

## A-Team Meeting – October 17, 2019

Start: 9:15

### Attendance:

#### A-Team Reps:

Nick Schlessler (Chair and MN Rep)  
Shawn Giblin (WI Rep)  
Scott Gritters (IA Rep)  
Matt O’Hara (IL Rep)  
Matt Vitello (MO Rep)  
Steve Winter (USFWS Rep)

#### USGS:

Jeff Houser  
Jennie Sauer (phone)  
Kristen Bouska (phone)  
Kathi Jo Jankowski (phone)  
Nate De Jager (phone)  
Jennifer Dieck (phone)  
Molly Van Appledorn (phone)

#### USACE:

Karen Hagerty  
Dave Potter  
Kat McCain (phone)  
Kjetil Henderson

#### UMRBA:

Andrew Stephenson (phone)

#### MN:

Megan Moore (phone)

#### IA:

Dave Bierman

#### IL:

Jim Lamer  
John Chick (phone)

#### MO:

Dave Herzog

### Approval of Minutes from July 31<sup>st</sup>, 2019 Meeting

#### Requested changes:

- Karen Hagerty – note that meeting was a webinar, Molly Sobotka name misspelled, add to present list: Brian Ickes, Kjetil Henderson and someone else from the Corps, Megan Moore,
- Jennifer Dieck - spelling of Benjamin Finley’s name

Motion to approve minutes with noted changes made by Matt Vitello and Steve Winter (second) passed with unanimous approval.

#### Location for next meeting:

Will be held in conjunction with Science Meeting January 14<sup>th</sup>-16<sup>th</sup>, 2020 at UMESC

UMRR update, Marshall Plumley - presented by Karen Hagerty

- Marshall met with Senator Durbin in Quincy, IL regarding a potential HREP in Quincy Bay
- Colonel was going to be electrofishing, but unfortunately didn't end up working out
- UMRR-CC Oct 30, St. Paul
- Executed 99.9% of funds for FY19
- UMRR has been fully funded for several years
- Looks like full funding for FY20, but final appropriation has not been made
- FY20 draft plan of work is similar to FY19, with more money for science
- No construction in Rock Island this year, so money may move around
- FY20 Illinois Waterway closure is fully funded

**District Updates (from presented slides and notes)**

**MVP**

- **McGregor HREP:** Feasibility Report approved in June 2019. Begin P&S with anticipated contract award for Stage I in 2nd quarter FY 2020. MOA Executed with FWS.
- **Bass Ponds HREP:** Feasibility Report approved in June in 2019. MOA Executed with FWS. Completed P&S and solicited for a construction contract award in September 2019. Issues with the bidder prevented an award. Scheduled for 2nd quarter FY20.
- **Conway Lake HREP (Pool 9):** Construction to begin in spring 2020.
- **Lower Pool 10 HREP:** Feasibility study continuing. TSP identification scheduled in FY20.
- **Reno Bottoms HREP (Pool 9):** Feasibility kickoff in August. Data collection (borings, topo, forest inventory, mussels) underway.

**MVR**

- **Steamboat HREP Pool 14:** Flood plain requirements with the head of the island have been resolved.
- **Lower Pool 13:** Open House scheduled for November.
- **Keithsburg HREP:** Awarded contract on August 23rd.
- **Pool 12 HREP:** Post flood survey underway.
- **Beaver Island HREP Pool 14:** Contractor is dredging. Modification awarded in September.
- **Huron Island HREP Pool 18:** Contractor mobilized and started adjusting rock. EDRC planted aquatic vegetation on August 14 & 15th. ECRC scheduled to be back on-site the week of September 23rd to assess the vegetation planted delayed due to high water. Looking at survival – will do full planting next summer.

**MVS**

- **Yorkinut Slough HREP:** Initiate feasibility study 1<sup>st</sup> Qtr FY 20. Should have planning done in first quarter, but may wait for new refuge manager as Justin Sexton moving to different refuge.
- **Clarence Cannon HREP:** Continue Construction of multiple awarded individual contracts (water control structures; pump station; berm setback)
- **Crains Island HREP:** Stage I contract award (sediment deflection berm and channel excavation): scheduled for 2<sup>nd</sup> Quarter FY 20.
- **Eagles Nest Islands:** Continue Design
- **Piasa:** Moved to contract by end of year – sponsor identified, need to get paperwork in order.

## UMRR 2020 Science Meeting Planning – Jeff Houser

Most important, least important, what's missing in Focal Areas?

Overall structure of the meeting will be discussed as well. People were overly mostly happy, but some changes could be made.

