Upper Mississippi River Basin Association
Water Quality Task Force Meeting
September 25-26, 2013
Moline, Illinois

Meeting Summary

Participants

Gregg Good	Illinois EPA
Matt Short	Illinois EPA
John Olson	Iowa DNR
Glen Skuta	Minnesota PCA
Mohsen Dkhili	Missouri DNR
Jim Baumann	Wisconsin DNR
Shawn Giblin	Wisconsin DNR
Mike Shupryt	Wisconsin DNR
Linda Holst*	US EPA, Region 5
John DeLashmit*	US EPA, Region 7
Greg Swanson	City of Moline
Dru Buntin	UMRBA
Dave Hokanson	UMRBA

* *Joined the meeting by phone.*

Call to Order and Introductions

The meeting of the UMRBA Water Quality Task Force (WQTF) was called to order at 1:40 p.m. on September 25, 2013 by Chair Mohsen Dkhili. Introductions by all participants followed. Dave Hokanson gave a brief meeting overview. He also noted that long-time WQTF member John Sullivan of Wisconsin DNR is retiring and that a certificate of appreciation from UMRBA had been presented to Sullivan at the meeting of the Upper Mississippi River Conservation Committee Water Quality Tech Section the preceding day.

Approval of Previous Meeting Summaries

John Olson offered two corrections to the draft summary of the June 2013 joint meeting with the UMRBA Water Quality Executive Committee (WQEC), as follows: 1) John Sloan of the National Great Rivers Research and Education Center (NGRREC) was listed twice in the participants list, and 2) a grammatical error on the notes' second page regarding the WQTF's preference for assessment scale. Dkhili motioned that the summary be adopted with the corrections noted by Olson. Olson seconded the motion. The summary was approved by voice vote.

Interstate 305(b) Assessment and 303(d) Impairment Listing Consultation

Hokanson displayed the current comparison chart of the states' listings for the UMR. Each state provided comments on its assessment and listings as follows:

Minnesota

Glenn Skuta said the information presented in the packet is accurate in terms of Minnesota's listings. He highlighted that, for its 2012 listing, Minnesota has removed the impairment related to the presence of perfluorooctanesulfonic acid (PFOS) in fish tissue, due to data showing reduced PFOS levels. Skuta

added that Minnesota's 2012 listing is no longer considered draft, having been approved by US EPA in July 2013.

Wisconsin

Jim Baumann said the information presented in the packet for Wisconsin's listings appears to be accurate. He noted that Wisconsin had submitted a revised 303(d) list to US EPA in August 2013, adding that Wisconsin DNR had also recently updated its Wisconsin Consolidated Assessment and Listing Methodology (WisCALM) document. Baumann highlighted in Wisconsin's 2012 listing that the first four interstate reaches are now considered impaired due to elevated phosphorous levels.

Iowa

Olson said Iowa's 2012 list has been approved, as is listed in the packet. He noted that Iowa has now begun work on its 2014 listing.

Illinois

Matt Short confirmed the information in the packet is correct for Illinois' 2012 listings. For 2014, Short said Illinois will be adding an impairment of the recreation use in Reach 8 related to the presence of fecal coliform bacteria. Also, he said the fecal coliform-related impairment in Reach 10 and the manganese-related impairment in Reach 13 will be proposed for removal in 2014. Hokanson asked if, in all cases, these proposed changes for 2014 are due to the availability of new data. Short confirmed that, as the "five year window" for data moves forward, new data becomes available and old data falls outside of the window. As a result, he explained, the data set considered during assessment changes and new or removed impairments result.

Olson asked if Illinois plans to continue using fecal coliform data, rather than *Escherichia coli* (*E. coli*), in determining recreation use attainment. Short replied that Illinois EPA has been considering the conversion to use of *E. coli*. Linda Holst said Bob Mosher of Illinois EPA is leading a work group to look at moving to an *E. coli*-based standard. Short concurred, adding that until the work group offers its recommendation, Illinois will continue using fecal coliform. Olson said Iowa would plan to match Illinois' impairments for the UMR, whether fecal coliform or *E. coli*-based.

Gregg Good said Illinois is in the process of preparing its draft list for 2014. He reviewed the status of recent Illinois 303(d) lists, saying the 2008 list is partially approved by US EPA Region 5, and that Region 5 has not yet acted upon the 2010 and 2012 lists. He said he is hopeful that Region 5 will act by the end of 2013. Holst said it may be spring 2014 before action is taken, though she would need to confirm this with Region 5 staff working directly on Illinois' list. She said Region 5 is working on the 2010 and 2012 lists together, so when action is taken it will affect both years' lists.

Missouri

Dkhili said the information in the packet is an accurate representation of Missouri's 2010 and 2012 lists.

Other Agency Updates

Macroinvertebrate Comparison Study

Skuta said the macroinvertebrate sampling comparison study being led by Minnesota in coordination with Wisconsin and the (Twin Cities) Metropolitan Council is ongoing. He said monitoring has been conducted on the UMR from the Twin Cities to Lock and Dam #6, which includes interstate Reaches 1 and 2. Skuta said sites were also included on the Minnesota River, three tributaries in Wisconsin, and on the intrastate UMR within Minnesota. He described the study as including both artificial substrate and kick sampling for macroinvertebrates, as well as water chemistry monitoring alongside the

macroinvertebrate monitoring. Skuta noted that the majority of artificial substrate samplers were recovered, with only three being lost, adding that this was one of aspects of sampling investigated in the study – the feasibility of actually performing artificial substrate-based monitoring on the UMR. He said analysis of study data will continue through the summer of 2014, with a draft report expected in winter 2014 and a final report in 2015.

