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State of Minnesota
HOUSE OF REPRESENTATIVES
NINETIETH SESSION
H. F. No. 1016

02/09/2017 Authored by Hausman
The bill was read for the first time and referred to the Committee on Environment and Natural Resources Policy and Finance

No companion SF

1.1 A bill for an act
1.2 relating to environment; establishing certified salt applicator program; limiting
1.3 liability; authorizing rulemaking; proposing coding for new law in Minnesota
1.4 Statutes, chapter 116.

1.5 BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF MINNESOTA:

1.6 Section 1. [116.2025] VOLUNTARY SALT APPLICATOR CERTIFICATION
1.7 PROGRAM.

1.8 Subdivision 1. Definitions. For the purpose of this section, the following terms have
1.9 the meanings given:

1.10 (1) "commercial applicator" means an individual who applies or supervises others who
1.11 apply salt for hire, but does not include a municipal, state, or other government employee;
1.12 and

1.13 (2) "salt" means sodium chloride, calcium chloride, magnesium chloride, or any other
1.14 substance containing chloride.

1.15 Subd. 2. Voluntary certification program; best management practices. The
1.16 commissioner of the Pollution Control Agency must establish a program to allow commercial
1.17 applicators of salt to obtain certification as a water-friendly applicator. The commissioner
1.18 must develop a training program that promotes best management practices that use the least
1.19 amount of salt while ensuring safe conditions on surfaces traveled by pedestrians and
1.20 vehicles. The commissioner must certify a commercial applicator that has completed the
1.21 program as a water-friendly applicator for a period to be determined by the commissioner.
1.22 The commissioner must develop additional training or requirements for renewing the
1.23 certification. Notwithstanding section 16A.1283, the commissioner may charge a fee to

2.1 commercial applicators to recover the costs of developing and administering this section.
2.2 The commissioner must post the best management practices developed under this section
2.3 on the agency's Web site.

2.4 Subd. 3. Liability. (a) A commercial applicator certified under this section or the owner,
2.5 occupant, or lessee of land maintained by a commercial applicator certified under this section
2.6 is not liable for damages arising from insufficiencies or hazards on any premises owned,
2.7 occupied, maintained, or operated by the applicator, owner, occupant, or lessee, even with
2.8 actual notice thereof, when the hazards are caused solely by snow or ice, and the commercial
2.9 applicator's, owner's, occupant's, or lessee's failure or delay in removing or mitigating the
2.10 hazards is the result of implementation, absent gross negligence or reckless disregard of the
2.11 hazard, of the best management practices developed by the commissioner under this section.
2.12 Commercial applicators certified under this section and owners, occupants, or lessees of
2.13 land maintained by a certified commercial applicator who adopt the best management
2.14 practices are presumed to be acting pursuant to the best management practices in the absence
2.15 of proof to the contrary.

2.16 (b) To receive the liability protection provided in paragraph (a), the commercial applicator
2.17 or the owner, occupant, or lessee of land must keep a written record describing the road,
2.18 parking lot, and property maintenance practices used. The written record must include the
2.19 type and rate of application of de-icing materials used, the dates of treatment, and the weather
2.20 conditions for each event requiring de-icing. The records must be kept for three years.

2.21 Subd. 4. Penalty. The commissioner may revoke or decline to renew the certification
2.22 of a commercial applicator who violates this section or rules adopted under this section.

2.23 Subd. 5. Rulemaking. The commissioner may adopt rules necessary to implement this
2.24 section.

SENATE
STATE OF MINNESOTA
NINETIETH SESSION

S.F. No. 1646

(SENATE AUTHORS: WEBER, Sparks, Ingebrigtson, Tomassoni and Ruud)
DATE 03/01/2017 D-PG 928 OFFICIAL STATUS
Introduction and first reading
Referred to Environment and Natural Resources Finance

*NO COMPANION BILL
BUT LCCMR proposal
is included in the 2018
LCCMR/ENRRTF proposed
bill*

1.1 A bill for an act
1.2 relating to natural resources; appropriating money for water-quality credit trading
1.3 program for storm water.