Approach to 2020 UMRR science meeting

– Assess current information needs

### Sources

- Upper Mississippi River Restoration (UMRR) Program's Long Term Resource Monitoring (LTRM) research frameworks (Ickes 2005; Newton et al. 2010; De Jager 2011; Kreiling et al.; Ickes 2018)
  - Reports and recommendations from previous sedimentation and geomorphology workshops (Gaugush and Wilcox 1994; Gaugush and Wilcox 2002)
  - Syntheses of previous studies on the UMRS (Hydrobiologia 2010 Special Issue-- e.g., Sparks 2010 and references therein).
  - The 2009 Reach Objectives publication (USACE 2011) from which information needs may be inferred
  - The 2015-2025 UMRR Strategic plan (UMRR 2015) which clearly identifies the main objectives of river restoration efforts and the knowledge needed to do so under the broad vision of maintaining a “healthier and more resilient Upper Mississippi River Ecosystem that sustains the river's multiple uses”
  - Conceptual models derived from several previous and ongoing efforts (USACE 2011; Nestler et al. 2016; Bouska et al. 2018, Bouska et al. Submitted)
  - Documents produced as part of the recently completed second Habitat Needs Assessment (De Jager et al. 2018; McCain et al. 2018).
  - Survey results from 2019 HREP workshop
  - Information needs derived from ongoing discussions with HREP PDTs (e.g., Reno Bottoms, Lower Pool 13)
- Develop specific proposals/scopes for work to be done using funding available in 2020.
- Small number of larger, collaborative projects
  - Developing proposals will be focus of January 2020 science meeting
  - Prepare for meeting with initial calls/webinars for each prospective working group.

Karen Hagerty – How do people get on the working groups?

Jeff Houser – Reach out to me and I will start a list.

Karen Hagerty – Is it incumbent on A-Team members to let agency members know about opportunity?

Jeff Houser – yes, but don't want 300 people at the Science Meeting.

Megan Moore – Is there an email distribution list from 2018?

Jeff Houser – yes, and one that I updated for November Webinar – includes 2018 list and updates of departures/arrivals. For A-Team members, would be good to have you identify interests for now.

Jeff Houser - As done in 2018, likely to have substantial funding for this, opportunity to tackle larger questions that reach across agencies. As A-Team, work should address the whole system.

Karen Hagerty – By November, we'll have a firm idea about money.

Jeff Houser -- Assess current information needs – look to variety of sources –( see sources list p3) UMRR LTRM research frameworks, syntheses of previous studies on UMRS, 2009 Reach objectives, 2015-2025 UMRR Strategic Plan, Conceptual models, survey from 2019 HREP workshop, information from HREP PDTs (UMESC folks involvement on PDTs – Jeff on Lower Pool 13, Molly Van Appledorn on Reno Bottoms).

2020 science meeting will be forum for developing science in support of management projects – foster collaborative approach and larger projects. More effectively incorporate UMRR LTRM's unique strengths, facilitate more interaction between science and practitioners.

Goal: Identifying and understanding plausible futures for the hydrology and geomorphology of the UMRS and the implications regarding the structure, function, and management and restoration of the river-floodplain.

What will the river look like in 50-100 year?

