

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

**August 5, 2015  
Quarterly Meeting**

**Upper Midwest Environmental Sciences Center  
La Crosse, Wisconsin**

Gregory Miller of the U.S. Army Corps of Engineers called the meeting to order at 8:05 a.m. on August 5, 2015. Other UMRR Coordinating Committee representatives present were Sabrina Chandler (USFWS), Mark Gaikowski (USGS), Dan Stephenson (IL DNR), Randy Schultz (IA DNR), 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.

Marv Hubbell introduced Miller, who is on a temporary assignment to MVD. Hubbell expressed his appreciation to Miller for chairing the meeting.

**Minutes of the May 6, 2015 Meeting**

Kevin Stauffer moved and Randy Shultz seconded a motion to approve the draft minutes of the May 6, 2015 meeting as written. The motion carried unanimously.

**Regional Management and Partnership Collaboration**

*FY 2015 Budget Update and Scope of Work*

Marv Hubbell reviewed UMRR's FY 2015 work plan under its \$33.17 million appropriation, as follows:

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

Hubbell said UMRR's FY 2015 obligation rate for its habitat projects was 65 percent at the end of the third quarter, with MVP at a 95 percent obligation rate, MVS at 94 percent, and MVR at 41 percent. Hubbell explained that MVR's low obligation rate is because Pool 12 Overwintering Stage II construction award of \$4.5 million is less than the estimated construction costs of \$9 million. This funding is being reallocated to MVS for construction and to MVP for personnel on programmatic

activities. The ability to execute funds quickly at the end of the fiscal year highlights the value of having contingency plans in place and the successful cooperation among Corps Districts and the Division.

### *FY 2016 Appropriations Report*

Hubbell recalled that the House's FY 2016 energy and water appropriations bill matches the President's FY 2016 budget request by including \$19.787 million for UMRR. This funding level is the Corps' current planning amount for the program, and represents a decrease of \$13.383 million from FY 2015. The decrease is a result of increased competition from other Corps ecosystem restoration projects for construction funding, particularly the Everglades and Chesapeake Bay. Hubbell acknowledged that the final FY 2016 appropriation is unknown.

UMRR's internal allocations under the \$19.787 million planning scenario are as follows:

- Regional Administration and Programmatic Efforts – \$741,000
- Regional Science and Monitoring – \$6,567,000
  - Long term resource monitoring – \$4,500,000
  - Regional science in support of restoration – \$963,000
  - Regional science staff support – \$129,000
  - Habitat project evaluations – \$975,000
- Habitat Restoration – \$12,479,000
  - Regional project sequencing – \$100,000
  - MVP – \$3,425,000
  - MVR – \$4,745,000
  - MVS – \$4,209,000

[Note: The District habitat 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.]

Dru Buntin explained that Congressional and Administration staff have provided some important insights into the current federal appropriations process. Several UMRS Congressional delegation members submitted FY 2016 appropriations requests for UMRR at its full annual authorized level of \$33.17 million, indicating continued strong bipartisan support for the program in Congress. However, Congress has instituted a blanket policy against such appropriations request, defining an earmark as any increase above the President's budget. Buntin explained that additional funding may be provided for each of the Corps' program missions, such as ecosystem restoration and compliance. The Administration then has full discretion to allocate that additional funding. Buntin reported that he and Gretchen Benjamin visited with several Congressional members' staff in Washington, D.C. this summer to advocate for additional funding in the Corps' ecosystem restoration and compliance funding category, which UMRR is eligible to receive.

Buntin and Benjamin also met in-person with Headquarters' staff regarding UMRR. Staff clearly articulated support for UMRR, but said increased competition from other ecosystem restoration programs resulted in decreased funding in FY 2016. Headquarters staff observed that non-federal partners play an increasingly important role in communicating and showcasing the value of their interested programs and projects, including by providing detailed accounts of estimated budget requirements for optimal execution or the lost efficiencies and benefits under lower funding scenarios. Buntin said Headquarters staff advised that UMRR's non-federal partners should better articulate the

need and capabilities for UMRR to execute at its full annual authorized funding amount in FY 2017. If the program is budgeted less than that amount, partners will need to articulate the funding level necessary to maintain optimal execution of projects.

#### *FY 2017 Appropriations Status*

Hubbell said MVD has submitted to Headquarters a proposed FY 2017 budget for UMRR. The budget includes several assumptions, including that UMRR's FY 2016 budget level remains its current planning amount of \$19.787 million.

