

**Minutes of the
Upper Mississippi River System
Environmental Management Program
Coordinating Committee**

**February 16, 2011
Quarterly Meeting**

**Sheraton Westport Plaza Hotel
St. Louis, Missouri**

Renee Turner of the U.S. Army Corps of Engineers called the meeting to order at 8:00 a.m. on February 16, 2011. Other EMP-CC representatives present were Charlie Wooley (USFWS), Mike Jawson (USGS), Rick Mollahan (IL DNR), Pat Boddy (IA DNR), Tim Schlagenhaft (MN DNR), Janet Sternburg (MO DoC), Jim Fischer (WI DNR), and Bill Franz (US EPA). A complete list of attendees follows these minutes.

Minutes of the November 18, 2010 Meeting

Jim Fischer moved and Charlie Wooley seconded a motion to approve the draft minutes of the November 18, 2010 meeting as written. The motion carried unanimously.

Program Management

FY 11 Fiscal Status

Marv Hubbell said most of the federal government is currently operating under a continuing resolution authority (CRA) that expires March 4, 2011. It is still unclear whether Congress will enact an omnibus measure or another CRA. Hubbell said the most likely scenario is that EMP will receive between \$21.15 million and \$19 million in FY 11. These are the levels from the President's FY 11 budget and the Senate Appropriations Committee's FY 11 energy and water spending measure (S. 3635), respectively. However, he said a lower funding level is possible.

Hubbell said EMP is currently executing based on a \$19 million program for FY 11. Under this assumption, the program allocations include:

- Regional Administration — \$650,000
- LTRMP — \$5,762,000
- HREPs — \$12,588,000
 - Program Model Certification and Regional HREP Support — \$250,000
 - MVP — \$3,701,000
 - MVR — \$4,936,000
 - MVS — \$3,701,000

Hubbell said these allocations will be adjusted as needed once EMP's actual funding level is known.

Jeff DeZellar noted that the USFWS's HREP support allocation in MVP's budget spreadsheet, which is included on page B-3 of the agenda packet, should be \$120,000 for FY 11.

Karen Hagerty said, under the \$19.0 million funding scenario, EMP would allocate about \$4.955 million to base monitoring efforts. Some of LTRMP's other FY 11 priority activities include bathymetry, LiDAR, and the A-Team's indicator analysis. FY 11 funds will also be used for equipment refreshment.

FY 12 Budget Request

Hubbell reported that the President's FY 12 budget request includes \$18.15 million for EMP. He explained that ASA(CW) Jo-Ellen Darcy identified the UMRS as one of ten nationally significant ecosystems. USACE highlighted these ecosystems in its FY 12 budget request.

Regional Review Plan

Hubbell explained that District staff are developing an EMP Regional Review Plan that will guide HREP review, in compliance with the new project review requirements mandated in WRDA 07. The plan addresses how EMP will implement all stages of project review, including district quality control (DQC), agency technical review (ATR), and independent external peer review (IEPR), based on USACE's January 2010 implementation guidance. The plan is intended to enhance efficiency and ensure consistency across districts and individual projects. Hubbell said Corps staff completing an internal review of the draft plan. He anticipates sharing the draft plan with partners soon. Hubbell also noted that EMP will request a programmatic IEPR exemption for HREPs. If this is granted, individual HREPs would still be required to complete an IEPR if they trigger one of the WRDA 07 IEPR criteria.

2010 Report to Congress

Hubbell reported that EMP's 2010 Report to Congress (RTC) has been printed and will be distributed to partners within the next week. He expressed appreciation to the contributing authors and reviewers. Elizabeth Ivy reported that USACE Headquarters (HQ) is currently reviewing the RTC, as well as the EMP-NESP Transition Plan. HQ staff have indicated that they have some comments on the RTC. Ivy said any significant HQ comments will likely be accommodated via an errata sheet.

Public Involvement and Outreach

Hubbell said EMP continues to participate in the Corps' Our Mississippi outreach efforts and provide updated information via Our Mississippi's website. He said several EMP partners will participate in a Rio Grande Environmental Management Program conference on February 18, 2011. The Upper Mississippi River and Rio Grande authorizations are very similar, though the Rio Grande program has yet to receive funding. Hubbell described his experience presenting on UMRS programs and issues at a December 2010 international workshop on river management in India.

Jeff DeZellar announced that MVP will hold a public meeting in Lansing, Iowa on March 7 to discuss a draft definite project report (DPR) for Capoli Slough and provide an update on Harper's Slough.

Jim Fischer reported that the River Resources Forum (RRF) has published a newsletter, *River Connections*, highlighting partners' Mississippi River-related activities, such as the Pool 6 drawdown. The RRF plans to publish the newsletter biennially.