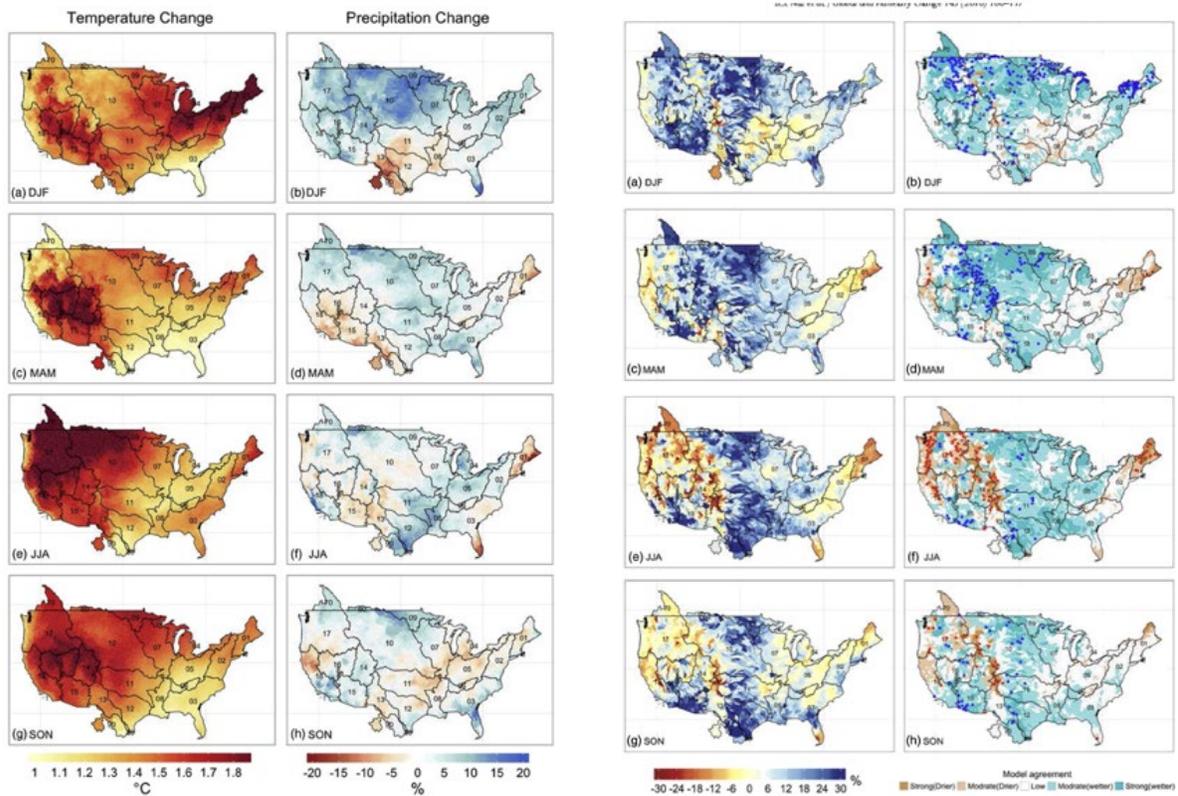
What does this mean for the distribution and abundance of habitat and biota?

What are the implications for current restoration and management actions?

A Changing River – system is still adapting to L&D. Hydrograph is dynamic. Changes to biological components – decline in common carp, reed canary grass, Asian carp, Japanese hops.

## Projected climate/hydro changes. An example:

Naz et al. 2016. Regional hydrologic response to climate change in the conterminous United States using high-resolution hydroclimate simulations. *Global and Planetary Change* 143:100-117



Dave Potter – asked what river will look like 50-100 years from now. How about what we want the river to look like? Should/Are we revisiting the environmental pool plans?

Andrew Stephenson – Marshall has laid out a path for having a discussion that leads to a desired future condition.

Karen Hagerty – What was done with the Illinois 519 study (comprehensive plan that discussed desired future based on attainable outcomes with the knowledge that goals will change)– looking to do a similar process for UMRS.

Jeff Houser – What is done at the Science Meeting can be very informative to the discussion of Desired future condition. Status and Trends may contribute to desired future condition would be analogous to Indicators report with the HNA-II report. Understand the data and what we know about the river – then react and evaluate in response.

Dave Potter – Would like to see HREP Manual added to the sources from which Focal Areas can be derived.

Jeff Houser – May have been included in initial thoughts, but will add to the list of sources as well.

**Have written comments to Jeff Houser by Wednesday Oct 23, 2019**

## 2020 Draft Themes and Focal Areas

2018-2019 Themes	Draft 2020 Themes
THEME 1: UNDERSTANDING CHANGES IN GEOMORPHOLOGY AND THEIR IMPLICATIONS FOR THE STRUCTURE AND FUNCTION OF THE UMRS	UNDERSTANDING ONGOING AND FUTURE CHANGES IN THE HYDROLOGY AND GEOMORPHOLOGY OF THE UMRS. WHAT ARE THE IMPLICATIONS FOR THE FUTURE DISTRIBUTION AND ABUNDANCE OF AQUATIC AREAS?
THEME 2: UNDERSTANDING ASSOCIATIONS BETWEEN HYDROLOGIC AND GEOMORPHIC CONDITIONS AND THE DISTRIBUTION/ABUNDANCE OF BIOTA IN THE RIVER AND ON THE FLOODPLAIN.	UNDERSTANDING ASSOCIATIONS BETWEEN GEOMORPHOLOGY, HYDROLOGY AND THE DISTRIBUTION AND ABUNDANCE OF BIOTA IN THE RIVER AND ON THE FLOODPLAIN. WHAT ARE THE IMPLICATIONS FOR THE BIOTA AND HABITAT OF THE FUTURE UMRS?
THEME 3: PHYSICAL, CHEMICAL AND BIOLOGICAL PROCESSES BEHIND THE OBSERVED SPATIAL AND TEMPORAL PATTERNS IN LTRM DATA	UNDERSTANDING THE PHYSICAL, CHEMICAL AND BIOLOGICAL INTERACTIONS, THE PROCESSES BEHIND THE LONG TERM TEMPORAL AND SPATIAL PATTERNS IN UMRS RIVERINE BIOTA, AND THE IMPLICATIONS FOR THE BIOTA AND HABITAT OF THE FUTURE UMRS.