Minnesota's Large River Monitoring

Skuta described Minnesota's new large river monitoring program, which began with the sampling of the Mississippi River from its headwaters to St. Anthony Falls in 2013. He said monitoring of this reach of the UMR included 35 biological samples, both fish and macroinvertebrate, as well as water chemistry sampling at 19 stations. Skuta explained that MPCA is dividing its UMR monitoring into two parts, having completed the intrastate portion above St. Anthony Falls this past year and awaiting the outcome of the WQTF's monitoring strategy project to complete sampling on the remainder of its portion of the UMR. He said MPCA plans to extend the monitoring approach developed by the WQTF up through its intrastate reach to St. Anthony falls. Skuta described the large river monitoring schedule for the next few years as including:

- 2014: Minnesota River
- 2015: Red River
- 2016: Rainy River
- 2017: St. Croix River

He said the timing of monitoring on Minnesota's remaining section of the UMR would depend in part upon when the WQTF strategy is ready for implementation.

Short asked whether large river monitoring is being done in conjunction with sampling on nearby smaller streams or if large river monitoring is essentially a separate effort. Skuta replied that large river monitoring is a separate effort, adding that smaller rivers are incorporated in MPCA's watershed-based monitoring program and, as such, results of this monitoring are reported with watershed-level assessments. Dkhili asked whether similar data had been collected in the past or if this is a first-of-its-kind effort. Skuta replied that this is the first intensive river survey of its kind in Minnesota. Dkhili asked what the intended use(s) of the data collected in this effort are. Skuta said the data will be used as is typically done for CWA data – i.e., for condition assessment as well as for any impairments which are identified and subsequent TMDL development. He added that MPCA's expectation is that fish communities on the UMR will be in fairly good condition.

Tiered Aquatic Life Uses – Minnesota

Skuta next described Minnesota's plans for implementing tiered aquatic life use assessment (TALU), noting that MPCA has developed differential expectations for biological communities by dividing the state into three regions. He said standards will be calibrated for each of these regions and may be more or less stringent depending on a number of factors in each region. Skuta noted that the rule language supporting TALU implementation will soon be but out for comment, with the final rule expected by the end of 2015. He added that Minnesota expects to begin use of TALU outcomes in drafting its 2016 impairment listings. Skuta noted that Will Bouchard is the MPCA staff person leading the TALU effort.

MPCA's Groundwater Condition Report

Skuta described the recently released report, *The Condition of Minnesota's Groundwater, 2007-2011*, saying that it is an update to a similar report released in September 2007. He said MPCA has been developing a ground water monitoring network over the past few years focused on shallow (30-50 foot) wells, but wanted to proceed in completing this report even as development of the network proceeds. Skuta noted that the wells sampled as part of the network serve a variety of uses and occur in a variety of geographic areas throughout the state. He said the one exception is that agricultural wells are not

sampled as part of MPCA's network as these are addressed under monitoring performed by the Minnesota Department of Agriculture (MDA).

Skuta said parameters monitored under the MPCA network include nitrate, chloride, arsenic, iron, manganese, VOCs, phosphorus, sulfate, and new/emerging contaminants. He noted a few findings from the report, including:

- There appears to be more wells with nitrate concentrations greater than 10 mg/l in central Minnesota sand aquifers and in southeast Minnesota, but there is no strong trend overall.
- Nitrate concentrations appear to be higher in agricultural land use areas as compared to other land uses, though there are also more data points in the agricultural areas than elsewhere.
- Chloride concentrations appear to be increasing in both ground water and surface waters.

Skuta said both the full report and a report summary are available on the MPCA website at: http://www.pca.state.mn.us/index.php/water/water-types-and-programs/groundwater/index.html.

Hokanson asked how wells were selected for participation in the network. Skuta replied selection was statistically-based, with some accommodation made for accessibility.

City of Moline Algal Bloom Monitoring

Greg Swanson provided an update regarding the City of Moline's work to monitor algal blooms on the UMR. Swanson explained that algae can create two problems for public water supply systems: 1) increasing treatment difficulty and costs, as algae creates more turbid source water, and 2) causing taste and odor issues. He said microcystin is definitely a concern for the water supply, though it has not yet been detected by Moline. Swanson explained that very extensive algal blooms have occurred on the river over the last two years, resulting in taste and odor issues for the utility due to algal production of 2-methylisoborneol (MIB) and geosmin. In particular, he noted that significant problems due to algal blooms were encountered by Moline in August-November 2012 and that Alton, Granite City, and East St. Louis were among the utilities on the UMR impacted by similar issues. Swanson explained that a typical response to these taste and odor issues is to increase the feed of powdered activated carbon (PAC) and to reduce filter run times as needed. He added that pH readings in the range between 9 and 9.2 are currently being observed, which are fairly high as compared to historical levels.

Swanson said water utilities have been in communication with each other to share information regarding how they are dealing with algae-related issues. He noted that the increased cost and complexity of dealing with algal issues is causing utilities to look for more coordinated approaches to algal sampling. An example of this includes reaching out to communities in other areas that have experienced algal blooms, including Elgin and Aurora along the Fox River in Illinois.

