Upper Mississippi River Basin Association
Water Quality Task Force

February 3-4, 2016
Davenport, Iowa

Meeting Summary

Participants

Gregg Good*	Illinois EPA
Tony Dulka*	Illinois EPA
Terri Holland*	Illinois EPA
Colin Steadman*	Illinois EPA
John Olson	Iowa DNR
Mary Skopec	Iowa DNR
Diane Moles*	Iowa DNR
Glenn Skuta	Minnesota PCA
Pam Anderson	Minnesota PCA
Mohsen Dkhili	Missouri DNR
Brian Weigel	Wisconsin DNR
Shawn Giblin*	Wisconsin DNR
Sara Walling	Wisconsin DATCP
Leo Keller	USACE, Rock Island District
Linda Holst*	USEPA, Region 5
Paul Proto*	USEPA, Region 5
Jeff Houser*	USGS, Upper Midwest Environmental Sciences Center
Aleshia Kenney	USFWS
Greg Youngstrom*	ORSANCO
Ted Kratschmer	National Great Rivers Research and Education Center
Brent Earley	Iowa American Water Company
Greg Swanson	City of Moline
Susan Heathcote	Iowa Environmental Council/Mississippi River Collaborative
Dru Buntin	UMRBA
Dave Hokanson	UMRBA
Matt Jacobson	UMRBA

** Joined the meeting by phone.*

Call to Order and Introductions

The Water Quality Task Force (WQTF) was called to order at 1:02 p.m. on February 3, 2016 by Chair Glenn Skuta. Introductions by all participants followed.

Approval of Previous Meeting Summary

Skuta asked whether the WQTF members had any corrections or modifications to the summary of the September 29-30, 2015 meeting. None were offered and Brian Weigel moved for the summary to be approved as written. John Olson seconded and the motion was approved by voice vote.

Interstate 305(b) and 303(d) Consultation

Minnesota

Skuta said there were no changes to the 2014 impairment list for the UMR, as shown in the packet, and that Minnesota is currently working on the development of its 2016 list. Dkhili asked whether the TMDL for Lake Pepin had yet been approved. Pam Anderson responded that the TMDL has not yet been approved. Dkhili asked whether the impairment will be kept on the list once the TMDL is approved. Anderson replied that yes, it would then be considered a category 5 listing.

Wisconsin

Weigel said Wisconsin's 2016 list has been completed in draft and a public notice period has been held. He noted that Wisconsin has added impairments due to total phosphorus in UMR Reaches 5 and 6. Weigel said Wisconsin DNR is currently working through responses to the public comments on the draft list, adding that no comments were received in regard to the newly added total phosphorus listings.

Illinois

Gregg Good said specifics were not yet available for Illinois' 2016 listings, but that they should become available soon and that the 2016 list should go out for public comment in the next few weeks. He said Illinois EPA is also meeting with USEPA Region 5 in the next week to discuss Region 5's comments on the list.

Iowa

John Olson said Iowa may be adding an additional impairment in Pool 15 for 2016 associated with the presence of PCBs in fish tissue. He explained that Iowa will be reviewing two rounds of data for its 2016 listing process and if elevated PCB levels are part of the second, yet to be received, data set then an impairment would be triggered. Mohsen Dkhili noted that Illinois already has a PCB-related impairment listed for this reach of the river, then asking whether Iowa uses Illinois' data in its impairment decision-making. Olson replied that Iowa does utilize Illinois' data, but that Iowa has a different advisory level than Illinois for fish consumption, leading to differences in impairment listings.

Separately, Olson said, Iowa is considering a change to its aluminum criterion. He said Iowa's impairment for aluminum on the UMR will stay in place through the 2016 cycle, but may subsequently may be removed as Iowa is looking to transition to a new dissolved aluminum standard. Olson explained that aluminum is a naturally-occurring contaminant, and as a result the current standard is impacting NPDES permits by requiring reductions that do not recognize naturally occurring background levels.

Missouri

Dkhili said the public notice period for Missouri's 2016 list has been completed and no changes to UMR listings are anticipated to occur between 2014 and 2016. He added that the *E.coli* impairment in Reach 12 includes just a 44.6 mile-long subset of that reach.

TMDLs on the Mainstem UMR and Major Tributaries

Wisconsin

Weigel provided an overview of the following Wisconsin's mainstem UMR and major tributary TMDLs:

- Wisconsin River Basin (Phosphorus)
- Upper Fox-Wolf Basin (Phosphorus and TSS)

- Milwaukee River Basin (Phosphorus, TSS, and Bacteria)
- Lac Courte Oreilles (Phosphorus/9-Element Plan)
- Lake Mallalieu (Phosphorus)
- Lake Pepin (TSS and TP)

Skuta asked how many impairment listings are addressed via the TMDLs presented. Weigel replied that approximately 150 impairments are addressed, supported by a number of associated monitoring efforts.

Weigel noted that, in addition to TMDLs, Wisconsin is focusing on associated restoration and protection activities. He said efforts on the Red Cedar system have been largely citizen-led and success to date has resulted in interest in further expanding these efforts, adding that Wisconsin's DATCP has a funding allocation in place to support such work via farmer-led councils.

