

**Upper Mississippi River Basin Association
Water Quality Executive Committee and Water Quality Task Force
Joint Meeting
June 4, 2013
St. Louis, Missouri**

Meeting Summary

Participants

Gregg Good	Illinois Environmental Protection Agency
Marcia Willhite	Illinois Environmental Protection Agency
Matt Short	Illinois Environmental Protection Agency
Diane Ford	Iowa Department of Natural Resources
John Olson	Iowa Department of Natural Resources
Rebecca Flood	Minnesota Pollution Control Agency
Glenn Skuta	Minnesota Pollution Control Agency
Mohsen Dkhili	Missouri Department of Natural Resources
John Hoke	Missouri Department of Natural Resources
Robert Stout	Missouri Department of Natural Resources
Dan Baumann	Wisconsin Department of Natural Resources
Jim Fischer	Wisconsin Department of Natural Resources
John Sullivan*	Wisconsin Department of Natural Resources
Tim Henry	US Environmental Protection Agency, Region 5
Linda Holst*	US Environmental Protection Agency, Region 5
John DeLashmit*	US Environmental Protection Agency, Region 7
Bob Clevestine	US Fish and Wildlife Service, Region 3
Brad Walker	Missouri Coalition for the Environment
Susan Czerwinski	National Great Rivers Research and Education Center
John Sloan	National Great Rivers Research and Education Center
Dru Buntin	Upper Mississippi River Basin Association
Dave Hokanson	Upper Mississippi River Basin Association
Kirsten Mickelsen	Upper Mississippi River Basin Association

**Participated by phone*

Call to Order

Water Quality Executive Committee (WQEC) Chair Rebecca Flood and Water Quality Task Force (WQTF) Chair John Olson called the meeting to order at 1:05 p.m.

Approval of January 2013 Water Quality Task Force Meeting Summary

The summary of the January 30-31, 2013 WQTF meeting was approved by voice vote.

UMR Clean Water Act (CWA) Monitoring Strategy

Options and Considerations Document and Draft Recommended Monitoring Plan

Dave Hokanson reviewed the origin and status of the UMR CWA Monitoring Strategy project. He said its objective is to create a shared, comprehensive, CWA-focused monitoring program on the River, as no such program currently exists. More specifically, Hokanson described a central goal of the monitoring strategy as supporting improved assessment of the UMR under the CWA, while also providing data to support other CWA functions (e.g., water quality standards development, TMDLs, etc.). He next detailed the process by which the monitoring strategy project has proceeded, including a number of work group and WQTF meetings and a background *Options and Considerations* document developed by the project contractor the Midwest Biodiversity Institute. Hokanson said the project has now reached a point where the WQTF has utilized the *Options and Considerations* document along with other discussions to identify monitoring strategy preferences.

Hokanson said the WQTF's prefers that UMR CWA-focused monitoring support assessment at the spatial scale of the thirteen, HUC-8 defined "minimum assessment reaches" agreed to by the UMR states in 2003. In particular, the states' WQTF members feel that these reaches are reasonable units for both assessment and management. As such, the state members of the WQTF have advocated for the use of the "Probabilistic D2" design approach described in the *Options and Considerations* document as the primary CWA assessment monitoring network. This approach relies on the assignment of 15 randomly selected sites in the flowing channel (main channel and possibly side channels) within each of the thirteen reaches. Hokanson said the WQTF also feels that this approach is most likely to allow for the incorporation of data from existing data monitoring programs. He added that this option is roughly in the "middle" in terms of projected costs among the design choices described in the *Options and Considerations* document.

Hokanson also said the WQTF has emphasized the importance of incorporating biology into CWA monitoring, with fish, macroinvertebrates, and submersed aquatic vegetation all envisioned as assemblages to be incorporated. He added that while fish assemblage monitoring appears to be the most likely among these to be implemented first, the WQTF would prefer to see that all three assemblages are ultimately monitored. Moreover, he noted, the WQTF recognizes that the monitoring it recommends will be a starting point, subject to further modification and refinement in the future.