1.4 BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF MINNESOTA:

1.5 Section 1. APPROPRIATION; WATER-QUALITY CREDIT TRADING PROGRAM
1.6 FOR STORM WATER.

1.7 \$300,000 in fiscal year 2018 is appropriated from the general fund to the commissioner
1.8 of the Pollution Control Agency to enter into a grant agreement with the Shell Rock River
1.9 Watershed District for a pilot project to develop and implement a model for a water-quality
1.10 credit trading program for storm water. The model must include identifying and quantifying
1.11 projects in the Shell Rock River watershed completed on or after July 1, 2013, and identifying
1.12 additional credit generators such as landowners, livestock farmers, in-lake water management
1.13 practices, and stream restoration projects. The program must include credit-estimation
1.14 methodologies and required trade ratios, credit demand calculation procedures,
1.15 implementation recommendations, and a transferable credit trading infrastructure. The
1.16 commissioner must convene a stakeholder group to guide the project. By July 1, 2019, the
1.17 commissioner must provide a final report to the chairs and ranking minority members of
1.18 the legislative committees with jurisdiction over environment and natural resources policy
1.19 and finance.

**Environment and Natural Resources Trust Fund
2018 Request for Proposals (RFP)**

Project Title:

ENRTF ID: 094-B

ShellRock River Watershed Stormwater Quality Trading Pilot Program

Category: B. Water Resources

Total Project Budget: \$ 350,000

Proposed Project Time Period for the Funding Requested: 2 years, July 2018 to June 2020

Summary:

This project will develop and implement a model stormwater water quality credit trading framework. The purpose is to provide voluntary, cost effective, pollutant reductions on a watershed scale.

Name: Courtney Christensen

Sponsoring Organization: Shell Rock River Watershed District

Address: 214 West Main Street
Albert Lea MN 56007

Telephone Number: (507) 377-5785

Email Courtney.Christensen@freeborn.mn.us

Web Address www.shellrock.org

Location

Region: Southeast

County Name: Freeborn

City / Township: Albert Lea

Alternate Text for Visual:

The attached visual aid is an exhibit showing the intended credit trading process and proposal.

_____ Funding Priorities	_____ Multiple Benefits	_____ Outcomes	_____ Knowledge Base
_____ Extent of Impact	_____ Innovation	_____ Scientific/Tech Basis	_____ Urgency
_____ Capacity Readiness	_____ Leverage	_____ TOTAL	_____ %

PROJECT TITLE: Shell Rock River Watershed Stormwater Quality Trading Pilot Program

I. PROJECT STATEMENT

The Stormwater Water Quality Trading Pilot Program (the “Program”) for the Shell Rock River Watershed District will develop and implement the state’s first water quality credit trading program for stormwater. Water quality trading is an innovative, voluntary, and cost effective methodology that can accelerate pollution reduction.

This Program is a collaborative effort between the watershed district, the City of Albert Lea, and the Minnesota Pollution Control Agency. Stormwater credit trading begins when an upstream landowner, or discharger, reduces pollution or nutrients below levels that are required by law. Reductions are then measured by third-party scientists and translated into “credits” that are sold to a credit bank. Downstream towns or cities—in this case, Albert Lea—would then purchase those credits in lieu of multi-million dollar stormwater system retrofits.

Currently, nutrient reductions completed by the watershed district are not counted towards the stormwater (MS-4) nutrient reduction goals of the City of Albert Lea. This Program seeks to remedy that. While the MPCA has done nutrient trading in a single permit/single point source setting, it has not been translated into the multi-point stormwater context. This Program will deploy a multi-disciplinary working group to develop the science and infrastructure necessary for success.

The Shell Rock River Watershed District has 15 years of projects and research conducted by the community that will be used to develop and test the necessary science and ratios for project success. This credit trading Program will lay the groundwork for implementing a state-wide voluntary program for watersheds and communities.

There are 3 overall goals of the pilot Program:

1. Create a transferable trading framework that incorporates eligibility and transaction protocols when working with a credit trading program. In doing so, this pilot Program will provide a roadmap to incorporate market factors into pollution reduction goals.
2. Test numerous factors involved in water quality trading to verify and adjust the Program to provide equal or greater reductions in pollution than conventional methods.
3. Provide voluntary opportunities for accelerated implementation for both point and non-point loading reductions.

This Program meets three of the seven 2018 LCCMR funding priorities. First, it builds on an existing system of natural resource data and information. It would also produce a foundational document for water quality trading in Minnesota. Second, the watershed district would improve the water resources of the communities within the watershed by reducing pollution and nutrients. Finally, this Program uses innovative, scientific methods to protect and restore our water through a well-established coalition of the city, watershed district, and landowners.

II. PROJECT ACTIVITIES AND OUTCOMES

Activity 1: Identify and Establish Baselines

Budget: \$75,000

The primary transferable outcome of this step will be to create a voluntary working template that can be used on a case by case basis in other Minnesota communities.

To become a seller, an upstream discharger must control its pollutant discharge beyond its current obligations. The Program would identify credit generation, or seller, opportunities and baselines from landowners, in-lake and stream management programs

and other opportunities by inventorying existing drainage infrastructure.