Implementation Issues Assessment

Marv Hubbell reviewed partners' agreement to address EMP policy and program issues in an Implementation Issues Assessment (IIA), a companion document to the 2010 EMP Report to Congress. EMP-CC members held conference calls on December 6, 2010 and January 11, 2011 to define issue statements for each IIA topic and identify authors. He noted that some partners have raised concerns regarding the relationship between the IIA and the upcoming HREP Strategic Plan, since there are

several overlapping topics. Hubbell clarified that the IIA will address issues at a policy and programmatic level and the HREP Strategic Plan will address more detailed, technical aspects of issues. Thus, the IIA is being initiated first so that it can inform the HREP Strategic Plan.

In response to a question from Kevin Foerster, Hubbell explained that authors will first develop a series of issue papers, similar to the 2004 EMP Issue Papers. The IIA will then integrate the main points from the issue papers, including any final recommendations for addressing the issues.

Hubbell presented the authors' draft issue statements for each IIA topic for EMP-CC's approval. He said any modifications will be reviewed by the EMP-CC at a future meeting.

NGOs as Cost Share Sponsors

Draft issue statement

Consistent with Section 2003 of WRDA 2007, it appears non-governmental organizations (NGOs) can serve as cost-share sponsors for EMP-HREPs. However, EMP has not yet received implementation guidance related to NGO cost sharing, nor has the assumption been tested via an HREP proposal involving an NGO sponsor. If it is determined that NGOs can cost share on HREPs, there will undoubtedly be details to resolve regarding NGO project sponsorship.

Discussion

Tim Schlagenhaft suggested that NGOs be consulted regarding which project types and locations they would be interested in sponsoring.

EMP-CC members adopted the January 27 issue statement as drafted.

Construction Cost Sharing

Draft issue statement

While Congress and the Administration place a strong emphasis on leveraging non-federal funds with their federal investments, EMP partners have consistently expressed interest in expanding the range of EMP-HREPs constructed at 100 percent federal expense. Specific examples include full federal funding for threatened and endangered species and treaty species under Section 906(e) of WRDA 1986, projects below the Ordinary High Water Mark (OHWM), and projects on other federally owned lands (e.g., National Park Service and National Forest Service). Partners should consider 1) the appropriate balance between cost shared and full federally funded construction of HREPs and 2) the implications of implementing the various options for full federal funding.

Discussion

Jim Fischer asked if EMP has used a project proposal to formally explore Corps policy regarding full federal funding for projects under the T&E provision. Hubbell said EMP has not submitted a fact sheet for such a project, but did seek HQ's preliminary input on full federal funding for Schenimann Chute. However, the response was that T&E species are not a primary USACE objective and that primary T&E responsibility lies with other federal agencies. Thus, the Corps would not likely pursue Schenimann if it was proposed for 100 percent federal funding based on T&E species. Fischer requested that the issue paper reference any implementation guidance related to EMP construction cost share. Charlie Wooley suggested that the issue paper also cite the Endangered Species Act language that gives affirmative responsibility to all federal agencies to conserve T&E species (Section 2(a)(c)(1) of P.L. 93-205, as amended by P.L. 107-136).

Janet Sternburg explained that, because the southern portion of the UMR has few USFWS lands, there is much less opportunity for projects to meet the requirements for full federal funding than in the northern reaches. Thus, there is a significant imbalance between cost shared and fully federal funded projects depending on geographic location. She suggested that the issue paper include recommendations for EMP to utilize the other options for 100 percent federal construction funding that would 1) allow EMP to implement innovative restoration techniques — e.g., side channel enhancement and 2) lessen the overall cost share burden on states in the southern reaches.

Sternburg volunteered to co-author this issue with Hubbell.

The EMP-CC adopted the January 27 issue statement as drafted.

States' and Service's Capacity for HREP Operation and Maintenance

Draft issue statement

HREPs pose a significant O&M responsibility for states and USFWS. And as more projects are completed, O&M costs continue to increase. Projects can be designed to reduce O&M intensity. However, those projects are typically more expensive to construct. Thus, EMP should consider 1) the appropriate balance between reducing O&M expenses and construction costs, 2) how to address increasing cumulative O&M responsibilities for the states and the Service, and 3) a protocol for documenting O&M costs and activities.

Discussion

Brad Walker suggested that EMP first develop a protocol for documenting O&M costs and activities before considering cumulative O&M and project design related to long term O&M. In other words, reordering the sequence of considerations in the last sentence of the issue statement so that the third consideration is listed first. Walker also suggested that partners consider the additional responsibilities associated with rehabilitation needs. Hubbell agreed. Fischer concurred with Walker's sequencing suggestion. Fischer also suggested that the issue paper include examples of relationships between project design and O&M costs. Hubbell mentioned that overredging is a good example.

The EMP-CC adopted the issue statement, with modifications based on Walker's and Fischer's suggestions.

HREP Operation and Maintenance on Navigation Structures

Draft issue statement

Many questions exist about states' abilities to implement O&M on EMP's restoration projects involving navigation structures. The IIA should address this issue, including the potential for USACE to assume O&M responsibility for certain HREP elements.

Discussion

Hubbell noted that MVS staff could provide useful insights in addressing this issue, particularly in regards to MVS's regulatory works experience. In response to a request from Hubbell, Deanne Strauser volunteered to co-author this issue with Hubbell.

