Policy Committee Meeting Agenda

Clean Water Council

February 25, 2022

9:30 a.m. – 12:30 p.m.

WebEx Only

2021 *Policy Committee: John Barten (Chair), Rich Biske, Kelly Gribauval-Hite, Raj Rajan, Victoria Reinhardt (Vice Chair), Peter Schwagerl, Phil Sterner, Jordan Vandal, and Marcie Weinandt*

9:30 Regular Business

- Introductions
- Approve today's agenda
- Approve minutes of previous meeting
- Chair and staff update
    - Chair and Vice-Chair selection for 2022
    - House Legacy Finance Hearing on February 16
    - Other bill hearings: PFAS, chloride, SWCD funding, private wells

10:00 Quick MDH Update on Pharmaceutical Policy Statement for Council Approval on 2/28

10:15 Follow-up to Soil Health Conversation

- Review options for draft policy statement

10:45 BREAK

11:00 Reviewing Topics for Future Policy Statements

12:00 Adjourn

Possible Future Meeting Topics:

- Shoreland protection and restoration efforts (DNR)
- Council member interest in frac sand mining
- New Plan to Spend 3M Settlement for East Metro
- Neonicitinoids: clothiandin, and imidaclopid (idea from Minnesota House of Representatives)
- Tire chemical and salmon/smelt in Lake Superior (idea from Minnesota House of Representatives)
- Precision manure application/Manure storage grants for water quality
- Drainage policy and opportunities for water quality
- Changes to policy/statutes on Mt Simon Hinckley acquifer

Policy Committee Meeting Summary
Clean Water Council (Council)
January 28, 2022, 9:30 a.m. to 12:00 p.m.

Committee members present: John Barten (Chair), Rich Biske, Kelly Gribauval-Hite, Raj Rajan, Victoria Reinhardt (Vice Chair), Peter Schwagerl, Jordan Vandal, Marcie Weinandt, and Phil Sterner.
No members absent.

To watch the WebEx video recording of this meeting, please go to https://www.pca.state.mn.us/clean-water-council/policy-ad-hoc-committee, or contact Brianna Frisch.

Regular Business

- Introductions
- Motion to approve the January 28 meeting agenda and November 15 meeting summaries, moved by Rich Biske and seconded Victoria Reinhardt. Motion approved by vote unanimously.
- Chair and staff update
  - John will step down as Chair of the Policy Committee (Committee), due to his new position as the Council Chair. Please connect with John or Paul if anyone on the Committee is interested.
  - Minnesota Environmental Partnership is working on a bill that would appropriate general fund money for lead pipe remediation and drinking water systems. They asked if Paul Gardner would speak for a few minutes about the 2016 CWC recommendations to have Minnesota Department of Health (MDH) provide a report on this topic. There is also the federal money funding this area as well.
  - Governor's supplemental budget came out as $7.7 billion and has water-related items, including funding for Soil and Water Conservation Districts (SWCDs) at $22 million instead of the Clean Water Funds (CWFs).
- Subcommittee on Minnesota Water Policy (SWMP) update by Jim Stark
  - They started with over fifty recommendations this summer. They have trimmed it down to about thirteen topics. The bills are drafted, have jackets, and they are moving forward:
    - B1: Sustainable Water
    - B15: Watershed District Funding
    - B3: Improving Water and Agriculture: Precision Ag
    - B5: Voluntary Private Well Testing
    - B7: Water Safety Plans for Cities – A Pilot
    - B8: Soil-Health Action Plan, Including Research, Implementation, and Outreach
    - B6: Identifying Vulnerable Aquifers – Coordinated Monitoring
    - B9: Water Commission and the Wastewater Advisory Council
    - B10: Complete Land Preservation Goals for the Upper Mississippi
    - B11: Ensure Drinking Water Free from Lead
    - B4: Riparian Buffer Tax Credit
    - B12: Encourage Groundwater Recharge Where Needed
    - B13: Keeping Water on the Land, Water Retention

    Questions:
  - Rich Biske: Is there a way to track some of the bills that align with the policy items for the Committee to review? *Answer:* Yes, there are similar items between the groups. Paul can distribute to the Council.

Results of Strategic Plan Survey, by Paul Gardner *(WebEx 00:23:30)*
An online survey was put together for Council members to review the Council's Strategic Plan, specifically the strategies included in the plan, and to help identify if there needed to be improvements or items added or changed, to help check if the Council is on track.

- Results revealed that few of the Council members who took the survey thought any items should be removed. However, a few items the respondents said they were unsure.
- Additionally, when specific outcomes were used, scores tended to be higher (easier to measure outcomes).
- There did not seem to be any surprising results at this time.

- There were some topics that the Policy Committee has heard about from various experts in the last two years, to see if there was interest in following up on the topics. There was high interest in chloride, soil health, pharmaceuticals, and manure management. Some of the items already have draft policy statements. Other topics brought forward include: aquatic life and microplastics.

Questions/Comments:

- John Barten: I think this helps provide some content to our discussion. Perhaps, some clarification is needed with some of the written feedback, especially regarding the strategies. *Response:* Another step, other than a stakeholders meeting, could be to propose a survey to the many different groups that are in touch on a regular basis. There can be blind spots, and feedback is useful. It can take some time for thoughtful comments, so an online response approach may be good (versus an online meeting).

Follow-up to Soil Health Conversation from November meeting *(WebEx 00:34:30)*

At the last Policy Committee meeting, there was a good discussion from experts in the field talking about soil health. Staff planned to summarize views and information on soil health in a draft policy statement format, keeping the actual position of the Council blank, so that the Committee can deliberate the contents of the draft. The Council can then decide if it would like to have a position.

