has issued a letter of support for the Rip Rap Landing feasibility report and has suggested continued involvement and development of planning and specs for the project. The Corps has expressed issues with the option of using a CUA because it is five year time limit and is revocable. There are no assurances that the CUA will be maintained throughout the project design life of 50 years.

Markert recalled that planning on Rip Rap Landing was initiated in 2009, and from 2011 to 2013, the Corps worked with partners to complete an independent technical review (ITR), in-progress review (IPR), alternative formulation briefing (AFB), as well as to incorporate District and Division leadership comments and revisions. In addition, Corps Headquarters issued a waiver allowing Rip Rap Landing to proceed to construction even though its land acquisition exceeds USACE's policy threshold limiting land acquisition to no more than 25 percent of the project's total cost. In 2014, the Corps completed an agency technical review (ATR) for the project and revised the draft feasibility report to incorporate District and Division comments. MVS submitted the revised report to Division in August 2015 for its approval. Between November 2015 and April 2016, Division expressed concern with the NRCS option for using a CUA on the easement because of the time limit and the provision that allows NRCS to revoke the agreement. Over that time, there have been many discussions among Corps and NRCS leadership and legal staff. Markert said the Northwestern Division (NWD) provides an example agreement where the Missouri River Recovery Program (MRRP) was able to move forward with a restoration project involving lands with a WRP easement. Markert said the next steps in the project development phase include approval of the feasibility report, non-federal appraisal of real estate, execution of the project partnership agreement (PPA), design of project features, and construction. There are three possible options for addressing the real estate concerns:

- 1) Work with Illinois state-level NRCS and Illinois DNR to develop alternative language for a CUA
- 2) Request a waiver from Headquarters
- 3) Reformulate the feasibility report

Markert said the Corps has suggested modifying the CUA to include statements that 1) offer a perpetual easement to maintain the project features and 2) allow for inspection and ample time to "cure" issues, rather than the current language allowing for "termination at will." An MOA may be another option that would accompany the CUA. According to Markert, said there is a long history of partnership

among MVS, NRCS, and Illinois and strong stakeholders support for the project. The easement covers only a third of the project site. Markert welcomed any suggestions for resolving the issues, including reaching out to other Divisions and Districts for their experiences in working through similar issues.

In response to a question from Marty Adkins, Markert said USFWS and NRCS agreements are inherently different because they are viewed as a title merger between federal agencies. In the case of Rip Rap Landing, it involves a transfer between state and federal interests. Don Balch said the Division has been consulting the NWD and Corps attorneys to find a workable solution. It will likely need to be resolved at the Corps and NRCS senior executive levels. Another possible solution might be a permit among the federal agencies. Harold Deckard explained that there are fundamental differences between the Rip Rap Landing project and the MRRP project in the NWD, including with reconnecting the floodplain and constructing additional structures. Deckard said he believes the issues will get resolved by the agencies' leadership.

Olivia Dorothy asked Markert to elaborate on the ecological issues to Rip Rap Landing associated with the Sny Levee. Markert said that the ecological challenges to the site are the result of channel constriction from multiple levees upriver as they cumulatively force water downriver more quickly and have resulted in higher sedimentation than would have occurred historically when the river floodplain was connected. Don Balch mentioned that the Corps had a meeting with the Mississippi River Commission (MRC) regarding the Sny Levee on Monday, May 23, 2016. In response to a question from Robert Stout, Balch said flood control on the UMRS is not within MRC's authority. But the MRC has indicated potential interest in collaborating to determine a solution. Monique Savage clarified that feasibility planning assumes that existing structures (e.g., levees) remain in place.

Habitat Project Workshop

Hubbell said an HREP workshop is scheduled for September 27-29, 2016 in Davenport. Workshop objectives include building relationships and facilitating dialogue, discussing insights gained, and strengthening UMRR's restoration efforts. The objectives and an outline of the working draft agenda are included on page E-1 of the agenda packet. The workshop is being co-chaired by the Corps and USFWS, with Kara Mitvalsky and Sharonne Baylor as the lead points of contact.

