

Weekly LWC Update 2-2-17

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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

COMMITTEES ACTIVITIES THIS WEEK

In the Senate:

- The Ag, Rural Development and Housing Finance Committee received an overview from MDA; their budget presentation can be found [here](#).
- The Environment and Natural Resources Finance Committee heard an overview from the DNR on their programs and budget, including the Ecological and Water Resources Division and the Lands and Minerals Division. They discussed SF 233, which extends the deadline for expending grant money for aquatic invasive species removal and prevention to 2022; the bill was moved for possible inclusion in a future omnibus bill.
- The Environment and Natural Resources Policy and Legacy Finance Committee received an overview from MPCA and heard testimony about 2 proposed bills related to the local roads wetland replacement bank (SF326: where road replacement wetland bank credits are not available, BWSR must use credits from other service areas as permitted by state/fed law and wetland disturbances up to 10K sq ft for roads previously authorized by ACE Sec 404 are exempt from WCA and SF371: \$5M gen fund to BWSR to acquire wetland banking projects for road projects and \$10M bond proceeds to purchase land or easements for the wetland banks). SF 326 was passed and re-referred to the Transportation, Finance and Policy Committee. SF 371 was passed and re-referred to Environment and Natural Resources Finance Committee.
- The Jobs and Economic Growth Finance and Policy Committee heard from the CEO's of Cargill, Ecolab and Land 'o Lakes. As food-related companies, all three have a significant relationship to water and a common challenge they face is inconsistent regulations and permitting at the local, state and federal levels, which creates an uneven patchwork of compliance requirements from facility to facility within MN and across the country, thereby adding to their business costs. The increasing complexity of regulations and costs to implement them was also a concern, as is the need for adequate infrastructure. All three companies noted their commitment to MN and their pride in developing public-private partnerships that benefit MN.
- The Rules and Administration Committee, Subcommittee on Committees made these Senate appointments this week:
 - Clean Water Council: Ozmek and Rest
 - LCCMR: Westrom, Dahms, Dziedzic, and Tomassoni

- LSOHC: Tomassoni

In the House:

- The Capital Investment Committee also heard the Public Facilities Agency overview and re-referred HF575 (a bill exempting the Lanesboro dam project from a non-state contribution) to the Ways and Means Committee.
- The Environment and Natural Resources Policy and Finance Committee received an overview of the DNR’s budget and programs.
- The Health and Human Service Finance Committee received an overview from MDH, which included a discussion of increased fees and what parameters are and should be tested in drinking water supplies.
- The Job Growth and Energy Affordability Policy and Finance Committee got an overview of water infrastructure funding managed by the Public Facilities Authority.
- The Legacy Funding Finance Committee received an overview of the Lessard-Sams Outdoor Heritage Council and its latest recommendations. Read more in the House Session Daily: [Lessard-Sams council seeks funding for outdoor resource projects](#).
- The Transportation and Regional Governance Policy Committee and the Senate Committee on Local Government received an overview of the Metropolitan Council’s Environmental Services’ wastewater treatment and water supply planning efforts, along with their approach to SAC charges. A copy of their presentation can be found [here](#).

WATER BILLS

The gold shaded cells are those bills introduced this week that are companions to bills introduced previously. The bills below the double line were introduced during the week ending 2/2/17. Click on the File # hyperlinks for more details. As of 2/2, 129 of 1,410 introduced bills (9%) are related to water.

House File	Chief/LWC Authors	Senate File	Chief/LWC Authors	Description
782	Franson	169	Ingebrigsten	\$50K bond proceeds to DNR for grant to Ottertail Co for West Leaf Lake dam renovation
303	Davnie	431	Dziedzic	pesticide control ordinances adopted and enforced by cities of the 1st class are not preempted by the state
710	Uglem	262	Ingebrigsten, <i>Ruud</i>	\$103,978,000 in 2018 and \$585,000 in 2019 from the outdoor heritage fund to various recipients
581	Backer	473	Westrom	\$9.94M bond proceeds to DNR for flood hazard mitigation grants; of this \$750K to Browns Valley, \$7M to Redpath Township, \$390K to Bois de Sioux Watershed District for Big Lake Herman
651	Marquart	385	Eken	\$1.25M bond proceeds to DNR for flood hazard mitigation grants to Perley and Hendrum
None	None	427	Bakk	\$6M bond proceeds to PFA for grant to Keewatin to demolish a WWTF in Nashwauk to be replaced with new wastewater treatment ponds
None	None	465	Draheim	extends deadlines to install buffers on public waters and public ditches by 2 years
669	Youakim	467	Latz	\$2.25M bond proceeds to PFA for grant to St Louis Park for water treatment facility improvements
657	Backer	471	Westrom	\$13.08M bond proceeds to PFA for Breckenridge to demolish and replace its water treatment plant