Discussion:

- *Question: Does the Committee want to have a policy on soil health, or should this topic wait a while?*
  - Marcie Weinandt: What are the impacts and purpose of the policy statements? *Answer:* It has varied over time. One of the first statements the Council adopted was on buffers. Then, Governor Dayton turned it into the buffer law. Other statements have had impacts as well (i.e., Smart Salting training, drinking water quality). There are sometimes legislative actions that are created after the policy is presented.
  - John Barten: There are many different aspects to soil health. I think we should wait to see how the Legislature responds and the actions of other groups to see how this plays out. This is something the Committee needs to discuss further.
  - Marcie Weinandt: We are moving alongside other groups interested in this area, so having a policy does make sense.
  - Rich Biske: I commend the Governor for including soil health in a few different ways (i.e., supplemental budget). One value the Council could have is having a direction to go for soil health. If soil health continues to gain momentum, the CWFs paired with a policy could support more implementation.
- A few themes emerged: improving synchronization so the definitions are the same, as well as being able to measure. It would be good to have a way to identify what constitutes soil health. The Minnesota Department of Agriculture (MDA) has a solid strategy to achieve an endorsement on their Minnesota Ag Water Quality Certification Program (MAWQCP), reflecting some of these items.
  - Peter Schwagerl: This is a big topic that can come from many different directions. So many of the practices start at point A, and it could take a long progression to get to the end goal. It takes years, and often build upon other practices. There is also a need to have many options for people to approach these practices. It is a tricky thing to measure.
  - John Barten: Peter, in your experience and as a farmer, which soil health initiatives would you remove or add? *Answer:* Looking at the five core principles of soil health by the MDA's MAWQCP (minimize disturbance, keep the soil covered, maintain living root, maximize diversity, and integrate livestock), it would be best to incorporate all of these for the best outcomes. For most farms in Minnesota, integrating livestock would be the most difficult, especially for the large acreage for crop production. The entry point is probably the minimizing disturbance and reducing tillage, because that is the easier economic improvement (reduces cost). It is one piece at a time, which opens the door for more changes. Most production in Minnesota is corn and soybeans, which can really limit the potential for diversity.
- Included in this document are the CWFs that support soil health activities. However, soil health is not identified as a stand-alone initiative. There are many things that support soil health, wherever a farmer is at in

their career. Perhaps, the state agencies could be requested to identify and include these items as "soil health"? It would help communicate this information.

- A next step could be to follow up with the initial discussion guests. Finding commonalities and building on what is already present, as well as finding something measurable, would be good.
  - John Barten: Figuring out a definition will be a little challenging, and so will building something measurable. Are there measures for soil health floating around?
    - *Answer by Brad Redlin, MDA:* Different soils have different capabilities. Another good way of defining regenerative agriculture is to show an increase in carbon in the soil, to show an increase in soil health. That is how you identify something as regenerative; is it better than it was before, increasing soil organic matter.
    - *Answer by Jeff Berg, MDA:* Often, measurements include the number of acres using soil health practices. Organic matter is also one measure. Just note, other groups struggle with this definition as well.
    - *Peter Schwagerl:* There are other groups that could be contacted for soil health to see what measurements they use (i.e., MDA's water quality program, Natural Resources Conservation Service, other farmer education groups). If that is a topic people are more interested in, they could present at upcoming meetings. Peter could help connect these groups to the Committee.

Reviewing Topics for Future Policy Statements *(WebEx 01:17:30)*

The Committee members rank their top five policy topics for future policy statements.

- The highest ranking topics include: water storage, manure, shoreland protection, private wells, chloride, PFAS, and pharmaceuticals. The top three items that have no policy statements include: water storage, manure, and shoreland protection.
- Next steps include bringing this forward to the full Council. To have it presented there; to reinforce the direction the Committee is moving.

Discussion/Comments:

- Rich Biske: Perhaps this is looking more at 2022, versus the unique position that the Council can have on these topics. Are there other screening factors that could be used to run items through?
- Victoria Reinhardt: The policy statements we have already should not be included with the items that we are ranking. The overall goals are identified in the Strategic Plan, perhaps this is a way to screen some of these items. The policy statements already created, should be held in a separate list, because they may need to be amended, as needed. They are not forgotten.

Review Latest Draft of Pharmaceutical Policy Statement *(WebEx 01:42:00)*

This is to review the final changes to the policy statement. This change was to switch the first item with the last item. Therefore, the research is now listed as the first item in the policy statement, while the "do not flush" label requirement is listed as last. This was the only change. It was to help lead into the "Safe Medication Return Program" as the second item.

Discussion:

- Victoria Reinhardt: I like these changes. It makes sense to have the research listed as first, so that more can be done for alternatives to dispose of pharmaceuticals. Having the label requirement first did not leave as many options, so it makes more sense to have it listed last, and the research first.
- Tannie Eshenaur, MDH: One thing missing from the list of MDH activities is the Drinking Water Ambient Monitoring program which includes some pharmaceuticals monitoring in source and finished water. A brief paragraph can be provided if the Committee would like that included.
- Motion to approve the policy statement with the amendments by Victoria Reinhardt, seconded by Raj Rajan. Motion approved by vote unanimously.
- This policy statement will move to the full Council for adoption, to be included in the biennial report.

Adjournment *(WebEx 01:53:01)*

Approved by Policy Committee on 04/27/2018
Approved by Clean Water Council on 05/21/2018
DRAFT revision 01/28/2022

Clean Water Council

Pharmaceutical Policy

Policy Statement

The Clean Water Council recommends that the State establish the following to reduce the discharge of pharmaceuticals into the waters of Minnesota:

1. Fund research on the pathways of pharmaceuticals into surface water and ground water, identify priority pharmaceuticals that pose the greatest risk to human health and aquatic life, identify and support practicable solutions to reduce their entry into Minnesota waters, and recoup reasonable costs through an industry-funded safe medication return program.

