



# LOWER MINNESOTA RIVER WATERSHED DISTRICT

## Executive Summary for Action

Lower Minnesota River Watershed District Board of Managers Meeting  
Wednesday September 18, 2019

### Agenda Item

#### Item 6. A. - MAWD

#### Prepared By

Linda Loomis, Administrator

#### Summary

The resolution 19-08 Support for water storage in the MN River basin was submitted to (and received by) MAWD for consideration. It has also been shared with Scott Sparlin and the MN River Congress.

At the April Board meeting Managers asked staff to begin a list of services that MAWD could provide that would benefit the LMRWD at a level commensurate with the MAWS dues. The Board suggested setting aside time for a Board workshop prior to the MAWD Annual Meeting to discuss this item. Staff has been working on a list and the Annual Meeting is scheduled for December 5th through December 7th. The Board should discuss when they would like to schedule a workshop.

Staff submitted an abstract to MAWD to present the *Geomorphic and Habitat Assessments of Trout Streams in the Lower Minnesota River Watershed District* at the Annual Meeting and Conference. The abstract was accepted. The description of the project that was presented to MAWD follows:

"Rosgen level I geomorphic reconnaissance was utilized to conduct exploratory assessment of the streams as a whole and to identify key areas for further investigation. This was followed with level II data collection in representative reaches. Habitat assessments conducted on each stream incorporated the modified MSHA worksheet to assess current habitat conditions on cold water streams. Temperature and dissolved oxygen (DO) concentrations were measured using a field sonde placed at the bottom of the stream channel. Results suggest cold ground water with DO is present to support trout fisheries. However, some streams showed channels filling with sand limiting pool habitat and other channels where degraded by increased runoff. This information will help prioritize district restoration actions and explore protective watershed measures."

A list of all the abstracts that were approved is attached.

#### Attachments

List of Abstracts

#### Recommended Action

Set date for workshop

<b>Time</b>	<b>Location</b>	<b>Topic</b>	<b>Description</b>	<b>Presenters</b>
8am - 8:40am	Lake Miltona A + B	Demonstrating Quantifiable Progress Toward Water Goals	Is your organization's path to reaching its goals a 'clear road map' or a 'black box'? Public agencies are accountable to the local citizens that they serve, which is why it is crucial to demonstrate effective use of public funds and quantify progress toward goals. With limited time and funding, cost-benefit analysis becomes increasingly important. CLFLWD aims to utilize BWSR's Prioritized, Targeted, Measurable (PTM) method to demonstrably reach water quality goals at a fraction of the originally-anticipated cost. For example, to reach the Lower St. Croix Watershed's phosphorus load reduction goal, the difference between implementing highly cost-effective projects (<\$500/lb phosphorus removed) and less cost-effective projects (>\$1,500/lb phosphorus) could be up to \$1.1 billion. PTM discussions at the regional and statewide scale are necessary to implement this philosophy in a more impactful way. This presentation aims to continue these discussions in order to improve public agency effectiveness on a broad scale.	Mike Kinney, Comfort Lake Forest Lake WD; Meghan Funke, Emmons & Olivier Resources
8am - 8:40am	Lake Osakis	Banking Groundwater	<p>Managing groundwater recharge may be needed for communities with competing aquifer uses or depleted natural systems. Changes in groundwater dependence, seasonality and intensity of precipitation, evapotranspiration and hydrology impact recharge. Evaluating economic, policy, engineering and geologic considerations now will allow us to deploy aquifer recharge when, where and if needed.</p> <p>A team led by the Water Resources Center convenes experts across disciplines to evaluate the need for and barriers to implementing managed aquifer recharge. Specific geologic conditions in four study areas control the physical realities: Fargo-Moorehead, the Straight River, S. Washington Co. and Rochester. Water sources like treated surface water or wastewater must be evaluated along with energy use and infrastructure costs that affect the economics. The Groundwater Protection Act of 1989 appears to prohibit recharge; these and other policy barriers will be evaluated. The 18-month project culminates in a report to the legislature.</p>	Carrie Ellen Jennings, Freshwater Society; John Bilotta, Water Resources Center; Peter Kang, Department of Earth and Environmental Sciences; Anthony Runkel, Minnesota Geological Survey; Bill Arnold, University of MN
8am - 8:40am	Lake Minnewaska	Building a Basin Wide Educational Program	Most citizens are largely unaware of their local river's origins and where it travels downstream. The River of Dreams (ROD) program seeks to increase watershed understanding and sense of place among elementary students, making the next generation more aware of connections within their watershed to	Danielle Graham; Asher Kingery and Taylor Lemieux; International Water Institute