The EMP-CC adopted the January 27 issue statement as drafted.

Delegated Authority

Draft issue statement

Review and approval of EMP-HREPs at the Division and Headquarters levels is an important quality control step in the development and implementation of projects. However, EMP has established significant expertise and experience in planning, design, and construction that permit a more streamlined review and approval process. Increasing the delegated authority to approve HREPs at the Division and District levels to match the delegation under the Navigation and Ecosystem Sustainability Program (NESP) would help facilitate a possible future transition, as well as lower project costs. Current EMP delegated authority is \$1 million at the District level and \$5 million at the Division, compared with \$5 million and \$25 million, respectively, under NESP.

Discussion

The EMP-CC adopted the January 27 issue statement drafted.

Land Acquisition

Draft issue statement

In 1994, Corps Headquarters (HQ) issued policy clarifying EMP's ability to acquire lands and easements from willing sellers for EMP's habitat projects. While this policy, which sets forth several limitations, has not been modified since 1994, it has been subject to a variety of interpretations at the District and Division levels. The partnership's common understanding of the land acquisition policy should be confirmed, and any desired changes should be identified.

Discussion

Hubbell explained that, thus far, EMP has required the nonfederal cost share sponsor to voluntarily waive excess LERRDs credits — e.g., the Rice Lake, Illinois project. Hubbell said this issue paper will also compare the EMP and NESP land acquisition policies. He noted that the 1994 EMP policy memo included a 10 percent cap on land acquisition expenditures from the annual HREP obligation authority. This cap has since expired. The 1994 policy also requires that land acquisition include active construction and/or O&M. In response to a question from Barb Naramore, Hubbell confirmed that the 1994 Land Acquisition Policy is still controlling, save for the expired cap on acquisition expenditures.

Ken Barr recommended that this issue paper reference NESP's land acquisition implementation guidance. In response to a request from Hubbell, Schlagenhaft and Barr agreed to assist in developing this issue paper. Schlagenhaft, noting the confusion surrounding this policy, suggested that this issue paper explore ways in which the acquisition policy would be applied to specific project scenarios.

The EMP-CC adopted the January 27 issue statement as drafted.

HREP Planning and Prioritization

Draft issue statement

How can EMP enhance its HREP planning and prioritization processes to consider multiple potential benefits, recent scientific understandings, newly designed planning tools, and global, national, and state priorities? These priorities include threatened, endangered, or special concern species, critical habitat, water quality, non-structural flood damage reduction, climate change, economics, and energy. In light

of a possible transition to the Navigation and Ecosystem Sustainability Program (NESP), HREP selection will reflect the program neutral system and floodplain reach goals and objectives.

Discussion

Schlagenhaft emphasized the need, in project sequencing, to holistically consider projects' potential to address multiple goals and objectives, including national and global issues (e.g., climate change). Schlagenhaft volunteered to co-author this issue.

Pat Boddy suggested that authors consider how this issue paper could be used to guide the HREP Strategic Planning Team's efforts related to HREP planning and prioritization.

The EMP-CC members adopted the January 27 issue statement as drafted.

HREP Evaluations

Draft issue statement

HREP evaluations are intended to document project performance and to inform future project selection and design. However, the approach and level of monitoring and analysis need to be more consistent among the UMR Districts. And evaluations need to be more timely and effective. For example, evaluations should include biological responses, in addition to physical and chemical metrics. EMP should consider various ways to enhance HREP evaluations, including clarifying roles, coordinating with LTRMP, and integrating evaluations into a possible adaptive management framework.

Discussion

Bill Franz said plans for project evaluation should be developed in the design phase, should address the project's full life cycle, and should be integrated into O&M plans. Schlagenhaft agreed and suggested that evaluations also address HREPs' cumulative and systemic impacts. He recommended adding language to the issue statement regarding cumulative impacts. Walker suggested that evaluations include a cost analysis. Hubbell explained that cost-benefit analysis is not an appropriate tool for evaluating HREPs. He said the Corps already does employ a cost efficiency assessment in selecting among alternative project formulations and also considers cost efficiency relative to other completed and in-design projects.

Roger Perk recognized that partners have historically differed their perspectives regarding the appropriate approach to project evaluation — e.g., number of projects, frequency, level of investment, selection of metrics, etc. Hubbell emphasized the importance of having regional consistency in implementing project evaluations. Fischer agreed, noting that a consistent approach to evaluating projects support EMP's adaptive management framework. Barr observed that the HREP planning and prioritization, evaluation, and adaptive management issues overlap.

The EMP-CC adopted the issue statement, with the addition of language regarding cumulative program effects.

EMP's Habitat Project Types

Draft issue statements

Innovative ecosystem restoration techniques continue to emerge that offer great promise. However, various Corps' policies may limit EMP's use of such innovative techniques. What new types of projects should EMP pursue, also considering any apparent policy impediments?