Marcia Willhite asked whether the cost estimates provided in the *Options and Considerations* document include data management expenses. Hokanson replied that the estimates do include data management costs, but assume a centralized entity both collecting and managing that data. As such, if a different organizational/implementation approach is taken for monitoring, these costs may be different.

Hokanson asked John Sullivan to describe two slides incorporated the monitoring strategy presentation dealing with the ability of monitoring to detect changes in water quality condition among UMR reaches. Sullivan used existing monitoring data from US EPA's EMAP-GRE program to illustrate that a fairly modest sample size can detect distinctions in water quality among UMR reaches. He said increasing the sample size can move the analysis beyond detecting distinctions to stressor identification, but that without a much larger increase in sample size, there is not much change to the statistical level of confidence associated with the detection of inter-reach differences. Sullivan suggested that the WQTF will need to consider what it sees as an acceptable ability to detect change when designing its recommended monitoring program.

Tim Henry asked whether identifying differences between reaches is the goal of the monitoring strategy or whether assessment is its goal. Hokanson replied that the strategy's goal is to provide an assessment, which includes documenting changes among reaches, but also comparing results with expectations for water quality. Willhite said her understanding is that the initial sampling under the strategy would also help highlight areas which need additional monitoring is needed in order to complete an assessment. She

also said she is appreciative of the work done by the WQTF and Chris Yoder of MBI in moving this discussion forward, as they have contributed to further defining an important component of collaborative CWA implementation on the UMR.

Rebecca Flood asked whether the next step in the process is now to draft a recommended monitoring plan. Hokanson concurred, adding that an immediate next step will be to talk with ORSANCO staff, as the WQTF is interested in learning from their experience in monitoring, and then to draft a recommended monitoring plan. He said the draft recommended monitoring plan would be circulated to a larger group of UMR stakeholders for external review before finalization by the WQTF.

Willhite asked Hokanson to elaborate on concerns voiced by US EPA Region 5 regarding the monitoring design recommended by the state WQTF members. Hokanson replied that Region 5 staff prefer the “intensive pollution survey” design as they feel it will provide a better data set which supports more CWA functions, and that it ultimately will not cost more than the less intensive options, as the less intensive options will likely require followup monitoring to be conducted. Hokanson added that the state WQTF members’ concern with the intensive pollution survey design has not been cost *per se*, but rather that since it is oriented largely around known point sources, it may not be the best fit for dealing with the predominance of nonpoint source influence on the UMR and may not pick up stressor inputs which are outside the traditionally-defined point sources.

Linda Holst said her primary concern is in regard to supporting 303(d) listing decisions, in that the sampling needs to ultimately provide enough information for 303(d) listing. As such, she said that if the chosen approach can provide sufficient data to support listing, that is great, but she is concerned with the WQTF pursuing an approach that ultimately cannot support listing due to insufficient data collection. Holst also noted that there is variation among states in what they consider to be sufficient data for listing, so that the monitoring strategy needs provide enough information for all states to proceed with listing.

Willhite replied that she believes the process is at the point developing a shared assessment, but has not yet reached the point of an impairment listing methodology. Henry asked whether the intensive pollution survey approach can better provide for listing than the probabilistic approach preferred by the states. Glenn Skuta said he feels both the probabilistic and intensive survey design approaches will require followup monitoring to further investigate pollution issues. As such, he does not believe there is necessarily a cost savings associated with the intensive design and that the probabilistic approach may do a better job in broadly sampling the river to detect potential pollution issues. John Olson agreed, saying there are a lot of basic questions still unanswered about the condition of the UMR and stressors affecting it, and that the probabilistic approach allows for more learning to occur before potentially moving to a more intensive approach. He added that the states were not necessarily comfortable with the density of sites assigned in the intensive pollution survey and particularly in how they were largely tied to known, point sources. Olson said the states see the probabilistic approach as a step forward in what will likely be an evolving approach to CWA monitoring on the UMR.