Swanson explained that Moline is currently sending its algae samples out of state for testing, with a cost of $150-200 per analysis. Beyond cost, he added, one of the major challenges in this approach is the turn-around time, which is approximately two weeks before results area available. Swanson noted that Moline's algal sampling is specifically focused around water quality at the level at which their intake is set, and that there is always positive flow through Sylvan Slough, where Moline's intake is located. As a result, he explained, Moline's observations may not be representative of what is happening elsewhere on the river.

Gregg Good asked whether Aurora and Elgin are sending out algal samples for analysis or conduct these analyses in house. Swanson said his understanding is that Elgin has in-house analytical capacity. Good explained that he is looking for an option in-state to conduct analyses. Swanson said he has been in conversations with individuals at the University of Illinois regarding the possibility of analytical work

being conducted at the University and that he could provide contact information to Good. Good replied that he is interested in receiving this information.

Mike Shupryt asked Swanson if he has any estimates regarding the additional expenses incurred by utilities due to algal bloom events. Swanson estimated that algal bloom events in the past year created costs to Moline in the neighborhood of $10,000, adding that Moline is a mid-size utility and costs for other utilities encountering similar issues may be quite different. He added that this estimate does not incorporate indirect costs such as increased electricity needed due to shortened filter runs and the additional staff hours/overtime needed to support shortened filter runs.

Short asked whether algae events are considered "reportable" to Illinois EPA. Swanson replied that they have not traditionally been something reported to Illinois EPA, but that there has been increased interest in these events in recent years.

America's Watershed Initiative Report Card Project

Hokanson said he and Dru Buntin, along with Swanson, participated in the recent workshop held in Moline, Illinois by America's Watershed Initiative (AWI) to develop a "report card" for the Upper Mississippi River Basin (UMRB) covering the areas of: 1) maintain supply of abundant clean water, 2) provide reliable flood risk reduction, 3) support local, state and national economies, 4) support and enhance healthy and productive ecosystems, 5) provide world-class recreation opportunities, and 6) serve as the nation's most valuable river transportation corridor. In terms of water quality, Hokanson said the workshop participants had selected maximum contaminant level violations and number of river miles attaining designated uses as indicators to include in the UMRB report card. He observed that, given the breadth of topics covered in the two-day workshop, relatively little time was devoted to each specific goal area. As such, the discussion of water quality was one small piece of the workshop's many conversations.

Buntin explained that AWI will be holding similar workshop in other Mississippi River "sub-basins" (e.g., the Ohio River) in an effort to construct a report card covering the entire river basin. Swanson said he feels that the report card project has merit, though the proposed pace of completion is very ambitious. Buntin agreed that the pace is quite accelerated, noting that the intent of the workshops is to include a diverse audience in order to hopefully draw in a wide variety of expertise that can lead to identification of key data sets. Swanson added that the staff from the University of Maryland who ran the workshop pointed to the virtues of both "low" grades (in motivating action) and "high" grades (in crediting work accomplished). Skuta said this sounds similar to "results-based accountability" efforts he has been part of previously. Buntin concurred that this process contains some of the same elements.

National Research Council Workshop on Mississippi River Water Quality Science

Hokanson said the National Research Council (NRC) will be hosting a workshop focused on Mississippi River water quality science in St. Louis in November. He explained that this workshop is continuation of the NRC's Mississippi River-focused projects over the past several years. An *ad hoc* committee will issue a consensus report summarizing scientific challenges and priorities regarding Mississippi River water quality monitoring and evaluation. The report will be based in large part on presentations and information gathered during the two-day workshop. Hokanson noted that the *ad hoc* committee includes several of the same members as previous NRC panels focused on the Mississippi River. He said he has been in communication with NRC staff person Jeff Jacobs regarding the workshop, but that the UMRBA Board, Water Quality Executive Committee (WQEC) and staff are not able to attend as the workshop dates conflict directly with the upcoming UMRBA quarterly meeting and joint Board-Water Quality Executive Committee (WQEC) meeting. Fortunately, Hokanson added, it appears that several members of the WQTF have been invited to participate in the workshop's discussions. Good concurred, saying that he, Skuta, Baumann, and Dkhili all plan to be in attendance.

Gulf Hypoxia Task Force

Hokanson noted that he and Buntin had attended the meeting of the Gulf Hypoxia Task Force earlier in the week in Minneapolis. He said this meeting included discussion of state nutrient reduction strategies (including presentation of Minnesota's statewide nutrient reduction strategy), the 2013 Gulf Hypoxia Reassessment, federal agency strategies, the role of land grant universities, and the role of foundations in helping address Gulf hypoxia. Reflecting on the earlier AWI discussion, Skuta suggested that it is important to connect the monitoring collaborative work being done by USGS' Mike Woodside for the Hypoxia Task Force with AWI's data-gathering efforts. Hokanson said he would make sure to follow up in providing Woodside's contact information to AWI's Jordy Jordahl.

UMRBA Conservation-Focused Discussions

Buntin said UMRBA has initiated a series of discussions at its quarterly Board meetings to focus on conservation programs and water quality. He said this series began the August 2013 quarterly meeting in La Crosse and included presentations from Jimmy Bramblett, the NRCS Wisconsin State Conservationist, Jim Baumann on Wisconsin's nutrient reduction strategy, and from local programs on the implementation of Mississippi River Basin Health Watershed Initiative (MRBI) projects. Buntin said UMRBA's Board has seen value in these conversations and looks forward to continuing them at upcoming meetings. Specifically, he said the November 2013 meeting will focus on activities in Minnesota, the February 2014 meeting on Illinois and Iowa, and the May 2014 meeting on Missouri. Baumann said his observation as a presenter is that the Board is clearly interested in these topics. He suggested that Bramblett's presentation be shared with the WQTF, as it provides a helpful perspective on NRCS programs. Hokanson said he would circulate the presentation to the WQTF.

