Upper Mississippi River Basin Association
Water Quality Task Force

October 4-5, 2017

Highlights and Action Items Summary

USGS Agency Changes

- USGS is merging several state water science centers across the nation. Illinois and Iowa water science centers are now merged into one center. Minnesota, Wisconsin, and Michigan will also be merged into one water science center. The merger of the Illinois and Iowa water science centers may benefit Upper Mississippi River priorities because it will serve as a common bond between the two states.

- **Kelly Warner asked WQTF members to provide her with the states priorities for USGS and how USGS can be most helpful to them.** This includes the placement of USGS's supergages. USGS is currently planning to place six supergages on the Mississippi River mainstem and 31 in major tributaries throughout the watershed. All will be placed in the flowing channel; none will be placed in backwaters.

- USGS is seeking input on a 5-minute video regarding its streamgages and a draft roadmap framework for prioritizing its nutrient pollution research. The video is available at https://www.usgs.gov/media/videos/usgs-continuous-nutrient-monitoring-mississippi-river-basin. The roadmap will likely be available in the next few months. [Warner showed the video on Day 2.]

Harmful Algal Blooms

- Blake Schaefer provided a briefing on the validation and use of Landsat 5 and 7 to detect cyanobacteria HABs. Nationally, observations show a steady increase in HAB events throughout the country from less than 2,500 in 1990 to over 20,000 in 2012. There was a decrease in events from 2012 to 2015. Schaefer showcased the utility of the Landsat detection and analysis capabilities through case studies in Utah and Florida. USEPA is currently beta-testing a mobile device application to access the data remotely. California is beta-testing the ability to extract data from geoTIFFs using ArcGISToolbox. USEPA plans to evaluate the occurrence and intensity of HAB events given environmental conditions – e.g., temperature, nutrients.

- Meghan Hemken recalled her lengthier presentation at the June 7-8, 2017 meeting for more detailed information regarding USEPA's effort to revise recreational criteria/advisories. Since June, USEPA formed a work group to consider input received. Criteria values may likely be changing but that is unknown at this point. There will be criteria for each type of toxin and will be related to the various scenarios of human exposure. **USEPA plans to publish the revised recreational criteria by the end of 2017. The criteria will be provided as options for states to adopt or inform swimming advisories.**
  - Participant observation included that frequent change to USEPA's recreational criteria is confusing to the public. A final number will be helpful.

- In a roundtable discussion, the states reported on their respective monitoring of HAB conditions on the UMR and throughout the states. In summary, cooler and wetter conditions in the northern and northwestern portion of the watershed resulted in relatively infrequent and inconsequential HAB events in 2017. A peak occurred in early July as temperatures spiked. However, cooler temperatures

and rainfall in mid July through August resulted in fewer blooms than expected. Illinois was drier overall but there were still no HAB detections in the UMR. Discussion highlights include:

- The 2017 season in Illinois experienced increased blooms but in much lower concentrations compared to the 2016 season.
- Observations over the past several years could be used to inform thresholds for HAB occurrence.
- Two dog deaths occurred at Lake Mendota in Wisconsin. The state is waiting for water quality samples to determine the root cause.
- No major HAB events occurred on the Ohio River in 2017 also because of wetter and cooler conditions. There were some reports in major tributaries.

- **The WQTF agreed to**:
  - Revise the HAB Response Manual to update contact information and incorporate the new USEPA recreational criteria. The Manual was last updated in August 2017.
  - Evaluate the conditions that cause HAB events to occur. Currently, agencies are speculating and that could lead to false accusations.
  - Develop an annual summary of HAB events following each season.