#### *Headquarters Visit*

Hubbell said that, on June 8-11, 2015, District staff hosted Mindy Simmons, Corps Headquarters ecosystem budget lead, on a helicopter tour of 15 habitat projects in three floodplain reaches, a driving tour of Lake Odessa courtesy of Illinois DNR, a boat tour of the La Grange Pool, and site visits to Corps' and partners' facilities, including the Havana Field Station. Brian Johnson and Marv Hubbell (Corps), Sabrina Chandler (USFWS), Jeff Houser (USGS), Mike Griffin (IA DNR), Dan Stephenson (IL DNR), Gretchen Benjamin (TNC), and Dru Buntin (UMRBA) joined the tour to provide partner perspectives and program knowledge. Simmons expressed appreciation to program partners for participating in the tour and acknowledged the depth and breadth of the program, as well as the value of partner engagement.

#### *Principles of Efficient Execution*

In response to budget discussions with Headquarters, Hubbell said District staff are developing draft principles of efficient funding for UMRR's execution of its habitat projects. [Note: These principles do not speak to the program's science efforts.] For example, a principle might describe the need for ensuring an appropriate, balanced stream of projects in planning, design, and construction in order to maintain staff and execution capacity. Hubbell clarified that, while District staff will continue to demonstrate the program's capacity to execute at its full annual authorized funding level (i.e., \$33.17 million), these principles will be communicated under reduced budgets and when the Administration is considering reallocations.

In response to a question from Marty Adkins, Hubbell explained that the Corps prefers to maintain two to four habitat projects in each phase (planning, design, and construction) and in each of three UMRS Districts. Planning typically takes three years to complete and design takes about 12 to 18 months, while the timing required for construction varies quite a bit among habitat projects. A balanced and steady stream of projects in each of three phases provides flexibility for the Corps to maintain optimal execution capabilities, advancing and delaying projects as needed.

In response to a question from Olivia Dorothy, Hubbell explained that UMRR's optimal funding ranges from \$28 million to \$33 million for each of the next few years. Buntin clarified that District staff continue to communicate its execution capacity at \$33.17 million, and articulate lost efficiencies when funded less than that amount. Hubbell explained that these principles are focused on UMRR's restoration only, but that the Corps may consider defining similar principles for optimal funding of the program's science in the future.

In response to a question from Jim Fischer, Hubbell explained that District staff are typically engaged in the Administration's deliberations regarding additional funding allocations (referred to as the work plan) shortly after the enactment of the federal budgets.

### *2016 UMRR Report to Congress*

Kirsten Mickelsen said she is currently working with partners to develop the first draft 2016 UMRR Report to Congress. This primarily includes having program partners help develop messages and review the sections of the report that they are responsible for implementing or contribute to in a major way. Mickelsen expressed appreciation to the individuals who have provided input throughout the report's development, and requested that partners send her any ideas for programmatic successes, discoveries, advances, and so forth to include in the report. She said the first draft will be distributed to partners in late August/early September.

In response to a question from Janet Sternburg, Mickelsen said partners' letters of support will not be requested until late spring or early summer 2016 prior to the report undergoing professional graphics. Sternburg noted that the agency letters take some time to coordinate and obtain leadership signatures, but that the report content needs to be substantially completed before requesting such signatures. In response to a question from Ken Westlake, Mickelsen said partners will be given about 6 weeks to review the first draft. Thus, partner comments will be requested in mid- to late-October, depending on when the report is distributed. Hubbell explained that the Division and Headquarters will be solicited to review this first draft concurrently. This is in response to Headquarters' request to provide input on the draft report early in its development.

### *2015-2025 UMRR Strategic Operational Plan*

Hubbell reported that the 2015-2025 UMRR Strategic Operational Planning Team held a conference call on June 26, 2015 to finalize a draft Operational Plan for the UMRR Coordinating Committee's review. He explained that the draft plan included a recommendation to create a habitat team that would be somewhat similar to the Analysis Team and would discuss systemic ecological restoration needs and implementation issues. However, a sub-group that was assigned to define a purpose statement and set of example responsibilities for the habitat team had conflicting ideas regarding its purpose and whether it was necessary to develop this new coordinating entity. Rather, some partners thought it might be better to utilize existing groups, such as the river team, to accomplish some of the operational plan's actions. The sub-group then agreed to reconvene the Operational Planning Team prior to sending the draft plan to the UMRR Coordinating Committee. The Team will likely convene its next conference call in late September or early October.