Petition to US EPA Region Nutrient Criteria and TMDLs for Mississippi River and Gulf of Mexico

Baumann asked whether any update is available from US EPA in regard to the recent court ruling that the agency must respond to a petition by several environmental NGOs requesting that the agency create nutrient standards and TMDLs in the Mississippi River basin and the Gulf of Mexico. Buntin briefly reviewed the history of the issue, noting that the NGOs had petitioned US EPA in 2008 to develop standards and TMDLs, and EPA had denied the petition in 2011. The NGOs had appealed this denial, and in a ruling earlier this month the U.S. District Court in Eastern Louisiana had ruled that US EPA must respond to the petition, though it can bring in the same rationale (e.g., ongoing collaborative work with states regarding nutrients) in formulating its response to the petition as it had used in previously denying the petition. Holst said there was not any additional update from US EPA at this point, but concurred that EPA had emphasized its collaborative work with the states in its earlier denial of the petition. Hokanson said he would send current information regarding this legal action to the WQTF.

UMR CWA Monitoring Strategy

Hokanson initiated the WQTF's discussion of the UMR CWA monitoring strategy by reminding the group of the project's status – i.e., the *Options and Considerations* document is now complete and comments from UMR stakeholders have been received on the draft *Recommended Monitoring Plan*. He briefly reviewed the contents of the draft *Recommended Monitoring Plan* and then characterized the WQTF's tasks for this meeting in regard to the monitoring strategy as follows:

- Review stakeholder comments on draft *Recommended Monitoring Plan*: Determine if, how, and when to address.
- Consider priorities: If only part of the strategy can be implemented, what would it be and why?
- Discuss implementation: How to pursue implementation, including thoughts on staffing, collaboration, and funding.

- Examine related issues: These include assessment methodology development and data management considerations.

At this point, the WQTF elected to examine the notion of prioritization before looking at specific stakeholder comments. Hokanson and Buntin noted that the WQEC, in its call earlier in September, had been interested in the WQTF exploring prioritization and how to proceed in a resource-constrained implementation scenario.

Dkhili said prioritization can be considered both in terms of potentially prioritizing by use (e.g., focus on aquatic life use first) and/or by spatial areas (e.g., certain longitudinal reaches or lateral strata). Skuta suggested that efforts could be targeted to either: 1) areas where there is the most need/greatest information gaps, or 2) conversely, where there is the most existing information and therefore the greatest chance of gathering enough information to conduct a "full" assessment. Shawn Giblin agreed, saying it's important to assess the status of existing data in deciding where and how to pursue implementation. Baumann said it is important to keep in mind where the information is going to make the most difference in making management decisions.

Mike Shupryt asked if the goal of the monitoring is to produce a general condition assessment and if it's intended to be a 305(b)-style assessment, as that will drive data needs. Skuta replied that the WQTF's near term goal is to produce a shared, 305(b)-type assessment of the UMR and eventually consider whether shared 303(d) impairment listings can be produced. He added that data produced under the strategy could be used at the states' discretion in current 303(d) listing processes, as is done for other readily available data.

Good said he has some concerns about breaking up the monitoring strategy via a prioritization approach. Baumann concurred, saying he'd prefer to advocate for the strategy in its entirety, not as a list from which priorities can be pulled. Short suggested that a way to address the prioritization idea may be to implement the strategy in a limited spatial area at first, then adding on additional segments over time. He said this preserves the ability to get the greatest amount of information possible out of each sampling event.

Olson said a possible starting point may be to focus on fixed stations, plus biological information in LTRMP-sampled pools. He added that his preference, however, it to implement the strategy fully as it is scoped. Hokanson suggested it may be useful to begin by working with fish community information available in LTRMP-sampled pools.

Skuta suggested that Minnesota may be able to conduct sampling as a pilot on Minnesota's reach of the UMR. He also said he would like to see the complete scope of monitoring conducted, even if only on a pilot reach. Skuta emphasized it is important to communicate that the WQTF is already offering a "scaled back" recommendation as compared to the intensive survey design suggested by MBI.

Dkhili said one potential place to start is with the common needed for improving biological assessment. He suggested it may be possible to develop a biological assessment methodology for the UMR. Dkhili said he also sees high value in pursuing monitoring for the fish consumption use, but found the need for drinking water and recreation use monitoring less compelling.

The WQTF meeting adjourned for the day at 5:30 p.m. on September 25, 2013 and resumed at 8 a.m. on September 26, 2013.

