

Weekly LWC Update 4-21-17

ERRORS? OMISSIONS? If found, please notify barb.huberty@lcc.leg.mn.

Interested reader: each week, I gather general information for Legislative Water Commission members to help keep them apprised about water issues in Minnesota. This update contains a roundup of easily attainable MN water news, as well as articles from beyond MN that may inform member thinking. It also includes summaries of meetings I have monitored and reports I have read, as well as information about upcoming events. During the Legislative Session, updates on water-related legislation and committee activities are added. Any errors or omissions are inadvertent.

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LEGISLATURE

Legislators returned from their Easter/Passover break on Tuesday and dove into their conference committees to hear walk-throughs of the side by side comparisons of bill text and budget spreadsheets. Some conferees are already hearing testimony, but discussions on compromises are still forthcoming.

Just 6 bills were introduced this week, 3 of which were companions to bills introduced earlier (the gold cells below). Seven percent of bills introduced are related to water (337 of 4,953).

2583	Hamilton	2325	Weber	\$22M bond funding to PFA for a grant to Lakefield for wastewater infrastructure
2588	Marquart	2338	Eken	EAW not required for projects consistent with Red River mediation agreement
2589	Fabian	2339	Johnson, Eken	\$10M CWF to BWSR for grants to SWCDs to cost-share buffer/alternative practice implementation
2599	Hausman, Bly	None	None	bonding bill, includes water-related funding for DNR, MPCA, BWSR, MDA, Met C, DEED, PFA, Champlin Mill Pond, Lake Redwood, and Lewis & Clark
2600	Mariani, Bly	2342	Hawj	a resolution memorializing the EPA to reinstate plans to revoke all food tolerances and cancel all registrations of chlorpyrifos, an organophosphate insecticide

MN NEWS

WATER ACTIONS

- West Central Tribune: [Earth Day 2017 celebrated April 22 in west central Minnesota](#)
- MDA: [MDA reminds Minnesotans to use pesticides and fertilizers with care](#)
- Winona Daily News: [Group heading to St. Paul to support water conservation](#); ABC 10/13: [Clean Water Advocates Trickle in to State Capitol](#); Pioneer Press: [Gov. Mark Dayton plans community meetings about water quality](#); MinnPost: [On Water Action Day, a flood of citizens washes through the](#)

[Minnesota Capitol](#); SC Times: [Challenged by GOP, Dayton calls to boost water quality](#) (also covered by WCCO, the Crookston Times, Rochester Post Bulletin and ABC 10/13); Gov Dayton's Office: [Governor Dayton Announces Ten Water Quality Town Hall Meetings to Be Held Across Minnesota](#); EQB: [25BY25](#) – sign up to receive updates

- Strib: [Scientists prepare to march 'into the streets' Saturday in Minnesota, across U.S.](#)
- Duluth News Tribune: [Water walkers to begin journey in Duluth](#)
- H2O for Life: [2017 Poster Contest Winners Announced!](#); see the “Clean Drinking Water Starts with Me!” winners
- Sun Current: [EP Mayor encourages residents to take the Water Pledge](#)
- Brainerd Dispatch: [Crow Wing County Board: Planning to protect the Pine](#) and [Water quality reports for Pine River Watershed open for comments](#)
- MPCA: [Gerdau Ameristeel Inc cited for multiple environmental violations](#)
- Chaska Herald: [Art exhibit features water](#)
- West Central Tribune: [Willmar chain of lakes focus of Wednesday's public meeting](#)
- MPR: [Scientists, seeing a threat to their work, plan marches around the country](#)
- EPA EnviroAtlas: [Minneapolis/St. Paul, MN and surrounding area](#)

SURFACE WATER/STORMWATER

- Red River Basin Commission: [North Ottawa Impoundment Nutrient Capture and Biomass Harvesting](#) [10 min; learn about green manure - worth a watch!]
- Winona Daily News: [Legislators look at leaky Lanesboro Dam](#)
- MPR: [20 years after epic flood, Red River towns no longer dread the spring](#) and [The 1997 Red River Flood: What happened?](#)
- Keith Ellison's Office: [Rep. Ellison, Senator Klobuchar, Senator Franken, Rep. Walz Send Letter to President Trump Regarding Upper St. Anthony Falls Disposition Study](#)
- Quad Communities Press: [Partners join forces to improve water quality](#)
- Mankato Free Press: [Waseca residents deal with flood repercussions, funding dwindles](#)
- Finance & Commerce: [The greening of Minnesota's urban rooftops](#)
- MPR: [Lake Koronis is test lab in fight against invasive species](#)
- MPCA: [Relics of the past](#)