Jeff Houser – 2020 themes need to be streamlined and pared down still

Themes	Focal areas
1. Understanding ongoing and future changes in the hydrology and geomorphology of the UMRS. What are the implications for the future distribution and abundance of aquatic areas?	<p>1.1: Observed recent geomorphological changes and their implications for future conditions.</p> <p>1.2: Future discharge and water surface elevation (WSE) scenarios.</p> <p>1.3: Future hydrogeomorphology scenarios. Synthesis and extrapolation of what is learned in FA1 regarding recent geomorphological changes and FA2 regarding our expectations for future hydrology.</p>
2. Understanding associations between geomorphology, hydrology and the distribution and abundance of biota in the river and on the floodplain. What are the implications for the biota and habitat of the future UMRS?	<p>2.1: Assessing the associations between aquatic areas (De Jager et al. 2018) and biota and biogeochemistry using existing data.</p> <p>2.2. Better understanding the critical drivers within side channels of the UMRS in order to improve side channel management and restoration.</p> <p>2.3 Why is aquatic vegetation where it is and not where it isn't?</p> <p>2.4. What are main drivers of fish abundance, distribution and community composition?</p> <p>2.5(merged with 1.2)</p> <p>2.6 (merged 2.6 and 2.7) Simulate floodplain vegetation dynamics, and understand relationships among flood inundation, vegetation patterns, and soil nutrient dynamics</p>
3. Understanding the physical, chemical and biological interactions, the processes behind the long term temporal and spatial patterns in UMRS riverine biota, and the implications for the biota and habitat of the future UMRS.	<p>3.1 Causes/consequences of river eutrophication and critical biogeochemical processing rates related to nutrient cycling/retention and dissolved oxygen dynamics.</p> <p>3.2. Aquatic vegetation and the ecological resilience of the UMRS</p> <p>3.3 Better understanding the factors that affect the susceptibility of the UMRS to species invasion.</p>

## 1<sup>st</sup> Theme

Jeff Houser

- 1.1.1 Jim Rogala work is ongoing and may be able to be refined to make projections
- 1.1.2 How do depth and aquatic area scenarios?
- 1.1.3 Ties the first two together.

Nick Schlessler – Dan Dieterman (MNDNR) considers Theme 1 to be the most important subjects UMESC could study period! (according to his provided notes)

Karen Hagerty – How do we tie in ongoing work into new projects?

Jeff Houser – Expect those people that are working on ongoing work will be a part of those working groups and those discussions. If they are unable to attend, pre-meeting updates can be organized.

## 2<sup>nd</sup> Theme

Jeff Houser

- We have defined aquatic areas now, and want to apply the info we have to them
- A specific area for side channels is included
- Why is vegetation where it is may be addressed by incoming researchers.
- 2.5 folded back into 1.2
- 2 floodplain vegetation focal areas folded into 2.6

## 3<sup>rd</sup> Theme

Jeff Houser – Eutrophication didn't receive much attention in 2018-19 so is expanded in 2020 focal areas. River gets a lot of nutrients and focus has been on Gulf of Mexico, but effects on the river as well. Important for HREPs as they alter hydrology and probably changing how river responds to nutrients. Questions related to aquatic vegetation and ecological resilience. We have more data than understanding for this area now.

Karen Hagerty – Could 3.2 be merged with 2.3?

Scott Gritters – Encourage simplification in theme/goal, where have we been, where are we now, where are we going, is that where we want to be?

Karen Hagerty – We come to the table with temporal viewpoints on data. (past, present, future)

Nate De Jager – Struggle with component-specific vs. integrated across components

Scott Gritters – would like to see integration

Jeff Houser – seems like that is more like a status and trends direction

Karen Hagerty – understanding where we are going implies you know something about where we have been

Jeff Houser – might have/need different analytical approaches for understanding themes as past, current, future

### **Focal Area 1.1**

Megan Moore – in years past, we have made a point that research and funding should be appropriated to the UMRS and not into the basin. Are there opportunities to ask questions at the watershed-scale that are relevant to this focal area?

Karen Hagerty – We aren't limited to looking at the watershed, but definitely cannot do restoration outside of UMRS.

Megan Moore -- But our restoration projects are designed for 50 year life time, and will therefore likely see a lot of change well informed predictions would be helpful.