Dkhili asked whether Wisconsin's efforts here are focused solely on phosphorus. Weigel replied that both phosphorus and sediment (TSS) are targeted. Dkhili inquired as to whether nitrogen is also a focus. Weigel said Wisconsin does not have a criterion associated with nitrogen and as such this is not part of any TMDLs. However, he added, Wisconsin does have extensive nitrogen monitoring currently ongoing.

Mary Skopec asked whether Wisconsin is considering dissolved reactive phosphorus as a key parameter, given some of the experiences in Lake Erie. Weigel said Wisconsin is considering this, along with associated seasonal issues. Skopec noted that Iowa is observing dissolved reactive phosphorus leaving drain-tiled areas, which is surprising as dissolved phosphorus is not typically expected to found in tile water outflow, rather it is expected to more associated with sediment/soil loss.

Sara Walling said Wisconsin looks at phosphorus loss as part of its phosphorus index, and that the index helps inform which watersheds may be targeted for nutrient loss reductions. Dkhili asked whether Wisconsin has different phosphorus targets for lakes and streams. Weigel replied that this is the case and, in addition, Wisconsin has different criteria for different types of lakes. Dkhili asked what phosphorus criterion is applied for Lake Pepin. Weigel replied that the 100 ug/L criterion is applied for Lake Pepin.

Minnesota

Skuta began his report by providing a background on Minnesota's monitoring program focused on the 8-digit HUC level and the associated Watershed Restoration and Protection Strategy (WRAPS) program, which cycles through all of Minnesota's watersheds on a 10 year cycle. He noted that the large tributary and mainstem TMDLs are somewhat different and may not fit exactly into the WRAPS model. Skuta distributed a summary handout and offered comments on a few of the large tributary and mainstem Mississippi River TMDLs as follows:

Lake St. Croix: Skuta noted that the St. Croix River through Lake St. Croix is generally very clear and, as such, is sensitive to inputs of phosphorus. Brian Weigel asked what concentration of phosphorus is being used as a target for Lake St. Croix. Pam Anderson replied that 40 ug/L is the target here.

Minnesota River: Skuta said MPCA is waiting for a 7Q10 (low flow) condition to occur to fully evaluate the river. He said total suspended solids are an issue both the on the main stem Minnesota River as well as on several of its tributaries. Skuta said a goal of 25% reduction in TSS levels by 2020 has been established. He added that the Minnesota Agricultural Water Quality Certification Program (MAWQCP) continues to provide an opportunity for water quality improvements in the Minnesota River watershed and elsewhere in the state.

South Metro Mississippi River: Skuta noted that the South Metro Mississippi River TMDL has included extensive stakeholder engagement over the past 15 years. Weigel asked what the municipal separate storm sewer system (MS4) component is for this TMDL and whether any special effort is being made to address urban storm water. Skuta replied that there is a certainly an allocation established for the urban component of the TMDL, but given the vast scale and land use of the watershed, the urban component is relatively small.

Lake Pepin: Skuta briefly described the Lake Pepin TMDL, which resulted from an extensive stakeholder engagement process. Weigel asked Skuta to describe how Wisconsin DNR and USEPA are collaborating on the TMDL. Skuta said both have been engaged, but there could be benefit from stronger connection. He added that, as he moves into his new position at MPCA he will be placing emphasis on interagency collaboration on this TMDL.

Iowa

John Olson distributed a handout summarizing TMDLs on the mainstem UMR and major tributaries. He commented on the TMDLs discussed in the document as follows:

Beaver Slough, Upper Mississippi River (Nutrients/Slime): Olson said the localized nutrient-related slime issue on Beaver Slough at Clinton, Iowa (ADM Facility) on the UMR is considered a category 4a impairment with a TMDL in place.

Davenport and Keokuk, Upper Mississippi River (Arsenic): Olson noted that the arsenic TMDL which had been proposed by USEPA Region 7 in 2010 had never been finalized. Olson explained that Iowa's arsenic criterion is quite low as compared to naturally occurring levels, and is applied as combination fish and drinking water consumption criterion. He noted that UMRBA was among the organizations which asked that the TMDL not be implemented, due issues including naturally occurring levels and the application of total arsenic data to an arsenic (III) criterion. To date, Region 7 has simply left the TMDL as draft and not moved forward any further on it. Olson also explained that the Iowa reaches which once had been listed as impaired for arsenic have subsequently been de-listed.

UMR Tributary TMDLs: Olson described a number of TMDLs related to *E. coli* and nitrate on UMR tributaries. He commented that he Raccoon River nitrate TMDL illustrates the impact precipitation and flow can have on nitrate levels.

Weigel asked Olson to describe how Iowa is pursuing the implementation of these TMDLs. Olson replied that there are no legal authorities or requirements in place to implement the TMDLs, beyond NPDES permit limits. Weigel asked whether citizen groups have been engaged in moving TMDLs forward. Olson said there has been some activity by citizen groups. Dru Buntin noted that some of the impacted watersheds are targeted for action under the state's nutrient reduction strategy. Mary Skopec concurred adding that Iowa was recently awarded $93 million via the Department of Housing and Urban Development to implement projects addressing water quality and flood risk reduction.