Outcome	Completion Date
1. <i>Identify and Catalogue Municipal Pollutant Loading</i>	March 1, 2019
2. <i>Establish Eligibility Conditions for Credit Generators</i>	July 1, 2019
3. <i>Establish Baseline Conditions for Credit Buyers</i>	August 1, 2019

Activity 2: Establish Trade Ratios and Trade Mechanics

Budget: \$200,000

The primary outcome of this step will be to select appropriate scientific models to estimate load reductions from Best Management Practices (BMPs). A trading ratio is the mechanism to place value on pollution reductions. For non-point sources, measuring pollution reduction for BMPs is site-specific. The Program will focus primarily on phosphorous reduction, although such a program can provide many ancillary benefits by reducing other pollutant parameters.

Outcome	Completion Date
1. <i>Develop Trade Ratios</i>	Jan. 1, 2020
2. <i>Establish Trade Mechanics</i>	February 1, 2020

Activity 3: Stakeholder Review and Final Report

Budget: \$75,000

Identified Stakeholders will be included to perform review and input on the Program. A final report will be prepared for possible state-wide implementation.

Outcome	Completion Date
1. <i>Stakeholder Review</i>	May 1, 2020
2. <i>Final Report</i>	July 1, 2020

III. PROJECT STRATEGY

A. Project Team/Partners

Multiple organizations will interface to complete this Program:

1. Shell Rock River Watershed District.
2. Minnesota Pollution Control Agency
3. City of Albert Lea
4. Other Agency Partners, eg. Minnesota Department of Agriculture and the University of Minnesota.

B. Project Impact and Long-Term Strategy

The long-term impact of this Program is to develop and implement a model stormwater quality credit trading framework to provide a voluntary, cost effective way to reduce pollution in watersheds across the state of Minnesota.

C. Timeline Requirements

This project is self-contained and will take up to 2 years to complete.

2018 Detailed Project Budget

Project Title: Shell Rock River Watershed Stormwater Quality Trading Pilot Program

IV. TOTAL ENRTF REQUEST BUDGET: 2 years

BUDGET ITEM	AMOUNT
Activity 1: Identify and Establish Baselines	\$ 75,000
Personnel	
Courtney Christensen; Resource Technician; Project Manager	\$ 5,000
Andy Henschel; Director of Field Operations	\$ 3,500
Steven Jahnke; Albert Lea Director of Public Works; Engineer	\$ 3,500
MPCA Personnel	\$ 5,000
Professional/Technical/Service Contracts:	
National Trading Consultant(s) (contractor to be determined)	\$ 30,000
Engineering/Ground Support Consultant(s) (contractor to be determined)	\$ 23,000
Upstream Discharger Outreach (contractor to be determined)	\$ 5,000
Activity 2: Establish Trade Ratios and Trade Mechanics	\$ 200,000
Personnel	
Courtney Christensen; Resource Technician; Project Manager	\$ 10,000
Andy Henschel; Director of Field Operations	\$ 3,000
Steven Jahnke; Albert Lea Director of Public Works; Engineer	\$ 2,000
MPCA Personnel	\$ 50,000
Professional/Technical/Service Contracts:	
National Trading Consultant(s) (contractor to be determined)	\$ 100,000
Engineering/Ground Support Consultant(s) (contractor to be determined)	\$ 30,000
Agency Outreach (contractor to be determined)	\$ 5,000
Activity 3: Stakeholder Review and Final Report	\$ 75,000
Personnel	
Courtney Christensen; Resource Technician; Project Manager	\$ 3,000
Andy Henschel; Director of Field Operations	\$ 2,000
Steven Jahnke; Albert Lea Director of Public Works; Engineer	\$ 2,000
MPCA Personnel	\$ 10,000
Professional/Technical/Service Contracts:	
National Trading Consultant(s) (contractor to be determined)	\$ 25,000
Engineering/Ground Support Consultant(s) (contractor to be determined)	\$ 25,000
Stakeholder Outreach (contractor to be determined)	\$ 8,000
TOTAL ENVIRONMENT AND NATURAL RESOURCES TRUST FUND REQUEST =	\$ 350,000

V. OTHER FUNDS

SOURCE OF FUNDS	AMOUNT	Status
Other Non-State \$ To Be Applied To Project During Project Period:	NA	
Other State \$ To Be Applied To Project During Project Period:	NA	
In-kind Services To Be Applied To Project During Project Period:	NA	
Past and Current ENRTF Appropriation:	N/A	
Other Funding History:	NA	

STORM WATER-WATER QUALITY TRADING PILOT PROGRAM

SHELL ROCK RIVER WATERSHED

• Project Proposal:

The Storm Water Quality Trading program (SW-WQT) for the Shell Rock River Watershed District will develop and implement a model framework for use throughout the state. Water quality trading is a flexible, cost-effective compliance plan that can accelerate implementation and water quality improvements. The SW-WQT will establish a transferrable approach that could be used across Minnesota for sediment and nutrient trading.