2. Adopt a "Safe Medication Return Program."
   - This legislation should provide flexibility by:
     - Utilizing the current collection infrastructure;
     - Requiring manufacturers to support public education and outreach activities; and to cover all administrative and support costs including, but not limited to: collection, compensation to authorized collectors, transportation, secure receptacles, and environmentally sound disposal of covered pharmaceuticals;
     - Allowing residents to take unused medications to drop-off locations or use a mailing envelope, both for free
     - Providing drop-off locations that are "equitable and reasonably convenient"

3. Require the words or symbols for "do not flush" be printed on all prescription pharmaceutical labels, and remove any existing instructions to flush unused portions.

Problem

Pharmaceuticals are used to treat, cure, diagnose, and prevent disease and ailments in humans, agricultural animals, and companion animals. The use of pharmaceuticals is expected to increase in response to increasing demand. These chemicals are designed to be biologically active and potent at low doses. Pharmaceuticals enter the environment through many pathways including:

- Improper disposal of unused medications (both in home and at care facilities)
- Runoff from manure on agricultural fields or feedlots
- Effluent from health care facilities, medication manufacturing and other industrial sources
- Excretion from normal use in humans (e.g. not all of the drug is fully metabolized in the body)

Pharmaceuticals are commonly detected in Minnesota surface water, groundwater and sediment. The concentrations detected are low relative to other contaminants, but they can have negative impacts on the environment, especially aquatic species. It is extremely difficult and costly to remove these chemicals from wastewater and drinking water. Preventing entry to the environment, such as through improving

prescription practices and minimizing input from waste streams is the best way to avoid potential impacts of pharmaceuticals.

In addition to the environmental impact of waste pharmaceuticals being discharged into the waters of Minnesota, there is also a public safety benefit to environmentally sound disposal. Prescription drugs left unused by the intended recipient, which are not disposed of properly, can be misused by others and have serious or fatal consequences. Seven out of ten people who start abusing prescription drugs get them from the medicine cabinets of friends and family. Among children, the most common cause of accidental poisoning is from ingesting drugs. In addition, periodic cleaning of the medicine cabinet reduces the likelihood that adults, especially the elderly, will take the wrong medication, wrong dose or use expired medications.

Current Efforts by State Agencies with Clean Water Fund (CWF)

With funding from CWF, the Minnesota Department of Health (MDH) and the Minnesota Pollution Control Agency (MPCA) conduct research, public education, monitoring and collecting waste pharmaceuticals throughout the State, and environmental surveillance. Both agencies work closely with other State agencies, local entities such as local law enforcement, county & city public health departments, and local pharmacies to keep unwanted pharmaceuticals from reaching our waters.

Minnesota Department of Health:

Pharmaceutical Rapid Assessments: Using a novel method, MDH has established conservative screening values (above which the risk of negative human health affects increases) for 119 pharmaceuticals commonly prescribed in the U.S., and monitored for in the environment.

Outreach & education grants: Grants go to local governments, non-profits, watersheds districts, and academic institutions to raise awareness of pharmaceuticals and other contaminants of emerging concern (CEC), expand outreach on pharmaceutical take-back opportunities, and reduce the presence of CECs in the environment through behavior change.

Educational resources: The Department creates resources for local entities that facilitate outreach to communities and provide a consistent message throughout the State on the health and environmental risks of pharmaceuticals and other CECs.

One Health Antibiotic Collaborative: The MDH leads a team of experts from Minnesota Department of Agriculture, MPCA, Minnesota Department of Natural Resources, Board of Animal Health, Board of Veterinary Medicine, University of Minnesota, pharmacy and dentistry groups, physicians, agricultural representatives, and other experts to ensure that Minnesotans use antibiotics in a manner to reduce antibiotic resistance and protect the environment. http://www.health.state.mn.us/onehealthabx/

Unregulated Contaminants Monitoring Project (UCMP): In the Unregulated Contaminants Monitoring Project, MDH sampled approximately 70 community systems across Minnesota for a wide spectrum of unregulated contaminants, including pharmaceuticals. MDH tested for over 150 pharmaceuticals at participating systems supplied by surface water and systems potentially impacted by wastewater.

Drinking Water Ambient Monitoring: MDH is establishing a Drinking Water Ambient Monitoring program to operationalize surveillance of unregulated contaminants in drinking water sources, such as pharmaceuticals. Ambient monitoring data drives the identification, management, and elimination of high-

risk sources of contamination to drinking water sources. This program will help MDH and public water systems anticipate potential threats from unregulated contaminants and will inform future source water protection efforts.

Minnesota Pollution Control Agency

Monitoring of pharmaceuticals and other contaminants of emerging concern (CECs) in surface and groundwater: The MPCA monitors pharmaceuticals and other CECs in surface water and groundwater to determine their presence and prevalence in the environment. Currently, the MPCA monitors about 140 chemicals comprised of pharmaceuticals, hormones, anti-corrosives, and other industrial or commercial chemicals in surface and groundwater. Among those, most frequently detected pharmaceuticals in surface water are: antidepressants (amitriptyline, fluoxetine, and sertraline), and iopamidol (an x-ray contrast agent). The January 2021 study, "Pharmaceuticals and Chemicals of Concern in Minnesota Lakes, shares the results of sampling in 50 randomly selected lakes. The study shows that contaminants of emerging concern are widespread in the state.

Investigation of sources of pharmaceuticals and other CECs to the environment and evaluate their potential effects on aquatic life: MPCA conducts focused investigations to determine sources of pharmaceuticals to the environment and understand potential actions to reduce them: pollution prevention, best management practices, rules. Often MPCA collaborates with university and federal researchers in these studies to use genomics and other new techniques to assess potential effects on fish and other aquatic life. MPCA has also developed a semi-automated approach for summarizing known information about the behavior and potential impacts of specific pharmaceuticals and CECs on aquatic life, resulting in an Aquatic Toxicity Profile (ATP). The ATPs provide a basis for comparing one chemical versus another.

Outreach & education materials: The agency provides support to local governments, pharmacies, law enforcement and other agencies to raise awareness on the impacts of pharmaceuticals in the home and in the environment, and to support proper disposal of unneeded pharmaceuticals.