Jennie Sauer – talks in UMRCC Water Quality Tech session had talks by MPCA that had datasets on tile drainage and other metrics

Shawn Giblin – questions related to tile drainage and land use change

Shawn Giblin – 1.1.6 -has anyone gone back to HREPs and evaluate sedimentation? Would like to see a north-south gradient and understanding of sedimentation following dredging

Karen Hagerty – Rock Island has similar questions, but lack some baseline data.

Jeff Houser – Could you use sediment cores to look at this if no baseline data? If we do this, we should do it at a broad scale to understand how setting influence sedimentation rates.

Scott Gritters – In some of the Iowa pools initial sedimentation is high, then slows

Shawn Giblin – seems to be a lot of variation

Dave Potter – 1.1.3 uncertainties is an important topic relevant more broadly, particularly within HREP designs and addressing risk. Corps has a new planning document requiring a look at risk and uncertainty.

Shawn Giblin – 1.1.7 – happy to see this included, suggest including biotic responses – fish, veg, waterfowl 1.1.10

### **Focal area 1.2**

Jeff Houser -- Corps has tool for looking at climate change effects on discharge (Jeff indicated this info came from Molly Van Appledorn)

Shawn Giblin – gets to Megan comment, how can we incorporate tile drainage and land use into scenarios? Tributary data could be used to feed the models (%tile, %ag, etc).

KathiJo Jankowski – at winter limnology conference and generally little is known about ice cover on rivers

Nick Schlessler – planning in Lake Pepin, nuclear plant has adjusted thermal regime and is planning to shut down ~2030 – probably greater effect upper Pool 4. May have significant impact on fish movement/habitat use.

Jennie Sauer – Historical photos, satellites could potentially be used?

KathiJo Jankowski – LandSat can go back to early 1980's to look at rivers of a certain size

**Focal area 1.3** No Notes

**Focal area 2.1** No Notes

## **Focal area 2.2**

Dave Herzog – interested in different successional stages of side channels (will provide more extensive comments to Jeff), and encourages increases in mapping so we can track changes better going forward.

Kristen Bouska – workshop on side channels that talked about differences in function based on physical criteria

Karen Hagerty – 519 project looked at these topics on lower Illinois River

Dave Herzog -- Need to do more than just define we need to quantify.

Shawn Giblin – Again a north south gradient or synthesis would be valuable

Jeff Houser – Molly Sobotka did some work in this area, but may have had a southern focus

Steve Winter – Side Channels have been the a habitat focused on in recent HREPs, but not sure we have the ability to focus on the appropriate biota.

## **Focal area 2.3**

Jeff Houser – An upcoming study will show effects of just light and water level fluctuations

Karen Hagerty - How do these questions relate to the resilience research framework?

Kristen Bouska – Similar questions as in framework, reflect resilience concepts

Steve Winter – HREP standpoint, it would be very helpful to have a model that we can apply to pools other than Pool 8

Karen Hagerty – Yao’s model – Sturgeon Lake or UMRCC data

Shawn Giblin – 2.3.6 – focused work on areas where vegetation blinks in and out Pools 9-13, maybe a focused LTRM protocol to help capture the gradient

Karen Hagerty – how do we move pools in Rock Island District to be more vegetated?

Kjetil Henderson - Should look all the way down to Pool 19

Jeff Houser – Potentially interesting contrast on the full geographic area

Nate De Jager – we have learned allot from specific pools, but now need some more generic data that cuts across numerous gradients

Steven Winter – 8,9,11 and 13 have large impounded areas. 8 & 9 are similar in amount of SAV, 13 is more moderate and maybe at tipping point, 11 less SAV

Scott Gritters – Responded to a Steve about vegetation on Pool 11 by saying it has a bad orientation with unfavorable wind fetch in two directions

## **Focal Area 2.4**

Nick Schlessner – will provide comments in written form, Dan Dieterman 2.5 and 2.6 are higher priorities

Shawn Giblin – 2.4.5, expand vital rates species list to understand this high water events

Nick Schlessner – May be able to do that – may not get a low flow year to get contrast

Shawn Giblin – Could expand the species list beyond the current

Jeff Houser – General point is to understand the effects of high flow events and investigate otoliths

Shawn Giblin – Yes, with traditional approach of sampling the age classes

Nick Schlessner – States probably have aging data to integrate (MN does for sure, though largely from Pepin)

**Focal Area 2.5** No Notes

**Focal Area 2.6**

Jeff Houser -- Understand relationships among flood inundation, veg patterns, and soil nutrient dynamics.