Jim Fischer asked whether the WQTF envisions that assessment and listing will be done at the reach or site level, adding that it may be challenging to aggregate up from the site level to the reach level using the intensive pollution survey, given the specificity of site assignment under this approach. Gregg Good replied that the states now utilize the minimum assessment reaches for their listings and intend to use these reaches for assessment and listing purposes going forward. Skuta said the states vary in terms of how much information they need to proceed with listing. For example, he said, some require stressor identification to be completed before listing, while others do not require stressor identification prior to listing. Matt Short agreed, saying that some states may need to see that supplemental, diagnostic monitoring has been done before proceeding with an impairment listing. Hokanson said his understanding is that the states wish to support assessment at the reach level but that, as is true for all

UMRBA water quality efforts, this does not preclude the states from going further individually (e.g., listing at smaller spatial scales if desired).

Willhite said she prefers an approach of building up monitoring and moving towards greater consistency in assessment, and eventually impairment listing, which is consistent with what the WQTF is recommending. Short noted that the cost estimates in the *Options and Consideration* document cover only the monitoring design options best suited for the assessment of aquatic life use. He said additional monitoring may be needed, particularly for the drinking water and contact recreation uses, and that this would add to the total costs of monitoring implementation.

Fischer asked whether the WQTF envisioned that a single entity would conduct monitoring or if it might be spread out among agencies. Hokanson replied that the *Options and Considerations* document used an assumption of a single monitoring entity, but that this was done primarily to create a standard comparison across monitoring design options. He said the WQTF is both open to, and expects it likely, that monitoring would be spread out among a number of agencies which already have a program presence on the UMR. Fischer said monitoring via single entity would likely be a high cost alternative, and that it may be more effective to rely on existing monitoring programs/infrastructure, such as the state-based field stations which collect data for the UMRR-EMP Long Term Resource Monitoring Program. Hokanson said the WQTF had intentionally wanted to hold off on discussions regarding the integration of existing infrastructure/programs in order to first define independently how it wanted to approach monitoring. Now, however, he said the time is appropriate to begin considering how the WQTF's preferred approach may integrate best with existing infrastructure and programs.

Hokanson also called participants' attention to the handout of recommended tributary loading network sites, noting that it contained both a listing and map of these sites. He added that the *Options and Considerations* document includes recommendations for parameters to be monitored at these locations.

Hokanson asked for the WQEC and WQTF's input on the development of the recommended monitoring plan, which is the next step in the project. Olson said it is important to keep the proposal straightforward and not too complicated, as this will make it more accessible to reviewers and should improve the likelihood of receiving feedback on a draft. Sullivan said he would like to see cost estimates incorporated for those elements that go beyond what was calculated in the *Options and Considerations* document (e.g., costs of supplemental monitoring for recreation and drinking water uses).

UMR CWA Assessment Methodology

Hokanson said the WQTF has had some preliminary discussions regarding UMR CWA assessment methodology, as described in the *Preliminary Thoughts and Considerations* handout included in the meeting's agenda packet. However, he said, further discussion and input is needed in developing this and invited the WQEC and WQTF to offer any observations or suggestions they might have.

Olson said he did not feel that developing an assessment methodology is likely to be a quick endeavor and would likely be a separate, stand-alone project on its own, due to the complexity of the effort and the number of questions still to be answered and the likely differences among states. Gregg Good concurred, saying that the addition of biology to the assessment adds complexity and will likely lead to discussions of the relative weight assigned to chemistry and biology in determining use attainment.

Mohsen Dkhili said he believes the monitoring strategy and assessment methodology need to move forward at the same time, since they are very closely related. He said the states will need to agree on what constitute appropriate attainment thresholds for chemical and physical parameters, as well as determine the related weight assigned to chemistry and biology, as Good had pointed out. Dkhili said he advocates beginning implementation of the monitoring strategy using a biology-focused, or even biology-

only, approach to assess aquatic life use attainment. Hokanson asked Dkhili whether this means he would prioritize the biological elements of probabilistic monitoring component for implementation. Dkhili confirmed that this is his preference and priority. Olson said he would like to see other monitoring components move forward in the near term, including the assessment of recreation and drinking water uses.

Dkhili agreed that the uses beyond aquatic life are important and should not be ignored, but that adding in these components would create a level of complexity that may frustrate successful initial implementation the monitoring strategy. As such, he feels that a biology-based assessment of River's main channel is the place to start in implementing the monitoring strategy.