Kat McCain said she participated on the sub-group, which is proposing that the Operational Planning Team consider how to use existing groups and other interagency coordination mechanisms to address or implement the actions currently involving the habitat team. In the spirit of greater integration between habitat restoration and science efforts, Fischer suggested that the Operational Planning Team consider expanding the Analysis Team's role to also address the habitat team-identified actions. Tim Yager said program partners are involved in many UMRS-related interagency coordinating groups, including UMRR, that cumulatively have become somewhat challenging from a resource standpoint. There are many existing groups that could be utilized. Bob Clevestine suggested re-invigorating the river teams that have been inactive or have had relatively little to address. Kraig McPeck noted that there has been substantial turnover in partner agencies and suggested identifying individuals serving on the various interagency committees.

Mickelsen said the Operational Planning Team plans to host a web-based conference call with the entire UMRR partnership to "roll out" the draft plan. The intention for this approach is to reduce confusion and mixed messaging by having a single conversation and question-and-answer opportunity.

## *Lean Six Sigma*

Marv Hubbell recalled that, at its August 5, 2015 meeting, the UMRR Coordinating Committee agreed to use Lean Six Sigma techniques on a subsection of the program's habitat project development process. To facilitate the Committee's selection of that subsection, District staff developed a flow chart that represents a stylized depiction of the major phases, activities, and key decision points. The flow chart is provided on page B-7 of the agenda packet. Hubbell explained that the impetus of employing a Lean Six Sigma evaluation is to look for opportunities to improve the effectiveness and efficiency of UMRR's business processes that consistently generate high quality outputs. Nicole Lynch said Lean Six Sigma focuses on the customers' standpoint, which in this case would be non-federal project sponsors. Lynch asked that the UMRR Coordinating Committee identify a smaller increment of the habitat project development process that is of greatest concern or interest to focus initially. Lynch overviewed the flow chart in more detail.

Janet Sternburg noted that the flow chart does not include the fact sheet development and approval stages, but said these processes could benefit from improvements. Lynch recognized Sternburg's point, but explained that input received suggested focusing on habitat project planning and processes. This, at the least, allows for a starting point and the UMRR Coordinating Committee may subsequently select to evaluate fact sheet development processes or other areas of habitat project development. Sternburg agreed and requested that Lynch identify when and how projects sponsors are engaged in the habitat project development process, where key decisions are considered, and whether the steps can or cannot be modified.

Lynch said District staff will create a more detailed analysis of the selected process(es) prior to the UMRR Coordinating Committee's next meeting. Hubbell explained that the Corps is primarily responsible for developing the project management plan. Sponsors' involvement is robust in the initial feasibility stage as well as evaluating existing conditions of the project site, plan formulation, and the draft environmental assessment report. In latter stages, sponsors' responsibilities are substantially reduced.

Sabrina Chandler suggested identifying key points when the Corps should contact the sponsor, explaining that sponsors are sometimes not given sufficient lead time to mobilize resources and coordinate internally on important decisions. Hubbell agreed and emphasized the need for continual engagement with the project sponsors throughout project development to avoid systemic breakdowns. Ken Barr suggested that the process of defining ecological goals and objectives be evaluated.

In response to a question from Marty Adkins, Kirsten Mickelsen explained that Congress has continuously included provisions in appropriations measures precluding implementation of the Administration's 2013 Principle and Guidelines rules. Therefore, any potential implications to UMRR from these 2013 rules have not yet been realized. In response to a question from Bob Clevenstine, Kat McCain explained that a project's NEPA-related obligations are primarily completed during the first three stages of the plan formulation phase, as outlined in the flow chart.

In response to a question from Hubbell, the UMRR Coordinating Committee agreed to use Lean Six Sigma evaluation techniques to examine potential efficiency improvements to the following four stages of habitat project development: initial feasibility planning, evaluation of the existing ecological condition, plan formulation, and the draft environmental assessment report. Lynch said she will work with program partners to develop a fact sheet that explains these stages in greater detail, including partners' roles. At the UMRR Coordinating Committee's November 18, 2015 meeting, Lynch will present these fact sheets, outline a proposed process for undertaking the Lean Six Sigma evaluation, and request input regarding the composition of a smaller, interagency team to employ the review. Chandler requested that the fact sheets be distributed to the UMRR Coordinating Committee members well in advance of the November quarterly meeting to allow time for members to coordinate with their respective agency staff.

## *External Communication and Outreach*

### External Communications Plan (Goal 3)

Hubbell reviewed Goal 3 of the 2015-2025 UMRR Strategic Plan, which is to “engage and collaborate with other organizations and individuals to advance UMRR’s vision.” The Plan includes developing a UMRR external communications plan and forming a standing committee to prioritize and implement related activities. There are opportunities to use FY 2015 funds to develop new branding and messaging for the program. This will be an important first step in the programs’ efforts to more strategically target outreach to external stakeholders, including watershed-based programs, decision makers, and the general public.