• Why is the Program Needed?

At the most basic level, water quality trading introduces market forces into pollution reduction efforts. Implementing this program would encourage voluntary and cost-effective pollutant reductions by crop and livestock farmers, in-lake water management practices, and stream restoration projects. The SW-WQT would identify policy options for implementing a state-wide voluntary SW-WQT program for appropriate watersheds.

G O A L S

- Create a transferable trading framework that incorporates eligibility and transaction protocols when working with a SW-WQT program. In doing so, this pilot program will provide a roadmap to incorporate market factors into pollution reduction goals.
- Test numerous factors involved in water quality trading to verify and adjust the program to provide equal or greater reductions in pollution than conventional methods.
- Obtain water quality improvements at lower costs compared to conventional treatment systems or retrofitting storm water conveyances in urban areas.
- Provide a compensable voluntary participation option for upstream projects.
- Provide a mechanism for voluntary compliance options for municipal MS-4 requirements.
- Provide voluntary opportunities for accelerated implementation for both point and non-point loading reductions.

Project Funding & Administration



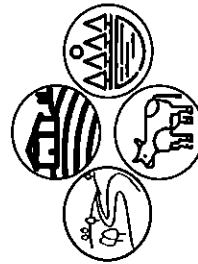
Regulated entity evaluating compliance options for future requirements

Project Funding & Administration



Trading Program Administrator Local restoration partner/administrator

Project Funding & Administration



Credit Generators Local landowners & Livestock farmers In-lake water management projects Stream restoration projects

Project Funding & Administration



Credit Aggregator Completed project/credit generation

Project Funding & Administration



Third-Party Credit Verifier Verified, certified, and registered credits



Credit Buyers NPDES regulated entity purchases credits to

OUTCOMES

IDENTIFY AND ESTABLISH BASELINES

Eligibility Conditions for Credit Generators

To become a seller, a discharger must control its pollutant discharge beyond its current obligations (e.g. state or local rules, Total Maximum Daily Load requirements). The SW-WQT would identify credit generation opportunities and baselines for current obligations in the following areas: crop farmers, livestock farmers, and in-lake and stream management programs to name a few. This exercise would include inventory and integration of existing regulatory requirements, including Minnesota's New Buffer Law.

Baseline Conditions for Credit Buyers

The SW-WQT Team would work directly with local municipalities to review and inventory their existing drainage infrastructure. Each catchment or flow pathway to lakes and streams will be identified and catalogued to describe pollutant loading under existing conditions. The primary transferable outcome of this step will be to create a voluntary working template that other Minnesota communities can use in their unique circumstances.

DEVELOPING TRADE RATIOS

A trading ratio is used to either discount or normalize the value of pollutant credits to ensure equal or greater reductions are achieved. For non-point sources, measuring pollution reduction for a best management practice (BMP) is site-specific. The SW-WQT will select appropriate scientific models to estimate load reductions from BMPs. The SW-WQT will focus primarily on phosphorus reduction, although such a program can provide many ancillary benefits by reducing other pollutant parameters.

The trade ratio is an additive mix of factors that can address many possible components that alter the actual downstream impact of the discharged pollutant. When applying trading to a new type of permitted discharge, like storm water, it is important to verify that an adequate trade ratio is being used so that an equal or greater reduction will take place when selecting trading as a compliance option. Factors to consider include:

- **Location Ratio** - This component adjusts the credit values to address vocational differences of biological, physical and chemical interaction that can reduce the amount of loading that is transported downstream.
- **Equivalency Ratio** - Phosphorus exists in different forms in the environment; the two main categories of phosphorus are soluble and forms associated with particulate matter. The equivalency ratio adjusts the credit value to address the buyer's discharge having a different ratio of soluble and particulate forms than the credit seller's discharge.
- **Uncertainty Ratio** - Trading programs apply a margin-of-safety to address any introduced errors and/or site variability associated when working with a credit estimation method.
- **Retirement Ratio** - By requiring the buyer to purchase more credits than necessary to address the discharge, the excess credits are put aside (retired) for the benefit of the water resource.