Good said it may be possible to begin advocating for funding of the monitoring strategy even while final details are determined and the assessment methodology is worked out. Willhite concurred, saying that monitoring could even be initiated without the assessment methodology yet in place. Skuta agreed, saying that as long as there is a sense that the strategy will supply sufficient data to support assessment, monitoring could proceed without all the final details of an assessment methodology in place. Sullivan said he thinks the biological component of monitoring could likely proceed, but that some of the details of the drinking water and recreation use-focused monitoring still need to be sorted out.

Good observed that the discussion of monitoring strategy and assessment methodology is a bit of a "chicken and the egg" debate as that clearly each one informs the other, but that it is also important to keep making progress in the near term. Short said the introduction of biology will certainly add complexity to what has to date been chemistry-focused assessment processes for the UMR. Willhite said what she is hearing is that the implementation of monitoring and assessment will likely be a step-wise, incremental process. Short concurred that this is very likely how implementation will proceed. Hokanson said his understanding is that the group would like to pursue implementation of biological monitoring and assessment as a first priority, with other elements being integrated later if needed. Willhite said it will be key to develop a long term, sustainable implementation plan that includes provisions for ongoing data management. Sullivan emphasized the importance of examining the EMAP-GRE project for insights to guide the development of an assessment methodology.

Drinking Water Supplier Data Project Update

Hokanson distributed a draft summary of information obtained from UMR public water suppliers regarding parameters they sample for in raw water. He explained that this survey was an initial step in evaluating the potential for data sharing between UMR public water suppliers and state CWA programs. Hokanson said responses had been received so far from six of twenty-five water supplies that draw from the UMR, noting that suppliers using the section of the River contained entirely within Minnesota were included in the survey. Hokanson said the limited number of responses so far makes it difficult to draw conclusions regarding the likely usefulness of the data in assessing drinking water and other uses for CWA purposes, as does the apparent use of differing terminology among suppliers in describing parameters.

Willhite said it should be possible to look at Illinois' requirements for surface water-supplied public water systems to determine the types of raw water monitoring they are conducting. Henry asked whether only one effort had been made to reach out to water suppliers and if it is possible that followup communication may result in more information being collected. Hokanson responded that only one effort had been made to contact suppliers and that followup communication could be made.

National Great Rivers Research and Education Center Water Quality Program

John Sloan began his remarks by providing an overview of the National Great Rivers Research and Education Center (NGRREC), a collaborative project of Lewis and Clark Community College, the

University of Illinois, and the Illinois Natural History Survey (INHS). He also described NGRREC's Confluence Field Station located near Alton, Illinois. He said NGRREC staff have been engaged with monitoring work conducted by INHS and on behalf of the UMR-EMP Long Term Resource Monitoring Program.

Sloan next described NGRREC's Great Rivers Ecological Observatory Network (GREON), a planned network of buoys deployed to collect continuous monitoring data on the Mississippi River near the inlets of major tributaries. He said the GREON uses YSI Corporation's PISCES platform and that NGRREC is currently working on the specifics of buoy deployment (to address issues such as debris impacts and vandalism). Sloan said NGRREC would welcome input on these matters, adding that it may be possible to place monitoring stations in side channels as well as the main channel. He explained that the GREON project seeks to monitor parameters including dissolved oxygen, conductivity, turbidity, blue-green algae, chlorophyll, nitrate, and colored dissolved organic matter. Sloan said the first buoy has been deployed in a backwater bay and that data collection occurs approximately every 15 minutes, with cellular transmission used to relay data.

Sloan added that another of NGRREC's water quality projects, the development of a comprehensive data portal called the Great Lakes to Gulf Virtual Observatory, is in its early stages and is further from implementation than is GREON.

Good asked what the approximate cost for each installation is. Sloan replied that it is approximately \$80,000, varying somewhat depending on the specific sensors deployed. He said NGRREC's plans for implementation include the deployment of one buoy per year for the next five years. Sloan noted that NGRREC would like to place buoys near existing fixed water quality monitoring sites to allow for the comparison of data.

Olson asked where the data generated from GREON will be stored. Sloan replied that, eventually, the data will be available via the portal which NGRREC is working on. In the near term, he explained, data is housed internally at NGRREC.