649	Backer	472	Westrom	\$11.495M bond proceeds to PFA for Morris to demolish and replace its water treatment plant to reduce chloride discharges to Pomme de Terre River from its WWTF
635	Hamilton	543	Weber	existing bond authorization purposes modified for the Lewis & Clark Regional Water System & \$5M bond proceeds authorized for Phase 3
642	Urdahl	None	None	Water Infrastructure Funding program allows grants up to \$5M/project or \$20K/existing connection; PSIG grants to LGUs have max of \$7M to cover up to 80% of project costs; \$167M bond proceeds to PFA for water infrastructure grants , of which \$25M is to match federal clean water and drinking water revolving funds and of which \$80M is for grants to eligible municipalities for the water infrastructure funding program and \$55M is for wastewater projects and \$25M is for drinking water projects and \$62M is for PSIG grants
650	Gunther, Johnson	None	None	\$2M bond proceeds to DEED for innovative business development public infrastructure grants
653	Gunther, Johnson	None	None	\$15M bond proceeds to DEED for innovative business development public infrastructure grants
680	Quam	512	Senjem	\$18.996M bond proceeds to PFA for Oronoco to construct a WWTF
683	Backer	None	None	buffer implementation deadlines extended 2 yrs and enforcement may not occur unless gov't assistance is available to pay 100% of costs or landowner denies assistance
684	Backer, Dean	None	None	SWCDs must approve DNR's buffer protection maps and subsequent modifications for their jurisdictional area
698	Green	None	None	amends article XI of the MN Constitution and replaces the legacy amendment with funding for deficient roads and bridges and for clean water
702	O' Driscoll	None	None	provides for expert review of agency actions and prohibits use of unadopted rules
706	Gunther	565	Ruud	no more than 95% of the projected balance for each of the Legacy funds may be appropriated in a fiscal year
707	Gunther	566	Ruud	\$50K from the Legacy and Environmental Trust Funds to LCC in FY18 to maintain the dedicated funding website
708	Cornish	None	None	\$13.230M from bond proceeds to DEED for a grant to St James for stormwater, wastewater, water and other infrastructure improvements
717	Green, Hamilton	None	None	\$__ CWF and \$__ gen fund to DNR for grants to road authorities or WDs for replacing culverts as part of water quality or environmental improvement projects, respectively
727	Hilstrom	None	None	regulates chemicals of high concern in children's products
None	None	542	Utke	\$__ bond proceeds to PFA for Clearbrook to make wastewater infrastructure investments
None	None	550	Westrom, Dahms	\$8.428M in FY2017 and \$50.728M in FY2018 from the ENRTF to various recipients
766	Swedzinski	None	None	Modifies public comment period requirements for draft impaired waters list notices, provides process to challenge impaired waters lists, and requires notice to publicly owned wastewater treatment facility applicants
776	Backer, Hamilton	None	None	Modifies definition of "public waters" in the buffer law
779	Kiel	None	None	\$5.3M bond proceeds to PFA for East Grand Forks to connect wastewater system to Grand Forks ND

MN NEWS

WATER ACTIONS

- H2O for Life: [2017 Poster Contest](#): Clean Drinking Water Starts with Me; the contest is open to MN K-12 students and it ends March 3rd
- Duluth News Tribune: [EPA gives all-clear to pollution grants for Minnesota](#); Strib: [EPA gives all-clear to pollution grants for Minnesota](#)
- MN Farm Guide: [Minnesota Water Summit attended by Peterson's staff](#); Morris Sun Tribune: [Dayton, speakers address water quality in Morris](#); Strib: [Gov. Dayton stands firm on water quality law](#); Brownfield: [Minnesota Ag Commissioner Sending Clean Water Message Downstream](#)
- WCCO: [Minnesotan To Meet: Jamice Obiany Of Ecolab](#)
- MPCA: [Dick Fetterly, citizen water monitor](#)
- Litchfield Independent Review: [Besser appointed to state's Clean Water Council](#); here are all the new CWC appointments by the Governor (all with terms from 1/31/17 to 1/4/21):
 - Steven Besser – Litchfield, Fishing Organization Representative, replacing: John Underhill
 - Pamela Blixt – Minneapolis, Watershed District Representative, reappointment
 - Sharon Doucette – Minneapolis, City Representative, reappointment
 - Robert Hoefert – Isle, Farming Organization Representative, reappointment
 - Douglas Losee – Janesville, Business Organization Representative, replacing: Patrick Flowers
 - Rylee Main – Minneapolis, Environmental Organization Representative, replacing: Gene Merriam
 - Victoria Reinhardt – St. Paul, Metro County Government Representative, reappointment