Registration and tracking of waste pharmaceutical collection locations in the state: The MPCA works with local law enforcement, pharmacies, Native American Tribes and other state and federal agencies to encourage the installment of secure bins to dispose of unwanted pharmaceuticals. The MPCA oversees over 350 collection sites and collects data from them annually. Since 2010, these programs have voluntarily collected over 550,000 pounds of waste pharmaceuticals. The MPCA is working with the Department of Human Services on a federal grant to place approximately 25 collection boxes in underserved areas of the state in 2018.

Clean Water Council

Soil Health Policy Statement Draft

for 25 Feb 2022 Policy Committee Meeting Discussion

Policy Statement

The Clean Water Council recommends the creation of a Soil Health Action Plan for Minnesota by June 30, 2023. Under the direction of [the Board of Water and Soil Resources?], the plan should set ambitious but achievable soil health goals for acreage in Minnesota to reach by 2034, and recommend the resources required to meet the goal.

The plan should be developed with the guidance of a working group, which should include the Minnesota Department of Agriculture, Board of Water and Soil Resources, Minnesota Pollution Control Agency, Minnesota Department of Health, Minnesota Office of Soil Health, USDA-Natural Resources Conservation Service, Minnesota Soil Health Coalition, Land Stewardship Project, Sustainable Farming Association, Minnesota Farmers Union, and other stakeholders deemed appropriate.

The working group should use the five principles of soil health as published by the Minnesota Agricultural Water Quality Certification Program as the basis for setting goals.

Recommendations should include strategies for the scale of needed financial support through 2034 from the following:

- Clean Water Fund
- State bonding
- State general fund
- Federal funding sources

Recommendations should include the following:

- Synchronization with priorities in the state's Nutrient Reduction Strategy as well as comprehensive watershed management plans under the One Watershed One Plan program (and other similar plans)
- Strategies for participation by non-operating landowners and renters
- Methods of verification
- Research needs

Problem/Context

Farmers can reduce nutrient runoff, increase soil productivity, reduce financial risk from weather events, and reduce input costs by adopting strategies that improve soil health. Many current programs help landowners learn about and try these strategies, but these strategies need higher rates of adoption to meet nutrient reduction goals in Minnesota.

This document will summarize current efforts as well as proposals to scale these efforts up.

For reference, here are several examples of what constitutes soil health in Minnesota.

Statutory Definition of Soil Health (Minn. Stat. 103C.101, Subd. 10a)

> "Soil health" means the continued capacity of soil to function as a vital living system that sustains plants, animals, and humans. Indicators of soil health include water infiltration capacity; organic matter content; water holding capacity; biological capacity to break down plant residue and other substances and to maintain soil aggregation; nutrient sequestration and cycling capacity; carbon sequestration; and soil resistance.

Core Principles of Soil Health (Minnesota Department of Agriculture-MDA)

The MDA's Minnesota Agricultural Water Quality Certification Program (MAWQCP) includes a soil health endorsement. According to the MAWQCP's soil health endorsement evaluation form:

> Producers must meet basic requirements and achieve the advanced threshold in at least three of the five principles and standard in the others in order to qualify for a Soil Health Endorsement.
>
> **Basic Endorsement Requirements:**
> - Achieve MAWQCP certification
> - Advanced pest management score (9-10) on MAWQCP assessment
> - Standard or advanced score for nitrogen and phosphorus management on MAWQCP assessment
> - Participation or membership in a group or organization that shares information and/or advocates for soil health and sustainability
>
> **Core Principles of Soil Health**
> - **Minimize Disturbance**: Disturb the soil as little as possible to improve water holding capacity, increase organic matter, reduce soil erosion, reduce energy use and decrease compaction
> - **Keep the Soil Covered**: Keeping the soil covered improves crop production, nutrient use efficiency, water quality, water holding capacity and can decrease pesticide use
> - **Maintain Living Root**: Keep plants growing throughout the year to feed the soil, increase organic matter, water holding capacity and nutrient use efficiency as well as decrease pesticide use
> - **Maximize Diversity**: Diversify as much as possible using crop rotation and cover crops to increase organic matter and biodiversity in the soil
> - **Integrate Livestock**: Livestock integration helps balance carbon/nitrogen ratios, manage residue, decrease herbicide use and helps manage nutrients from animal waste

Clean Water Fund Appropriations That Support Soil Health Activities

Currently, there are several initiatives (including those supported by the Clean Water Fund) that support greater soil health.

Clean Water Fund Appropriations That Support Soil Health Activities		
Agency	**Program**	**Description**
BWSR	Grants to Watersheds with Approved Comprehensive Watershed Plans (Watershed-based Implementation Funding)	Makes non-competitive grants to fulfill projects in approved comprehensive watershed management plans (One Watershed One Plan).
BWSR	Surface and Drinking Water Protection/Restoration Grants: (Projects and Practices)	Makes competitive grants for high priority conservation BMPs in local water plans. Up to twenty percent must support drinking water
BWSR	Enhancing Soil Health and Landowner Adoption of Cover Crops for Drinking Water & Groundwater Protection	Supports Minnesota Office for Soil Health. Makes grants to SWCDs for cover crop and conservation tillage demonstration projects. Supports Governor's climate initiative.
BWSR	Tillage, Cover Crop and Erosion Evaluation	Estimates soil erosion and tracks use of tillage BMPs and cover crops.
BWSR	Soil and Water Conservation District (SWCD) Capacity Funding	(Legislative recommendation and not recommended by the Clean Water Council.) SWCDs work with landowners to promote soil health.
MDA	AgBMP Loan Program	Supports administration of 2,000+ clean water loans for conservation tillage, SSTS, erosion control, and agricultural waste.
MDA	MN Agricultural Water Quality Certification Program	Provides technical assistance for 1150+ farmers to adopt water quality BMPs with verified results. Matched with federal RCPP grant.
MDA	Technical Assistance	Supports 25 edge-of-field water quality monitoring sites, 100 farm demonstration plots, and 30 field days and other events annually.
MDA	Nitrate in Groundwater	Supports implementation of the new Groundwater Protection Rule and Nitrogen Fertilizer Management Plan to reduce nitrate from fertilizer to groundwater. Working with 38 local government units on nitrate monitoring and reduction activities.
MDA	Forever Green Agricultural Initiative (U of MN)	Supports competitive R&D grants for crops providing continuous living cover, and implementation of those crops.

