

**UMRR Analysis Team Agenda April 26, 2017**  
**UMESC Large Conference Room, Upper Segment D, La Crosse, WI**  
**WebEx/Call-in information:**

Date: Wednesday, April 26<sup>th</sup>, 2017

Time: 1 PM- 4 PM

Attendees:

Shawn Giblin  
Jeff Houser  
Sara Strassman  
Scott Gritters  
Andy Casper  
Dave Potter  
Jon Hendrickson  
Kat McCain  
Matt Vitello  
Jen Dieck  
Jim Fischer  
Nick Schlessler  
Dave Bierman  
Kjetil Henderson  
Karen Hagerty  
Marv Hubbell  
John Chick  
Bill Richardson  
Jim Rogala  
Kristin Bouska  
Brian Gray  
Rob Maher

New Chair: Next meeting will be chaired by Matt Vitello of MO. Shawn proposed July 31<sup>st</sup> as a potential meeting date for online meeting. Karen proposes 1 week earlier or few days later for her availability. TBD via Doodle Poll from Matt.

Amendments to January Minutes: No amendments. Approved as written.

UMRR Update (Hubbell): Budget-operating under authority to spend up to last year's allocation. No formal decision on FY17 budget. Projected future budgets: Optimism about FY18 & FY19 budgets. Ecosystem Indicators to be embedded into HNA2 and next gen of HREPs to monitor in a manner that reflects whether meeting Ecocystem Indicators. Increases accountability when measuring against objectives. Goals for the A-Team (Karen will discuss against Charter).

Q: WI had question about adaptive management for existing HREPs. What is the process for implementing some adaptive mgmt. on HREPs?

A: We are supposed to consider AM projects when considering next round of projects. Look for detailed recommendations in feasibility report. They can then budget for the AM in future years. Can go out to 10y total (?). Policy perspective—allows for addressing risk/uncertainty.

Discussion: Issue sprung from work being done at Peterson Lake. St. Paul constructed in early 90s. Because of rec boating interests, they left one channel open that had been used by boaters. People now use different route for boating, but that site is now providing too much inflow and reduces amount of OW habitat. MN DNR collected data to illustrate that the flow needs to be reduced. The inlet is about 20' wide, it'll need about half a barge load of rock to fill it in. It had been partially closed during project. If costs is less than \$75k, AM may not be the appropriate process, but the Ops crew can undertake work, as is being done in St. Paul.

Marv: If it was included in the feasibility report, then there's already clearance and plans available to modify the project. Need to make sure we aren't overlapping with routine O&M. If we call it "specific project action", it needs documentation to do that. It'll be more difficult to develop a budget item for a completed project. If it's small enough, it might be able to be absorbed by the District (probably the easier route). May need a case-by-case basis.

Potter: U Island (C8) fix at P8: Novak discussed an island that wasn't built correctly and needed to be fixed.

Marv: need to be sensible about what things are going to be included as AM features. Meant to address areas of risk & uncertainty (at Huron Island, they are using stepwise procedure for establishing SAV where it is not normally found).

Jeff Houser: Resilience Workgroup Update—Manuscript was submitted with the conceptual models. Now focus has shifted two next 2 components. General resilience (system broad scale) and specified resilience (ability of certain parts of system to withstand stressors). General resilience based on presence of diversity, functional redundancy, connectivity, flow variables. Specified is looking for thresholds related to resilience. General resilience is the focus right now for its fit with the HNA. There is a joint workshop planned for 16-18<sup>th</sup> May. Read-ahead for that meeting will be a draft summary of the general resilience indicators with some explanatory text. May 2 conf. call with resilience working group to get feedback before larger release. Agenda for workshop begins with outputs of resilience assessment and data-related work done as part of HNA (inventory), Nate, Molly, etc. Second part will tackle issues around mgmt. objectives that have been stated. Third part of workshop is developing consensus on final product of the workshop should be. Connect with Jeff if you want to review the indicators and are not on the group.

On general science note: Alicia & Nate published paper on bithynia and SAV (River Res. & App), changes in the systemic landcover in floodplain vegetation (DeJager & Rowheder), Fisheries (Casper can send a copy), collapse of common carp (Casper, etc), zoop paper (Burdis-J. of Fresh. Ecol)—Jeff can send all those papers to folks who'd like

Proposal Ranking Discussion: Ranking criteria sheet. WI felt it worked well for quickly ranking. WI suggested doubling the weight for the importance of the work to managing & restoring the UMRS. Karen agrees we could rate it more highly. Shawn will modify it to reflect the change and send it to Karen & Jeff. IL suggested it's helpful to speak with folks connected with proposals. MN used a similar process and concurs with weighting. FWS concurred with new weighting in writing prior to meeting.