Kevin Bluhm said that, since the May 6, 2015 UMRR Coordinating Committee meeting, District staff have refined the scope of work and let a bid for the professional development of messages and images for use in external outreach. Bluhm reported that a bid has been submitted that is very competitive and matches the Corps’ expectations. District staff are currently reviewing the contract. It is anticipated that a contract award will occur in late August.

In response to a suggestion from Marty Adkins, Kevin Stauffer explained that the 2015-2025 UMRR Strategic Plan includes engaging with watershed programs and projects. Partners will target that outreach based on UMRR’s priorities related to its goals for restoration and better understanding the river ecosystem. That includes NRCS’s watershed-related activities.

In response to a question from Janet Sternburg, Bluhm said the Corps still plans on employing a survey or other information request regarding communications and outreach priorities and messaging although he is unsure of the focus and questions. Sabrina Chandler discussed USFWS’s recent UMRR-related public outreach successes. For example, Ranger Dusty regularly posts videos on “Theatrical Thursdays” that highlight various river-related events. On July 23, 2015, Ranger Dusty posted a video called “The Birth of an Island” featuring the construction of Harpers Slough and the collaborative work of the Corps, USFWS, the contractor, and other partners. It received very positive responses. These types of outreach are fairly inexpensive and can reach a broad range of stakeholders.

In response to a question from Dru Buntin, Bluhm emphasized that UMRR’s current messaging and communications materials will be used as a starting point.

Hubbell said that a communications group is being established. So far, it includes Bluhm and Karla Sparks (Corps) and Randy Hines (USGS), and will also include representatives from USFWS and other volunteers. Bluhm requested that interested partners contact him to participate on the communications group.

### Public Involvement and Outreach Activities

Hubbell said the August 2015 Biennial Symposium of the International Society for River Science (ISRS) is scheduled for August 23-28, 2015 at UMESC. It will feature several presentations of UMRR’s science research and analysis. Hines said the Symposium will offer a great opportunity to share UMRR’s work. He said USGS will have two booths, one highlighting UMESC and the other UMRR. On August 23, 2015, a public event is scheduled at Riverside Park. Hines asked partners to send him or Karen Hagerty ideas to showcase.

On behalf of Gretchen Benjamin, Mickelsen said this is the fourth ISRS biennial symposium. UMRR and UMR pool-scale drawdown work will be included on the program agenda. Benjamin will be

hosting a special session about creating a more sustainable river that supports a healthy ecosystem and commercial navigation system. There will also be a session devoted to better communicating Mississippi River information, especially science information, in a meaningful way that will engage the public. In response to a question from Hines, Hagerty said abstracts of the symposium's presentation have not yet been distributed.

Fischer said Wisconsin Lieutenant Governor Rebecca Kleefisch participated in an air boat tour of the Mississippi River in early August. Lt. Governor Kleefisch has not yet provided feedback on the tour. Fischer distributed hard copies of the April 2015 Wisconsin Natural Resources magazine, which featured an article by Ruth Nissen titled "Mississippi River Monitoring" that describes UMRR's long term resource monitoring. Fischer said the Wisconsin DNR Upper Mississippi River Team received the agency's internal award for the best team in 2014.

Mark Gaikowski said the U.S. Department of Interior Secretary Sally Jewell is scheduled to visit the Upper Mississippi River, including UMESC and UMR Refuges, on August 14. Sec. Jewell's visit will also include a tour of Pool 7 and UMRR's restoration work in that area.

Hubbell said the July 6, 2015 Iowa Gazette in Cedar Rapids featured an article regarding environmental restoration building up on the Upper Mississippi. The article included interviews with the Iowa DNR Bellevue Field Station staff. It is included on pages C-1 to C-5 of the agenda packet.

In response to a question from Dan Stephenson, Hubbell recalled that Mindy Simmons (Lead of Headquarters Ecosystem Restoration budget) toured Lake Odessa and discussed the complications of that project due major flood events in 2011 and 2015. Hubbell said that project is a poster child for risk and uncertainty. While the Corps does not anticipate any major damage, staff have not be able to assess any damages to the project due to continued high water.

Jennie Sauer played USFWS Ranger Dusty's "Birth of an Island" video featuring Harper's Slough, which is available at: <https://www.facebook.com/UpperMissNWFR/videos/988311034542433/>.

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

### *Highlights*

Jennie Sauer said pages D-1 to D-7 of the agenda packet include an updated scope of work for UMRR's long term resource monitoring-related activities and projects as of the third quarter of FY 2015. There are over 80 ongoing science-related projects that are in various stages of development. Sauer showed a Doppler image of the dense mayfly coverage in the La Crosse area this year.