WATER BUSINESSES

- Strib: [Pentair buys carbon dioxide filtration firm based in Denmark](#)

SURFACE WATER/STORMWATER

- KARE 11: [Water quality declining for Mississippi River](#); Brainerd Dispatch: [State study highlights river health in central MN](#); Pioneer Press: [Mississippi is near-pristine until it reaches metro area, pollution study finds](#)
- AgWeek: [Minnesota's Kandiyohi County offers grants for AIS projects](#)
- Post Bulletin: [Is the glass half-full, or half-empty?](#)
- Minnehaha Creek Watershed District: [Hybrid Milfoil Study](#) shows a Eurasian-native hybrid watermilfoil is more prevalent in lake areas treated with herbicides than those with little management; read the full report [here](#); Strib: [Taking genetics to the lake: New study shows that fight against invasive plant is more complicated thanks to hybrids](#)

WATER SUPPLY

- MPR: [More soil contaminated with TCE found in east Minneapolis](#)
- Hometown Source: [Ramsey considers river for water supply](#)
- Brainerd Dispatch: [BPU: Commission looks into new Brainerd water tower](#)
- Strib: [Megaproject in Arden Hills: Environmental model, or hazard?](#)
- Strib: [Brooklyn Center residents worry over taste, smell of water](#)
- Strib: [Second water main break closes Ridgedale service center](#)

- MDH: [Commissioner Ehlinger Statement on Governor Dayton’s Budget Proposal](#); “...the Governor’s budget includes funding to modernize our aging drinking water systems. His plan helps communities around the state protect drinking water from the source to the tap. The plan also extends a helping hand to private well owners and small communities, ensuring that they can get the technical support and resources necessary to ensure that all Minnesotans have safe drinking water no matter where they live.”

AG & WATER

- Austin Daily Herald: [Mower SWCD sending buffer notification letters](#); Mower Co has nearly 95% compliance, so letters are only being sent to about 300 landowners affecting 280 acres of cropland
- West Central Tribune: [Farm couple urges YM County to take on buffer enforcement](#); Daily Globe: [Enforcing the law: County must decide by March 31 to handle buffer compliance](#); AgWeek: [Minnesota county must decide by March 31 to handle buffer compliance](#)
- Post Bulletin: [Neighbors of proposed hog farm take dispute to St. Paul](#)
- Fillmore County Journal: [A big day for conservation in Minnesota](#); Redwood Falls Gazette: [Gov. Dayton signs agreement with USDA to protect and improve water quality in Minnesota](#); Sleepy Eye Herald Dispatch: [Gov. Dayton signs agreement with USDA to protect and improve water quality in Minnesota](#) Mountain Lake Observer/Butterfield Advocate: [Deal assists buffer effort](#)
- AgWeek: [Neighbors drown out landowner’s request to move water](#)
- MN Farm Guide: [Minnesota farmers get their Nitrogen Smart certificates](#)
- Brainerd Dispatch: [MN farmers want state aid, more in policy than money](#); farmers want a level regulatory playing field with neighboring states
- MDA: [MDA encourages northwest and west-central farmers to participate in nutrient initiative](#)
- Strib: [Gov. Dayton stands firm on water quality law](#)

EXTRACTIVE INDUSTRIES

- Mesabi Daily News: [County deadlocks on Twin Metals support](#); resolution to oppose federal land lock ties 3:3
- Duluth News Tribune: [Second lawsuit against PolyMet land exchange](#); KDAL: [Water Legacy Group Sues Forest Service](#); MPR: [Environmental groups launch second legal challenge over PolyMet land exchange](#); Strib: [Suit claims swap with PolyMet grossly undervalued public land](#)
- Strib: [Nolan outreach to Trump administration on mining draws fire](#) and [Rep. McCollum blasts Rep. Nolan over Boundary Waters area](#); Duluth News Tribune: [Minnesota Democratic representatives square off over Boundary Waters](#); MPR: [Nolan outreach to Trump administration on mining draws fire from McCollum](#); Pioneer Press: [Minnesota Reps. McCollum, Nolan clash over appeal to Trump on mining](#)
- MPR: [Debate over copper mining near Boundary Waters heats up again](#)
- DNR: [DNR plans to sell nonferrous mineral leases, State Nonferrous Metallic Mineral Leasing Public Lease Sale](#), and [Web Map for 2017 Metallic Minerals Lease Sale Areas Under Consideration](#); Duluth News Tribune: [Minnesota DNR ready for another mining lease sale](#)
- West Central Tribune: [Minnesota fifth largest minerals producer in U.S.](#)

