Environmental Management Program
Implementation Issues Assessment

August 17-18, 2011
Adaptive Management Workshop

Hotel Blackhawk
Davenport, Iowa

Participants

Day 1 and 2

Tom Novak, USACE, MVP
David Potter, USACE, MVP
Marv Hubbell, USACE, MVR
Karen Hagerty, USACE, MVR
Ken Barr, USACE, MVR
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Darron Niles, USACE, MVR
Chuck Theiling, USACE, MVR
Bob Clevenstine, USACE, Refuges
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Amber Andress, USACE, RIFO
Mike Jawson, USGS, UMESC
Barry Johnson, USGS, UMESC
Rick Mollahan, Illinois DNR
Diane Ford, Iowa DNR
Kirk Hansen, Iowa DNR
Jim Fischer, Wisconsin DNR
Steve Sletten, Atkins North America
Nani Bhowmik, Illinois State Water Survey/Illinois SAC
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Barb Naramore, UMRBA
Dave Hokanson, UMRBA
Kirsten Mickelsen, UMRBA

Day 1 only

Steve Shults, Illinois DNR
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Robert Stout, Missouri DNR
Brian Markert, USACE, MVS
Donovan Henry, USACE, MVS
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Day 2 only

Mike Griffin, Iowa DNR

Workshop Goal and Objectives

The goal of the August 17-18 workshop was for authors of the Implementation Issues Assessment (IIA) adaptive management (AM) issue paper to get input from partners on EMP's goals and objectives for implementing AM. The issue paper will outline fundamental issues related to EMP's use of AM and identify options for partners' consideration. The paper and the partners' perspectives will then inform more detailed work on AM implementation issues through the pending HREP strategic planning process. Objectives for the workshop included:

- Identify EMP's goals relative to AM — i.e., what EMP will seek to accomplish through AM
- Agree on EMP's definitions of key AM terms
- Identify potential approaches for AM within EMP
- Provide input regarding content and extent of the IIA AM issue paper
  - Define practical implementation constraints (or sideboards) and assumptions
  - Discuss EMP's priorities for implementing AM, given the other program needs

Presentations

Presentations on 1) AM terminology, 2) the Corps' AM policies and current implementation efforts, 3) EMP's implementation of AM techniques to-date, and 4) potential issues and approaches for AM within EMP moving forward provided participants with background information and a common understanding of AM. A brief synopsis of each presentation is provided below. The presentation slides are attached to this summary.

AM Terminology — Mike Jawson overviewed various terms associated with AM and some conceptual approaches to implementing AM. According to Jawson, AM is a structured, explicit, and iterative learning process that is designed to optimize decision making in uncertain conditions, with the goal of reducing that uncertainty over time.

Corps' AM Policy/Practice — Ken Barr presented on the Corps' policies related to implementing AM in its ecosystem restoration projects, including Sections 2036(a) and 2039 of WRDA 2007 and their August 31, 2009 Implementation Guidance (both of which were incorporated into ER 1105-2-100). He also overviewed whether and how AM is implemented in the Corps' other large ecosystem restoration efforts, including the Missouri River, Florida Everglades, Louisiana Coastal Area, and the Lower Columbia River.

EMP's AM Implementation Activities — Chuck Theiling reviewed EMP's AM-related activities to-date. This includes EMP-LTRM base monitoring, project-specific monitoring, focused biological response studies, and other focused research. For example, EMP uses resource models to modify and improve project design and to evaluate project impacts. According to Theiling, EMP's biggest AM-related shortfall has been in documenting and disseminating insights gained from monitoring and evaluating habitat projects and resource issues.

Potential AM Approaches for EMP Going Forward — Barry Johnson outlined a process whereby EMP can approach AM in ways that will be most useful and appropriate. This includes the following:

a) Identify critical questions and uncertainties re UMRS ecological restoration.

b) Determine whether AM is appropriate to address the question/uncertainty, and if so, what AM technique(s) EMP should use.

c) Assess what is currently known and unknown re the question/uncertainty.

d) Develop an experimental design for learning about the question/uncertainty.

e) Develop a monitoring design(s) that is cost-efficient and affordable.

f) Implement the restoration project under AM within an appropriate timeframe, with adequate decision points, and with flexibility to modify the project as needed.

g) Ensure that "new" knowledge is captured and integrated into future restoration efforts.

Day 1 Discussion

Participants identified several considerations for how EMP might implement AM, including:

a) Who (i.e., partner agencies, coordinating teams, managers, etc.) might be responsible/accountable for implementing AM? What roles should individual partners and teams have in implementing AM? For example, project delivery teams (PDTs) could be responsible for identifying a project's risk and uncertainty. In all likelihood, different

groups/individuals will be responsible for implementing different aspects of AM — i.e., there is no one-stop-shop.

b) How can partners use AM to examine synergies between, and cumulative effects of, multiple projects at larger spatial scales?

c) How can partners use existing EMP-LTRM data to answer ecological questions and make determinations re regional and systemic benefits from EMP's completed habitat restoration efforts?

d) How can base monitoring data be used to define baseline conditions for AM studies?

e) What are relatively low-cost AM techniques that can meet EMP's needs?

f) What spatial scale(s) are appropriate and suitable for implementing AM — i.e., sub-project (e.g., species), project, pool, reach, system? This answer will depend on the topic being addressed under AM.