WATER SUPPLY

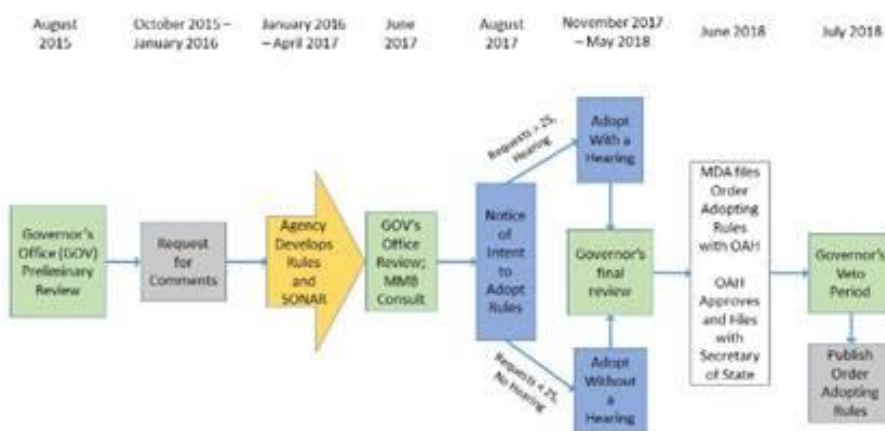
- St James Plain Dealer: [Groundwater sampling planned for Redwood County](#)
- Brainerd Dispatch: [County reminds landowners to protect their groundwater](#)
- MPCA: [Drinking water advisory in southern Washington County](#)
- Water Efficiency: [Embracing Water Audits](#)

WASTEWATER

- Met Council: [Council offers grants to assist manufactured housing to hook up to regional wastewater system](#)
- Strib: [First garbage-to-ethanol plant in U.S. proposed for Inver Grove Heights](#)
- U of MN: [Two U of M startups named among national "Best University Startups 2017"](#)
- Mille Lacs Messenger: [City of Wahkon - Managing water for the future](#)
- Brainerd Dispatch: [City of Cuyuna receives sewer project grant](#)
- Grand Rapids Herald: [Protect our water – don't flush medications](#)

AG & WATER

- Mankato Free Press: [Farmer recommends becoming a water quality certified farm](#)
- MPCA: [Ag Water Quality Certification Program tops 200,000 acres](#)
- KARE 11: [Anglers concerned about possible changes to buffers](#)
- LOL: [Land O'Lakes, Inc. Makes First Public Sustainability Commitment to Walmart](#) including a goal to secure 20 million acres on the Land O'Lakes SUSTAIN Agronomy Platform to continuously improve fertilizer optimization, soil health and water management by 2025
- West Central Tribune: [Landowners hear alternatives to vegetation for compliance with buffer law](#)
- Chisago County Press: [First Chisago County farm in the Minnesota Ag Water Quality Certification program](#)
- Strib: [General Mills commits millions to soil health initiative](#)
- MDA: March [PFMD Update – A Bulletin from the Pesticide and Fertilizer Management Division](#) [note the article on p.5 about the Nitrogen Fertilizer Rule expected this spring]



EXTRACTIVE INDUSTRIES

- The Bemidji Pioneer: [A look at Enbridge's next big pipeline project: Line 3 Replacement](#); Duluth News Tribune: [Enbridge Line 3 environmental review will be late](#); Enbridge: [Line 3 replacement project](#)
- Federal Register: [Superior National Forest; Minnesota; Application for Withdrawal](#); the USFS is accepting public comments on the scope of an environmental review to remove more than 234,000 acres in Minnesota from mining activity until 8/11/17
- Duluth News Tribune: [Study says Northland mining industry jobs are worth more than tourism](#); Pioneer Press: [Mining industry study downplays tourism in northern Minnesota economy](#)

