70th Annual UMRCC Meeting
March 18-20 in La Crosse, Wisconsin

Water Quality Technical Section Meeting Notes and Organization Updates

Attendees

John Sullivan, Troy Clement, Kurt Rassmussen, Sara Strassman and Shawn Giblin (WI-DNR); Jeff Houser (UMESC); John Kalas (jkalas@usgs.gov) and Jim Fischer (WI-DNR, LTRMP); Dave Bierman (IA-DNR LTRMP);John Olson and Travis Kueter (IA-DNR); Louise Hotka, Justin Watkins, Will Bouchard (will.bouchard@state.mn.us) , Dennis Wasley and Dave Morrison (MN-PCA); Molly Sobotka (MO-DoC-LTRMP; molly.sobotka@mdc.mo.gov); Dave Hokanson and Dru Brutin (UMRBA); Blake Bushman (bbushma2@illinois.edu IL Natural History Survey); Pete Redmon and Bill Franz (EPA-retired); Peg Donnelly (EPA); Marvin Hubbell and Katherine Hagerty (USACE). (Email addresses that are not listed can be found in the 2013 UMRCC directory: http://umrcc.org/Reports/Directory/UMRCC%202013%20Directory-Updated%20May2013.pdf

Presentation Summaries

Macroinvertebrate Sampling Method Comparison for Assessing Aquatic Life Use Goals on the UMR *Will Bouchard, Minnesota Pollution Control Agency –*
A study team of staff from the WI-DNR, Metropolitan Council Environmental Services and the MPCA conducted macroinvertebrate collections with both kick nets and Hester-Dendy(HD) samplers to determine which method or combination will best work in CWA assessments of biological condition. Study stations on UMR ranged from Twin Cities to L&D 6, and also included sites on selected tribs and UMR upstream of the Twin Cities. HDs were deployed 6 weeks, and WQ samples and habitat observations taken on all visits. Once the macroinvertebrate samples have been processed, the EMAP kick net IBI and the WI DNR HD IBI scores will be compared to EMAP stressor scores for each station and within assessment reaches. A draft report may be done by end of 2014.

Monitoring Plan for Red Wing-Homer Oil Spill Follow-up *David Morrison, Minnesota Pollution Control Agency* -
On February 2, 2014, citizens observed and reported oil leaking from a rail car in Winona. Quick response had the train and leak stopped in Homer, but not before 12,000 gallons of Bakken crude oil was lost intermittently in the 68 miles between Red Wing and Homer. Soon after, manual removal of heaviest oiling observable by eye was conducted. USFWS and MNDNR identified many critical habitat areas for particularly attention during runoff conditions to deploy booms and solidifying agents if sheen is observed. Appropriate response is problematic because this crude contains many dangerous components which behave differently in the environment with regard to evaporation, mobility through the rock ballast supporting the rails bed, and solubility in water. Surfactants and other remedial agents could cause harm to the aquatic ecosystem along with the oil components. With warm weather, some of these agents will be tested on stretches and the impacts monitored. Clean up and monitoring is expected to be a long term effort, since crude oil contains many persistent pollutants and habitat stress response maybe eventual. The development of a Natural Resources Damage Assessment is ongoing.

Ecological Shifts in a Large Floodplain River During a Shift from a Turbid to Clear Stable State *Shawn Giblin, WDNR-LTRMP, LaCrosse Field Office –*
An analysis of LTRMP survey data in Pool 8 comparing trends in vegetation percent frequency, pool-wide mean WQ, discharge and fish variables in Epochs 1993-2001 and 2002-2011 applying the concept of alternative stable states produced the following conclusions:

- Multi-decadal datasets such as LTRMP are important for tracking change and identifying ecological tipping points.
- A substantial increase in aquatic vegetation and water clarity has been observed over the LTRMP period of record.
- As a result the, fish community has changed substantially- more top predators, less benthivores.
- We are likely underestimating internal factors that are regulating the ecosystem. We are seeing some evidence to suggest a trophic cascade due to high top predator biomass.

- Good water quality (specifically low TSS) may be our best defense against non-native invaders that are already here and those that are yet to come.
- There appear to be thresholds for vegetation and TSS where system fundamentally changes (shift to an alternate stable state).
- Staying the course with long-term data collection will be important in the future in order to document factors that bring about the next vegetation collapse?