Sauer said flooding on the Illinois River has impacted long term resource monitoring sampling in the La Grange Pool, Pool 26, and the open river reach. UMRR has sampling protocols for field stations to follow during flood events. The Big Rivers and Wetlands Field Station will use the flood conditions to sample fish communities in the inundated floodplain and evaluate comparisons among the fish assemblages in the floodplain and main channel. The data will also be compared to similar monitoring done during the 1993 flood. In response to a question from Olivia Dorothy, Sauer explained that the fish monitoring in the floodplain is random, and paired with the adjacent main stem. Sauer said USGS will distribute a summary paper on the sampling methods and results.

Sauer described the two manuscripts that were published in the third quarter of FY 2015, as follows:

1. Modeling results on the effects of over-harvesting (commercial) silver carp populations as a management control found that silver carp populations must be exploited at a small size (around 300-400 mm) in order to reduce the spawning potential ratio to 0.2, which is identified as a threshold for recruitment overfishing.

2. A suite of four to five continuous surface metrics using LiDAR data from Pool 9 that quantify topographic diversity is found to capture most aspects of floodplain surface complexity. This research will be used in developing new landscape indicators of topographic variation that is important for a variety of ecological processes.

Hubbell said the Corps issued a one-time certification to use the topographic diversity index for Huron Island. This use is a great example of applying research results to a restoration context.

Sauer said LiDAR data in Pool 9 was compared with seven other floodplains around the world to examine environmental influences on floodplain topography. The results were detailed in a recent completion report. The comparison illustrates that there are important geomorphology characteristics that restoration practitioners could potentially modify to change floodplain surface complexity.

Sauer reported that, after 20 years, the manufacturer has changed the housing of the filters used for measuring dissolved inorganic nitrogen (DIN). To ensure continued high data integrity, UMESC tested and found that the new filter housing had no impacts to the long term resource monitoring samples.

#### *USACE Science Update*

Karen Hagerty said that UMRR's FY 2015 science in support of restoration work includes research, analysis, model development, and the identification of ecosystem resilience indicators. The specific activities are listed on pages D-8 to D-12 of the agenda packet. Hagerty said the Corps, USGS, and the field stations are currently developing the FY 2016 scope of work for long term resource monitoring and science in support of restoration. The next planning call is scheduled for August 10, 2015. Hagerty reported that FY 2016 will benefit from FY 2014 and FY 2015 carry-over funds totaling \$227,027. The potential for a five percent sequestration remains unknown. Depending on FY 2016 spending guidance, the Corps will obligate FY 2016 science funding to USGS and the field stations as soon as possible. In response to a request from Janet Sternburg, Hagerty said she will send the draft FY 2016 scope of work to the UMRR Coordinating Committee members. Hagerty announced that the Corps and USGS are planning for a winter 2016 science meeting. Field station staff's travel expenses will be reimbursed.

#### *A-Team Report*

Shawn Giblin reported that the A-Team held a July 28, 2015 call to discuss UMRR's FY 2016 budget as it relates to long term resource monitoring and science, a status report on FY 2015 work, an update on the resilience work group, and presentations about recent science publications on 1) ecological shifts in a large floodplain river transitioning from a turbid to a clear, stable state and 2) 50-year trends of common carp and sport fish in the Illinois River. Giblin said the A-Team's next meeting will be held on October 29, 2015, in conjunction with the UMRCC Water Quality Tech meeting.

#### *NextGeneration Sequencing and eDNA to Information LTRM*

Grace McCalla explained how UMRR could benefit from using NextGeneration Sequencing with eDNA to validate its long term resource monitoring sampling methods, compare community compositions in study and non-study reaches, and evaluate biological responses to habitat projects. McCalla said UMESC has been using eDNA to make targeted detections for:

- 1) Monitoring spawning events with minimal personnel effort – e.g., New Zealand mudsnail
- 2) Identifying new populations – e.g., invasive carp
- 3) Correlating eDNA detections with population abundances using statistical modeling and showing how communities change over time and how changes in land use affect the ecosystem or species of interest – e.g., impacts from water level management



McCalla explained that NextGeneration Sequencing is the process of determining the order of nucleotide bases within a stretch of DNA. It is a unique tool in that it enables rapid sequencing of large stretches of DNA base pairs and thus can answer a wide range of scientific questions. Determining the sequences of DNA in a sample, scientists can take a shotgun approach by simultaneously targeting all genetic regions of the DNA sample or take a targeted approach by evaluating specific regions of interest for multiple taxons. Further, scientists can integrate eDNA for one or two species with NextGeneration Sequencing to analyze genetic information on a broad community of organisms. McCalla overviewed the workflow of processing an eDNA sample with NextGeneration Sequencing. Integrating the two techniques provides information to determine community compositions within a sample region, including detecting rare taxons and assessing relative abundance, as well as assessing complex ecological questions, such as food web relationships and short- and long-term trends in ecological indicators. McCalla discussed an example of applying eDNA and NextGeneration Sequencing techniques to make conclusions about fish communities in the Wabash River in Indiana.