			<p>other rivers, lakes, oceans, and the people who utilize them. ROD is a fun and impactful education experience that gives participants a better understanding of their local rivers geography. Students are exposed to watershed concepts multiple times in ways that leave a lasting impression through writing activities, virtual tours, and a canoe launch event at a local river. IWI has grown this program from five schools to thirty-five schools in the last five years. Learn what it takes to develop and implement a basin wide education program.</p>	
9am - 9:40am	Lake Miltona A + B	Comparing ACPF, PTMApp and HSPF-SAM	<p>Identification of targeted locations at field scales for implementing conservation practices in an agricultural watershed has become a prerequisite to sustainable land use management. Understanding how to relate multiple fields and riparian zones at the small watershed scale is critical to managing water quality goals. We compared the outcomes of three models/decision support tools in the Plum Creek watershed near Redwood Falls, Minnesota. Prioritize, Target and Measure Application (PTMApp) and Agricultural Conservation Planning Framework (ACPF) were applied to a HUC 12 sub-watershed scale using high-resolution LiDAR-based hydro-conditioned digital elevation model (DEM) to achieve following objectives: 1) develop comparative assessment of these tools in identifying critical areas and conservation practices at field scales; and 2) develop a scenario based field-scale decision support framework to achieve nutrient reduction goals, build soil health for enhancing crop production within and below the fields and riparian management in a cost-effective manner. Further Hydrological Simulation Program FORTRAN-Scenario Application Manager (HSPF-SAM) model has been used to develop cost-effective scenarios for optimal placement of best management practices (BMPs). Results suggest that ingesting ACPF outcomes into PTMApp coupled with HSPF-SAM analysis would provide an emphatic decision support framework to the local watershed practitioners for identifying a mix of economic management practices at targeted sites to reach sustainability goals.</p>	R. Srinivas, University of MN; Matt Drewitz, BWSR; Joe Magner, University of MN,
9am - 9:40am	Lake Osakis	Implementation and Assessment of a Targeting Street Sweeping Program	<p>The City of Forest Lake drains to five significant lakes: Forest, Shields, Keewahin, Comfort and Clear Lake. Two of the five are listed as impaired for nutrient/eutrophication, with the others at risk for impairment. These lakes are high-value recreational resources with a combined 5 public launches among them.</p>	Mike Kinney, Comfort Lake Forest Lake WD; Paula Kalinosky, Emmons and Olivier Resources;