UMR CWA Monitoring Strategy *(continued)*

Review and Wrap-Up of Day 1 Discussions

Hokanson began by reflecting the preceding day's discussions. He noted that perhaps the notion of prioritization had been overly emphasized. Rather, he suggested, it might beneficial examine opportunities for implementation in light of the feedback from the WQTF that it does not want to see the functional elements of the monitoring strategy divided up. Hokanson offered the following as a summary of the WQTF's first day monitoring strategy discussions:

- **Regarding the notion of prioritization**
  - The WQTF does not want to break up the components of the strategy. Rather, it prefers to advocate for the plan in its entirety.
  - The WQTF has already prioritized in selecting this recommended plan from among the available options.
  - If implementation is phased in, the WQTF prefers to do so by spreading it out over more time/covering less spatial area per year, but including all components.
- **Opportunities**
  - Pilot the full plan in smaller spatial area(s) where resources are available.
  - Minnesota may be able to move forward to implement; perhaps in 2017 or 2018 for direct MPCA implementation, potentially earlier if contracted out.
  - Utilize existing data, particularly LTRMP data (including fish data) in advancing strategy implementation.
  - States' CWA Section 106 supplemental monitoring funding may be a possible source of support.
  - It may be easier to agree on an assessment methodology in cases where there are no existing standards.
- **Needs and challenges**
  - Many questions related to assessment methodology (e.g., reference condition, selection of thresholds, disparate standards among states) remain; as such, there is a need to further explore assessment methodology development.
  - New sources of funding are unlikely and existing resources are limited. However, there is a need to identify mechanisms of moving forward nonetheless.
- **Other comments and observations**
  - Need to clearly communicate the intended use of monitoring data; in the near term and in the long term.
  - An "independent" UMR assessment via UMRBA may be desirable.
  - Accuracy, completion, and timeliness are important considerations in conducting an assessment.
  - Answering the "front desk" questions is important – this means that data and assessment outcomes are presented in a way that is meaningful and understandable for the general public.

- **Next steps**
    - Continue to look for best opportunities to move forward with monitoring implementation, while:
        - Working on the assessment methodology; revisiting biological thresholds/threshold development in particular.
        - Mapping out available data/programs in each reach across designated uses and using this as a tool to further identify opportunities.
        - Revising and finalizing the *Recommended Monitoring Plan* and accompanying summary flyer.

Hokanson then previewed likely topics of discussion regarding the monitoring strategy for the remainder of the day's discussion of this topic as follows:

- Review comments on *Recommended Monitoring Plan*, determining if, how, and when to address.
- Discuss implementation, including how to proceed, thoughts on staffing, collaboration, and funding.
- Examine related issues including assessment methodology development and data management.

In light of the upcoming National Research Council (NRC) workshop, Skuta asked whether the NRC was in a position to provide any funding to support monitoring implementation. Hokanson replied that the NRC itself was not a likely source of funding, but that the workshop could be a place to cultivate support for implementing the monitoring strategy among others in attendance. Skuta noted that MPCA is working with a contractor to identify key audiences for water quality information – seeking to determine what individuals want to know, where they typically get their information, etc. John Olson asked Skuta whether he is familiar with the *State of the River* report recently produced for the portion of the UMR in the Twin Cities area. Skuta replied that his very familiar with the report, thinks it is well done, and that MPCA's public outreach contractor is reviewing it as part of their work. Olson, Short, Good, and Skuta all commented on the importance of a UMR CWA assessment being able to answer the public's basic questions regarding the condition of the river.

Olson said he like of the idea of a UMRBA-produced assessment of the River, adding that it would help put UMRBA "on the map" for a larger audience. Hokanson said he sees one likely scenario as sampling being conducted by a number of entities on the river with coordination and data management is conducted by one or two new staff persons, perhaps at UMRBA. He noted that he is not fully assigned to CWA work in his UMRBA duties, so that between he and Buntin, there is likely just a bit less than one full FTE currently dedicated to UMR CWA work. Short commented that all of the agencies are in the same boat, with limited ability to dedicate staff to CWA work on the River. As such, the states would find value in another entity, such as UMRBA, taking the lead in coordination of monitoring implementation.

Giblin suggested that, if the WQTF wanted to begin implementation on a specific reach, he would suggest CWA reach 7 as it features some of the greatest differences in current states' listings and the Bellvue field station is in this reach and could be potentially used as a resource in monitoring. Skuta suggested it may be beneficial to evaluate each reach's "readiness" for assessment of each use based on existing monitoring data. Short concurred, adding that it may be helpful to split out chemical and biological parameters for aquatic life use assessment in doing such an evaluation. Hokanson asked whether such an effort might also be beneficial in doing assessments in the near term, even in the absence of new data collection. Skuta concurred that this would have near-term value. Hokanson asked about the scale at which the evaluation should be conducted – CWA assessment reach or floodplain reach. Short and Skuta said this should be done at the CWA assessment reach level.

Skuta asked the group to consider what it wants to see as an end product from the monitoring. He said he has the *State of the River* report in mind – not only the report itself, but also the accompanying user guide and policy guide. Skuta commented that the report and its accompanying document have had real impacts on discussions regarding Asian Carp and the potential closing of the Upper St. Anthony Falls Lock, as well as on ban of triclosan use by Minnesota state agencies. As such, he explained, while the WQTF's ultimate goal may be in producing consistent 305(b) and 303(d) reports/listings, there is much that can be gained by compiling existing information into a single report regarding the River's condition. Giblin concurred, noting that LTRMP has produced *Status and Trends* reports for the UMR. Hokanson said staff has definitely noted the interest in a *State of the River* report as a potential next step in regarding to UMR CWA monitoring and assessment.