OPINIONS

- The Fergus Falls Daily Journal: [What 2017 holds for Minnesota and its land](#) and [Fertilizer runoff making waters unsafe](#)
- Brainerd Dispatch: [Reader Opinion: Water quality](#)

BEYOND MINNESOTA

REGIONAL

- Des Moines Register: [Environmentalists say ruling could slow water quality efforts](#); in a 3-2 decision, the IA Supreme Court ruled that Des Moines Water Works cannot win damage payments from 3 drainage districts accused of sending fertilizers and other pollution unchecked into the Raccoon River; full Iowa Supreme Court [decision](#); AgriPulse: [Farmers will not have to pay damages in Des Moines Water Works case](#)
- MPR: ['It's a big one': Iowa pipeline leaks nearly 140,000 gallons of diesel](#) and [Company: Size of Iowa diesel pipeline spill overestimated](#)
- Science Daily: [New technique identifies micropollutants in New York waterways](#)
- MPR: [Senator: Army Corps told to approve Dakota pipeline easement](#)
- The Badger Herald: [UW students create biodegradable materials to clean polluted water, air](#)
- Strib: [Bill would let utilities offer loans to replace lead lines](#) in Wisconsin
- Strib: [Michigan extends emergency after sewage line collapse](#)

NATIONAL

- MPR: [Official: Trump wants to slash EPA workforce, budget](#)
- Reuters: [Republicans take first steps to kill Obama-era regulations](#)
- Circulate: [Applying the circular economy lens to water](#) *[note the drivers of change]*
- The Hill: [House to repeal Obama coal rule Wednesday](#); Strib: [Congressional Republicans move to dismantle Obama rules](#); the stream rule prohibits the coal industry from polluting the water sources near coal mines
- The Hill: [Lawmaker to propose abolishing EPA](#); freshman Rep. Matt Gaetz (R-FL) is working on legislation that if passed would completely abolish the EPA

GLOBAL

- Water Deeply: [Saving Water Is on Trend in the Apparel Industry](#); it takes about 713 gal to make a cotton T-shirt using conventional manufacturing processes – that's about 3 years' worth of drinking water

MEETINGS

MAWSAC

At this month's Metropolitan Area Water Supply Advisory Committee meeting, MAWSAC members reviewed and approved their statutorily required report to the Legislature, which will be released in mid-February.

Next, they discussed how they can work more collaboratively to support regional water supply planning. Staff were asked to calculate a return on investment for Met Council's legislatively funded programs so that, if needed to testify to the legislature, they could communicate the economic value of those programs. Although members feel MAWSAC has made headway, they feel more collaboration is needed, along with more education about their water programs. In an earlier survey of 1,000 residents, 860 of them did not know their source of water. Examples of good efforts were cited:

- Eden Prairie's water education program for 5th graders (since 1997) has resulted in an informed populous that has been supportive of investment in their system
- MDH's 20 year old drinking water institute for educators
- Met Council's [Wastewater Treatment for Youngsters](#) is the most downloaded item from their website, and their [stormwater reuse guide](#), [Metro Model 3](#) groundwater model, and [water conservation toolbox](#) are also popular

DAYTON'S TOWN HALL WATER SUMMIT IN MORRIS

Over 500 people attended the Water Summit in Morris last week, along with 170 people live streaming from 3 dedicated sites and an unknown number live streaming from homes and offices. In his opening remarks, the Governor said that people unwittingly add to water problems and that many actions will be needed to preserve a clean water legacy in MN. As a headwaters state that contributes to downstream impacts, like the Gulf of Mexico hypoxia zone, we don't always suffer the consequences of our actions. He said that can be true within the state, as well. He reiterated that individuals may own the land, but they don't own the water. He also said he won't rescind the buffer bill, water it down, or delay its implementation, but he will support improvements, if needed.