Other Soil Health Initiatives

Minnesota Soil Health Coalition

The Minnesota Soil Health Coalition is a 501(c)(3) nonprofit organization with a board of agricultural producers. (Web site at www.mnsoilhealth.org.) It is a statewide organization that promotes large scale adoption of soil health practices, making a measurable positive impact on soil erosion, surface water quality, and soil infiltration for Minnesota.

The organization has several key activities:

- Maintain a 30 member farmer-to-farmer network that mentors farmers to transition to soil health practices
- Organize and collaborate on events, trainings, field days, and meetings with producers and other entities
- Establish research base-Ag Center at MN College for a minimum of 5 year agreement for testing, data, and information exchange of soil health practice implementation in Minnesota
- Provide leadership development, education, and training opportunities
- Create and maintain a statewide soil health forum

The Nature Conservancy

The organization has a North America agricultural program, which focuses on sustainability (both nutrient efficiency and soil health) that apply to Minnesota. Nationally, they have a goal of having soil health practices on fifty percent of cropland acres. They have a goal of five million acres in cover crops by 2030.

The organization has demonstration projects to build local partner capacity for both cost-share and cost-effective evaluation practices. They have a pilot ecosystem markets project to provide innovation and new revenue streams to producers willing to adopt new cover crop and soil health practices (Ecosystem Services Market Consortium, or ESMC). In addition, the organization has an equipment cost-share program when there may be a lack of cover crop equipment, and they also train crop advisors.

Minnesota Office for Soil Health

According to its website:

> The Minnesota Office for Soil Health works towards healthy farms and ecosystems by delivering soil education, promoting grower networks, and researching best practices.
>
> The Minnesota Office for Soil Health was formed in 2017, as a collaboration between the Board of Water and Soil Resources and the University of Minnesota Water Resources Center. Our mission is to protect and improve soil resources and water quality by developing the knowledge, skills and abilities of local experts to more effectively promote sustainable soil and land management.

Its activities include co-hosting the 2020 Soil Management Summit, developing the Minnesota Cover Crop Guide, leading the update of the Midwest Cover Crop Council crop selection tool, developing a better understanding of how Minnesota's cold climate soils respond to soil health management systems. The office is also a convener of stakeholder forums.

Land Stewardship Project (LSP)

This nonprofit organization has a Bridge to Soil Health Initiative.

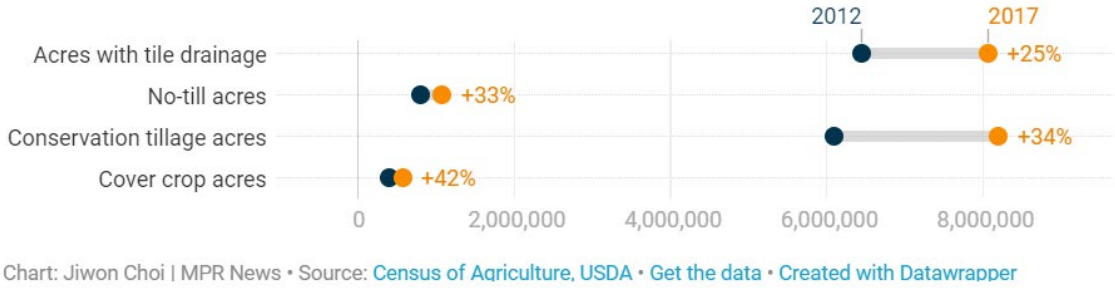
> [The] Bridge to Soil Health initiative works with crop and livestock farmers and other professionals that view soil as a long-term investment. LSP acts as a bridge between emerging soil health information and local farming practices, thereby uniting a community of farmers as the Soil Builders' Network.

The organization also hosts field days, workshops, on-farm demonstrations, and emerging soil health research. LSP also publishes a Soil Health Pocket Guide and maintains soil health resources on its web site.

Results to Date

Despite these quality programs and other individual efforts, it is believed that soil health strategy adoption is low in Minnesota. Many farms may use strategies for soil health but not at the threshold described by the MAWQCP, and this would be hard to track.

Better soil practices have definitely increased. This chart from Minnesota Public Radio[1] used Census of Agriculture data to track progress on several major practices. It notes a substantial increase in conservation tillage acres but modest progress on cover crops.



However, the total number of acres needed for these practices is low. (See graphic from Nutrient Reduction Strategy Five-Year Progress Report below.)

[1] Dan Gunderson, Elizabeth Dunbar, and Jiwon Choi, "A Look at Minnesota Farming in 7 Charts," Minnesota Public Radio, https://www.mprnews.org/story/2019/04/11/ag-census-2017-minnsota-snapshot, viewed 25 January 2022

Barriers/Concerns Raised by Stakeholders

Stakeholders convened by the Clean Water Council have expressed several concerns or barriers to increased adoption of soil health practices, or to statutory goals.