Shupryt asked whether a 305(b)-type condition assessment was the primary goal in collecting data under the monitoring strategy, or whether 303(d) listing would also be supported. Holst said US EPA Region 5 has been concerned that the strategy may be "overdesigned" if a condition assessment is the only output, in which case less effort/expense is needed. She reiterated that US EPA would really like to see the monitoring strategy support 303(d) decision-making, particularly in light of current resource constraints. Hokanson said the state WQTF members have agreed that the monitoring strategy data would be used to create a shared, 305(b)-type assessment in the near term and, in the future, could potentially support a shared 303(d) listing. Skuta clarified that this does not preclude the states from using monitoring strategy-generated data in the near term for their current 305(b) and 303(d) processes, and that Hokanson is referring to the expectations for *shared* UMR assessment and listing. Good added that Illinois would indeed plan to use data generated under the strategy to evaluate attainment under existing standards and processes, as it does with other readily available data sets. Holst indicated that US EPA is most concerned with the data being used by the states for 303(d) in the near term, and that US EPA is less concerned with there being a *shared* assessment and listing in the near term. The other states concurred with this as their intended use of the data (i.e., near term within existing processes using existing standards, longer term in shared assessment and potentially shared listing).

Responding to Comments Made on the Draft Recommended Monitoring Plan

Hokanson next led the WQTF through a review of comments on the draft Recommended Monitoring Plan. Areas of comment and a summary of the WQTF's responses follow:

Comments Regarding Spatial Scope

1) **Monitoring plan should include backwaters.** WQTF agrees this is a future goal, but not part of current design. Will note accordingly in text of *Recommended Monitoring Plan*.

2) **Longitudinally, the plan should extend up to the Twin Cities.** MPCA has indicated that it plans to monitor per the plan's design on the UMR up to the Twin Cities. This intention will be noted in the text of the *Recommended Monitoring Plan*.

Comments Regarding Monitoring Design

1) **Plan proposes more monitoring than required for CWA needs and is a complex design.** Per earlier discussion, the plan needs to supply data that can be applied in both 305(b) assessment and 303(d) listing setting. As a result, adequate data is needed across the four major uses in terms of both spatial density and parameter coverage. Hybrid (i.e., combined fixed site and probabilistic) design provides for robust assessment similar to that done on the Ohio River by ORSANCO. Among the designs offered in the *Options and Considerations* document, this recommended plan is "middle" choice in terms of intensity. Discussion of this rationale for design choice will be expanded in the draft *Recommended Monitoring Plan*. Additionally, as

implementation proceeds, the WQTF will be able to better determine if more, or less, monitoring is needed.

2) **May be able to combine some CWA reaches which display similar water quality characteristics, thereby reducing the total number of reaches.** For now, the WQTF prefers to keep 13 CWA assessment reaches. It may revisit the number and designation of reaches once more data has been made available via the monitoring strategy.

3) **Keep LTRMP data and infrastructure in mind when pursuing implementation.** WQTF agrees and plans to do so.

4) **Probabilistic design is not a good fit for the measurement of basic, conventional water quality parameters.** Recommended monitoring plan includes the measurement of such parameters at existing fixed stations. Probabilistic measurement of these provides both additional data and the benefit of side-by-side collection with biological sampling. The WQTF feels that a mixture of sampling types is needed.

5) **Probabilistic sites are likely not fully independent and this may create statistical issues.** WQTF would like to determine how this was addressed in EMAP-GRE design. (Note: Subsequent conversations with EMAP-GRE researchers indicated that they did *not* consider this a major issue in design, though it may affect the confidence intervals associated with results.)

6) **Continuous monitoring should be incorporated in the design.** The WQTF views this as future component, perhaps associated with drinking water use-related data collection.

7) **Need to better define when follow-up aquatic life use monitoring will be triggered.** The WQTF agrees this needs better explanation. In general, the approach proposed is that when a value exceeds an identified threshold level (either an existing standard or other mutually-identified benchmark), stressor identification will proceed, potentially including follow up monitoring, as well as examination of other available data and information. Further, follow-up monitoring will then be incrementally incorporated in annual monitoring plans.

Comments Regarding Parameters Monitored

1) **Limited value of sediment chemistry sampling.** WQTF agrees that this is not needed in initial sampling rounds, but plans to include as part of followup/stressor identification sampling when determined necessary.

2) **Reduce total number of parameters sampled by scaling back on metals and VOCs, identifying a core group of pesticides.** WQTF's preference is to keep parameter list as currently scope, though may consider reduction in parameters once first round of monitoring is completed.

3) **Year-round sampling not needed for bacteria at urban sites.** WQTF agrees, will adjust index period here to April to October.

4) **Include monitoring for cyanobacteria/cyanotoxins.** WQTF does not plan to include in monitoring strategy *per se*, due to the episodic nature of such events, which limits the value of routinely scheduled monitoring.

5) **Include parameters beyond PCBs and mercury in fish tissue monitoring.** Organic scan will detect parameters beyond PCBs. As such, WQTF will characterize this as monitoring for "organics and mercury."

6) **Add chlorophyll-a to parameters included in tributary monitoring network.** WQTF agrees and will add chlorophyll-a.

7) **Add monitoring for emerging contaminants.** WQTF expects that this could be added to the strategy as funds allow or done as a targeted study.

Comments Regarding Methods, Indices, and Index Sites

1) **Need to specify biological sampling methods and biological indices to be used.** WQTF will add description of biological indices to be used, and will reference associated sampling methods, although preferred macroinvertebrate method is to be determined.

2) **More explanation is needed regarding index sites; need to maintain a diversity of sites, not just "least impacted."** WQTF agrees more detail is needed, will add further explanatory text with particular emphasis of the use of these sites in ongoing index maintenance. Additionally, a variety of tributaries, of various condition, will be retained among the index sites.