OPINIONS

- The Hill: [How technology is going to shape farming of the future](#)
- Ag Resource Strategies: [Moving Watershed Governance Upstream](#); here is the Citizens' League report referenced in the article: [To the Source: Moving Minnesota's Water Governance Upstream](#)
- Honor the Earth: [Beyond DAPL, the Line 3 pipeline battle looms on the horizon](#)



BEYOND MINNESOTA

REGIONAL

- Quad City Times: [Iowa Senate passes funding plan for water quality](#)
- Winona Daily News: [Sand facility gets bad reviews](#)
- Wisconsin State Farmer: [UW-Madison spinoff puts phosphorus in its place](#) [this is similar to the work being done at the St Cloud wastewater treatment facility]
- Strib: [EPA: No significant chemical discharge from US Steel spill](#)
- The Mercury News: [How the drought changed California forever](#); according to Felicia Marcus, chairwoman of the State Water Resources Control Board in Sacramento: “There’s no question that we’ll be better prepared for the next drought because of the lessons learned in this one. This was the wake-up call of the century.”
- Strib: [AP Exclusive: Managers made errors in handling of dam crisis](#); The Sacramento Bee: [Expert performed autopsy on Oroville spillway collapse. Here’s what he found](#)
- The Buffalo News: [Clean water bill called 'once-in-a-generation investment' for state](#); New York State plans to spend \$2.5 billion in its clean water infrastructure bill; see the article for a breakdown of the spending categories

NATIONAL

- Science Friday: [A Water Widget For The World’s Driest Places](#) [7.5 min]
- EPA: [Steam Electric Power Generating Effluent Guidelines - Petitions for Reconsideration](#)
- EPA: [Public Participation in EPA's Regulatory Reform](#); In accordance with Executive Order 13777, “Enforcing the Regulatory Reform Agenda,” EPA is seeking input on regulations that may be appropriate for repeal, replacement, or modification.
- MPR: [Pesticide maker tries to kill risk study](#); Pioneer Press: [AP Exclusive: Pesticide maker tries to kill risk study](#)
- White House: [Reorganizing the Executive Branch: We Need Your Input!](#)

- Federal Register: [Use of Lead Free Pipes, Fittings, Fixtures, Solder and Flux for Drinking Water; Extension of Comment Period](#); EPA is proposing a rule to require certification and labeling of lead-free plumbing products; the comment period has been extended until May 17th
- Circle of Blue: [Nonstick Chemicals Slipped Into Water, Causing Health, Environmental, Regulatory Mess](#)
- Stanford University: [Stanford researchers create “Living Map” of out-of-the-box water financing ideas](#); see the interactive [Living Map of Innovative Financing Mechanisms in the United States](#) to learn about the case studies
- NACWA: [Ninth Circuit: No Jurisdiction to Review EPA’s Formal Objections to State Permits](#); EPA’s objections to proposed state permits are not functionally similar to denying a permit and because the Clean Water Act “does not contemplate federal court review of state-issued permits, federal courts may not review EPA’s objections to state-drafted permits in the 7th, 8th and 9th circuit courts [MN is in the 8th circuit]
- Water Online: [Looking Beyond Drought, 17 States Invest In Water Reuse As A Long-Term Supply Strategy](#)

Geographic Distribution of Planned Reuse Projects



Source: Bluefield Research

GLOBAL

- watermandate.org: [Establishing Context-Based Water Stewardship Targets: A Discussion Paper](#)
- Science Daily: [New breed of supermolecule 'hunts down' harmful drugs, removes them from water](#)
- Scientific American/PBS Newshour: [International Food Crops Could Vanish as Groundwater Disappears](#); globally, about 11% percent of nonrenewable groundwater is used to irrigate internationally-traded crops; of that 11%, rice uses 29%, wheat uses 12%, cotton uses 11%, maize uses 4%, soybeans use 3%, and citrus and sugar crops use 5% each
- Chemistry World: [Tiny virus batteries remove water pollutant](#)

MEETINGS

CWC

At their April meeting, the Clean Water Council learned about **MPCA’s monitoring programs** and, in particular, their plans for the 2nd cycle of intensive watershed monitoring. They manage several monitoring programs, each with a different set of objectives:

- condition monitoring (aka intensive watershed monitoring or ambient monitoring) is conducted from May – Sept each year when they sample for biological conditions (invertebrates and fish), as

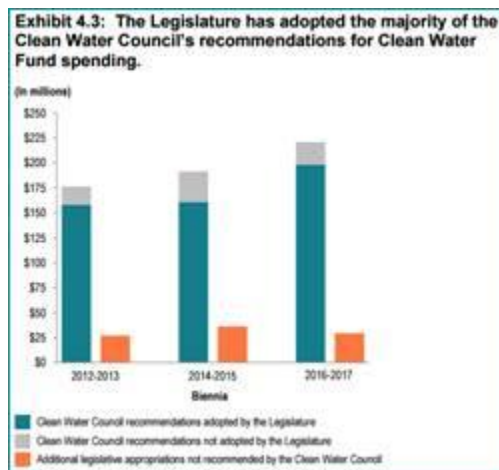
well as water quality parameters during baseline conditions to determine if the water quality and beneficial use standards are being met; this assessment monitoring and the resultant impairment determinations are required by the Clean Water Act (CWA; before Clean Water Funding [CWF] became available, funding to meet this requirement was limited, so this monitoring was not routine)

- pollutant load monitoring is done to gauge how much pollutant load is in a waterbody under snowmelt and intense rainfall events to identify worst case conditions and compare them to base flow conditions
- trend monitoring is repeated at designated sites over a long period of time to identify natural variability
- problem investigations determine the nature and extent of pollution and to identify, if possible, the sources of contamination; in some cases, this data can be used to meet the federal condition monitoring requirements
- limited mercury monitoring as part of the citizen lake monitoring program
- limited monitoring for contaminants of emerging concern

Prior to the CWF, there was no continuous, dedicated funding for their monitoring programs, so it was done whenever there was funding available from federal sources, MN's general fund, MPCA's environmental fund, or local partner funding. Most of the work was for problem investigations, which did not give a clear picture of the state's water conditions because the results varied in time and space, with many parts of the state not monitored. With the condition monitoring program, MPCA and its partners monitor 6-8 of the state's 80 major watersheds per year. The selection of watersheds was intentionally scattered around the state in case drought or flood conditions were prevalent in any given year. The condition monitoring approach eliminates the earlier bias of only looking at waters needing restoration and now also identifies waters needing protection. Within a watershed, there are different monitoring goals and frequencies at the different sampling stations. For example, the watershed outlet is the load monitoring site where flow, concentrations of water quality parameters, and biology are all determined; this data is used to set pollutant reduction targets for the Total Maximum Daily Load program. Trend data is available for 18% of those outlet sites and MPCA expects the sampling frequency to decline over time as data becomes available at oldest load monitoring network stations where trends are emerging. At the sub-watershed sites, chemistry is monitored 10 times over 2 years. Initially all the sampling sites were stream or river sites, but lake monitoring was brought into the program in 2010. Before that, lakes had been monitored separately, primarily to assess their condition for recreational uses and not for background data. Today, all lakes over 500 acres in size (about 110/yr) are now monitored as part of the watershed condition monitoring. If states aren't able to meet the CWA monitoring requirements, there are no real consequences from EPA, but states do get sued by third parties and if they win their suits, court orders demand the completion of monitoring. Monitoring data is used to: produce WRAPS, TMDLs, and statewide reports; for local water planning; to develop summary maps; for metrics on progress, trends and effectiveness; and to prepare watershed summaries and web sites.

As MPCA ends the 1st 10 year condition monitoring cycle, they are evaluating what changes are needed for the next 10 yr cycle. Moving forward, their guiding principles include: all the work must be needed, data evaluation must use sound science, data collection must support state and local efforts without duplication (monitoring partners want to be involved in the monitoring design); and the data must maintain a systemic, unbiased and predictable monitoring foundation for restoration and protection goals, not just for problem investigation. However, since the environment doesn't remain stable, adaptive management will be used over time. It will be important to go back to about half the sampling sites so statistical comparisons of change over time can be made and to gather data that can be used for impairment delistings and to measure progress. Data needs vary across the state, depending on whether WRAPS and 1W1Ps are completed or if there are local needs for new monitoring, but whether or not the same level of funding is received will determine the scope of monitoring.