Dkhili asked where the buoys were to be located and how deep samples were to be collected. Sloan replied that the buoys could be set in the main or side channel, though they would be outside the navigation channel itself. In terms of depth, he said that a sampling depth of one meter is being used for the buoy which has been deployed, but that it is possible to adjust this depth. Sloan added that the buoys will be anchored, but that this is related to concern with the impacts of driftwood, as it possible driftwood could pull an anchored buoy under the water's surface.

Fischer asked how frequently calibration is needed on the measurement instruments. Sloan replied that this is still somewhat to be determined, but NGRREC hopes that calibration will only be needed every few months, though sediment impacts may pose a particular challenge to the calibration of these river-based installations.

Data Management Considerations

Hokanson said the WQEC had asked the WQTF to begin considering options for future UMR water quality data management, as it moves toward completion of the UMR CWA monitoring strategy. Willhite asked to what extent the WQTF has delved into this conversation. Sullivan replied that there had only been the sharing of a few ideas to date, with no strong preferences yet identified. Willhite then asked if the WQTF members present did have any preferences or suggestions regarding data management.

Olson commented that, for water chemistry data, an existing data system such as WQEX/STORET may be sufficient. However, he added, biological information is quite different and may not work well in an

existing database. Short observed that if multiple entities are responsible for sample collection, then data compilation and management becomes more challenging. He also noted that, if the goal is to bring together data across multiple programs then a decision needs to be made as to whether all data should be comparable and compiled centrally, or whether simply linking to external data sets is sufficient. Sullivan suggested an approach to consider is to have each state responsible for compiling data within its borders and then submitting that for central analysis and assessment.

Robert Stout asked whether a separate technical committee is needed to help address data management considerations. Good replied that this depends in part on what the states envision UMRBA's role to be, whether as an ORSANCO-like entity carrying out many functions on behalf of the states or in a more limited role supporting interstate collaboration. John Hoke said the most value is likely to be gained from the data if it is maintained in a centralized fashion. He said if the goal is simply to share data among state programs, this could probably be done in a non-centralized fashion. However, Hoke noted, if the data are something that will be made available publicly, it would be of great benefit to have a centralized management and access point.

Sloan observed that part of the intent of NGRREC's data portal project is design a system that can "reach into" existing programs' data sets and create connections to a larger database. Good asked whether it is in the mission of the UMRR-EMP Long Term Resource Monitoring Program (LTRMP) to aggregate data across monitoring efforts. Fischer replied that this is not part of LTRMP's specific mission. However, he added, USGS' Upper Midwest Environmental Sciences Center (UMESC) does maintain LTRMP's database and UMESC could potentially create a new database or expand on an existing database to incorporate data collected for CWA purposes.

Willhite asked the WQTF members what value they would see, if any, arising from the centralization of data management (e.g., improving access for interested parties, etc.). Skuta said centralization offers advantages in terms of accessibility and consistency, though this requires the creation of shared procedures and protocols in regard to data formatting, storage, etc. He added that Minnesota uses WQX/STORET for water chemistry data, but that biology data is much more challenging for entry into WQX/STORET. Dkhili suggested that if the states are all comfortable using WQX/STORET for water chemistry data, this may provide a starting point.

Hokanson asked how the states would view using data for assessment that is housed outside of their programs. Hoke responded this would not be an issue as long as the sample and QA/QC plans for the data sets were available for review. He added that the development of assessment methodology to guide how data is used to determine attainment is the critical piece.

Flood asked for further explanation in regard to the challenges associated with managing biological data. Hoke offered that Missouri's experience has been that working with biological data can indeed be problematic. Sullivan said Wisconsin began dealing with this challenge 8-10 years ago and ultimately ended up developing its own separate database for biological information. Dkhili said issues surround the development of QA/QC protocols and biological information would seem to point to the need for a separate technical committee. Willhite concurred, saying that a subgroup or separate workgroup affiliated with the WQTF may be needed to examine these data management issues.

Bob Clevestine asked whether, regardless of data storage/management approach, the data would feed into reporting on the river's condition. Olson replied that, yes, the intent is to gather data and develop a database geared toward CWA Section 305(b) assessments of the river's condition.