Illinois

Colin Steadman said Illinois does not currently have in place any TMDLs on the UMR mainstem or tributaries. However, he said Illinois EPA is beginning to focus on the atrazine impairment on UMR Reach 8 (Pool 17 to Pool 19). Steadman explained that this impairment affects the drinking water use and that multiple HUC-10 level watersheds are affected. He also said this TMDL is in what Illinois EPA categorizes as "Stage 1", where:

- Stage 1: Area characterization and data harvesting. If not enough data is available, the TMDL will move to Stage 2. Otherwise, it will move on to Stage 3.

- Stage 2: Additional monitoring is conducted, either by Illinois EPA or the agency's consultant.
- Stage 3: Public meetings held and implementation plan developed.

Steadman also described a TMDL for a backwater lake along the Galena River in Jo Daviess County, which is currently in Stage 2 of development.

Weigel asked how Illinois would plan to implement the atrazine TMDL. Steadman replied that results over 3 ug/L for atrazine would trigger action which would be implemented on a voluntary basis and would include use of the CWA Section 319 program to address nonpoint source pollution.

Sara Walling asked whether Illinois has the ability to establish an atrazine prohibition area, noting that Wisconsin has this tool available. Steadman said Illinois does not have that type of mechanism available nor does he anticipate it becoming available.

Skuta asked Walling to provide further information on Wisconsin's atrazine prohibition areas. She explained that the authority for this tool comes via Wisconsin's groundwater protection program and that 10-12 atrazine prohibition areas have been established in the state. Skuta asked how large in scale these prohibition areas are. Weigel said they can be quite large. For example, one area along the lower Wisconsin Riverway is 40-50 miles in length.

Walling said further information is available on the DATCP website at: http://datcp.wi.gov/Environment/Water_Quality/Atrazine/Atrazine_Prohibition_Areas/. Skopec said her understanding is that the re-registration process for atrazine included a provision regarding impacts to water and, if these are observed, that the pesticide program would enter in.

Missouri

Dkhili said Missouri is primarily focused on addressing *E. coli* impairments via TMDLs. He added that Missouri does not have nutrient criteria and, as such, does not have nutrient-related TMDLs. Walling asked target levels Missouri uses for *E. coli*. Dkhili explained that Missouri has Class A and Class B recreational waters, where a standard of 126/100mL cfu applies for Class A waters and 206 cfu/100mL applies for Class B waters. He noted that there are both Class A and Class B waters on the UMR mainstem.

In concluding this session, Skuta encouraged the Task Force to keep discussing issues related to TMDLs, noting the conversations today regarding the Lake Pepin TMDL and atrazine prohibition areas as examples of productive exchanges.

Other Agency/Partner Reports

Olson noted that activity in Iowa regarding the Des Moines Water Works lawsuit is ongoing. He said a referral to the federal courts on the question of drainage districts' immunity from damages was returned to the state court level. The federal judge also directed that claims be kept together rather than split. Olson said there is currently an August court date scheduled, but that is subject to change. Aleshia Kenney asked who the defendants in the lawsuit are – the drainage districts or the counties in which they are located. Olson and Skopec replied that it is ultimately the counties, as they are the trustees for the drainage districts.

Leo Keller reported that Nicole Manasco has been named the chief of the water quality program at USACE's Rock Island District.

Skuta said that due to his taking the position of Watershed Division Director at MPCA, Minnesota will soon name a replacement for him on the WQTF. He added that Pam Anderson will continue as an

alternate representative to the Task Force. Skuta said the Minnesota Governor's Water Summit is upcoming on February 27 and will address a number of key water issues for the state. He noted that recent changes have been made in the implementation of the Governor's buffer initiative, in particular rolling back the applicability to private ditches and dropping the mapping of these ditches.

Weigel noted that, in Wisconsin, Midwest Environmental Advocates (MEA) has petitioned to have primacy for NPDES programs rescinded from the state. MEA had cited a number of issues in Wisconsin's program that have been subsequently addressed by Wisconsin DNR. Sara Walling provided handouts from DATCP regarding Wisconsin's Nutrient Management Update and Nutrient Management Farmer Education Grants.

Harmful Algal Blooms (HABs) on the UMR

Introduction to the Issue/Proposed Work Group

Skuta gave a brief overview of the issue of harmful algal blooms (HABs), both as a national water quality concern and specifically on the UMR. He noted that, in light of the recent large-scale bloom on the Ohio River, there has been increased interest in heightening preparedness on the UMR. Specifically, UMRBA's Board has requested that an interagency UMR HAB work group be established. As such, Skuta explained, a number of individuals have joined the WQTF on the phone and in person to hold the first conversation of the nascent UMR HAB work group. He said the scope and outcomes of the group are still largely to be determined by the work group itself, but may include exploring areas such as uses impacted, roles of various organizations, action/advisory levels, monitoring, analytical methods, reporting/notification/communication, available resources, causative factors, and modeling/prediction.