Next, staff from the Office of the Legislative Auditor explained the findings of their [Clean Water Fund Outcomes Program Evaluation Report](#). This was a program evaluation and not a financial audit, plus it did not include an evaluation of the Interagency Coordination Team. Among the many topics assessed in the report, the evaluation determined what portion of the Clean Water Council’s (CWC) recommendations were adopted by the legislature (see graph), whether the “supplement vs substitute” and “direct and necessary” conditions were being met (not resolved), and whether the 2016/2017 appropriations were meeting the constitution purposes (yes).



Among the report recommendations was a suggestion for the legislature to add a requirement for Clean Water Fund (CWF) recipients to identify whether proposed projects or programs are substituting for pre-existing efforts. They could also consider clarifying “direct and necessary” costs by defining eligible overhead or administrative costs. The report also found that outcomes and impacts are much harder to measure than inputs & activities, particularly since it takes a long time to see improvements once practices have changed, especially where there is a lack of baseline data and because funds from many sources are being used to solve the same problems and many factors contribute to a problem.

OLA staff acknowledged that CWF investments may be needed just to remain stable since measuring the progress from expenditures is not compared to changes in land use and inputs from land use activities

Finally, Environmental Quality Board (EQB) staff gave an update on plans being made to pursue the Governor’s goal of **25% water quality improvement by 2025** (“25 by 25”). An interagency workgroup is planning the events for this effort that include 3 main elements: Water Quality Town Hall listening sessions (see the dates in the Upcoming Events Section, below), Community Conversations, and a January 2018 Governor’s Summit to gather feedback and set a policy agenda for 2018 and future work needed to achieve the goal. CWC members were given the opportunity to review and comment on a draft “How’s Your Water” packet of information being developed to support the Town Halls and Community Conversations.

STORMWATER TO GROUNDWATER

Stormwater management regulations require controls to limit increases in stormwater volume. A common practice to achieve volume reduction is infiltration of stormwater into the ground using a variety of practices. Many water managers have expressed concern about whether enough is known about the impacts of stormwater infiltration on groundwater quality. Some research is being conducted by the U of MN, watershed districts, agencies, and cities to answer these questions, but results and recommendations are yet to emerge. One particular concern is the effect of infiltrating chloride into groundwater, particularly in carbonate bedrock or surficial sand and gravel aquifers. MPCA’s ambient groundwater monitoring program data is showing that chloride concentrations vary with land use. The highest concentrations are seen in commercial/industrial areas (mean = 83 mg/L), followed by residential areas (mean = 62 mg/L), large lot subdivisions (mean = 25 mg/L), rural areas (mean = 14 mg/L), and forests (mean = 1 mg/L). However, the

range of results at a sampling site can be large and seasonal variability is high. Monitoring completed by the Met Council shows that, in some streams, base flow concentrations can be higher than storm flow concentrations. They have seen an uptick in chloride starting in 2010, which may correspond with when road authorities switched from using sand/salt mixtures to only salt brines as a way to reduce turbidity impairments.

EQB

The Governor's "25 by 25" initiative was the primary topic at this month's Environmental Quality Board meeting, which followed the Water Action Day rally. In addition to presentations by agency staff describing the goal and its importance, 11 other invited speakers explained their vision for how 25 by 25 could work at the local level.