Janet Sternburg suggested adding an agenda item regarding what is involved in sponsoring a habitat project. Sternburg said it is important to understand the expectations upfront especially as UMRR begins identifying the next generation of projects. Dru Buntin suggested having a special meeting devoted to the challenges for non-federal cost-share sponsors and begin to address these issues before initiating the identification and selection of the next generation of projects.

In response to a request from Jim Fischer, Kirsten Mickelsen explained that the current working draft agenda is an annotated format. Mickelsen said she will work with Mitvalsky and Baylor to provide a more complete draft agenda with a request for input in a save-the-date email to the UMRR distribution list. Fischer requested having a session devoted to using UMRR's long term resource monitoring protocols in habitat project planning and evaluation. Mickelsen said this is included in the current agenda and will include breakout sessions for participants to discuss what we need to be monitoring and why, with the follow-up question of how best to monitor for those identified needs. In response to a question from Houser, Mickelsen said she understands that the UMRR Coordinating Committee state members sent the initial workshop notification to the field stations. Some field station staff have already indicated that they plan to attend. In response to a question from Sternburg, Hubbell said he will look into providing travel support for state agency participants.

Lean Six Sigma

Hubbell recalled that the idea to employ a continuous process improvement evaluation using Lean Six Sigma techniques evolved out of the 2013 UMRR Implementation Issues Assessment and the 2014 UMRR Agency Leadership Summit. It was in response to tighten state budgets during a major recession, while at the same time, the federal government was investing heavily into construction projects that required states' review and permitting. The UMRR Coordinating Committee has had subsequent discussions about the focus and scope of a Lean Six Sigma evaluation and elected to focus on four stages of habitat project planning: initial feasibility planning, evaluation of the existing ecological condition, plan formulation, and the draft environmental assessment report. These stages are where sponsor has the most engagement. Hubbell illustrated the many activities involved in the plan formulation and environmental assessment/NEPA compliance stages.

Hubbell said UMRR has become significantly more efficient at project planning and are completing feasibility studies in less time and at less expense than the Corps SMART planning requirements. Hubbell said he believes that Huron Island habitat project was a turning point. In past discussions from project sponsors, Hubbell provided an overview of where project sponsors are involved in the plan formulation and environmental assessment/NEPA compliance stages. Hubbell said that an interagency project development team (PDT) is established once a project fact sheet is approved. That fact sheet includes goals and objectives for the project that provide a framework for planning and design. The PDTs are involved in planning decisions throughout the feasibility study, but is limited during design and construction. Hubbell said he anticipates that the UMRR Coordinating Committee will continue having these discussions and suggested that some of these issues be discussed in the September 27-29, 2016 UMRR HREP Workshop.

In response to a question from Buntin, Hubbell said he is seeking input on which activities to explore in a continuous process improvement evaluation. Robert Stout acknowledged that feasibility studies involve a lot of work and deliberation and that it would be beneficial to find ways to make them easier to navigate. Stout said the Senate Energy and Public Works (EPW) Committee's draft 2016 WRDA measure has language allowing the Corps to pay the first \$1,000 of a feasibility study. Stout said this would be very beneficial to obtaining stakeholder support and doing some of the initial groundwork. Sternburg recalled that a reason for requesting a continuous process improvement evaluation was to eliminate inefficiencies and redundancies in decision making. Mickelsen noted that the UMRR Coordinating Committee had requested that the Corps provide the milestones at which stakeholders and project sponsors are engaged and make decisions. This would then inform where to focus Lean Six Sigma. Savage noted that communication could be improved and is very important for an efficient and smooth planning process. Chris Erickson advised the UMRR Coordinating Committee to consider the trade-offs associated with a Lean Six Sigma evaluation, given the significant time and fiscal resources required.