McCalla said this presentation is meant to initiate discussion among UMRR partners about the ways in which the eDNA and NextGeneration Sequencing techniques can inform the program's restoration and science. For example, these techniques can inform the comparisons of taxon compositions between long term resource monitoring sites and allow for extrapolating information in the study reaches to non-study reaches. In addition, eDNA samples from pre-and post-construction of habitat projects can inform how flow changes affect community compositions of bacteria, zooplankton, or fish. The techniques may also be used to monitor macroinvertebrates, better understand microbial ecology in the UMRS, detect pathogens, and evaluate community dynamics, including how the structure and function of plant communities and ecosystems might respond to environmental factors.

Marty Adkins asked for cost and time estimates associated with evaluating a soil sample to check for bacteria and fungi. McCalla explained that there are scaled approaches to using eDNA and NextGeneration Sequencing, depending on the research question. Adkins' example would be relatively straight forward and small-scale analysis. Mark Gaikowski said UMESC can supply Adkins with an estimated quote. In response to a question from Kraig McPeck, McCalla said the Wabash River example speaks to the scaleable analysis question. The Wabash River study was focused on evaluating biomass and was not able to detect rare species, which could be done with a larger sample size.

*Science Highlight: Spatial and Temporal Dynamics of Phytoplankton in Pools 8, 13, and 26*

John Manier presented research findings regarding spatial and temporal dynamics of phytoplankton assemblages in Pools 8, 13, and 26. There is relatively little research on the large scale patterns in the UMR's phytoplankton communities because they have been historically thought of as relatively less important. However, phytoplankton provide a significant source of organic carbon and therefore are a critical component of large river food webs and ecological function and structure. Manier explained that the purpose of this research was to examine the spatial and temporal dynamics of phytoplankton community composition across diverse aquatic areas of the UMR, and to determine stresses and other influencing forces on community composition such as blue-green algae.

Manier said he analyzed 224 of UMRR's long term resource monitoring phytoplankton and water quality samples that were collected during the summer months of 2006 to 2009. He explained the methods, noting the arduous task of analyzing the samples. Each sample took approximately eight hours to analyze. In all, 46 different species were detected with 20 being diatoms, 15 green algae, 8 cyanobacteria, and 3 euglenoids. The main channel and backwaters were dominated by a mixture of cyanobacteria and diatoms, and the main channel also had a large abundance of green algae. The backwaters were highly associated with flagellated species, such as cryptomonads and euglenoids. The impounded areas had very similar phytoplankton communities as the backwaters, but had a greater proportion of cyanobacteria. The main channel of Pools 8 and 13 were either dominated by

cyanobacteria or diatoms depending on various conditions, and Pool 26 was more heavily populated with diatoms.

Manier said there exist strong correlations of phytoplankton community composition to discharge, where taxonomic richness is greater with increasing discharge. This is likely due to recruitment from off-channel areas and scouring of the periphyton. Cyanobacteria were present in 96 percent of the samples, with 17 percent considered in a minor bloom, 10 percent in a moderate bloom, and 1 percent in a severe bloom. Some larger bloom events occurred with moderate nutrient levels suggesting that physical conditions (e.g., discharge, turbidity, residence time) also play a major role. Manier noted that the research confirms previous observations that green algae is declining in the UMR. There was no detection of *Ulothrix* in the samples. This may be suggesting that cyanobacteria is causing the decline in green algae, which serves as a high nutritional food source. Manier proposed the question of whether green algae is currently at a tipping point of existing in the system.

In response to a question from Jim Fischer, Manier said there has not yet been an analysis of whether there would be any affect from the glucose solution on eDNA. Fischer suggested that it may be worth considering if eDNA could be used rather than using a microscope to assess community compositions. Jennifer Dieck said UMESC is working with Manier to obtain and automate high resolution images microscopic images of the phytoplankton samples.