- Dave Hokanson, Upper Mississippi River Basin Association: this governor-chartered entity facilitates dialogue and cooperative actions for ecosystem restoration, spill response, water quality, and navigation. Their shared goals are having safe and clean water, improved water quality, more consistent and comprehensive characterization, maximized efficiency and effectiveness, and an improved ability to prepare for and respond to water quality challenges. They know that water quality improvements in MN will have downstream benefits, including reducing the gulf hypoxic zone. They are looking forward shared lessons learned and successful practices.
- Aaron Meyer, MN Rural Water Association: they focus on protecting drinking water for health; nitrate is a rising concern in private and community wells; the Rock Co Rural Water District uses a farmer-led approach to address nitrate by selecting win-win solutions, including affordable perennial and alternative crops and nitrogen efficiency that sustain working lands. It is important to also involve crop advisors, cooperatives, and SWCDs. More flexible (i.e., not perpetual) easement programs will be needed for long term protection. Other partners need to be public water suppliers, research institutions, and state agencies and more funding is needed for drinking water projects. MNRWA also provides training for wastewater operators. (MPCA Commissioner noted that high nitrates in wells is correlated to higher nitrates in streams and lakes and wastewater treatment facilities, as point source permittees, will have to pay the price to address the impairment.
- Mae Davenport, U of MN: after nearly 20 years researching the social science of water, Ms Davenport contends that clean water depends on putting science into practice, not on what we should do but how we should do it. It is important to reframe water problems as social problems because water action is driven by human emotions, social norms, and collective actions. She believes that a water ethic is innate in all of us; it just needs to be activated. Through inspiration, a shared sense of responsibility, and applying knowledge, feelings and beliefs will trigger individual actions that will make a difference. Some of the constraints to conservation: low levels of perceived efficacy, local leaders are not empowered for water action, success stories aren't shared, and communities have not been built around water. People need feedback loops! Her research has shown high levels of individual action, but that individuals don't share their actions with others so there is low collective action. These can be difficult conversations to have, but starting with your family, friends, and neighbors is easier. Or use existing social networks, like cultural groups, faith based groups, and neighborhood associations. Storytelling is a good means of engagement. Avoid shaming, guilt, and passive-aggressive approaches and embrace positive messages. Get to know people first and then share your values about what's important to each person.
- Jason Weller, Land O' Lakes SUSTAIN: as a company that touches half of all farmland and 25% of farmers (25,000 in MN) and the entire food cycle, Land O' Lakes is in a position to enhance their business by delivering conservation products and strengthening partner relationships. They have 3 sustainability pillars: air, water and soil. They are advancing the precision agriculture and precision conservation sector by developing tools to manage soil erosion and establish variable width

buffers. They will have one staff person dedicated to promoting the MN Ag Water Quality Certification Program. Farmer led approaches can work, for example: Heron Lake was removed from the impaired waters list because over 100 farmers put in practices in place and reduced phosphorous loadings by 50% and sediment loadings by 70%. Land O' Lakes feels they have a corporate responsibility to lead; if farmers are doing well, their company will do well. Growers and retailers want to make a difference in the working lands setting.

- Adam Birr, MN Corn Growers' Association: MN Corn has a new vision, that MN corn farmers will become the most sustainable and environmentally responsible farmers in the US. They will be focusing on actions that support people, the planet and profits (3Ps). Their 5 action steps will help strengthen rural communities:
 - Promote sustainability programs like MAWQCP and Farm to Fork
 - Support innovation through research at the U and with individual; their new 4-level grants program just funded 23 of 34 proposals focused on soil health and nitrogen management; learning about return on investment is also important
 - Advocate best practices via training sessions like the Nitrogen Smart workshops they are sponsoring with U of MN Extension
 - Foster new uses to help support the 3 Ps (e.g., ethanol, polymers)
 - Strengthen partnerships because no one can achieve success alone
- Lynn Gallice, Mille Lacs SWCD: This spring, the Mille Lacs Lake Watershed management group (made of citizens, local agency and tribal staff, and lake associations) will launch the Compass Shoreland Stewardship Program. This is a community incentive program that will recognize the positive actions of lakeshore property owners and increase opportunities to have meaningful conversations with them. They are hoping to develop a community of people that are knowledgeable about how to achieve lake health and are willing to take a leadership role in helping others implement best practices. One aspect of the program will be a voluntary lake health survey property owners to inventory the practices and activities already in place. After the inventory, based on their score, they will receive bronze, silver or gold stewardship recognition (via a yard sign, newspaper articles and Facebook or website postings), along with a personalized shoreland stewardship plan for improving their practices. They will be focusing on adding practices that filter, absorb, capture, and prevent pollution. Funding the addition of practices is a primary concern.
- Dan Schutte, Lake Co SWCD: Dan believes SWCDs are poised to be the local interface for implementing practices to meet the "25 by 25" goal. In NE MN, they are primarily protection/preservation oriented, but they do have 3 rivers whose impairments they are trying to reverse. Forestry is the agriculture of the north, and they'd like to see easement funding directed northward ("RIM in the trees". Even with an abundance of public lands, they are seeing some downward trends that need reversing; a challenge will be to get private landowners into a protection mindset. Their protection and restoration priorities and measures are now set in their One Watershed One Plan (1W1P). Some of their big issues are inventorying and repairing public and private culverts (they'll need MnDOT and RR cooperation), establishing stormwater management controls, and addressing the human health concern of high levels of bacteria at beaches. Public engagement will be the #1 way to reach this goal, so consistent, clear and frequent messaging is important. Establish the purpose, develop the leadership, and get the public to do this work autonomously.
- Dennis Fuchs, Stearns SWCD: They have over 13,000 parcels needing buffers and they are 95% done!. Since the 1980's there have been immense land use changes in rural, urban and lakeshore areas that affect water quality. Climate change is a growing problem. Their rainfall has increased by 4" more per year and it is happening earlier (one farmer saw 2.5" in a half hour in March). Soil erosion is costly (\$400B worldwide), but it can be managed. They have had successes providing technical assistance for feedlot fixes, nutrient (manure) management, crop residue management, irrigation