Investigating Dissolved Oxygen and Chlorophyll Dynamics in the Mississippi River *Molly Sobotka, Missouri Department of Conservation* -
Like most large rivers, the main channel of the Middle Mississippi River provides a relatively poor environment for primary production. However, phytoplankton is important for a developed food web and is a more nutritious food source than readily available allochthonous material. Statistical analyses of LTRMP nutrient, transparency and discharge data show that discharge impacts the others, resulting in strong relationships between discharge and chlorophyll concentrations. Analysis of oxygen metabolism shows that, at low discharge, off-channel (side channels and wing dikes) areas can act as areas of increased primary production.

- Wing dikes may provide similar habitat and may be alternative habitat as off channel habitat becomes less common.
- Wing dike habitat is fragmented and separated by harsher main channel conditions.

Next investigations should be in to water quality behind dikes and along lateral transects from main channel flow.

UMRR-Environmental Management Plan Strategic Plan Update *Marvin Hubbell, USACE Environmental Management Program*

Minnesota's Nutrient Reduction Strategy *Justin Watkins, Minnesota Pollution Control Agency* –
Building on the Nitrogen in Minnesota Surface Waters study report released in 2013, the MPCA led a ten-agency group in the development of a draft Minnesota nutrient reduction strategy, for which the public review and comment period has just completed. The strategy identifies the needs for nitrogen and phosphorus reductions on national/ international, regional and local scales. Likewise, the goals and sources are described on these multiple scales. BMPs are identified on larger scales, with local scales to be developed as part of the Watershed TMDL restoration and protection plans. Sufficient information exists to guide actions to meet relatively short term goals, and long term goals will rely on continued research on sources, BMPs and priority areas. Agricultural strategies are treated on a HUC8 scale and based on known factors. Clearly identified priorities, private industry leadership, State and Federal support with emphasis on land and water stewardship are expected to help engage farmers in an organized way. The Strategy will be finalized this year, and implemented/adapted after that point.

Water Quality Monitoring for WI-DNR: A 30 year perspective *John Sullivan, Wisconsin Department of Natural Resources*
The early '70's turtle monitoring in Horicon Marsh and the Rock River was one of the early projects that John was involved in. His presentation offered a range of WQ measures charted around various management projects, river structure evolution and contaminant controls. He makes a case for exploring eagle nest monitoring as a keystone wildlife indicator of the health of large rivers. He discusses the observed impact of zebra mussels so far in the UMR.

UMRCC Coordinator's Update *Scott Yess, US Fish and Wildlife Service* (See notes in Proceedings).

Organization Updates

David P. Bierl, **U.S. Army Engineer District, Rock Island Water Quality and Sedimentation Section** CEMVR-EC-HQ , david.p.bierl@usace.army.mil, (309) 794-5581

During the winter we performed baseline monitoring at three HREPs (Pool 12 Overwintering - Kehough Slough, Beaver Island in Pool 14 and Huron Island in Pool 18) and performance evaluation monitoring at three HREPs (Pool 11 Islands - Mud Lake and Sunfish Lake); McCartney Lake in Pool 11 and Lake Odessa in Pools 17/18. Construction commenced in late 2013 in the Sunfish Lake portion of the Pool 12 Overwintering HREP.

A dye study was performed in the Pool 11 Islands - Mud Lake HREP. The primary purpose of the study was to measure velocities/determine circulation patterns in the backwater complex in an effort to explain the underutilization of the area by overwintering fish.

Section members currently serve as participants on product delivery teams for the Pool 12 Overwintering, Beaver Island (Pool 14), Huron Island (Pool 18), Starved Rock Pool (Illinois Waterway) and Emiquon (La Grange Pool, Illinois Waterway) HREP/519/206 projects.

Transparency tube measurements at Rock Island District Mississippi River Lock and Dams will be performed during the upcoming growing season. As in the past, these measurements will be performed voluntarily by district L/D personnel.

The district has received funding under the Corps' Regional Sediment Management (RSM) program to investigate sedimentation issues in the Sangamon River. Sediment deposited in the Illinois River at the mouth of the Sangamon requires dredging on a routine basis. The district is attempting to determine the sources of sediment in the Sangamon and is investigating alternatives for reducing dredging at the mouth.