UMR CWA Assessment Methodology

Hokanson noted that many comments on the draft *Recommended Monitoring Plan* had stressed the importance of beginning work on an assessment methodology alongside the monitoring strategy. Good said he is hopeful that assessment methodology development can be fairly straightforward and can perhaps follow the approach employed by ORSANCO. He added there is also likely value in having consistency between the approaches on the Ohio and Upper Mississippi Rivers.

Hokanson noted that work on the *Recommended Monitoring Plan* had benefited from the formation of a small work group, and suggested that perhaps this approach could be taken in work on the assessment methodology. He added this would have the advantage of potentially bringing in expertise outside of the WQTF to the assessment development process. Skuta said MPCA staff could participate in the assessment methodology work group. Olson offered to participate in the work group. Jim Baumann said he could help identify the appropriate Wisconsin DNR staff to be part of the effort. Dkhili offered to identify Missouri DNR participant(s). Hokanson said he would follow-up by sending an email to those who offered to participate or identify individuals to participate in order to confirm work group membership, then an inaugural call of the work group would follow.

UMR CWA Data Management

Hokanson commented that a consideration related to the monitoring strategy is the management of data, and that this is another component the WQEC has asked the WQTF to examine. Dkhili commented that data management could include how the data is acquired, where it is housed, who is responsible for organizing it, etc. Short suggested that data management could be a particularly challenging issue to take on, noting that many considerations about how to store and managed data are dependent on the way it is collected.

Baumann asked whether there are basic principles already established for the compilation of data and general considerations to have in mind when using other programs' data. Holst said US EPA does have some data management guidelines in place and that she would share these with Hokanson. Giblin said Ben Schlifer at USGS' Upper Midwest Environmental Sciences Center (UMESC) may be able to provide some suggestions for dealing with data. Dkhili noted that it may be possible to use STORET for some part of the data management. Short suggested it will also be important to consider a GIS component of data management.

Baumann said UMR CWA data management would seem to involve three components: 1) collection of new data, 2) bringing data from existing programs, and 3) compiling data and developing an assessment.

Hokanson asked how the WQTF saw developing a data management plan fitting in with other ongoing work, including finalization of monitoring strategy documents and work on an assessment methodology. Skuta observed it would probably be some time before new data is collected under the strategy. Good

concurred and added that, therefore, work on the data management plan did not need to be initiated immediately. Hokanson noted that he would, however, pursue work on a crosswalk between available data and the monitoring strategy, in order to examine assessment readiness per Skuta's earlier suggestion, as well as to identify data gaps.

Nutrients and Related Issues

Illinois' Harmful Algal Bloom Program

Good gave an overview of Illinois' harmful algal bloom (HAB) program. He said drought conditions in 2012 had led to significant problems with HABs, particularly in northern Illinois. As a result, Illinois EPA began work to establish an HAB program, which is now composed of two components: 1) event response, and 2) a pilot survey. Good described the event response component as including the investigation of credible reports of a HAB event, with the investigation led by either Illinois EPA or another Illinois EPA-approved designated party; and the submission of event information in written and pictorial form via Illinois EPA's "bloom report form." He said the pilot survey component includes a lake monitoring program as well as an inland lake beach survey in Lake County.

Good said Illinois EPA has learned a lot by carrying out the event response program, but it has also become clear that the level of effort supported in the past year may not be sustainable. He observed that, because the past year had been a relatively cool one, Illinois EPA had been able to keep pace in investigating reports, but in a warmer year this may not be possible.

Good noted that Illinois does not have in place a specific microcystin threshold which would trigger a beach closure, though the World Health Organization (WHO) does have criteria. He added that it is typically a local decision as to whether or not to close a beach.

Nitrogen in Minnesota Surface Waters Report

Skuta provided a summary of the recent MPCA report *Nitrogen in Minnesota Surface Waters*. He said a press conference accompanied the release of the report and it has garnered a fair amount of interest and media coverage. Skuta noted that one of the primary study findings is that in watersheds where row crop agriculture with drain tiling is predominant, nitrogen levels in ambient waters are typically higher than in other watersheds.

Good asked what the response of the agricultural community has been to the report. Skuta said there has not been much push-back from the agricultural community, which may be in part attributed to the robust data and sound science that went into the report. Short asked if there is a typical, ballpark nitrate concentration in agricultural areas with tile drainage. Skuta replied that, in the separate groundwater study discussed in the meeting's first day, ground water concentrations in areas with row crop agriculture and tile drainage averaged close to 10 mg/l. Good asked whether MPCA has observed a correlation between high nitrogen levels in surface water and aquatic impairment. Skuta replied that this analysis not yet been conducted. Dkhili asked whether the report had made any recommendations regarding modifications in agricultural practices. Skuta said these types of recommendations were not the focus of this report *per se*, but are addressed under Minnesota's statewide nutrient reduction strategy.

Minnesota Nutrient Reduction Strategy

Skuta next described Minnesota's recently-released statewide nutrient reduction strategy. He said the strategy builds from the 2011 US EPA memo "Recommended Elements of a State Framework for Managing Nitrogen and Phosphorus Pollution" and incorporates the following elements as its foundation:

- Partner with stakeholders.

- Use current data.
- Assess new technology/research.
- Work within regulatory framework.
- Fit into existing programs.
- Set realistic goals and milestones.
- Seek quantifiable results.