water management, shoreline restoration, and restoring pollinator habitats, as well as urban projects. Improving soil health and water storage/use practices top their priority list. Precision ag with the support of cooperatives and crop consultants is paramount. Also critical: increasing crop diversity on the landscape (e.g., Forever Green). The Prioritize-Target-Manage approach, 1W1P, and groundwater management area planning have all been good forward strides, but more research and strategies are needed. Everyone can do something. Trends for total suspended solids and biological oxygen demand are steady, phosphorous is down, but nitrate/nitrite and chloride are increasing.

- Steve Morse, MN Environmental Partnership: They recently completed a statistically significant poll (see link in the Reports section) that shows over half of Minnesotan's are concerned about legislative roll-backs: 62% want regulations tougher or better enforced and only 12% say they are too tough. So the voice at the legislature is representing a small slice of the population. Poll numbers show about the same results, whether rural or urban. People are concerned about the quality of their drinking water. Converting input from the "25 by 25" initiative into policy will be difficult, so it may be advisable to put some strategies on the table for people to react to at the Town Halls. It will be important to understand what scale is needed to get us to the goal of no impairments and the big ticket items, like changing the cropping system, should be pursued.
- Whitney Clark, Friends of the Mississippi River and Jeff Peterson, U of MN Water Resource Center: FMR and the U received McKnight Foundation funding to prepare a newly released report: *'Moving the Needle': Improving Water Quality in Minnesota While Developing Our Agriculture Economy* (not yet posted online). They have 3 key recommendations:
 - diversify the cropping system (convert 10% of row crops by developing markets for food, fuel and fiber; target acres with a low return on investment; promote MN grown forage crops and use perennials for ethanol)
 - manage ag discharge for water quality and flow
 - incentivize producer certification and markets

Federal assistance will be needed and changes to the 2018 farm bill should be pursued. Additionally, governors of neighboring states can join forces.

- Kathryn Hoffman, MN Center for Environmental Advocacy: They applaud a big visionary goal, given the slow progress to date. They had 3 suggestions to guide "25 by 25" implementation:
 - give the data we have to the citizens to help drive selection of their path
 - make goals measurable and identify what the current baseline is, or the faith of participants will be lost
 - make sure the critical players – those who can make real change – are part of the progress (holding a citizen engagement process will not insure that the critical people are present)

REPORTS

STATE OF MN WATER

- DNR: MN Stream Flow Report [4-17-17](#); a testament to MN's diversity: low, normal, high and flood flows across the state all in one week
- National Drought Mitigation Center: [4/18/17 MN Drought Monitor](#)

NEW REPORTS

- WRF & EPA: [Evaluation of Lead Service Line Lining and Coating Technologies](#)
- MEP: [Minnesota Voters' Environmental Priorities in 2017](#)

UPCOMING EVENTS

- Apr 24: **LWC Meeting**, 6-8 pm, State Office Building basement hearing room; details to come [here](#)