The keynote speaker was Greg Page, former CEO of Cargill. He acknowledged that he had not been involved in water issues prior to the onset of the buffer debate, but he has since become engaged and believes that the status quo is not acceptable. His talk focused on some of the social factors that must be addressed to facilitate change and said "many anecdotes don't provide a solution". According to Greg, there are 3 ways to respond to a threat: being compelled, incentivized or subsidized, or collectively volunteering. He believes emulation is a powerful force, but people must have shared values and a belief in practical tasks first. Harnessing our competitive spirit can also be important. Water issues are a "wicked problem" because: there is incomplete or contradictory knowledge (significant uncertainty), everyone is involved and has opinions, solutions present a large economic burden (costs on the few to benefit millions), and these problems are interconnected to other problems (they are complicated by the vagaries of nature and human nature). Because they are difficult to solve, righteousness doesn't work - there will be no perfect solution. Every choice has pros and cons and secondary consequences that impact the values of others. Three large problems are barriers to solving wicked problems: single constituency advocates, limited awareness of trade-offs, and the high cost of alternatives. To be successful, there must be a change in collective behavior, trust between stakeholders, optimism, a detailed vision, acceptance of responsibility, centric decisions, and improved communication.

In Gary Eichten's follow-up interview with Greg, he said there needs to be both awareness and learning about water issues, that Minnesotans have an uneven sense of personal injury, and that a water czar is not needed – everyone must participate across all sectors. He believes we need to understand and quantify good behaviors, but much more change is needed, especially in light of needed crop productivity increases and increasing amounts and intensity of rainfall. Without increased crop productivity, there will be enormous worldwide deforestation. The U.S. exports same amount of foodstuffs as in 1980, despite an % increase in global food needs; with 2.5B more people, how can we claim US farmers are feeding the world? He believes we can have both farming and clean water if the right practices are deployed on the right acres. If 3-4% of farm acres are not profitable and they have a disproportionate contribution to the problem, we should start conservation there. The Farm Bill must be changed to incentivize conservation practices and not encourage problematic practices. More water can be stored in the soil by increasing its organic content. He predicts that if there is not demonstrable behavior improvements in 3-4 years, then regulations will be forthcoming because consumers will demand it. Because MN's geography is varied, solutions will be different in every county. We can't focus funding only in geographic problem areas; we need broad ownership across the state. Farmers have become more efficient; the amount of chemical use/bushel of yield has dropped dramatically, but practices need to be adopted more universally.

Next up was a panel discussion about the food-water nexus. Panelists included: Pete Moulton, City of St Peter; Lauren Biegler, corn & soybean farmer; Holly Kovarick, Pope SWCD Administrator; Nancy and Larry Graden, dairy farmers; and Becky Kenow, Land 'O Lakes sustainability coordinator. After describing their backgrounds, panelists were asked whether voluntary efforts were enough or if government needs to play a more significant role. The majority felt a mix of approaches would be

needed and that market forces may also be a driver. Improved education, knowledge of cost-share resources and technology advances, and funding for incentive programs in priority areas are all needed. There was also general agreement that both public (federal/state/local) and private investment is needed for clean water. Complicated and ever-changing regulations are a concern, as is the high cost of new technologies. Also stated as problems were non-farmer's poor understanding of agriculture and the good practices and resources available, as well as farmer's poor understanding of downstream impacts. Sources of pollution exist in urban and rural landscapes, so it is time to collaborate on solutions. Every farming operation is unique, as is every city. Remember that a farmer's 5 year plan can be completely undone by a drop in crop prices.

A look at urban infrastructure challenges was the topic of the next panel, which was comprised of Blaine Hill, City of Morris; Larry Krohn, Ottertail Co; Dan Schutte Lake County SWCD; Vernell Roberts, Detroit Lakes; and Anne Marcotte, Aitken County. A wide range of challenges unique to each location were given: water treatment that creates a high chloride wastewater; protecting pristine waters; meeting new regulatory requirements; expensive technology that causes unaffordable rate hikes; protecting water quality to protect land (tax) values; and protecting forests, wetlands and recreational opportunities. Protecting health and the environment is considered by all panelists. Program and project funding comes from utility rates, state bonding, local cost-share programs, and low interest loans. Raising rates to cover the full cost of water is not feasible for fixed income residents and small communities. Water resources must be protected. Buffers, aquatic invasive species, lake issues, and fee increases have engaged people in the water conversation. Closing thoughts by the panelists: water goals should be integrated with education; people will do more when they can find a way to be collaborative instead of argumentative; listen more; we don't have catastrophic events driving change; collaborate; and people need to tell their own success stories.

DNR Commissioner Landwehr gave a brief recap of the day's themes and MDA Commissioner Frederickson closed with this thought: farmers don't farm in the aggregate, they farm individually; water quality will improve acre by acre.

