

A-Team Minutes

July 28, 2015

Participants (at UMESC):

WI: Shawn Giblin, chair, Sara Strassman

UMESC: Jennie Sauer, Jennifer Dieck, Jeff Houser, Nate DeJager

On Phone:

USFWS: Steve Winter

UMESC: Brian Gray

IA: Dave Bierman, Scottie Gritters

MN: Megan Moore

IL: Mike McClellan, Andy Casper

MO: Janet Sternburg

Corps:

MVR: Karen Hagerty, Marv Hubbell, Chuck Theiling, Davi Michl (intern), Ken Barr, Nate Richards

MVP: David Potter

MVS: Shane Simmons

Time & Place for next meeting: Proposal for joint session with UMRCC WQ Tech Section Meeting, October 29th. Fairport, IA (near Muscatine, U of Iowa field station). Mid-morning on 29th joint talks, then A-Team business meeting in afternoon.

Approval of Minutes from April 14, 2015:

No additions, Steve Winter motion to approve, second Mike McClellan.

UMRCC Vegetation Proposal--USFWS is ranking until Aug 21st, then USGS HQ will review, award might be Oct 1st if accepted

Fiscal Year 2016 (Marv): conversation stabilized, total UMRR of \$19.787M, amount for LTRM is stable as discussed, (following Feb & Mar. \$4.5M--base, \$963K--science in support-two pots; the combination will cover base monitoring as similar to previous 6-7 yrs), SOWs have been submitted.

Feedback from FS Leaders: (Bierman) first confusing, but Jennie & Karen provided guidance, USGS will take care of additional division into those two pots, if additional detail is needed for Corps budgets

Moore: what happens if there isn't much that would fall in the category of science in support?

Karen: analysis under base would fall into the science in support

Marv: FY16 budget was heavily negotiated, there was a \$2M swing in the last bit of budget negotiation, ASA(CW) is looking for distinct connection between science work under base and science work in support of restoration (this will be a long-term trend), ASA needs good demonstration of how science analysis is incorporated back into the program, over time, we maintain commitment to base monitoring, but we need to clarify the connection with analysis; Jeff's future discussion of resiliency work will help clarify this connection, for both accountability and how we define resiliency & health

Moore: so in future, we're going to need to make sure that our work falls into the "science in support" within the SOW

Marv: level of scrutiny as program has grown in last 3 years is much higher than in past, leading to increased accountability; right now they are looking at increments as small as \$25K, even as they prep for thinking about a \$33M budget.

Shawn: what is future of proposal process?

Marv: none in FY16, perhaps some add'l tasks if there is carryover,; there is also a national pot of funding to the Corps by business line as a result of loss of earmark programs, we are hoping to compete under Corps' internal "work plan" process for some of this funding

Science Presentations:

Ecological Shifts Presentation (Giblin):

This presentation is a demonstration of possibility of using LTRM data to analyze restoration potential and likelihood.

Ball in a cup analogy is best descriptor. System will remain in a particular valley until some threshold is met.

Turbid forces: increased wind resuspension, increased phyto abundance, decreased zoop refuge, reduction in visual feeding top predators, increase in benthivorous

Clear forces: decreased wind resusp, decreased phyto (allelopathy), increased zoop refuge & cropping, decrease in benthos, increased top predators for trophic cascade, nitrogen processing

In late 80s, veg collapse (decade persistence). The veg collapse occurred in late 1970s as well. By 1991, summer avg TSS peaked at 120mg/L, much higher than desired in upper pools

Langrehr evaluated veg data against the turbid/clear comparison. 1995 potentially the year when return to clear/veg state; 2010 seemingly the peak for vegetation in P8

Broke data into 2 epochs 1993-2001 and 2002-2011. Significant increases in all forms of vegetation and in summary veg between the 2 epochs, TSS down for all 3 periods (due to positive feedback), Chl-A down in fall, nutrients and discharge were down between 1st to 2nd epoch, but not significantly. Significant increase in top predators, increase in invertivore, planktivore, seeking large abundance of top predator species as a means to control lower guilds, decrease in benthivores; limnophils were up significantly in 2nd epoch, limnorheophils down in 2nd epoch (SMB, spotted sucker, carp)

Does this represent a trophic cascade similar to Peter Lake experiments? LTRM data suggests 4th trophic up, 3rd trophic down, 2nd trophic no data (zoop & aquatic insects), 1st trophic (Chl-a) down

What environmental drivers were important to the shifts?