He noted that the strategy addresses three major basins – the Mississippi River, the Red River, and Lake Superior. As such, it is truly a statewide strategy, not only focused on the Mississippi River, though southern Minnesota is identified in the strategy as a priority for action, based on SPARROW model nutrient yields and MPCA data.

Skuta said reduction goals have been established for each of the three major basins, with both interim milestones and long term goals. He noted that the year 2000 is used as the baseline year in calculating reductions. For the Mississippi River, interim milestones are a 35% reduction in total phosphorus and a 20% reduction in total nitrogen by 2025. Longer term reductions of 45% for both total phosphorus and total nitrogen are to be achieved by 2045.

Skuta described the levels of reduction that have been achieved to date in various sectors and then presented examples illustrating how combinations of practices could be employed to achieve targeted reductions. He noted that differing practices may be more effective for phosphorus than for nitrogen. For example, increasing fertilizer use efficiencies is anticipated to reduce nitrogen by approximately 13%, while it is anticipated to reduce phosphorus by approximately 3%.

Good noted that Minnesota had chosen 2000 as its base year and asked the other states are using as a base year against which to make comparisons. Baumann said Wisconsin is using 1995. He added that the Hypoxia Action Plan calls for the use of mid-1990s data, but that in reality each state needs to consider the quality and quantity of its historical data set in establishing a baseline.

Minnesota Criteria Development

Skuta next described MPCA's development of riverine, eutrophication-related water quality criteria. He said the specific criteria vary by region and incorporate the parameters of total phosphorus, chlorophyll-a, dissolved oxygen and five day biochemical oxygen demand. Skuta displayed a chart of criteria applicable to the UMR, with the interstate mainstem having a criteria of 100 ug/l for total phosphorus and 35 ug/l for chlorophyll-a (except for Lake Pepin, where a value of 28 ug/l applies for chlorophyll-a). He explained that MPCA planned to make the proposed criteria available for 45-day public comment period beginning in November 2013. Skuta said MPCA hopes to have the criteria in place by the fall of 2014.

Wisconsin Nutrient Reduction Strategy

Baumann described the development of Wisconsin's nutrient reduction strategy, saying that an interagency workgroup had been central in the creation of many elements of the strategy. He explained that the state's top nutrient-contributing HUC-10 watersheds had been identified using SPARROW modeling results, adding that many of these watersheds have been identified for their relatively high levels of nutrient input through other studies as well.

Baumann noted that in Wisconsin, differently than in Minnesota, the areas contributing more nitrogen are not necessarily drain-tiled areas, but rather hilly regions with sandstone underneath the surface soil. In terms of trends, he said total phosphorus concentrations have been declining while total nitrogen

concentrations have been increasing. He explained that, using 1995 as a baseline year, Wisconsin has seen a 23% reduction in total phosphorus levels, with much of this being attributable to increase point source controls.

In regard to nonpoint source reductions, Baumann said one of the challenges is the lack of good baseline data about what is being lost from agricultural fields, as well as data regarding conservation practices that have been installed on the landscape. Bauman noted that the integration of point and nonpoint source management will continue to be critical in pursuing nutrient reductions.

Baumann said Wisconsin's emphasis regarding monitoring focuses on long-term trend sites and may overlap some with the tributary loading network described in the UMR CWA *Recommended Monitoring Plan*. He also highlighted the Gulf Hypoxia Task Force website, noting that it now includes links to the states' nutrient reduction strategies at: http://water.epa.gov/type/watersheds/named/msbasin/nutrient_strategies.cfm.

Illinois Nutrient Reduction Strategy

Good said Illinois' work on its nutrient reduction strategy has been accelerating, with various work group meetings taking place. He noted that Mark David of the University of Illinois is working on maps of priority watersheds for use by strategy workgroups. Holst asked whether, at this point, Illinois has gotten to the point of setting interim goals for nutrient reduction. Good responded that, beyond the 45% reduction goal established by the Hypoxia Task Force, there have not yet been other goals identified. Baumann commented that not all states have elected to set interim goals, with some simply focused on the 45% goal as a longer term target.

"Bioconfirmation" Approach to Numeric Nutrient Criteria

Holst commented briefly the recent webinar held by US EPA on "bioconfirmation," which is an optional approach to developing numeric nutrient criteria that integrates causal (i.e., nitrogen and phosphorus) parameters and response parameters. She emphasized that one of the key elements of this approach is that causal and response variables need to be woven together into the same criteria (i.e., they do not stand alone). Further, Holst explained that the response parameters must be demonstrated to be sensitive to changes in nutrient levels. She noted that further information on this approach can be found on US EPA's website at: http://www2.epa.gov/nutrient-policy-data/guiding-principles-integrated-nutrient-criteria-bioconfirmation.

Confirming Action Items

Hokanson summarized the action items emerging from the WQTF meeting as follows:

- *Monitoring Strategy:* Finalize the *Recommended Monitoring Plan* and develop an accompanying summary flier. Develop a "grid" comparing the monitoring strategy's requirements to available data and evaluating the readiness for assessment using existing data.
- *Assessment:* Determine membership of assessment methodology work group and initiate work on assessment methodology.
- *Data Management Plan:* Work on a UMR CWA data management plan is on hold at this time, pending further advancement of the monitoring strategy and assessment methodology.
- *National Research Council Workshop:* Several WQTF members will participate in the workshop addressing Mississippi River water quality science on November 18-19, 2013 in St. Louis.

With no further business, the meeting adjourned at 12:30 p.m. on September 26, 2013.