- **Increasing outreach for non-operating landowners/rented acres**: A sizeable amount of Minnesota row crop acres is rented out by non-operating landowners (NOLO). Working with both NOLOs and renters is more labor intensive for getting agreement. Some models have worked. The nonprofit Renewing the Countryside has convened learning circles, especially for female farmers and NOLOs. Landowners who want the MAWQCP certification and who rent land are required to get all of the rented land certified too. A farm organization Clean Water Council member noted that long-term rental agreements and conservation leases can work, but these require a landlord who is on board and is willing to accept the risk.
- **Increasing outreach for crop advisors:** Advisors often have the greatest influence on a farmer's decision and can make or break the decision to adopt soil health. Educating them and gaining their trust is essential.
- **Accommodating variation by farm**: A statutory goal would need flexibility that acknowledges that farmers face different situations based on landscapes, cropping systems, soil types, and topography. This would be somewhat similar to how the buffer law was carried out.
- **Maintaining quality outreach and education for farmers:** Practices, management, and information change constantly, so keeping farmers up to date is important.
- **Acknowledging the barrier of upfront cost:** Implementing the soil health principles unavoidably requires new or retrofitted equipment from what is used in conventional systems, as well as potential for additional materials costs for things like fencing, software, and other soil health supportive actions. Additionally, the experience with Kernza shows that there must be market development so that the market can sustain alternative cash crops, and so farmers can take the risk. There are also few custom planters/reduced tillage service providers.
- **Securing data privacy:** Farmers will be concerned about the privacy of their data, such as practices and outcomes on their land. Strong protections would make farmers feel more comfortable knowing that their data won't be sold for other uses like grain seed marketing.
- **Improving synchronization:** Many stakeholders at the federal, state, and local level are engaged in soil health work in different ways and with different audiences, but they aren't always working in unison.

Proposed Solutions to Date

Soil Health Related Items in Clean Water Council's Strategic Plan

The Clean Water Council has several strategies in its Strategic Plan that influence soil health.

- Achieve a goal of five million acres of row crop agriculture that use cover crops or continuous living cover by 2034.
- Enroll 6,500,000 acres and 5,100 Minnesota farms in the Minnesota Agricultural Water Quality Certification Program (MAWQCP) by 2030.

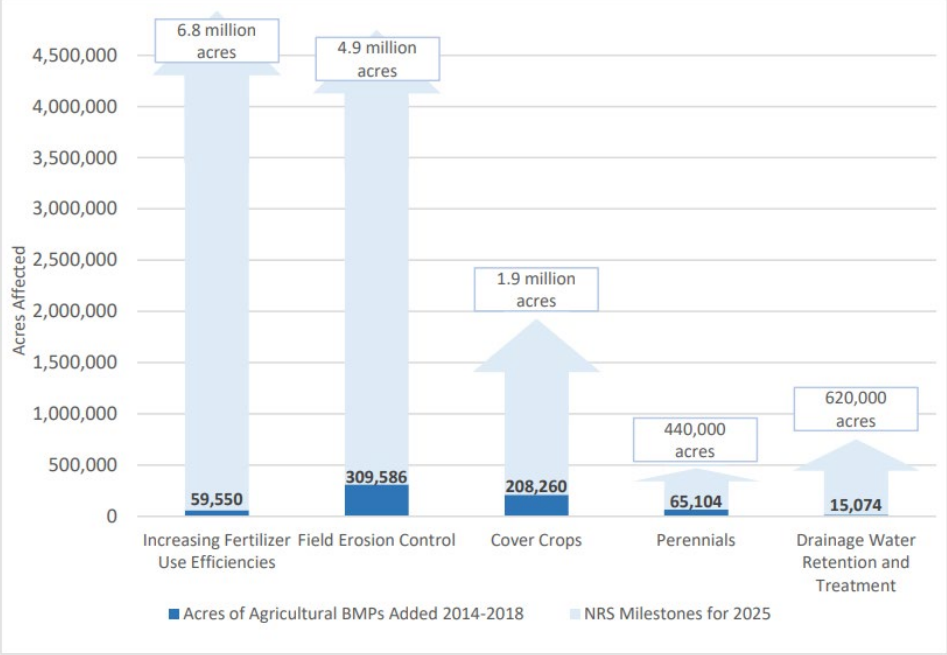
- Recommend spending a minimum of 5% for innovation and activities that focus on “landscape drivers” and pollution prevention.

Soil Health Related Items in the State’s Nutrient Reduction Strategy

According to the Minnesota Pollution Control Agency:

> The Minnesota Nutrient Reduction Strategy (NRS) outlines how Minnesota will reduce nutrient pollution in its lakes and streams, and reduce the impact downstream.
>
> The strategy specifies goals and provides a framework for reducing phosphorus and nitrogen levels. The NRS, adopted by 11 organizations in 2014, calls for reducing nutrient levels in major rivers by 10-20% by 2025, with much higher long-term reductions by 2040.

See the excerpt below from page 67 of the NRS’s five-year progress report. This excerpt shows Figure 44: Newly affected acreages of agricultural best management practices (2014-2018) *implemented through government programs* [emphasis ours] in the Mississippi River and Lake Winnipeg Basins toward the NRS milestone scenario outlined in the 2014 NRS for completion by 2025.



Legislative Proposals

Several bills have been introduced in 2021 in the State Legislature. Rep. Todd Lippert has taken the lead on promoting soil health with the following proposed legislation.

- **HF1010: Statewide Soil Health Action Plan**. This bill would make a general fund appropriation to the University of Minnesota for a statewide soil health action plan, with the input of BWSR,

MDA, DNR, and MPCA, and an appropriation to the University for precision agriculture research and outreach.

- **HF936: Soil Health Cost Share Program**. This bill would appropriate $5.5 million from the general fund to BWSR for cost-share grants or the purpose of establishing soil health practices to mitigate climate change impacts and improve water quality and related public benefits.
- **HF701: Soil-Healthy Farming Goals Established, Financial Incentives Created**. This bill would set soil-healthy farming goals including
    - (1) at least 50 percent of Minnesota farmers implement cover crops, perennial crops, no-till, or managed rotational grazing by 2030;
    - (2) 100 percent of Minnesota farmers implement cover crops, perennial crops, no-till, or managed rotational grazing by 2035; and
    - (3) 100 percent of the state's tillable and grazeable acres employ cover crops, perennial crops, no-till, or managed rotational grazing by 2040.