Veg (all forms) was primary driver, mean summer TSS, mean fall TSS

Threshold analysis among the primary variables.

Mean Summer TSS against Non-native & native biomass. Threshold appeared around 17 mg/L TSS.

Shawn is proposing this value for numeric WQ criteria for southern WI rivers.

Karen: how does this apply to the Illinois or open river, which should naturally be more turbid?

Shawn: when you set a value for WQ Criteria, there is concerted effort to move toward those values, good scientific discussion can occur, the value can be tested and refined

Karen: this does follow up on the recommendations in the ad hoc indicators report to begin developing these values

Shawn: 17mg/L fit nearly all functional groups tested for this threshold; equates to about 67cm Secchi depth.

UMRCC recommended 25 mg/L as a minimum for maintaining veg. Above Pepin, we settled on 32 mg/L as something achievable that, if worked toward, would yield positive veg results- establish a minimal amount of vegetation.

North & Sturgeon HREP is good example of how we might apply these thresholds. Mean TSS for P3 main channel is 36mg/L. There could be huge benefits along the gradient. Prairie Island Indian Community samples fixed sites for WQ, one fixed site above the cuts that bring in main channel water has TSS in the 17 mg/L range, versus the sites below the cuts which fall into the 30 mg/L range. Wisconsin had suggested we may want to close down the cuts to North Lake to immediately reduce TSS and achieve vegetation goals. As a program, we might need to reflect more closely on analysis like this, particularly if we set objectives that relate to this type of threshold. Cutting off those cuts is included as an adaptive management measure, but the design process was not modified in response to the data, which seems counter to our goal of program integration and better utilization of science data.

Chuck: you might want different levels of connection at different times of year. There might be opportunities for using gates to control, if they aren't a maintenance nightmare. Your work from blue-green algae through all this has helped to understand these thresholds.

Shawn: we are doing some controlled connectivity work right now with the City of La Crosse for pumps within Pettibone Park that typically were only operational in winter. We are looking at high flow rate for summer and a lower flow rate for winter. Andy: What about the internal feedback of reduced bioturbation from carp?

Shawn: Yes, we considered that and it's true that the native/non-native biomass is largely driven by changes in the common carp biomass. We think reduction in TSS needs to come first to help keep common carp in control, but once common carp numbers come down, there certainly is less bioturbidity.

Nick Schlessler had weighed in on carp bioturbidity with MN lakes assuming that there are BLG eating carp eggs.

Andy: Common carp are vulnerable to predation, you may want to consider the size structure of your subject population. If the pop has many small individuals, they would be more vulnerable. The larger predators are preying on smaller size classes. What is the time lag between top predator presence versus a strong year class of carp.

Shawn: siting projects might hinge around where their TSS values fall, P13 data hinges right around this value and we may see dramatic response if project objectives included addressing TSS-influenced parameters

Chuck: performance evaluation reviews could also reflect what we are learning

Shawn: how do others feel about the 17 mg/L value?

Megan: we established 32 mg/L for minimal vegetation TSS value, but your inflection point seems really powerful, my question would be whether it is achievable

Chuck: there is historical context for those types of numbers in any of the pools, when we're down in Alton and middle-Miss, we're excluding main channel from isolated backwaters to avoid having issues with TSS

Shawn: this is a relevant system-wide goal, but especially relevant for projects that affect connectivity

Andy: if we utilize a hard value, do we risk having projects that may only hit a target of 30 be less desirable?

Shawn: I don't believe so. And there would be a gradient of improvement.

Jeff: did you do similar analysis with vegetation? Where was the inflection point? Sullivan's group used a desirable distribution of vegetation to come up with the target of 32 mg/L for Pepin

Shawn: I believe that value is also around 17 mg/L, but I can confirm. We did look at that within our analysis.

5 MINUTE BREAK—

50 Year Trend in Common Carp & Sportfish in the Illinois River: (A. Casper)

Exploratory work (represents several folks' contribution). They haven't tied the research to particular HREP projects, but exploiting differences between LTRM and LTEF (IL DNR).