			CLFLWD worked with the City and Rice Creek WD to implement an enhanced street sweeping program, using the CLFLWD's 2018 comprehensive street sweeping plan, which will result in a cumulative estimated phosphorus load reduction of 167 lb/yr. Samples of swept material were lab-tested to quantify actual load reductions. Results will be available later this year and discussed in this proposed presentation. Lab results will be used to measure progress toward load reduction goals and to modify the sweeper route, if needed. The combined cost of the sweeping plan and implementation is \$320,000. CLFLWD and the City received CWF grants for each, respectively.	
9am - 9:40am	Lake Minnewaska	Multi-benefit Storage and Water Quality Solutions in the South Heron Lake Watershed	This presentation will outline how the Heron Lake Watershed District is achieving multi-benefit solutions that address drainage system improvements, while also increasing flood resiliency and improving water quality through the leveraging of drainage dollars with state and federal grant funds.	Jan Voit, Heron Lake WD; Jacob Rischmiller and Staci Williams, ISG
10am-10:40am	Lake Miliona A + B	Geomorphic and Habitat Assessments of Trout Streams in the Lower Minnesota River Watershed District	Rosgen level I geomorphic reconnaissance was utilized to conduct exploratory assessment of the streams as a whole and to identify key areas for further investigation. This was followed with level II data collection in representative reaches. Habitat assessments conducted on each stream incorporated the modified MSHA worksheet to assess current habitat conditions on cold water streams. Temperature and dissolved oxygen (DO) concentrations were measured using a field sonde placed at the bottom of the stream channel. Results suggest cold ground water with DO is present to support trout fisheries. However, some streams showed channels filling with sand limiting pool habitat and other channels were degraded by increased runoff. This information will help prioritize district restoration actions and explore protective watershed measures.	Linda Loomis, LMRWD; Joe Magner and Brenda DeZiel, University of MN; Jeff Weiss, Barr Engineering; Della Young, Young Environmental
10am-10:40am	Lake Osakis	A Partnership Model for Predicting, Measuring, Managing, & Communicating Water Level Impacts	Between 2013-2018 the Twin Cities metro experienced the wettest period six-year period on record. During those six years an extra year's worth of precipitation fell (~30 inches), meaning the area received seven years' worth of rain in a six-year period. 2019 has continue this exceptionally wet trend and currently ranks as the second wettest year to date. How can water managers successfully predict how much rain is coming, track how much rain has fallen, monitor the effects to water bodies, and communicate the impacts to their communities? To manage the impacts of this record precipitation, MCWD has formed a multi-disciplinary partnership with the National Weather Service, the U.S. Geological Survey, and Hennepin County Emergency	Tiffany Schaufler, MCWD; Craig Schmidt, National Weather Service; James Fallon, U.S. Geological Survey; Eric Waage, Hennepin County Emergency Management

			Management. Using the expertise of this multi-agency partnership, MCWD has been able to predict, observe, and manage the impacts from wet weather and limit the duration of high water in spite of the record precipitation.	
10am-10:40am	Lake Minnewaska	Small Town Flood Protection: The Ada Levees	Surrounded by the Wild Rice and Marsh Rivers to the south and Judicial Ditch 51 on the north, the city of Ada has been plagued by flooding over the years. After the catastrophic flood of 1997 and subsequent flooding, this small community came together to take necessary actions that identified the problems and found feasible solutions to protect their residents. Ada's story illustrates the importance of partnerships and the use of sound science and engineering, while navigating funding constraints and regulatory approvals. From devastating floods to certified flood protection, the city of Ada is a story about success.	Alexa Ducioame, Moore Engineering, Inc., Kurt Lysne, Moore Engineering, Inc;
11am-11:40am	Lake Miltona A + B	Targeting Channel Restoration Projects to Inform Implementation Efforts	Within the Buffalo-Red River Watershed, stream bank erosion contributes to sediment impairments and serves as a stressor to aquatic life. As such, the Buffalo-Red River Watershed District sought to prioritize its efforts to restore and stabilize rivers and streams. This presentation will show a new approach for rapidly targeting implementation within riparian corridors relative to measurable goals in a One Watershed, One Plan. The results will demonstrate how targeting information can be used to develop and investment guide for weighing upstream versus in channel management actions.	Drew Kessler and Eric Jones, Houston Engineering;
11am-11:40am	Lake Osakis	The Role of Aquatic Plants in Shallow Lake Reclamation	It is increasingly clear that aquatic plants play a central role in the restoration of shallow lakes. Still, effects on shallow lake nutrient balances is not well known. In fact, aquatic plants are often not included in TMDLs. This presentation includes what we have learned by conducting thorough lake-wide aquatic plant biomass evaluations and nutrient analyses of aquatic plant tissue and by building a custom lake model to tease out the effect of aquatic plants on nutrient balances. The study lakes are Kohlman Lake (Ramsey Washington-Metro Watershed District) and Normadale Lake and Smetana Lake (Nine Mile Creek Watershed Districts). Even though the public very often has a negative view of aquatic plants, the issue of aquatic plants and shallow lakes is emerging and is not going to go away and it will be important for us to better understand the role of aquatic plants in shallow lake restoration.	Keith Pilgrim and Janna Kieffer, Barr Engineering
11am-11:40am	Lake Minnewaska	Regionalization - Escape the Site	While keeping stormwater onsite in a manner that mimics natural conditions remains a worthy and productive goal of watershed district regulatory frameworks, challenges presented	Michael Welch, Smith Partners PLLP; Karen Kill, Brown's Creek WD; Randy