Watershed Approaches and Water Quality

- Laura Bachel explained USEPA's initiative to promote the use of low impact development (LID) and green infrastructure (GI) in FEMA's flood mitigation grant projects and its Community Rating System (CRS) incentive program. USEPA recognizes the co-benefits of LID and GI in improving water quality. A new FEMA policy now encourages the monetary benefits of the LID/GI ecosystem services to be included in hazard mitigation projects benefit-cost ratios. Bachel suggested that incorporating LID/GI into states' hazard mitigations plans may help to achieve "enhanced" status. Overall, USEPA is interested in integrating federal and state plans. Major discussion points include:
  - Major flood events are occurring in unusual ways and at greater frequency and intensity. In addition, the annual volume of water moving though the UMR is increasing over time at greater frequencies. WQTF members expressed their support for USEPA's approach to integrating flood mitigation and water quality improvement, including encouraging local communities to engage.
  - Inundation mapping is a helpful tool for engaging local communities about LID and GI measures.
  - While it will require a lot of thought and effort, leveraging the now disparate but related federal and state flood risk and water quality programs and projects would likely generate tremendous benefits.
  - Acceptable messaging will be dependent on the target audience. In some areas, water quality may not be a motivating message while messages regarding flood risk reduction will resonate. Ultimately, stakeholders need to see themselves as part of a larger vision.
  - It may be helpful for states to enhance consistency among their state watershed plans – e.g., use a similar framework.
  - Mitigation credits are an underutilized tool.
  - States would like to see more flexibility in their ability to allocate Section 319 resources.
  - There may be fun approaches to communicating with and incentivizing landowners to promote conservation practices that should be explored. For example, the states could promote a competition among subwatersheds based on implementation rates and successes in reducing nutrient and sediment runoff.

- Reid Christianson presented a conceptual framework for evaluating various sources of federal, state, local, and private data to cumulatively assess the extent that conservation practices are being implemented. Christianson overviewed the findings detailed in the report, *Ten Ways to Reduce Nitrogen Loads from Drained Cropland in the Midwest*. This includes the application and effectiveness of in-field management and drainage practices as well as edge-of-field or off-site practices. An observation offered is that sand terraces are very challenging to implement conservation practices and add significantly to groundwater nitrate issues.

- Kirsten Mickelsen discussed UMRBA's efforts to work with the Corps in advancing a planning effort to improve flood risk and sediment management. There would be substantial overlap with the states' water quality priorities in the watershed and mainstem, including nutrient reduction strategies and floodplain management. UMRBA hosted a summit of floodplain stakeholders on July 26-27, 2017. The discussion revealed that the floodplain community shares very similar experiences living and working on the river, particularly in relation to changing flooding and sediment flow dynamics. Participants pointed to land use development in the watershed and floodplain as well as changing weather patterns contributing to different watershed behavior. Participants also shared many of the same perspectives for improving preparedness and reducing impacts of major flood and sediment-related events. This includes employing a collaborative, science-based process to develop a systemic flood risk and sediment management plan; convening the river-floodplain community more frequently and formally to discuss issues and collaborate on solutions; addressing specific policy impediments; securing resource needs; and improving and better utilizing knowledge. UMRBA has agreed to serve as the non-federal cost-share sponsor and, together with the five river states, will contribute 25 percent of the study costs.

- In a roundtable discussion, the states provided updates on their respective state-wide nutrient reduction strategies. Discussion highlights included:
  - Illinois published its first Nutrient Loss Reduction Strategy Biennial Report in August 2017. The report was unveiled at the 2017 Farm Progress Show in Decatur, Illinois. Findings include:
    - Nitrate-nitrogen loads decreased by 10 percent. The reduction is attributed to improved harvest removal of nitrogen in grain that has resulted in decreased residual nitrogen as well as other conservation and management improvements.
    - Total phosphorus loads increased 17 percent from 2011 to 2015 resulting from an increase in effluent flow from population growth and land use changes. Some facilities still need to complete upgrades to meet new permit requirements.
  - Illinois is planning for an inaugural workshop for the state's nutrient reduction loss strategy. The workshop will be held on November 28-30, 2017 in Springfield, Illinois.
  - Iowa is currently reviewing its nutrient reduction strategy and anticipates publishing the report at the end of October or early November 2017. Some highlights include:
    - Funding for nutrient reduction strategies in 2017 totaled $420 million, an increase of $32 million over 2016.
    - The Nutrient Research Center funds research regarding the performance of conservation practices in reducing nutrient loss and has increased focus on integrating in-field and edge-of-field practices.
    - Outreach events doubled in 2017 with farmers acknowledging they are more knowledgeable of nutrient loss reduction strategies.
  - Missouri does not have a new update since the June 2017 meeting.
  - Wisconsin does not have a new update since the June 2017 meeting and is continuing to build from its 2013 framework. Wisconsin is updating its nutrient reduction strategy web page. The