US to DS: Dresden (near Chicago), Upper Illinois River (Peoria-Dresden), La Grange
Records begin 1957-60. By 1990, there was system wide massive decline in common carp biomass.
Began asking what effect restoration work might be achieving.

Total lengths—size structure through time was changing, in earliest years, there were large juvenile classes that did not persist into more modern years, downriver populations were able to retain YOY and juveniles better than reach nearest Chicago

LTRM data only has 20yrs of record, as compared to longer-term responses.

The sporadic recruitment trend is not just ILR, but UMRR-wide, shifts in vegetation or seasonal temps?
Disease? Interval between floods?

Strong year classes occurred in different years in different pools. What are stressors or other controls? Perhaps flooding in ILR is driving strong year classes for common carp.

Early 1990s coincides with persistent low common carp CPUE, he feels it reflects uptick in invasive species establishment, major background changes may be masking a UMRR-specific response

If we are attempting to apply response variables and indicators, it's always difficult to figure out what the future without project would look like.

Secchi depth—increasing in the Dresden reach, due to CWA primarily

Upper Illinois & La Grange are more alluvial river conditions than Dresden Reach, he feels there is a strong role for geomorphology of the system, where external TSS reduction won't yield the fish response due to the geomorphic controls on TSS

Chuck: 1988-89 drought in Lower reach resulted in rapid vegetation response and concomitant fish response, exact opposite timing from Shawn's work, but perhaps similar mechanisms

Sportfish assemblage (9 spp) CPUE increased dramatically in Dresden reach after 1990, increases in Upper Illinois & La Grange. They hope to repeat the analysis on common carp CPUE on the sportfish assemblage increases.

A-Team could contribute to discussions about how to apply findings from one reach to another geomorphic reach, we may want to apply HREP designs in limited/modified fashion if they come from other pools with different trends (upper 3 pools are more variable, but trend is stronger; lower 3 reaches are less variable and also less of a positive trend toward increased Secchi depth)

Sara: To what extent did you look at major WQ changes driven by Chicago?

Andy: we did look at Chicago Metro WQ metrics: TSS, un-ionized ammonia were primary drivers, we don't have as full a dataset for lower Illinois River where the floodplain is disconnected and a lot more agriculture; intensification of agriculture in the watershed and fertilizer application rates have changed over our sampling period

Karen: Chick has been looking at declines in sportfish (1995-2015), how does that compare with your findings of increase?

Andy: shorter period of time and also looking at different species, Chick has been looking at LTRM pool-wide averages, not just the fixed sites; he doesn't have good comparative data for AC to DC CPUE effectiveness to help relate the two datasets

Sportfish in the Dresden reach, there is increase in variability, but still strong signal for increase. Upper Illinois has distinct spikes that, if removed, it would look similar to the La Grange.

Shawn: plans for multivariate analysis?

Andy: Fish community structure in response to Asian carp paper in review. Quentin is doing similar work on Miss. We weren't confident that the env variables hadn't changed as much in the La Grange reach over our time period. Mean TSS is close to 100 mg/L.

Shawn: might want to consider exponential relation of secchi to TSS.

Andy: I looked at Jim Stoeckel's work to compare organic/inorganic SS.

Shawn: VSS attenuates light more (reflect & absorb). TSS reflects light. VSS is probably about 10%.

Jeff: Inorganic fraction is a vastly dominant, so more important to address this source

Resilience Working Group (Jeff): put together very small group with diverse backgrounds, July 14th first call (Nate DeJager, Jeff Houser, Jon Hendrickson, Steve Winter, Andy Casper, Marv Hubbell-advisory); charge of the group is "frame concept of resilience for UMR program to operationalize concepts of ecological resilience and health to effectively implement the program's Strategic Plan". Kick off was general discussions about ecological resilience. Jeff presented his resilience ppt, he proposes to give that presentation at A-Team's October meeting. We discussed how to apply resilience to UMR, next is to lay groundwork for conceptual model development, workshop might occur in early December (requires much work between now & then), there will be an onsite interview (UMESC) tomorrow for a candidate so hopefully hiring in next few weeks, use conceptual model to identify knowledge gaps and which aspects are influenced by HREPs

Chuck: NCTC is looking for a workshop for this region, they could be a good facilitator for your workshop

Jeff: hoping to have a facilitated meeting structure so will look into NCTC or others

Status of FY15 Funded Work: (Jennie)

Almost everyone is on schedule based on 3rd quarter updates.