2015 Ohio River Algal Bloom

Greg Youngstrom of the Ohio River Valley Water Sanitation Commission (ORSANCO) provided a presentation regarding the extensive algal bloom which occurred on the Ohio River in 2015. He began by giving a brief background on the history and organization of ORSANCO, which has extensive water quality programs on the Ohio River. Youngstrom noted that ORSANCO had been working with its member states and other partners to develop an HAB plan prior to this bloom, and had created a draft plan in June 2015. However, the scale of the 2015 bloom was far beyond what had been envisioned in planning and the draft plan quickly become obsolete.

Youngstrom said the initial report related to the bloom was of a "paint spill," which was subsequently identified as a bloom including the presence of microcystis. Additional and more widespread reports followed this initial one, and it became difficult to conduct follow up sampling for all of the reports coming in. Youngstrom noted that, in the initial round of sampling, the highest detection of microcystin was 41 ug/L. The bloom continued to spread and microcystin levels increased, up to a level of 630 ug/L near Wheeling, West Virginia. By the end of the first week of the bloom, it covered more than 300 miles of the Ohio River. Youngstrom explained that modeling was done to determine whether the bloom was simply moving downstream or actually expanding. It was determined that the bloom was expanding, rather than simply moving.

Youngstrom said that, by the end of the third week, the bloom covered 400 miles of the river and was just upstream of Cincinnati, raising concerns about a major river-based event on Labor Day weekend. The highest result at Cincinnati during the bloom turned out to be 1900 ug/L for microcystin. Numerous advisories were in place across multiple states at this point, and by the fourth week, the bloom covered 500 river miles. By the fifth week of the bloom, it affected 650 miles of the river, Youngstrom explained.

Youngstrom said aerial surveys were conducted during the course of the bloom by the states initially and within a week USACE engaged with GIS-linked aerial surveys. He explained that both visible light and infrared imagery were used in the USACE survey. Youngstrom said the importance of quickly gathering aerial-based imagery cannot be over emphasized, as it aided greatly in both tracking the bloom and communicating regarding the bloom's extent to agency management and other partners. In showing aerial imagery, Youngstrom also commented on how conditions in the bloom could change in a relatively short time and that this was greatly affected by the presence of sunlight.

Youngstrom stated that rain finally arrived on September 30th and the bloom began to dissipate in early October. He said data collection continued throughout October and in particular the State of Kentucky did extensive sampling in October to determine the safety of proceeding with a scheduled triathlon event on the river.

Youngstrom said one of the key questions that was raised during the incident is where in the river to sample for algal toxins. He provided visuals showing variations in results across a river transect and said this situation was observed throughout sampling efforts. Youngstrom added that this question comes up not only in a lateral sense, but also longitudinal dimension in terms of tracking the bloom and, ultimately lifting advisories.

Youngstrom explained that ORSANCO chose to focus its sampling efforts near drinking water intakes due to public health interest in protecting drinking water. Additionally, he said, ORSANCO conducted sampling near boat accesses and beach areas.

Regarding advisories, Youngstrom explained that the states along the Ohio River employ differing advisory thresholds and procedures. As such, advisories were issued – and ended – on a state-by-state basis according to each state's protocols.

Youngstrom said work is ongoing to examine what factors triggered the event, though it appears flow (impacted by precipitation) and clarity were significant contributors. He described atypical precipitation patterns that preceded the bloom – low precipitation in May and early June, high precipitation in late June and July, then low precipitation again in August and September. He noted that nutrient concentrations are not typically limiting for algal growth on the Ohio River, though it is possible that a particular pulse of nutrients could help accelerate a bloom. Youngstrom said another area to be investigated is whether herbicides may be impacting competing algal types and allowing for increased blue-green algae blooms.

ORSANCO is now working on both an after action report and revised HAB response plan, Youngstrom said. He added that data related to the bloom is still being gathered.

Buntin asked what the timeline for the completion of the after action report and plan is expected to be. Youngstrom replied that he anticipates a draft plan will be provided to ORSANCO's Commissioners at their June 2016 meeting. In terms of the after action report, he said it will likely address a number of issues including laboratory capacity/analysis, data transmission, and sampling locations/procedures. Youngstrom said both an internal and external report are anticipated.

Gregg Good thanked Youngstrom and ORSANCO for all the work they did during the bloom event. He said he was impressed by the number of people involved and who needed to be informed, including state, federal, and local entities, as well as other river users. Good said the importance of communications really came out in the event, adding that his sense is that it is just a matter of time before something similar happens on the UMR.

Giblin asked how far the river was below typical flow when the incident occurred. He also asked about observed levels of phosphorus and chlorophyll-a. Youngstrom responded that flow was below typical

levels, but not extraordinarily low, not to 7Q10 levels. He did note that navigation dams were being operated to retain water in order to keep channel depth, which is an indication of lower flows. In terms of phosphorus, Youngstrom said nothing extraordinary was observed – there were total phosphorus values above 100 ug/L, but this is not atypical for the Ohio River and certainly enough to foster an algal bloom if other conditions favor it. Giblin and Jeff Houser both said they would be interested in looking at raw data for water quality associated with the bloom, if that could be made available.