- Apr 25: Freshwater Society Moos Family Lecture: **The Death and Life of the Great Lakes** by Dan Eagan; St Paul Student Center; reception at 5:30 pm & lecture at 7:00 pm; free but registration is required [here](#)
- Apr 26: MGWA Spring Workshop: **Management, Analysis, and Optimization of Groundwater Data**; 8 am - 4:30 pm; U of MN Continuing Education and Conference Center (1890 Buford Ave, St Paul); \$145 member/\$195 nonmember; register [here](#)
- April 29: **Water for People Benefit Concert** featuring Big Bob & the High Rollers; Bogart's Event Center (14917 Garrett Ave, Apple Valley); \$10; opens at 7:30; organized by the MN American Water Works Association, the concert raises money to provide water infrastructure for 3rd world countries without clean drinking water
- May 4: **MN's Water Story – An Update for Policy Makers**; Minnehaha Creek Watershed District and Freshwater Society; stormwater BMP tour @ 5:30 pm, Steve Woods presentation and discussion 6:30 – 8:00 pm; St. Mary's Greek Orthodox Church (3450 Irving Ave S, Minneapolis); free to attend and light dinner provided, but RSVP by May 1st at tmamayek@minnehahacreek.org or 952-641-4508
- May 5: **N & E Metro Groundwater Management Area Project Advisory Team Meeting**; 8:30-11:30; DNR Central Office, 500 Lafayette Road, St. Paul,
- May 9: Minnesota Day at the **National Climate Adaptation Forum**; registration can be found [here](#)
- May 9: DEED **MN Water Technology Roundtable: Challenges & Solutions in Stormwater**; 9:30 am– 3 pm; \$30; more event info and registration link [here](#)
- May 18: **MN River Congress**; 4:30 pm networking fair and 7-9 pm program; Redwood Falls Community Center; Redwood Area Community Center (901 East Cook Street, Redwood Falls); \$30; register [here](#)
- May 22-25: **MN Public Drainage Manual Outreach Workshops**; 10:00-3:30; \$25 (includes lunch); 3 locations noted below; registration info to come
 - May 22, MN State Community and Technical College, Moorhead
 - May 23, Coyote Moon Event Center, St. Cloud
 - May 25, New Ulm Conference Center, New Ulm
- May 22: **MN Public Drainage Manual Broad User Outreach Workshop**; 10 am to 3:30 pm; \$25 (lunch provided); MN State Community & Technical College, Moorhead; register [here](#) by 5/12
- May 23: **MN Public Drainage Manual Broad User Outreach Workshop**; 10 am to 3:30 pm; \$25 (lunch provided); Coyote Moon Event Center, St. Cloud; register [here](#) by 5/12
- May 25: **MN Public Drainage Manual Broad User Outreach Workshop**; 10 am to 3:30 pm; \$25 (lunch provided); New Ulm Conference Center, New Ulm; register [here](#) by 5/12
- July 31: **"25 by 25" Water Quality Town Hall**, evening, Rochester, details to come [here](#)
- Aug 7-9: **WaterWorks! Drinking Water Institute for Educators**; Lakeville; details [here](#)
- Aug 16: **"25 by 25" Water Quality Town Hall**, evening, Marshall, details to come [here](#)
- Aug 17: **"25 by 25" Water Quality Town Hall**, evening, Mankato, details to come [here](#)
- Sept 5: **"25 by 25" Water Quality Town Hall**, evening, Crookston, details to come [here](#)
- Sept 6: **"25 by 25" Water Quality Town Hall**, evening, St Cloud, details to come [here](#)
- Sept 12: **"25 by 25" Water Quality Town Hall**, evening, Ely, details to come [here](#)
- Sept 13: **"25 by 25" Water Quality Town Hall**, evening, Bemidji, details to come [here](#)
- Sept 19-20: **Great Lakes Commission Annual Meeting**; Duluth Entertainment Convention Center; more details to come
- Sept 26: **"25 by 25" Water Quality Town Hall**, evening, Minneapolis, details to come [here](#)
- Oct 4: **"25 by 25" Water Quality Town Hall**, evening, Burnsville, details to come [here](#)
- Oct 5: **"25 by 25" Water Quality Town Hall**, evening, Maplewood, details to come [here](#)