Q. et al Common Carp had a publication

Lower river field stations had some trouble sampling during flooding, had to rely on a few later dates, gear was a bit problematic, as was access to the river, but sampling was completed

Rotation of the chair to USFWS: (Winter)

Followed up with his supervisor, who was not supportive for Winter to take this on in the near future, but there is no wholesale opposition from USFWS.

Rest of A-Team could discuss this at a later date.

Agency Updates:

Megan Moore: team leader interviews ongoing

Shawn Giblin: Pettibone connectivity project, stable state paper, plankton project

Dave Bierman: field season going well

Scottie Gritters: B. Schoenoff retiring August 13, will put strain on river unit; good progress on P14 and Huron Island HREPs, lots of train derailments

Mike McClellan: internal personnel issues, but nothing impacting Miss work right now

Andy Casper: not too much trouble sampling, Kat McCain had asked him to update the A-Team on the fish indicators project—just getting off the ground, who is their audience and what do they want to achieve with the indicators project? Building off the ad hoc committee report, but welcome more insight from folks. Initially, the audience was targeted as participants in the program, such as state DNRs. Update at next A-team meeting

Janet: Dave Herzog submitted budget information, she assumed he's working directly with Jennie & Karen

Ken Barr: adding new staff, Shane Simmons has joined full time, also add Fenn McGuire (from operations to planning), Kat Herzog (biologist) joined from New Orleans, Breanne Nesby (biologist)

Chuck: ERDC—H&H framework in review with Marv & Karen, riparian vegetation simulation model (P7 and P26) then ERDC will train RID staff to run add'l models simulations, forest stand data integrated with WQ and veg data from LTRM; Green Island will update the riparian vegetation model and the nutrient simulation model to HEC-RAS 2 project, supported through Large River Initiative—will be a several year project, also submitted proposal to fund ecosystem services work, hoping to get Yao's feedback on vegetation

Karen: UMRR meeting next week, and hopefully approval for ISRS meeting next month

Dave Potter: Capoli completed in P9 with fall dedication, Harper's Slough in P9 has good progress on island construction, planning phase for N&S for Conway Lake, MNRA corridor mussel work as part of 2000 bi-op for Higgin's Eye & native mussels, UMR and Minnesota River; also working on update to EPP (smaller work group, with P8 as a pilot)

USFWS-Winter: last year trimmed back on aerial waterfowl survey for P4-P7 and what we funded in P12-14, this year USFWS will not observe P4-7, will be a stand down and reassessment, have been looking through data collection from previous years, for HMP and I/M process, they are forced to identify critical questions that are being answered by monitoring, so aerial surveys may not pass muster; also a system-wide change for low-level, high risk flights might not be good policy any longer (data collection through other means), if fall surveys are resumed, they may be very different (including other seasons); have sent out memo from Refuge Manager to partners (Steve will send to A-Team). Typically used to calculate Duck Use Days, as of now, they haven't pulled cooperative agreement from WI (funds for P8-11), WI has option of asking about P4-7 to fly over that area if that data is critical (USFWS won't pay for it); ILNHS would just be P13.

Dave Potter: should we stop using Duck Use Days for performance metrics for HREPs?

Winter: they know for certain there is bad data for canvasback from P8-11 and data is being held

Strassman: What is the status of the HMP or I/M?

Winter: HMP draft has to be to Pat Heglund by end of year, after her review, they would then go to agencies and public, Pat is most aware of policy importance of that document; right now, contractor is working on 2 chapters, he'll have review by refuge staff

USGS—Gaikowski will be sending email that Jeff Houser is officially the science director for UMRR, DOI Secretary Jewell will probably be in town Aug 14th, hoping to do tour of UMESC, P8 islands, etc.

Action Items:

Steve Winter will email the A-Team the memo regarding changes to waterfowl surveys

Shawn Giblin will distribute his presentation and the light penetration report link to the A-Team

Next Meeting Topics:

Casper/McCain: presentation on the fish indicators work group and discussions about target audience and final product forms

Jeff Houser: Resilience presentation and update on team discussions