List of Potential Policy Ideas for the Clean Water Council to Discuss in 2017-2018

REV 6/20/17

Topic	Strategic Plan Reference	Concept	Possible CWF Funding Recommendation Idea?	Keep?
	Goal 1: Drinking water is safe for everyone, everywhere in Minnesota			
Promote more perennial cover	Strategy 1.4: Implement the Nitrogen Fertilizer Management Plan (NFMP) to promote vegetative cover and advanced nitrogen fertilizer management tools to protect private wells in vulnerable areas.	Create property tax incentives for perennial cover in drinking water supply management areas and critical water supply source areas.	No	
Require private well testing	Strategy 1.2: Support widespread and routine testing of private well water and help private well owners achieve safe limits at the tap, beginning with a pilot project in FY2020-2021.	Require all sellers of real property to test drinking water from wells for bacteria, nitrate, arsenic, manganese, and lead; inform buyers and renters of the test results; and direct buyers to mitigation guidance from the MDH **[Adopted FY22-23]**		
Support manganese response	Currently no strategy on manganese	Support MDH's Manganese Response Plan? **[Likely presentation to Council in January]**	Don't know yet	
	Goal 2: Groundwater is clean and available to all in MN			
Promote water reuse	Strategy 2.2: Identify significantly contributing groundwater recharge areas to the aquifers in the Twin Cities Metropolitan Area by 2025, and develop protection and management strategies for these aquifers by 2034 to ensure continuous orderly and economic development.	Implement the Department of Health's recommendations from its white paper.	No; the MDH didn't ask for additional funding	
	Goal 3: Surface waters are swimmable and fishable throughout the state			

List of Potential Policy Ideas for the Clean Water Council to Discuss in 2017-2018
REV 6/20/17

Topic	Strategic Plan Reference	Concept	Possible CWF Funding Recommendation Idea?	Keep?
Reduce manure runoff	Currently no strategy on manure	*Does the committee want a general policy strategy about manure?*		
		Option 1: Match supply with demand and apply with greater precision	Maybe	
		Option 2: Emphasize education on applying at right time, place, amount, etc.	Maybe	
		Option 3: Focus on regulation and enforcement for higher compliance	No	
		Option 4: Broaden what is in large feedlot general permit, or apply permit to smaller feedlots	No	
Reduce impacts of biofuels	Currently no strategy on biofuels	Request that the Legislature and MN Department of Agriculture consider the impacts to water quality from biofuel policy	No	
Reduce impacts of PFAS	Strategy 3.6: Support effective science-based responses to emerging threats or contaminants of emerging concern.	Support MPCA's PFAS Blueprint **[Adopted 2021]**	No	
Monitor for microplastics	Strategy 3.6: Support effective science-based responses to emerging threats or contaminants of emerging concern.	Support monitoring of microplastics using existing monitoring networks. **[Currently underway from FY20-21 CWF]**	Yes; Legislature initiated this support in FY20-21	
Reduce presence of microplastics	Strategy 3.6: Support effective science-based responses to emerging threats or contaminants of emerging concern.	Support phase out of or reduction in single use plastic bags.	No	
Require source reduction for pharmaceuticals and support more research	Strategy 3.6: Support effective science-based responses to emerging threats or contaminants of emerging concern.	Support extended producer responsibility (EPR) for pharmaceutical safe medication return program, plus: prevention through reformulation; fund research on the pathways into surface water and ground water (including biosolids), identify priority pharmaceuticals that pose the greatest risk to human health and aquatic life, identify and support practicable solutions to reduce their entry into Minnesota waters, and recoup reasonable costs through the industry-funded safe medication return program. **[Adopted EPR platform and no-flush requirement 2018]**	No	
Chronic Wasting Disease	Strategy 3.6: Support effective science-based responses to emerging threats or contaminants of emerging concern.	Support the U of M's continued research on CWD in Minnesota waters. **[Currently underway.]**	Yes; Legislature initiated this support in FY22-23	
Minimize new chloride impairments	Currently no strategy on chloride	Request that the Legislature give MPCA the authority to charge a fee for chloride training. **[Adopted FY22-23]**	No	
		Fully fund the Smart Salting applicator training and certification program, and MPCA chloride reduction program aimed at reducing salt use. **[Adopted FY22-23]**	Some	
		Provide liability protection for the Smart Salting program certificd private winter de-icing applicators to reduce salt use. **[Adopted FY22-23]**	No	

List of Potential Policy Ideas for the Clean Water Council to Discuss in 2017-2018
REV 6/20/17

Topic	Strategic Plan Reference	Concept	Possible CWF Funding Recommendation Idea?	Keep?
		Encourage and support the adoption of the MPCA's Chloride Reduction Model Ordinance language by local government entities. **[Adopted FY22-23]**	No	
		Have the MPCA convene and lead a stakeholder process to develop recommendations for new labelling requirements on bags of de-icing chemicals sold in Minnesota. **[Adopted FY22-23]**	No	
		By 2022, a total of 520 people a year attend Smart Salting Classes. **[From MPCA's Strategic Plan.]**	Some	
		Update the state plumbing code to effectively prohibit the installation of new water softeners in Minnesota that use timers rather than on-demand regeneration systems. **[Adopted FY22-23]**	No	
		Fund a program for activities, training, and grants that reduce chloride pollution. Grants should support upgrading, optimizing, or replacing water softener units. **[Adopted FY22-23]**	Yes	
	Strategy 3.7 Support cities to upgrade wastewater treatment facilities to address specific water quality goals by reducing the discharge of nutrients and other pollutants based on total maximum daily loads (TMDL) and regulatory requirements.	By 2022, 100% of all municipal WWTPs have been evaluated for reasonable potential for chloride and permit actions taken to reduce chloride. **[From MPCA's Strategic Plan.]** Provide financial support and technical assistance to municipalities to reduce chloride discharges and allow flexibility for how municipalities achieve these reductions. **[Adopted by CWC for FY22-23}**	Some	
		By 2022, 50% of the communities identified to need source reduction assistance receive it. **[From MPCA's Strategic Plan.]**	Some	
Promote water storage	Currently no strategy on water storage	Consider developing a set of recommendations/principles designed to integrate all of the pieces such as soil health, living cover, conservation cropping systems, pursuing multiple benefits (peak flow, habitat, water quality), fairness, inclusion in 1W1P, and water storage.	Maybe	
		Increase storage/retention by providing property tax relief for sustaining wetlands, flowage easements and flood retention structures that also reduce nutrients.	No	
Promote soil health	**Currently no strategy**	**[Focus of discussion on 11/19/2021]**	Yes	
Reduce nitrogen runoff	Strategy 3.11 Fund technical assistance and local demonstration sites to assure that application of crop fertilizer uses the best available science.	Recommend that the fees on nitrogen fertilizer be increased to support the state's Nitrogen Fertilizer Management Plan, and to help prepare for the expiration of the Legacy Amendment in 2034.	No	