## **Habitat Rehabilitation and Enhancement Projects**

### *District Reports*

#### St. Louis District

Tim Eagan reported that MVD is currently reviewing Rip Rap Landing's feasibility study. Pending MVD's approval, MVS anticipates initiating design work on the project in early FY 2016. Eagan explained that District staff have recently calibrated a physical model of Piasa and Eagles Nest Islands and will host a partnership meeting soon to review design alternatives using the model. The District will also soon host a habitat evaluation workshop for Harlow and Wilkinson Islands. Design work on Clarence Cannon continues while Ted Shanks's pump station has recently been finalized. MVS anticipates awarding a construction contract for the pump station late this fiscal year. Construction on most of Ted Shanks's features and Pools 25 and 26 Islands is ongoing, but has been delayed significantly this summer due to prolonged high water conditions. Batchtown will likely be completed this summer.

Marty Adkins asked whether there are any opportunities to leverage UMRR's restoration with the PL 84-99 program to repair levees. Gary Meden explained that the Corps is required to evaluate non-structural alternatives when assessing repair alternatives. However, the non-structural options typically do not generate a positive cost-benefit ratio. Thus agricultural lands are often not protected, unless there is another incentive for sponsors to consider these alternatives. Adkins said there are NRCS easements in areas along the floodplain that are not in cropland and could offer an opportunity to reconnect the floodplain.

Janet Sternburg expressed appreciation that MVD Commander Maj. Gen. Michael Wehr toured MVS's habitat project sites. Sternburg said Ted Shanks is a high priority for Missouri DoC, and noted the significant amount of planning time and resources devoted to the project.

#### St. Paul District

Tom Novak recalled that a sizeable amount of the District's habitat project constructing funding was awarded very early in the fiscal year that provided full funding at the outset of Harper Slough's construction. It served the District very well in terms of gaining substantial cost-efficiencies. Novak

said MVP anticipates finalizing construction on Capoli Slough this fall and hosting a dedication for the project in October to coincide with USFWS's Refuge Week. He explained that North and Sturgeon Lakes is experiencing challenges due to its design showing potential minimal flood stage impacts and the lack of a project sponsor. The same planning team working on Harpers Slough and Capoli Slough will continue on Conway Lake, likely gaining significant efficiencies as the team members are well experienced and knowledgeable about these projects. In response to a question from Olivia Dorothy, Novak said the District has not yet received guidance of whether the closure of St. Anthony Falls L&D will affect UMRR's authorized geographic scope. However, it does not impose any practical limitations on planned habitat restoration.

### Rock Island District

Marv Hubbell said MVR is maintaining an aggressive habitat project schedule, with three projects in planning, two in design, and six in construction. The District is investing heavily in the planning of Beaver Island so that it is ready for construction in FY 2017. Keithsburg is the District's next planning priority. MVR is hoping to finalize construction of Lake Odessa and Pool 12 Overwintering Stage I this fiscal year. Construction of Pool 12 Overwintering Stage II was recently awarded. As soon as possible after water levels lower, District staff will assess damages to Fox Island and Rice Lake from this year's flooding. The District is also evaluating the performance of Bay Island, Andalusia, and Brown's Lake.

### *Planning New Starts: Identifying Projects to Enhance Ecological Resilience*

Hubbell recalled that, in April 2015, USACE executed a contract with USGS to lead an interdisciplinary team that will define indicators of ecosystem health and resilience and link the indicators to the process of identifying habitat projects. Kirsten Mickelsen said the team held its first conference call on July 14, 2015. The team includes Jeff Houser and Nate De Jager (USGS), Jon Hendrickson and Hubbell (USACE), Stephen Winter (USFWS), Andy Casper (Illinois DNR), and Mickelsen (UMRBA). Mickelsen said the team anticipates hosting a partnership workshop in winter 2016 to brainstorm conceptual models for applying resilience concepts to the UMRS as well as to identify and discuss fundamental questions. Currently, USGS is reviewing applications for a part time staff person to lead this effort.

Hubbell said the resilience conceptual model will be used to inform the next habitat needs assessment (HNA) as well as the identification and selection of the next generation of habitat projects. Hubbell said he anticipates convening a team in early winter 2016 to develop the new assessment and lead the project selection process. He said USACE and USFWS will co-chair the team. A more detailed overview of the process and expectations will be provided at the UMRR Coordinating Committee's November 18, 2015 meeting. Janet Sternburg suggested providing an overview of the 2000 HNA. Hubbell agreed, and mentioned that the first Assessment was developed in response to a call for a more rigorous systemic, scientifically-based process for selecting projects. Bob Clevestine recalled that program partners were given only a year and \$1 million to complete the first HNA, and incorporated the probability of occurrence model resulting in placing projects in areas of low habitat diversity and focusing projects on increasing diversity. He suggested inviting individuals who participated in developing the 2000 HNA to give their perspectives on the process and provide suggestions for this next assessment. In response to a question from Hubbell, Clevestine suggested scoping the next HNA development over 18 months. He said the program will need to consider how to use the health and resilience indicators in the next assessment. The program now has much better data and analysis capabilities. Clevestine said the 2000 HNA was not used to its full potential because the data was not widely accessible. The 2000 process was also clouded by concern that the HNA would affect the balanced geographic distribution of restoration projects. Clevestine proposed that the UMRR Coordinating Committee include a presentation of lessons learned from the 2000 HNA at its November 18, 2015 meeting, including the knowledge gained since 2000 that can inform the next assessment.