Jim: suggests that if we see the research is high priority, we can talk with PIs to tweak methods

Dave Potter: Standardized fish monitoring protocol.

Problem that led to document: protocols not consistent, variable amt & type of data

Protocol should: increase efficiency, strengthen collaboration, facilitate sharing data, assist with planning process

Kat McCain—Ch 2 & Ch 3 on forested & non-forested wetlands were vetted

Ch 1 is the intro still in draft

Future chapters could be Physical, Biological, Data Mgmt, Invasive spp. (comply with EO—utilize the policy as part of the manual), performance eval., statistical design?

Marv: we have typically done implementation monitoring as part of the project evaluation document, we do have a crew looking at WQ routinely, project sponsor has typically collected other data and provided it, with increased accountability, Corps needs to be collecting more of the data (or perhaps elaborate upon it more within the protocols being developed)

Potter: trying to emulate and model after LTRM and also create the handbook as a living document, needs to be a guide for the planning teams

Jim: we need to try to get it right as much as possible, so we're not changing protocols often, to help reduce changing methods between projects you're trying to compare

Jeff: we need to get it right because we won't revisit it as soon as we think we will

Scott: the audience for the document—the partners and the Corps, we don't have the resources to fulfill some of the monitoring as outlined

Potter: agree that we need to get it right. "Living document" was meant to state that we could attach new protocols as they are developed for more specialized types of monitoring (telemetry, etc).

Standardized fish monitoring—focused on population structure, relative abundance, composition  
General comments that were substantive: Janvrin concern that we can't compare different projects, RID leadership feels they can indeed compare projects after controlling for differences, Marv: the RTC has had to have anecdotal information about HREPs rather than data analysis over the suite of projects, ideally looking to link the assumptions used in development of project with assessment of outcomes

If we use spp models to design a project, do we want to be able to go back and demonstrate that our constructed habitat met the measures? Do we further want to link a population response? We want to gather a response of fisheries to our project.

Q: is there a process by which we go through the project evaluation to assess whether we're comparing what has been constructed across project locations. If we are using models to develop the engineering specs and we need to go back and assess what we've built and lasting, that becomes the first step.

A: Karen & Dave say yes, we are doing that, but there are some years where the Corps is missing data collection.

Tiered approach: first tier is relying on existing methods with limitations of each state and resources. Second tier something more meaningful. Third tier is full blown LTRM methods.

Not impossible for us to get to more standardization, even if we have to have folks modify in the field

Data management is a huge hurdle. Not organized and centralized.

Jeff: We can't just haphazardly build a database. We don't want a dumping ground for separate people's files, even if they are standardized, because they will still be organized separately. Who stores it is not important, but we need to discuss what fields are necessary, how to structure it so that folks can enter the data in same format.

Karen: HREP database is not the place for this data, either.

Rogala: you can't have more than 3-4 strata due to limited sample size, so probably stick with Wilcox

WRDA 2007 guidance on AM—Corps restrictions: 10yrs or less of monitoring, federal monitoring must be <1% of construction cost (UMRR has not been officially constrained to that); financial participation should not exceed 3% of total ecosystem restoration costs.

Marv: As we develop ongoing costs over future projects, we will bump up against a ceiling.

Forested wetlands—all 3 districts are collected in standardized manner, but no shared regional database

Fish: re-write with assistance from state agency & statistician (Gray)

Handbook: assign a champion, establish a common vision, proceed with the development & vetting of other chapters concurrently

Karen: Started with types of habitat that are restored most regularly

Jeff: Need to have the discussion about what are you hoping to do with the data, what is the big picture for the data and analysis

Due-Out: we should develop a fact sheet to describe the goals. Then assign chapters. Marv suggests finalizing Ch. 1 and share it with the group for feedback.