BUFFER PROGRESS

Like many SWCDs around the state, the Scott County SWCD has been spreading the word about buffers to landowners. One of their fact sheets explains the buffer law, another describes payment options, and a third offers free rental of their seed drill. But they have also been holding a series of public open houses to meet landowners and help them with their property-specific buffer questions. After 3 open houses, staff had already assisted about 100 property owners, some of whom left feedback sheets indicating how they would like more assistance.

In the early stages of the buffer implementation process, SWCD staff reviewed DNR's buffer map and submitted corrections to the DNR. Staff and property owners had to wait until the DNR published their updated map before they knew whether or not DNR accepted the corrections. Some were accepted, others are still unresolved. Despite this initial map review, staff are still finding some mapping concerns that will need to be resolved. In general, staff have found the DNR buffer map to be a workable tool, with the exception of some inaccurate parcel boundaries, but these discrepancies can be resolved with individual landowners. Staff intend to use vegetation and elevation to guide buffer edges in the field, using the maps as a general guide. Scott SWCD has not yet tried the mobile application. They have found the BuffCAT compliance tracking tool to also be workable.

Next, using their spring 2016 aerial imagery and the DNR buffer map, the SWCD staff completed their initial assessment of the parcels subject to the 50' buffer. They found that 3,970 are likely compliant, while 142 are likely not compliant. Of these, staff expect 53 parcels will require additional field review. Interestingly, of the 3,970 parcels, only 2,515 parcels are larger than 1 acre. Those smaller than 1 acre are typically only for residential use not subject to the law.

In Scott County, topography seems to be the key factor influencing existing buffer width. Steep and highly erodible bluffs exist on the western boundary of the county, adjacent to the MN River and in these areas, sufficient buffers already exist. The southern half of the county is flatter and a lot of natural drainage ways were modified many years ago because they were either ditched, farmed through, or tiled. Like other counties, one of the map-related complaints has been that some ditches are labeled as public waters, despite their function as a ditch. They also have some situations where a public water (50' buffer) drains into a public ditch (16.5' buffer), which later drains into a public water (50' buffer). This inconsistency has caused some consternation.

Scott SWCD is also awaiting direction from BWSR on alternative practices, but they have not had many landowners propose alternative practices. Staff have, however, found that the buffer law has stimulated conversations with farmers about whole farm conservation planning. In this county, it is their procedure to cost-share for practices that aren't required, so reimbursement for buffers may be a concern, even though there are some assistance programs, like CREP and CRP.

Scott County has not yet made a determination about whether or not they will accept enforcement jurisdiction. They are currently in the process of identifying "other waters" as required and intend to rank them as high, medium or low priority in their water plan.

DENITRIFICATION BY STREAMS

Researchers at the U of MN's St Anthony Falls Laboratory are working to understand what temporal and spatial conditions will optimize denitrification processes in agricultural areas as a means to reduce nitrate contamination. Maintaining connections between streams (or basins) and their floodplains is one way to increase the potential for denitrification because periodic flooding can expose nitrate-laden water to soils that are richer in the key ingredients of denitrifying bacteria, carbon, and moisture. For example, two stage ditches are more effective at denitrification than traditional trapezoidal ditches. However, if all ditches were changed to two-stage ditches (in the 7 Mile Creek study area), only 10-11% of the nitrate load would be removed. Therefore, other practices like cover crops and targeted nitrogen applications is also needed. This research also determined that headwater streams have more denitrification potential than higher order streams and that severe floods can wash away denitrifying bacteria and reduce denitrification.

ROAD SALT SYMPOSIUM

Every year the Freshwater Society and several sponsors host a Road Salt Symposium to help salt applicators learn about new innovations, tools and practices to reduce salt use while maintain safe roads. This year, 260 practitioners from around the state attended. Presentations will be posted at www.freshwater.org soon. As snow plow drivers know, snow and ice control is much more than driving a truck; these days a lot of professional expertise is needed. As Steve Woods, the Executive Director of the FWS, pointed out: snowplow cabs are starting to look a lot like 747 cockpits!

The introductory speakers from Smith Partners, LLC explained how public applicators can help manage their liability risk through the adoption of a local snow and ice management policy. Last year, an advisory group helped develop the [MN Model Snow and Ice Management Policy](#) for public entities that covers decision factors including: public and personal safety, cost, environmental considerations, operator judgement, public judgement and training for private contractors. This same group developed a companion [Guidance Document](#) to assist government staff in developing and interpreting a local policy. Finally, the advisory group created the [MN Model Exhibit for Private Snow & Ice Service Contract](#) to help private operators manage their liability risk. The League of MN Cities reviewed this policy and is sharing it, but they have yet to formally adopt it. Public salt applicators that have adopted and implemented similar policies, trained their staff, and upgraded their equipment have experienced substantial reductions in salt use, reaping both economic savings and environmental benefits. Part of

the success of such policies is dependent upon consistent implementation and communicating with the public so the level of service is clearly understood. It was noted that New Hampshire has adopted a law to help private salt contractors voluntarily obtain limited liability protection if they have been trained, certified, utilized best management practices, and kept records of applications. Similar legislation was introduced in MN in 2016 (HF2594, SF3298), but did not advance in committee. Has your town adopted such a policy?