Hubbell agreed with Mickelsen's suggestion to create a list of questions and a proposed schedule for developing the next HNA for the UMRR Coordinating Committee to consider at its November 18, 2015 meeting. Hubbell requested that partners send him any input on the next HNA or selection of next generation habitat projects.

## **Implementation Issues Assessment**

### *Annual Review of Progress*

Marv Hubbell and Kirsten Mickelsen recalled that UMRR Coordinating Committee agreed to include at its annual August quarterly meetings a review of progress in advancing the recommendations provided in the 2013 UMRR Implementation Issues Assessment (IIA). A table of these recommendations is included on pages E-1 to E-6 of the agenda packet. Kevin Stauffer noted that many of these recommendations are embedded in the 2015-2025 UMRR Strategic Plan.

Fischer asked whether the O&M-related recommendations are a part of the Corps' efficient funding discussions for UMRR. Gary Meden explained that UMRR is focusing on designing habitat project features that are more self-sustaining and have lower long term O&M requirements. Fischer agreed, and suggested considering a small project or two to protect aged features of older habitat projects.

In response to a question from Marty Adkins, Kirsten Mickelsen explained that the UMRR Coordinating Committee uses its annual February quarterly meetings to 1) consider evaluating how an emerging trend or issue might impact UMRR as well as how UMRR can add resilience to the UMRS in the face of that stressor and 2) evaluating findings of any such analysis from the prior year. For the last two years, for example, the UMRR Coordinating Committee agreed to evaluate Asian carp and ultimately developed the UMRR Invasive Species Policy Paper to explain UMRR's roles in understanding and addressing invasive species. This evolved in response to some confusion about the program's roles and responsibilities related to Asian carp research.

## **Other Business**

### *Future Meetings*

The upcoming quarterly meetings are as follows:

- **November 2015 — St. Paul**
  - UMRBA — November 17
  - **UMRR Coordinating Committee — November 18**
  
- **February 2016 — Quad Cities**
  - UMRBA — February 23
  - **UMRR Coordinating Committee — February 24**
  
- **May 2016 — St. Louis**
  - UMRBA — May 24
  - **UMRR Coordinating Committee — May 25**

With no further business, the meeting adjourned at 1:48 p.m.

**UMRR Coordinating Committee Attendance List  
August 5, 2015**

**UMRR Coordinating Committee Members**

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

**Others In Attendance**

Chris Erickson	U.S. Army Corps of Engineers, MVP
Tom Novak	U.S. Army Corps of Engineers, MVP
Kevin Bluhm	U.S. Army Corps of Engineers, MVP
Gary Meden	U.S. Army Corps of Engineers, MVR
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
Nicole Lynch	U.S. Army Corps of Engineers, MVR [On the phone]
Tim Eagan	U.S. Army Corps of Engineers, MVS
Kat McCain	U.S. Army Corps of Engineers, MVS
Bob Clevestine	U.S. Fish and Wildlife Service, UMR Refuges
Kraig McPeck	U.S. Fish and Wildlife Service, RIFO
Sharrone Baylor	U.S. Fish and Wildlife Service, UMR Refuges
Tim Yager	U.S. Fish and Wildlife Service, UMR Refuges
Jennie Sauer	U.S. Geological Survey, UMESC
Brian Gray	U.S. Geological Survey, UMESC
Grace McCalla	U.S. Geological Survey, UMESC
John Manier	U.S. Geological Survey, UMESC
Shawn Giblin	Wisconsin Department of Natural Resources
Olivia Dorothy	American Rivers
Tim Schlagenhaft	Audubon, Minnesota
Tom Boland	AMEC Foster Wheeler
Brad Walker	Missouri Coalition for the Environment
Dru Buntin	Upper Mississippi River Basin Association
Dave Hokanson	Upper Mississippi River Basin Association
Kirsten Mickelsen	Upper Mississippi River Basin Association