Karen Hagerty – germination and regeneration are pretty big concerns

**Focal Area 3.1**

Karen Hagerty – 3.1.3 and 3.1.10 might fit well under water residence time

Jeff Houser – Do people agree that eutrophication is important?

Karen Hagerty – hard to do anything about the problem

Shawn Giblin – disagree, do something at project scale

Shawn Giblin – felt many questions are re-hashing completed projects

Jeff Houser – are questions sufficiently answered for management decisions? Lots of work on Pool 8, but less so elsewhere

Shawn Giblin – would like to see work on 3.1.6 advanced

Nick Schlessler – Dan Dieterman suggests 8-10 are not well understood, but others we have sufficient knowledge

**Focal Area 3.2**

Karen Hagerty – just one aquatic vegetation section in focal area organization

**Focal Area 3.3**

Karen Hagerty - Perhaps merge these two under previous vegetation and fish sections

Dave Herzog – likes the emphasis on non-natives

Shawn Giblin – likes the questions, but not sure how to answer

Jim Lamer – relationship in large changes in magnitude of discharge contributing to Asian carp reproduction, but also with low mainstream discharge to retain – potential model applications

Karen Hagerty – high water discharge and open gates

Karen Hagerty – can upper pools support Asian carp?

Kjetil Henderson – landform changes, oxygen, winter condition limitations

Karen Hagerty – we can't build projects to support Asian carp

Dave Potter – fish passage promotion vs restriction. When? and Why? For long term native survival

Stephen Winter – altered hydrology (can't hear)

Scott Gritters – decline on common carp is of high interest

Matt Ohara – decline in common carp, but no aquatic vegetation in Illinois River

Scott Gritters – Missouri River doesn't have backwaters, but they still have Asian carp

Matt Ohara – Emiquon has common carp, Asian carp, and SAV under study

## Next Steps

Feedback on focal areas by 23 October. Read aheads by 28 October. Program webinar Nov 6. Request written feedback on focal areas. Finalize working group topics, leaders and initial members based on partnership input (mid-late nov). Initial working group calls/webinars to prepare for Science Meeting (December). January 14-16 – 2020 UMRR Science meeting in La Crosse, WI.

Scott Gritters – Requests reminder e-mails be sent prior to deadlines

### Basic Agenda Ideas

#### Tuesday afternoon

12:30 pm – 1:00 pm Introductions / Logistics

1:00 pm – 2:00 pm Initial set of presentations to inform the small group working sessions that will follow.

2:00 pm – 2:15 pm Break; Disperse into working groups.

2:15 pm – 5:15 pm Initial working group discussions

#### Wednesday Morning

8:00 am – 11:30 am Work groups reconvene and develop initial outlines of proposals. Possible time to switch groups

11:30 am – 12:30 pm Lunch

#### Wednesday Afternoon

12:30 pm – 3:00 pm Working groups continue work on proposal outlines and develop brief presentation for plenary session. Possible time to switch groups

3:00 – 3:20 Break

3:20 – 3:50 Presentation and discussion: Working group 1.

3:50 – 4:20 Presentation and discussion: Working group 2.

4:20 – 4:50 Presentation and discussion: Working group 3.

4:50 – 5:20 Follow up discussions for WG 1, 2 and 3

#### Wednesday evening

6:15 pm – ??? Dinner and Social

#### Thursday morning:

9:00 – 9:30 Presentation/discussion: Working group 4.

9:30 – 10:00 Presentation/discussion: Working group 5.

10:00 – 10:30 Presentation/discussion: Working group 6.

10:30 – 11:00 Follow up discussions for WG 4, 5 and 6

11:00 – 11:30 Discussion of next steps

11:30 – 12:30 Lunch (on site)

#### Thursday afternoon

12:30 pm – 2:30 pm - Working group wrap-up discussions. Includes developing a specific plan for completing the proposal (Who is responsible for what, by when. We will discuss deadlines at the meeting).

2:30 pm - formal meeting adjourns. Working groups or other discussions are free to continue as needed until 5:00 pm.

We can reserve conference rooms at UMESC into Friday if some folks want another day to get work done.

Jeff Houser – Any other changes to schedule/agenda

- Thinks we can accommodate individuals moving around between groups as long as each group has a core that stays the same and movers are not disruptive

### **Status and Trends 3 Discussion**

Status and Trends 3 Discussion led by Jeff Houser

- Going to focus on table modified from the Ad Hoc Indicators
- Intro Chapter requires no discussion

#### **Chapter 2: Physical and hydrologic template of the UMRS**

Jeff Houser -- Addresses hydrology – Annual patterns (annual min and max)

Karen Hagerty – what about water levels in different years for planiform change

Nate De Jager – discussed in report

Shawn Giblin – what do you mean regarding planiform change?