Another speaker from the Idaho DOT discussed the benefits and pitfalls of using recycled products for deicing. Many agricultural byproducts have been tested, with mixed results. Each proposal needs significant analysis and testing to determine feasibility, advantages and disadvantages, and environmental and economic benefits.

A team of speakers explained how equipment and methods are changing to “pre-wet” salt so a slurry is formed as a means of reducing salt use, oftentimes in excess of 23%! In MPCA’s [Chloride Management Plan](#), they have calculated that a 10% reduction in salt use could save between \$36M to \$124M in avoided material costs, environmental degradation, and infrastructure damage. The MnDOT district office staff in Owatonna have already converted about 75% of their fleet to allow slurry application. With the use of readily available parts and a week of in-house labor, a truck can be converted for about \$10K.

A guest from the Missouri DOT described their [Road 2 Tomorrow](#) project and the ideas they are pursuing to find new ways to fund their transportation system. After sorting through over 350 submitted ideas, they are further evaluating 6 ideas: constructing solar roads, using the Internet of Things, building “smart” pavement, allowing truck platooning, writing grants, and establishing an EV enabled infrastructure (scroll down to the “What We've Looked At” section on the website to learn more.

MPCA staff gave an update on their [Winter Maintenance Assessment Tool](#) which helps communities evaluate which best maintenance practices are right for them, upcoming Level 1 and Level 2 [Smart Salting training](#) and future plans for expanding chloride management beyond the metro area. MPCA has a mobile “salt dilemma” display that is available for loan to local entities.

MnDOT staff gave an update on the [Clear Roads](#) research efforts, which pools funds from 35 northern states to jointly: evaluate materials, methods, equipment; develop and compare recommendations and specifications; develop and analyze innovative techniques; and transfer technology. Over the last 12 years they have developed products including: the snow and ice control environmental best management practice (BMP) manual, roadway salt BMPs, a cost-benefit analysis toolkit, training videos, an annual survey of winter maintenance data and winter severity data (see last week’s update).

A representative from the Snow and Ice Management Association ([SIMA](#)) explained their efforts to lower salt use in the private sector, whose contractors primarily manage snow and ice on parking lots and sidewalks, which have very different management issues – the largest concern being slip and fall claims. SIMA acknowledges this is a very fragmented industry and estimates that there are about 110,400 snowplow service operators with 22,400 employees, of which about 80% are sole proprietors (but over \$1M truck in the US have snowplows mounted on them). In the private sector, property owners want clear pavement and demand salt overuse from their contractors (salt is cheaper than lawsuits). If providers don’t provide that level of service, they lose business. SIMA work has shown that, with training, contractors can reduce salt use by 30%. They are working with partners to research product use on sidewalks and parking lots and are tracking application rates throughout N America and Canada so they can develop application standards and best practices to reduce overuse. SIMA was a supporter of the New Hampshire law and felt the liability protection and voluntary nature were its best aspects. [Staff from [EnviroTech Services](#), a provider of deicing and anti-icing chemicals, estimated that

50% of pavement salt sold is used by private contractors, but that <15% of them use electronically controlled calibration equipment.]

A highlight of the symposium is the annual Environmental Leadership Awards. This year they went to: Park Nicollet medical services, the City of Jordan, the St Cloud Veterans Administration hospital, Curt Pape of MnDOT, and the City of Woodbury. Each award winner was inspiring in the amount of salt reduction achieved, their perseverance in adopting new practices, and in their innovative thinking. One case in point: staff from Jordan came to a Road Salt Symposium several years ago and were inspired to make improvements in their operations. They asked their Council for new equipment, but were denied. So they built their own equipment using a farm sprayer and they mix their own salt brine without a brining system. One way or another, this City near the banks of the MN River, is saving money and protecting the environment!