ESTABLISH CREDIT PRICE MECHANISM

Following creation of the SW-WQT framework, the program will analyze the feasibility of credit generation using recent or existing programs that have been completed within the SRRWD. These on the ground projects allow this pilot program to go beyond hypothetical to real world applications.

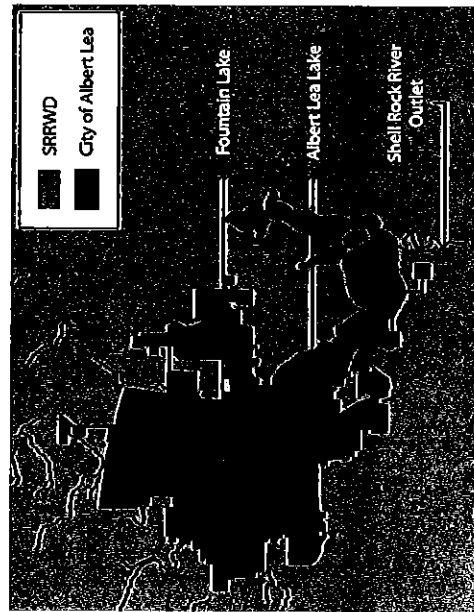
For more information, please contact:

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Matt Benda | mbenda@albertlealaw.com | 507-373-6491

Judy Erickson | jlerick@frontiernet.net | 612-961-5158

Also, visit SRRWD.org @ www.shellrock.org



Project Manager: Courtney Christensen, Resource Technician, Shell Rock River Watershed District (SRRWD), Albert Lea, MN.

Courtney Christensen is the Resources Technician at the SRRWD. She has worked extensively in the natural resource management and research fields within the SRRWD. She has been involved in and led numerous stream, lake, and wetland habitat improvement projects. Courtney also has a close working relationship with the Freeborn Area Soil Health Team by sitting on the Outreach Committee.

Organizational Description: The Shell Rock River Watershed District (SRRWD) was established in June 2003 at the request of local citizen's petition for the purpose of improving water quality. The District encompasses 246-square miles located entirely within Freeborn County. The SRRWD is home to the cities Albert Lea, Hayward, Glenville, Twin Lakes, Manchester and the southern portion of Clarks Grove.

The watershed includes 11 shallow lakes, but its tourism and identity are focused on Fountain and Albert Lea Lake. This watershed drains to the Shell Rock River at the outlet of Albert Lea Lake, and is the headwaters for the Cedar, Upper Iowa, and ultimately the Mississippi River. Being a headwaters watershed, water quality is reflected by local practices. The SRRWD is collaborating with multiple agencies to improve water quality conditions within the watershed, as well as influencing downstream conditions.

Kathy Lake, Madison WI @ Met Council & at FWS Moos Lecture (11/14/17)
The Lake Effect: Protecting water through innovative collaboration

Adaptive management approach to water quality; working outside their fence
P2 Manager for MadMSD, from Duluth

silos: regulation, policy and minds, but they are hard to break because they have become institutionalized

Attendees:

- Kathy Lake, Madison Metropolitan Sewerage District
- Leisa Thompson, Sam Paske, Larry Rogacki, Jen K., Council
- Rebecca Flood, John Stine, MPCA
- Susan Stokes, MDA
- Barb Naramore, DNR
- BWSR absent

John Stine: How to get EPA to approve it? Had EPA at the table from the beginning. EPA had to approve the WI DNR MOU, as well as the permit.

Kathy Lake:

Wicked problems won't be solved without partnerships and innovative thinking

Phosphorus:

- 30 municipalities, 350,000 people; see themselves as a resource recovery facility (40 MG water, MGs of biosolids, supply 35% of their own energy needs, struvite harvesting for P, effluent super treatment to brew Nine Springs EPA (effluent pale ale); change the look of wastewater
- today's challenges are pushing us into new territory
- P is the controlling element in their watershed (for impairments); WWTF removes 95% of P from their plant, but their streams aren't meeting intended uses so WI has new water quality criteria & they will need another 70% reduction in their plant (lower from .25 to .075 ppm)
- they are not the only source of P; P assessment to see sources, but if they removed all their P, they won't get to clean water
- rather than fighting the standard, task force identified a suite of compliance options so the solution didn't reside solely on the WWTF: construction (treatment/engineering), water quality trading (a framework already exists), adaptive management (looking at water quality in the stream, irrespective of PS discharges), multi-discharge variance (make adaptive management easier for those without staff; pay \$50/# over their limit for up to 20 years that they are over; working on codifying site-specific criteria; \$50 goes to a broker that pays for P reducing practices), others
- adaptive management is new; came with the new WQ standards
- pollutant trading is how to make up the discharge load somewhere else in the watershed; vs looking at the water body and figuring out how to get it to meet standards (adaptive mgmt.
- WI first state in US to try adaptive management and Madison first to try adaptive management, 4 yr pilot project in subwatershed in Yahara basin (\$3M to test adaptive mgmt.); goal to see if they could make the program work & prove the process was working (administrative checks)