List of Potential Policy Ideas for the Clean Water Council to Discuss in 2017-2018
REV 6/20/17

Topic	Strategic Plan Reference	Concept	Possible CWF Funding Recommendation Idea?	Keep?
Promote more credit trading for cost-effective nutrient reduction	Strategy 3.7: Support cities to upgrade wastewater treatment facilities to address specific water quality goals by reducing the discharge of nutrients and other pollutants based on total maximum daily loads (TMDL) and regulatory requirements	Promote additional opportunities for point to non-point credit trading as outlined in the MPCA's new trading policy guidance document.	Maybe; CWF now provides some nominal support; MPCA published a trading manual in 2020-21	
Enhance shoreland protection	Strategy 3.12 Support in-lake treatment and restoration activities that only address water quality impairments and are supported by comprehensive plans, including 1W1P	Give local governments the backing and support to make variance decisions that protect lakes and rivers.	No	

List of Potential Policy Ideas for the Clean Water Council to Discuss in 2017-2018
REV 6/20/17

Topic	Strategic Plan Reference	Concept	Possible CWF Funding Recommendation Idea?	Keep?
		Provide funding to local governments to adopt effective shoreline development standards.	No	
		Provide a strong statement on the importance of vegetative riparian buffers in urban areas.	No	
		Recommend that the State act to strengthen how shoreland protections for public water resources are implemented at the local level.	No	
		Add a special set of criteria for variances in shoreland areas.	No	
Require stringent BMPs on priority acres subjected to certain land use conversion	Currently no strategy	Protect targeted lands from the worst impacts from land use conversion (e.g. require Best Management Practices if x number of acres is converted from forestland to potatoes).	Not sure	
Protect healthy waters	Strategy 3.3: Protect 100,000 priority acres and restore 100,000 priority acres in the Upper Mississippi River headwaters basin with a combination of public and private funding to ensure high quality water by 2034.	Focus CWF to maintain 70% forest cover in the upper Mississippi drainage area.	Yes	
		Expand the Scientific and Natural Area program to include lakes and rivers of biological significance.	No	
	Goal 3 objective: Prevent and reduce impairments in surface waters	Support greater data sharing on underground utilities. **[Adopted 2021]**	No	
Address Aquatic Invasive Species	Currently no strategy on AIS.	View AIS as biological pollutants.	No	
		Provide CWF support for carp removal to improve water quality in lakes.	Yes	
Support improved rangeland/grazing management	Currently no strategy on rangeland	Promote greater support of rangeland management (such as animal containment and watering stations) to reduce erosion and bacteria.	Maybe; EPA 319 grant goes to MPCA for Missouri River Basin for this purpose; MAWQCP also gives credit for this	
Reduce erosion on Highly Erodable Lands	Currently no strategy on HEL	Require conservation plans for Highly Erodible Land (HEL) consistent with USDA Field Office Technical Guide.	No	
Reduce Runoff from Urban Stormwater	Currently no strategy	Require mitigation of soil compaction resulting from residential home construction.	No	
	Goal 4: All Minnesotans value water and take actions to sustain and protect it			

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REV 6/20/17

Topic	Strategic Plan Reference	Concept	Possible CWF Funding Recommendation Idea?	Keep?

Sterner	**Vandal**	**Gribauval-Hite**	**Barten**
Promote water storage	Support manganese response	Reduce manure runoff	Reduce manure runoff
Reduce biofuels impact	Promote water reuse	Promote water storage	Reduce impacts of PFAS
Promote water reuse	Reduce impacts of PFAS	Minimize new chloride impairments	Promote water storage
Minimize new chloride impairments	Pharmaceutical source reduction	Require private well testing at time of sale	Protect healthy waters with emphasis on Upper Miss.
Reduce manure runoff	Promote water storage		Enhance shoreland protection
	Enhance shoreland protection		

Rajan	**Biske**	**Weinandt**	**Reinhardt**
Minimize new chloride impairments	Promote water storage	Promote water storage esp pond cleanout	Pharmaceutical source reduction
Reduce manure runoff	Protect healthy waters with emphasis on Upper Miss.	Pharmaceutical source reduction	Reduce impacts of PFAS
Reduce biofuels impact	Enhance shoreland protection	Enhance shoreland protection	Reduce manure runoff
Require private well testing at time of sale	Nitrogen	Require private well testing at time of sale	Manganese
Protect healthy waters with emphasis on Upper Miss.	Perennial cover		Truth in labeling on plastics

Schwagerl
Promote more perennial cover
Promote soil health
Promote water storage
Reduce manure runoff
Require private well testing at time of sale

Approved or Proposed Policy Statements for 2022 Council recommendations

Underground utilities
Support PFAS blueprint
Pharmaceutical source reduction

Water Storage	7
Manure	6
Shoreland protection	4
Private wells	4
Chloride	3
PFAS	3
Pharmaceuticals	3
Protect healthy waters	3
Biofuels	2
Reuse	2
Manganese	2
Perennial cover	2
Nitrogen	1
Plastics	1