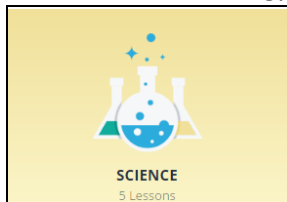
REPORTS

STATE OF MN WATER

- DNR: Stream Flow Report – discontinued until spring
- National Drought Mitigation Center: [1/31/17 Drought Monitor](#)
- DNR: [HydroClim Minnesota for Early February 2017](#)

RACE2REDUCE

Water-based lesson plans developed for grades K-5, 6-8 and 9-12 as part of H2O for Life's Race 2 Reduce project have now been posted [here](#). The curricula includes an introduction to the water crisis and extends into multiple disciplines: art, geography and social studies, health, language arts, math, music, science, and technology.



CREP CORRECTION

The pollutant reduction #s given for the CREP program in the 1/20/17 weekly update were incorrect. Reductions are as follows:

- Nitrogen: 1,220,000 lbs/60,000 acres/yr
- Phosphorus: 19,200 lbs/60,000 acres/yr
- Sediment: 246,000,000 lbs/60,000 acres/yr

IS MN READY FOR OIL SPILLS?

According to the MN Department of Public Safety, hazardous material spill response procedures are improving, but work is needed in these areas:

- aid local agencies in expanding their planning efforts by using safety account funds for local planning grants;
- enact a targeted public awareness campaign focused on how to prepare for potential oil and ethanol train incidents; and,
- offer advanced training in 10 southern Minnesota counties where ethanol is likely to move through on rail lines but where participation in prior oil train preparedness training has been limited.

Spills are not just a safety issue; when they happen near water, they are a contamination concern. Read the full 1/15/17 report: [Minnesota's Preparedness for Ethanol and Oil Transportation Incidents](#).

UPCOMING EVENTS

- Jan 7-Feb 19: **Smithsonian Water/Ways and We Are Water MN Exhibits** in the Events Hall of the Commonwealth Theater in Lanesboro, with companion exhibits “Currents of Change” in the Lanesboro Arts Gallery , “Water Brings People Together Over Time” at the Lanesboro Museum, and “Water in Ritual: Baptismal Gown Display” at the Bethlehem Lutheran Church; this group is also hosting many other activities, from stage performances to dinners to lectures; read all the details [here](#) (they span several web pages)
- Feb 7: **Nutrient Management Conference**, St. Cloud; details [here](#)
- Feb 7: **How much is enough? The potential use of wetlands to reduce agricultural nitrate losses**, U of MN - St Anthony Falls Auditorium, 3:30 pm, free, or listen via livestream [here](#)
- Feb 9: **We Are Water: The University and MN's Water Future**; 3:30 pm; U of MN, Northrup Auditorium, 4th Floor Best Buy Theater; free; more info [here](#)
- Feb 9: **Fireside Chat with John Anfinson** Superintendent of the National Park Service’s Mississippi National River Recreation Area; NPS Headquarters (111 East Kellogg Blvd, St Paul); 5:30 pm - 7:00 pm; free but RSVP [here](#)
- Feb 9: **Water Technology Export Roundtable: Opportunities in Water Reuse**; 9:30AM – 1PM; \$30 includes lunch; @ Dow Water & Process Solutions, 7600 Metro Boulevard, Edina; register [here](#)
- Feb 13: Rinke Noonan Annual **Drainage and Wetland Conference**; River’s Edge Conference Center in St Cloud, details to come
- Feb 16: U of MN Extension’s **Nitrogen: Minnesota's Grand Challenge and Compelling Opportunity**; \$20, 9:00 – 3:30; Verizon Wireless Center (1 Civic Center Plaza, Mankato); information and registration [here](#)
- Mar 7-9: 33rd Annual **MN Rural Water Association Water & Wastewater Technical Conference**; River's Edge Convention Center in St Cloud; \$280 early registration/\$305 on-site registration; agenda and registration [here](#)
- Mar 22-23: **19th Joint Annual Conference of the Red River Watershed Management Board and Red River Basin Flood Damage Reduction Work Group**; Courtyard by Marriott in Moorhead; details to come
- Mar 27: **Agricultural Drainage Workshop**; Best Western Willmar; details to come
- Mar 29-31: **Design-Build for Water/Wastewater Conference**; Minneapolis Convention Center; registration costs vary; agenda and registration info [here](#)
- Apr 18: **DEED MN Water Technology Export Roundtable: The Water Energy Nexus**, 10:00 a.m. to 1:00 p.m. @ Aeration Industries (4100 Peavey Road, Chaska) \$30 (includes lunch)
- May 9: Minnesota Day at the **National Climate Adaptation Forum**; registration can be found [here](#)
- Aug 7-9: **WaterWorks! Drinking Water Institute for Educators**; Lakeville; details [here](#)