- this takes a lot of partners (with different goals); found the partners all spoke different languages; what barriers were there to action; it was very challenging to go outside their fence and depend on others (risky)
- pooled money to invest in affordable practices outside their jurisdiction
- WWTF 0.25 mg/L (regs, timeline); farmer looks at soil health (no regulatory requirement/timeline); stormwater entities are looking at % reduction (regs, no timeline)
- How to deal with sediment bound P in the system (adhering to soils, in lake sediments)? Did research and created an MOU with WI DNR to address transient sediment; it will take years to see results; in stream water quality will be the ultimate measure of success (determined by monitoring or modeling); Dane Co invested \$ in harvesting stream sediment & buffered the soil disposal site so it won't return. DNR did pre/post aquatic life assessments
- difficulty in moving money outside jurisdictional boundaries; high risk to move outside boundaries
- there are a lot of practices that work: cover crops, with extended commitments (3-5 years) (had to fly in seed this year because there wasn't time for regular seeding after harvest)
- Yahara Pride Farms – farmer led group with a high level of engagement to help the process (find their document that quantifies their practices, N reductions, costs, etc.)
- Collaboration: Clean Lakes Alliance, County Land Conservation Dept, Yahara Pride; Yahara WINS is the major funder (pilot is 11,000 acres)
- manure management/composting; purchased equipment that can be shared across the watershed
- Invested in leaf management (40-50% of P coming from gutter leaves in one month period; almost all dissolved P); also have a ban on P fertilizer
- need to prove success; established WQ monitoring program (4 USGS gaging stations); majority done by citizen scientists
- pilot project very successful; Adaptive Management (AM) is very flexible; have an AM plan that can be revised as needed
- moving to full scale: what are permitted point sources (StW & WW) going to do for compliance (options); MMSD chose AM, but had to meet with all partners and the business case was what drove agreement; developed an MOU with regulators; AM was cheaper and would take less staff resources
- every project will be different and every watershed is different; laid out a framework – what would compliance look like?
- it will be a 20 year project – all discharge permits at the same time; full compliance by all PS permittees: within 20 years they will have installed the practices to reduce P by 100K#/day (measured or modeled); 100K #/day arrived at looking at what were the viable and cost-effective practices totaled (\$1/pound);
- Yahara WINS project doesn't have many restrictions on how the money is used; leverage federal and state funding (vs local share); they have harvestable buffers funded by WINS \$; many different kinds of contracts for practices (want longer shelf-life projects); practices are verified
- www. MADsewer.org – adaptive management plan with verification piece; funding 3 county land conservation staff to verify practices and invest on the capital side
- Yahara Pride farms need \$ to invest in trial practices
- there is a lot of risk with adaptive management
- collect \$1.5M/yr from partners; developing an operating reserve in the near terms
- have set reductions in each of 9 watersheds in the Yahara basin (936 sq miles)

- have an intergovernmental agreement (\$, goal, risk); can't tie future boards to decisions today; have opt in/opt out ramps every 5 years; if they opt out, partners must achieve practices on their own (within their own jurisdiction)
- started looking at this in 2011, began pilot in 2012; attorney Paul Kent was consistently on board to develop the agreement
- P TMDL is a motivator cost for 1# P reduction in urban environment ranges from \$500 - \$2,000/# (more expensive in built out environment); SW BMPs are good at TSS reduction but not as good at P reduction (dissolved P comes from 1 month in the fall)
- N is in the crystal ball, but impacts are unknown; have done WQ monitoring for all forms of N so they know what is working for N

Salt:

- use 1 tsp less salt to protect 5 gallons; GW and SW have significant chloride increases since they switched to salt; 1 extra teaspoon contaminates 5 gallons forever
- 225,000 pounds of salt reach their WWTF/day (>8M # /yr); largest lake has most dilution
- 395 is their WI standard (MN is 230; Met C influent is 215)
- have chloride variance, but permit has pollution prevention/source reduction requirements
- discharges are 10 miles S of major population area
- 40 municipal wells & private wells; no centralized treatment
- \$400M to 2.3B is their cost to treat chloride: option A, treat at the wells; option B, central treat a portion of the wells; micro filtration of side stream at WWTF (big operational costs to manage the brine)
- investing \$1M over 5 years in pollution prevention: optimize water softening, research, reduce road salt application; relying on known research data to drive application (change in social norms); not asking to get rid of safety; paying \$1/# of salt reduction ideas; 50% softener, 10% road salt, 5-8% water (?); working on training, research, grant programs, equipment
- www.WiSaltWise.com Be SaltWise! (shovel, scatter, switch posters at retailers); change misuse; scientifically driven application rate; many partners in salt Wise program; need people to understand salt & change their social norm; they have targeted audience (homeowners, drivers, etc.)
- WI is behind MN on salt management; just began their salt training/certification program
- after 2 years, Co got money to get application rates into their ordinances for parking lots and sidewalks; developed by Dane Co, but used by the whole state (cup size appropriate for 10 sidewalk squares)
- Other partners: Public Health (road salt report for years – but couldn't get anyone to listen), stormwater permittees (future TMDL risk); Madison stormwater utility funds the certification program
- 80 WWTF permits with chloride limits
- each action or inaction matters; how to act for the greater good for something that we all depend on

Met C meeting questions:

DC Water “pay for success model”; they have tried 4 “pay for performance” options, but haven't resolved how to move forward with this (don't want to just incentivize bad performers)

risk is they have to build anyway, but will have avoided build costs for a period of time

MAD MSD: use Dane County Land Conservation as the broker (they have the farmer relationships); also use Yahara Pride Farms as a broker
have grant programs from Yahara WINS for anyone (rated on a \$/# basis)

irrigating a small portion of a Verona golf course with effluent (without further treatment) & have been monitoring the effects (salt might be a factor); dealt with on a permit basis

Idaho Dixie Drain project (confluence of Snake and other river); doing side stream treatment of a portion of the river; operational for 2 years; more benefits beyond P removal; using treated solids; retains ability to capture more P (in wetlands)

Moos Panel/Questions: Carrie Jennings, Kathy Lake, Paul Nelson (Scott Co. Env Services Director):
What's different about this watershed/motivation (farmer-led coalition, volunteer monitors)? Lake Mendota is the most heavily studied lake in the US; birthplace of limnology; Madison icon; people are close to these neighborhood resources; created a lot of energy; Yahara Pride – conservation minded farmers who are testing new practices and seeing how to apply it elsewhere (funded by Yahara WINS); they want to lead the way.

Paul – Sand Creek watershed (270 sq miles) coalition; got a targeted watershed grant; 3 counties, many cities, 3 SWCDS, a lake imp district, a sportsmens club and a _____

Challenges –

paul: be ready to give up some control; going into unknown territory, relationship building and developing trust; they have different roles;

Kathy: taking additional risk; climate change, depend on others actions for their success

Kathy: P & CI aren't the only 2 challenges: also N, invasive species; what is controlling the future health of your waterway; nutrients aren't toxic, CI is and it doesn't go away

Paul: larger question – scale of issues is enormous and there isn't enough money by building stuff; must change practices (what you do for CI is different than what you do for P); went from a complicated problem to a complex problem (with social issues)

what are key motivators for ag producers to participate in Yahara WINS? many motivators: fear of regulation, farmers want to lead in working their way out of regulation (same in sand creek); also social norms, financial incentives, recent survey – barriers: availability of equipment & self-efficacy (you believe you have the ability to install and operate and afford the practice); also acknowledgement (thank you cards)

Mae Davenport: designed surveys; Book: Getting to maybe, how the world is changing; those who understand local dynamics will have the most success

Kathy – they have a social scientist on staff; how to quantify success; how to work with behavior change

Kathy – in pilot, all partners contributed, proportionate to the amount of P they had to reduce; in full scale project those #s got much greater; have an intergovernmental agreement on who governs and how & how to credit back pounds

Paul: Scott Co has a levy (WD) and they will use it to leverage grant moneys to enable the other 2 counties

What is the role of state government? Paul: “get out of the way”; SWCDs know what the major things are that need to be taken care of and they know how to implement them; struggle in keeping SWCD staff; stable funding; abandon competitive grant model; when you loose people, you lose relationship/trust of farmers

Kathy: had a chance to take a look at the big picture; take a step back: it is not just the point sources; what is our ultimate goal and how do we get there? Let the people on the ground drive those decisions. Don't tie hands with regulations/program restrictions. Find the people in organizations who can see the big picture. When looking at new regs, WI DNR convenes stakeholder groups that involve industry.