Discussion

Jon Duyvejonck suggested that EMP explore opportunities to expand the definition of project areas. He explained that HREPs are typically focused within a very localized area. However, in order to achieve a desired outcome (e.g., enhancing mussel habitat), several management actions may be required over a large spatial scale, which could be more effectively formulated as elements of a single project. Duyvejonck also recognized that biological restoration techniques have advanced significantly. He urged that project designs integrate both engineering and biological restoration techniques over an appropriate spatial scale.

In response to a question from Schlagenhaft, Hubbell said the implementation guidance for WRDA 1999 specifically allows EMP to implement pool-scale drawdowns. However, Sternburg explained that EMP's 50-year project life requirement and cost sharing policies present implementation challenges for pool-scale drawdowns. In response to a request from Schlagenhaft, Hubbell said he will distribute the WRDA 99 guidance to the EMP-CC.

Renee Turner reviewed revisions to the EMP's Habitat Project Types issue statement, including 1) specifying that both biological and engineering techniques continue to emerge, 2) acknowledging that EMP should examine broadening the spatial scale of project boundaries, 3) explaining that the Corps' 50-year project life requirement might inhibit water level management. With those changes, the EMP-CC adopted the issue statement.

LTRMP Program Implementation

Draft issue statement

Since LTRMP has continuously been funded at levels far lower than its authorized level, it has not yet realized its founding vision as a comprehensive, multidisciplinary science program that fully integrates monitoring, research, and information management. In addition, the lack of guidance for LTRMP implementation during and after a possible EMP transition to the Navigation and Ecosystem Sustainability Program (NESP) creates challenges for short- and long-term planning.

Discussion

Karen Hagerty said Corps staff will modify the format of the January 27 issue statement to match the other statements. Chuck Spitzack explained that NESP's Program Management Plan (PgMP) will address LTRMP implementation under NESP, including under various funding scenarios that are less than the authorized level. In response to a question from Hagerty, Spitzack said partners will be given an opportunity to review the PgMP. [Note: Subsequent to the February meeting, EMP and NESP staff agreed to address LTRMP's role during and after a possible EMP-NESP transition in NESP's PgMP and not in the IIA.]

Adaptive Management

Draft issue statements

EMP is continually enhancing its restoration techniques using insights gained from existing projects and new research findings. However, EMP does not have an explicit process for incorporating lessons learned into project design, construction, and operation and maintenance. Implementing active adaptive management is often technically difficult and costly, and thus has not been explored significantly to date.

Discussion

Mike Jawson advised the EMP-CC to consider the level of investment desired for adaptive management, given competing scientific needs, and how to direct that investment — i.e., how active should EMP be in implementing adaptive management?, what hypotheses should be tested?, etc. Hubbell said EMP does implement adaptive management concepts regularly. For example, models are used to test hypotheses regarding project designs. He said adaptive management should focus on projects with the greatest risk, uncertainty, and information need. Duyvejonck said the issue paper should also clarify responsibilities for implementing adaptive management and project evaluations. Hubbell agreed and emphasized that adaptive management often results in significant cost efficiencies in project design and construction – e.g., EMP’s advancements in designing overwintering sites. Barry Johnson agreed that EMP has been implicitly implementing adaptive management concepts in its habitat projects. But a formal adaptive management framework will allow partners to explicitly outline priorities and important details to guide the implementation of adaptive management concepts. Hubbell and Johnson agreed that the IIA issue paper should define partners’ priorities for adaptive management and address policy-level issues, while the HREP Strategic Plan will then explore implementation issues in greater detail. Johnson observed that the costs of implementing adaptive management can only be estimated once partners have selected an approach and emphasized that resources required may not be as great as partners assume.

Hubbell said Johnson’s 1999 journal article, *The Role of Adaptive Management as an Operational Approach for Resource Management Agencies*, should serve as a reference. Dave Bornholdt mentioned that DOI’s adaptive management manual can also serve as a helpful reference (<http://www.doi.gov/initiatives/AdaptiveManagement/documents.html>). Barr suggested that the issue author consult USACE’s implementation guidance for Section 2039 of WRDA 07, which relates to adaptive management.

The EMP-CC adopted the January 27 issue statement as drafted.

Emerging Trends and Issues

Draft issue statements

The Upper Mississippi River, and therefore EMP, is subject to various cultural, social, and environmental factors. EMP managers and scientists must be aware of, and as best as possible manage for, these trends and emerging issues — e.g., population growth, invasive species, climate change, hydrokinetic and other energy development, and land use. These and other unknown issues will very likely have implications for both HREP and LTRMP components. The uncertainty and controllability of these issues vary, as should EMP’s responses.

Discussion

Jawson mentioned that developing white papers for some of the sub-topics may ultimately be desirable. He said he envisions the IIA addressing the broad question of how proactive EMP-CC wants to be in the future on emerging issues.

Boddy volunteered to co-author this issue paper. She concurred with Jawson that the issue paper should outline a process for addressing the issues individually.

The EMP-CC adopted the January 27 issue statement as drafted.