DNR and DATCP are working collaboratively to develop best management practices. Thirty percent of Wisconsin cropland has nutrient reduction plans in place. Jim Fischer will report at the next WQTF meeting whether Wisconsin updated its non-point source loss variance rules.

CWA Program Updates

- USEPA is currently reviewing Missouri's proposed 2018 impairment listing. There were no proposed changes on the Mississippi River or major tributaries. Missouri is proposing changes to the sediment TMDL methodology that will affect all secondary tributaries to the Mississippi River. Missouri submitted revised bacteria TMDL requirements for the Meramec River to USEPA for review, not including the Mississippi or Des Peres Rivers.

- Iowa received public review of its 2016 impairment listing, but has not yet had staff resources available to incorporate the comments received. Iowa anticipates submitting the list to USEPA in October 2017 and then will begin work on its 2018 impairment listing. Iowa has initiated a process improvement review to make its work on listings more efficient. Iowa DNR staff have been sharing John Olson's responsibilities since his retirement. Iowa does not have any new TMDL updates to share.

- USEPA approved Wisconsin's proposed 2016 total phosphorus listings affecting portions of the Mississippi River. The Wisconsin River was added in the last cycle. Wisconsin is currently developing its 2018 impairment listing. Regarding TMDLs, the Wisconsin River continues to be a high priority and its TMDL is currently in development. Wisconsin DNR has experienced staff turnover but plans to have a new TMDL coordinator for the UMR basin by early November. The DNR continues to implement the Rock River TMDL, which USEPA approved in 2012. There are at least three active TMDLs in the state. Wisconsin's multi-discharge variance for phosphorus allows for a step-wise implementation over the life of a permit and for coordinating with a larger watershed project. Wisconsin DNR Secretary resigned on September 29, 2017 for her appointment as USEPA Region 5 Administrator. Dan Meyer will be Wisconsin DNR's new Secretary.

- USEPA has not yet responded to Illinois' proposed 2016 impairment listing. Illinois EPA is behind schedule in developing its 2018 impairment listing because of staff turnover. Current staff are assuming the TMDL responsibilities. Illinois still hopes to meet the April 2018 deadline. Illinois does not have any new TMDL updates to share.

- USEPA published a new online Assessment and Total Maximum Daily Load Tracking and Implementation System (ATTAINS). The ATTAINS provides accessibility to view information on the condition of the nation's surface water condition per the states' reported TMDL-data.

- In response to a question regarding how states' address potential sources of impairment, Iowa and Missouri said they classify the sources as unknown. Iowa uses a ranking scale to reflect its confidence. Anything more conclusive would involve extensive monitoring. Missouri does upstream monitoring to determine where criteria where conditions start to exceed thresholds.

UMR CWA Monitoring Pilot

- Shawn Giblin presented on the Minnesota-Wisconsin pilot effort to test the feasibility and effectiveness of the UMR CWA monitoring and assessment approach. Giblin reviewed the results of the condition assessment, including longitudinal trends as well as thresholds for determining condition classes. According to Giblin, the hydrograph is equally important to a baseline assessment for understanding the monitoring data.