			by some properties demand regional solutions. Cost-effective and politically savvy public-private partnerships can support more than just water-resource protection: better site design and more efficient use of land, integration of diverse land-uses, etc. The session will explore legal and technical frameworks for successful regional stormwater management, giving attendees tools and inspiration they can put to work in their own watersheds.	Anhorn, Nine Mile WD; James Wisker, Minnehaha Creek WD
2pm-2:40pm	Lake Miltona A	Managing Risks and Forging Watershed Partnerships	Our watersheds are facing unprecedented challenges from climate change, impaired water quality, and loss of habitat, and governance. This presentation will explore key principles of risk management to embrace from start to finish in every watershed undertaking, and pursue the success that comes from creating effective partnerships. We will examine how the Minnehaha Creek Watershed District has developed Balanced Urban Ecology, an integrated approach to land use and water resource planning that has forged collaboration with local communities and private partners. In the Minnehaha Creek corridor, the District has partnered with two cities, a hospital, a major printing company, and Target to restore the creek, create new trails, access to green space, and treat polluted stormwater. We will also trace a similar undertaking in the Midtown Greenway of Minneapolis that transformed a neglected railroad trench into a multimodal greenway that stimulated 4,000 new units of adjacent housing.	James Wisker, Minnehaha Creek WD; Louis Smith, Smith Partners PLLP
2pm-2:40pm	Lake Miltona B	Helping Mother Nature...Buffalo River Restoration Challenges and Outcomes	This presentation tells the story of a stream restoration project along a 2-mile stretch of the Buffalo River, near Hawley, Minnesota. The stream was straightened in the 1950s which resulted in an unstable stream that lacked quality habitat and had bank erosion issues. The Buffalo-Red River Watershed District along with MN DNR and the City of Hawley worked together to achieve mutual benefits. We will highlight the design process, hurdles to implementation, permitting requirements and ultimately how the constructed restoration has evolved since being built and after the 2019 flood. Additionally, project partnerships and funding opportunities for stream restoration projects will be discussed.	Amanda Hillman, MNDNR; Erik Jones, Buffalo-Red WD
2pm-2:40pm	Lake Osakis	Inclusivity		Jason Weirnerman, BWSR
2pm-2:40pm	Lake Minnewaska	Developing a Targeted Watershed Management	Through a Clean Water Fund grant, the Upper Minnesota River Watershed District developed a Targeted Watershed Management Implementation Plan for the entirety of its 505	Kris Guentzel, Houston Engineering; Amber Doschadis, Upper

		<p>Implementation Plan Using Innovative Technologies in the Minnesota River Headwaters</p>	<p>square mile area within the Upper Minnesota River Headwaters Watershed. This plan (1) identified sediment and nutrient sources on the landscape from within the District and from upstream sources in the Dakotas, (2) identified opportunities for field-scale landscape conservation to address those sources, (3) utilized the Prioritize, Target, and Measure Application, along with other geospatial analysis, to assess both cost and benefit of field-scale practices relative to others in each subwatershed, and (4) developed a comprehensive plan that considered conservation practice benefit to achieve water quality goals across dozens of subwatersheds. This plan will provide the District with the information it needs to address its critical water quality needs while better informing District residents and leaders what investment is necessary to sustain healthy aquatic systems.</p>	<p>Minnesota River WD; Mark Deutschman, International Water</p>
--	--	--	--	---