Day 2 Discussion

Should EMP take a more explicit and deliberate approach to implementing AM?

By consensus, workshop participants agreed that EMP should indeed take a more explicit and deliberate approach to implementing AM, including for the purpose of being compliant with AM provisions outlined in Sections 2036(a) and 2039 of WRDA 2007. However, participants recognized that not all habitat projects or questions lend themselves to AM analyses. For instance, some questions are more appropriately explored through focused research. In addition, resource constraints will require partners to prioritize and strategically determine EMP's AM activities. The UMRS is a unique, large, and complex system; and partners should have reasonable expectations of what can be learned through EMP's AM efforts. Participants also recognized the importance of documenting and sharing any insights gained through AM with all partners, as well as with external partners.

What are the purposes/reasons EMP should implement AM?

Participants offered the following purposes/reasons for implementing AM more explicitly and deliberately going forward:

a) Answer broad spatial questions about the UMRS ecosystem and its management, not just project-specific questions.

b) Identify restoration needs that might be best addressed through "new" restoration techniques.

c) Enhance communications and understandings related to project performance and uncertainties in ecosystem management.

d) Learn from past and current efforts to inform future restoration efforts.

e) Improve overall effectiveness and efficiencies of particular restoration techniques.

f) Inform long-term decision making re UMRS management efforts.

g) Use AM to guide and optimize EMP's investment in habitat restoration. For example, AM can help determine at what point there are diminishing returns from investing in certain areas or restoration techniques.

What AM approaches/techniques are most appropriate/best suited for EMP's purposes? How should partners decide when and where to apply AM techniques?

Participants suggested that partners first identify the key management uncertainties. This will inform the AM implementation priorities and actions. Participants noted that this might require a resequencing of habitat projects; however, any resequencing would need to consider overall restoration priorities first. Participants suggested that EMP partners:

a) Develop a Biological Response Handbook, documenting what is known re biological response, as well as key knowledge gaps.

b) When planning projects, consider how the project might be able to answer uncertainties re the UMRS ecosystem, its management, and the effectiveness and efficiency of restoration techniques.

c) Use the system and reach goals and objectives as a tool in prioritizing AM needs — e.g., identify uncertainties associated with each goal and objective.

d) Implement AM at the system and reach scales to assess project effects at those levels, particularly relative to the system and reach goals and objectives.

e) Identify ways to supplement AM efforts using existing system data and similar focused research. Conducting meta analyses would strengthen the AM conclusions.

f) Consider how AM might be used to assess habitat projects' contribution to the system's resiliency and sustainability relative to factors such as climate change, invasive species, etc.

Participants noted that the multiple side channel restoration projects in the Open River Reach and Pool 12 Overwintering might offer near term opportunities to implement AM. Project partners will have collected about 12 years of monitoring data in Pool 12 for the Overwintering HREP.

Sideboards/Constraints

What are the constraints in applying AM within EMP?

Participants identified the following constraints/sideboards to consider when prioritizing and designing EMP's AM activities:

a) Project development, from initiating planning to completing construction, can take around 20 years. Staff turnover during this period can impair continuity, and thus interfere with AM efforts.

b) Funding for EMP and specific projects varies annually. Uncertainty re out-year funding can make AM planning difficult.

c) The UMRS is large and complex, and thus there is substantial "noise" in the system that will limit partners' ability to draw specific conclusions re projects' effects. In addition, certain biological responses are inherently more difficult to detect — e.g., making conclusions about fish responses would be more difficult than vegetation responses. In some instances, multiple lines of evidence may be required to obtain accurate AM results.

d) Partner agencies' internal policies and administrative requirements can have implications for each partners' role in implementing AM. For example, the Corps' 50-year project design life requirement limits the types of projects EMP can implement.

e) It is also difficult for individuals to substantially alter their thinking and ways of doing things. For example, partners tend to think about individual projects instead of thinking systemically about restoration efforts and AM.

f) USACE and its partner agencies tend to be highly risk averse.

g) Restoration and monitoring efforts cannot interfere with the Crops' maintenance of the UMRS's 9-foot navigation channel.

What are the opportunities to overcoming these constraints or work within these constraints?

Participants offered the following suggestions for overcoming constraints and creating opportunities for implementing AM:

a) Consider how to use the current institutional arrangements (e.g., river teams) when assigning roles for implementing AM.

b) Explore some AM approaches/techniques using near-term habitat projects — e.g., Pool 12 Overwintering and side channel restoration projects on the Open River.

c) Consciously link EMP's monitoring, focused research, and AM efforts.

d) Address AM implementation needs and constraints in the LTRM Science Management Plan.

e) Include examples in the issue paper of various AM approaches/techniques that would suit EMP.

f) Identify opportunities for low-cost AM approaches/techniques. For example, monitoring fish distribution is much less expensive than monitoring fish abundance.

Next Steps

UMRBA staff will distribute a summary of the workshop's discussion shortly. At its November 16, 2011 meeting, the EMP-CC will discuss a draft AM issue paper, authored by Mike Jawson and Barry Johnson. [Note: the draft issue paper will be distributed to partners well in advance of the November 16 meeting.] In addition, the Pool 12 project delivery team (PDT) has already begun to think about how AM could be applied to the project.