- Observed successes of the pilot project included:
  - Interagency coordination
  - Flexibility in implementation
  - Development and execution of the UMR CWA monitoring approach and assessment methodology
  - Development of key tools to assist in implementation (e.g., field operations manual, online mapping application, new macroinvertebrate threshold).
  - Improvement and simplification to the monitoring plan
  - A more refined cost estimate of $106,000 per reach annually or over $7 million in all 13 reaches over a 5-year period

- Observed challenges of the pilot project included:
  - Highly technical information and institutional complexity
  - Anomalous summer flow patterns (unusually high discharge)
  - High cost and staff resource needs (resulting in the removal of portions of the monitoring plan)
  - Inefficient data flow, management, analysis, and storage
  - Ability to sustain funding and organization needs long term
  - Facilitate a conversation with the UMRR long term resource monitoring field stations regarding potential coordination – i.e., having them perform the data collection

- **Next steps include finalizing an evaluation report of the pilot project and a water quality condition assessment this winter. Considerations that have yet to be determined are whether to include a) Lake Pepin invertebrate scores in the dual assemblage and b) Reach 0 vegetation scores. Other considerations and next steps include:**
  - Continue to pursue coordinated monitoring on the UMR
  - Refine the UMR CWA monitoring approach based on insights gained from the pilot
  - Seek to secure a consistent funding mechanism – first define the ask
  - Develop a shared platform (certify and deliver data to UMRBA for hosting)
  - Identify a single laboratory for analysis
  - Further assess relationships among components, including chlorophyll and total phosphorus
  - Create a communications effort regarding the UMR CWA monitoring effort including a brochure

WQTF Priorities and Work Planning

- Kirsten Mickelsen overviewed the impetus of UMRBA Board's decision in 2004 to 2006 to provide meaningful support for the Association's water quality work and briefly discussed the work of the WQEC and WQTF since their inception. The UMRBA Board is currently outlining priorities for the Association from 2018 to 2022, and Mickelsen requested the WQTF's input on the water quality objective, strategies, and priorities. The WQTF had extensive discussion reflecting on the UMRBA's 2013-2017 water quality strategies. **The WQTF agreed to expand the desired objective statement and consolidate the strategies. Mickelsen and the WQTF agreed to refine the desired outcome and strategies to propose to the UMRBA Board and WQEC at their November 6, 2017 joint meeting. The WQTF agreed to discuss more specific associated implementation at their meeting in January or February 2018.**

Attendance

Gregg Good	Illinois Environmental Protection Agency
Amy Walkenbach	Illinois Environmental Protection Agency (via phone)
Matt Short	Illinois Environmental Protection Agency
Daniel Kendall	Iowa Department of Natural Resources
Adam Schnieders	Iowa Department of Natural Resources (via phone)
Dana Vanderbosch	Minnesota Pollution Control Agency
Dave Hokanson	Minnesota Department of Health (via phone)
Eric Lund	Minnesota Department of Natural Resources
Mohsen Dkhili	Missouri Department of Natural Resources
Robert Stout	Missouri Department of Natural Resources
Shawn Giblin	Wisconsin Department of Natural Resources
Jim Fischer	Wisconsin Department of Natural Resources (via phone)
Gina LaLiberte	Wisconsin Department of Natural Resources (via phone)
Leo Keller	USACE, Rock Island District
Meghan Hemken	USEPA, Region 5
Blake Schaefer	USEPA, National Exposure Research Laboratory
Laura Bachel	USEPA, Headquarters
Alesia Kenny	USFWS, Ecological Services
Kelly Warner	USGS, Illinois-Iowa Water Science Center
Brianna Huber	City of East Moline, Illinois
Bob Bohannon	City of Moline, Illinois
Kelly Miles	City of Rock Island, Illinois
Albert Ettinger	Mississippi River Collaborative
Reid Christianson	University of Illinois
Kirsten Mickelsen	Upper Mississippi River Basin Association