Maintaining State Participation with Diminishing State Resources

Draft issue statement

How do state agencies remain fully engaged as EMP partners in times of diminishing resources and increasing demands?

Discussion

Fischer explained that several factors are affecting, and will continue to affect, states' involvement in EMP, including budget and staff constraints. He said potential recommendations could include: 1) prioritizing efforts based on their near term benefits, 2) streamlining the various planning and management teams, and 3) providing states with travel reimbursement.

Wooley emphasized the significant value of states' active participation in all aspects of EMP implementation. He suggested that EMP do what it can to support the states' continued involvement. Hubbell suggested modifying this statement to describe Fischer's specific suggestions. Sternburg agreed with Fischer's suggestions, and noted that delays in project planning often lead to duplicative efforts. She said this problem of duplication is often exacerbated by staff turnover.

With Hubbell's suggested modification, the EMP-CC adopted the issue statement as drafted.

Habitat Rehabilitation and Enhancement Projects

District Reports

Brian Markert reported that MVS is finalizing an ATR for Rip Rap Landing, and will begin developing the project's alternative formulation briefing (AFB). MVS's other FY 11 planning priorities include Clarence Cannon and Eagles Nest and Piasa Island. Markert said the District has completed design on Pools 25 and 26 Islands. The District will initiate design on Ted Shanks and will continue work on the Swan Lake's O&M manual. FY 11 construction priorities include continuing work on Batchtown, Swan Lake Pump Modification, and Calhoun Point and initiating construction on Pools 25 and 26 Islands. Markert said MVS is also developing a performance evaluation for Stump Lake. Hubbell reported Calhoun Point is one of USACE's FY 11 national high priority projects. He explained that the Corps will highlight these national high priority projects' performance, giving them greater attention and public visibility. Hubbell said MVS is making excellent progress on Calhoun Point thus far this year.

Jeff DeZellar announced that MVP has received an ATR certification for Capoli Slough. The District plans to distribute a draft DPR for Capoli Slough to MVD and the public for simultaneous review soon. DeZellar said construction on the project could be initiated this summer. Once plans are finalized for Capoli Slough, MVP will increase its planning efforts on Harper's Slough. DeZellar reported that L&D 3 fish passage will need to undergo an IEPR, requiring more time for project planning. He said a cost share sponsor to construct L&D 3 fish passage is still needed since the project is located on non-refuge lands. DeZellar said MVP is also forming planning teams for all of its projects with recently approved fact sheets, including Conway Lake, Lake Winneshiek, and North and Sturgeon Lakes. MVP will continue construction of Pool 8 Islands Phase III Stage 3A and Stage 3B this fiscal year. DeZellar said a draft evaluation of Guttenburg Ponds is currently under partner review, and the District is also developing evaluation reports on three other projects. Hubbell noted that MVP is on schedule to complete its USACE FY 11 national high priority project, Pool 8 Islands, this year.

In response to a question from Jim Fischer, DeZellar said USACE will determine whether a project is likely going to need an IEPR when developing the project management plan (PMP). However, implementation guidance for the WRDA 07 project review requirements was not available until January 2010, after the PMP for L&D 3 fish passage was complete. DeZellar noted that having an EMP Project Review Plan should enhance efficiency for future HREPs. Fischer noted that a fish passage will have relatively little impact on the L&D 3 embankment and asked why the project is required to undergo an IEPR. DeZellar explained that USACE is requiring an IEPR for projects with any impact on the physical structure of a Corps project. Roger Perk added that any project that will hold back any depth of water will be subject to the independent review. He said it becomes a life safety issue. In a response to a question from Fischer, DeZellar said that, applying these same principles, Reno Bottoms will most likely also require an IEPR.

Ken Barr mentioned that USACE recently completed an IEPR on L&D 22 fish passage. Fischer asked if the L&D 3 fish passage IEPR will incorporate work from the L&D 22 fish passage IEPR. DeZellar said USACE will use what it can from the L&D 22 fish passage IEPR, but emphasized that the two projects are fairly different. Fischer raised concern with the implications for small restoration projects that will require costly independent reviews. Renee Turner said she does not expect implementation problems, as long as staff account for the new requirements in their project planning. Hubbell said future project reviews should be more efficient now that implementation guidance is available and partners are becoming more familiar with the review process and requirements. Tim Schlagenhaft echoed Fischer's concern with the cost implications of USACE's new project review requirements. Pat Boddy suggested that the states express their concerns with the cost implications of these review requirements in a letter to the Corps.

Steve Rumble said MVR's FY 11 planning efforts include Pool 12 Overwintering, Huron Island, and Beaver Island. He said MVR submitted Rice Lake's DPR to MVD in early February and will send the project partnership agreement (PPA) to MVD shortly. MVR anticipates awarding a contract and initiating construction on Rice Lake this fiscal year. MVR will also continue construction efforts on Lake Odessa and Fox Island. Hubbell said MVR is also on schedule to finalize Lake Odessa in FY 11. The project is MVR's USACE FY 11 national high priority project.