Skuta asked Youngstrom to describe the impact on river-based events and uses resulting from the bloom. Youngstrom said in Cincinnati, the bloom was really brought to light when a scheduled cleanup event was cancelled due to the conditions, and this brought a lot of media attention to the situation. In terms of drinking water, he said 20 of the 33 intakes on the Ohio River were affected at some level by the bloom. In Cincinnati in particular, an additional cost of roughly $5,000 per day was incurred for treatment, resulting in approximately $250,000 in total additional treatment costs during the duration of the bloom. River-wide, Youngstrom estimated that utilities expended approximately $1 million for additional treatment during the event.

Weigel asked whether any modeling was done of the bloom or whether Youngstrom has any recommendations in regard to modeling associated with algal blooms. Youngstrom replied that no modeling was done for this incident other "spill" trajectory modeling. He explained that modeling is difficult when it is not clear what factors played into the bloom and that there may not be sufficient data to support a model. Further, he noted that there is very little existing work done on bloom modeling on flowing waters which could be applied.

Youngstrom noted that one difference between the Ohio River bloom and the 2014 incident in Toledo, Ohio was the ability to initiate communication and other actions quickly on the Ohio River. In particular, notice was quickly provided to the river's water utilities, letting them know what is coming so that they could adjust treatment and intake use accordingly. As an example, he noted that Wheeling was able to shut down its intake and keep it closed for three days to avoid the bloom. Youngstrom said the utilities were also able to share information quickly on treatment approaches.

Brent Earley asked whether analytical approaches were consistent across agencies and if any changes in testing methods are likely to result from this experience. Youngstrom replied that multiple laboratories were involved, from the affected states as well as USEPA's Office of Research and Development (ORD). He said all used Adda-ELISA method to test for microcystin. Additionally, USEPA-ORD and Ohio EPA utilized LC-MS testing for microcystin. Youngstrom explained that each state preferred to run their own tests rather than relying solely on results from others.

Giblin asked whether ORSANCO plans to implement routine monitoring for microcystin going forward. Youngstrom replied that ORSANCO plans to have in-house ELISA analysis capacity in place for the summer of 2016, and will work in coordination with drinking water systems and locks and dams in regard to monitoring. He said ORSANCO will also be looking into the utility of satellite imagery in regard to the monitoring of algal blooms.

Susan Heathcote asked whether any health impacts to humans or animals were documented as a result of the bloom. Youngstrom said no animal impacts were reported. In terms of human health impacts, he said this can be difficult to quantify. There were some reports of rashes caused, including from one of ORSANCO's own staff persons – but in this case it was not clear if this resulted from the bloom or a possible medicine interaction. He said he emphasized the need to report health impacts during the bloom, but that this is an ongoing challenge.

Pam Anderson asked whether testing was done for other toxins in addition to microcystin. Youngstrom responded that microcystis was dominant in the bloom, so testing was focused on microcystin. Good

asked whether other entities in the region have the ability to test for other toxins. Youngstrom said Kentucky and Ohio, and likely others, can do testing for other toxins. Skopec noted that ELISA test kits are also available for cylindrospermopsin measurement.

Early asked whether there were any detections of microcystin in finished drinking water. Youngstrom responded that, fortunately, there were no detections in finished water.

Potential Tools/Lessons Learned from UMR Spill Response Planning

Dave Hokanson gave a brief presentation describing existing tools for spill response on the UMR, noting that some of these may have applicability or could be adapted for HAB incident response. He noted that the UMR Spill Response Plan includes:

- A description of agency roles
- Contact lists for agencies/partners
- A notification protocol, setting out:
  - Who calls who and when calls are made
  - How communication takes place between states and federal agencies
  - The relationship of UMR-specific communication to existing communication protocols
- Policies addressing a variety of incident-related issues (e.g., incident command, role of volunteers, etc.)

Hokanson also highlighted some of the mapping/locational information included in the spill plan and the two-page "emergency action field guide" which has been distributed along the river to vessels, marinas, and other river-located entities. He added that training and exercise events have been conducted to help improve readiness, and an email listserv has also been established to share information about incidents. Hokanson observed that while there may be a number of distinctions between HAB incidents and hazardous materials spills, some of the elements of communication and advanced collaboration may be particularly useful across the board.

General Discussion and Work Group Scoping

Skuta noted that two types of monitoring come into play regarding HABs – surveillance monitoring to detect an issue and ongoing monitoring to track an event. He suggested a starting point for the work group may be to compile a list that identifies existing resources and capacities along the UMR that could be utilized in an HAB event. Giblin observed that such as list certainly can be compiled, but consideration also has to be made of the capacity/funding available to follow through on monitoring. Observing that the capacity to conduct monitoring will always be limited, Weigel stressed the importance of modeling to improve the ability to know when and where monitoring should be targeted, as well as the conditions likely to trigger a significant algal bloom. Greg Swanson agreed, saying there is a need to be "conditionally proactive," meaning that there is an improved understanding of the conditions likely to foster a bloom and resources available to act when those conditions present themselves. He added that, from a water supply perspective, both ingestion and dermal exposure routes need to be considered.