In response to a suggestion from Buntin, the UMRR Coordinating Committee agreed to hold a conference call to determine a scope and schedule for exploring process improvements. Mickelsen expressed agreement with Erickson's comment, and recalled that Col. Mark Deschenes and state agency leaders had positive experiences from Lean Six Sigma in their respective agencies and recommended the evaluation techniques be used for UMRR's habitat project planning.

Habitat Needs Assessment II

Tim Eagan reported that the HNA II tri-team chairs (Eagan, Sara Schmuecker, and Nate De Jager) have completed the draft project management plan (PMP) and established the steering committee and representatives for the District-based river teams. Eagan listed the limitations of the 2000 HNA, which

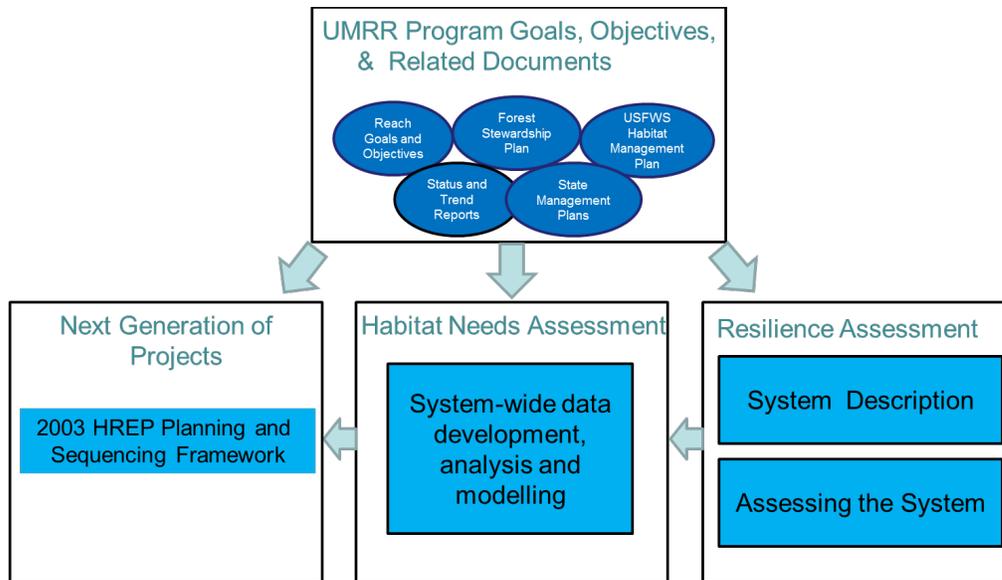
included various data, models, and surveys of fish and wildlife populations and communities. The scope of the HNA II includes the following outcomes:

- Historical changes to UMRS hydrology and habitats, assessment of previous restoration efforts, linkage of existing management objectives with resilience concepts.
- Development and use of an enhanced aquatic areas classification for the UMRS to evaluate current hydro-geomorphic and ecological conditions in aquatic areas.
- Projecting future distributions of aquatic areas and associated ecological conditions under alternative management and environmental scenarios.
- Development and use of a floodplain ecoregions classification for the UMRS to evaluate current hydro-geomorphic and ecological conditions in floodplain areas.
- Projecting future distributions of floodplain vegetation under alternative management and environmental scenarios.
- Current and projected future habitat needs for the UMRS

Eagan said the HNA II steering committee includes Tom Novak (USACE), Bob Clevestine (USFWS), Mark Gaikowski (USGS), Kathy Kowal (USEPA), Marty Adkins (NRCS), Levi Solomon (Illinois Natural History Survey), Kirk Hansen (Iowa DNR), Dan Dieterman (Minnesota DNR), Janet Sternburg and (Missouri DoC). Jeff Janvrin will represent the FWWG (St. Paul District), Levi Solomon will represent the FWIC (Rock Island District), and Kat McCain will represent the RRAT (St. Louis District). The anticipated development schedule includes in-person steering committee meetings in this summer, fall, and winter. The goal is to provide a draft HNA II report to the UMRR Coordinating Committee at its November 2017 quarterly meeting. Hubbell noted that this is not yet an individual identified to represent the Illinois River Work Group. However, Solomon can speak to Illinois River issues and perspectives.