Kathy: in addition to WWTFs that can treat water, there is also P2 efforts; looking at instream P reduction (injecting alum into stormwater where it can be harvested); do what nature does

How important is educating the public and decision makers? Are we adequately funding such education? Paul: making people smarter doesn't change behavior, which is very tough. Use the moral obligation model to identify activators. Work on those things: what are the consequences; social norms; emotional and moral response is needed. Conservation is not a rational decision; it often costs more.

Kathy: who needs a message and what do they need to hear and do? How to engage them in the way that was needed (not a full public education campaign). Reach farmers through messengers that they listen to. How they worked with cities was different than with farmers. CI info is different than P.

Any communication missteps? Kathy: not a linear process; there is no crystal ball of where they are going; tried some things that didn't work very well, but could be tweaked because they had good relationships; can put out offensive messages without even knowing it

Should we be infiltrating SW from large, heavily salted roads? No WW & StW reuse will be controlled by salt content of that water. Have a small pilot WW reuse project to irrigate a golf course; still have work to do.

Paul: sand creek is listed for CI, as a WW discharge issue (water softening) from 3 cities; could soften at the water treatment plant; reuse at the golf course (Mde Waketon Sioux); rebate programs for more efficient softeners

Kathy: paid water resource management practicum to look at transient sediment (funded by Yahara WINS); water/sediment interface was higher than the WQ std; there is a lot of legacy P in sediment, therefore they spent \$2M in sediment removal projects & stabilizing it on upland sites (most of dredged sediment was more than 25 years old); farmers have made big improvements; also funded the SNAP+ program (measures P loss from fields); refinement needed for winter and feedlot runoff to update the model

Paul: most of their research has been social (2011 – attitudes of riparian landowners to conservation/buffers; 2016 – prior cost-share participants to learn their motivations and did they get good service?; this winter – repeating the 2011 survey to see if outreach is working to change attitudes)

How does AM work? who documents changes and credited? Yahara WINS provides funding to staff or projects. Yahara Pride gives out dollars to try practices and documented by Yahara Pride. Similarly, Land Conservation Dept works with landowners, verifies, and pays. Yahara Pride is trying new practices. LCD is doing more traditional work. Where does the money come from? Yahara WINS collects money from 30 partners that need to reduce P, based on known practices/results/costs. County gets paid for staff/practices.

Paul: Scott Co has levy authority. Met surface water management statute -> Scott WMO levies \$ and then they get grants and expect partners to pay about 25%. LIDs pay a share for AIS – lake folks benefit the most, so they pay more.

Paul: complexity theory; old model of building WWTFs uses templates to expand the practice – engineered solutions don't address people (like raising kids)

Kathy: empower each of us to do something different. Take a new view of challenges by listening to others.

FROM MEMBERS

1.1 A bill for an act
1.2 relating to environment; appropriating money for an alternative nutrient reduction
1.3 strategy for the Minnesota River Basin.

1.4 BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF MINNESOTA:

1.5 Section 1. MINNESOTA RIVER BASIN NUTRIENT REDUCTION STRATEGY.

1.6 \$750,000 in fiscal year 2018 is appropriated from the general fund to the Board of Water
1.7 and Soil Resources to convene a stakeholder group and design an alternative nutrient
1.8 reduction strategy for point and nonpoint sources in the Minnesota River Basin. The strategy
1.9 must include a voluntary trading program between point and nonpoint sources and identify
1.10 eligible classes of participants. A neutral third party must be identified to monitor and
1.11 administer the strategy. By September 15, 2017, the board must submit a workplan and
1.12 budget for implementing this section and submit it to the Legislative Water Commission
1.13 for review. The stakeholder group must include at least one member from each of the
1.14 following entities:

1.15 (1) Minnesota Pollution Control Agency;

1.16 (2) Department of Natural Resources;

1.17 (3) Department of Agriculture;

1.18 (4) Association of Minnesota Counties;

1.19 (5) Minnesota Farm Bureau;

1.20 (6) Minnesota Farmers Union;

1.21 (7) League of Minnesota Cities;

- 2.1 (8) Coalition of Greater Minnesota Cities;
- 2.2 (9) Minnesota Environmental Science and Economic Review Board;
- 2.3 (10) Minnesota Association of Townships;
- 2.4 (11) Conservation Minnesota;
- 2.5 (12) Minnesota Association of Watershed Districts;
- 2.6 (13) Minnesota Agri-Growth Council; and
- 2.7 (14) Friends of the Minnesota Valley.
- 2.8 By January 15, 2019, the board must submit details of the strategy and recommendations
- 2.9 for an entity to administer the nutrient reduction plan to the chairs and ranking minority
- 2.10 members of the house of representatives and senate committees and divisions with jurisdiction
- 2.11 over the environment and natural resources.