Nate De Jager – land vs. water characterizations – Jim Rogala has accounted for some things, will check to see if the report is available

Jeff Houser -- Jim is waiting on final feedback to incorporate into the report. He's done some presentations on delta formations. Changes in shallow areas where changes can be seen – not in deeper waters

Shawn Giblin – can we run that analysis for broader area, change in deep lentic and lotic areas?

Nate De Jager – how does change in water level affect connectivity etc. How do aquatic area classes change in type or distribution – nobody has done that yet, Jim may have ideas, but would be good to develop a working group for science meeting, not something for status and trends.

Dave Herzog – we do have one backwater, and would like to better understand sedimentation

Scott Gritters – any information can glean from sand transport to rivers? Deep channel dredging – trends over time, might be a bigger issue throughout the system. Those relationships could be correlated? Increase in sand bed loads?

Karen Hagerty – Channel maintenance has data on volume of dredge material

Dave Herzog – May be important for long-term changes

Karen Hagerty – Brian Ickes and Reuben Heine paper. Particle size in main channel (Augustana researcher).

Molly Van Appledorn – in contact with folks from corps on dredge data – some issues with historical data – further back in time you go more unreliable – makes comparisons across years difficult – could give rough estimates though. It is possible and data do exist.

#### **Chapter 3: Major Changes in the UMRS**

TSS has declined

Vegetation distribution/abundance has increased

There are a lot of things associated with these basic changes

Common carp decline

Low discharge during several key years

Small declines in tributary TSS

Various management actions

Islands

Drawdowns

Changes in fish communities (increase in spp. Associated with veg, decrease in open water spp.).

Jeff Houser – less defined than rest of outline

Shawn Giblin – fish community information would be interesting to include, particularly feeding groups

Karen Hagerty – Where does Brian's trajectory work fit in?

Dave Herzog – does plankton data fit in?

Jeff Houser -- Don't know where it fits – if not done and ready to roll... Don't want this to become the omnibus document, but if something is tight and clean can consider.

#### **Chapter 4: Indicators of ecosystem health**

##### Water Quality

Total Nitrogen

Total Phosphorus

Total Suspended Solids concentration

Chlorophyll concentration

Dissolved oxygen (% frequency of hypoxia in BW, summer and fall)

Karen Hagerty – include winter in DO? super saturation?

Shawn Giblin – all four seasons

Shawn Giblin – concentrations or flow-normalized?

Jeff Houser -- – For tributaries it was. Main channel was concentration. Design of LTRM is to assess the conditions in the river, now designed to assess loads. Loads is not good use of data, concentration provides information on condition of water in main channels and that of water moving into the backwaters. Hydrology data will be included in the report.

Shawn Giblin – pretty impressed with previous work that used flow normalized approach.

Jeff Houser – Yes, but addresses different things – if doing long-term system want concentrations – if you want catchments and land use, then maybe a flow normalized approach could be better.

KathiJo Jankowski – Flow normalized concentrations would be useful in that where those things occurred it would adjust the trends? Could do for Tribs, but couldn't do it with SRS data.

Jeff Houser – Could use a few fixed sites for this.

Shawn Giblin – Could share Matt Diebold data with you – use one fixed site in main channel.

Jeff Houser – Seems like it would be doing something different from the rest of the report.

Shawn Giblin – concentration may be masked with current approach.

Jeff Houser – If doing for tribs, we can explore and see what the value is.

##### Vegetation

SAV – presence frequency of occurrence

SAV – biomass

Lotic vs lentic communities (biomass ratio of species associated with each)

Diversity

SAV spp

Emergen spp.

Emergent vegetation

Megan Moore – biomass is a metric of interest because it captures more volume as compared to frequency of occurrence

Shawn Giblin – could we add duckweed and filamentous algae to aquatic vegetation indicators?

Stephen Winter – likes lotic vs. lentic aquatic vegetation indicator

## Fish

Indicators related to habitat class

Lotic

Lentic

Community structure (spp richness, diversity, evenness and or dominance)

Non-native: native ratio

Non-native indexed mass: total fish community mass

Contribution of non-native fish assemblage mass to total fish community mass

Stephen Winter – clarification on terms in fish indicators (dependent, specialist)

Karen Hagerty – Alison Anderson worked on fish indicators, are these incorporated

Jeff Houser – replaced by lotic and lentic indicators – read Brian’s recommendation

Karen Hagerty – Didn’t we have these discussions?