HREP Strategic Plan

Hubbell said USACE anticipates initiating the HREP strategic planning process in May 2011. The Plan will identify priorities for the HREP component, address systemic- and site-specific issues, develop systemic approaches to enhance HREP delivery, and consider recommendations to modify USACE policy or EMP's authorization. Hubbell said he plans to assemble the Planning Team soon. He said the Team will mostly convene via conference calls, with some in-person meetings.

HREP Highlight: Ted Shanks

Amanda Oliver provided an overview of the Ted Shanks HREP in Pool 24. The project's goal is to rehabilitate and enhance the quality and diversity of wetland habitat primarily to benefit migratory birds, but also other wetland species. The project is located on 2,900 acres of USACE lands. Missouri DoC will be responsible for the project's operations and maintenance needs. Oliver overviewed the project area's habitat limitations, including:

- An elevated ground water table
- Inability to manage water levels
- Excess water in certain areas, facilitating the invasion of reed canary grass, increasing the mortality of bottomland forest, and decreasing the wetland diversity

- Lack of aquatic habitat diversity
- Invasive fish in surrounding lakes
- Sedimentation in Deadman's Slough

Oliver explained that the project will improve water drainage, management, and supply in the area; enhance habitat diversity; increase bottomland and floodplain forest; restore ecosystem functions and services by reconnecting the floodplain; and increase overall habitat value. Oliver said the project's ATR is currently under MVD and public review. MVS anticipates initiating construction on the HREP within the next few years.

In response to a question from Tim Schlagenhaft, Oliver said all project lands, including those in the floodplain, are USACE-owned. Janet Sternburg expressed appreciation to MVS staff for working with Missouri DoC to estimate O&M costs and responding to other information requests.

Long Term Resource Monitoring Program

Product Highlights

Mike Jawson reported that LTRMP has published a completion report on the factors influencing metaphyton abundance and distribution in Pools 4, 8, and 13. The report's results suggest that light penetration and water temperatures were altered beneath metaphyton mats. Backwater dredging and reduction of internal and external nutrient loading are potential ways to reduce metaphyton production.

Jawson said 2010 aquatic vegetation data is available on LTRMP's graphical web browser: http://www.umesc.usgs.gov/data_library/vegetation/graphical/veg_front.html. He said submersed aquatic vegetation (SAV) in Pools 4 and 8 continues to trend upward. SAV in Pool 13 is stable. Jawson said analysis of comparisons between SAV and total suspended solids (TSS) data from 2006, 2007, and 2009 shows that 1) when mean summer TSS levels drop below 32 mg/L, the presence of SAV increases; 2) low levels of TSS are most likely due to decreased runoff from low precipitation levels; and 3) water levels in Pool 4 during those three years were below average. Jawson said relationships between Canadian waterweed and turbidity in LTRMP data show that 1) Canadian waterweed increases as mean turbidity levels decrease below 20 nephelometric turbidity units (NTU) and 2) elevated turbidity levels are associated with decreased frequencies in Canadian waterweed.

Jawson reported that Tier 1 LiDAR data for the entire system and Tier 2 LiDAR data for Pools 10 and 21 are available at: http://umesc.usgs.gov/data_library/gis_data/lidar.html.

Jawson recalled partners' concerns regarding lack of access to research information during the lengthy journal publication process. In response to that concern, LTRMP staff have produced sample one-page summaries of four draft manuscripts. He explained that this format is designed to allow LTRMP to share research information quickly with partners, prior to journal publication. The summaries also provide a way to convey key study findings to non-technical audiences. The summaries include the issue/problem in question, potential significance of the research, results, and potential impacts of any findings (i.e., benefits, management implications, etc.). In response to a question from Barb Naramore, Jawson explained that the summaries will not include information regarding methodologies or specifics about the results and will not compromise subsequent journal publication. Thus, the summaries will not impact authors' publication concerns.

Bathymetry and LiDAR Update

Karen Hagerty said bathymetric data for Pools 18, 20, 22, and the Peoria Pool are currently undergoing QA/QC. No LiDAR data has been collected since November.

A-Team Report

Jim Fischer said the A-Team met on December 1-2, 2010 at the National Great Rivers Research and Education Center (NGRREC) in Alton. The A-Team took a guided tour of the new NGRREC building. The meeting also included two LTRMP research presentations. Fischer reported that the A-Team has completed the 2009 Field Stations Product List, which is available at http://www.umesc.usgs.gov/ltrmp/ateam_files/LTRMP_calendar_year2009products.pdf. The A-Team plans to distribute a list of field station products annually. The next A-Team meeting is scheduled for April 27 in La Crosse.

Ad Hoc Indicators Group Update

Hagerty reported that the A-Team's *Ad Hoc* Indicators Group is completing a draft assessment report on the indicators used in the 2008 Status and Trends Report. The assessment report attempts to answer 1) whether the 2008 indicators are useful, 2) if there is potential to make improvements to any of the indicators, and 3) whether there are possible replacement indicators. The Indicators Group presented on the draft report at the A-Team's December 2010 meeting, with the goal of sharing the draft report to the EMP-CC in May 2011. Following the report's completion, Hagerty said the Indicators Group plans to set targets and benchmarks for each indicator and explore the potential use of additional indicators of ecosystem health and management.