Nutrients and Related Issues

Iowa

Olson said Iowa's nutrient reduction strategy had been finalized the preceding week. He noted that the strategy addresses both point and nonpoint source contributions, with point source component likely to trigger increased treatment requirements for a subset of facilities, while the nonpoint source component relies on voluntary practices, including the implementation of agricultural best management practices.

In terms of water quality standards, Olson said work on nutrient standards for Iowa's lakes is currently on hold. He added that Iowa DNR's Tom Wilton is currently leading work on nutrient-related stream criteria, which will include a tie-in to biological condition. Olson explained that a report on this work is expected, and that standards may result, although the climate for establishing new regulations is challenging.

Minnesota

Flood said Minnesota is currently working on developing its nutrient reduction strategy. She explained that the Minnesota Pollution Control Agency (MPCA) would soon be releasing a statewide study regarding the presence of nitrogen in surface waters. The study includes a "mass balance" of nitrogen statewide and its findings include attributing more than 70 percent of nitrate in surface waters to agricultural sources. She said the report will then break down the agricultural portion into contributions from various pathways, including tile drainage and field runoff. Flood added that MPCA had collaborated with several agencies in developing the nitrate report.

Flood said Minnesota has had eutrophication-based standards in place for lakes for several years and is continuing its work on eutrophication standards for rivers. She explained that the river standards will include both numeric nutrient values and response components. Flood added that Minnesota also continues its work in developing a nitrate toxicity standard for aquatic life protection. She also noted that Minnesota will be hosting the next meeting of the Gulf Hypoxia Task Force, which is scheduled to take place in September 2013.

Illinois

Willhite reported that Illinois has started work on its statewide nutrient reduction strategy, which will seek to address both in-state and Gulf of Mexico water quality. She said Illinois' approach will likely have similarities to Iowa's nutrient reduction strategy. Illinois will be working to update data in order to establish baseline conditions against which to evaluate progress. For point sources, Willhite explained that any new requirements associated with the strategy would be phased in for new and modified facilities. On the nonpoint source side, she noted that the agricultural community has been energized around the "Keep It for the Crop" campaign supported by a number of farm and commodity groups. Willhite said Illinois is targeting completion of its nutrient reduction strategy for the spring of 2014.

Missouri

Dkhili said Missouri has assembled a committee of stakeholders to guide its work on a statewide nutrient reduction strategy. He noted that grant funding has supported this effort and has allowed for the hiring of two temporary staff persons to focus on strategy development. Dkhili said these individuals are currently engaged in gathering data from NPDES permits and in documenting land use in areas where NPDES permit-holding facilities are located. He added that these staff persons are also reviewing the Iowa nutrient reduction strategy for ideas which may apply in Missouri. Dkhili said Missouri hopes to have a draft nutrient strategy report by the end of 2013.

Stout said Missouri has also applied for a grant to support development of a nutrient tracking tool, in order to measure progress in nutrient loading reduction. Dkhili added that this type of tracking will most likely be more successful at smaller scales, since in larger watersheds it becomes more difficult to

measure the impact of nutrient reduction practices from a particular plot of land. Stout said Missouri's goal is to encourage the continued use of best management practices by agricultural producers.

Wisconsin

Jim Fischer reported that Wisconsin has completed a working draft of its nutrient reduction strategy and expects to release a public review draft either later in June or in July. He said the strategy will note the reductions that have already been achieved in Wisconsin, while identifying strategies to achieve further reductions. The strategy will also emphasize the importance of data collection in assessing conditions and tracking progress. As such, he said, the strategy will include an emphasis on monitoring, including increased monitoring requirements for major dischargers.

US EPA

Henry said US EPA continues to use the March 2011 memo from Acting Assistant Administrator for Water Nancy Stoner to guide its efforts in working with states to develop nutrient reduction strategies. US EPA feels that this memo contains numerous elements which can be implemented by the states. On the regional level, he said Region 5 is working on a regionally-specific evaluation tool for states' nutrient programs. Henry explained that the Region is currently walking through this approach with Ohio and then plans to share with other Region 5 states for their feedback. He said Region 5 was concerned that the evaluation tool offered by US EPA headquarters did not mesh well with states' CWA section 106 program plans.