Ted Kratschmer suggested there may be value in exploring the extent to which remote sensing may be applied in the prediction and tracking of algal blooms. Skopec cautioned that existing satellite imagery does not have the resolution needed to support its application to river systems. However, she added this could be area for investigation in terms of how to improve its applicability to rivers.

Regarding communication, Skuta observed that there are a number of outlets, including social media, which could be employed to share messages regarding an HAB incident on the UMR. Skopec asked whether all states have HAB-related illness as a reportable condition. Anderson replied that Minnesota is working on this, but it is challenging to document these human impacts. Heathcote observed that it is also important to get information out to the public which will help them identify harmful algal blooms (e.g., photos of blooms).

John Olson suggested that an email listserv could be set up to share information among stakeholders, similar to what has been done for UMR Spills. He added that an associated first step would be to simply create a contact list for the UMR.

Skopec suggested that one difference between spills and HAB incidents is that there is a greater need for proactive monitoring regarding HABs. In her experience in Iowa, she said she has been able to look at incoming data and have a fairly good sense of what HAB-related problems are emerging. Heathcote suggested that there may be lower cost parameters to monitor which can signal a likely HAB issue, noting that, for example, high pH readings are typically associated with HABs.

Olson asked the group whether it envisions a role for HAB/toxin monitoring in the UMR CWA monitoring strategy. Skopec observed that an ELISA test kit, providing 40 samples at one time, costs approximately $400. Kratschmer suggested that, as HAB-related data becomes available for the UMR, it could potentially be stored in the Great Lakes to Gulf Observatory system.

Diane Moles recommended that the group look at Ohio's HAB strategy documents, as they include a fairly well developed plan for public water systems to follow in the event of an HAB. Weigel added that the group should also look at ORSANCO's documents, both their initial plan that predated the recent bloom as well as any new documents they develop.

Skuta said the three common, priority areas he has heard in this discussion of HABs are: 1) identification, 2) communication, and 3) monitoring.

Heathcote asked what the relationship of the UMR HAB work group is to the WQTF. Hokanson said he envisions that the HAB work group may be composed of different individuals than are on the WQTF and would function largely on an independent basis. However, the work group would be in communication with the WQTF (and Water Quality Executive Committee) to offer its conclusions and recommendations for action.

The meeting adjourned for the day at 5:00 p.m. and reconvened at 8:00 a.m. on February 4, 2016.

Wrap Up of Day 1 Discussions

The WQTF spent a few minutes debriefing from the previous day's discussion of HABs on the UMR. Anderson and Skopec suggested that a compilation of program capacities related to HABs would be a valuable first step. Houser commented that modeling and prediction will be important to consider in the long run. Linda Holst noted that USEPA Region 5 will be hosting an HAB workshop on April 27-28 in Chicago and that an announcement of this event is forthcoming. The WQTF also reviewed which of its members wish to be included in the HAB work group discussions.

Skuta asked the WQTF if any members had additional updates which were not addressed during conversations the preceding day. Buntin noted that UMRBA is working on a Memorandum of Common Purpose with the Mississippi River Cities and Towns Initiative (MRCTI), and that he will attend the upcoming MRCTI meeting in Washington, DC.

Giblin noted that, in light of several recent derailments, rail safety continues to be a primary issue of concern in Wisconsin. He suggested that the WQTF may wish to make a statement regarding the need for rail safety improvements. Hokanson commented that the UMR Spills Group has traditionally been most focused on the response side of these incidents, and planning for responses, and has not entered into the rail safety issue *per se*. He suggested that a statement on rail safety would most likely come from the UMRBA Board, rather than any individual work group. Buntin suggested that Giblin talk with Susan Sylvester, WQEC Chair, to get her input before the issue is advanced further. Giblin said he would do so.

Hokanson offered a very brief demonstration of the newly created SharePoint site for UMR water quality work groups. He asked whether states/agencies typically use SharePoint and there was a mixed response among those present. As such, Hokanson said, a "generic" logon would continue to be used, which allows for easiest access by those who do not otherwise have Office 365 accounts.

UMR CWA Monitoring Strategy

Overall Project Status

Hokanson reminded the group that implementation of the *UMR CWA Recommended Monitoring Plan*, approved by the UMRBA Board in 2014 has been proceeding and includes the Minnesota-Wisconsin pilot monitoring project, as well as the harvesting of existing data via "virtual pilot" efforts.

Minnesota-Wisconsin Pilot Project

Shawn Giblin commented on the outcomes of the recent (November 17, 2015) spilt sampling test performed by Minnesota DNR, Metropolitan Council, and Wisconsin DNR chemistry field teams in order to test the comparability of results from the three agencies involved in the pilot project. He noted that most results were very consistent, though there were disparities for a few parameters, including nitrate, total phosphorus, chlorophyll-a, and mercury. Anderson and Skuta commented that the Minnesota Department of Health Laboratory would be reverting to a previously used method for total phosphorus, which should help address disparities for this parameter. Giblin said the chemistry teams plan to conduct one more split sampling test before formal monitoring begins in May.

Weigel said Wisconsin DNR has funding in place to execute the pilot and is addressing some remaining questions on staffing and in regard to macroinvertebrate monitoring. Giblin commented that, overall, most of the pieces are in place to proceed with monitoring.