LTRMP Product Highlight: Identifying the Geographic Origin of Large River Fishes Using Micro-Chemistry

Quinton Phelps overviewed new technologies to identify environmental markers that reveal the life history of fish. Phelps said it is important to understand fish habitat use and migration and dispersal patterns in order to make conclusions about:

- Population ecology and life history
- Movement among habitats and geographic locations (e.g., nutrient and energy transfer)
- Management strategies, including for imperiled, economically important, and exotic species
- The success of habitat restoration efforts

Phelps explained that fish movement has typically been studied by tagging and recapturing fish or telemetry. However, these techniques have various practical and cost limitations. As an alternative, naturally occurring chemical markers can serve as indicators of environmental history. Phelps explained that elemental and stable isotopic composition of fish otoliths or fin rays can reflect the distinct chemical compositions of different waterbodies or river reaches. These chemical differences are a function of an area's unique geology, anthropogenic inputs, hydrology, and food web structure. Phelps said individual fish that move between chemically distinct environments retain the chemical signature of previously occupied location(s) and also begin to acquire the signature of the new environment.

Phelps said fish otoliths are used for balance and hearing and fin rays are used for stability and movement. Both have annual markings, similar to tree rings, that record age and growth. The markings also provide a permanent chronological record of environmental chemistry experienced by the fish. Phelps cited several advantages of using these naturally occurring markers to trace the environmental history of fish, including there is no need to locate and recapture individual fish; the methods are applicable to larvae, juvenile, and adult fish; the methods do not alter fish behavior; and the sampling technique is not lethal.

Phelps said natural markers can distinguish adult fish from the Upper Mississippi, Middle Mississippi, Missouri, and Lower Illinois Rivers, and their tributaries and floodplain lakes. He explained how these areas are different from each other in chemical composition.

Phelps said these techniques are being used in researching natal environments of Asian carp in the Upper Illinois River and to identify origins for age-0 sturgeon in the Mississippi River. He said adult Asian silver carp were collected from the upper Illinois River, and their otolith core signatures were compared with water samples from the Mississippi River, Illinois River, and Illinois River floodplain lakes. Phelps explained that three basic patterns emerged indicating distinct relationships to origins in all three areas. He said the study concluded that a majority of Asian carp collected in the upper Illinois River originate from the Illinois River. In response to a question from Barb Naramore, Phelps explained that because geology largely determines water composition, the water's composition is very stable long term. In response to a question from Charlie Wooley, Phelps said sewage sources in the Chicago area create an obvious and unique water chemistry, thus creating its own signature. Phelps added that LTRMP has taken enough water samples to associate high confidence levels in water chemistry composition around the Chicago waterway.

Phelps also described how environmental markers can identify origin for age-0 sturgeon in the Middle Mississippi River. Phelps noted that shovelnose sturgeon are declining and pallid sturgeon are federally endangered in the Mississippi and Missouri Rivers. Understanding early life history can inform protection efforts. Phelps explained that the results indicate that sturgeon's downstream drift varies by individual, but some individuals do drift at considerable lengths. This information suggests the importance for inter-jurisdictional management efforts to restore sturgeon populations. In conclusion, Phelps said environmental markers can be used to determine the 1) relative importance of floodplain lakes, tributaries, and large rivers as natal habitats; and 2) natal origin, movement, and dispersal of large river specialists.

In response to a question from Wooley, Phelps said he compared the environmental marker results with data on sturgeon from Missouri River hatcheries. The data were highly correlated, confirming the accuracy of the environmental markers. In response to a question from Wooley, Phelps explained that the Missouri River has several very significant, clear gradients in water chemistry that are apparent even in very high flows. Thus, environmental markers can distinguish among reaches on the Missouri River. Barry Johnson explained that this technique can also determine survival rates of certain individuals.

Joyce Collins recalled that funding for sturgeon research was triggered by a USFWS and USACE biological opinion regarding sturgeon. She said the Southern Illinois University and Open River Field Station have made tremendous advances in sturgeon research.

HREP-LTRMP Integration

Marv Hubbell recalled that, a few years ago, EMP dedicated funding for one LTRMP staff person to assist HREP project delivery teams (PDTs) in integrating LTRMP information into project planning. However, that approach proved not to be optimal for a variety of reasons. Hubbell suggested that the EMP-CC, at its May 18 meeting, consider clearly defined and sustainable options for integrating the HREP and LTRMP components, and enhancing their overall effectiveness.

Hubbell said EMP has allocated about \$20,000 to \$25,000 in FY 11 funding for LTRMP/HREP integration. Currently, funding from LTRMP's portion of the budget is used to support LTRMP staff in their efforts to provide districts with assistance in identifying relevant information, models, etc. PDTs use HREP funds to reimburse LTRMP staff that are actively involved in HREP planning. And, program management funds are used to reimburse USGS for increased HREP/LTRMP integration efforts.