Shawn Giblin – recreational and commercial indicators are pretty important for public awareness (lots of nodding heads)

Nick Schlessler – would we use select species, or just a total of all species classified as recreational etc?

Brian Ickes – all species have a category in the life history database game, nongame, commercial and look at biomass of a group of species over time

### \*\*A-team consensus on including recreational and commercial indicators

Karen Hagerty – should we include forage fish indicator?

Brian Ickes – doesn’t seem to fit in a habitat-focused report– this program does not manage species, but rather habitats.

John Chick – a potential indicator to explain sportfish changes

Karen Hagerty – represents production at lower trophic levels – changes in forage resources could indicate changes in ecosystem structure and function. Are we only doing habitat-based indicators? Exotic spp may also affect sport fish populations – Asian carp could be a potential threat.

Kristen B – Analysis across field species – small bodied fish communities – have been significant declines in lower three reaches. Did not look at forage specifically.

\_\_\_\_\_ - wasn’t divided out in the past as thinking was indicator was basically what are the bigger fish eating – didn’t matter if forage species or young of year of game fish.

Nick Schlessler – if looking at effects of Asian carp – most fish, or their food, do compete at some level/life stage with Asian carp. Haven’t had to look at in Minnesota yet, what do southern states think?

Scott Gritters – indicators are useful for asking why what is happening is happening, if there is a change in forage fish associated with Asian carp, this would be useful to know

Brian Ickes – it’s up to the A-team, some were cut to balance report, part of the reason for developing tree map and graphical browsers was to ask questions on the fly

Shawn Giblin – suggest overwintering metric to be included

Jeff Houser – A-team previously did not support

Karen Hagerty – report showed southern pools had greater proportion of overwintering habitat than northern pools – which was the reason for supporting a backwater assemblage

Jeff Houser – we can look at some of these things without putting in the report

Shawn Giblin – suggests looking at data

Scott Gritters – we don't have to have all indicators in S&T3, but would like to look at...but A-team would like to take a look at several indicators to determine if they are important to include

Andrew Stephenson – sounds like there would be time to determine status of indicators by Dec. 1 deadline for final outline, is that reasonable?

Jeff Houser – not sure if that can be done

Dave Herzog – system indicators may be applicable everywhere

Scott Gritters – seems we always shortchange Illinois River

#### Non-Native:Native Ratio

Non-native indexed mass: total fish community mass

Contribution of non-native fish assemblage mass to total fish community mass

Steve Winter – 1<sup>st</sup> tells you size of pie slice and the 2<sup>nd</sup> the size of the pie

#### Review of fish indicators:

Shawn Giblin – Overwintering habitat? - water temperature tied to velocity. Higher flow winters, believe things may be changing.

Jeff Houser – In the last time, discussion was to exclude that.

Karen Hagerty – In the past included DO, temperature and depth under ice.

Jeff Houser – larger thing to bear in mind, we can look at these things without including in the report.

Karen Hagerty – one reason it was not recommended – report showed degraded overwintering habitat in P26 and LaGrange. But in Pool 8 showed increase. So if fish indicator shows increase, but backwaters shows decrease, what do we do?

Jeff Houser – idea behind backwater fish community.

Shawn Giblin – how about we run the numbers and revisit this?

Jeff Houser – will need to go back and look. If small undertaking perhaps, if larger needs more discussion.

Shawn Giblin – will need to get at it under water quality, not fish.

Jeff Houser – Worth keeping in mind – if things people want or better understand – they don't necessarily need to go in the report – could be considered through other means.

JH – There's value in having a clean, focused report - +/- one indicator won't push us over the brink. Don't need to put all ornaments on the tree.

Matt OHara – but looking at now, may mean other opportunities 10 years down the road.

Shawn Giblin – there is the issue of creep.

Karen Hagerty – recommendations in the past – drop backwater indicator and replace with backwater fish assemblage.

#### Timeline

- Final outline by December 1, 2020 – have that at this point pending a few more exploratory undertakings.
- Draft report for partner review April 30, 2020
- Revised draft to SPN – August 31, 2020

Jeff Houser – Would like it captured in the notes that we have agreed upon the indicators to be included.

A-team recommendation:

Hydrography

Evaluate Dredge material indicator

Water Quality

Add seasonality, evaluate overwintering habitat, and evaluate flow normalized at fixed main channel sites

Vegetation

Add/evaluate duckweed and filamentous algae

Fish

Add Recreational and Commercial fish indicators

Evaluate forage fish indicator

\*\*A-team unanimously approved the above listed recommendations

Motion to adjourn from Shawn Giblin and a second from Scott Gritters

Meeting Adjourned