Henry said Region 5 is also working on Annex 4 of the Great Lakes Water Quality Agreement, which addresses nutrients. As such, he said, US EPA's nutrient focus extends to the Great Lakes. Specifically, he said, the Region is looking at the nutrient level goals in the Great Lakes plan to see if they need to be adjusted in light of more recent information.

Henry noted that the Region also continues to support the states in their development of numeric nutrient criteria. Additionally, he said Region 5 is supportive of states efforts to integrate adaptive management and water quality trading into their nutrient reduction efforts, with the Fox River in Wisconsin likely to be the first location in the region to implement water quality trading.

Additionally, Henry noted that Ohio is developing a trophic state criterion in lieu of a stand-alone numeric nutrient criterion. He commented that Ohio's ability to pursue such an approach is based on their very strong biological assessment program.

Discussion

Stout asked Flood how Minnesota had been able to calculate the percent contribution of various sources to nitrate levels in surface water. Flood replied that this based on a combination of extensive monitoring and employing land use models. She said the specific calculation methodology is included in the report itself, if states' technical staff would like to take a closer look. Skuta added that Minnesota's previous phosphorus study had laid a lot of the groundwork for the nitrate study. Flood said she would share the nitrate study with Hokanson when it is completed so that it can be distributed to the group.

Sloan asked whether Minnesota had conducted any direct monitoring at drain tile outlets as part of this study. Skuta replied that this had not been done specifically for the study, but that several previous investigations had been referenced in developing the study.

Good asked the group when the next estimates of the Gulf of Mexico hypoxic zone are expected to be released. Flood said these are typically issued in July. Good said he anticipates a rebound in the size of the hypoxic zone due to a period of flooding following a period of drought.

Henry asked whether Minnesota could provide any update on its agricultural certainty initiative. Flood replied that four pilot watersheds had been selected, each in a different geographic area of the state. She

noted that Minnesota's agricultural sector is feeling the pressure to address nutrient impacts on water quality and that if the certainty effort is not successful, it may create an incentive for a regulatory approach.

Stout emphasized that the key to success in nutrient reduction is targeting the best practices to the right places, and that this requires determining where the nutrient contributions are coming from. Flood replied that geographic information system (GIS) tools and aerial imagery have been very helpful in Minnesota's efforts to target the implementation of best management practices.

Skuta asked Henry whether the water quality trading approaches developing in the region include trading between point and nonpoint sources. Henry replied that both point to nonpoint and point to point trading approaches are being pursued. He said the Region is pleased that both Ohio and Wisconsin are using available leverage on the point source side to help bring nonpoint sources to the table.

Clevenstine asked whether the states' Clean Water Act programs are working with state-based Wildlife Action Teams in developing nutrient reduction strategies. Good, Olson, and Flood replied that they were not aware of any specific connection being made in their states, though Olson thought there might be some linkage via the Water Resources Coordination Council involved in the implementation of Iowa's nutrient reduction strategy. Stout said Missouri's approach of working with priority watersheds may provide an opportunity to engage the state's Wildlife Action Team. Clevenstine said he is working on US Fish and Wildlife Region 3's plans to implement the Gulf Restoration Strategy. In particular, he said, Region 3 is concentrating on the restoration of tallgrass prairie and as such is very interested in any hydrology-related activities in Illinois and Iowa.

Institutional Issues

Due to time limitations, Flood and Hokanson suggested that discussion of institutional issues including coalition-building, organizational options, and funding for UMR water quality efforts be deferred until the next meeting of the Water Quality Executive Committee. All were in agreement to delay this discussion.

WQTF Chair Transition

Olson said his two-year term as WQTF Chair is ending, effective at the close of this meeting. Hokanson said that, if the traditional practice of states' rotation is followed, Missouri would now take over as WQTF Chair with Minnesota taking the role of Vice Chair. Mohsen Dkhili and Glenn Skuta accepted these roles on behalf of Missouri and Minnesota, respectively.

With no further business, the joint WQEC-WQTF meeting adjourned at 5:00 p.m.