Integration of Ongoing Efforts

Hubbell explained that the selection of next generation of projects will be informed by the ecological resilience conceptual frameworks, results of the HNA II, and many other reference documents such as the 2008 UMRS Status and Trends Report and UMRS Forest Stewardship Plan. The selection process will be guided by the 2003 HREP Planning and Sequencing Framework, which first considers the ecological merits of the projects and then sequences them based on administrative factors. Hubbell illustrated these points through the diagram below.



Other Business

Future Meetings

The upcoming quarterly meetings are as follows:

- **August 2016 — La Crosse**
 - UMRBA quarterly meeting — August 9
 - **UMRR Coordinating Committee quarterly meeting — August 9**
- **November 2016 — Twin Cities**
 - UMRBA quarterly meeting — November 15
 - **UMRR Coordinating Committee quarterly meeting — November 16**
- **February 2017 — Quad Cities**
 - UMRBA quarterly meeting — February 7
 - **UMRR Coordinating Committee quarterly meeting — February 8**

With no further business, the meeting adjourned at 2:02 p.m.

UMRR Coordinating Committee Attendance List
May 25, 2016

UMRR Coordinating Committee Members

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

Others In Attendance

Thatch Shepard	U.S. Army Corps of Engineers, MVD
Barb Kleiss	U.S. Army Corps of Engineers, MVD
Chris Erickson	U.S. Army Corps of Engineers, MVP
Ken Barr	U.S. Army Corps of Engineers, MVR
Marvin Hubbell	U.S. Army Corps of Engineers, MVR
Karen Hagerty	U.S. Army Corps of Engineers, MVR
Angie Freyermuth	U.S. Army Corps of Engineers, MVR [On the phone]
Deanne Stausser	U.S. Army Corps of Engineers, MVS
Brian Johnson	U.S. Army Corps of Engineers, MVS
Brian Markert	U.S. Army Corps of Engineers, MVS
Tim Eagan	U.S. Army Corps of Engineers, MVS
Shelby Kohrman	U.S. Army Corps of Engineers, MVS
Bryan McCabe	U.S. Army Corps of Engineers, MVS
Kat McCain	U.S. Army Corps of Engineers, MVS
Harold Deckerd	U.S. Department of Agriculture, NRCS, Missouri
Bob Clevestine	U.S. Fish and Wildlife Service, UMR Refuges
Sara Schmuecker	U.S. Fish and Wildlife Service, RIFO
Jennie Sauer	U.S. Geological Survey, UMESC
Kristin Bouska	U.S. Geological Survey, UMESC [On the phone]
Courtney Black	NOAA, National Integrated Drought Information Systems
Lawrence Patterson	Illinois Department of Natural Resources
Dave Bierman	Iowa Department of Natural Resources
Andy Fowler	Iowa Department of Natural Resources
Mike Griffin	Iowa Department of Natural Resources
Scott Gritters	Iowa Department of Natural Resources
Kirk Hansen	Iowa Department of Natural Resources
Adam Thiese	Iowa Department of Natural Resources
Megan Moore	Minnesota Department of Natural Resources
Robert Stout	Missouri Department of Natural Resources
Andrea Collier	Missouri Department of Natural Resources
Sreedhar Upendram	Missouri Department of Natural Resources
John Petty	Wisconsin Department of Agriculture
Shawn Giblin	Wisconsin Department of Natural Resources [On the phone]
Olivia Dorothy	American Rivers
David Stokes	Great Rivers Habitat Alliance
Brad Walker	Missouri Coalition for the Environment
Gretchen Benjamin	The Nature Conservancy
Dru Buntin	Upper Mississippi River Basin Association
Dave Hokanson	Upper Mississippi River Basin Association
Kirsten Mickelsen	Upper Mississippi River Basin Association