Hubbell acknowledged that finding the most effective and efficient ways to integrate the two components will take time.

Janet Sternburg said there are many ways the HREP component could increase its use of LTRMP data and research, including integrating LTRMP staff into HREP planning, conducting new analyses of existing data, and monitoring and evaluating projects. In response to a question from Jim Fischer, Hubbell said district HREP staff can interact with the LTRMP in a variety of ways and stressed that there is no single pathway to enhanced interconnection. However, he said it is important to encourage PDTs to ask questions and identify their data and information needs.

Hubbell said he is drafting a white paper that addresses these issues. He plans to share the paper with the EMP-CC following an internal review.

Fischer expressed his support for enhancing LTRMP and HREP integration. However, he urged EMP-CC to evaluate the full array of options before committing funding. Hubbell said the amount of FY 11 funding is equal to past years' funding for integration efforts.

Other Business

The upcoming quarterly meetings are as follows:

- **May 2011 — Rock Island**
 - UMRBA — May 17
 - NECC — May 18 (a.m.)
 - **Joint EMP-CC/NECC — May 18 (a.m.)**
 - **EMP-CC — May 18 (p.m.)**
 - **Possible IIA or HREP Strategic Plan meeting — May 19 [Note: Marv Hubbell scheduled an IIA Authors Forum to discuss the IIA issues and schedule on the morning of May 19.]**

- **August 2011 — Quad Cities**
 - UMRBA — August 16
 - **EMP-CC — August 17 (a.m.)**
 - **Joint EMP-CC and NECC — August 17 (if needed)**
 - NECC — August 17 (p.m.)
 - **Possible IIA or HREP Strategic Plan meeting — August 18**

- **November 2011 — Quad Cities**
 - UMRBA — November 15
 - NECC — November 16 (a.m.)
 - **Joint EMP-CC and NECC — November 16 (if needed)**
 - **EMP-CC — November 16 (p.m.)**
 - **Possible IIA or HREP Strategic Plan meeting — November 17**

With no further business, the meeting adjourned at 1:50 p.m.

**EMP-CC Attendance List
February 16, 2011**

EMP-CC Members

Renee Turner	U.S. Army Corps of Engineers, MVD
Charlie Wooley	U.S. Fish and Wildlife Service, Region 3
Mike Jawson	U.S. Geological Survey, UMESC
Rick Mollahan	Illinois Department of Natural Resources
Pat Boddy	Iowa Department of Natural Resources
Tim Schlagenhaft	Minnesota Department of Natural Resources
Janet Sternburg	Missouri Department of Conservation
Jim Fischer	Wisconsin Department of Natural Resources
Bill Franz	U.S. Environmental Protection Agency, Region 5

Others In Attendance

Elizabeth Ivy	U.S. Army Corps of Engineers, MVD
Jeff DeZellar	U.S. Army Corps of Engineers, MVP
Gary Meden	U.S. Army Corps of Engineers, MVR
Roger Perk	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
Chuck Spitzack	U.S. Army Corps of Engineers, MVR
Ken Barr	U.S. Army Corps of Engineers, MVR
Steve Rumble	U.S. Army Corps of Engineers, MVR
Brian Johnson	U.S. Army Corps of Engineers, MVS
Brian Markert	U.S. Army Corps of Engineers, MVS
Deanne Strauser	U.S. Army Corps of Engineers, MVS
Hal Graef	U.S. Army Corps of Engineers, MVS
Charlie Hanneken	U.S. Army Corps of Engineers, MVS
Donovan Henry	U.S. Army Corps of Engineers, MVS
Kat McCain	U.S. Army Corps of Engineers, MVS
Amanda Oliver	U.S. Army Corps of Engineers, MVS
Nicole Schmitt	U.S. Army Corps of Engineers, MVS
Kevin Foerster	U.S. Fish and Wildlife Service, UMR Refuge
Bob Clevestine	U.S. Fish and Wildlife Service, UMR Refuges
Joyce Collins	U.S. Fish and Wildlife Service, Marion Sub-Office
Jon Duyvejonck	U.S. Fish and Wildlife Service, RIFO
Scott Yess	U.S. Fish and Wildlife Service, UMRCC
Dave Bornholdt	U.S. Geological Survey, Midwest Area
Barry Johnson	U.S. Geological Survey, UMESC
Bob Hrabik	Missouri Department of Conservation
Quinton Phelps	Missouri Department of Conservation
Robert Stout	Missouri Department of Natural Resources
Michael McGinn	Cardno ENTRIX
Brad Walker	Izaak Walton League
Thomas Bennett	Missouri Coalition for the Environment
Lorin Crandall	Missouri Coalition for the Environment
Tom Boland	MACTEC
Steve Sletten	PBS&J
Cecily Smith	Prairie Rivers Network
Barb Naramore	Upper Mississippi River Basin Association
Dave Hokanson	Upper Mississippi River Basin Association
Kirsten Mickelsen	Upper Mississippi River Basin Association