Hokanson said the Field Operations Manual for the pilot project is nearing completion, pending the details on macroinvertebrate monitoring being established. Olson said he had a few remaining comments on the manual which he would provide to Hokanson.

Matt Jacobson provided a demonstration of the water quality viewer online mapping application which is being used to support implementation of the Minnesota-Wisconsin pilot monitoring project. He noted that one next step will be to test the functionality of the viewer on mobile devices.

Future UMR CWA Monitoring Plan Implementation

Skuta asked each state to comment on its plans for future implementation of the *UMR CW Recommended Monitoring Plan*. Olson said that Iowa's primary focus for monitoring is toward activities that support the ongoing implementation of the state's nutrient reduction strategy, with a particular emphasis on nitrate monitoring. Weigel asked if 106 supplemental monitoring funds would be an option for Iowa and other states to use in implementing the *Plan*. Skopec replied that this could be a future option, but that for the next year projects have already been identified which will utilize

106 funds. Weigel said that Wisconsin is using 106 funds, a total of $120,000 - $140,000, to implement the pilot project in the upcoming year, adding that this total does not include staffing costs.

Buntin observed that a summary of pilot project costs might be helpful for other states to consider in evaluating how they may be able to support future implementation of the *Plan*. Skuta said MPCA should be able to put together such a cost estimate, noting that – as a ballpark figure – MPCA is estimating a cost of $75,000 per reach to implement the pilot. Anderson and Hokanson observed that states could potentially implement pieces of the *Plan*, if they cannot find budget to implement the *Plan* in its entirety.

In Illinois, Gregg Good said funding *per se* is not the most immediate constraint, but rather limitations on staffing. He explained that Illinois EPA's field staff has been significantly reduced and there is not any indication that these positions will be restored. As such, Illinois is increasingly relying on contractors to conduct water quality monitoring. In terms of 106 funding specifically, Good said this could potentially be an option, but the actual monitoring would need to be done by a contractor. Further, he cautioned that 106 supplemental monitoring funding is a year-by-year system and as such is not a long-term way to sustain a coordinated UMR monitoring program. Skuta concurred, but noted that 106 may be the most amenable mechanism to initiate the monitoring plan.

Dkhili said that any decisions on this for Missouri would need to come from the monitoring unit, and he would need to consult with them. However, he noted that its most likely Missouri would want to review the outcomes of Minnesota-Wisconsin pilot before committing to its own implementation.

Skuta suggested that, given the preceding discussion, states consider how they might be able to move forward with further monitoring in 2018.

Water Quality Data

Great Lakes to Gulf (GLTG) Observatory

Kratschmer gave a demonstration of the GLTG application (see www.greatlakestogulf.org). He explained that the application includes links to its data sources, should users wish to examine the original, underlying data sets. Kratschmer said future directions for GLTG include the incorporation of point source data/discharge permits and a focus on some smaller watersheds in support of the Illinois nutrient reduction strategy. He said the data remains largely focused on nitrate, but phosphorus will soon be more broadly incorporated. Kratschmer also commented that GLTG has not yet focused on trends analysis but the capacity exists to do more of this.

Weigel asked if the GLTG project has a good sense of who its actual and/or intended users are. Kratschmer replied that this is one of the areas the project is exploring, better definition and tracking of its users. Jacobson asked what staffing level supports the GLTG application. Kratschmer replied that currently three programmers are assigned to the project.

Water Quality Data Work Group

Hokanson said the Water Quality Data work group requested by the WQTF had been formed, but has not convened recently. He indicated that the Minnesota-Wisconsin pilot project seems to be driving a number of the data management and sharing questions, while it has been challenging for the Water Quality Data work group to establish a role and path forward. Anderson said that, for chemistry at least, Minnesota sends its results to WQX, so they should be readily available via that mechanism. Weigel agreed that chemistry should be fairly straightforward, but that the work group may be very much needed to explore the management of biological data. Hokanson suggested that an approach focusing on one parameter group at a time may indeed be more successful than trying to look at all data types simultaneously.

UMR CWA Assessment Feasibility Project

Recent Updates to Methodology

John Olson said the provisional UMR Clean Water Act assessment methodology had recently been updated to include total suspended solids (TSS) as an additional indicator in determining aquatic life use attainment, as had been discussed and recommended at the previous WQTF meeting. He then asked Shawn Giblin to walk the WQTF through the TSS portion of the methodology. Giblin explained that differing TSS threshold values are applied above and below Lake Pepin through Pool 13. The threshold would not be applied below Pool 13 as current research has not as firmly established TSS thresholds associated with aquatic life beyond this point. Giblin presented a table summarizing thresholds as follows:

Segment of River	**Condition Class:**		
	Good	**Fair**	**Poor**
Above Lake Pepin	Overall summer median ≤ 32 mg/l.	Overall summer median > 32 mg/l but ≤ 40 mg/l.	Overall summer median > 40 mg/l
Below Lake Pepin (i.e., below confluence with Chippewa River) to L&D 13	Overall summer median ≤ 17 mg/l.	Overall summer median > 17 mg/l but ≤ 30 mg/l.	Overall summer median > 30 mg/l