Shawn: Pettibone Lagoon: Area is important for underserved communities, esp. in light of RR restrictions to other habitats. Lagoon is managed by City of LaX. P8 photic zone median 2.1m with greater depths in Pettibone lagoon has depths that exceed the P8 photic zone median (2.1m), so there is very little submersed vegetation and potential for overwintering fish. The lagoon has a history of summer & winter kills, plagued by poor WQ, prior to aeration system there was winter hypoxia (under 2mg/L DO or less). As part of the mitigation plan for expansion of LaX airport, pumps were installed to introduce main channel water to alleviate winter hypoxia, reduce fish kills, improve rec angling. Pump was installed above normal flood stage and delivers main channel water into 2 bays within the lagoon. In 2015-16—perform comprehensive WQ for summer & winter and assess 8 sampling sites within the lagoon

Developed some basic residence time models. First winter had about 8cfs coming in from MC. Temp was too cold, DO was at max saturation. Control site was warm, but 2mg/L DO. Second winter, reduced pumps to 35% (3.5cfs). Brought DO to 10mg/L and water temp 2-3C.

Summer inflow increased DO in mid-depths and bottom. By increasing from 3.5cfs to 8cfs took DO really high, which resulted in very high Chl-a. Following summer, set pump at 6.5cfs. Chl-a was high, but not hypereutrophic, DO is OK. WQ related to flow rates, significant correlation increased in TN, TP, Chl-a. SRP & DIN were not as highly correlated, meaning that Chl-a response comes from phytoplankton taking up available nutrients. Not much remaining in dissolved form. Developed a table for the operator that can be taped to the pump.

Scott: did you ever do a creel as part of the monitoring? I had a site in a sand pit where they put the entry point in the middle of the system and ramped down the size. Fish hung out just north of the input to keep near the DO, but in the warmer water. It would be interesting to see what they're catching and where.

Jon H: you had a really long residence time. 22 days is much higher than we use for the BW on HREP projects. Stoddard Bay, for instance, probably 10-12 days. Do you think we'll be using longer residence?

Shawn: Yes, very likely. Stoddard is functioning well in part due to the shadow-effect of the interior islands.

Bill Richardson: Maquoketa River Floodplain Connectivity-USFWS interested in stacking benefits on restoration projects. Quantify additional benefits on floodplains, esp. nutrient uptake. Nutrient redux are most important area of study. Primarily looking at lateral flows during floods to the active floodplain. Hyporheic flux is important for transport of dissolved materials (IA folks are looking closely at this component). Floodplain as locale of intense biophysical activity. High diversity of soil redox conditions. Carbon-rich env to drive bacterial interactions. High rates of mineralization. Sediment and P retention. High rates of material delivery to floodplain, but also export of biomolecules (fatty acids, activated C).

2010 levee breaks led to first discussions of study area at Maquoketa River site. Site is 93ha. Floodplain doesn't connect often. Last meaningful flood was 2015.

Quantify ecosystem services to better understand linkages between flooding/floodplain/geomorph/retention of nutrients and sediments

Scale-up N, P, C (using 2-d HEC-RAS with nutrient module) to entire delta-floodplain system

Scale up to basin level with additional models

Focusing collection of sediment around the levee cuts. Sediment coring, deploying clay marker horizons (bentonite pads)

Sediment accretion (avg 10kg/m<sup>2</sup> during flood of 2015)> translates to 700,718kg sediment, 12,010kg C, Less than 1% of the annual & event load of N is deposited on the floodplain

NO flux shows higher than typical UMR backwaters is happening on the Maq floodplain. Lower maximum potential than UMR backwaters under ideal conditions, however. When sediment NH<sub>3</sub> is higher, the denitr. is higher. Also needs some soil moisture.

Take home: large deposition of material on the small site. Large quantities of N are permanently removed through denitr. Potential is limited by N delivery.

Shawn: how long will denitr. Potential be maintained? How long until sediment deposition seals it off or fills the complex.

Bill: the denitr. Potential is not limited. But yes, there could be sediment deposition that occurs to reduce input to the site.

#### Long-term goals for the A-Team:

Karen—Shawn I really appreciate the presentations you've brought in during your time

Shawn: Roles—one thing that was mentioned was lotic channel dwelling fish metrics, do folks want to keep up with the themed meetings (trying to get longitudinal convos on a theme)

Karen—we should increase interaction with the other Tech Sections, after the WQ ones were successful

Jon—Riverine fish metrics should be part of HREPs, so we need more design criteria

HREP monitoring for mussels and design for mussels (Heidi Dunn—for next meeting, where mussels set

up on weirs; Also a presentation on the channel elements of HREPS; a presentation on Bertom-McCartney would be valuable.)

Annual update on the graphical browser

Shawn: what about A-team helping assess the data to develop specific resilience parameters

Jeff: developing additional research frameworks will be an upcoming work area that A-team folks could help with (i.e. sediment related processes)

Karen: next S&T report will be coming in 2018