In order to calculate the condition class of a reach, Giblin explained, the methodology proposes calculating monthly medians for both fixed site and probabilistic monitoring, then pooling these medians to calculate an overall median value. Jeff Houser asked whether an approach had been considered that looks at the number of times a value exceeds the threshold, rather than looking at the median alone. Giblin replied that the thresholds were developed around the use of medians and as such he felt that a median approach is more appropriate than a percentage exceedance approach. Linda Holst suggested it may be preferable to calculate the median values for the whole growing season, rather than per month. Giblin agreed this may be a better approach and said he would look into restructuring the calculation in this way. Olson concurred, saying the two methods could be mapped out and compared. Glenn Skuta suggested that, in the absence of biological data, the TSS information could be used to help characterize aquatic life condition in a reach.

Testing the Assessment Methodology: Recreation Use Assessment in Reaches 0-3

Matt Jacobson presented the results of recent work he had done to test out the provisional assessment methodology using existing data. Per the direction of the WQTF, Jacobson carried out this work on UMR Reaches 0-3, in order to provide a future comparison point to data that will be coming in from the Minnesota-Wisconsin CWA pilot monitoring project. He noted that, in order to best accommodate existing data, the temporal scope applied was 2011 to 2015 in Reaches 0 and 3 and 2010 to 2014 in Reaches 1 and 2.

Jacobson explained that the objectives of this specific work , and the "virtual pilot" effort more generally are to:

- Identify existing data sets and sources
- Use existing data to test the *Provisional UMR CWA Assessment Methodology*
- Identify spatial gaps and areas where existing data can augment field pilot data

In conducting this analysis, Jacobson explained that he conducted comparisons to threshold values in two ways: 1) using data that specifically matched the requirements of the methodology and 2) using all available data throughout a year. His results for recreational use condition were as follows:

- Reach 0: Fair condition, based on "all available" *E. coli* results and chlorophyll-a results matching assessment methodology requirements.
- Reach 1: Fair condition, based on both "all available" and methodology-matching results for chlorophyll-a.
- Reach 2: Poor condition, based on both "all available" and methodology-matching results for chlorophyll-a – though the amount of data available was quite limited.
- Reach 3: Poor condition, based on methodology-matching results for chlorophyll-a – though the amount of data available was again quite limited.

Jacobson suggested the following as key takeaway messages from the recreational use assessment test in Reaches 0-3:

- There is a relative abundance of data in Reaches 0 and 1, while more data is needed in Reaches 2 and 3. As such, any conclusions in Reaches 2 and 3 are not strongly data-supported at this time.
- In general, the year-round "all available" data provide similar results as the methodology-specific data, offering a validation of the methodology.
- A comprehensive virtual pilot for one assessment reach may be beneficial, as opposed to the use-specific comparisons conducted to date.

Giblin commented that there should be more fixed-site chlorophyll-a data available for Reaches 2 and 3 from the UMRR-LTRM element. He suggested that perhaps this data may not have been incorporated due to a methodological issue (i.e., only data for a particular reporting method was extracted). Jacobson said he had pulled LTRM data from the graphical data interface and would be happy to share what he obtained with Giblin. Olson commented that this raises the question of how/if existing data is utilized under the provisional assessment methodology and if changes need to be made to the methodology to better incorporate existing data. Skuta said he supports any changes that can be made to better incorporate existing data. Olson said he would consider what modifications could potentially be made to the methodology for this purpose.

Skuta and Hokanson asked whether UMRBA staff should do more work on the virtual pilot and test of assessment methodology at this time. Giblin said the work done so far has been helpful and illustrative, but that there may be more pressing near term needs where staff work should be focused. Olson, Weigel, and Skuta agreed that UMRBA staff should hold off work on virtual pilot and assessment testing for now.

Work Planning and Priorities for 2016

Hokanson said UMRBA's Board would be approving its strategic plan priorities for calendar year 2016 at its upcoming meeting in late February, including water quality-related priorities. He shared the current version of the water quality priorities, which had been developed based on input from the WQTF in September 2015 and the WQEC in November 2015. Weigel asked that Hokanson distribute these priorities to the WQTF for one last round of review before Board approval. Hokanson agreed to do so. Buntin noted that the Board will also soon begin a process of considering a 2018-2022 strategic plan, which will provide an opportunity to revisit UMRBA priorities more broadly.

Regarding other near term work items, Hokanson said he would follow up with the HAB work group to schedule a next call. Olson indicated he would work on modifications to the provisional assessment methodology in collaboration with the assessment work group.

Chair Transition

With the departure of Skuta from the WQTF, the Task Force determined that the Chair role should move to Wisconsin as the next state in line for the position. As such, it was agreed that Brian Weigel would serve as chair effective at the end of the current meeting. Gregg Good would then become Vice Chair, following the typical rotation of states.

Next Meeting

Hokanson said if a typical schedule is followed, the next WQTF meeting will take place in June 2016, and would be a joint meeting with the WQEC. He said he would investigate dates and possible locations, and then be in communication with WQTF to confirm scheduling.

With no further business, the meeting adjourned at noon on February 4, 2016.